Countryman, Ryan

From: tmailhot@frontier.com
Sent: Friday, September 11, 2015 4:08 PM
To: Countryman, Ryan
Cc: Tom McCormick
Subject: Comments on Transportation Analysis Methods and Assumptions for Point Wells project
Attachments: TM_15-0706_ Point Wells Transportation Analysis Methods and Assumptions - Annotated.pdf

Ryan - I've attached an annotated PDF copy of the original report from DEA with my comments.

Let me summarize the two most critical comments here as well.

1. The assumption is that background traffic will increase at all intersections at the rate of 0.25% annually. This ignores the Light Rail stations going into service in 2023 and that the area around the stations has been (at 185th St.) or will be (at 145th St.) rezoned to high density residential, and it ignores that up to 1000 new residential units and up to 500,000 sq. ft. of additional office/retail space is planned by 2030 in the Aurora Square Community Renewal Area between N. 160th Ave. and N. 155th Ave. immediately west of Aurora Ave. N. These are three known large developments in Shoreline that will have huge effects on traffic even if Point Wells is not developed. The Point Wells traffic study cannot ignore these when creating any of the planned scenarios. The City of Shoreline has Final EIS documents available for the 185th St. Light Rail station and the Aurora Square projects and a Draft EIS document for the 145th St. Light Rail station so traffic information about these projects is readily available.

2. We believe the study should also include a 1500 unit alternative in addition to the Urban Center (3081 unit) and Urban Village (2600 unit) alternatives. Shoreline's Comp Plan currently has either a 4000 or 8250 vehicle limit on the amount of traffic allowed on Richmond Beach Drive (depending on whether the 4000 limit passed in 2011 or the previous 8250 limit is the governing limit). Furthermore, Shoreline has determined that the peak PM capacity for Richmond Beach Drive in its current configuration is 600 northbound trips (540 trips at 0.90 V/C).
With the full 3081 unit development estimated to generate around 20,000 vehicle trips a day, a development well below the Urban Village level of 2600 units will be needed to meet both the Comp Plan and practical limits on Richmond Beach Drive.
Both Shoreline and Woodway have agreed to include a 1500 unit development in their joint study of annexation because they recognize a development of that size is more likely to be all that can be approved without breaking the limits in place on Richmond Beach Drive.

I'm still looking at some of the attachments so may have a few more comments once I'm done with that.

Please contact me if you have any questions or want to discuss any of the comments.

Thanks!
Tom Mailhot
President

DAVID EVANS
AND ASSOCIATES INC.

Technical Memorandum

The undersigned parties concur with approach, assumptions and methodologies set forth in the Technical Memorandum—Transportation Analysis Methods and Assumptions for the Point Wells Mixed-Use Development Project attached hereto.

Snohomish County PDS	Snohomish County DPW
_____	_____
Signature	Signature
_____	_____
Title	Title
_____	_____
Date	Date
BSRE Point Wells, LP	David Evans and Associates, Inc.
_____	_____
Signature	Signature
_____	_____
Title	Title
_____	_____
Date	Date

DATE: July 6, 2015

TO: Ryan Countryman
Snohomish County

FROM: Min Luo, PE, PTOE and Kirk Harris, PE, PMP
David Evans and Associates, Inc.

SUBJECT: Transportation Analysis Methods and Assumptions

PROJECT: Point Wells Mixed-Use Development Project

PROJECT NO.: PARA0000-0004

Cc: Gary Huff, Karr Tuttle Campbell

The purpose of this memorandum is to summarize the methods and assumptions used for the transportation analysis for the Point Wells Mixed-Use Development Project (Project). Minor changes to the methods and assumptions may be updated, if necessary, as the analysis progresses from the existing conditions into the travel forecasting phase of the work. Upon updates, the memorandum will be re-submitted for review and concurrence by Snohomish County.

The following attachments have been included as part of this memo for clarification of the methods and assumptions used in the transportation analysis:

- Attachment A – Study Intersections in Vicinity
- Attachment B – Study Intersections and Control Types
- Attachment C – Corridor Study General Scope and Assumptions from Memorandum of Understanding (MOU) between Shoreline and the Project Owner
- Attachment D – SYNCHRO Level of Service (LOS) Evaluation Assumptions for Signalized and Unsignalized Intersections
- Attachment E – aaSidra LOS Evaluation Assumptions for Roundabouts
- Attachment F – Primary Access Options and Mitigation Strategies Analyzed
- Attachment G – Traffic Analysis Scenarios Analyzed
- Attachment H – Building Heights, Dwelling Units, and Land Use Codes for Build Alternatives
- Attachment I – Urban Center Alternative Site Layout with Land Use Codes and Building Heights
- Attachment J – Urban Village Alternative Site Layout with Land Use Codes and Building Heights
- Attachment K – Urban Center Alternative – Trip Generation Calculations by Project Phase
- Attachment L – Urban Village Alternative – Trip Generation Calculations by Project Phase

- Attachment M – NCHRP 684 Trip Capture Estimation Tool – Blank Template
- Attachment N – NCHRP 684 Trip Capture Estimation Tool – Mode Split Adjustments
- Attachment O – NCHRP 684 Trip Capture Estimation Tool – Calculations for Traffic Analysis Scenarios
- Attachment P – Urban Center Alternative –Summary of Cumulative Trip Generation and Phase Trip Generation by Project Phase
- Attachment Q – Urban Village Alternative –Summary of Cumulative Trip Generation, and Phase Trip Generation by Project Phase
- Attachment R – No Build Alternative, Scenarios A and B – Trip Generation Calculations
- Attachment S – Project Owner's Commitment to Transit Amenities and Services
- Attachment T – Summary of Person-Trips by Transit

1.0 Study Area and Periods

The study area/boundary, or area of influence, is the area in and around the project site for which traffic analysis is required. The practical cordon line follows physical boundaries such as freeways, roadways, and geographical features. For the Project, the study area was created by identifying the most used routes traveling to and from the project site. The study area for the Project extends north to the city of Edmonds and 228th Street SW, east to I-5, and south to N 130th Street.

The traffic analysis study area focuses on a study corridor between the project site and Aurora Avenue N (SR 99) located along Richmond Beach Drive NW – NW 196th Street – NW 195th Street – NW Richmond Beach Road – N 185th Street as well as 64 intersections that are mostly within the jurisdictions of the cities of Shoreline, Edmonds, Woodway, and the Washington State Department of Transportation (WSDOT). The study intersections are documented in **Attachment A** and **Attachment B**.

The land use alternatives for the Project will include the Urban Center Alternative, the Urban Village Alternative, and the No Action Alternative (Scenarios A and B). The Urban Center Alternative and Urban Village Alternative of the Project will be analyzed as they are proposed to be constructed in four (4) phases. Phases I through IV are proposed to be completed in 2020, 2025, 2030, and 2035, respectively. The No Action Alternatives will be evaluated for the same time periods as the Build Alternatives with Scenario A as a continuation of existing conditions and Scenario B as a reuse of existing underutilized industrial facilities.

Intersection level of service (LOS) will be evaluated for 64 study intersections in the weekday AM and PM peak hours for the 2014 Existing condition, 2020 Phase I Build condition, 2025 Phase II Build condition, 2030 Phase III Build condition, 2035 Phase IV Build condition, and the No Action condition for Scenarios A and B for the same forecast years as the Build conditions.

The annual average daily traffic (AADT) and volume-to-capacity (V/C) ratio in the AM and PM peak hours for the 2014 Existing condition, 2020 Phase I Build condition, 2025 Phase II Build condition, 2030 Phase III Build condition, and 2035 Phase IV Build condition, and the No Action condition for Scenarios A and B for the same forecast years as the Build conditions, will be documented on the study corridor roadway segment between the project site and Aurora Avenue N (SR 99) located along Richmond Beach Dr. NW – NW 196th Street – NW 195th Street – NW Richmond Beach Road – N 185th Street.

2.0 Existing Conditions

The following describes how the existing transportation conditions will be documented and evaluated in the study areas.

2.1 Street System Inventory

The study corridor roadway segments and intersections will be inventoried and summarized. The inventories will be based on the data provided by the agencies, aerials maps, and site visits. The roadway system inventories will include roadway functional classifications, number of lanes, speed limits, roadway shoulders, pedestrian/bicycle facilities, transit service and facilities, rail services, intersection geometry, traffic control types, traffic counts, signal timing and phasing.

2.2 Collision Data Evaluation

Collision evaluation will focus only on the primary access corridor, which is between the project site and Aurora Avenue N (SR 99) located along Richmond Beach Dr. NW – NW 196th Street – NW 195th Street – NW Richmond Beach Road – N 185th Street.

The historical collision data for the collision evaluation for a five-year period, from January 2009 to December 2013, was obtained from the city of Shoreline, Washington. Collision data from the 2014 calendar year will be requested of Shoreline and used in lieu of the 2009 calendar year data if it is available and provided prior to the preparation of the transportation analysis. The collision data will be used to identify potential existing transportation safety issues on the primary access corridor and at the intersections along the corridor.

The collision data will be analyzed by years, types, and severity and the five most prevalent reasons for collisions will be identified. Intersection collision rates (collisions per million entering vehicles (MEV)) and roadway collision rates (collisions per million vehicle-miles of travel (MVM)) will be estimated. Collision within the primary access corridor will also be evaluated and ranked upon total number in addition to the frequency rate.

The intersection collision rates will be compared to a typical threshold of concern (1.0 collision per million entering vehicles (MEV)). The roadway collision rates will be compared to the collision rates for urban minor arterials within the Northwest Region in the State of Washington during the analysis period. The intersections and roadway segments with collision rates greater than the threshold of concern or other similar classified arterials will be identified for further review.

2.3 Traffic Volumes

The existing traffic volumes were obtained from intersection turning movement counts collected in both the AM and PM peak hours in 2011, 2013 and 2014. The 2011 and 2013 intersection turning movement counts will be scaled up to the 2014 condition using a straight-line growth rate of 0.25 percent per year.

The annual growth rate of 0.25 percent was provided by the city of Shoreline, Washington based on their recent traffic studies and was included in the Corridor Study General Scope and Assumptions as part of a Memorandum of Understanding (MOU) between Shoreline and the Project owner. See **Attachment C** for a copy of this MOU document for reference. Snohomish County is not bound to the MOU; however the corridor study is expected to provide information toward mitigation steps identified by the EIS.

The annual average daily traffic (AADT) data was reviewed for locations on SR 99 just north of N 170th Street and on SR 99 south of N 200th Street and zero to negative growth was experienced in the past four years; therefore, the annual growth rate of 0.25 percent provided by the city of Shoreline is a reasonable growth rate to be used for the fully developed area within the city of Shoreline limits, including the SR 99 corridor.

2.4 Traffic Operations

Although the SYNCHRO program (Versions 8 and 9) that applies the 2010 Highway Capacity Manual (HCM 2010) methodology is currently available, the SYNCHO program (Versions 8 and 9) has the following limitations in performing signalized intersections' LOS analysis using the HCM 2010 methodology:

- Intersections with more than four approaches cannot be evaluated.
- Non-NEMA or custom phasing is not supported.
- Clustered intersections cannot be evaluated.
- Turning movement with shared land exclusive lane group cannot be computed.
- U-turn movement cannot be analyzed.

In order to resolve the above limitations present in the SYNCHRO program (Versions 8 and 9), the SYNCHRO program (Version 7) that applies the HCM 2000 methodology will be used for intersection LOS evaluation for signalized intersections and stop-controlled intersection.

The peak hour factors and heavy vehicle percentages obtained from the intersection turning movement count data will be used for intersection LOS analysis.

For signalized intersections, existing signal timing and phasing were obtained from the SYNCHRO model and signal timings sheets provided by the city of Shoreline. LOS will be reported based on overall average control delay (in seconds) per vehicle.

In accordance with HCM 2000, LOS is defined for the overall intersection and will be reported based on the weighted average control delay of all approaches for all-way stop-controlled intersections. For two-way stop-controlled intersections, LOS is not defined for the overall intersection and will be reported based on the worst approach delay of the side streets.

The detailed SYNCHRO intersection LOS evaluation assumptions are shown in **Attachment D**. Similarly, roundabout LOS evaluation assumptions are shown in **Attachment E**.

Intersection LOS and V/C will be checked against each jurisdiction's minimum acceptable standards described as follows:

- **City of Shoreline**: per Shoreline Municipal Code 20.60.140:
  - LOS D for signalized intersections on arterial streets and for unsignalized intersections on arterials; the V/C ratio on one leg of an intersection may exceed 0.90 when the intersection operates at LOS D or better; or
  - A V/C ratio of 0.90 or lower for roadway segments on principal and minor arterials.
- **City of Edmonds**:
  - LOS D for intersections on arterials, LOS C for intersections on collectors, and LOS B for intersections on local streets.

- **City of Woodway**:
  - LOS A for all intersections within the city limits, which include Timber Lane and SW 238th Street, 114th Avenue W and SW 238th Street, and Woodway Park Road and Algonquin Road
- **WSDOT**:
  - LOS D for intersections on SR 104 and LOS E for intersections on SR 99 based on the guidance from the Aurora Corridor Improvement Project within Shoreline (City of Shoreline, 2009).

In addition to the adopted standards for each jurisdiction, the MOU between the Project owner and the City of Shoreline, which is included in **Attachment C** will also be checked.

2.5 Pedestrian and Bicycle Facilities

Based upon available mapping, GIS data, existing plans, and field review, existing pedestrian and bicycle facilities within the vicinity of the study area will be documented. This will include existing and planned facilities within the study area.

2.6 Transit and Rail Services

Information on existing transit services and facilities in the vicinity of the study area, including bus routes (location, service frequency, and times of day) and rail service (Sounder service in Edmonds) will be summarized. Park and ride facilities will be documented in the vicinity of the site, as well as high occupancy vehicle lanes or transit signal priority. The inventory of transit services and facilities will be primarily based on information from Metro, Sound Transit, Community Transit, and other agencies, as applicable.

Adopted long-range plans of transit agencies for capital and operational improvements within the Project vicinity will be summarized as part of an inventory of existing transit and rail services.

3.0 Build Condition for Urban Center Alternative and Urban Village Alternative

3.1 Street System with Proposed Improvement Options

The street system in the Build Condition will include the street system in the No Action condition, plus multiple mitigation strategies on the study corridor between the project site and Aurora Avenue N (SR 99) located along Richmond Beach Dr. NW – NW 196th Street – NW 195th Street – NW Richmond Beach Road – N 185th Street. The mitigation strategies may include single or a combination of improvements such as re-striping/re-channelization, intersection improvements and/or control types changed, roadway widening, neighborhood street traffic calming, and an addition of a secondary site access. **Attachment F** includes a list of mitigation strategies for the primary access corridor to the Project site that will be analyzed for the project.

These improvement options will be evaluated for each land use phase in 2020, 2025, 2030, and 2035 in both the AM and PM peak hours for both the Urban Center Alternative and the Urban Village Alternative. **Attachment G** includes the list of Traffic Analysis Scenarios associated with the Build and No Build Alternatives to be analyzed for the Project.

3.2 Land Use Alternatives and Construction Phasing

3.2.1 Urban Center Alternative Land Use /Phasing

Alternative 1 – Urban Center Alternative: The site would be redeveloped as a mixed-use urban center, consistent with the Urban Center land use designation/zoning classification of the site at the time complete applications were submitted to the County in 2011. Development would include 3,081 residential units, approximately 32,262 square feet (SF) of commercial/office uses, approximately 94,300 SF of retail uses, on-site amenities, and parks and open space.

The Urban Center Alternative of the Point Wells project will be constructed in four (4) phases. Phases I through IV will be completed in 2020, 2025, 2030, and 2035, respectively. The total cumulative project land uses by the end of Phase IV for the Urban Center Alternative are:

- 3,081 residential units
  - 307 High-Rise Apartments
  - 1,560 High-Rise Condominiums
  - 114 Townhouses
  - 1,100 Senior Condominiums
- 32,262 square feet of office area
  - 24,762 square feet of General Office
  - 7,500 square feet of Medical-Dental Office
- 74,300 square feet of retail area
  - 30,000 square feet of Specialty Retail
  - 26,300 square feet of Supermarket
  - 18,000 square feet of Quality Restaurants
- 20,000 square feet of On-Site amenities
  - 20,000 square feet of Fitness Center

The land use for each phase and cumulative total by phase is shown in **Table 1**. Land use codes (LUC) for residential uses within the four phases will be applied to buildings identified in the project site layout. **Attachment H** is a list of the residential buildings proposed for the Project that also includes the number of stories, dwelling units, corresponding residential LUC, and other associated information. **Attachment I** is a site layout of the Urban Center Alternative for the Project which illustrates the location of each the proposed residential buildings, their number of stories, and their associated residential LUC.

Averaged heights of similar-sized and adjacent buildings within one of the four development phases may be used to designate a group of residential dwelling units within a High Rise category. Senior Adult Housing dwelling units may be included in high, mid, or low rise buildings as identified in the project site layout.

Table 1: Land Use by Project Phase for Urban Center Alternative

Land Use Types	Land Use Code (LUC)	Units	Subtotal in Phase				Cumulative Total by Phase			
			I	II	III	IV	I	I-II	I-III	I-IV
Residential		**DU**	**653**	**254**	**1,271**	**903**	**653**	**907**	**2,178**	**3,081**
High-Rise Apartment	222	DU	53	254	-	-	53	307	307	307
High-Rise Residential Condominium/Townhouse	232	DU	433	-	763	364	433	433	1,196	1,560
Residential Condominium/Townhouse	230	DU	114	-	-	-	114	114	114	114
Senior Adult Housing – Attached (Condo)	252	DU	53	-	508	539	53	53	561	1,100
Commercial Office		**KSF**	**-**	**32.262**	**-**	**-**	**-**	**32.262**	**32.262**	**32.262**
General Office	710	KSF	-	24.762	-	-	-	24.762	24.762	24.762
Medical-Dental Office Building	720	KSF	-	7.5	-	-	-	7.5	7.5	7.5
Retail		**KSF**	**24.0**	**26.3**	**24.0**	**-**	**24.0**	**50.3**	**74.3**	**74.3**
Specialty Retail Center	826	KSF	16.0	-	14.0	-	16.0	16.0	30.0	30.0
Supermarket	850	KSF	-	26.3		-	-	26.3	26.3	26.3
Quality Restaurant(s)	931	KSF	8.0	-	10.0	-	8.0	8.0	18.0	18.0
On-Site Amenities		**KSF**	**-**	**20.0**	**-**	**-**	**-**	**20.0**	**20.0**	**20.0**
Health/Fitness Club*	492	KSF	-	20.0	-	-	-	20.0	20.0	20.0

*Health/Fitness Club will provide services to residents only; therefore no trip generation is expected.

3.2.2 Urban Village Alternative Land Use /Phasing

Alternative 2 – Urban Village Alternative: The site would be redeveloped as a mixed-use urban village, consistent with the current Urban Village land use designation of the site. The urban village development would include the same site plan as Urban Center Alternative. However, several buildings would shorter in height in the Urban Village Alternative than in the Urban Center Alternative. Approximately 2,600 residential units would be provided under the Urban Village Alternative. The same amounts of commercial/office uses (32,262 SF), retail uses and on-site amenities (94,300 SF), and parks and open space for the Urban Center Alternative is assumed for the Urban Village Alternative.

The development will be constructed in four phases in 2020, 2025, 2030, and 2035, respectively. The total cumulative project land uses by the end of Phase IV for the Urban Village Alternative are:

- 2,600 residential units
  - 260 High-Rise Apartments
  - 965 High-Rise Condominiums
  - 397 Townhouses
  - 978 Senior Condominiums
- 32,262 square feet of office area
  - 24,762 square feet of General Office
  - 7,500 square feet of Medical-Dental Office
- 74,300 square feet of retail area
  - 30,000 square feet of Specialty Retail
  - 26,300 square feet of Supermarket
  - 18,000 square feet of Quality Restaurants
- 20,000 square feet of On-Site amenities
  - 20,000 square feet of Fitness Center

The land use for each phase and cumulative total by phase is shown in **Table 2**. Land use codes for residential uses within the four phases will be applied to buildings identified in the project site layout. **Attachment H** is a list of the residential buildings proposed for the Project that also includes the number of stories, dwelling units, corresponding residential LUC, and other associated information. **Attachment J** is a site layout of the Urban Village Alternative for the Project which illustrates the location of each the proposed residential buildings, their number of stories, and their associated residential LUC.

Averaged heights of similar-sized and adjacent buildings may be used to designate a group of residential dwelling units within a High Rise category. Senior Adult Housing dwelling units may be included in high, mid, or low rise buildings as identified in the project site layout.

Health/Fitness Club will provide services to residents only; therefore no trip generation is expected. It is anticipated that the Health/Fitness Club is similar to other multi-family complex amenities and thus employees associated with the facility are already part of the ITE trip generation calculation for that multi-family residential facility. In addition, there is a possibility that development of the Health/Fitness Club will be distributed equally among the four stages of development and four separate areas at the site, rather than it all within Phase 2 of the Project.

Table 2: Land Use by Project Phase for Urban Village Alternative

Land Use Types	Land Use Code (LUC)	Units	Subtotal in Phase				Cumulative Total by Phase			
			I	II	III	IV	I	I-II	I-III	I-IV
Residential		**DU**	**575**	**242**	**1,128**	**655**	**575**	**817**	**1,945**	**2,600**
High-Rise Apartment	222	DU	-	242	18	-	-	242	260	260
High-Rise Residential Condominium/Townhouse	232	DU	253	-	566	146	253	253	819	965
Residential Condominium/Townhouse	230	DU	322	-	75	-	322	322	397	397
Senior Adult Housing – Attached (Condo)	252	DU	-	-	469	509	-	-	469	978
Commercial Office		**KSF**	**-**	**32.262**	**-**	**-**	**-**	**32.262**	**32.262**	**32.262**
General Office	710	KSF	-	24.762	-	-	-	24.762	24.762	24.762
Medical-Dental Office Building	720	KSF	-	7.5	-	-	-	7.5	7.5	7.5
Retail		**KSF**	**24.0**	**26.3**	**24.0**	**-**	**24.0**	**50.3**	**74.3**	**74.3**
Specialty Retail Center	826	KSF	16.0	-	14.0	-	16.0	16.0	30.0	30.0
Supermarket	850	KSF	-	26.3	-	-	-	26.3	26.3	26.3
Quality Restaurant(s)	931	KSF	8.0	-	10.0	-	8.0	8.0	18.0	18.0
On-Site Amenities		**KSF**	**-**	**20.0**	**-**	**-**	**-**	**20.0**	**20.0**	**20.0**
Health/Fitness Club*	492	KSF	-	20.0	-	-	-	20.0	20.0	20.0

*Health/Fitness Club will provide services to residents only; therefore no trip generation is expected.

3.3 Trip Generation/Internal Capture for Urban Center and Urban Village Alternatives

Gross trip generation will be estimated for each phase for both the Urban Center and Urban Village Alternatives of the Project for the AM and PM peak hours and on a daily basis using the applicable trip rates or regression equations presented in the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (9th edition, 2012) based on the ITE recommended guidelines and procedures. Calculations of the gross trip generation for the Urban Center and Urban Village Alternatives are included in **Attachment K** and **Attachment L**, respectively.

Gross trip generation will be adjusted to account for internalization for each land use alternative in each construction phase for the AM and PM peak hours. Pass-by trip and diverted-linked trip adjustments will not be calculated for off-site roadways because the project site is at the end of the study corridor and bordered to the west by the Puget Sound.

The internalization adjustments for the AM and PM peak hours will be calculated following the National Cooperative Highway Research Program Report 684 (NCHRP 684) *Trip Capture Estimation Tool* and ITE recommended procedures described in the latest *ITE Trip Generation Handbook –An ITE Proposed Recommended Practice* (3rd Edition, August 2014). The *NCHRP 684 Trip Capture Estimation Tool* estimates AM and PM peak-periods trips to and from six specific land use categories, including office, retail, restaurant, residential, cinema/entertainment, and hotel. An blank copy of the worksheet tool is included as **Attachment M**.

Mode split adjustments are included in the *NCHRP 684 Trip Capture Estimation Tool* for internalized trip capture. The mode split percentage for most land uses will refer to *Appendix C. Person Trip Data for Baseline Sites* in the latest *ITE Trip Generation Handbook –An ITE Proposed Recommended Practice* (3rd Edition, August 2014). The mode split and vehicle occupancy estimates for applicable land uses used in NCHRP 684 Internal Trip Capture Estimation Tool for the AM and PM peak hours for both Urban Center Alternative and Urban Village Alternative in each construction phase are shown in **Attachment N**.

Internal capture calculations using the worksheet tool and the mode split adjustments for each of the Traffic Analysis Scenarios associated with the Build Alternatives (as illustrated in **Attachment G**) are included in **Attachment O**.

The level of transit use assumed for the internal capture rate calculations, correlates to the level of transit amenities and operations that the Project owner is committed to providing to the Project. It is expected that as the Project develops and is completed that the the Project owner will coordinate with public transit agencies to have permanent solution through an interlocal agreement. The commitment by the Project owner to this approach to transit is outlined in **Attachment S.** The forecasted number of person-trips by transit exiting the site during the AM peak hour and entering the site during the PM peak hour is summarized in **Attachment T.**

Table 3 illustrates the transit mode share assumption for the Urban Center Alternative and Urban Village Alternative in the AM and PM peak hour for each construction phase.

Table 3: Transit Mode Share in the AM Outbound and PM Inbound Directions

Alternative	% Transit for Residential Land Use in Point Wells Project			
	Phase I in 2020	Phase II in 2025	Phase III in 2030	Phase IV in 2035
Urban Center Alternative 1	7%	12%	17%	22%
Urban Village Alternative 2	7%	11%	15%	19%

The *NCHRP 684 Trip Capture Estimation Tool* for internalized trip capture also takes into consideration of average land use interchange distance (working distance in feet) for the PM peak hour. The working distance between each land use pair will be measured based on the site plan, then used the weighted average distances based on the land use sizes.

The daily external vehicle-trips will instead be estimated using the PM peak hour external trips and a K-factor of 0.107, which will refer to the Highway Capacity Manual 2010 (HCM 2010) for urban arterials with similar annual average daily traffic (AADT) range between 20,000 and 50,000 as on the study corridor between the project site and Aurora Avenue N (SR 99) located along Richmond Beach Drive NW – NW 196th Street – NW 195th Street – NW Richmond Beach Road – N 185th Street.

The daily trip internalization will not be calculated using the same methods as for the AM and PM peak hours because daily internal capture rates are not available in the *NCHRP 684 Trip Capture Estimation Tool* and the latest *ITE Trip Generation Handbook –An ITE Proposed Recommended Practice* (3rd Edition, August 2014).

The net trips generated by the project after consideration of internal trip capture for the Urban Center and Urban Village Alternatives are included in **Attachment P** and **Attachment Q**, respectively.

The AM and PM peak hour external trips will be distributed into the study area via the travel demand model developed for the Project.

3.4 Trip Distribution and Assignment in Build Condition

A Point Wells project-specific computer-based travel demand model in the PM peak hour was originally developed in 2010 using the VISUM program (Version 11) and was updated in August 2014 using the VISUM program (Version 14). The VISUM program, a Windows-based multimodal transportation modeling program, was used to help understand the existing traffic flow patterns, distribute the Point Wells project site trips throughout the project study area, which includes areas in both Snohomish and King Counties.

The Point Wells travel demand model development process includes roadway network-building, four-step modeling procedures, base model validation, and future traffic forecasting.

The roadway network building involves the laying out of roadways, intersections, and zone structure and zone connectors. The roadway network, including city and county boundaries, was built by incorporation of NAVTEQ data, which provided all freeways, principal arterials, minor arterials, collectors, and local

streets in Snohomish and King Counties. Link capacity, speed, and number of lanes are most relevant for roadway coding. Intersection control type, configuration, and capacity are most critical for intersection coding. The zone structure was based on the adopted PSRC Traffic Analysis Zones (TAZ), to cover all of Snohomish and King Counties, and the zone connectors were manually added into the Point Wells model. The Point Wells project site is represented by TAZ 1001, TAZ 1002, TAZ 1003, and TAZ 1004.

Four-step modeling typically includes trip generation, trip distribution, mode choice, and traffic assignment. The Point Wells model focuses on trip generation, trip distribution, and traffic assignment. Trip generation was only applied for the project development but was not applied for the background traffic modeling. Instead, to be consistent with the PSRC traffic growth forecasting on the roadway network, the background traffic was modeled and interpolated using the PSRC vehicle trip tables for periods between 2006 and 2040 to arrive at the existing 2010 conditions and the future Build scenarios in each development phase. The project-generated trips were consistent with the trips estimated using ITE trip generation methodology. Project trip internalization will be based on the ITE recommended procedures and the NCHRP 684 *Trip Capture Estimation Tool* recently adopted by ITE and described in the latest *ITE Trip Generation Handbook –An ITE Proposed Recommended Practice* (3rd Edition, August 2014). The final trip distribution and traffic assignment procedures combine the project-generated trip table and the background growth trip table to distribute trips to each TAZ and assign trips on the roadway network for the Build scenarios. The total regional background trip table obtained from PSRC was used for modeling the trip distribution and traffic assignment only.

Base model validation is a process of comparing the calibrated model's raw volumes against the base-year traffic counts to show the degree of correlation and to determine an acceptable accuracy and degree of confidence to use the base model to forecast future traffic volumes. The most common statistical measure of "goodness of fit" is the R-Squared statistic. This measures how well the model's raw volumes represent the observed count data. The base model validation for the Point Wells 2010 model (the R^2 value) was 0.75, and engineering judgment has concluded that the traffic flow patterns are acceptable. The VISUM model will be used as a tool for site trip distribution and traffic assignment because the model raw volumes were not intended to be used for intersection LOS and delay analysis. Instead, the intersection analysis was specially based on the actual traffic counts plus the background traffic growth plus the project-generated trips; therefore the R^2 value is not as critical in Point Wells model as in other typical travel demand models.

The future traffic forecasting model in the AM and PM peak hours will be built upon the acceptable 2010 base model in the PM peak hour by updating the land use and future improvement projects/options, and serves exclusively for the Point Wells project trip distribution. Some link speed, capacity, and/or intersection capacity were later adjusted based upon input received from the City of Shoreline staff to represent the City of Shoreline's assumed and desired site trip distribution flow patterns. A special matrix was introduced to capture the traffic stopping at the light-rail stations near the I-5 and 185th street interchange and near the I-5 and 145th Street interchange for the Phase IV full build out scenario. The matrix manually shifts approximately 3 percent of the project site trips that have the origin and destination between the project site and the job center in Seattle to have an intermediate stop at the assumed light rail station near the I-5 and 185th street interchange and near the I-5 and 145th Street interchange, but the total origin and destination trips in the special matrix do not increase. The final project site trip distribution patterns for Phase IV of the Urban Center land use alternative were indicated during coordination meetings as being acceptable to the City of Shoreline.

The VISUM model's raw volumes will not be used for the intersection LOS analysis; instead, the background traffic grew from the counts using the straight-line annual growth rate of 0.25 percent plus the Point Wells project site trips (i.e. derived from the VISUM model) will be used to conduct intersection LOS analysis.

The City of Shoreline's EMME2 model was not used for traffic forecasting as outlined in the MOU because the City's EMME2 model does not have the level of detail for many local streets and neighborhood streets that are needed to address cut-through traffic as identified in the MOU and as expressed by Shoreline staff and residents.

3.5 Traffic Volumes in Build Condition

Traffic volumes in the Build condition for each phase of each land use alternative will be obtained by adding the background traffic and the Point Wells project site trips. The Point Wells project site trips will be modeled using the VISUM program that is described in the preceding section.

3.6 Traffic Operations in Build Condition

Intersection LOS evaluation will be conducted using the HCM 2000 methods and SYNCHRO program (Version 7) and aaSidra program (Version 5) for both the Urban Center and Urban Village Alternatives.

The mitigation improvements will be incorporated into the SYNCHRO model and the roundabout model for LOS analysis.

Traffic Volumes will be obtained by combining the background traffic, plus the Point Wells project site trips in each phase for each improvement option under each land use Alternative.

Signal Timing and Phasing –Signal split and cycle lengths for future build condition will be optimized using the SYNCHRO program. The minimum green, yellow clearance, red clearance, recalls mode will be kept the same as the existing. Pedestrian walk time and flash don't walk time will be kept unchanged from the existing even after lane conversion on Richmond Beach Road corridor because curb to curb width was unchanged, but if the road way segment is widened, walk time will be 7 seconds, and flash don't walk will be estimated based on walking speed of 3.5 feet per second. For new signalized intersections, signal timing and phasing will be referred to similar signals and will be optimized using the SYNCHRO program.

Peak hour factor and heavy vehicle percentage will be obtained from the default values in HCM 2000, which are the same default values as found in NCHRP 599. The existing bicycle and pedestrian counts will be grown based on 0.25 percent per year in the future condition.

The detailed SYNCHRO intersection and roundabout LOS evaluation assumptions are shown in **Attachment D** and **Attachment E**, respectively.

Intersection LOS will be calculated for all study intersections for both the Urban Center and Urban Village Alternatives. Project impacts will be identified by comparing intersection delay between the No Action Alternative and Build Condition scenarios.

Roadway segment V/C ratio will be examined and checked against the city of Shoreline roadway segment V/C standard.

3.7 Traffic Safety in Build Condition

High collision locations identified from the historical collision data will be reviewed in each of the build land use alternative and potential safety impacts will be identified due to increasing traffic, control types changed, improvements added, roadways/intersections configuration changed, and any other issues.

3.8 Pedestrian and Bicycle Facilities in Build Condition

Potential project impacts on pedestrian and bicycle facilities will be summarized. The efforts will be focused on the study corridor.

3.9 Transit and Rail Services in Build Condition

Potential project impacts on transit and rail services will be summarized. Consideration will be given on the ability of adding more transit services/rail services to the project study area.

4.0 No Action Condition

4.1 No Action Street System

The street system for No Action condition will be the same as the existing condition, plus the proposed improvement projects that are fully funded and committed to be constructed by 2035.

4.2 No Action Traffic Volumes

No Action traffic volumes will include the background traffic that will be estimated based on the traffic counts, a straight-line annual growth rate of 0.25 percent for the intersections, and the site traffic generated from the existing industrial use for the forecast years of 2020, 2025, 2030, and 2035. As noted in Section 2.3, Traffic Volumes, background growth rate was based upon input from the City of Shoreline and a review of traffic data and traffic projections used in the analysis for the design of the SR 99 corridor within the Project vicinity. The annual average daily traffic (AADT) data was reviewed for locations on SR 99 just north of N 170th Street and on SR 99 south of N 200th Street and zero to negative growth was experienced in the past four years; therefore, the annual growth rate of 0.25 percent provided by the city of Shoreline is a reasonable growth rate to be used for the fully developed area within the city of Shoreline limits, including the SR 99 corridor. Calculations of the gross trip generation for the two scenarios for the No Build Alternative is included in **Attachment R**.

4.3 No Action Traffic Operations

Similar methods and assumptions used for LOS evaluation in the existing condition will be used for the No Action conditions for the forecast years of 2020, 2025, 2030, and 2035. Signal timings and phasing for signalized intersections will be optimized using the SYNCHRO program.

The detailed SYNCHRO intersection LOS evaluation assumptions are shown in **Attachment E**.

MXLU:

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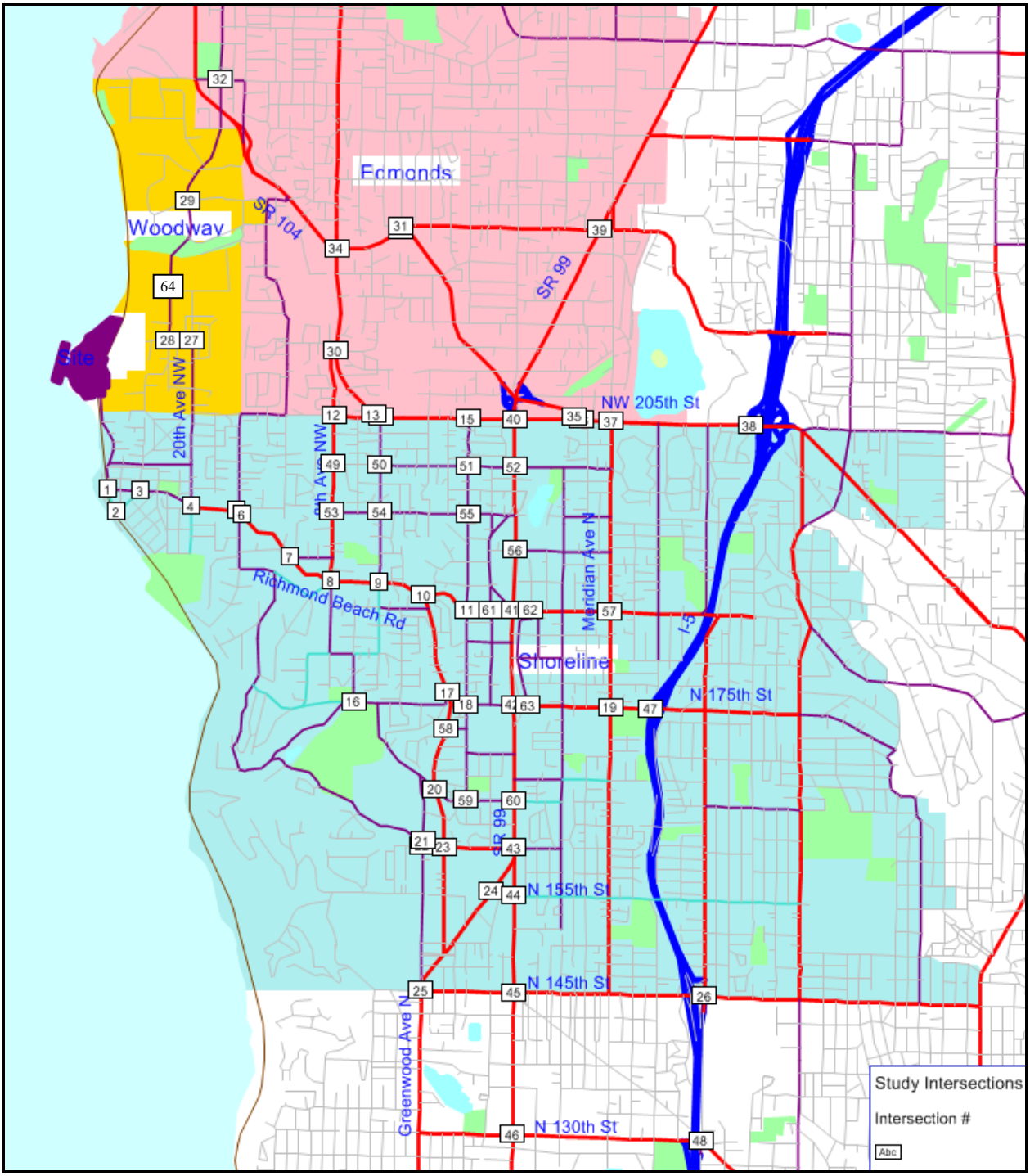
Attachment A – Study Intersections in Vicinity



Attachment B – Study Intersections and Control Types

No.	Intersection	Control Type	Jurisdiction
1	Richmond Beach Drive NW & NE 196th Street	Two-way stop	Shoreline
2	Richmond Beach Drive NW & NW 195th Place	Two-way stop	Shoreline
3	24th Avenue NW & NW 196th Street	Two-way stop	Shoreline
4	20th Avenue NW & NW 195th Street	All-way stop	Shoreline
5	NW 195th Street & 15th Avenue NW	Two-way stop	Shoreline
6	15th Avenue NW & NW Richmond Beach Road	All-way stop	Shoreline
7	NW Richmond Beach Road & NW 190th Street	Two-way stop	Shoreline
8	8th Avenue NW & NW Richmond Beach Road	Signalized	Shoreline
9	3rd Avenue NW & NW Richmond Beach Road	Signalized	Shoreline
10	Dayton Avenue N & NW Richmond Beach Road	Signalized	Shoreline
11	Fremont Avenue N & N 185th Street	Signalized	Shoreline
12	100th Avenue W & 244th Street SW	Two-way stop	Shoreline
13	Firdale Avenue & 244th Street SW	Two-way stop	Shoreline
14	3rd Avenue NW & 244th Street SW	Two-way stop	Shoreline
15	Fremont Avenue N & 244th Street SW	Two-way stop	Shoreline
16	6th Avenue NW & NW 175th Street	Two-way stop	Shoreline
17	Dayton Avenue N & St Luke Place N	Two-way stop	Shoreline
18	Fremont Avenue N & N 175th Street	Signalized	Shoreline
19	Meridian Avenue N & N 175th Street	Signalized	Shoreline
20	Dayton Avenue N & Carlyle Hall Road N	Two-way stop	Shoreline
21	Greenwood Avenue N & N Innis Arden Way	Two-way stop	Shoreline
22	Greenwood Avenue N & N 160th Street	All-way stop	Shoreline
23	Dayton Avenue N & N 160th Street	Signalized	Shoreline
24	Westminster Way N & N 155th Street	Signalized	Shoreline
25	Greenwood Avenue N & SR 523 (N 145th Street)	Signalized	Shoreline
26	5th Avenue NE & SR 523 (N 145th Street)	Signalized	Shoreline
27	Timber Lane & 238th Street SW	All-way stop	Woodway
28	114th Avenue W & 238th Street SW	All-way stop	Woodway
29	Woodway Park Road & Algonquin Road	Two-way stop	Woodway
30	Firdale Avenue & 238th Street SW	Signalized	Edmonds
31	95th Place W & 228th Street SW	Two-way stop	Edmonds
32	3rd Avenue S & Pine Street	Two-way stop	Edmonds
33	95th Place W & SR 104 (Edmonds Way)	Signalized	WSDOT
34	100th Avenue W & SR 104 (Edmonds Way)	Signalized	WSDOT
35	SB SR 104 (Edmonds Way) & WB 244th Street SW	Signalized	WSDOT
36	SB SR 104 (Edmonds Way) & EB 244th Street SW	Signalized	WSDOT
37	76th Avenue W & SR 104 (Lake Ballinger Way)	Signalized	WSDOT
38	SB I-5 Ramps & SR 104 (Lake Ballinger Way)	Signalized	WSDOT
39	SR 99 & 228th Street SW	Two-way stop	WSDOT
40	SR 99 & 244th Street SW	Signalized	WSDOT
41	SR 99 & N 185th Street	Signalized	WSDOT
42	SR 99 & N 175th Street	Signalized	WSDOT
43	SR 99 & N 160th Street	Signalized	WSDOT
44	SR 99 & N 155th Street	Signalized	WSDOT
45	SR 99 & SR 523 (N 145th Street)	Signalized	WSDOT
46	SR 99 & N 130th Street	Signalized	WSDOT
47	SB I-5 Ramps & N 175th Street	Signalized	WSDOT

No.	Intersection	Control Type	Jurisdiction
48	5th Avenue NE & NE 130th Street	Signalized	Others
49	8th Ave NW & NW 200th Street	Two-way stop	Shoreline
50	3rd Ave NW & NW 200th Street	Two-way stop	Shoreline
51	Fremont Ave N & N 200th Street	All-way stop	Shoreline
52	SR 99 & N 200th Street	Signalized	Shoreline
53	8th Ave NW & NW 195th Street	Two-way stop	Shoreline
54	3rd Ave NW & NW 195th Street	All-way stop	Shoreline
55	Fremont Ave N & N 195th Street	All-way stop	Shoreline
56	SR 99 & N 192nd Street	Signalized	Shoreline
57	Meridian Ave N & N 185th Street	Signalized	Shoreline
58	Dayton Ave N & N 172nd Street	Two-way stop	Shoreline
59	Fremont Ave N & N 165th Street	Two-way stop	Shoreline
60	SR 99 & N 165th Street	Signalized	Shoreline
61	Linden Ave N & N 185th Street	Signalized	Shoreline
62	Midvale Ave N & N 185th Street	Signalized	Shoreline
63	Midvale Ave N & N 175th Street	Signalized	Shoreline
64	Woodway Park Road and Wachusett Road	Side street stop	Woodway

Attachment C – Corridor Study General Scope and Assumptions from Memorandum of Understanding (MOU) between Shoreline and the Project Owner

MEMORANDUM OF UNDERSTANDING
REGARDING RICHMOND BEACH CORRIDOR STUDY
BY AND BETWEEN THE CITY OF SHORELINE
AND BSRE POINT WELLS, LP

THIS MEMORANDUM OF UNDERSTANDING ("MOU") is made and entered into this 1 day of April, 2013, by and between the City of Shoreline, a noncharter, optional code Washington municipal corporation, hereinafter the "City," and BSRE Point Wells, LP ("BSRE"), a limited partnership organized under the laws of the State of Delaware.

RECITALS:

WHEREAS, BSRE owns development property of approximately 61 acres ("Point Wells") located in Snohomish County and within the City of Shoreline's future service area and adopted Point Wells Subarea Plan, which provides in part: "The Vision for Point Wells is an environmentally sustainable mixed-use community that is a model of environmental restoration, low-impact and climate-friendly sustainable development practices, and which provides extensive public access to the Puget Sound with a variety of trails, parks, public and semi-public spaces;" and

WHEREAS, BSRE has submitted permit applications to Snohomish County for urban center development and related approvals for Point Wells to construct a phased project of mixed use development under Snohomish County regulations (the "Project"); and

WHEREAS, the only road serving Point Wells is Richmond Beach Drive and connecting arterials located in Shoreline, which in its current configuration and without mitigation is likely inadequate to accommodate the anticipated number of trips from the proposed Point Wells Project; and

WHEREAS, the City has issued a Letter of Intent regarding the Point Wells Urban Center permits currently pending before Snohomish County outlining guiding principles for a negotiated agreement for municipal services to Point Wells to avoid the cost, uncertainty, and risk inherent in litigating Point Wells permit approvals including the vested status of pending permit applications; and

WHEREAS, the parties wish to enter into this Memorandum of Understanding Regarding Richmond Beach Corridor Study to (i) establish a mechanism for the citizens of Shoreline to participate in a public process regarding the analysis of transportation issues and acceptable mitigation alternatives associated with the proposed development; and (ii) establish the terms and methodology by which the transportation impacts of a development at Point Wells would be analyzed, mitigated and eventually incorporated into Snohomish County's environmental analysis for BSRE's development applications;

NOW THEREFORE, the parties, in consideration of the matters described above and the mutual benefits set forth in this Agreement, the parties memorialize this expression of their mutual intent as follows:

Section 1. The Project.

The Project is the anticipated development by BSRE of Point Wells, consisting of approximately 61 acres located in unincorporated Snohomish County immediately north of the City of Shoreline. The Project site is legally described in Exhibit A, attached hereto and incorporated herein by this reference. It is agreed among the parties that the Project is a private development and that the City has no interest therein except as authorized in the exercise of its governmental functions. The Project is more particularly described in the development applications submitted by BSRE to Snohomish County which are hereby incorporated herein by this reference. The parties agree, for the purposes of this study, that net new trips on Segment A generated from the proposed development at Point Wells shall be assumed not to exceed 11,587 average daily trips ("ADT") at the Project access point into Shoreline. This assumption will serve as the basis for the Corridor Study.

The parties have discussed coordination of the Corridor Study with the Snohomish County SEPA review on pending Project applications and understand that the County will incorporate the results of the study in its project environmental impact statement but results of its comments and analysis make it impossible for Snohomish County to commit to adopting the mitigation projects recommended in the Corridor Study in advance of their SEPA review. The parties agree to proceed with the Corridor Study, coordinate the Study with the Snohomish County environmental review and make the reconciliation of mitigation projects, if necessary, as detailed in Section 3B. The workshop meetings schedule in Exhibit B-2 shall be set by mutual agreement as soon as practicable following the Snohomish County EIS scoping process.

Section 2. Public Participation Process.

A. In order to involve the residents most affected by BSRE's proposal in decisions regarding the selection among final road design options, the City shall sponsor and conduct a public participation planning and consultation process (the "Corridor Study") as more particularly described in Exhibit B attached hereto. BSRE shall provide technical and traffic engineering support as further identified in Exhibit B.

B. The traffic modeling to be used in assessing the impacts of the Project, both in the Corridor Study and in future traffic analyses, shall incorporate and be based upon the assumptions and standards set forth in Exhibits B and B-1 hereto.

Section 3. SEPA Actions.

A. The parties intend that the traffic analyses, mitigation projects and supporting studies and documentation shall be conducted in a manner acceptable to Snohomish County and

shall, upon completion, be submitted to the County to assist in the preparation of the project Environmental Impact Statement. The parties further contemplate that the Corridor Study and supporting studies and analysis shall undergo peer review by an independent traffic consultant affiliated with the project SEPA consultant.

B. The City agrees not to oppose any non-construction traffic-related elements of Snohomish County's SEPA process, its permits review or required traffic-related mitigation so long as (i) BSRE complies with the terms of this MOU; and (ii) the results of the Corridor Study are adopted and incorporated by Snohomish County into its permit review and analyses and in any conditions to its permit and development agreement approvals, or, if not, BSRE nonetheless enters into a binding agreement with Shoreline to construct, or have constructed, the agreed traffic mitigation projects.

If the traffic mitigation conditions imposed by Snohomish County preclude construction or duplicates the intended benefits of a mitigation project agreed to by the parties, the parties agree to make reasonable amendments to their mitigation project agreement if the amendment results in equal or greater reduction of impacts indentified in the Corridor Study.

C. The City agrees to submit amendments to its Point Wells Subarea and other Elements of the Shoreline Comprehensive Plan which will allow road capacities associated with mitigation measures in the corridor, consistent with recommendations of the Corridor Study, for consideration in the 2013 Shoreline Comprehensive Plan Docket. Amendments proposed as part of the docket should be further amended if necessary to be consistent with recommendations of the Corridor Study and any further agreement between the parties. If approved for the Docket, the amendments will be processed for final action without further cost or expense to BSRE, including necessary SEPA review.

Section 4. Notices.

Notices, demands, correspondence to the City and BSRE shall be sufficiently given by pre-paid first-class mail to the addresses of the parties as follows:

City of Shoreline
City Manager
17500 Midvale Ave. N.
Shoreline, WA 98133-4905

BSRE Point Wells, LP
c/o Doug Luetjen and Gary Huff
Karr Tuttle Campbell
701 Fifth Avenue Suite 3300
Seattle, WA 98104

Notices to subsequent landowners shall be forwarded to the owners of record according to the then current Snohomish County property tax records. The parties hereto may, from time to time, advise the other of new addresses for such notices, demands or correspondence.

Section 5. Exhibits.

Exhibits to this Agreement are as follows:

A. Exhibit A – Legal description of BSRE property designated herein as Point Wells.

B. Exhibits B and B-1 – Scope of Work Regarding Public Participation Process and the assumptions to be incorporated therein.

C. Exhibit B-2 – Schedule of Public Meetings for Corridor Study.

IN WITNESS WHEREOF, the parties hereto have caused this Memorandum of Understanding to be executed as of the dates set forth below:

BSRE POINT WELLS, LP,
a Delaware limited partnership

By: BSRE (USA), Inc.,
a Delaware corporation,
its General Partner

By: _____
Title: CEO BSRE

Dated: 3.28.13

CITY OF SHORELINE

_____
Julie Underwood, City Manager

Dated: 4-1-2013

APPROVED AS TO FORM:

_____
Ian R. Sievers, City Attorney

Exhibit A

Legal Description of Point Wells

See attached.

SHORT PLAT CERTIFICATE

SCHEDULE A

(Continued)

LEGAL DESCRIPTION

THE FOLLOWING DESCRIBED PARCELS A, D, E, F AND G, EXCLUDING (A) ALL BUILDINGS, STRUCTURES, FIXTURES, PIPELINES, TANKS, EQUIPMENT, FENCING, DOCKS, PIERS AND OTHER IMPROVEMENTS OR REPLACEMENTS THEREOF NOW OR HEREAFTER LOCATED ON SUCH REAL PROPERTY, (B) ANY PERSONAL PROPERTY SITUATED THEREON, AND (C) THE AQUATIC LANDS LEASE NO. 20-013465, BETWEEN THE STATE OF WASHINGTON, ACTING THROUGH THE DEPARTMENT OF NATURAL RESOURCES, AND PARAMOUNT OF WASHINGTON, LLC (AS ASSIGNEE OF CHEVRON, U.S.A., INC.):

PARCEL A:

ALL THAT PORTION OF GOVERNMENT LOT 3, LYING WESTERLY OF THE WESTERLY RIGHT OF WAY MARGIN OF THAT CERTAIN STRIP OF LAND CONVEYED TO SEATTLE AND MONTANA RAILWAY COMPANY (NOW KNOWN AS BURLINGTON NORTHERN, INC., A DELAWARE CORPORATION) BY DEED RECORDED UNDER AUDITOR'S FILE NUMBER 6220 AND OF TIDE LAND LOT 3, ACCORDING TO THE MAP ON FILE IN OLYMPIA, WASHINGTON, ENTITLED "PLAT OF TIDE LANDS OF THE FIRST CLASS AT THE TOWN OF EDMONDS," SECTION 35, TOWNSHIP 27 NORTH, RANGE 3 EAST, W.M., IN SNOHOMISH COUNTY, WASHINGTON, LYING NORTHERLY OF A LINE DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE WESTERLY LINE OF THAT CERTAIN STRIP OF LAND CONVEYED TO SEATTLE AND MONTANA RAILWAY COMPANY NOW KNOWN AS BURLINGTON NORTHERN, INC., A DELAWARE CORPORATION BY DEED RECORDED UNDER AUDITOR'S FILE NUMBER 6220, A DISTANCE OF 1708.20 FEET NORTH OF THE SOUTH BOUNDARY OF SAID SECTION 35 AS PRODUCED FROM THE SOUTHEAST CORNER OF SAID SECTION THROUGH THE SOUTH QUARTER CORNER OF THE SOUTH LINE OF SAID SECTION;
THENCE SOUTH 22° 54'45" WEST ALONG THE WESTERLY LINE OF SAID RIGHT OF WAY A DISTANCE OF 272.27 FEET TO THE TRUE POINT OF BEGINNING OF THE LINE HEREIN DESCRIBED;
THENCE NORTH 76° 34'18" WEST 657.50 FEET;
THENCE SOUTH 0° 12'17" WEST, 193.15 FEET;
THENCE NORTH 87° 02'52" WEST, 381.34 FEET;
THENCE NORTH 75° 41'33" WEST TO WEST LINE OF SAID TIDELAND LOT 3 AND THE TERMINUS OF THE LINE HEREIN DESCRIBED.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

PARCEL D:

THAT CERTAIN PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER AND OF GOVERNMENT LOTS 3 AND 4, SECTION 35, TOWNSHIP 27 NORTH, RANGE 3 EAST, W.M., AND OF LOTS 3 AND 4, EDMONDS TIDE LANDS, ACCORDING TO THE MAP ON FILE IN OLYMPIA, WASHINGTON ENTITLED 'PLAT OF TIDE LANDS OF THE FIRST CLASS AT THE TOWN OF EDMONDS, DESCRIBED AS FOLLOWS:

SEE NEXT PAGE

CHICAGO TITLE COMPANY

Policy No.: 5305283C

EXTENDED MORTGAGEE LEASEHOLD POLICY

SCHEDULE A

(Continued)

LEGAL DESCRIPTION

BEGINNING AT A POINT ON THE WEST LINE OF THAT CERTAIN STRIP OF LAND CONVEYED TO SEATTLE & MONTANA RAILWAY COMPANY NOW KNOWN AS BURLINGTON NORTHERN, INC., A DELAWARE CORPORATION BY DEED RECORDED UNDER AUDITOR'S FILE NUMBER 5277 WHICH IS 748 FEET NORTH OF THE SOUTH LINE OF SAID SECTION, SAID POINT HAVING BEEN LOCATED BY GARDNER, GARDNER AND FISCHER, INC., CIVIL ENGINEERS, AS BEARING NORTH 0°02'39" EAST ALONG THE NORTH AND SOUTH QUARTER SECTION LINE, 748.00 FEET AND NORTH 89°30'46" WEST, PARALLEL WITH THE SOUTH LINE OF SAID SECTION 1381.93 FEET FROM THE QUARTER SECTION CORNER IN THE SOUTH LINE OF SAID SECTION;
THENCE SOUTHERLY ALONG SAID WESTERLY LINE OF SAID BURLINGTON NORTHERN RAILWAY RIGHT OF WAY 200 FEET, TO A POINT WHICH IS 560.46 FEET NORTH AND 1393.68 FEET WEST OF SAID QUARTER SECTION CORNER;
THENCE NORTH 89°30'46" WEST PARALLEL WITH THE SOUTH LINE OF SAID SECTION 695.97 FEET TO THE GOVERNMENT MEANDER LINE OF PUGET SOUND, SAID MEANDER LINE BEING THE EASTERLY LINE OF SAID LOT 4 SAID EDMONDS TIDE LANDS;
THENCE NORTH 46°58'20" WEST ALONG SAID MEANDER LINE 147.44 FEET;
THENCE NORTH 89°30'46" WEST 163.21 FEET TO THE WESTERLY LINE OF SAID LOT 4, EDMONDS TIDE LANDS;
THENCE NORTH 41°17'17" WEST ALONG SAID WESTERLY LINE, 86.16 FEET TO AN ANGLE POINT IN SAID LINE;
THENCE NORTH 11°48'43" EAST ALONG SAID WESTERLY LINE OF LOT 4, AND ALONG THE WESTERLY LINE OF LOT 3 OF SAID EDMONDS TIDE LANDS, 990.54 FEET TO AN ANGLE POINT IN SAID LINE;
THENCE NORTHEASTERLY ALONG THE SAID WESTERLY LINE OF SAID LOT 3, EDMONDS TIDE LANDS, 359.62 FEET, MORE OR LESS, TO THE MOST WESTERLY CORNER OF THE J. C. VAN ECK TRACT, AS ESTABLISHED BY DECREE ENTERED IN SNOHOMISH COUNTY TITLE REGISTRATION CAUSE NO. 5, ENTITLED J. C. VAN ECK, PLAINTIFF VS. DANIEL HINES (ET AL) DEFENDANTS;
THENCE SOUTH 67°05'15" EAST ALONG THE SOUTHWESTERLY LINE OF THE SAID VAN ECK TRACT, AS ESTABLISHED IN SAID CAUSE NO. 5, 986.73 FEET, TO A POINT IN THE SAID WESTERLY LINE OF SAID SEATTLE & MONTANA RAILWAY COMPANY'S RIGHT OF WAY;
THENCE SOUTHWESTERLY ALONG THE SAID WESTERLY RIGHT OF WAY LINE TO THE POINT OF BEGINNING;

TOGETHER WITH TIDELANDS OF THE SECOND CLASS SITUATE IN FRONT OF, ADJACENT TO, OR ABUTTING UPON THE ABOVE DESCRIBED PORTION OF GOVERNMENT LOT 4, AS CONVEYED BY THE STATE OF WASHINGTON BY DEED RECORDED UNDER AUDITOR'S FILE NUMBER 758480.

EXCEPT THAT PORTION OF GOVERNMENT LOT 3 AND SAID TIDE LAND LOT 3, LYING NORTHERLY OF A LINE DESCRIBED AS FOLLOWS:

COMMENCING AT A POINT ON THE WESTERLY RIGHT OF WAY LINE OF THE BURLINGTON NORTHERN RAILROAD DISTANT 1708.2 FEET NORTH OF THE SOUTH BOUNDARY OF SAID SECTION 35 AS PRODUCED FROM THE SOUTHEAST CORNER OF SAID SECTION THROUGH THE SOUTH QUARTER CORNER ON THE SOUTH LINE OF SAID SECTION;
THENCE SOUTH 22° 54'45" WEST ALONG THE WESTERLY RIGHT OF WAY LINE 272.27 FEET TO THE TRUE POINT OF BEGINNING OF THE LINE HEREIN DESCRIBED;
THENCE NORTH 76° 34'18" WEST 657.50 FEET;
THENCE SOUTH 0° 12'17" WEST, 193.15 FEET;
THENCE NORTH 87° 02'52" WEST, 381.34 FEET;
THENCE NORTH 75° 41'33" WEST TO WEST LINE OF SAID TIDELAND LOT 3 AND THE TERMINUS OF THE LINE HEREIN DESCRIBED.

CHICAGO TITLE COMPANY

Policy No.: 5305283C

EXTENDED MORTGAGEE LEASEHOLD POLICY

SCHEDULE A

(Continued)

LEGAL DESCRIPTION

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

PARCEL E:

PARCEL 2 OF SNOHOMISH COUNTY BOUNDARY LINE ADJUSTMENT RECORDED UNDER AUDITOR'S FILE NUMBER 200405180215, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS:

THAT PORTION OF THE SOUTHEAST QUARTER OF THE SOUTHWEST QUARTER AND OF GOVERNMENT LOT 4 AND OF VACATED HEBERLEIN ROAD, ACCORDING TO VOLUME 44 OF COMMISSIONER'S RECORDS, PAGE 44 AND OF A PORTION OF LOT 4, EDMONDS TIDE LANDS, ACCORDING TO THE MAP ON FILE IN OLYMPIA, WASHINGTON ENTITLED "PLAT OF TIDE LANDS OF THE FIRST CLASS AT THE TOWN OF EDMONDS", ALL IN SECTION 35, TOWNSHIP 27, RANGE 3 EAST, W.M., SAID PARCEL MORE PARTICULARLY DESCRIBED AS FOLLOWS: (THE BEARINGS OF THIS PARCEL DESCRIPTION ARE BASED ON THE WASHINGTON COORDINATE SYSTEM, NORTH ZONE, NAD 83-91)

COMMENCING AT THE SOUTH QUARTER CORNER OF SAID SECTION 35;
THENCE NORTH 01°11'56" EAST ALONG THE NORTH-SOUTH CENTERLINE OF SAID SECTION A DISTANCE OF 991.97 FEET (60 RODS BY DEED);
THENCE NORTH 88°33'35" WEST A DISTANCE OF 943.19 FEET TO THE POINT OF BEGINNING OF THIS PARCEL DESCRIPTION;
THENCE SOUTH 01°11'56" WEST A DISTANCE OF 455.24 FEET;
THENCE SOUTH 88°33'35" EAST A DISTANCE OF 422.92 FEET;
THENCE SOUTH 01°11'56" WEST A DISTANCE OF 20.00 FEET;
THENCE SOUTH 88°33'35" EAST A DISTANCE OF 490.27 FEET TO THE WEST MARGIN OF 116TH AVENUE SW;
THENCE SOUTH 01°11'56" WEST ALONG SAID MARGIN A DISTANCE OF 34.70 FEET;
THENCE NORTH 88°33'35" WEST A DISTANCE OF 616.67 FEET;
THENCE NORTH 01°11'56" EAST A DISTANCE OF 34.70 FEET;
THENCE NORTH 88°33'35" WEST A DISTANCE OF 453.60 FEET;
THENCE SOUTH 01°11'56" WEST A DISTANCE OF 259.23 FEET;
THENCE NORTH 88°33'35" WEST A DISTANCE OF 153.56 FEET, MORE OR LESS, TO THE EASTERLY RIGHT OF WAY LINE OF THE SEATTLE AND MONTANA RAILWAY COMPANY, NOW KNOWN AS THE BURLINGTON NORTHERN SANTA FE RAILWAY AND A POINT HEREINAFTER KNOWN AS POINT "A";
THENCE ALONG SAID EASTERLY RIGHT OF WAY LINE THE FOLLOWING COURSES AND DISTANCES:
NORTH 05°29'24" WEST A DISTANCE OF 153.31 FEET;
THENCE NORTH 01°36'06" WEST A DISTANCE OF 65.00 FEET TO THE BEGINNING OF A 1382.70 FOOT RADIUS TANGENT CURVE TO THE RIGHT;
THENCE NORTHERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 21°46'17" AN ARC DISTANCE OF 525.40 FEET;
THENCE NORTH 88°33'35" WEST A DISTANCE OF 1.50 FEET;
THENCE NORTH 24°02'46" EAST A DISTANCE OF 265.00 FEET;
THENCE SOUTH 31°23'34" EAST A DISTANCE OF 291.15 FEET TO THE POINT OF BEGINNING;

TOGETHER WITH A PARCEL LYING WESTERLY OF SAID RAILWAY AND COMMENCING AT AFORESAID POINT "A";
THENCE NORTH 88°33'35" WEST A DISTANCE OF 107.79 FEET TO A POINT ON THE WESTERLY RIGHT OF WAY LINE OF SAID RAILWAY AND THE POINT OF BEGINNING;

LEGAL DESCRIPTION

THENCE CONTINUING NORTH 88°33'35" WEST A DISTANCE OF 414.54 FEET, MORE OR LESS, TO THE GOVERNMENT MEANDER LINE;
THENCE SOUTH 45°57'35" EAST ALONG SAID LINE A DISTANCE OF 14.77 FEET;
THENCE NORTH 88°33'35" WEST A DISTANCE OF 240.88 FEET TO THE WESTERLY LINE OF SAID LOT 4 OF EDMONDS TIDE LANDS;
THENCE NORTH 40°07'35" WEST ALONG SAID LINE A DISTANCE OF 551.68 FEET;
THENCE SOUTH 88°33'35" EAST A DISTANCE OF 158.05 FEET TO SAID MEANDER LINE;
THENCE SOUTH 45°57'35" EAST ALONG SAID LINE A DISTANCE OF 147.44 FEET;
THENCE SOUTH 88°33'35" EAST A DISTANCE OF 710.85 FEET, MORE OR LESS TO SAID WESTERLY RIGHT OF WAY LINE AND THE BEGINNING OF A 1004.93 FOOT RADIUS NON-TANGENT CURVE TO THE LEFT;
THENCE SOUTHEASTERLY ALONG THE ARC OF SAID CURVE THROUGH A CENTRAL ANGLE OF 04°52'56" AN ARC DISTANCE OF 85.63 FEET;
THENCE SOUTH 05°29'24" EAST A DISTANCE OF 219.22 FEET TO SAID POINT "A" AND THE POINT OF BEGINNING.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

PARCEL F:

ALL THAT PORTION OF GOVERNMENT LOT 4, SECTION 35, TOWNSHIP 27 NORTH, RANGE 3 EAST, W.M., DESCRIBED AS FOLLOWS:

BEGINNING AT THE SOUTH QUARTER CORNER OF SAID SECTION 35;
THENCE NORTH 0°21'27" EAST 247.50 FEET;
THENCE NORTH 89°00' WEST ALONG THE NORTH LINE OF PROPERTY CONVEYED TO ELIZABETH JANE SPENCER BY DEED RECORDED IN VOLUME 5 OF DEEDS, PAGE 264, 1100.27 FEET TO THE TRUE POINT OF BEGINNING OF THIS DESCRIPTION;
THENCE NORTH 10 FEET TO A POINT ON THE SOUTH LINE OF PROPERTY CONVEYED TO NORTH AMERICAN TERRA COTTA TILE BY DEED RECORDED UNDER AUDITOR'S FILE NUMBER 81850;
THENCE NORTH 89°00' WEST ALONG THE SOUTH LINE OF SAID NORTH AMERICAN TERRA COTTA TILE PARCEL TO THE MEANDER LINE OF SAID SECTION 35;
THENCE SOUTH 44°57'35" EAST, ALONG THE SAID MEANDER LINE 14.77 FEET TO A POINT WHICH IS 10 FEET SOUTH OF AND PARALLEL TO THE LINE LAST ABOVE DESCRIBED;
THENCE SOUTH 89°00' EAST TO THE POINT OF BEGINNING;

EXCEPT THAT PORTION OF SAID PREMISES LYING EASTERLY OF THE WESTERLY LINE OF THE SEATTLE & MONTANA RAILWAY COMPANY'S RIGHT OF WAY, NOW KNOWN AS BURLINGTON NORTHERN, INC., A DELAWARE CORPORATION, AS CONVEYED BY DEEDS RECORDED UNDER AUDITOR'S FILE NUMBERS 5277 AND 120070;

TOGETHER WITH TIDELANDS OF THE SECOND CLASS SITUATE IN FRONT OF, ADJACENT TO, OR ABUTTING UPON THE ABOVE DESCRIBED PARCEL F, AS CONVEYED BY THE STATE OF WASHINGTON RECORDED UNDER AUDITOR'S FILE NUMBER 758480.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

CHICAGO TITLE COMPANY

Policy No.: 5305283C

EXTENDED MORTGAGEE LEASEHOLD POLICY

SCHEDULE A

(Continued)

LEGAL DESCRIPTION

PARCEL G:

ALL THAT PORTION OF GOVERNMENT LOT 4, SECTION 35, TOWNSHIP 27 NORTH, RANGE 3 EAST, W.M., AND OF LOT 4 EDMONDS TIDELANDS ACCORDING TO THE MAP ON FILE IN OLYMPIA, WASHINGTON ENTITLED "PLAT OF TIDE LANDS OF THE FIRST CLASS AT THE TOWN OF EDMONDS, LYING WESTERLY OF THAT CERTAIN STRIP OF LAND CONVEYED TO SEATTLE & MONTANA RAILWAY COMPANY, NOW KNOWN AS BURLINGTON NORTHERN, INC., A DELAWARE CORPORATION BY DEED RECORDED UNDER AUDITOR'S FILE NUMBER 5662 AND SOUTH OF A LINE WHICH IS PARALLEL TO AND DISTANT 247.5 FEET NORTH OF THE SOUTH LINE OF SECTION 35 AS PRODUCED FROM THE SOUTHEAST CORNER OF SECTION 35 THROUGH THE QUARTER CORNER ON THE SOUTH LINE OF SAID SECTION;

EXCEPT THAT PORTION CONTAINED IN ORDER ADJUDICATING PUBLIC USE AND NECESSITY UNDER SNOHOMISH COUNTY SUPERIOR COURT CAUSE NO. 05-2-13678-1, AS FOLLOWS:
COMMENCING AT THE SOUTH QUARTER CORNER OF SAID SECTION 35;
THENCE ALONG THE SOUTH LINE OF SAID SECTION, NORTH 88°33'35" WEST 1306.22 FEET TO THE WESTERLY RIGHT-OF-WAY LINE OF THE BURLINGTON NORTHERN SANTE FE RAILWAY AND THE TRUE POINT OF BEGINNING;
THENCE ALONG SAID WESTERLY RIGHT-OF-WAY LINE, NORTH 05°29'24" WEST 221.33 FEET;
THENCE NORTH 88°33'35" WEST 64.24 FEET;
THENCE SOUTH 83°44'46" WEST 150.85 FEET;
THENCE SOUTH 55°49'32" WEST 62.29 FEET;
THENCE SOUTH 40°13'07" EAST 218.50 FEET TO SAID SOUTH LINE;
THENCE ALONG SAID SOUTH LINE, SOUTH 88°33'35" EAST 145.84 FEET TO THE TRUE POINT OF BEGINNING.

SITUATE IN THE COUNTY OF SNOHOMISH, STATE OF WASHINGTON.

EXHIBIT B

Richmond Beach Neighborhood Corridor Study
For Point Wells Traffic Impacts

I. General:

a. The objective of this study is to designate mitigation for traffic impacts of the BSRE Point Wells, LLP ("BSRE") Point Wells development which will create or improve multimodal mobility for pedestrians, bicyclists, transit riders, trucks and vehicles using the Richmond Beach Road Corridor which will maintain and improve safety for all users and compliance with ADA regulations.

b. Deliverables will be a mitigation list linked to traffic trip benchmarks for phased development during the AM or PM peak hour, whichever is greater and to mitigate impacts to current pavement conditions due to construction.

c. The City of Shoreline shall sponsor and facilitate a series of workshops with the neighborhood directly impacted by traffic volume increases resulting from the Point Wells project. BSRE's traffic engineers shall provide technical support. The objective is in part to conduct a public participation program to inform the consideration of amendments to the City's Point Wells subarea plan and capital facilities plans including traffic levels of service and road projects needed to mitigate these traffic volumes. Public participation in the Corridor Study should develop consensus with respect to the preferred improvements to address issues identified in the Corridor and adjoining streets, including necessary traffic controls, sidewalks, and roadway modifications.

d. The Corridor Study assumptions to be utilized in the Public Participation Process are set forth in Exhibit B-1.

II. Public Participation Process:

a. The public participation program will be completed in two segments (collectively "Corridor"). The Richmond Beach Drive NW component of this public participation effort is intended to focus on Richmond Beach Drive NW from the site access to the intersection of Richmond Beach Drive NW and NW 195th Place, NW 195th Place, and also NW 196th St between Richmond Beach Dr NW and 24th Ave NW (Segment A).

b. The second component will address the balance of the Corridor including NW 196th Street east of 24th Ave NW, NW Richmond Beach Road, N 185th Street to Aurora Ave. N. (Segment B).

c. Any of the public participation workshops or meetings for the two segments could be conducted at the same location and time, but would have to be agreed upon by both BSRE and the City.

d. Meetings are anticipated to occur at a location provided by the City. Workshop durations are expected to be between 90 and 120 minutes long. No public agency elected officials shall have workshop responsibilities, although they may observe. The tentative schedule of workshops and topics is attached as Exhibit B-2.

e. BSRE will provide traffic data, maps, and conceptual plans it has already developed to support this effort. The City shall retain an independent third party to act as facilitator.

f. Workshops for both segments should evaluate:

- Alternative traffic controls at intersections including new signals and roundabouts
- Sidewalks and walkability improvement elements, including completion of sidewalk system where missing
- On-street parking alternatives
- Landscaping alternatives
- ADA access plan elements, including intersection, midblock and driveway features
- Any transit elements related to corridor design

g. It is anticipated that Segment A is more sensitive to traffic impacts and mitigation for additional traffic on this segment should be developed first. Traffic mitigation proposals for Corridor safety, driveway access, pedestrian use, transit availability and right-of-way expansion should be based upon the following criteria. The level of service shall be calculated with the delay method described in the Transportation Research Boards Highway Capacity Manual 2010 or its updated versions; provided however, that for the purposes of this study, the net new trips on Segment A generated from the proposed development at Point Wells shall be assumed not to exceed 11,587 ADT:

Segment A:

1) No increase in existing right-of-way width except to accommodate bus stops and intersection improvements.

2) A gap analysis and sight distance analysis should be performed on "problem" driveways in Segment A and modeled with VISSIM for public demonstration. The following assumptions shall apply in evaluating the changed circumstance:

a) For left and right turns into driveways -- use the HCM LOS without modification for segment delays.

b) For "forward" moving exiting driveway turns use HCM.

c) For driveways that require "backing out" -- use the HCM methodology, but increase the acceptable gap to reflect the additional time needed to back out and then move forward (HCM gap plus 3 seconds).

Mitigation/design features to assist in driveway ingress/egress where gap improvement is needed:

i. Design to a 25mph speed limit – include physical features to manage speed.

ii. Center left turn lanes, parking lanes, bike lane.

iii. Turnaround/roundabout at north city limit line vicinity.

iv. Modify "problem" driveways to allow forward out movements.

v. Signal installation or modifications to create gaps.

vi. Or other modification mutually agreed between City and BSRE.

3) LOS D for intersections with no through movement less than E and a street segment V/C ratio no greater than 0.9. The V/C ratio for segments will be based upon a functional classification consistent with the mitigated roadway section.

4) A continuous ADA compliant non-motorized facility will be located on at least one side of Richmond Beach Drive NW of sufficient width to accommodate anticipated non-motorized demand with a buffer between the facility and the travel lane that could be a landscape strip, parking strip shoulder/bike lane or widened sidewalk.

5) Regularly spaced bus stops.

6) Conceptual design of traffic calming measures to limit cut-through traffic on neighborhood streets including NW 197th St, NW 198th St, and NW 199th St.

7) Sufficient design of Segment A to show roadway layout, driveway reconfigurations, location of rockeries or retaining walls, alternative properties access and modifications to landscaping in the right-of-way.

Segment B:

1) Increases in right-of-way at intersections only as needed to meet the preferred alternative or concurrency.

2) Residential and commercial driveway access will be preserved and traffic controls established to allow reasonable access into and out of driveways consistent with similarly classified streets in Shoreline.

3) LOS D for intersections with no through movement less than E and a street segment V/C ratio no greater than 0.9. The V/C ratio for segments will be based upon a functional classification consistent with the mitigated roadway section.

4) ADA compliant non-motorized facilities will be provided to fill any gaps in non-motorized connectivity.

5) Regularly spaced bus stops.

1. Segment A Workshop 1 – Neighborhood Concerns.

a. The objective of this meeting is to ensure that BSRE and the City come away with a complete understanding of neighborhood concerns relative to the increased traffic and the widened roadway design on Richmond Beach Drive NW and on NW 196th St to 24th Ave NW.

b. The Richmond Beach Drive meetings will include facilitated work groups of 6-10 people each with the objective of establishing key neighborhood concerns. Maps will be used to allow identification of existing problems and locations of concerns.

c. The facilitators will help the groups to focus on major areas of concern including safety, transit access, driveway operations, intersection LOS, non-motorized accommodation, parking, noise, and landscaping. Each group will report its concerns to the others and a combined list of concerns will be generated. The assembly will then be asked to prioritize the listed concerns as a group exercise.

2. Segment A Workshop 2 – Potential Solutions

a. DEA will develop a range of solutions to address the prioritized concerns developed in Meeting 1. The solutions will be in the form of generic cross sections showing various methods of addressing neighborhood concerns. Cross-sections will include various combinations of travel lanes, shoulders, parking lanes, sidewalks, medians and landscaping to address the concerns. DEA will also present an aerial photo (or plan view) showing the impacts of potential improvements relative to existing ROW and topography to help establish the feasibility of various options.

b. The meeting will include facilitated work groups of 6-10 people each with the objective of identifying the preferred cross-section(s) to address the prioritized concerns. The facilitators will help the groups explore the impacts of various options within the corridor.

c. Each group will develop a potential improvement plan for Richmond Beach Drive NW and will present its plan to the others. The assembly will then be asked to rate each plan relative to the prioritized concerns from the initial meeting. The assembly will then be asked to choose a preferred concept, or combination of concepts for further development.

3. **Segment A Workshop 3 – Present Proposed Improvement Concept**

a. DEA will prepare a conceptual drawing of the preferred plan developed in Meeting 2. The plan will show the roadway alignment within the ROW, lane widths, shoulder widths, sidewalk locations and widths, potential wall locations, driveways, mailbox locations, transit stops, crosswalks, medians, intersection controls and landscaping.

b. The meeting will take the form of facilitated work groups of 6-10 people each with the objective of reviewing the proposed preferred improvement concept, confirming that it addresses the prioritized concerns, and offering suggestions and refinements to improve the concept. The facilitators will help the groups evaluate the concept by answering questions about alignment, ROW or other technical issues.

c. Each group will present its evaluation of the proposed improvement concept. The assembly will then be asked to choose a preferred concept, or combination of concepts.

4. **Segment B- Meetings 1 and 2.**

a. The objective of these meetings is to ensure that BSRE and the City come away with a complete understanding of neighborhood concerns relative to the increased traffic on this segment of the Corridor and adjoining streets.

b. The meetings will focus on improvements in principal arterial segments and adjoining streets which meet metrics listed above as traffic limiting factors.

c. The format in soliciting and finalizing a preferred concept for Corridor improvements and other traffic controls or modifications of adjoining streets shall follow the Workshops format for Segment A.

d. Combined Corridor Outcome Presentation. The City will hold an open house where citizens can view and comment on the final recommendations for the Corridor Study Area. BSRE need not participate in this meeting. This open house will be held prior to the Final Presentation to Council.

5. **Final Presentation – Present Final Improvement Concept**

a. DEA will prepare a conceptual drawing of the final Corridor plan based on feedback from final meetings on both segments. DEA will assist City staff in making a presentation summarizing the workshop process. The presentation will recap the outcome of each meeting and how the information and feedback from each meeting was incorporated into the final improvement concept. This presentation will be made to City Council at a regular scheduled meeting to provide a broader public presentation of the workshop outcome, given that acceptance of the study will be a prerequisite to actions on Comprehensive Plan changes and a Municipal Services Agreement that will affect the entire City.

b. The Traffic study and modeling will establish AM and PM peak hour demands, plus the corresponding mitigation required for the maximum trips permitted for the final build out of the project. The modeling output will be required to include for each phase the following; 1) base traffic without the project, 2) base plus project without mitigation, 3) base plus project traffic with mitigation. Once BSRE finalizes its proposed phasing and construction timetable, the results of such modeling will be used to assign a maximum peak hour trip count for each phase of the project.

c. Council shall have Comprehensive Plan amendments for the Point Wells Subarea Plan, Capital Facilities Plan and Capital Improvement Plan docketed for 2013. If the Corridor Plan is acceptable it shall be considered in amendments to these Comprehensive Plan elements and the Municipal Services Agreement for the BSRE Point Wells project.

EXHIBIT B-1

Corridor Study General Scope and Assumptions

I. Study Assumptions:

- Acceptance of intersections and significant routes listed in Section IV below as the study area for the traffic model.
- Background traffic growth rate of ¼ percent per year.
- Use City of Shoreline's regional trip distribution per DKS model for existing and future modeling (2010 version).
- AM and PM peak hours will be modeled.
- As left turn gap analysis is evaluated for Segment A, it should include graphic simulation with Sim Traffic or VISSIM models.
- All improvements will be in accordance with the City of Shoreline adopted Codes and or other mutually acceptable Engineering Standards to the extent they do not conflict with the assumptions and objectives set herein.

II. Documentation of Existing Conditions.

- Use 2010 or newer traffic volume data, and peak-hour turning movements.
- Use most recent complete five year accident history.
- Complete a reconciliation of existing plats and surveys or conduct additional survey, through a Licensed Surveyor, to create an aerial map from NW 197th north to the King County/Snohomish County Line that has the same level of accuracy as the aerial maps for the rest of the Corridor. Develop a base map using aerial photography for the corridor, updated with the reconciliation above, that includes: existing right-of-way widths, topography (where needed), pavement width and edge of pavement, additional right-of-way infrastructure including sidewalks, drainage facilities, driveway access, etc.; locations and details of traffic control devices (signs, striping, guardrails, etc.).

III. Intersections and Roadways Identified for Analysis

Intersections identified for analysis
Meridian Ave N and N 185th St
Meridian Ave N and N 175th St
SR99 and N 205th St (244th St SW)

SR99 and N 200th St
SR99 and N 192nd St
SR99 and N 185th St
SR99 and N 175th St
SR99 and N 165th St
Fremont Ave N and N 205th St (244th St SW)
Fremont Ave N and N 200th St
Fremont Ave N and N 185th St
Fremont Ave N and N 175th St
Fremont Ave N and N 165th St
Dayton Ave N and N Richmond Beach Rd
Dayton Ave N and N 172nd St
Dayton Ave N and Carlyle Hall Rd NW
3rd Ave NW and NW 205th St (244th St SW)
3rd Ave NW and NW 200th St
3rd Ave NW and NW 195th St
3rd Ave NW and NW Richmond Beach Rd
100th Ave W and SR 104
8th Ave NW and NW 205th St (244th St SW)
8th Ave NW and NW 200th St
8th Ave NW and NW 195th St
8th Ave NW and NW Richmond Beach Rd
15th Ave NW and NW Richmond Beach Rd
Woodway Park Rd and Algonquin Rd
Woodway Park Rd and 238th St SW
Timber Ln and 238th St SW
20th Ave NW and NW 195th St
24th Ave NW and NW 196th St
Richmond Beach Dr NW and NW 196th St
Routes identified for analysis
Richmond Beach Drive NW: Woodway City Limits to NW 196th Street
NW 196th St: NW Richmond Beach Dr to 20th Ave NW
NW 195th St/NW Richmond Beach Rd: 20th Ave NW to 8th Ave NW
NW Richmond Beach Rd: 8th Ave NW to SR 99
8th Ave NW/NW 180th St/6th Ave NW: Richmond Beach Rd to N 175th Street
Dayton Ave N: N Richmond Beach Road to Carlyle Hall Rd NW

Fremont Ave N: N 175th St to N 185th St
Fremont Ave N: N 185th St to 244th St SW
20th Ave NW/Timber Lane/238th St SW: NW 196th St to Woodway Park Road
Woodway Park Road: 238th Street SW to Algonquin Road
244th Street SW: 100th Avenue W to SR 99
8th Avenue NW: Richmond Beach Road to 244th Street SW
3rd Avenue NW : Richmond Beach Road to 244th Street SW
100th Avenue W: 244th Street SW to SR 104
SR 99: 224th Street SW to N 185th Street
SR 99: N 165th Street to N 185th Street

EXHIBIT B-2

Public Meeting Schedule for Corridor Study

Meeting #	Date	Segment	Goal/Purpose	Location/Time
1		B (A is also invited)	Overall Introduction on process. Overview of data on the corridor – accidents, volumes, LOS, etc. Small group facilitated breakouts to identify corridor issues, challenges, opportunities, neighborhood concerns, and criteria for evaluating concepts.	
2		A	Overall introduction. Overview of data, maps with ROW. Small group facilitated breakouts to identify specific issues including driveways, access, parking, landscaping, noise, etc. Many of the comments will be site specific. Concerns will be prioritized.	
3		A	Consultant will provide potential improvements addressing findings from Meeting #2. Small groups discuss potential solutions considering priorities identified last meeting. Each group will develop improvement plan. Report back. Full group will choose preferred concept(s) for further development.	

4		B	Consultant will present proposed concepts for improvements. Small groups will review and comment, identifying suggestions for improvements. Small group will select preferred concept. Report back. Large group recommends preferred concept. Selects spokesperson (s).	
5		A	Consultant will present a conceptual drawing(s) of preferred plan developed at Meeting #4. Small groups will evaluate and comment, and identify suggestions to improve. Report back. Large group recommends preferred concept. Selects spokesperson (s).	
6		A + B	Spokespersons from A and B will present their recommendations and preferred concept to the full group. Full group will discuss, comment and suggest any modifications.	

Segment A = Richmond Beach Drive from 205th to 195th/196th, and 195th/196th from Richmond Beach Drive to 24th NW

Segment B = NW Richmond Beach Road (all other segment names) from 24th Ave NW to Aurora Ave N

Meeting Times: all meetings will be open at 6:30 with 30 minutes to mingle, settle in and speak one-on-one with staff/consultants. Agenda will begin at 7 pm, and conclude promptly at 9 PM.

Attachment D – SYNCHRO LOS Evaluation Assumptions for Signalized and Unsignalized Intersections

Check Items	Condition			Updates	
	2014	No Action by Forecast Year	Future Build Condition by Phase/Forecast Year	Date	Change
Roadway Network	1. Network drawn to scale. 2. Link speed verified to speed limits.	The same as existing plus funded projects	The same as No Action plus mitigation improvements.		
Channelization	1. Lane configuration checked against aerial map and field visit notes. 2. Right-turn/left-turn pocket length entered. 3. Right-turn channelization coded. 4. Right-turn on red verified. 5. Two-way left-turn lane verified.	The same as existing plus funded projects	The same as No Action plus mitigation improvements.		
Control Types	Signal or stop control verified.	The same as existing plus funded projects	The same as No Action plus intersection improvements.		
Traffic Volumes	Balance volumes between closely spaced intersections with no accesses in between.	Grew from existing based on 0.25%/year	Background traffic (grew counts using 0.25% per year) + Project site trips by phase		
Factors	Heavy vehicle (HV) percentage and peak hour factors (PHF) entered by approach based on counts or if not available, based on SYNCHRO default values.	HCM default values: PHF=0.92 HV=2%	HCM default values: PHF=0.92 HV=2%		
Signal Timing/Phasing	Signal timing and phasing based on timing sheets from agencies. If not available, use field observation. Parameter entered include: 1. Controller types 2. Cycle length 3. Phasing 4. Minimum green, splits, yellow, and red time 5. Vehicle passage time/gaps 6. Lead/lag phasing, 7. Recall mode, 8. Ped phasing and walk and flash don't walk time 9. Reference phasing	Optimized by the SYNCHRO program.	If timing is not available, use agency standards. If there are no standards, assume: 1. Minimum green = 4 sec for side streets and 8 sec for main streets. 2. Yellow =4 sec; Red = 1 sec 3. Vehicle passage time/gaps = 3 sec 3. Optimize lead/lag phasing 4. Set Min recall mode for main streets, none for minor streets 5. Set walk = 7 sec and flash don't walk = 3.5 feet/ sec 6. "Reference to" beginning of green 7. Optimize Cycle length For existing and future signals: 1.Maintain coordination on corridors 2. Optimize splits or change cycle length if LOS is poor		
Ped./Bicycle Volumes	Pedestrian Bicycle Volumes coded based on counts	grew counts using 0.25% per year	grew counts using 0.25% per year		

Attachment E – aaSidra LOS Evaluation Assumptions for Roundabouts

The aaSidra program (version 5) will be used for roundabout LOS analysis. The following default values that are consistent with WSDOT procedures will be used when roundabout information is not available.

1. **Environment Factor (EF)**: Varied based on analysis period
   - 1.1 for existing condition
   - 1.0 for future years (10 to 20 year out)

2. **Roundabout Capacity Model**: SIDRA Standard.

3. **Delay Model**: SIDRA Standard Delay Model is used. Control delay includes geometric delay.

4. **Gap-Acceptance Capacity**: SIDRA Standard (Akçelik M3D).

5. **LOS method:** Delay using HCM 2000.

6. **Roundabout LOS Method**: Same as Signalized Intersections. Vehicle movement LOS values are based on average delay per movement; Intersection and Approach LOS values are based on average delay for all vehicle movements.

7. **Measure of Effectiveness (MOE)**: Degree of Saturation (V/C) and LOS

8. **Lane Widths**: 13-feet entry or exit lane widths

9. **Roundabout Design Elements**: Refer to WSDOT *Design Manual* Exhibit 1320-1 as shown below

Exhibit 1320-1: Suggested Initial Design Ranges

Design Element	Mini [1]	Single-Lane	Multilane
Number of Lanes	1	1	2+
Inscribed Circle Diameter [2]	45'–80'	80'–150' [3]	135'
Circulating Roadway Width	N/A	14'–19'	29'
Entry Widths	N/A	16'–18'	25'

Notes:

[1] Reserved for urban/suburban intersections with a 25 mph or less posted speed.

[2] The given diameters assume a circular roundabout; adjust accordingly for other shapes.

[3] Inscribed circle diameters of less than 100 feet may not be appropriate on a state route.

10. Speeds: Recommended Maximum entry design speeds based on Roundabout: *An Informational Guide*, FHWA Exhibit 6-4 shown below.

Exhibit 6-4: Recommended Maximum Entry Design Speeds

Site Category	Recommended Maximum Entry Design Speed
Mini-Roundabout	25 km/h (15 mph)
Urban Compact	25 km/h (15 mph)
Urban Single Lane	35 km/h (20 mph)
Urban Double Lane	40 km/h (25 mph)
Rural Single Lane	40 km/h (25 mph)
Rural Double Lane	50 km/h (30 mph)

11. **Other Items**: Assumption related channelization, traffic volumes, heavy vehicle percentages, and peak hour factors will be consistent with Attachment D for the SYNCHRO LOS evaluation assumptions.

Attachment F – Primary Access Options and Mitigation Strategies Analyzed

	Existing Configuration	Restripe RBR to 3-Lanes	Maintain RBR as 4-Lanes	Restripe RBR to 3-Lanes Widen 8th to 3rd to 5-Lanes	Restripe RBR to 3-Lanes Widen 8th to 3rd to 5-Lanes Add 2nd Access via Woodway
	Existing	**Option A**	**Option B**	**Option C**	**Option D**
Roadway Segments					
Between PW and NW 196th	*2-lane*	*Improved 2-lane*	*Improved 2-lane*	*Improved 2-lane*	*Improved 2-lane*
Between NW 196th and 24th	*2-lane*	*Improved 2-lane*	*Improved 2-lane*	*Improved 2-lane*	*Improved 2-lane*
Between 24th and 20th	*4-lane*	*Striped 3-lane*	*4-lane*	*Striped 3-lane*	*Striped 3-lane*
Between 20th and 15th	*4-lane*	*Striped 3-lane*	*4-lane*	*Striped 3-lane*	*Striped 3-lane*
Between 15th and 8th	*4-lane*	*Striped 3-lane*	*4-lane*	*Striped 3-lane*	*Striped 3-lane*
Between 8th and 3rd	*4-lane*	*Striped 3-lane*	*4-lane*	*Widened 5-lane*	*Widened 5-lane*
Between 3rd and Fremont	*4-lane*	*Striped 3-lane*	*4-lane*	*4-lane*	*4-lane*
Between Fremont and Aurora	*5-lane*	*5-lane*	*5-lane*	*5-lane*	*5-lane*
Intersections					
At 196th	WB Stop	NB Stop	NB Stop	NB Stop	NB Stop
At 24th	EB/SB Stop	NB/SB Stop	NB/SB Stop	Roundabout	Roundabout
At 20th	All Stop	Signal	Signal	Signal	Signal
At 15th	Stop Control	Signal	Signal	Signal	Signal
At NW 190th	WB Stop	Right-in/ Right-out	Right-in/ Right-out	Right-in/ Right-out	Right-in/ Right-out
At 8th, 3rd, Dayton, Fremont	Signal	Signal	Signal	Signal	Signal
Traffic Calming?	No	Yes	Yes	Yes	Yes

Attachment G - Traffic Analysis Scenarios Analyzed
Point Wells Mixed Use Development

AM Period		Alternative 1 - Urban Center					Alternative 2 - Urban Village					Alternative 3 - No Action		
												Current Use	Scenario A	Scenario B
Roadway Network		Existing	Option A	Option B	Option C	Option D	Existing	Option A	Option B	Option C	Option D	Existing	Existing	Existing
Analysis Year	2014	---	---	---	---	---	---	---	---	---	---	41	---	---
	2020	1	2	3	4	5	21	22	23	24	25	---	42	43
	2025	6	7	8	9	10	26	27	28	29	30	---	44	45
	2030	11	12	13	14	15	31	32	33	34	35	---	46	47
	2035	16	17	18	19	20	36	37	38	39	40	---	48	49

PM Period		Alternative 1 - Urban Center					Alternative 2 - Urban Village					Alternative 3 - No Action		
												Current Use	Scenario A	Scenario B
Roadway Network		Existing	Option A	Option B	Option C	Option D	Existing	Option A	Option B	Option C	Option D	Existing	Existing	Existing
Analysis Year	2014	---	---	---	---	---	---	---	---	---	---	90	---	---
	2020	50	51	52	53	54	70	71	72	73	74	---	91	92
	2025	55	56	57	58	59	75	76	77	78	79	---	93	94
	2030	60	61	62	63	64	80	81	82	83	84	---	95	96
	2035	65	66	67	68	69	85	86	87	88	89	---	97	98

Theme	Title	Components
No Improvements	**Existing**	= Existing Roadway Network
Restripe RBR Lanes	**Option A**	= Improved RBD, Striped 196th/RBR to 3-lane
Maintain RBR Lanes	**Option B**	= Improved RBD, Existing 196th/RBR 4-lane
Restripe & Widen RBR	**Option C**	= Improved RBD, Striped 196th/RBR to 3-lane, Widened RBR to 5-lane (8th to 3rd)
Add 2nd Access and Restripe & Widen RBR	**Option D**	= Improved RBD, Striped 196th/RBR to 3-lane, Widened RBR to 5-lane (8th to 3rd), Second access via Woodway/238th

Attachment H - Building Heights, Dwelling Units, and Land Use Codes for Build Alternatives

Building, Area/Phase	Alternative 1 - Urban Center							Alternative 2 - Urban Village						
	# of Stories	Building Height	Floor Plate (SF)	Residential Area (SF)	Number of Dwelling Units (DU)	Avg. Unit Size + Amenities (SF)	Land Use Code (LUC)	# of Stories	Building Height	Floor Plate (SF)	Residential Area (SF)	Number of Dwelling Units (DU)	Avg. Unit Size + Amenities (SF)	Land Use Code (LUC)
Urban Plaza -PH2				**254,208**	**254**	**1,001**					**242,432**	**242**	**1,002**	
UP-T1	14	140 feet	6,192	86,688	86	1,008	LUC 222	13	130 feet	6,192	80,496	80	1,006	LUC 222
UP-T2	12	120 feet	5,584	67,008	67	1,000	LUC 222	12	120 feet	5,584	67,008	67	1,000	LUC 222
UP-T3	10	100 feet	5,584	55,840	56	997	LUC 222	10	100 feet	5,584	55,840	56	997	LUC 222
UP-T4	8	80 feet	5,584	44,672	45	993	LUC 222	7	70 feet	5,584	39,088	39	1,002	LUC 222
North Village -PH4				**902,621**	**903**	**1,000**					**659,076**	**655**	**1,006**	
NV-T1	17	170 feet	10,551	179,367	179	1,002	LUC 232	14	140 feet	10,551	147,714	146	1,012	LUC 232
NV-T2	16	160 feet	12,203	195,248	196	996	LUC 232/252	12	120 feet	12,203	146,436	145	1,010	LUC 252
NV-T3	14	140 feet	12,697	177,758	178	999	LUC 252	10	100 feet	12,697	126,970	127	1,000	LUC 252
NV-T4	12	120 feet	12,719	152,628	153	998	LUC 252	7	70 feet	12,719	89,033	89	1,000	LUC 252
NV-T5	10	100 feet	12,697	126,970	127	1,000	LUC 252	7	70 feet	12,697	88,879	89	999	LUC 252
NV-L1	2	20 feet	5,239	10,478	10	1,048	LUC 252	4	40 feet	5,239	20,956	20	1,048	LUC 252
NV-L2	4	40 feet	9,002	36,008	36	1,000	LUC 252	3	30 feet	9,002	27,006	27	1,000	LUC 252
NV-L3	4	40 feet	6,041	24,164	24	1,007	LUC 252	2	20 feet	6,041	12,082	12	1,007	LUC 252
Central Village -PH3				**1,270,720**	**1,271**	**1,000**					**1,131,688**	**1,128**	**1,003**	
CV-T1	10	100 feet	10,830	108,300	108	1,003	LUC 232	7	70 feet	10,830	75,810	75	1,011	LUC 230
CV-T2	12	120 feet	10,830	129,960	130	1,000	LUC 232	10	100 feet	10,830	108,300	108	1,003	LUC 232
CV-T3	14	140 feet	10,830	151,620	152	998	LUC 232	11	110 feet	10,830	119,130	118	1,010	LUC 232
CV-T4	16	160 feet	10,830	173,280	173	1,002	LUC 232	12	120 feet	10,830	129,960	130	1,000	LUC 232
CV-T5	14	140 feet	10,830	151,620	152	998	LUC 232	11	110 feet	10,830	119,130	119	1,001	LUC 232
CV-T6	12	120 feet	10,830	129,960	132	985	LUC 232/252	10	100 feet	10,830	108,300	109	994	LUC 222/232
CV-T7	10	100 feet	10,830	108,300	108	1,003	LUC 252	7	70 feet	10,830	75,810	76	998	LUC 252
CV-L1	2	20 feet	7,062	14,124	14	1,009	LUC 252	3	30 feet	7,062	21,186	21	1,009	LUC 252
CV-L2	2	20 feet	7,062	14,124	14	1,009	LUC 252	3	30 feet	7,062	21,186	21	1,009	LUC 252
CV-L3	2	20 feet	7,062	14,124	14	1,009	LUC 252	2	20 feet	7,062	14,124	14	1,009	LUC 252
CV-L4	2	20 feet	7,062	14,124	14	1,009	LUC 252	2	20 feet	7,062	14,124	14	1,009	LUC 252
CV-L5	2	20 feet	7,062	14,124	14	1,009	LUC 252	3	30 feet	7,062	21,186	21	1,009	LUC 252
CV-L6	2	20 feet	7,062	14,124	14	1,009	LUC 252	3	30 feet	7,062	21,186	21	1,009	LUC 252
CV-L7	4	40 feet	8,405	33,620	34	989	LUC 252	5	50 feet	8,405	42,025	43	977	LUC 252
CV-L8	4	40 feet	7,341	29,364	29	1,013	LUC 252	5	50 feet	7,341	36,705	36	1,020	LUC 252
CV-L9	4	40 feet	7,341	29,364	29	1,013	LUC 252	5	50 feet	7,341	36,705	36	1,020	LUC 252
CV-L10	4	40 feet	8,405	33,620	34	989	LUC 252	5	50 feet	8,405	42,025	43	977	LUC 252
CV-L11	6	60 feet	6,215	37,290	37	1,008	LUC 252	7	70 feet	6,215	43,505	43	1,012	LUC 252
CV-L12	6	60 feet	5,398	32,388	32	1,012	LUC 252	7	70 feet	5,398	37,786	37	1,021	LUC 252
CV-L13	6	60 feet	6,215	37,290	37	1,008	LUC 252	7	70 feet	6,215	43,505	43	1,012	LUC 252
South Village -PH1				**653,166**	**653**	**1,000**					**572,657**	**575**	**996**	
SV-T1	16	160 feet	7,950	127,200	127	1,002	LUC 232	7	70 feet	7,950	55,650	55	1,012	LUC 230
SV-T2	14	140 feet	7,950	111,300	111	1,003	LUC 232	10	100 feet	7,950	79,500	78	1,019	LUC 232
SV-T3	12	120 feet	7,950	95,400	95	1,004	LUC 232	12	120 feet	7,950	95,400	95	1,004	LUC 232
SV-T4	10	100 feet	7,950	79,500	80	994	LUC 232	10	100 feet	7,950	79,500	80	994	LUC 232
SV-T5	8	80 feet	7,950	63,600	63	1,010	LUC 232/222	7	70 feet	7,950	55,650	56	994	LUC 230
SV-T6	8	80 feet	7,950	63,600	63	1,010	LUC 252/222	7	70 feet	7,950	55,650	56	994	LUC 230
SV-L1	2	20 feet	4,556	9,112	9	1,012	LUC 230	3	30 feet	4,556	13,668	14	976	LUC 230
SV-L2	2	20 feet	5,831	11,662	12	972	LUC 230	2	20 feet	5,831	11,662	12	972	LUC 230
SV-L3	2	20 feet	5,880	11,760	12	980	LUC 230	2	20 feet	5,880	11,760	12	980	LUC 230
SV-L4	2	20 feet	5,831	11,662	12	972	LUC 230	2	20 feet	5,831	11,662	12	972	LUC 230
SV-L5	2	20 feet	4,589	9,178	9	1,020	LUC 230	3	30 feet	4,589	13,767	14	983	LUC 230
SV-L6	4	40 feet	7,399	29,596	30	987	LUC 230	7	70 feet	7,399	51,793	53	977	LUC 230
SV-L7	4	40 feet	7,399	29,596	30	987	LUC 230	5	50 feet	7,399	36,995	38	974	LUC 230
Total Dwelling Units					3,081							2,600		
Total Buildings	45							45						

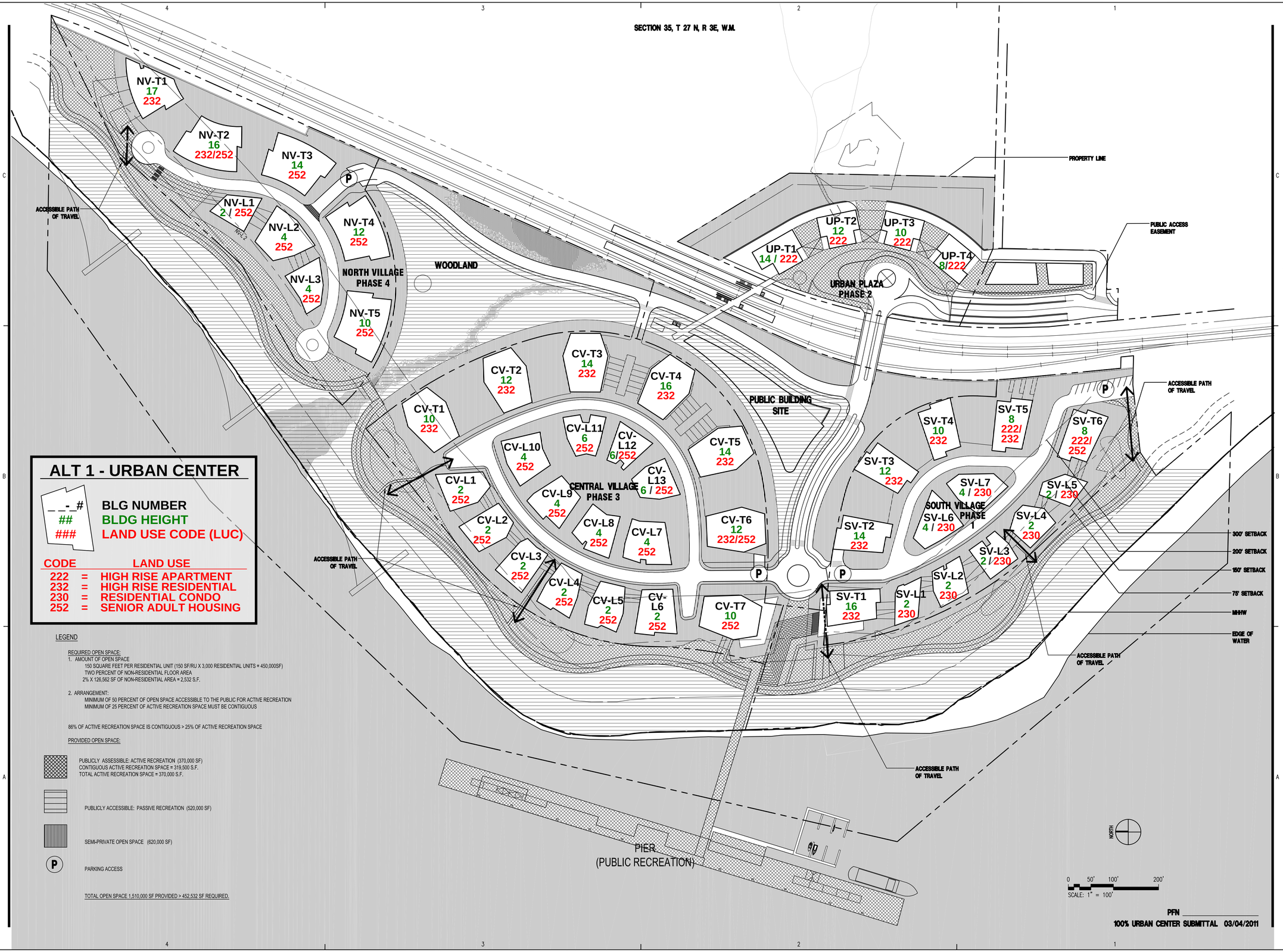
Land Use Code (LUC)	Alt 1 - UC Number of Dwelling Units (DU)	Alt 2 - UV Number of Dwelling Units (DU)
PH2 TOTAL	**254**	**242**
LUC 222	254	242
LUC 232	0	0
LUC 230	0	0
LUC 252	0	0
PH4 TOTAL	**903**	**655**
LUC 222	0	0
LUC 232	364	146
LUC 230	0	0
LUC 252	539	509

PH3 TOTAL	**1,271**	**1,128**
LUC 222	0	18
LUC 232	763	566
LUC 230	0	75
LUC 252	508	469

PH1 TOTAL	**653**	**575**
LUC 222	53	0
LUC 232	433	253
LUC 230	114	322
LUC 252	53	0

PW TOTAL	**3,081**	**2,600**
LUC 222	307	260
LUC 232	1,560	965
LUC 230	114	397
LUC 252	1,100	978

Attachment I – Urban Center Alternative Site Layout with Land Use Codes and Building Heights



ALT 1 - URBAN CENTER

_ _-_#
BLG NUMBER
##
BLDG HEIGHT
###
LAND USE CODE (LUC)

CODE		LAND USE
222	=	HIGH RISE APARTMENT
232	=	HIGH RISE RESIDENTIAL
230	=	RESIDENTIAL CONDO
252	=	SENIOR ADULT HOUSING

LEGEND

REQUIRED OPEN SPACE:
1. AMOUNT OF OPEN SPACE
   150 SQUARE FEET PER RESIDENTIAL UNIT (150 SF/RU X 3,000 RESIDENTIAL UNITS = 450,000SF)
   TWO PERCENT OF NON-RESIDENTIAL FLOOR AREA
   2% X 126,562 SF OF NON-RESIDENTIAL AREA = 2,532 S.F.

2. ARRANGEMENT:
   MINIMUM OF 50 PERCENT OF OPEN SPACE ACCESSIBLE TO THE PUBLIC FOR ACTIVE RECREATION
   MINIMUM OF 25 PERCENT OF ACTIVE RECREATION SPACE MUST BE CONTIGUOUS

86% OF ACTIVE RECREATION SPACE IS CONTIGUOUS > 25% OF ACTIVE RECREATION SPACE

PROVIDED OPEN SPACE:

PUBLICLY ASSESSIBLE: ACTIVE RECREATION (370,000 SF)
CONTIGUOUS ACTIVE RECREATION SPACE = 319,500 S.F.
TOTAL ACTIVE RECREATION SPACE = 370,000 S.F.

PUBLICLY ACCESSIBLE: PASSIVE RECREATION (520,000 SF)

SEMI-PRIVATE OPEN SPACE (620,000 SF)

P PARKING ACCESS

TOTAL OPEN SPACE 1,510,000 SF PROVIDED > 452,532 SF REQUIRED.

PFN _____

100% URBAN CENTER SUBMITTAL 03/04/2011

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Point Wells Development

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8153 REGISTERED ARCHITECT
RAY KORNOVICH
STATE OF WASHINGTON
2.11.12

Sheet Information	
Date	03/04/2011
Job Number	169009.000
Drawn	
Checked	
Approved	

Title

OPEN SPACE DIAGRAM

Sheet

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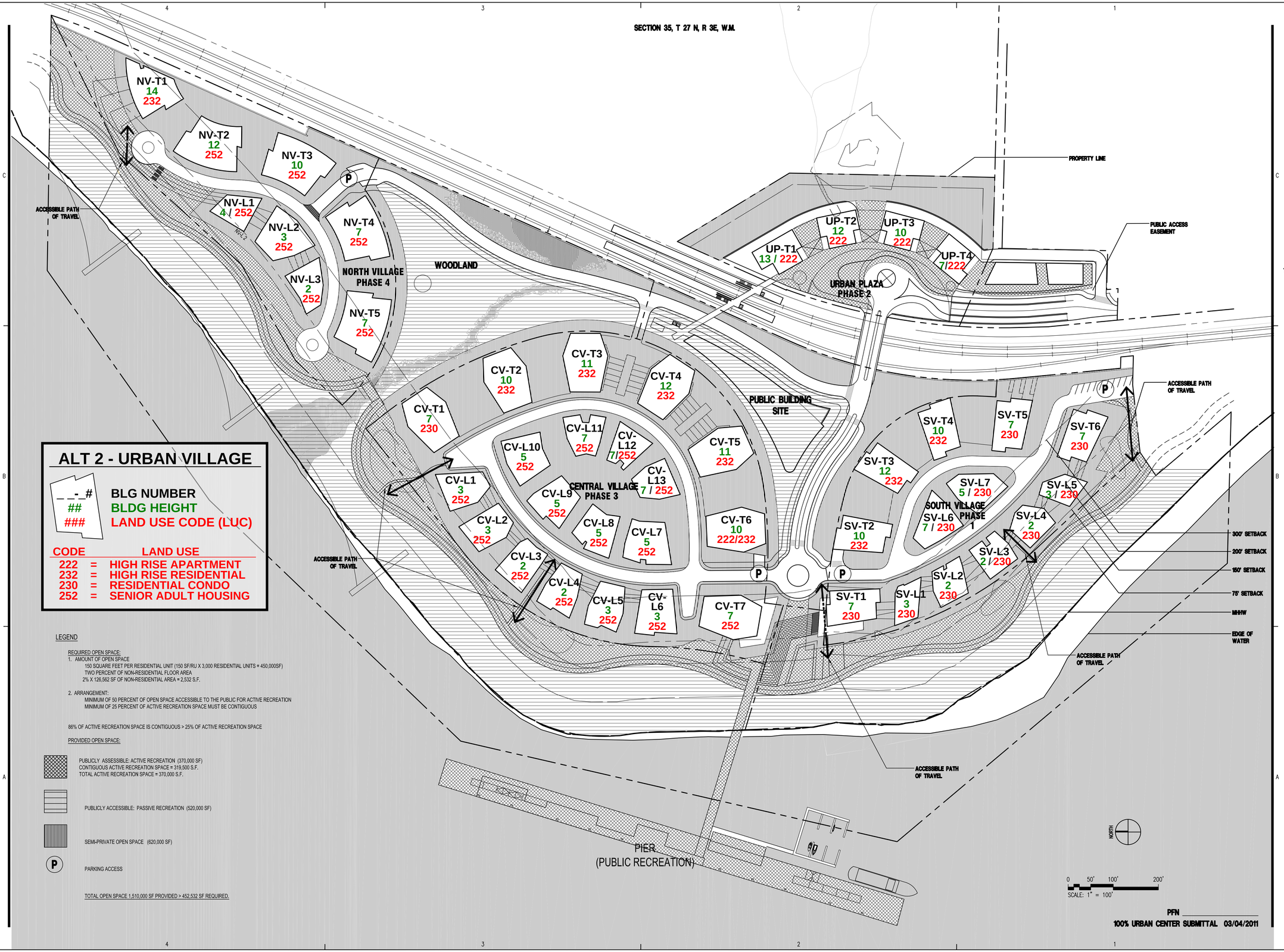
Attachment J – Urban Village Alternative Site Layout with Land Use Codes and Building Heights



ALT 2 - URBAN VILLAGE

_ _-_#	BLG NUMBER
##	BLDG HEIGHT
###	LAND USE CODE (LUC)

CODE		LAND USE
222	=	HIGH RISE APARTMENT
232	=	HIGH RISE RESIDENTIAL
230	=	RESIDENTIAL CONDO
252	=	SENIOR ADULT HOUSING

LEGEND

REQUIRED OPEN SPACE:

1. AMOUNT OF OPEN SPACE
   150 SQUARE FEET PER RESIDENTIAL UNIT (150 SF/RU X 3,000 RESIDENTIAL UNITS = 450,000SF)
   TWO PERCENT OF NON-RESIDENTIAL FLOOR AREA
   2% X 126,562 SF OF NON-RESIDENTIAL AREA = 2,532 S.F.

2. ARRANGEMENT:
   MINIMUM OF 50 PERCENT OF OPEN SPACE ACCESSIBLE TO THE PUBLIC FOR ACTIVE RECREATION
   MINIMUM OF 25 PERCENT OF ACTIVE RECREATION SPACE MUST BE CONTIGUOUS

86% OF ACTIVE RECREATION SPACE IS CONTIGUOUS > 25% OF ACTIVE RECREATION SPACE

PROVIDED OPEN SPACE:

PUBLICLY ASSESSIBLE: ACTIVE RECREATION (370,000 SF)
CONTIGUOUS ACTIVE RECREATION SPACE = 319,500 S.F.
TOTAL ACTIVE RECREATION SPACE = 370,000 S.F.

PUBLICLY ACCESSIBLE: PASSIVE RECREATION (520,000 SF)

SEMI-PRIVATE OPEN SPACE (620,000 SF)

P PARKING ACCESS

TOTAL OPEN SPACE 1,510,000 SF PROVIDED > 452,532 SF REQUIRED.

PFN

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OPEN SPACE DIAGRAM

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Attachment K – Urban Center Alternative
Trip Generation Calculations by Project Phase

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Center Alt Phase 1
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Residential			**653.0**				**239**	**47**	**192**
High-Rise Apartment	222	DU	53.0	Ln(T)=0.99* Ln(X)-1.14	25%	75%	16	4	12
High-Rise Residential Condominium/Townhouse	232	DU	433.0	T=0.29*(X)+28.86	19%	81%	154	29	125
Residential Condo/Townhouse	230	DU	114.0	Ln(T)=0.80* Ln(X)+0.26	17%	83%	57	10	48
Senior Adult Housing - Attached (Condo)	252	DU	53.0	T=0.20*(X)-0.13	34%	66%	10	4	7
Commercial Office			**0.0**				**0**	**0**	**0**
General Office	710	KSF^2	0.0	1.56	88%	12%	0	0	0
Medical-Dental Office Building	720	KSF^2	0.0	2.39	79%	21%	0	0	0
Retail			**24.0**				**96**	**59**	**37**
Specialty Retail Center	826	KSF^2	16.0	3.69	48%	52%	59	28	31
Supermarket	850	KSF^2	0.0	3.40	62%	38%	0	0	0
Quality Restaurant	931	KSF^2	8.0	4.63	82%	18%	37	30	7
On-Site Amenities		**KSF**	**0.0**						
Health/Fitness Club*	492	KSF	0.0						
							335	**106**	**229**
							AM Total	**AM In**	**AM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Center Alt Phases 1-2
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Residential			**907.0**				**315**	**66**	**249**
High-Rise Apartment	222	DU	307.0	Ln(T)=0.99* Ln(X)-1.14	25%	75%	93	23	70
High-Rise Residential Condominium/Townhouse	232	DU	433.0	T=0.29*(X)+28.86	19%	81%	154	29	125
Residential Condo/Townhouse	230	DU	114.0	Ln(T)=0.80* Ln(X)+0.26	17%	83%	57	10	48
Senior Adult Housing - Attached (Condo)	252	DU	53.0	T=0.20*(X)-0.13	34%	66%	10	4	7
Commercial Office			**32.3**				**56**	**48**	**8**
General Office	710	KSF^2	24.8	1.56	88%	12%	39	34	5
Medical-Dental Office Building	720	KSF^2	7.5	2.39	79%	21%	18	14	4
Retail			**50.3**				**185**	**114**	**71**
Specialty Retail Center	826	KSF^2	16.0	3.69	48%	52%	59	28	31
Supermarket	850	KSF^2	26.3	3.40	62%	38%	89	55	34
Quality Restaurant	931	KSF^2	8.0	4.63	82%	18%	37	30	7
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							556	**228**	**328**
							AM Total	**AM In**	**AM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Center Alt Phases 1-3
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Residential			**2178.0**				**637**	**142**	**495**
High-Rise Apartment	222	DU	307.0	Ln(T)=0.99* Ln(X)-1.14	25%	75%	93	23	70
High-Rise Residential Condominium/Townhouse	232	DU	1196.0	T=0.29*(X)+28.86	19%	81%	376	71	304
Residential Condo/Townhouse	230	DU	114.0	Ln(T)=0.80* Ln(X)+0.26	17%	83%	57	10	48
Senior Adult Housing - Attached (Condo)	252	DU	561.0	T=0.20*(X)-0.13	34%	66%	112	38	74
Commercial Office			**32.3**				**56**	**48**	**8**
General Office	710	KSF^2	24.8	1.56	88%	12%	39	34	5
Medical-Dental Office Building	720	KSF^2	7.5	2.39	79%	21%	18	14	4
Retail			**74.3**				**284**	**177**	**107**
Specialty Retail Center	826	KSF^2	30.0	3.69	48%	52%	111	53	58
Supermarket	850	KSF^2	26.3	3.40	62%	38%	89	55	34
Quality Restaurant	931	KSF^2	18.0	4.63	82%	18%	83	68	15
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							977	**367**	**610**
							AM Total	**AM In**	**AM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Center Alt Phases1-4
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Residential			**3081.0**				**851**	**199**	**652**
High-Rise Apartment	222	DU	307.0	Ln(T)=0.99* Ln(X)-1.14	25%	75%	93	23	70
High-Rise Residential Condominium/Townhouse	232	DU	1560.0	T=0.29*(X)+28.86	19%	81%	481	91	390
Residential Condo/Townhouse	230	DU	114.0	Ln(T)=0.80* Ln(X)+0.26	17%	83%	57	10	48
Senior Adult Housing - Attached (Condo)	252	DU	1100.0	T=0.20*(X)-0.13	34%	66%	220	75	145
Commercial Office			**32.3**				**56**	**48**	**8**
General Office	710	KSF^2	24.8	1.56	88%	12%	39	34	5
Medical-Dental Office Building	720	KSF^2	7.5	2.39	79%	21%	18	14	4
Retail			**74.3**				**284**	**177**	**107**
Specialty Retail Center	826	KSF^2	30.0	3.69	48%	52%	111	53	58
Supermarket	850	KSF^2	26.3	3.40	62%	38%	89	55	34
Quality Restaurant	931	KSF^2	18.0	4.63	82%	18%	83	68	15
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							1,191	**424**	**767**
							AM Total	**AM In**	**AM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Center Alt Phase 1
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Residential			**653.0**				**273**	**171**	**102**
High-Rise Apartment	222	DU	53.0	T=0.32*(X)+12.3	61%	39%	29	18	11
High-Rise Residential Condominium/Townhouse	232	DU	433.0	T=0.34*(X)+15.47	62%	38%	163	101	62
Residential Condo/Townhouse	230	DU	114.0	Ln(T)=0.82* Ln(X)+0.32	67%	33%	67	45	22
Senior Adult Housing - Attached (Condo)	252	DU	53.0	T=0.24*(X)+1.64	54%	46%	14	8	7
Commercial Office			**0.0**				**0**	**0**	**0**
General Office	710	KSF^2	0.0	1.49	17%	83%	0	0	0
Medical-Dental Office Building	720	KSF^2	0.0	3.57	28%	72%	0	0	0
Retail			**24.0**				**103**	**59**	**44**
Specialty Retail Center	826	KSF^2	16.0	2.71	44%	56%	43	19	24
Supermarket	850	KSF^2	0.0	9.48	51%	49%	0	0	0
Quality Restaurant	931	KSF^2	8.0	7.49	67%	33%	60	40	20
On-Site Amenities		**KSF**	**0.0**						
Health/Fitness Club*	492	KSF	0.0						
							376	**230**	**146**
							PM Total	**PM In**	**PM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Center Alt Phases 1-2
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Residential			**907.0**				**355**	**221**	**134**
High-Rise Apartment	222	DU	307.0	T=0.32*(X)+12.3	61%	39%	111	67	43
High-Rise Residential Condominium/Townhouse	232	DU	433.0	T=0.34*(X)+15.47	62%	38%	163	101	62
Residential Condo/Townhouse	230	DU	114.0	Ln(T)=0.82* Ln(X)+0.32	67%	33%	67	45	22
Senior Adult Housing - Attached (Condo)	252	DU	53.0	T=0.24*(X)+1.64	54%	46%	14	8	7
Commercial Office			**32.3**				**64**	**14**	**50**
General Office	710	KSF^2	24.8	1.49	17%	83%	37	6	31
Medical-Dental Office Building	720	KSF^2	7.5	3.57	28%	72%	27	7	19
Retail			**50.3**				**352**	**186**	**166**
Specialty Retail Center	826	KSF^2	16.0	2.71	44%	56%	43	19	24
Supermarket	850	KSF^2	26.3	9.48	51%	49%	249	127	122
Quality Restaurant	931	KSF^2	8.0	7.49	67%	33%	60	40	20
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							771	**421**	**350**
							PM Total	**PM In**	**PM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Center Alt Phases 1-3
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Residential			**2178.0**				**736**	**448**	**288**
High-Rise Apartment	222	DU	307.0	T=0.32*(X)+12.3	61%	39%	111	67	43
High-Rise Residential Condominium/Townhouse	232	DU	1196.0	T=0.34*(X)+15.47	62%	38%	422	262	160
Residential Condo/Townhouse	230	DU	114.0	Ln(T)=0.82* Ln(X)+0.32	67%	33%	67	45	22
Senior Adult Housing - Attached (Condo)	252	DU	561.0	T=0.24*(X)+1.64	54%	46%	136	74	63
Commercial Office			**32.3**				**64**	**14**	**50**
General Office	710	KSF^2	24.8	1.49	17%	83%	37	6	31
Medical-Dental Office Building	720	KSF^2	7.5	3.57	28%	72%	27	7	19
Retail			**74.3**				**465**	**253**	**212**
Specialty Retail Center	826	KSF^2	30.0	2.71	44%	56%	81	36	46
Supermarket	850	KSF^2	26.3	9.48	51%	49%	249	127	122
Quality Restaurant	931	KSF^2	18.0	7.49	67%	33%	135	90	44
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							1,265	**715**	**550**
							PM Total	**PM In**	**PM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Center Alt Phases1-4
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Residential			**3081.0**				**989**	**594**	**395**
High-Rise Apartment	222	DU	307.0	T=0.32*(X)+12.3	61%	39%	111	67	43
High-Rise Residential Condominium/Townhouse	232	DU	1560.0	T=0.34*(X)+15.47	62%	38%	546	338	207
Residential Condo/Townhouse	230	DU	114.0	Ln(T)=0.82* Ln(X)+0.32	67%	33%	67	45	22
Senior Adult Housing - Attached (Condo)	252	DU	1100.0	T=0.24*(X)+1.64	54%	46%	266	143	122
Commercial Office			**32.3**				**64**	**14**	**50**
General Office	710	KSF^2	24.8	1.49	17%	83%	37	6	31
Medical-Dental Office Building	720	KSF^2	7.5	3.57	28%	72%	27	7	19
Retail			**74.3**				**465**	**253**	**212**
Specialty Retail Center	826	KSF^2	30.0	2.71	44%	56%	81	36	46
Supermarket	850	KSF^2	26.3	9.48	51%	49%	249	127	122
Quality Restaurant	931	KSF^2	18.0	7.49	67%	33%	135	90	44
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							1,518	**861**	**657**
							PM Total	**PM In**	**PM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

Attachment L – Urban Village Alternative
Trip Generation Calculations by Project Phase

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Village Alt Phase 1
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Residential			**575.0**				**234**	**42**	**192**
High-Rise Apartment	222	DU	0.0	Ln(T)=0.99* Ln(X)-1.14	25%	75%	0	0	0
High-Rise Residential Condominium/Townhouse	232	DU	253.0	T=0.29*(X)+28.86	19%	81%	102	19	83
Residential Condo/Townhouse	230	DU	322.0	Ln(T)=0.80* Ln(X)+0.26	17%	83%	132	22	109
Senior Adult Housing - Attached (Condo)	252	DU	0.0	T=0.20*(X)-0.13	34%	66%	0	0	0
Commercial Office			**0.0**				**0**	**0**	**0**
General Office	710	KSF^2	0.0	1.56	88%	12%	0	0	0
Medical-Dental Office Building	720	KSF^2	0.0	2.39	79%	21%	0	0	0
Retail			**24.0**				**96**	**59**	**37**
Specialty Retail Center	826	KSF^2	16.0	3.69	48%	52%	59	28	31
Supermarket	850	KSF^2	0.0	3.40	62%	38%	0	0	0
Quality Restaurant	931	KSF^2	8.0	4.63	82%	18%	37	30	7
On-Site Amenities		**KSF**	**0.0**						
Health/Fitness Club*	492	KSF	0.0						
							330	**101**	**229**
							AM Total	**AM In**	**AM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Village Alt Phases 1-2
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Residential			**817.0**				**307**	**60**	**247**
High-Rise Apartment	222	DU	242.0	Ln(T)=0.99* Ln(X)-1.14	25%	75%	73	18	55
High-Rise Residential Condominium/Townhouse	232	DU	253.0	T=0.29*(X)+28.86	19%	81%	102	19	83
Residential Condo/Townhouse	230	DU	322.0	Ln(T)=0.80* Ln(X)+0.26	17%	83%	132	22	109
Senior Adult Housing - Attached (Condo)	252	DU	0.0	T=0.20*(X)-0.13	34%	66%	0	0	0
Commercial Office			**32.3**				**56**	**48**	**8**
General Office	710	KSF^2	24.8	1.56	88%	12%	39	34	5
Medical-Dental Office Building	720	KSF^2	7.5	2.39	79%	21%	18	14	4
Retail			**50.3**				**185**	**114**	**71**
Specialty Retail Center	826	KSF^2	16.0	3.69	48%	52%	59	28	31
Supermarket	850	KSF^2	26.3	3.40	62%	38%	89	55	34
Quality Restaurant	931	KSF^2	8.0	4.63	82%	18%	37	30	7
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							548	**222**	**326**
							AM Total	**AM In**	**AM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Village Alt Phases 1-3
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Residential			**1945.0**				**595**	**129**	**466**
High-Rise Apartment	222	DU	260.0	Ln(T)=0.99* Ln(X)-1.14	25%	75%	79	20	59
High-Rise Residential Condominium/Townhouse	232	DU	819.0	T=0.29*(X)+28.86	19%	81%	266	51	216
Residential Condo/Townhouse	230	DU	397.0	Ln(T)=0.80* Ln(X)+0.26	17%	83%	156	26	129
Senior Adult Housing - Attached (Condo)	252	DU	469.0	T=0.20*(X)-0.13	34%	66%	94	32	62
Commercial Office			**32.3**				**56**	**48**	**8**
General Office	710	KSF^2	24.8	1.56	88%	12%	39	34	5
Medical-Dental Office Building	720	KSF^2	7.5	2.39	79%	21%	18	14	4
Retail			**74.3**				**284**	**177**	**107**
Specialty Retail Center	826	KSF^2	30.0	3.69	48%	52%	111	53	58
Supermarket	850	KSF^2	26.3	3.40	62%	38%	89	55	34
Quality Restaurant	931	KSF^2	18.0	4.63	82%	18%	83	68	15
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							935	**354**	**581**
							AM Total	**AM In**	**AM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Village Alt Phases1-4
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Residential			**2600.0**				**738**	**171**	**567**
High-Rise Apartment	222	DU	260.0	Ln(T)=0.99* Ln(X)-1.14	25%	75%	79	20	59
High-Rise Residential Condominium/Townhouse	232	DU	965.0	T=0.29*(X)+28.86	19%	81%	309	59	250
Residential Condo/Townhouse	230	DU	397.0	Ln(T)=0.80* Ln(X)+0.26	17%	83%	156	26	129
Senior Adult Housing - Attached (Condo)	252	DU	978.0	T=0.20*(X)-0.13	34%	66%	195	66	129
Commercial Office			**32.3**				**56**	**48**	**8**
General Office	710	KSF^2	24.8	1.56	88%	12%	39	34	5
Medical-Dental Office Building	720	KSF^2	7.5	2.39	79%	21%	18	14	4
Retail			**74.3**				**284**	**177**	**107**
Specialty Retail Center	826	KSF^2	30.0	3.69	48%	52%	111	53	58
Supermarket	850	KSF^2	26.3	3.40	62%	38%	89	55	34
Quality Restaurant	931	KSF^2	18.0	4.63	82%	18%	83	68	15
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							1,078	**396**	**682**
							AM Total	**AM In**	**AM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Village Alt Phase 1
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Residential			**575.0**				**272**	**176**	**96**
High-Rise Apartment	222	DU	0.0	T=0.32*(X)+12.3	61%	39%	12	8	5
High-Rise Residential Condominium/Townhouse	232	DU	253.0	T=0.34*(X)+15.47	62%	38%	101	63	39
Residential Condo/Townhouse	230	DU	322.0	Ln(T)=0.82* Ln(X)+0.32	67%	33%	157	105	52
Senior Adult Housing - Attached (Condo)	252	DU	0.0	T=0.24*(X)+1.64	54%	46%	2	1	1
Commercial Office			**0.0**				**0**	**0**	**0**
General Office	710	KSF^2	0.0	1.49	17%	83%	0	0	0
Medical-Dental Office Building	720	KSF^2	0.0	3.57	28%	72%	0	0	0
Retail			**24.0**				**103**	**59**	**44**
Specialty Retail Center	826	KSF^2	16.0	2.71	44%	56%	43	19	24
Supermarket	850	KSF^2	0.0	9.48	51%	49%	0	0	0
Quality Restaurant	931	KSF^2	8.0	7.49	67%	33%	60	40	20
On-Site Amenities		**KSF**	**0.0**						
Health/Fitness Club*	492	KSF	0.0						
							375	**235**	**140**
							PM Total	**PM In**	**PM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Village Alt Phases 1-2
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Residential			**817.0**				**350**	**224**	**126**
High-Rise Apartment	222	DU	242.0	T=0.32*(X)+12.3	61%	39%	90	55	35
High-Rise Residential Condominium/Townhouse	232	DU	253.0	T=0.34*(X)+15.47	62%	38%	101	63	39
Residential Condo/Townhouse	230	DU	322.0	Ln(T)=0.82* Ln(X)+0.32	67%	33%	157	105	52
Senior Adult Housing - Attached (Condo)	252	DU	0.0	T=0.24*(X)+1.64	54%	46%	2	1	1
Commercial Office			**32.3**				**64**	**14**	**50**
General Office	710	KSF^2	24.8	1.49	17%	83%	37	6	31
Medical-Dental Office Building	720	KSF^2	7.5	3.57	28%	72%	27	7	19
Retail			**50.3**				**352**	**186**	**166**
Specialty Retail Center	826	KSF^2	16.0	2.71	44%	56%	43	19	24
Supermarket	850	KSF^2	26.3	9.48	51%	49%	249	127	122
Quality Restaurant	931	KSF^2	8.0	7.49	67%	33%	60	40	20
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							766	**424**	**342**
							PM Total	**PM In**	**PM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Village Alt Phases 1-3
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Residential			**1945.0**				**690**	**427**	**263**
High-Rise Apartment	222	DU	260.0	T=0.32*(X)+12.3	61%	39%	96	58	37
High-Rise Residential Condominium/Townhouse	232	DU	819.0	T=0.34*(X)+15.47	62%	38%	294	182	112
Residential Condo/Townhouse	230	DU	397.0	Ln(T)=0.82* Ln(X)+0.32	67%	33%	186	125	61
Senior Adult Housing - Attached (Condo)	252	DU	469.0	T=0.24*(X)+1.64	54%	46%	114	62	53
Commercial Office			**32.3**				**64**	**14**	**50**
General Office	710	KSF^2	24.8	1.49	17%	83%	37	6	31
Medical-Dental Office Building	720	KSF^2	7.5	3.57	28%	72%	27	7	19
Retail			**74.3**				**465**	**253**	**212**
Specialty Retail Center	826	KSF^2	30.0	2.71	44%	56%	81	36	46
Supermarket	850	KSF^2	26.3	9.48	51%	49%	249	127	122
Quality Restaurant	931	KSF^2	18.0	7.49	67%	33%	135	90	44
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							1,219	**694**	**525**
							PM Total	**PM In**	**PM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: Urban Village Alt Phases1-4
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Residential			**2600.0**				**862**	**524**	**338**
High-Rise Apartment	222	DU	260.0	T=0.32*(X)+12.3	61%	39%	96	58	37
High-Rise Residential Condominium/Townhouse	232	DU	965.0	T=0.34*(X)+15.47	62%	38%	344	213	131
Residential Condo/Townhouse	230	DU	397.0	Ln(T)=0.82* Ln(X)+0.32	67%	33%	186	125	61
Senior Adult Housing - Attached (Condo)	252	DU	978.0	T=0.24*(X)+1.64	54%	46%	236	128	109
Commercial Office			**32.3**				**64**	**14**	**50**
General Office	710	KSF^2	24.8	1.49	17%	83%	37	6	31
Medical-Dental Office Building	720	KSF^2	7.5	3.57	28%	72%	27	7	19
Retail			**74.3**				**465**	**253**	**212**
Specialty Retail Center	826	KSF^2	30.0	2.71	44%	56%	81	36	46
Supermarket	850	KSF^2	26.3	9.48	51%	49%	249	127	122
Quality Restaurant	931	KSF^2	18.0	7.49	67%	33%	135	90	44
On-Site Amenities		**KSF**	**20.0**						
Health/Fitness Club*	492	KSF	20.0						
							1,391	**791**	**600**
							PM Total	**PM In**	**PM Out**

*Health/Fitness Club facilities provide complimentary services to residents only; therefore, no trip generation is expected.

Attachment M – NCHRP 684 Trip Capture Estimation Tool
Blank Template

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				0		
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
				0	0	0

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	0	0	0
Internal Capture Percentage	0%	0%	0%
External Vehicle-Trips[5]	0	0	0
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	N/A	N/A
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	0
Analysis Period:	**AM Street Peak Hour**

Table 7-A: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-A (D): Entering Trips			Table 7-A (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	0	0	1.00	0	0
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-A (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-A (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 9-A (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	0	0	0	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-A (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	0	0	0	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:		**Organization:**	
Project Location:		**Performed By:**	
Scenario Description:		**Date:**	
Analysis Year:		**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office				0		
Retail				0		
Restaurant				0		
Cinema/Entertainment				0		
Residential				0		
Hotel				0		
All Other Land Uses[2]				0		
				0	0	0

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	0	0	0
Internal Capture Percentage	0%	0%	0%
External Vehicle-Trips[5]	0	0	0
External Transit-Trips[6]	0	0	0
External Non-Motorized Trips[6]	0	0	0

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	N/A	N/A
Restaurant	N/A	N/A
Cinema/Entertainment	N/A	N/A
Residential	N/A	N/A
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

Project Name:	0
Analysis Period:	**PM Street Peak Hour**

Table 7-P: Conversion of Vehicle-Trip Ends to Person-Trip Ends

Land Use	Table 7-P (D): Entering Trips			Table 7-P (O): Exiting Trips		
	Veh. Occ.	Vehicle-Trips	Person-Trips*	Veh. Occ.	Vehicle-Trips	Person-Trips*
Office	1.00	0	0	1.00	0	0
Retail	1.00	0	0	1.00	0	0
Restaurant	1.00	0	0	1.00	0	0
Cinema/Entertainment	1.00	0	0	1.00	0	0
Residential	1.00	0	0	1.00	0	0
Hotel	1.00	0	0	1.00	0	0

Table 8-P (O): Internal Person-Trip Origin-Destination Matrix (Computed at Origin)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 8-P (D): Internal Person-Trip Origin-Destination Matrix (Computed at Destination)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		0	0	0	0
Restaurant	0	0		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	0	0	0		0
Hotel	0	0	0	0	0	

Table 9-P (D): Internal and External Trips Summary (Entering Trips)

Destination Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	0	0	0	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

Table 9-P (O): Internal and External Trips Summary (Exiting Trips)

Origin Land Use	Person-Trip Estimates			External Trips by Mode*		
	Internal	External	Total	Vehicles[1]	Transit[2]	Non-Motorized[2]
Office	0	0	0	0	0	0
Retail	0	0	0	0	0	0
Restaurant	0	0	0	0	0	0
Cinema/Entertainment	0	0	0	0	0	0
Residential	0	0	0	0	0	0
Hotel	0	0	0	0	0	0
All Other Land Uses[3]	0	0	0	0	0	0

[1]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P

[2]Person-Trips

[3]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator

*Indicates computation that has been rounded to the nearest whole number.

Table 7.1a Adjusted Internal Trip Capture Rates for Trip Origins within a Multi-Use Development			
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
From OFFICE	To Office	0.0%	0.0%
	To Retail	28.0%	20.0%
	To Restaurant	63.0%	4.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	1.0%	2.0%
	To Hotel	0.0%	0.0%
From RETAIL	To Office	29.0%	2.0%
	To Retail	0.0%	0.0%
	To Restaurant	13.0%	29.0%
	To Cinema/Entertainment	0.0%	4.0%
	To Residential	14.0%	26.0%
	To Hotel	0.0%	5.0%
From RESTAURANT	To Office	31.0%	3.0%
	To Retail	14.0%	41.0%
	To Restaurant	0.0%	0.0%
	To Cinema/Entertainment	0.0%	8.0%
	To Residential	4.0%	18.0%
	To Hotel	3.0%	7.0%
From CINEMA/ENTERTAINMENT	To Office	0.0%	2.0%
	To Retail	0.0%	21.0%
	To Restaurant	0.0%	31.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	8.0%
	To Hotel	0.0%	2.0%
From RESIDENTIAL	To Office	2.0%	4.0%
	To Retail	1.0%	42.0%
	To Restaurant	20.0%	21.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	0.0%
	To Hotel	0.0%	3.0%
From HOTEL	To Office	75.0%	0.0%
	To Retail	14.0%	16.0%
	To Restaurant	9.0%	68.0%
	To Cinema/Entertainment	0.0%	0.0%
	To Residential	0.0%	2.0%
	To Hotel	0.0%	0.0%

Table 7.2a Adjusted Internal Trip Capture Rates for Trip Destinations within a Multi-Use Development			
Land Use Pairs		Weekday	
		AM Peak Hour	PM Peak Hour
To OFFICE	From Office	0.0%	0.0%
	From Retail	4.0%	31.0%
	From Restaurant	14.0%	30.0%
	From Cinema/Entertainment	0.0%	6.0%
	From Residential	3.0%	57.0%
	From Hotel	3.0%	0.0%
To RETAIL	From Office	32.0%	8.0%
	From Retail	0.0%	0.0%
	From Restaurant	8.0%	50.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	17.0%	10.0%
	From Hotel	4.0%	2.0%
To RESTAURANT	From Office	23.0%	2.0%
	From Retail	50.0%	29.0%
	From Restaurant	0.0%	0.0%
	From Cinema/Entertainment	0.0%	3.0%
	From Residential	20.0%	14.0%
	From Hotel	6.0%	5.0%
To CINEMA/ENTERTAINMENT	From Office	0.0%	1.0%
	From Retail	0.0%	26.0%
	From Restaurant	0.0%	32.0%
	From Cinema/Entertainment	0.0%	0.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To RESIDENTIAL	From Office	0.0%	4.0%
	From Retail	2.0%	46.0%
	From Restaurant	5.0%	16.0%
	From Cinema/Entertainment	0.0%	4.0%
	From Residential	0.0%	0.0%
	From Hotel	0.0%	0.0%
To HOTEL	From Office	0.0%	0.0%
	From Retail	0.0%	17.0%
	From Restaurant	4.0%	71.0%
	From Cinema/Entertainment	0.0%	1.0%
	From Residential	0.0%	12.0%
	From Hotel	0.0%	0.0%

Attachment N – NCHRP 684 Trip Capture Estimation Tool
Mode Split Adjustments

Table N1: Mode Split and Vehicle Occupancy Estimates in AM Peak Hour

Land Use	Entering Trips				Exiting Trips		
	Vehicle Occupancy	% Transit	% Non-Motorized		Vehicle Occupancy	% Transit	% Non-Motorized
Office	1.06	1%	0%		1.06	0%	0%
Retail	1.17	0%	0%		1.16	0%	0%
Restaurant	1.62	0%	0%		1.52	0%	0%
Residential	1.13	0%	4%		1.09	Refer to Table 3	2%

Table N2: Mode Split and Vehicle Occupancy Estimates in PM Peak Hour

Land Use	Entering Trips				Exiting Trips		
	Vehicle Occupancy	% Transit	% Non-Motorized		Vehicle Occupancy	% Transit	% Non-Motorized
Office	1.11	0%	0%		1.07	0%	1%
Retail	1.21	0%	0%		1.18	0%	0%
Restaurant	1.62	0%	1%		1.52	0%	1%
Residential	1.15	Refer to Table 3	3%		1.21	0%	4%

Attachment O – NCHRP 684 Trip Capture Estimation Tool Calculations for Traffic Analysis Scenarios

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Center Phase I	**Date:**	21-Apr-15
Analysis Year:	2020	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	-	-	-			
Retail	826/850	16,000	0	59	28	31
Restaurant	931	8,000	0	37	30	7
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	653	239	47	192
Hotel	-	-	-			
All Other Land Uses[2]	-	-	-			
				335	105	230

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.62	0%	0%	1.52	0%	0%
Cinema/Entertainment						
Residential	1.13	0%	4%	1.09	7%	2%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		5	0	1	0
Restaurant	0	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	10	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	391	135	256
Internal Capture Percentage	10%	15%	8%
External Vehicle-Trips[5]	286	90	196
External Transit-Trips[6]	14	0	14
External Non-Motorized Trips[6]	6	2	4

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	12%	17%
Restaurant	31%	18%
Cinema/Entertainment	N/A	N/A
Residential	2%	6%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Center Phase I	**Date:**	21-Apr-15
Analysis Year:	2020	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	-	-	-			
Retail	826/850	16,000	0	43	19	24
Restaurant	931	8,000	0	60	40	20
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	653	273	171	102
Hotel	-	-	-			
All Other Land Uses[2]	-	-	-			
				376	230	146

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.62	0%	1%	1.52	0%	1%
Cinema/Entertainment						
Residential	1.15	7%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					1200	
Restaurant					1050	
Cinema/Entertainment						
Residential		1200	1050			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		8	0	6	0
Restaurant	0	12		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	7	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	466	285	181
Internal Capture Percentage	17%	14%	22%
External Vehicle-Trips[5]	295	183	112
External Transit-Trips[6]	13	13	0
External Non-Motorized Trips[6]	10	6	4

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	61%	50%
Restaurant	23%	57%
Cinema/Entertainment	N/A	N/A
Residential	6%	7%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Center Phase II	**Date:**	21-Apr-15
Analysis Year:	2025	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	56	48	8
Retail	826/850	42,300	0	148	83	65
Restaurant	931	8,000	0	37	30	7
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	907	315	66	249
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				556	227	329

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.06	1%	0%	1.06	0%	0%
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.62	0%	0%	1.52	0%	0%
Cinema/Entertainment						
Residential	1.13	0%	4%	1.09	12%	2%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	5	0	0	0
Retail	2		10	0	2	0
Restaurant	3	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	3	10	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	637	272	365
Internal Capture Percentage	13%	15%	11%
External Vehicle-Trips[5]	455	196	259
External Transit-Trips[6]	31	0	31
External Non-Motorized Trips[6]	9	3	6

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	14%	88%
Retail	7%	19%
Restaurant	51%	45%
Cinema/Entertainment	N/A	N/A
Residential	3%	6%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Center Phase II	**Date:**	21-Apr-15
Analysis Year:	2025	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	64	14	50
Retail	826/850	42,300	0	292	146	146
Restaurant	931	8,000	0	60	40	20
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	907	355	221	134
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				771	421	350

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.11	0%	0%	1.07	0%	1%
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.62	0%	1%	1.52	0%	1%
Cinema/Entertainment						
Residential	1.15	12%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1000	1400		1600	
Retail					1200	
Restaurant					1050	
Cinema/Entertainment						
Residential		1200	1050			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	1	0	1	0
Retail	3		19	0	39	0
Restaurant	1	12		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	6	12	7	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	930	512	418
Internal Capture Percentage	25%	22%	27%
External Vehicle-Trips[5]	556	304	252
External Transit-Trips[6]	25	25	0
External Non-Motorized Trips[6]	10	5	5

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	63%	19%
Retail	18%	35%
Restaurant	42%	60%
Cinema/Entertainment	N/A	N/A
Residential	18%	15%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Center Phase III	**Date:**	21-Apr-15
Analysis Year:	2030	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	56	48	8
Retail	826/850	56,300	0	201	109	92
Restaurant	931	18,000	0	83	68	15
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	2,178	637	142	495
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				977	367	610

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.06	1%	0%	1.06	0%	0%
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.62	0%	0%	1.52	0%	0%
Cinema/Entertainment						
Residential	1.13	0%	4%	1.09	17%	2%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	5	0	0	0
Retail	2		14	0	3	0
Restaurant	7	3		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	5	22	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,127	449	678
Internal Capture Percentage	12%	15%	10%
External Vehicle-Trips[5]	780	316	464
External Transit-Trips[6]	87	0	87
External Non-Motorized Trips[6]	16	5	11

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	22%	88%
Retail	8%	18%
Restaurant	37%	48%
Cinema/Entertainment	N/A	N/A
Residential	3%	5%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Center Phase III	**Date:**	21-Apr-15
Analysis Year:	2030	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	64	14	50
Retail	826/850	56,300	0	331	163	168
Restaurant	931	18,000	0	134	90	44
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	2,178	736	448	288
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				1,265	715	550

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.11	0%	0%	1.07	0%	1%
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.62	0%	1%	1.52	0%	1%
Cinema/Entertainment						
Residential	1.15	17%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1000	1400		1600	
Retail					1200	
Restaurant					1050	
Cinema/Entertainment						
Residential		1200	1050			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	1	0	1	0
Retail	4		42	0	45	0
Restaurant	2	27		0	11	0
Cinema/Entertainment	0	0	0		0	0
Residential	9	14	15	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,541	874	667
Internal Capture Percentage	23%	20%	27%
External Vehicle-Trips[5]	894	498	396
External Transit-Trips[6]	78	78	0
External Non-Motorized Trips[6]	24	12	12

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	94%	19%
Retail	25%	46%
Restaurant	40%	60%
Cinema/Entertainment	N/A	N/A
Residential	11%	11%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Center Phase IV	**Date:**	21-Apr-15
Analysis Year:	2035	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	56	48	8
Retail	826/850	56,300	0	201	109	92
Restaurant	931	18,000	0	83	68	15
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	3,081	851	199	652
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				1,191	424	767

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.06	1%	0%	1.06	0%	0%
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.62	0%	0%	1.52	0%	0%
Cinema/Entertainment						
Residential	1.13	0%	4%	1.09	22%	2%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	5	0	0	0
Retail	2		14	0	5	0
Restaurant	7	3		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	7	22	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,363	514	849
Internal Capture Percentage	10%	14%	8%
External Vehicle-Trips[5]	921	366	555
External Transit-Trips[6]	151	1	150
External Non-Motorized Trips[6]	23	8	15

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	22%	88%
Retail	9%	20%
Restaurant	37%	48%
Cinema/Entertainment	N/A	N/A
Residential	3%	4%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Center Phase IV	**Date:**	21-Apr-15
Analysis Year:	2035	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	64	14	50
Retail	826/850	56,300	0	331	163	168
Restaurant	931	18,000	0	134	90	44
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	3,081	989	594	395
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				1,518	861	657

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.11	0%	0%	1.07	0%	1%
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.62	0%	1%	1.52	0%	1%
Cinema/Entertainment						
Residential	1.15	22%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1000	1400		1600	
Retail					1200	
Restaurant					1050	
Cinema/Entertainment						
Residential		1200	1050			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	1	0	1	0
Retail	4		42	0	45	0
Restaurant	2	27		0	11	0
Cinema/Entertainment	0	0	0		0	0
Residential	9	14	15	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,839	1,042	797
Internal Capture Percentage	19%	17%	22%
External Vehicle-Trips[5]	1,087	587	500
External Transit-Trips[6]	138	138	0
External Non-Motorized Trips[6]	34	17	17

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	94%	19%
Retail	25%	46%
Restaurant	40%	60%
Cinema/Entertainment	N/A	N/A
Residential	8%	8%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Village Phase I	**Date:**	21-Apr-15
Analysis Year:	2020	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	-	-	-			
Retail	826/850	16,000	0	59	29	30
Restaurant	931	8,000	0	37	30	7
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	575	234	42	192
Hotel	-	-	-			
All Other Land Uses[2]	-	-	-			
				330	101	229

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.62	0%	0%	1.52	0%	0%
Cinema/Entertainment						
Residential	1.13	0%	4%	1.09	7%	2%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		5	0	1	0
Restaurant	0	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	10	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	385	130	255
Internal Capture Percentage	10%	15%	8%
External Vehicle-Trips[5]	281	86	195
External Transit-Trips[6]	14	0	14
External Non-Motorized Trips[6]	6	2	4

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	12%	17%
Restaurant	31%	18%
Cinema/Entertainment	N/A	N/A
Residential	2%	6%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Village Phase I	**Date:**	21-Apr-15
Analysis Year:	2020	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	-	-	-			
Retail	826/850	16,000	0	43	19	24
Restaurant	931	8,000	0	60	40	20
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	575	272	176	96
Hotel	-	-	-			
All Other Land Uses[2]	-	-	-			
				375	235	140

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office						
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.62	0%	1%	1.52	0%	1%
Cinema/Entertainment						
Residential	1.15	7%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail					1200	
Restaurant					1050	
Cinema/Entertainment						
Residential		1200	1050			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		0	0	0	0	0
Retail	0		8	0	6	0
Restaurant	0	12		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	0	2	7	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	464	290	174
Internal Capture Percentage	17%	14%	23%
External Vehicle-Trips[5]	293	187	106
External Transit-Trips[6]	13	13	0
External Non-Motorized Trips[6]	10	6	4

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	N/A	N/A
Retail	61%	50%
Restaurant	23%	57%
Cinema/Entertainment	N/A	N/A
Residential	5%	8%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Village Phase II	**Date:**	21-Apr-15
Analysis Year:	2025	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	56	48	8
Retail	826/850	42,300	0	148	83	65
Restaurant	931	8,000	0	37	30	7
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	817	307	61	246
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				548	222	326

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.06	1%	0%	1.06	0%	0%
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.62	0%	0%	1.52	0%	0%
Cinema/Entertainment						
Residential	1.13	0%	4%	1.09	11%	2%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	5	0	0	0
Retail	2		10	0	1	0
Restaurant	3	2		0	0	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	3	10	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	628	266	362
Internal Capture Percentage	13%	15%	11%
External Vehicle-Trips[5]	451	192	259
External Transit-Trips[6]	28	0	28
External Non-Motorized Trips[6]	8	2	6

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	14%	88%
Retail	7%	17%
Restaurant	51%	45%
Cinema/Entertainment	N/A	N/A
Residential	1%	6%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Village Phase II	**Date:**	21-Apr-15
Analysis Year:	2025	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	64	14	50
Retail	826/850	42,300	0	292	146	146
Restaurant	931	8,000	0	60	40	20
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	817	350	224	126
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				766	424	342

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.11	0%	0%	1.07	0%	1%
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.62	0%	1%	1.52	0%	1%
Cinema/Entertainment						
Residential	1.15	11%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1000	1400		1600	
Retail					1200	
Restaurant					1050	
Cinema/Entertainment						
Residential		1200	1050			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	1	0	1	0
Retail	3		19	0	39	0
Restaurant	1	12		0	5	0
Cinema/Entertainment	0	0	0		0	0
Residential	6	12	7	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	924	516	408
Internal Capture Percentage	25%	22%	28%
External Vehicle-Trips[5]	553	309	244
External Transit-Trips[6]	23	23	0
External Non-Motorized Trips[6]	10	5	5

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	63%	19%
Retail	18%	35%
Restaurant	42%	60%
Cinema/Entertainment	N/A	N/A
Residential	17%	16%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Village Phase III	**Date:**	21-Apr-15
Analysis Year:	2030	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	56	48	8
Retail	826/850	56,300	0	201	109	92
Restaurant	931	18,000	0	83	68	15
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	1,945	595	129	466
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				935	354	581

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.06	1%	0%	1.06	0%	0%
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.62	0%	0%	1.52	0%	0%
Cinema/Entertainment						
Residential	1.13	0%	4%	1.09	15%	2%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	5	0	0	0
Retail	2		14	0	3	0
Restaurant	7	3		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	5	22	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,081	435	646
Internal Capture Percentage	12%	15%	10%
External Vehicle-Trips[5]	751	303	448
External Transit-Trips[6]	72	0	72
External Non-Motorized Trips[6]	16	5	11

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	22%	88%
Retail	8%	18%
Restaurant	37%	48%
Cinema/Entertainment	N/A	N/A
Residential	3%	6%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Village Phase III	**Date:**	21-Apr-15
Analysis Year:	2030	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	64	14	50
Retail	826/850	56,300	0	331	163	168
Restaurant	931	18,000	0	134	90	44
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	1,945	690	427	263
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				1,219	694	525

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.11	0%	0%	1.07	0%	1%
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.62	0%	1%	1.52	0%	1%
Cinema/Entertainment						
Residential	1.15	15%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1000	1400		1600	
Retail					1200	
Restaurant					1050	
Cinema/Entertainment						
Residential		1200	1050			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	1	0	1	0
Retail	4		42	0	45	0
Restaurant	2	27		0	11	0
Cinema/Entertainment	0	0	0		0	0
Residential	9	14	15	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,487	850	637
Internal Capture Percentage	24%	21%	28%
External Vehicle-Trips[5]	860	488	372
External Transit-Trips[6]	65	65	0
External Non-Motorized Trips[6]	23	12	11

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	94%	19%
Retail	25%	46%
Restaurant	40%	60%
Cinema/Entertainment	N/A	N/A
Residential	12%	12%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Village Phase IV	**Date:**	21-Apr-15
Analysis Year:	2035	**Checked By:**	
Analysis Period:	**AM Street Peak Hour**	**Date:**	

Table 1-A: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	56	48	8
Retail	826/850	56,300	0	201	109	92
Restaurant	931	18,000	0	83	68	15
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	2,600	738	171	567
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				1,078	396	682

Table 2-A: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.06	1%	0%	1.06	0%	0%
Retail	1.17	0%	0%	1.16	0%	0%
Restaurant	1.62	0%	0%	1.52	0%	0%
Cinema/Entertainment						
Residential	1.13	0%	4%	1.09	19%	2%
Hotel						
All Other Land Uses[2]						

Table 3-A: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office						
Retail						
Restaurant						
Cinema/Entertainment						
Residential						
Hotel						

Table 4-A: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		2	5	0	0	0
Retail	2		14	0	4	0
Restaurant	7	3		0	1	0
Cinema/Entertainment	0	0	0		0	0
Residential	2	6	22	0		0
Hotel	0	0	0	0	0	

Table 5-A: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,238	482	756
Internal Capture Percentage	11%	14%	9%
External Vehicle-Trips[5]	849	340	509
External Transit-Trips[6]	113	1	112
External Non-Motorized Trips[6]	20	7	13

Table 6-A: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	22%	88%
Retail	9%	19%
Restaurant	37%	48%
Cinema/Entertainment	N/A	N/A
Residential	3%	5%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-A vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be made to Tables 5-A, 9-A (O and D). Enter transit, non-motorized percentages that will result with proposed mixed-use project complete.

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-A.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

Estimation Tool Developed by the Texas A&M Transportation Institute - Version 2013.1

NCHRP 684 Internal Trip Capture Estimation Tool			
Project Name:	Point Wells Development	**Organization:**	David Evans and Associates, Inc.
Project Location:	20555 RBD NW, Seattle, WA 98177	**Performed By:**	MXLU
Scenario Description:	Urban Village Phase IV	**Date:**	21-Apr-15
Analysis Year:	2035	**Checked By:**	
Analysis Period:	**PM Street Peak Hour**	**Date:**	

Table 1-P: Base Vehicle-Trip Generation Estimates (Single-Use Site Estimate)

Land Use	Development Data (*For Information Only*)			Estimated Vehicle-Trips[3]		
	ITE LUCs[1]	Quantity	Units	Total	Entering	Exiting
Office	710/720	32,262	0	64	14	50
Retail	826/850	56,300	0	331	163	168
Restaurant	931	18,000	0	134	90	44
Cinema/Entertainment	-	-	-			
Residential	22/232/230/25	-	2,600	862	524	338
Hotel	-	-	-			
All Other Land Uses[2]	492	20,000	0			
				1,391	791	600

Table 2-P: Mode Split and Vehicle Occupancy Estimates

Land Use	Entering Trips			Exiting Trips		
	Veh. Occ.[4]	% Transit	% Non-Motorized	Veh. Occ.[4]	% Transit	% Non-Motorized
Office	1.11	0%	0%	1.07	0%	1%
Retail	1.21	0%	0%	1.18	0%	0%
Restaurant	1.62	0%	1%	1.52	0%	1%
Cinema/Entertainment						
Residential	1.15	19%	3%	1.21	0%	4%
Hotel						
All Other Land Uses[2]						

Table 3-P: Average Land Use Interchange Distances (Feet Walking Distance)

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		1000	1400		1600	
Retail					1200	
Restaurant					1050	
Cinema/Entertainment						
Residential		1200	1050			
Hotel						

Table 4-P: Internal Person-Trip Origin-Destination Matrix*

Origin (From)	Destination (To)					
	Office	Retail	Restaurant	Cinema/Entertainment	Residential	Hotel
Office		8	1	0	1	0
Retail	4		42	0	45	0
Restaurant	2	27		0	11	0
Cinema/Entertainment	0	0	0		0	0
Residential	9	14	15	0		0
Hotel	0	0	0	0	0	

Table 5-P: Computations Summary

	Total	Entering	Exiting
All Person-Trips	1,690	962	728
Internal Capture Percentage	21%	19%	25%
External Vehicle-Trips[5]	994	549	445
External Transit-Trips[6]	104	104	0
External Non-Motorized Trips[6]	29	15	14

Table 6-P: Internal Trip Capture Percentages by Land Use

Land Use	Entering Trips	Exiting Trips
Office	94%	19%
Retail	25%	46%
Restaurant	40%	60%
Cinema/Entertainment	N/A	N/A
Residential	9%	9%
Hotel	N/A	N/A

[1]Land Use Codes (LUCs) from *Trip Generation Manual*, published by the Institute of Transportation Engineers.

[2]Total estimate for all other land uses at mixed-use development site is not subject to internal trip capture computations in this estimator.

[3]Enter trips assuming no transit or non-motorized trips (as assumed in ITE *Trip Generation Manual*).

[4]Enter vehicle occupancy assumed in Table 1-P vehicle trips. If vehicle occupancy changes for proposed mixed-use project, manual adjustments must be

[5]Vehicle-trips computed using the mode split and vehicle occupancy values provided in Table 2-P.

[6]Person-Trips

*Indicates computation that has been rounded to the nearest whole number.

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Attachment P – Urban Center Alternative
Summary of Cumulative Trip Generation, and Phase Trip Generation by Project Phase

Table 1: Urban Center Alt Cumulative Trip Generation by Project Phase_Daily

Description	Phase 1			Phases 1-2			Phases 1-3			Phases 1-4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	4,348	2,174	2,174	8,648	4,324	4,324	14,560	7,280	7,280	17,538	8,769	8,769
Internal Trips	**1,591**	795	795	3,452	1,726	1,726	6,205	3,102	3,102	7,379	3,690	3,690
Total Net Trips	**2,757**	1,379	1,379	**5,196**	2,598	2,598	**8,355**	4,178	4,178	**10,159**	5,079	5,079

Table 2: Urban Center Alt Cumulative Trip Generation by Project Phase_AM Peak Hour

Description	Phase 1			Phases 1-2			Phases 1-3			Phases 1-4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	335	106	229	556	228	328	977	367	610	1,191	424	767
Internal Trips	**49**	16	33	101	32	69	197	51	146	270	58	212
Total Net Trips	**286**	90	196	**455**	196	259	**780**	316	464	**921**	366	555

Table 3: Urban Center Alt Cumulative Trip Generation by Project Phase_PM Peak Hour

Description	Phase 1			Phases 1-2			Phases 1-3			Phases 1-4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	376	230	146	771	421	350	1,265	715	550	1,518	861	657
Internal Trips	**81**	47	34	215	117	98	371	217	154	431	274	157
Total Net Trips	**295**	183	112	**556**	304	252	**894**	498	396	**1,087**	587	500

Table 4: Urban Center Alt Trip Generation by Project Phase_Daily

Description	Phase 1			Phase 2			Phase 3			Phase 4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	4,348	2,174	2,174	4,300	2,150	2,150	5,912	2,956	2,956	2,978	1,489	1,489
Internal Trips	**1,591**	795	795	1,861	930	930	2,753	1,377	1,377	1,174	587	587
Total Net Trips	**2,757**	**1,379**	**1,379**	**2,439**	**1,220**	**1,220**	**3,159**	**1,579**	**1,579**	**1,804**	**902**	**902**

Table 5: Urban Center Alt Trip Generation by Project Phase_AM Peak Hour

Description	Phase 1			Phase 2			Phase 3			Phase 4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	335	106	229	221	122	99	421	139	282	214	57	157
Internal Trips	**49**	16	33	52	16	36	96	19	77	73	7	66
Total Net Trips	**286**	**90**	**196**	**169**	**106**	**63**	**325**	**120**	**205**	**141**	**50**	**91**

Table 6: Urban Center Alt Trip Generation by Project Phase_PM Peak Hour

Description	Phase 1			Phase 2			Phase 3			Phase 4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	376	230	146	395	191	204	494	294	200	253	146	107
Internal Trips	**81**	47	34	134	70	64	156	100	56	60	57	3
Total Net Trips	**295**	**183**	**112**	**261**	**121**	**140**	**338**	**194**	**144**	**193**	**89**	**104**

Attachment Q – Urban Village Alternative
Summary of Cumulative Trip Generation, and Phase Trip Generation by Project Phase

Table 1: Urban Village Alt Cumulative Trip Generation by Project Phase_Daily

Description	Phase 1			Phases 1-2			Phases 1-3			Phases 1-4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	4,498	2,249	2,249	8,748	4,374	4,374	14,310	7,155	7,155	16,378	8,189	8,189
Internal Trips	**1,760**	880	880	3,580	1,790	1,790	6,273	3,136	3,136	7,088	3,544	3,544
Total Net Trips	**2,738**	1,369	1,369	**5,168**	2,584	2,584	**8,037**	4,019	4,019	**9,290**	4,645	4,645

Table 2: Urban Village Alt Cumulative Trip Generation by Project Phase_AM Peak Hour

Description	Phase 1			Phases 1-2			Phases 1-3			Phases 1-4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	330	101	229	548	222	326	935	354	581	1,078	396	682
Internal Trips	**49**	15	34	97	30	67	184	51	133	229	56	173
Total Net Trips	**281**	86	195	**451**	192	259	**751**	303	448	**849**	340	509

Table 3: Urban Village Alt Cumulative Trip Generation by Project Phase_PM Peak Hour

Description	Phase 1			Phases 1-2			Phases 1-3			Phases 1-4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	375	235	140	766	424	342	1,219	694	525	1,391	791	600
Internal Trips	**82**	48	34	213	115	98	359	206	153	397	242	155
Total Net Trips	**293**	187	106	**553**	309	244	**860**	488	372	**994**	549	445

Table 4: Urban Village Alt Trip Generation by Project Phase_Daily

Description	Phase 1			Phase 2			Phase 3			Phase 4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	4,498	2,249	2,249	4,250	2,125	2,125	5,562	2,781	2,781	2,068	1,034	1,034
Internal Trips	**1,760**	880	880	1,820	910	910	2,693	1,346	1,346	816	408	408
Total Net Trips	**2,738**	**1,369**	**1,369**	**2,430**	**1,215**	**1,215**	**2,869**	**1,435**	**1,435**	**1,252**	**626**	**626**

Table 5: Urban Village Alt Trip Generation by Project Phase_AM Peak Hour

Description	Phase 1			Phase 2			Phase 3			Phase 4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	330	101	229	218	121	97	387	132	255	143	42	101
Internal Trips	**49**	15	34	48	15	33	87	21	66	45	5	40
Total Net Trips	**281**	**86**	**195**	**170**	**106**	**64**	**300**	**111**	**189**	**98**	**37**	**61**

Table 6: Urban Village Alt Trip Generation by Project Phase_PM Peak Hour

Description	Phase 1			Phase 2			Phase 3			Phase 4		
	Total	In	Out	Total	In	Out	Total	In	Out	Total	In	Out
Gross Trip	375	235	140	391	189	202	453	270	183	172	97	75
Internal Trips	**82**	48	34	131	67	64	146	91	55	38	36	2
Total Net Trips	**293**	**187**	**106**	**260**	**122**	**138**	**307**	**179**	**128**	**134**	**61**	**73**

Attachment R – No Build Alternative, Scenarios A and B
Trip Generation Calculations

Table 1
ASSUMED INDUSTRIAL OPERATIONS –
NO ACTION ALTERNATIVE SENARIOS A AND B

	Scenario A	Scenario B
ASPHALT OPERATIONS		
Throughput	282,000 BBLS per yr.	750,000 BBLS per yr.
Truck Trips Average, Each Way	5	8
Truck Trips Average, Each Way	5 per day/1,825 per yr.	14 per day/5,110 per yr.
Truck Trips Maximum, Each Way	28 per day[1]	75 per day[1]
Employees	6	9
MARINE FUELING OPERATIONS		
Throughput	3,925,000 BBLS per yr.	11,000,000 BBLS per yr.
Tanks in Service	8	13
Fuel Transfers across the Dock	275 per year	>400 per year
Employees	6	9
LIGHT FUELS STORAGE & DISTRIBUTION		
Throughput	0	9,230,000 BBLS per yr.
Fuel Transfers across the Dock	0	75 per yr.
Truck Trips Average, Each Way	0	125 per day
Truck Trips Maximum, Each Way	0	160 per day
Employees	0	75 - 100
TOTAL		
Throughput	5,790,400 BBLS per yr.	20,980,000 BBLS per yr.
Tanks in Service	11	18
Truck Trips, Average, Each Way	5 per day/1,825 per yr.	139 per day/5,110 per yr.
Truck Trips Maximum, Each Way	20 per day	50 per day
Employees	13	91 - 116

Source: Paramount Petroleum Corporation, 2015.

Throughput = the amount of material or items passing through a system or process.

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: No Action Scenario A
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Heavy Industrial			**13.0**				**11**	**9**	**2**
Industrial Operations Empployees	130	Employees	13.0	Ln(T)=0.85* Ln(X) +0.25	86%	14%	11	9	2
							11	**9**	**2**
							AM Total	**AM In**	**AM Out**

Project: Point Wells Development
Project #: PARA0000-0004
Phase: No Action Scenario A
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Heavy Industrial			**13.0**				**13**	**3**	**10**
Industrial Operations Empployees	130	Employees	13.0	Ln(T)=0.82* Ln(X) +0.43	20%	80%	13	3	10
							13	**3**	**10**
							PM Total	**PM In**	**PM Out**

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: No Action Scenario B
Period: AM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				AM Peak	AM In	AM Out	AM Total	AM In	AM Out
Heavy Industrial			**116.0**				**73**	**63**	**10**
Industrial Operations Empployees	130	Employees	116.0	Ln(T)=0.85* Ln(X) +0.25	86%	14%	73	63	10
							73	**63**	**10**
							AM Total	**AM In**	**AM Out**

DAVID EVANS AND ASSOCIATES INC.

Project: Point Wells Development
Project #: PARA0000-0004
Phase: No Action Scenario B
Period: PM Peak Hour

Description	ITE Land Use Code (LUC)	Units	Planned Units	ITE Trip Rates or Equations	ITE Trip Directional Split		Total Generated Trips		
				PM Peak	PM In	PM Out	PM Total	PM In	PM Out
Heavy Industrial			**116.0**				**76**	**15**	**61**
Industrial Operations Empployees	130	Employees	116.0	Ln(T)=0.82* Ln(X) +0.43	20%	80%	76	15	61
							76	**15**	**61**
							PM Total	**PM In**	**PM Out**

Attachment S – Project Owner's Commitment to Transit Amenities and Services

Attachment T - Summary of Person-Trips by Transit
Point Wells Mixed Use Development

AM Period		Alternative 1 - Urban Center				Alternative 2 - Urban Village			
		Cumulative External Exiting Person-Trips by Transit	Cumulative External Exiting Vehicle-Trips	Cumulative Total of Residential Dwelling Units	Estimated Cumulative Total of Residents	Cumulative External Exiting Person-Trips by Transit	Cumulative External Exiting Vehicle-Trips	Cumulative Total of Residential Dwelling Units	Estimated Cumulative Total of Residents
Analysis Year	**2020**	14	196	653	1,314	14	195	575	1,157
	2025	31	259	907	1,825	28	259	817	1,644
	2030	87	464	2,178	4,383	72	448	1,945	3,914
	2035	150	555	3,081	6,200	112	509	2,600	5,232

PM Period		Alternative 1 - Urban Center				Alternative 2 - Urban Village			
		Cumulative External Entering Person-Trips by Transit	Cumulative External Entering Vehicle-Trips	Cumulative Total of Residential Dwelling Units	Estimated Cumulative Total of Residents	Cumulative External Entering Person-Trips by Transit	Cumulative External Entering Vehicle-Trips	Cumulative Total of Residential Dwelling Units	Estimated Cumulative Total of Residents
Analysis Year	**2020**	13	183	653	1,314	13	187	575	1,157
	2025	25	304	907	1,825	23	309	817	1,644
	2030	78	498	2,178	4,383	65	488	1,945	3,914
	2035	138	587	3,081	6,200	104	549	2,600	5,232