

Fircrest Campus Excess Property Master Plan

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January 6, 2010

Fircrest Campus Excess Property Master Plan

Appendix A

Legislative Directive

January 6, 2010

Legislative Directive

ESHB 1092, Section 2037 (Chapter 520, Laws of 2007) required:

- (1) The department shall resume and complete a master plan of the portion of the Fircrest campus that is not utilized by the Fircrest School or the department of health.
- (2) In drafting the master plan, the department shall consult with the following:
 - (a) The city of Shoreline;
 - (b) The department of natural resources;
 - (c) The department of health regarding their master planning effort;
 - (d) Representatives of institutions of higher education with whom the department has a partnership; and
 - (e) Representatives of the Shoreline community and neighboring communities.
- (3) The master plan must include a plan for the future of the property, including recommendations for alternative uses such as affordable housing and smart growth options.
- (4) The department must report to the appropriate committees of the legislature and the office of financial management by January 1, 2008.

In the 2008 Supplemental Legislative Session, the budget proviso was amended in ESHB 2765, Section 2004 (Chapter 328, Laws of 2008) to require:

- (3) The hybrid option as described in the Fircrest excess property report dated January 14, 2008, must be used for the purposes of the master plan. The development of the master plan must not prohibit the potential future expansion of the public health laboratory by the department of health.
- (4) The department must report to the appropriate committees of the legislature and the office of financial management by December 1, 2010.

Fircrest Campus Excess Property Master Plan

Appendix B

“Y” Buildings Overview

January 6, 2010

Appendix B – “Y” Buildings Overview

The six single-story “Y” Buildings (Nursing Home facilities) are located in Area 1 but are not designated as Excess Property and are part of the Fircrest School. These are cinderblock structures built in the 1960s that have been periodically renovated to support the nursing home function which includes housing non-ambulatory residents of the Fircrest School. They were not originally designed for this function.

While the Master Plan does not identify the Y Buildings as excess to the operation of Fircrest School, it does present a concept for putting the land under the Y Buildings to a different use if the Y Buildings were ever closed/relocated. If the Master Plan is adopted by the City, the land would be rezoned to allow for that future use if it is decided that the Y Building function is to be relocated or is no longer needed. The concept of relocating the nursing home function was included as part of the Master Plan due to a number of factors, including:

- Efficiencies to the overall operation of Fircrest School would be enhanced by a reduced campus foot print.
- The current Y-Building locations are remote from many campus services. By relocating this function to where the ATP building is currently located, there would be service enhancements to the clients living in the Y-Buildings.
- The current capital facility assessment shows the Y-Buildings deferred maintenance needs exceeding 8 million dollars.
- Improved building configuration and functional design elements would facilitate client support and improve client access.
- Ability to develop the property in support of the Legislative goals would be enhanced by creating more land for future development.

Fircrest Campus Excess Property Master Plan

Appendix C

Glossary and Acronyms

January 6, 2010

Appendix C - Glossary and Acronyms

Buffer – Refers to either an area set aside to provide a visual and physical boundary between two different uses and mitigate their impacts on each other; or a semi-protected area adjacent to an environmentally critical area such as a stream, which reduces the potential for impacts to the critical area.

Canopy cover - The percent of a fixed area covered by the crown of an individual plant species or delimited by the vertical projection of its outermost perimeter; small openings in the crown are included.

Carriage house – A residential structure built above, and integrated with, a garage that parks no more than four automobiles.

CEP&RI Trust - Charitable, Educational, Penal, and Reformatory Institutions Trust. A land trust held by the Washington State Department of Natural Resources (DNR). Trust land must be managed for the Trust beneficiaries, although the land could be exchanged or sold under appropriate circumstances. Approximately 53 acres of the Fircrest Campus is CEP&RI land (including both Excess and Non-excess Property) is currently leased to DSHS for the Fircrest School.

Comprehensive Plan – A local government’s long term (20-year) plan for land use and all other related issues such as transportation, parks, natural environment, capital facilities and utilities, as required by the Washington State Growth Management Act (GMA). A Comprehensive Plan provides policy direction for a city’s land use regulations. The applicable Comprehensive Plan covering the Fircrest Campus is the City of Shoreline Comprehensive Plan, which may be amended on an annual basis.

Daylighted stream – A watercourse that previously existing in a pipe, which has been relocated to the surface in a channel designed to function like a natural drainage channel.

DOE – Washington State Department of Ecology

DOH – Washington State Department of Health

DOH Campus – property managed by DOH that is excluded from this State Master Plan.

DNR – Washington State Department of Natural Resources

DSHS – Washington State Department of Social and Health Services

Excess Property – Property on the Fircrest Campus that is not needed for operation of the Fircrest School.

FCZ – Fircrest Campus Zone - a City of Shoreline zoning district established for the Fircrest Campus in 2008. FCZ requires adoption of a Master Development Permit for new development

and expansions, except that a limited amount of expansion of existing uses can occur through a Condition Use Permit.

Fircrest Campus – The area subject to this Master Plan, which includes the Main Fircrest School Campus and Excess Property, but excludes the DOH Campus. However, the Master Plan provides only very limited guidance on the Fircrest School area and is not a facilities plan for the Fircrest School.

GMA – Washington State Growth Management Act

Hamlin Creek – A watercourse that runs north-south through the eastern portion of the Fircrest Campus, in both pipes and ditches.

Hybrid Option – The land use map for the Fircrest Campus, defined in Phase 1 of the master planning process, and required by the State Legislature to be the basis for this Master Plan.

Land use designation – A mapped area defined in a Comprehensive Plan, which specifies long-term land use at a policy level. The land use designation for a property may be different from the zoning, but the zoning should implement the designation.

Landmark tree - Any tree that is greater than 30" DBH or greater, over 120 years old, or is particularly impressive or unusual due to species, size, shape, age, historical significance and/or an outstanding row or group of trees.

Land use regulatory agency – The agency that adopts and enforces land use regulations for a specific property, in this case the City of Shoreline.

Live-work unit - A structure or portion of a structure: (1) that combines a commercial activity with a residential living space for the owner of the commercial business or the owner's employee, and that person's household; and (2) where the commercial activity conducted takes place subject to a valid business license associated with the premises.

Low Impact Development (LID) - An innovative stormwater management approach with a basic principle that is modeled after nature: manage rainfall at the source using uniformly distributed decentralized micro-scale controls such as green roofs, rain gardens, infiltration trenches, and bioswales.

Main Fircrest School Campus – The portion of the Fircrest Campus that is designated in this State Master Plan for continued operation of the Fircrest School. As defined, it does not include the Excess Property, Area 1 (Y Buildings Area), areas designated public open space, or the DOH Campus.

Market Garden – A designated area that provides space, water for irrigation, and potentially other facilities, that facilitate individuals or groups to cultivate fruits, vegetables, and other plants for recreation, consumption, and sale.

Master Development Plan permit – A permit issued by the City of Shoreline that is allowed only for certain properties, including the Fircrest Campus and DOH Campus, and would provide the specific land use and development regulations for that property.

Master Plan – A document defining future use and physical characteristics for a specific property. Typically defines the amount of built space and open space, and development standards and/or design guidelines for future buildings.

Non-conforming use – An existing use or structure which does not meet the current applicable requirements of the land use regulatory agency, which for the Fircrest Campus is the City of Shoreline.

Phase 1 – Planning phase that occurred in 2007 and defined future land uses for the Fircrest Campus Excess Property based on balancing benefits to the community, State operations, and financial return to the State.

Phase 2 – Planning phase based on the results of Phase 1. Phase 2 started in 2008 and resulted in this Master Plan.

PHL – Public Health Lab. The DOH land is in use as a PHL.

SEPA – State Environmental Policy Act. SEPA compliance is needed for adoption of a Master Development Plan permit by the City of Shoreline.

Significant tree - Those trees identified as “priority for retention” by the Master Plan and/or with any of the following characteristics: trees which exceed 50 feet in height; trees and tree clusters which form a continuous canopy; trees that have a screening function; trees providing habitat value, particularly riparian habitat; trees having a significant land stability function; and trees adjacent to public parks, open space, and sensitive area buffers.

State Advisory Committee – The committee of representatives from State agencies and legislators that was formed by DSHS when it started the master planning process for the Fircrest Campus Excess Property.

Shared parking – A strategy to reduce the overall number of parking spaces required for multiple uses that are within walking distance of a shared parking facility. Shared parking may be organized so that multiple destinations either share patrons, so that people park once and visit multiple destinations, or have different periods when parking demand is highest.

Small-lot single family – a single-family residence with a smaller than typical yard, and a density ranging from 12 to 15 units per acre.

Townhouse – One of a series of houses with two or more floors, often of similar design, joined by common walls, and either situated side by side (i.e. rowhouse), or arranged in clusters.

Two-step adoption process – The process required by the City of Shoreline for adoption of a Master Development Plan permit containing the uses in this Master Plan, because some of them would be new uses on the Fircrest Campus. Step one is an amendment to the City’s Comprehensive Plan to authorize the new uses on the Campus. Step two is issuance of Master Development Plan permit by the City.

Y Buildings – Several buildings in the northwest portion of the Fircrest Campus that currently house the nursing home function of the Fircrest School, and are home to non-ambulatory residents of the School. **The footprint of these buildings looks like a “Y.”**

Wayfinding signage – Signs that help people, particularly pedestrians and bicyclists, find their way around an area or to a specific destination.

Woonerf – A residential street designed to put the needs of drivers second to the needs of users of the street as a whole, using such elements as a meandering travel lane, special pavement, no curbs, and pedestrian elements such as benches, planters, and trees.

Zoning – A mapped area that includes specific regulations regarding land use and development standards. Zoning is controlled by the land use regulatory agency, which for the Fircrest Campus is the City of Shoreline. The zoning for a property may be different from the land use designation, but the zoning should implement the designation. In the City of Shoreline, an adopted Master Development Plan permit would become part of the zoning for the Campus, providing the land use and development standards for the FCZ: Fircrest Campus Zone.

Fircrest Campus Excess Property Master Plan

Appendix D

**Phase 1 Master Plan Public Involvement &
Background Documents**

January 6, 2010

Capital Budget Proviso

Capital Budget Proviso

ESHB 1092 Sec. 2037. (Chapter 520, Laws of 2007) requires:

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- (4) The department must report to the appropriate committees of the legislature and the office of financial management by January 1, 2008

Project Goals

Physical Features

- Retain key campus features (hillsides, trees) to preserve the quality of the campus and provide amenity.
- Improve natural and engineered drainage systems on the campus.
- Reduce impervious surfaces on the campus.
- Integrate green building principles into new development on the campus.

Circulation and Access

- Improve pedestrian safety and pedestrian connections through and around the campus in order to minimize pedestrian-vehicular conflicts and to provide linkages to adjacent neighborhoods.
- Further separate access and circulation to address the needs of each user.

Balancing Priorities

- Balance financial return to the State with benefits to the local community.
- Retain Fircrest School as an “open campus” where the residents can safely be outside and walk around.
- Ensure compatibility with Fircrest School, Department of Health, and other future uses.

Community Benefit

- Consider and integrate local community benefits (such as affordable housing, community services, and open space connections).

Uses

- Provide for multiple and mixed uses on the campus through appropriate design.

For more information see www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm or contact Ed Valbert at valbeel@dshs.wa.gov or (253)476-7022.

Market Potential for
Fircrest Campus Excess Property

WASHINGTON STATE DSHS
MARKET POTENTIAL FOR FIRCREST CAMPUS EXCESS PROPERTY
MARKET BEST USE ASSESSMENT

January 23, 2008

Prepared by:

communityattributes

communityattributes

*Community Attributes tells data-rich stories
about communities that are important to decision-makers.*

Principal: Chris Mefford
Analysts: Robert Shwed
Dawn Couch

In cooperation with and in support of:
AHBL

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EXECUTIVE SUMMARY

The State Department of Social and Health Services (DSHS) requires an economic analysis in support of a master plan for excess property at DSHS's Fircrest Campus. Land use options were designed for analysis to explore how varying land uses would come together to meet a broad range of potential objectives that the State might wish to consider in allowing development of the excess property.

This report assesses the economic conditions for several options:

- **Option 0**, designed to illustrate the maximum financial return to the State, by consolidating only townhouses throughout all excess property
- **Option 0.5** preserves some of the excess property for trails and open space (for preservation of trees and vegetation) throughout the Campus, concentrating townhouses throughout the remainder of the excess property
- **Option 1** explores a broader range of land uses, also designed to explore potential financial returns to the State, while incorporating trails and open space
- **Option 2** places an emphasis on the benefits to government operations by exploring housing governmental operations on the excess property, while incorporating trails and open space
- **Option 3** focuses on benefits to the local community, defined by the surrounding community's potential use of the excess property, while incorporating trails and open space, and
- **Recommended Hybrid Option**, which draws components from each of the options to explore how values represented in each option might come together to meet the range of potential objectives. The Recommended Hybrid Option also incorporates trails and open space.

Each of these perspectives is represented by development options designed by AHBL. The body of this report provides detailed analysis of findings presented in this Executive Summary. The Executive Summary proceeds with an overview of market assessment findings by land use, followed by a summary of the excess property options.

Market Assessment Findings

Analysis for market return consists of optimizing the financial value of the land to be re-used, were the land to be sold or leased to developers and investors for profit. This section summarizes the finding of the suitability of the excess land for private development, based on a review of markets for the real estate product types analyzed for this report.

Key criteria considered for market uses include:

- **Established markets.** The degree to which markets are established in the area for each real estate product types.
- **Market suitability of land for development.** The suitability of the excess property for private development based on potential parcel sizes, configuration and orientation.
- **Competitive supply.** Competitive supply within the region for each product type, including both proximity and quality of competition.

With these criteria in mind, townhouses (referred to interchangeably as row-houses) with garage or driveway parking and a modest amount of strip retail likely provide the highest return for land development. If the State were focused on maximizing revenue from these lands immediately, townhouses and strip retail rank highest among land uses. Development stacked condominiums with surface parking would also rank high, depending on absorption. A more proven market and thus faster absorption of townhouses favors development of townhouses over stacked condominiums.

Analysis included an examination of several other housing types as well as commercial uses. In addition, open space, trails and public amenities were considered to create better communities and to meet project goals. An overview of the consideration of each primary land use type relative to the market return definition of highest and best use follows.

Housing

Housing has the most established market for this area. Home prices are stable and predictable, offering the least amount of risk from a market perspective. Several different housing product types can fit the excess property's orientation with options for access and internal circulation.

- **Single-family detached housing.** Larger lots to accommodate single-family detached housing could possibly be oriented in a manner desirable to home buyers. However, the lower density

housing pattern may not yield the greatest land value to the State relative to other, higher-density housing products and configuration.

- **Small lot single-family housing.** Small lot single-family residential development allows a higher density housing product with many of the features of a traditional single family detached house that are attractive in today's marketplace. The excess property offers potential for the introduction of higher density housing into an established neighborhood without creating adverse impacts on established single-family neighborhoods.
- **Stacked condominiums.** Condominiums offer another option for higher density housing, and depending on the parking design, offers some of the greatest market returns. However, parking configurations may significantly affect developer interests in developing this housing type.

Current market conditions appear to require surface parking for immediate financial returns. Alternatively, building up several stories (perhaps seven or eight) may provide sufficient revenue to cover the costs of structured parking. The market for such a mid-rise lifestyle in Shoreline is unproven, however, though the product could attract some segments, such as empty nesters and seniors. A more likely scenario for structured parking would be to hold the land for a few years; during that time home prices may rise relative to construction costs, allowing fewer stories of development to cover structured parking.

- **Row-houses.** For-sale row-housing likely has the deepest pool of buyers for housing located on the excess property. This product type offers relatively higher density than single-family detached housing pervasive in this area. The depth of this market and the intensity of the development, along with satisfactory return on investments, rank this product high for returns to the State.
- **Renter-occupied versus owner-occupied.** New products for rental apartments would require lower cost structures, with surface parking only, to serve rental prices found currently in the local market. Revenues from owner-occupied housing units are relatively higher and can cover higher construction costs.

Commercial

Some forms of commercial would likely be of interest to market investors and developers, while others would not.

- **Retail.** Commercial development that would be of interest includes neighborhood-serving, strip commercial development with an orientation toward 15th Ave NE. In addition, mixed-use, neighborhood-serving retail integrated within a mixed-use plan for the excess property may also be feasible.
- **Small Offices.** Tenants and uses that would fit well at Fircrest include consumer and personal services (restaurants, shops and services), and possibly some more office-oriented uses that can exist along side of retailers (banks, insurance offices).

The appropriate scale of commercial uses from a market demand perspective is less certain. At a minimum, a neighborhood-serving scale with several smaller businesses would work well, with the exact number and s.f. of development depending on the physical plan. Larger scale community-serving retail appears less suited for this site and depends on the evolution of commercial centers to the north and south.

Additionally, the Fircrest Campus would have to compete with existing commercial nodes nearby. To the north, North City at NE 175th Street and 15th Ave NE in Shoreline, a sense of place and a greater commercial presence has been established. Community-serving retail would more likely gravitate toward those locations.

The commercial node to the south, at NE 145th Street and 15th Ave NE, has had a range of successes and failures. The node at 145th is relatively better suited for larger scale retail, benefitting from the heavily traveled corridors of both 15th Ave NE and NE 145th Street. Several parcels appear suitable for redevelopment and as such would probably attract commercial developers to the excess property.

Other Considerations

Other products

The analysis focused on commercial and residential uses. Industrial and lodging uses were given a cursory consideration and ruled out because of the campus' location. For lodging, the Fircrest Campus' distance from I-5 keeps it at a competitive disadvantage for national hotel chains. Similarly, no major activity center is in the immediate vicinity to warrant further consideration of lodging.

For industrial, the campus's relatively remote access from major regional transportation networks and density of housing surrounding the campus prevented additional consideration for heavier industrial use. While any vacant land is of interest to most light industrial uses, the comparatively strong markets for housing eliminated serious consideration of market interest in light industrial development.

Parking requirements

Increasing intensity of use can require structured parking, in the form of either above-ground or below-ground garages. In many outlying suburban areas, the cost to acquire land for surface parking is less expensive than building structured parking. Shoreline's residential markets are generally on the cusp of supporting structured parking as part of developments.

Affordable housing

The State Capital Budget Provisio for the Excess Property Master Plan has addressed the provision of affordable housing as a goal for redevelopment of excess property at Fircrest. To be financially feasible for a private real estate developer, current development costs require market sales prices or rents higher than many potential buyers or renters can afford.

Rents affordable to households earning 60% of area median income would be able to fund a maximum of 75% of development costs for a 1-bedroom apartment or 63% of a new 2-bedroom apartment. Rents affordable to those earning the lowest incomes could only cover between 32-38% of total development costs.

For such projects to be financially feasible, these gaps would need to be subsidized by nonmarket sources. A typical for-sale townhome or duplex unit would require financial support to cover half or more of the total development cost (depending on the affordability desired) to meet these objectives.

Land Leases

In addition, the State's desire to hold the land and provide a land lease affects market interest in developing at the site. Depending on the land lease terms, the lease could be structured to have no affect on the cost or revenue potential of developing the excess land. The more likely impact of a ground lease structure is to reduce the number of investors and developers that would be interested in developing at the site. Developer interest may vary by development product type. Longer land leases will be more attractive for investors.

For single-family detached, owner-occupied housing, leased land may confuse and turn away prospective home buyers. Row-houses and condominiums, on the other-hand, frequently come with covenants that bear land lease similarities. For those higher-density housing uses, land leasing may be less of a deterrent to developers.

Key Findings by Development Option

Each of the options presents a range of land uses chosen to explore the excess property's ability to meet the criteria chosen by the State.

For comparative context of each option, the current assessed value provides an interesting benchmark. In the fourth quarter of 2007, the King County Assessors' office valued the entire Fircrest campus land (87.9 acres) at \$58.3 million for the entire campus, including \$26.7 for land only and an additional \$31.6 million for building improvements. The assessed value of land per s.f. of the gross land area for equates to \$7 per s.f. At \$7 per s.f., the 35 acres of excess property would be valued at \$10.8 million.

Option 0: Strict Application of the Greatest Economic Return

The 35.5 acres of excess property would gain the most economic return to the State by allowing for the most densely developed use of land for which the market offers the highest return per s.f. of land.

Analysis of current market conditions for new townhouse construction suggests land values of an estimated \$54 per s.f. Land zoned for townhouses near Fircrest is assessed at an average value of \$63 per s.f. Application of these values to the net developable land within the surplus area, 24.9 acres¹, suggests a range in value from \$54.6 to \$65.4 million, after covering costs of sitewide improvements including demolition and new infrastructure.

Analysis included in this report settles on a working estimated value of \$63.2 million, suggesting new townhouse sales at \$500,000 per unit based on estimated construction costs (which result in estimated land values of \$60 per s.f.). (Exhibit S-0.)

¹ Under Option 0, a portion of the land, estimated at 11 acres, would not be considered developable, and would instead go toward accommodating infrastructure or remain undeveloped due to sensitive land conditions. The remaining 24.9 acres would be the net developable land area.

Exhibit S-0 Economic Summary of Option 0 (2007 dollars)

Subarea	Land Area (acres)		Expected Land Value (Based on Net Land Area)		Land Use & Quantity		Market Assumption
	Gross	Net	Per s.f.	Land Value	Land Use	Units	
1	6.22	4.35	\$60.00	\$11.4 million	Townhouses	114	\$500,000 per unit
2	8.00	5.60	\$60.00	\$14.6 million	Townhouses	146	\$500,000 per unit
3	5.76	4.03	\$60.00	\$10.5 million	Townhouses	105	\$500,000 per unit
4	5.03	3.52	\$60.00	\$9.2 million	Townhouses	92	\$500,000 per unit
5	8.95	6.27	\$60.00	\$16.4 million	Townhouses	164	\$500,000 per unit
6	1.57	1.10	\$60.00	\$2.9 million	Townhouses	29	\$500,000 per unit
Totals	35.53	24.87		\$65.0 million		650	
Sitewide Demolition				-\$0.1 million			
Infrastructure Investments				-\$1.7 million			
Net value			\$41.00	\$63.2 million			

Option 0.5: Maximum Return Allowing for Trails and Some Open Space

Preserving a portion of the excess property for trails and open space is consistent with the comments of many stakeholders who participated in the planning process, including many surrounding neighbors. These objectives have the overall effect of reducing the amount of land that can be sold or leased to generate revenues to the State.

Option 0.5 includes townhouses on the developed area, reduced to 16.3 acres of developable land because of trails and open space. After infrastructure investments, the same assumptions as Option 0 suggest economic value of \$40.0 million for Option 0.5. (**Exhibit S-0.5.**)

Costs associated with the trails and open space features included in Option 0.5, and common to options 1, 2, 3 and the Recommended Hybrid Option, are estimated at approximately \$770,000 to \$1,000,000, and are included in Table S-0.5 as part of Infrastructure Investments.

**Exhibit S-0.5
Economic Summary of Option 0.5 (2007 dollars)**

Subarea	Land Area (acres)		Expected Land Value (Based on Net Land Area)		Land Use & Quantity		Market
	Gross	Net	Per s.f.	Land Value	Land Use	Units	Assumption
1	2.07	1.45	\$60.00	\$3.8 million	Townhouses	38	\$500,000 per unit
2	6.35	4.44	\$60.00	\$11.6 million	Townhouses	116	\$500,000 per unit
3	5.76	4.03	\$60.00	\$10.5 million	Townhouses	105	\$500,000 per unit
4	1.03	0.72	\$60.00	\$1.9 million	Townhouses	19	\$500,000 per unit
5	6.50	4.55	\$60.00	\$11.9 million	Townhouses	119	\$500,000 per unit
6	1.57	1.10	\$60.00	\$2.9 million	Townhouses	29	\$500,000 per unit
Totals	23.28	16.30		\$42.6 million		426	
Less: Sitewide Demolition				- \$0.1 million			
Less: Infrastructure Investments				- \$1.4 million			
Net value				\$41.00	\$41.1 million		

Option 1: Financial Return to the State Emphasis

Option 1 focuses on maximizing the return to the State while adhering to community development principles and project goals. Higher-cost structured parking and lower-revenue apartments (included to provide a variety of housing options), might prove infeasible individually, but other higher yielding uses keep the revenues positive for this option overall, for an overall value of an estimated \$7.6 million, summarized in **Exhibit S-1**.

Similar to Option 0.5, costs associated with the trails and open space features common to options 0.5, 1, 2, 3 and the Recommended Hybrid Option, are estimated at approximately \$770,000 to \$1,000,000, and are included in Exhibit S-1 as part of Infrastructure Investments.

The exhibit shows an economic analysis of the value of each development product, to assist in choosing a preferred alternative. In some cases, the market exists today to provide the market requirement for the financial returns shown. In other cases, as indicated in the column labeled, "Timing," the market for such revenues would be expected in a few years, perhaps five to ten years.

However, of the for-sale products programmed in Option 1 (similar to the other options), only owner-occupied condos with surface parking and row houses provide sufficient return to expect development interest in the near-term.

Exhibit S-1
Economic Summary of Option 1 (2007 dollars)

Subarea	Timing	Expected Land Value		Land Use & Quantity			Market		Notes
		Per s.f.	Land Value (Financial Gap)	Land Use	Units	Land Area (acres)	Requirement		
1	Near to mid-term		\$5,700,000	Condos	96		\$450,000 per unit	Market not there today, expected 5 to 10 years	
	Near-term		\$400,000	Townhouses	4		\$500,000 per unit	Sufficient market demand today	
Subarea 1 total		\$96.50	\$6,100,000		100	1.45			
2	Near-term	\$32.54	\$6,300,000	Townhouses	90	4.44	\$500,000 per unit	Sufficient market demand today	
3	Unknown		(\$1,760,000)	Apartments	60		\$1,610 monthly rent	Costs for new construction overwhelm market rents	
	N/A		(\$6,660,000)	Parking and Commercial				Structured parking costs required to accommodate densities	
	Long-term		\$1,360,000	Apartments & Retail	108		\$1,610 monthly rent	Land would be written down to make new construction feasible	
	Long-term		\$0	Condos	34		\$450,000 per unit	Net sales would cover construction costs only, without parking	
	N/A		(\$7,030,000)	Parking				Structured parking costs required to accommodate densities	
Subarea 3 total			(\$14,090,000)	Subarea 3 total	202	4.03			
4	Near-term	\$65.16	\$1,900,000	Houses	13	0.72	\$540,000 per unit		
5	Near-term	\$76.73	\$8,900,000	Houses	59	4.55	\$540,000 per unit		
6	No action								
Total		\$13.76	\$9,110,000		464	15.20	Total acres re-developed		
Less: Sitewide Demolition			(\$134,000)						
Less: Infrastructure Investments			(\$1,387,000)						
Net value		\$11.46	\$7,589,000						

Note: Parking shown in subarea 3 serves all uses in subarea 3.

Structured parking for the stacked condominiums would not be expected to attract developer interest at present. However, market demand is expected to increase for some of the programmed products as densities increase more generally in the area. In the longer-term, these higher density developments may prove to be the best return to the State, depending on the timing relative to the State's needs.

Alternatively, higher density condominiums (seven or eight stories) may provide enough financial return to cover the costs of the associated structured parking, assuming timely absorption. Absorption is the risk of such a development, given the unproven nature of such products in Shoreline.

Rental units are further challenged to cover structure parking costs. Rents achieved in and around Shoreline do not approach the revenue required for market justification of structured parking. No change in these conditions would be expected in the foreseeable future.

Option 2: Benefit to Government Operations Emphasis

Option 2 focuses providing land uses that would benefit governmental operations, such as offices for state employees. The program of development under this option focuses on office space as well as providing rental multifamily housing, including some housing to be subsidized by affordable housing programs. Therefore, this option is not a market driven option and does not produce financial return to the State. A summary of Option 2 is presented in **Exhibit S-2**.

Governmental operations are assumed to provide a lower-risk development opportunity for contractors chosen to build and own the buildings that house governmental operations. Therefore, buildings occupied by governmental operations are assumed to have value to investors, though the investors would concede some profits to account for the lower risk associated with a more certain occupancy rate that would come with governmental use of the facility.

For governmental operations, office lease rates equal to approximately \$35 per s.f. (gross rents per usable s.f., per year) would be sufficient to fund development of new office space as a single use, as configured in Option 2. Average current DSHS lease rates range from \$18-\$25/s.f.; newer suburban Class A office space north of Seattle rents for an average of \$32 per s.f.

Exhibit S-2 Economic Summary of Option 2 (2007 dollars)

Subarea	Timing	Expected Land Value		Land Use & Quantity			Market Requirement	Notes
		Per s.f.	Land Value (Financial Gap)	Land Use	Units or s.f.	Land (acres)		
1	Near-term	(\$48.41)	(\$15,600,000)	Low-Income Townhouses	93	7.40	\$920 monthly rent	Grants and affordable housing programs can off-set investment
2	Anytime		\$5,800,000	State-Occupied Offices	255,000		\$35 per s.f. (Gross)	Assumes developers builds to suit for State with low risk
			(\$14,051,782)	3-story Apts over 1-story SS Office & Pkg (The 1-story SS Office)	48 10,000		\$1,610 per unit \$35 per s.f. (Gross)	Financial support required
Subararea 2 total		(\$72.57)	(\$14,051,782)	Subararea 2 total		4.44		
3	Anytime		TBD	DOH Expansion				
4	Anytime	(\$377.78)	(\$11,900,000)	Low-Income Apartments	60	0.72	\$828 monthly rent	Grants and affordable housing programs can off-set investment
5	Anytime		(\$17,300,000)	Low-Income Apartments	90		\$828 monthly rent	Grants and affordable housing programs can off-set investment
	Anytime		(\$5,900,000)	Detached Workforce Housing	35		\$1,288 monthly rent	
Subararea 5 total		(\$117.05)	(\$23,200,000)	Subararea 5 total		4.55		
6	Anytime		\$1,600,000	DSHS Operations	57,000		\$35 per s.f. (Gross)	Assumes State to lease
	Anytime		\$700,000	Nursing Home	45,000		\$40 per s.f. (Gross)	Assumes State to lease
Subarea 6 total		\$17.06	\$2,300,000	Subarea 6 total		3.09		Fircrest school
Total		(\$70.93)	(\$62,451,782)	Dwelling Units	326	20.21	Total acres re-developed	
				Office and Nursing s.f.	367,000			
Less: Sitewide Demolition			(\$1,127,000)					
Less: Infrastructure Investments			(\$987,000)					
Net value		(\$73.34)	(\$64,565,782)					

The governmental offices in Option 2 reflect perceived operating efficiencies (from both the State's and users' perspectives) as benefits to the State, along with benefits from newer, higher quality offices than currently occupied by some governmental operations. Such benefits could conceivably justify paying higher rent for new development. Moreover, the ground lease requirements would not be a complicating factor for governmental uses.

Exhibit S-2 shows several negative values in describing the economic value of affordable and lower income housing. The negative values are shown to demonstrate the order of magnitude of support required. These sources can include governmental program support, support from non-profits or any combination of outside financial help.

The negative numbers for a given use indicate that the State would expect compensation for this land only from non-profit or government programs that would cover the gap shown in addition to compensation to the State for use of the land. The terms of developing and operating the associated land use would result from collaboration with stakeholders that share a vested interest in the specific development.

Costs associated with the trails and open space features common to options 0.5, 1, 2, 3 and the Recommended Hybrid Option, are estimated at approximately \$770,000 to \$1,000,000, and are included in Exhibit S-2 as part of Infrastructure Investments.

Option 3: Benefit to Local Community Emphasis

Option 3 includes more open space and public uses as benefits to the local community. Similar to Option 2, Option 3 includes many land uses that require non-market funding and financial support. Also similar to Option 2, the non-market uses do not provide a financial return to the State if developed without financial support. An overview of Option 3 is presented in **Exhibit S-3**.

Public services uses shown in Option 3 are assumed to provide a risk-adjusted return to a contracted developer, similar to governmental office uses shown in Option 2. The negative values of other uses are shown to demonstrate the order of magnitude of support required, and do not necessarily require that the State provide that support.

Costs associated with the trails and open space features common to options 0.5, 1, 2, 3 and the Recommended Hybrid Option, are estimated at approximately \$770,000 to \$1,000,000, and are included in Exhibit S-3 as part of Infrastructure Investments.

Exhibit S-3 Economic Summary of Option 3 (2007 dollars)

Subarea	Timing	Expected Land Value		Land Use & Quantity			Market Requirement	Notes
		Per s.f.	Land Value (Financial Gap)	Land Use	Units or s.f.	Land (acres)		
1	Near-term	(\$246.80)	(\$15,600,000)	Low-Income Townhouses	44	1.45	\$920 monthly rent	Grants and affordable housing programs can off-set investment
2	Anytime		(\$17,300,000)	Transitional Housing	44		n/a	Costs do not assume operating costs or specific financial support
	Anytime		\$900,000	Police Station	20,000		\$30 per s.f. (Gross)	Economics assume generally a build-to-suit agreement
	Anytime		\$400,000	Social Services Offices and Library	73,950		\$32 per s.f. (Gross)	Economics assume generally a build-to-suit agreement
Subarea 2 total		(\$137.73)	(\$16,000,000)			2.67		
3	N/A		(\$4,100,000)	Parking Structure w/ Gr. Fl. Office	110 spaces			No revenue for parking assumed
	Mid- to-Long-Term		\$2,900,000	4-Story Apartments over Retail	112		\$1,610 monthly rent	Retail rents cover their own costs, but not structured parking
	N/A		(\$3,100,000)	Apartments over parking	60		\$1,610 monthly rent	
Subarea 3 total		(\$24.49)	(\$4,300,000)			4.03		Parking serves overall development of subarea; rents not enough
4	Anytime		\$500,000	Food LifeLine	13,500		\$35 per s.f. (Gross)	Economics assume generally a build-to-suit agreement
	Anytime		\$100,000	Firlands	7,800		\$35 per s.f. (Gross)	Economics assume generally a build-to-suit agreement
	Subarea 4 total		\$19.05	\$600,000			0.72	
5				No development				
6				No development				
Total		(\$89.79)	(\$34,700,000)	Dwelling Units	260	8.87	Total acres re-developed	
				Operations s.f.	115,250			
Less: Sitewide Demolition			(\$134,000)					
Less: Infrastructure Investments			(\$987,000)					
Net value		(\$92.69)	(\$35,821,000)					

Recommended Hybrid Option

Land uses and developments programmed in the Recommended Hybrid Option represent a combination of governmental operational goals, uses that provide community benefits and some uses that provide financial return. The economic summary of the Recommended Hybrid Option follows in **Exhibit S-H**.

Public services and governmental office uses shown the Recommended Hybrid Option are assumed to provide a risk-adjusted return to a contracted developer, similar to those uses in Options 2 and 3.

Costs associated with the trails and open space features common to options 0.5, 1, 2, 3 and the Recommended Hybrid Option, are estimated at approximately \$770,000 to \$1,000,000, and are included in Exhibit S-H as part of Infrastructure Investments.

Exhibit S-H Economic Summary of the Recommended Hybrid Option

Subarea	Timing	Expected Land Value		Land Use & Quantity			Market		Notes
		Per s.f.	Land Value (Financial Gap)	Land Use	Units or s.f.	Land (acres)	Requirement		
1	Anytime	(\$26.28)	(\$8,300,000)	Mixed-Income Townhouses	65	7.25	Blend of Prices	Requires financial assistance to provide below market rate housing	
2	Anytime		\$15,700,000	State-Occupied Office	241,700		\$35 per s.f. (Gross)	Assumes minimal development risk for build to suit	
			(\$11,700,000)	Low Income Apartments & Office over parking	48			Requires financial assistance to provide below market rate housing	
Subarea 2 total		\$20.66	\$4,000,000			4.44			
3	Unknown		(\$400,000)	Apartments & Retail over Parking	168			Rents do not cover construction costs and parking	
	N/A		(\$4,030,000)	Parking	110 spaces			Structured parking costs required to accommodate densities	
	Long-term		(\$6,360,000)	Condos w/ Structured Parking	34		\$450,000 per unit	Net sales would cover unit construction costs, not parking	
Subarea 3 total		(\$61.46)	(\$10,790,000)		202	4.03		Structured parking costs required to accommodate densities	
4				No action					
5	N/A		(\$14,200,000)	Workforce Townhouses (Rented)	70	4.55		Requires financial assistance to provide below market rate housing	
6	Anytime		\$1,600,000	DSHS Operations	57,000		\$35 per s.f. (Gross)	Assumes State to lease	
	Anytime		\$700,000	Nursing Home	45,000		\$40 per s.f. (Gross)	Assumes State to lease	
Subarea 6 total		(\$47.95)	(\$11,900,000)		102,000	3.09		Structured parking costs required to accommodate densities	
Total		(\$30.56)	(\$26,990,000)						
				Dwelling Units	385	23.37			
				Operations and Office s.f.	343,700				
Less: Sitewide Demolition			(\$1,127,000)						
Less: Infrastructure Investments			(\$987,000)						
Net value		(\$28.59)	(\$29,104,000)						

Additional Consideration of Benefits

- Local fiscal benefits.** Direct tax and fee revenues to the City would increase under each option and would vary based on the differing levels of residential and commercial space developed.² Option 0 would generate the greatest local revenue at approximately \$12.1 million in total present-value revenue through 2036 (30 year horizon). The actual value of benefits would vary depending on absorption and changes in construction costs and other variables over time. The relative benefits of each option are summarized in the exhibit below, varying primarily due to the intensity of built space assumed in each option.

	Local Fiscal Benefits*
Option 0	\$12.1 million
Option 0.5	\$8.7 million
Option 1	\$10. 1 million
Option 2	\$6.4 million
Option 3	\$5.2 million
Recommended Hybrid Option	\$5.6 million

*Note: Present value of direct and gross benefits only, meaning no indirect impacts have been calculated, nor have increases in municipal service costs been calculated or weighed against the direct revenues shown.

Specific revenue sources would vary by the uses developed, but in general the greatest revenues would come from real estate excise taxes, sales taxes, and permit and user fees.

While Option 0 generates higher fiscal returns in dollar terms, other options would include unquantified public and social benefits that would accrue to City residents. These would include the greater presence of social services, affordable housing, local employment, and publicly accessible open and recreational space featured in Options 2 and 3.

- Open space and public use benefits.** The design feature common to all options would provide public open spaces and walking paths connecting Hamlin Park to the north with and Shorecrest

² County and State benefits are not analyzed, assuming that economic activity not destined for Fircrest would occur elsewhere.

High School and other natural open space to the east, providing significant new amenities to neighbors and other Shoreline residents.

- Public and social benefits. Options 2 and 3 would include non-quantified public and social benefits that would accrue to City residents. The greater presence of social services, affordable housing, local employment, publicly accessible open space and recreational space would benefit local residents and visitors to Fircrest's on-going residents and operations.

INTRODUCTION

Background and Purpose

The purpose of this report is to assist the State Department of Social and Health Services (DSHS) in developing a master plan for the excess areas of DSHS's Fircrest Campus by identifying options and recommendations regarding the Highest and Best Use of the excess property, including options for affordable housing, smart growth, and educational partnerships. This report focuses on the relative economic return to the DSHS of selling or leasing portions of the Fircrest Campus for redevelopment toward a variety of possible uses.

Organization of Report

The report is organized into the following Sections:

Section 1. Market Assessment. This section includes an overview and description of the campus as well as the current real estate market for the Shoreline area. The section includes a description of the Campus, its location, current uses, and the sections of the Campus considered excess property. In addition, this section presents data on current social and economic conditions for the Shoreline area.

Section 2. Economic Analysis. This section presents an analysis of the relative financial and market return of three general real estate development options contemplated for designated excess parcels on the campus from the perspective of a real estate investor or developer. The analysis evaluates each development program for financial return based on the value of the income it would generate under current market conditions relative to the costs required to develop it.

SECTION 1: MARKET ASSESSMENT

Site and Location

The Fircrest Campus covers approximately 90 acres in the City of Shoreline, of which 35.5 acres have been deemed "excess property" and are the subject of this master plan.

Transportation connectivity

The Fircrest Campus is located close to I-5 (approximately 1 mile to the west) and SR-99 (Aurora Avenue N.) (2 miles to the west), giving it excellent accessibility to other areas of the north Seattle region.

Frequent bus service runs along 15th Avenue NE, connecting the campus area with Seattle and other regional destinations.

Nearby cities and commercial centers

Two commercial clusters lie nearby on 15th Avenue NE, one approximately one mile to the north at NE 175th Street and the other roughly the same distance to the south at NE 145th Street.



More commercial strips line Aurora Avenue North, approximately 2 miles to the west.

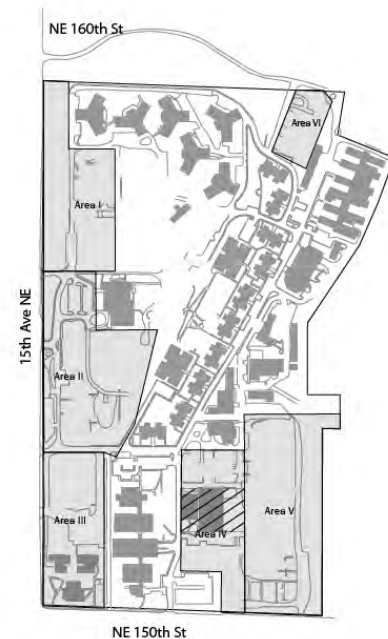
In addition, two larger regional shopping centers are located nearby: Northgate Mall lies approximately 3 miles to the south along I-5, and Alderwood Mall roughly 7 miles to the north.

Shoreline is bordered by the cities of Edmonds and Mountlake Terrace to the north and Lake Forest Park to the east. The cities of Lynnwood and Everett lie approximately 7 and 20 miles north of those, respectively, and Seattle to the south with downtown Seattle roughly 10 miles away.

Subject Property

The designated excess property is divided into six areas for the purpose of the economic analysis. Three line the eastern side of 15th Avenue NE, while three others are located separately in the northeast and southeast corners of the campus.

Of these six areas, only area III has existing buildings that would need to be demolished for new development under all of the options. The three buildings are single story office buildings. It appears that some of the other excess areas previously contained buildings which were removed prior to this investigation. Roadways, sidewalks, and parking lots still exist on the larger excess areas. Options 2 and the Recommended Hybrid Option envision development in an expanded excess property area and would require additional demolition.



Current Social and Economic Conditions

Population

The Fircrest Campus is located in the City of Shoreline, a first-ring suburb of the city of Seattle. **Exhibit 1** presents Shoreline's current population estimates as well as three scenarios for future growth.

Exhibit 1 Shoreline Population Estimates and Forecasts

Citywide Population		Population 2030 Growth Rate Scenarios	
Population 1996	45,927	Faster-Growth Scenario (1.0%)	1.0%
Population 2000	53,296	Forecasted-Growth Scenario (0.2%)	0.2%
Population 2007*	53,190	Slower-Growth Scenario (0.1%)	0.1%
Historic Growth Rates		Population 2030	
Cumulative Annual Growth Rate: 1996 - 2000	3.8%	Faster-Growth Scenario (1.0%)	69,584
Cumulative Annual Growth Rate: 2000 - 2007	0.0%	Forecasted-Growth Scenario (0.2%)	56,138
Cumulative Annual Growth Rate: 1996 - 2007	1.3%	Slower-Growth Scenario (0.1%)	54,645
Forecasts		Population Growth 2007 - 2030	
PSRC Forecasted Population Growth Rate: 2000 - 2030**	0.2%	Faster-Growth Scenario (1.0%)	16,394
Regional Growth Forecast: 2005 - 2030	1.1%	Forecasted-Growth Scenario (0.2%)	2,948
		Slower-Growth Scenario (0.1%)	1,455

* April 1, 2007 estimates

**Forecasts based on PSRC's Forecasts Analysis Zone. Shoreline falls across two zones, one of which also includes all of Lake Forest Park and some of Kenmore.

Source: Office of Financial Management, 2007; Puget Sound Regional Council, 2003

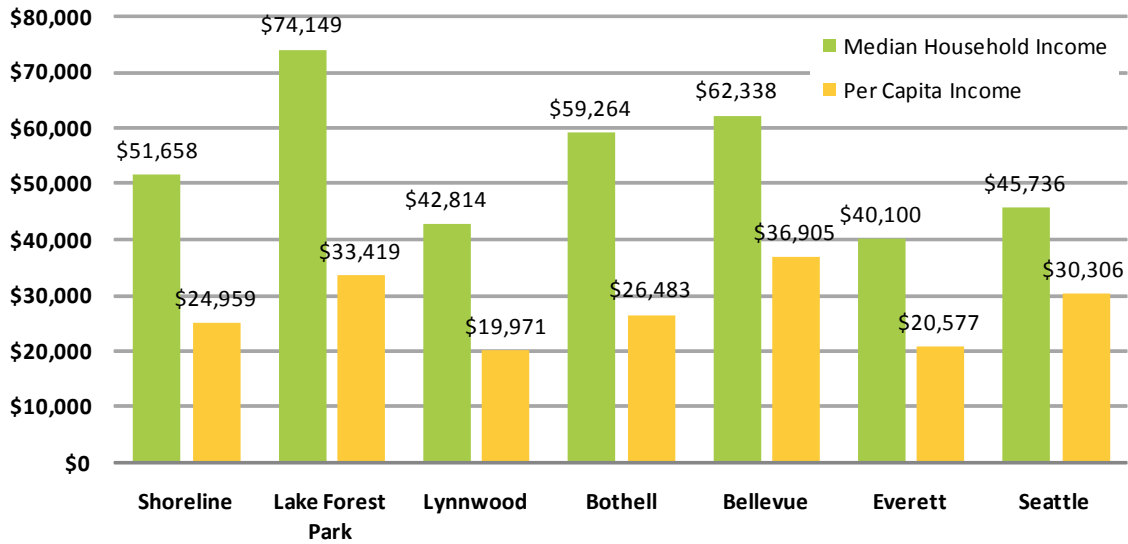
Shoreline's 2007 population is estimated at 53,190. The 2007 estimate is slightly below the 2000 population figure from the decennial census, indicating a flat population trend. Forecasts based on regional trends show an annual population growth rate for Shoreline of 0.2% over the 2000 – 2030 period. By comparison, the surrounding region's annual population growth rate is forecast to be 1.1%.

The forecasted population growth would amount to a citywide population of 56,138 people by 2030, or the addition of 2,948 persons. In addition to the .2% forecasted growth rate, two other scenarios are modeled in **Exhibit 1**. A faster-growth scenario of 1.0% annual growth would yield a 2030 population of 69,584, or the addition of 16,394 persons between 2007 and 2030. A slower-growth scenario of 0.1%--which is closer to the recent trend in population—amounts to a 2030 population of 54,645, or the addition of 1,455 people over the next 23 years.

The limited population growth is likely a result of the limited supply of new housing in Shoreline, rather than demand side constraints. Shoreline is an already-developed suburb which has been close to built out since its

incorporation in 1995. The Fircrest Campus therefore represents potential additional capacity for growth that is not accounted for in current population forecasts.

Exhibit 2
Household and Per Capita Income for Shoreline and Selected Cities, 1999

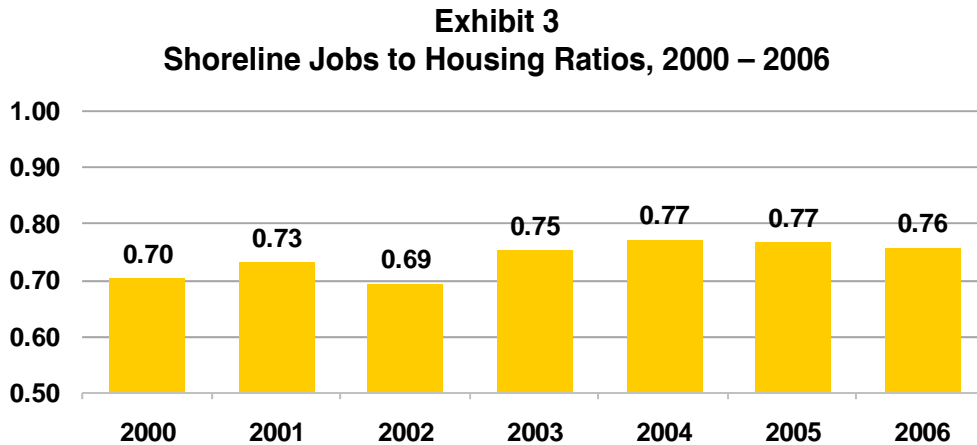


Source: U.S. Census. 2000

Exhibit 2 presents information on the relative wealth of Shoreline residents. In 1999 the median household income in Shoreline was \$51,658. Shoreline’s household income was higher than the median household incomes of Seattle, Lynnwood, and Everett and lower than the median household incomes of residential cities on Lake Washington such as Lake Forest Park and Bothell.

Employment

Shoreline has historically been somewhat of a bedroom community for larger nearby cities of Seattle and Everett. The City’s jobs to housing ratio has averaged approximately 0.75 jobs for every residence since 2000, as shown in **Exhibit 3**, indicating that many Shoreline residents must commute to other cities for employment.



Source: Office of Financial Management, Puget Sound Regional Council

Exhibit 4 shows the “covered” employment in Shoreline across eight industrial sectors. Shoreline’s distribution of jobs across the various industry sectors follows a pattern common to inner-ring suburban communities. Employment in the city is relatively concentrated in the retail, education, and government sectors compared to the region as whole. Shoreline’s employment in services parallels regional patterns at 43.3% of total employment, while it has fewer jobs in the Manufacturing and Waste, Transportation, and Utilities sectors than the region as a whole.

Exhibit 4 Shoreline Employment Trends and Forecasts

	Const/Res	FIRE	Manuf.	Retail	Services	WTU	Educ.	Gov.	Total
1995	523	590	225	2,299	5,465	376	2,133	1,862	13,473
2000	514	671	144	2,684	6,433	380	2,292	1,839	14,958
2001	602	1,066	133	2,861	6,612	425	2,239	1,652	15,590
2002	580	564	127	2,964	6,306	242	2,310	1,751	14,844
2003	751	577	239	2,735	6,494	174	2,340	2,875	16,184
2004	758	572	237	3,068	6,981	167	2,413	2,476	16,673
2005	742	526	251	3,031	7,048	160	2,462	2,386	16,608
2006	825	570	159	2,794	7,092	137	2,339	2,444	16,360

Distribution of all 2006 Employment

	Const/Res	FIRE	Manuf.	Retail	Services	WTU	Educ.	Gov.	Total
Shoreline	5.0%	3.5%	1.0%	17.1%	43.3%	0.8%	14.3%	14.9%	100.0%
Regionwide	6.7%	6.2%	10.5%	10.5%	42.0%	8.2%	6.8%	9.2%	100.0%

Shoreline Cumulative Annual Growth Rates

	Const/Res	FIRE	Manuf.	Retail	Services	WTU	Educ.	Gov.	Total
1995 - 2000	-0.3%	2.6%	-8.5%	3.2%	3.3%	0.2%	1.5%	-0.2%	2.1%
2000 - 2005	8.2%	-2.7%	1.7%	0.7%	1.6%	-15.6%	0.3%	4.9%	1.5%
1995 - 2006	4.2%	-0.3%	-3.1%	1.8%	2.4%	-8.8%	0.8%	2.5%	1.8%

PSRC Covered Employment Forecasts (FAZs 6410, 6420)

	Const/Res	FIRE	Manuf.	Retail	Services	WTU	Educ./Gov	Total
2000-2010	-	0.1%	0.6%	-0.3%	-	2.0%	0.3%	0.1%
2010-2020	-	1.4%	1.4%	0.3%	-	2.2%	-0.5%	0.6%
2020-2030	-	1.3%	1.3%	0.3%	-	1.5%	-0.9%	0.5%
2030-2040	-	1.4%	1.2%	0.3%	-	1.4%	-0.8%	0.6%
2010-2040	-	1.3%	1.3%	0.3%	-	1.7%	-0.7%	0.6%

Shoreline Area "Covered Employment" Forecast, 2040

	Const/Res	FIRE	Manuf.	Retail	Services	WTU	Educ./Gov	Total
2040 Total jobs		897	245	3,092		244	3,735	19,837
Change (2006 - 2040)		327	86	298		106	-1,049	3,477

- Covered Employment Forecasts not available for this industry.

Source: Puget Sound Regional Council; Washington State Employment Security Department

While Shoreline is more of a bedroom community than an employment center, there are about 16,000 jobs in the City, and it has experienced slight employment growth over the past decade. From 1995 through 2006, Shoreline has seen minimal annual job growth, averaging 1.8%. Only three sectors—Retail, Services, and Education—have seen positive job growth continuously through both the 1995-2000 and 2000-2005 periods.

As with the modest forecast population growth, only minimal employment growth is forecasted for the Shoreline area. Employment forecasts are made based on "Forecast Analysis Zones". The City of Shoreline falls within two

zones (6410 and 6420), for which average growth rates are presented in **Exhibit 4** by industrial sector. Mild annual growth (ranging from 0.3% to 2.2%) is forecasted to continue for all sectors except Education/Government.

It should be noted that the three sectors that have seen constant longer-term growth to date most likely represent businesses oriented to serving local residents, rather than serving as a major regional employment draw. However higher future growth rates are projected to occur in those sectors that have seen lower employment to date: FIRE (finance, investment, and real estate); Manufacturing and Waste, Transportation; and Utilities. Retail is projected to remain essentially constant, while education- and government-related employment is projected to decline over time. (The “covered employment” forecasts do not include Service sector employment.)

Employment Location and Commuting Patterns

Based on commuting patterns reported in the 2000 Census, only 13% of Shoreline residents are employed in the City. Most Shoreline residents work elsewhere, with the majority of those employed in Seattle (45%) and Everett (12%). Destinations for Shoreline commuters are shown in **Exhibit 5**.

Exhibit 5
Workplace Destinations of Shoreline Residents, 2000

Destinations	% of Workforce
Seattle	45%
Shoreline	13%
Everett	12%
Bothell	4%
Bellevue	3%
Kent	2%
Lynnwood	2%
Edmonds	2%
Redmond	2%
Renton	1%
Kirkland	1%
Auburn	1%
Tukwila	1%
All other Places	10%
	100%

Source: U.S. Census, 2000

One fifth of the jobs (21%) in Shoreline are held by a Shoreline resident. Employees also come from Seattle (17%) and Everett (10%). Whereas 70% of

Shoreline residents work in Shoreline, Seattle or Everett, these cities only represent about half of the residential origins of Shoreline employees. The rest of Shoreline’s workforce come from a wide range of (primarily north-end) cities and other Census Designated Places, as shown in **Exhibit 6**.

Exhibit 6
Residential Origins for Shoreline’s Workforce, 2000

Origins	% of Workforce
Shoreline	21%
Seattle	17%
Everett	10%
Edmonds	5%
Seattle Hill-Silver Firs CDP	3%
Lynnwood	3%
Bothell	3%
Picnic Point-North Lynnwood CDP	3%
Lake Forest Park	3%
Kenmore	2%
Mountlake Terrace	2%
North Creek CDP	2%
Kent	2%
West Lake Stevens CDP	2%
Marysville	2%
All other places	21%
	100%

Source: U.S. Census, 2000

Real Estate Market Conditions and Development Trends

Residential

Projections for long term housing demand are presented in **Exhibit 7**. Projections are based on regional trends forecasting that the number of housing units will grow at a faster annual rate than the population overall as average household size decreases. Therefore while Shoreline’s population is forecast to grow at an average annual rate 0.2% between 2000 to 2030 (see **Exhibit 1**), the number of housing units is forecast to grow an average annual rate of 0.4%.

The total number of housing units is forecast to grow from the current 21,801 in 2007 to 23,900 in 2030, based on PSRC small area forecasts. This represents an average growth rate of 91 housing units per year. A Faster-Growth Scenario, modeled at 1.0% average annual growth, would yield 28,200 units or 237 per year. A Slower-Growth Scenario of 0.1% annually would yield 23,000 units or 44 per year.

Exhibit 7
Shoreline Housing Growth Scenarios, 2007 – 2030

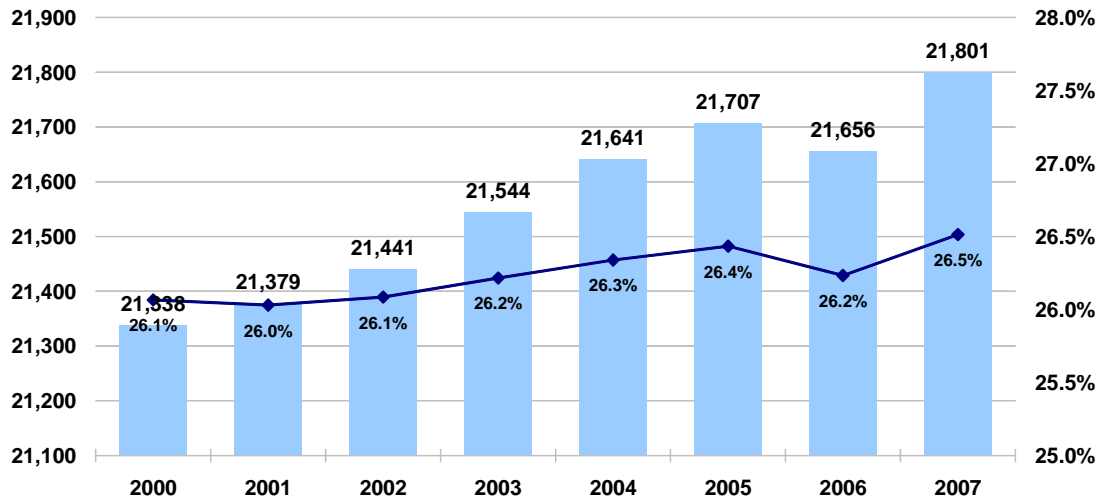
	Housing Units	Change: 2007 - 2030	
		Total Change	Per Year
Citywide Housing Units			
Housing Units 2000	21,338		
Housing Units 2007	21,801		66
Total Housing Units Required (at 5% vacant)			
Faster-Growth Scenario (1.0%)	27,400	5,600	243
Forecasted-Growth Scenario (0.4%)	23,900	2,100	91
Slower-Growth Scenario (0.1%)	22,300	500	22

Source: PSRC Small Area Growth Forecasts, Washington Office of Financial Management Population Trends (2007)

Most of the city’s developable land is now built out; most future development will therefore take the form of redevelopment of existing properties in existing neighborhoods or the few remaining larger parcels (such as portions of the Fircrest Campus) rather than development of new land.

A second trend will see the character of those housing units change as smaller, higher-density housing replaces former detached single-family houses. Single family detached homes have historically been the dominant form of housing in Shoreline, although recently multifamily construction has increased more quickly as population grows and the supply of available land diminishes. In 2007 multifamily units account for 26.5% of the total residential supply; however multifamily construction constitutes 53% of total new residential construction (shown in **Exhibit 8**). The proportion of multifamily is likely to rise further given rising land costs and population pressures. Residential vacancy rates are very low, currently estimated at 3%.

Exhibit 8
Shoreline Housing Units, Percent Multifamily and Annual Change by Housing Type, 2000 - 2007



Change in Units by Year

	2000	2001	2002	2003	2004	2005	2006	2007
1 Unit		38	34	48	45	28	6	145
2+ Units		14	10	17	40	45	28	129
Other		-11	18	38	12	-7	-85	-30
Total Units		41	62	103	97	66	-51	244

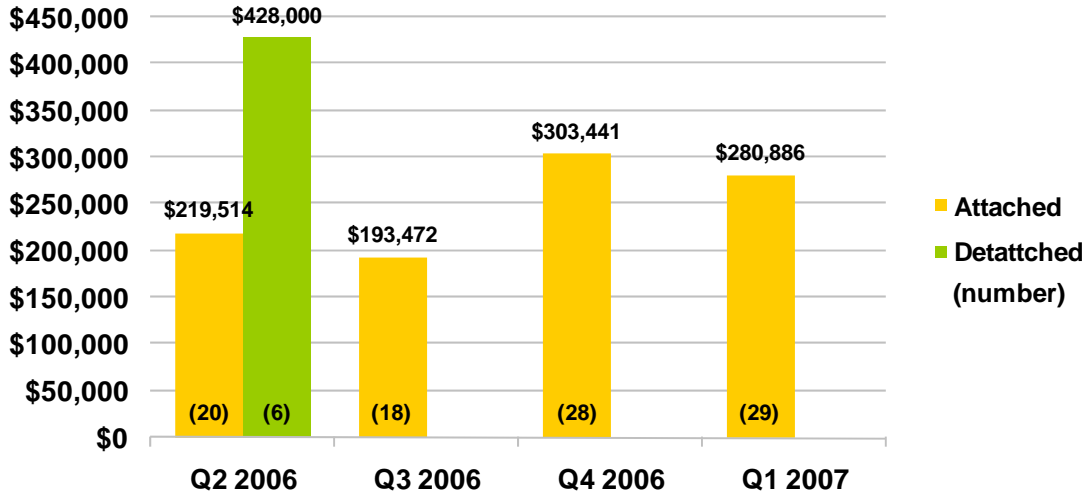
Source: Office of Financial Management, 2007; U.S. Census 2000

Data from the last decennial census place the proportion of housing that is owner-occupied at almost three-quarters (73.5%) of Shoreline’s total housing stock, and one-quarter renter-occupied (26.1%) (as shown for the year 2000 in **Exhibit 8**).

Shoreline offers more affordable housing prices than many of the regions close-in communities. Recent new construction has been predominately attached housing, with prices in the \$200,000 to \$300,000 range (**Exhibit 9**).

Detached houses have a significantly higher price point than attached product, with an average sales price of \$428,000 within the last year. However, the limited number of detached homes coming into the market and the limited stock of undeveloped land means that this trend will continue, with detached housing coming almost exclusively from redevelopment of existing single family properties.

**Exhibit 9
Shoreline Average New Construction Housing Prices,
Q2 2006 – Q1 2007**



Source: CPS Real Estate Research Committee, 2007

Current rents for apartment housing in Shoreline average \$859 per month, with a vacancy rate of 4.3% (Exhibits 10 and 11).

Vacancy rates range by the number of bedrooms and bathrooms with 3/2 apartments showing the highest vacancy rates at 5.1%.

However, rents are higher and vacancies are lower in newer vintage apartments when compared to the entire apartment stock. Average rents for newer apartments (2000 and newer) are \$1,173.

**Exhibit 10
Shoreline Apartment Vacancies and Rents, September 2007**

	ALL	Studio	1 Bed	2/1 Bath	2/2 Bath	3/2 Bath
Market Vacancy	4.3%	3.3%	4.7%	4.1%	3.5%	5.1%
Actual Rent	\$859	\$615	\$747	\$893	\$1,009	\$1,327

Source: Dupre + Scott, 2007

Exhibit 11
Shoreline Detailed Apartment Market, 2007

	<u>All Units</u>		<u>2000 and Newer Units</u>	
	Average Rent	Market Vacancy	Average Rent	Market Vacancy
Sep-07	\$859	4.3%	\$1,173	1.1%
Mar-07	\$816	3.9%	\$1,114	na

Source: Dupre + Scott, 2007

There have been limited new apartment units in Shoreline between 2000 and 2005 and since 2005 only new apartment development has come onto the market in Shoreline. The Arabella Apartments is an 88-unit apartment building that opened in February, 2007 approximately 1 mile to the north of the Fircrest Campus in the North City neighborhood. The Arabella includes units up to 3 bedrooms with rents ranging from \$825 - \$1500 per unit. A 289 unit apartment building is also currently under construction approximately 3 miles to the East of the Fircrest Campus on Aurora Ave.

Office

Given the present concentration of jobs in neighboring cities, Shoreline does not appear to be a location that enjoys a strong market for large-scale commercial product.

The current limited demand trend parallels the long-term employment growth projections, which show only a minimal increase in employment over the next 30 years, as shown in **Exhibit 4**. However, the projected demand for commercial product does not take into account new capacity potentially available in the Fircrest Campus. Moreover the unique arrangement and character of the Fircrest Campus, coupled with good regional transport access, could prove attractive to users that might not otherwise have looked at the area. Therefore there may be new draw to the area if efforts to attract employers with specific site needs are undertaken.

In addition, there may be additional opportunity for commercial development on the excess property if it were possible to consolidate some of the current Fircrest uses on the campus or relocate them elsewhere. This would open more land on the campus for development and/or allowing for aggregation of multiple parcels into larger ones, thus making the property even more attractive to commercial users. Given the higher commercial rents in the region's current employment centers Shoreline could become relatively more attractive, especially for higher quality product.

Exhibit 12
Northend Office Market Statistic, 2005 - 2007

	Net Rentable Area	Total Vacant SF	Total Vacancy Rate	Total Absorption SF	Under Construction SF	Direct Asking Rate Class "A"	Total Asking Rate Class "A"
Q1 2007	1,579,938	155,541	9.84%	4,012	1,485,328	\$30.12	\$29.81
Q3 2006	1,559,599	109,780	7.04%	29,409	100,000	\$24.64	\$23.90
Q1 2006	1,435,406		10.34%	-14,503	100,000	\$23.29	\$23.18
Q3 2005	1,435,406		9.04%	-32,805	60,000	\$23.40	\$23.14
Q1 2005	1,435,406		7.96%	4,393	25,821	\$23.86	\$23.35

*Northend included Edmonds, Everett, Lynnwood, Mill Creek, Mountlake Terrace

Source: CB Richard Ellis

There is approximately 1.6 million s.f. of office space in the “Northend Market,” which ranges north from the Ballard ship canal to the northern border of the city of Lynnwood.

Within the last two years, the market has seen periods of negative absorption. However, most recent figures show a positive absorption rate and an increase in rents.

More than 150,000 s.f. of vacant space on the market will challenge new construction. Moreover an additional 1.5 million s.f. of office space is currently under construction in the Northend (as shown in **Exhibit 12**), representing a very significant amount of office stock in the development pipeline relative to current levels.

Rents for Class “A” office space have risen significantly in recent years, with asking rents of \$30.12 per s.f. in Q1 of 2007 – a 21% increase over the previous two year period. The nearest Class “A” office space is found in Lynnwood to the north and Seattle to the south, where sufficient concentration of amenities and services support market absorption. Specific site characteristics such as parcel size and transportation access are deciding factors in office location. Therefore, the aggregate area of the Fircrest Campus properties may be large enough to attract interest in office, especially considering the proximity to Seattle. However, at-large market absorption would not be expected to support building office space on speculation of interest.

Retail

Exhibit 13 presents the taxable retail sales per capita for Shoreline and four additional cities for 2006. The data presented in **Exhibit 13** only accounts for the sales for which retail tax is paid in businesses that would occupy retail space. This excludes taxable retail sales from construction, hotels, gas stations and auto dealerships.

Exhibit 13
Taxable Retail Sales per Capita, 2006



Source: Washington State Department of Revenue, 2007; Office of Financial Management, 2006

Retail space in Shoreline is presently concentrated in three areas: along the SR-99 (Aurora Avenue) corridor approximately 2 miles west of the Fircrest Campus and in two smaller clusters approximately 1 mile north and south of the campus, respectively, on 15th Avenue NE. The presence of established or growing retail clusters elsewhere in the City decreases the development of significant retail space on the Fircrest Campus. The two possible exceptions could be small-scale retail serving the immediate surrounding neighborhoods—though even this potential would be mitigated by the existing of the two nearby clusters approximately 1 mile away—or possibly a targeted form of specialty or leisure retail that would complement the natural environment and calm surroundings of the rest of the campus.

Exhibit 14 presents a survey of recent asking rents for representative retail properties in Shoreline. Current retail asking rents range from \$14.00 to \$32.00 (triple net). It is worth noting that while much of the current retail spaces have lower rents due to their size, location, and vintage, newer buildings (1990 and later) have asking rents above \$30 per s.f.

Exhibit 14
Shoreline Retail Asking Rents, 2007

Retail Type	Building Year	SF	Asking Rents
Retail Restaurant	1981	8,680	\$17.00
Class C Office	1973	2,150	\$14.00
Retail Village	1994	1,280	\$32.00
Strip Center	1984	1,300	\$24.50
Strip Center	1984	2,800	\$21.43
Retail Freestanding (proposed)	2007	6,400	\$32.00
Neighborhood Center	1986	1,308	\$24.00

Source: CB Richard Ellis, 2007

Light Industrial

Shoreline and its surrounding communities currently house only a small portion of the region's industrial space. The latest figures report the Northend's industrial market to contain 257 buildings for a total of approximately 11.2 million s.f..

Current industrial vacancy rates in the Northend are higher than for the region as a whole: 13.01% compared to 6.2% for the region. Industrial direct asking rates are lower in the Northend relative to other markets. Current asking rates Range from \$.38 per s.f. for older shell, to \$1.25 per s.f. for newer flex-tech.

SECTION 2. ECONOMIC ANALYSIS

This section analyzes the financial return of the three options for the excess property of the Fircrest Campus. Each option is presented as a separate scenario with unique combinations of land uses and building configurations, illustrating the different priorities noted above.

The analysis identifies from a quantitative, financial perspective the relative financial return of each option in terms of its attractiveness to a hypothetical developer or investor on the open market today, based on today's market conditions. Analysis is based on real estate pro forma income models and cash flow analyses of prototypical development programs that might be considered for the excess Fircrest property.

In addition to that quantitative evaluation, qualitative differences are identified among the three options that stem from their different emphases. These considerations are noted in following sections of the report.

This section builds off the preliminary research into market conditions in Shoreline and neighboring areas conducted presented in Section 1 to focus in greater detail at the financial return of particular real estate development programs in the three options.

This report is not an appraisal and contains no analysis suitable for valuations that require appraisals. This analysis is for illustrative and discussion purposes only, to assess and present the economic considerations that influence the effects of various potential real estate development projects on the excess property of the Fircrest Campus.

Complete development programs including space, timing, and cost inputs; pro forma cost and income calculations; and cash flow projections for each of the development option are presented in appendices.

Key Findings and Analysis

Financial Return by Development Options

The differences in financial return among the options varies based on the different types and amounts of development proposed and other factors discussed in more detail in subsequent sections of this report. Specifically, to meet project goals, the options contain varying amounts of market driven uses and public benefit uses. An overview follows:

- **Option 0: Maximize Economic Return.** Literal interpretation of suggests maximum development intensity of townhouses on

excess property, with townhouses considered the highest ranking land use for economic returns to the State.

- **Option 0.5: Maximize Economic Return, Allowing for Trails and Some Open Space.** Still concentrating townhouse development throughout excess property, but also including trails, open space and circulation improvements (thereby reducing land devoted to townhouses).
- **Option 1: Exploration of Financial Return to the State.** Option 1 provides analysis of a range of land uses explored to determine the best-performing land uses for economic return to the State.

The option includes a relatively large share of for-sale housing, but includes some market rental housing to provide a variety of housing options. In addition, market retail space is introduced for site vitality and more community desirability. Structured parking is explored for community benefits, but reduces overall financial return.

- **Option 2: Benefit to Government Operations Emphasis.** Option 2 presents the most development at over 737,000 square feet and is the most expensive to develop of the three options. Anticipated governmental office tenants are assumed to lease at rates set cover the cost of development and modest returns with minimal risk to the developer.
- **Option 3: Benefit to Local Community Emphasis.** Option 3 presents the smallest amount of built space. As with the Option 2, governmental and other public or nonprofit office spaces would roughly break even; below-market rental housing requires non-market financing and/or public subsidies.
- **Recommended Hybrid Option,** draws components from each of the options to explore how values represented in each option might come together to meet the range of potential objectives. The Recommended Hybrid Option also incorporates trails and open space.

In all options, high levels of structured parking increase development costs. However unless the land area saved by structuring that parking is developed into attractive open space or other amenities, house buyers in the current market are unlikely to perceive enough additional value to pay the price

premium necessary to offset those higher costs. Reducing required parking ratios or specifying more surface parking instead would improve this situation, but at the cost of potentially less marketability and less open space, respectively.

Economic Return by Single Use Type

Residual Land Value (RLV) for each general property type *under current market conditions* (detached single-family houses, condominiums, apartments, office, and retail) and parking configuration are presented in **Exhibit 15**. The values of individual uses shown in Exhibit 15, relative to each other, was considered during development of the options.

Exhibit 15 Economic Return by General Use Type

		Small Lot House	Townhouse	Condo	Market Apartment	Retail	Market Office	
SIZE	Unit Size	1,800	1,500	920	920	5,000	10,000	
	Parking Ratio	2	2	1.8	1.8	3	3	
COST	Hard Cost / SF	\$135	\$135	\$165	\$165	\$100	\$145	
	TDC / SF *	\$200	\$200	\$245	\$245	\$149	\$215	
	Building TDC	\$360,855	\$300,713	\$225,423	\$225,423	\$742,500	\$2,153,250	
	Parking Req'd	2	2	1.8	1.8	15	30	
	Pkg Cost / Bldg SF if Driveway/Garage	\$22	\$27					
	Pkg Cost / Bldg SF if Surface			\$8	\$8	\$12	\$12	
	Pkg Cost / Bldg SF if Structured			\$59	\$59	\$90	\$90	
	<i>* TDC includes soft costs and developer return</i>							
	TDC incl. DW/Garage Parking / BLDG SF	\$233	\$240					
	TDC incl. Surface Parking / BLDG SF			\$257	\$257	\$166	\$233	
	TDC incl. Structured Parking / BLDG SF			\$332	\$332	\$282	\$349	
	INCOME	Gross Income / Net SF				\$21.00	\$32.00	\$32.00
Vacancy Rate %					5%	5%	5%	
Operating Cost %					34%	30%	34%	
NOI / SF					\$12.81	\$20.80	\$19.52	
Sale Price / Net SF		\$300	\$333	\$380				
Sale Cost		\$30	\$33	\$38				
Net Sale Price, Market Value / SF		\$270	\$300	\$342	\$205	\$287	\$269	
FAR	Surface Parking	0.35	0.9	0.35	0.35	0.50	0.35	
	Structured Parking			2.5	2.5	2.5	2.5	
RESIDUAL LAND VALUE								
By Parking Configuration								
	RLV / SF - Driveway/Garage Parking	\$13	\$54					
	RLV / SF - Surface Parking			\$30	-\$18	\$60	\$13	
	RLV / SF - Structured Parking			\$26	-\$318	\$12	-\$199	

The economic return varies among types of uses, and also is dependent on the type of parking configuration selected—surface, driveway/garage, or structured.³ The economic return varies by individual product types represented among the options. Two of the uses considered in this analysis are clearly financially feasible: townhouses and low-cost or strip retail.

³ Unsuitable geotechnical conditions make underground parking impossible on most of the Fircrest campus.

- Townhouses (with a typical driveway and garage) provide the highest returns at an estimated \$54 per s.f. (expected land values) as modeled and summarized in Exhibit 15.
- Strip retail with surface parking follows at \$60 per s.f.
- Stacked condominiums with surface parking yield an estimated \$49 per s.f. of land, under these market assumptions.
- Small lot single family housing, higher-end retail (not shown), and market-rate offices follow at \$13 per s.f. of land, similar to small offices with surface parking.

Options Analysis

Each option is defined by the amount of built space for each real estate product type, including office, retail, grocery, health care, residential (both for-sale condominiums and rental apartments) and a mix of governmental operations. Detailed spreadsheets for each option are included in Appendix A, providing detail for the current and projected future allocations of building space by use type along with cost and revenue calculations.

Option 0: Maximize Economic Return

Option 0, presents a literal interpretation of the “market value maximization” criterion, building out the excess property as intensely as possible with townhouses, representing the land use that appears to provide the greatest returns (**Exhibit 16**). Option 0 consists of 650 townhouses distributed uniformly across all excess property.

Accepting this option as the highest revenue option comes with opportunity costs of not pursuing other land uses and options that benefit the community and other stakeholders. This option could also create negative direct impacts to the community. Nonetheless, the option provides potentially the greatest financial return to the State.

Financial analysis of Option 0, summarized in **Exhibit 17**, assumes market values of townhouses that appear achievable today, reaching a total value of this option of \$63.2 million as shown in Exhibit 17. However, there may be some market challenges that come with this scenario that make portions of the option not entirely practical (in particular the notion that homeowners would want to own a home tucked back into the property in Area VI, the northeast portion of the Campus). The option represents a theoretical value of the greatest return to the State.

Exhibit 16 Option 0 Program Design

Areas Planned for Townhouses Shown as Shaded Areas with Heavy Outline (All Excess property)

Current Conditions

Option 0



Exhibit 17 Option 0 Financial and Program Summary

Subarea	Land Area (acres)		Expected Land Value (Based on Net Land Area)		Land Use & Quantity		Market Assumption
	Gross	Net	Per s.f.	Land Value	Land Use	Units	
1	6.22	4.35	\$60.00	\$11.4 million	Townhouses	114	\$500,000 per unit
2	8.00	5.60	\$60.00	\$14.6 million	Townhouses	146	\$500,000 per unit
3	5.76	4.03	\$60.00	\$10.5 million	Townhouses	105	\$500,000 per unit
4	5.03	3.52	\$60.00	\$9.2 million	Townhouses	92	\$500,000 per unit
5	8.95	6.27	\$60.00	\$16.4 million	Townhouses	164	\$500,000 per unit
6	1.57	1.10	\$60.00	\$2.9 million	Townhouses	29	\$500,000 per unit
Totals	35.53	24.87		\$65.0 million		650	
Sitewide Demolition				-	\$0.1 million		
Infrastructure Investments				-	\$1.7 million		
Net value			\$41.00	\$63.2 million			

Option 0.5: Maximize Economic Return Allowing for Trails and Some Open Space

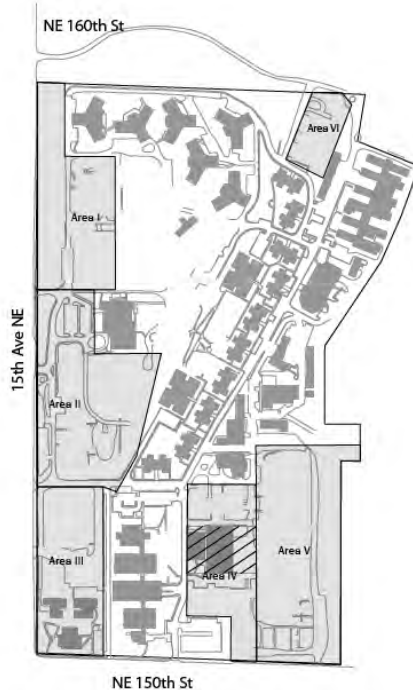
Option 0.5 retains the highest yielding use, townhouses, as in Option 0, but also includes sitewide improvements for trails and accessibility. Preserving a portion of the excess property for trails and open space is consistent with the comments of many stakeholders who participated in the planning process, including many surrounding neighbors. These objectives have the overall effect of reducing the amount of land that can be sold or leased to generate revenues to the State (Exhibit 18)

Option 0.5 includes development of 426 townhouses, distributed uniformly across all excess property, after utilizing a portion of the land for trails and other improvements. The townhouses combined with the site improvements yield an estimated land value of \$40.0 million (Exhibit 19.)

Exhibit 18 Option 0.5 Program Design

Areas Planned for Townhouses Shown as Shaded Areas with Heavy Outline

Current Conditions



Option 0.5



Exhibit 19 Option 0.5 Financial and Program Summary

Subarea	Land Area (acres)		Expected Land Value (Based on Net Land Area)		Land Use & Quantity		Market
	Gross	Net	Per s.f.	Land Value	Land Use	Units	Assumption
1	2.07	1.45	\$60.00	\$3.8 million	Townhouses	38	\$500,000 per unit
2	6.35	4.44	\$60.00	\$11.6 million	Townhouses	116	\$500,000 per unit
3	5.76	4.03	\$60.00	\$10.5 million	Townhouses	105	\$500,000 per unit
4	1.03	0.72	\$60.00	\$1.9 million	Townhouses	19	\$500,000 per unit
5	6.50	4.55	\$60.00	\$11.9 million	Townhouses	119	\$500,000 per unit
6	1.57	1.10	\$60.00	\$2.9 million	Townhouses	29	\$500,000 per unit
Totals	23.28	16.30		\$42.6 million		426	
Less: Sitewide Demolition				-\$0.1 million			
Less: Infrastructure Investments				-\$1.4 million			
Net value				\$41.00	\$41.1 million		

Option 1: Exploration of Financial Return to the State

Overview and Assumptions

The first option presents a “market value maximization” perspective that identifies the financial return the State could achieve by selling off the excess property to market developers. This option provides a range of market-rate housing, both for-sale and rental, as well as local-serving retail and small market-oriented office space.⁴ Parking is provided through a combination of surface parking lots and structured parking for the higher-density uses and garage or driveway parking for the single-family residential units.

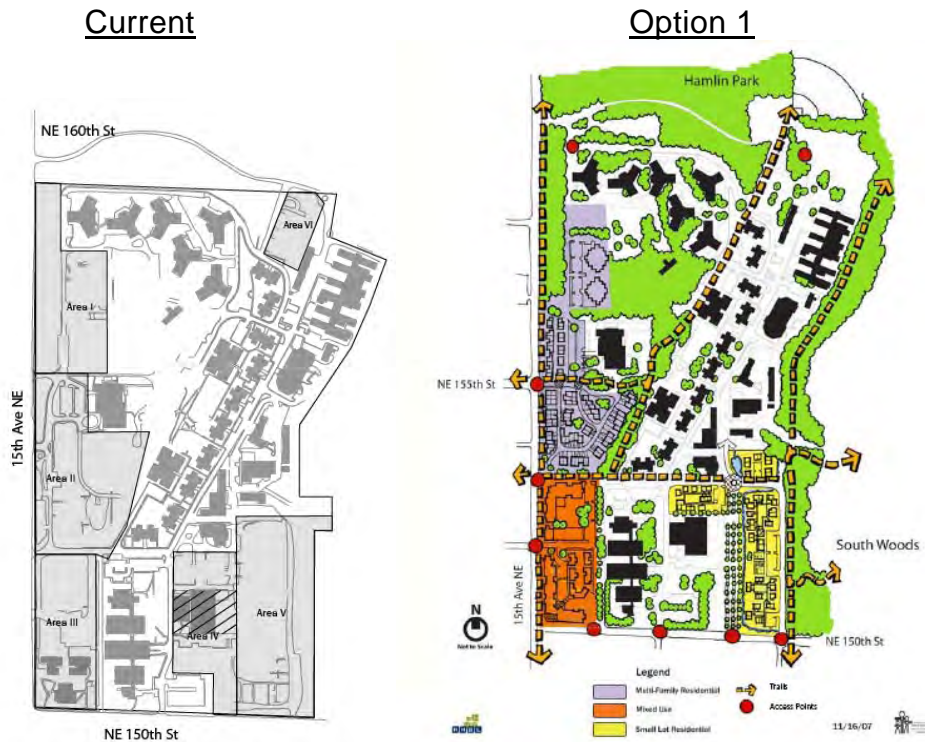
Exhibits 20 and 21 summarize the development program for Option 1.

⁴ Note that this scenario does not present an absolute level of market maximization, as a narrow approach to maximizing market value could bring building forms or densities that would not fit into the neighborhood and the City of Shoreline’s visions for the area. Rather it represents an approach to ‘market value with a conscience’ – a synthesis of building programs and types that will maximize return to the State while producing an environment that would still be acceptable to the surrounding community.

Exhibit 20 Option 1 Program Summary

	# Units	# s.f.
<i>Commercial Space</i>		
Retail		34,900
Market Ofc.		5,800
Total		40,700
<i>Residential Space</i>		
Small Lot Houses	72	108,000
Townhouses	94	141,000
Condos	130	147,000
Market Apts.	168	140,400
Total	464	536,400
<i>Parking Spaces</i>		
Surface Parking	504	
DW Garage	98	
Structured	556	
Total	1,158	

Exhibit 21 Option 1 Program Design



Development is arranged around the Fircrest Campus as follows:

- Area I: Two condo buildings with a total 96 units and four townhouses.
- Area II: 90 townhouses.
- Area III: 202 apartment and condo units over retail and small office spaces.
- Area IV: 13 small-lot houses or duplexes. Firland and Food Lifeline remain.
- Area V: 59 small-lot houses.
- Area VI: no development.

Several of the development types identified in this option would provide immediate financial return to the State, while others would provide a return if developed later in time or without the structured parking component. To that end, higher sales prices of for-sale condos are assumed, to demonstrate the prices required to generate positive returns (shown in **Exhibit 22**). However the market revenues of apartments are not sufficient to pay for the cost of building and would not be assumed to do so within the foreseeable future.

Option 1 includes the trails and open space features common to options 0.5, 1, 2, 3 and the Recommended Hybrid Option. Costs for the trails and open space are estimated at approximately \$770,000 to \$1,000,000, and are included in Exhibit 31 as part of Infrastructure Investments.

Exhibit 22 Option 1 Financial and Program Summary

Subarea	Timing	Expected Land Value		Land Use & Quantity			Market	
		Per s.f.	Land Value (Financial Gap)	Land Use	Units	Land Area (acres)	Requirement	Notes
1	Near to mid-term		\$5,700,000	Condos	96		\$450,000 per unit	Market not there today, expected 5 to 10 years
	Near-term		\$400,000	Townhouses	4		\$500,000 per unit	Sufficient market demand today
	Subarea 1 total	\$96.50	\$6,100,000		100	1.45		
2	Near-term	\$32.54	\$6,300,000	Townhouses	90	4.44	\$500,000 per unit	Sufficient market demand today
3	Unknown		(\$1,760,000)	Apartments	60		\$1,610 monthly rent	Costs for new construction overwhelm market rents
	N/A		(\$6,660,000)	Parking and Commercial				Structured parking costs required to accommodate densities
	Long-term		\$1,360,000	Apartments & Retail	108		\$1,610 monthly rent	Land would be written down to make new construction feasible
	Long-term		\$0	Condos	34		\$450,000 per unit	Net sales would cover construction costs only, without parking
	N/A		(\$7,030,000)	Parking				Structured parking costs required to accommodate densities
Subarea 3 total			(\$14,090,000)	Subarea 3 total	202	4.03		
4	Near-term	\$65.16	\$1,900,000	Houses	13	0.72	\$540,000 per unit	
5	Near-term	\$76.73	\$8,900,000	Houses	59	4.55	\$540,000 per unit	
6	No action							
Total		\$13.76	\$9,110,000		464	15.20	Total acres re-developed	
Less: Sitewide Demolition			(\$134,000)					
Less: Infrastructure Investments			(\$1,387,000)					
Net value		\$11.46	\$7,589,000					

Option 2: Benefit to Government Operations Emphasis

Overview and Assumptions

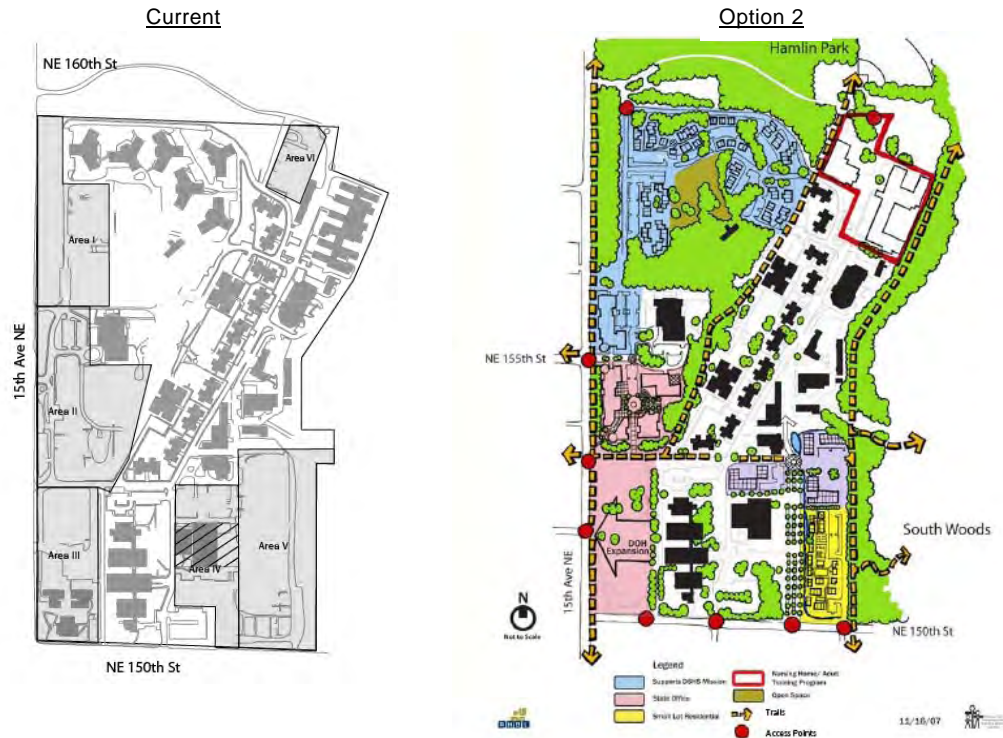
This option focuses on delivering a collection of uses that provide more direct benefits to the governmental operations. This program consolidates governmental office space on the campus and includes the development of new nursing home and adult training program facilities and administrative offices for the Fircrest School as well as a range of below-market affordable housing products.

Exhibits 23 and 24 summarize the development program of Option 2.

Exhibit 23 Option 2 Program Summary

	<u># Units</u>	<u># s.f.</u>
<i>Commercial Space</i>		
State Ofc.		255,000
Social Service Ofc.		10,000
Fircrest Admin & Training		57,000
Nursing Home		45,000
Total		367,000
<i>Residential Space</i>		
Small Lot Houses	35	52,500
Low Income Apts.	150	135,000
Very Low Income Apts.	48	43,200
Very Low Income Townhouses	93	139,500
Total	326	370,200
<i>Parking Spaces</i>		
Surface Parking	751	
DW Garage	90	
Structured	976	
Total	1,817	

Exhibit 24 Option 2 Program Design



Development under this option is arranged around the Fircrest Campus as follows:

- Area I: 24 townhouse-style apartments for very low income residents.

In this option, an additional Area 1-A is modeled shows the potential re-use of an area just east of Area 1, which could occur with redevelopment of the Y-shaped nursing home buildings and adult training program facility into new buildings in Area VI. Under this option an additional 69 townhouse-style apartments are developed for very low income residents in Area 1-A.

- Area II: 48 apartments for very low income residents 255,000 s.f. of governmental office space, and 10,000 s.f. of social service offices.
- Area III: No development – this option assumes a westward expansion of the Department of Health from its current office and lab space on the campus.
- Area IV: 20 units of low-income apartments.

- Area V: 90 units of very low income apartments and 35 small lot houses targeted at ‘workforce’ level buyers (those earning between 80-120% of area median income).
- Area VI: Development of a new 57,000 s.f. administration and adult training program building for the Fircrest School and a 45,000 s.f. nursing home to replace the Y-shaped buildings removed from Area 1-A.

Option 2 does not provide financial return, as shown in **Exhibit 25**, and shows several negative values in describing the economic value of associated development opportunities. The negative values are shown to demonstrate the order of magnitude of financial support required. Sources for financial support can include governmental program support, support from non-profits or any combination of outside financial help.

The negative numbers for a given use indicate that the State should not expect a market-based return for this land. Rather, the terms of developing and operating the associated land use would result from collaboration with stakeholders that share a vested interest in implementing the specific development.

Office lease rates equal to approximately \$35 per s.f. (gross rents per usable s.f., per year) would be sufficient to fund development of new office space as a single use, as configured in Option 2. Average current DSHS lease rates range from \$18-\$25/s.f.; newer suburban Class A office space north of Seattle rents for an average of \$32 per s.f.

The governmental offices in Option 2 reflect perceived operating efficiencies (from both the governmental and users’ perspectives) as benefits to the governmental operations, along with benefits from newer, higher quality offices than occupied by some governmental operations. Such benefits could conceivably justify paying higher rent for new development. Moreover, the ground lease requirements would not be a complicating factor for governmental uses. With the high concentration of governmental and nonprofit use, it is particularly sensitive to assumptions regarding lease rates paid by the government.

Option 2 includes the trails and open space features common to options 0.5, 1, 2, 3 and the Recommended Hybrid Option. Costs for the trails and open space are estimated at approximately \$770,000 to \$1,000,000, and are included in Exhibit 31 as part of Infrastructure Investments.

Exhibit 25 Option 2 Financial and Program Summary

Subarea	Timing	Expected Land Value		Land Use & Quantity			Market Requirement	Notes
		Per s.f.	Land Value (Financial Gap)	Land Use	Units or s.f.	Land (acres)		
1	Near-term	(\$48.41)	(\$15,600,000)	Low-Income Townhouses	93	7.40	\$920 monthly rent	Grants and affordable housing programs can off-set investment
2	Anytime		\$5,800,000	State-Occupied Offices	255,000		\$35 per s.f. (Gross)	Assumes developers builds to suit for State with low risk
			(\$14,051,782)	3-story Apts over 1-story SS Office & Pkg (The 1-story SS Office)	48 10,000		\$1,610 per unit \$35 per s.f. (Gross)	Financial support required
Subararea 2 total		(\$72.57)	(\$14,051,782)	Subararea 2 total		4.44		
3	Anytime		TBD	DOH Expansion				
4	Anytime	(\$377.78)	(\$11,900,000)	Low-Income Apartments	60	0.72	\$828 monthly rent	Grants and affordable housing programs can off-set investment
5	Anytime		(\$17,300,000)	Low-Income Apartments	90		\$828 monthly rent	Grants and affordable housing programs can off-set investment
	Anytime		(\$5,900,000)	Detached Workforce Housing	35		\$1,288 monthly rent	
Subararea 5 total		(\$117.05)	(\$23,200,000)	Subararea 5 total		4.55		
6	Anytime		\$1,600,000	DSHS Operations	57,000		\$35 per s.f. (Gross)	Assumes State to lease
	Anytime		\$700,000	Nursing Home	45,000		\$40 per s.f. (Gross)	Assumes State to lease
Subarea 6 total		\$17.06	\$2,300,000	Subarea 6 total		3.09		Fircrest school
Total		(\$70.93)	(\$62,451,782)					
					Dwelling Units	326		
					Office and Nursing s.f.	367,000	Total acres re-developed	
Less: Sitewide Demolition			(\$1,127,000)					
Less: Infrastructure Investments			(\$987,000)					
Net value		(\$73.34)	(\$64,565,782)					

Option 3: Benefit to Local Community Emphasis

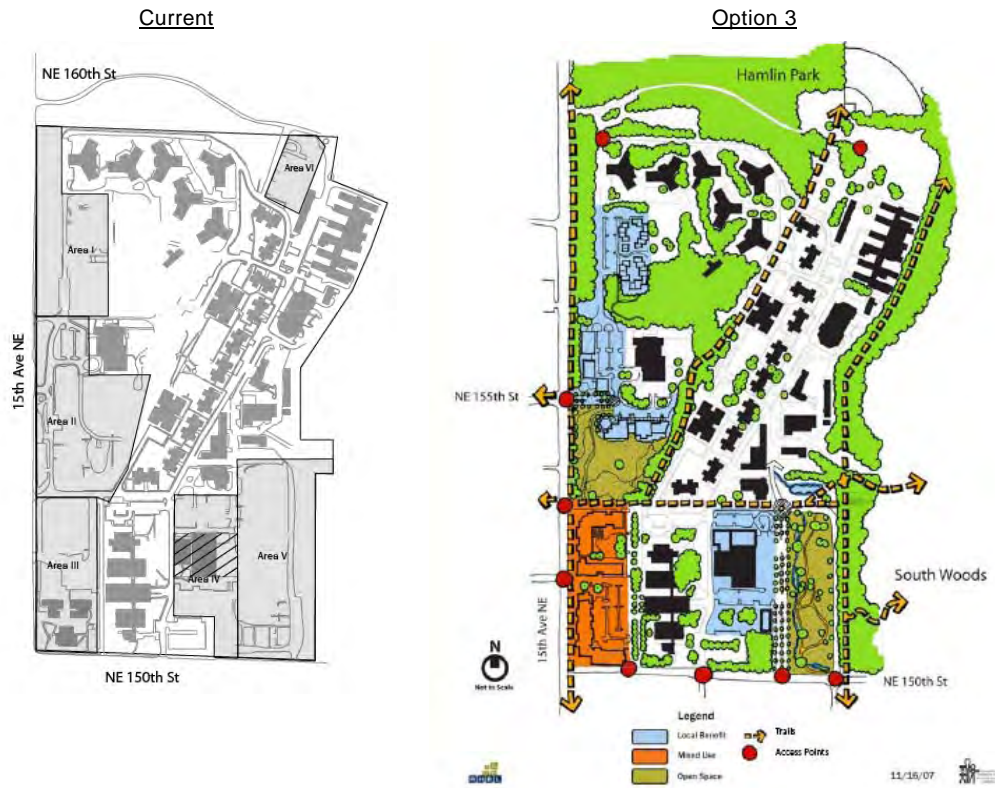
Option 3 considers community benefits including open space, public uses and fiscal impacts. It presents a broad range of small office space serving local needs. It includes local-serving retail space, social service agency offices, branch government office, and expansions of the Firland and Food Lifeline spaces currently on the Campus, as well as a range of both market-rate and below-market affordable housing.

Exhibit 26 and Exhibit 27 summarized the development program for Option 3.

Exhibit 26 Option 3 Program Summary

	# Units	# s.f.
<i>Commercial Space</i>		
Retail		34,900
Market Ofc.		5,800
Social Service Ofc.		73,950
Police Ofc.		20,000
Food Life Line		13,500
Firlands		7,800
Total		155,950
<i>Residential Space</i>		
Market Apts.	172	143,600
Very Low Income Apts.	44	44,000
Very Low Income Townhouses	44	66,000
Total	260	253,600
<i>Parking Spaces</i>		
Surface Parking	315	
DW Garage	-	
Structured	556	
Total	871	

Exhibit 27 Option 3 Program Design



Development is arranged around the Fircrest Campus as follows:

- Area I: 44 townhouse-style apartments for very low income residents.
- Area II: About 84,000 s.f. of social service space, a 20,000 s.f. police branch station, and 44 very low income residential units.
- Area III: Nearly 35,000 s.f. of local-serving retail space and 172 apartment units over retail and small market-oriented office spaces.
- Area IV: Expansion of the current Firland and Food Lifeline spaces.
- Area V: No development – this space is developed as public park and open space.
- Area VI: No development.

Option 3 does not provide a financial return when analyzed without financial support, as shown in **Exhibit 28**. While the governmental and nonprofit office space nearly break even, the below-market rental housing lowers the financial return of this option as a whole.

Option 3 includes more open space and public uses as benefits to the local community. Similar to Option 2, Option 3 includes many land uses that require non-market funding and financial support.

Public services uses shown in Option 3 are assumed to provide a risk-adjusted return to a contracted developer, similar to governmental office uses in Option 2. The negative values of other uses are shown to demonstrate the order of magnitude of support required, and do not necessarily require that the State provide that support.

Option 3 includes the trails and open space features common to options 0.5, 1, 2, 3 and the Recommended Hybrid Option. Costs for the trails and open space are estimated at approximately \$770,000 to \$1,000,000, and are included in Exhibit 31 as part of Infrastructure Investments.

Exhibit 28 Option 3 Financial and Program Summary

Subarea	Timing	Expected Land Value		Land Use & Quantity			Market Requirement	Notes
		Per s.f.	Land Value (Financial Gap)	Land Use	Units or s.f.	Land (acres)		
1	Near-term	(\$246.80)	(\$15,600,000)	Low-Income Townhouses	44	1.45	\$920 monthly rent	Grants and affordable housing programs can off-set investment
2	Anytime		(\$17,300,000)	Transitional Housing	44		n/a	Costs do not assume operating costs or specific financial support
	Anytime		\$900,000	Police Station	20,000		\$30 per s.f. (Gross)	Economics assume generally a build-to-suit agreement
	Anytime		\$400,000	Social Services Offices and Library	73,950		\$32 per s.f. (Gross)	Economics assume generally a build-to-suit agreement
	Subarea 2 total	(\$137.73)	(\$16,000,000)			2.67		
3	N/A		(\$4,100,000)	Parking Structure w/ Gr. Fl. Office	110 spaces			No revenue for parking assumed
	Mid- to-Long-Term		\$2,900,000	4-Story Apartments over Retail	112		\$1,610 monthly rent	Retail rents cover their own costs, but not structured parking
	N/A		(\$3,100,000)	Apartments over parking	60		\$1,610 monthly rent	
	Subarea 3 total	(\$24.49)	(\$4,300,000)			4.03		Parking serves overall development of subarea; rents not enough
4	Anytime		\$500,000	Food LifeLine	13,500		\$35 per s.f. (Gross)	Economics assume generally a build-to-suit agreement
	Anytime		\$100,000	Firlands	7,800		\$35 per s.f. (Gross)	Economics assume generally a build-to-suit agreement
	Subarea 4 total	\$19.05	\$600,000			0.72		
5				No development				
6				No development				
	Total	(\$89.79)	(\$34,700,000)	Dwelling Units	260	8.87	Total acres re-developed	
				Operations s.f.	115,250			
	Less: Sitewide Demolition		(\$134,000)					
	Less: Infrastructure Investments		(\$987,000)					
	Net value	(\$92.69)	(\$35,821,000)					

Recommended Hybrid Option

Land uses and developments programmed in the Recommended Hybrid Option represent a combination of governmental operational goals, uses that provide community benefits and some uses that provide financial return.

The Recommended Hybrid Option includes the trails and open space features common to options 0.5, 1, 2, 3 and the Recommended Hybrid Option.

Exhibit 29 and **Exhibit 30** summarized the development program for Option 3. The economic summary of the Recommended Hybrid Option follows in **Exhibit 31**. Costs for the trails and open space are estimated at approximately \$770,000 to \$1,000,000, and are included in Exhibit 31 as part of Infrastructure Investments.

Exhibit 29 Recommended Hybrid Option Program Summary

	# Units	# s.f.
<i>Commercial Space</i>		
Retail		34,900
State Ofc.		255,000
Market Ofc.		5,800
Social Service Ofc.		10,000
Fircrest Admin & Training		57,000
Total		362,700
<i>Residential Space</i>		
Nursing Home		45,000
Market Townhouses	85	
Workforce Townhouses	15	
Low Income Townhouses	15	
Very Low Income Townhouses	20	
Apartments	250	
Total	385	45,000
<i>Parking Spaces</i>		
Surface Parking	669	
DW Garage	205	
Structured	1,132	
Total	2,006	

Exhibit 30 Benefit to Local Community Emphasis Program Design

Current

Recommended Hybrid Option

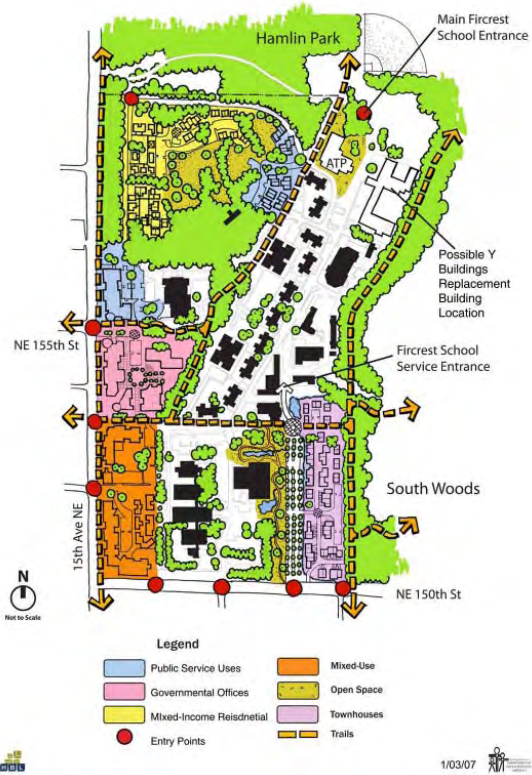
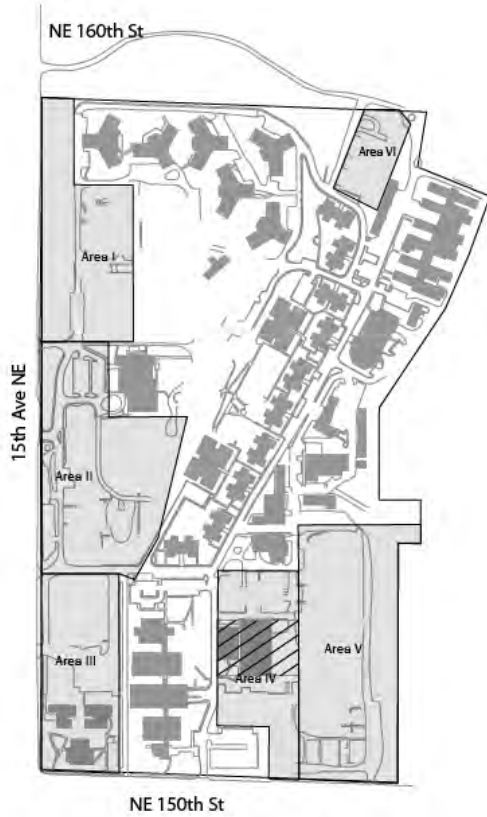


Exhibit 31 Recommended Hybrid Option Financial and Program Summary

Subarea	Timing	Expected Land Value		Land Use & Quantity			Market		Notes
		Per s.f.	Land Value (Financial Gap)	Land Use	Units or s.f.	Land (acres)	Requirement		
1	Anytime	(\$26.28)	(\$8,300,000)	Mixed-Income Townhouses	65	7.25	Blend of Prices	Requires financial assistance to provide below market rate housing	
2	Anytime		\$15,700,000	State-Occupied Office	241,700		\$35 per s.f. (Gross)	Assumes minimal development risk for build to suit	
			(\$11,700,000)	Low Income Apartments & Office over parking	48			Requires financial assistance to provide below market rate housing	
Subarea 2 total		\$20.66	\$4,000,000			4.44			
3	Unknown		(\$400,000)	Apartments & Retail over Parking	168			Rents do not cover construction costs and parking	
	N/A		(\$4,030,000)	Parking	110 spaces			Structured parking costs required to accommodate densities	
	Long-term		(\$6,360,000)	Condos w/ Structured Parking	34		\$450,000 per unit	Net sales would cover unit construction costs, not parking	
Subarea 3 total		(\$61.46)	(\$10,790,000)		202	4.03		Structured parking costs required to accommodate densities	
4				No action					
5	N/A		(\$14,200,000)	Workforce Townhouses (Rented)	70	4.55		Requires financial assistance to provide below market rate housing	
6	Anytime		\$1,600,000	DSHS Operations	57,000		\$35 per s.f. (Gross)	Assumes State to lease	
	Anytime		\$700,000	Nursing Home	45,000		\$40 per s.f. (Gross)	Assumes State to lease	
Subarea 6 total		(\$88.27)	(\$11,900,000)		102,000	3.09		Structured parking costs required to accommodate densities	
Total		(\$26.51)	(\$26,990,000)	Dwelling Units	385	23.37			
				Operations and Office s.f.	343,700				
Less: Sitewide Demolition			(\$1,127,000)						
Less: Infrastructure Investments			(\$987,000)						
Net value		(\$28.59)	(\$29,104,000)						

Discussion and Policy Considerations

- **Open space and public use benefits.** The design plan common to all options would provide public open spaces and walking paths connecting Hamlin Park to the north with and Shorecrest High School and other natural open space to the east, providing significant new amenities to neighbors and other Shoreline residents.
- **Local fiscal benefits.** Direct tax and fee revenues to the City would increase under each option and would vary based on the differing levels of residential and commercial space developed. County and State fiscal benefits would generally occur elsewhere in the County and State, regardless of the actions planned for Fircrest.

Option 0 would generate the greatest local revenue at approximately \$12.1 million in total present-value revenue through 2036 (30 year horizon), shown in **Exhibit 32**. The actual value of benefits would vary depending on absorption and changes in construction costs and other variables over time. The relative benefits of each option are summarized in the exhibit below, varying primarily due to the intensity of built space assumed in each option.

Exhibit 32
Summary of Fiscal Benefits

	Local Fiscal Benefits*
Option 0	\$12.1 million
Option 0.5	\$8.7 million
Option 1	\$10.1 million
Option 2	\$6.4 million
Option 3	\$5.2 million
Recommended Hybrid Option	\$5.6 million

*Note: Present value of direct and gross benefits only, meaning no indirect impacts have been calculated, nor have increases in municipal service costs been calculated or weighed against the direct revenues shown.

Specific revenue sources would vary by the uses developed, but in general the greatest revenues would come from real estate excise taxes, sales taxes, and permit and user fees.

While Option 0 generates higher fiscal returns in dollar terms, other options would include unquantified public and social benefits that would accrue to City residents. These would include the greater presence of social services, affordable housing, local employment, and publicly accessible open and recreational space featured in Options 2 and 3.

APPENDIX A: ASSUMPTIONS AND FINANCIAL MODEL DETAILS

Approach and Assumptions

Approach

Development costs and income are calculated for each use and scenario based on current market conditions. Additional analysis compares the financial return for apartment and office space developments under varying income and cost assumptions, to assess the impact of reduced rents for below-market affordable apartments and for a range of possible lease rates for office rented to private-sector, governmental agency, and nonprofit organization tenants.

Assumptions and Inputs

Market assumptions and development inputs represent values that were either researched specifically for this model or developed through discussions with other key project team members. Values seen in actual development proposals may vary (perhaps considerably) from initial assumptions based on factors unique to each developer, the specifics of the proposed development program, and market conditions at the time.

General Design and Parking Assumptions Common to All Scenarios

- Small lot houses and townhouse/duplex configurations are assumed to have driveway/garage parking. All other uses are modeled with both surface and structured parking to reflect different possible configurations.
- Residential units are modeled separately for for-sale condominiums and rental apartments. An average unit size is identified for each based on a percentage allocation among different unit types (studio and 1-, 2-, and 3-bedroom units), based on estimates of recent market sales trends.
- No rental parking income is modeled; all parking is assumed to be free for building users, tenants, and residents.

Cost Assumptions

Values for hard costs are estimated for site development and building construction for each building type. Building hard cost estimates were provided by Rider Levett Bucknall based on building programs developed by AHBL (**Exhibit A-1**). Soft costs such as design, permitting, and financing expenses are assumed to be relatively constant across all product types, and are estimated at 35% of hard costs based on recent development projects in

the market. Building efficiency estimates based on market averages are made to relate gross building square footage, which informs cost calculations, to net leasable square footage, which inform revenue projections.

**Exhibit A-1
Cost Assumptions**

Space Type	Hard Cost / SF
Site Development	\$ 6
Residential	
Small Lot House	\$ 135
Townhouse ./ Duplex	\$ 135
Tract Housing	\$ 120
Condo	\$ 165
Apartments (market rate)	\$ 165
Commercial	
Retail	\$ 145
Strip Retail	\$ 100
Office	\$ 145
Police Office	\$ 220
Food Lifeline	\$ 200
Firlands	\$ 200
Fircrest Admin & Training	\$ 250
Nursing Home	\$ 325
Parking	
Driveway / Garage Parking	\$ 57
Surface Parking	\$ 11
Structured Parking	\$ 86

The model does not explicitly consider the effect of financing structure (debt) on feasibility. Different financing structures could make a given project more or less feasible to a given developer. However those effects would be similar across all scenarios rather than being a function of a specific site or use program.

Tenant Improvement (TI) costs are assumed to be factored into the cost and lease rate calculations for commercial buildings and thus are not identified separately. As with the element of financial structuring noted above, separating out TIs would add little if any net effect on the difference in feasibility between scenarios.

Revenue Assumptions

Revenues are based on expected market values based on current market research and calculated per net leasable square foot (**Exhibit A-2**). Vacancy losses and Operating Expenses are likewise based on current market averages, both expressed as a percentage of gross rental revenue.

**Exhibit A-2
Revenue Assumptions**

Space Type	Gross Rent / Net Leasable SF	Vacancy Rate	Operating Expenses	Net Rent / Net Leasable SF
Residential				
Apartment (Market rate)	\$21.00	5%	34%	\$12.81
Apartment (Workforce)	\$14.40	5%	34%	\$8.78
Apartment (Low Income)	\$10.80	5%	34%	\$6.59
Apartment (Very Low Income)	\$6.00	5%	34%	\$3.66
Commercial				
Retail	\$32.00	5%	34%	\$19.52
Strip Retail	\$30.00	5%	34%	\$18.30
Office (Market rate)	\$32.00	5%	34%	\$19.52
Office (State agency)	\$30.00	5%	34%	\$18.30
Office (State agency)	\$32.00	5%	34%	\$19.52
Office (State agency)	\$35.00	5%	34%	\$21.35
Office (Social service)	\$32.00	5%	34%	\$19.52
Police Office	\$30.00	5%	34%	\$18.30
Food Lifeline	\$35.00	5%	34%	\$21.35
Firland	\$35.00	5%	34%	\$21.35
Fircrest Admin & Training	\$35.00	5%	34%	\$21.35
Nursing Home	\$40.00	5%	34%	\$24.40
Residential Sales				
	Gross Sales Price / SF	Sale Expenses	Net Sale Income / SF	
Small Lot House	\$300.00	10.0%	\$270.00	
Townhouse / Duplex	\$333.33	10.0%	\$300.00	
Tract House	\$238.64	10.0%	\$214.77	
Condo	\$489.13	10.0%	\$440.22	

Financial Assumptions

Basic financial inputs reflect current market averages.

Cap rates. Capitalization rates, or cap rates, determine how revenues are converted to an overall market value, and reflect the investment market’s appetite for risk given current real estate market rents and revenues. Outcomes and analysis are highly sensitive to changes and cap rates. Moreover, cap rates range broadly at any given point in time, further challenging this type of “disinterested” analysis required for policy decisions.

Key financial factors incorporated in the model include:

- A 6.5% discount rate is used in the model for calculation of present values, reflecting private sector borrowing costs.
- Construction cost inflation is set at 4.0% annually; rental income inflation is set at 3.0% and sale price inflation at 5.0%.
- “Initial” cap rates, used to calculate pro forma market values based on current operating income, are set at 5.5% for residential projects and 6.5% for commercial projects based on market expectations of near-term cap rate levels. An “exit” cap rate, used to calculate market values based on future income streams, is set at a 0.75% premium over those “initial” rates to reflect greater uncertainty about future conditions.
- Operating cost projections in the cash flow model are based on average annual growth of 2.5%.
- Building capital expenditures of \$0.25 per building square foot, and Tenant Improvement and leasing commission charges of \$1.75 per s.f. for each lease renewal, are included in operating expense figures.
- The developer’s required return on investment is labeled “entrepreneurial return” in the model, and set at 10%.

While the model could be structured to incorporate financial leverage (loans), at present it is structured as if the project were entirely equity-financed. In reality most development projects would be largely debt financed. However the primary focus here is on comparing the relative financial return of similar projects at different density levels, and thus financing structure is not addressed.

Timing Assumptions

Several assumptions were made regarding the timing of construction and absorption based on current market trends:

- Construction is assumed to take one year for each building project, and to begin in 2009, varying by scenario and use. In practice, construction would not begin for at least two years, given permitting and entitlement processes; however that delay would not materially affect the calculations or comparative outcomes identified in the model, so for simplicity’s sake a single 2-year permitting and construction period is modeled.

- Condominium and market-rate apartments are assumed to sell or lease up at a rate of 30 units per year, with below-market rentals at 40 units per year. Townhomes and single family homes are assumed to sell slightly slower at 20 units per year. The model does not account for pre-sales that would likely make that number higher in the first year of sales, thus introducing a slight conservative bias to revenue calculations.
- The entire property is assumed to be held by the initial owner/developer throughout the entire 30-year study period. In practice some or all of the commercial projects would likely change hands one or more times during that period. Incomes from such sales would increase Real Estate Excise Tax revenue to the City but would not significantly affect market return from a developer's or investor's perspective, as sales would be based on the projected value of the same future income modeled. The only uncertainty this leaves out is the possible effect of future cap rate fluctuations; however those are unpredictable trying to model them would require too much uncertainty to add analytical value.

APPENDIX B: MODEL DETAILS

The key assumptions and schedules included are described as follow:

- **Market Data** showing key cost, revenue, and financial variables common to all site and development scenarios. These data points inform the detailed scenario calculations. (p. B-1)
- **Single Use Financial Return** analysis of the financial return of each building use type considered across the three development scenarios, comparing the cost to build the structure and associated parking with the revenue projected to flow from each program. (p. B-2)
- **Pro Formas by Scenario**, summarizing the financial return of each building type for each scenario. (p.B-23)

The models are presented with standard conventions such as:

- **Formatting Standards.** Throughout the model, cells highlighted in light yellow and/or with blue font represent user inputs that can be changed to model different development programs or scenarios. Unformatted values represent model calculations. Certain cells have conditional formatting rules that will change the formatting to alert the user when a calculation goes above a predetermined limit such as in calculating parking configuration allocations in the Site Detail spreadsheets.

PRO FORMA VALUE CALCULATIONS

Exhibit B-1: Market Data Assumptions and Inputs

SPACE & COST	SPACE			TIMING			COST	VALUE	PARKING	MISC.
	Avg. Unit SF	Building Efficiency	# Stories	Construction Begins	Buildout Rate (# / yr)	Absorption Rate (# / yr)				
Small Lot Houses	1,800	100%	2	2009	40	20	\$135.00	\$300.00	2	2.5
Townhouses	1,500	100%	2	2010	50	20	\$135.00	\$333.33	2	2.0
Tract Housing	2,200	100%	2	2010	50	20	\$120.00	\$238.64	2.0	250
Condos	920	90%	5	2010	100	30	\$165.00	\$489.13	1.8	1.7
Apartments	920	90%	4	2010	100	30	\$165.00	\$190.00	1.8	1.7
Market Apts.	920	90%	4	2010	100	30	\$165.00	\$190.00	1.8	1.7
Workforce Apts.	920	90%	4	2010	100	40	\$150.00	\$180.00	1.8	1.7
Low Income Apts.	920	90%	4	2010	100	40	\$140.00	\$180.00	1.8	1.7
Very Low Income Apts.	920	90%	4	2010	100	40	\$130.00	\$180.00	1.8	1.7
Workforce Townhouses	1,500	90%	4	2010	100	40	\$135.00	\$180.00	1.8	1.7
Low Income Townhouses	1,500	90%	4	2010	100	40	\$130.00	\$180.00	1.8	1.7
Very Low Income Townhouses	1,500	90%	4	2010	100	40	\$125.00	\$180.00	1.8	1.7
Mixed-Use Retail	5,000	90%	1	2010	20,000	20,000	\$145.00	\$180.00	3.0	400
Strip Retail	1,000	90%	1	2010	50,000	50,000	\$100.00	\$200.00	2.0	250
Market Ofc.	20,000	90%	4	2010	30,000	30,000	\$145.00	\$200.00	3.0	250
State Ofc.	20,000	90%	4	2010	50,000	50,000	\$145.00	\$200.00	3.0	250
Social Service Ofc.	10,000	90%	4	2010	50,000	50,000	\$145.00	\$200.00	3.0	250
Police Ofc.	10,000	90%	4	2010	50,000	50,000	\$220.00	\$200.00	2.0	250
Food Life Line	10,000	90%	4	2010	50,000	50,000	\$200.00	\$200.00	2.0	250
Firlands	10,000	90%	4	2010	50,000	50,000	\$200.00	\$200.00	2.0	250
Fircrest Admin & Training	10,000	90%	4	2010	50,000	50,000	\$250.00	\$200.00	2.0	250
Nursing Home	10,000	90%	4	2010	50,000	50,000	\$325.00	\$200.00	2.0	250
Other Ofc.	10,000	90%	4	2010	50,000	50,000	\$145.00	\$200.00	2.0	250
Site Work / Open Space	1						\$6.00			
Surface Parking	350						\$11.43	\$4,000		
DW Garage	350						\$57.14	\$20,000		
Structured	350						\$85.71	\$30,000		

INCOME	Gross Rent / SF /		Rent / Unit /		Vacancy %	OpEx %	NOI / Unit	NOI / SF / Yr.	Sale Price (Future Values)	Net Sale Revenue	Sale Price / SF	Sale Price / Net SF
	Mo.	Gross Rent / SF	Yr.	Rent / Unit / Mo.								
Small Lot House									\$540,000	\$486,000	\$300.00	\$300
Townhouse									\$500,000	\$450,000	\$333.33	\$333
Tract House									\$525,000	\$472,500	\$238.64	\$239
Condo									\$450,000	\$405,000	\$489.13	\$440
Market Apts.	\$1.75	\$21.00	\$19,320.00	\$1,610.00	5%	34%	\$11,785.20	\$12.81				
Workforce Apts.	\$1.20	\$14.40	\$13,248.00	\$1,104.00	5%	34%	\$8,081.28	\$8.78				
Low Income Apts.	\$0.90	\$10.80	\$9,936.00	\$828.00	5%	34%	\$6,060.96	\$6.59				
Very Low Income Apts.	\$0.50	\$6.00	\$5,520.00	\$460.00	5%	34%	\$3,367.20	\$3.66				
Workforce Townhouses	\$1.40	\$16.80	\$15,456.00	\$1,288.00	5%	34%	\$9,428.16	\$10.25				
Low Income Townhouses	\$1.00	\$12.00	\$11,040.00	\$920.00	5%	34%	\$6,734.40	\$7.32				
Very Low Income Townhouses	\$0.60	\$7.20	\$10,800.00	\$900.00	5%	34%	\$6,588.00	\$7.32				
Retail		\$32.00			5%	30%		\$20.80				
Strip Retail		\$30.00			5%	30%		\$19.50				
Market Ofc.		\$32.00			5%	34%		\$19.52				
State Ofc.		\$35.00			5%	34%		\$21.35				
Social Service Ofc.		\$32.00			5%	34%		\$19.52				
Police Ofc.		\$30.00			5%	30%		\$19.50				
Food Life Line		\$35.00			5%	30%		\$22.75				
Firlands		\$35.00			5%	34%		\$21.35				
Fircrest Admin & Training		\$35.00			5%	34%		\$21.35				
Nursing Home		\$40.00			5%	34%		\$24.40				
Surface Parking												
Structured Parking												

Residential Re-sale Frequency	5	20.0%
Commercial Property Sale in Year	30	
Commercial Re-sale Frequency	30	3.3%

RESIDENTIAL UNIT SIZE MIX (SF/Unit)

	Studio	1-BR	2-BR	3-BR	Avg. SF
Condo	600	800	1,000	1,200	
Apartment	0%	40%	60%	0%	920
Townhouse / duplex	0%	40%	60%	0%	920
	0%	0%	0%	100%	1500

FOR-SALE RES. AFFORDABILITY

	% of mkt price
Small Lot House	80%
Townhouse	80%
Condo	80%

FINANCIAL

Cost of Residential Sale	10.0%
Soft Cost %	35%
Residential Cap Rate	5.500%
Commercial Cap Rate	6.500%
Exit Cap Rate Spread	0.75%
Developer Return Req'd	10.00%
Hurdle Rate (Land Cost / SF)	\$40.00

INFLATION

Market Discount Rate	6.50%
City Discount Rate	4.50%
General Inflation	3.00%
Construction Cost Infl.	5.00%
Res. AV Inflation	4.00%
Cml. AV Inflation	3.00%

TAX & FEE RATES

Retail Sales	
TRS per Capita	\$800.00 Share of retail
Retail - specialty	\$400.00 30%
Retail - convenience	\$300.00 70%
Retail - grocery	\$185.00 0%
Office	\$15.00
Sales Tax to City	0.85%
REET - Capital Facilities	0.25%
REET - Transportation	0.25%
Gambling Tax	\$ 55.46 pop.
State Revenue	\$ 13.64 pop.
Parks & Recreation Revenue	\$ 17.99 pop.
Building Permit- and related Fees	1.95%
Initial Property Tax Millage Rate	2.4659
Property Tax Share Rec'd by City	10.80%
Property Tax on Revaluations	1.00% assumes I-747 cap
Utility & Franchise Fee Revenues	
Natural Gas Utility	6% \$ 268.16 pop.
Sanitation Utility T	6% \$ 104.42 jobs & pop
Cable Utility Tax	6% \$ 151.43 pop.
Cable Franchise Fe	5% \$ 36.34 pop.
Telephone / Cell U	6% \$ 466.91 pop.
Water Franchise F	6% \$ 157.74 jobs & pop
Sewer Franchise F	6% \$ 200.80 jobs & pop
Storm Drainage Ut	6% \$ 51.27 pop.
Electricity Contract Payment	\$ 16.09 pop.

PRO FORMA VALUE CALCULATIONS

Exhibit B-2: Single Use Feasibility Analysis

		Small Lot House	Townhouse	Condo	Market Apartment	Retail	Market Office	
SIZE	Unit Size	1,800	1,500	920	920	5,000	10,000	
	Parking Ratio	2	2	1.8	1.8	3	3	
COST	Hard Cost / SF	\$135	\$135	\$165	\$165	\$100	\$145	
	TDC / SF *	\$200	\$200	\$245	\$245	\$149	\$215	
	Building TDC	\$360,855	\$300,713	\$225,423	\$225,423	\$742,500	\$2,153,250	
	Parking Req'd	2	2	1.8	1.8	15	30	
	Pkg Cost / Bldg SF if Driveway/Garage	\$22	\$27					
	Pkg Cost / Bldg SF if Surface			\$8	\$8	\$12	\$12	
	Pkg Cost / Bldg SF if Structured			\$59	\$59	\$90	\$90	
	<i>* TDC includes soft costs and developer return</i>							
	TDC incl. DW/Garage Parking / BLDG SF	\$233	\$240					
	TDC incl. Surface Parking / BLDG SF			\$257	\$257	\$166	\$233	
TDC incl. Structured Parking / BLDG SF			\$332	\$332	\$282	\$349		
INCOME	Gross Income / Net SF				\$21.00	\$32.00	\$32.00	
	Vacancy Rate %				5%	5%	5%	
	Operating Cost %				34%	30%	34%	
	NOI / SF				\$12.81	\$20.80	\$19.52	
	Sale Price / Net SF	\$300	\$333	\$380				
	Sale Cost	\$30	\$33	\$38				
	Net Sale Price, Market Value / SF	\$270	\$300	\$342	\$205	\$287	\$269	
FAR	Surface Parking	0.35	0.9	0.35	0.35	0.50	0.35	
	Structured Parking			2.5	2.5	2.5	2.5	
RESIDUAL LAND VALUE								
By Parking Configuration								
	RLV / SF - Driveway/Garage Parking	\$13	\$54					
	RLV / SF - Surface Parking			\$30	-\$18	\$60	\$13	
	RLV / SF - Structured Parking			\$26	-\$318	\$12	-\$199	

PRO FORMA VALUE CALCULATIONS

12 per s.f.

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.1.a 5-story Condos over 1-story Pkg	S.1.a 5-story Condos over 1-story Pkg	L.1.a 5-story Condos over 1-story Pkg	H.1.a 5-story Condos over 1-story Pkg
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cost	63,210 \$ 40 \$ 2,528,400	- \$ 40 \$ -	- \$ 40 \$ -	- \$ 40 \$ -
Site Work & Demolition	63,210 \$ 6 \$ 379,260	- \$ 6 \$ -	- \$ 6 \$ -	- \$ 6 \$ -
Construction Costs				
Commercial Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Residential Subtotal	96 \$ 15,840,000 \$ 15,840,000	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Parking Subtotal	- - 5,948,000	- - -	- - -	- - -
Surface Parking	77 \$ 308,000	- \$ -	- \$ -	- \$ -
Structured	188 \$ 5,640,000	- \$ -	- \$ -	- \$ -
DW Garage	- \$ -	- \$ -	- \$ -	- \$ -
Total Hard Costs	- - \$ 22,167,260	- - \$ -	- - \$ -	- - \$ -
Soft Development Costs	\$ 7,758,541	\$ -	\$ -	\$ -
Total Project Costs (incl. Land)	\$ 32,454,201	\$ -	\$ -	\$ -
Entrepreneurial Return @ 10.00%	\$ 3,245,420	\$ -	\$ -	\$ -
= Total Development Cost (TDC)	\$ 35,699,621	\$ -	\$ -	\$ -
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ (3,180,379)	\$ -	\$ -	\$ -
Commercial Capitalization Rate	6.500%	6.500%	6.500%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ (174,921)	\$ -	\$ -	\$ -
Actual Rental NOI Achieved	\$ -	\$ -	\$ -	\$ -
Net Operating Income				
Commercial	\$ - \$ - -	\$ - \$ - -	\$ - \$ - -	\$ - \$ - -
Residential	\$ - \$ - -	\$ - \$ - -	\$ - \$ - -	\$ - \$ - -
Residential Sale Income	\$ 38,880,000 \$ 38,880,000 \$ 38,880,000	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
TOTAL MARKET VALUE	\$ - \$ 38,880,000.00 \$ 38,880,000	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
OUTCOME	Yes, Property Value Exceeds Development Cost	Yes, Property Value Exceeds Development Cost	Yes, Property Value Exceeds Development Cost	Yes, Property Value Exceeds Development Cost
METRICS				
Value of Rental NOI	\$ -	\$ -	\$ -	\$ -
Value of Unit Sales	\$ 38,880,000	\$ -	\$ -	\$ -
Total Property Value	\$ 38,880,000	\$ -	\$ -	\$ -
Net Project Value	\$ 3,180,379	\$ -	\$ -	\$ -
Effective Cap Rate	0.0%	#DIV/0!	#DIV/0!	#DIV/0!
RLV	\$ 5,708,779	\$ -	\$ -	\$ -
RLV per SF	\$ 90.31	\$ -	\$ -	\$ -
Required RLV/SF	\$ 1.59	\$ -	\$ -	\$ -
TVM Calculations				

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.1.b 2-story Townhouses	S.1.b 2-story Townhouses	L.1.b 2-story Townhouses	H.1.b 2-story Townhouses					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cost	9,750	\$ 40	\$ 390,000	54,300	\$ 40	\$ 2,172,000	93,600	\$ 40	\$ 3,744,000
Site Work & Demolition	9,750	\$ 6	\$ 58,500	54,300	\$ 6	\$ 325,800	93,600	\$ 6	\$ 561,600
Construction Costs									
Commercial Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Residential Subtotal	4	\$ 810,000	\$ 810,000	93	\$ 18,832,500	\$ 18,832,500	44	\$ 8,910,000	\$ 8,910,000
Parking Subtotal	-	\$ -	\$ 40,000	-	\$ -	\$ 800,000	-	\$ -	\$ 336,000
Surface Parking	10	\$ 40,000		200	\$ 800,000		84	\$ 336,000	
Structured	-	\$ -		-	\$ -		-	\$ -	
DW Garage	-	\$ -		-	\$ -		-	\$ -	
Total Hard Costs			\$ 908,500			\$ 19,958,300			\$ 9,807,600
Soft Development Costs			\$ 317,975			\$ 6,985,405			\$ 3,432,660
Total Project Costs (incl. Land)			\$ 1,616,475			\$ 29,115,705			\$ 16,984,260
Entrepreneurial Return @ 10.00%			\$ 161,648			\$ 1,698,426			\$ 1,987,538
= Total Development Cost (TDC)			\$ 1,778,123			\$ 29,115,705			\$ 18,682,686
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)			\$ (21,878)			\$ 29,115,705			\$ 15,112,913
Commercial Capitalization Rate			6.500%			6.500%			6.500%
Residential Capitalization Rate			5.500%			5.500%			5.500%
= Minimum Rental NOI Required			\$ (1,203)			\$ 1,601,364			\$ 831,210
Actual Rental NOI Achieved			\$ -			\$ 626,299			\$ 289,872
Net Operating Income									
Commercial	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 11,387,258	\$ -	\$ -	\$ 5,270,400
Residential	\$ -	\$ -	\$ -	\$ 626,299	\$ 11,387,258.18	\$ -	\$ 289,872	\$ 5,270,400.00	\$ 6,803,607.27
Residential Sale Income	\$ 1,800,000	\$ 1,800,000	\$ 1,800,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 6,750,000
TOTAL MARKET VALUE	\$ -	\$ 1,800,000.00	\$ 1,800,000	\$ 626,299	\$ 11,387,258.18	\$ 11,387,258	\$ 289,872	\$ 5,270,400.00	\$ 13,553,607.27
OUTCOME									
METRICS		Yes, Property Value Exceeds Development Cost		No, Development Cost Exceeds Property Value		No, Development Cost Exceeds Property Value		No, Development Cost Exceeds Property Value	
Value of Rental NOI	\$ -		\$ -	\$ 11,387,258	\$ 5,270,400	\$ 5,270,400	\$ 6,803,607	\$ 6,750,000	\$ 6,803,607
Value of Unit Sales	\$ 1,800,000		\$ -	\$ -	\$ -	\$ -	\$ 6,750,000	\$ 6,750,000	\$ 6,750,000
Total Property Value	\$ 1,800,000		\$ 11,387,258	\$ 11,387,258	\$ 5,270,400	\$ 13,412,286	\$ 13,553,607	\$ 13,553,607	\$ 13,553,607
Net Project Value	\$ 21,878		\$ (17,728.447)	\$ (17,728.447)	\$ (13,412.286)	\$ (8,309.305)	\$ (8,309.305)	\$ (8,309.305)	\$ (8,309.305)
Effective Cap Rate	0.0%		39.1%	39.1%	28.2%	31.1%	31.1%	31.1%	31.1%
RLV	\$ 411,878		\$ (15,556.447)	\$ (15,556.447)	\$ (9,668.286)	\$ (8,309.305)	\$ (8,309.305)	\$ (8,309.305)	\$ (8,309.305)
RLV per SF	\$ 42.24		\$ (286.49)	\$ (286.49)	\$ (103.29)	\$ -	\$ -	\$ -	\$ -
Required RLV/SF	\$ 0.24		\$ 1.36	\$ 1.36	\$ 2.35	\$ -	\$ -	\$ -	\$ -
TVM Calculations									
Project NPV	\$ (17,629,512)		\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)
IRR	4.5%		4.5%	4.5%	4.5%	4.5%	4.5%	4.5%	4.5%
ROI	-10.2%		-10.2%	-10.2%	-10.2%	-10.2%	-10.2%	-10.2%	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.2.a 3-story Townhouses over 1-story Parking	S.2.a 3-story Townhouses over 1-story Parking	L.2.a 3-story Townhouses over 1-story Parking	H.2.a 3-story Townhouses over 1-story Parking
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cos	90,950 \$ 40 \$ 3,638,000	- \$ 40 \$ -	- \$ 40 \$ -	- \$ 40 \$ -
Site Work & Demolition	90,950 \$ 6 \$ 545,700	- \$ 6 \$ -	- \$ 6 \$ -	- \$ 6 \$ -
Construction Costs				
Commercial Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Residential Subtotal	90 \$ 18,225,000 \$ 18,225,000	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Parking Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Surface Parking	23 \$ 92,000	- \$ -	- \$ -	- \$ -
Structured	65 \$ 1,950,000	- \$ -	- \$ -	- \$ -
DW Garage	98 \$ 1,960,000	- \$ -	- \$ -	- \$ -
Total Hard Costs	\$ 22,772,700	\$ -	\$ -	\$ -
Soft Development Costs	\$ 7,970,445	\$ -	\$ -	\$ -
Total Project Costs (incl. Land)	\$ 34,381,145	\$ -	\$ -	\$ -
Entrepreneurial Return @ 10.00%	\$ 3,438,115	\$ -	\$ -	\$ -
= Total Development Cost (TDC)	\$ 37,819,260	\$ -	\$ -	\$ -
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ (2,680,741)	\$ -	\$ -	\$ -
Commercial Capitalization Rate	6.500%	6.500%	6.500%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ (147,441)	\$ -	\$ -	\$ -
Actual Rental NOI Achieved	\$ -	\$ -	\$ -	\$ -
Net Operating Income				
Commercial	\$ -	\$ -	\$ -	\$ -
Residential	\$ -	\$ -	\$ -	\$ -
Residential Sale Income	\$ 40,500,000	\$ 40,500,000	\$ 40,500,000	\$ 40,500,000
TOTAL MARKET VALUE	\$ - \$ 40,500,000.00 \$ 40,500,000	\$ - \$ - -	\$ - \$ - -	\$ - \$ - -
OUTCOME	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos
METRICS				
Value of Rental NOI	\$ -	\$ -	\$ -	\$ -
Value of Unit Sales	\$ 40,500,000	\$ -	\$ -	\$ -
Total Property Value	\$ 40,500,000	\$ -	\$ -	\$ -
Net Project Value	\$ 2,680,741	\$ -	\$ -	\$ -
Effective Cap Rate	0.0%	#DIV/0!	#DIV/0!	#DIV/0!
RLV	\$ 6,318,741	\$ -	\$ -	\$ -
RLV per SF	\$ 69.47	\$ -	\$ -	\$ -
Required RLV/SF	\$ 2.28	\$ -	\$ -	\$ -
TVM Calculations				
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)
IRR	4.5%	4.5%	4.5%	4.5%
ROI	-10.2%	-10.2%	-10.2%	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario								
	M.2.b 3-story Office over 1-story Parking	S.2.b 3-story Office over 1-story Parking	L.2.b 3-story Office over 1-story Parking	H.2.b 3-story Office over 1-story Parking								
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals			
Site Market Value / Acquisition Cos	-	\$ 40	-	194,475	\$ 40	\$ 7,779,000	-	\$ 40	-	194,475	\$ 40	\$ 7,779,000
Site Work & Demolition	-	\$ 6	-	194,475	\$ 6	\$ 1,166,850	-	\$ 6	-	194,475	\$ 6	\$ 1,166,850
Construction Costs												
Commercial Subtotal	-	-	-	154,800	\$ 22,446,000	\$ 22,446,000	-	-	-	154,800	\$ 22,446,000	\$ 22,446,000
Residential Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Parking Subtotal	-	-	-	-	-	\$ 12,932,000	-	-	-	-	-	\$ 12,932,000
Surface Parking	-	-	-	83	\$ 332,000	-	-	-	-	83	\$ 332,000	-
Structured	-	-	-	420	\$ 12,600,000	-	-	-	-	420	\$ 12,600,000	-
DW Garage	-	-	-	-	-	-	-	-	-	-	-	-
Total Hard Costs	-	-	-	-	-	\$ 36,544,850	-	-	-	-	-	\$ 36,544,850
Soft Development Costs	-	-	-	-	-	\$ 12,790,698	-	-	-	-	-	\$ 12,790,698
Total Project Costs (incl. Land)	-	-	-	-	-	\$ 57,114,548	-	-	-	-	-	\$ 57,114,548
Entrepreneurial Return @ 10.00%	-	-	-	-	-	\$ 5,711,455	-	-	-	-	-	\$ 5,711,455
= Total Development Cost (TDC)	-	-	-	-	-	\$ 62,826,002	-	-	-	-	-	\$ 62,826,002
RENTAL MARKET VALUE												
Minimum Rental Market Value (= TDC - Res. Sale Income)	-	-	-	-	-	\$ 62,826,002	-	-	-	-	-	\$ 62,826,002
Commercial Capitalization Rate	-	6.500%	-	-	5.500%	-	-	6.500%	-	-	5.000%	-
Residential Capitalization Rate	-	5.500%	-	-	5.500%	-	-	5.500%	-	-	5.500%	-
= Minimum Rental NOI Required	-	-	-	-	-	\$ 3,455,430	-	-	-	-	-	\$ 3,455,430
Actual Rental NOI Achieved	-	-	-	-	-	\$ 3,304,980	-	-	-	-	-	\$ 3,304,980
Net Operating Income	-	-	-	-	-	\$ 60,090,545	-	-	-	-	-	\$ 66,099,600
Commercial	-	-	-	-	-	\$ 3,304,980	-	-	-	-	-	\$ 66,099,600
Residential	-	-	-	-	-	-	-	-	-	-	-	-
Residential Sale Income	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL MARKET VALUE	-	-	-	-	-	\$ 60,090,545	-	-	-	-	-	\$ 66,099,600
OUTCOME												
METRICS	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos								
Value of Rental NOI	\$ -	\$ 60,090,545	\$ -	\$ 66,099,600								
Value of Unit Sales	\$ -	\$ -	\$ -	\$ -								
Total Property Value	\$ -	\$ 60,090,545	\$ -	\$ 66,099,600								
Net Project Value	\$ -	\$ (2,735,457)	\$ -	\$ 3,273,598								
Effective Cap Rate	#DIV/0!	95.6%	#DIV/0!	105.2%								
RLV	\$ -	\$ 5,043,543	\$ -	\$ 11,052,598								
RLV per SF	\$ -	\$ 25.93	\$ -	\$ 56.63								
Required RLV/SF	\$ -	\$ 4.88	\$ -	\$ 4.88								
TVM Calculations												
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)								
IRR	4.5%	4.5%	4.5%	4.5%								
ROI	-10.2%	-10.2%	-10.2%	-10.2%								

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario								
	M.2.c 2-story Office over 1-story Parking	S.2.c 2-story Office over 1-story Parking	L.2.c 2-story Office over 1-story Parking	H.2.c 2-story Office over 1-story Parking								
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals			
Site Market Value / Acquisition Cost	-	\$ 40	-	168,075	\$ 40	\$ 6,723,000	-	\$ 40	-	168,075	\$ 40	\$ 6,723,000
Site Work & Demolition	-	\$ 6	-	168,075	\$ 6	\$ 1,008,450	-	\$ 6	-	168,075	\$ 6	\$ 1,008,450
Construction Costs												
Commercial Subtotal	-	-	-	100,200	\$ 14,529,000	\$ 14,529,000	-	-	-	100,200	\$ 14,529,000	\$ 14,529,000
Residential Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Parking Subtotal	-	-	-	-	-	\$ 9,724,000	-	-	-	-	-	\$ 9,724,000
Surface Parking	-	-	-	16	\$ 64,000	-	-	-	-	16	\$ 64,000	-
Structured	-	-	-	322	\$ 9,660,000	-	-	-	-	322	\$ 9,660,000	-
DW Garage	-	-	-	-	-	-	-	-	-	-	-	-
Total Hard Costs						\$ 25,261,450						\$ 25,261,450
Soft Development Costs						\$ 8,841,508						\$ 8,841,508
Total Project Costs (incl. Land)						\$ 40,825,958						\$ 40,825,958
Entrepreneurial Return @ 10%						\$ 4,082,596						\$ 4,082,596
= Total Development Cost (TDC)						\$ 44,908,553						\$ 44,908,553
RENTAL MARKET VALUE												
Minimum Rental Market Value (= TDC - Res. Sale Income)						\$ 44,908,553						\$ 44,908,553
Commercial Capitalization Rate 6.500%						\$ 5,000%						\$ 5,000%
Residential Capitalization Rate 5.500%						\$ 6,500%						\$ 6,500%
= Minimum Rental NOI Required						\$ 2,469,970						\$ 2,469,970
Actual Rental NOI Achieved						\$ 2,139,270						\$ 2,139,270
Net Operating Income												
Commercial	-	-	-	2,139,270	\$ 38,895,818.18	\$ 38,895,818	-	-	-	2,139,270	\$ 42,785,400.00	\$ 42,785,400
Residential	-	-	-	-	-	-	-	-	-	-	-	-
Residential Sale Income						-						-
TOTAL MARKET VALUE						\$ 38,895,818						\$ 42,785,400
OUTCOME												
METRICS												
Value of Rental NOI						\$ 38,895,818						\$ 42,785,400
Value of Unit Sales						-						-
Total Property Value						\$ 38,895,818						\$ 42,785,400
Net Project Value						\$ (6,012,735)						\$ (2,123,153)
Effective Cap Rate						86.6%						95.3%
RLV						\$ 710,265						\$ 4,599,847
RLV per SF						\$ 4.23						\$ 27.37
Required RLV/SF						\$ 4.22						\$ 4.22
TVM Calculations												
Project NPV						\$ (17,629,512)						\$ (17,629,512)
IRR						4.5%						4.5%
ROI						-10.2%						-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.2.d Transitional Housing over 1-story Pkg	S.2.d Transitional Housing over 1-story Pkg	L.2.d Transitional Housing over 1-story Pkg	H.2.d Transitional Housing over 1-story Pkg					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cos	-	\$ 40	\$ -	-	\$ 40	\$ -	98,363	\$ 40	\$ 3,934,500
Site Work & Demolition	-	\$ 6	\$ -	-	\$ 6	\$ -	98,363	\$ 6	\$ 590,175
Construction Costs									
Commercial Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Residential Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	44	\$ 7,260,000	\$ 7,260,000
Parking Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ 5,342,000
Surface Parking	-	\$ -	\$ -	-	\$ -	\$ -	38	\$ 152,000	\$ -
Structured	-	\$ -	\$ -	-	\$ -	\$ -	173	\$ 5,190,000	\$ -
DW Garage	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Total Hard Costs									
Soft Development Costs									
Total Project Costs (incl. Land)		\$ -	\$ -		\$ -	\$ -		\$ 4,617,261	\$ -
Entrepreneurial Return @ 10.00%								\$ 2,174,394	\$ -
= Total Development Cost (TDC)		\$ -	\$ -		\$ -	\$ -		\$ 23,918,330	\$ -
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)		\$ -	\$ -		\$ -	\$ 23,918,330		\$ -	\$ -
Commercial Capitalization Rate		6.500%	6.500%		6.500%	6.500%		6.500%	6.500%
Residential Capitalization Rate		5.500%	5.500%		5.500%	5.500%		5.500%	5.500%
= Minimum Rental NOI Required		\$ -	\$ -		\$ -	\$ 1,315,508		\$ -	\$ -
Actual Rental NOI Achieved		\$ -	\$ -		\$ -	\$ 148,157		\$ -	\$ -
Net Operating Income									
Commercial	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 148,157	\$ 2,693,760.00	\$ -
Residential Sale Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL MARKET VALUE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 148,157	\$ 2,693,760.00	\$ 2,693,760
OUTCOME	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos					
METRICS									
Value of Rental NOI	\$ -	\$ -	\$ 2,693,760	\$ -					
Value of Unit Sales	\$ -	\$ -	\$ -	\$ -					
Total Property Value	\$ -	\$ -	\$ 2,693,760	\$ -					
Net Project Value	\$ -	\$ -	\$ (21,224,570)	\$ -					
Effective Cap Rate	#DIV/0!	#DIV/0!	11.3%	#DIV/0!					
RLV	\$ -	\$ -	\$ (17,290,070)	\$ -					
RLV per SF	\$ -	\$ -	\$ (175.76)	\$ -					
Required RLV/SF	\$ -	\$ -	\$ 2.47	\$ -					
TVM Calculations									
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)					
IRR	4.5%	4.5%	4.5%	4.5%					
ROI	-10.2%	-10.2%	-10.2%	-10.2%					

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.2.e Police Station	S.2.e Police Station	L.2.e Police Station	H.2.e Police Station					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cos	-	\$ 40	-	-	\$ 40	-	-	\$ 40	-
Site Work & Demolition	-	\$ 6	-	-	\$ 6	-	-	\$ 6	-
Construction Costs									
Commercial Subtotal	-	-	-	-	-	-	-	-	-
Residential Subtotal	-	-	-	-	-	-	-	-	-
Parking Subtotal	-	-	-	-	-	-	-	-	-
Surface Parking	-	-	-	-	-	-	-	-	-
Structured	-	-	-	-	-	-	-	-	-
DW Garage	-	-	-	-	-	-	-	-	-
Total Hard Costs		\$ -			\$ -	-		\$ -	
Soft Development Costs		\$ -			\$ -	-		\$ -	
Total Project Costs (incl. Land)		\$ -			\$ -	-		\$ -	
Entrepreneurial Return @ 10.00%		\$ -			\$ -	-		\$ -	
= Total Development Cost (TDC)		\$ -			\$ -	-		\$ -	
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)		\$ -			\$ -	-		\$ -	
Commercial Capitalization Rate		6.500%			6.500%	-		6.500%	-
Residential Capitalization Rate		5.500%			5.500%	-		5.500%	-
= Minimum Rental NOI Required		\$ -			\$ -	-		\$ -	
Actual Rental NOI Achieved		\$ -			\$ -	-		\$ -	
Net Operating Income									
Commercial	-	-	-	-	-	-	-	-	-
Residential	-	-	-	-	-	-	-	-	-
Residential Sale Income		\$ -			\$ -	-		\$ -	
TOTAL MARKET VALUE		\$ -			\$ -	-		\$ -	
OUTCOME									
METRICS	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos					
Value of Rental NOI	\$ -	\$ -	\$ 7,800,000	\$ -					
Value of Unit Sales	\$ -	\$ -	\$ -	\$ -					
Total Property Value	\$ -	\$ -	\$ 7,800,000	\$ -					
Net Project Value	\$ -	\$ -	\$ (321,300)	\$ -					
Effective Cap Rate	#DIV/0!	#DIV/0!	96.0%	#DIV/0!					
RLV	\$ -	\$ -	\$ 878,700	\$ -					
RLV per SF	\$ -	\$ -	\$ 29.29	\$ -					
Required RLV/SF	\$ -	\$ -	\$ 0.75	\$ -					
TVM Calculations									
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)					
IRR	4.5%	4.5%	4.5%	4.5%					
ROI	-10.2%	-10.2%	-10.2%	-10.2%					

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.2.f Social Service Offices and Library	S.2.f Social Service Offices and Library	L.2.f Social Service Offices and Library	H.2.f Social Service Offices and Library
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cost	- \$ 40 \$ -	- \$ 40 \$ -	120,713 \$ 40 \$ 4,828,500	- \$ 40 \$ -
Site Work & Demolition	- \$ 6 \$ -	- \$ 6 \$ -	120,713 \$ 6 \$ 724,275	- \$ 6 \$ -
Construction Costs				
Commercial Subtotal	- \$ - \$ -	- \$ - \$ -	61,200 \$ 8,874,000 \$ 8,874,000	- \$ - \$ -
Residential Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Parking Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Surface Parking	- \$ - \$ -	- \$ - \$ -	36 \$ 144,000	- \$ - \$ -
Structured	- \$ - \$ -	- \$ - \$ -	213 \$ 6,390,000	- \$ - \$ -
DW Garage	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Total Hard Costs	- \$ - \$ -	- \$ - \$ -	- \$ - \$ 16,132,275	- \$ - \$ -
Soft Development Costs	\$ -	\$ -	\$ 5,646,296	\$ -
Total Project Costs (incl. Land)	\$ -	\$ -	\$ 26,607,071	\$ -
Entrepreneurial Return @ 10.00%	\$ -	\$ -	\$ 2,660,707	\$ -
= Total Development Cost (TDC)	\$ -	\$ -	\$ 29,267,778	\$ -
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ -	\$ -	\$ 29,267,778	\$ -
Commercial Capitalization Rate	6.500%	6.500%	5.000%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ -	\$ -	\$ 1,609,728	\$ -
Actual Rental NOI Achieved	\$ -	\$ -	\$ 1,194,624	\$ -
Net Operating Income				
Commercial	\$ -	\$ -	\$ 1,194,624	\$ -
Residential	\$ -	\$ -	\$ -	\$ -
Residential Sale Income	\$ -	\$ -	\$ -	\$ -
TOTAL MARKET VALUE	\$ -	\$ -	\$ 1,194,624	\$ -
OUTCOME	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos
METRICS				
Value of Rental NOI	\$ -	\$ -	\$ 23,892,480	\$ -
Value of Unit Sales	\$ -	\$ -	\$ -	\$ -
Total Property Value	\$ -	\$ -	\$ 23,892,480	\$ -
Net Project Value	\$ -	\$ -	\$ (5,375,298)	\$ -
Effective Cap Rate	#DIV/0!	#DIV/0!	81.6%	#DIV/0!
RLV	\$ -	\$ -	\$ (546,798)	\$ -
RLV per SF	\$ -	\$ -	\$ (4.53)	\$ -
Required RLV/SF	\$ -	\$ -	3.03	\$ -
TVM Calculations	Project NPV: \$ (17,629,512)	Project NPV: \$ (17,629,512)	Project NPV: \$ (17,629,512)	Project NPV: \$ (17,629,512)
	IRR 4.5%	IRR 4.5%	IRR 4.5%	IRR 4.5%
	ROI -10.2%	ROI -10.2%	ROI -10.2%	ROI -10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.2.g Social Service Office	S.2.g Social Service Office	L.2.g Social Service Office	H.2.g Social Service Office
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cos	- \$ 40 \$ -	- \$ 40 \$ -	9,563 \$ 40 \$ 382,500	- \$ 40 \$ -
Site Work & Demolition	- \$ 6 \$ -	- \$ 6 \$ -	9,563 \$ 6 \$ 57,375	- \$ 6 \$ -
Construction Costs				
Commercial Subtotal	- \$ - \$ -	- \$ - \$ -	12,750 \$ 1,848,750 \$ 1,848,750	- \$ - \$ -
Residential Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Parking Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Surface Parking	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Structured	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
DW Garage	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Total Hard Costs	- \$ - \$ -	- \$ - \$ -	- \$ - \$ 1,906,125	- \$ - \$ -
Soft Development Costs	\$ - \$ -	\$ - \$ -	\$ 667,144 \$ -	\$ - \$ -
Total Project Costs (incl. Land)	\$ - \$ -	\$ - \$ -	\$ 2,955,769 \$ -	\$ - \$ -
Entrepreneurial Return @ 10.00%	\$ - \$ -	\$ - \$ -	\$ 295,577 \$ -	\$ - \$ -
= Total Development Cost (TDC)	\$ - \$ -	\$ - \$ -	\$ 3,251,346 \$ -	\$ - \$ -
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ - \$ -	\$ - \$ -	\$ 3,251,346 \$ -	\$ - \$ -
Commercial Capitalization Rate	6.500%	6.500%	6.500%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ - \$ -	\$ - \$ -	\$ 178,824 \$ -	\$ - \$ -
Actual Rental NOI Achieved	\$ - \$ -	\$ - \$ -	\$ 248,880 \$ -	\$ - \$ -
Net Operating Income				
Commercial	\$ - \$ -	\$ - \$ -	\$ 248,880 \$ 3,828,923.08	\$ - \$ -
Residential	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -
Residential Sale Income	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -
TOTAL MARKET VALUE	\$ - \$ -	\$ - \$ -	\$ 248,880 \$ 3,828,923.08 \$ 3,828,923	\$ - \$ - \$ -
OUTCOME	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos
METRICS				
Value of Rental NOI	\$ - \$ -	\$ - \$ -	\$ 3,828,923 \$ -	\$ - \$ -
Value of Unit Sales	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -
Total Property Value	\$ - \$ -	\$ - \$ -	\$ 3,828,923 \$ -	\$ - \$ -
Net Project Value	\$ - \$ -	\$ - \$ -	\$ 577,577 \$ -	\$ - \$ -
Effective Cap Rate	#DIV/0!	#DIV/0!	117.8%	#DIV/0!
RLV	\$ - \$ -	\$ - \$ -	\$ 960,077 \$ -	\$ - \$ -
RLV per SF	\$ - \$ -	\$ - \$ -	\$ 100.40 \$ -	\$ - \$ -
Required RLV/SF	\$ - \$ -	\$ - \$ -	\$ 0.24 \$ -	\$ - \$ -
TVM Calculations				
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)
IRR	4.5%	4.5%	4.5%	4.5%
ROI	-10.2%	-10.2%	-10.2%	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario								
	M.2.h 3-story Apts over 1-story SS Office & Pkg	S.2.h 3-story Apts over 1-story SS Office & Pkg	L.2.h 3-story Apts over 1-story SS Office & Pkg	H.2.h 3-story Apts over 1-story SS Office & Pkg								
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals			
Site Market Value / Acquisition Cos	-	\$ 40	-	58,144	\$ 40	\$ 2,325,750	-	\$ 40	-	58,144	\$ 40	\$ 2,325,750
Site Work & Demolition	-	\$ 6	-	58,144	\$ 6	\$ 348,863	-	\$ 6	-	58,144	\$ 6	\$ 348,863
Construction Costs												
Commercial Subtotal	-	-	-	10,000	\$ 1,450,000	\$ 1,450,000	-	-	-	10,000	\$ 1,450,000	\$ 1,450,000
Residential Subtotal	-	-	-	48	\$ 7,128,000	\$ 7,128,000	-	-	-	48	\$ 7,128,000	\$ 7,128,000
Parking Subtotal	-	-	-	-	-	\$ 2,814,000	-	-	-	-	-	\$ 2,814,000
Surface Parking	-	-	-	51	\$ 204,000	-	-	-	-	51	\$ 204,000	-
Structured	-	-	-	87	\$ 2,610,000	-	-	-	-	87	\$ 2,610,000	-
DW Garage	-	-	-	-	-	-	-	-	-	-	-	-
Total Hard Costs	-	-	-	-	-	\$ 11,740,863	-	-	-	-	-	\$ 11,740,863
Soft Development Costs	-	-	-	-	-	\$ 4,109,302	-	-	-	-	-	\$ 4,109,302
Total Project Costs (incl. Land)	-	-	-	-	-	\$ 18,175,914	-	-	-	-	-	\$ 18,175,914
Entrepreneurial Return @ 10.00%	-	-	-	-	-	\$ 1,817,591	-	-	-	-	-	\$ 1,817,591
= Total Development Cost (TDC)	-	-	-	-	-	\$ 19,993,506	-	-	-	-	-	\$ 19,993,506
RENTAL MARKET VALUE												
Minimum Rental Market Value (= TDC - Res. Sale Income)	-	-	-	-	-	\$ 19,993,506	-	-	-	-	-	\$ 19,993,506
Commercial Capitalization Rate	-	-	-	-	-	6.500%	-	-	-	-	-	6.500%
Residential Capitalization Rate	-	-	-	-	-	5.500%	-	-	-	-	-	5.500%
= Minimum Rental NOI Required	-	-	-	-	-	\$ 1,099,643	-	-	-	-	-	\$ 1,099,643
Actual Rental NOI Achieved	-	-	-	-	-	\$ 356,826	-	-	-	-	-	\$ 356,826
Net Operating Income	-	-	-	-	-	\$ 5,941,724	-	-	-	-	-	\$ 5,941,724
Commercial	-	-	-	-	-	\$ 195,200	-	-	-	-	-	\$ 195,200
Residential	-	-	-	-	-	\$ 161,626	-	-	-	-	-	\$ 161,626
Residential Sale Income	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL MARKET VALUE	-	-	-	-	-	\$ 356,826	-	-	-	-	-	\$ 356,826
OUTCOME	-	-	-	-	-	\$ 5,941,724	-	-	-	-	-	\$ 5,941,724
METRICS	-	-	-	-	-	\$ 5,941,724	-	-	-	-	-	\$ 5,941,724
Value of Rental NOI	-	-	-	-	-	\$ 5,941,724	-	-	-	-	-	\$ 5,941,724
Value of Unit Sales	-	-	-	-	-	-	-	-	-	-	-	-
Total Property Value	-	-	-	-	-	\$ 5,941,724	-	-	-	-	-	\$ 5,941,724
Net Project Value	-	-	-	-	-	\$ (14,051,782)	-	-	-	-	-	\$ (14,051,782)
Effective Cap Rate	-	-	-	-	-	29.7%	-	-	-	-	-	29.7%
RLV	-	-	-	-	-	\$ (11,726,032)	-	-	-	-	-	\$ (11,726,032)
RLV per SF	-	-	-	-	-	\$ (201.67)	-	-	-	-	-	\$ (201.67)
Required RLV/SF	-	-	-	-	-	1.46	-	-	-	-	-	1.46
TVM Calculations	-	-	-	-	-	\$ (17,629,512)	-	-	-	-	-	\$ (17,629,512)
Project NPV	-	-	-	-	-	\$ (17,629,512)	-	-	-	-	-	\$ (17,629,512)
IRR	-	-	-	-	-	4.5%	-	-	-	-	-	4.5%
ROI	-	-	-	-	-	-10.2%	-	-	-	-	-	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.3.a 3-story Apts over 1-story Retail/Pkg	S.3.a 3-story Apts over 1-story Retail/Pkg	L.3.a 3-story Apts over 1-story Retail/Pkg	H.3.a 3-story Apts over 1-story Retail/Pkg					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cost	65,006	\$ 40	\$ 2,600,250	-	\$ 40	-	65,006	\$ 40	\$ 2,600,250
Site Work & Demolition	65,006	\$ 6	\$ 390,038	-	\$ 6	-	65,006	\$ 6	\$ 390,038
Construction Costs									
Commercial Subtotal	11,900	\$ 1,725,500	\$ 1,725,500	-	\$ -	-	11,900	\$ 1,725,500	\$ 1,725,500
Residential Subtotal	60	\$ 8,910,000	\$ 8,910,000	-	\$ -	-	60	\$ 8,910,000	\$ 8,910,000
Parking Subtotal			\$ 1,206,000			\$ -			\$ 1,206,000
Surface Parking	69	\$ 276,000		-	\$ -		69	\$ 276,000	
Structured	31	\$ 930,000		-	\$ -		31	\$ 930,000	
DW Garage	-	\$ -		-	\$ -		-	\$ -	
Total Hard Costs			\$ 12,231,538			\$ -			\$ 12,231,538
Soft Development Costs			\$ 4,281,038			\$ -			\$ 4,281,038
Total Project Costs (incl. Land)			\$ 19,112,826			\$ -			\$ 19,112,826
Entrepreneurial Return @ 10.00%			\$ 1,911,283			\$ -			\$ 1,911,283
= Total Development Cost (TDC)			\$ 21,024,108			\$ -			\$ 21,024,108
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)			\$ 21,024,108			\$ -			\$ 21,024,108
Commercial Capitalization Rate			6.500%			6.500%			6.500%
Residential Capitalization Rate			5.500%			5.500%			5.500%
= Minimum Rental NOI Required			\$ 1,156,326			\$ -			\$ 1,156,326
Actual Rental NOI Achieved			\$ 954,632			\$ -			\$ 954,632
Net Operating Income									
Commercial	\$ 247,520	\$ 3,808,000.00	\$ 16,664,582	\$ -	\$ -	\$ -	\$ 247,520	\$ 3,808,000.00	\$ 16,664,582
Residential	\$ 707,112	\$ 12,856,581.82		\$ -	\$ -		\$ 707,112	\$ 12,856,581.82	
Residential Sale Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL MARKET VALUE	\$ 954,632	\$ 16,664,581.82	\$ 16,664,582	\$ -	\$ -	\$ -	\$ 954,632	\$ 16,664,581.82	\$ 16,664,582
OUTCOME									
METRICS									
		No, Development Cost Exceeds Property Value		Yes, Property Value Exceeds Development Cos		Yes, Property Value Exceeds Development Cos		No, Development Cost Exceeds Property Value	
Value of Rental NOI	\$ 16,664,582		\$ 16,664,582	\$ -		\$ 16,664,582	\$ -	\$ 16,664,582	
Value of Unit Sales	\$ -		\$ -	\$ -		\$ -	\$ -	\$ -	
Total Property Value	\$ 16,664,582		\$ 16,664,582	\$ -		\$ 16,664,582	\$ -	\$ 16,664,582	
Net Project Value	\$ (4,359,526)		\$ (4,359,526)	\$ -		\$ (4,359,526)	\$ -	\$ (4,359,526)	
Effective Cap Rate	79.3%		79.3%	#DIV/0!		79.3%	#DIV/0!	79.3%	
RLV	\$ (1,759,276)		\$ (1,759,276)	\$ -		\$ (1,759,276)	\$ -	\$ (1,759,276)	
RLV per SF	\$ (27.06)		\$ (27.06)	\$ -		\$ (27.06)	\$ -	\$ (27.06)	
Required RLV/SF	\$ 1.63		\$ 1.63	\$ -		\$ 1.63	\$ -	\$ 1.63	
TVM Calculations									
Project NPV	\$ (17,629,512)		\$ (17,629,512)	\$ (17,629,512)		\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	
IRR	4.5%		4.5%	4.5%		4.5%	4.5%	4.5%	
ROI	-10.2%		-10.2%	-10.2%		-10.2%	-10.2%	-10.2%	

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.3.b 3 story Parking with Office frontage	S.3.b 3 story Parking with Office frontage	L.3.b 3 story Parking with Office frontage	H.3.b 3 story Parking with Office frontage
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cost	22,150 \$ 40 \$ 886,000	- \$ 40 \$ -	33,225 \$ 40 \$ 1,329,000	22,150 \$ 40 \$ 886,000
Site Work & Demolition	22,150 \$ 6 \$ 132,900	- \$ 6 \$ -	33,225 \$ 6 \$ 199,350	22,150 \$ 6 \$ 132,900
Construction Costs				
Commercial Subtotal	5,800 \$ 841,000 \$ 841,000	- \$ - \$ -	5,800 \$ 841,000 \$ 841,000	5,800 \$ 841,000 \$ 841,000
Residential Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Parking Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Surface Parking	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Structured	110 \$ 3,300,000 \$ -	- \$ - \$ -	110 \$ 3,300,000 \$ -	110 \$ 3,300,000 \$ -
DW Garage	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Total Hard Costs	- \$ - \$ 4,273,900	- \$ - \$ -	- \$ - \$ 4,340,350	- \$ - \$ 4,273,900
Soft Development Costs	\$ 1,495,865	\$ -	\$ 1,519,123	\$ 1,495,865
Total Project Costs (incl. Land)	\$ 6,655,765	\$ -	\$ 7,188,473	\$ 6,655,765
Entrepreneurial Return @ 0.00%	\$ -	\$ -	\$ -	\$ -
= Total Development Cost (TDC)	\$ 6,655,765	\$ -	\$ 7,188,473	\$ 6,655,765
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ 6,655,765	\$ -	\$ 7,188,473	\$ 6,655,765
Commercial Capitalization Rate	6.500%	6.500%	6.500%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ 366,067	\$ -	\$ 395,366	\$ 366,067
Actual Rental NOI Achieved	\$ 113,216	\$ -	\$ 113,216	\$ 113,216
Net Operating Income				
Commercial	\$ 113,216 \$ 1,741,784.62 \$ 1,741,785	\$ - \$ - \$ -	\$ 113,216 \$ 1,741,784.62 \$ 1,741,785	\$ 113,216 \$ 1,741,784.62 \$ 1,741,785
Residential	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
Residential Sale Income	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
TOTAL MARKET VALUE	\$ 113,216 \$ 1,741,784.62 \$ 1,741,785	\$ - \$ - \$ -	\$ 113,216 \$ 1,741,784.62 \$ 1,741,785	\$ 113,216 \$ 1,741,784.62 \$ 1,741,785
OUTCOME	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value	No, Development Cost Exceeds Property Value
METRICS				
Value of Rental NOI	\$ 1,741,785	\$ -	\$ 1,741,785	\$ 1,741,785
Value of Unit Sales	\$ -	\$ -	\$ -	\$ -
Total Property Value	\$ 1,741,785	\$ -	\$ 1,741,785	\$ 1,741,785
Net Project Value	\$ (4,913,980)	\$ -	\$ (5,446,688)	\$ (4,913,980)
Effective Cap Rate	26.2%	#DIV/0!	24.2%	26.2%
RLV	\$ (4,027,980)	\$ -	\$ (4,117,688)	\$ (4,027,980)
RLV per SF	\$ (161.85)	\$ -	\$ (123.93)	\$ (161.85)
Required RLV/SF	\$ 0.56	\$ -	\$ 0.83	\$ 0.56
TVM Calculations				
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)
IRR	4.5%	4.5%	4.5%	4.5%
ROI	-10.2%	-10.2%	-10.2%	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.3.c 4 story Apts over 1-story Retail	S.3.c 4 story Apts over 1-story Retail	L.3.c 4 story Apts over 1-story Retail	H.3.c 4 story Apts over 1-story Retail					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cost	139,920	\$ 40	\$ 5,596,800	-	\$ 40	\$ -	79,980	\$ 40	\$ 3,199,200
Site Work & Demolition	139,920	\$ 6	\$ 839,520	-	\$ 6	\$ -	79,980	\$ 6	\$ 479,880
Construction Costs									
Commercial Subtotal	23,000	\$ 3,335,000	\$ 3,335,000	-	\$ -	\$ -	23,000	\$ 3,335,000	\$ 3,335,000
Residential Subtotal	108	\$ 14,256,000	\$ 14,256,000	-	\$ -	\$ -	112	\$ 14,784,000	\$ 14,784,000
Parking Subtotal			\$ 816,000			\$ -			\$ 352,000
Surface Parking	204	\$ 816,000		-	\$ -		88	\$ 352,000	
Structured	-	\$ -		-	\$ -		-	\$ -	
DW Garage	-	\$ -		-	\$ -		-	\$ -	
Total Hard Costs			\$ 19,246,520			\$ -			\$ 18,950,880
Soft Development Costs			\$ 6,736,282			\$ -			\$ 6,632,808
Total Project Costs (incl. Land)			\$ 31,579,602			\$ -			\$ 28,782,888
Entrepreneurial Return @ 10.00%			\$ 3,157,960			\$ -			\$ 2,878,289
= Total Development Cost (TDC)			\$ 34,737,562			\$ -			\$ 31,661,177
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)			\$ 34,737,562			\$ -			\$ 31,661,177
Commercial Capitalization Rate			6.500%			6.500%			6.500%
Residential Capitalization Rate			5.500%			5.500%			5.500%
= Minimum Rental NOI Required			\$ 1,910,566			\$ -			\$ 1,741,365
Actual Rental NOI Achieved			\$ 1,751,202			\$ -			\$ 1,798,342
Net Operating Income									
Commercial	\$ 478,400	\$ 7,360,000.00	\$ 30,501,847	\$ -	\$ -	\$ -	\$ 478,400	\$ 7,360,000.00	\$ 31,358,953
Residential	\$ 1,272,802	\$ 23,141,847.27		\$ -	\$ -		\$ 1,319,942	\$ 23,998,952.73	
Residential Sale Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL MARKET VALUE	\$ 1,751,202	\$ 30,501,847.27	\$ 30,501,847	\$ -	\$ -	\$ -	\$ 1,798,342	\$ 31,358,952.73	\$ 31,358,953
OUTCOME									
METRICS									
			No, Development Cost Exceeds Property Value			Yes, Property Value Exceeds Development Cos			No, Development Cost Exceeds Property Value
Value of Rental NOI	\$ 30,501,847		\$ 30,501,847			\$ 31,358,953			\$ 30,501,847
Value of Unit Sales	\$ -		\$ -			\$ -			\$ -
Total Property Value	\$ 30,501,847		\$ 30,501,847			\$ 31,358,953			\$ 30,501,847
Net Project Value	\$ (4,235,715)		\$ (4,235,715)			\$ (302,224)			\$ (4,235,715)
Effective Cap Rate	87.8%		87.8%			99.0%			87.8%
RLV	\$ 1,361,085		\$ 1,361,085			\$ 2,896,976			\$ 1,361,085
RLV per SF	\$ 9.73		\$ 9.73			\$ 36.22			\$ 9.73
Required RLV/SF	\$ 3.51		\$ 3.51			\$ 2.01			\$ 3.51
TVM Calculations									
Project NPV	\$ (17,629,512)		\$ (17,629,512)			\$ (17,629,512)			\$ (17,629,512)
IRR	4.5%		4.5%			4.5%			4.5%
ROI	-10.2%		-10.2%			-10.2%			-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.3.d 3-story Apts over 1-story Retail & 2-story Pkg	S.3.d 3-story Apts over 1-story Retail & 2-story Pkg	L.3.d 3-story Apts over 1-story Retail & 2-story Pkg	H.3.d 3-story Apts over 1-story Retail & 2-story Pkg					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cost	-	\$ 40	-	-	\$ 40	-	68,813	\$ 40	\$ 2,752,500
Site Work & Demolition	-	\$ 6	-	-	\$ 6	-	68,813	\$ 6	\$ 412,875
Construction Costs									
Commercial Subtotal	-	-	-	-	-	-	11,900	\$ 1,725,500	\$ 1,725,500
Residential Subtotal	-	-	-	-	-	-	60	\$ 8,910,000	\$ 8,910,000
Parking Subtotal	-	-	-	-	-	-	-	-	\$ 2,076,000
Surface Parking	-	-	-	-	-	-	69	\$ 276,000	-
Structured	-	-	-	-	-	-	60	\$ 1,800,000	-
DW Garage	-	-	-	-	-	-	-	-	-
Total Hard Costs	-	-	-	-	-	-	-	-	\$ 13,124,375
Soft Development Costs									\$ 4,593,531
Total Project Costs (incl. Land)		\$ -			\$ -			\$ 20,470,406	
Entrepreneurial Return @ 10.00%								\$ 2,047,041	
= Total Development Cost (TDC)		\$ -			\$ -			\$ 22,517,447	
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)		\$ -			\$ -			\$ 22,517,447	
Commercial Capitalization Rate		6.500%			6.500%			6.500%	
Residential Capitalization Rate		5.500%			5.500%			5.500%	
= Minimum Rental NOI Required		\$ -			\$ -			\$ 1,238,460	
Actual Rental NOI Achieved		\$ -			\$ -			\$ 954,632	
Net Operating Income / Market Value / Subtotals									
Rental Income	-	-	-	-	-	-	-	-	-
Commercial	-	-	-	-	-	-	-	-	-
Residential	-	-	-	-	-	-	-	-	-
Residential Sale Income	-	-	-	-	-	-	-	-	-
TOTAL MARKET VALUE	-	-	-	-	-	-	-	-	-
OUTCOME									
METRICS	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos					
Value of Rental NOI	\$ -	\$ -	\$ 16,664,582	\$ -					
Value of Unit Sales	\$ -	\$ -	\$ -	\$ -					
Total Property Value	\$ -	\$ -	\$ 16,664,582	\$ -					
Net Project Value	\$ -	\$ -	\$ (5,852,865)	\$ -					
Effective Cap Rate	#DIV/0!	#DIV/0!	74.0%	#DIV/0!					
RLV	\$ -	\$ -	\$ (3,100,365)	\$ -					
RLV per SF	\$ -	\$ -	\$ (45.06)	\$ -					
Required RLV/SF	\$ -	\$ -	\$ 1.73	\$ -					
TVM Calculations									
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)					
IRR	4.5%	4.5%	4.5%	4.5%					
ROI	-10.2%	-10.2%	-10.2%	-10.2%					

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.3.e 3-story Condos over 2-story Pkg	S.3.e 3-story Condos over 2-story Pkg	L.3.e 3-story Condos over 2-story Pkg	H.3.e 3-story Condos over 2-story Pkg
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cost	32,310 \$ 40 \$ 1,292,400	- \$ 40 \$ -	- \$ 40 \$ -	32,310 \$ 40 \$ 1,292,400
Site Work & Demolition	32,310 \$ 6 \$ 193,860	- \$ 6 \$ -	- \$ 6 \$ -	32,310 \$ 6 \$ 193,860
Construction Costs				
Commercial Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Residential Subtotal	34 \$ 8,415,000 \$ 8,415,000	- \$ - \$ -	- \$ - \$ -	34 \$ 8,415,000 \$ 8,415,000
Parking Subtotal	- \$ - \$ 4,860,000	- \$ - \$ -	- \$ - \$ -	- \$ - \$ 4,860,000
Surface Parking	- \$ -	- \$ -	- \$ -	- \$ -
Structured	162 \$ 4,860,000	- \$ -	- \$ -	162 \$ 4,860,000
DW Garage	- \$ -	- \$ -	- \$ -	- \$ -
Total Hard Costs	- \$ - \$ 13,468,860	- \$ - \$ -	- \$ - \$ -	- \$ - \$ 13,468,860
Soft Development Costs	\$ 4,714,101	\$ -	\$ -	\$ 4,714,101
Total Project Costs (incl. Land)	\$ 19,475,361	\$ -	\$ -	\$ 19,475,361
Entrepreneurial Return @ 10.00%	\$ 1,947,536	\$ -	\$ -	\$ 1,947,536
= Total Development Cost (TDC)	\$ 21,422,897	\$ -	\$ -	\$ 21,422,897
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ 7,652,897	\$ -	\$ -	\$ 7,652,897
Commercial Capitalization Rate	6.500%	6.500%	6.500%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ 420,909	\$ -	\$ -	\$ 420,909
Actual Rental NOI Achieved	\$ -	\$ -	\$ -	\$ -
Net Operating Income / Market Value / Subtotals				
	Net Operating Income Market Value Subtotals	Net Operating Income Market Value Subtotals	Net Operating Income Market Value Subtotals	Net Operating Income Market Value Subtotals
Rental Income	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
Commercial	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -
Residential	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -
Residential Sale Income	405000 \$ 13,770,000 \$ 13,770,000 \$ 13,770,000	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ 13,770,000 \$ 13,770,000 \$ 13,770,000
TOTAL MARKET VALUE	\$ - \$ 13,770,000.00 \$ 13,770,000	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ 13,770,000.00 \$ 13,770,000
OUTCOME				
	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value
METRICS				
Value of Rental NOI	\$ -	\$ -	\$ -	\$ -
Value of Unit Sales	\$ 13,770,000	\$ -	\$ -	\$ 13,770,000
Total Property Value	\$ 13,770,000	\$ -	\$ -	\$ 13,770,000
Net Project Value	\$ (7,652,897)	\$ -	\$ -	\$ (7,652,897)
Effective Cap Rate	0.0%	#DIV/0!	#DIV/0!	0.0%
RLV	\$ (6,360,497)	\$ -	\$ -	\$ (6,360,497)
RLV per SF	\$ (196.86)	\$ -	\$ -	\$ (196.86)
Required RLV/SF	\$ 0.81	\$ -	\$ -	\$ 0.81
TVM Calculations				
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)
IRR	4.5%	4.5%	4.5%	4.5%
ROI	-10.2%	-10.2%	-10.2%	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario			State Benefit Scenario			Local Benefit Scenario			Hybrid Scenario		
	M.3.f DOH expansion			S.3.f DOH expansion			L.3.f DOH expansion			H.3.f DOH expansion		
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cos	-	\$ 40	\$ -	-	\$ 40	\$ -	-	\$ 40	\$ -	-	\$ 40	\$ -
Site Work & Demolition	-	\$ 6	\$ -	-	\$ 6	\$ -	-	\$ 6	\$ -	-	\$ 6	\$ -
Construction Costs												
Commercial Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Residential Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Parking Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Surface Parking	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Structured	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
DW Garage	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Total Hard Costs		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -
Soft Development Costs		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -
Total Project Costs (incl. Land)		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -
Entrepreneurial Return @ 10.00%		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -
= Total Development Cost (TDC)		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -
RENTAL MARKET VALUE												
Minimum Rental Market Value (= TDC - Res. Sale Income)		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -
Commercial Capitalization Rate		6.500%			6.500%			6.500%			6.500%	
Residential Capitalization Rate		5.500%			5.500%			5.500%			5.500%	
= Minimum Rental NOI Required		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -
Actual Rental NOI Achieved		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -	\$ -
Net Operating Income												
Commercial	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Residential Sale Income	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
TOTAL MARKET VALUE	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
OUTCOME	Yes, Property Value Exceeds Development Cos			Yes, Property Value Exceeds Development Cos			Yes, Property Value Exceeds Development Cos			Yes, Property Value Exceeds Development Cos		
METRICS												
Value of Rental NOI	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -		\$ -	\$ -
Value of Unit Sales	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -		\$ -	\$ -
Total Property Value	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -		\$ -	\$ -
Net Project Value	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -		\$ -	\$ -
Effective Cap Rate	#DIV/0!			#DIV/0!			#DIV/0!		#DIV/0!			#DIV/0!
RLV	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -		\$ -	\$ -
RLV per SF	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -		\$ -	\$ -
Required RLV/SF	\$ -		\$ -	\$ -		\$ -	\$ -		\$ -		\$ -	\$ -
TVM Calculations												
Project NPV	\$ (17,629,512)		\$ (17,629,512)	\$ (17,629,512)		\$ (17,629,512)	\$ (17,629,512)		\$ (17,629,512)		\$ (17,629,512)	\$ (17,629,512)
IRR	4.5%		4.5%	4.5%		4.5%	4.5%		4.5%		4.5%	4.5%
ROI	-10.2%		-10.2%	-10.2%		-10.2%	-10.2%		-10.2%		-10.2%	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.4.a Food Life Line	S.4.a Food Life Line	L.4.a Food Life Line	H.4.a Food Life Line
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cos	- \$ 40 \$ -	- \$ 40 \$ -	20,250 \$ 40 \$ 810,000	- \$ 40 \$ -
Site Work & Demolition	- \$ 6 \$ -	- \$ 6 \$ -	20,250 \$ 6 \$ 121,500	- \$ 6 \$ -
Construction Costs				
Commercial Subtotal	- \$ - \$ -	- \$ - \$ -	13,500 \$ 2,700,000 \$ 2,700,000	- \$ - \$ -
Residential Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Parking Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Surface Parking	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Structured	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
DW Garage	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Total Hard Costs	- \$ - \$ -	- \$ - \$ -	- \$ - \$ 2,821,500	- \$ - \$ -
Soft Development Costs	\$ - \$ -	\$ - \$ -	\$ 987,525 \$ -	\$ - \$ -
Total Project Costs (incl. Land)	\$ - \$ -	\$ - \$ -	\$ 4,619,025	\$ - \$ -
Entrepreneurial Return @ 10.00%	\$ - \$ -	\$ - \$ -	\$ 461,903	\$ - \$ -
= Total Development Cost (TDC)	\$ - \$ -	\$ - \$ -	\$ 5,080,928	\$ - \$ -
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ - \$ -	\$ - \$ -	\$ 5,080,928	\$ - \$ -
Commercial Capitalization Rate	6.500%	6.500%	6.500%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ - \$ -	\$ - \$ -	\$ 279,451	\$ - \$ -
Actual Rental NOI Achieved	\$ - \$ -	\$ - \$ -	\$ 307,125	\$ - \$ -
Net Operating Income				
Commercial	\$ - \$ -	\$ - \$ -	\$ 307,125 \$ 4,725,000.00	\$ - \$ -
Residential	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -
Residential Sale Income	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -
TOTAL MARKET VALUE	\$ - \$ -	\$ - \$ -	\$ 307,125 \$ 4,725,000.00 \$ 4,725,000	\$ - \$ -
OUTCOME	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos
METRICS				
Value of Rental NOI	\$ - \$ -	\$ - \$ -	\$ 4,725,000	\$ - \$ -
Value of Unit Sales	\$ - \$ -	\$ - \$ -	\$ - \$ -	\$ - \$ -
Total Property Value	\$ - \$ -	\$ - \$ -	\$ 4,725,000	\$ - \$ -
Net Project Value	\$ - \$ -	\$ - \$ -	\$ (355,928)	\$ - \$ -
Effective Cap Rate	#DIV/0!	#DIV/0!	93.0%	#DIV/0!
RLV	\$ - \$ -	\$ - \$ -	\$ 454,072	\$ - \$ -
RLV per SF	\$ - \$ -	\$ - \$ -	\$ 22.42	\$ - \$ -
Required RLV/SF	\$ - \$ -	\$ - \$ -	\$ 0.51	\$ - \$ -
TVM Calculations				
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)
IRR	4.5%	4.5%	4.5%	4.5%
ROI	-10.2%	-10.2%	-10.2%	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario M.4.b Firlands	State Benefit Scenario S.4.b Firlands	Local Benefit Scenario L.4.b Firlands	Hybrid Scenario H.4.b Firlands					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cos	-	\$ 40	-	-	\$ 40	-	11,700	\$ 40	\$ 468,000
Site Work & Demolition	-	\$ 6	-	-	\$ 6	-	11,700	\$ 6	\$ 70,200
Construction Costs									
Commercial Subtotal	-	-	-	-	-	-	7,800	\$ 1,560,000	\$ 1,560,000
Residential Subtotal	-	-	-	-	-	-	-	-	-
Parking Subtotal	-	-	-	-	-	-	-	-	-
Surface Parking	-	-	-	-	-	-	-	-	-
Structured	-	-	-	-	-	-	-	-	-
DW Garage	-	-	-	-	-	-	-	-	-
Total Hard Costs		\$ -	-		\$ -	-		\$ 1,630,200	-
Soft Development Costs		\$ -	-		\$ -	-		\$ 570,570	-
Total Project Costs (incl. Land)		\$ -	-		\$ -	-		\$ 2,668,770	-
Entrepreneurial Return @ 10.00%		\$ -	-		\$ -	-		\$ 266,877	-
= Total Development Cost (TDC)		\$ -	-		\$ -	-		\$ 2,935,647	-
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)		\$ -	-		\$ -	-		\$ 2,935,647	-
Commercial Capitalization Rate		6.500%	-		6.500%	-		6.500%	-
Residential Capitalization Rate		5.500%	-		5.500%	-		5.500%	-
= Minimum Rental NOI Required		\$ -	-		\$ -	-		\$ 161,461	-
Actual Rental NOI Achieved		\$ -	-		\$ -	-		\$ 166,530	-
Net Operating Income									
Commercial	-	-	-	-	-	-	-	-	-
Residential	-	-	-	-	-	-	-	-	-
Residential Sale Income	-	-	-	-	-	-	-	-	-
TOTAL MARKET VALUE	-	-	-	-	-	-	166,530	\$ 2,562,000.00	\$ 2,562,000
OUTCOME	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	No, Development Cost Exceeds Property Value	Yes, Property Value Exceeds Development Cos					
METRICS									
Value of Rental NOI	\$ -	\$ -	\$ 2,562,000	\$ -					
Value of Unit Sales	\$ -	\$ -	\$ -	\$ -					
Total Property Value	\$ -	\$ -	\$ 2,562,000	\$ -					
Net Project Value	\$ -	\$ -	\$ (373,647)	\$ -					
Effective Cap Rate	#DIV/0!	#DIV/0!	87.3%	#DIV/0!					
RLV	\$ -	\$ -	\$ 94,353	\$ -					
RLV per SF	\$ -	\$ -	\$ 8.06	\$ -					
Required RLV/SF	\$ -	\$ -	\$ 0.29	\$ -					
TVM Calculations									
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)					
IRR	4.5%	4.5%	4.5%	4.5%					
ROI	-10.2%	-10.2%	-10.2%	-10.2%					

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.4.c Department of Health	S.4.c Department of Health	L.4.c Department of Health	H.4.c Department of Health
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cos	- \$ 40 \$ -	- \$ 40 \$ -	- \$ 40 \$ -	- \$ 40 \$ -
Site Work & Demolition	- \$ 6 \$ -	- \$ 6 \$ -	- \$ 6 \$ -	- \$ 6 \$ -
Construction Costs				
Commercial Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Residential Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Parking Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Surface Parking	- \$ -	- \$ -	- \$ -	- \$ -
Structured	- \$ -	- \$ -	- \$ -	- \$ -
DW Garage	- \$ -	- \$ -	- \$ -	- \$ -
Total Hard Costs	\$ -	\$ -	\$ -	\$ -
Soft Development Costs	\$ -	\$ -	\$ -	\$ -
Total Project Costs (incl. Land)	\$ -	\$ -	\$ -	\$ -
Entrepreneurial Return @ 10.00%	\$ -	\$ -	\$ -	\$ -
= Total Development Cost (TDC)	\$ -	\$ -	\$ -	\$ -
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ -	\$ -	\$ -	\$ -
Commercial Capitalization Rate	6.500%	6.500%	6.500%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ -	\$ -	\$ -	\$ -
Actual Rental NOI Achieved	\$ -	\$ -	\$ -	\$ -
Net Operating Income				
Commercial	\$ -	\$ -	\$ -	\$ -
Residential	\$ -	\$ -	\$ -	\$ -
Residential Sale Income	\$ -	\$ -	\$ -	\$ -
TOTAL MARKET VALUE	\$ -	\$ -	\$ -	\$ -
OUTCOME	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos
METRICS				
Value of Rental NOI	\$ -	\$ -	\$ -	\$ -
Value of Unit Sales	\$ -	\$ -	\$ -	\$ -
Total Property Value	\$ -	\$ -	\$ -	\$ -
Net Project Value	\$ -	\$ -	\$ -	\$ -
Effective Cap Rate	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
RLV	\$ -	\$ -	\$ -	\$ -
RLV per SF	\$ -	\$ -	\$ -	\$ -
Required RLV/SF	\$ -	\$ -	\$ -	\$ -
TVM Calculations				
Project NPV	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)	\$ (17,629,512)
IRR	4.5%	4.5%	4.5%	4.5%
ROI	-10.2%	-10.2%	-10.2%	-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario
	M.4.d Small Lot Single-family housing	S.4.d Small Lot Single-family housing	L.4.d Small Lot Single-family housing	H.4.d Small Lot Single-family housing
	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals	# SF / Units Cost Subtotals
Site Market Value / Acquisition Cos	28,800 \$ 40 \$ 1,152,000	- \$ 40 \$ -	- \$ 40 \$ -	- \$ 40 \$ -
Site Work & Demolition	28,800 \$ 6 \$ 172,800	- \$ 6 \$ -	- \$ 6 \$ -	- \$ 6 \$ -
Construction Costs				
Commercial Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Residential Subtotal	13 \$ 2,632,500 \$ 2,632,500	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Parking Subtotal	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Surface Parking	27 \$ 108,000 \$ 108,000	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Structured	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
DW Garage	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Total Hard Costs	- \$ - \$ 2,913,300	- \$ - \$ -	- \$ - \$ -	- \$ - \$ -
Soft Development Costs	\$ 1,019,655	\$ -	\$ -	\$ -
Total Project Costs (incl. Land)	\$ 5,084,955	\$ -	\$ -	\$ -
Entrepreneurial Return @ 10.00%	\$ 508,496	\$ -	\$ -	\$ -
= Total Development Cost (TDC)	\$ 5,593,451	\$ -	\$ -	\$ -
RENTAL MARKET VALUE				
Minimum Rental Market Value (= TDC - Res. Sale Income)	\$ (724,550)	\$ -	\$ -	\$ -
Commercial Capitalization Rate	6.500%	6.500%	6.500%	6.500%
Residential Capitalization Rate	5.500%	5.500%	5.500%	5.500%
= Minimum Rental NOI Required	\$ (39,850)	\$ -	\$ -	\$ -
Actual Rental NOI Achieved	\$ -	\$ -	\$ -	\$ -
Net Operating Income Market Value Subtotals				
Rental Income	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
Commercial	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
Residential	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
Residential Sale Income	\$ 6,318,000 \$ 6,318,000 \$ 6,318,000	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
TOTAL MARKET VALUE	\$ - \$ 6,318,000.00 \$ 6,318,000	\$ - \$ - \$ -	\$ - \$ - \$ -	\$ - \$ - \$ -
OUTCOME	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos	Yes, Property Value Exceeds Development Cos
METRICS				
Value of Rental NOI	\$ -	\$ -	\$ -	\$ -
Value of Unit Sales	\$ 6,318,000	\$ -	\$ -	\$ -
Total Property Value	\$ 6,318,000	\$ -	\$ -	\$ -
Net Project Value	\$ 724,550	\$ -	\$ -	\$ -
Effective Cap Rate	0.0%	#DIV/0!	#DIV/0!	#DIV/0!
RLV	\$ 1,876,550	\$ -	\$ -	\$ -
RLV per SF	\$ 65.16	\$ -	\$ -	\$ -
Required RLV/SF	\$ 0.72	\$ -	\$ -	\$ -
TVM Calculations	Project NPV: \$ (17,629,512)	Project NPV: \$ (17,629,512)	Project NPV: \$ (17,629,512)	Project NPV: \$ (17,629,512)
	IRR 4.5%	IRR 4.5%	IRR 4.5%	IRR 4.5%
	ROI -10.2%	ROI -10.2%	ROI -10.2%	ROI -10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario			State Benefit Scenario			Local Benefit Scenario			Hybrid Scenario		
	M.4.e 2-story Apartments			S.4.e 2-story Apartments			L.4.e 2-story Apartments			H.4.e 2-story Apartments		
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cos	-	\$ 40	-	66,488	\$ 40	\$ 2,659,500	-	\$ 40	-	-	\$ 40	-
Site Work & Demolition	-	\$ 6	-	66,488	\$ 6	\$ 398,925	-	\$ 6	-	-	\$ 6	-
Construction Costs												
Commercial Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Residential Subtotal	-	-	-	60	\$ 8,910,000	\$ 8,910,000	-	-	-	-	-	-
Parking Subtotal	-	-	-	-	-	\$ 2,970,000	-	-	-	-	-	-
Surface Parking	-	-	-	-	-	-	-	-	-	-	-	-
Structured	-	-	-	99	\$ 2,970,000	-	-	-	-	-	-	-
DW Garage	-	-	-	-	-	-	-	-	-	-	-	-
Total Hard Costs						\$ 12,278,925						
Soft Development Costs						\$ 4,297,624						
Total Project Costs (incl. Land)						\$ 19,236,049						
Entrepreneurial Return @ 10.00%						\$ 1,923,605						
= Total Development Cost (TDC)						\$ 21,159,654						
RENTAL MARKET VALUE												
Minimum Rental Market Value (= TDC - Res. Sale Income)						\$ 21,159,654						
Commercial Capitalization Rate						6.500%						
Residential Capitalization Rate						5.500%						
= Minimum Rental NOI Required						\$ 1,163,781						
Actual Rental NOI Achieved						\$ 363,658						
Net Operating Income / Market Value												
Rental Income						\$ 6,611,956						
Commercial	-	-	-	-	-	-	-	-	-	-	-	-
Residential	-	-	-	363,658	\$ 6,611,956.36	-	-	-	-	-	-	-
Residential Sale Income	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL MARKET VALUE						\$ 6,611,956						
OUTCOME												
METRICS												

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.5.a 2-story Apartments over 1-story parking	S.5.a 2-story Apartments over 1-story parking	L.5.a 2-story Apartments over 1-story parking	H.5.a 2-story Apartments over 1-story parking					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cos	-	\$ 40	\$ -	127,650	\$ 40	\$ 5,106,000	-	\$ 40	\$ -
Site Work & Demolition	-	\$ 6	\$ -	127,650	\$ 6	\$ 765,900	-	\$ 6	\$ -
Construction Costs									
Commercial Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Residential Subtotal	-	\$ -	\$ -	90	\$ 13,365,000	\$ 13,365,000	-	\$ -	\$ -
Parking Subtotal	-	\$ -	\$ -	-	\$ -	\$ 3,840,000	-	\$ -	\$ -
Surface Parking	-	\$ -	\$ -	150	\$ 600,000	\$ -	-	\$ -	\$ -
Structured	-	\$ -	\$ -	48	\$ 1,440,000	\$ -	-	\$ -	\$ -
DW Garage	-	\$ -	\$ -	90	\$ 1,800,000	\$ -	-	\$ -	\$ -
Total Hard Costs			\$ -			\$ 17,970,900			\$ -
Soft Development Costs			\$ -			\$ 6,289,815			\$ -
Total Project Costs (incl. Land)			\$ -			\$ 29,366,715			\$ -
Entrepreneurial Return @ 10.00%			\$ -			\$ 2,936,672			\$ -
= Total Development Cost (TDC)			\$ -			\$ 32,303,387			\$ -
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)			\$ -			\$ 32,303,387			\$ -
Commercial Capitalization Rate			6.500%			6.500%			6.500%
Residential Capitalization Rate			5.500%			5.500%			5.500%
= Minimum Rental NOI Required			\$ -			\$ 1,776,686			\$ -
Actual Rental NOI Achieved			\$ -			\$ 545,486			\$ -
Net Operating Income									
Commercial	-	\$ -	\$ -	-	\$ -	\$ 9,917,935	-	\$ -	\$ -
Residential	-	\$ -	\$ -	545,486	\$ 9,917,934.55	\$ -	-	\$ -	\$ -
Residential Sale Income	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
TOTAL MARKET VALUE	-	\$ -	\$ -	545,486	\$ 9,917,934.55	\$ 9,917,935	-	\$ -	\$ -
OUTCOME									
METRICS		Yes, Property Value Exceeds Development Cos		No, Development Cost Exceeds Property Value		Yes, Property Value Exceeds Development Cos		Yes, Property Value Exceeds Development Cos	
Value of Rental NOI	\$	-	\$	9,917,935	\$	-	\$	-	\$
Value of Unit Sales	\$	-	\$	-	\$	-	\$	-	\$
Total Property Value	\$	-	\$	9,917,935	\$	-	\$	-	\$
Net Project Value	\$	-	\$	(22,385,452)	\$	-	\$	-	\$
Effective Cap Rate		#DIV/0!		30.7%		#DIV/0!		30.7%	
RLV	\$	-	\$	(17,279,452)	\$	-	\$	-	\$
RLV per SF	\$	-	\$	(135.37)	\$	-	\$	-	\$
Required RLV/SF	\$	-	\$	3.20	\$	-	\$	-	\$
TVM Calculations									
Project NPV	\$	(17,629,512)	\$	(17,629,512)	\$	(17,629,512)	\$	(17,629,512)	\$
IRR		4.5%		4.5%		4.5%		4.5%	
ROI		-10.2%		-10.2%		-10.2%		-10.2%	

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.5.b Duplex/Small Lot Single-family	S.5.b Duplex/Small Lot Single-family	L.5.b Duplex/Small Lot Single-family	H.5.b Duplex/Small Lot Single-family					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cost	115,725	\$ 40	\$ 4,629,000	76,125	\$ 40	\$ 3,045,000	-	\$ 40	\$ -
Site Work & Demolition	115,725	\$ 6	\$ 694,350	76,125	\$ 6	\$ 456,750	-	\$ 6	\$ -
Construction Costs									
Commercial Subtotal	-	\$ -	\$ -	-	\$ -	\$ -	-	\$ -	\$ -
Residential Subtotal	59	\$ 11,947,500	\$ 11,947,500	35	\$ 7,087,500	\$ 7,087,500	-	\$ -	\$ -
Parking Subtotal	-	\$ -	\$ 376,000	-	\$ -	\$ 280,000	-	\$ -	\$ -
Surface Parking	94	\$ 376,000		70	\$ 280,000		-	\$ -	
Structured	-	\$ -		-	\$ -		-	\$ -	
DW Garage	-	\$ -		-	\$ -		-	\$ -	
Total Hard Costs			\$ 13,017,850			\$ 7,824,250			\$ -
Soft Development Costs			\$ 4,556,248			\$ 2,738,488			\$ -
Total Project Costs (incl. Land)			\$ 22,203,098			\$ 13,607,738			\$ -
Entrepreneurial Return @ 10.00%			\$ 2,220,310			\$ 1,360,774			\$ -
= Total Development Cost (TDC)			\$ 24,423,407			\$ 14,968,511			\$ -
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)			\$ (4,250,593)			\$ 14,968,511			\$ -
Commercial Capitalization Rate			6.500%			6.500%			6.500%
Residential Capitalization Rate			5.500%			5.500%			5.500%
= Minimum Rental NOI Required			\$ (233,783)			\$ 823,268			\$ -
Actual Rental NOI Achieved			\$ -			\$ 329,986			\$ -
Net Operating Income									
Commercial	-	\$ -	\$ -	-	\$ -	\$ 5,999,738	-	\$ -	\$ -
Residential	-	\$ -	\$ -	329,986	\$ 5,999,738.18	\$ -	-	\$ -	\$ -
Residential Sale Income	28,674,000	\$ 28,674,000	\$ 28,674,000	-	\$ -	\$ -	-	\$ -	\$ -
TOTAL MARKET VALUE	-	\$ 28,674,000.00	\$ 28,674,000	329,986	\$ 5,999,738.18	\$ 5,999,738	-	\$ -	\$ -
OUTCOME									
METRICS									
			Yes, Property Value Exceeds Development Cos			No, Development Cost Exceeds Property Value			Yes, Property Value Exceeds Development Cos
Value of Rental NOI	\$ -		\$ -	\$ 5,999,738	\$ -	\$ -	\$ -	\$ -	\$ -
Value of Unit Sales	\$ 28,674,000		\$ 28,674,000	\$ -	\$ 5,999,738	\$ -	\$ -	\$ -	\$ -
Total Property Value	\$ 28,674,000		\$ 4,250,593	\$ (8,968,773)	\$ -	\$ -	\$ -	\$ -	\$ -
Net Project Value	\$ 4,250,593		0.0%	40.1%	#DIV/0!	#DIV/0!	0.0%	#DIV/0!	#DIV/0!
Effective Cap Rate	8,879,593		RLV \$	(5,923,773)	RLV \$	-	8,879,593	RLV \$	-
RLV	\$ 76.73		RLV per SF \$	(77.82)	RLV per SF \$	-	\$ 76.73	RLV per SF \$	-
Required RLV/SF	\$ 2.90		Required RLV/SF \$	1.91	Required RLV/SF \$	-	\$ 2.90	Required RLV/SF \$	-
TVM Calculations			Project NPV: \$	(17,629,512)	Project NPV: \$	(17,629,512)	Project NPV: \$	(17,629,512)	Project NPV: \$
IRR	4.5%		IRR	4.5%	IRR	4.5%	IRR	4.5%	IRR
ROI	-10.2%		ROI	-10.2%	ROI	-10.2%	ROI	-10.2%	ROI

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.5.c 3-story Office	S.5.c 3-story Office	L.5.c 3-story Office	H.5.c 3-story Office					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cos	-	\$ 40	-	-	\$ 40	-	-	\$ 40	-
Site Work & Demolition	-	\$ 6	-	-	\$ 6	-	-	\$ 6	-
Construction Costs									
Commercial Subtotal	-	\$ -	-	-	\$ -	-	-	\$ -	-
Residential Subtotal	-	\$ -	-	-	\$ -	-	-	\$ -	-
Parking Subtotal	-	\$ -	-	-	\$ -	-	-	\$ -	-
Surface Parking	-	\$ -	-	-	\$ -	-	-	\$ -	-
Structured	-	\$ -	-	-	\$ -	-	-	\$ -	-
DW Garage	-	\$ -	-	-	\$ -	-	-	\$ -	-
Total Hard Costs		\$ -			\$ -			\$ -	
Soft Development Costs		\$ -			\$ -			\$ -	
Total Project Costs (incl. Land)		\$ -			\$ -			\$ -	
Entrepreneurial Return @ 10.00%		\$ -			\$ -			\$ -	
= Total Development Cost (TDC)		\$ -			\$ -			\$ -	
RENTAL MARKET VALUE		\$ -			\$ -			\$ -	
Minimum Rental Market Value (= TDC - Res. Sale Income)		\$ -			\$ -			\$ -	
Commercial Capitalization Rate		6.500%			6.500%			6.500%	
Residential Capitalization Rate		5.500%			5.500%			5.500%	
= Minimum Rental NOI Required		\$ -			\$ -			\$ -	
Actual Rental NOI Achieved		\$ -			\$ -			\$ -	
Net Operating Income									
Commercial	-	\$ -	-	-	\$ -	-	-	\$ -	-
Residential	-	\$ -	-	-	\$ -	-	-	\$ -	-
Residential Sale Income	-	\$ -	-	-	\$ -	-	-	\$ -	-
TOTAL MARKET VALUE	-	\$ -	-	-	\$ -	-	-	\$ -	-
OUTCOME	Yes, Property Value Exceeds Development Cos								
METRICS									
Value of Rental NOI	\$	-	\$	-	\$	-	\$	-	\$
Value of Unit Sales	\$	-	\$	-	\$	-	\$	-	\$
Total Property Value	\$	-	\$	-	\$	-	\$	-	\$
Net Project Value	\$	-	\$	-	\$	-	\$	-	\$
Effective Cap Rate		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!	
RLV	\$	-	\$	-	\$	-	\$	-	\$
RLV per SF	\$	-	\$	-	\$	-	\$	-	\$
Required RLV/SF	\$	-	\$	-	\$	-	\$	-	\$
TVM Calculations									
Project NPV	\$	(17,629,512)	\$	(17,629,512)	\$	(17,629,512)	\$	(17,629,512)	\$
IRR		4.5%		4.5%		4.5%		4.5%	
ROI		-10.2%		-10.2%		-10.2%		-10.2%	

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario					
	M.5.d 2-story Office	S.5.d 2-story Office	L.5.d 2-story Office	H.5.d 2-story Office					
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals
Site Market Value / Acquisition Cos	-	\$ 40	-	-	\$ 40	-	-	\$ 40	-
Site Work & Demolition	-	\$ 6	-	-	\$ 6	-	-	\$ 6	-
Construction Costs									
Commercial Subtotal	-	\$ -	-	-	\$ -	-	-	\$ -	-
Residential Subtotal	-	\$ -	-	-	\$ -	-	-	\$ -	-
Parking Subtotal	-	\$ -	-	-	\$ -	-	-	\$ -	-
Surface Parking	-	\$ -	-	-	\$ -	-	-	\$ -	-
Structured	-	\$ -	-	-	\$ -	-	-	\$ -	-
DW Garage	-	\$ -	-	-	\$ -	-	-	\$ -	-
Total Hard Costs		\$ -			\$ -			\$ -	
Soft Development Costs		\$ -			\$ -			\$ -	
Total Project Costs (incl. Land)		\$ -			\$ -			\$ -	
Entrepreneurial Return @ 10.00%		\$ -			\$ -			\$ -	
= Total Development Cost (TDC)		\$ -			\$ -			\$ -	
RENTAL MARKET VALUE									
Minimum Rental Market Value (= TDC - Res. Sale Income)		\$ -			\$ -			\$ -	
Commercial Capitalization Rate		6.500%			6.500%			6.500%	
Residential Capitalization Rate		5.500%			5.500%			5.500%	
= Minimum Rental NOI Required		\$ -			\$ -			\$ -	
Actual Rental NOI Achieved		\$ -			\$ -			\$ -	
Net Operating Income									
Commercial	-	\$ -	-	-	\$ -	-	-	\$ -	-
Residential	-	\$ -	-	-	\$ -	-	-	\$ -	-
Residential Sale Income	-	\$ -	-	-	\$ -	-	-	\$ -	-
TOTAL MARKET VALUE	-	\$ -	-	-	\$ -	-	-	\$ -	-
OUTCOME	Yes, Property Value Exceeds Development Cos								
METRICS									
Value of Rental NOI	\$	-	\$	-	\$	-	\$	-	\$
Value of Unit Sales	\$	-	\$	-	\$	-	\$	-	\$
Total Property Value	\$	-	\$	-	\$	-	\$	-	\$
Net Project Value	\$	-	\$	-	\$	-	\$	-	\$
Effective Cap Rate		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!	
RLV	\$	-	\$	-	\$	-	\$	-	\$
RLV per SF	\$	-	\$	-	\$	-	\$	-	\$
Required RLV/SF	\$	-	\$	-	\$	-	\$	-	\$
TVM Calculations									
Project NPV	\$	(17,629,512)	\$	(17,629,512)	\$	(17,629,512)	\$	(17,629,512)	\$
IRR		4.5%		4.5%		4.5%		4.5%	
ROI		-10.2%		-10.2%		-10.2%		-10.2%	

PRO FORMA VALUE CALCULATIONS

	Market Scenario				State Benefit Scenario				Local Benefit Scenario				Hybrid Scenario			
	M.5.e 2-story Townhouses				S.5.e 2-story Townhouses				L.5.e 2-story Townhouses				H.5.e 2-story Townhouses			
	# SF / Units	Cost	Subtotals		# SF / Units	Cost	Subtotals		# SF / Units	Cost	Subtotals		# SF / Units	Cost	Subtotals	
Site Market Value / Acquisition Cos	-	\$ 40	\$ -		-	\$ 40	\$ -		-	\$ 40	\$ -		78,750	\$ 40	\$ 3,150,000	
Site Work & Demolition	-	\$ 6	\$ -		-	\$ 6	\$ -		-	\$ 6	\$ -		78,750	\$ 6	\$ 472,500	
Construction Costs																
Commercial Subtotal	-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -	
Residential Subtotal	-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -		70	\$ 14,175,000	\$ 14,175,000	
Parking Subtotal	-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ 2,800,000	
Surface Parking	-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -	
Structured	-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -	
DW Garage	-	\$ -	\$ -		-	\$ -	\$ -		-	\$ -	\$ -		140	\$ 2,800,000	\$ 17,447,500	
Total Hard Costs			\$ -				\$ -				\$ -				\$ 17,447,500	
Soft Development Costs			\$ -				\$ -				\$ -				\$ 6,106,625	
Total Project Costs (incl. Land)			\$ -				\$ -				\$ -				\$ 26,704,125	
Entrepreneurial Return @ 10.00%			\$ -				\$ -				\$ -				\$ 2,670,413	
= Total Development Cost (TDC)			\$ -				\$ -				\$ -				\$ 29,374,538	
RENTAL MARKET VALUE			\$ -				\$ -				\$ -				\$ 29,374,538	
Minimum Rental Market Value (= TDC - Res. Sale Income)			\$ -				\$ -				\$ -				\$ 6,500%	
Commercial Capitalization Rate			6.500%				6.500%				6.500%				5.500%	
Residential Capitalization Rate			5.500%				5.500%				5.500%				5.500%	
= Minimum Rental NOI Required			\$ -				\$ -				\$ -				\$ 1,615,600	
Actual Rental NOI Achieved			\$ -				\$ -				\$ -				\$ 659,971	
Net Operating Income			\$ -				\$ -				\$ -				\$ 11,999,476	
Commercial	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	
Residential	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -		\$ 659,971	\$ 11,999,476.36	\$ 12,659,447.36	
Residential Sale Income	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -	
TOTAL MARKET VALUE	\$ -	\$ -	\$ -		\$ -	\$ -	\$ -		\$ -	\$ -	\$ -		\$ 659,971	\$ 11,999,476.36	\$ 12,659,447.36	
OUTCOME	Yes, Property Value Exceeds Development Cos				Yes, Property Value Exceeds Development Cos				Yes, Property Value Exceeds Development Cos				No, Development Cost Exceeds Property Value			
METRICS																
Value of Rental NOI	\$ -				\$ -				\$ -				\$ 11,999,476			
Value of Unit Sales	\$ -				\$ -				\$ -				\$ -			
Total Property Value	\$ -				\$ -				\$ -				\$ 11,999,476			
Net Project Value	\$ -				\$ -				\$ -				\$ (17,375,061)			
Effective Cap Rate	#DIV/0!				#DIV/0!				#DIV/0!				40.8%			
RLV	\$ -				\$ -				\$ -				\$ (14,225,061)			
RLV per SF	\$ -				\$ -				\$ -				\$ (180.64)			
Required RLV/SF	\$ -				\$ -				\$ -				\$ 1.98			
TVM Calculations																
Project NPV	\$ (17,629,512)				\$ (17,629,512)				\$ (17,629,512)				\$ (17,629,512)			
IRR	4.5%				4.5%				4.5%				4.5%			
ROI	-10.2%				-10.2%				-10.2%				-10.2%			

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario								
	I.6.a Fircrest Administration and Adult Training Pro	I.6.a Fircrest Administration and Adult Training Pro	I.6.a Fircrest Administration and Adult Training Pro	I.6.a Fircrest Administration and Adult Training Pro								
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals			
Site Market Value / Acquisition Cos	-	\$ 40	-	79,425	\$ 40	\$ 3,177,000	-	\$ 40	-	79,425	\$ 40	\$ 3,177,000
Site Work & Demolition	-	\$ 6	-	79,425	\$ 6	\$ 476,550	-	\$ 6	-	79,425	\$ 6	\$ 476,550
Construction Costs												
Commercial Subtotal	-	-	-	57,000	\$ 14,250,000	\$ 14,250,000	-	-	-	57,000	\$ 14,250,000	\$ 14,250,000
Residential Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Parking Subtotal	-	-	-	-	-	\$ 388,000	-	-	-	-	-	\$ 388,000
Surface Parking	-	-	-	97	\$ 388,000	-	-	-	-	97	\$ 388,000	-
Structured	-	-	-	-	-	-	-	-	-	-	-	-
DW Garage	-	-	-	-	-	-	-	-	-	-	-	-
Total Hard Costs						\$ 15,114,550						\$ 15,114,550
Soft Development Costs						\$ 5,290,093						\$ 5,290,093
Total Project Costs (incl. Land)						\$ 23,581,643						\$ 23,581,643
Entrepreneurial Return @ 10.00%						\$ 2,358,164						\$ 2,358,164
= Total Development Cost (TDC)						\$ 25,939,807						\$ 25,939,807
RENTAL MARKET VALUE												
Minimum Rental Market Value (= TDC - Res. Sale Income)						\$ 25,939,807						\$ 25,939,807
Commercial Capitalization Rate						5.000%						5.000%
Residential Capitalization Rate						5.500%						5.500%
= Minimum Rental NOI Required						\$ 1,426,689						\$ 1,426,689
Actual Rental NOI Achieved						\$ -						\$ -
Net Operating Income												
Commercial	-	-	-	1,216,950	\$ 24,339,000.00	\$ 24,339,000	-	-	-	1,216,950	\$ 18,722,307.69	\$ 18,722,308
Residential	-	-	-	-	-	-	-	-	-	-	-	-
Residential Sale Income						-						-
TOTAL MARKET VALUE						\$ 1,216,950						\$ 18,722,308
OUTCOME												
METRICS												
Value of Rental NOI						\$ 24,339,000						\$ 18,722,308
Value of Unit Sales						-						-
Total Property Value						\$ 24,339,000						\$ 18,722,308
Net Project Value						\$ (1,600,807)						\$ (7,217,499)
Effective Cap Rate						93.8%						72.2%
RLV						\$ 1,576,193						\$ (4,040,499)
RLV per SF						\$ 19.85						\$ (50.67)
Required RLV/SF						\$ 1.99						\$ 1.99
TVM Calculations						Project NPV: \$ (17,629,512)						Project NPV: \$ (17,629,512)
IRR						4.5%						4.5%
ROI						-10.2%						-10.2%

PRO FORMA VALUE CALCULATIONS

	Market Scenario	State Benefit Scenario	Local Benefit Scenario	Hybrid Scenario								
	M.6.b Nursing Home (108 beds)	S.6.b Nursing Home (108 beds)	L.6.b Nursing Home (108 beds)	H.6.b Nursing Home (108 beds)								
	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals	# SF / Units	Cost	Subtotals			
Site Market Value / Acquisition Cost	-	\$ 40	-	111,600	\$ 40	\$ 4,464,000	-	\$ 40	-	111,600	\$ 40	\$ 4,464,000
Site Work & Demolition	-	\$ 6	-	111,600	\$ 6	\$ 669,600	-	\$ 6	-	111,600	\$ 6	\$ 669,600
Construction Costs												
Commercial Subtotal	-	-	-	45,000	\$ 14,625,000	\$ 14,625,000	-	-	-	45,000	\$ 14,625,000	\$ 14,625,000
Residential Subtotal	-	-	-	-	-	-	-	-	-	-	-	-
Parking Subtotal	-	-	-	-	-	\$ 336,000	-	-	-	-	-	\$ 336,000
Surface Parking	-	-	-	84	\$ 336,000	-	-	-	-	84	\$ 336,000	-
Structured	-	-	-	-	-	-	-	-	-	-	-	-
DW Garage	-	-	-	-	-	-	-	-	-	-	-	-
Total Hard Costs	-	-	-	-	-	\$ 15,630,600	-	-	-	-	-	\$ 15,630,600
Soft Development Costs	-	-	-	-	-	\$ 5,470,710	-	-	-	-	-	\$ 5,470,710
Total Project Costs (incl. Land)	-	-	-	-	-	\$ 25,565,310	-	-	-	-	-	\$ 25,565,310
Entrepreneurial Return @ 10.00%	-	-	-	-	-	\$ 2,556,531	-	-	-	-	-	\$ 2,556,531
= Total Development Cost (TDC)	-	-	-	-	-	\$ 28,121,841	-	-	-	-	-	\$ 28,121,841
RENTAL MARKET VALUE												
Minimum Rental Market Value (= TDC - Res. Sale Income)	-	-	-	-	-	\$ 28,121,841	-	-	-	-	-	\$ 28,121,841
Commercial Capitalization Rate	-	6.500%	-	-	4.500%	-	-	6.500%	-	-	6.500%	-
Residential Capitalization Rate	-	5.500%	-	-	5.500%	-	-	5.500%	-	-	5.500%	-
= Minimum Rental NOI Required	-	-	-	-	-	\$ 1,546,701	-	-	-	-	-	\$ 1,546,701
Actual Rental NOI Achieved	-	-	-	-	-	\$ 1,098,000	-	-	-	-	-	\$ 1,098,000
Net Operating Income	-	-	-	-	-	\$ 24,400,000	-	-	-	-	-	\$ 16,892,308
Commercial	-	-	-	-	-	\$ 1,098,000	-	-	-	-	-	\$ 16,892,307.69
Residential	-	-	-	-	-	-	-	-	-	-	-	-
Residential Sale Income	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL MARKET VALUE	-	-	-	-	-	\$ 24,400,000	-	-	-	-	-	\$ 16,892,308
OUTCOME	-	-	-	-	-	-	-	-	-	-	-	-
METRICS	-	-	-	-	-	-	-	-	-	-	-	-
Value of Rental NOI	-	-	-	-	-	\$ 24,400,000	-	-	-	-	-	\$ 16,892,308
Value of Unit Sales	-	-	-	-	-	-	-	-	-	-	-	-
Total Property Value	-	-	-	-	-	\$ 24,400,000	-	-	-	-	-	\$ 16,892,308
Net Project Value	-	-	-	-	-	\$ (3,721,841)	-	-	-	-	-	\$ (11,229,533)
Effective Cap Rate	-	-	-	-	-	86.8%	-	-	-	-	-	60.1%
RLV	-	-	-	-	-	\$ 742,159	-	-	-	-	-	\$ (6,765,533)
RLV per SF	-	-	-	-	-	\$ 6.65	-	-	-	-	-	\$ (60.62)
Required RLV/SF	-	-	-	-	-	\$ 2.80	-	-	-	-	-	\$ 2.80
TVM Calculations	-	-	-	-	-	\$ (17,629,512)	-	-	-	-	-	\$ (17,629,512)
Project NPV	-	-	-	-	-	\$ (17,629,512)	-	-	-	-	-	\$ (17,629,512)
IRR	-	-	-	-	-	4.5%	-	-	-	-	-	4.5%
ROI	-	-	-	-	-	-10.2%	-	-	-	-	-	-10.2%

Open House Advertisement and Flyers



Washington State
DEPARTMENT OF
SOCIAL & HEALTH
SERVICES

The Fircrest

MESSENGER

*To provide specialized care and training to people who have
the most challenging needs due to developmental disabilities.*

October 25, 2007 Volume 13 # 20

FIRCREST CAMPUS OPEN HOUSE

You are invited to a public Open House for the Fircrest Campus Excess Property Master Plan project on Thursday, November 8th, from 5:00 to 8:00 p.m. in the Activities Building Gymnasium. Learn about and help shape options for the Excess Property on the campus. Come at any time during the Open House. An overview of the project will be presented at 5:45 p.m.

DSHS is conducting this planning project for underutilized property on the campus, at the direction of the State Legislature. There are no plans to close or move the Fircrest School to another location. For more information, contact Ed Valbert at 253.476.7022, or visit

<http://www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm>.

The Department of Social and Health Services does not discriminate on the basis of disability in any of its programs or services. Upon request, special accommodations will be provided. Please notify us at least five (5) business days before the Open House, by contacting (360) 902-8164 (voice).

DAYLIGHT SAVING TIME ENDS

Remember to set your clocks back one hour on Sunday, November 4, 2007 at 2:00AM local daylight time, which becomes 1:00AM local standard time.

A SAFETY REMINDER

Many fire departments across the United States encourage people to change the batteries in their smoke detectors when they change their clocks because Daylight Saving Time provides a convenient reminder. Research has proven that a working smoke detector more than doubles a person's chances of surviving a home fire. More than 90 percent of homes in the United States have smoke detectors, but one-third are estimated to have dead or missing batteries.

NEWS FROM THE CLAIMS OFFICE

As of November 1, 2007 injured staff at Fircrest who are on L & I will no longer be turning in a Doctor's note or a Physical Status Report to the Claims Office. If these forms are used they will not be paid for by L & I as of February 1, 2008.

This is due to the use of a new form that L & I are putting into place and your Doctor will be using. The new form is called "The Insurer Activity Prescription Form" or "APF" for short. The goal is to improve communication between Health-care providers, employers, insurers, and workers to aid in return to work. Health-care providers can be paid for submitting the APF to communicate:

Work status

Work-related physical restrictions

Verification of time-loss, if appropriate, and

Treatment plans

Each time you see your Doctor you are to get one of these completed forms from your Doctor and return it to the Fircrest Claims Specialist in the Claims Office.

If you have any questions regarding this matter, contact Deanna Fournier, Fircrest Claims Specialist at extension 3053.

WAY TO GO FIRCREST!

Of the 600+ Fircrest employees, over half completed the 2007 DSHS Employee Survey!

We have until November 15th to meet our goal of 100% participation. Complete the survey today-it takes less than 15 minutes and is completely anonymous. Talk to your supervisor about how you can complete the survey during work time. Call Jessica at x3072 if you have any questions.

Change is every employee's responsibility-make your contribution today!

www.dshs.wa.gov/rda/adsa

The Enterprise

SHORELINE | LAKE FOREST PARK

COMMUNITY dispatches

EDUCATION

Security breach:
Ten students at Shorewood High School got past the district's security measures to remotely control other students' laptops. Page 9

PUBLIC SAFETY

Trail signs:
Lake Forest Park council is considering placing signs along the Burke-Gilman Trail to identify city. Page 4

GOVERNMENT

Shoreline budget:
Shoreline's budget for 2008 reflects changes in six different departments. Page 4

OUT & ABOUT

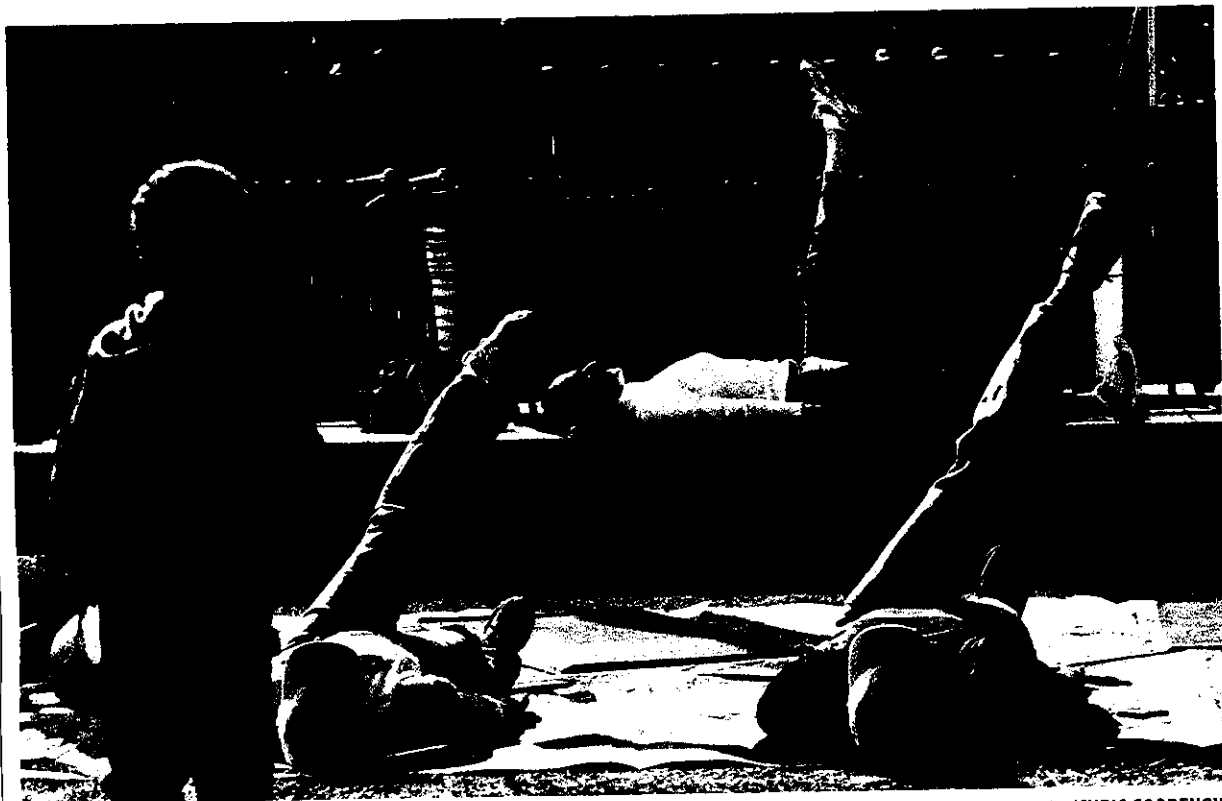


Arts and crafts:
'Tis the season for craft bazaars galore. The perfect place to find handmade gifts. Page 25

SPORTS



Surging Scots:
Shorecrest to play Mount Vernon for berth in state tournament. Page 41



Enterprise/CHRIS GOODENOW

As her audience both participates and watches, Carolyn Folgedalen, a fitness instructor with the Shoreline/South County Family YMCA, teaches Pilates during the YMCA's Raise the Roof Event, Oct. 27, at Echo Lake Park in Shoreline. The event promotes the new YMCA in North Shoreline through new memberships, live entertainment and games. The percussion equipment behind them is set up for the following performance, Hamilton Middle School's marimba band, of North Seattle.

Raising the Roof on the YMCA

By AMY DAYBERT
Enterprise editor

In Shoreline and Lake Forest Park yards on Oct. 27, signs appeared in support of the new 52,000-square-foot YMCA currently being constructed on 192nd Street in Shoreline.

Individuals and families were able to pick up a sign, purchase charter memberships to the new facility and participate in activities at the "Raise the Roof" YMCA event from 11 a.m. to 3 p.m. at Echo Lake Park.

"We're introducing this great new facility we're building to the community," Alice Kaderlan, vice president of communications for the Shoreline/South County YMCA said at the event.

Throughout the four-hour event, community members familiarized themselves with the layout of the new Dale Turner Family YMCA through colored maps. Kids played

with Legos and painted pumpkins. Families watched dancing and jump roping routines while eating barbecued burgers and hotdogs. And groups of hardhat clad individuals took hayrides out to the construction site.

"This will be a great asset to the community," Pearl Noreen, a board member for the YMCA and co-chair of the capital campaign, said on her way out to the construction site. "We knew when we found it that this was the perfect site."

The plan for the first floor of the new YMCA includes a 25-yard handicapped-accessible pool, a full-size gym, a pinnacle climbing wall, a youth development center, family



Enterprise/CHRIS GOODENOW

Hamilton Middle School's Marimba band, of North Seattle, plays an instrumental piece during the Shoreline/South County Family YMCA's Raise the Roof event, Saturday, Oct. 27.

locker rooms and group exercise rooms. The second floor will feature an adventure zone for children ages 5 to 12, the Kids Corner for infants and toddlers, a Family Center, a healthy lifestyle room, cardio See YMCA, Page 18

Out on the town

• Veronica Cook takes her students to Starbucks and beyond

By SARAH KOENIG
Enterprise reporter

WHEN VERONICA COOK WAS IN ELEMENTARY SCHOOL, SHE'D FINISH HER WORK SO FAST SHE'D HAVE TIME TO TIE TOGETHER THE SHOELACES OF OTHER KIDS WHILE THEY WORKED.

In short, she was a troublemaker, she said.

So Cook's teacher gave her something productive to do — provide help in the classroom to disabled students.

Cook now teaches the most severely disabled students at Shorewood High School, a job she's been at for 14 years.

"It was my calling. I don't know how to describe how I decided I wanted to do this," said Cook, sitting at a round table in her classroom after school last week. "But when I think about my students, I'm really happy."

This year, all of Cook's students, aged 14 to 20, either can't communicate verbally. Some are in wheelchairs and require care around the clock.

The turnover for Cook's job was high before she arrived. When she came to the position at Shorewood, she was the fifth teacher in five years.

Back then, no one knew the program existed, Cook said. She quickly worked to change that.

"The first thing we did is volunteer at the Shoreline library, cleaning the children's books,"

See TEACHER, Page 17

p.m. Fridays & Saturdays, live music. All ages. Admission: Free, \$5 suggested. 17551 15th Ave. NE., Shoreline. Info: 206-957-2000.

z Nov. 2, Paul Mitchell & Sally Rose.

z Nov. 3, Kurt Lindsay & Mike Moore.

z 3-5 p.m. Sunday, Nov. 4, Hejira, "ancient rhythms for a new age."

Veteran's Day Concert: 7:30 p.m. Thursday, Nov. 8, the 96-voice Sno-King Community Chorale, joined by the Shoreline Concert Band and the Fort Lewis Honor Guard, performs its 2nd annual "Salute to America" concert, at the Edmonds Center for the Arts, 410 4th Ave. N., Edmonds. Tickets: \$15 general, \$13 for stu-

major and Symphony No. 29, at the Edmonds Center for the Arts, 410 4th Avenue N., Edmonds.

age children in Africa. Admission: Free; donations requested. Info: www.africanchildrenschoir.com.



Washington State
DEPARTMENT OF
SOCIAL & HEALTH
SERVICES



Fircrest Campus Excess Property Master Plan Open House

Thursday, November 8th

5:00 – 8:00 p.m.

Activities Building Gymnasium
15230 15th Ave NE, Shoreline, WA

The Department of Health and Social Services (DSHS) has been directed by the State Legislature to create a Master Plan for Excess Property on the Fircrest Campus in Shoreline. Learn about and help shape options for the Excess Property.

Come at any time during the open house.

An overview of the project will be presented at 5:45

For more information, contact Ed Valbert at 253.476.7022
<http://www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm>

The Department of Social and Health Services does not discriminate on the basis of disability in any of its programs or services. Upon request, special accommodations will be provided. Please notify us at least five (5) business days before the Open House, by contacting (360) 902-8164 (voice).

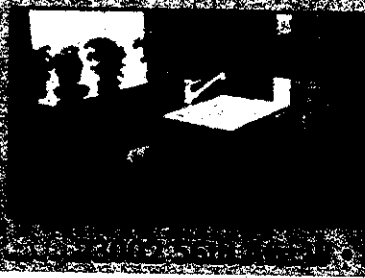
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Fircrest Campus Excess Property Master Plan

Open House

The State Department of Social and Health Services (DSHS), in partnership with the City of Shoreline, is conducting long-range planning for property which is currently being underutilized by the State at the Fircrest School Campus.

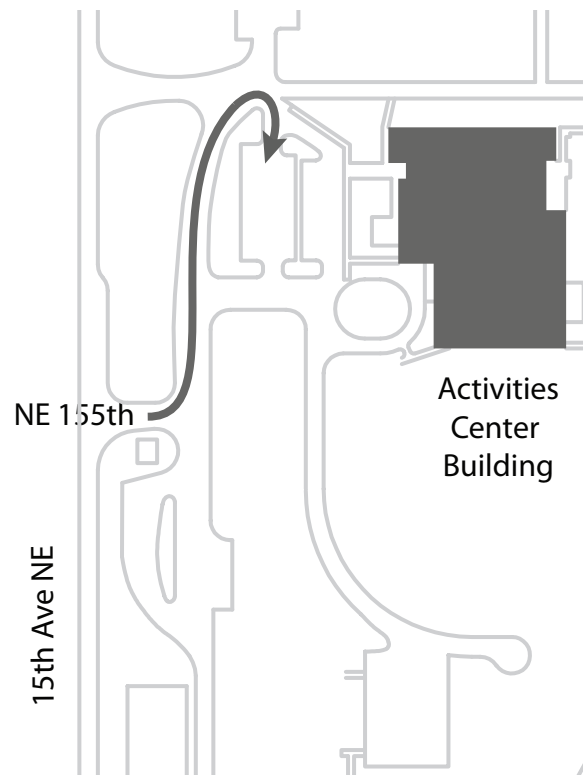
Wednesday, October 10, 2007 5:00-8:00 PM

Fircrest Campus Activities Center
15230 15th Ave NE in Shoreline

An opportunity to learn about the excess property at the Fircrest Campus and provide input on potential future uses.

The Fircrest Campus is located at the northeast corner of 15th Ave NE and NE 150th Street in Shoreline, Washington.

There are no plans to close or move the Fircrest School to another location.



For more information see www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm or contact Ed Valbert at valbeel@dshs.wa.gov or (253)476-7022.



Fircrest Campus Excess Property Master Plan

Open House

The State Department of Social and Health Services (DSHS), in partnership with the City of Shoreline, is conducting long-range planning for property which is currently being underutilized by the State at the Fircrest School Campus.

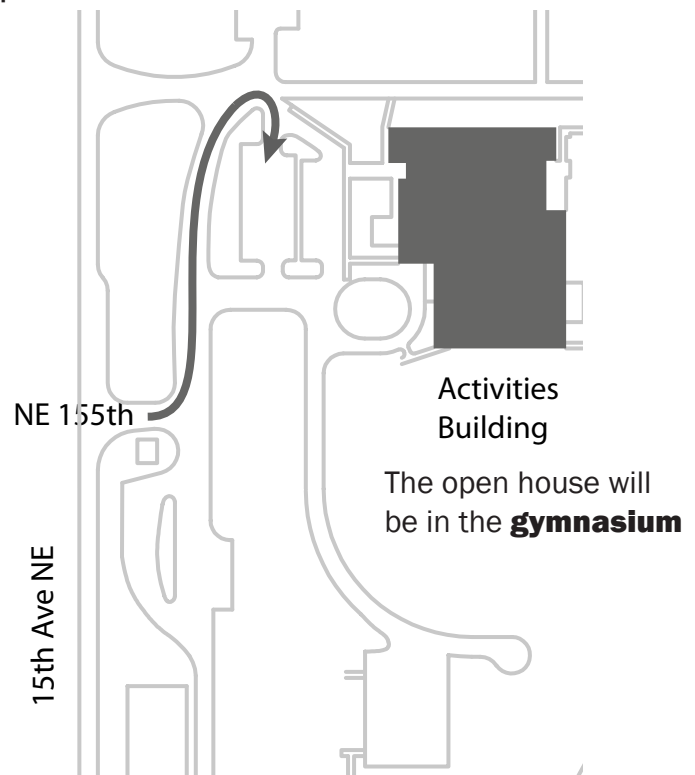
Thursday, November 8, 2007 5:00-8:00 PM
Fircrest Campus Activities Building Gymnasium
15230 15th Ave NE in Shoreline

Come at any time during the open house
An overview of the project will be presented at 5:45 PM

Learn about and help shape options for
future use of the excess property.

The Fircrest Campus is located at the
northeast corner of 15th Ave NE and NE
150th Street in Shoreline, Washington.

There are no plans to close or move the
Fircrest School to another location.



For more information see www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm
or contact Ed Valbert at valbeel@dshs.wa.gov or (253)476-7022.

The Department of Social and Health Services does not discriminate on the basis of disability in any of its programs or services. Upon request, special accommodations will be provided. Please notify us at least five (5) business days before the Open House, by contacting (360) 902-8164 (voice).

Public Comments

Appendix E: Public Comments

Following the summary of public comments below are all the public comments as they were received at the two Open Houses, via the project website, and the mail.

Fircrest Campus Excess Property Master Plan – Phase I Summary of Public Comments from Open House #1, October 10, 2007

The first open house for the Fircrest Campus Excess Property Master Plan project was conducted on October 10, 2007. Comments were requested through a written comment form, which asked three open-ended questions. Fifty-four people signed in at the meeting, and 20 of these provided written comments. The following is a summary of the responses.

Question 1: What features and aspects of the Campus are important and should be considered in the planning process?

Features mentioned (number of commenters)	Specific comments mentioned
Open Space (7)	Campus-like setting, for community use, preserved and enhanced, natural and open character should be maintained
Public Ownership (3)	No excess property should be sold, primary purpose should be to serve persons with DDs, nothing but state agencies
Trails/walking trails (2)	Connections to Hamlin Park
Respite Care (2)	
Fircrest School (2)	
Trees (3)	Enhance the natural and built environment with additional natural amenities
Gardens (1)	
Residential (1)	
1510 Court (1)	

Question 2: What are your comments about potential new uses on the Campus?

Uses mentioned are grouped by general use category, followed by the number of commenters in parentheses.

Housing

- Senior (6)
- Low-income (5)
- General (3)
- Emergency/transitional (3)
- Temporary (2)
- Mixed use (2)
- Refuge housing for women (2)
- Rental (2)
- Cottage (1)
- Low-cost/free student housing for work exchanges (1)

Office Uses

- State agencies (2)
- DSHS (2)
- State Patrol (1)

Commercial Uses

- Neighborhood-serving retail (3)

Health Services

- Public health clinic(s) (4)
- Respite services for DD population (3)
- 24-hour (behavioral) triage center (1)
- Alcohol rehabilitation center (1)

Educational Uses

- Training/Education center for those working with persons with DDs (3)
- Environmental learning center (in conjunction with botanical garden/nursery in SE corner of campus) (1)
- Arts education and other art experiences (performance, public art) for residents and visitors (1)

Community Services

- Community garden (particularly in SE corner of campus) (2)
- [Multi] cultural center(s) for various ethnic populations (2)
- NRF-like facility (2)
- Social service center (1)

- Convention center/ community meeting rooms (1)

Recreational Uses

- Playground, including a “boundless playground” for persons with DDs (2)
- Parks and Open Space (2)
- Trails (2)
- Botanical gardens (2)
- Cooperative use of Activities Building (City of Shoreline Parks Dept, Fircrest School) (1)

Other Potential Uses and Comments

- More work opportunities for persons with DDs (3)
- Low/zero impact development (1)
- Pedestrian connections (1)
- Public benefit (1)
- No commercial (1)
- Structured parking (2)
- Bird sanctuary (1)
- Artist Studios, artists in residence (2)

Question 3: What other comments do you have?

Comments are followed by the number of commenters in parentheses.

- Do not sell to private developers. All land should remain under public ownership (4)
- Lease properties to serve DD community (4)
- Create a “Development Disabilities Community Trust” rather than maintain the CEP&RI trust on RHC campuses state-wide. Assures state land on RHC campuses continues to benefit persons with DDs (1)
- Save 1510 Court (2)
- No special treatment for any special interests group by their race (1)
- Build relationships with Universities/Colleges (1)
- Building 54 area developed to benefit RHC population (1)
- State uses only (1)
- See “Friends of Fircrest” proposals (previously submitted) (1)
- Affordable housing must be compatible with safety of Fircrest residents (1)
- Most people in community do not understand persons with DDs – mistake to place condos, apartments on campus for safety reasons (1)
- Better, more separated circulation is needed (1)
- Look into swapping some properties not in Excess Property if developer agrees to rebuild an aging [Fircrest School] facility somewhere else on campus (1)
- Fircrest Campus could be a catalyst to invite other businesses into the area of 15th Ave – need restaurants, shops, etc

Fircrest Campus Excess Property Master Plan – Phase I Summary of Public Comments received via Project Website (following Open House #1)

Six comments were received via the project's website. Comments generally fall under two categories: features of Fircrest campus that should be retained, and potential future uses for excess property.

Important features of Fircrest campus that should be considered in the planning process:

- Secluded layout of inner campus
- Healing garden
- Activities Building (swimming pool)
- Chapel
- Existing trees
- 1510 court

Potential futures uses for excess property:

Health Services

- Medical/dental center
- Therapy building that would include physical therapy, speech pathology, occupational therapy, wheelchair/adaptive equipment repair
- Health clinic

Educational Uses

- UW research center
- College site
- New building for Adult Training Program ATP

Community Services

- Meeting center (expansion of Activities Building)
- Community cultural center
- Summer programs for special needs children
- Community Center that would consolidate family and community services i.e. food banks, clothing banks, Back to Work training, etc.
- Use 1510 Court buildings for day programs
- Respite programs (for parents of children with special needs)

Housing

- Senior housing, including tenant support living units
- Increase number of homes for people with DD, especially nursing homes for the aging DD population

Office Uses

- Locate Region 4 Developmental Disabilities Office to save funds used for leasing space in downtown Seattle

Recreation

- Special Olympic track
- Soccer fields (SYSA, TOPS program)

Other

- Convention Center
- Redesign 1520 Court buildings following “Gillman Village” model with small shops, community gathering space, farmers market space, etc.

Fircrest Campus Excess Property Master Plan – Phase I Summary of Public Comments from Open House #2, November 8, 2007

The second open house for the Fircrest Campus Excess Property Master Plan project was conducted on November 8, 2007. Comments were requested through a written comment form, which asked attendees to comment on each of the three presented options as well as other features and uses they felt are important to consider during the planning process. Eighty-two people signed in at the meeting, and 19 of these provided written comments. The following is a summary of the responses.

Comments are grouped into the general categories of “Benefits”, “Concerns” and “Additional Ideas” to capture the broad range of comments received. Comments are followed by the number of commenters in parentheses, if more than one.

Question 1: What do you like best about Option 1 and why?

Benefits

- Financial return to State
- Affordable housing
- Could add to tax roll
- Opportunity for large development of new housing in Shoreline

Concerns

- Entrance through Hamlin Park is viable/advantageous, but needs to be more than one entrance for Fircrest School for emergencies
- Multi-family development south of 155th ok, but not north where it would encroach on Fircrest School resident safety (2)
- Too much residential housing
- May cause parking/traffic problems
- May give up public control and use
- Too intense of use
- Opens Fircrest property to developers and real estate speculation

Additional ideas/Comments

- Expand mixed use to 155th St with walking boulevard between buildings and structured parking
- Housing west of chapel should be eliminated or reduced

Question 2: What do you like best about Option 2 and why?

Benefits

- Improvements to Fircrest School
- Public/Affordable housing (2)
- Expanding land use for DSHS mission and services that are highly needed (2)
- Consolidation of “Y” buildings
- Nursing home building is an excellent idea – should replace “Y” buildings
- Like update of ATP facility
- Will save State money
- Access onto 15th Ave NE
- Trail connections

Concerns

- Should not have public housing or any kind of new housing
- Invasive and too close to Fircrest residents
- Very little viability
- New development replacing “Y” buildings should be shown white [on option diagrams], currently not excess property
- Takes away part of Fircrest School – you promised Fircrest would not be touched
- Oppose destruction of “Y” buildings – they are excellent design for quality of life of residents
- Retain “Y” buildings

Question 3: What do you like best about Option 3 and why?

Benefits

- One stop shop for social services – streamlining service availability/visibility
- Public/affordable housing (2)
- Open space adjacent to South Woods is nice addition (2)
- Keeping green/open space (2)
- Transitional housing
- Best option – good balance of uses
- The best option – benefits local community, preserves open space
- Like integration of Fircrest School with City of Shoreline
- Mixed use excellent and should be expanded

Concerns

- Shift Housing/city purposes south – invades “Y” buildings

Additional Ideas/Comments

- Some blend of options 1 and 3 would be good
- Put human services near Food Lifeline
- Keep “Y” buildings
- No improvements to “Y” buildings long-term expense

Question 4: What other uses and/or features do you feel need to be considered in planning for Excess Property?

Fircrest School

- Fircrest client safety
- Provide jobs for DD population
- If/when “Y” buildings are addressed, options could be considered for more efficient nursing facility
- Protecting vulnerable Fircrest population
- Keep Fircrest residents safe from trail users
- Keep northwest corner free for Fircrest resident use to 155th St
- Preserve 1510 Court

Uses

- One-stop Human Services Center that may contain HopeLink, Food Lifeline, Center for Human Services, and other human service providers (2)
- Emergency/homeless shelters (2)
- Transitional housing (2)
- Consider wider community
- Reduce open space
- Four-story misdemeanor jail similar to NRF – partner with suburban cities
- Social services/meet community needs
- Daycare for elderly and DD population
- Do not expand State DOH lab
- 2 soccer fields with artificial turf accessible to handicap, a multiple use indoor facility

Natural Features/Environment

- Daylight Hamlin Creek (3)
- Use gray water
- Increase natural surface water capacity/infiltration

Fircrest School

- Fully utilize Fircrest School – can serve people better than group homes, economies of scale
- Is there room in any option for expansion of Fircrest school? This may be needed in future
- Fircrest School needs to be able to continue its mission
- Separate Fircrest residents for safety

Activity Building

- Reserve room for public parking and handicapped parking near Activity Building
- Easy access from 15th Ave to Activity Building important
- Maximize public access to pools

5. Other Comments?

- Don't let NIMBYs limit the project
- No private developers doing projects on public land
- No small lot homes, mixed use, retail
- Pedestrian/bicycle paths a superb part of plan
- Southeast portion of property preferable for open space
- Don't make money making a top priority
- Structured parking to serve multi-cultural building near pool – a public-private partnership
- Fircrest School losing main entrance demonstrates low priority for Fircrest Residents

Fircrest Campus Excess Property Master Plan – Phase I Summary of Public Comments received via Project Website (following Open House #2)

The following comments were received via the project's website following the second open house.

General

Fircrest School

- Keep the “Y” buildings – a new nursing facility would negatively affect residents’ health and quality of life. Also, moving nursing facilities would shrink Fircrest School acreage.
- Income generated from property leases should be used to offset costs of services at Fircrest School
- ATP/work program should be expanded

Recreation

- Indoor recreation facility (soccer, basketball, volleyball, kickball, etc.)
 - Would accommodate special needs and developmentally disabled population
 - Could be used by Seattle Youth Soccer Association, Outreach Program for Soccer (TOPS), and recreation for Fircrest Residents and other exercise programs.
 - Offices to share with other recreational organizations such as Special Olympics, Ski for All, etc.
- “Boundless” playground that could be used by Fircrest residents and visitors to Hamlin Park
- Recreational facility geared towards needs of individuals with development, physical and mental disabilities
- Any new sports facilities should be located south of Fircrest School property to avoid safety risks to Fircrest residents

Affordable Housing

- Affordable housing is key to the health of our region
- Build more affordable housing, consider at least 50% or more affordable units
- Fircrest campus presents the perfect opportunity to provide a range of affordable housing opportunities for the community

State Ownership

- “Excess” Fircrest property should be kept as state-owned property and under state operation and for the public use. Plan for improvement and expansion – do not sell land to private interests.

Community Services

- Good idea to have on-site support like a gym, a clinic, or community center

Option 1

- Small section of multi-family housing in southeast corner (Option 1) good because is set back from R-6 zoning
- Multi-family housing along 15th Ave (Option 1) is too dense, overwhelming for neighborhood
- Move housing from northwest section to the South Campus, and this should be housing for low income seniors and people with DD from larger community.
- Not good because it gives up state land
- Fits best with the legislative directive emphasis on affordable housing and smart growth
- A large site like Fircrest Campus lends itself well to a nice mix of housing types for a mix of different income levels
- Vehicular traffic from new development could impact safety of Fircrest residents

Option 2

- Retain the healing garden (in Option 2) – it was promised that this would not be infringed upon by new construction
- Better land use for Fircrest housing
- Like the idea of allowing DOH to expand, they have been a good neighbor and this facility is less likely to disrupt neighborhood visually
- Concerned about types of people coming to Fircrest Campus and neighborhood for social services; could create a dangerous combination of people
- Should include public use and support senior and low income housing, not private development
- Leasing land to non-profits such as food banks or treatment programs are a great use
- Improving Fircrest School operations is great
- If this option were chosen, it should include affordable housing
- Impractical – State unlikely willing to support a new skilled nursing and adult training program facility – State is split ideologically on the existence of institutional care

Option 3

- In Option 3 use land directly west of healing garden for outpatient services, i.e. health clinic, PT, OT, ST, Adaptive Technologies, dental. Could also incorporate classrooms, labs for training health professionals
- Like the best
- Open space is good
- Mixed-use on corner of 150th & 15th is acceptable
- Offering affordable housing provides significant community benefit and should be more emphasized in this option
- Open space would allow for more outdoor activities for people living in watershed
- Open space would allow for more creativity in the design of the stream daylighting.
- Good that it allows for low income housing of a lot of people
- This option is too short-sighted – need to effectively use urban land to address housing needs and other community needs
- Could be best option – adds financial return while breathing life into the community
- Having social services in one location makes sense

**Comments from Open House #1
October 10, 2007**

Name (optional): Mary Durkan Email (optional): marydurkan@windermere.com
Affiliation: Family Member is resident at Fircrest

What features and aspects of the Campus are important and should be considered in the planning process?

Open space, green space, pedestrian corridors (trails, etc),
Campus-like setting, safety.

What are your comments about potential new uses on the Campus?

1. I'd like to see a playground!
2. Temporary housing for students, medical trainees, & family of respite clients.
3. Expanded respite & medical services for DD at Fircrest AND the community at large.
4. Education centers for training people to work w DD Community.

3) Other comments:

This is an amazing piece of property that has the potential to be a huge asset to Shoreline, Fircrest, people w DD, & the community at large. I believe that this campus could be a nationally renowned social service campus!



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Name (optional): _____ Email (optional): _____

Affiliation: _____

What features and aspects of the Campus are important and should be considered in the planning process?

- ① RESIDENTIAL
- FIRCREST SCHOOL, ② RESPITE CARE
- TREES & GARDENS.
- PUBLIC HEALTH LAB.
- PUBLIC OWNERSHIP.

What are your comments about potential new uses on the Campus?

- PUBLIC HEALTH CLINIC INCLUDING DENTAL. ① MULTI-LINGUAGE e.g. International Community Health Services
- ② MULTI-ACCESS SELF-PAY, LOW INCOME, INSD, etc.
- EMERGENCY/TRANSITIONAL HOUSING. ③ MULTI-DISCIPLINARIAN - EAST/WESTERN
- CULTURAL CENTERS - FILIPINO, KOREAN, AFRICAN, ETC.
- FOOD BANK (NOT JUST WAREHOUSE). • NERF-LIKE FACILITY

3) Other comments:

- DO NOT SELL TO PRIVATE INVESTORS; ONLY LEASE OUT (e.g. 40 yrs - 99 yrs)
- IF NEEDED, ALONG 15th AVE NE ONLY COMMERCIAL USAGE FOR LOCAL, WALK-IN TRAFFIC
- CONSIDER NEIGHBORS ACROSS STREET/PROPERTY LINES.
- LOW IMPACT/ZERO IMPACT DEVELOPMENT.
- PEDESTRIAN CONNECTIONS • ENCOURAGE ~~ED~~ NON-MOTORIZED CIRCULATION.



AHBL

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Maggie Fimia
Shoreline City Councilmember
729 N. 148th
Shoreline WA 98133
mfimia@zipcon.com
206 368-0814

Fircrest Master Plan

October 10, 2007

I am submitting these comments as an individual and not as a City Councilmember. They are based on my prior representation of this area, discussion with existing and potential stakeholders, talking with people who live in the adjacent neighborhoods. Some of these suggestions assume not just the excess land, but maximizing the use of the Fircrest School and facilities.

1. *What would the City consider a "community benefit" in regards to future use of excess land at Fircrest?*
 - *Additional retail and commercial areas*
 - *Community, cultural, art, recreation centers –there is already a pool there that could be shared*
 - *Affordable Senior and family housing with community room/playground/park area to allow for cross-generational interaction*
 - *Community Medical, dental and counseling facilities for general public and Community based DD population*
 - *Respite care for Community Based DD homes*
 - *Training for Community Based DD staff and managers*
 - *Lease space for non-profits*
 - *Connecting trails to Southwoods and Hamlin Park*
 - *Art/living space – lofts*
 - *Pea Patch area*
 - *Market rate housing – capping size and number based on community input and infrastructure/transit service capabilities*
 - *Classroom space for Shoreline CC or University of WA*
 - *Library*

2) *What would the City consider to be the highest and best use for the excess property?*

I would not like to see the State legislature be forced to pick just one of these. I don't believe they are mutually exclusive. I would recommend that we ask the State to rank these, rather than select one.

Because the State is setting aside about half of the functions for State use already, we could make the case that these be ranked in reverse order:

Highest and Best Use as defined by 1. benefit to the local community, then 2. State operations, then 3. financial return. If the State includes some private sector activities or public sector facilities that could attract federal grants and other jurisdictional or non-profit contracts – they could still have the property generating dollars for the whole DD program- Fircrest and Community based.

Thank you for the opportunity to provide some comments and recommendations.

Maggie Jimin

Planning for the Fircrest Campus Excess Property Is...

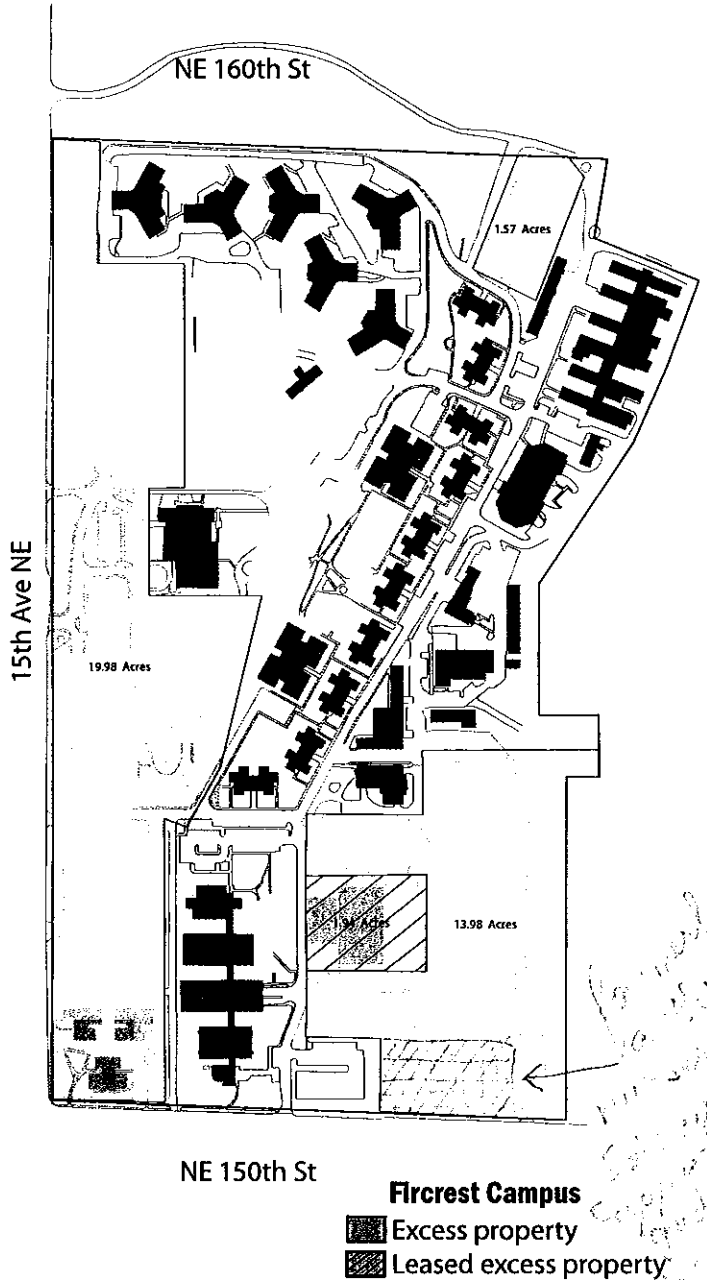
- About defining the future for unused property on the Fircrest School Campus

The Excess Property...

- Was created by closure of the King County North End Rehabilitation Facility (NERF) Program and demolition of abandoned buildings.
- Is subject to State regulations regarding its re-use.
- Is currently defined as approximately 33 acres located in the western and southeastern portions of the campus.

No Changes Are Planned for the Following...

- The Fircrest School will remain. There are no plans to close or move the Fircrest School to another location.
- Food Lifeline and Firland Sheltered Workshop both have long-term leases. There are no plans to close or move Food Lifeline or Firland Sheltered Workshop to another location.
- The land containing DOH facilities is managed by DOH. There are no plans to close or move the DOH facilities to another location.



*To verify this was...
 Fircrest and...
 should...
 consider...
 to use this...
 area appropriate*



*idea
 Submitted
 by Beth...
 Brown*

*This is...
 for...
 An...
 searching...
 center*



Name (optional): Mark Holmes Email (optional): markh@perreet.com
Affiliation: Neighbor

What features and aspects of the Campus are important and should be considered in the planning process?

With respect to the identified Excess Properties, the future development should determine what remains & what the developer will replace. The ~~the~~ natural / open character should be considered though.

What are your comments about potential new uses on the Campus?

The eastern edge of 15th ~~is an~~ ^{has} important potential for the shoreline neighbors. Currently the ridgecrest neighborhood S. of Fircrest is cut off from the city (North city) other than the busy & abandoned 145th & 15th intersection. Bring in some retail so that the residents have a reason to stick around.

3) Other comments: I think that mixed use retail and residential could benefit both Fircrest and the neighboring Shoreline community.

Turn over the structures on the SW corner to redevelopment.

Look @ swapping some properties where a developer could relocate & rebuild some existing aging buildings not



AHBL

Name (optional): John Behrens Email (optional): JESWA52@aol.com

Affiliation: _____

What features and aspects of the Campus are important and should be considered in the planning process?

OPEN SPACE AVAILABLE FOR
COMMUNITY USE.

What are your comments about potential new uses on the Campus?

IT SHOULD BE USED FOR PUBLIC
BENEFIT - SOCIAL SERVICE CENTER FOR
TEENS, ADULTS, AND SENIOR CITIZENS.

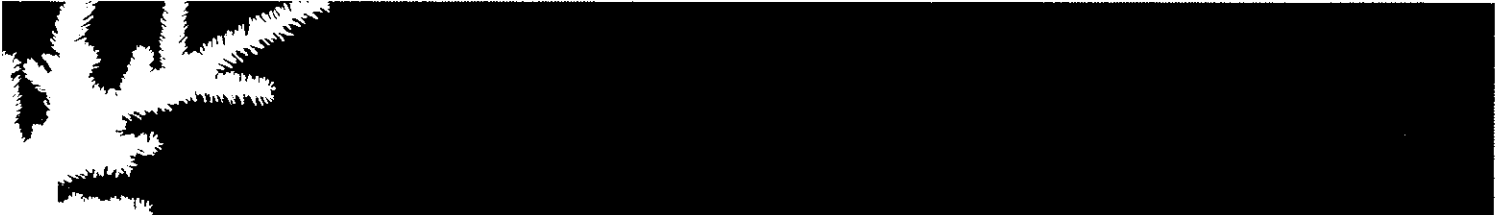
3) Other comments:

This is the one open
SPACE in our city that should NOT
BECOME Retail Development. A Truly
VISIONARY project that includes Housing AND
COMMUNITY SERVICE IS HERE FOR OUR TAKING



AHBL

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Name (optional): _____ Email (optional): _____

Affiliation: _____

What features and aspects of the Campus are important and should be considered in the planning process?

Why not have Botanical Garden in the only open piece of land we have left around here.

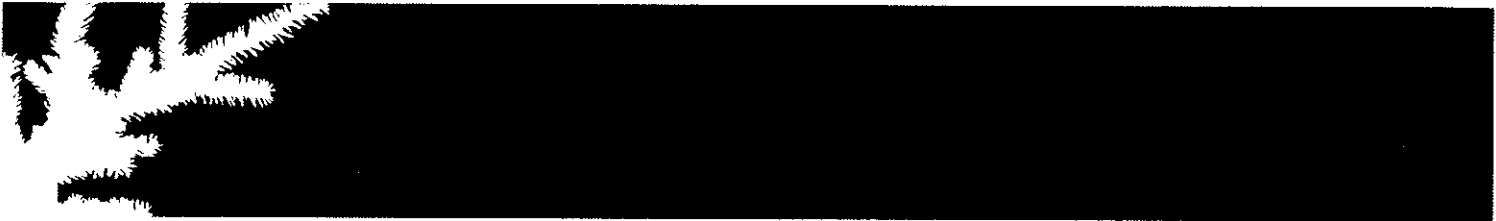
What are your comments about potential new uses on the Campus?

3) Other comments:



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Name (optional): Letha Wene Email (optional): _____

Affiliation: _____

What features and aspects of the Campus are important and should be considered in the planning process?

keep school

What are your comments about potential new uses on the Campus?

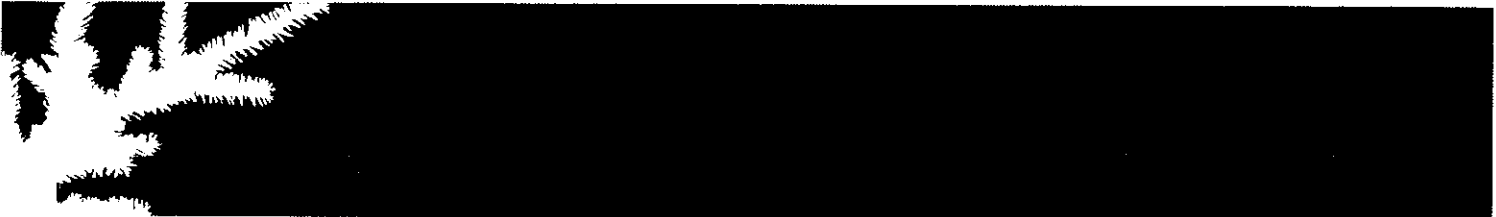
Don't sell

3) Other comments:



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Name (optional): Donna Eggen Email (optional): donnaeggen@Comcast.net
 Affiliation: _____

What features and aspects of the Campus are important and should be considered in the planning process? See Below - Save 1510 Court!

What are your comments about potential new uses on the Campus?

I want to see the houses at 1510 court used for emergency housing or senior housing or some such. They should be used, not wasted or torn down.
Transitional housing

3) Other comments:

Consider leaving it all green!
Parks, gardens.



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Name (optional): DENNIS LEE Email (optional): 206 3627798
Affiliation: RESIDENT 40 YEARS

What features and aspects of the Campus are important and should be considered in the planning process?

What are your comments about potential new uses on the Campus?

history of past steak holders
& little more
Physical property description
& transferance

3) Other comments:

15 TO COURT SAVE THEM IF
POSSIBLE



AHBL

To submit additional comments in writing contact Betsy Geller at bgeller@ahbl.com or by mail: AHBL, Inc. 1200 6th Ave, suite 1620, Seattle, WA 98122

Name (optional): Sally Strangor Email (optional): _____
Affiliation: _____

What features and aspects of the Campus are important and should be considered in the planning process?

Open spaces and park like areas for walking paths with access to Homer Park

What are your comments about potential new uses on the Campus?

*Senior low income housing, (apts)
Cottage housing - 1 story homes for seniors to purchase*

3) Other comments:

No special treatment for any special interests groups by their race!!



AHBL

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Very Very interested 206-542-3906

Name (optional): Pat Wacker Email (optional): PAWacker@aol.com
Affiliation: Citizen

What features and aspects of the Campus are important and should be considered in the planning process?

Finest school should be kept with maximum use for respite care. Co-operative partnerships with city Parks Dept. for swim pool, gym and community rooms. Rental office and infirmary may have partnership uses.

No excess property should be sold. The property should be leased with income stream to DD population in community based

What are your comments about potential new uses on the Campus? There is open space near the heritage garden (not excess) which could be senior affordable housing and compatible with DD population

Create a village with mixed use density ADA compliant, with opportunities for DD and/or independent living. Lease underlying land public private partnership. Income stream like UW downtown land possible 5 acres for misdemeanor jail for municipalities (former NRF location)

3) Other comments:

Cultural center where old administrative building was (from Navy) public private partnership Korean, Phillipino, Greek, African communities Lease land Public health clinic, mental health clinic, extra duplexes on campus might be used for temporary shelter for abused women



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Let income stream from leases serve DD community as U.W. properties do and have done for 100 years.

Name (optional): Maureen Durkan Email (optional): maureendurkan@comcast.net

Affiliation: Friends of Fircrest, guardian for Fircrest, Resident
Chair of "ACTION 100"

What features and aspects of the Campus are important and should be considered in the planning process? See attached.

The primary use of the property should be to provide services to our citizens with developmental ~~both as~~ both those who live on + off campus. The money obtained from any leases of the property should go into payroll for these services. Services should be expanded + added to serve people w/ DD.

What are your comments about potential new uses on the Campus? See attached

3) Other comments: ^{see} attached



AHBL

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Fircrest Master Plan.

The primary use of the Fircrest property should be to serve our citizens with developmental disabilities both on and off campus. The money obtained from any leases should go into the DDD fund for people with developmental disabilities to help pay for the services on the campus.

- 1. We should provide more services to people with developmental disabilities in the surrounding community. This would include psychological, medical, nursing and dietary. Also, physical, occupational and speech therapy, recreation therapy, adult training and work programs, crisis stabilization and respite services.**
- 2. Have free housing available to students in exchange for working with people with developmental disabilities (this would cut employment costs and provide students an opportunity to work with people with D.D) Training could also be provided to college students studying health care professions, education and other areas.**
- 3. Programs or businesses on the Fircrest campus should be encouraged to employ or train people with developmental disabilities.**
- 4. There should be day programs/respite, after school programs and tenant support housing for people with developmental disabilities.**
- 5. A 24 hr triage center is needed for clients with developmental disabilities who are having behavioral (not medical) emergencies; this is more appropriate (and more cost effective) then sending them to Harborview ER or the King County jail or detention system.**
- 6. Continue to build relationships with Universities and colleges in areas of research that will benefit our citizens with developmental disabilities.**
- 7. Provide an area on Hamlin Park/Fircrest for a “boundless playground” or accessible playground for people with developmental disabilities. (There needs to be a park like this in Shoreline).**

Other compatible uses:

1. Senior Housing. Senior citizens would be good neighbors for people with developmental disabilities. Seniors can share some of the services on campus and we could have a grandparent programs for people with developmental disabilities who use the services on the campus.
2. Public Health medical clinic.
3. State Patrol office (they were there before)
- 4 .Alcohol rehab (they were there previously and were good neighbors)
5. Retail space along 15th Ave (should encourage employment of people with DD)
6. A Convention center or meeting rooms that would bring in some revenue?

Name (optional): Jim Hardman

Email (optional): ABUAK9@aol

Affiliation: Friends of Fircrest

What features and aspects of the Campus are important and should be considered in the planning process?

I like the goals as stated in hand out

What are your comments about potential new uses on the Campus?

Bldg 54 area should be developed, if at all, for benefit of RHC residents. All land 15th NE east to school property & north of circle drive [from its southern most point] should be dedicated to DD uses - including educational uses e.g. nursing, dentistry, etc in conjunction with colleges

3) Other comments: affordable sr housing south of circle drive

& other community uses (eg gardens)

small business with DD employment

See generally Friends of Fircrest proposals previously submitted.



AHBL

Name (optional): Howard Berkshub Email (optional): _____
Affiliation: SHORELINE PARKS ADVISORY COMMITTEE

What features and aspects of the Campus are important and should be considered in the planning process?
open space needs to be preserved and enhanced

What are your comments about potential new uses on the Campus?
*Parks is a great
community South work with Harbor Park.
No Commercial use other than housing.*

3) Other comments:



AHBL

To submit additional comments in writing contact Betsy Geller at bgeller@ahbl.com or by mail: AHBL, Inc. 1200 6th Ave, suite 1620, Seattle, WA 98122

Name (optional): Stacy Gillet Email (optional): stacygillet@
Affiliation: Arc of Washington, Citizen Comcast.net
of Shoreline, family member.

What features and aspects of the Campus are important and should be considered in the planning process?

This campus was originally designated to serve the needs of the developmentally disabled across the state. Any use of this property should continue to benefit that same population - but we must think about alternatives - ~~the~~ resources generated by use of the land + buildings should go into a public endowment or trust to be used to serve

people w/ developmental disabilities

What are your comments about potential new uses on the Campus?

Preserve the intent of using the land for people w/ Dev. Disabilities - by identifying ^{new} uses that generate income to be placed in trust

Forest land - placed into conservancy - generates income for trust
Lease buildings - placed in trust
Sell or redesignate land - income placed in trust.

This benefits the community + people w/ dev. disabilities.

3) Other comments:

Rather than using CEI + RI to support the institution, money generated by use of the land here should be placed in the Developmental Disabilities Community Trust which currently manages excess properties identified on the Rainier, Yakima Valley and Lakeland Village campuses. This trust manages the state's land on RITE campuses.



To submit additional comments in writing contact Betsy Geller at bgeller@ahbl.com or by mail: AHBL, Inc. 12000
6th Ave, suite 1620, Seattle, WA 98122

Programs - General State land management practices + the Enabling Act all support continuing the use of this land to generate income for the benefit of the original beneficiaries.



Name (optional): _____ Email (optional): _____

Affiliation: _____

What features and aspects of the Campus are important and should be considered in the planning process?

open space

What are your comments about potential new uses on the Campus?

Although I approve of affordable housing, it must be compatible with safety for the neighborhood and Fircrest school residents. So senior affordable housing and a refuge for women with small children might be ok. others might not.

3) Other comments:



AHBL

To submit additional comments in writing contact Betsy Geller at bgeller@ahbl.com or by mail: AHBL, Inc. 1200 6th Ave, suite 1620, Seattle, WA 98122

Name (optional): Donna Domina Email (optional): domina@msn.com
Affiliation: _____

What features and aspects of the Campus are important and should be considered in the planning process? Leave Firecrest the way it is as far as living, working ect... I would like to see nothing but state agencies on the land. Most people out in the community do NOT understand DPs. To put Apartments Condo's low income housing with family could be a big mistake, more sheltered work shops.

What are your comments about potential new uses on the Campus? I don't like the Ideas of Condo's Apartments low income housing. Unless, all is fenced off. Do to safety of people that live here and also to the people that would be ~~moving~~ moving in. Residents do wonder around some do have behaviors. Teaching center! (staff)

3) Other comments: I would like to see lots of Advertising.
I would like a mailing all the mailings
Please - Donna Domina
POB. 1041
LIBAR WA 98251



AHBL

To submit additional comments in writing contact Betsy Geller at bgeller@ahbl.com or by mail: AHBL, Inc. 1200 6th Ave, suite 1620, Seattle, WA 98122

Name (optional): Pete Eubank Email (optional): SignalFather@yahoo.com
Affiliation: Employee + advocate

What features and aspects of the Campus are important and should be considered in the planning process?

The option of DDD clients having access to affordable homes

What are your comments about potential new uses on the Campus?

Retail -
rental -
DASH state offices

3) Other comments:



AHBL

To submit additional comments in writing contact Betsy Geller at bgeller@ahbl.com or by mail: AHBL, Inc. 1200 6th Ave, suite 1620, Seattle, WA 98122

Name (optional): Sherry Marlin Email (optional): aesong@comcast.net
Affiliation: neighbor

What features and aspects of the Campus are important and should be considered in the planning process?

What are your comments about potential new uses on the Campus?

light ~~residential~~ business
housing - variety
Gov Buildings such as DSHS

Neighborhood needs
business growth.

Mixed use for differing types of vehicles on the roadway. Food lifeline brings in large semis many times a day. Our infrastructure isn't built for this - any extra would not be acceptable without roadway changes

3) Other comments:



AHBL

To submit additional comments in writing contact Betsy Geller at bgeller@ahbl.com or by mail: AHBL, Inc. 1200 6th Ave, suite 1620, Seattle, WA 98122

**Comments from Open House #2
November 8, 2007**

FR. FOOD LL
11/8/07
OFF #2

Fircrest Campus One-Stop Human Services Center Submitted for Consideration in the Excess Property Master Plan

Vision:

Washington State and the City of Shoreline have a long history of assisting the most vulnerable families, children and seniors in our community through support for local nonprofit organizations. However, 1 in 7 residents of North King County still struggle to pay for the basic necessities, and almost 557,000 people in Western Washington must utilize food banks each year to help feed their families. With the Fircrest Master Plan, the State has a new and exciting opportunity to increase its support for these families in need through the creation of a One-Stop Human Services Center in Shoreline, Washington.

Located on the Fircrest Campus, this Human Services Center could provide a central location for food, family counseling and support, youth programs, emergency financial assistance, and other critical services necessary for a thriving, healthy community, as well as offering affordable housing. Residents in need, often working numerous odd-hour jobs and traveling by public transportation, would be able to access a variety of services in one convenient location.

Benefits to the State, to the City of Shoreline, and the wider community would be numerous and include:

- Efficiently using limited space by including multiple storied building with the potential for an underground parking facility
- Ensuring compatible neighbors for the residents of Fircrest School, which serves those with developmental delays
- Investing in a successful integrated service provision model, as seen in similar service and housing centers in West Seattle and Redmond
- Providing critical and necessary services at a low cost to the State, by leveraging additional funding sources and in-kind donations of the individual nonprofit agencies at one site.

Reality:

Currently, a number of nonprofits located in the Shoreline area are outgrowing their facilities, which are often located in hard-to-reach areas for clients needing their services. Because they are physically dispersed throughout the community, they are also often unable to leverage potential partnerships and referrals. Examples of local agencies that could join the center include:

Hopelink

The largest nonprofit based in North and East King County, Hopelink provides food, housing, child care, adult education, transportation, financial assistance and a variety of other services that help clients work towards self-sufficiency and end the cycle of poverty. Hopelink's Shoreline location, including its extensive food bank, was recently relocated to the shopping center at Westminster Way North. However, this location is not easily accessed by bus or convenient to other local human service providers, and it is not certain that that site will be available to Hopelink in future years.

Food Lifeline

Washington's largest hunger-relief organization distributes nearly 22 million pounds of food to over 300 food banks and meal programs across Western Washington. Food Lifeline's administrative offices and Volunteer Repack Center have been located on the Fircrest Campus for over 20 years. Food Lifeline is an active partner in the Shoreline community, engaging volunteers, servicing food donors, and distributing food to local agencies. While Food Lifeline currently operates a second warehouse in south Seattle, running dual locations has created inefficiencies. Expanding on the Fircrest Campus to utilize one floor of the Human Services Center would allow Food Lifeline to best leverage its funds and distribute the most food to those in need.

Center for Human Services

The Center for Human Services (CHS) is a community-based nonprofit youth and family services agency that has been a resource to children, adults and families in North King County since 1970. CHS serves over 10,000 community members each year through family counseling, family support, and substance abuse prevention, intervention, and treatment. Located on 15th Ave. NE in Shoreline, CHS has outgrown its current facility. Locating some of its services at a human center at Fircrest would provide CHS with needed expansion opportunities, solve significant space issues encountered by its existing programs at its current site, and provide another safe and convenient location for the families they serve.

Request:

While planning for the future of the Fircrest Campus, we ask the State to make an investment in a healthy community through creation of a One-Stop Human Services Center. Providing easily accessible critical services to those in need, this innovative and successful model would be a strong asset to the State, the City of Shoreline, and the broader community..

For More Information, contact:

Food Lifeline, Linda Nageotte, President & CEO, 206-545-6600, x 234

Endorsed By:

Hopelink, Marilyn Mason-Plunkett, CEO
Center for Human Services, Beratta Gomillion, Executive Director
North Urban Human Services Alliance (NUHSA)

Sources:

Human Services Needs in North King County: A Report to Decision Makers, 2007, North Urban Human Services Alliance

Stakeholders need to block other developments

Firecrest Campus
Excess Property
Master Plan

Comment Form
November 8, 2007

Name (optional): Ann Schulz Email (optional): annwschulz@gmail.com
Affiliation: _____

1. What do you like best about Option 1 and why?

// Return to state taxpayers; affordable housing

2. What do you like best about Option 2 and why?

- Improvements to Firecrest mission & facility
- Public housing is an enormous need, I strongly favor planning to serve those needs

3. What do you like best about Option 3 and why?

- Creating a "one stop shop" for ~~Human~~ Social Services
- streamlining service availability and visibility
- Again - public housing

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

Shoreline has no emergency shelters and no transitional housing. Social Services are scattered, forcing users to travel to multiple locations. Please consider the wider community

5. Other comments? (please feel free to write on back)

needs. There will be lots of resistance to change from neighbors and current

Improving Firecrest by making you can reduce those.



Fircrest users. Please don't let
NIMBY's limit this project.

- Also - budget for ~~the~~ mediators.
Shoreline projects often seem
to end up in court or
Building & Land hearings. If
we can mediate instead of
litigate we'd save a ton
of money

lights get turned off had to see & write

**Fircrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): PAT MUMFORD Email (optional): Hpm - 430 Kalmus Court
Affiliation: Shoreline resident, Fisheries Biologist

1. What do you like best about Option 1 and why?

I AM not impressed with promise of directives
of Legislature... False promise

2. What do you like best about Option 2 and why?

Do not use this land for affordable home or any
other kind of new housing
Better to Put a City hall & civic meeting place instead

3. What do you like best about Option 3 and why?

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

Day Light Hamlin Creek To include salmon spawning
capability, can use it to clean gray water to support Aquatic
projects

5. Other comments? (please feel free to write on back)

it is my feeling that if Fircrest were fully utilized as Formerly
was the case that there would not be a surplus. Many
homes in Shoreline do not do that good job with the care of their
people who would be far better served in a larger campus



Submit additional comments in writing contact Betsy Geller at bgeller@ahbl.com or
mail AHBL, LLC 1200 6th Ave, suite 1620, Seattle, WA 98122
or on website <http://www.cityshoreline.com/cityhall/projects/fircrest/index.cfm>



8, where economy of scale in activities, med care
would be more efficiently carried out and better used the
skilled professionals necessary for quality of care

Highly Bed we do not need more "mort cash"
least desirable in most many beds. No cost of

Keep it as state had no private housing,
no rule no long term lease

Have HOB use of resources aimed at Waring, Waring
we don't need more developers doing projects on public land
for private use.

You don't care in other ways to maximize asset (cash)
relates to the tax payer, you by that are very affected
and not minimize what you spend
on the perimeter you formerly had 1 story wood
buildings, one of which was state owned expecting
vehicles is utility trailers, that was considered
if being required.

No small lot houses
Some care of units less maintenance the dropped position why, if it
worked.

My not of. There's use of land for city Hall & civic nearby Hall

No warehouse no retail housing & business

My Ponder to the Developer?

**Fircrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): Janet Roach Email (optional): jroach@arczip.com
Affiliation: _____

1. What do you like best about Option 1 and why?

2. What do you like best about Option 2 and why?

3. What do you like best about Option 3 and why?

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

5. Other comments? (please feel free to write on back)

Please reserve plenty of room for public parking ~~and~~ including handicapped parking →



close to the activity building and its pools.
People from all over north King county
come to use the ^{swimming} pools. Easy access
from 15th Ave to the pool is very important.

The Fircrest pools are a TREASURE!
They have no equal in the Seattle area -
Their warmth, size and accessibility
(lifts into pool for wheelchair bound)
make them ideal for arthritis
exercise - swimming classes; and for
individual exercise and hydrotherapy
for many people suffering with back
and joint problems.

Let's have maximum public
access to the pools. Save room for
parking!

**Fircrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): Marie Meli Email (optional): footie.auntree@yahoo.com
Affiliation: Shoreline Citizen/Fircrest Parent

1. What do you like best about Option 1 and why?

I do think an entrance through Hamlin Park as viable or advantage to Fircrest. I also hope there are more than one entrance/exit available on a regular basis... mostly for emergency purposes, when Hamlin is in use for an event, Fircrest could be frozen off from the community.

2. What do you like best about Option 2 and why?

It has very little viability in my eyes.

3. What do you like best about Option 3 and why?

I'm not impressed.

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

5. Other comments? (please feel free to write on back)

have Fircrest lose it long-time main entrance is an action that demonstrate that the persons in residence here are viewed as 2nd class citizens.



To submit additional comments in writing, contact Betsy Geller at bgeller@ahbl.com or mail AHBL, Inc., 200 6th Ave., Suite 1620, Seattle, WA 98122. Contact website: <http://www.cityofshoreline.com/cityhall/projects/fircrest/index.com>



(Over)

since the percentage of disable population is on the rise & we have no reason to expect that trend to reverse; and now the capacity of Fircrest is the most it has been for many years; In view of this facts, is there room in this future picture for expansion? What will the state (& DSHS) do to meet increased need?

Firecrest Campus
Excess Property
Master Plan

Comment Form
November 8, 2007

Name (optional): Bill Anderson Email (optional): Bill.Territ@msn.com
Affiliation: "A friend of man"

1. What do you like best about Option 1 and why?

See # 3 below

2. What do you like best about Option 2 and why?

This option should not even be offered.
It deals with more than excess property + is
outside the legislative mandate

3. What do you like best about Option 3 and why?

This is my preference... but some blend
of 1+3 would be fine.

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

If at some later date, the "y" buildings are
addressed, options could be considered such as
more efficient nursing facility and cottages for
respite + professional services as an adjunct to
Firecrest resources

5. Other comments? (please feel free to write on back)



specifically said
Berkeley
Expense to the Fircrest School
to D & H

Firecrest Campus
Excess Property
Master Plan

Comment Form
November 9, 2007

Name (optional): ROBERT PHELPS Email (optional): rphelpsna@earthlink.net
Affiliation: Shoreline citizen

1. What do you like best about Option 1 and why?

2. What do you like best about Option 2 and why?

3. What do you like best about Option 3 and why? *The open space in SE corner (adjacent to South Woods) will make a very nice addition to the latter,*

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

5. Other comments? (please feel free to write on back)

The pedestrian/bicycle paths common to all three options are a superb part of the plan.



To submit additional comments or questions, call 360.468.4000 or write to
by mail/ARHBL, Box 200, 6th Ave, Suite 1000, Seattle, WA 98122
or by e-mail: arhbl@dcshs.wa.gov or <http://www.wa.gov/osh/lineation/division/index.cfm?unit=27403>

ARHBL

Firecrest Campus
Excess Property
Master Plan

Comment Form
November 6, 2007

Name (optional): Maria Walsh Email (optional): mw Walsh1240@
Affiliation: Friends of Firecrest & parent guardian carlthnk.net

1. What do you like best about Option 1 and why?
Property marked multi family residential on west and south side of 155th entrance can be accomodated. Any development north of 155th entrance should not be considered for development, Do not reach into Firecrest footprints

2. What do you like best about Option 2 and why?
Do not like it at all
Invasive N+W = Too close to residences
Moving Y's bldg should be in white because it currently is not excess property

3. What do you like best about Option 3 and why?
Like this option but would prefer a smaller footprints and perhaps shift this housing/city purposes southward i.e transitional housing example invades the Y building Aspen + Birch space

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?
Keeps NW corner free for residents use - to south of 155th Open space to SE property is preferable

5. Other comments? (please feel free to write on back)
Regardless of outcome, my preference for clients, staff and property of Firecrest needs to continue mission of caring for and sharing with people with developmental disabilities



Firecrest Campus
Excess Property
Master Plan

Comment Form
November 8, 2007

Name (optional): _____ Email (optional): _____

Affiliation: Firecrest employee

1. What do you like ~~best~~^{least} about Option 1 and why?

- Hmmm... too much residential housing. Yuck.

2. What do you like best about Option 2 and why?

- keeping existing property all/ DSHS ^{mostly}
- expanding land use for DSHS mission & services that are highly needed.
- consolidation of Y buildings

3. What do you like best about Option 3 and why?

- keeping green/open space

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

- Protecting a vulnerable population of people who live @ Firecrest
-

5. Other comments? (please feel free to write on back)



**Firecrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): Mimi Hudson Email (optional): mihudson55@aol.com
Affiliation: voter

1. What do you like best about Option 1 and why?

not a lot

2. What do you like best about Option 2 and why?

affordable housing -
maybe DSHS offices
expanding Koppleink & add other services

3. What do you like best about Option 3 and why?

Transitional housing
affordable housing

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

Homeless shelter -
Transitional housing
a place to get mixed assistance

5. Other comments? (please feel free to write on back)

~~please~~ please let us not go with moneymaking
as the top ~~option~~ priority!



**Firecrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): _____ Email (optional): _____

Affiliation: _____

1. What do you like best about Option 1 and why?

- IF PRIVATE HOUSING, ADDITION TO TAX ROLL
- ONLY LARGE DEV. OF NEW HOUSING IN SHORELINE

DOWNSIDE

- INCREASED PARKING & TRAFFIC
- MAY GIVE UP PUBLIC CONTROL & USE
- TOO INTENSE USE

2. What do you like best about Option 2 and why?

ACCESS ONTO 15th NE
TRAIL CONNECTIONS.

3. What do you like best about Option 3 and why?

BEST OPTION
BALANCE OF (a) RETAIL (LEASE OUT THE LAND, NOT SELL)
(b) DAYLIGHT HAMLIN CREEK @ SE CORNER IN
"OPEN SPACE" (c) LOCAL BENEFITS / COLOCATION OF HUMAN SVCS.

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

DAYLIGHT HAMLIN CREEK
INCREASE NATURAL SURFACE WATER CAPACITY & FILTRATION.
DAYCARE FOR ELDERLY & DD. POPULATION.

5. Other comments? (please feel free to write on back)



To submit additional comments in writing, contact Betty Sellen at bsellen@ahbl.com or by mail: AHBL, Inc., 1200 5th Ave, Suite 4620, Seattle, WA 98102
Project website: <http://www.ci.vancouver.wa.gov/civillib/protection/index.html>



**Fircrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): Donna Eggen Email (optional): donna.eggen@Comcast.net
Affiliation: _____

1. What do you like best about Option 1 and why?

2. What do you like best about Option 2 and why?

I do not like option 2 because it takes away part of Fircrest (the Y building area). You promised Fircrest would not be touched!

3. What do you like best about Option 3 and why?

I like #3 best because it benefits the local community most, and preserves more open land.

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

Keep the residents safe from the people using the trails.
Do not expand the State Lab!

5. Other comments? (please feel free to write on back)

I still feel you should preserve 1510 Court!



**Fircrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): _____ Email (optional): _____

Affiliation: _____

1. What do you like best about Option 1 and why?

Extend mixed use to about 155th make a walking
Blvd. between buildings
add structured parking to serve the
walking village

2. What do you like best about Option 2 and why?

oppose destruction of Y buildings for
moving home. Y buildings are excellent
design for quality of life for residents

3. What do you like best about Option 3 and why?

Keep Y buildings Human services
near foodline

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property? Southeast section reduce open space

put in 4 story (or more) misdemeanor jail
similar to NRE. partner with suburban cities

5. Other comments? (please feel free to write on back)

Structured parking to serve a multi-cultural
building near pool public-private partnerships



Firecrest Campus Excess Property Master Plan

Comment Form
November 8, 2007

Name (optional): _____ Email (optional): _____

Affiliation: _____

1. What do you like best about Option 1 and why?

2. What do you like best about Option 2 and why?

3. What do you like best about Option 3 and why?

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

Recreation Area - 2 Soccer Fields w/ Artificial Turf accessible to handicap / Multiple Use Indoor Facility

5. Other comments? (please feel free to write on back)



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**Firecrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): Nancy Morris Email (optional): _____
Affiliation: Shoreline resident

1. What do you like best about Option 1 and why?

2. What do you like best about Option 2 and why?

3. What do you like best about Option 3 and why?
Open spaces maintained. Once open space is gone it is gone forever.

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?
?

5. Other comments? (please feel free to write on back)
Daylight Hamlin Creek - Refer to Thornton Creek and Westlake Washington Basins Characterization Reports (Shoreline)



Fircrest Campus
Excess Property
Master Plan

Comment Form
November 8, 2007

Name (optional): LM Billingsley Email (optional): _____
Affiliation: _____

1. What do you like best about Option 1 and why?

Everything South of Entrance at
155th + 15th NE = OK, North =
Safety Issue for Residents.

2. What do you like best about Option 2 and why?

X

3. What do you like best about Option 3 and why?

X

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

CLIENT
SAFETY

5. Other comments? (please feel free to write on back)

Make separation for Safety
of FIRCREST RESIDENTS



Fircrest Campus
Excess Property
Master Plan

Comment Form
November 8, 2007

Name (optional): Jaane Shepard Email (optional): _____

Affiliation: Fircrest [Therapies]

1. What do you like best about Option 1 and why?

Don't like it - open up Fircrest property to
developers & real estate speculation

2. What do you like best about Option 2 and why?

will save the state revenue in renting office space
Like updating the ATP facility - It ought to be available
to people (DD) in the community as sheltered workshops are
closing down

3. What do you like best about Option 3 and why?

Like the integration of Fircrest School with
the city of Shoreline

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

provide suites to DD

5. Other comments? (please feel free to write on back)

please pray that Dino (real estate developer) Rossi
doesn't get elected Gov.



To submit additional comments in writing, contact Becky Geller at beckygeller@rshs.com
or beckygeller@rshs.com, 200 6th Ave, Suite 1620, Seattle, WA 98101
or visit our site at <http://www.wa.gov/hotelinc.com/cityhall/publications/index.html>



**Fircrest Campus
Excess Property
Master Plan**

Comment Form
November 8, 2007

Name (optional): _____ Email (optional): _____

Affiliation: none

1. What do you like best about Option 1 and why?

2. What do you like best about Option 2 and why?

The nursing home building is an excellent idea & should be including in the end product & replace the Y's building

3. What do you like best about Option 3 and why?

Mixed use is excellent & should be expanded -

No improvements to F.C.'s Buildings ~~is~~ it is possible a long term expense ~~for~~ against a new building with lower utility etc. costs

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

5. Other comments? (please feel free to write on back)



Hybrid option - notify public via email
web page when available

Recoloring of blue area in option 2 - make white
" 3

Put Leg. Bill on web page

Fircrest Campus Excess Property Master Plan

Comment Form
November 8, 2007

Name (optional): _____ Email (optional): _____

Affiliation: _____

1. What do you like best about Option 1 and why?

2. What do you like best about Option 2 and why?

3. What do you like best about Option 3 and why?

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

5. Other comments? (please feel free to write on back)



Firecrest Campus
Excess Property
Master Plan

Comment Form
November 8, 2007

Name (optional): Pettehina Email (optional): _____
Affiliation: _____

1. What do you like best about Option 1 and why?

I think the housing with garage space shown to the west of Chapel ought to be eliminated or reduced in size & dimension.

2. What do you like best about Option 2 and why?

The six Y shaped residences ought to be retained in my estimation. They are home to the residents & stability to their lives & well being. Efficient or not they serve the population nicely.

3. What do you like best about Option 3 and why?

Good use of the SE corner. Consistent with the use and function of South Woods.

4. What other uses and/or features do you feel need to be considered in planning for the Excess Property?

social services and meet community needs

5. Other comments? (please feel free to write on back)

more to come! Good start. Keep up the good work - Lots of great questions.



Comments from Website
Received October 11th - November 30th, 2007

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 27, 2007 12:31 PM
To: Valbert, Ed (DSHS); Rachael Markle; Julia Walton
Cc: Michael Hintze; Sarah Lucas; 207422.30@ahbl.com
Subject: FW: Fircrest Master Plan

Here's another comment.

Betsy Geller
AHBL, Inc.

From: Anderson [mailto:bill_terri1@msn.com]
Sent: Friday, November 09, 2007 10:54 AM
To: Betsy Geller
Subject: Fircrest Master Plan

Hi, Betsy! (Ed, take lessons from this lady- she's a whiz with a Powerpoint!) Thank you, again, for an informative evening. My comments are as follows:

Option #1 - As a strong financial return, it is impressive. However, I feel it is an option that impacts safety of Fircrest Residents. The vehicular traffic & proximity of such traffic to the existing Y Buildings could be an issue. Would the housing units be separated from the campus by a greenbelt? I realize this is a view from a distance & the fine tuning comes later.

Option #2 - Very impressive, but impractical. I do not see the State of WA spending \$??M for a new Skilled Nursing Facility & Adult Training Program buildings. The state is split ideologically on the existence of institutional care. Community care advocates would be up in arms - UNLESS - you have some ideas on a public relations plan. You may not be aware, but there are some individuals (parents & guardians) who would rather refuse services than come to an RHC to obtain them. There would have to be a well defined separation from the Fircrest School Campus in order for some to access services.

Option #3 - I think this could be the best option. It adds an area of financial return while it also breathes life into the community. There is a lack of "social service" contacts in this neighborhood. Having available services in a singular location makes sense. The "mixed use" aspect would be a draw for the general public in the vicinity.

#4 - Any use resulting in "Public Benefit" is appealing to me. When we look at the DD Community as a whole, we see there are areas definitely lacking (training of care givers, crisis intervention, respite, etc.). Even though this is a segment of the "public" that has shortfalls in service, it should not be the only group that would benefit from campus changes.

#5 - I like the idea of separate entries & exits for varying aspects of the property (Health Lab, Housing, Mixed Use, Fircrest School, etc.). I wonder if the upgrades to accomplish this would be more than the state is willing to spend.

Good Luck!

Terri Anderson
Friends of Fircrest

11/27/2007

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 27, 2007 8:43 AM
To: Valbert, Ed (DSHS); Julia Walton; Rachael Markle
Cc: Sarah Lucas; Michael Hintze; 207422.30@ahbl.com
Subject: FW: Fircrest Master Plan

Another TOPS comment

Betsy Geller
AHBL, Inc.

From: Jane & Dirk Thompson [mailto:janedirk@comcast.net]
Sent: Wednesday, November 21, 2007 10:02 AM
To: Betsy Geller
Subject: Fircrest Master Plan

I am writing regarding the new Fircrest Master Plan.

I would like to ask that you include a large indoor recreation facility for team sports with special accommodations for the special needs and developmentally disabled population. The facility would ideally be suited for team sports (soccer, basketball, volleyball, kickball, etc) as well as individual sports such as weight lifting, track and field, swimming (already available at the activities center) and other activities.

The specific accommodations could include (but not limited to): standard sized courts, sound proofing, padding on the walls, and special floors to reduce injuries with falls.

I have a child with special needs who plays TOPS soccer, a program to accommodate youth and adults with special needs. TOPS is part of the Seattle Youth Soccer Association under the umbrella of the Washington Youth Soccer Association. Currently he plays at the Fircrest Activity Center gym but at age 15 and being 5' 10", the gym is really too small for him and the older teens on his team.

The construction of an indoor sports facility for team sports at Fircrest would fill a greatly needed service. I would like to ask that you consider this an opportunity to make Fircrest an exemplary regional center to serve the recreational and social needs of special needs and developmentally disabled populations. The heritage of Fircrest is one of service for the developmentally disabled and this would be in congruence with this history. Coordinating this effort with Special Olympics and other similar organizations would further enhance the center's offerings. Shoreline has an opportunity to join forces with the State of Washington to make this so.

Thank you for your attention to our concerns,

Sincerely,
Jane Thompson
Lake Forest Park

11/27/2007

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 27, 2007 8:42 AM
To: Valbert, Ed (DSHS); Julia Walton
Cc: Michael Hintze; Sarah Lucas; 207422.30@ahbl.com
Subject: FW: Forwarding a Comment
Attachments: MP Phase I comment.pdf

Here's another Fircrest comment from TOPS.

I'll be forwarding a number of comments this morning that were received before Thanksgiving.

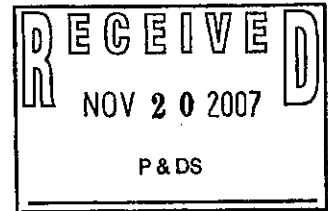
Betsy Geller
AHBL, Inc.

From: Rachael Markle [mailto:rmarkle@ci.shoreline.wa.us]
Sent: Wednesday, November 21, 2007 8:26 AM
To: Betsy Geller
Subject: Forwarding a Comment

Hi Betsy, attached is a comment that was mailed to me. I'm not sure if you got one too. How's the final Phase I report coming? Hope all is well and that you and your team get to have a great long weekend! Rachael

<<MP Phase I comment.pdf>>

Rachael Markle
City of Shoreline
17544 Midvale Avenue North
Shoreline, WA 98133-4921



Dear Ms. Markle,

We are writing regarding the new Fircrest Master Plan.

We would like to ask that you include a large indoor recreation facility for team sports with special accommodations for the special needs and developmentally disabled population. The facility would ideally be suited for team sports (soccer, basketball, volleyball, kickball, etc) as well as individual sports such as weight lifting, track and field, swimming (already available at the activities center) and other activities.

The specific accommodations could include (but not limited to): standard sized courts, sound proofing, padding on the walls, and special floors to reduce injuries with falls.

We are a group of families who have children with special needs. Most of us live in Shoreline while a few live in nearby cities. Our children play TOPS soccer, a program to accommodate youth and adults with special needs. TOPS is part of the Seattle Youth Soccer Association under the umbrella of the Washington Youth Soccer Association. We have been renting the Fircrest Activity Center gym for weekly practices since our inception in 2001.

Our children have very different special needs and strengths. Some of our children are challenged physically while others are challenged mentally and emotionally. Whatever the case, our children come together every Sunday night to play soccer – to be part of a team of like talented kids, to get exercise, to be challenged, to laugh and to be accepted. These are children who cannot play on “regular teams”, be they of soccer, basketball, baseball, or volleyball. They cannot physically run the field, kick the ball, focus on the task at hand, or tolerate the visual and auditory commotion created by the team of players. Whatever their challenge, they need a team of like challenged kids with which to play. And they need a facility that can accommodate their physical and mental challenges.

Presently there are limited team sports facilities in our region that comfortably accommodate youth and adults with the full spectrum of special needs and developmental disabilities. Currently the Activity Center has a small gym. It is not large enough for a standard sized basketball court. It works fine for the younger team but not for our older and larger kids. The other problem is that it is extremely loud. As you know, gymnasiums typically have hard surfaces from floor to ceiling. These reflect and magnify noises. Most special needs children have some component of sensory integration problems. This means many cannot tolerate loud sounds or bright lights. They especially cannot tolerate the loud commotion heard on a gymnasium floor during a game. The gym at the Activity Center is not sound insulated. We also have children who have physical limitations and are at high risk for falling. Currently the floor is a

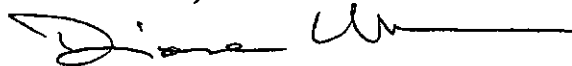
hardwood floor that is very unforgiving should one trip and fall down. Also, the walls are not padded should one miscalculate the distance to the wall and run into the wall.

Exercise and socialization is extremely important for physical and mental health. But special needs children have fewer opportunities for both physical and social activities. As a result these children hesitate to participate in physical activities and sports. Add the social isolation that they often experience and the kids and adults frequently become very sedentary. This can translate into poor health in childhood and adulthood. An indoor sports facility that has the appropriate accommodations could make the physical activity much more inviting and comfortable.

The construction of an indoor sports facility for team sports at Fircrest would fill a greatly needed service. We would like to ask that you consider this an opportunity to make Fircrest an exemplary regional center to serve the recreational and social needs of special needs and developmentally disabled populations. The heritage of Fircrest is one of service for the developmentally disabled and this would be in congruence with this history. Coordinating this effort with Special Olympics and other similar organizations would further enhance the center's offerings. Shoreline has an opportunity to join forces with the State of Washington to make this so.

Thank you for your attention to our concerns,

Diane Walker,
TOPS Board Member and parent,
7525 34th Avenue NE
Seattle, WA 98115
206-523-9926

A handwritten signature in black ink, appearing to read "Diane Walker", followed by a horizontal line extending to the right.

November 2007

We the undersigned support the preceding letter addressed to the City of Shoreline regarding the proposed Fircrest Master Plan.

<u>NAME AND SIGNATURE</u>	<u>ADDRESS</u>	<u>AFFILIATION</u>
Keri A. Buffen	20206 24 th Ave NW Shoreline WA 98177	TOPS Soccer parent
Brenne Schain	17836 Balling Wy NE LFP	" /
Kathleen Stuyant	2621 NE 185 th St LFP 98155	REPT TOPS Parent
Michael Hughes	20112 30 th Ave NE LFP	Tops Parent
Joe Cunningham	15558 26 th Ave NE Shoreline	TOPS Parent
Michael Connell	3538 NE 166 th Lake Forest Park 98155	Admin. / TOPS
Jane M. Thompson	16753 39 th Ave NE LFP 98155	TOPS Parent
Bob Sanchez	1610 NE 150 th St, Shoreline 98155	Admin/Parent
Virginia Lynch	19353 2 nd NW Shoreline WA 98177	Parent / TOPS Board member
William Lynch	19353 2 nd NW Shoreline WA 98177	Parent of TOPS
Catherine Linn	4677 41 st Ave NE Seattle WA 98105	TOPS Coach
Diane Walker	7525 34 th Ave NE Seattle 98115	TOPS Board parent
William Jones	7525 34 th Ave NE Seattle 98115	TOPS parent and SYSA member

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 27, 2007 8:57 AM
To: Valbert, Ed (DSHS); Julia Walton; Rachael Markle
Cc: Michael Hintze; Sarah Lucas; 207422.30@ahbl.com
Subject: FW: Fircrest

Betsy Geller
AHBL, Inc.

From: Anna Strahan [mailto:astrahan@uwkc.org]
Sent: Wednesday, November 21, 2007 3:39 PM
To: Betsy Geller
Subject: Fircrest

Hello,

I am a homeowner in Shoreline, in the Ridgecrest neighborhood very close to the Fircrest campus. I wanted to make sure that my comments are weighed-in when deliberating about the campus conversion.

It is extremely critical that we build more affordable housing for single adults and families. Please do not consider building market-rate condos or apartments, and if they are built, that there are a minimal number of market-rate units. All too often, 'affordable housing' is built—meaning there are 10 affordable units out of 100. Given the dire need for fair, affordable housing for families and individuals who cannot pay exorbitant rent costs, please consider at least 50% or more of the units for affordable housing.

I also think it's a good idea to have on-site supports like a gym, a clinic, or a community center.

Thank you for considering my opinion as a Shoreline Resident.

Anna

Anna Strahan
MSW Practicum Student, UW SSW
astrahan@uwkc.org

11/27/2007

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 27, 2007 8:59 AM
To: Julia Walton; Valbert, Ed (DSHS); Rachael Markle
Cc: Michael Hintze; Sarah Lucas; 207422.30@ahbl.com
Subject: FW: Fircrest Master Plan

Betsy Geller
AHBL, Inc.

From: Markham, Cheryl [mailto:Cheryl.Markham@kingcounty.gov]
Sent: Wednesday, November 21, 2007 4:28 PM
To: Betsy Geller
Cc: Block, Bill; Bruce, Gretchen; Peterson, Linda; Antoncich, Carole
Subject: Fircrest Master Plan

Dear Ms. Geller:

I write to you as the Manager of the King County Housing and Community Development Program. For many years we have worked in a consortium with the cities outside the City of Seattle, including the City of Shoreline, to plan for affordable housing, a suitable living environment and economic opportunities for very low to moderate-income residents of our communities. Lack of affordable housing was a big concern for very low to moderate-income residents of the City of Shoreline and the northend during the development of the five year strategic plan for our consortium in 2005, and is a need consistently mentioned by the human services and planning staff at the City of Shoreline.

This planning process for Fircrest presents the perfect opportunity to meet those needs and incorporate a range of affordable housing opportunities for the community. It is very important that every community use such rare opportunities to provide decent housing and a suitable living environment for residents at every income level. In addition to the fact that affordable housing is good for the people who need it, affordable housing is also good for economic development and regional sustainability, allowing working households at all income levels in the community to live near where they work rather than moving far away, and to spend money in the local community rather than on commuting.

Option 1 - I like the fact that this option emphasizes housing - this fits the best with the legislative directive emphasis on affordable housing and smart growth. I would like to note that a large site like this lends itself well to nice mix of housing types for a mix of different income levels. There are a number of models to look at that incorporate very low-income housing with median-income level housing with market rate housing in an attractive dense community setting that can include some planned open space (pocket parks) and some commercial space. This option is the best for meeting both community needs and growth management goals.

Option 2 - the opportunity for community benefit from affordable housing incorporated in the manner mentioned above, which is also meets important growth management goals outweighs option 2 - if this option were chosen it should include affordable housing.

Option 3 - this option is too short-sighted. Community space could also be incorporated in Option 1, as noted above. Our children will thank us when we have effectively used urban land to creatively address housing needs and other community needs, and have significantly reduced the number of households commuting across the region, and have supported opportunities for working people at all income levels to live and work in their community and for seniors and persons with a disability to live with dignity in their community; and they will thank us when we have ensured that everyone in King County has a place to call home.

11/27/2007

It is important that all of us as government entities pursue every opportunity to support the inclusion of affordable housing in property that is being re-developed or re-used. Creative planning that includes dense housing can provide housing for a broad range of income levels, including households with very low incomes, and leave space for the incorporation of other desired elements.

Thank you for the opportunity to comment.

Cheryl Markham

Program Manager

King County Housing & Community Development Program

WE HAVE MOVED!

Please note new address:

401 5th Avenue, Suite 510

Seattle, WA 98104

Please note new email: cheryl.markham@kingcounty.gov

Please note new phone number: 206-263-9067

(Fax) 206-296-0229

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 27, 2007 9:00 AM
To: Valbert, Ed (DSHS); Rachael Markle; Julia Walton
Cc: Michael Hintze; Sarah Lucas; 207422.30@ahbl.com
Subject: FW: Fircrest Master Plan

Betsy Geller
AHBL, Inc.

From: Shereen Allen [mailto:shereena@msn.com]
Sent: Friday, November 23, 2007 4:23 AM
To: Betsy Geller
Subject: Fircrest Master Plan

We do not like option 1 because it gives up state land.

We prefer option two, but would modify it to only include public use and not residential expect for having more state supported senior or low income housing, rather than private small lot residential. We are also for open space. We also like the idea of State Offices that are leasing space to move into a portion of the land. Leasing land or building to non-profits such as food banks or treatment programs are also a great use. Keeping the Fircrest School and improving its operation is great. We think anything there that helps treat the mentally ill is a great use.

We do not like Option 3 either although the open space part is cool.

Shereen Allen and Scott Anderson
725 NE 201st ST
Shoreline, WA 98155
Phone: 206-365-2238
Shoreline Residents and Voters

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 27, 2007 9:12 AM
To: Sarah Lucas
Subject: FW: Fircrest

Sarah, see below about adding another email address. Thanks.

Betsy Geller
AHBL, Inc.

From: Anna Strahan [mailto:astrahan@uwkc.org]
Sent: Tuesday, November 27, 2007 9:07 AM
To: Betsy Geller
Subject: RE: Fircrest

Thanks Betsy! I was emailing from my internship/ practicum address w/ United Way of King County. Could you please add my personal email address to your mailing list? That one is: annastrahan@hotmail.com

Thanks again for considering my feedback, and keeping me in the loop for future meetings!
Anna

From: Betsy Geller [mailto:BGeller@AHBL.com]
Sent: Tuesday, November 27, 2007 8:57 AM
To: Anna Strahan
Subject: RE: Fircrest

Thank you for your comments. They will be considered during the planning process and will become part of the report. We will add you to the mailing list for future public meetings on this project.

Betsy Geller
Planner
AHBL, Inc.

AHBL is a planning consultant to the Department of Social and Health Services for this master planning project.

From: Anna Strahan [mailto:astrahan@uwkc.org]
Sent: Wednesday, November 21, 2007 3:39 PM
To: Betsy Geller
Subject: Fircrest

Hello,

I am a homeowner in Shoreline, in the Ridgecrest neighborhood very close to the Fircrest campus. I wanted to make sure that my comments are weighed-in when deliberating about the campus conversion.

11/27/2007

It is extremely critical that we build more affordable housing for single adults and families. Please do not consider building market-rate condos or apartments, and if they are built, that there are a minimal number of market-rate units. All too often, 'affordable housing' is built—meaning there are 10 affordable units out of 100. Given the dire need for fair, affordable housing for families and individuals who cannot pay exorbitant rent costs, please consider at least 50% or more of the units for affordable housing.

I also think it's a good idea to have on-site supports like a gym, a clinic, or a community center.

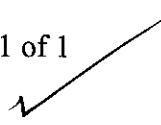
Thank you for considering my opinion as a Shoreline Resident.

Anna

Anna Strahan

MSW Practicum Student, UW SSW

astrahan@uwkc.org



Sarah Lucas

From: Betsy Geller
Sent: Wednesday, November 14, 2007 9:28 AM
To: 207422.30@ahbl.com; Michael Hintze; Sarah Lucas
Subject: FW:

And another comment....

Betsy Geller
AHBL, Inc.

From: Patty Hale [mailto:patricia_hale_1@msn.com]
Sent: Wednesday, November 14, 2007 7:45 AM
To: Betsy Geller
Subject:

Fircrest Master Plan comments

- Plan 1: LIKE:** small section of multi-family residential housing near southeast corner. Because it is smaller development & it is set back from R-6 zoning.
DISLIKE: intensity of multi-family housing along 15th. Too much! Too dense, too overwhelming for neighborhood and services.
- Plan 2: LIKE:** better land use for Fircrest housing. Original was poorly designed and is dysfunctional. Also like the idea of possible expansion for DOH. Not only is it needed, but they have been a good neighbor. An expansion of this facility would be less likely to disrupt the neighborhood visually and would not need massive increase of additional housing units to support it.
DISLIKE: Concerned about potential problems that supporting services could have on the neighborhood and the existing - fragile population. The possibilities are endless as to how many dysfunctional and potentially dangerous combinations of people would be coming to Shoreline, my neighborhood and the Fircrest Campus to receive social services.
- Plan 3: LIKE:** as an over-all plan, I like this best. The Open Space is good! I feel it is important that we take advantage of saving Open Space, as once it is gone - developed, it will be impossible to re-claim it. Mixed use on the corner of 150th & 15th is acceptable.
DISLIKE: No ability for expansion of DOH

Patty Hale

Sarah Lucas

From: Betsy Geller
Sent: Wednesday, November 14, 2007 9:26 AM
To: 207422.30@ahbl.com; Michael Hintze; Sarah Lucas
Subject: FW: Fircrest Master Plan

Fircrest comment... Sarah, please be sure these folks are being added to the mailing list.

Betsy Geller
AHBL, Inc.

From: Saskia Davis [mailto:saskialucia@earthlink.net]
Sent: Tuesday, November 13, 2007 12:16 PM
To: Betsy Geller
Cc: Ed (DSHS) Valbert; saskia davis; Jim Hardman
Subject: Fircrest Master Plan

Dear Excess Property Master Planning Team:

Thank you for holding the public forums for review of your work and input to the final drafts to be presented to the legislature.

In the interest of getting my comments to you before Thanksgiving, as you requested, I am sending them now.

I hope that you will take the time to consider the rationale for each, and that they can be incorporated into the hybrid plan that is proposed to the legislature.

With modifications, I favor OPTION number 3.

Suggested Modifications:

1. Move the housing from the Northwest section to the South Campus and, in the interest of the safety of the vulnerable population at Fircrest School, designate it only for Low Income Seniors and people with DD from the larger community who may need services offered by Fircrest. The idea of short term housing for families of people needing short term care at Fircrest is appealing, but I would question who would administer the program, from what budget and at what cost???

2. Be sure to retain for Fircrest School the Healing Garden. Before going ahead with it's development, we got permission to use that land and a promise that it would not be infringed upon by new construction , including construction related to excess property designation.

3. Use the land directly West of the Healing Garden for Outpatient services: Health clinic, PT, OT, ST, Adaptive Technologies, Dental. This building could also incorporate classrooms, labs for training health professionals. The road to the Health Services building for Fircrest School could be extended from the north end of the new outpatient facility with little disruption to the landscape, facilitating the sharing of professional staff by both facilities. By technically separating their employers (Fircrest School, which receives a federal match for residents, and Outpatient which would be funded with medicaid coupons) double dipping with F.S. funds would not be an issue, while outpatients could benefit from FS school professional expertise.

Additional comments:

Keep the Y Buildings:

11/14/2007

- a. While some efficiencies possibly could be realized by moving nursing home residents to a 100 bed congregate care facility, the costs to residents, in terms of health and quality of life would be too high.
- (1) their current homes are cottage-like, spacious, well adapted to their needs, in good repair (on a computerized maintenance schedule), and in the process of sprinkler installation to meet the fire code.
 - (2) many nursing home residents are medically fragile and respond poorly to fumes from construction and maintenance. While maintenance is necessary, new construction is not. My sister, for example, lost her ability to coordinate for walking in response to fumes from paint that was designated "safe." Others respond with respiratory impairment. New construction usually involves fiberboard, which in large part is glue; and it always involves calking, grouting, sealing, priming, gluing, and painting, all products which off-gas fumes known to affect neurological and respiratory systems. The toxins, even when designated "safe" are not always safe for the diminished neurological respiratory and immune systems of our nursing home residents. Some parts of new construction do not finish off-gassing for more than a year.
 - (3) *"The Department of Social and Health Services does not discriminate on the basis of disability in any of its programs or services."* (from the website). For many years arguments for community living supported DSHS (Lands and Buildings excluded) have been in support of smaller, homes. Suddenly, for Fircrest nursing home residents only, the exact opposite is being proposed. They would be moved from spacious, 7 person homes that are the equivalent of cottages with covered patios open to nature to a 100 person nursing facility. Are they somehow less entitled because they have medical needs?
 - (4) There is no problem with fire egress. (Fire egress problem was cited as a reason for moving the SNF. This is not true. In fact, during drills, the evacuation process is so efficient that the amount of time allotted for evacuation always exceeds the time needed for evacuation. This, at least, is true of the building with which I checked. Any deviations in other buildings would not be due to architecture, since the Y buildings all have the same architecture featuring wide halls and doorways PLUS ample numbers of exits.
- b. The proposal to move the nursing home further shrinks Fircrest School acreage. This proposal, which is not included in the proviso, should not be offered in any of the options.
- c. Income generated from property leases should be used to offset costs of services provided at this location for people with DD.
- d. The Firlands Workshop should be replaced with a workshop which employs the largest possible population of people with dd. and/or the Fircrest School ATP/work program should be expanded with appropriate space designation on the property to meet the dd population's need for work. As with the outpatient clinic, this, also, would require that costs for participation by community residents be met by a budget separate from that for Fircrest School residents.
- e. **The safety of Fircrest School residents and others with developmental disabilities should be the governing and overriding concern** of every decision regarding the property development. Every appropriate measure, including fencing, traffic control, level parking for handicap access, protection from drowning in the creek if it is day-lighted, and other physical measures as well as choices of property uses that have a low to zero chance of impacting Fircrest School residents in a harmful way must be employed.
- f. A track, as well as other sports facilities, have been suggested. If these are to be included, they should be in the section south of Fircrest School property, as they will attract young people. Since we cannot be assured they will always be supervised, their close proximity to Fircrest School could pose a safety risk.

g. The hybrid plan should be made available for public comment before it is submitted to the legislature.

I will be eager to see the hybrid plan that is promised.

Thank you so much for your consideration of these comments, and for keeping the process an open one.

Sincerely,
Saskia Davis,
Friends of Fircrest Board Member,
Guardian, family member of Fircrest School Resident

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 13, 2007 9:06 AM
To: Michael Hintze; 207422.30@ahbl.com; Sarah Lucas
Subject: FW: accessible- integrated playground

Here's another Fircrest comment. Michael – I think you can classify it as a playground for DD community and children with other disabilities

Betsy Geller
AHBL, Inc.

From: Valbert, Ed (DSHS) [mailto:VALBEEL@dshs.wa.gov]
Sent: Tuesday, November 13, 2007 7:31 AM
To: Betsy Geller; Julia Walton
Subject: FW: accessible- integrated playground

Fircrest comment / information

Edwin

From: Maureen Durkan [mailto:maureendurkan@comcast.net]
Sent: Monday, November 12, 2007 8:49 PM
To: Valbert, Ed (DSHS)
Subject: accessible- integrated playground

Hi Ed,

I hope it is okay to email this to you, I am pretty excited about this. We wouldn't have to use this exact program but it gives a good idea of what can be done (this would be on the Fircrest excess property) I recommend taking the virtual tour, it is pretty cool! Thanks for everything that you are doing!

Maureen

<http://www.boundlessplaygrounds.org/index.php>

Sarah Lucas

From: Betsy Geller
Sent: Monday, November 12, 2007 9:19 AM
To: 207422.30@ahbl.com; Michael Hintze; Sarah Lucas
Subject: FW: Fircrest Master Plan

Another Fircrest comment

Betsy Geller
AHBL, Inc.

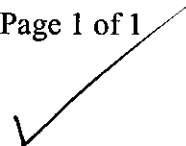
From: David and Sally Halbett [mailto:dshalbett@comcast.net]
Sent: Sunday, November 11, 2007 2:07 PM
To: Betsy Geller
Subject: Fircrest Master Plan

Thanks for the opportunity to comment on planning for Fircrest. Years ago the military no longer needed the Fort Lawton base in Magnolia. Instead of development, Discovery Park has become a jewel in the Seattle's park system. Shoreline and the state now have an opportunity, with careful planning, to add a jewel to the region. As a parent of a Down Syndrome adolescent, I also see the value of a facility supporting the development of recreational and social skills in youth with developmental, physical, and mental disabilities. While these young people can participate in many of the sports and activities of their typically developing peers, and do so with passion and enthusiasm, they often require modifications and support in order to participate safely. I would encourage the development of carefully planned recreational facilities geared to the needs of individuals with these unique needs.

Thanks,

David Halbett
(206) 783-5465

11/12/2007

**Sarah Lucas**

From: Betsy Geller
Sent: Thursday, November 08, 2007 1:25 PM
To: Michael Hintze; Sarah Lucas
Cc: 207422.30@ahbl.com
Subject: FW: Fircrest Campus Uses
Attachments: Fircrest Campus.doc

More comments. I will file in I-drive, but please file in binder (Sarah) and summarize (Michael).

Betsy Geller
AHBL, Inc.

From: Jan Stewart [mailto:stewartjr_5@hotmail.com]
Sent: Thursday, November 08, 2007 1:12 PM
To: Betsy Geller
Subject: Fircrest Campus Uses

Hello,
Attached are my comments about the Fircrest Master Plan and uses for the 'excess property'. I live in the Ridgecrest neighborhood, and along with my neighbors, am very interested in what happens at this location.

Thanks you.
Jan Stewart

Windows Live Hotmail and Microsoft Office Outlook – together at last. [Get it now!](#)

Fircrest Campus – Excess Property Master Plan

To: Betsy Geller at bgeller@ahbl.com

Comments from:

Jan Stewart, email: stewartjr_5@hotmail.com

Ridgecrest Neighbor and Paramount Park Neighborhood Group

Below are some of the things I would like to see for the Fircrest Campus:

Campus Features:

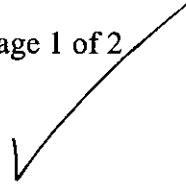
- Restore/revive (daylight) Hamlin Creek and wildlife habitat (including salmon habitat)
- Use low impact development and natural drainage systems to increase infiltration
- Have Green Building for new construction and remodeling
- Use native plants
- Enhance pathways and connections to South Woods and Hamlin Park

Uses that are Compatible with Current Uses:

- Have plenty of Open Space
- Have affordable (senior?) housing
- Have a summer camp program for children with special needs (not currently available in Shoreline)
- Have a Cultural/Community Center for the greater community
- Bring back a plant nursery (there was once one there)
- Create a Community Clinic and incorporate and increase uses for rehab patients from the greater Seattle and Shoreline community (not only for people with special needs)

Other comments/questions:

1. It is my understanding that there is no plan to close or move Fircrest School, which I am glad to know. But I would like to also know that resident populations are not decreasing due to attrition. I believe there is a need for this type of facility and that we should not only preserve, but enhance and increase the level of care and potentially the population of Fircrest as services are needed.
2. I am not familiar with the DOH uses on the campus, but would like to know more about what this use is currently. Hopefully that information will be made available.

**Sarah Lucas**

From: Betsy Geller
Sent: Thursday, November 08, 2007 9:18 AM
To: Michael Hintze; Sarah Lucas
Cc: 207422.30@ahbl.com
Subject: FW: Fircrest Master Plan

Here's a comment on Fircrest to file in binder and add to the final summary (add it web comments for OH 2). I have saved in I drive.

Betsy Geller

AHBL, Inc.

From: Boni Biery [mailto:1bkbiery@verizon.net]
Sent: Thursday, November 08, 2007 2:34 AM
To: Betsy Geller
Subject: Fircrest Master Plan

To Whom It May Concern,

I am unable to attend the meeting on Thursday, Nov 8th, but would like to have my documented.

Fircrest is the last large parcel of land in the area and must be developed in a manner that benefits our local community.

The Fircrest School must be left where it is. Moving school residents can create life-threatening stress for them and must be avoided.

The natural landscape must be respected and made available for public use as both open space and a trail system.

The idea of covering over running water was never a good idea and is now recognized as such. Hamlin Creek, a major tributary of Thornton Creek, which is on the property should be daylighted to provide much needed above ground water for salmon and other wildlife.

Any housing built on this site should be affordable and available only as rentals. There should be no private ownership of any housing units, and no commercial development. This could even become the site for an environmental training center where all types of classes related to forestry, fishing, global warming, etc could be provided to people from all over the region.

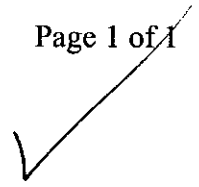
Any new and/or remodel construction should integrate "green" technology advances and make every effort to reduce/eliminate impervious surfaces.

11/8/2007

Pedestrian safety is important and should be given due consideration. As is the clear separation of different property uses. For example, it would be most unwise to allow the general public accidental access to Fircrest residents and vice versa.

Thanks you for the opportunity to present my thoughts.

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Sarah Lucas

From: Betsy Geller
Sent: Friday, November 09, 2007 12:22 PM
To: 207422.30@ahbl.com; Michael Hintze; Sarah Lucas
Subject: FW: Fircrest Excess Property Master Plan

Another comment

Betsy Geller
AHBL, Inc.

From: Michael Connell [mailto:mjconnell@iglide.net]
Sent: Friday, November 09, 2007 12:30 AM
To: valbeel@dshs.wa.gov
Cc: Betsy Geller
Subject: Fircrest Excess Property Master Plan

Edwin and Betsy - Bob Sanchez, Ginny Lynch and myself enjoyed your presentation Thursday night. You both have done a wonderful job.

Our "concern" is a soccer team that presently practices where we talked. The program is called the SYSA Shoreline Wildcats. We are a non-profit group that has grown to the point "the gym" is too small. Noises vibrate terrifically loud for some of our athletes too.

We are very fortunate to be in Washington where we are associated with SYSA (Seattle Youth Soccer Association) www.sysa.org and WSYSA (WA soccer) www.wsysa.com -- We are TOPS- The Outreach Program for Soccer- a program for mentally and physically challenged people.

Our suggestion is for an indoor soccer field . Recreation for residents and other exercise programs could be available when we don't use the field or its not scheduled. We also are looking to combine with Special Olympics, Ski for all- other non profit organizations. Offices would benefit us also.

The reason this is so timely, we just visited Snohomish and Tukwila. Many in these communities use these facilities and pay a rent or lease. Beneficial to those near and around the state.

As it is now people are coming from Capitol Hill, Ballard, Shoreline, Lake Forest Park, Kenmore, Richmond Beach, and Bothell.

Please keep us informed as we can apply in the future for non-profit grants that will supply a field or update an existing structure. Thank you for what you both are doing and we would be glad to help you.

Michael Connell
mj2005bob@yahoo.com
206.351.4146

11/9/2007



Sarah Lucas

From: Betsy Geller
Sent: Friday, November 09, 2007 12:19 PM
To: Sarah Lucas; Michael Hintze; 207422.30@ahbl.com
Subject: FW: Fircrest Non-Profit Center
Importance: High
Attachments: FircrestNonprofitCenter-Final.doc

Comment received view the web in the context of open house #2.... Sarah file, Michael summarize.

Betsy Geller
AHBL, Inc.

From: Camilla Bishop [mailto:CamillaB@fll.org]
Sent: Thursday, November 08, 2007 4:59 PM
To: Betsy Geller
Cc: LindaN; Kelsey Beck
Subject: Fircrest Non-Profit Center
Importance: High

Betsy: Here is a proposal that we would like considered as an option for the Fircrest Master Plan. Please contact Kelsey Beck or myself if you have any questions.

Camilla Bishop
Director of Development
Food Lifeline
206-545-6600
camillab@fll.org

Fircrest Campus One-Stop Human Services Center Submitted for Consideration in the Excess Property Master Plan

Vision:

Washington State and the City of Shoreline have a long history of assisting the most vulnerable families, children and seniors in our community through support for local nonprofit organizations. However, 1 in 7 residents of North King County still struggle to pay for the basic necessities, and almost 557,000 people in Western Washington must utilize food banks each year to help feed their families. With the Fircrest Master Plan, the State has a new and exciting opportunity to increase its support for these families in need through the creation of a One-Stop Human Service Center in Shoreline, Washington.

Located on the Fircrest Campus, this Human Service Center could provide a central location for food, family counseling and support, youth programs, emergency financial assistance, and other critical services necessary for a thriving, healthy community, as well as offering affordable housing. Residents in need, often working numerous odd-hour jobs and traveling by public transportation, would be able to access a variety of services in one convenient location.

Benefits to the State, to the City of Shoreline, and the wider community would be numerous and include:

- Efficiently using limited space by including multiple storied building with the potential for an underground parking facility
- Ensuring compatible neighbors for the residents of Fircrest School, which serves those with developmental delays
- Investing in a successful integrated service provision model, as seen in similar service and housing centers in West Seattle and Redmond
- Providing critical and necessary services at a low cost to the State, by leveraging additional funding sources and in-kind donations of the individual nonprofit agencies at one site.

Reality:

Currently, a number of nonprofits located in the Shoreline area are outgrowing their facilities, which are often located in hard-to-reach areas for clients needing their services. Because they are physically dispersed throughout the community, they are also often unable to leverage potential partnerships and referrals. Examples of local agencies that could join the center include:

Hopelink

The largest nonprofit based in North and East King County, Hopelink provides food, housing, child care, adult education, transportation, financial assistance and a variety of other services that help clients work towards self-sufficiency and end the cycle of poverty. Hopelink's Shoreline location, including its extensive food bank, was recently relocated to the shopping center at Westminster Way North. However, this location is not easily accessed by bus or convenient to other local human service providers, and it is not certain that that site will be available to Hopelink in future years.

Food Lifeline

Washington's largest hunger-relief organization distributes nearly 22 million pounds of food to over 300 food banks and meal programs across Western Washington. Food Lifeline's administrative offices and Volunteer Repack Center have been located on the Fircrest Campus for over 20 years. Food Lifeline is an active partner in the Shoreline community, engaging volunteers, servicing food donors, and distributing food to local agencies. While Food Lifeline currently operates a second warehouse in south Seattle, running dual locations has created inefficiencies. Expanding on the Fircrest Campus to utilize one floor of the human service center would allow Food Lifeline to best leverage its funds and distribute the most food to those in need.

Center for Human Services

The Center for Human Services (CHS) is a community-based nonprofit youth and family services agency that has been a resource to children, adults and families in North King County since 1970. CHS serves over 10,000 community members each year through family counseling, family support, and substance abuse prevention, intervention, and treatment. Located on 15th Ave. NE in Shoreline, CHS has outgrown its current facility. Locating some of its services at a human service center at Fircrest would provide CHS with needed expansion opportunities, solve significant space issues encountered by its existing programs at its current site, and provide another safe and convenient location for the families they serve.

Request:

While planning for the future of the Fircrest Campus, we ask the State to make an investment in a healthy community through creation of a One-Stop Human Service Center. Providing easily accessible critical services to those in need, this innovative and successful model would be a strong asset to the State, the City of Shoreline, and the broader community..

For More Information, contact:

Food Lifeline, Linda Nageotte, President & CEO, 206-545-6600, x 234

Endorsed By:

Hopelink, Marilyn Mason-Plunkett, CEO
Center for Human Services, Beratta Gomillion, Executive Director
North Urban Human Services Alliance (NUHSA)

Sources:

Human Service Needs in North King County: A Report to Decision Makers, 2007, North Urban Human Services Alliance

Sarah Lucas

From: Betsy Geller
Sent: Monday, November 19, 2007 9:55 AM
To: Michael Hintze; Sarah Lucas; 207422.30@ahbl.com
Subject: FW: Fircrest land action

Fircrest comment. I have a couple more coming.

Betsy Geller

AHBL, Inc.

-----Original Message-----

From: charla.reid@comcast.net [mailto:charla.reid@comcast.net]
Sent: Saturday, November 17, 2007 1:04 PM
To: Betsy Geller
Subject: Fircrest land action

As a State of Washington, King County, Shoreline resident, and tax-payer, my preference with regard to "excess" Fircrest property is to keep it as state-owned property and under state operation and for public use. Let us plan for improvement and expansion.

DO NOT SALE any of this valuable piece of land off to private interests. If this happens the developmentally disabled will be next to be displaced.

Helen Zatarain

Sarah Lucas

From: Betsy Geller
Sent: Monday, November 19, 2007 9:57 AM
To: 207422.30@ahbl.com; Michael Hintze; Sarah Lucas
Subject: FW: Fircrest Master Plan

Betsy Geller

AHBL, Inc.

-----Original Message-----

From: FRANK I BACKUS [mailto:frankbackus@comcast.net]
Sent: Sunday, November 18, 2007 11:49 AM
To: Betsy Geller
Subject: Fircrest Master Plan

Hello,

I was at the Nov 7th meeting. I have been thinking about what to say. My first choice would be for option 3. I like the open space because it is what would be best for the watershed, and it would allow for more outdoor activities for people living in the watershed. It would also allow for more creativity in the design of the stream daylighting. It allows for low income housing of a lot of people.

While I am at it, I wondered if the stream could be daylighted any further north, as well as where you have it planned for daylighting in the open space. I live on 20th Avenue NE where Hamlin Creek connects to Thornton Creek. Anything that you do to further open the stream up put in curves, ponds, etc., helps the stream to be more stable downstream. Thanks for your consideration of this.

Frank I. Backus, MD
12737 - 20th Avenue NE
Seattle, WA 98125-4118
(206) 365-3348
frankbackus@comcast.net

Sarah Lucas

From: Betsy Geller
Sent: Monday, November 19, 2007 3:44 PM
To: Michael Hintze; Sarah Lucas; 207422.30@ahbl.com
Subject: FW: Fircrest masterplan

Another Fircrest comment...

Betsy Geller
AHBL, Inc.

From: Valbert, Ed (DSHS) [mailto:VALBEEL@dshs.wa.gov]
Sent: Monday, November 19, 2007 3:27 PM
To: Betsy Geller; Julia Walton
Subject: FW: Fircrest masterplan

Please save this e-mail in our comments received file.

Thanks
Edwin

From: aguak9@aol.com [mailto:aguak9@aol.com]
Sent: Monday, November 19, 2007 3:25 PM
To: Valbert, Ed (DSHS)
Subject: Fircrest masterplan

Dear Ed,

Friends of Fircrest reaffirms it's contribution as set forth in the letter given you at the first meeting in Olympia. That letter was the culmination of many months of thought and input from FoF members and others.

This is to briefly follow up on a few points in response to the presentations and numbered options.

The process should fairly include an opportunity to comment on the hybrid option before such an option is made part of the report to the legislature. At a point where changes to it are possible and will be given genuine consideration.

The reopening of the excess land determination as reflected in a single large nursing facility should be abandoned. Not only is it beyond the legislative mandate but is contrary to the commitment to treat people in home like environments. The large facility option is an entire process unto itself. It further reduces the Fircrest RHC campus footprint. This appears to be contrary to State policy which fosters the RHCs. RHCs have continually been criticized as institutions unlike living arrangements "normal" people enjoy. The Y buildings more fairly approximate home like settings. Claimed efficiencies should be carefully examined. While not necessarily conceived by foes of RHCs this proposal is suspicious. Keep in mind that both Kathy Leitch and Linda Rolfe oppose RHCs. A single large facility would fit their criticisms of RHCs. It would also fit their plans to downsize Fircrest out of existence. While they may or may not have had a personal role in the large facility suggestion their radicalized ideology was well represented in this idea. FoF would strenuously oppose this plan.

Any development north of the southern portion of Circle Drive should be for the benefit of people with DD. This continues the mandate of the trust land. A public clinic for treating people with DD would fit this plan. So would various housing and recreation facilities designed for people with DD. Higher education facilities for training professionals in DD relevant skills would be a plus as well.

11/19/2007

J.R. Hardman J.D., CPG
Pres. Friends of Fircrest

Email and AIM finally together. You've gotta check out free [AOL Mail!](#)

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 20, 2007 5:21 PM
To: Sarah Lucas; Michael Hintze
Subject: FW: Fircrest

Another comment. Michael, I'll print it out for you.

Betsy Geller
AHBL, Inc.

From: Block, Bill [mailto:Bill.Block@kingcounty.gov]
Sent: Tuesday, November 20, 2007 4:55 PM
To: Betsy Geller
Cc: Bruce, Gretchen; Markham, Cheryl
Subject: Fircrest

Dear Ms. Geller:

I write to stress the importance of using excess property at Fircrest in Shoreline for the development of affordable housing. Specifically, and in terms of the redevelopment options unveiled at the mid-November open house at Fircrest, Option 1 promotes highest and best use of the property by making it available for affordable housing. It should be noted that this use is most closely aligned with the legislative directive, which makes special mention of affordable housing. It should also be noted that the availability of affordable housing offers significant community benefit, which was also the goal of Option 3.

At the open house, the facilitator commented that Option 3 could be considered the option that future generations would thank us for in that it provides the greatest community benefit due to the inclusion of open space and community services. I think that fails to recognize the crisis that our community faces as low income people are forced out of the region or worse, out of their homes. We face a growing housing crisis in our region, as evidenced by research and data from the Housing Development Consortium and King County Benchmark Report:

- 50 percent of all renters in King County cannot afford the average rent for a two-bedroom apartment.
- There are only 30,730 units affordable to the 99,500 renter households in King County earning 40% of median household income or less.
- Households must earn more than \$18 to afford the average two-bedroom rental unit in King County
- This spring when the King County Housing Authority opened its waiting list for two weeks, almost 10,000 low income households outside the City of Seattle applied for Federal rental assistance.

More than basic affordability, King County faces an extraordinarily tight housing market, with escalating real estate and development costs. The vacancy rate for area apartments is 3.1%, one of the lowest in 20 years, narrowing options for renters and people trying to exit homeless. For the 12 months that ended in June, 2006, the Seattle area alone added more than 65,000 jobs, but only 10,000 new housing units were built in all of King County. In just the last year, over 4,000 rental units have been lost through condominium conversion. Another 3,000 are anticipated to be lost this year. These factors will continue to influence our housing market for years to come.

Affordable housing is key to the health of our region. If our teachers and police cannot afford housing, we will be unable to recruit or retain them. If they are forced to compete for the scarce affordable stock, those even poorer are forced into homelessness.

11/21/2007

As a government entity, the State of Washington and City of Shoreline have an opportunity to support the availability of affordable Housing. The redevelopment of property at Fircrest allows us an historic opportunity to build a vibrant community with a focus on affordable housing. I further encourage AHBL and DSHS to encourage the development of multi-family housing as opposed to single family dwelling units. If we increase the density among units built on the property, we can still retain acreage for other on-site activities such as open space and community services -- combining the best of Options 1 and 3.

Bill Block

Project Director
Committee to End Homelessness,
a regional coalition hosted by King County
401 Fifth Avenue Suite 500
Seattle, WA 98104
(206) 263-9001
www.cehkc.org

Sarah Lucas

From: Betsy Geller
Sent: Tuesday, November 20, 2007 5:53 PM
To: Valbert, Ed (DSHS); Rachael Markle; Julia Walton; 207422.30@ahbl.com; Michael Hintze; Sarah Lucas
Subject: FW: Fircrest Master Plan

Betsy Geller
AHBL, Inc.

From: Ballard, Brian [mailto:brian.ballard@verizonbusiness.com]
Sent: Tuesday, November 20, 2007 5:48 PM
To: Betsy Geller
Subject: Fircrest Master Plan

I am writing in regards to the new Fircrest Master Plan.

I would like to ask that you include a large indoor recreation facility for team sports with special accommodations for the special needs and developmentally disabled population. The facility would ideally be suited for team sports (soccer, basketball, volleyball, kickball, etc) as well as individual sports such as weight lifting, track and field, swimming (already available at the activities center) and other activities.

The specific accommodations could include (but not limited to): standard sized courts, sound proofing, padding on the walls, and special floors to reduce injuries with falls.

I am a father of 3 typical kids, 2 of which play premier soccer. I am amazed at the improvements that have been made in the facilities like Shoreline 1 and 2. Unfortunately this is not the case for facilities in which those with special needs play sports. I am also the soccer coach for children that play TOPS soccer, a program to accommodate youth and adults with special needs. TOPS is part of the Seattle Youth Soccer Association under the umbrella of the Washington Youth Soccer Association. Our team has been renting the Fircrest Activity Center gym for weekly practices since our inception in 2001.

The children have very different special needs and strengths. Some of our children are challenged physically while others are challenged mentally and emotionally. Whatever the case, our children come together every Sunday night to play soccer – to be part of a team of like talented kids, to get exercise, to be challenged, to laugh and to be accepted. These are children who cannot play on “regular teams”, be they of soccer, basketball, baseball, or volleyball. They cannot physically run the field, kick the ball, focus on the task at hand, or tolerate the visual and auditory commotion created by the team of players. Whatever their challenge, they need a team of like challenged kids with which to play. And they need a facility that can accommodate their physical and mental challenges.

11/21/2007

Presently there are limited team sports facilities in our region that comfortably accommodate youth and adults with the full spectrum of special needs and developmental disabilities. Currently the Activity Center has a small gym. It is not large enough for a standard sized basketball court. It works fine for the younger team but not for our older and larger kids. The other problem is that it is extremely loud. As you know, gymnasiums typically have hard surfaces from floor to ceiling. These reflect and magnify noises. Most special needs children have some component of sensory integration problems. This means many cannot tolerate loud sounds or bright lights. They especially cannot tolerate the loud commotion heard on a gymnasium floor during a game. The gym at the Activity Center is not sound insulated. We also have children who have physical limitations and are at high risk for falling. Currently the floor is a hardwood floor that is very unforgiving should one trip and fall down. Also, the walls are not padded should one miscalculate the distance to the wall and run into the wall.

Exercise and socialization is extremely important for physical and mental health. But special needs children have fewer opportunities for both physical and social activities. As a result these children hesitate to participate in physical activities and sports. Add the social isolation that they often experience and the kids and adults frequently become very sedentary. This can translate into poor health in childhood and adulthood. An indoor sports facility that has the appropriate accommodations could make the physical activity much more inviting and comfortable.

One additional benefit of a facility for those with special needs is the opportunity for typical kids to work with and interact with the kids with special needs. TOPS soccer has a Buddy program in which typical kids provide assistance, encouragement and a bit of coaching each week with the kids with special needs. What a great service to have the youth of Shoreline learning at an early age to give back to the community and joys of putting those with challenges ahead of themselves.

The construction of an indoor sports facility for team sports at Fircrest would fill a greatly needed service. I would like to ask that you consider this an opportunity to make Fircrest an exemplary regional center to serve the recreational and social needs of special needs and developmentally disabled populations. The heritage of Fircrest is one of service for the developmentally disabled and this would be in congruence with this history. Coordinating this effort with Special Olympics and other similar organizations would further enhance the center's offerings. Shoreline has an opportunity to join forces with the State of Washington to make this so.

Brian Ballard

Brian D. Ballard
206.777.2323(o)
206.972.2737(m)
brian.ballard@verizonbusiness.com

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11/21/2007

Sarah Lucas

From: Betsy Geller
Sent: Friday, November 30, 2007 11:31 AM
To: Julia Walton; Rachael Markle; Valbert, Ed (DSHS)
Cc: Michael Hintze; Sarah Lucas; 207422.30@ahbl.com
Subject: FW: fircrest prosposal

Another Fircrest comment.

Betsy Geller
AHBL, Inc.

From: The Michaelsons [mailto:rob_laura@comcast.net]
Sent: Friday, November 30, 2007 11:26 AM
To: Betsy Geller
Subject: fircrest prosposal

We are in great need of keeping the Briarcrest neighborhood from quickly becoming the Shoreline Ghetto. If the Option 1 or 2 were to take place you will guarentee the downfall of Briarcrest..

I would also like to know how you define small lot residential and multifamily residential... Are these to be low income housing, or lots sold to builders?

Laura
Briercrest resident, on 22nd AVE NE

rob_laura@comcast.net
www.southernlivingathome.com/lauramichaelson

"Life is not a journey to the grave with the intention of arriving safely in a well preserved body, but rather to skid in broadside, thoroughly used up, totally worn out, & loudly proclaiming --WOW-- What a Ride!" *author Unknown*

Agency Comments



STATE OF WASHINGTON
DEPARTMENT OF HEALTH
PO Box 47890 Olympia, Washington 98504-7890
Tel: (360) 236-4501 FAX: (360) 586-7424 TDD Relay Service: 1-800-833-6388

November 16, 2007

Ed Valbert
DSHS Quality Assurance, Unit C
2121 South State St, 2nd floor
Tacoma WA 98405

Dear Mr. Valbert:

Thank you for the opportunity to provide information about Department of Health land needs at the Fircrest Campus, to be included in master planning efforts and your upcoming report to the Legislature. The Public Health Laboratories (PHL), located on the Fircrest Campus, play a major role in the Department of Health's mission to protect the people of Washington, providing testing for a wide range of diseases and environmental hazards, as well as a growing role in bioterrorism response.

The Department does long-term capital planning for the Public Health Laboratories so that both capital and land needs can be anticipated and met. To identify future needs, the Department regularly engages in strategic facility needs assessment through structured discussions with lab managers and staff, other public health labs, partner state and local agencies, and nationally-recognized independent laboratory consultants. The resulting capital strategic plan is used to create and update the 10 Year Capital Plan the Department submits biennially to OFM and the legislature to plan capital expenditures. The requirements in the 10 Year Capital Plan are based on continuing population increase, emerging and re-emerging diseases and increased testing to support the increase service level required by the growing scope of public health. All current and expanded PHL facilities will be sited on the approximately seven acre parcel of land the Department owns at the south end of the Fircrest Campus.

The Department's long-term land needs for this 10 Year Capital Plan focuses on four goals: laboratory site security, a staging area outside the lab building, enhanced specimen receiving and interior staging area, and space for the laboratory program staff. The requirements are divided into two categories:

Protect and Preserve Existing Facilities and Functions: The Public Health Laboratories – like other state and local public health labs – are mandated by Federal law to play a key role in the national Laboratory Regional Network (LRN) by providing diagnostic and analytical laboratory services during biological, chemical or radiological terrorism events. To ensure that participating laboratories are available during terrorism emergencies, they must themselves be protected from terrorist attacks. Current Federal guidelines and regulations prescribe specific measures to protect these facilities, including minimum buffer, or standoff, distance between the facilities and areas of public access. The required standoff distance for the current PHL facilities is 45 meters (148 ft.).

As a participant in the LRN system, the Department is also required to have an approximately one acre site available to allow first responders to demobilize and deliver specimens to the PHL facilities. This site needs to be near the planned receiving facilities to be constructed as part of the Public Health Laboratories Expansion Project near the PHL's north parking lot.

Expand Existing Facilities: The Department's 10 Year Capital Plan includes a request for an approximately 30,000 SF expansion during FY 2013 – 2015. This project, the *Public Health Laboratories: Laboratory and Support Wing Addition*, would increase capacities in both our microbiology and chemistry areas and provide much needed support and storage space for the Public Health Laboratories. Our existing parcel is not adequate to site the facility, along with the required additional parking and other code-mandated site requirements. The preferred location for this expansion is directly west of the existing PHL, since this would allow direct expansion of the existing wings and functional units without expensive relocation and remodeling costs.

Department of Health needs additional land for both these purposes – the immediate requirement for a standoff zone or security perimeter and space for the planned Laboratory and Support Wing Addition. The Department intends to pursue acquisition of two additional parcels of land contiguous to the current Department-owned seven acre parcel. The additional parcels are estimated at 14 acres. They are:

- A parcel directly west of the existing Department parcel. This parcel could accommodate the planned 30,000 SF *Public Health Laboratories: Laboratory and Support Wing Addition* as well as provide the necessary standoff distance to protect the expanded facilities. It will also provide space needed to meet street front improvements and landscaping required in the Shoreline building code. The parcel will serve as the first responder demobilization site in reasonable proximity to the receiving facility at the north end of the existing Public Health Laboratories' parking lot.
- A parcel directly east of the existing Department parcel, contiguous with the existing PHL east parking lot. This site would accommodate the additional parking required for the *Public Health Laboratories: Laboratory and Support Wing Addition* and provide space for future Department facilities beyond the current 10 Year Plan.

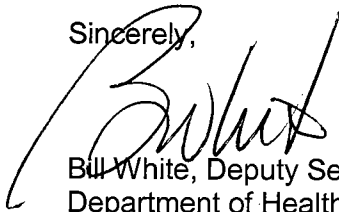
Ed Valbert
Page3
November 16, 2007

The establishment of DOH administrative offices in the northern Seattle area is being assessed and may require an additional parcel for an administrative office building.

These site requirements are illustrated on the attached schematic site plan (Department of Health Fircrest Campus Parcel Options Plan).

Please let us know if we can provide further information to support master planning work for Fircrest.

Sincerely,



Bill White, Deputy Secretary
Department of Health

Enclosures

Department of Health FY 2007-2017 C1 - Ten Year Capital Program Summary
Public Health Laboratories: Public Health Lab Addition; C2 – Capital Project Request
Public Health Laboratories: Laboratory and Support Wing Addition; C2 – Capital Project Request
Public Health Laboratories: Public Health Lab Addition; Predesign Document – Site Plan
Department of Health Fircrest Campus Parcel Options Plan

Rachael Markle

From: Dick Deal
Sent: Thursday, November 08, 2007 12:30 PM
To: Rachael Markle
Cc: Joe Tovar; Robin Lesh
Subject: Fircrest Master Plan

Thanks for the opportunity to share so parks thoughts on the future design of the Fircrest campus.

Hamlin Park, South Woods, and Fircrest are not well connected at this time and I would like to see a stronger connection between the parks and Fircrest. Beginning next month we will be starting the design of Hamlin Park improvements to the ball fields, restrooms, and picnic shelter adjacent to the Fircrest campus. If there are any improvements or connections that would benefit Fircrest residents please let us know so we can keep them in mind when we proceed with the design.

Hamlin Park has inadequate parking for busy days when athletic events or large gatherings are held in the park. If the city could gain access to and develop the Fircrest area just south of the athletic fields where the buildings were recently removed and create additional parking it would be appreciated. I would be eager to discuss a purchase or an easement to accomplish this.

A trail connecting the Hamlin, Fircrest, and South Woods sites would be a tremendous community benefit. Combined South Woods and Hamlin Parks create nearly 100 acres of open space. Any additional open space on the Fircrest campus that could be added would create an amazing opportunity for trails and community connectors.

One opportunity I would like to explore with Fircrest staff is the creation of a play area that would have play elements to accommodate children of all age and physical ability levels. There is new equipment on the market that would be challenging and enjoyable for able bodied and disabled youth. The creation of a new playground facility could benefit Fircrest and Shoreline residents.

Thanks for the chance to participate in the Fircrest master planning process and feel free to contact me if you wish to discuss these matters in more detail

Dick Deal, Director
Parks, Recreation and Cultural Services
City of Shoreline
17544 Midvale Avenue N
Shoreline, WA 98133
(206) 546-2072

Sarah Lucas

From: Betsy Geller
ent: Friday, November 09, 2007 3:35 PM
To: 207422.30@ahbl.com; Michael Hintze; Sarah Lucas
Subject: FW: Fircrest Master Plan

More comments...

Michael, the original email in this is also included as a printed copy in the comments from last night. However, please be sure to capture the verbal comment relayed via Rachel. We should be separating agency comments in a separate portion of the summary. These should appear before the public comments. Do we have comments from other agencies: City departments, utility districts? I think we do.

Betsy Geller

AHBL, Inc.

-----Original Message-----

From: Rachael Markle [mailto:rmarkle@ci.shoreline.wa.us]
Sent: Friday, November 09, 2007 1:50 PM
To: Dick Deal; Betsy Geller
Subject: RE: Fircrest Master Plan

Hi Betsy, below is the email I gave you last night. Also to add to this, in speaking with Dick Deal, the Park and Recreation Director, he did not oppose the idea of sharing an access at 160th (the Hamlin Park entrance) with Fircrest. He thought this would be worth discussing in the future especially if the State and the City could partner on parking and a neighborhood park designed to serve special needs populations. Rachael

-----Original Message-----

From: Dick Deal
Sent: Thu 11/8/2007 12:30 PM
To: Rachael Markle
Cc: Joe Tovar; Robin Lesh
Subject: Fircrest Master Plan

Thanks for the opportunity to share so parks thoughts on the future design of the Fircrest campus.

Hamlin Park, South Woods, and Fircrest are not well connected at this time and I would like to see a stronger connection between the parks and Fircrest. Beginning next month we will be starting the design of Hamlin Park improvements to the ball fields, restrooms, and picnic shelter adjacent to the Fircrest campus. If there are any improvements or connections that would benefit Fircrest residents please let us know so we can keep them in mind when we proceed with the design.

Hamlin Park has inadequate parking for busy days when athletic events or large gatherings are held in the park. If the city could gain access to and develop the Fircrest area just south of the athletic fields where the buildings were recently removed and create additional parking it would be appreciated. I would be eager to discuss a purchase or an easement to accomplish this.

A trail connecting the Hamlin, Fircrest, and South Woods sites would be a tremendous

community benefit. Combined South Woods and Hamlin Parks create nearly 100 acres of open space. Any additional open space on the Fircrest campus that could be added would create an amazing opportunity for trails and community connectors.

One opportunity I would like to explore with Fircrest staff is the creation of a play area that would have play elements to accommodate children of all age and physical ability levels. There is new equipment on the market that would be challenging and enjoyable for able bodied and disabled youth. The creation of a new playground facility could benefit Fircrest and Shoreline residents.

Thanks for the chance to participate in the Fircrest master planning process and feel free to contact me if you wish to discuss these matters in more detail

Dick Deal, Director
Parks, Recreation and Cultural Services
City of Shoreline
17544 Midvale Avenue N
Shoreline, WA 98133
(206) 546-2072

Affordable Housing Definition

Appendix G: Affordable Housing Definition.

This plan uses the Washington State Department of Community, Trade, and Economic Development's (CTED) definition for affordable housing. CTED oversees the state affordable housing programs, including the Housing Trust Fund. In CTED's regulations for The Affordable Housing Program, they define "affordable housing" as follows:

(1) "Affordable housing" means residential housing for rental or private individual ownership which, as long as the same is occupied by low-income households, requires payment of monthly housing costs, including utilities other than telephone, of no more than thirty percent of the family's income.

(2) "Low-income" means a family or household earning eighty percent or lower of county median income." WAC 365-200-030.

Comparison of Benefits of Options

Appendix H: Comparison of Benefits of Options

● = High benefit ◐ = Medium benefit ○ = Low benefit

Benefits	Option 1	Option 2	Option 3	Hybrid Option
<u>Local Community Benefits</u>				
• Neighborhood serving retail	●	○	●	●
• Improved access to Activities building	●	●	●	●
• Increased housing choices	●	●	●	●
• Improved market rate housing choices in terms of type and size for changing demographics	●	◐	○	●
<u>Social Benefits</u>				
• Affordable housing / Senior housing	○	●	●	●
• Mix of income levels	○	◐	◐	●
• Emergency / transitional / respite / foster care housing	○	●	●	●
• Social services hub	○	◐	●	◐
• Community gathering spaces	◐	◐	●	◐
• More vibrant community from mix of uses	●	◐	●	●
<u>Benefits to Fircrest School</u>				
• Safer circulation and improved wayfinding	●	●	●	●
• Defined edges of campus and gateways	●	●	●	●
• Newer, more efficient nursing home and Adult Training Program buildings	○	●	○	●
• Continued educational partnerships	●	●	●	●
• Increased opportunities to integrate DD population with community	●	●	●	●
• Reduced nuisances with programmed/active use of underutilized areas (“eyes on the street”)	●	●	●	●

Benefits	Option 1	Option 2	Option 3	Hybrid Option
<u>Benefits to Department of Health</u>				
<ul style="list-style-type: none"> • Separation of access and reduction of vibration from trucks 	●	●	●	●
<ul style="list-style-type: none"> • Expansion to adjacent property 	○	●	○	○
<u>Transportation / Access / Circulation Benefits</u>				
<ul style="list-style-type: none"> • Improved internal circulation for pedestrians, vehicles, and bicyclists 	●	●	●	●
<ul style="list-style-type: none"> • Separate circulation for trucks and different uses 	●	●	●	●
<ul style="list-style-type: none"> • Improved connections between campus and adjacent uses 	●	●	●	●
<ul style="list-style-type: none"> • Better linkages to transit 	●	●	●	●
<u>Recreational Benefits</u>				
<ul style="list-style-type: none"> • Trail system with connections to nearby schools and parks 	●	●	●	●
<ul style="list-style-type: none"> • Open space for present and future generations 	○	◐	●	◐
<u>Public Health Benefits</u>				
<ul style="list-style-type: none"> • Improved walkability and safety 	●	●	●	●
<ul style="list-style-type: none"> • Healing garden continues and becomes more accessible 	●	●	●	●
<u>Energy / Green Building / Sustainability Benefits</u>				
<ul style="list-style-type: none"> • Low impact development/Use of natural drainage 	●	●	●	●
<ul style="list-style-type: none"> • Tree retention 	●	●	●	●
<ul style="list-style-type: none"> • Energy efficiency from compact development and green building 	●	●	◐	●
<u>Growth Management / Smart Growth Benefits</u>				
<ul style="list-style-type: none"> • New uses close to transit 	●	●	●	●
<ul style="list-style-type: none"> • Housing close to goods and services 	●	◐	●	●

Benefits	Option 1	Option 2	Option 3	Hybrid Option
<ul style="list-style-type: none"> • Opportunity to reduce reduce vehicle trips 	●	◐	●	●
<ul style="list-style-type: none"> • Targets development for most environmentally suitable portions of the site 	●	●	●	●
<u>Benefits to the Natural Environment</u>				
<ul style="list-style-type: none"> • Improve infiltration, reduce run-off and downstream flooding 	●	●	●	●
<ul style="list-style-type: none"> • Improved habitat 	●	●	●	●
<ul style="list-style-type: none"> • Increased canopy coverage 	◐	◐	●	◐
<u>State Operational Benefits / Efficiencies</u>				
<ul style="list-style-type: none"> • Increased flexibility and efficiency for housing State offices 	○	●	○	●
<u>Economic Benefits</u>				
<ul style="list-style-type: none"> • Fiscal benefits to state and city: <ul style="list-style-type: none"> ○ Construction tax increase 	●	●	◐	●
<ul style="list-style-type: none"> ○ Retail sales tax increase 	●	○	●	●
<ul style="list-style-type: none"> ○ Property tax increase 	●	◐	◐	●
<ul style="list-style-type: none"> • State revenue from lease or sale of land 	●	◐	◐	●
<ul style="list-style-type: none"> • State ownership of more office space rather than leasing 	○	●	○	●
<ul style="list-style-type: none"> • Increased population base to support area businesses 	●	●	◐	●
<ul style="list-style-type: none"> • Potential increase in non-construction employment 	◐	●	◐	●

Summary of Uses and Financial Analysis, All Options

Appendix I
Summary of Uses and Financial Analysis, All Options

	Option 0 - Single Use – Townhouses ^a	Option 0.5 - Single Use - Townhouses with Trails and Tree Preservation ^b	Option 1 - Emphasis: Financial Return to the State	Option 2 - Emphasis: Benefit to Governmental Operations	Option 3 - Emphasis: Benefit to Local Community	Recommended Hybrid Option
Number of Housing Units						
Market-rate	650	426	464	0	172	217
Affordable (including workforce housing)	0	0		326	88	168
<i>Total</i>	<i>650</i>	<i>426</i>	<i>464</i>	<i>326</i>	<i>260</i>	<i>385</i>
Other Uses (sq ft)						
Retail (within Mixed Use development)	0	0	40,700	0	40,700	40,700
Governmental office	0	0	0	255,000	0	255,000
Public service uses ^c	0	0	0	10,000	115,250	10,000
<i>Total Non-Residential New Uses</i>	<i>0</i>	<i>0</i>	<i>40,700</i>	<i>265,000</i>	<i>155,950</i>	<i>305,700</i>
Reconstructed Fircrest School Uses	0	0	0	102,000	0	102,000
<i>Total</i>	<i>0</i>	<i>0</i>	<i>40,700</i>	<i>367,000</i>	<i>155,950</i>	<i>407,700</i>
Excess Property and Area Deductions (acres)						
Excess Property	35.5	35.5	35.5	43.8	35.5	43.8
Area for Elements Common to All	0.0	12.3	12.3	12.3	12.3	12.3
Roads and infrastructure (30%), additional open space, and retained lease area ^d	10.6	6.9	8.0	11.3	14.3	8.1
Developable Area (Net Acres)^e						
Net Developable Area for New Market Rate Uses	24.9	16.3	15.2	2.7	4.0	5.7
Net Developable Area for New Non-Market Rate Uses	0.0	0.0	0.0	14.4	4.8	14.6
<i>Total Net Developable Area for New Uses</i>	<i>24.9</i>	<i>16.3</i>	<i>15.2</i>	<i>17.1</i>	<i>8.9</i>	<i>20.3</i>
Net Developable Area for Reconstructed Fircrest School Uses	0.0	0.0	0.0	3.1	0.0	3.1

	Option 0 - Single Use – Townhouses ^a	Option 0.5 - Single Use - Townhouses with Trails and Tree Preservation ^b	Option 1 - Emphasis: Financial Return to the State	Option 2 - Emphasis: Benefit to Governmental Operations	Option 3 - Emphasis: Benefit to Local Community	Recommended Hybrid Option
Total Net Developable Area	24.9	16.3	15.2	20.2	8.9	23.4
Financial Analysis						
Expected Land Value Per Square Foot ^f	\$41.00	\$41.00	\$11.46	(\$73.34)	(\$92.69)	(\$28.59)
Infrastructure cost (includes demolition costs and cost for development of Elements Common to All) ^{b,e,f}	\$1,800,000	\$1,500,000	\$1,520,000	\$2,110,000	\$1,120,000	\$2,110,000
Total Expected Land Value of Net Developable Area^{h,i}	\$63,200,000	\$41,100,000	\$7,590,000	(\$64,570,000)	(\$35,820,000)	(\$29,100,000)
Fiscal Analysis						
Fiscal Benefit to City of Shoreline ^j	\$12,100,000	\$8,700,000	\$10,100,000	\$6,400,000	\$5,200,000	\$5,600,000

a Does not include trails or retained trees/vegetation.

b Includes elements common to options 1, 2, 3 and Hybrid (trails and retained trees/vegetation). See Figure 4.1

c Includes Firland/Food Lifeline expansion in Option 3.

d Leased area is retained in Options 1, 2, 3 and Hybrid.

e Developable area shown is in net acres (i.e., land for roads, infrastructure, trails and open space have been deducted).

f Weighted average for all net developable areas. Accounts for cost of infrastructure, demolition, and Elements Common to All; however, Elements Common to All is not included in Option 0. See Appendix C.

g Infrastructure costs are for infrastructure associated with developable land, although the amount of developable land shown and associated value excludes land needed for roads and utilities.

h Infrastructure costs and total expected land value are rounded to the nearest \$10,000.

i Options 2, 3 and the Recommended Hybrid Option would have some uses that would return a positive expected land value. However, these options include significant amounts of public benefit uses which would require financial support. The actual financial return would depend on the amount of financial support.

j Present value of direct and gross benefits only (over a 30-year period), meaning no indirect impacts have been calculated, nor have increases in municipal service costs been calculated or weighed against the direct revenues shown. Revenues to the County or State governments were not estimated because any development activity at the Campus could likely occur somewhere else in the County or State; thus, the development on the Campus is not a driver of net new impacts to the County or State.

Fircrest Campus Excess Property Master Plan

Appendix D

Phase 2 Master Plan Public Involvement

January 6, 2010

Fircrest Campus Excess Property Master Plan

Fact Sheet Phase 2 Project Overview

Overview

What? Long range planning for portions of the Fircrest Campus that are currently underutilized by the State. Phase 2 of the Fircrest Campus Excess Property Master Plan will further develop the Master Plan based on the Hybrid Option for new land uses developed in Phase 1. The Hybrid Option defined a range of land uses including housing, public benefit, and governmental uses, and a framework of trails and other amenities. There are no plans to close or move the Fircrest School to another location.

Where? The Fircrest Campus is located at the northeast corner of 15th Ave NE and NE 150th Street in Shoreline, Washington. It is bounded by Hamlin Park on the north, and Shorecrest High School and South Woods Open Space on the east.

Why? The State Legislature requested that a Master Plan be created to better utilize the property.

Who? The State Department of Social and Health Services (DSHS) in partnership with the City of Shoreline and the State Department of Natural Resources (DNR). The project also involves a consultant team and opportunities for public involvement.

When? The two-phase process started in Fall 2007. Phase 2 started in summer 2008

Hybrid Option



For more information see www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm or contact Ed Valbert at valbeel@dshs.wa.gov or (253)476-7022.



Fircrest Campus Excess Property Master Plan

Fact Sheet Phase 2 Process & Schedule

Phase 2 work will include:

- Refining access and circulation for the Excess Property, including for cars, trucks, pedestrians and bicycles, based on the Phase 1 Hybrid Option.
- Defining the development program for each distinct portion of the Excess Property, including specific allowed land uses and maximum building amounts, based on the Phase 1 Hybrid Option.
- Establishing development and design standards for these new uses.
- Defining an integrated approach to surface water management for the Excess Property, including daylighting the existing Hamlin Creek (an intermittment stream) on a portion of the Excess Property.
- Defining measures to ensure compatibility of land uses both within the Campus and where the Excess Property is adjacent to streets and other land uses.
- Two public open houses.
- Input from existing site users and utility providers.
- Environmental review of the Master Plan under the State Environmental Policy Act (SEPA).
- Review of the Master Plan by the City of Shoreline Planning Commission and City Council.
- Master Plan adoption by the Shoreline City Council.

Timeline

Open House September 2008	Issue SEPA documentation Fall 2008	Open House Late Fall 2008	Review by City of Shoreline Planning Comm. & Council Spring 2009	Adoption Spring/Summer 2009	Report to Legislature upon project completion
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For more information see www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm
or contact Ed Valbert at valbeel@dshs.wa.gov or (253)476-7022.

Encourage Walking and Bicycling

- Safer walking conditions for everyone
- Well-defined trail system
- Improved access and connectivity to Fircrest Campus and adjacent school, parks, and open spaces



Mix of Land Uses

- Contributes to a walkable urban environment
- Encourages fewer trips by car

Open Space and Recreation

- Open spaces and trails provide recreational opportunities
- Improved public access to Activity Center amenities
- Retain Healing Garden
- Preservation of trees, remnant forest, and other vegetation, as well as new landscaping, provides air and water quality benefits



For more information see www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm or contact Ed Valbert at valbeel@dshs.wa.gov or (253)476-7022.

Green Infrastructure

- Daylighting of Hamlin Creek
- Capture stormwater run-off from streets and parking areas using bioretention swales and rain gardens
- Retain mature trees and remnant forest areas
- Porous pavement where practical
- Retain a system of open spaces

Green Building

- Reduce greenhouse gas emissions and develop healthy living and working environments by incorporating green building features such as:
 - Energy efficient heating, cooling, and lighting
 - Recycled building materials
 - Non-toxic finishing materials
 - Water-saving plumbing fixtures

Site Location and Design

- Site is adjacent to frequent transit service on 15th Ave
- Site is within walking distance of retail and other services
- Site design promotes walking and bicycling
- Mix of uses supports reducing car trips
- Mix of housing types provides a range of options and transit-supportive land uses



For more information see www.cityofshoreline.com/cityhall/projects/fircrest/index.cfm
or contact Ed Valbert at valbeel@dshs.wa.gov or (253)476-7022.

Fircrest Campus Excess Property Master Plan

Development of the Hybrid Option

Option 1
Emphasis: Financial Return to State



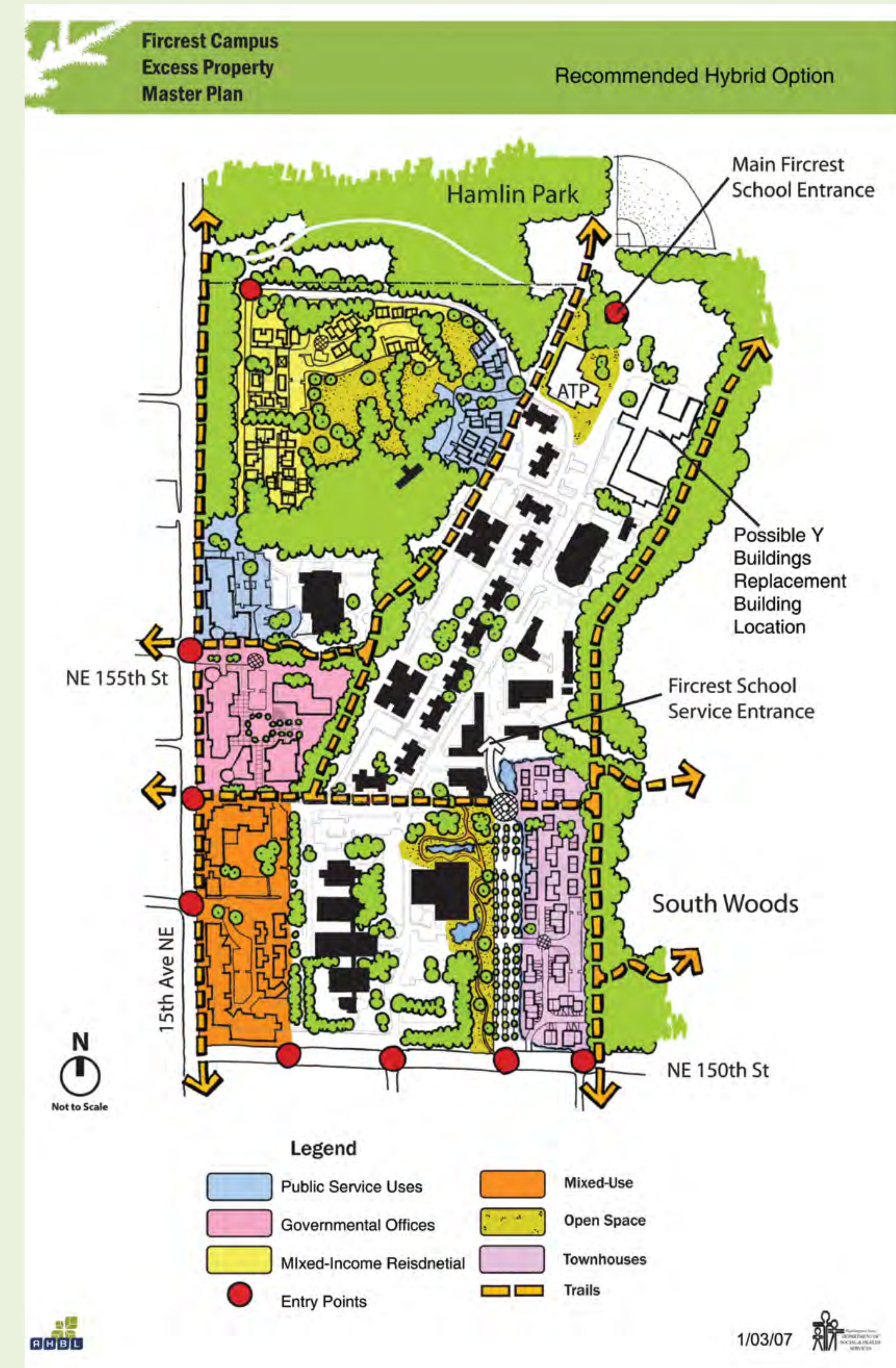
Option 2
Emphasis: Benefit to Governmental Operations



Option 3
Emphasis: Benefit to Local Community

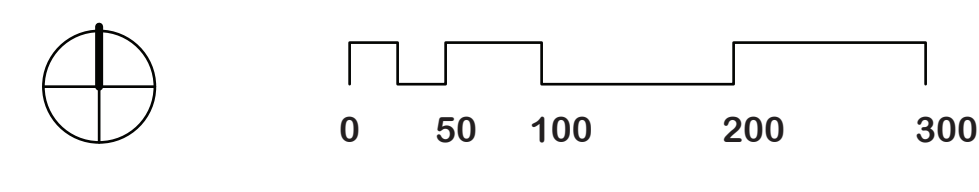
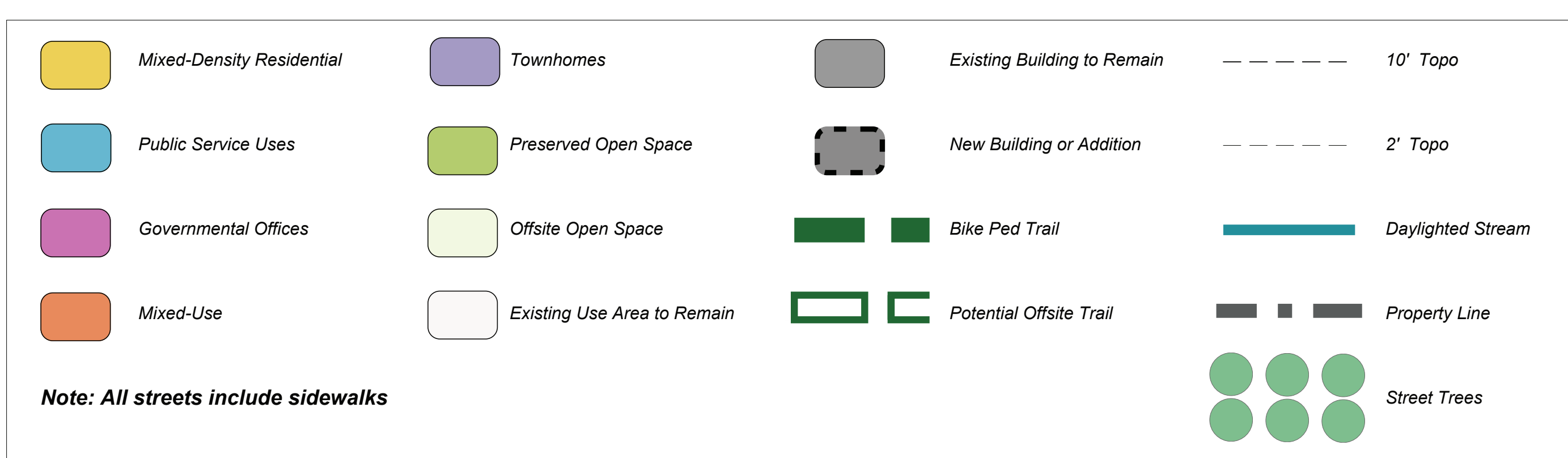


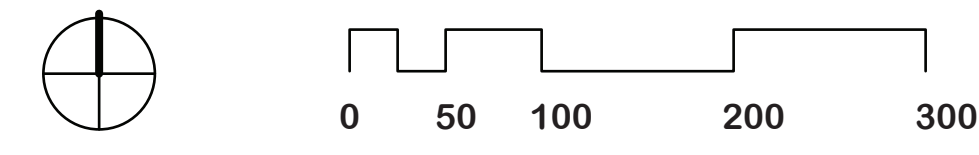
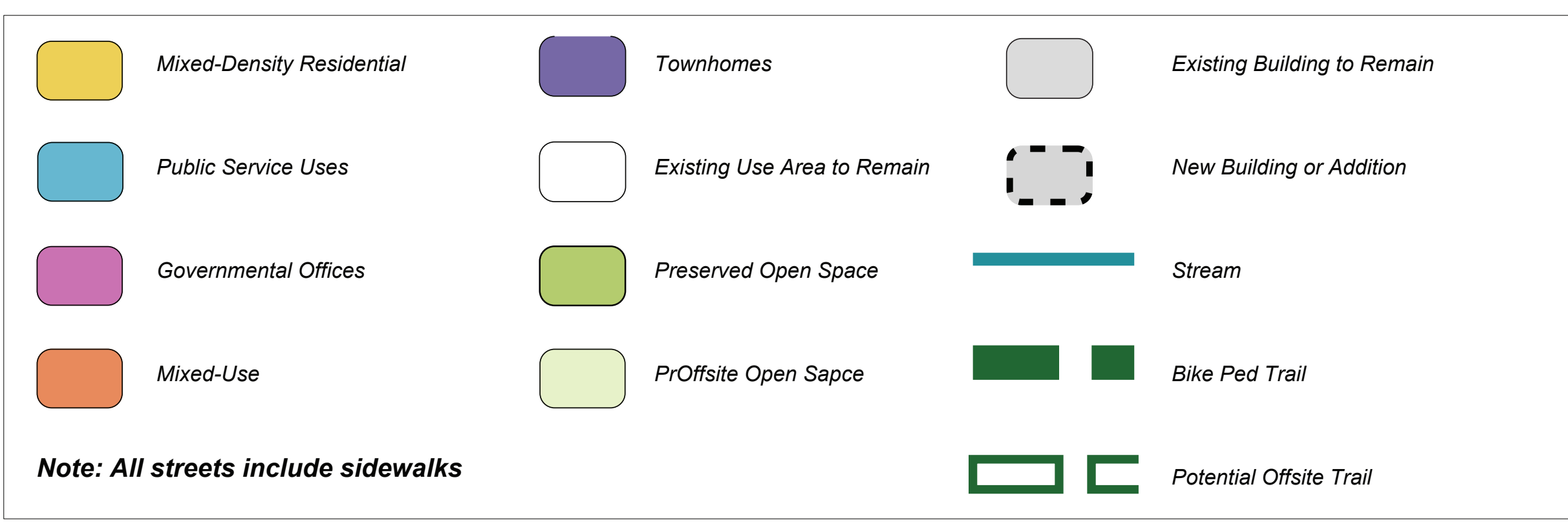
Recommended Hybrid Option

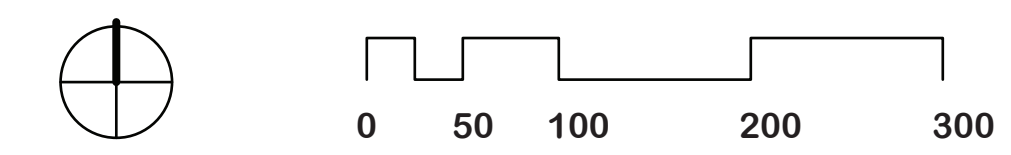
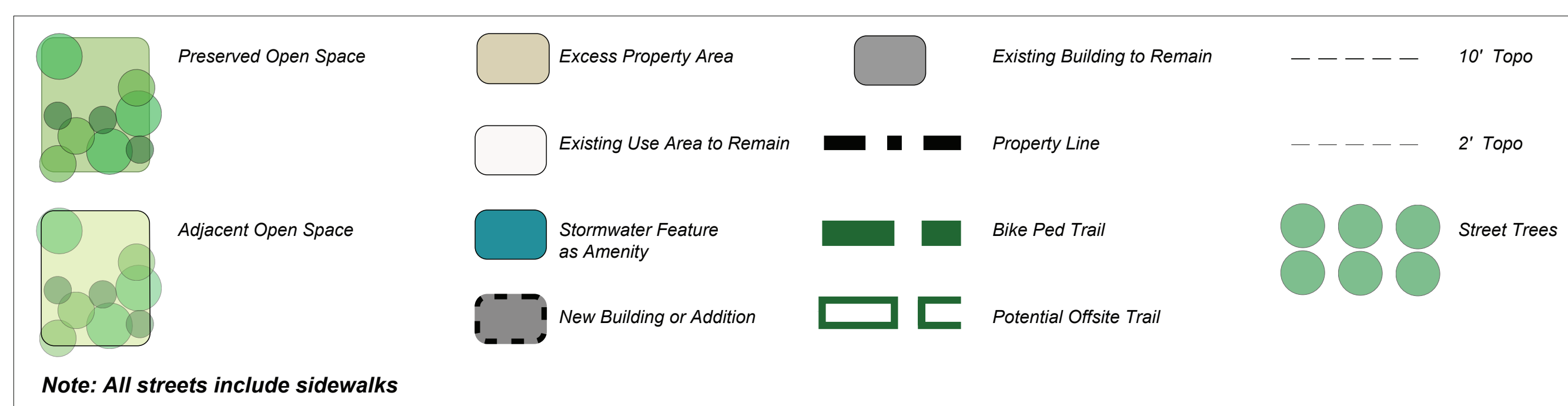


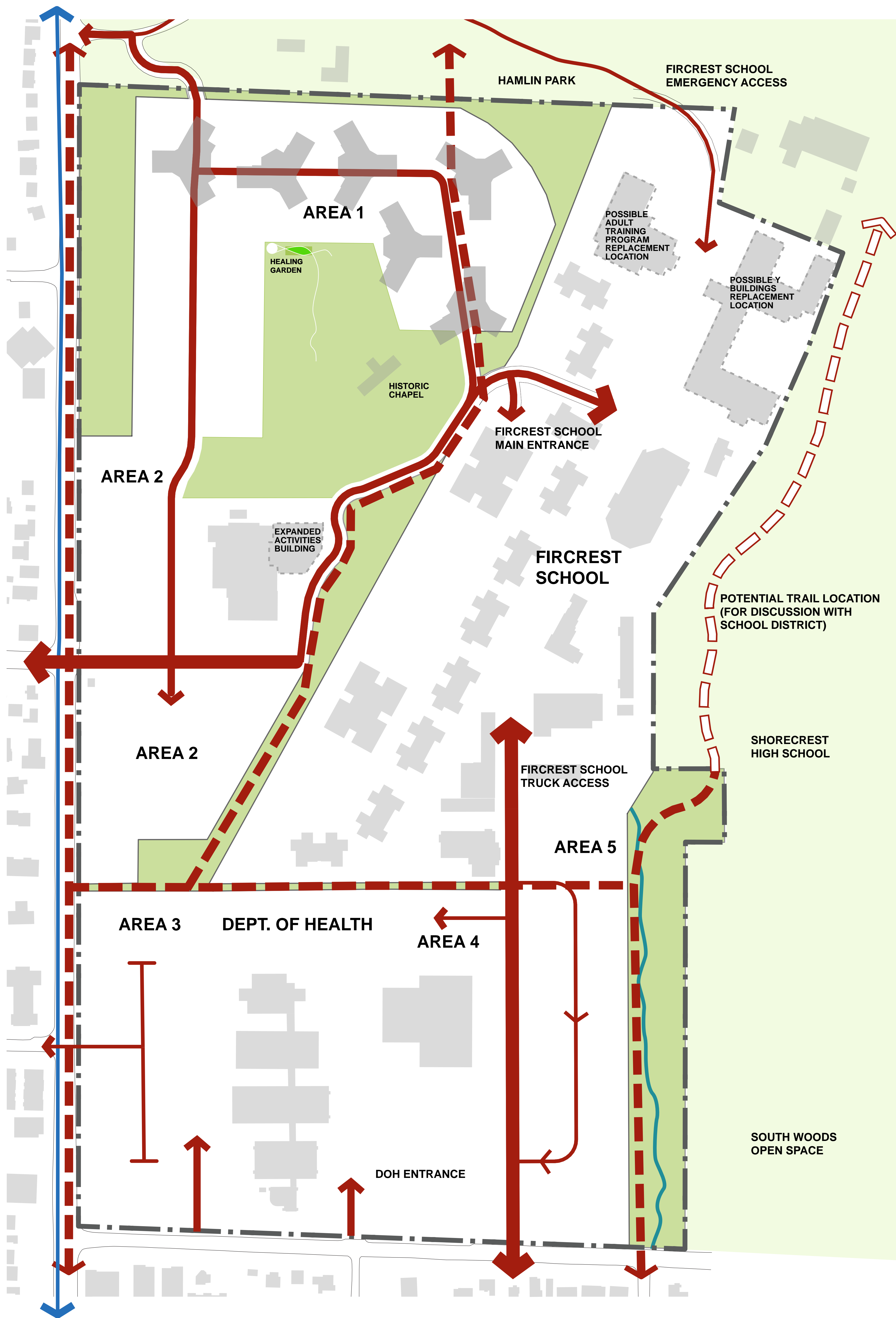
The Hybrid Option is based on uses shown in Options 1-3. Specific uses were included based on:

- Public and agency comments
- Smart Growth
- Financial considerations (inclusion of a variety of housing types)
- State operations (potential to consolidate leased office space)
- Local and broader community benefit
- Environmental sustainability
- Increased efficiencies



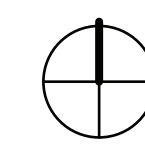






	Primary Road		Potential Offsite Trail		Townhomes
	Secondary Road		Metro Bus Lines Routes: 77, 348, & 330		Preserved Open Space
	Tertiary Road		Daylighted Stream		Existing Use Area to Remain
	Bike/Ped Trail		Property Line		New Building or Addition

Note: All streets include sidewalks



Summary by Area	Acres	Hybrid Option	Master Plan Concept (maximum potential)
Fircrest School	26.7	454,444 sq ft (existing)	up to 500,000 sq ft
<i>Area 1:</i> Townhouse, small-lot single-family, mid-rise residential	14.1	65 units (townhouse only)	up to 379 units
<i>Area 2:</i> Governmental office, mixed-use civic/residential, expanded Activities Building & market garden	9.9	48 units 292,286 sq ft govt. office & civic	up to 100 units 309,286 sq ft govt. office & civic, 11,700 sq ft Activities Building expansion
<i>Area 3:</i> Mixed-use retail/residential	5.4	202 units 34,900 sq ft retail	up to 202 units 34,900 sq ft retail
<i>Area 4:</i> Existing Non-Profit Uses	4.3	37,000 sq ft (existing)	37,000 sq ft (existing)
<i>Area 5:</i> Townhouse/rowhouse	6.6	70 units	up to 181 units
Summary by Use			
Total residential units		385 units	up to 862 units
Total retail uses		34,900 sq ft	34,900 sq ft
Total new office uses		255,000 sq ft	255,000 sq ft
Total civic uses (includes Activities Building)		37,286 sq ft	65,986 sq ft
Fircrest School uses		454,444 sq ft	up to 500,000 sq ft
Existing non-profit uses		37,000 sq ft	37,000 sq ft
Trails		1.3+ miles	1.3+ miles
Public use areas/open space		12.3 acres	14.3 acres

Name (optional): Maria Walsh Email (optional): mwash1240@earthlink.net
Affiliation: _____

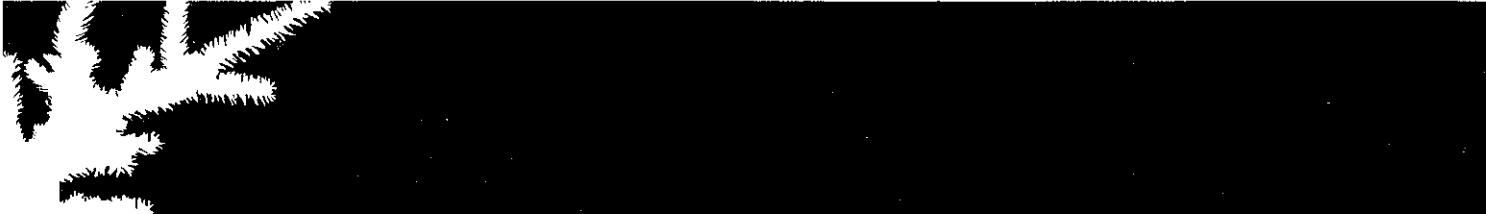
Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

The issue of the Y buildings is critical. Once you upzone the acreage it increases in value. This tempts DSHS to remove the clients. Please zone the Y's as part of Forcrest School Campus/Institution to retain its purpose + serve the need.

Other comments:

How can a law of 2007 state that Master Planning should occur for buildings and land NOT used by Forcrest for performing their services. Then come 2008 and a hybrid plan is mandated to be used. It was never vetted, viewed by the community, or shared with the guardians of the clients who call the Y's HOME!

Seems people don't really matter in the money game



Name (optional): _____ Email (optional): _____

Affiliation: _____

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

The "hybrid option" exceeds the original mandate by including land not originally designated as "excess"

The "hybrid option" also violates the spirit of the original directive by proposing to uproot almost 50% of Fincrest's residents from their current homes in the "Y" buildings.

You should drop this option & go back to some combination of the original 3 proposals that were presented to the public.

Other comments:

Name (optional): Wendy D. Pese Email (optional): wdipeso@gmail.com
Affiliation: _____

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Put in place as a part of the master plan a requirement that should the mixed use residential area where Y buildings exist, be sold - the Y buildings will remain in use by Fir crest residents. When the Y buildings need to be replaced - the developer will be required to build a ~~100~~ ¹¹⁵ ~~200~~ bed facility to replace the existing Y buildings and located within that

Other comments: residential mixed use area.

Putting this in place will protect the residents of Fir crest, reduce the risk of Fircrest school being closed should the leadership at the state level change to policy maker's who would like to see Fircrest go away.

Name (optional): Maria Walsh Email (optional): _____
Affiliation: Friends of Fircrest

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Where does this planning process address Safety and Quality of Life for the residents of Fircrest School?

Other comments:

Why is the Dept of WA State Veterans shunned when they want to locate a Traumatic Brain Injury "care + therapy" facility?

Name (optional): Rep. Ruth Kagi Email (optional): Kagi.ruth@leg.wa.gov
Affiliation: State Legislature

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Other comments:

Some reference should be made to supported housing being particularly appropriate for the housing options. Supported housing providers are having trouble finding residential units that can be rented to DD residents, and are exploring places to build for this purpose.



P.S. I would appreciate being recognized as Representative Kagi at future meetings.

Name (optional): Liz Patterson Email (optional): lpatteca@dshs.wa.gov
Affiliation: Firecrest

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Building a significant # of housing units that are wheelchair accessible & affordable for people who want to live more independently but continue to need support services. Firecrest houses many "crisis" residents who need housing w/ help & can't be supported in community group homes or apartments.

Other comments:

Name (optional): Jim Hardman Email (optional): aguak9@aol
Affiliation: Friends of Fircrest/guardian

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Other comments: Core campus should be preserved to requirements of DNR trust language
Housing should support people w/ devel. disabilities
Facilities for 10 specialized treatments: dentistry, medical treatments, therapies etc
(see FoF position paper)
20% of short term admittees to Fircrest RHC ask for long term status yet this plan is a "no RHC growth" plan
Bringing in hundreds of housing units is a big risk for residents.

Name (optional): George Smith Email (optional): gsmith@ci.shoreline.wa.us
Affiliation: City of Shoreline

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

I would suggest a portion of housing be reserved for families with a developmentally disabled child. The proximity of the specialty services such as the Assistive Tech Clinic, Pool & other amenities that could be accessed without specialized transportation would be a huge benefit. Shoreline has a large number of families caring for adult children at home who have D.D.

Other comments: Personal Comment, not as a city employee

I have concerns about multi-story N.H. Should 4 bldg be replaced in the future. My concerns are environmental - residents can easily view nature in 4 bldg, more outside and be more quickly evacuated w/o elevators.

Name (optional): _____ Email (optional): _____

Affiliation: _____

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

There seems to be an undercurrent of PROFIT for an unidentified party. Yet there is no guarantee that profit can be maintained without the full destruction of the Fircrest campus. So there is a short-term gain that may easily evolve into a financial drag to both city & state.

It is also being presented in a devious presentation by using the city of Shoreline as a battering ram without understanding fully all options the city can consider & approve.

Other comments:

Has the compatibility of co-location of differing uses been thoroughly & realistically been considered? The presentation was ~~defined~~ set in very optimistic & glowing ideals. There does not seem to be an acknowledgement of basic and sometimes crude complications to the "pretty green" vision

Name (optional): Erna Bender & Frank Bender Email (optional): _____
Affiliation: concerned parent & homeowner

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

My husband & I are concerned that the wrong kind of housing would lead to harassment of the Fircrest clients. In our opinions the residents of Fircrest should have priority in all the planning.

We feel that the amenities created specifically for the Fircrest residents should basically be used for them and not have to be shared with everyone else!

Other comments:

It would be neat if the residents who are able could be taught to raise some of their fresh produce.

There are other people being served on the present campus who do not live there.

A green belt between Fircrest & if they build townhouses & only two story high with buildings away from 150th with water or trees

Frank Bender

Name (optional): _____ Email (optional): _____

Affiliation: Neighborhood Resident

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Other comments: In order to attract more favorable developers and businesses it would be necessissary for 15th Avenue in front of the property to be improved. Please consider donating a strip of frontage to the city enough to add on-street parking along with the existing bike lanes, and an 8 to ten foot sidewalk. There is currently not sufficient right of way for such improvements.

Name (optional): Cindy Ockers Email (optional): fixit.co @juno.com
Affiliation: mgr - Northward Arts on 15th.

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

How will this development affect existing roads in the area. 15th NE was decreased from 4 Lane to 2 Lane creating back ups & more traffic on residential roads. 150th is already a busy road ~~of~~ in residential area. How can these 2 roads possibly support this increase of traffic.

Parking - already decreased on 150th street by property improvements to this property - will there be adequate parking? (Current requirements for apartments are NOT adequate.)

Other comments:

Name (optional): JO TURNER Email (optional): jt@shorelinewater.org
Affiliation: Shoreline Water District

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Significant water (and wastewater) utility redevelopment will be required to support the Master Plan. I suggest serious attention, in particular to domestic/ fire flow water supply and storage.

Other comments:

Name (optional): Kullery G. Email (optional): Kullerg@ds^{WA}hs.gov
Affiliation: Ficcrest employee

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

1. Having more space for nat for profits!
2. Too much not open space
3. Food lifeline does need space here
- 4.

Other comments:

Name (optional): Barbara Angersbach

Email (optional): angersbach@

Affiliation: Neighborhood Resident

undercaste.com

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Thank you for holding this informative meeting. I have lived across from Fircrest for over 20 years. I remember when more residents lived at the campus, rode MetroBuses to work with me, and wheeled and walked down sidewalks - sometimes coming into my yard and letting my dogs out. I felt part of the community and did not mind being part of the Fircrest community - I have guided residents back to Fircrest and have laughed with them on the bus. Perhaps Shoreline was a smaller and friendlier place then. Today I hear people describe the threat that Fircrest residents present to residents (and to themselves) and I feel a sorrow for the low expectations of the new potential residents. Affordable housing - truly affordable - will be welcomed by

Other comments: ~~so~~ anyone who has been under-housed. The neighbors will work out a relationship.

I would recommend a community garden - P-Patch garden - be worked into the ~~the~~ excess land mixed-use areas.

I also would recommend a sculpture garden and fountain be publically accessible. #

I appreciate the trails that have been proposed so I can continue to cut through the campus to attend events at Shorecrest.

Name (optional): _____ Email (optional): _____

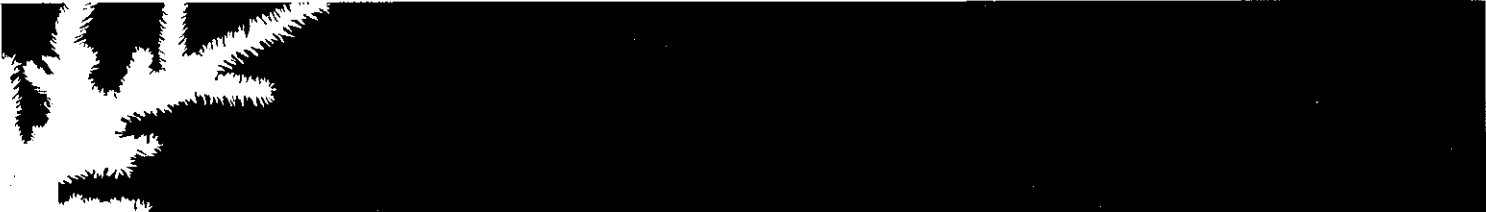
Affiliation: _____

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

Conservation of trees should be addressed. No mature trees should be sacrificed (even with "replacement," which is young trees). Runoff from this neighborhood is already excess - to point of flooding. SAVE OUR TREES!!!

Other comments:

The swimming pool is a major asset to both Fircrest Campus and the Shoreline (and beyond) community. Preservation of pool use is of paramount importance.



Name (optional): Paul Chasen Email (optional): _____
 Affiliation: AHBL

Please tell us about any features or aspects of the Campus that you feel have not been adequately addressed or considered in the Circulation and Land Use or Green Infrastructure plans.

- 2 comets from people who talked

① Storage an issue for paratransit
 vehicles coming to Girceet.
 make clear storage to school entrance

②

Other comments:

Fircrest Campus Excess Property Master Plan

Appendix E

**Summary of Master Plan Benefits and Measures to
Reduce or Minimize Environmental Effects**

January 6, 2010

Appendix E – Summary of Master Plan Benefits and Measures to Reduce or Minimize Environmental Effects

The following measures are proposed to minimize or reduce those environmental effects anticipated to occur with implementation of the Master Plan.

Earth

- LID techniques to minimize erosion, including pervious pavement, swales and green roofs.
- Stormwater management consistent with the 2005 Stormwater Management Manual for Western Washington.
- Limits on impervious surface coverage for each development area, with credits to encourage the use of pervious paving materials.
- Design of a daylighted stream channel with capacity to accommodate pass-through flows and reduce flooding potential.
- Retention of 15.3 acres of the Campus in open space with natural vegetation.

Air

- Development will follow Smart Growth principles such as a compact mix of uses to increase walkability and reduce vehicle emissions
- Green building strategies to improve air quality

Water

Surface

- Daylighting of Hamlin Creek to improve water quality, including enhanced 25' buffer for daylighted Hamlin Creek segment, which would exceed City minimums for daylighted streams
- Stormwater management consistent with 2005 DOE Manual, the most restrictive manual in effect in Western Washington
- LID strategies to reduce runoff, improve water quality and mimic natural drainage

Ground

- Infiltration through LID features to the extent practical given soil types

Plants

- Retention of remnant forest, significant and landmark trees and native plant communities in 15.3 acres of designated open space
- Planned future roads and trails location generally outside remnant forest and significant landmark trees
- Development area for new uses sited to maximize tree retention
- Tree canopy coverage goals and strategies for meeting them including retention, new plantings, involvement of a qualified arborist during site design and earth-disturbing construction activities, and long-term environmental stewardship as a component of property management
- Vegetation, including native plants, to be added during site development
- Native riparian plant species planted as part of daylighting of Hamlin Creek

Animals

- Measures to described above to preserve and enhance plants and vegetation also enhance wildlife habitat
- Daylighting of Hamlin Creek segment with enhanced buffers would improve fish habitat downstream
- Improved water quality for stormwater runoff the Campus in general would contribute to improved aquatic habitat

Energy and Natural Resources

- Green building features will be encouraged, such as passive solar heating and efficient HVAC systems which promote energy conservation
- Site-wide non-motorized facilities allows access by foot or bicycle to onsite retail, recreation, civic uses, parks and nearby parks and schools
- Proximity to transit and transit-supportive housing and employment densities encourages energy-saving and transportation options
- Mix of uses and proximity to goods, services and recreation reduces vehicle use

Environmental Health

Health

- Possible asbestos-containing materials from previously-demolished building remnants, if encountered, would be removed and disposed of in accordance with applicable state and federal regulations

Noise

- Reduced vehicle trips and associated noise compared with tradition development, because of non-motorized facilities, mix of uses and consistency with other Smart Growth principles

Land and Shoreline Use

- New uses would be buffered by trees and topography in designated open space where there would otherwise be potential for impacts
- Master Plan is consistent with Smart Growth principles, the Growth Management Act and a City of Shoreline policies and strategies relating to land use patterns, transportation, amenities, natural environment, housing choices and trails

Housing

- Master Plan would create capacity to help the City meet its housing growth goals
- Master Plan would help to implement strategies outlined in the City's housing strategy

Aesthetics

- Master Plan includes 15.3 acres of designated open space, including tree preservation and vegetated buffers that reduce the potential for visual impacts
- Tree canopy coverage targets and strategies to achieve them will improve aesthetic conditions on the Campus
- The most urbanized areas will be located adjacent to existing urban development

- Stormwater ponds will be designed to serve as amenity features and LID features will have both stormwater management and aesthetic value
- Daylighted segment of Hamlin Creek will enhance the visual character of the Campus

Light and Glare

- Trees and buffers will reduce the potential for light and glare impacts on nearby parks and residential uses
- The most urbanized areas will be located adjacent to existing urban development, reducing the potential for light impacts
- Tree canopy cover targets and strategies to achieve them will reduce the potential lights to affect off-site areas

Recreation

- The Master Plan will reserve land for 1.3+ miles of public multi-use trails, increasing connectivity and to and between existing parks, opens spaces and schools and new open spaces
- Planned trails would help to fulfill trail need identified in the City's Parks Plan
- The 15.3 acres of designated open space would provide passive recreation opportunities
- The Healing Garden would be retained
- The daylighted segment of Hamlin Creek would provide opportunities for passive recreation and education through interpretive signage
- The existing Activities Building could potentially be expanded

Historic and Cultural Preservation

- The National Register of Historic Places (NRHP)-eligible Chapel would be retained within the designated open space

Transportation

- The proposed land use mix, level of use, walkability, proposed new trails and proximity to parks, schools and a commercial corridor would reduce the need for vehicle trips compared to traditional development.
- New uses would be served by bus transit which exists on 15th Ave NW.
- With project-generated trips at full buildout, area intersections would still meet City level of service standards
- The site access intersection at 15th Avenue NE / NE 155th Street would provide separate eastbound and westbound left, through and right-turn lanes with protected + permitted phasing for eastbound and westbound left-turns to address vehicle queuing and intersection operations.
- A total of 1,607 to 3,122 parking stall supply are proposed on-site in off-street and on-street parking under the Master Plan. The wide range in proposed parking stalls is based upon the potential for parking reductions associated with transit accessibility, employment/ residential density, walkability, and land use mix.
- DSHS or other developers who implement the Master Plan would be required to fully fund and construct/reconstruct the necessary site driveways and associated frontage improvements onto NE 150th Street and 15th Avenue NE.

Public Services and Utilities

- Development would occur over the long-term, allowing service providers to account for new development in their long-range plans.
- Tax revenues and user/connection fees from construction and operation of new development would help to offset increased public service demand. For water and sewer service, new development would pay a proportional share of needed improvements.

Fircrest Campus Excess Property Master Plan

Appendix F

SEPA Checklist

January 6, 2010

Appendix F – Cover Sheet for Environmental Analysis, June 9, 2009

Environmental analysis was conducted for the Fircrest Campus Excess Property Master Plan during the summer and fall of 2008. These analyses utilized both new information and prior information from **DSHS'S** 2002 planning process for the Campus.

The analysis **takes the form of an Expanded SEPA Checklist, using the City of Shoreline's** Checklist format. When the planning process was initiated, it was assumed that the plan prepared would be adopted by the City under a new Master Plan Permit process which was being defined at the time. Because of uncertainties raised by the Shoreline City Council about new uses on the campus, and codified by the Council in their requirements for a Two Step Adoption Process, DSHS decided to complete the Master Plan as a State Master Plan, which could ultimately be adopted by the City at a later date through the Two Step process. Environmental review under SEPA is not needed for the State Master Plan, but will be needed **for both steps in the City's Two Step Adoption Process.**

Discussions with City staff at the beginning of the **Campus's** Phase 2 planning process in spring and summer 2008, at which time City adoption was expected to occur in 2009, indicated that **the City's preferred environmental review document was an Expanded SEPA Checklist** with separate technical reports for several key elements of the environment. It was confirmed that NEPA review was not required for adoption of the Master Plan by the City. It was also determined that the City would serve as lead agency for SEPA review.

When DSHS determined that the Master Plan would be a State Master Plan, it directed AHBL to complete the environmental analysis, which was already underway, even though it is not needed until City adoption is pursued. Therefore, an Expanded SEPA Checklist with several technical reports is presented in the following pages. The Checklist is written with the assumption that the proposed action would include both a City of Shoreline Comprehensive Plan Amendment to authorize new uses on the Campus and the adoption of the Master Development Plan permit by the City. The Checklist may be adequate for both steps of the adoption process; however, City input will be needed and the City will need to issue a SEPA threshold determination based on the Checklist. It is possible the City may require additional information in either or both steps.

When DSHS is ready to pursue City adoption, it is assumed that the Checklist will be updated, circulated to relevant agencies, and that the City will issue a SEPA threshold determination. An update of the Checklist may be needed because decisions made during the intervening time could affect the analyses. Further, the Checklist has been written with the assumption that **some items will be "required" as part of the Master** Development Permit. However, the level of requirements versus guidelines will depend on the specific text of the submittal for the Master Plan Permit in Step 2 of the City adoption process.



Planning and Development Services

**STATE ENVIRONMENTAL POLICY ACT
(SEPA)
ENVIRONMENTAL CHECKLIST**

Purpose of Checklist:

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write “do not know” or “does not apply”. Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

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

Public notice is required for all projects reviewed under SEPA. Please submit current Assessor's Maps/Mailing Labels showing:

- Subject property outlined in red.
- Adjoining properties under the same ownership outlined in yellow.
- All properties within 500 feet of the subject property, with mailing labels for each owner.

NOTE: King County no longer provides mailing label services. Planning and Development Services can provide this for a fee or provide you instructions on how to obtain this information and create a mail merge document to produce two sets of mailing labels for your application.

Use of Checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered “does not apply”. IN ADDITION complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words “project,” “applicant,” and “property or site” should be read as “proposal,” “propose,” and “affected geographic area,” respectively.

17544 Midvale Avenue North, Shoreline, Washington 98133-4921

Telephone (206) 801-2500 Fax (206) 546-8761 pds@ci.shoreline.wa.us

The Development Code (Title 20) is located at mrsc.org

A. BACKGROUND

1. Name of proposed project, if applicable:

Fircrest Campus Excess Property Master Development Plan

2. Name of applicant:

**Washington State Department of Social and
Health Services (DSHS)**

3. Address and phone number of applicant and contact person:

**DSHS Lands and Buildings Division
1115 Washington St
PO Box 45848
Olympia, WA 98504-5848
(360) 902-8154**

**DSHS Contact:
Edwin Valbert
valbeel@dshs.wa.gov
(253) 476-7022**

4. Date checklist prepared:

June 11, 2009

5. Agency requesting checklist:

**City of Shoreline, Planning and Development
Services**

6. Proposed timing or schedule (including phasing, if applicable):

**The proposed action is adoption of a Comprehensive Plan
Amendment and Master Development Plan by the Shoreline
City Council. Submittal of the Comprehensive Plan Amendment
application is expected in XXXX, with adoption expected in
XXXX. Submittal of the Master Development Plan permit
application is expected in XXXX, with adoption expected in
XXXX.**

**Timing for implementation of the master plan, i.e., development
of future uses that would be allowed under the master plan, is
not known. However, this Checklist analyzes buildout based on
the assumption that it would occur by 2030.**

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

**This is a programmatic proposal for a Master Plan that would
direct how the excess property of the Fircrest Campus will
develop over time. The master plan would also allow existing
Fircrest School uses to continue as conforming uses.**

As a result of master plan adoption, new uses would be allowed to be developed on the Excess Property. These would include governmental offices and facilities; mixed use commercial/residential; civic and community services; open space, trails, tree preservation and enhancement of portions of Hamlin Creek; and a mix of housing types. Renovations, rebuilding and/or minor expansions of existing Fircrest School buildings could also occur under the master plan. However, it is not currently known how actual development under the master plan would be funded and implemented. Further, actual development would be subject to review for consistency with the master plan and for building and utility permit review at the time of development.

While the Washington State Department of Health (DOH) manages a portion of the Fircrest Campus, **and is concurrently preparing a master plan for that portion**, the DOH master plan and potential future construction under it is separate from the Fircrest Campus Excess Property Master Plan proposal.

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

The following were prepared prior to this master planning effort:

Wetland Delineation Report for Fircrest Campus, Golder Associates, Inc., April 10, 2002
Ecological Resources Assessment: Fisheries, Streams and Wildlife, Golder Associates, Inc., April 10, 2002
Preliminary Geotechnical Assessment for Fircrest School Site Shoreline WA, Golder Associates, Inc., April 11, 2002
Trees and Vegetation: Fircrest Master Plan Arborist Report, Tina Cohen, Northwest Arborvitae, December 21, 2001
Asbestos Issues on the Eighty-eight Acre Fircrest Campus 2003
Historic American Buildings Survey (HABS) Report, Submitted to King County as North-end Rehabilitation Facility (NRF) Demolition Supplemental Report, SHKS Architects, December, 2005

The following were prepared concurrent with this master planning effort:

Watershed Company, Critical Areas Concept Design Report and Hamlin Creek Restoration Plan, November 2008
Transportation Impact Study for Fircrest Campus Excess Property Master Plan, Transportation Engineering Northwest, December, 2008.
Tree Management – Fircrest Campus Excess Property Master Plan, Tree Solutions, January 2009.
Stormwater/Low Impact Development Technical Memo, AHBL, June 2009
Water Technical Memo, AHBL, June 2009

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

There are no known applications for governmental approvals directly affecting the property covered by the Excess Property Master Plan. [DSHS to confirm]

As stated previously, DOH is conducting a separate master planning process which affects property located adjacent to the property affected by this proposal. DOH also has pending applications for approval of XXXXXX. [Ed – does DOH have any permit applications pending?]

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

The proposal is for approval of a Comprehensive Plan Amendment and a subsequent Master Plan Permit by the City of Shoreline. The Comprehensive Plan Amendment is required to authorize new uses on the Campus as part of a Master Development Plan permit. It is a legislative action. The permit would entail approval of specific regulations for the Campus. It is a quasi-judicial action. Both actions require approval by the Shoreline City Council.

It is possible that a development agreement between the State and City may also be executed.

Subsequent to approval of the Master Development Plan permit by the Shoreline City Council, the permits and approvals listed below would be required for implementation of the Master Plan:

State Permits and Approvals Needed for Future Implementation

- Administrative approval of revision to the lease agreement between the Washington State Department of Natural Resources (DNR) and DSHS governing the portion of the Excess Property that DNR leases to DSHS
- Administrative approval of transfer of all or a portion of the Excess Property managed by DNR out of the Charitable, Educational, Penal, and Reformatory Institutions (CEP&RI) Trust
- [Legislative or administrative?] approval of an implementation plan, which could entail approval of one or more public-private partnerships for development
- Legislative approval of funding for implementation, if State funding is needed
- [Legislative or administrative?] approval of land or easement dedication, if land for public use is to be donated to another entity such as the City of Shoreline for public use
- If a new Nursing Home facility and/or Adult Training

- Program facility are to be constructed, **Legislative** approval to fund their design and construction
- If the Y Buildings are replaced by a new Nursing Home facility, **administrative** approval by DSHS would be needed for their demolition.

Local Permits and Approvals (City or Utility Districts) Needed for Future Implementation

- Review of new development for consistency with the master plan
 - Building permits
 - Utility permits
 - Electrical permits
 - Fire Marshal approval
 - Demolition permit(s) for 1510 building
 - Demolition permit(s) for Y buildings if DSHS were to build a new nursing home facility in the future
 - Potentially, significant tree removal permit(s)
11. Give a brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page. (Lead agencies may modify this form to include additional specific information on project description).

The proposed action is adoption of a Comprehensive Plan Amendment and a Master Development Plan permit for the Fircrest Campus by the City of Shoreline. The Campus is located in the City of Shoreline, in the area bounded Hamlin Park to the north, Shorecrest High School and South Woods to the east, 15th Avenue NE to the west, and NE 150th Street to the south. It is in State ownership and managed by three agencies: DSHS, DNR, and DOH. The Master Development Plan plans for the continuation and minor expansion of the Fircrest School, a State operated residential facility with supporting services that serves the needs of persons with developmental disabilities; and for new land uses on portions of the Campus. It responds to State and City goals of smart growth and environmental sustainability.

Overview of Proposed Master Plan

The Master Development Plan pertains to all Campus land except the approximately 7 acres managed by DOH as their Public Health Laboratory. Therefore, the Master Plan would apply to approximately 83 acres of the approximately 90-acre campus. These 83 acres contain: the Fircrest School; and approximately 35 acres that have been identified by the State as Excess Property. Included in the Excess Property, but not planned for new uses, are buildings leased by two non-profit

tenants: Firland Sheltered Workshop and Food Lifeline (a food distribution warehouse that serves food banks in Western Washington). The Excess Property Map shows the boundary of the planning area and the Excess Property.

The proposed Master Development Plan provides direction for the reuse of the Excess Property with a mix of new uses including:

- Governmental offices and facilities;
- Mixed use commercial/residential;
- Civic and community services;
- Open space, trails, tree preservation and enhancement of portions of Hamlin Creek;
- A mix of housing types;
- New landscaping that will help to define each distinct use area;
- Improved engineered and natural drainage systems; and
- An improved circulation system.

The Master Development Plan also plans for potential future reuse of the area containing the Y Buildings, which house the Fircrest School Nursing Home facility. Because the Y Buildings are expected to continue unless and until the State determines that they should be replaced by a new facility, they are not currently considered Excess Property.

The land use, access and circulation, open space / natural features preservation and enhancement, and utilities aspects of the master plan are explained further below.

Land Uses

The Comprehensive Plan Amendment would authorize the specific new uses (listed above) on the Campus, and the Master Development Plan permit would establish site-specific development standards for the Campus (excluding DOH). By establishing new use and development standards, the master plan would allow for a more diverse range of land uses than what currently exists on the Campus. It would also specify that the existing Fircrest School uses, including the Y Buildings, are conforming uses. In contrast, under current regulations the existing Campus uses are non-conforming, currently requiring special or conditional use permits for renovations, alterations, expansions or new buildings.

The Master Development Plan would specify distinct development areas within the Campus; these areas are defined based on existing built and natural features, existing and proposed circulation, and compatibility of future uses with adjacent uses. Each of these areas would be subject to distinct use and development standards. See the Master Plan Map and Table 1 below.

Table 1: Summary by Area

Area / Uses	Acres*	Maximum Allowed
Fircrest School – Main Campus	26.7	up to 500,000 sq ft**
Area 1: Y Buildings (Nursing Home); townhouse, small-lot single-family, mid-rise residential	14.1	up to 379 units
Area 2: Governmental office, mixed-use civic/residential, potential expanded Activities Building & market garden/pea-patch	8.9 (includes market garden/pea-patch)	up to 100 units 309,300 sq ft govt. office & civic, 11,700 sq ft potential Activities Building expansion
Area 3: Mixed-use retail/residential	5.4	up to 202 units 34, 900 sq ft retail
Area 4: Existing Non-Profit Uses	5.2	37,000 sq ft (existing)
Area 5: Townhouse/rowhouse, stormwater pond as amenity	5.6	up to 181 units
Open Space: Tree preservation areas, trails, daylighted stream channel, chapel, healing garden, stormwater pond as amenity	15.3	none

*includes roads

**Square footage includes all existing Fircrest School uses (including Y Buildings in Area 1) except for the Activities Building in Area 2 which served both Fircrest School and the public until its closure in 2009. These uses currently total approximately 454,500 sq ft. An expansion of square footage of Fircrest School facilities of slightly more than 10% would be allowed for in the Master Plan. Fircrest School Main Campus square footage allowance would allow for future potential relocation of the Nursing Home function to the Main Campus. Potential future expansion of the Activities Building is accounted for in civic uses in Area 2.

Table 2 summarizes new land uses for the 83-acre planning area as a whole.

Table 2: Summary by Use

Use	Amount
------------	---------------

New residential units	up to 862 units
New retail uses	34,900 sq ft
New office uses	255,000 sq ft
Civic uses (includes existing Activities Building)	66,000 sq ft
Fircrest School uses	up to 500,000 sq ft
Existing non-profit uses	37,000 sq ft
Trails*	1.3+ miles
Public use areas/open space	15.3 acres

*Additional non-motorized facilities are provided as sidewalks.

As shown in Table 1, the Fircrest School currently consists of approximately 454,500 sq ft of buildings (including the Y Buildings) not including the Activities Building which served both Fircrest School and the public until its closure in 2009 due to State budget considerations. The Master Development Plan would allow for an expansion of square footage of Fircrest School uses of slightly more than 10%. This square footage would allow for construction of a new nursing home facility if DSHS determines that that is the most appropriate way to serve its clients. It is expected that the population of Fircrest School will continue to be similar to the existing population of approximately 200 residents, and this allowance for expansion means the school can continue to serve this population. Potential future expansion of the Activities Building would also be allowed (above and beyond the 10% expansion of Fircrest School square footage), and is accounted for in the planned uses in Area 2.

The land use plan allows for the most intensive, most urban uses, such as office and retail/residential mixed use, to be located adjacent to 15th Avenue NE in the southern half of the Campus, where they are most readily served by transit and are closest to other nearby retail and multi-family uses.

Residential uses in Area 1 would be buffered from single-family uses across 15th Ave NE by a forested slope adjacent to 15th. This forested slope would be retained to the extent practical while still providing a sidewalk or path for pedestrians. Because of topography and trees that would be retained, there is little opportunity for new uses in this area to be visible from other areas.

Residential uses in Area 5 would be buffered from single-family uses south of NE 150th St by a stormwater pond that would be designed as an amenity. To the east, a steep slope defined the boundary between the Campus and Hamlin Park, also providing natural buffering.

Although the Master Development Plan would not specify implementation of planned land uses, changes to land use in

Areas 1, 2, 3 and 5 would be expected to occur in phases as portions of the master plan are implemented. These changes would be timed with changes to access and circulation, development of trails and open space features, and development of new utility and stormwater management systems. Because land use changes in Area 1 would only occur if and when DSHS were to replace the Y Buildings with a new Nursing Home facility on the Campus, it is expected that changes in Area 1 would occur in the most distant phase. Implementation of the Master Development Plan in portions of the Campus with the lowest elevations (generally furthest south) prior to areas with the highest elevations (Y buildings area) is also consistent with ensuring required stormwater management features are in place to serve new development.

Land use compatibility, housing types and building heights are further described under sections 8. Land and Shoreline Use, 9. Housing and 10. Aesthetics of this Expanded Environmental Checklist.

Chapel

The Campus contains one existing building, the Campus Chapel that is eligible for designation under the National Register of Historic Places. This building is located in the area designated as Open Space under the Master Development Plan, and would be retained. See section 13 Historic and Cultural Preservation of the Checklist for further discussion.

Open Space, Tree Preservation and Hamlin Creek

The Fircrest Campus currently contains a large amount of retained forest area, open space and unprogrammed open areas where buildings have been removed in the past. The open space includes an ADA accessible garden and walkway known as the Healing Garden (see the Master Plan Map).

The Master Development Plan would preserve approximately 15.3 acres of the forest area and open space. This would include tree preservation in these areas. A network of public multi-use trails and sidewalks would connect these open spaces to the rest of the Campus and to the surrounding community, including connections to adjacent open spaces in Hamlin Park, South Woods Open Space, and potentially to playing fields associated with Shorecrest High School and Kellogg Middle School depending on School District considerations (see the Green Infrastructure Plan, the Access and Circulation discussion below, and the Access and Circulation Plan).

The Master Development Plan would require retention of the existing Healing Garden within the designated Campus open space; however, it would allow for the Healing Garden to be slightly relocated and enhanced.

The Master Development Plan would also include a Pea-Patch /

Market Garden in Area 2 (civic use area) near the existing Activities Building.

New open spaces under the Master Development Plan would include an open space areas adjacent to proposed multi-family housing, daylighting of a segment of Hamlin Creek, and enhanced stormwater facilities that would be designed to serve as a site amenity. See the Green Infrastructure Plan.

The daylighted segment of Hamlin creek, located east of Area 5, would occur within a 70' stream corridor (including a 20' meander zone and 25' buffers, exceeding City requirements of 10' minimum buffers for daylighted streams). The stream would run generally along the toe of the slope adjacent to South Woods Open Space (see the Green Infrastructure Plan). This segment would be planted to provide an enhanced habitat area. A soft-surface trail would be located in the western stream buffer. Hamlin creek is an intermittent drainage channel that does not support fish. With daylighting, it is expected to continue to be intermittent and non-fish-bearing.

The Master Development Plan would require that, with development of new uses, designated open space be preserved and improved as specified, including daylighting of the stream segment and construction of new trail connections. The specific manner of funding and implementing these improvements, and the agency that would operate and maintain them, would be determined with implementation or through a Development Agreement between DSHS and the City of Shoreline prior to implementation.

See Section 12 Recreation of this Checklist for further discussion of Campus recreational resources. See section 4 Plants and section 5 Animals, Appendix G, and Appendix J for further description.

Access and Circulation

Access to the Fircrest Campus is currently from 15th Ave NE at NE 155th St, and from NE 150th St at 17th Ave NE and further east at 20th Ave NE. (DOH has a secondary access from NE 150th Street approximately 200 feet east of 15th Ave NE that does not serve other areas of the Campus.) There are also gated, unimproved former access points from NE 160th Street into the northeast portion of the Campus. There are currently no formal pedestrian-only access points.

Existing circulation within the Campus is provided via a network of local access drives, including a primary north-south drive that provides access to the Fircrest School, DOH facilities, Firland workshop, and Food Lifeline. The existing circulation pattern is a remnant of the historical use of the site, and includes considerable unused impervious surfaces, redundant and obsolete roadways, and inefficient connections. The existing system also lacks sidewalks in some areas, is difficult from a

wayfinding perspective, and does not separate cars from service vehicles. There is currently no formal pedestrian-only circulation system.

The proposal would retain the existing vehicular access point at 15th Ave NE / NE 155th St, would create or re-establish four other vehicular access points, and would have one additional emergency access point. Vehicular access points would be as follows:

- The access at 15th Ave NE / NE 155th St would become the main access to Fircrest School via improvement of an existing roadway between the Administration Building (Building 500) and the Activities Building. See the Master Plan Map and the Circulation Plan. The NE 155th Street access would also serve new office uses and the potentially expanded Activities Building in Area 2, and future new residential uses in Area 1 if DSHS were to replace the Y Buildings and allow for residential development in that area.
- If Area 1 is developed with residential uses in the future, a secondary access would be provided from NE 160th Street approximately 150 feet east of 15th Ave NE.
- Area 3 Mixed Use would be accessed from 15th Ave NE near NE 152nd St. Exits onto 15th Ave NE would be right-turn only.
- A second access to Area 3 would be from NE 150th St approximately 150 feet east of 15th Ave NE.
- A boulevard would be established going northward into the Campus from NE 150th St approximately 900 to 1,000 feet east of 15th Avenue NE. This would serve as the service vehicle entrance to the Fircrest School allowing access to the existing main roadway within the School. It would also provide access to Firland Workshop and Food Lifeline (Area 4 Existing Non-Profits) both of which require truck access, and it would serve new townhouse/rowhouse residential uses in Area 5.
- There would be an emergency vehicle access point from NE 160th St into the northeast portion of the Campus to serve Fircrest School. There is currently an unimproved gated access in this location.

It is expected that DOH would continue to be served by the existing access point at NE 150th St / 17th Ave NE; however, this access would serve only DOH. DOH access in the future would be determined by its separate master planning process but would likely be from the service boulevard between Areas 4 and 5.

Vehicle circulation would allow movement between Areas 1, 2 and Fircrest School, ensuring that Fircrest School residents can get to the Activities Building if it were to re-open. It would also largely separate truck circulation associated with the Fircrest School from automobile access to the School. While Areas 3 and

5 would not have direct vehicular connections to other new use areas, they would have direct bicycle/pedestrian access via a network of new trails. Additionally, an emergency vehicle access would be provided along a planned trail running east from 15th Ave NE north of Area 3, DOH, and Area 4.

A network of trails and sidewalks would provide pedestrian and bicycle access and connectivity across the Campus. These would also connect the Campus to adjacent transit on 15th Ave NE, Hamlin Park, South Woods Park, Shorecrest High School and Kellogg Middle School, and would allow the general public to cross the Campus in order to more directly access these resources by foot or bicycle.

Changes to access and circulation would occur in phases as portions of the Master Development Plan are implemented. However, it is expected that the new primary access to the Fircrest School from 15th Ave NE / NE 155th St and the new service access to the School from NE 150th St would be improved in an early phase of the development to ensure continuous access to Fircrest School, and continuous circulation from Fircrest School to the Activities Building (if it were to re-open).

See section 14 Transportation of this Checklist and Appendix H Transportation Impact Study for further description.

Stormwater and Utilities

The Master Development Plan emphasizes low impact development (LID) strategies for stormwater management, including minimizing impervious surfaces where practical, bioretention swales along new or rebuilt roadways and parking lots, rain gardens to capture roof run-off, and storm detention systems with enhanced habitat and/or public open space features.

It is expected that Areas 2 and 3 (office and civic uses and mixed use, respectively), which represent the most urban types of development in the Master Development Plan and are located along 15th Avenue NE, would be served by stormwater vaults for runoff that cannot be infiltrated. Areas 1 and 5, once developed with new uses, would incorporate more LID techniques and would be served by surface stormwater detention ponds that are designed as a public/open space amenity. In all areas, the volume of required detention would be reduced to the extent practical through the use of LID techniques for stormwater management.

The Master Development Plan outlines the conceptual plan for the proposed daylighted segment of Hamlin Creek, and provides guidance for the future restoration work. The daylighted creek segment, located east of Area 5, would be designed to accommodate pass-through flows (which the existing piped/ditched Hamlin Creek channels on the Campus currently accommodate). Rain gardens would be sited in Area 5 adjacent

to the creek buffer.

With improvements to the Hamlin Creek system, the Master Development Plan calls for the two existing piped channels to be combined at a location in the northern portion of the Campus. Pass through flows, which come from the north of the Campus and currently pass through the existing piped/ditched Hamlin Creek channels, would continue to do so via the existing channels and the improved Hamlin Creek. The Master Development Plan encourages potential future improvements to the piped/ditched Hamlin Creek channels in the northern part of Campus if there are improvements to the Main Fircrest School Campus. See the Green Infrastructure Plan.

New utility connections for water and sewer would be required for development of new land uses. Detailed engineering and design for sewer, water, and stormwater systems would occur in conjunction with future development permit applications.

See section 3 Water and Appendix I, Stormwater Analysis, for further description of proposed stormwater management. See section 16 Utilities and Appendix K, Water Technical Memo for further description of utilities.

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

The project area is located within the Fircrest Campus which is in the E ½ of Section 16, Township 26N, Range 4E and located at 15230 15th Ave NE in Shoreline, King County, WA. The site is bounded by Hamlin Park to the north, Shorecrest High School and the South Woods Open Space to the east, NE 150th St to the south, and 15th Ave NE to the west.

B. ENVIRONMENTAL ELEMENTS

1. Earth

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

In general, Campus topography consists of two parallel, roughly north-south ridges bordering a relatively flat valley that broadens out toward the southern portion of the Campus. The western portion of the Campus consists of a series of plateaus

that step down to relatively flat terrain in the southwestern portion of the Campus.

The Campus includes flat areas, areas with gentle slopes, and smaller areas of steeper slopes. The highest elevations are located in the northwest of the Campus, and the lowest in the southern portion of the Campus. There are three areas of steep slopes: the first is a forested area separating 15th Avenue NE from the northern portion of the Campus; the second is a slope that separates higher portions of the Campus in the northwest from lower portions in the east and south; the third is a slope running generally along the eastern edge of the Campus that separates the lowest portions of the Campus from properties to the east. These slopes create ridges that define the broad valley with a flat floor in the northeastern and southern portions of the Campus.

- b. What is the steepest slope on the site (approximate percent of slope).

The three steeper slopes described above range up to 40 percent.

- c. What general types of soils are found on the site (for example clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

The majority of soils are classified as Alderwood, gravelly sandy loam. These are predominantly underlain by Vashon Till, a lodgement till that ranges from gravelly, sandy silt to silty sand with varying amounts of clay and scattered cobbles and boulders. Colluvium, a loose to medium dense soil covers the side and toe of the Campus's slopes. There are some looser soils in naturally in-filled depressions in the valley floor.

The Campus also includes areas of artificial fill containing loose debris and soils. Artificial fill is located in three areas within the planning area:

- Eastern slope of the western ridge, in the sloped area south of the Activities Building (southeast of Area 2).
- Up to six feet of fill is found in the southern end of the valley. This is known to be on the DOH property, and potentially within portions of the Excess Property.
- Filled basement excavation, located in the flat southern portion of Area 2, south of the Activities Building, where a building was demolished in the late 1970s or early 1980s.

- d. Are there surface indications or history of unstable soils in the immediate vicinity? If so describe.

The entire Fircrest Campus is underlain by dense to very dense lodgement till that is not susceptible to liquefaction, lateral spreading or landslides. The 2002 geotechnical report by Golder Associates showed that all slopes appear stable with no signs of significant erosion or sliding.

- e. Describe the purpose, type and approximate quantities of any filling or grading proposed. Indicate source of fill.

The proposal is programmatic, and therefore specific quantities of any potential filling or grading are unknown. These quantities would be determined with submittal of applications for individual developments. It is expected that some grading would occur, with the largest amounts of grading in Area 2 and areas containing artificial fill.

- f. Could erosion occur as a result of clearing construction or use? If so generally describe.

The proposal is a non-project action. However, with implementation of the Master Development Plan, there is potential for erosion as a result of clearing and construction, particularly along slopes. Steep slopes in the northwest and eastern portions of the Campus would be preserved. Under the Master Development Plan, the third steep slope (ridgeline), which runs diagonally through the Campus, would form the boundary between the Main Fircrest School Campus; this slope would generally also be preserved except where improvements to the existing roadway that crosses it are needed. There may also be grading of some slopes in Area 2 which would result in potential for erosion.

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

The Fircrest Campus currently has redundant impervious areas as a result of years of piecemeal development and demolition of prior structures that were served by parking lots and site roadways and/or driveways. Currently, approximately 40-50 percent of the 83-acre planning area is covered in impervious surfaces.

The Master Development Plan establishes impervious surface coverage limits for each development area; pervious paving materials count as 50 percent impervious and are encouraged. The Master Development Plan emphasizes reducing the amount of impervious surfaces using narrower road widths, minimized surface parking and/or parking tucked under buildings where practical, and LID techniques such as pervious paving materials to minimize impervious surfaces to the extent practical.

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

Measures to reduce the potential for erosion and other earth-related impacts include:

- **Requirements for stormwater management consistent with the 2005 Stormwater Management Manual for Western Washington.**

- **Limits on impervious surface coverage for each development area.**
- **Requirements for LID techniques which will reduce stormwater runoff.**
- **Design of a daylighted stream channel with capacity to accommodate pass-through flows.**
- **Retention of 15.3 acres of the Campus in open space with natural vegetation.**

Additionally, with implementation, in accordance with the City of Shoreline Municipal Code and Master Development Plan requirements, a Temporary Erosion and Sediment Control (TESC) plan will be developed for each development project implemented. TESC measures will be consistent with the 2005 Stormwater Management Manual for Western Washington.

2. Air

- a. What types of emissions to the air would result from the proposal (i.e. dust, automobile, odors, industrial, wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.**

The proposal is a non-project action. However, construction activities associated with implementation of the Master Development Plan will stir up dust particles and construction vehicles and equipment will also be a potential source of exhaust emissions. Once the site is built-out, the primary sources of emissions will be vehicle trips of employees, residents and others who visit the site. New uses are expected to generate 852 weekday PM peak hour trips at buildout (includes entering and exiting trips); however, these will be spread across the site.

The proposed Master Development Plan emphasizes smart growth principles, which will help reduce emissions from vehicles as compared to traditional development because of increased walkability. Green building strategies will also be emphasized by the proposed Master Development Plan which could contribute to improved air quality as compared to traditional development.

- b. Are there any off site sources of emissions or odor that may affect your proposal? If so, generally describe.**

With the exception of motor vehicle exhaust from adjacent roadways, no off-site sources of emissions or odor will affect the proposal.

- c. Proposed measures to reduce or control emissions or other impacts to air if any:**

The Master Development Plan incorporates smart growth principles, including a mix of uses that are supportive of transit, proximity to transit, and non-motorized transportation connections across and within the Campus. These principles are

intended to reduce vehicle miles traveled by single occupancy vehicles, which results in reduced emissions compared to traditional development.

Construction during Master Development Plan implementation will comply with applicable regulations to reduce emissions from vehicles and construction activities.

3. Water

a. Surface:

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

Hamlin Creek, an intermittent, non-fish-bearing stream and tributary of Thornton Creek, runs just outside the property fence on the Northeast side of the campus. It is directed underground through a culvert as it enters the Campus on the eastside and runs underground for about 400 feet near the eastern edge of the Campus. Then it alternates between an unvegetated ditch and a culvert to where it exits the Campus at the south. A second channel of Hamlin Creek enters the northern property boundary further to the west and runs in a pipe to a point in the mid-Campus where it joins the main channel.

There are no wetlands or permanent surface water bodies occurring within the site or its immediate vicinity.

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

The Master Development Plan calls for daylighting and restoring of portions of Hamlin Creek, an intermittent, non-fish-bearing stream. Upon Master Development Plan implementation, the stream channel would have a 25' buffer with enhanced vegetation. A soft surface trail would be located within the buffer consistent with City regulations. Residential structures would be set back at least 7' from the boundary of the designated open space. See Appendix J for further description of the stream buffer.

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

The proposal is a non-project action, and the earthwork amounts for creek restoration have not been determined. The creek is intermittent and work would enhance and restore it. See Appendix J.

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

The proposal is a non-project action. However, construction of the daylighted Hamlin Creek channel could involve temporarily diverting this intermittent stream. It is expected that work on the stream would be done during the dry period and diversions would be minimal.

No surface water withdrawals would occur as a direct or indirect result of the Master Development Plan.

5. Does the proposal lie within a 100 year floodplain? If so, note location on the site plan.

No.

6. Does the proposal involve any discharges of waste materials to surface waters? If so describe the type of waste and anticipated volume of discharge.

The proposal is a non-project action.

Following on-site water quality treatment, stormwater runoff from new uses would enter the City of Shoreline storm mains serving the Campus, which ultimately discharge to Lake Washington. No surface water from new uses would discharge directly to the restored Hamlin Creek segment.

b. Ground:

1. Will ground water be withdrawn or will water be discharged to ground water? Give general description, purpose and approximate quantities if known.

The proposal is a non-project action. No discharges to groundwater are expected to occur with construction to implement the Master Development Plan.

Groundwater is known to occur between six and seven feet below the surface in the southern portion of the Campus. It is possible that construction of new uses in the southern portion of the Campus could require dewatering, particularly if below-ground excavation is required for underground parking. The need for construction dewatering would be determined with application for individual development projects.

Following construction, low impact development features such as rain gardens would infiltrate water into the ground, to the extent practical given that known soil conditions limit

infiltration capacity. Stormwater runoff beyond what can be infiltrated will be managed with ponds or vaults and routed to City stormwater facilities.

2. Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: Domestic sewage; industrial, containing the following chemicals ...; agricultural; etc.). Describe the general size of the system, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

The proposal is a non-project action. However, all existing and future uses on the site are and will be served by the sanitary sewer system. No waste materials would be discharged into the ground.

c. Water Runoff (including storm water):

1. Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

The proposal is a non-project action. However, Master Development Plan implementation would generate stormwater runoff as the primary source of runoff. Runoff from building roofs, roadways, parking lots, walkways, and other impervious surfaces will be managed to the extent practical with low impact development techniques, including bioretention swales, rain gardens, porous paving materials where practical, and the planting of trees and other vegetation, and infiltrated on-site to the extent practical. Any stormwater runoff that is not infiltrated on-site will be conveyed to one of several on-site water quality treatment and detention vaults and ponds. This water would discharge to the City of Shoreline storm drainage system that currently serves the site and drains into Lake Washington.

See Appendix I, the technical memorandum for surface water management accompanying this checklist.

2. Could waste materials enter ground or surface waters? If so, generally describe.

The proposal is a non-project action. However, appropriate water quality measures consistent with the 2005 Stormwater Management Manual for Western Washington and City of Shoreline requirements will be implemented to prevent waste materials from entering ground or surface waters during and after construction.

3. Proposed measures to reduce or control surface ground and runoff water impacts, if any:

Construction activities that would occur as part of Master Development Plan implementation would use best management practices identified in a Temporary Erosion and Sedimentation Control Plan (TESC). The TESC will comply with the City of Shoreline requirements and the 2005 Manual, and will be submitted as part of individual building permit applications.

The Master Development Plan will require water quality treatment in accordance with 2005 Stormwater Management Manual for Western Washington for all new development on the Campus. More specific design and engineering will occur with implementation of the Master Development Plan. The onsite stormwater system will be subject to review and approval by the City of Shoreline's Public Works Department prior to any construction.

The proposed Master Development Plan will require the integration of low impact development strategies as part of all site development occurring within the excess property. Such strategies will include bioretention swales to capture stormwater runoff along roadways and within parking areas, rain gardens to capture roof runoff, pervious paving materials where practical, and the planting of new vegetation that will help to intercept and uptake stormwater.

See Appendix I, the technical memorandum for surface water management accompanying this checklist.

4. Plants

- a. Check or circle types of vegetation found on the site:
 deciduous tree: alder, maple, aspen, other (see Appendix G regarding existing tree species)
 evergreen tree: fir, cedar, pine, other
 shrubs
 grass
 pasture
 crop or grain
 wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
 water plants: water lily, eelgrass, milfoil, other
 other types of vegetation
- b. What kind and amount of vegetation will be removed or altered?

The proposal is a non-project action. However, shrubs, grass, and non-significant trees may potentially be removed where structures are to be built or circulation, including trails, and utilities are to be constructed. This would primarily occur in Areas 1, 2, 3 and 5.

- c. List threatened or endangered species known to be on or near the site.

There are no known threatened or endangered species on or near the site.

- d. Proposed landscaping use of native plants or other measures to preserve or enhance vegetation on the site if any:

The Master Development Plan identifies development areas and the future location of roads and trails that are generally outside of remnant forest areas and significant stands of trees and landmark trees.

The Master Development Plan will require retention of healthy significant and landmark trees within designated open space to the extent practical (see the Green Infrastructure Plan). The designated open space consists of a treed perimeter at the northwest corner, a large interior area around the chapel with connectors forming borders along the west edge of the Fircrest School site, and a buffer along the south east corner. Trees in these areas consist of mixed, deciduous, coniferous native vegetation. Within the forest remnants there is exceptional high quality, mixed deciduous and coniferous native trees and healthy under-story, that has not been invaded by non-native species.

The Master Development Plan identifies tree canopy cover targets for the Campus and for each development area, along with strategies for meeting these targets. This includes recommended trees for retention within the development areas, and strategies for more tree planting. It also includes policies guiding project-specific site planning and future stewardship of trees.

The Master Development Plan requires vegetation, including native plants, be added as the site is developed in order to provide buffers, enhance aesthetics, and provide ecological benefits.

The Master Development Plan requires native riparian plant species to be planted as part of the daylighting of Hamlin Creek.

5. Animals

- a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site:

Birds: hawk, heron, eagle, songbirds other: _____

Mammals: deer, bear, elk, beaver, other: _____

Fish: bass, salmon, trout, herring, shellfish, other: _____

- b. List any threatened or endangered species known to be on or near the site.

There are no known threatened or endangered species on or near the site.

c. Is the site part of a migration route? If so explain.

The Fircrest Campus is not known to be specifically part of a migration route. However, the region is part of the Pacific Flyway, a known route for migratory birds.

d. Proposed measures to preserve or enhance wildlife if any:

Measures to preserve and enhance vegetation will also preserve and enhance habitat on the site. These include:

The Master Development Plan identifies development areas and the future location of roads and trails that are generally outside of remnant forest areas and significant stands of trees and landmark trees.

The Master Development Plan will require retention of remnant forest and significant and landmark trees within designated open space (see the Canopy Cover Target Map), except where disturbance is needed for construction of trails and roads.

The Master Development Plan requires vegetation, including native plants, be added as the site is developed in order to provide buffers, enhance aesthetics, and provide ecological benefits.

The Master Development Plan requires native riparian plant species to be planted as part of the daylighting of Hamlin Creek. See Appendix J for further discussion of the Hamlin Creek corridor as a habitat area.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc

This is a non-project proposal, and therefore the kinds of energy used to meet the needs of future development are unknown at this time. However, energy will be needed for heating and lighting for new homes, offices, civic uses, and mixed-use buildings, and lighting will be needed for streets, sidewalks and trails. Energy sources will likely be some combination of electric, natural gas, and potentially renewable sources.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

Because of the topography of the Campus, setbacks and

buffers separating new uses from existing and adjacent uses, and proposed building height limits, development under the Master Development Plan would not affect the potential use of solar energy by adjacent properties.

- c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts if any:

The Master Development Plan encourages green building features to promote energy conservation such as passive solar heating, efficient HVAC systems, daylighting, etc.

The Master Development Plan calls for a significant amount of non-motorized facilities that will allow new residents and employees to access onsite retail, recreational and civic uses and nearby parks, schools and transit by foot or bicycle. The sidewalks and trails will also allow area residents to access these features by crossing the Campus, improving non-motorized connectivity in the area.

The Master Development Plan incorporates smart growth principles such as a mix of uses, and retail, employment, parks and civic uses in close proximity to residential uses to reduce the need for vehicle trips and associated energy use. It is also located in close proximity to transit and incorporates transit-supportive housing and employment densities.

7. Environmental Health

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

The proposal is a non-project action. However, construction activities that would occur with implementation of the Master Development Plan have the potential to encounter asbestos-containing materials from buildings that were demolished prior to the late 1970s, as well as abandoned steam and condensate pipe found throughout the site.

State regulations require the clean-up of asbestos -containing materials as part of the sale or lease of land and before any development occurs.

1. Describe special emergency services that might be required.

The proposal is a non-project action. However, it is not expected that special emergency services provided by any government agencies would be required as a result of Master Development Plan implementation. Asbestos remediation, provided by an asbestos remediation specialist, may be required; however, this would be provided by a contract as part of construction activities and is not a special emergency

service.

2. Proposed measures to reduce or control environmental health hazards, if any:

Where the presence of asbestos is suspected based on records of prior buildings and demolitions, a sampling program would be conducted prior to the start of construction activities including earthwork if asbestos is suspected underground (from buildings demolished prior to the late 1970s. If encountered, asbestos-containing materials would be removed and disposed of in accordance with applicable state and federal regulations. Cleanup would comply with all applicable regulations.

b. Noise

1. What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

The primary source of noise in the area is from traffic along adjacent roadways, and from trucks serving existing Campus uses such as Fircrest School, Food Lifeline and Firland Sheltered Workshop.

2. What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

The proposal is a non-project action. However, construction activities that would occur with implementation of the Master Development Plan will produce short-term impacts. Maximum noise levels from construction activities can be expected to range from 57 to 89 dBA (based on a construction activity noise model, described in the U.S. Environmental Protection Agency's Noise from Construction Equipment and Operations, Building Equipment, and Home Appliances).

It is expected that noise levels associated with human activity on the Campus would increase with buildout under the Master Development Plan. Noise levels would be typical of an urbanized area and would be associated with new retail, office, residential and civic uses on the Campus and are not expected to be significant. New uses, residents, employees and visitors to the Campus would be subject to applicable City of Shoreline noise regulations.

Increases in vehicle traffic associated with new uses would also result in increased noise on-site and on area roadways. However, increases would be typical of urbanized areas and are not expected to be significant.

3. Proposed measures to reduce or control noise impacts, if any:

Construction and operation of development under the Master Development Plan will comply with applicable City of

Shoreline noise regulations.

Noise impacts associated with construction phases of the project will be limited in duration. To mitigate general noise impacts during the construction phases, measures such as using and regularly maintaining efficient mufflers and quieting devices on all construction equipment and vehicles will be taken.

8. Land and Shoreline Use

- a. What is the current use of the site and adjacent properties?

The 83 acres of the Fircrest Campus that are part of this Master Development Plan include the following existing uses:

- Fircrest School, a State operated residential facility with supporting services that serves the needs of persons with developmental disabilities. This includes all facilities in the Fircrest School – Main Campus area and the Y Buildings (Nursing Home facilities) in Area 1;
- Activities Building, a facility that has been part of the Fircrest School but also has been open to the general public until its recent closure;
- Two buildings occupied by non-profit tenants: Firland Sheltered Workshop and Food Lifeline (a food distribution warehouse that serves food banks in Western Washington);
- Fircrest Chapel;
- Forested areas;
- Two intermittent drainage channels that are part of Hamlin Creek;
- Vacant 1510 Court buildings in the southwest portion of the Campus (Area 3);
- Vacant land where prior buildings once stood.

Uses adjacent to the 83 acres of the Fircrest Campus covered by this Master Development Plan include:

- Hamlin Park to the north,
- Kellogg Middle School to the northeast,
- South Woods Open Space and Shorecrest High School to the east,
- Residential uses to the west and south across 15th Ave NE and NE 150th St, respectively, and
- Department of Health Public Health Laboratory located in the south-center portion of the Campus but not part of this Master Development Plan.

- b. Has the site been used for agriculture? If so, describe

No.

- c. Describe any structures on the site.

Structures within the Fircrest School Area – Main Campus include: the “500” Administration Building, residential cottages, “200” residential building, Adult Training Program building, Food Services building, “35” Maintenance building, Commissary, Steam Plant, Laundry, and a number of other associated buildings supporting the Fircrest School. A complete list of existing buildings is found in the Draft Master Development Plan document. These buildings vary in age and condition.

The six single-story Y Buildings (Nursing Home facilities) are

located in Area 1 but are not designated as Excess Property and are part of the Fircrest School. These are cinderblock structures built in the 1960s that have been periodically renovated to support the nursing home function which includes housing immobile residents of the Fircrest School. They were not originally designed for this function.

The Activities Building is located within Area 2 but is not designated as Excess Property. It is part of the Fircrest School but has also served the general public, although it is currently closed due to State budget considerations. It contains a gymnasium, swimming pool, activity rooms, and administrative offices.

The Fircrest Chapel is located within the designated Open Space area. It is not designated as Excess Property. It is part of the Fircrest School but also serves the general public.

Structures within the excess property include:

- Three vacant “1510 Court” residential buildings and one vacant “1510 Court” storage building. These single-story buildings have been vacant for a number of years and are in poor condition. They were formerly part of the Fircrest School but are in an area designated by the State as Excess Property in 2007.
- Two prefabricated metal buildings located in Area 4 totaling 37,000 sq ft. While these buildings are located on land designated Excess Property in 2007, they are rented to two tenants as part of a long term lease agreement and are part of the Existing Non-Profit Use Area under the proposed Master Development Plan.

d. Will any structures be demolished? If so, what?

The proposal is a non-project action that will not include demolition of any structures. The proposal establishes new zoning for the Campus that will allow for future re-use of the Excess Property, potential future expansion of the Activities Building, and potential future re-use of the Y Buildings area (Area 1) if DSHS were to replace them with a new Nursing Home facility on the Main Fircrest School Campus.

Structures that could be demolished in the future to allow for Master Development Plan implementation include the four 1510 Court buildings, and potentially the Y Buildings in a future stage of Master Development Plan implementation if DSHS were to construct a new Nursing Home facility.

Demolition of any of these existing structures would be a separate action that would require approval by DSHS and a demolition permit from the City of Shoreline. Demolition of the Y Buildings would not occur unless the State Legislature were to approve construction of a new Nursing Home facility.

The Master Development Plan would require retention of the

existing Chapel. The Activities Building could potentially be expanded under the Master Development Plan.

The Master Development Plan would allow for buildings on the Main Fircrest School Campus could be renovated or potentially replaced without the need for a special or condition use permit. However, it is not expected that demolition of any buildings in use would occur unless the State Legislature approves construction of a new building to replace the existing function.

e. What is the current zoning classification of the site?

Campus (Fircrest Campus Zone).

f. What is the current comprehensive plan designation of the site?

Campus

g. If applicable, what is the current shoreline master program designation of the site?

Not applicable.

h. Has any part of the site been classified as an “environmentally sensitive” area? If so, please specify.

King County Assessor data shows that no environmentally sensitive areas exist on the site. However, there are some areas steep slopes within the Campus. Hamlin Creek on the Campus is not classified as a stream (see Appendix J).

i. Approximately how many people would reside or work in the completed project?

The proposal is a non-project action. However, it would create capacity for new uses that would be occupied by new residential population and employees once built. Upon full buildout of the proposed Master Development Plan the estimated new population on the Campus would be:

- **1,860 new residents on the Campus in new residential uses.**
- **1,128 new employees on the Campus in new office and social service uses.**

The population estimate is based on a household size of 2.8 persons per housing unit sized to accommodate three or more bedrooms, and 1.8 persons per housing unit of 2 or fewer bedrooms (Source: City of Shoreline). This assumes cottages and townhouses are sized for 3 bedrooms, and other units are sized for 2 bedrooms or less. Units in Area 5 would be a mix of townhouse/rowhouse and carriage units. It is assumed that approximately 75% of units in Area 5 would be 3 BR or larger. It has not been determined whether residents would be

from the general population or whether a portion of new housing units would be geared toward supported housing or other type of public benefit housing. Area 1, which would be developed at a later phase or not at all if DSHS does not decide to replace the Y Buildings with a new Nursing Home facility on the main campus, accounts for 854 or 46% of new population capacity.

The employee estimate is based on 1 employee per 250 sq ft of office or social service uses.

The Fircrest School currently has approximately 200 residents and employs a level of staffing staff to serve this population, which would not change as a result of this proposal. While the Master Development Plan will allow for 10% expansion in the square footage of Fircrest School facilities, this assumes that the population and staffing of the school would remain similar to its existing levels.

- j. Approximately how many people would the completed project displace?

The proposal is a non-project action. However, it would provide land use capacity for new uses in the area containing the Y Buildings. No people would be displaced as a direct or indirect result of the Master Development Plan without being provided for in a new facility.

The Y Buildings include beds for 108 Fircrest School Nursing Home residents. However, new uses could only be developed in the Y Buildings area if DSHS were to replace the Y Buildings with a new Nursing Home facility on the Main Fircrest School Campus.

- k. Proposed measures to avoid or reduce displacement impacts, if any:

Not applicable. The Master Development Plan would not displace any existing residents. New uses would only occur in the Y Buildings area if DSHS were to replace the Y Buildings with a new Nursing Home facility on the Main Fircrest School Campus.

- l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

The Master Plan sites new uses in a manner that is consistent with existing adjacent uses. Further, it includes buffers where needed to reduce the potential for incompatibilities.

The Master Development Plan was developed in partnership with the City of Shoreline. In addition to responding to State Legislative goals and GMA goals, it responds to goals and policies of the Shoreline Comprehensive Plan that call for a mix of uses, providing a variety of housing options, promoting

efficient use of land, encouraging alternative modes of transportation, and maintaining the natural environment. These City goals and policies include:

Land Use Patterns

Goal LU I: Ensure that the land use pattern of the City encourages needed, diverse, and creative development, protects existing uses, safeguards the environment, reduces sprawl, promotes efficient use of land, encourages alternative modes of transportation and helps to maintain Shoreline’s sense of community.

Goal LU V: To assure that a mix of uses, such as service, office, retail, and residential, are allowed either in low intensity buildings placed side by side or within the same building in designated areas, on arterials, or within close walking distance of high frequency transit, serving a neighborhood commercial and residential function.

The proposed Master Development Plan would re-use property in an already urbanized area to include a mix of uses in close proximity to transit and existing commercial uses.

Natural Environment

Goal LUXVIII: Preserve, protect, and where feasible, restore wetlands, shorelines, surface water, and ground water for wildlife, appropriate human use, and the maintenance of hydrological and ecological processes.

LU96: Encourage the use of “green” building methods and materials (such as LEED, Built Green, etc.) that may reduce impacts on the built and natural environment, such as to: Reduce stormwater impacts to protect local watersheds and salmon, conserve energy and water, prevent air and water pollution and conserve natural resources, improve indoor air quality, and enhance building durability.

LU 142: Support enhanced water quality and the percolation of water at natural rates near its source to limit soil instability or damage roadways or other improvements. Measures may include appropriate landscaping, swales, “Green Street” improvements, natural retention facilities, pollution control devices, and improved storm water facilities.

LUI46: Maintain and enhance natural drainage systems, to protect water quality, reduce public costs, protect property, and prevent environmental degradation.

CD23: Where clearing and construction is unnecessary, preserve significant trees and mature vegetation.

CD53: Preserve the natural character of neighborhoods by minimizing the removal of existing vegetation, especially mature trees, when improving streets or developing property.

The proposed Master Development Plan would preserve existing treed and vegetated areas of the Campus, restore and enhance a natural drainage system, incorporate LID techniques for managing stormwater and other approaches to environmental sustainability, maintaining environmental quality and reducing the potential for pollution.

Trails, Recreation and Alternative Travel Modes

Goal TIV: Provide a pedestrian system that is safe, connects to destinations, accesses transit, and is accessible by all.

Goal TVII: Encourage alternative modes of transportation to reduce the number of automobiles on the road.

Goal PRV: Seek to develop a diverse Citywide trails system linking key community elements such as parks, greenways, open spaces, regional trail systems, transportation nodes, neighborhoods, churches, and community businesses.

The proposed Master Development Plan would provide non-motorized connections to and across the Campus, connecting parks, schools, residences, commercial areas, and transit. It would also concentrate new residences in walking distance to these features while providing the necessary pedestrian connections.

Housing Choices

Goal LU III: Encourage a variety of quality housing opportunities and appropriate infrastructure suitable for the needs of Shoreline's present and future residents.

LU8: Ensure that land is designated to accommodate a variety of types and styles of housing units adequate to meet the future needs of Shoreline citizens.

H1: Encourage a variety of residential design alternatives that increase housing opportunities in a manner that is compatible with the character of existing residential and commercial development throughout the city.

The proposed Master Development Plan would encourage a variety of housing choices, innovative designs, and compatibility with existing residential and commercial development. Existing site topography and vegetation would be retained and would reduce the visibility of new uses from adjacent areas.

Amenities

CD6: Encourage development to provide public amenities, such as public and pedestrian access, pedestrian-oriented building design, mid-block connections, public spaces, activities, openness, sunlight and view preservation.

The proposed Master Development Plan would provide pedestrian access, pedestrian-oriented building design, mid-block connections, and public spaces, where these currently don't exist. It would also preserve open spaces and remnant forest and allow potential expansion of the existing Activities Building to accommodate increased public use if the building were to re-open.

The proposed Master Development Plan has taken into consideration and incorporated measures to ensure compatibility with the surrounding neighborhood, including focusing the most intense development in portions of the Campus that are removed from single-family residential areas or are adjacent to 15th Ave NE, a major arterial, and requiring retention of existing trees and planting of vegetation at the edges of the site. The Master Development Plan also requires buffers between defined development areas and existing uses on the Fircrest Campus.

9. Housing

- a. Approximately how many units would be provided, if any?
Indicate whether high, middle, or low income housing.

The Master Development Plan would create capacity for approximately 862 new housing units within the 56 acres of the Campus that is not reserved for the Fircrest School. This equates to approximately 15 units per net acre. Capacity for approximately 46% of these units would be created in Area 1 if DSHS were to replace the Y Buildings with a new Nursing Home facility on the Main Fircrest School Campus. If implemented, these housing units would be expected to be developed in a later Phase, subsequent to development of units in Areas 2, 3 and 5. The Plan would create capacity and supporting development regulations and design guidelines for a range of housing types, including small-lot single-family, townhouse/rowhouse, carriage units, live/work units, mid-rise multi-family units, and mixed-use development with residential units above retail and civic uses. Given this range of housing types a range of incomes are expected to be accommodated. It is also expected that a portion of new housing units could be supported units or other public benefit housing, if funded by the State, a developing with such a mission, or another granting agency.

- b. Approximately how many units, if any, would be eliminated?
Indicate whether high, middle, or low income housing.

No units would be eliminated as a direct result of Master Development Plan adoption. However, with implementation of Area 3, the “1510 Court” buildings, which include **XX [Ed?]** units of vacant housing in poor condition would be demolished. These buildings were formerly part of the Fircrest School, have not been occupied since **[Ed - year]** and were designated Excess

Property by DSHS in 2007.

If DSHS were to decide in the future to replace the Y Buildings with a new Nursing Home facility on the Main Fircrest Campus, such an action would remove and replace housing for up to 108 nursing home residents. This housing would be replaced on the Campus.

Overall, with or without redevelopment in Area 1, the Master Development Plan would result in increased housing capacity on the Campus.

c. Proposed measures to reduce or control housing impacts if any:

No measures are needed, as the Plan would create capacity for new housing units that would help the City achieve its growth targets, and carry out some of the strategies outlined in the City's Comprehensive Housing Strategy. These strategies are:

Housing Choice and Character Conclusion 7: Housing choice in neighborhoods is limited by current zoning/density; one way to increase variety is to allow changes in zoning.

The Master Development Plan would change the zoning of the Fircrest Campus to allow for residential development.

Housing Choice and Neighborhood Character Strategy 4: Explore the possibility of creating an urban density residential zoning category that would permit small lot development or attached single-family home or townhouse developments with a design component.

These uses are planned uses with the proposed Plan.

Housing Choice and Neighborhood Character Strategy 5: Undertake an inventory and identify areas where density could be reasonably accommodated through examination of available water, sewer, and transportation infrastructure capacity. As a next step, the Housing Strategy suggests using the neighborhood subarea process to identify areas that could support innovative projects and articulate specific compatibility criteria.

Based on its location on an arterial street, existing public services and utilities, topography, visual screening provided by existing trees, and adjacency to parks and recreational resources, the Fircrest Campus is well suited to accommodate increased density and innovative projects.

Other strategies suggested by the Housing Strategy include:

- *Work with other agencies to identify surplus lands that could be used for affordable or workforce housing.*
- *Work with major employers and landowners, such as the Fircrest School, to leverage commitment to create affordable housing for employees.*
- *Create a zoning category which encourages density to increasing housing choice and compatibility with neighborhood character.*

- *Select appropriate areas through a subarea process for pilot projects that encourage alternative housing choices and utilize trial design standards*
- *Consider crafting neighborhood-specific design standards so that new projects which showcase alternatives to the single-family home reflect established neighborhood character.*

All of these strategies are used within the proposed Master Development Plan.

10. Aesthetics

- a. What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?

Development Area	Maximum Height
Area 1	55'
Area 2	45'
Area 3	55'
Area 4	N/A – DOH Future Use Area
Area 5	35'

Buildings in Area 1 would be visually screened from nearby uses by existing/retained trees and topography. Areas 3 and 5 are the most urban areas, located along 15th Avenue NE and adjacent to already intensive development.

The principal exterior building materials would be determined with project-level design.

- b. What views in the immediate vicinity would be altered or obstructed?

The proposal is a non-project action and would not directly alter views. However, adoption of the Master Development Plan would create the capacity for new buildings, primarily on previously developed portions of the Campus. Views to the southern portion of the Campus from 15th Avenue would change to reflect a more urbanized use of this portion of the Campus, including civic and office uses in Area 2, and mixed use retail/residential in Area 3. This view would be consistent with urban uses already existing along this portion of 15th Ave NE and further south; however, design guidelines would apply to the Campus and would require some features to enhance the appearance of new development.

It is not expected that views to the northern portion of the Campus, from 15th Ave NW, NW 160th Street or Hamlin Park, would change, due to topography and preservation of a natural buffer of existing trees and vegetation would be preserved. New development in this area would be mostly hidden from view.

Views to the Campus from South Woods Open Space would change, but implementation of the Master Development Plan would preserve the vegetated slope separating the two properties, and would daylight a portion of Hamlin Creek. New townhouse development in Area 5 would be somewhat visible from the top of the slope. New development in Area 5 would also be visible from NE 150th Street; however, a stormwater detention pond would be located at the south end of Area 5 adjacent to the street. The pond would be landscaped and developed as an amenity, and would provide a buffer between the street and new townhouse uses in Area 5.

Views from within the Campus would change somewhat; however, significant natural features such as trees and slopes would be retained. The Main Fircrest School Campus is separated from Areas 1 and 2 by topography and vegetation, which would reduce view impacts. Views to Area 3 from the southern portion of the Main Fircrest School Campus would change to a more urbanized view; however, existing DOH buildings are already visible from the southern portion of the School, and views to Area 3 currently include the vacant 1510 Court buildings. Views to Area 5 from the School would change, but it is expected they would improved with increased landscaping that would occur with development of this area. Area 5 is currently vacant and mostly unvegetated, having been the location of the NRF facility which was demolished in recent years.

It is not expected that views from the Chapel, which would be preserved within designated open space, would change significantly due to the existing trees and vegetation surrounding it that would also be preserved. However, there is some potential for views to new residential uses in Area 1 if that area is to be redeveloped. Redevelopment in Area 1 would occur if DSHS were to decide to construct a new Nursing Home facility to replace the Y Buildings on the Main Fircrest School Campus. Views from the Healing Garden would change somewhat if Area 1 is redeveloped. However, it is expected the Healing Garden would be moved slightly and a landscaped buffer would be provided between it and new development.

- c. Proposed measures to reduce or control aesthetic impacts, if any:

The Master Development Plan includes development standards and policies to address aesthetic impacts. The Master Development Plan development standards include regulations for building heights, setbacks, vegetated buffers, tree preservation, and landscaping. Master Development Plan design guidelines address building form and massing, and exterior building materials.

The Master Development Plan calls for 15.3 acres of the

Campus to be preserved in natural open space. This includes existing remnant forest areas, landmark trees, unique topographic features and vegetated slopes. The Chapel is also located within this area.

The Healing Garden and Chapel will be retained, although the Healing Garden could be slightly relocated.

The Master Development Plan contains tree canopy cover targets, requires tree retention in open space areas, and includes recommended tree retention in development areas and other strategies for achieving those targets. Street trees are also required along all streets except where there are existing trees to be retained. In keeping with the history of the Campus, coniferous trees are encouraged where practical.

LID techniques to reduce stormwater runoff and manage flows will be designed to contribute to the visual quality of the Campus. These include reduced impervious surface, and swales, rain gardens, and detention ponds which serve a dual purpose as stormwater management features and landscape features.

11. Light and Glare

- a. What type of light or glare will the proposal produce? What time of day would it mainly occur?**

Additional light and glare may be expected upon implementation of the proposed Master Development Plan. Potential light sources include new structures, which may both generate and reflect light; exterior lighting on new structures, in compliance with City of Shoreline exterior lighting restrictions; street lighting for new streets; and light from increased vehicles entering and exiting the site.

- b. Could light or glare from the finished project be a safety hazard or interfere with views?**

Additional light and glare resulting from the implementation of the proposed Master Development Plan would not create a safety hazard or interfere with views.

- c. What existing off site sources of light or glare may affect your proposal?**

Street lights along 15th Ave NE and NE 150th St would be the primary sources of off-site light and glare. In addition, there would also be light and glare from existing uses on the Fircrest Campus. None of these sources of light and glare would significantly affect the proposal.

- d. Proposed measures to reduce or control light and glare impacts if any:

Exterior lighting will be directed downward and away from adjacent properties. The exterior lighting system will be planned to prevent glare off reflective surfaces and provide adequate lighting for security purposes, in compliance with City regulations.

The Master Development Plan would preserve existing vegetated buffers and create new landscaped buffer areas that would reduce the potential for light to affect the adjacent Hamlin Park and South Woods Open Space and the existing Fircrest School.

The Master Development Plan would include a stormwater detention pond that doubles as an amenity in the southern portion of Area 5, buffering new uses in that area from existing uses across 15th Ave NE.

The most urbanized areas under the Master Development Plan would be located in the southern portion of the Campus along 15th Ave NE, where existing adjacent uses have a similar level of urbanization and lighting.

12. Recreation

- a. What designated and informal recreational opportunities are in the immediate vicinity?

Hamlin Park, South Woods Open Space, and play fields associated with Shorecrest High School and Kellogg Middle School are within the immediate vicinity of the Campus. Hamlin Park and South Woods open space together total approximately 88 acres. They include baseball, picnicking, hiking and playground facilities as well as passive recreation opportunities.

An accessible walking path known as the Healing Garden is located on the Campus.

- b. Would the proposed project displace any existing recreational uses? If so, please describe.

No formal recreational uses would be displaced with adoption or implementation of the Master Development Plan. It is possible some informal use of vacant areas of the Campus exists; however, the Master Development Plan would formalize and enhance trails on the Campus.

The on-site Healing Garden would be retained although it could be slightly relocated with implementation of the Master Development Plan in Area 1.

- c. Proposed measures to reduce or control impacts on recreation including recreation opportunities to be provided by the project or applicant if any:

The Master Development Plan sets aside land for and calls for the development of 1.3+ miles of public multi-use trails when the Plan is implemented. With full implementation of the Master Development Plan a portion of this trail system would be located adjacent to a daylighted segment of Hamlin Creek and South Woods Park.

With implementation, the network of trails within the Master Development Plan would significantly increase connectivity to and between existing parks, open spaces and schools and to new open spaces on the Campus. It would also improve access to these recreational uses for people who live or work near the Campus.

The Master Development Plan would designate 15.3 acres of the Campus to be preserved as natural open space, including remnant forests areas, and a segment of Hamlin Creek that would be daylighted with implementation of the Master Development Plan.

The Master Development Plan would retain the existing Healing Garden on the Campus, although it may be slightly relocated.

The Master Development Plan would allow for potential future expansion of the existing Activities Building, which has served both the general public and the Fircrest School, if it were to re-open. It would improve visibility of and access to the Activities Building for the public, and expansion would allow for expanded recreational programs if such programs were funded in the future.

The City of Shoreline Parks, Recreation and Open Space Plan does not include adopted LOS standards. However, an assessment of existing parks and deficits reveals that the area around Fircrest is well-served by community parks. Furthermore, the recent acquisitions of Hamlin Park and South Woods add significant natural open space area.

However, much of Shoreline is deficient in neighborhood parks, which typically include children's playgrounds, picnic areas, trails and open grass areas for active and passive use. Areas to the west, south and east of the Fircrest Campus lack nearby neighborhood parks, though Kellogg Middle School and Shorecrest High School do provide some recreational facilities. Furthermore, planned improvements for Hamlin park include some of the above listed typical neighborhood park facilities.

Finally, additional trails were identified as needed in the Parks Plan, which are somewhat fulfilled by the planned network of trails in Fircrest Campus Master Development Plan.

13. Historic and Cultural Preservation

- a. Are there any places or objects listed on or proposed for national, state or local preservation registers known to be on or next to the site? If so, generally describe.

There are currently no places, buildings or other resources listed on or proposed for national, state or local preservation registers on or next to the Campus. The U.S. Naval Hospital Chapel in the north portion of the Campus is eligible for the National Register of Historic Places (NRHP) because of its age, design quality and significance to the U.S Naval Hospital, which was a former use of the Campus. The Chapel is located within a portion of the Campus that would be designated as open space under the Master Development Plan. The Master Development Plan calls for the Chapel to be retained within that open space area.

- b. Generally describe any landmarks or evidence of historic, archaeological, scientific or cultural importance known to be on or next to the site.

The Fircrest Campus could be considered historically significant due to its role in the WW II history of Western Washington as the site for the U.S. Naval Hospital, Seattle. However, owing to site alterations, extensive building demolitions, and substantial new construction, the property lacks the integrity required for listing as a historic district.

As stated above, the Chapel meets the criteria for NRHP designation. The Chapel is the only extant building on the Campus that is NRHP eligible.

- c. Proposed measures to reduce or control impacts, if any:

The Master Development Plan calls for the Chapel and the remnant forest surrounding to be retained. No changes to the Chapel would occur under the Master Development Plan. While the Master Development Plan would not result in its NRHP nomination or registration as a landmark, it would not preclude that if another party were to choose to nominate it.

14. Transportation

- a. Identify public streets and highways serving the site and describe proposed access to the existing street system. Show on site plans, if any:

The site is served by 15th Ave NE and NE 150th St, with

emergency access potentially available via NE 160th Street.

- b. Is site currently served by public transit? If not what is the approximate distance to the nearest transit stop?

The site is currently served by King County Metro bus routes 77, 348, and 330, which run along 15th Ave NE immediately adjacent to the site, and routes 308, 347, 73 and 373, which provide service 0.3 miles to the south of the site at 15th Ave NE and NE 145th St.

- c. How many parking spaces would the completed project have? How many would the project eliminate?

New off-street parking to serve new uses would comprise between 1,426 and 2,901 stalls. Additionally, there would be approximately 180 to 220 on-street parking stalls associated with new on-Campus roads. The project would not eliminate currently used parking areas. Parking for existing Fircrest School uses, existing non-profits or DOH would not be affected. See Appendix H for further detail.

- d. Will the proposal require any new roads, streets or improvements to existing roads or streets not including driveways? If so, generally describe (indicate whether public or private).

New roads would be developed to serve new uses on the Excess Property, separate client/visitor and service vehicle access to the Fircrest School, and future access to DOH facilities. The new roads would work with existing road alignments where practical. See the Access and Circulation Plan and Appendix H for description of new roads on the Campus. It is assumed that the majority of these roads would become public roads; however, that would be determined during implementation.

- e. Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.

The project is not located in the immediate vicinity of water, rail or air transportation. A future north extension of light rail to Lynnwood, was approved by voters in November 2008, and would include a station located in the vicinity of the Campus at NE 145th & I-5, approximately 0.8 miles from the Campus.

- f. How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.

New uses would generate a total of 852 PM peak hour trips at full buildout, including 351 entering trips and 501 exiting trips. Trips entering and exiting the Campus would be distributed among the various access points. A total of 10,720 new daily trips would be expected with full buildout. Trips would be a mix of employees commuting to the site, and residents who would likely have opposite trip patterns, plus trips to retail, service and civic/community uses. See Appendix H for further detail.

- g. Proposed measures to reduce or control transportation impacts if any:**

The proposed land use mix, level of use, walkability, proposed new trails and proximity to parks, schools and a commercial corridor would reduce the need for vehicle trips compared to traditional development.

New uses would be served by bus transit which exists on 15th Ave NW.

The following measures would mitigate vehicle impacts, based on the transportation impact analysis in Appendix H:

- The site access intersection at 15th Avenue NE / NE 155th Street would provide separate eastbound and westbound left, through and right-turn lanes with protected + permitted phasing for eastbound and westbound left-turns.**
- The applicant would be required to fully fund and construct/reconstruct the necessary site driveways and associated frontage improvements onto NE 150th Street and 15th Avenue NE.**
- A total of 1,607 to 3,122 parking stall supply are proposed on-site in off-street and on-street parking under the Master Plan. The wide range in proposed parking stalls is based upon the potential for parking reductions associated with transit accessibility, employment/ residential density, walkability, and land use mix.**

15. Public Services

- a. Would the project result in an increased need for public services (for example: fire protection, police protection, health care, schools, other)? If so, generally describe.**

Buildout of the proposed Master Development Plan would result in additional residents and employees on the Fircrest Campus, thus increasing the need for public services, including fire protection, police protection, water and sewer service, schools, and solid waste collection.

Children of future residents living on the Fircrest Campus

would be within the Shoreline School District #412 service area. The Shoreline School District provided its most up to date enrollment trends and future enrollment projections, which were developed in 2006. The projections are very general and are based on OFM and PSRC forecasts of population growth. Forecasts show that population within the District is expected to increase by approximately 2,700 people from 2008 to 2020, although household size is expected to decrease slightly, meaning fewer school age children per household.

The District expects a change in its total enrollment from 2008 to 2010 of between -50 to +432 students, with the middle projection showing an increase of just under 100 students. This accounts for an expected decrease in enrollment through 2013, and an increase from 2013 to 2020. Overall, elementary enrollment is expected to increase slightly at least through 2010, while middle and high school enrollment is expected to decrease considerably during that period. Schools near the Fircrest Campus are generally expected to decrease in enrollment during that period. Based on these trends, one can conclude that enrollment at all levels would be expected to increase between 2010 and 2020, with increases in high school enrollment occurring mainly in the latter part of that period.

Because the projections were based on regional data rather than specific local land use and zoning, population growth on the Fircrest Campus can generally be assumed to be accounted for. However, the long-term nature of the Master Development Plan means the District can plan for added enrollment that could result from Master Development Plan implementation.

Fire protection is provided by the Shoreline Fire Department (King County Fire District #4). With implementation, the proposal would add population to the District's service area. Population would be added over time with project-level development, allowing District planning to respond to increased demand.

Police protection would be provided by the City of Shoreline Police Department. The City's level of service standard is 0.85 officers per 1,000 residents. As of 2007, the department employed 0.96 commissioned officers per 1,000 residents, for a total of 51 commissioned officers. The current population of the city is 53,440 persons and proposed project may add up to 1,860 residents for a total of 55,300 residents. The increase in population would lower the level of service to 0.92 officers per 1,000 residents, which is well above the City's LOS standard of 0.85. The proposed project would not result in a substantial increase in need for police protection.

b. Proposed measures to reduce or control direct impacts on

public services, if any.

Development would occur over the long-term, allowing service providers to account for new development in their long-range plans. The City of Shoreline currently does not collect impact fees for fire and police protection. Tax revenues and user/connection fees from construction and operation of new development would help to offset increased public service demand. For water and sewer service, new development would pay a proportional share of needed improvements.

16. Utilities

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

All of the above with the exception of septic systems.

- b. Describe the utilities that are proposed for the project, the utility providing the service, and the general construction activities on the site or in the immediate vicinity which might be needed.

The site will continue to have water, sewer, electric, natural gas, and stormwater utilities.

Sewer service is provided by Ronald Wastewater District. The District has included new uses from the proposal in its updated district-wide analysis conducted in 2008-2009. The District has indicated that an off-site pipe to the southwest of the Campus could be over capacity with full buildout of proposed new uses. More detailed analysis would occur with implementation. It is expected that, if improvements are needed, DSHS or future developers of new uses would pay a proportional share of these improvements in addition to paying connection fees when developing the new uses.

Water service is provided by the Shoreline Water District #117. Fire flow would be the main determinant of potential needs for improvements to storage or flow capacity. Based on existing water system conditions, it is recommended that DSHS coordinate the fire flow requirements for new land use with the Water District and the Fire Marshal to determine if system improvements are required. It is expected that, if improvements are needed, DSHS or future developers of new uses would pay a proportional share of these improvements in

addition to paying connection fees when developing the new uses. See Appendix K for further discussion of water service.

New stormwater facilities will be needed to manage stormwater runoff on the site. The Master Development Plan identifies needed facilities and their sizing, and emphasizes low impact development strategies such as bioretention swales, rain gardens, where practical to manage stormwater runoff from new uses.

A technical memorandum detailing the specific approaches to surface water management accompanies this checklist (see Appendix I).

Any electric upgrades needed to serve new uses on the site would be provided by the electric utility serving the area.

c. SIGNATURE

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

Signature: _____

Printed Name: _____

Address _____

Telephone Number: () _____ Date Submitted _____

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**D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS
(DO NOT USE THIS SHEET FOR PROJECT ACTIONS)**

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent of the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water/ emissions to air/production, storage, or release of toxic or hazardous substances; or production of noise?

Discharges of stormwater could potentially increase or be similar to current runoff amounts as a result of implementation of the proposed Master Development Plan; however, stormwater management would be improved over existing conditions. It would include: reduction in redundant impervious surfaces, use of low impact development techniques to reduce runoff compared with traditional development, and stormwater detention and water quality treatment on the Excess Property (where none currently exists).

The proposed Hamlin Creek daylighting/restoration would improve drainage conditions and downstream flooding issues. Noise and emissions to air may increase due to temporary construction activities and to increases in vehicle trips to and from the Campus with buildout. However, trips would be reduced compared with traditional development at similar intensities due to walkability, mix of uses and other features.

There may be asbestos-containing materials on the site where buildings containing asbestos have been demolished in the past. These materials would be removed from the site consistent with applicable regulations before any development occurs.

Proposed measures to avoid or reduce such increases are:

LID techniques, such as pervious pavement and green roofs will reduce stormwater runoff and on-site stormwater treatment and detention facilities will manage stormwater beyond what can be accommodated through LID techniques.

Non-motorized trails and paths and the mix of uses and location near transit will reduce increases in vehicle traffic compared to traditional development.

If asbestos-containing materials are found, applicable

regulations will be followed to mitigate potential impacts.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

The proposed Master Development Plan would likely have a positive effect on plants and animals, including fish downstream from the daylighted segment of Hamlin Creek. Further, stormwater management would include water quality treatment and detention where no or very limited treatment and detention currently exists, thereby improving water quality and related habitat.

Proposed measures to protect or conserve plants, animals, fish, or marine life are:

The Master Development Plan would preserve remnant forests while adding trees and vegetation to the Campus. The Master Development Plan includes the daylighting of portions of Hamlin Creek, an intermittent stream, which would provide additional wildlife habitat and benefit aquatic life downstream. The additional of stormwater management where no or minimal management currently exists would also benefit aquatic habitat.

3. How would the proposal be likely to deplete energy or natural resources?

Implementation of the proposed Master Development Plan would result in the construction of new buildings, parking areas, and other infrastructure all of which would utilize energy and natural resources in the form of embedded energy (building materials) downstream energy (construction) and upstream energy (building operations). The Master Development Plan would also result in new vehicle trips to and from the site.

Proposed measures to protect or conserve energy and natural resources are:

The proposed Master Development Plan encourage new buildings to incorporate green features that reduce energy and natural resource consumption, such as energy efficient heating, cooling and lighting systems, use of building materials with recycled content, and low-flow plumbing fixtures, through policies calling for LEED Silver or equivalent for new construction.

In addition, new uses would be walkable, contain a mix of uses, and are near transit as well as goods and services. Trails would improve walkability on the Campus and its vicinity. These features would reduce vehicle miles traveled compared with traditional development. Further, the Campus is in an already urbanized area, and re-use of the Excess Property will result in a reduced need for future

sprawl and inefficient development.

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

There are no known designated or eligible environmentally sensitive areas or known threatened or endangered species on the site. The Chapel, which is be eligible for listing on the National Historic Registry, would not be affected by the proposal.

The proposal would restore a piped stream segment and improve habitat on-site and downstream.

Proposed measures to protect such resources or to avoid or reduce impacts are:

The Chapel as well as the forested area surrounding the chapel will be retained as part of implementation of the proposed Master Development Plan.

The proposal would restore a piped stream segment and improve habitat on-site and downstream.

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

The proposed Master Development Plan is generally consistent with City policies. It would not affect shoreline use. See section 8, Land and Shoreline Use, in this Checklist for further discussion.

There are no shoreline uses within the Fircrest Campus.

Proposed measures to avoid or reduce shoreline and land use impacts are:

Section 8 in this Checklist, Land and Shoreline Use, provides a detailed analysis of measures to avoid or reduce land use impacts. In brief, these include treed and vegetated buffers, limits on height, a mix of uses, preservation of open space areas, retention of trees, etc.

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

Buildout of the proposed Master Development Plan would result in additional residents and employees on the Fircrest Campus, which would increase demand on transportation, public services, and utilities. See the discussion in sections

section 14, Transportation, section 15, Public Services, and section 16, Utilities, of this Checklist.

Proposed measures to reduce or respond to such demands(s) are:

The Fircrest Campus is near several bus transit routes, accessible by two planned “complete streets”, which will have non-motorized transportation facilities, and would be within the vicinity of a future planned light rail station at NE 145th St and I-5. The demand for transportation would be spread among the various transportation modes rather than increasing demand for only vehicle travel.

Demand for other public services, including parks and recreation, schools, fire and police protection would also increase. Because demand would grow over the long-term, public service agencies would be able to account for increased demand in their long-range plans. Increases in tax and user fee revenues associated with construction and operation of new development would help to offset this increased demand. Further, the analysis in section 15, Public Services, shows that park demand is not likely to increase above supply as a result of the proposal, due to the large amount of park land in the immediate vicinity, as well as to open space and civic uses, such as the Market Garden, which are included in the Master Development Plan; these would offset demand for parks and other such public uses.

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

The proposal would not conflict with any local, state, or federal laws or requirements for the protection of the environment. With implementation, asbestos containing materials that would be disturbed would need to be identified and abated.

Fircrest Campus Excess Property Master Plan

Appendix G

Tree Management Analysis

January 6, 2010



TO: Gabe Snedeker, AHBL Inc.

JOB SITE: Fircrest Site: 15th Ave. E and NE 150th St., Shoreline, WA

SUBJECT: **Tree Management
Fircrest Campus- Excess Property Master Plan**

DATE: Jan.29, 2009

PREPARED BY: Scott Baker, Registered Consulting Arborist #414, Certified Arborist PN0670
Ann Hirschi, Architect, Certified Arborist PN5621A

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SUMMARY

The Fircrest Campus totals 84 acres, and planning is underway to develop 20 acres of the site for new uses, including residential and mixed use development. During a survey of existing vegetation in the proposed Development Areas, Tree Solutions has estimated a current tree canopy coverage of approximately 20-25% and identified 25 individual trees and 11 tree groves that are appropriate retention candidates.

It is our understanding that the Project Proponent and their design team will use the information contained in this report to make additional modifications to the proposal to better maximize potential tree conservation in the Master Plan. These modifications could include adjustments to conceptual infrastructure location, building typologies, development location and intensity, and proposed tree conservation and protection development standards. Additional review and recommendations by a certified arborist is recommended during the design of site-specific improvements (e.g. prior to building permit submittal).

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Recent research has shown that tree canopy plays a valuable role as “green infrastructure” to urban areas, especially in improved stormwater control and air quality. Incorporating the principles of Low Impact Development as our cities become more densely developed, involves retention and protection of priority vegetation. When combined with thoughtful planting of new trees that will gain stature over time, this project can approach the American Forests’ goal of 40% canopy cover.

ASSIGNMENT & SCOPE OF REPORT

This report outlines site inspections by Scott Baker and Ann Hirschi, of Tree Solutions Inc, on Oct. 28, 2008, and subsequent visits on Nov. 11 and Nov 13, 2008. Mr. Gabe Snedeker of AHBL asked us to provide an assessment of existing conditions on the Fircrest Campus, and provide a formal report including the following Scope of Work:

- Update Tree Inventory by Area based on 2001 Existing Conditions report. Provide input on an appropriate methodology for calculation of existing canopy coverage site- wide and by development area.
- Provide report, table and GPS locations of potential significant or landmark trees under City of Shoreline codes and other high quality trees, groves or areas within the proposed development areas that should be considered for retention planning in the master plan and future development, with applicable recommendations.
- Tree Conservation Development Regulations: Review current City tree regulations and provide specific recommendations on potential modifications and alternative standards to apply to the Fircrest site. Identify regulation recommendations which address the protection, management and enhancement of forest remnant areas planned as passive open space and historic and future landscape areas where flexibility is needed to accommodate development. Specifics should include identification of an appropriate canopy coverage standard in each of the major master plan areas.

We were provided two site plans by AHBL, that are the basis of our tree map:

Fircrest Existing Features plan, dated 12/2001 that is part of a report; Trees and Vegetation: Fircrest Master Plan Arborist Report, by Certified Arborist Tina Cohen of Northwest Arborvitae.

Fircrest Campus, Figure 1; Circulation & Development Areas, dated August 12, 2008, from AHBL.

Unless stated otherwise: 1) information contained in this report covers only those trees that were examined and reflects the condition of those trees at the time of inspection; and 2) the inspection is limited to visual examination of the subject trees without dissection, excavation, probing, climbing, or coring unless explicitly specified. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the subject trees may not arise in the future.

Methods

For our initial survey, we evaluated individual trees using visual tree assessment (VTA) methods. A tree reacts to mechanical and physiological stresses by growing more vigorously to re-enforce weak areas, while depriving less stressed parts, so by observing the base, trunk and crown of a tree, an informed judgment can be made about its condition.

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Information on individual trees appears on the attached **Table of Trees**. For landscape trees, we recorded the species, diameter at breast height (DBH) and gave each a condition rating:

A	Excellent
B	Good
C	Fair
D	Poor
F	Very Poor

Trees were numbered with red paint pen, except where previously tagged. Those numbers appear on the Table of Trees with the prefix **T**. The trees are further broken out by the development areas provided by AHBL: **Areas 1 – 5**. We prioritized potential candidates for retention with a rating of **1** (highest) or **2** (important) - also in the attached **Table of Trees**. We did not collect GPS locations, after conferring with AHBL, and utilized the orthographic photo of site to locate priority trees.

Where there were intact groves of trees and understory, we did **not** survey each tree, but used the Map produced in the 2001 report by Northwest Arborvitae that uses numbered “**bubbles**” to identify these existing landscape groupings. The “bubble” numbers are listed in the Table of Trees under the appropriate Development Areas 1, 2, 3 & 5.

Canopy Cover percentages were estimated using an orthographic photo of the site. Polygons of the existing tree coverage were hand drawn and measured against total area of each of the 4 Development Areas we were asked to evaluate. We then established target canopy cover percentages for each area based on the existing priority trees and groves of trees and what we perceived to be the development density for each area. This is based on the August 19, 2008 information provided by AHBL titled *Draft Revised Land Use/ Building Program Options*. We understand that this is in schematic form and is subject to change, as are the Target Canopy Cover recommendations.

OBSERVATIONS

Open Space

The preservation of 15.4 acres of the 84 acre campus as Open Space is an important component of the overall development. The three preserved areas include a treed perimeter at the northwest corner, a large interior area around the chapel with connectors forming borders along the west edge of the Fircrest School site, and a buffer along the south east corner. They consist of mixed, deciduous and coniferous native vegetation. We did not complete assessments of these areas at this time, but we concur with the 2001 Arborist Report as described in her report, referencing the following:

- Undeveloped retained forest- northwest edge, map Bubbles 3 & 5: “good to excellent”
- Developed & Undeveloped retained forest- southeast edge, Map Bubble 8, “good/fair”
- Developed retained forest- Chapel Area Bubble 27: “good except hemlocks”

Perimeter plantings

In addition to the Preserved Open Space, there are residual perimeter plantings we observed. The row of topped Douglas fir trees along 15th Ave. NE are healthy, however they will eventually pose problems and require on-going management to control the height for wire clearance. Because visibility at this corner of the site is important to the high density development proposed in Area 3, they may become a liability. There are intact trees at the north end of the west perimeter that are more viable for retention.

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The twelve Douglas firs that act as a screen along NE 150th St. have not been topped, and are in better shape, although we did not evaluate each tree. They are located on the south edge of Areas 4 & 5.

Development Areas

New uses are proposed on 40 acres of the Campus that are not considered part of the Fircrest School. These are designated Areas 1- 5 on the Site Plan provided by AHBL, and are most suited for development of new mixed use office/ retail with new residential in a variety of densities and combinations. The following observations were made in Areas 1-3 and Area 5, where we were tasked with providing information on the existing vegetation. Area 4 accommodates the Food Bank, and has a number of large trees, but it is not planned for development at this stage.

From Site Plan labeled **Fircrest Campus Fig. 1: Circulation & Development Areas:**

Area 1 Observations– 12.2 Acres- Medium High Density Residential

Trees #63 – #72 on the Table of Trees; Map Bubbles 38- 46, 28 & portions of 37.

This area includes numerous islands of high quality remnant forest, consisting of mature groves of Northwest native conifers. These include Douglas fir (*Pseudotsuga menziesii*), Western red cedar (*Thuja plicata*), Western white pine (*Pinus monticola*) and hemlock (*Tsuga heterophylla*). In addition there are many healthy Madrona (*Arbutus menziesii*) our only native, broadleaf evergreen tree, and a host of young, regenerating cohorts, rarely seen within the urban boundaries. There is a healthy under-story of salal, huckleberry and Oregon grape.

We noted active fungal growth of many different soil fungi in portions of Area 1, indicating healthy soils, especially around the six “Y” buildings in the northwest corner of the site. The soils on the site appear to be reverting to a more natural forest condition, which is a good sign. There are some nice, non-native landscape trees around the “Y” buildings that could easily be transplanted to other locations before building demolition. See **Table of Trees** for a representative sample.

Where recent building demolition has occurred in Area 1 and other areas, we noted standing water with poor drainage, indicating compacted soils. Area 1 is surrounded by the Preserved Open Space buffers, as well as the forested park edge to the north end of the site.

Area 2 Observations - 8.3 Acres – Mixed Use Civic/Residential, Retail/Office/Residential
Trees #37 - #62 on the Table of Trees. Map Bubbles 1,2,18-23 and parts of 35

Area 2 is dominated by the large existing Activities Building, and also has portions of the same valuable forest remnants, some of which are contiguous to Area 1, as described above. The understory here is often grass with access paths. There are also some individual trees and small clusters of conifers that have value if site planning allowed retention. Notable also are the pines near the main entry (#45,46,47).

Area 2 has a large open space where a building has been demolished, and numerous retaining walls that account for the change in topography. The individual trees scattered at the south end of this area will most likely be harder to protect if it is graded for new development. Tree #50, a young maple is prioritized for retention because smaller trees can have a better survival rate than the large ones.

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**Area 3 Observations – 4.7 Acres – Mixed Use/High Density Residential
Trees #1 – #36 on the Table of Trees. Map Bubbles 15-16.**

The north end of this area has had buildings removed. The south end of the area still has residual buildings. There are some retained, mature, deciduous specimen trees in the area, that are good candidates for protection and inclusion into new development plans. These include a London Plane tree and the large oaks; deciduous hardwoods of which we have too few.

Area 4 – 4.3 Acres – Food Bank (possible future residential) Map Bubbles 13,14.

Trees located in Area 4 should be evaluated and specific recommendations developed prior to the construction of any new improvements in this location. Development of the proposed primary road between Areas 4 and 5 has the potential to impact trees at the eastern edge of Area 4 and this should be considered in the design and construction of this key improvement.

Area 5 Observations - 5 Acres – Medium Density Residential

Trees # T32 – T78 and 7 un-numbered trees. Map Bubbles 9,10,13.

Area 5 in the southeast corner of the site is relatively open and level. The previously existing wood frame buildings have been demolished, retaining some of the trees, and soils appear compacted. Remnants of asphalt and other paving are still visible, sometimes in close proximity to tree trunks. The 26 trees retained have been listed in the **Table of Trees** and some are tagged with aluminum tags from a previous contract for tree protection during demolition. These are designated with a “T”.

There are some conifers in this area that have been given Priority 1 for retention because there are few on the site, outside of the designated Open Space areas. Large oaks and plane trees are also listed for retention because of their size. Several mature, ornamental cherry trees are considered inappropriate for protection because they are susceptible to various fungal pathogens in this region. Some young trees of various species that were planted after the buildings were demolished, could be transplanted to new locations.

DISCUSSION

Within the proposed development Area 1, the small forest remnants are of exceptional high quality; mixed deciduous and coniferous native trees and healthy under-story, that has not been invaded by non-native species. This is becoming increasingly rare within the metropolitan area. These and the other areas of Preserved Open Space provide great value to this campus, and to the City of Shoreline. A brief description of each of the significant tree species on the Fircrest Campus was contained in the 2001 report, and the situation is similar in 2008. Major species are listed below:

Douglas fir (*Pseudotsuga menziesii*) and western red cedar (*Thuja plicata*) on the site appear to be in good condition, especially where they have been protected in the remnant groves.

Hemlocks (*Tsuga heterophyllia*) as noted in the 2001 report, are continuing to suffer from pockets of root disease. We noted numerous examples of dead and dying hemlocks. When retained as part of a stand of other trees, they should be left alone. There are good numbers of young, regenerating hemlock.

Western white pine (*Pinus monticola*) is a tree species that has been in decline in the last decade, and they are dying in many areas of NE Seattle. No clear reason has been established. There are some significant white pines on the Fircrest campus, both healthy ones,

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and others beginning to show signs of stress, exhibited by branch dieback and a “tufting” of new shoot growth.

Madrona (*Arbutus menziesii*) is regenerating at an encouraging rate on this site, and it remains a very important species. The madrona, our only native broadleaf evergreen species, is in general decline throughout the northwest region, being susceptible to attack from multiple fungal pathogens. There are both healthy specimens and those exhibiting dieback at Fircrest. A large Madrona located in Bubble 40 is iconic in stature and worthy of protection as part of that grove.

Non-Native Trees

In addition to the native evergreens listed above, there are numerous **London plane** trees (*Platanus x acerifolia*) on this site. Michael Dirr in his book Manual Of Woody Landscape Plants, describes them as having bark that: *is exceptional; olive-green to creamy, exfoliating. 70-100 ft. tall with spread to 60-80'. A large stand-alone tree. Plane is tolerant of disturbance and, is highly adaptable to varied soil conditions.* Planes are susceptible to anthracnose leaf disease in this region, but it rarely kills the tree. There are several large planes on the campus that are worthy of retention and protection, for they will lend instant stature and maturity to any new development.

Pin oaks (*Quercus palustris*) can grow to 60-70 ft. tall with a wide canopy, and is a distinctive tree here in the northwest where large hardwoods are not plentiful. For this reason, the mature oaks on this site have been prioritized for retention if possible.

Horsechestnut (*Aesculus hippocastaneum*) is a non-native tree that is quite tough and vigorous as a species. We have not given them a priority rating for retention in this project, in most cases, because their nuts tend to be spread by squirrels and they are beginning to invade forest remnants across the urban areas. This is not a reason to remove one if it works within new development plans, but they have not been prioritized in general.

Other considerations:

- While single, large trees can be successfully protected and add presence to new construction, it is often just as successful to retain a younger group of trees, that will have a better chance of surviving construction impacts and growing to achieve maturity.
- When space considerations require paring away at the edges of the existing groves, the resultant new edges can result in trees that will be more susceptible to wind-throw and root zone impacts. Leaving narrow bands of residual trees often results in the need for future management to reduce risk. This situation should be carefully considered in the final planning.
- Grade change, soil compaction, changes in site hydrology, loss of critical root mass- all contribute to tree stress, even when retained and protected. Decisions about site circulation and placement of the infrastructure will determine the success of this effort.

With redevelopment, there will be unavoidable impacts that accompany new construction. Given these often conflicting challenges, it is our belief that it is also important to be practical, and combine tree preservation with landscaping that allows **adequate space for new trees**, including some large species that will be allowed to mature in place. This will result in the

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canopy cover increasing over the years, even if some trees come out for future development on the Fircrest Campus.

Shoreline Development Code

Portions of the Shoreline Development Code that refer to tree conservation are found in Chapter 20.50. Minimum tree retention requirements state:

1. At least 20 percent of the significant trees on a given site shall be retained, excluding critical areas, and critical area buffers, or
2. At least 30 percent of the significant trees on a given site (which may include critical areas and critical area buffers) shall be retained.

Most pertinent regulations have not changed since the previous review, provided in 2001:

- Significant Trees are 8" DBH for conifers and 12" DBH for all other trees.
- Removal of any significant tree requires a permit, unless the situation involves risk.
- Up to 6 significant trees with understory can be removed within a 36 month period from any property
- An analysis by qualified professional should accompany any clearing and grading permit application, including a tree protection plan
- Critical Areas need to be defined, if any exist
- Trees that could qualify for 'Landmark' status, have a DBH of 30" or greater, or are particularly impressive or unusual due to species, size, shape, age, historical significance and/or are an outstanding row or group of trees

Of the specific trees we evaluated on this site, there are 15 trees that are 30" DBH or greater, and could meet this Landmark designation. They are noted in the Table of Trees.

The tree replacement criteria is somewhat altered; They now only require 1 tree for every 12" diameter tree removed, with one more for each additional 3" of diameter, up to a total of 3 replacement trees for each removed.

Opportunities of particular interest at Fircrest:

- Protection of large blocks of soil and understory vegetation
- Protection of groups of trees and smaller trees
- Design of large, new planting spaces, where space for tree roots is planned into construction details, such as super planting pits, use of structural soils, rubber and/or elevated sidewalks, and meandering paved surfaces.
- Exploration of all facets of Low Impact Development principals by encouraging stormwater retention on-site.
- Design of new roads through the site that give equal weight to pedestrians, bicycles and trees.

American Forests is an organization that has been calculating the "Value of Nature" with urban ecosystem analysis, especially since it has become clear that most urban areas have lost vast areas of tree canopy since the early 1970s. They established a **40% canopy cover target for metropolitan areas in the Pacific Northwest**, to facilitate storm water management, increase air & water quality, improved energy efficiency, and provide habitat value. This encompasses a range of 15% cover in central business districts to 50% in suburban residential zones. With a

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combination of tree/soil preservation and new plantings, this should be an attainable goal for the Fircrest Campus.

RECOMMENDATIONS

Tree conservation and protection will be an important component of the new development. The attached Tree Protection Specification includes the most important components of the necessary steps. Establishing the Critical Root Zone (CRZ) for each tree or grove is figured by allowing 1 foot for each 1 inch diameter of the tree measured at 4/5 ft. above ground (Diameter at Breast Height (DBH)). This can be modified somewhat to allow for specific conditions; however the Tree Protection Zone (TPZ) should correspond roughly to the dripline of the tree.

The attached **Table of Trees** provides information on the size and general conditions of all the trees or groups of trees within the proposed redevelopment Areas 1-3 & Area 5. As noted before, they are grouped into 1st Priority (high) and 2nd Priority (important), if considered good candidates for retention. We recognize that certain design criteria will preclude protection of some healthy trees, so others may survive just because of their location, even if they are not listed as priority.

General

- Take advantage of the Shoreline municipal code that offers “Incentives for higher levels of tree protection” (20.50.350)
- Work to attain a canopy cover goal of 40% in the next 25 years, by protecting appropriate existing canopy and planting new trees in groves and locations where they will be able to attain maturity and extend the Fircrest urban forest
- Utilize the attached Tree Protection Specification
- Use the project arborist onsite to help the demolition contractor locate chain link fence at the established TPZ, before any site work occurs
- Place Tree Protection Zone fencing for Preserved Open Spaces during the redevelopment
- Maintain fencing throughout the duration of the project
- Re-use existing road corridors where possible to limit re-grading and loss of existing trees
- Remove topped Douglas firs along 15th Ave. NE and replace them with a species more suited as street trees
- Provide arborist chip mulch at base of all retained trees where applicable
- Utilize attached Wildlife Snag specification where appropriate
- Plant new trees along new roadways and other public open spaces within the campus
- Include tree planting opportunities at the Fircrest School Site, training students to become stewards of the urban forest
- Plan to provide post construction tree care including monitoring, possible soil aeration, mulch and supplemental irrigation for a recovery period

Area 1 Recommendations

This is clearly the highest priority area for tree retention and protection, due to the good condition of the small forest remnants and understory.

- Canopy Cover Goal: 40%
- Follow Notes/Recommendations for Area 1 on the attached Table of Trees

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- Utilize as much of the existing road corridor as possible for circulation, to minimize impacts to these remnants.
- Build the new structures on existing disturbed areas to minimize further impacts to soils and provide the greatest opportunity for successful tree protection. (Particularly the “Y” buildings at the north end of the site.)
- Where practical, transplant viable, smaller landscape trees and shrubs, that will be impacted by new construction, to permanent locations on the Fircrest Campus.

Area 2 Recommendations

It is difficult to imagine how many of the trees could survive the assumed grade changes that will occur in the south part of this area.

- Canopy Cover Goal: 35%
- Follow Notes/Recommendations for Area 2 on the attached Table of Trees
- When location of new primary roadways are sited, utilize construction details to preserve root space of existing conifer groups
- Keep Bubble 35 intact by re-routing roadway to west
- Because Activity Building will remain, look for opportunities to plant new trees, to increase canopy adjacent to Preserved Open Space

Area 3 Recommendations

This area will be the most “urban” in feel, and consequently will have fewer trees.

- Canopy Cover Goal: 25%
- Follow Notes/Recommendations for Area 3 on the attached Table of Trees
- Retain and protect tree # 10, a Landmark plane tree
- Retain at least one of the 2 groups of large trees (#26-30 or #31-33)
- Accommodate young group of planes (#20-23) utilizing construction details of new road to preserve root space
- Plant new trees along east perimeter to increase canopy
- Plant new street trees

Area 4 Recommendations

No development planned currently

- Evaluate existing trees remaining in Area 4 near the NE corner of the Food Bank if planning new uses
- Plant new street trees along proposed new primary road
- Protect the perimeter trees along the south edge at 150th St
- Use site for transplanting smaller trees and shrubs that come out during demolition in other areas

Area 5 Recommendations

This area holds the most potential for innovative new development.

- Canopy Cover Goal: 30%
- Follow Notes/Recommendations for Area 5 on the attached Table of Trees
- Vary width of new major roadway to accommodate trees remaining in Area 4 near the NE corner of the Food Bank, and trees # 72-75 if retaining
- Retain conifers if possible
- Build on the Preserved Open Space to the east when planting new trees
- Plant new street trees along proposed new primary road
- When restoring stream corridor along east edge, utilize appropriate species of trees and forbs

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Summary of Canopy Cover Estimates

DEVELOPMENT AREA	Proposed Development	Existing Canopy Cover (% of Area)	Target Canopy Cover	Need
Area 1	Medium/High density residential	~30%	~40%	10% increase
Area 2 a/b	Mix-use Civic/ High density res. / Retail	~15%	~35%	20% increase, depending on existing retained trees
Area 3	Retail/ Hi density residential	~20%	~25%	5% increase, depending on existing retained trees
Area 4	Non-conforming use	Not yet surveyed	Not yet surveyed	Opportunity to transplant smaller vegetation from other areas after demo
Area 5	Med. Density residential	~15%	~30%	15% increase
Fircrest School Site	No change	~8%	~50%	30-40% increase Opportunities to engage student volunteers to plant new trees
Preserved Open Space	No change	~85%	~95%	10% increase
TOTAL	Including Preserved Open Space	~20%	~35-40%	20% increase

Conclusion

The Fircrest site has some fine examples of large, individual deciduous trees, excellent stands of regenerating madronas and healthy forest remnants of native conifers, understory and good soils. With careful planning and tree protection measures, this urban forest can continue to provide storm water management and improved air quality benefits.

At the same time, the proposed land uses provide opportunities for planting new trees in large groupings that will increase the canopy cover over time. As the new landscape matures, it will extend the site's unique wooded character and sense of place for the immediate neighborhood and the larger urban area.

Glossary

- abiotic disorders:** plant problems caused by nonliving agents (Lilly 2001)
- absorbing roots:** common term describing the fine, non-woody, short-lived roots that absorb water and mineral nutrients and that are often infected with beneficial
- anthracnose:** a plant disease characterized by necrosis around the leaf and shoot veins, and the development of acervuli (fungal fruiting structures) (Dunster 1996)
- arborist wood chips:** a mulch consisting of woody tissue from a tree, obtained during tree-trimming operations.
- codominant stems:** stems or branches of nearly equal diameter, often weakly attached (Matheny et al. 1998)
- compaction:** compression of soil by mechanical means, resulting in loss of the spaces between soil particles in which water and air movement as well as root growth occur

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- critical root zone:** the minimum volume of roots necessary for maintenance of tree health and stability (ANSI A300 Part 5 -2005)
- DBH:** diameter at breast height; the diameter of the trunk measured 54 inches (4.5 feet) above grade (Matheny *et al.* 1998)
- development impacts:** site development and building construction related actions that damage trees directly, such as severing roots and branches, or indirectly, such as soil compaction (ANSI A300 Part 5 -2005)
- dripline:** a boundary on the soil surface delineated by the branch spread of a single plant or group of plants (ANSI A300)
- grading:** altering natural terrain and elevation of land, usually through the action of large equipment (Harris 1999)
- habitat:** the specific environmental conditions in which organisms thrive in the wild (Dunster 1996)
- leader:** a dominant or co-dominant, upright stem (ANSI A300)
- low canopy:** foliage and branches that are close to the ground; therefore, construction within the dripline will require extensive pruning for clearance (Matheny *et al.* 1998)
- native species:** indigenous to a region (Lilly 2001)
- pathogen:** causal agent of disease (Lilly 2001)
- phototropic growth:** growth toward light source or stimulant (Harris *et al.* 1999)
- remnant forest:** a patch of land in the broader landscape that remains undisturbed but is surrounded by disturbed lands. (Dunster 1996)
- Resistograph drill:** a drilling instrument used to determine the density of wood by measuring the amount of resistance presented to the drilling needle as it is driven into the wood. The drilling resistance profiles show clearly where compression wood, annual rings, rot in various stages and other defects have been encountered by the drilling needle.
- risk management:** process of assessing and controlling risk in tree management (Lilly 2001)
- root zone:** The soil volume within which roots grow (Dunster 1996)
- senescence:** the process of aging in mature individuals, typically toward the end of an organism's life (Dunster 1996)
- specimen tree:** a tree of unusual quality, species, or high value for any reason. Often defined and regulated by municipal code (Baker and Dugan)
- stewardship:** caring for the land and associated resources for the purposes of preservation and human use compatible with the long-term sustainability of the values and qualities of the land (Dunster 1996)
- stress:** factor that negatively affects the health of a tree (Lilly 2001)
- structural roots:** the roots of a tree that provide anchorage and stability through the development of structures such as buttresses, I-beam shapes, and soil-root plate lever arms (Harris et al, 1999)
- succession:** a series of dynamic changes in ecosystem structure, function, and species composition over time as a result of which one group of organisms succeeds another through stages leading to a potential natural community or climax stage. (Dunster 1996)
- terracing:** method used to lower the soil grade in stages (Lilly 2001)
- tree protection zone:** a space above and below ground within which trees are to be retained and protected (ANSI A300 Part 5 -2005)
- VTA (Visual Tree Assessment):** method of evaluating structural defects and stability in trees by noting the pattern of growth. Developed by Claus Mattheck (Harris, *et al* 1999)
- wildlife corridor:** a physical linkage, connecting two areas of habitat and differing from the habitat on either side, used by wildlife to move around without having to leave the preferred habitat (Dunster 1996)
- wildlife snag:** any standing dead, partially dead, or defective tree at least 10 feet tall that provides present or future habitat critical for the maintenance or enhancement of wildlife (*adapted from* Dunster 1996)
- windthrow:** Type of tree failure associated with uplifting of the entire root plate, often occurring in high wind. (Harris *et al.* 1999)

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10. Loss or alteration of any part of this Agreement invalidates the entire report.

Attachments:

***Tree Protection Specification
Site Ortho-Priority Trees
Table of Trees***

Tree Protection Specifications

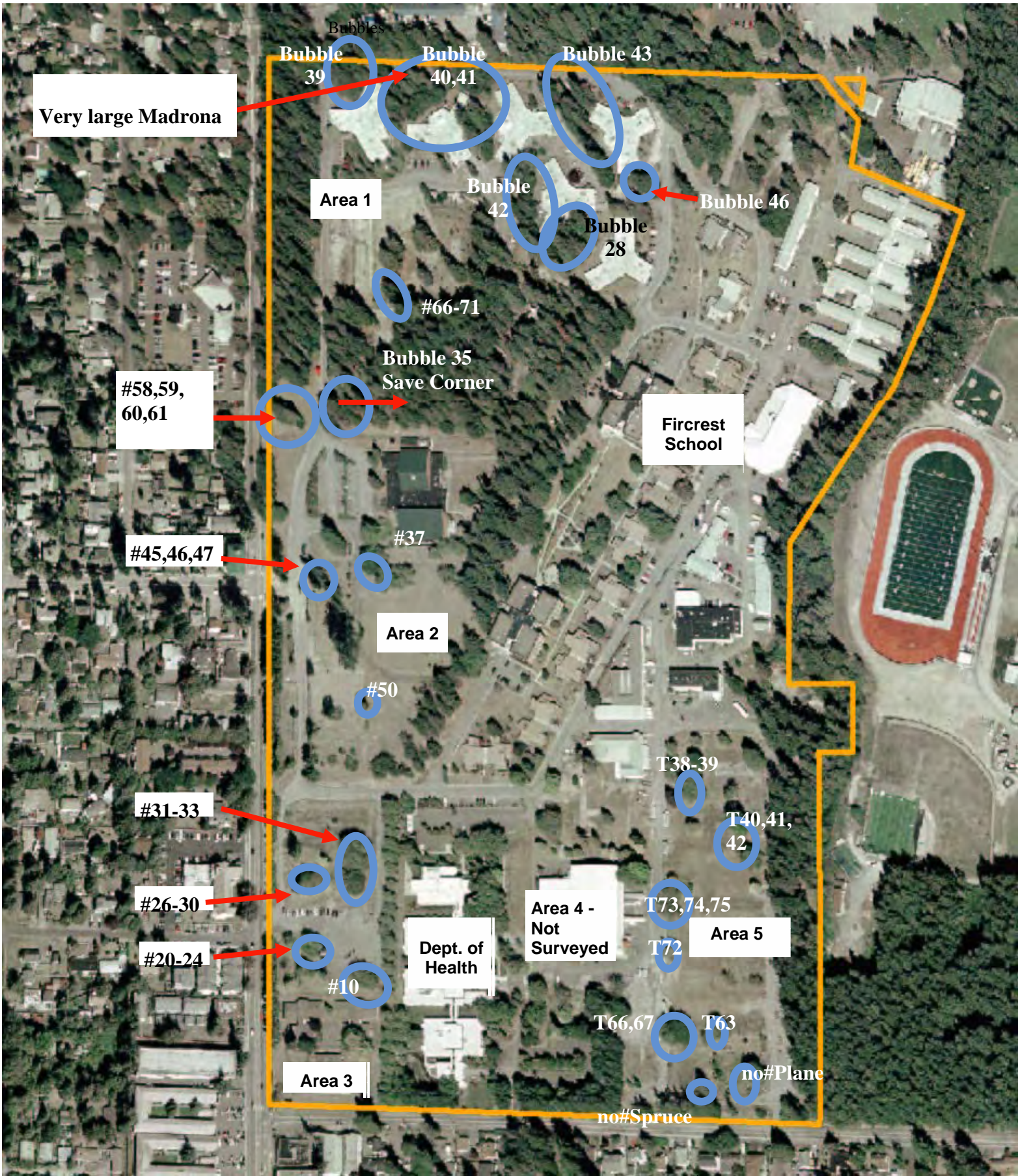
1. This specification must be followed for all trees that are in close proximity to any clearing and grading limits.
2. After the site has been surveyed, and clearing and grading stakes are in place, the consulting arborist will visit the site to determine the actual placement of tree protection measures based on the potential impact to tree root systems. Final adjustment of clearing limits by the consulting arborist will be made on site.
3. Tree Protection Zone (TPZ) fencing or other barriers shall be installed along all clearing limits to protect the Critical Root Zones (CRZ) of trees that are to be preserved. Optimal CRZ areas should be calculated at 1 foot radius for every 1 inch of tree diameter. Work required for removal of unwanted vegetation within the CRZ areas will be hand work only, NO HEAVY EQUIPMENT. TPZ fencing shall be 4' tall orange plastic fencing anchored with steel stakes or 6' chain link fence, depending on local code requirements. The consulting arborist may also require chain link fencing or plywood boxing around trees in certain high traffic areas. The consulting arborist will meet on site with the contractor to determine the specific types of fencing and placement, and the specific clearing instructions for areas near preserved trees. Adjustment of the initial TPZ lay out may be required as construction progresses.
4. Within the TPZ areas no parking, materials storage, dumping, or burning is allowed.
5. When removing trees outside of the TPZ determined to be unacceptable for retention, use methods such as directional felling to avoid damage to trees and other valuable vegetation that is being retained. Small trees and other native vegetation in these areas should be carefully preserved.
6. Tree stumps that are within a TPZ or immediately adjacent to the CRZ of a preserved tree or other vegetation shall be removed by grinding.
7. Where the consulting arborist has determined that roots of a preserved tree may be encountered during excavation or grading, a Certified Arborist shall be on site to supervise any root pruning and to assess the potential impact of such pruning. Any root greater than 1.5" diameter that is encountered shall be carefully cut with a sharp tool. Roots cut shall be immediately covered with soil or mulch and kept moist.
8. Where access for machinery or any vehicle is required within the CRZ or TPZ of any preserved tree, the soil should be protected from compaction. Acceptable methods include 18" of wood chips or hog fuel, plywood, or steel sheets.
9. TPZ fencing shall not be moved without authorization from the consulting arborist or the site supervisor. All fencing is to be left in place until the completion of the project. Tree protection signage shall be attached to fencing only.
10. Landscaping specified within the TPZ areas shall be designed to limit disturbance of surface soils and preserved vegetation. No root pruning is permitted. New plants added in these areas should be of the smallest size possible to minimize disturbance..

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11. Where backfill is required within a CRZ or TPZ area, the consulting arborist shall determine the amount and type of fill material to be used.
12. Any trees adjacent to high traffic areas or building envelopes shall be pruned by the owner. The consulting arborist will provide a recommendation using ANSI A30 American Standards for Pruning to remove dead wood, provide clearance, and cabling or bracing. Use of an International Society of Arboriculture Certified Arborist to perform the recommended work is strongly recommended.
13. Supplemental irrigation for all protected trees is required during the summer months or prolonged periods of dry weather. **THIS IS MOST IMPORTANT FOR SUCCESSFUL TREE RETENTION.**
14. Monitoring of all trees, especially those exposed to new environmental conditions such as exposure to wind, sun, or deep shade, should be monitored annually to check for adverse changes to the tree health or stability.

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November 21, 2008



Consulting Arborists

Fircrest Campus
Development Areas

Priority Trees and
Groves for Retention

Refer to **Table of Trees** for more information and other priority trees

Refer to **Fircrest Existing Features** map for Bubble locations

TABLE of TREES



G=Grove consider as group

A	EXCELLENT: tree is without any visible defects
B	GOOD: low levels of defects
C	FAIR: moderate defect
D	POOR: major defects
F	VERY POOR: extreme defects or dead

Trees were numbered with red paint pen, except where previously tagged, or not numbered as in Area 5.

Bubble # refers to "Fircrest Existing Features" plan dated 12.2001. They correspond to AHBL Planning Areas 1-5.

Dec. 2008

Client: AHBL Inc

Tree # or Bubble location	Scientific Name	Common Name	DBH	Potential Landmark	Condition	Priority for Retention	Notes/ Recommendations								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Bubbles 15&16</td> <td style="width: 15%; text-align: center;">AREA 3</td> <td colspan="6"></td> </tr> </table>								Bubbles 15&16	AREA 3						
Bubbles 15&16	AREA 3														
				Trees over 30" DBH		1=High 2=Important									
1	<i>Ulmus spp.</i>	Elm	28		C		Deadwood, close to bldg.								
2	<i>Acer rubrum</i>	Red Maple	19		D		Close to bldg.								
3	<i>Platinus x acerifolia</i>	Plane	19.5		B		Close to bldg.								
4	<i>Acer spp.</i>	Maple	10.5		B		Close to bldg.								
5	<i>Pinus spp.</i>	Pine	5		A	2									
6	<i>Acer spp.</i>	Maple	18		B	2									
7	<i>Betula spp.</i>	Birch	10,11.7		D		Co Dominant								
8	<i>Acer platanoides</i>	Norway Maple	11.5		B										
9	<i>Abies spp.</i>	Alpine Fir (?)	8,8,9,9		B		Co Dominant								
10	<i>Platinus x acerifolia</i>	Plane	38	Landmark	A	1	Asphalt at base								
11	<i>Acer rubrum</i>	Red Maple	12.5		C		G								
12	<i>Acer rubrum</i>	Red Maple	8		B		G								
13	<i>Platinus x acerifolia</i>	Plane	23		A	2	G								
14	<i>Platinus x acerifolia</i>	Plane	15		A	2	G								
15	<i>Ulmus spp.</i>	Elm	19		D		G								
16	<i>Aesculus hippocastanum</i>	Horse Chestnut	16.5		C		G								
17	<i>Aesculus hippocastanum</i>	Horse Chestnut	9		D		G								
18	<i>Platinus x acerifolia</i>	Plane	12		B	2									
19	<i>Aesculus hippocastanum</i>	Horse Chestnut	10.5		C	2									
20	<i>Platinus x acerifolia</i>	Plane	11		B	1	G Anthracnose								
21	<i>Platinus x acerifolia</i>	Plane	12		B	1	G								
22	<i>Platinus x acerifolia</i>	Plane	12		B	1	G								
23	<i>Platinus x acerifolia</i>	Plane	13.5		B	1	G								
24	<i>Platinus x acerifolia</i>	Plane	11.5		C		Line pruned								
25	<i>Aesculus hippocastanum</i>	Horse Chestnut	12		C										
26	<i>Quercus</i>	Oak	23		A	1	G								
27	<i>Platinus x acerifolia</i>	Plane	18		F		G Dead. Snag								
28	<i>Quercus</i>	Oak	18		A	1	G								
29	<i>Acer platanoides</i>	Norway Maple	15		C		G								
30	<i>Platinus x acerifolia</i>	Plane	17		C		G Roots								
31	<i>Acer rubrum</i>	Red Maple	29.5		B	1									
32	<i>Platinus x acerifolia</i>	Plane	33.5	Landmark	B	1									
33	<i>Platinus x acerifolia</i>	Plane	32	Landmark	B	1									
34	<i>Aesculus hippocastanum</i>	Horse Chestnut	32	Landmark	C	1									
35	<i>Populus balsimifera</i>	Cottonwood	13,14		D		Co Dominant								
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 15%; text-align: center;">Bubbles 1,2&18-25&34</td> <td style="width: 15%; text-align: center;">AREA 2</td> <td colspan="6"></td> </tr> </table>								Bubbles 1,2&18-25&34	AREA 2						
Bubbles 1,2&18-25&34	AREA 2														
36	<i>Aesculus hippocastanum</i>	Horse Chestnut	18		B										
37	<i>Quercus palustris</i>	Pin Oak	24		B	1	Assymetrical crown								
38	<i>Platinus x acerifolia</i>	Plane	12.5		C										
39	<i>Platinus x acerifolia</i>	Plane	15		D										
40	<i>Pinus monticola</i>	White Pine	30		C	2	G								
41	<i>Pinus monticola</i>	White Pine	30		C	2	G Co Dominant								
42	<i>Pinus monticola</i>	White Pine	19		C	2	G								
43	<i>Betula spp.</i>	Birch	10		D		G								
44	<i>Betula spp.</i>	Birch	14		B	2	G								
45	<i>Pinus nigra</i>	Black Pine	23		A	1									
46	<i>Pinus nigra</i>	Black Pine	24		A	1									
47	<i>Pinus monticola</i>	White Pine	13		B		Leaning								
48	<i>Pinus monticola</i>	White Pine	25		B/C		Topped, against wall								
49	<i>Populus balsimifera</i>	Cottonwood	72	Landmark	C		Topped, against wal, Poor species for retention								
50	<i>Acer spp.</i>	Maple	14		A	1	Good fall color								
51	<i>Chamaecyparis</i>	Falsecypress	22		C		Poor structure								

TABLE of TREES

Tree # or Bubble location	Scientific Name	Common Name	DBH	Potential Landmark	Condition	Priority for Retention	Notes/ Recommendations	
52	<i>Acer spp.</i>	Maple	16,12,13		B		Co Dominant	
53	<i>Robinia pseudoacacia</i>	Black Locust	24.5		C			
54	<i>Chamaecyparis</i>		25.5		D			
55	<i>Pseudotsuga menziesii</i>	Douglas fir	19		B		Near rockery	
56	<i>Aesculus hippocastanum</i>	Horse Chestnut	20		A			
57	<i>Aesculus hippocastanum</i>	Horse Chestnut	16		A			
58	<i>Pinus nigra</i>	Black Pine	23		C		G Co Dominant	
59	<i>Chamaecyparis lawsonian</i>	Lawson cypress	~48	Landmark	A	1	G	
60	<i>Pinus monticola</i>	White Pine	26		C		G	
61	<i>Pinus monticola</i>	White Pine	32.5	Landmark	C		G	
62	<i>Pinus monticola</i>	White Pine	32	Landmark	C		Lean	
Bubble 35		Madrona, Pine				1	Part of this area forms a good corner and should be saved with contiguous remnant to east. Use existing roadway.	
Bubbles 9,10&13 AREA 5								
T=tag	T 32	<i>Acer macrophyllum</i>	Bigleaf maple	22,20,25	C		many young trees suitable for transplanting	
	T 35	<i>Platanus x acerifolia</i>	Plane	18.5	C		stump sprout, asphalt at base	
	T 38	<i>Chamaecyparis</i>		23	A	1		
	T 39	<i>Chamaecyparis</i>		25	A	1		
	no#	<i>Platanus x acerifolia</i>	Plane	32	Landmark	B	2	
	T 40	<i>Aesculus hippocastanum</i>	Horse chestnut	18	C		grove	
	T 41	<i>Quercus</i>	Oak	22	B	1	grove	
	T 42	<i>Quercus</i>	Oak	21	B	1	grove	
	T 45	<i>Platanus x acerifolia</i>	Plane	31	Landmark	A	1	
	T 51	<i>Aesculus hippocastanum</i>	Horse chestnut	17.5	C			
	T 54	<i>Prunus</i>	Flwg. Cherry	16	D		ok to remove	
	T 55	<i>Prunus</i>	Flwg. Cherry	19	D		ok to remove	
	T 63	<i>Platanus x acerifolia</i>	Plane	28	A	1		
	T 66	<i>Quercus spp</i>	Oak	26	A	1	grove	
	T 67	<i>Platanus x acerifolia</i>	Plane	20,14,14,15	C		grove-structure, codom	
	T 72	<i>Acer</i>	Maple	21	B	1		
	T 73	<i>Ulmus spp.</i>	Elm	~28		2	grove	
	T 74	<i>Sorbus acuparia</i>	Mountain ash	10	D/F		grove, edge ok to remove	
	T 75	<i>Platanus x acerifolia</i>	Plane	30	Landmark	2	grove	
	T 78	<i>Aesculus hippocastanum</i>	Horse Chestnut	16	C	2	grove	
	no#	<i>Acer rubrum</i>	Red Maple	20	D		topped, fruiting body	
	no#	<i>Picea spp.</i>	Spruce	24	A	1		
	no#	<i>Platanus x acerifolia</i>	Plane	35	Landmark	A	1	remove landscape fabric at base
	no#	<i>Aesculus hippocastanum</i>	Horse Chestnut	16	B			
	no#	<i>Acer spp.</i>	Maple	27	D			
	no#	<i>Acer spp.</i>	Maple	19	B			
Bubbles 35,37-43, 45,46 AREA 1								
	63	<i>Pinus monticola</i>	Western white pine	35	Landmark	C	2	
	64	<i>Thuja plicata</i>	Western red cedar	32	Landmark	A	2	
	65	<i>Tsuga heterophylla</i>	Hemlock	25		C		
	66	<i>Pinus monticola</i>	Western white pine	37	Landmark	B	1	
	67	<i>Pseudotsuga menziesii</i>	Douglas fir	18		1	G-Nice younger grove	
	68	<i>Pseudotsuga menziesii</i>	Douglas fir	18		1	G	
	69	<i>Thuja plicata</i>	Western red cedar	8		1	G	
	70	<i>Pinus monticola</i>	Western white pine	15		C	2	G ditch
	71	<i>Prunus</i>	Flowering cherry	14.5		B		
	72	<i>Pinus monticola</i>	Western white pine	32	Landmark	B	2	Low branches may need pruning
	Bubble 45	<i>Pinus monticola</i>	Western white pine	22		D/F		Screens bldg.No #. Low priority to retain
	Bubble 45	<i>Pinus monticola</i>	Western white pine	21		D/F		Screens bldg.No #. Low priority to retain
	Bubble 45	<i>Pinus monticola</i>	Western white pine	18		D/F		Screens bldg.No #. Low priority to retain
	Bubble 46	<i>Pseudotsuga menziesii</i>	Douglas fir			D		Group of 2 with huge rock. Snag?
	Bubble 46	<i>Tsuga heterophylla</i>	Hemlock			A	2	In swale w/fir above-Grade Change? Bubble 46
	"Y" Bldg. 56	<i>Cotinus coggyria</i>	Smoke tree	5				Typical of high quality landscape trees around existint buildings to be demolished. Could be transplanted.
	"Y" Bldg. 56	<i>Acer palmatum</i>	Japanese maple	3				Typical of high quality landscape trees around existint buildings to be demolished. Could be transplanted.
	"Y" Bldg. 56	<i>Sequoiadendron</i>	Weeping Sequoiader	5				Typical of high quality landscape trees around existint buildings to be demolished. Could be transplanted.
	"Y" Bldg. 56	<i>Cedrus deodora</i>	Deodar cedar	6				Typical of high quality landscape trees around existint buildings to be demolished. Could be transplanted.
	"Y" Bldg. 56	<i>Cedrus atlantica</i>	Weeping atlas cedar	8				Typical of high quality landscape trees around existint buildings to be demolished. Could be transplanted.
	Bubble 39				A	1	Keep Remnant in tact	
	Bubble 40,41				A	1	Keep Remnant in tact	

TABLE of TREES

Tree # or Bubble location	Scientific Name	Common Name	DBH	Potential Landmark	Condition	Priority for Retention	Notes/ Recommendations
Bubble 42					A	1	Keep Remnant in tact
Bubble 28					B	2	Keep Remnant in tact
Bubble 43					A		Keep Remnant in tact
Bubble 35					B		Save Corner-white pine/madrone
AREA 4	<i>Not surveyed</i>						Some good individual trees. Protect those on east side of new major roadway, when constructed.
RETAINED OPEN SPACE	Bubble 36						Hemlock root disease, great madrone regen., good understory

Fircrest Campus Excess Property Master Plan

Appendix H

Transportation Impact Study

January 6, 2010

*Fircrest Campus Excess Property Master Plan
Shoreline, WA*

Transportation Impact Study

December 2, 2008

Prepared for:

AHBL
1200 6th Avenue
Seattle, Washington 98101-3117

Prepared by:



Transportation Engineering NorthWest, LLC

Transportation Engineering/Operations ♦ Impact Studies ♦ Transportation Planning ♦ Demand Forecasting

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FINDINGS AND CONCLUSIONS

Project Proposal. The Fircrest Campus is generally located east of the 15th Avenue NE corridor between NE 150th Street and NE 160th Street. Full buildout under the proposed Master Plan is anticipated for the year 2030. The proposed Master Plan would construct up to 202 low-rise apartments, 307 mid-rise apartments, 353 townhouses, 255,000 square feet of general office space, 27,000 square foot government office space, 34,900 square feet of specialty retail space, and add up to 11,700 square feet to an existing recreational community center. The proposed Master Plan would allow for the existing Fircrest School to expand its total building capacity by an additional 45,556 square feet totaling no more than 500,000 square feet, but would continue to serve the existing school population levels. The existing Food Lifeline and Firland Workshop would continue, but in the future these facilities could be used for Washington State Department of Health (DOH) purposes or be converted to open space.

Trip Generation. Buildout of the proposed Master Plan would generate an estimated net total of approximately 10,720 daily and 852 p.m. peak hour vehicular trips (351 entering and 501 exiting).

Off-Site Study Intersection Impacts. All off-site study intersections are expected to operate at LOS E or better with and without the proposed development during the p.m. peak hour in 2030. This meets the City of Shoreline's adopted LOS E standard.

Site Access Impacts. Vehicular access is proposed via five site driveways: one onto NE 160th Street; two onto 15th Avenue NE at NE 155th Street and in the vicinity of NE 152nd Street; and two onto NE 150th Street with one approximately 150 feet east of 15th Avenue NE and another approximately 900 to 1,000 feet east of 15th Avenue NE. All site driveways would have full access, except for the project site driveway onto 15th Avenue NE in the vicinity of NE 152nd Street, which would be restricted with no westbound left-turns exiting the site. With the exception of potential driveways used by DOH under their separate master planning process, all other existing site driveways would be eliminated. However, an emergency-only access would continue to be provided to the northeastern portion of the Campus via NE 160th Street. Trucks serving the Fircrest School, Firland Workshop and Food Lifeline would only have access to the eastern driveway onto NE 150th Street. Intersection #4 – 15th Avenue NE / NE 155th Street would be improved by providing separate eastbound and westbound left, through and right-turn lanes with protected+permitted phasing for eastbound and westbound left-turns.

Parking Impacts. A total of 1,607 to 3,122 parking stall supply are proposed on-site in off-street and on-street parking under the Master Plan. The wide range in proposed parking stalls is based upon the potential for parking reductions associated with transit accessibility, employment/ residential density, walkability, and land use mix.



Transit Impacts. King County-Metro transit routes 77, 330, and 348 stop adjacent to the project site at the intersections of 15th Avenue NE / NE 155th Street, 15th Avenue NE / NE 150th Street, and 20th Avenue NE / NE 150th Street. Transit users would be able to find accessible routes for their transit needs via the transit routes serving NE 155th Street, NE 150th Street, and 15th Avenue NE. No additional transit improvements are anticipated as part of this project.

Nonmotorized Impacts. Raised sidewalks and/or paved shoulders are provided on 15th Avenue NE, NE 150th Street and vicinity project roadways. Nonmotorized internal circulation would be provided via a multi-use bicycle/pedestrian trail or sidewalk with two on-site north-south routes and one east-west route connecting the two north-south routes and also providing a connection to 15th Avenue NE. No additional nonmotorized transportation improvements are expected as part of the project.

Mitigation Measures. The applicant would be required to fully fund and construct/reconstruct the necessary site driveways and associated frontage improvements onto NE 150th Street and 15th Avenue NE. Additional mitigation measures are identified above under each impacts section as necessary.



INTRODUCTION

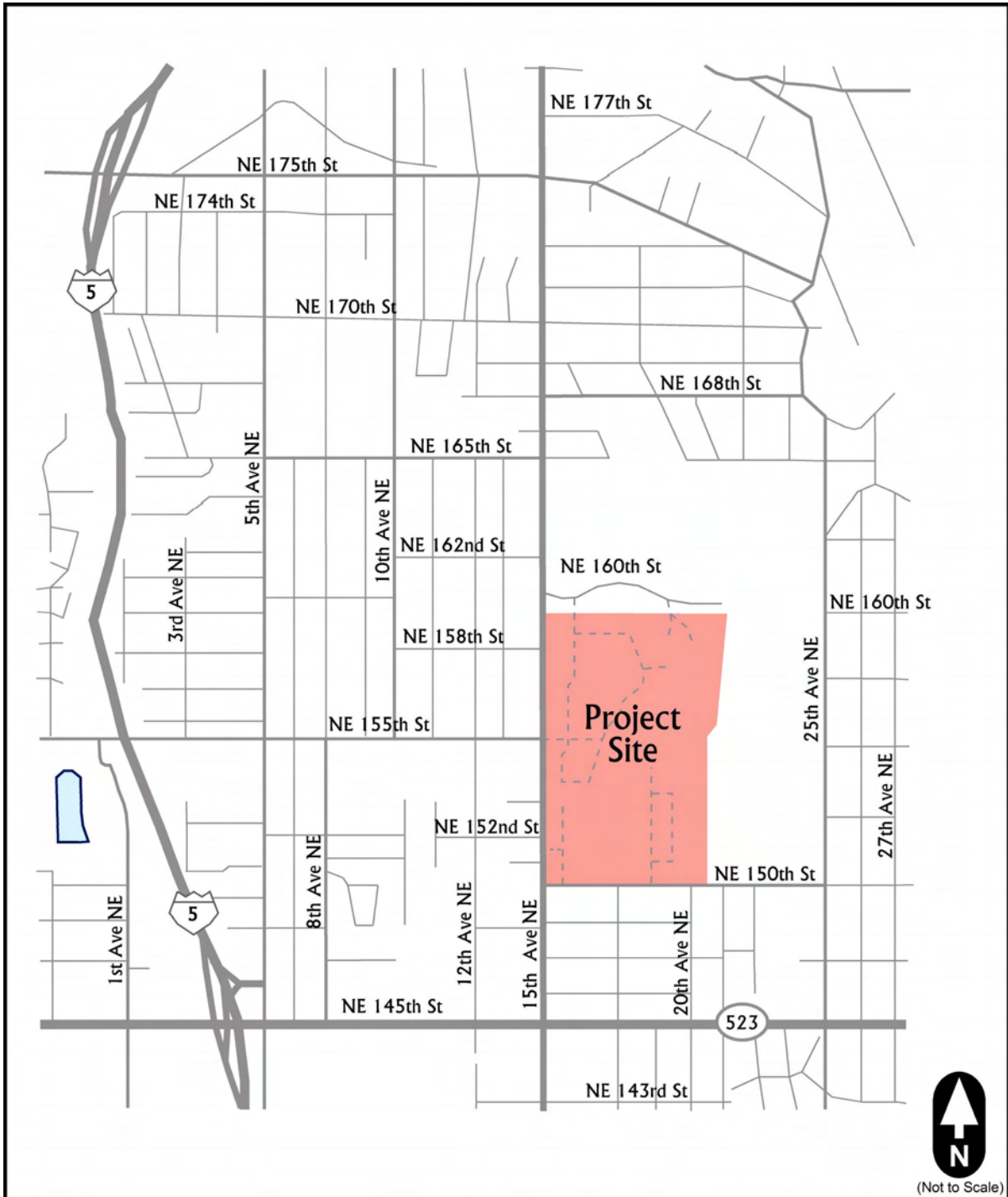
This study summarizes transportation impacts associated with *Fircrest Campus Excess Property Master Plan*, a Master Plan proposed for adoption in Shoreline, WA. The Master Plan would allow for future mixed-use development on the Campus. This study documents transportation impacts associated with this proposed action, including:

- Assessment of existing transportation conditions and operations through data collection efforts and field reconnaissance.
- Estimation of daily and p.m. peak vehicular project trip generation.
- Assignment of daily and p.m. peak hour project trips onto the existing roadway network.
- Evaluation of level of service (LOS) impacts during the p.m. peak hour at eleven (11) study intersections:
 1. 15th Avenue NE / NE 175th Street
 2. 15th Avenue NE / NE 165th Street
 3. 15th Avenue NE / NE 160th Street (Site Access)
 4. 15th Avenue NE / NE 155th Street (Site Access)
 5. 15th Avenue NE / Project Site Driveway (Site Access)
 6. 15th Avenue NE / NE 150th Street
 7. 15th Avenue NE / NE 145th Street
 8. 25th Avenue NE / NE 150th Street
 9. 5th Avenue NE / NE 155th Street
 10. NE 150th Street / East Project Site Driveway (Site Access)
 11. NE 150th Street / West Project Site Driveway (Site Access)
- Evaluation of site access, safety, and circulation issues.
- Assessment of parking, public transportation services and non-motorized facility impacts.
- Identification of mitigation measures to maintain acceptable levels of mobility and safety based upon City of Shoreline and Washington State Department of Transportation (WSDOT) standards and guidelines.

Project Description

The Fircrest Campus is generally located east of the 15th Avenue NE corridor between NE 150th Street and NE 160th Street. A project site vicinity map is shown in **Figure 1**. Full buildout under the proposed Master Plan is anticipated for the year 2030, and would construct up to 202 low-rise apartments, 307 mid-rise apartments, 353 townhouses, 255,000 square feet of general office space, 27,000 square foot government office space, 34,900 square feet of specialty retail space, and add up to 11,700 square feet to an existing recreational community center.





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Figure 1
Project Site Vicinity

Fircrest Campus Excess Property Master Plan
Shoreline, WA
Transportation Impact Study

In addition, the Master Plan would allow for the existing Fircrest School to expand its building capacity by 45,556 square feet from 454,444 square feet up to 500,000 square feet. However, no change in population served or staffing is anticipated with this building expansion. The existing Food Lifeline and Firland Workshop area would be used for DOH purposes. All other existing uses would remain the same unless noted above.

Vehicular access is proposed via five site driveways: one onto NE 160th Street; two onto 15th Avenue NE at NE 155th Street and in the vicinity of NE 152nd Street; and two onto NE 150th Street with one approximately 150 feet east of 15th Avenue NE and another approximately 900 to 1,000 feet east of 15th Avenue NE. All site driveways would have full access, except for the project site driveway onto 15th Avenue NE in the vicinity of NE 152nd Street, which would be restricted with no westbound left-turns exiting the site. With the exception of potential driveways used by DOH under their separate master planning process, all other existing site driveways would be eliminated. However, an emergency-only access would continue to be provided to the northeastern portion of the Campus via NE 160th Street. Trucks serving the Fircrest School, Firland Workshop and Food Lifeline would only have access to the eastern driveway onto NE 150th Street. A conceptual site plan is illustrated in **Figure 2**.

EXISTING CONDITIONS

This section describes existing transportation system conditions in the study area. It includes an inventory of existing roadway conditions, traffic volumes, intersection levels of service, public transportation services, nonmotorized transportation facilities, and planned roadway improvements.

Roadway Conditions

The following paragraphs describe existing arterial roadways that would be used as major routes for site access. Roadway characteristics are described in terms of number of lanes, posted speed limits and shoulder types and widths.

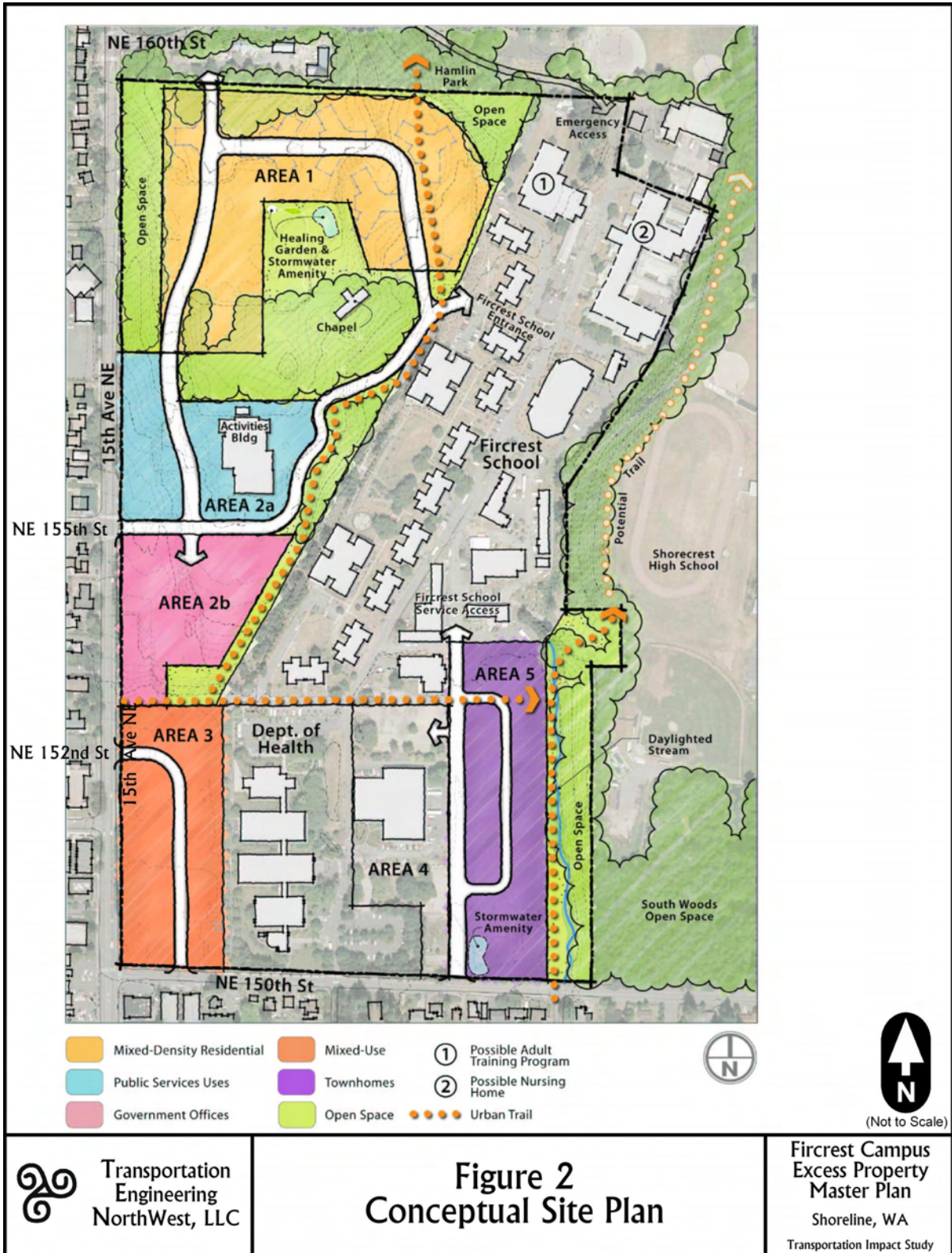
15th Avenue NE is a *principal arterial* consisting of four travel lanes north of and two travel lanes with a two-way, center left-turn lane generally south of NE 175th Street. Curbs, gutters, sidewalks and bicycle lanes are provided on both sides of the street. Travel lanes are 11 to 12 feet. The posted speed limit is 25 mph north of and 35 mph south of NE 175th Street.

NE 175th Street is a four-lane *principal arterial*. Travel lanes are 11 to 12 feet with curbs, gutters, and sidewalks on both sides of the street. The posted speed limit is 35 mph.

NE 165th Street is a two-lane roadway with curbs, gutters and sidewalks on the north side of the street and paved/gravel shoulders on the south side of the street. Parking is located along various parts of the roadway. The total pavement width ranges between 33 and 34 feet. The speed limit is posted at 25 mph.

NE 160th Street is a two-lane, east-west roadway. The total pavement width is 21 to 22 feet with 6-foot gravel shoulders on the north side of the street and a separated paved pathway on the south side of the street. The posted speed limit is 25 mph.





NE 155th Street is a two-lane, east-west *minor arterial*. Curbs, gutters, sidewalks and parking are located on both sides of the street. The curb-to-curb width is 42 feet, with 12-foot travel lanes and 9-foot paved shoulders on both sides of the street. The speed limit is posted at 30 mph.

NE 150th Street is an east-west, two-lane *collector arterial*. The roadway consists of 11 to 12 foot wide travel lanes. Adjacent to the project site, curbs, gutters and sidewalks are located on the north side of the street with an 8-foot paved shoulder for parking. A raised hump/curb treatment is located on the south side of the street to separate a nonmotorized pathway from travel lanes. The posted speed limit is 30 mph.

NE 145th Street (SR 523) is classified by the WSDOT as an *urban principal arterial*. The City of Shoreline classifies the roadway as a state route. Travel lanes are generally 11 to 12 feet with curbs, gutters and sidewalks on both sides of the street. The speed limit is posted at 35 mph.

5th Avenue NE is a two-lane, north-south *minor arterial*. Curbs, gutters, sidewalks are located on both sides of the street. The curb-to-curb width is 42 feet. Parking is provided along various parts of the street. The posted speed limit is 30 mph.

25th Avenue NE is a two-lane *collector arterial*. Curbs, gutters, sidewalks and bicycle lanes are provided north of and 4- to 8-foot paved shoulders are provided south of NE 150th Street. Parking is provided along various parts of the roadway. The curb-to-curb width is 31 to 32 feet. The speed limit is posted at 25 mph.

Existing Traffic Volumes

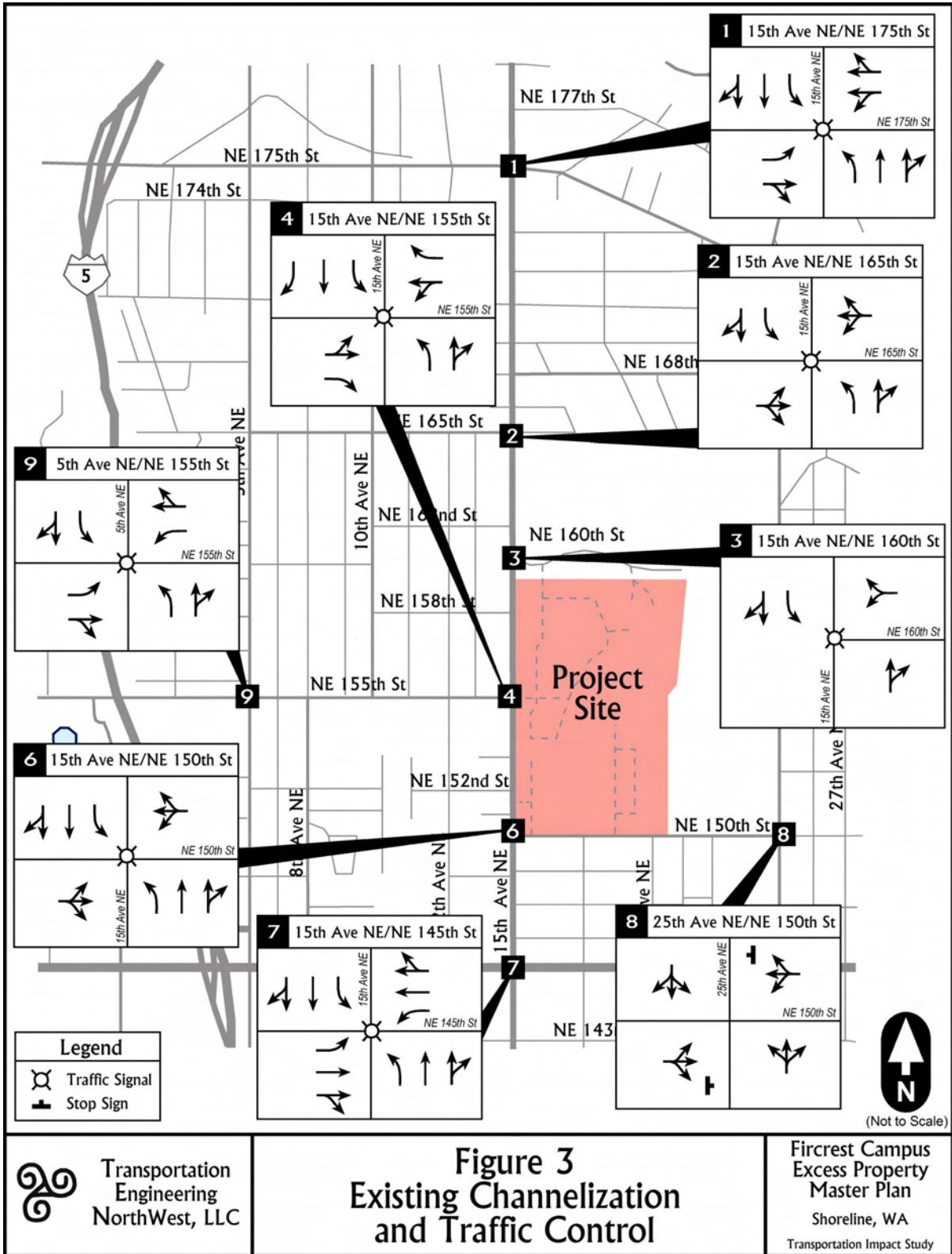
Figure 3 summarizes existing channelization and traffic control at all study intersections. **Figures 4 and 5** highlight existing year 2008 p.m. peak period turning movements and daily traffic volumes at study intersections and roadways. Peak hour traffic volumes represent the highest hourly volume of vehicles passing through an intersection during a typical morning and afternoon peak period. Average weekday daily traffic volumes represent the number of vehicles traveling on a roadway segment over a 24-hour period on an average day.

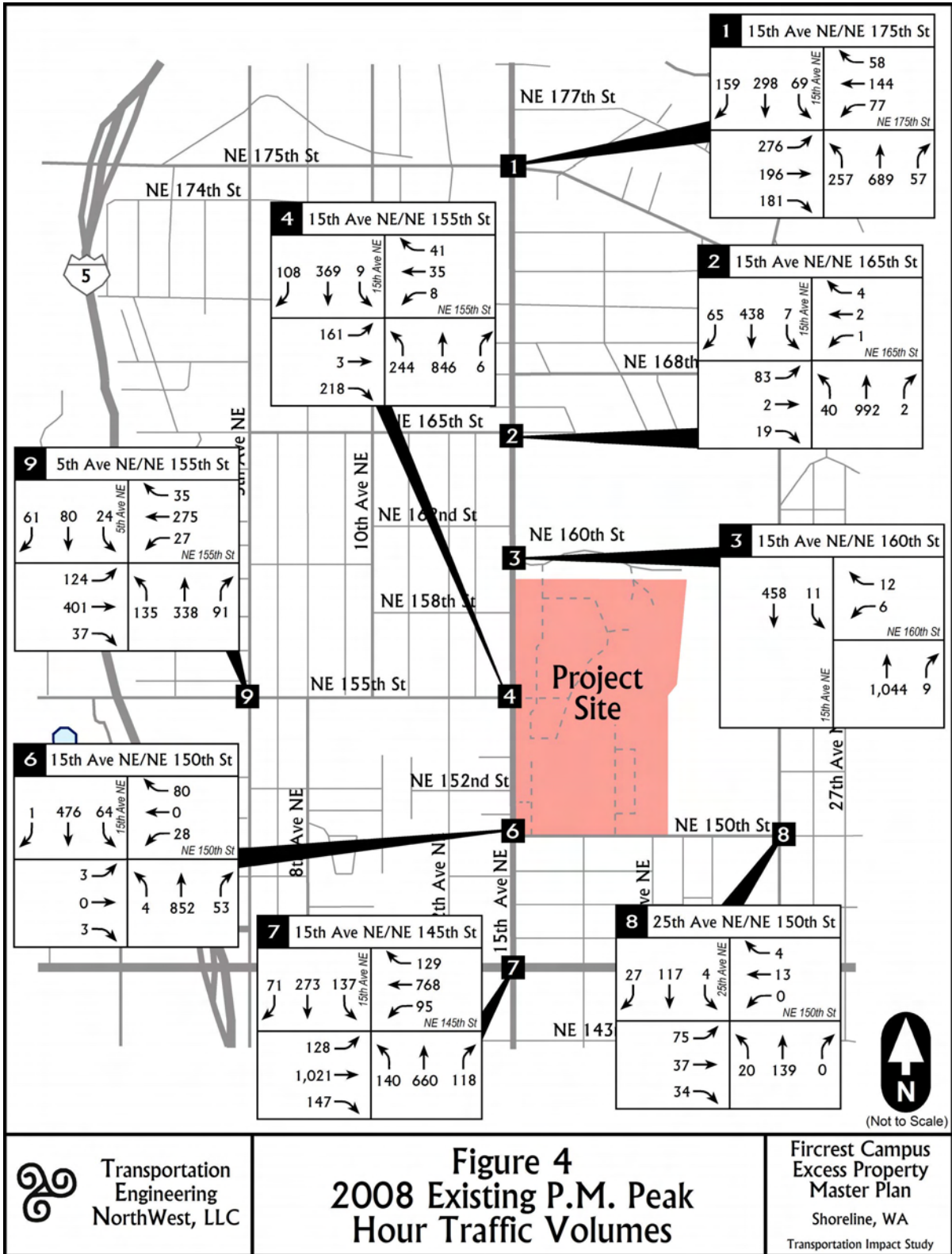
All Traffic Data Gathering, Inc. conducted p.m. peak hour turning movement counts at all study intersections in October 2006 and July/August 2008 (turning movement counts are provided in **Appendix A**). Daily traffic volumes were obtained from the City of Shoreline and WSDOT. The City of Shoreline's *Comprehensive Plan* (April 2005) and *Transportation Master Plan* (July 11, 2005) indicate an average growth rate of 2 percent per year between 2002 and 2022 in the project site vicinity. Therefore, all traffic counts not counted in the year 2008 were factored by 2 percent per year to estimate year 2008 existing conditions. It should also be noted that traffic volumes conducted in July/August 2008 were factored by 1.05 to account for public school traffic trips that were not being generated during summer months.

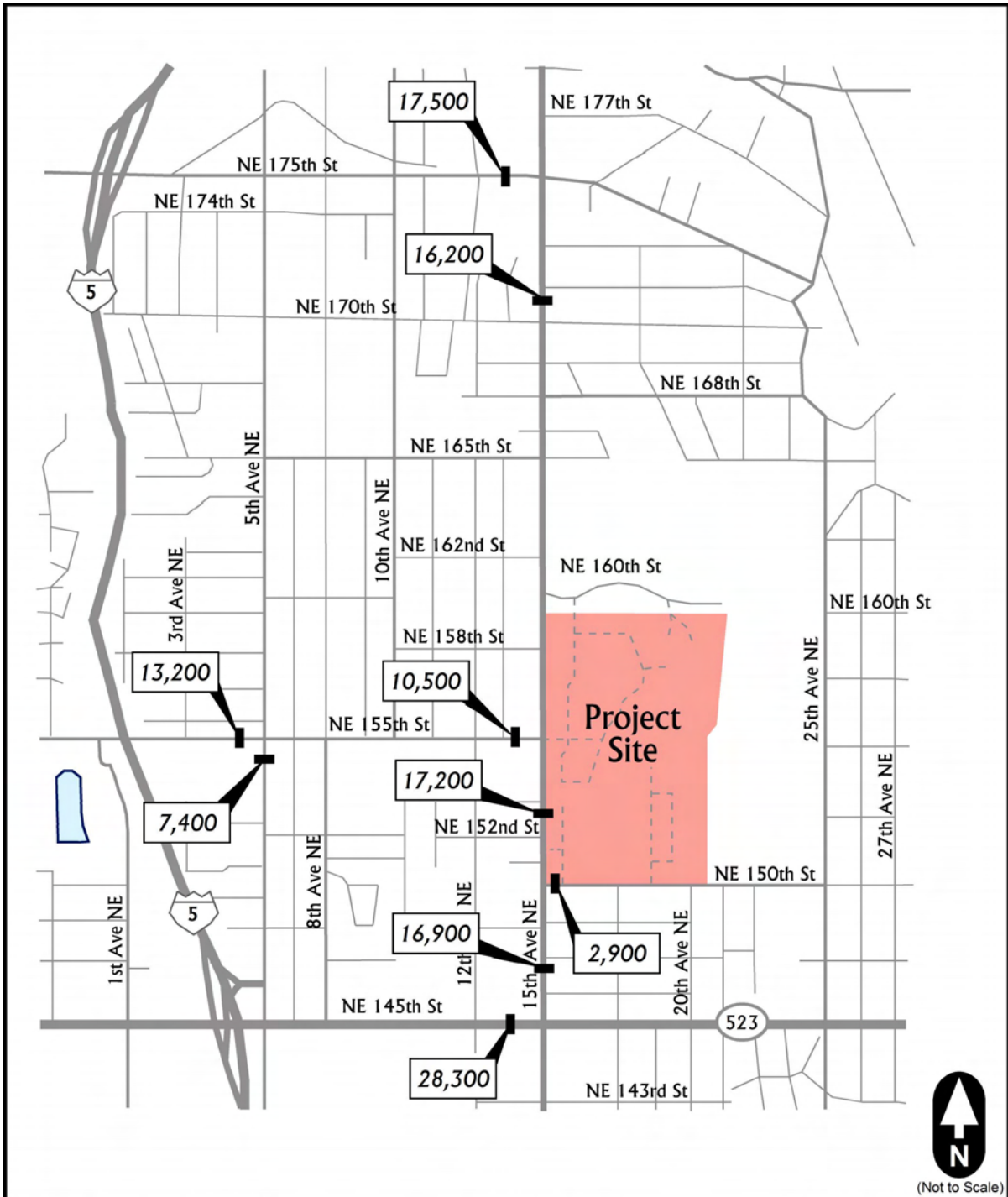
Intersection Level of Service

Level of service (LOS) serves as an indicator of the quality of traffic flow at an intersection or road segment. The LOS grading ranges from A to F, such that LOS A is assigned when minimal delays are present and low volumes are experienced. LOS F indicates long delays and/or forced flow.










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Figure 5
2008 Existing Average
Daily Traffic Volumes

Fircrest Campus
 Excess Property
 Master Plan
 Shoreline, WA
 Transportation Impact Study

Table 1 summarizes the delay range for each level of service at signalized and unsignalized intersections. The methods used to calculate the levels of service are described in the updated *2000 Highway Capacity Manual* (Special Report 209, Transportation Research Board). The measure of effectiveness for signalized intersections is average control delay, defined as the total time vehicles are stopped at an intersection approach during a specified time period divided by the number of vehicles departing from the approach in the same time period.

Table 1: Level of Service Criteria at Intersections

Level of Service	Signalized Intersection Delay Range (sec)	Unsignalized Intersection Delay Range (sec)
A	≤ 10	≤ 10
B	> 10 to ≤ 20	> 10 to ≤ 15
C	> 20 to ≤ 35	> 15 to ≤ 25
D	> 35 to ≤ 55	> 25 to ≤ 35
E	> 55 to ≤ 80	> 35 to ≤ 50
F	≥ 80	≥ 50

Source: "Highway Capacity Manual", Special Report 209, Transportation Research Board, 2000, Update.

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, and increased travel time. The delay experienced by a motorist is made of up a number of factors that relate to traffic control, geometries, traffic demand, and incidents. Total control delay is the difference between the travel time actually experienced and the *reference travel time* that would result during base conditions (i.e., the absence of traffic control, geometric delay, any incidents, or as a result other vehicles). LOS F at signalized intersections is often considered unacceptable to most drivers, but does not automatically imply that the intersection is over capacity. Jammed conditions could occur on one or all approaches, with periods of long delays and drivers waiting for multiple signal cycles to progress through the intersection.

For unsignalized intersections, a level of service and estimate of average control delay is determined for each minor or controlled movement based upon a sequential analysis of gaps in the major traffic streams and conflicting traffic movements. In addition, given that unsignalized intersections create different driver expectations and congestion levels than signalized intersections, their delay criteria are lower. Control delay at unsignalized intersections include deceleration delay, queue move-up time, stopped delay in waiting for an adequate gap in flows through the intersection, and final acceleration delay.

Intersection LOS were calculated using the methodology and procedures outlined in the 2000 *Highway Capacity Manual*, Special Report 209, Transportation Research Board (TRB), using the *Synchro6* and *HCS2000* software programs. The adopted LOS standard in the City of Shoreline is LOS E.

Existing p.m. peak hour levels of service at study intersections are summarized in **Table 2**. All signalized intersections and stop-controlled movements at unsignalized intersections operate at LOS D or better under existing conditions during the p.m. peak hour.

Detailed level of service summary worksheets are provided in **Appendix B**.

Table 2: 2008 Existing P.M. Peak Intersection Levels of Service

Signalized Intersections	Control Type	Level of Service	Average Delay
#1 – 15 th Ave NE / NE 175 th St	Signalized	C	34
#2 – 15 th Ave NE / NE 165 th St	Signalized	B	12
#3 – 15 th Ave NE / NE 160 th St	Signalized	A	3
#4 – 15 th Ave NE / NE 155 th St	Signalized	B	19
#6 – 15 th Ave NE / NE 150 th St	Signalized	A	7
#7 – 15 th Ave NE / NE 145 th St	Signalized	D	39
#9 – 5 th Ave NE / NE 155 th St	Signalized	A	10
Unsignalized Intersections	Control Type	Level of Service	Average Delay
#8 – 25 th Ave NE / NE 150 th St	EB	B	13
	WB	B	11
	NB Left	A	8
	SB Left	A	8

Note: Analysis based on *Synchro 6*, *Traffic Signal Coordination Software* and *HCS 2000* results using HCM 2000 control delays (seconds) and LOS.

Public Transportation Services

King County-Metro serves the 15th Avenue NE, NE 155th Street and NE 150th Street corridors, adjacent to the project site. Transit stops are located adjacent to the project site at the intersections of 15th Avenue NE / NE 155th Street, 15th Avenue NE / NE 150th Street, and 20th Avenue NE / NE 150th Street. Transit routes served are 77, 330, and 348. King County-Metro offers dial-a-ride, rideshare, and ridematch services. Accessible transit services are also offered to citizens with disabilities. Bicycle racks are provided on the front of most King County-Metro buses.

Route 77 provides peak morning and peak afternoon/evening service on weekdays between North City, Jackson Park, Maple Leaf, Shoreline, and Downtown Seattle. Weekday service is provided at the 10th Avenue NE / NE 175th Street intersection from 5:45 a.m. until 8:10 a.m. to downtown Seattle and from 4:20 p.m. to 6:55 p.m. from downtown Seattle. Transit service stops average every 15 minutes.

Route 330 provides weekday service between Shoreline, Parkwood, Fircrest, and Lake City. Weekday service is provided at the 15th Avenue NE / NE 155th Street intersection from 7:10 a.m. until 6:10 p.m. to Shoreline and from 7:30 a.m. to 6:00 p.m. from Shoreline. Transit service stops average every 30 minutes.

Route 348 provides daily service between Richmond Beach, Shoreline, Ridgecrest, and Northgate. Weekday service runs from 5:40 a.m. until 11:55 p.m. Weekend service is provided between 6:15 a.m. and 11:50 p.m. Weekday and Saturday service averages every 10 to 30 minutes. Sunday service averages every half hour to hour.

Nonmotorized Transportation Facilities

On 15th Avenue NE, raised sidewalks with bicycle lanes are provided on both sides of the street, except there are no raised sidewalks on the east side of the street adjacent to the northern section of the Fircrest Campus. On NE 150th Street, raised sidewalks are located on the north side of the street adjacent to the project site, however, they end about 350 feet west of the eastern site driveway. An 8-foot paved shoulder for parking is provided on the north side of the street, adjacent to the project site. On the south side of the street, a raised hump/curb treatment is located on the south side of the street to separate a non-motorized pathway from travel lanes. All other roadways in the site vicinity generally have raised sidewalks or paved shoulders.

Planned Roadway Improvements

A review of planned transportation improvements in the City of Shoreline's *2008-2013 Capital Improvement Program* (CIP) identified one transportation-capacity improvement project that would be impacted by the proposed development: **NE 170th Street / 15th Avenue NE** – Install a traffic signal. The total estimated cost is \$429,000 and would be completed by 2009.

TRANSPORTATION IMPACT ANALYSIS

The following section describes transportation impacts the proposed *Fircrest Campus Excess Property Master Plan* would have on the surrounding arterial network and critical intersections in the site vicinity. The discussion includes non-project related traffic forecasts, new trips generated by the proposed development, distribution and assignment of new project trips, impacts on roadways, levels of service at nearby significant intersections, site access, circulation, and safety issues, parking, public transportation services, and non-motorized facilities.

Non-Project Traffic Forecasts

For the purpose of this traffic analysis, year 2030 was selected as the build-out year based upon anticipated buildout of new land uses under the proposed *Fircrest Campus Excess Property Master Plan*. Although a 2 percent per year growth rate was used to factor traffic volumes to existing 2008 conditions, the year 2030 is far into the future and using a 2 percent per year growth rate is not reasonable since the existing Shoreline area is near its development capacity. It should also be noted that traffic volumes on SR 523 in the vicinity of 15th Avenue NE remained stagnant between 2001 and 2006, while traffic volumes on 15th Avenue NE decreased from 2002 to 2007. Therefore, a 0.5 percent annual growth rate was used to factor existing 2008 traffic volumes and estimate year 2030 baseline conditions without the proposed development.

Trip Generation

The Institute of Transportation Engineers (ITE) *Trip Generation, 8th Edition, 2008*, was used to estimate weekday daily and p.m. peak hour traffic that would be generated by the proposed development.



Average rate equations were used to estimate net new trip generation for low-rise apartment (ITE Land Use Code 221), mid-rise apartment (ITE Land Use Code 223), condominium/townhouse (ITE Land Use Code 230), recreational community center (ITE Land Use Code 495), government office building (ITE Land Use Code 730), specialty retail center (ITE Land Use Code 814), and general office building (ITE Land Use Code 710).

No new trips were assumed for the potential building expansion of the existing Fircrest School that would be allowed under the proposed Master Plan, since there would be no anticipated change in population served or staffing with this building expansion. Existing trips for the Food Lifeline and Firland Workshop buildings were assumed to remain the same since no change is anticipated for those buildings. However, the area containing the buildings could be potentially used for DOH purposes under their separate master planning effort or be converted to open space.

To account for trips made between uses within the development, an evaluation was conducted to determine the potential for internal trip reduction of the site area as a whole. This trip reduction potential or “capture” of trips internal to the site has the net effect of reducing vehicle trip making and impacts to the external street system outside of the site area. Variable internalization assumptions, based upon documented research by ITE of internalization potential, were made for “linked trips” that would occur between these uses and stay internal to the site area based upon the type, size, and amount of retail, and the internalization market with jobs and residents. ITE research shows that internalization potential ranged from approximately 5 percent to 25 percent depending upon these variables. For the *Fircrest Campus Excess Property Master Plan* development, a conservative internalization adjustment of 10 percent was used to account for nonmotorized travel between land uses.

Table 3 summarizes estimated net project trip generation for the proposed action. As shown, the Master Plan would generate a net total of 10,720 daily and 852 p.m. peak hour vehicular trips (351 entering and 501 exiting).

Table 3: Net Project Trip Generation

Land Use	ITE Land Use Code ¹	Size ²	P.M. Peak Trip Generation ¹			Daily Trip Generation ¹
			Enter	Exit	Total	
Low-Rise Apartment	221	202.0 DU	76	41	117	1,330
Mid-Rise Apartment	223	307.0 DU	69	50	120	2,020
Condominium/Townhouse	230	353.0 DU	123	61	184	2,070
Recreational Community Center	495	11.7 SF GFA	6	14	19	270
Government Office Building	730	255.0 SF GFA	10	23	33	1,860
Specialty Retail Center	814	34.9 SF GLA	42	53	95	1,550
General Office	710	27.0 SF GFA	65	315	380	2,810
Total Project Trip Generation			390	556	947	11,910
<i>Less Internal Trips (10%)</i>			<i>-39</i>	<i>-56</i>	<i>-95</i>	<i>-1,190</i>
Net Project Trip Generation			351	501	852	10,720

1. Average rate equations in the ITE *Trip Generation Manual*, 8th Edition, 2008.

2. DU is Dwelling Unit, SF GFA is 1,000 Square Feet in Gross Floor Area, and SF GLA is 1,000 Square Feet in Gross Leasable Area.

Trip Distribution and Assignment

Based upon historical traffic volumes and patterns, the regional employment distribution within the area, and recent traffic studies conducted in the study area, traffic volumes generated by the proposed action would be distributed as follows (trip distribution is shown in **Figure 6** while trip assignments are shown in **Figure 7**):

- 15 percent northerly and 15 percent southerly via 15th Avenue NE.
- 60 percent westerly via NE 175th Street, NE 155th Street, and NE 145th Street.
- 10 percent easterly via NE 150th Street.

Intersection Level of Service Impacts

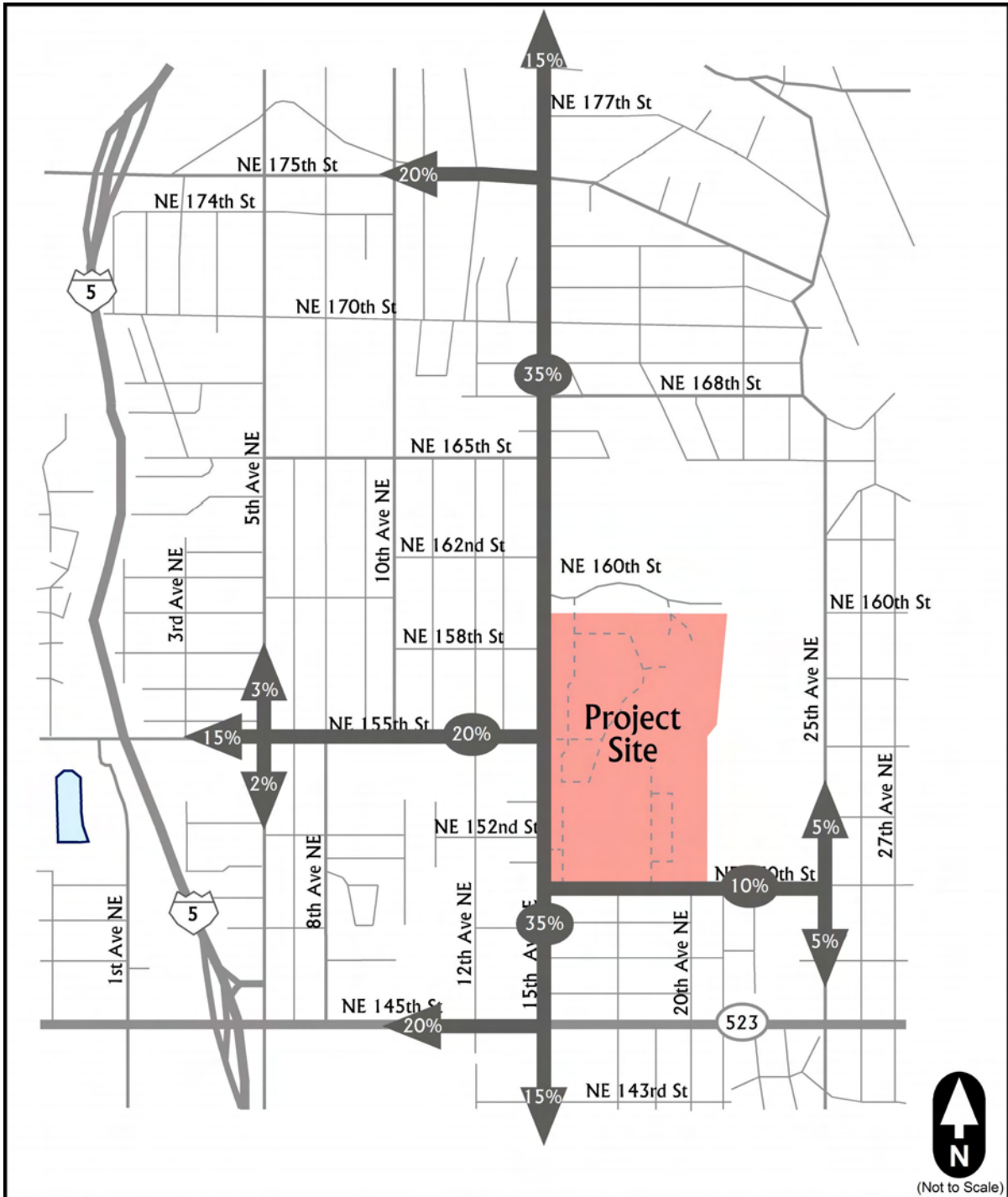
Figure 8 shows p.m. peak hour traffic volumes with and without the proposed *Fircrest Campus Excess Property Master Plan* in 2030. **Figure 9** summarizes p.m. peak hour traffic volumes with and without the proposed *Fircrest Campus Excess Property Master Plan* in 2030 at the remaining site driveway intersections not shown in **Figure 8**. Detailed level of service summary worksheets are provided in **Appendix B**, and traffic volume calculations forecasts are provided in **Appendix C**.

Table 4 summarizes weekday p.m. peak hour levels of service impacts at the study intersections under 2030 Full Buildout conditions. All signalized intersections and stop-controlled movements at unsignalized intersections would operate at LOS E or better during the p.m. peak hour assuming full completion of the development in 2030. This meets the City of Shoreline’s adopted LOS E standard.

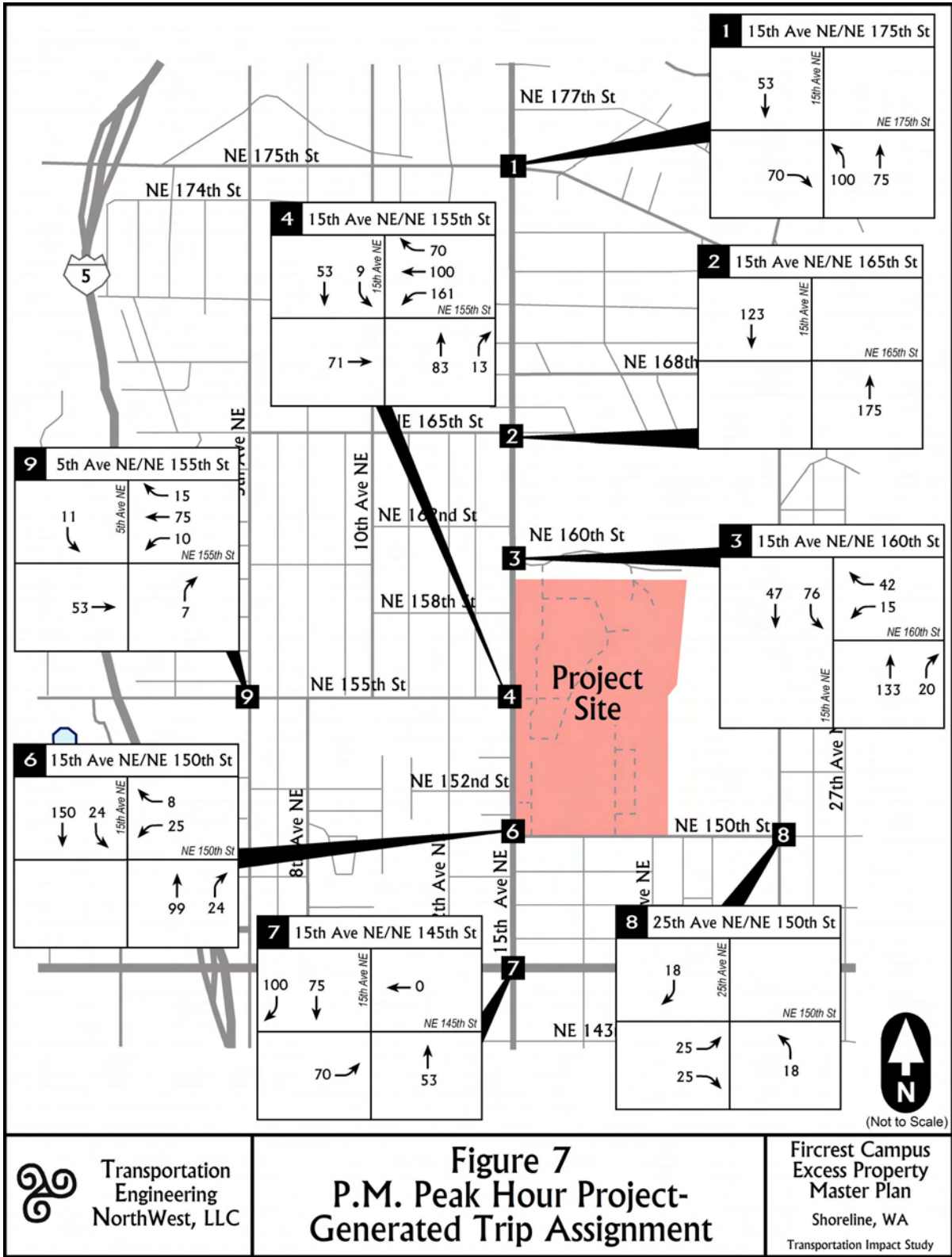
Table 4: 2030 P.M. Peak Intersection Level of Service Impacts

Signalized Intersections	Control Type	Without Project		With Project	
		LOS	Delay	LOS	Delay
#1 – 15 th Ave NE / NE 175 th St	Signalized	D	38	D	49
#2 – 15 th Ave NE / NE 165 th St	Signalized	B	15	B	19
#3 – 15 th Ave NE / NE 160 th St	Signalized	A	3	A	9
#4 – 15 th Ave NE / NE 155 th St	Signalized	C	21	E	70
#6 – 15 th Ave NE / NE 150 th St	Signalized	B	12	B	14
#7 – 15 th Ave NE / NE 145 th St	Signalized	D	53	E	59
#9 – 5 th Ave NE / NE 155 th St	Signalized	B	11	B	12
Unsignalized Intersections	Control Type	Without Project		With Project	
#5 – 15 th Ave NE / Project Site Dr	WB	--	--	E	46
	SB Left	--	--	C	23
#8 – 25 th Ave NE / NE 150 th St	EB	B	14	C	16
	WB	B	11	B	12
	NB Left	A	8	A	8
	SB Left	A	8	A	8
#10 - NE 150 th St / E Project Site Dr	EB Left	--	--	A	8
	SB	--	--	B	10
#11 - NE 150 th St / W Project Site Dr	EB Left	--	--	A	8
	SB	--	--	B	10

Note: Analysis based on optimized *Synchro 6*, *Traffic Signal Coordination Software* and *HCS 2000* using HCM 2000 control delays (seconds) and LOS.



<p>Transportation Engineering NorthWest, LLC</p>	<h3>Figure 6</h3> <h2>Project Trip Distribution</h2>	<p>Fircrest Campus Excess Property Master Plan Shoreline, WA Transportation Impact Study</p>
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Transportation Engineering NorthWest, LLC

Figure 7
P.M. Peak Hour Project-Generated Trip Assignment

Fircrest Campus Excess Property Master Plan
Shoreline, WA
Transportation Impact Study

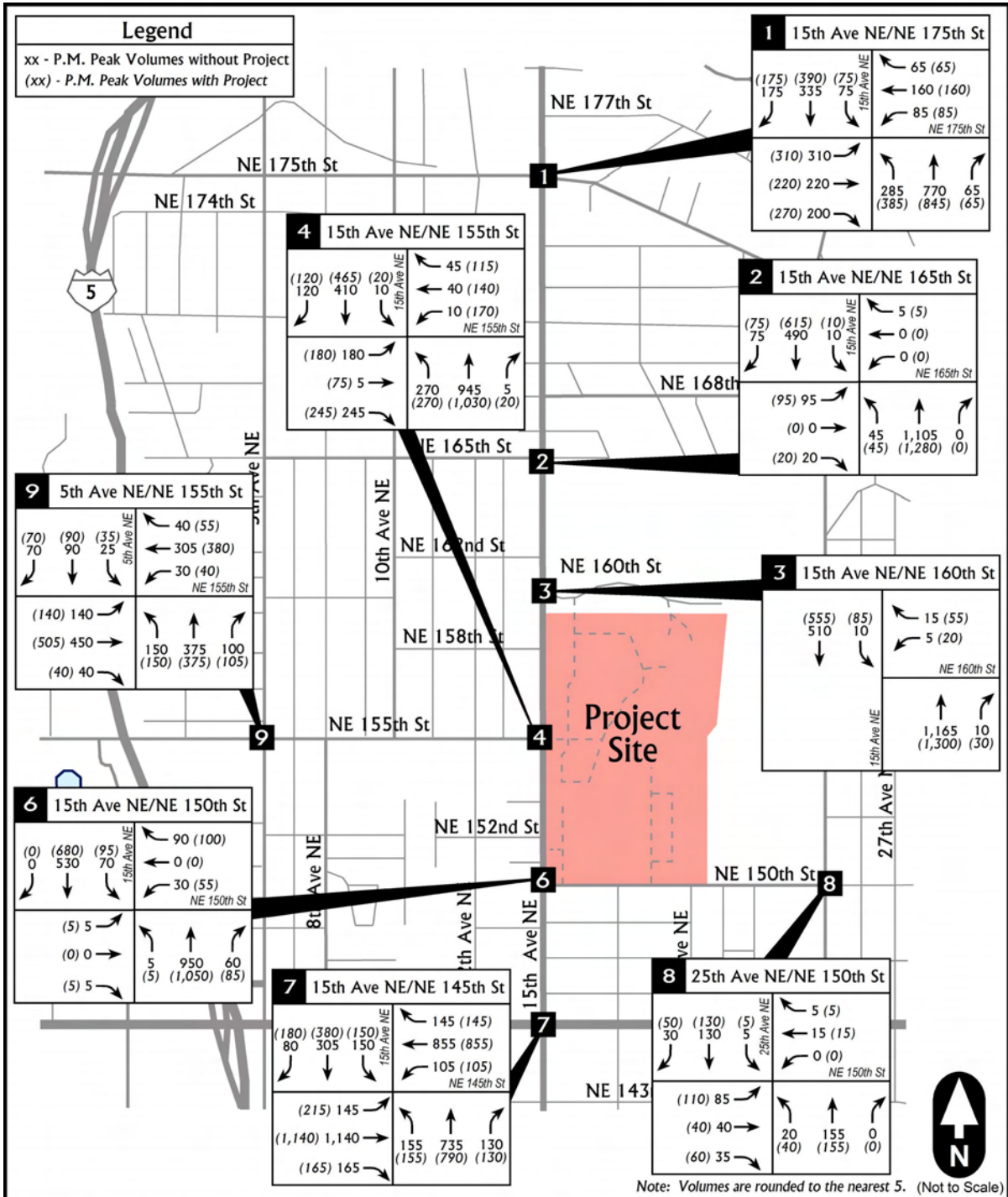


Figure 8
2030 P.M. Peak Hour
Traffic Volume Impacts

Fircrest Campus
Excess Property
Master Plan
Shoreline, WA
Transportation Impact Study

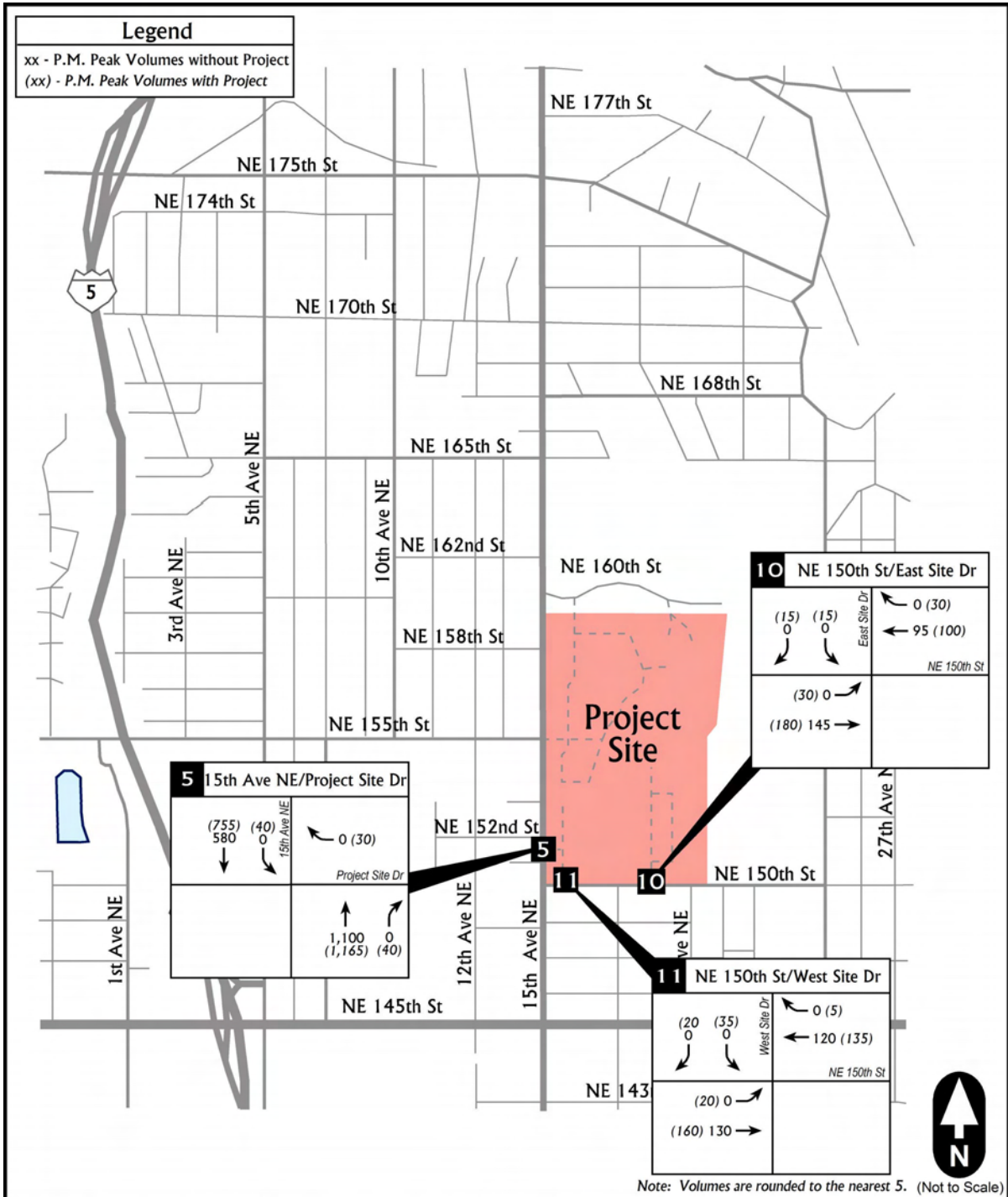


Figure 9
2030 P.M. Peak Hour Traffic Volume Impacts at Site Driveways

Transportation Engineering NorthWest, LLC
Fircrest Campus Excess Property Master Plan
Shoreline, WA
Transportation Impact Study

Queuing Analysis

Average (50th percentile) and maximum (95th percentile) queue lengths are shown for critical turning movements. As defined in the *2000 Highway Capacity Manual*, the “back of queue” is the number of vehicles that are queued depending on arrival patterns and vehicles that do not clear the intersection during any given green phase (overflow).

Table 5 summarizes westbound exiting queue lengths at the critical site access Intersection #4 - 15th Avenue NE / NE 155th Street. As shown, average and maximum queue lengths would exceed maximum storage lengths by 65 feet and 235 feet under 2030 conditions with the proposed development. Therefore, it is recommended that separate westbound and eastbound left, through, and right-turn only lanes with protected+permitted phasing for westbound and eastbound left-turns be provided at the intersection. With these improvements, average and maximum queue lengths would fall below the maximum storage lengths in 2030 with the proposed development. There are no anticipated queuing issues at any of the other site access intersections onto 15th Avenue NE or NE 150th Street.

Table 5: 15th Avenue NE / NE 155th Street Average and Maximum Queue Lengths

Westbound LTR or Left-Turn	2030 With Project	2030 With Project Improvements²
Average 50 th Percentile Queue	240 feet	105 feet
Maximum 95 th Percentile Queue	410 feet	170 feet
Average Queues Meet Storage Length	No	Yes
If "No", Average Queue Length	65 feet	0
Maximum Queues Meet Storage Length	No	Yes
If "No", Maximum Queue Length	235 feet	0
Maximum Storage Length¹	175 feet	175 feet
Westbound Through	2030 With Project	2030 With Project Improvements²
Average 50 th Percentile Queue	---	95 feet
Maximum 95 th Percentile Queue	---	155 feet
Average Queues Meet Storage Length	---	Yes
If "No", Average Queue Length	---	0
Maximum Queues Meet Storage Length	---	Yes
If "No", Maximum Queue Length	---	0
Maximum Storage Length¹	---	175 feet
Westbound Right-Turn	2030 With Project	2030 With Project Improvements²
Average 50 th Percentile Queue	---	0 feet
Maximum 95 th Percentile Queue	---	50 feet
Average Queues Meet Storage Length	---	Yes
If "No", Average Queue Length	---	0
Maximum Queues Meet Storage Length	---	Yes
If "No", Maximum Queue Length	---	0
Maximum Storage Length¹	---	175 feet

1 – Maximum Storage Length is from east end of 15th Avenue NE to west end of internal north-south roadway.

2 – Recommended improvements are separate westbound and eastbound left, through, and right-turn only lanes with protected+permitted phasing for westbound and eastbound left-turns at the intersection.



Traffic Volume Impacts

Figure 10 summarizes daily traffic impacts on roadways in the project site vicinity. Daily traffic volumes on 15th Avenue NE would increase by up to 3,900 vehicles, NE 150th Street by 2,400 vehicles immediately east of 15th Avenue NE, and by 2,100 vehicles on NE 175th Street, NE 155th Street, and NE 145th Street (SR 523) west of 15th Avenue NE with the proposed project in 2030. Traffic volume calculations are provided in **Appendix C**.

Site Access, Safety, and Circulation Issues

Vehicular access is proposed via five site driveways: one onto NE 160th Street; two onto 15th Avenue NE at NE 155th Street and in the vicinity of NE 152nd Street; and two onto NE 150th Street with one approximately 150 feet east of 15th Avenue NE and another approximately 900 to 1,000 feet east of 15th Avenue NE. All site driveways would have full access, except for the project site driveway onto 15th Avenue NE in the vicinity of NE 152nd Street, which would be restricted with no westbound left-turns exiting the site. With the exception of potential driveways used by DOH under their separate master planning process, all other existing site driveways would be eliminated. However, an emergency-only access would continue to be provided to the northeastern portion of the Campus via NE 160th Street. Trucks serving the Fircrest School, Firland Workshop and Food Lifeline would only have access to the eastern driveway onto NE 150th Street.

Internal circulation remains adequate with proper two-way circulation within the site, providing adequate access for both private and emergency vehicles. Additionally, the applicant would be required to fully fund and construct/reconstruct the necessary site driveways and associated frontage improvements onto NE 150th Street and 15th Avenue NE.

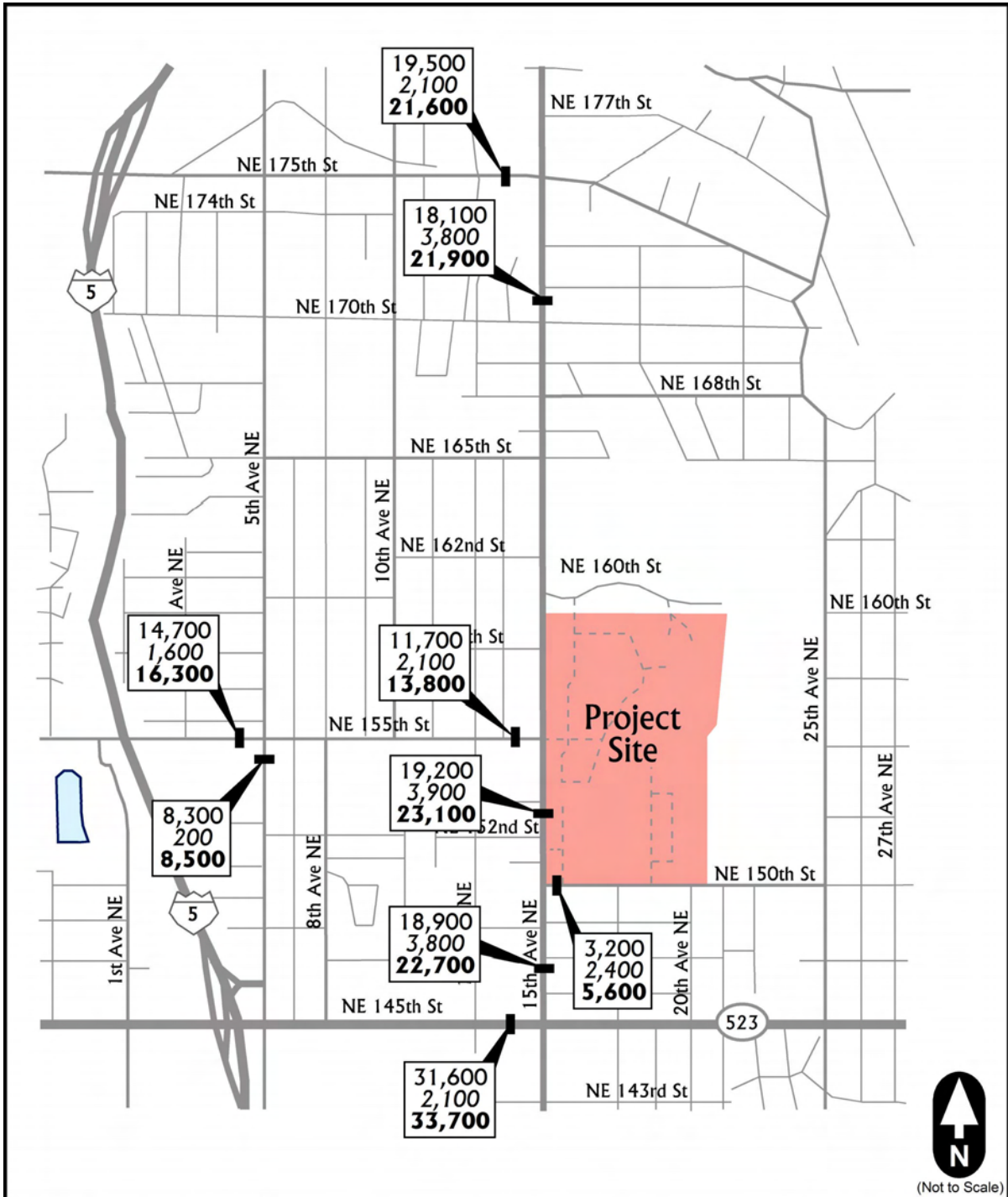
Driveway Operations


As summarized above in the Intersection Level of Service Impacts and Queuing Analysis sections, all stop-controlled movements at the unsignalized site access intersections onto 15th Avenue NE and NE 150th Street would operate at LOS E or better with 95th percentile vehicular queues of 1 vehicle or less with the proposed development in 2030.

Intersection #4 – 15th Avenue NE / NE 155th Street should be improved by providing separate eastbound and westbound left, through and right-turn lanes with protected+permitted phasing for eastbound and westbound left-turns. This intersection would operate at LOS C with these improvements. The other site access signalized intersection at 15th Avenue NE / NE 160th Street would operate at LOS A with the proposed development in 2030.

Sight Distance

The Shoreline Municipal Code Section 20.70.190, Sight clearance at intersections (Section A - Major/Minor Street), was used to determine sight distance requirements at the unsignalized project site driveways onto 15th Avenue NE and NE 150th Street. The City of Shoreline requires 250 feet of sight distance for a 25 mph posted speed onto 15th Avenue NE. Field-measured sight distances by TENW in August 2008 are greater than 300 feet to the north and south of the project site driveway onto 15th Avenue NE.



 <p>Transportation Engineering NorthWest, LLC</p>	<p>Figure 10 2030 Average Daily Traffic Volume Impacts</p>	<p>Fircrest Campus Excess Property Master Plan Shoreline, WA Transportation Impact Study</p>
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The City of Shoreline requires 300 feet of sight distance for a 30 mph posted speed onto NE 150th Street. Field-measured sight distances by TENW in August 2008 are approximately 400 feet to the west and greater than 500 feet to the east of the eastern project site driveway onto NE 150th Street. For the western project site driveway, NE 150th Street dead ends west of 15th Avenue NE to provide entering sight distance of 350 feet to the west; entering sight distance to the east is greater than 500 feet. Therefore, sight distance at the proposed unsignalized site driveway locations onto 15th Avenue NE and NE 150th Street would exceed City of Shoreline requirements.

Parking Impacts

This section documents minimum off-street parking requirements, parking demand, and proposed off-street parking supply for the Master Plan.

Minimum Off-Street Parking Requirements

Based upon City off-street parking standards (Shoreline Municipal Code Title 20.50.390 Minimum Off-Street Parking Requirements), the proposed new uses would be required to provide a minimum of 2,857 off-street parking stalls (see **Table 6**). It should be noted that the minimum off-street parking stall requirement does not take into account shared parking on-site.

Table 6: Minimum Off-Street Parking Requirements

Land/Residential Use	Size	Unit Type	Minimum Off-Street Parking Requirements ¹	Minimum Off-Street Parking Required by City of Shoreline
Apartment, Studio Units	55	dwelling unit	1.2 per dwelling unit	65
Apartment, 1 BD Units	109	dwelling unit	1.5 per dwelling unit	164
Apartment, 2 BD Units	273	dwelling unit	1.8 per dwelling unit	491
Apartment, 3 BD Units	109	dwelling unit	2.0 per dwelling unit	218
Condos/Townhouses	398	dwelling unit	2.0 per dwelling unit	796
Recreational Community Center (Addition)	11,700	square feet	1 per 300 square feet	39
Government Office Building	27,000	square feet	1 per 300 square feet	90
Specialty Retail Center	43,300	square feet	1 per 300 square feet	144
General Office	255,000	square feet	1 per 300 square feet	850
Total Minimum Off-Street Parking Requirement				2,857

¹ - Per City of Shoreline Municipal Code, Title 20.50.390 – Minimum Off-Street Parking Requirements – Standards.

Parking Demand

As shown in **Table 7**, parking generation equations compiled by the ITE *Parking Generation Manual*, 3rd Edition, were used to estimate peak parking demand of the proposed development. The project is anticipated to generate a peak parking demand of 2,058 stalls, based upon ITE parking generation rates. It should be noted that peak parking demand would occur at different times of the day for different land uses. For example, peak parking demand of residential uses would occur in the evenings after 7 p.m., while peak parking demand for offices would occur during the day between 10 a.m. to 1 p.m. Therefore, a shared parking strategy between office/retail and residential uses could be used to reduce the overall off-street parking supply.

Table 7: Parking Generation

Land Use	Size ¹	Parking Equation Rate	Parking Generation
Low-Rise/Mid-Rise Apartments ²	509 DU	= 1.43 * Size – 46 (1.34 per dwelling unit)	682
Condos/Townhouses	353 DU	1.46 per dwelling unit	515
Recreational Community Center	11,700 GFA	3.83 per 1,000 square feet	45
Government Office Building	27,000 GFA	4.15 per 1,000 square feet	112
Specialty Retail	34,900 GLA	2.65 per 1,000 square feet	92
General Office Building	255,000 GFA	2.40 per 1,000 square feet	612
Total Parking Generation			2,058

1. DU is Dwelling Unit, GFA is square feet of gross floor area, and GLA is square feet of gross leasable area.

2. Based upon the fitted curve equation for a suburban area in the ITE *Parking Generation Manual*, 3rd Edition, for a combined category for low/mid-rise apartments.

Proposed Off-Street Parking Supply

Recent discussions with the Shoreline City Council have resulted in uncertainty about the procedures for adopting a master plan containing new land uses. **Table 8** summarizes proposed off-street parking supply for the *Fircrest Excess Property Master Plan*. As shown, the Master Plan proposes to provide between 1,426 and 2,901 parking stalls. The 1,426 off-street parking stalls would be the minimum provided and would incorporate all parking reductions to include transit accessibility, employment/residential density, walkability, and land use mix. Proposed parking reductions are discussed below.

Table 8: Proposed Off-Street Parking Supply

Land/Residential Use	Size	Proposed Off-Street Parking Ratios (minimum-maximum)	Total Proposed Off-Street Parking Supply (minimum-maximum)
Non-ground related units (apartments, condos)	509	1.0-2.0 per dwelling unit	509 -1,018 (min = 407 with additional reductions) ¹
Ground related units (small-lot single-family, townhouse, rowhouse)	353	1.0-2.0 per dwelling unit	353-706 (min = 282 with additional reductions) ¹
Activities Building Addition (Recreational Community Center)	11,700	0.7-1.0 per 300 sq. ft.	27-40 (min = 24 with additional reductions) ¹
Civic/social service uses	27,000	0.7-1.0 per 300 sq. ft.	63-90 (min = 54 with additional reductions) ¹
Retail (non-food related)	22,900	0.7-1.0 per 300 sq.ft.	54-77 (min = 46 with additional reductions) ¹
Retail (food related)	12,000	0.6-1.0 per 100 sq.ft.	72-120 (min = 60 with additional reductions) ¹
Government Office	255,000	0.8-1.0 per 300 sq. ft.	680-850 (min = 553 with additional reductions) ¹
Total Proposed Off-Street Parking Supply			1,758-2,901 (min= 1,426 with all additional reductions)¹

1 – The suggested minimum parking supply is based on parking reductions for transit accessibility, employment/residential density, walkability, and land use mix.

Residential Uses

For the residential non-ground related units, an additional reduction of 20 percent excluding live/work units was considered for developments that incorporate any of the following parking management strategies:

- Unbundled parking: 10 percent reduction. Unbundled parking is the cost of parking for residential and commercial uses is often passed on to the occupant indirectly through the rent or purchase price rather than directly through a separate charge. Unbundling these costs and charging for parking separately provides a wider range of choices for renters or purchasers who do not want or cannot afford to pay for parking, and thus allows developers to provide less parking.
- Car sharing: 10 percent reduction. Car sharing programs allow people to have occasional access to a vehicle without having to own one. Members of a car sharing program are charged based on usage which often includes the cost of gas, insurance, maintenance and parking. Car sharing works best in higher-density, mixed-use developments where there are other transportation alternatives. Developments may dedicate several conveniently located parking spaces for a car sharing program and be allowed a reduction in the total number of spaces provided for residents. Zipcar, a for profit car sharing program that operates in Seattle and a number of other locations, reports that one Zipcar can replace over 15 privately-owned vehicles.

Non-residential uses

An additional reduction of 15 percent may be considered for office developments that incorporate the following parking management strategies:

- Parking pricing/cashout: 10 percent. Parking cash out programs are provided by employers who may offer employees who choose not to drive to work a cash payment equivalent to the value of a parking space. This offers a financial incentive to employees not to drive and reduces the overall demand for parking. The effectiveness of a parking cash-out program is directly related to the presence of other transportation alternatives.
- Bicycle facilities (storage and changing room): 5 percent

An additional reduction of 10 percent may be considered for retail, civic services and community center uses developments that incorporate shared parking management strategies. Shared parking means that multiple destinations share one parking area. This requires multiple destinations within walking distance of the same parking facility, and is most effective when those destinations either share patrons, so that people park once and visit multiple destinations, or have different periods when parking demand is highest. Shared parking can be effective in mixed use developments, either when there is a mix of uses on a single site or when sites with different uses are located suitably close together. Establishing the number of spaces required in a shared parking situation requires consideration of the following factors:

- The physical layout of the development (especially ease of pedestrian access from the parking spaces to the different uses);
- The type of users typically parking at each type of facility, and their parking patterns (e.g. employees who park for a full day vs. customers who park for an hour or two); and



- The total accumulation of parked vehicles expected for each use during different time periods.

Proposed On-Street Parking Supply

The Master Plan allows for between 181 and 221 on-street parking stalls along on-site roadways depending on how the office land uses are configured within Area 2 of the site.

Total Parking Supply

Therefore, based upon proposed off-street and on-street parking supply, a total of 1,607 to 3,122 parking stalls on-site would be available under the Master Plan.

Public Transportation Impacts

King County-Metro transit routes 77, 330, and 348 with service to Downtown Seattle, North City, Jackson Park, Maple Leaf, Richmond Beach, Shoreline, Ridgecrest, Parkwood, Lake City and Northgate serve the project site vicinity. Transit stops are located adjacent to the project site at the intersections of 15th Avenue NE / NE 155th Street, 15th Avenue NE / NE 150th Street, and 20th Avenue NE / NE 150th Street. Transit users would be able to find accessible routes for their transit needs via the transit routes serving NE 155th Street, NE 150th Street, and 15th Avenue NE. No additional transit improvements are anticipated as part of this project.

Nonmotorized Transportation Impacts

Raised sidewalks and/or paved shoulders are provided on 15th Avenue NE, NE 150th Street and vicinity project roadways. Nonmotorized internal circulation would be provided via a multi-use bicycle/pedestrian trail or sidewalk with two on-site north-south routes and one east-west route connecting the two north-south routes and also providing a connection to 15th Avenue NE. No additional nonmotorized transportation improvements are expected as part of the project.



PROJECT MITIGATION MEASURES

A review of impacts to roadways, intersection levels of service, site access, safety, and circulation issues, parking, public transportation services, and nonmotorized transportation facilities, was conducted in association with the proposed development. The following mitigation measures are recommended to reduce or eliminate project impacts as a result of the proposed *Fircrest Campus Excess Property Master Plan* development:

- The site access intersection #4 – 15th Avenue NE / NE 155th Street should provide separate eastbound and westbound left, through and right-turn lanes with protected+permitted phasing for eastbound and westbound left-turns.
- The applicant would be required to fully fund and construct/reconstruct the necessary site driveways and associated frontage improvements onto NE 150th Street and 15th Avenue NE.
- A total of 1,607 to 3,122 parking stall supply are proposed on-site in off-street and on-street parking under the Master Plan. The wide range in proposed parking stalls is based upon the potential for parking reductions associated with transit accessibility, employment/ residential density, walkability, and land use mix.



Appendix A

Traffic Counts



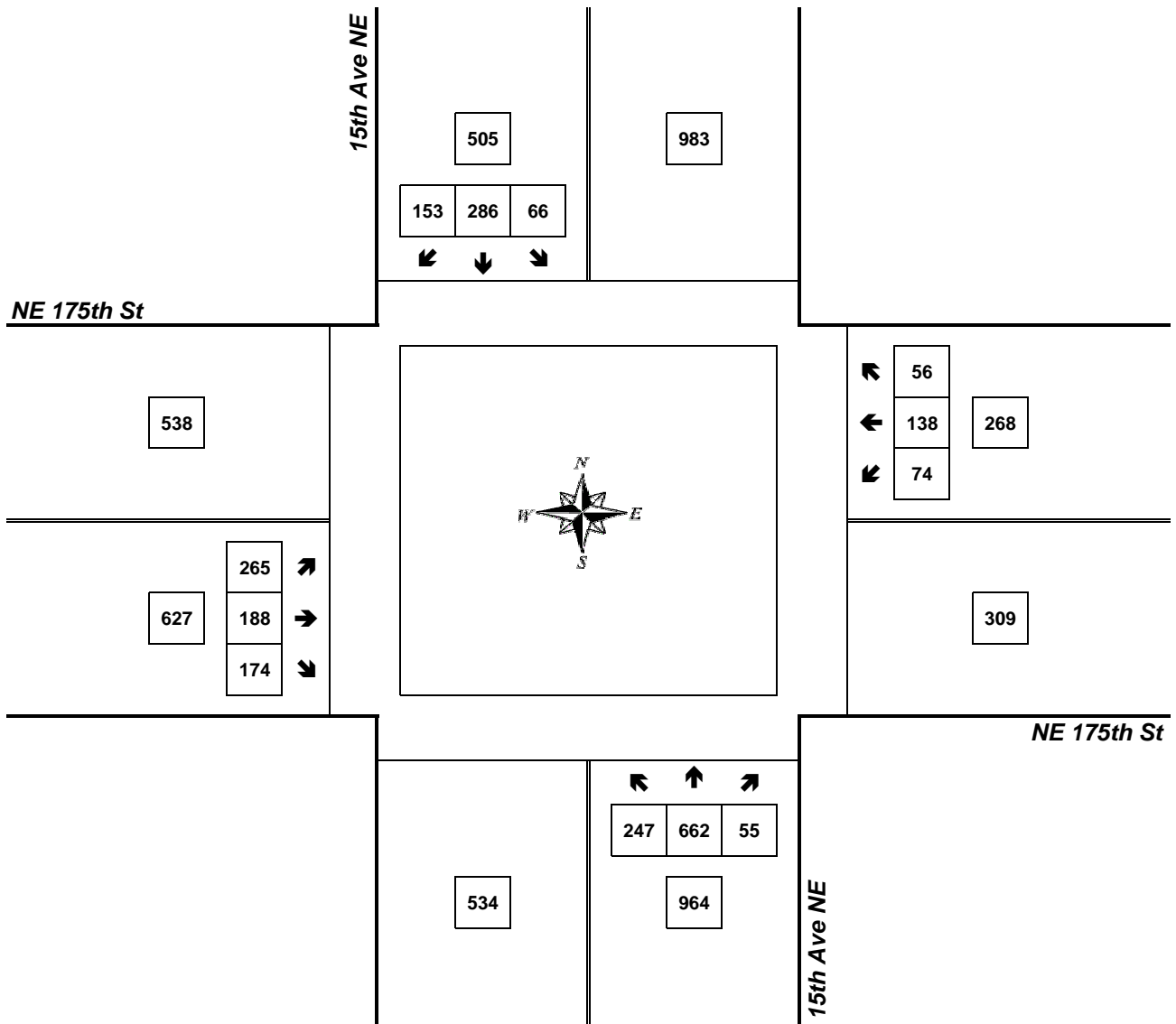
Peak Hour Summary



Mark Skaggs
(206) 251-0300

15th Ave NE & NE 175th St

4:45 PM to 5:45 PM
Wednesday, October 25, 2006



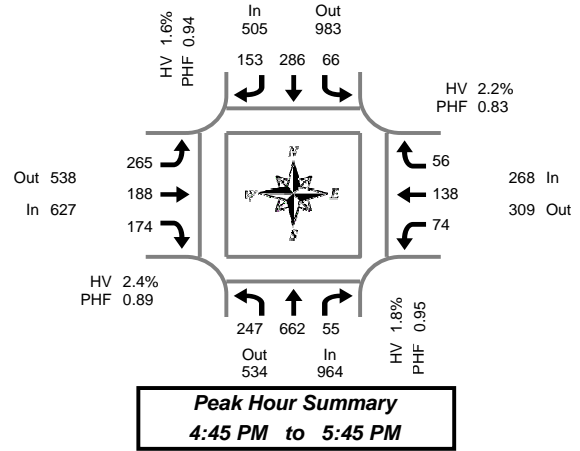
Approach	PHF	HV%	Volume
EB	0.89	2.4%	627
WB	0.83	2.2%	268
NB	0.95	1.8%	964
SB	0.94	1.6%	505
Intersection	0.95	1.9%	2,364

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



15th Ave NE & NE 175th St

Wednesday, October 25, 2006

4:00 PM to 6:00 PM

Peak Hour Summary
4:45 PM to 5:45 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 175th St				Westbound NE 175th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	71	130	8	5	14	67	43	10	62	44	46	7	18	31	12	10	546
4:15 PM	75	159	15	5	6	66	25	3	62	29	50	3	13	24	11	0	535
4:30 PM	68	141	12	4	12	66	41	1	60	33	54	1	16	29	9	0	541
4:45 PM	63	151	15	3	13	69	45	1	62	48	45	8	21	29	18	0	579
5:00 PM	69	171	13	4	20	72	38	3	73	57	47	1	15	34	11	4	620
5:15 PM	52	169	17	5	17	81	37	2	64	44	38	6	19	47	15	2	600
5:30 PM	63	171	10	5	16	64	33	2	66	39	44	0	19	28	12	0	565
5:45 PM	50	166	9	5	10	53	31	0	76	59	56	3	10	43	10	1	573
Total Survey	511	1,258	99	36	108	538	293	22	525	353	380	29	131	265	98	17	4,559

Peak Hour Summary

4:45 PM to 5:45 PM

By Approach	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 175th St				Westbound NE 175th St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	964	534	1,498	17	505	983	1,488	8	627	538	1,165	15	268	309	577	6	2,364
%HV	1.8%				1.6%				2.4%				2.2%				1.9%
PHF	0.95				0.94				0.89				0.83				0.95

By Movement	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 175th St				Westbound NE 175th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	247	662	55	964	66	286	153	505	265	188	174	627	74	138	56	268	2,364
PHF	0.89	0.97	0.81	0.95	0.83	0.88	0.85	0.94	0.91	0.82	0.93	0.89	0.88	0.73	0.78	0.83	0.95

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 175th St				Westbound NE 175th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	277	581	50	17	45	268	154	15	246	154	195	19	68	113	50	10	2,201
4:15 PM	275	622	55	16	51	273	149	8	257	167	196	13	65	116	49	4	2,275
4:30 PM	252	632	57	16	62	288	161	7	259	182	184	16	71	139	53	6	2,340
4:45 PM	247	662	55	17	66	286	153	8	265	188	174	15	74	138	56	6	2,364
5:00 PM	234	677	49	19	63	270	139	7	279	199	185	10	63	152	48	7	2,358

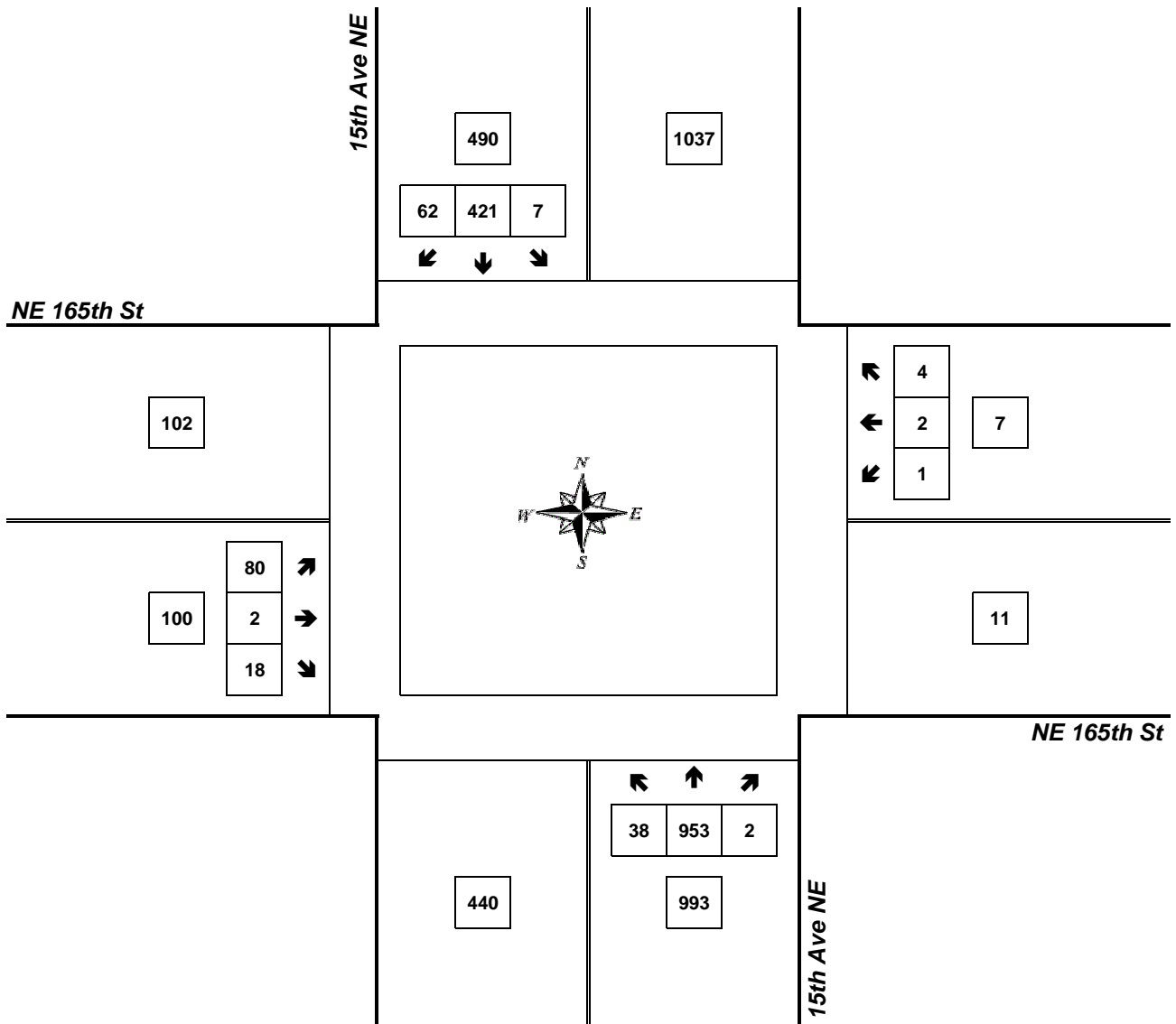
Peak Hour Summary



Mark Skaggs
(206) 251-0300

15th Ave NE & NE 165th St

5:00 PM to 6:00 PM
Wednesday, October 25, 2006



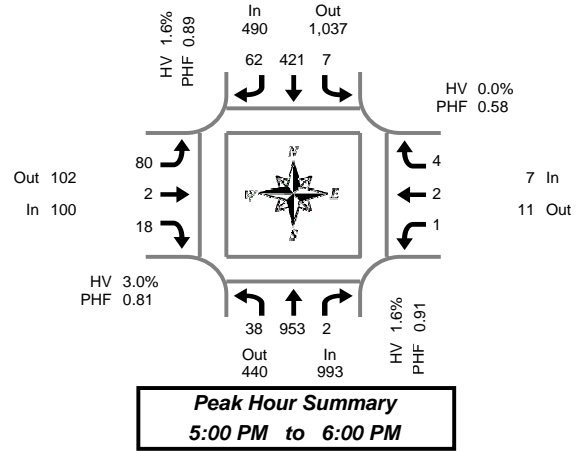
Approach	PHF	HV%	Volume
EB	0.81	3.0%	100
WB	0.58	0.0%	7
NB	0.91	1.6%	993
SB	0.89	1.6%	490
Intersection	0.92	1.7%	1,590

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



15th Ave NE & NE 165th St

Wednesday, October 25, 2006

4:00 PM to 6:00 PM

Peak Hour Summary
5:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 165th St				Westbound NE 165th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	10	205	1	6	0	91	27	19	12	1	5	0	0	0	1	0	353
4:15 PM	10	219	0	4	0	86	13	6	15	1	5	1	0	0	2	0	351
4:30 PM	14	225	0	5	1	101	8	2	10	0	6	1	0	0	0	0	365
4:45 PM	5	224	0	4	1	101	6	0	10	0	4	2	0	0	3	0	354
5:00 PM	10	245	1	4	4	109	10	2	22	0	5	2	0	0	1	0	407
5:15 PM	10	261	1	2	2	119	16	2	13	2	4	0	0	1	1	0	430
5:30 PM	12	218	0	5	0	98	21	1	27	0	4	0	1	1	1	0	383
5:45 PM	6	229	0	5	1	95	15	3	18	0	5	1	0	0	1	0	370
Total Survey	77	1,826	3	35	9	800	116	35	127	4	38	7	1	2	10	0	3,013

Peak Hour Summary

5:00 PM to 6:00 PM

By Approach	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 165th St				Westbound NE 165th St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	993	440	1,433	16	490	1,037	1,527	8	100	102	202	3	7	11	18	0	1,590
%HV	1.6%				1.6%				3.0%				0.0%				1.7%
PHF	0.91				0.89				0.81				0.58				0.92

By Movement	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 165th St				Westbound NE 165th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	38	953	2	993	7	421	62	490	80	2	18	100	1	2	4	7	1,590
PHF	0.79	0.91	0.50	0.91	0.44	0.88	0.74	0.89	0.74	0.25	0.90	0.81	0.25	0.50	1.00	0.58	0.92

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 165th St				Westbound NE 165th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	39	873	1	19	2	379	54	27	47	2	20	4	0	0	6	0	1,423
4:15 PM	39	913	1	17	6	397	37	10	57	1	20	6	0	0	6	0	1,477
4:30 PM	39	955	2	15	8	430	40	6	55	2	19	5	0	1	5	0	1,556
4:45 PM	37	948	2	15	7	427	53	5	72	2	17	4	1	2	6	0	1,574
5:00 PM	38	953	2	16	7	421	62	8	80	2	18	3	1	2	4	0	1,590

Peak Hour Summary

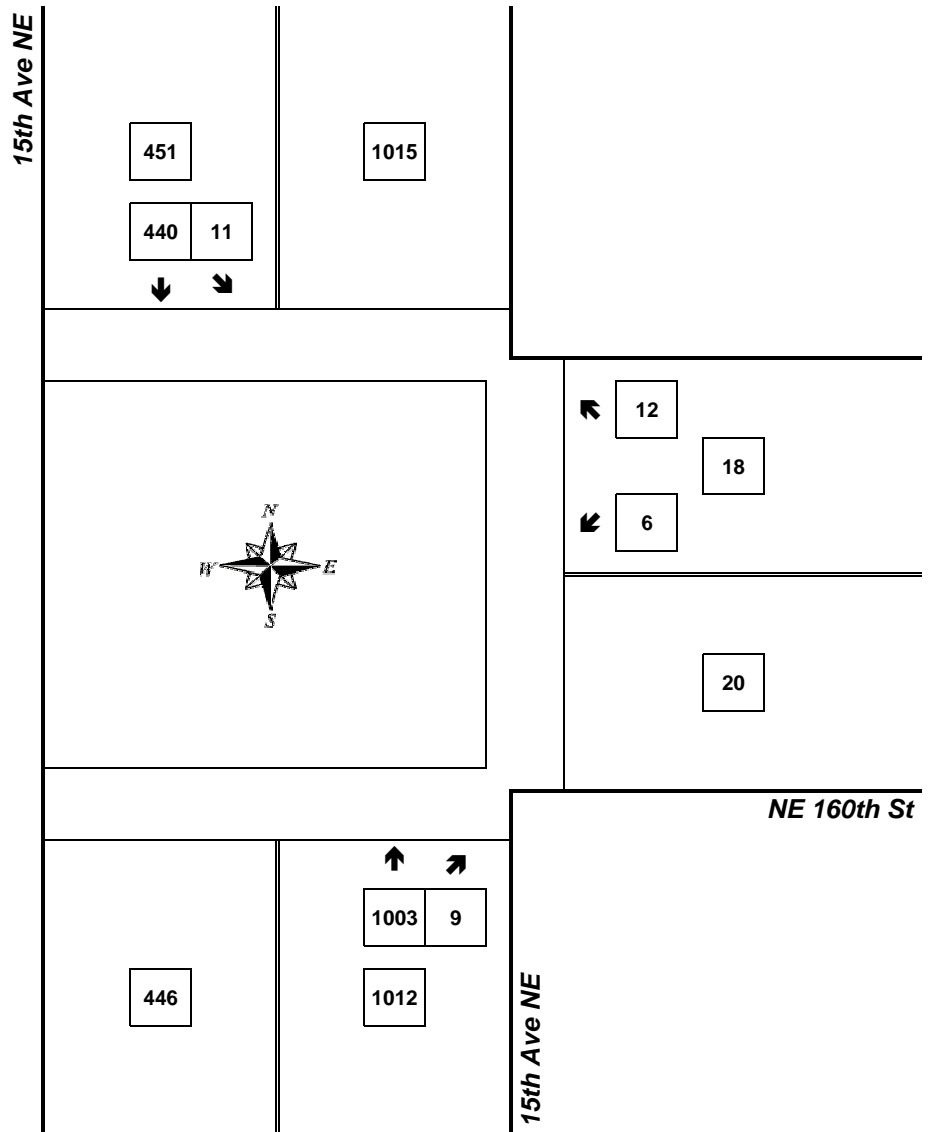


Mark Skaggs
(206) 251-0300

15th Ave NE & NE 160th St

4:45 PM to 5:45 PM

Wednesday, October 25, 2006



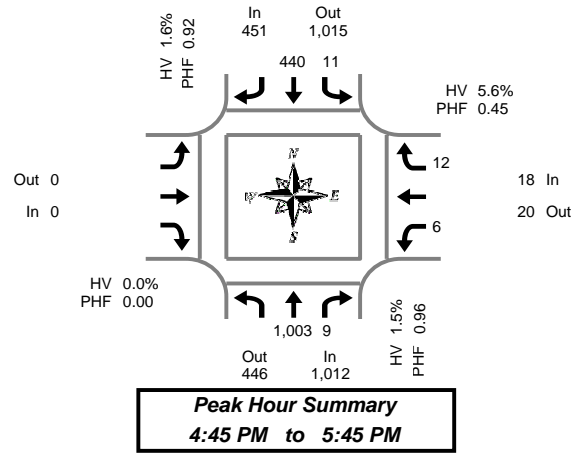
Approach	PHF	HV%	Volume
EB	0.00	0.0%	0
WB	0.45	5.6%	18
NB	0.96	1.5%	1,012
SB	0.92	1.6%	451
Intersection	0.94	1.6%	1,481

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



15th Ave NE & NE 160th St

Wednesday, October 25, 2006
4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE			Southbound 15th Ave NE			Eastbound NE 160th St			Westbound NE 160th St			Interval Total
	T	R	HV	L	T	HV				L	R	HV	
4:00 PM	226	1	4	2	90	2				5	7	0	331
4:15 PM	221	3	3	2	99	2				1	2	0	328
4:30 PM	233	4	4	2	100	0				3	2	0	344
4:45 PM	255	5	4	2	106	1				1	2	0	371
5:00 PM	262	1	3	2	117	2				3	7	0	392
5:15 PM	249	0	5	2	120	2				0	2	0	373
5:30 PM	237	3	3	5	97	2				2	1	1	345
5:45 PM	228	3	6	3	97	1				4	4	0	339
Total Survey	1,911	20	32	20	826	12				19	27	1	2,823

Peak Hour Summary

4:45 PM to 5:45 PM

By Approach	Northbound 15th Ave NE			Southbound 15th Ave NE			Eastbound NE 160th St			Westbound NE 160th St			Total			
	In	Out	Total	In	Out	Total	In	Out	Total	In	Out	Total				
Volume	1,012	446	1,458	15	451	1,015	1,466	7	0	0	0	18	20	38	1	1,481
%HV	1.5%			1.6%			0.0%			5.6%			1.6%			
PHF	0.96			0.92			0.00			0.45			0.94			

By Movement	Northbound 15th Ave NE			Southbound 15th Ave NE			Eastbound NE 160th St			Westbound NE 160th St			Total
	T	R	Total	L	T	Total			Total	L	R	Total	
Volume	1,003	9	1,012	11	440	451			0	6	12	18	1,481
PHF	0.96	0.45	0.96	0.55	0.92	0.92			0.00	0.50	0.43	0.45	0.94

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE			Southbound 15th Ave NE			Eastbound NE 160th St			Westbound NE 160th St			Interval Total
	T	R	HV	L	T	HV				L	R	HV	
4:00 PM	935	13	15	8	395	5				10	13	0	1,374
4:15 PM	971	13	14	8	422	5				8	13	0	1,435
4:30 PM	999	10	16	8	443	5				7	13	0	1,480
4:45 PM	1,003	9	15	11	440	7				6	12	1	1,481
5:00 PM	976	7	17	12	431	7				9	14	1	1,449

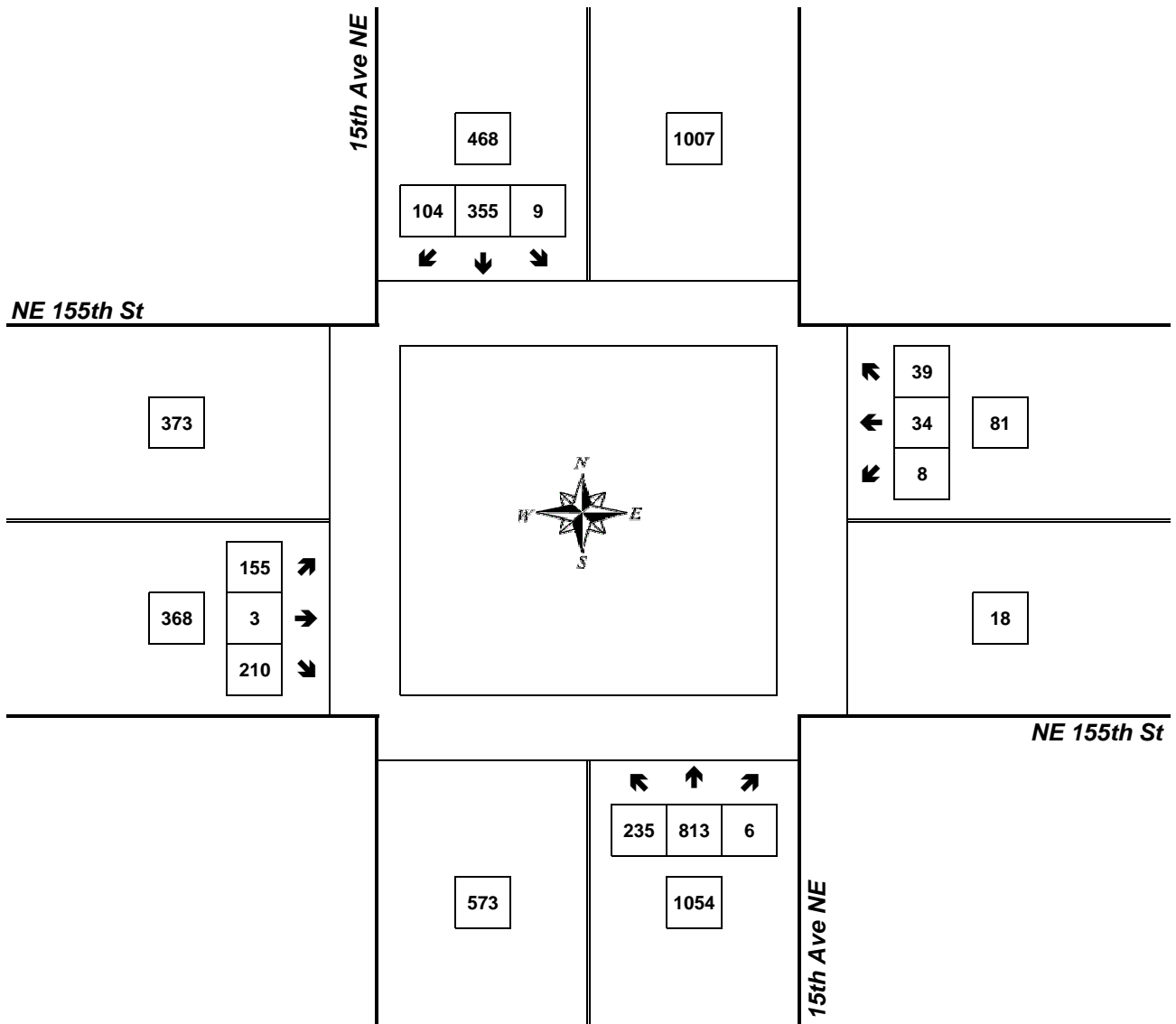
Peak Hour Summary



Mark Skaggs
(206) 251-0300

15th Ave NE & NE 155th St

4:45 PM to 5:45 PM
Wednesday, October 25, 2006



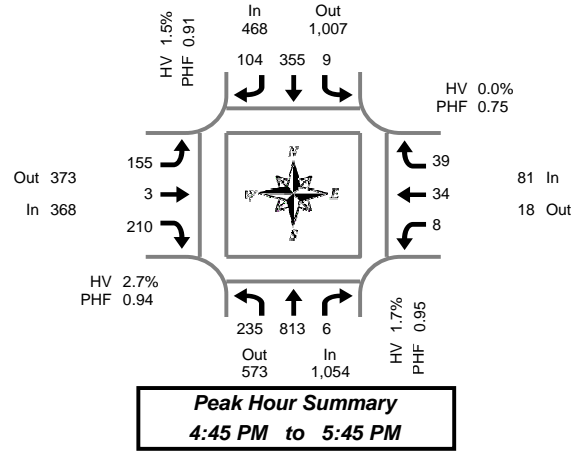
Approach	PHF	HV%	Volume
EB	0.94	2.7%	368
WB	0.75	0.0%	81
NB	0.95	1.7%	1,054
SB	0.91	1.5%	468
Intersection	0.95	1.8%	1,971

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



15th Ave NE & NE 155th St

Wednesday, October 25, 2006

4:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 155th St				Westbound NE 155th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	32	177	1	5	3	64	26	4	45	0	37	3	0	10	8	0	403
4:15 PM	43	186	2	4	4	76	22	2	37	1	41	1	2	8	7	0	429
4:30 PM	61	192	1	6	5	82	22	1	46	2	39	4	3	14	10	0	477
4:45 PM	64	191	2	4	4	80	20	0	37	0	53	2	4	6	14	0	475
5:00 PM	55	208	2	7	2	103	24	2	49	0	48	4	1	13	13	0	518
5:15 PM	58	218	1	5	2	85	30	2	25	1	57	2	1	7	9	0	494
5:30 PM	58	196	1	2	1	87	30	3	44	2	52	2	2	8	3	0	484
5:45 PM	80	201	0	7	1	92	17	1	31	2	41	2	3	0	6	0	474
Total Survey	451	1,569	10	40	22	669	191	15	314	8	368	20	16	66	70	0	3,754

Peak Hour Summary

4:45 PM to 5:45 PM

By Approach	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 155th St				Westbound NE 155th St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	1,054	573	1,627	18	468	1,007	1,475	7	368	373	741	10	81	18	99	0	1,971
%HV	1.7%				1.5%				2.7%				0.0%				1.8%
PHF	0.95				0.91				0.94				0.75				0.95

By Movement	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 155th St				Westbound NE 155th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	235	813	6	1,054	9	355	104	468	155	3	210	368	8	34	39	81	1,971
PHF	0.92	0.93	0.75	0.95	0.56	0.86	0.87	0.91	0.79	0.38	0.92	0.94	0.50	0.65	0.70	0.75	0.95

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 155th St				Westbound NE 155th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	200	746	6	19	16	302	90	7	165	3	170	10	9	38	39	0	1,784
4:15 PM	223	777	7	21	15	341	88	5	169	3	181	11	10	41	44	0	1,899
4:30 PM	238	809	6	22	13	350	96	5	157	3	197	12	9	40	46	0	1,964
4:45 PM	235	813	6	18	9	355	104	7	155	3	210	10	8	34	39	0	1,971
5:00 PM	251	823	4	21	6	367	101	8	149	5	198	10	7	28	31	0	1,970

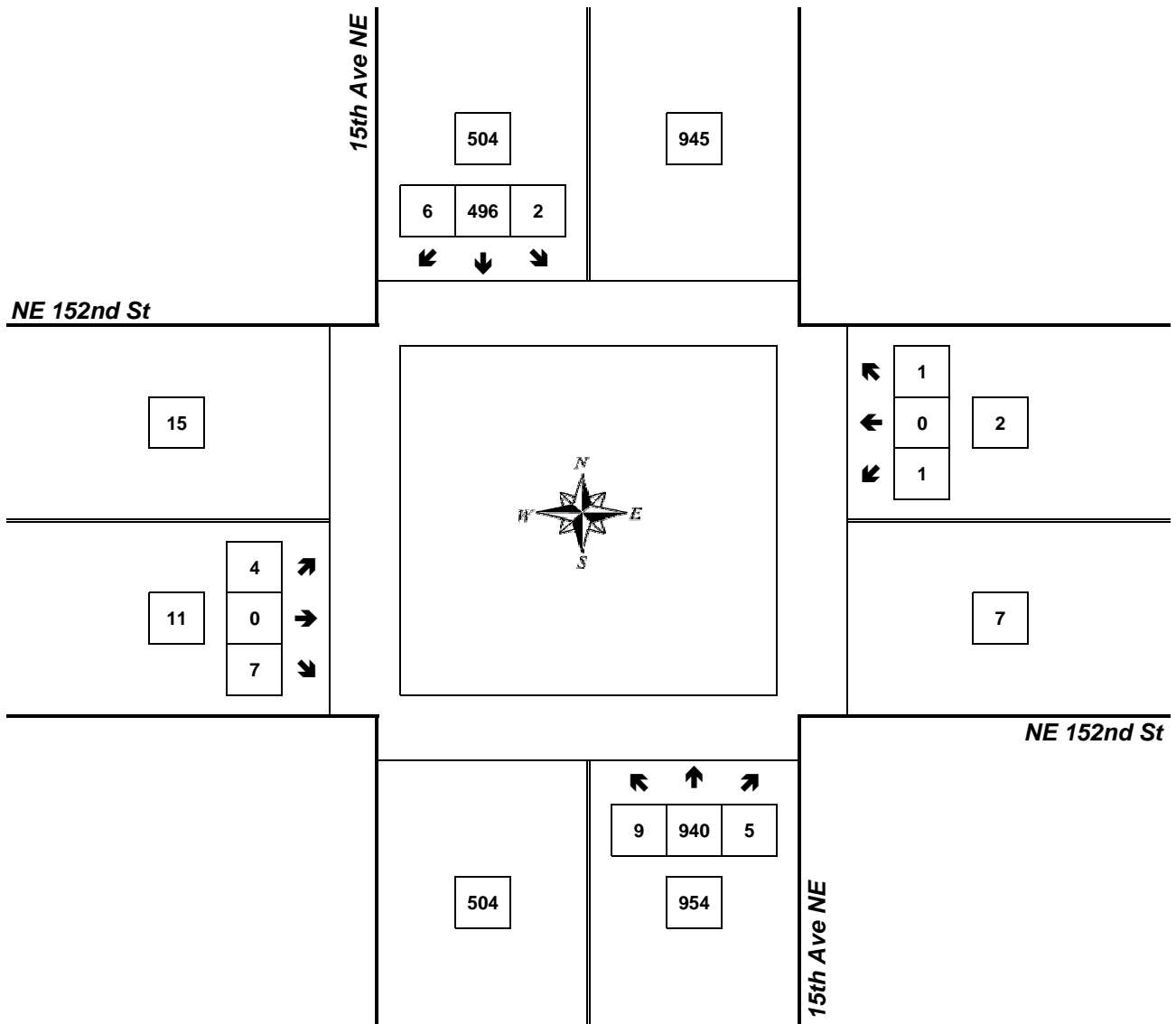
Peak Hour Summary



Mark Skaggs
(206) 251-0300

15th Ave NE & NE 152nd St

5:00 PM to 6:00 PM
Tuesday, August 12, 2008



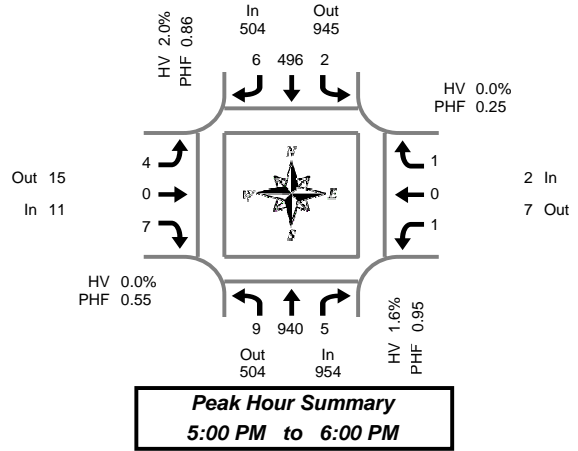
Approach	PHF	HV%	Volume
EB	0.55	0.0%	11
WB	0.25	0.0%	2
NB	0.95	1.6%	954
SB	0.86	2.0%	504
Intersection	0.96	1.7%	1,471

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



15th Ave NE & NE 152nd St

Tuesday, August 12, 2008
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 152nd St				Westbound NE 152nd St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	1	184	0	2	0	109	0	2	0	0	2	0	1	0	1	0	298
4:15 PM	0	181	0	4	0	143	1	2	0	0	1	0	0	0	0	0	326
4:30 PM	3	232	0	7	0	115	1	4	0	0	1	0	2	0	1	0	355
4:45 PM	2	232	1	4	0	95	0	1	0	0	1	0	0	0	1	0	332
5:00 PM	0	233	0	4	0	146	1	4	1	0	2	0	0	0	0	0	383
5:15 PM	1	245	4	3	0	116	2	2	0	0	1	0	0	0	0	0	369
5:30 PM	4	241	1	3	2	120	1	2	1	0	1	0	1	0	1	0	373
5:45 PM	4	221	0	5	0	114	2	2	2	0	3	0	0	0	0	0	346
Total Survey	15	1,769	6	32	2	958	8	19	4	0	12	0	4	0	4	0	2,782

Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 152nd St				Westbound NE 152nd St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	954	504	1,458	15	504	945	1,449	10	11	15	26	0	2	7	9	0	1,471
%HV	1.6%				2.0%				0.0%				0.0%				1.7%
PHF	0.95				0.86				0.55				0.25				0.96

By Movement	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 152nd St				Westbound NE 152nd St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	9	940	5	954	2	496	6	504	4	0	7	11	1	0	1	2	1,471
PHF	0.56	0.96	0.31	0.95	0.25	0.85	0.75	0.86	0.50	0.00	0.58	0.55	0.25	0.00	0.25	0.25	0.96

Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 152nd St				Westbound NE 152nd St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	6	829	1	17	0	462	2	9	0	0	5	0	3	0	3	0	1,311
4:15 PM	5	878	1	19	0	499	3	11	1	0	5	0	2	0	2	0	1,396
4:30 PM	6	942	5	18	0	472	4	11	1	0	5	0	2	0	2	0	1,439
4:45 PM	7	951	6	14	2	477	4	9	2	0	5	0	1	0	2	0	1,457
5:00 PM	9	940	5	15	2	496	6	10	4	0	7	0	1	0	1	0	1,471

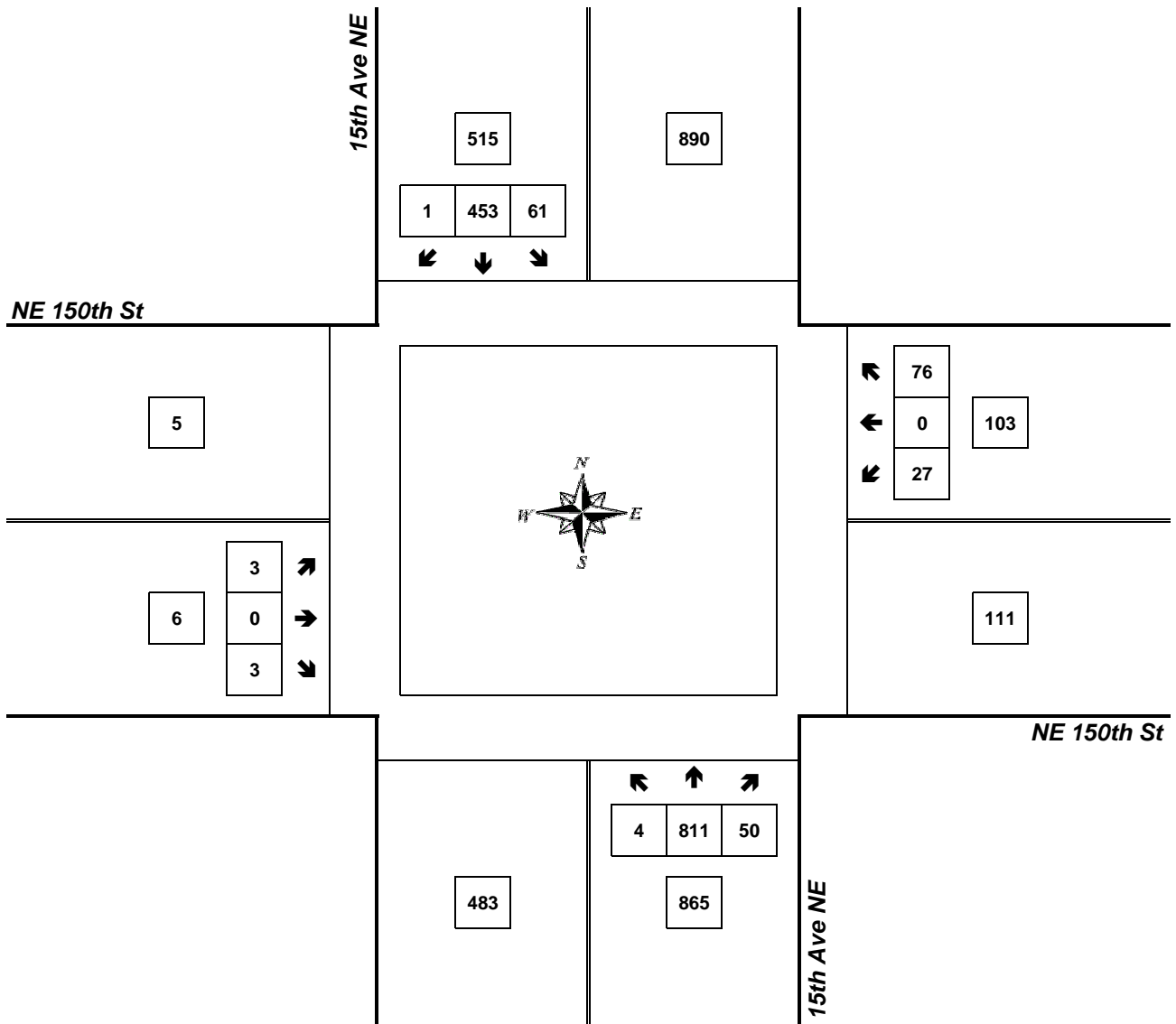
Peak Hour Summary



Mark Skaggs
(206) 251-0300

15th Ave NE & NE 150th St

5:00 PM to 6:00 PM
Tuesday, July 29, 2008



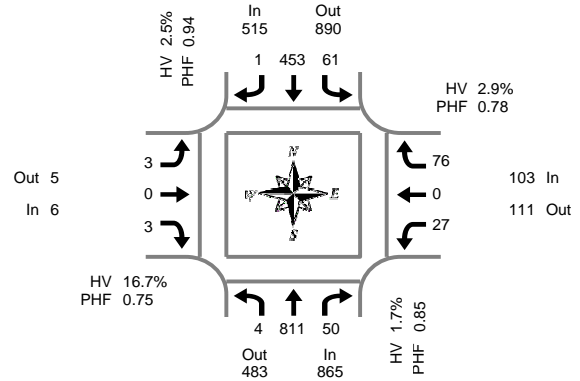
Approach	PHF	HV%	Volume
EB	0.75	16.7%	6
WB	0.78	2.9%	103
NB	0.85	1.7%	865
SB	0.94	2.5%	515
Intersection	0.88	2.1%	1,489

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



15th Ave NE & NE 150th St

Tuesday, July 29, 2008
4:00 PM to 6:00 PM

Peak Hour Summary
5:00 PM to 6:00 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 150th St				Westbound NE 150th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	1	131	11	6	10	104	2	6	0	0	2	0	7	0	11	1	279
4:15 PM	0	160	16	1	9	128	0	7	2	1	1	0	3	0	21	0	341
4:30 PM	2	195	15	5	6	126	0	4	1	0	1	0	4	0	19	2	369
4:45 PM	2	174	14	4	19	97	0	3	0	0	1	0	6	0	23	0	336
5:00 PM	1	238	14	2	15	122	0	1	1	0	1	0	10	0	23	2	425
5:15 PM	2	200	8	7	15	106	0	4	1	0	1	1	5	0	16	0	354
5:30 PM	1	181	11	2	17	117	1	2	1	0	1	0	9	0	23	0	362
5:45 PM	0	192	17	4	14	108	0	6	0	0	0	0	3	0	14	1	348
Total Survey	9	1,471	106	31	105	908	3	33	6	1	8	1	47	0	150	6	2,814

Peak Hour Summary

5:00 PM to 6:00 PM

By Approach	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 150th St				Westbound NE 150th St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	865	483	1,348	15	515	890	1,405	13	6	5	11	1	103	111	214	3	1,489
%HV	1.7%				2.5%				16.7%				2.9%				2.1%
PHF	0.85				0.94				0.75				0.78				0.88

By Movement	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 150th St				Westbound NE 150th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	4	811	50	865	61	453	1	515	3	0	3	6	27	0	76	103	1,489
PHF	0.50	0.85	0.74	0.85	0.90	0.93	0.25	0.94	0.75	0.00	0.75	0.75	0.68	0.00	0.83	0.78	0.88

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 150th St				Westbound NE 150th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	5	660	56	16	44	455	2	20	3	1	5	0	20	0	74	3	1,325
4:15 PM	5	767	59	12	49	473	0	15	4	1	4	0	23	0	86	4	1,471
4:30 PM	7	807	51	18	55	451	0	12	3	0	4	1	25	0	81	4	1,484
4:45 PM	6	793	47	15	66	442	1	10	3	0	4	1	30	0	85	2	1,477
5:00 PM	4	811	50	15	61	453	1	13	3	0	3	1	27	0	76	3	1,489

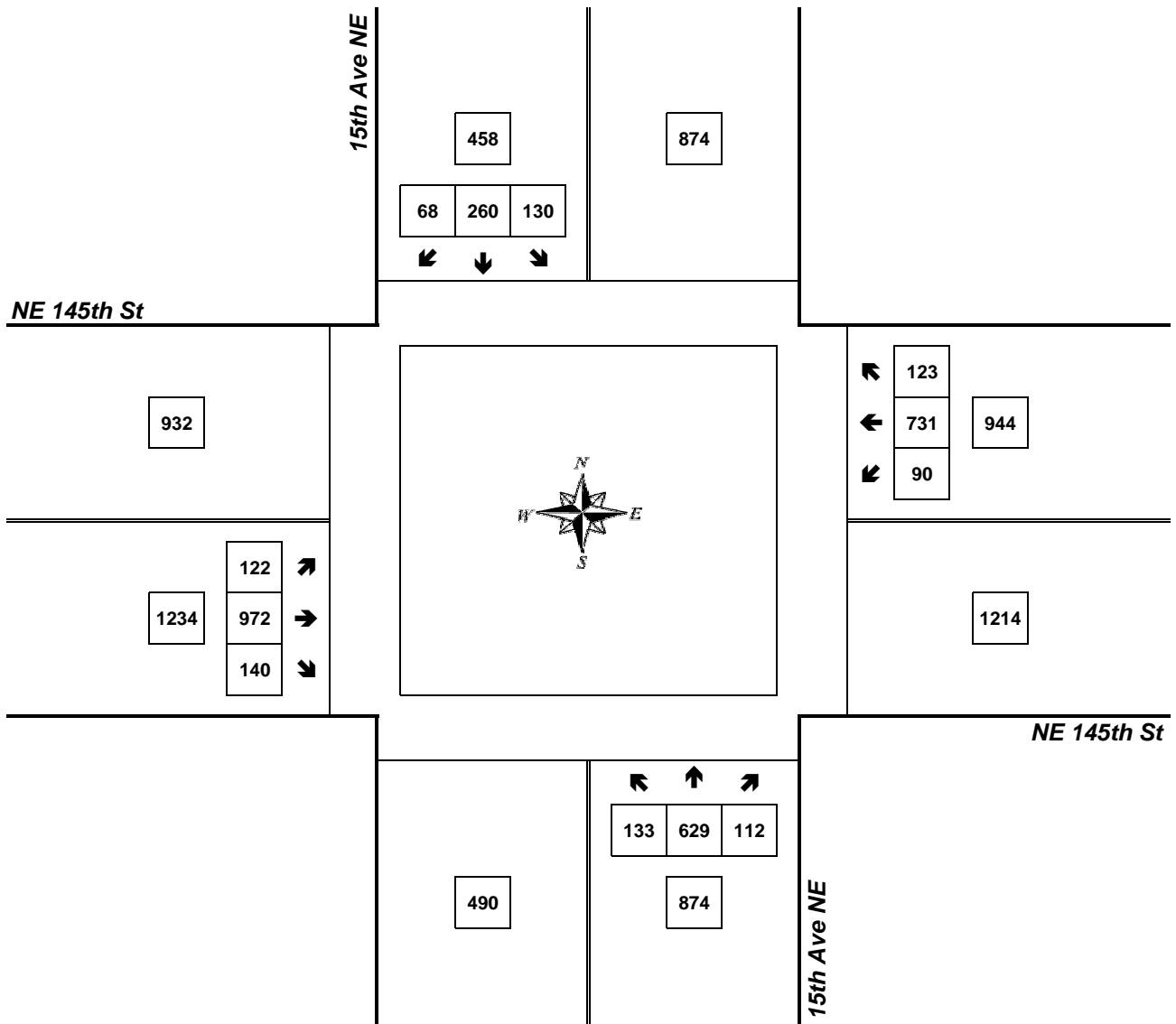
Peak Hour Summary



Mark Skaggs
(206) 251-0300

15th Ave NE & NE 145th St

5:00 PM to 6:00 PM
Tuesday, July 29, 2008



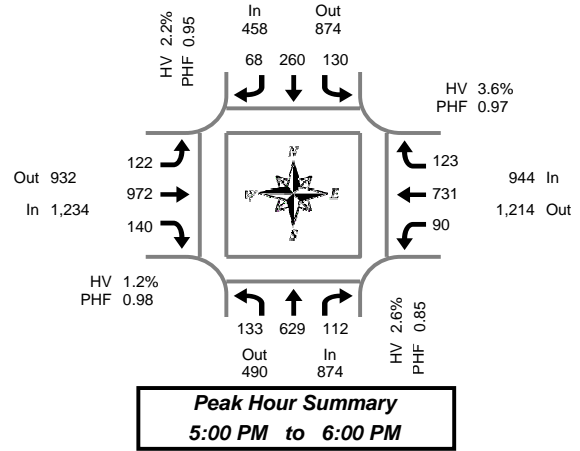
Approach	PHF	HV%	Volume
EB	0.98	1.2%	1,234
WB	0.97	3.6%	944
NB	0.85	2.6%	874
SB	0.95	2.2%	458
Intersection	0.97	2.3%	3,510

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



15th Ave NE & NE 145th St

Tuesday, July 29, 2008
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 145th St				Westbound NE 145th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	29	94	17	4	33	56	29	4	24	208	36	8	17	172	26	7	741
4:15 PM	31	121	19	2	36	71	23	4	37	236	31	6	12	162	24	0	803
4:30 PM	37	138	24	4	27	63	22	3	36	231	31	2	16	160	38	5	823
4:45 PM	35	131	31	6	26	58	9	2	36	242	34	5	24	199	30	4	855
5:00 PM	28	163	24	5	32	64	25	2	33	226	41	2	26	181	34	4	877
5:15 PM	38	183	37	8	31	67	15	5	29	238	42	2	18	178	27	8	903
5:30 PM	32	145	24	5	33	73	15	1	28	253	30	3	23	183	31	9	870
5:45 PM	35	138	27	5	34	56	13	2	32	255	27	8	23	189	31	13	860
Total Survey	265	1,113	203	39	252	508	151	23	255	1,889	272	36	159	1,424	241	50	6,732

Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 145th St				Westbound NE 145th St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	874	490	1,364	23	458	874	1,332	10	1,234	932	2,166	15	944	1,214	2,158	34	3,510
%HV	2.6%				2.2%				1.2%				3.6%				2.3%
PHF	0.85				0.95				0.98				0.97				0.97

By Movement	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 145th St				Westbound NE 145th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	133	629	112	874	130	260	68	458	122	972	140	1,234	90	731	123	944	3,510
PHF	0.88	0.86	0.76	0.85	0.96	0.89	0.68	0.95	0.92	0.95	0.83	0.98	0.87	0.97	0.90	0.97	0.97

Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound 15th Ave NE				Southbound 15th Ave NE				Eastbound NE 145th St				Westbound NE 145th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	132	484	91	16	122	248	83	13	133	917	132	21	69	693	118	16	3,222
4:15 PM	131	553	98	17	121	256	79	11	142	935	137	15	78	702	126	13	3,358
4:30 PM	138	615	116	23	116	252	71	12	134	937	148	11	84	718	129	21	3,458
4:45 PM	133	622	116	24	122	262	64	10	126	959	147	12	91	741	122	25	3,505
5:00 PM	133	629	112	23	130	260	68	10	122	972	140	15	90	731	123	34	3,510

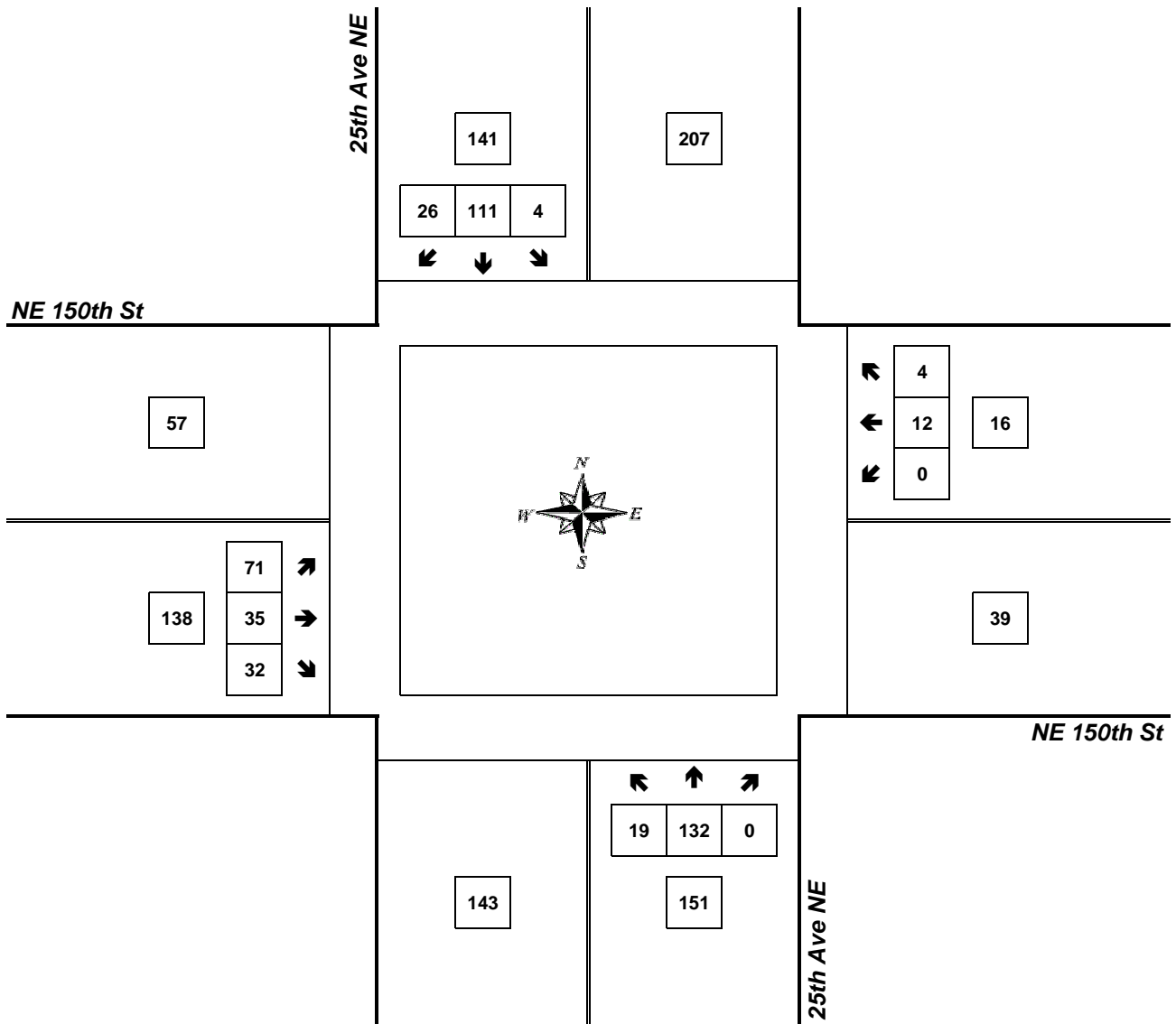
Peak Hour Summary



Mark Skaggs
(206) 251-0300

25th Ave NE & NE 150th St

4:15 PM to 5:15 PM
Tuesday, August 12, 2008



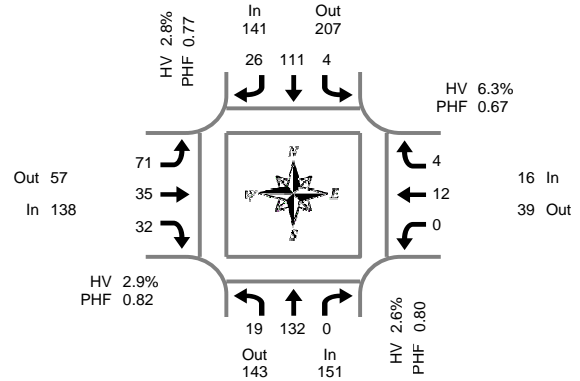
Approach	PHF	HV%	Volume
EB	0.82	2.9%	138
WB	0.67	6.3%	16
NB	0.80	2.6%	151
SB	0.77	2.8%	141
Intersection	0.87	2.9%	446

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



25th Ave NE & NE 150th St

Tuesday, August 12, 2008
4:00 PM to 6:00 PM

Peak Hour Summary
4:15 PM to 5:15 PM

15-Minute Interval Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 25th Ave NE				Southbound 25th Ave NE				Eastbound NE 150th St				Westbound NE 150th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	3	24	0	2	0	18	4	0	10	6	9	1	0	3	2	0	79
4:15 PM	7	40	0	1	1	18	6	3	20	5	3	0	0	1	0	0	101
4:30 PM	5	37	0	1	1	38	7	0	18	6	10	1	0	5	1	1	128
4:45 PM	3	25	0	1	0	29	7	0	13	13	8	1	0	2	1	0	101
5:00 PM	4	30	0	1	2	26	6	1	20	11	11	2	0	4	2	0	116
5:15 PM	3	31	0	0	1	13	8	0	25	5	8	1	1	5	1	0	101
5:30 PM	5	26	0	0	1	16	4	0	20	12	6	1	0	5	3	0	98
5:45 PM	14	32	1	1	4	24	7	0	29	6	6	0	0	4	0	0	127
Total Survey	44	245	1	7	10	182	49	4	155	64	61	7	1	29	10	1	851

Peak Hour Summary

4:15 PM to 5:15 PM

By Approach	Northbound 25th Ave NE				Southbound 25th Ave NE				Eastbound NE 150th St				Westbound NE 150th St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	151	143	294	4	141	207	348	4	138	57	195	4	16	39	55	1	446
%HV	2.6%				2.8%				2.9%				6.3%				2.9%
PHF	0.80				0.77				0.82				0.67				0.87

By Movement	Northbound 25th Ave NE				Southbound 25th Ave NE				Eastbound NE 150th St				Westbound NE 150th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	19	132	0	151	4	111	26	141	71	35	32	138	0	12	4	16	446
PHF	0.68	0.83	0.00	0.80	0.50	0.73	0.93	0.77	0.89	0.67	0.73	0.82	0.00	0.60	0.50	0.67	0.87

Rolling Hour Summary

4:00 PM to 6:00 PM

Interval Start Time	Northbound 25th Ave NE				Southbound 25th Ave NE				Eastbound NE 150th St				Westbound NE 150th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	18	126	0	5	2	103	24	3	61	30	30	3	0	11	4	1	409
4:15 PM	19	132	0	4	4	111	26	4	71	35	32	4	0	12	4	1	446
4:30 PM	15	123	0	3	4	106	28	1	76	35	37	5	1	16	5	1	446
4:45 PM	15	112	0	2	4	84	25	1	78	41	33	5	1	16	7	0	416
5:00 PM	26	119	1	2	8	79	25	1	94	34	31	4	1	18	6	0	442

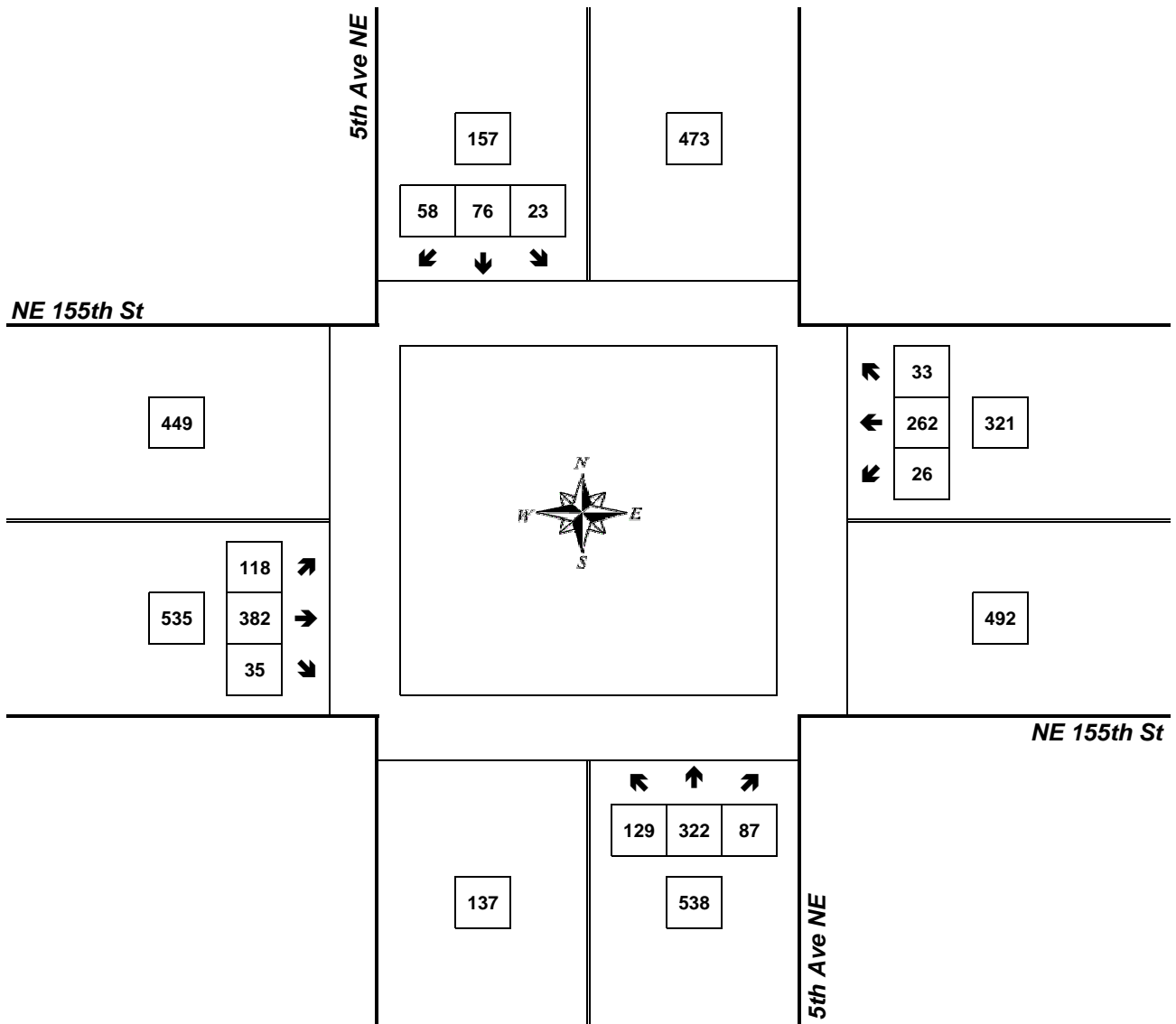
Peak Hour Summary



Mark Skaggs
(206) 251-0300

5th Ave NE & NE 155th St

5:00 PM to 6:00 PM
Tuesday, August 12, 2008



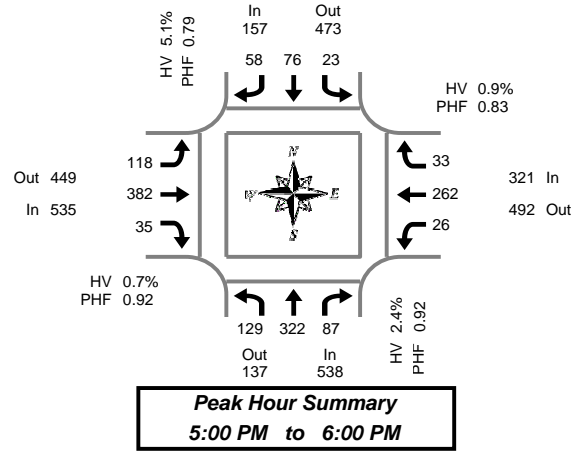
Approach	PHF	HV%	Volume
EB	0.92	0.7%	535
WB	0.83	0.9%	321
NB	0.92	2.4%	538
SB	0.79	5.1%	157
Intersection	0.97	1.8%	1,551

Count Period: 4:00 PM to 6:00 PM

Total Vehicle Summary



Mark Skaggs
(206) 251-0300



5th Ave NE & NE 155th St

Tuesday, August 12, 2008
4:00 PM to 6:00 PM

15-Minute Interval Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound 5th Ave NE				Southbound 5th Ave NE				Eastbound NE 155th St				Westbound NE 155th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	30	54	16	6	11	16	6	1	27	80	3	2	7	59	14	0	323
4:15 PM	24	34	11	2	7	17	15	1	29	95	3	4	2	57	12	0	306
4:30 PM	31	35	9	1	1	16	8	2	28	91	7	3	7	64	13	1	310
4:45 PM	42	88	17	2	7	14	13	2	28	72	5	1	9	67	13	0	375
5:00 PM	32	89	19	5	5	15	9	1	24	95	10	1	6	52	9	2	365
5:15 PM	35	72	22	1	7	24	17	2	33	104	8	0	8	62	6	0	398
5:30 PM	33	92	21	3	4	22	24	3	30	89	5	3	2	67	12	0	401
5:45 PM	29	69	25	4	7	15	8	2	31	94	12	0	10	81	6	1	387
Total Survey	256	533	140	24	49	139	100	14	230	720	53	14	51	509	85	4	2,865

Peak Hour Summary 5:00 PM to 6:00 PM

By Approach	Northbound 5th Ave NE				Southbound 5th Ave NE				Eastbound NE 155th St				Westbound NE 155th St				Total
	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	In	Out	Total	HV	
Volume	538	137	675	13	157	473	630	8	535	449	984	4	321	492	813	3	1,551
%HV	2.4%				5.1%				0.7%				0.9%				1.8%
PHF	0.92				0.79				0.92				0.83				0.97

By Movement	Northbound 5th Ave NE				Southbound 5th Ave NE				Eastbound NE 155th St				Westbound NE 155th St				Total
	L	T	R	Total	L	T	R	Total	L	T	R	Total	L	T	R	Total	
Volume	129	322	87	538	23	76	58	157	118	382	35	535	26	262	33	321	1,551
PHF	0.92	0.88	0.87	0.92	0.82	0.79	0.60	0.79	0.89	0.92	0.73	0.92	0.65	0.81	0.69	0.83	0.97

Rolling Hour Summary 4:00 PM to 6:00 PM

Interval Start Time	Northbound 5th Ave NE				Southbound 5th Ave NE				Eastbound NE 155th St				Westbound NE 155th St				Interval Total
	L	T	R	HV	L	T	R	HV	L	T	R	HV	L	T	R	HV	
4:00 PM	127	211	53	11	26	63	42	6	112	338	18	10	25	247	52	1	1,314
4:15 PM	129	246	56	10	20	62	45	6	109	353	25	9	24	240	47	3	1,356
4:30 PM	140	284	67	9	20	69	47	7	113	362	30	5	30	245	41	3	1,448
4:45 PM	142	341	79	11	23	75	63	8	115	360	28	5	25	248	40	2	1,539
5:00 PM	129	322	87	13	23	76	58	8	118	382	35	4	26	262	33	3	1,551

Appendix B























Level of Service Calculations at Study Intersections



HCM Signalized Intersection Capacity Analysis

1: NE 175th St & 15th Ave NE

11/25/2008



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-1%			1%				-1%
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.93			0.97		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1755			3399		1761	3481		1778	3371	
Flt Permitted	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1796	1755			3399		1761	3481		1778	3371	
Volume (vph)	276	196	181	77	144	58	257	689	57	69	298	159
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	310	220	203	93	173	70	271	725	60	73	317	169
RTOR Reduction (vph)	0	38	0	0	27	0	0	6	0	0	73	0
Lane Group Flow (vph)	310	385	0	0	309	0	271	779	0	73	413	0
Turn Type	Split			Split			Prot			Prot		
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	22.1	22.1			12.9		17.3	33.0		6.0	21.7	
Effective Green, g (s)	22.1	22.1			12.9		17.3	33.0		6.0	21.7	
Actuated g/C Ratio	0.25	0.25			0.14		0.19	0.37		0.07	0.24	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	441	431			487		339	1276		119	813	
v/s Ratio Prot	0.17	c0.22			c0.09		c0.15	c0.22		0.04	c0.12	
v/s Ratio Perm												
v/c Ratio	0.70	0.89			0.63		0.80	0.61		0.61	0.51	
Uniform Delay, d1	31.0	32.8			36.3		34.7	23.3		40.9	29.5	
Progression Factor	1.00	1.00			1.00		0.81	0.74		1.00	1.00	
Incremental Delay, d2	5.0	20.3			2.7		8.9	1.5		9.0	2.3	
Delay (s)	36.0	53.2			39.0		37.0	18.7		49.9	31.8	
Level of Service	D	D			D		D	B		D	C	
Approach Delay (s)		45.9			39.0			23.4			34.2	
Approach LOS		D			D			C			C	
Intersection Summary												
HCM Average Control Delay			33.7				HCM Level of Service			C		
HCM Volume to Capacity ratio			0.77									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			20.0		
Intersection Capacity Utilization			70.4%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: NE 165th St & 15th Ave NE

11/25/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-3%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Fr _t		0.97			0.92		1.00	1.00		1.00	0.98	
Fl _t Protected		0.96			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1703			1732		1770	1862		1770	1826	
Fl _t Permitted		0.96			0.99		0.42	1.00		0.16	1.00	
Satd. Flow (perm)		1703			1732		782	1862		289	1826	
Volume (vph)	83	2	19	1	2	4	40	992	2	7	438	65
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	2	21	1	2	4	43	1078	2	8	476	71
RTOR Reduction (vph)	0	10	0	0	4	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	103	0	0	3	0	43	1080	0	8	544	0
Turn Type	Split			Split			Perm			Perm		
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		9.3			1.3		67.4	67.4		67.4	67.4	
Effective Green, g (s)		9.3			1.3		67.4	67.4		67.4	67.4	
Actuated g/C Ratio		0.10			0.01		0.75	0.75		0.75	0.75	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		176			25		586	1394		216	1367	
v/s Ratio Prot		c0.06			c0.00			c0.58			0.30	
v/s Ratio Perm							0.05			0.03		
v/c Ratio		0.59			0.12		0.07	0.77		0.04	0.40	
Uniform Delay, d ₁		38.5			43.8		3.0	6.8		2.9	4.0	
Progression Factor		1.00			1.00		1.34	1.54		0.31	0.32	
Incremental Delay, d ₂		4.9			2.2		0.2	3.2		0.2	0.6	
Delay (s)		43.4			46.0		4.2	13.6		1.1	1.9	
Level of Service		D			D		A	B		A	A	
Approach Delay (s)		43.4			46.0			13.3			1.9	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay			11.8				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			12.0		
Intersection Capacity Utilization			71.5%				ICU Level of Service				C	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 3: NE 160th St & 15th Ave NE

11/25/2008



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.91		1.00		1.00	1.00
Flt Protected	0.98		1.00		0.95	1.00
Satd. Flow (prot)	1670		1861		1770	1863
Flt Permitted	0.98		1.00		0.21	1.00
Satd. Flow (perm)	1670		1861		397	1863
Volume (vph)	6	12	1044	9	11	458
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	13	1135	10	12	498
RTOR Reduction (vph)	13	0	0	0	0	0
Lane Group Flow (vph)	7	0	1145	0	12	498
Turn Type					Perm	
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	2.8		79.2		79.2	79.2
Effective Green, g (s)	2.8		79.2		79.2	79.2
Actuated g/C Ratio	0.03		0.88		0.88	0.88
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	52		1638		349	1639
v/s Ratio Prot	c0.00		c0.62			0.27
v/s Ratio Perm					0.03	
v/c Ratio	0.14		0.70		0.03	0.30
Uniform Delay, d1	42.4		1.7		0.7	0.9
Progression Factor	1.00		0.46		0.25	0.21
Incremental Delay, d2	1.3		1.8		0.2	0.5
Delay (s)	43.7		2.6		0.3	0.6
Level of Service	D		A		A	A
Approach Delay (s)	43.7		2.6			0.6
Approach LOS	D		A			A






















Intersection Summary

HCM Average Control Delay	2.5	HCM Level of Service	A
HCM Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: NE 155th St & 15th Ave NE




















11/25/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-3%			0%			0%	
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr _t		1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Fl _t Protected		0.95	1.00		0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1775	1583		1873	1607	1770	1861		1770	1863	1583
Fl _t Permitted		0.70	1.00		0.94	1.00	0.31	1.00		0.17	1.00	1.00
Satd. Flow (perm)		1295	1583		1776	1607	576	1861		310	1863	1583
Volume (vph)	161	3	218	8	35	41	244	846	6	9	369	108
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	175	3	237	9	38	45	265	920	7	10	401	117
RTOR Reduction (vph)	0	0	195	0	0	37	0	0	0	0	0	85
Lane Group Flow (vph)	0	178	42	0	47	8	265	927	0	10	401	32
Turn Type	Perm		Perm	Perm		Perm	pm+pt			pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)		15.8	15.8		15.8	15.8	61.4	61.4		24.8	24.8	24.8
Effective Green, g (s)		15.8	15.8		15.8	15.8	61.4	61.4		24.8	24.8	24.8
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.68	0.68		0.28	0.28	0.28
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		227	278		312	282	889	1270		98	513	436
v/s Ratio Prot							0.12	c0.50		0.00	c0.22	
v/s Ratio Perm		c0.14	0.03		0.03	0.00	0.08			0.03		0.02
v/c Ratio		0.78	0.15		0.15	0.03	0.30	0.73		0.10	0.78	0.07
Uniform Delay, d ₁		35.5	31.4		31.4	30.7	11.3	9.0		27.0	30.1	24.1
Progression Factor		1.00	1.00		1.00	1.00	0.31	0.69		0.46	0.56	0.61
Incremental Delay, d ₂		16.1	0.3		0.2	0.0	0.2	3.6		0.4	11.0	0.3
Delay (s)		51.6	31.7		31.6	30.8	3.7	9.8		12.9	28.0	15.1
Level of Service		D	C		C	C	A	A		B	C	B
Approach Delay (s)		40.2			31.2			8.5			24.8	
Approach LOS		D			C			A			C	
Intersection Summary												
HCM Average Control Delay			19.2				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.74									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)				8.0	
Intersection Capacity Utilization			74.0%				ICU Level of Service				D	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
6: NE 150th St & 15th Ave NE

























11/25/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.93			0.90		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695			1655		1770	3508		1770	3538	
Flt Permitted		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1695			1655		1770	3508		1770	3538	
Volume (vph)	3	0	3	28	0	80	4	852	53	64	476	1
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	3	0	3	30	0	87	4	926	58	70	517	1
RTOR Reduction (vph)	0	3	0	0	81	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	3	0	0	36	0	4	981	0	70	518	0
Turn Type	Split		Split				Prot		Prot			
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		1.3			6.7		1.3	57.1		8.9	64.7	
Effective Green, g (s)		1.3			6.7		1.3	57.1		8.9	64.7	
Actuated g/C Ratio		0.01			0.07		0.01	0.63		0.10	0.72	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		24			123		26	2226		175	2543	
v/s Ratio Prot		c0.00			c0.02		0.00	c0.28		c0.04	0.15	
v/s Ratio Perm												
v/c Ratio		0.13			0.30		0.15	0.44		0.40	0.20	
Uniform Delay, d1		43.8			39.4		43.8	8.3		38.0	4.2	
Progression Factor		1.00			1.00		1.43	0.32		0.68	0.75	
Incremental Delay, d2		2.4			1.4		1.2	0.3		1.2	0.1	
Delay (s)		46.2			40.8		63.8	3.0		26.9	3.2	
Level of Service		D			D		E	A		C	A	
Approach Delay (s)		46.2			40.8			3.2			6.1	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM Average Control Delay			6.9				HCM Level of Service			A		
HCM Volume to Capacity ratio			0.42									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			45.7%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: NE 145th St & 15th Ave NE

11/25/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3472		1770	3463		1770	3459		1770	3430	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3472		1770	3463		1770	3459		1770	3430	
Volume (vph)	128	1021	147	95	768	129	140	660	118	137	273	71
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	139	1110	160	103	835	140	152	717	128	149	297	77
RTOR Reduction (vph)	0	13	0	0	15	0	0	16	0	0	25	0
Lane Group Flow (vph)	139	1257	0	103	960	0	152	829	0	149	349	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	9.6	36.0		6.1	32.5		12.3	22.9		9.0	19.6	
Effective Green, g (s)	9.6	36.0		6.1	32.5		12.3	22.9		9.0	19.6	
Actuated g/C Ratio	0.11	0.40		0.07	0.36		0.14	0.25		0.10	0.22	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	189	1389		120	1251		242	880		177	747	
v/s Ratio Prot	c0.08	c0.36		0.06	0.28		0.09	c0.24		c0.08	0.10	
v/s Ratio Perm												
v/c Ratio	0.74	0.91		0.86	0.77		0.63	0.94		0.84	0.47	
Uniform Delay, d1	39.0	25.4		41.5	25.4		36.7	32.9		39.8	30.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.11	0.64	
Incremental Delay, d2	13.8	10.0		41.7	4.6		5.0	17.8		28.5	0.5	
Delay (s)	52.8	35.4		83.3	30.0		41.7	50.7		72.6	20.2	
Level of Service	D	D		F	C		D	D		E	C	
Approach Delay (s)		37.1			35.1			49.3			35.1	
Approach LOS		D			D			D			D	
Intersection Summary												
HCM Average Control Delay			39.3			HCM Level of Service					D	
HCM Volume to Capacity ratio			0.91									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			16.0			
Intersection Capacity Utilization			81.1%			ICU Level of Service					D	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: NE 155th St & 5th Ave NE

11/25/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			0%				0%
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Fr _t	1.00	0.99		1.00	0.98		1.00	0.97		1.00	0.94	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1812		1796	1859		1770	1803		1770	1742	
Flt Permitted	0.53	1.00		0.36	1.00		0.66	1.00		0.37	1.00	
Satd. Flow (perm)	964	1812		683	1859		1229	1803		681	1742	
Volume (vph)	124	401	37	27	275	35	135	338	91	24	80	61
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	436	40	29	299	38	147	367	99	26	87	66
RTOR Reduction (vph)	0	9	0	0	12	0	0	25	0	0	41	0
Lane Group Flow (vph)	135	467	0	29	325	0	147	441	0	26	112	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	12.9	12.9		12.9	12.9		12.6	12.6		12.6	12.6	
Effective Green, g (s)	12.9	12.9		12.9	12.9		12.6	12.6		12.6	12.6	
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.38	0.38		0.38	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	371	698		263	716		462	678		256	655	
v/s Ratio Prot		c0.26			0.18			c0.24			0.06	
v/s Ratio Perm	0.14			0.04			0.12			0.04		
v/c Ratio	0.36	0.67		0.11	0.45		0.32	0.65		0.10	0.17	
Uniform Delay, d ₁	7.4	8.5		6.6	7.7		7.4	8.6		6.8	7.0	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	0.6	2.4		0.2	0.5		0.4	2.2		0.2	0.1	
Delay (s)	8.0	11.0		6.8	8.1		7.8	10.9		7.0	7.1	
Level of Service	A	B		A	A		A	B		A	A	
Approach Delay (s)		10.3			8.0			10.1			7.1	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM Average Control Delay			9.5			HCM Level of Service				A		
HCM Volume to Capacity ratio			0.66									
Actuated Cycle Length (s)			33.5			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			66.7%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: NE 175th St & 15th Ave NE

11/25/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-1%			1%			-1%	
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			0.95		1.00	0.95		1.00	0.95	
Fr _t	1.00	0.93			0.97		1.00	0.99		1.00	0.95	
Fl _t Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1755			3399		1761	3481		1778	3374	
Fl _t Permitted	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1796	1755			3399		1761	3481		1778	3374	
Volume (vph)	310	220	200	85	160	65	285	770	65	75	335	175
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	348	247	225	102	193	78	300	811	68	80	356	186
RTOR Reduction (vph)	0	37	0	0	27	0	0	7	0	0	73	0
Lane Group Flow (vph)	348	435	0	0	346	0	300	872	0	80	469	0
Turn Type	Split		Split				Prot		Prot			
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	23.5	23.5			13.7		17.9	31.1		5.7	18.9	
Effective Green, g (s)	23.5	23.5			13.7		17.9	31.1		5.7	18.9	
Actuated g/C Ratio	0.26	0.26			0.15		0.20	0.35		0.06	0.21	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	469	458			517		350	1203		113	709	
v/s Ratio Prot	0.19	c0.25			c0.10		c0.17	c0.25		0.04	c0.14	
v/s Ratio Perm												
v/c Ratio	0.74	0.95			0.67		0.86	0.73		0.71	0.66	
Uniform Delay, d ₁	30.5	32.7			36.0		34.8	25.7		41.3	32.6	
Progression Factor	1.00	1.00			1.00		0.81	0.74		1.00	1.00	
Incremental Delay, d ₂	6.2	29.3			3.3		11.0	2.1		18.3	4.8	
Delay (s)	36.7	62.0			39.3		39.1	21.3		59.6	37.4	
Level of Service	D	E			D		D	C		E	D	
Approach Delay (s)		51.3			39.3			25.8			40.3	
Approach LOS		D			D			C			D	

Intersection Summary

HCM Average Control Delay	37.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	20.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: NE 165th St & 15th Ave NE

11/25/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↘		↗	↘	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-3%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.98			0.86		1.00	1.00		1.00	0.98	
Flt Protected		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1703			1635		1770	1863		1770	1825	
Flt Permitted		0.96			1.00		0.38	1.00		0.08	1.00	
Satd. Flow (perm)		1703			1635		699	1863		148	1825	
Volume (vph)	95	0	20	0	0	5	45	1105	0	10	490	75
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	0	22	0	0	5	49	1201	0	11	533	82
RTOR Reduction (vph)	0	9	0	0	5	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	116	0	0	0	0	49	1201	0	11	611	0
Turn Type	Split		Split				Perm		Perm			
Protected Phases	4	4		8	8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)		11.2			1.1		65.7	65.7		65.7	65.7	
Effective Green, g (s)		11.2			1.1		65.7	65.7		65.7	65.7	
Actuated g/C Ratio		0.12			0.01		0.73	0.73		0.73	0.73	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		212			20		510	1360		108	1332	
v/s Ratio Prot		c0.07			c0.00			c0.64			0.33	
v/s Ratio Perm							0.07			0.07		
v/c Ratio		0.55			0.00		0.10	0.88		0.10	0.46	
Uniform Delay, d1		37.0			43.9		3.5	9.2		3.5	4.9	
Progression Factor		1.00			1.00		1.26	1.02		0.31	0.32	
Incremental Delay, d2		2.9			0.1		0.3	6.0		1.2	0.7	
Delay (s)		39.9			44.0		4.7	15.4		2.3	2.3	
Level of Service		D			D		A	B		A	A	
Approach Delay (s)		39.9			44.0			15.0			2.3	
Approach LOS		D			D			B			A	

Intersection Summary

HCM Average Control Delay	12.6	HCM Level of Service	B
HCM Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 3: NE 160th St & 15th Ave NE

11/25/2008
























Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↘		↙	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.90		1.00		1.00	1.00
Flt Protected	0.99		1.00		0.95	1.00
Satd. Flow (prot)	1651		1861		1770	1863
Flt Permitted	0.99		1.00		0.17	1.00
Satd. Flow (perm)	1651		1861		310	1863
Volume (vph)	5	15	1165	10	10	510
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	16	1266	11	11	554
RTOR Reduction (vph)	16	0	0	0	0	0
Lane Group Flow (vph)	5	0	1277	0	11	554
Turn Type					Perm	
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	2.8		79.2		79.2	79.2
Effective Green, g (s)	2.8		79.2		79.2	79.2
Actuated g/C Ratio	0.03		0.88		0.88	0.88
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	51		1638		273	1639
v/s Ratio Prot	c0.00		c0.69			0.30
v/s Ratio Perm					0.04	
v/c Ratio	0.11		0.78		0.04	0.34
Uniform Delay, d1	42.4		2.1		0.7	0.9
Progression Factor	1.00		0.72		0.16	0.14
Incremental Delay, d2	0.9		2.4		0.3	0.5
Delay (s)	43.3		3.9		0.4	0.6
Level of Service	D		A		A	A
Approach Delay (s)	43.3		3.9			0.6
Approach LOS	D		A			A

Intersection Summary

HCM Average Control Delay	3.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 4: NE 155th St & 15th Ave NE

11/25/2008



















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-3%			0%			0%	
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr _t		1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Fl _t Protected		0.95	1.00		0.99	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1776	1583		1872	1607	1770	1861		1770	1863	1583
Fl _t Permitted		0.69	1.00		0.93	1.00	0.28	1.00		0.15	1.00	1.00
Satd. Flow (perm)		1289	1583		1759	1607	525	1861		279	1863	1583
Volume (vph)	180	5	245	10	40	45	270	945	5	10	410	120
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	5	266	11	43	49	293	1027	5	11	446	130
RTOR Reduction (vph)	0	0	217	0	0	40	0	0	0	0	0	90
Lane Group Flow (vph)	0	201	49	0	54	9	293	1032	0	11	446	40
Turn Type	Perm		Perm	Perm		Perm	pm+pt			pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)		16.6	16.6		16.6	16.6	60.6	60.6		27.5	27.5	27.5
Effective Green, g (s)		16.6	16.6		16.6	16.6	60.6	60.6		27.5	27.5	27.5
Actuated g/C Ratio		0.18	0.18		0.18	0.18	0.67	0.67		0.31	0.31	0.31
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		238	292		324	296	822	1253		99	569	484
v/s Ratio Prot							0.13	c0.55		0.00	c0.24	
v/s Ratio Perm		c0.16	0.03		0.03	0.01	0.11			0.03		0.03
v/c Ratio		0.84	0.17		0.17	0.03	0.36	0.82		0.11	0.78	0.08
Uniform Delay, d ₁		35.5	30.9		30.9	30.1	13.0	10.8		25.8	28.5	22.3
Progression Factor		1.00	1.00		1.00	1.00	0.41	0.61		0.47	0.53	0.59
Incremental Delay, d ₂		23.0	0.3		0.2	0.0	0.2	5.8		0.5	10.1	0.3
Delay (s)		58.5	31.2		31.1	30.1	5.6	12.4		12.7	25.3	13.5
Level of Service		E	C		C	C	A	B		B	C	B
Approach Delay (s)		42.9			30.7			10.9			22.5	
Approach LOS		D			C			B			C	
Intersection Summary												
HCM Average Control Delay		20.5		HCM Level of Service				C				
HCM Volume to Capacity ratio		0.84										
Actuated Cycle Length (s)		90.0		Sum of lost time (s)				12.0				
Intersection Capacity Utilization		80.3%		ICU Level of Service				D				
Analysis Period (min)		15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: NE 150th St & 15th Ave NE

11/25/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.93			0.90		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695			1654		1770	3508		1770	3539	
Flt Permitted		0.98			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1695			1654		1770	3508		1770	3539	
Volume (vph)	5	0	5	30	0	90	5	950	60	70	530	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	0	5	33	0	98	5	1033	65	76	576	0
RTOR Reduction (vph)	0	5	0	0	89	0	0	3	0	0	0	0
Lane Group Flow (vph)	0	5	0	0	42	0	5	1095	0	76	576	0
Turn Type	Split		Split				Prot		Prot			
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		1.4			7.9		1.3	56.5		8.2	63.4	
Effective Green, g (s)		1.4			7.9		1.3	56.5		8.2	63.4	
Actuated g/C Ratio		0.02			0.09		0.01	0.63		0.09	0.70	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		26			145		26	2202		161	2493	
v/s Ratio Prot		c0.00			c0.03		0.00	c0.31		c0.04	0.16	
v/s Ratio Perm												
v/c Ratio		0.20			0.29		0.19	0.50		0.47	0.23	
Uniform Delay, d1		43.7			38.4		43.8	9.1		38.8	4.7	
Progression Factor		1.00			1.00		1.00	1.00		0.78	1.02	
Incremental Delay, d2		3.7			1.1		3.6	0.8		1.7	0.2	
Delay (s)		47.4			39.5		47.4	9.9		31.8	5.0	
Level of Service		D			D		D	A		C	A	
Approach Delay (s)		47.4			39.5			10.0			8.1	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay			11.6				HCM Level of Service			B		
HCM Volume to Capacity ratio			0.47									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			16.0		
Intersection Capacity Utilization			49.7%				ICU Level of Service			A		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: NE 145th St & 15th Ave NE

11/25/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3472		1770	3462		1770	3460		1770	3429	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3472		1770	3462		1770	3460		1770	3429	
Volume (vph)	145	1140	165	105	855	145	155	735	130	150	305	80
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	158	1239	179	114	929	158	168	799	141	163	332	87
RTOR Reduction (vph)	0	12	0	0	14	0	0	14	0	0	23	0
Lane Group Flow (vph)	158	1406	0	114	1073	0	168	926	0	163	396	0
Turn Type	Prot			Prot			Prot			Prot		
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	11.5	42.0		7.0	37.5		13.9	26.0		9.0	21.1	
Effective Green, g (s)	11.5	42.0		7.0	37.5		13.9	26.0		9.0	21.1	
Actuated g/C Ratio	0.12	0.42		0.07	0.38		0.14	0.26		0.09	0.21	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	204	1458		124	1298		246	900		159	724	
v/s Ratio Prot	c0.09	c0.41		0.06	0.31		0.09	c0.27		c0.09	0.12	
v/s Ratio Perm												
v/c Ratio	0.77	0.96		0.92	0.83		0.68	1.03		1.03	0.55	
Uniform Delay, d1	43.0	28.3		46.2	28.3		41.0	37.0		45.5	35.2	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.6	16.5		55.8	6.1		7.6	37.6		78.1	0.8	
Delay (s)	59.6	44.8		102.0	34.4		48.6	74.6		123.6	36.0	
Level of Service	E	D		F	C		D	E		F	D	
Approach Delay (s)		46.3			40.9			70.6			60.6	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM Average Control Delay			52.7			HCM Level of Service				D		
HCM Volume to Capacity ratio			0.95									
Actuated Cycle Length (s)			100.0			Sum of lost time (s)			12.0			
Intersection Capacity Utilization			88.7%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: NE 155th St & 5th Ave NE

11/25/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			0%			0%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Fr _t	1.00	0.99		1.00	0.98		1.00	0.97		1.00	0.93	
Fl _t Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1813		1796	1858		1770	1804		1770	1741	
Fl _t Permitted	0.47	1.00		0.30	1.00		0.65	1.00		0.30	1.00	
Satd. Flow (perm)	863	1813		564	1858		1206	1804		558	1741	
Volume (vph)	140	450	40	30	305	40	150	375	100	25	90	70
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	489	43	33	332	43	163	408	109	27	98	76
RTOR Reduction (vph)	0	7	0	0	11	0	0	22	0	0	47	0
Lane Group Flow (vph)	152	525	0	33	364	0	163	495	0	27	127	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	15.1	15.1		15.1	15.1		14.5	14.5		14.5	14.5	
Effective Green, g (s)	15.1	15.1		15.1	15.1		14.5	14.5		14.5	14.5	
Actuated g/C Ratio	0.40	0.40		0.40	0.40		0.39	0.39		0.39	0.39	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	347	728		227	746		465	696		215	671	
v/s Ratio Prot		c0.29			0.20			c0.27			0.07	
v/s Ratio Perm	0.18			0.06			0.14			0.05		
v/c Ratio	0.44	0.72		0.15	0.49		0.35	0.71		0.13	0.19	
Uniform Delay, d ₁	8.2	9.5		7.1	8.4		8.2	9.8		7.5	7.7	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	0.9	3.5		0.3	0.5		0.5	3.4		0.3	0.1	
Delay (s)	9.1	13.0		7.4	8.9		8.7	13.2		7.7	7.8	
Level of Service	A	B		A	A		A	B		A	A	
Approach Delay (s)		12.1			8.8			12.1			7.8	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM Average Control Delay			11.0			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.72									
Actuated Cycle Length (s)			37.6			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			71.9%			ICU Level of Service				C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: NE 175th St & 15th Ave NE

11/25/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↕		↖	↗		↖	↗	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		-3%			-1%			1%				-1%
Total Lost time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.92			0.97		1.00	0.99		1.00	0.95	
Flt Protected	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1796	1734			3399		1761	3484		1778	3392	
Flt Permitted	0.95	1.00			0.99		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1796	1734			3399		1761	3484		1778	3392	
Volume (vph)	310	220	270	85	160	65	385	845	65	75	390	175
Peak-hour factor, PHF	0.89	0.89	0.89	0.83	0.83	0.83	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	348	247	303	102	193	78	405	889	68	80	415	186
RTOR Reduction (vph)	0	44	0	0	24	0	0	5	0	0	51	0
Lane Group Flow (vph)	348	506	0	0	349	0	405	952	0	80	550	0
Turn Type	Split		Split				Prot		Prot			
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	28.0	28.0			14.3		23.0	35.6		6.1	18.7	
Effective Green, g (s)	28.0	28.0			14.3		23.0	35.6		6.1	18.7	
Actuated g/C Ratio	0.28	0.28			0.14		0.23	0.36		0.06	0.19	
Clearance Time (s)	4.0	4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	503	486			486		405	1240		108	634	
v/s Ratio Prot	0.19	c0.29			c0.10		c0.23	0.27		0.04	c0.16	
v/s Ratio Perm												
v/c Ratio	0.69	1.04			0.72		1.00	0.77		0.74	0.87	
Uniform Delay, d1	32.1	36.0			40.9		38.5	28.5		46.2	39.4	
Progression Factor	1.00	1.00			1.00		0.78	0.71		1.00	1.00	
Incremental Delay, d2	4.1	52.0			5.0		27.1	1.7		23.6	14.8	
Delay (s)	36.2	88.0			46.0		57.0	22.1		69.8	54.3	
Level of Service	D	F			D		E	C		E	D	
Approach Delay (s)		67.9			46.0			32.5			56.1	
Approach LOS		E			D			C			E	

Intersection Summary

HCM Average Control Delay	48.5	HCM Level of Service	D
HCM Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 2: NE 165th St & 15th Ave NE

11/25/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕		↗	↖		↗	↖	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		5%			-3%			0%			0%	
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	1.00		1.00	1.00	
Frt		0.98			0.86		1.00	1.00		1.00	0.98	
Flt Protected		0.96			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1703			1635		1770	1863		1770	1832	
Flt Permitted		0.96			1.00		0.31	1.00		0.05	1.00	
Satd. Flow (perm)		1703			1635		579	1863		99	1832	
Volume (vph)	95	0	20	0	0	5	45	1280	0	10	615	75
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	103	0	22	0	0	5	49	1391	0	11	668	82
RTOR Reduction (vph)	0	8	0	0	5	0	0	0	0	0	2	0
Lane Group Flow (vph)	0	117	0	0	0	0	49	1391	0	11	748	0
Turn Type	Split		Split		Perm		Perm		Perm		Perm	
Protected Phases	4	4		8	8			2				6
Permitted Phases							2			6		
Actuated Green, G (s)		11.8			1.1		75.1	75.1		75.1	75.1	
Effective Green, g (s)		11.8			1.1		75.1	75.1		75.1	75.1	
Actuated g/C Ratio		0.12			0.01		0.75	0.75		0.75	0.75	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		201			18		435	1399		74	1376	
v/s Ratio Prot		c0.07			c0.00			c0.75			0.41	
v/s Ratio Perm							0.08			0.11		
v/c Ratio		0.58			0.00		0.11	0.99		0.15	0.54	
Uniform Delay, d1		41.8			48.9		3.4	12.2		3.5	5.2	
Progression Factor		1.00			1.00		1.13	0.76		0.73	0.89	
Incremental Delay, d2		4.3			0.1		0.2	15.0		1.7	0.6	
Delay (s)		46.0			49.0		4.1	24.3		4.3	5.3	
Level of Service		D			D		A	C		A	A	
Approach Delay (s)		46.0			49.0			23.7			5.3	
Approach LOS		D			D			C			A	

Intersection Summary

HCM Average Control Delay	18.9	HCM Level of Service	B
HCM Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 3: NE 160th St & 15th Ave NE

11/25/2008



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙		↘		↙	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0		4.0		4.0	4.0
Lane Util. Factor	1.00		1.00		1.00	1.00
Frt	0.90		1.00		1.00	1.00
Flt Protected	0.99		1.00		0.95	1.00
Satd. Flow (prot)	1657		1857		1770	1863
Flt Permitted	0.99		1.00		0.07	1.00
Satd. Flow (perm)	1657		1857		134	1863
Volume (vph)	20	55	1300	30	85	555
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	22	60	1413	33	92	603
RTOR Reduction (vph)	56	0	1	0	0	0
Lane Group Flow (vph)	26	0	1445	0	92	603
Turn Type					Perm	
Protected Phases	8		2			6
Permitted Phases					6	
Actuated Green, G (s)	6.3		85.7		85.7	85.7
Effective Green, g (s)	6.3		85.7		85.7	85.7
Actuated g/C Ratio	0.06		0.86		0.86	0.86
Clearance Time (s)	4.0		4.0		4.0	4.0
Vehicle Extension (s)	3.0		3.0		3.0	3.0
Lane Grp Cap (vph)	104		1591		115	1597
v/s Ratio Prot	c0.02		c0.78			0.32
v/s Ratio Perm					0.69	
v/c Ratio	0.25		0.91		0.80	0.38
Uniform Delay, d1	44.6		4.6		3.3	1.5
Progression Factor	1.00		0.99		1.75	0.07
Incremental Delay, d2	1.3		1.0		38.1	0.6
Delay (s)	45.8		5.6		43.8	0.7
Level of Service	D		A		D	A
Approach Delay (s)	45.8		5.6			6.4
Approach LOS	D		A			A

Intersection Summary

HCM Average Control Delay	7.3	HCM Level of Service	A
HCM Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	8.0
Intersection Capacity Utilization	81.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

4: NE 155th St & 15th Ave NE

11/25/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↕		↕	↕	↕	↕		↕	↕	↕
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-3%			0%			0%	
Total Lost time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor		1.00	1.00		1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr _t		1.00	0.85		1.00	0.85	1.00	1.00		1.00	1.00	0.85
Fl _t Protected		0.97	1.00		0.97	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)		1799	1583		1840	1607	1770	1857		1770	1863	1583
Fl _t Permitted		0.39	1.00		0.51	1.00	0.18	1.00		0.14	1.00	1.00
Satd. Flow (perm)		728	1583		971	1607	339	1857		261	1863	1583
Volume (vph)	180	75	245	170	140	115	270	1030	20	20	465	120
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	82	266	185	152	125	293	1120	22	22	505	130
RTOR Reduction (vph)	0	0	178	0	0	84	0	0	0	0	0	91
Lane Group Flow (vph)	0	278	88	0	337	41	293	1142	0	22	505	39
Turn Type	Perm		Perm	Perm		Perm	pm+pt			pm+pt		Perm
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)		33.0	33.0		33.0	33.0	53.4	53.4		30.1	30.1	30.1
Effective Green, g (s)		33.0	33.0		33.0	33.0	53.4	53.4		30.1	30.1	30.1
Actuated g/C Ratio		0.33	0.33		0.33	0.33	0.53	0.53		0.30	0.30	0.30
Clearance Time (s)		4.0	4.0		4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)		240	522		320	530	537	992		103	561	476
v/s Ratio Prot							0.14	c0.61		0.00	c0.27	
v/s Ratio Perm		c0.38	0.06		0.35	0.03	0.16			0.06		0.02
v/c Ratio		1.16	0.17		1.05	0.08	0.55	1.15		0.21	0.90	0.08
Uniform Delay, d ₁		33.5	23.8		33.5	23.0	25.9	23.3		28.8	33.5	25.0
Progression Factor		1.00	1.00		1.00	1.00	0.61	0.69		0.45	0.52	0.72
Incremental Delay, d ₂		107.6	0.2		64.9	0.1	1.0	78.7		1.0	19.3	0.3
Delay (s)		141.1	23.9		98.4	23.1	16.9	94.7		14.0	36.7	18.5
Level of Service		F	C		F	C	B	F		B	D	B
Approach Delay (s)		83.8			78.1			78.8			32.3	
Approach LOS		F			E			E			C	

Intersection Summary



















HCM Average Control Delay	69.7	HCM Level of Service	E
HCM Volume to Capacity ratio	1.16		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	102.8%	ICU Level of Service	G
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

6: NE 150th St & 15th Ave NE

























11/25/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor		1.00			1.00		1.00	0.95		1.00	0.95	
Frt		0.93			0.91		1.00	0.99		1.00	1.00	
Flt Protected		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1695			1671		1770	3500		1770	3539	
Flt Permitted		0.98			0.98		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1695			1671		1770	3500		1770	3539	
Volume (vph)	5	0	5	55	0	100	5	1050	85	95	680	0
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	5	0	5	60	0	109	5	1141	92	103	739	0
RTOR Reduction (vph)	0	5	0	0	69	0	0	4	0	0	0	0
Lane Group Flow (vph)	0	5	0	0	100	0	5	1229	0	103	739	0
Turn Type	Split		Split				Prot		Prot			
Protected Phases	4	4		8	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)		1.4			11.1		1.3	60.8		10.7	70.2	
Effective Green, g (s)		1.4			11.1		1.3	60.8		10.7	70.2	
Actuated g/C Ratio		0.01			0.11		0.01	0.61		0.11	0.70	
Clearance Time (s)		4.0			4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)		3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		24			185		23	2128		189	2484	
v/s Ratio Prot		c0.00			c0.06		0.00	c0.35		c0.06	0.21	
v/s Ratio Perm												
v/c Ratio		0.21			0.54		0.22	0.58		0.54	0.30	
Uniform Delay, d1		48.8			42.0		48.8	11.8		42.3	5.6	
Progression Factor		1.00			1.00		1.00	1.00		0.73	0.85	
Incremental Delay, d2		4.4			3.0		4.7	1.1		2.1	0.2	
Delay (s)		53.1			45.0		53.6	13.0		32.9	5.0	
Level of Service		D			D		D	B		C	A	
Approach Delay (s)		53.1			45.0			13.2			8.4	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM Average Control Delay			13.9				HCM Level of Service				B	
HCM Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			100.0				Sum of lost time (s)				16.0	
Intersection Capacity Utilization			57.4%				ICU Level of Service				B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

7: NE 145th St & 15th Ave NE

11/25/2008

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	0.98		1.00	0.98		1.00	0.95	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3472		1770	3462		1770	3464		1770	3368	
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	3472		1770	3462		1770	3464		1770	3368	
Volume (vph)	215	1140	165	105	855	145	155	790	130	150	380	180
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	234	1239	179	114	929	158	168	859	141	163	413	196
RTOR Reduction (vph)	0	10	0	0	12	0	0	12	0	0	51	0
Lane Group Flow (vph)	234	1408	0	114	1075	0	168	988	0	163	558	0
Turn Type	Prot		Prot			Prot			Prot			
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases												
Actuated Green, G (s)	15.0	46.0		7.0	38.0		13.2	31.0		10.0	27.8	
Effective Green, g (s)	15.0	46.0		7.0	38.0		13.2	31.0		10.0	27.8	
Actuated g/C Ratio	0.14	0.42		0.06	0.35		0.12	0.28		0.09	0.25	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	241	1452		113	1196		212	976		161	851	
v/s Ratio Prot	c0.13	c0.41		0.06	0.31		0.09	c0.29		c0.09	0.17	
v/s Ratio Perm												
v/c Ratio	0.97	0.97		1.01	0.90		0.79	1.01		1.01	0.66	
Uniform Delay, d1	47.3	31.3		51.5	34.2		47.1	39.5		50.0	36.8	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	49.6	17.4		87.1	10.8		18.1	31.8		74.2	1.8	
Delay (s)	96.9	48.7		138.6	44.9		65.2	71.3		124.2	38.6	
Level of Service	F	D		F	D		E	E		F	D	
Approach Delay (s)		55.5			53.8			70.4			56.7	
Approach LOS		E			D			E			E	
Intersection Summary												
HCM Average Control Delay			58.9	HCM Level of Service				E				
HCM Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			110.0	Sum of lost time (s)				12.0				
Intersection Capacity Utilization			90.2%	ICU Level of Service				E				
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

9: NE 155th St & 5th Ave NE

11/25/2008

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		3%			-3%			0%			0%	
Total Lost time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Fr _t	1.00	0.99		1.00	0.98		1.00	0.97		1.00	0.93	
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1743	1815		1796	1855		1770	1802		1770	1741	
Flt Permitted	0.37	1.00		0.25	1.00		0.65	1.00		0.28	1.00	
Satd. Flow (perm)	674	1815		471	1855		1206	1802		518	1741	
Volume (vph)	140	505	40	40	380	55	150	375	105	35	90	70
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	152	549	43	43	413	60	163	408	114	38	98	76
RTOR Reduction (vph)	0	6	0	0	11	0	0	21	0	0	47	0
Lane Group Flow (vph)	152	586	0	43	462	0	163	501	0	38	127	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	17.4	17.4		17.4	17.4		15.6	15.6		15.6	15.6	
Effective Green, g (s)	17.4	17.4		17.4	17.4		15.6	15.6		15.6	15.6	
Actuated g/C Ratio	0.42	0.42		0.42	0.42		0.38	0.38		0.38	0.38	
Clearance Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	286	770		200	787		459	686		197	662	
v/s Ratio Prot		c0.32			0.25			c0.28			0.07	
v/s Ratio Perm	0.23			0.09			0.14			0.07		
v/c Ratio	0.53	0.76		0.21	0.59		0.36	0.73		0.19	0.19	
Uniform Delay, d ₁	8.8	10.0		7.5	9.0		9.1	10.9		8.5	8.5	
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d ₂	1.9	4.5		0.5	1.1		0.5	4.0		0.5	0.1	
Delay (s)	10.7	14.5		8.0	10.2		9.6	14.9		9.0	8.6	
Level of Service	B	B		A	B		A	B		A	A	
Approach Delay (s)		13.7			10.0			13.6			8.7	
Approach LOS		B			A			B			A	
Intersection Summary												
HCM Average Control Delay			12.3			HCM Level of Service				B		
HCM Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			41.0			Sum of lost time (s)			8.0			
Intersection Capacity Utilization			75.1%			ICU Level of Service				D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: NE 155th St & 15th Ave NE

11/25/2008



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Grade (%)		0%			-3%			0%			0%	
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Fr _t	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85
Fl _t Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1863	1583	1796	1891	1607	1770	1857		1770	1863	1583
Fl _t Permitted	0.45	1.00	1.00	0.69	1.00	1.00	0.23	1.00		0.13	1.00	1.00
Satd. Flow (perm)	838	1863	1583	1313	1891	1607	430	1857		237	1863	1583
Volume (vph)	180	75	245	170	140	115	270	1030	20	20	465	120
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	196	82	266	185	152	125	293	1120	22	22	505	130
RTOR Reduction (vph)	0	0	232	0	0	109	0	1	0	0	0	87
Lane Group Flow (vph)	196	82	34	185	152	16	293	1141	0	22	505	43
Turn Type	pm+pt		Perm	pm+pt		Perm	pm+pt			pm+pt		Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8		8	2			6		6
Actuated Green, G (s)	16.7	12.7	12.7	16.7	12.7	12.7	65.5	65.5		33.2	33.2	33.2
Effective Green, g (s)	16.7	12.7	12.7	16.7	12.7	12.7	65.5	65.5		33.2	33.2	33.2
Actuated g/C Ratio	0.17	0.13	0.13	0.17	0.13	0.13	0.66	0.66		0.33	0.33	0.33
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	177	237	201	239	240	204	739	1216		106	619	526
v/s Ratio Prot	c0.04	0.04		0.03	0.08		0.14	c0.61		0.00	c0.27	
v/s Ratio Perm	c0.14		0.02	0.10		0.01	0.12			0.06		0.03
v/c Ratio	1.11	0.35	0.17	0.77	0.63	0.08	0.40	0.94		0.21	0.82	0.08
Uniform Delay, d ₁	41.5	39.9	38.9	39.3	41.4	38.5	17.2	15.4		27.5	30.6	22.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.35	0.57		0.44	0.49	0.67
Incremental Delay, d ₂	99.3	0.9	0.4	14.4	5.4	0.2	0.3	13.7		0.9	10.8	0.3
Delay (s)	140.8	40.7	39.3	53.7	46.8	38.7	6.4	22.5		13.0	26.0	15.6
Level of Service	F	D	D	D	D	D	A	C		B	C	B
Approach Delay (s)		76.1			47.4			19.2			23.5	
Approach LOS		E			D			B			C	

Intersection Summary

HCM Average Control Delay	34.3	HCM Level of Service	C
HCM Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst: JGT
 Agency/Co.: TENW
 Date Performed: 11/25/2008
 Analysis Time Period: PM Peak
 Intersection: #5-Project Site Dr/15th Ave NE
 Jurisdiction: City of Shoreline
 Units: U. S. Customary
 Analysis Year: 2030 With Project
 Project ID: Fircrest Master Plan
 East/West Street: Project Site Dr
 North/South Street: 15th Ave NE
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound				Southbound		
		1 L	2 T	3 R		4 L	5 T	6 R
Volume		1165	40	40		755		
Peak-Hour Factor, PHF		0.92	0.92	0.92		0.92		
Hourly Flow Rate, HFR		1266	43	43		820		
Percent Heavy Vehicles		--	--	2		--	--	--
Median Type/Storage		Undivided			/			
RT Channelized?								
Lanes		1	0			1	1	
Configuration			TR			L	T	
Upstream Signal?		Yes				Yes		

Minor Street:	Approach Movement	Westbound				Eastbound		
		7 L	8 T	9 R		10 L	11 T	12 R
Volume				30				
Peak Hour Factor, PHF				0.92				
Hourly Flow Rate, HFR				32				
Percent Heavy Vehicles				2				
Percent Grade (%)		0				0		
Flared Approach: Exists?/Storage					/			/
Lanes				1				
Configuration				R				

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound				Eastbound		
			4 L	7 	8 R		10 	11 R	12
v (vph)		43					32		
C(m) (vph)		258					120		
v/c		0.17					0.27		
95% queue length		0.59					1.00		
Control Delay		21.7					45.6		
LOS		C					E		
Approach Delay				45.6					
Approach LOS				E					

TWO-WAY STOP CONTROL SUMMARY

Analyst:

Agency/Co.: TENW
 Date Performed: 11/25/2008
 Analysis Time Period: PM Peak
 Intersection: #8 - NE 150th St & 25th Ave NE
 Jurisdiction: City of Shoreline
 Units: U. S. Customary
 Analysis Year: 2008 Existing
 Project ID: Fircrest Master Plan
 East/West Street: NE 150th St
 North/South Street: 25th Ave NE
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound				Southbound		
		1 L	2 T	3 R		4 L	5 T	6 R
Volume		20	139	0		4	117	27
Peak-Hour Factor, PHF		0.92	0.92	0.92		0.92	0.92	0.92
Hourly Flow Rate, HFR		21	151	0		4	127	29
Percent Heavy Vehicles		2	--	--		2	--	--
Median Type/Storage		Undivided			/			
RT Channelized?								
Lanes		0	1	0		0	1	0
Configuration		LTR				LTR		
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Westbound				Eastbound		
		7 L	8 T	9 R		10 L	11 T	12 R
Volume		0	13	4		75	37	34
Peak Hour Factor, PHF		0.92	0.92	0.92		0.92	0.92	0.92
Hourly Flow Rate, HFR		0	14	4		81	40	36
Percent Heavy Vehicles		2	2	2		2	2	2
Percent Grade (%)		3				0		
Flared Approach: Exists?/Storage		No			/	No		
Lanes		0	1	0		0	1	0
Configuration		LTR				LTR		

Delay, Queue Length, and Level of Service

Approach Movement	NB 1	SB 4	Westbound				Eastbound		
			7	8	9		10	11	12
Lane Config	LTR	LTR		LTR			LTR		
v (vph)	21	4		18			157		
C(m) (vph)	1424	1430		609			628		
v/c	0.01	0.00		0.03			0.25		
95% queue length	0.04	0.01		0.09			0.98		
Control Delay	7.6	7.5		11.1			12.6		
LOS	A	A		B			B		
Approach Delay				11.1			12.6		
Approach LOS				B			B		

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst:

Agency/Co.: TENW
 Date Performed: 11/25/2008
 Analysis Time Period: PM Peak
 Intersection: #8 - NE 150th St & 25th Ave NE
 Jurisdiction: City of Shoreline
 Units: U. S. Customary
 Analysis Year: 2030 Without Project
 Project ID: Fircrest Master Plan
 East/West Street: NE 150th St
 North/South Street: 25th Ave NE
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound			Southbound		
		1 L	2 T	3 R	4 L	5 T	6 R
Volume		20	155	0	5	130	30
Peak-Hour Factor, PHF		0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR		21	168	0	5	141	32
Percent Heavy Vehicles		2	--	--	2	--	--
Median Type/Storage		Undivided			/		
RT Channelized?							
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		
Upstream Signal?		No			No		

Minor Street:	Approach Movement	Westbound			Eastbound		
		7 L	8 T	9 R	10 L	11 T	12 R
Volume		0	15	5	85	40	35
Peak Hour Factor, PHF		0.92	0.92	0.92	0.92	0.92	0.92
Hourly Flow Rate, HFR		0	16	5	92	43	38
Percent Heavy Vehicles		2	2	2	2	2	2
Percent Grade (%)		3			0		
Flared Approach: Exists?/Storage		No			/ No /		
Lanes		0	1	0	0	1	0
Configuration		LTR			LTR		

Delay, Queue Length, and Level of Service

Approach Movement	NB	SB	Westbound			Eastbound		
			7	8	9	10	11	12
Lane Config	LTR	LTR	LTR			LTR		
v (vph)	21	5	21			173		
C(m) (vph)	1404	1410	587			597		
v/c	0.01	0.00	0.04			0.29		
95% queue length	0.05	0.01	0.11			1.20		
Control Delay	7.6	7.6	11.4			13.5		
LOS	A	A	B			B		
Approach Delay			11.4			13.5		
Approach LOS			B			B		

HCS2000: Unsignalized Intersections Release 4.1f

TWO-WAY STOP CONTROL SUMMARY

Analyst:

Agency/Co.: TENW
 Date Performed: 11/25/2008
 Analysis Time Period: PM Peak
 Intersection: #8 - NE 150th St & 25th Ave NE
 Jurisdiction: City of Shoreline
 Units: U. S. Customary
 Analysis Year: 2030 With Project
 Project ID: Fircrest Master Plan
 East/West Street: NE 150th St
 North/South Street: 25th Ave NE
 Intersection Orientation: NS Study period (hrs): 0.25

Vehicle Volumes and Adjustments

Major Street:	Approach Movement	Northbound				Southbound		
		1 L	2 T	3 R		4 L	5 T	6 R
Volume		40	155	0		5	130	50
Peak-Hour Factor, PHF		0.92	0.92	0.92		0.92	0.92	0.92
Hourly Flow Rate, HFR		43	168	0		5	141	54
Percent Heavy Vehicles		2	--	--		2	--	--
Median Type/Storage		Undivided			/			
RT Channelized?								
Lanes		0	1	0		0	1	0
Configuration		LTR				LTR		
Upstream Signal?		No				No		

Minor Street:	Approach Movement	Westbound				Eastbound		
		7 L	8 T	9 R		10 L	11 T	12 R
Volume		0	15	5		110	40	60
Peak Hour Factor, PHF		0.92	0.92	0.92		0.92	0.92	0.92
Hourly Flow Rate, HFR		0	16	5		119	43	65
Percent Heavy Vehicles		2	2	2		2	2	2
Percent Grade (%)		3				0		
Flared Approach: Exists?/Storage		No			/	No		
Lanes		0	1	0		0	1	0
Configuration		LTR				LTR		

Delay, Queue Length, and Level of Service

Approach Movement	NB 1 LTR	SB 4 LTR	Westbound				Eastbound		
			7	8	9		10	11	12
Lane Config			LTR				LTR		
v (vph)	43	5	21				227		
C(m) (vph)	1378	1410	537				566		
v/c	0.03	0.00	0.04				0.40		
95% queue length	0.10	0.01	0.12				1.92		
Control Delay	7.7	7.6	12.0				15.6		
LOS	A	A	B				C		
Approach Delay				12.0			15.6		
Approach LOS				B			C		

Appendix C

2030 Traffic Volume Forecasts



Fircrest Master Plan
2030 Weekday PM Peak Turning Movement Forecasts

Growth Rate = 2.0%
Growth Rate = 0.5%
Count Year = 2006
Existing Year = 2008
Future Year = 2030

Enter Exit
 351 501

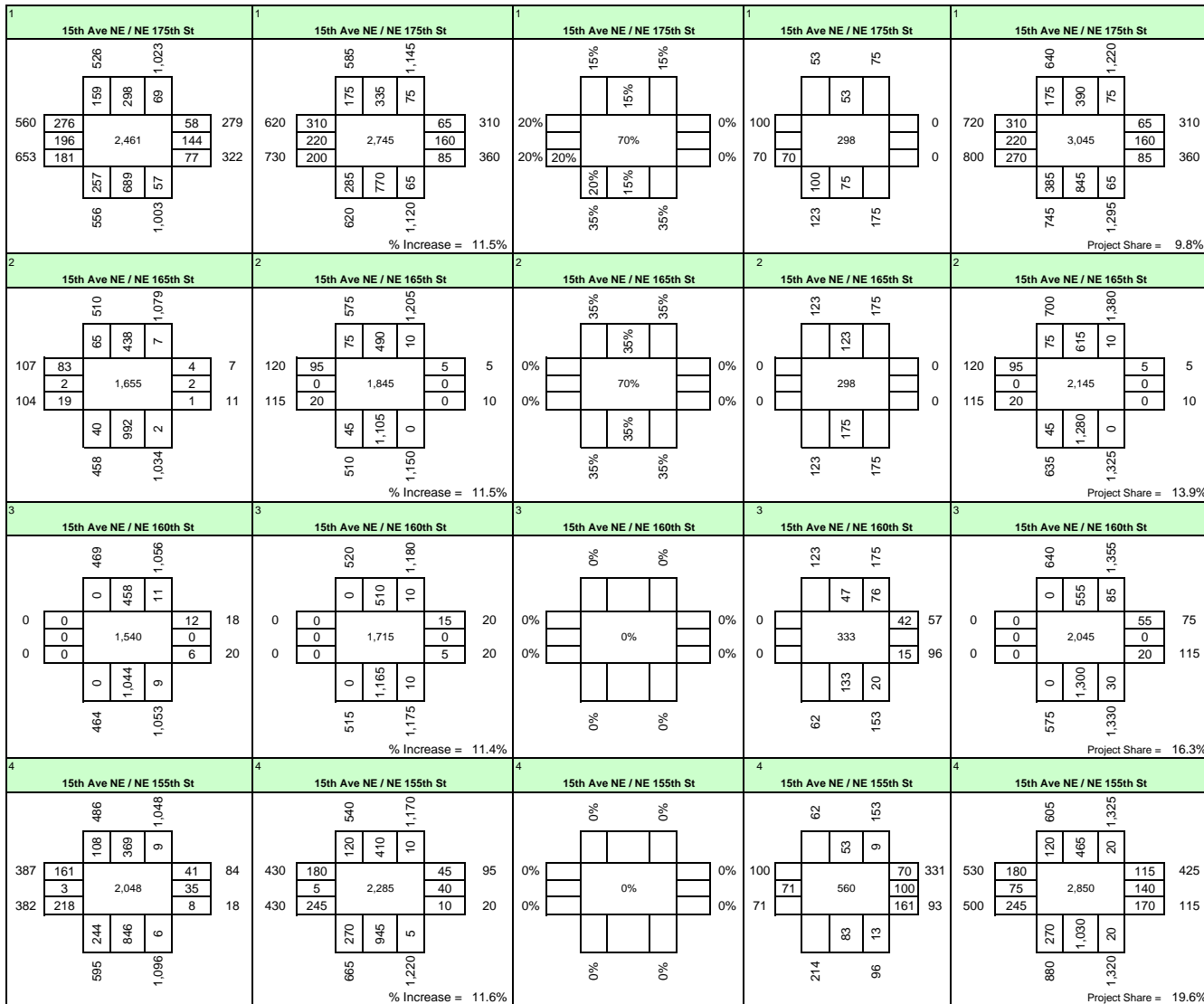
2008 Existing

2030 Baseline

Project Distribution

Project Trips

2030 With Project



Fircrest Master Plan
2030 Weekday PM Peak Turning Movement Forecasts

Growth Rate = 2.0%
Growth Rate = 0.5%
Count Year = 2006
Existing Year = 2008
Future Year = 2030

Enter Exit
 351 501

2008 Existing	2030 Baseline	Project Distribution	Project Trips	2030 With Project
<p>15th Ave NE / Project Site Dr</p> <p>% Increase =</p>	<p>15th Ave NE / Project Site Dr</p> <p>% Increase = 11.4%</p>	<p>15th Ave NE / Project Site Dr</p> <p>0% 0%</p>	<p>15th Ave NE / Project Site Dr</p> <p>174 107</p>	<p>15th Ave NE / Project Site Dr</p> <p>755 1,205</p> <p>Project Share = 17.3%</p>
<p>15th Ave NE / NE 150th St</p> <p>108 117</p>	<p>15th Ave NE / NE 150th St</p> <p>120 130</p> <p>% Increase = 11.6%</p>	<p>15th Ave NE / NE 150th St</p> <p>0% 0%</p>	<p>15th Ave NE / NE 150th St</p> <p>175 123</p>	<p>15th Ave NE / NE 150th St</p> <p>155 180</p> <p>Project Share = 15.9%</p>
<p>15th Ave NE / NE 145th St</p> <p>979 1,296</p>	<p>15th Ave NE / NE 145th St</p> <p>1,090 1,450</p> <p>% Increase = 11.5%</p>	<p>15th Ave NE / NE 145th St</p> <p>20% 20% 70% 20%</p>	<p>15th Ave NE / NE 145th St</p> <p>75 53</p>	<p>15th Ave NE / NE 145th St</p> <p>1,190 1,520</p> <p>Project Share = 6.8%</p>
<p>25th Ave NE / NE 150th St</p> <p>60 145</p>	<p>25th Ave NE / NE 150th St</p> <p>65 160</p> <p>% Increase = 11.0%</p>	<p>25th Ave NE / NE 150th St</p> <p>5% 5% 20% 5%</p>	<p>25th Ave NE / NE 150th St</p> <p>25 18</p>	<p>25th Ave NE / NE 150th St</p> <p>210 45</p> <p>Project Share = 14.0%</p>

Fircrest Master Plan
2030 Weekday PM Peak Turning Movement Forecasts

Growth Rate = 2.0%
Growth Rate = 0.5%
Count Year = 2006
Existing Year = 2008
Future Year = 2030

Enter Exit
 351 501

2008 Existing	2030 Baseline	Project Distribution	Project Trips	2030 With Project
<p>9 5th Ave NE / NE 155th St</p> <p>471 124 35 337 562 401 1,629 275 27 517 37 135 338 91 144 565</p>	<p>9 5th Ave NE / NE 155th St</p> <p>525 140 40 375 630 450 1,815 305 30 575 40 150 375 100 160 625</p> <p>% Increase = 11.4%</p>	<p>9 5th Ave NE / NE 155th St</p> <p>15% 3% 3% 3% 20% 15% 40% 15% 2% 20% 2% 2%</p>	<p>9 5th Ave NE / NE 155th St</p> <p>11 15 75 53 170 15 100 53 75 10 71 10 7</p>	<p>9 5th Ave NE / NE 155th St</p> <p>600 140 55 475 685 505 1,985 380 40 645 40 150 375 105 170 630</p> <p>Project Share = 8.6%</p>
<p>10 NE 150th St / E Project Site Dr</p> <p>84 0 0 84 131 131 215 84 131 0 0</p>	<p>10 NE 150th St / E Project Site Dr</p> <p>95 0 0 95 145 145 240 95 145 0 0 0 0 0 0</p> <p>% Increase = 11.8%</p>	<p>10 NE 150th St / E Project Site Dr</p> <p>0% 0% 0% 0% 0% 0% 0% 0%</p>	<p>10 NE 150th St / E Project Site Dr</p> <p>28 57 20 14 14 29 35 36 127 6 6 64 50</p> <p>0 0</p>	<p>10 NE 150th St / E Project Site Dr</p> <p>115 30 60 130 210 30 0 100 30 195 0 0 0 0 0 0 0</p> <p>Project Share = 34.4%</p>
<p>11 NE 150th St / W Project Site Dr</p> <p>108 0 0 108 117 117 225 108 117 0 0</p>	<p>11 NE 150th St / W Project Site Dr</p> <p>120 0 0 120 130 130 250 120 130 0 0 0 0 0 0</p> <p>% Increase = 11.3%</p>	<p>11 NE 150th St / W Project Site Dr</p> <p>0% 0% 0% 0% 0% 0% 0% 0%</p>	<p>11 NE 150th St / W Project Site Dr</p> <p>55 26 33 19 36 6 20 28 123 14 64 48 64</p> <p>0 0</p>	<p>11 NE 150th St / W Project Site Dr</p> <p>155 55 25 140 180 20 0 35 5 195 160 375 135 0 0 0 0 0 0 0 0</p> <p>Project Share = 32.9%</p>

Fircrest Campus Excess Property Master Plan

Appendix I

Stormwater Analyses

January 6, 2010

Appendix I

Fircrest Stormwater/Low Impact Development Technical Memo

Prepared by AHBL
June 8, 2009

A. Background and Methodology

This stormwater analysis supplements DSHS's Fircrest Campus Excess Property Master Plan and future submittal for City of Shoreline adoption through a Comprehensive Plan Amendment and Master Development Plan permit application. The analysis addresses proposed new land uses under the Master Plan. It does not address the Fircrest School Area or the Department of Health Public Health Laboratories. It also does not address the Existing Non-profit Use Area, which may ultimately be used by DOH. Currently, all parts of the Campus have minimal stormwater detention or treatment facilities due to the age of existing development.

The analysis provides conceptual sizing of detention facilities to accommodate runoff associated with new land uses. It also incorporates and evaluates the potential for use of Low Impact Development (LID) measures to create a more sustainable development, reduce detention needs, and reduce the potential for stormwater impacts. The Master Plan is a policy-level document and does not specify building footprints, thus this stormwater and LID analysis was conducted at a conceptual level based on an estimate of impervious surface area coverage for each new use. If adoption by the City of Shoreline is pursued by DSHS, buildout of the Master Plan would be expected to occur over approximately 20 years. This analysis recognizes that the technology and understanding of LID measures are continuously evolving, which means the results of calculations of stormwater detention requirements could change with newer technology and/or better understanding of existing technology.

Detention requirements were based on the 2005 Department of Ecology (DOE) Stormwater Manual for Western Washington (Manual), and calculated using the Western Washington Hydraulic Model 3 (WWHM3) design software. The Manual was adopted by the City of Shoreline in 2009. In accordance with the DOE Manual, estimates of detention facilities were made to accommodate up to the 100-year storm event.

Information on existing conditions is based on 2002 the planning process conducted by Arai Jackson, including the Preliminary Geotechnical Assessment for Fircrest School Site prepared by Golder Associates, Inc. dated April 11, 2002; site visits by AHBL in 2007 and 2008; and information provided by DSHS.

B. Description of Site

1. Topography

In general, Campus topography consists of two parallel, roughly north-south ridges bordering a relatively flat valley that broadens out toward the southern portion of the Campus. The western portion of the Campus consists of a series of plateaus that step down to relatively flat terrain in the southwestern portion of the Campus.

The Campus includes flat areas, areas with gentle slopes, and smaller areas of steeper slopes. The highest elevations are located in the northwest of the Campus, and the lowest in the southern portion of the Campus. There are three areas of steep slopes: the first is a forested area separating 15th Avenue NE from the northern portion of the Campus; the second is a slope that separates higher portions of the Campus in the northwest from lower portions in the east and south; the third is a slope running generally along the eastern edge of the Campus that separates the lowest portions of the Campus from properties to the east. These slopes create ridges that define the broad valley with a flat floor in the northeastern and southern portions of the Campus.

2. Soils

The majority of soils are classified as Alderwood, gravelly sandy loam. These are predominantly underlain by Vashon Till, a lodgement till that ranges from gravelly, sandy silt to silty sand with varying amounts of clay and scattered cobbles and boulders. Colluvium, a loose to medium dense soil covers the side and toe of the Campus's slopes. There are some looser soils in naturally in-filled depressions in the valley floor.

The Campus also includes areas of artificial fill containing loose debris and soils. Artificial fill is located in three areas within the planning area:

- Eastern slope of the western ridge, in the sloped area south of the Activities Building (southeast of Area 2).
- Up to six feet of fill is found in the southern end of the valley. This is known to be on the DOH property, and potentially within portions of the Excess Property.
- Filled basement excavation, located in the flat southern portion of Area 2, south of the Activities Building, where a building was demolished in the late 1970s or early 1980s.

Known soil types on the Campus have limited capacity for infiltration of stormwater.

3. Existing Impervious Coverage

Much of the Campus has been disturbed by prior development and some subsequent demolition. Because of the Campus's history as a Naval Hospital and redevelopment over the years that followed the original layout, the Campus contains many redundant and obsolete impervious areas such as roads, driveways and parking areas. Buildings previous developed in the southwest portion of the site, for example, have been demolished, leaving areas of compacted soils and/or paved surfaces. However, a number of undisturbed portions of the site are forested or covered with vegetation. Overall, approximately 40%-50% of the site is currently impervious surface. Some areas, though not paved, contain compacted dirt and demolished building material.

4. Existing Stormwater System

The existing stormwater management system was originally installed in 1941 and has been expanded and upgraded with the addition of some limited detention facilities and conveyance pipe sections. The

site generally drains from north to south. Stormwater on the Campus is collected in an 8-inch pipe network around each building then conveyed to one of five main lines:

Stormwater runoff from the upper campus and the southwest corner of the site is collected in a 12-inch corrugated metal pipe (CMP) running along the east side of 15th Avenue NE.

Runoff from the area around the Department of Health (DOH) Laboratory is collected in two 12-inch CMPs running on the west and east sides of DOH. (The DOH area is not part of the Master Plan area.)

Runoff from Hamlin Park, portions of upper campus, duplexes, adult education buildings, kitchen maintenance facilities, former NRF Buildings area, and Food Line Warehouse are collected in an 18-inch CMP underground Hamlin Creek channel near the east side of the Food Lifeline Warehouse.

Runoff from a Hamlin Park swale and off-site drainage from the slope east of the Fircrest site are collected in a 30-inch underground Hamlin Creek channel running along the east side of the site.

A detention pond is located in the northern-central portion of the Campus. Built in the late 1990s, it was designed to catch runoff from 160th Street and divert it to the Campus stormwater system.

On-site drainages that do not flow into Hamlin Creek flow mostly to a City of Shoreline 30-inch storm drain along NE 150th St, or to a 12-inch concrete pipe along 15th Avenue NE. The City of Shoreline's storm drainage system discharges to the City of Seattle system south of the Campus and eventually to outfalls in Lake Washington.

C. Basins

For the purpose of the Master Plan, the Campus is divided into five drainage basins based on topography and assuming some rough grading to accommodate the proposed Master Plan uses (see Figure 1):

Basin A is located in the northern area of the Campus, and contains part of development Area 1. It is currently developed with several buildings ("Y" buildings) and some paved roadway and parking area. Proposed Master Plan uses include a road and mixed-density residential development. Basin A also includes a large vegetated and forested open space area and the historic Fircrest Chapel.

Basin A-1 is located immediately to the east of Basin A. It also contains part of Area 1 and is currently developed with several "Y" buildings and associated roadway/parking area. Proposed Master Plan uses include mixed-density residential development.

Basin B is located in the northwest and west portion of the Campus. It contains a portion of Area 1 and the entire Area 2. Currently, it is mostly undeveloped except for the Activities Building and roadway and parking areas. Some portions of Basin B were previously developed, and contain the demolished

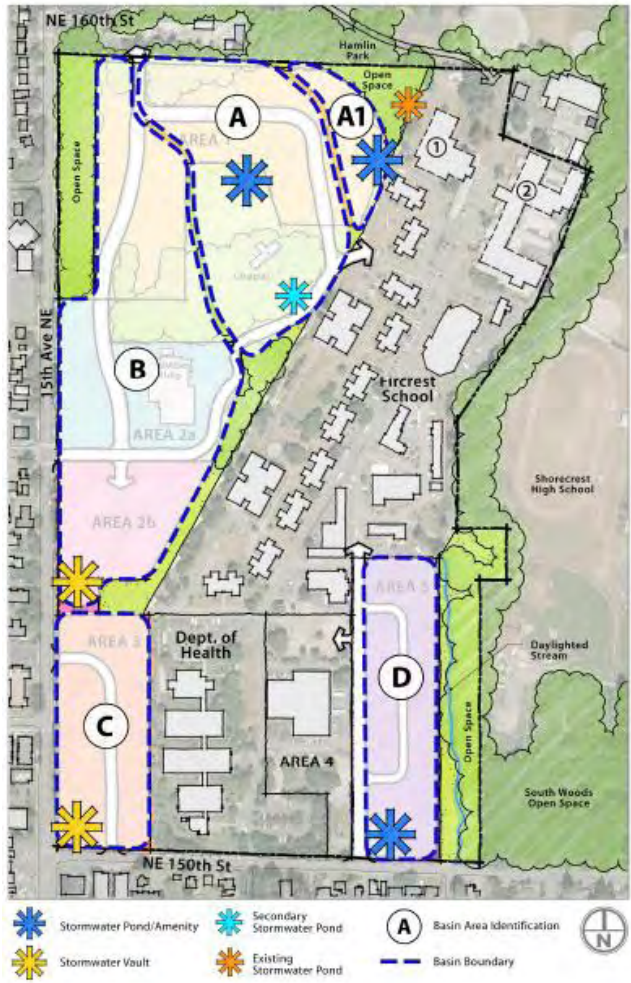


Figure 1: Basin Map

D. Upstream/Pass-Through Flows

Pass through flows are contained within Hamlin Creek, which originates in Hamlin Park and flows south through the Campus, through the Fircrest School Area and then through the Excess Property in the southeast portion of the Campus (between Area 5 and the designated Open Space on Figure 1). The portion of Hamlin Creek that is located on the Fircrest Campus site consists of two tributaries, the first of which alternates between piped and ditched sections along the eastern property boundary. The other tributary exists as a swale near the north property boundary, and then runs underground in a pipe southward (through the Excess Property) until it connects with the culverted eastern tributary on the Campus near the southern property line.

Upstream, stormwater enters Fircrest Campus from several sources:

- Hamlin Park at the intersection of NE 165th Street and 15th Avenue NE
- 36-inch concrete pipe at the intersection of NE 165th Street and 25th Avenue NE
- Down 15th Ave NE into Hamlin park from the intersection of NE 169th and 15th Ave nE

remnants of structures. Paving associated with these demolished structures remains and contributes to impervious surface. Proposed Master Plan uses include multi-family (Area 1); and office buildings, civic/social service uses, a pea-patch/market garden, and an addition to the existing Activities Building (Area 2). Both major and minor roads are also planned.

Basin C is located in the southwest portion of the Campus and corresponds to Area 3. It contains the unused 1510 Court buildings and associated paving. Proposed Master Plan uses include several mixed-use buildings and associated roadway/driveway.

Basin D is located in the southeast portion of the Campus. It corresponds to Area 5. There are currently no buildings in this basin, though it was previously developed and impervious surfaces remain. Proposed Master Plan uses include a boulevard along the west edge of the basin, plus a smaller road and medium-density residential uses. The proposed daylighted segment of Hamlin Creek runs near the east edge of this basin.

- South in Hamlin Park from the intersection of NE 170th and 14th Ave NE

An upstream basin analysis divides the upstream (off-site) Hamlin Creek basin into six areas, which are shown in Exhibit 1 at the end of this document. (The upstream basins are off-site and so do not correspond to any of the on-site basins in Figure 1 above.) Pass-through flows were calculated for the purpose of the Conceptual Design for the proposed daylighted segment of Hamlin Creek. The pass-through flows do not affect the stormwater analysis for new development areas.

HC-Area 1 encompasses the area north of Hamlin Park, from NE 175th Street to NE 165th Street, with roughly the east-west span of the Fircrest Campus. It spans 129.41 acres, is modeled as 60% impervious and 40% lawn¹.

HC-Area 2 encompasses Hamlin Park, from NE 150th Street to NE 165th Street. It spans 86.71 acres, is 80% forest and 20% lawn.

HC- Area 3 encompasses the vegetated area along the eastern border of the Fircrest Campus. It is 15.67 acres in size, and contains 90% forest and 10% lawn.

HC- Area 4 lies to the east of Area 3, encompassing the ballfields area of Shorecrest High School. It is 18.27 acres in size, and contains 60% lawn and 40% impervious.

HC- Area 5 encompasses the eastern half of Fircrest Campus. It covers 61.57 acres, and is 60% impervious, 40% lawn.

HC- Area 6 lies along the western border of Area 1. It spans 9.37 acres, with 60% impervious and 40% lawn.

Exhibit 2 show the estimated capacity needed in the proposed daylighted segment of Hamlin Creek to accommodated the off-site pass-through flows.

E. Water Quantity Analysis for New Development

1. Modeling Assumptions

Stormwater runoff and required detention volume were analyzed for two scenarios. Both scenarios consider new uses as guided by the Master Plan; however, the approach to development differs. Modeling methods and requirements are based on the 2005 DOE Manual.

In both scenarios, the expected phasing of development, site topography and the location of proposed new uses mean each basin will have one or more individual detention facilities, rather than a combined facility for all new uses on the Campus. After treatment and detention, stormwater runoff from the Campus would continue to be discharged into the City stormwater system, which ultimately flows to

¹ Areas modeled as “lawn” are vegetated areas in the developed condition. They are considered pervious, but not as pervious as “pasture” or “forest” areas.

Lake Washington. Hamlin Creek would continue to function as a separate system which primarily accommodates off-site flows. Both scenarios assume public roads would be paved with impervious paving. Assumptions for other elements of new development vary.

The first scenario, Traditional Development, considers proposed development with a traditional approach to impervious surfaces and stormwater management, conveyance and detention, including piped conveyance and detention ponds or vaults, to create a baseline for stormwater management. It assumes that driveways and sidewalks are constructed with impervious paving. It also assumes generally wider roads and more area devoted to driveways and parking.

The second scenario, Low Impact Development (LID), utilizes LID Best management Practices (BMPs) to minimize the volume of stormwater runoff and reduce the footprint of stormwater management facilities. Because the site's soils are not well suited for infiltration, the LID approach primarily reduces impervious surface, slows flows and provides water quality treatment. While detention is still needed, some detention can be decentralized into raingardens to reduce the size of required ponds or vaults.

In addition to reductions in the width of roads and the area of driveways and surface parking areas, LID elements to reduce stormwater runoff include pervious paving for driveways, sidewalks and surface parking areas; green roofs for a portion of roofs; and dispersion for roof runoff. Green roofs, pervious paving, and roofs with dispersion are modeled as 50% impervious and 50% lawn². Other LID practices in this scenario that might reduce the size of detention ponds and also provide water quality treatment include the use of raingardens and flow-through planter boxes. Because site soil conditions (where known) have limited capacity for infiltration, raingardens, bioretention swales and flow-through planter boxes are not assumed to reduce overall detention requirements; however, they would reduce their use would reduce the calculated size of the primary detention facility in each basin. Further, detention can occur in multiple smaller facilities within the basin.

Rainwater harvesting (for possible use in graywater systems) is also considered as a way to reduce runoff. It would be ideal for larger buildings, including the civic/high density residential buildings and the office building located in Basin B, Area 2 and potentially the retail/residential buildings located in Area 3. Rainwater harvest must be limited to 5000 gal/day to avoid applying for water rights per current DOE regulations. Rainwater harvesting also was not accounted for in the calculation of required detention.

The existing level of runoff from the Campus was not analyzed, because existing development is not required to detain or treat stormwater.

Following is an analysis of estimated stormwater detention needs. Exhibit 3 is a more detailed memo further explaining the calculations.

² Areas modeled as "lawn" are vegetated areas in the developed condition. They are considered pervious, but not as pervious as "forest" areas.

2. Estimated Detention Requirement – Basin A

Traditional Scenario

For traditional development, it was assumed that sidewalk would be provided adjacent to both sides of the road, except for road at the southeastern end of the Basin, which would have sidewalk along only one side. Driveways for each unit of small residential lots and townhomes were assumed to be roughly 170 SF. Given these assumptions, the impervious surface of Basin A with traditional development was calculated to be approximately 2.85 ac, requiring a stormwater detention facility of 1.88 ac-ft (see Table 1).

LID Scenario

For the LID scenario, the driveways and sidewalks were assumed to use pervious pavement and roughly 60% of the small lots would be able to use dispersion to mitigate roof runoff. Dispersion techniques would direct roof runoff into natural vegetated areas that are not located within steep slopes. Given these assumptions, the impervious surface of Basin A with LID development was calculated to be approximately 2.15 ac, requiring a stormwater detention facility of 1.25 ac-ft (see Table 1). This facility would likely be a pond. As stated above, rain gardens in this basin could accommodate part of the required volume.

Table 1: Basin A

Estimated Areas/Volume	With Traditional Development	With LID Techniques
Forest Area (most pervious)	3.92 ac	3.92 ac
Lawn Area (some pervious)	2.45 ac	3.89 ac
Impervious Area	2.85 ac	2.15 ac
Detention Facility Volume	1.88 ac-ft	1.25 ac-ft
34% Reduction with LID Techniques		

In addition to these techniques, the roads could be designed similar to “SEA Streets” where appropriate. Street Edge Alternative (SEA) Streets utilize narrowed drive lanes with parking and sidewalks typically on one side only to minimize impervious areas. They also incorporate biodetention cells in the right-of-way. These design strategies will reduce runoff by minimizing impervious surfaces, thereby reducing the footprint of stormwater detention facilities. Water quality could also be achieved through the use of biofiltration swales.

3. Estimated Detention Requirement – Basin A-1

Traditional Scenario

Assumptions similar to those made for Basin A were made for Basin A-1. Driveways for each unit of small residential lots and townhomes were roughly 170 SF. Given these assumptions, the impervious surface of Basin A-1 with traditional development was calculated to be approximately 0.71 ac, requiring a stormwater detention facility of 0.31 ac-ft (see Table 2).

LID Scenario

In the LID scenario, driveways were assumed to use pervious pavement, and roughly 50% of the small lots would be able to use dispersion to mitigate roof runoff. Specific LID techniques such as rain gardens and other small detention facilities could also be used in Basin A-1 to further reduce the size of the centralized detention facility. Given these assumptions, the impervious surface of Basin A with LID development was calculated to be approximately 0.44 ac, requiring a stormwater detention facility of 0.25 ac-ft (see Table 2). This facility would likely be a pond. As stated above, rain gardens in this basin could accommodate part of the required volume.

Table 2: Basin A-1

Estimated Areas/Volume	With Traditional Development	With LID Techniques
Lawn Area (some pervious)	1.22 ac	1.50 ac
Impervious Area	0.71 ac	0.44 ac
Detention Facility Volume	0.31 ac-ft	0.25 ac-ft
20% Reduction with LID Techniques		

4. Estimated Detention Requirement – Basin B

Traditional Scenario

Assumptions similar to those for Basin A were made for the portion of Area 1 within Basin B. It was assumed that sidewalks would be adjacent to both sides of the road within Area 1. It was also assumed that approximately half of the roadway within the Area 2 portion of Basin B would have sidewalk along only one side of the street. Given these assumptions, the impervious surface of Basin B with traditional development was calculated to be approximately 12.24 ac, requiring a stormwater detention facility of 4.36 ac-ft (see Table 3).

LID Scenario

LID assumptions include pervious sidewalks and driveways within Area 1, dispersion for roughly 30% of the mid-rise residential buildings and vegetated roofs for 10% of the midrise residential live/work roof area within Area 1 and 50% of the civic/high residential and office building roof area within Area 2. Given these assumption, the impervious surface of Basin B with LID development was calculated to be approximately 8.14 ac, requiring a stormwater detention facility of 3.0 ac-ft (see Table 3). Detention would likely occur in more than one facility, with a vault in the office portion of Area 2 and potentially pond facilities in Area 1. As stated above, rain gardens in this basin could accommodate part of the required volume, particularly in Area 1 and the northern portion of Area 2.

Table 3: Basin B

Estimated Areas/Volume	With Traditional Development	With LID Techniques
Lawn Area (some pervious)	3.39 ac	7.49 ac
Impervious Area	12.24 ac	8.14 ac
Detention Facility Volume	4.36 ac-ft	3.00 ac-ft
32% Reduction with LID Techniques		

In addition, raingardens could be used in Area 1 and the northern portion of Area 2 to accommodate some detention, thereby reducing the size of the centralized detention facility.

5. Estimated Detention Requirement – Basin C

Traditional Scenario

Traditional assumptions regarding mixed-use retail/high-density residential development result in an estimated 4.45 ac of impervious surface, requiring a stormwater detention facility of 0.50 ac-ft (see Table 4).

LID Scenario

In the LID scenario, it was assumed that 10% of the roof area would be vegetated. No other LID techniques are proposed due to the high density of this area. Impervious surface was estimated to be approximately 4.26 ac, requiring a stormwater detention facility of 1.45 ac-ft (see Table 4). This facility would likely be a vault due to the density of development.

Table 4: Basin C

Estimated Areas/Volume	With Traditional Development	With LID Techniques
Lawn Area (some pervious)	0.25 ac	0.44 ac
Impervious Area	4.45 ac	4.26 ac
Detention Facility Volume	0.50 ac-ft	1.45 ac-ft
3.5% Reduction with LID Techniques		

In addition, biodetention swales and flow-through planter boxes are methods that could help in reducing the required volume of a centralized stormwater management facility in this basin.

6. Estimated Detention Requirement – Basin D

Traditional Scenario

Traditional development assumptions yielded an estimate of 5.13 ac of impervious surface, requiring a stormwater detention facility of 1.73 ac-ft.

LID Scenario

In this area, pervious pavement was proposed for sidewalk and driveways. In addition, the Woonerf street design requires only one travel lane and one sidewalk, reducing impervious surface. Given these assumptions, impervious surface was estimated to be approximately 4.42 ac, requiring a stormwater detention facility of 1.45 ac-ft (see Table 5). The detention facility is proposed to be a pond located at the southern end of this basin.

Table 5: Basin D

Estimated Areas/Volume	With Traditional Development	With LID Techniques
Law Area (some pervious)	1.00 ac	1.70 ac
Impervious Area	5.13 ac	4.42 ac

Detention Facility Volume	1.73 ac-ft	1.45 ac-ft
16% Reduction with LID Techniques		

Though the LID techniques discussed above would reduce stormwater detention volumes, further reduction in the required size of the centralized detention facility for this basin can be accomplished through the use of rain gardens and other small detention facilities. Rain gardens would be placed along the eastern edge of Basin D, adjacent to the buffer of the segment of Hamlin Creek that is proposed to be daylighted under the Master Plan.

F. Water Quality Treatment for New Development

Stormwater management facilities for new uses would provide water quality treatment consistent with the 2005 DOE Manual. With LID stormwater management techniques, biofiltration would be a key component of treatment. Specific treatment methods would be designed with project-level design and engineering. Water quality treatment for the Excess Property areas currently does not exist or, where it exists, is minimal and does not likely meet current standards. Therefore, the overall result would be an improvement in water quality for runoff from the Excess Property areas of the Campus, in addition to elimination of redundant impervious surfaces, improved drainage, detention/water quantity control, and the use of drainage systems that mimic natural systems.

**Appendix I – Exhibit 1 – Off-Site Pass-Through Flow Estimates for Hamlin
Creek Basin**

Project Fircrest
Subject Basin Area Analysis
With/To _____
Address _____
Date 10/3/03

Project No. 203151.31
Phone _____
Fax # _____
Faxed Pages _____
By MAB

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AREA 1-1 (NE 165th ST TO NE 175th ST)

TOTAL AREA = (189,600 SF) + (969,350 SF) + (612,000 SF) + (711,500 SF) + (708,750 SF) + (717,500 SF) + (717,500 SF) + (1,011,000 SF) = 5,637,200 SF
= 129.41 ac.
60% Impervious = (0.60) * (129.41 ac) = 77.65 ac.
40% Lawn = (0.40) * (129.41 ac) = 51.76 ac.

AREA 1-2 (Hamlin Park, NE 160th to NE 165th ST)

TOTAL AREA = 3,777,250 SF = 86.71 ac.
80% Forest = (0.80) * (86.71 ac) = 69.37 ac.
20% Lawn = (0.20) * (86.71 ac) = 17.34 ac.

AREA 1-3 (Thorton Creek, NE 150th ST TO NE 160th ST)

TOTAL AREA = (400' * 450') + (250' * 1,030') + (230' * 500') + (200' * 650')
= 682,500 SF = 15.67 ac.
90% Forest = (0.90) * (15.67 ac) = 14.10 ac.
10% Lawn = (0.10) * (15.67 ac) = 1.57 ac.

AREA 1-4 (Shorecrest H.S. & Kellogg, NE 150th ST TO NE 165th ST)

TOTAL AREA = (1,478,450 SF) - (682,500 SF) = 795,950 SF = 18.27 ac.
60% Lawn = (0.60) * (18.27 ac) = 10.96 ac.
40% Impervious = (0.40) * (18.27 ac) = 7.31 ac.

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Project Fircrest
Subject Basin Area Analysis
With/To _____
Address _____
Date 10/3/08

Project No. 208151.31
Phone _____
Fax # _____
Faxed Pages _____
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AREA 1-5 (Fircrest Development, NE 150th ST TO NE 160th ST)

$$\text{TOTAL AREA} = (2,865,250 \text{ SF}) - (193,388 \text{ SF}) = 2,681,860 \text{ SF} \\ = 61.57 \text{ ac.}$$

$$60\% \text{ Imperv Area} = (0.60) * (61.57 \text{ ac.}) = 36.94 \text{ ac.}$$

$$40\% \text{ Lawn Area} = (0.40) * (61.57 \text{ ac.}) = 24.63 \text{ ac.}$$

AREA 1-6 (West of 15th Ave NE, NE 165th ST TO NE 175th ST)

$$\text{TOTAL AREA} = 408,000 \text{ SF} = 9.37 \text{ ac.}$$

$$60\% \text{ Imperv Area} = (0.60) * (9.37 \text{ ac.}) = 5.62 \text{ ac.}$$

$$40\% \text{ Lawn Area} = (0.40) * (9.37 \text{ ac.}) = 3.75 \text{ ac.}$$

BASIN TOTALS

$$\text{TOTAL IMPERV AREA} = (77.65 \text{ ac.}) + (7.31 \text{ ac.}) + (36.94 \text{ ac.}) + (5.62 \text{ ac.}) \\ = 127.52 \text{ ac.}$$

$$50\% \text{ ROOFTOPS} = (0.50) * (127.52 \text{ ac.}) = 63.76 \text{ ac.}$$

$$30\% \text{ ROADWAYS} = (0.30) * (127.52 \text{ ac.}) = 38.26 \text{ ac.}$$

$$20\% \text{ SIDEWALKS} = (0.20) * (127.52 \text{ ac.}) = 25.50 \text{ ac.}$$

$$\text{TOTAL LAWN AREA} = (51.76 \text{ ac.}) + (17.34 \text{ ac.}) + (1.57 \text{ ac.}) + (10.96 \text{ ac.}) + \\ (24.63 \text{ ac.}) + (3.75 \text{ ac.}) = 110.01 \text{ ac.}$$

$$\text{TOTAL FOREST AREA} = (69.37 \text{ ac.}) + (14.10 \text{ ac.}) \\ = 83.47 \text{ ac.}$$

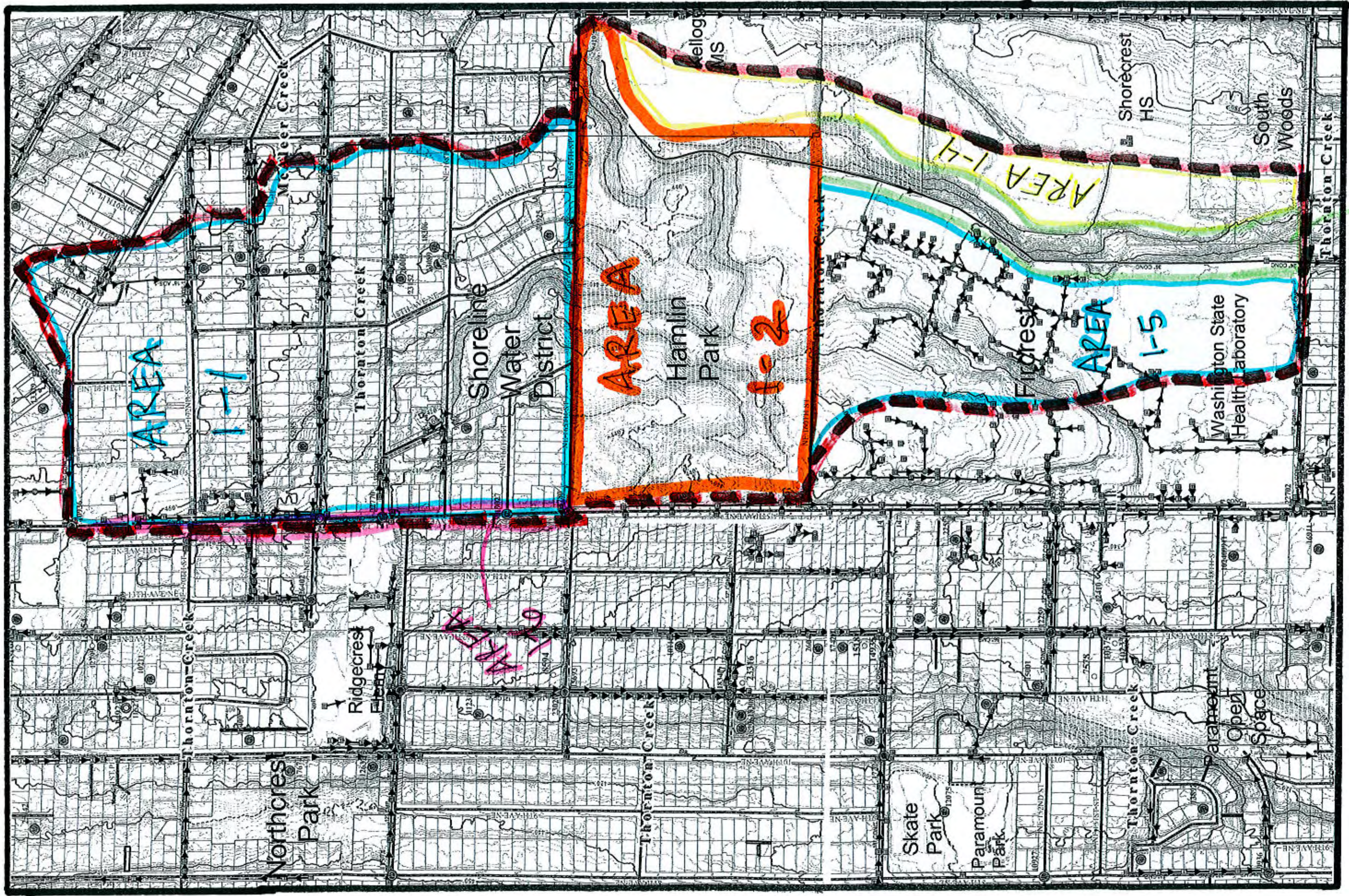
$$\text{BASIN TOTAL} = 321 \text{ ac.}$$

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FIRCREST BASIN MAP

MAB
9-25-08

AREA
1-3

Project Fircrest
Subject Upstream Basin Analysis
With/To _____
Address _____
Date 9-24-08

Project No. 208151.31
Phone _____
Fax # _____
Faxed Pages _____
By MAB

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FIRCREST BASIN

Basin limits determined through topography and conveyance systems per City of Shoreline Drainage Basin Map

Basin Area = 321 acres

100-yr Flow (from WWHMv3) = 61.22 cfs

ASSUMPTIONS:

- ① Stormwater drains into Hamlin Park at the intersection of NE 165th and 15th Ave NE.
- ② Stormwater flows into existing 36" Conc Pipe at the intersection of NE 165th and 25th Ave NE.
- ③ Stormwater flows down 15th Ave NE into Hamlin Park from the intersection of NE 169th and 15th Ave NE.
- ④ Stormwater flows south into Hamlin Park from the intersection of NE 170th and 14th Ave NE.
- ⑤ Conveyance systems downstream of Fircrest Ridge flows into 36" Conc Pipe.
- ⑥ Type 'C' soils.
- ⑦ Drainage Maps are close to the 40 scale. Any measurement above 500' was subtracted by 50' to account for mismatched scales.
- ⑧ See attached for basin areas.

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Western Washington Hydrology Model
PROJECT REPORT

Project Name: 080920_208151.31_Basin
Site Address:
City : Shoreline
Report Date : 10/3/2008
Gage : Seatac
Data Start : 1948/10/01
Data End : 1998/09/30
Precip Scale: 0.83

PREDEVELOPED LAND USE

Name : Basin 1
Bypass: No

GroundWater: No

<u>Pervious Land Use</u>	<u>Acres</u>
C, Forest, Mod	83.47
C, Lawn, Mod	110.01

<u>Impervious Land Use</u>	<u>Acres</u>
ROADS MOD	38.26
ROOF TOPS FLAT	63.76
SIDEWALKS MOD	25.5

Element Flows To:		
Surface	Interflow	Groundwater

MITIGATED LAND USE

ANALYSIS RESULTS

Flow Frequency Return Periods for Predeveloped. POC #1

<u>Return Period</u>	<u>Flow(cfs)</u>
2 year	31.10
5 year	39.07
10 year	44.35
25 year	51.06
50 year	56.11
100 year	61.22

**Appendix I - Exhibit 2 - Calculation of Hamlin Creek Section Capacity
Needs for Off-Site Flows**

Project Firecrest Project No. 208151.31
Subject Main Hill Creek Section Phone _____
With/To _____ Fax # _____
Address _____ # Faxed Pages _____
Date 9-25-08 By MAB

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Firecrest Swale Section

* Given section : depth = 2'
Bottom width = 6', Top width = 18'
Sideslopes = 3:1
slope = 0.5%

Flow capacity = 59.67 cfs < 61.22 cfs (100-yr Basin Flow)

* Proposed Section : depth = 2.10' + 1' freeboard = 3.10'
Bottom width = 6', Top width = 24.60'
Sideslopes = 3:1
slope = 0.5%

Flow capacity (at 2.10') = 65.96 cfs > 61.22 cfs ∴ OK

- * Basin flow determined using WWTM v3.
- ** Capacity flow determined in Flow Master, see attached.

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Worksheet for Trapezoidal Channel - 1

Profile Description

Friction Method Manning Formula
Solve For Discharge

Input Data

Roughness Coefficient	0.050	
Channel Slope	0.00500	ft/ft
Normal Depth	2.10	ft
Left Side Slope	3.00	ft/ft (H:V)
Right Side Slope	3.00	ft/ft (H:V)
Bottom Width	6.00	ft

Results

Discharge	65.98	ft ³ /s
Flow Area	25.83	ft ²
Wetted Perimeter	19.28	ft
Top Width	18.60	ft
Critical Depth	1.25	ft
Critical Slope	0.03919	ft/ft
Velocity	2.55	ft/s
Velocity Head	0.10	ft
Specific Energy	2.20	ft
Froude Number	0.38	
Flow Type	Subcritical	

Downstream Data

Downstream Depth	0.00	ft
Length	0.00	ft
Number Of Steps	0	

Upstream Data

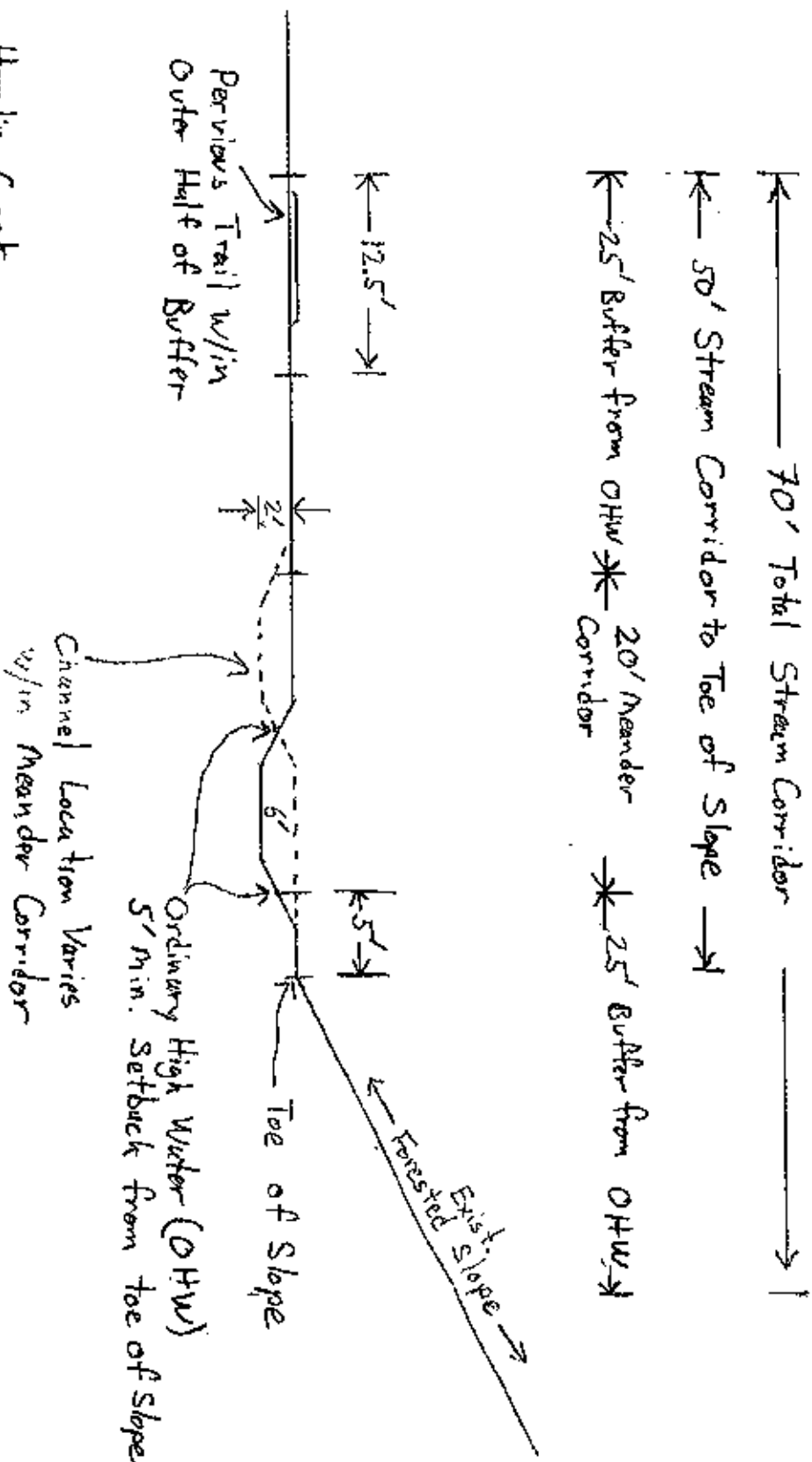
Upstream Depth	0.00	ft
Profile Description		
Profile Headloss	0.00	ft
Downstream Velocity	Infinity	ft/s
Upstream Velocity	Infinity	ft/s
Normal Depth	2.10	ft
Critical Depth	1.25	ft
Channel Slope	0.00500	ft/ft
Critical Slope	0.03919	ft/ft

GIVEN SECTION



Project Name: Hamlin Fircrest
 Project Number: 080510 Date: 8/21/08
 Staff: G. Johnston

Hamlin Creek
at Fircrest Campus
Conceptual Cross Section





PROJECT MEMO

TO: Betsy Geller
FROM: Joe Moon
DATE: 11/17/2008
PROJECT: Fircrest Campus Excess Property Master Plan
OUR FILE NO.: 208151.31
SUBJECT: Detailed Detention Estimates

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The following memorandum summarizes options for stormwater management at the Fircrest Campus. The detention pond calculations were completed using Western Washington Hydraulic Model 3 (WWHM3) design software, which adheres to the 2005 Department of Ecology (DOE) Stormwater Design Manual requirements. The DOE states that detention facilities must accommodate half of the two-year storm up to the 100 year storm event. WWHM3 uses continuous modeling based on data from the last 50 years.

To analyze storm water detention and water quality volumes, the campus was divided into drainage basins based on topography. Stormwater management was analyzed for two main scenarios. The first scenario utilizes traditional stormwater conveyance and detention, including piped conveyance and detention ponds or vaults, to create a baseline for stormwater management (see Figure 1 - Fircrest Basin and Traditional Stormwater Facility Map). The second scenario utilizes Low Impact Development (LID) Best Management Practices (BMPs) in order to minimize the volume of stormwater runoff and reduce the footprint of stormwater management facilities (see Figure 2 – Fircrest Basin and LID Stormwater Facility Map). In this scenario, low impact development methods such as pervious pavements, greenroofs, and dispersion are used to reduce runoff. Impervious surfaces within each of the developed areas were evenly distributed within the basins. The use of raingardens, bioretention swales and flow-through planter boxes has the potential to minimize the size of a traditional detention pond by decentralizing storm water management facilities. These systems would provide water quality treatment for storm water. It is unknown what level of infiltration these latter practices would provide; therefore they are not included in our reduction calculations.

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Basin A

Basin A includes part of Development Area 1. In Basin A, small residential lots and townhomes are proposed. The basin also includes a large vegetated open space area and the historic Fircrest Chapel. It is recommended that small residential lots and townhomes use dispersion techniques to direct roof runoff into natural vegetated areas that are not located within steep slopes. Sidewalks and driveways are modeled using pervious concrete to further reduce runoff. In addition to these techniques, the roads could be designed similar to "SEA Streets" where appropriate. Street Edge Alternative (SEA) Streets utilize narrowed drive lanes with parking and sidewalks typically on one side only to minimize impervious areas. They also incorporate bioretention cells in the right-of-way. These design strategies will reduce runoff by minimizing impervious surfaces, thereby reducing the footprint of stormwater detention facilities. Water quality could also be achieved through the use of biofiltration swales. Table 1 below summarizes the land cover for both the baseline analysis and the LID analysis.



Table 1 – Land Use Areas for Basin A

Developed Area	With Traditional Development	With LID Techniques
Forest	3.92 ac	3.92 ac
Lawn (Moderate Slope, Type C Soil), Landscaping	2.45 ac	3.89 ac
Roads	1.05 ac	1.05 ac
Roof Top	1.72 ac	0.69 ac
Drives and Walks	0.81 ac	0.41 ac
Total Area	9.95 ac	9.95 ac

In calculating the developed areas, it was assumed that sidewalk would be provided adjacent to both sides of the road, except for road at the southeastern end of the Basin, which would have sidewalk along only one side. Driveways for each unit of small residential lots and townhomes were assumed to be roughly 170 SF. In the LID scenario, the driveways and sidewalks will be assumed to use pervious pavement, which can then be modeled as 50% lawn and 50% impervious surfacing. It was assumed that roughly 60% of the small lots would be able to use dispersion to mitigate roof runoff. Roof area which is dispersed is modeled as lawn. Table 2 below summarizes the stormwater detention volumes for both the baseline and LID developed areas. It is assumed that the required detention volume could be accommodated through a vault, pond or a number of small detention facilities such as rain gardens, or some combination of these types of facilities.

Table 2 – Stormwater Detention for Basin A

Facility Dimensions	With Traditional Development	With LID Techniques
Depth	9 ft	9 ft
Width	55 ft	43 ft
Length	165 ft	128 ft
Volume	1.88 ac-ft	1.25 ac-ft
% Reduction with LID Techniques: 34%		

Basin A-1

Basin A-1 would be developed similar to portions of Basin A. It includes the easternmost part of Development Area 1, with small residential lots and townhomes. The same LID techniques used in Basin A are also appropriate in Basin A-1. Table 3 below summarizes the land cover for both the baseline analysis and the LID analysis.

Table 3 – Land Use Areas for Basin A-1

Developed Area	With Traditional Development	With LID Techniques
Lawn (Moderate Slope, Type C Soils), Landscaping	1.22 ac	1.50 ac
Roof Top	0.55 ac	0.28 ac
Drives and Walks	0.16 ac	0.16 ac
Total Area	1.93 ac	1.93 ac



Assumptions similar to those made for Basin A were made for Basin A-1. Driveways for each unit of small residential lots and townhomes were roughly 170 SF. In the LID scenario, driveways use pervious pavement, which can be modeled as 50% lawn and 50% impervious surfacing. It was assumed that roughly 50% of the small lots would be able to use dispersion to mitigate roof runoff. Roof area which is dispersed is modeled as lawn. Table 4 below summarizes the stormwater detention volumes for both the baseline and LID developed areas. Rain gardens and other small detention facilities could also be used in Basin A-1 to further reduce the size of the centralized detention facility.

Table 4 – Stormwater Detention for Basin A-1

Facility Dimensions	With Traditional Development	With LID Techniques
Depth	9 ft	9 ft
Width	45 ft	38 ft
Length	15 ft	13 ft
Volume	0.31 ac-ft	0.25 ac-ft
% Reduction with LID Techniques: 20%		

Basin B

A portion of Development Area 1 and all of Area 2 are included in Basin B. The portion of Area 1 includes midrise residential live/work buildings, while Area 2 includes a civic building with high density residential above, an existing activities building with a new building addition, office buildings and a market garden. Concerning LID techniques, assumptions similar to those for Basin A were made for the portion of Area 1 within Basin B. In Area 2, it was assumed that 50% of roof area for the civic/residential and the office buildings are vegetated. The market garden is assumed to be fully vegetated. No other LID techniques were proposed in Area 2 due to the high level of existing and proposed landscaping. In addition to these techniques to reduce runoff, flow-through planter boxes and bioretention cells are recommended to decentralize stormwater detention. Table 5 below summarizes the land cover for both the baseline analysis and the LID analysis.

Table 5 – Land Use Areas for Basin B

Developed Area	With Traditional Development	With LID Techniques
Lawn (Moderate Slope, Type C Soil), Landscaping	3.39 ac	7.49 ac
Roads	2.45 ac	2.45 ac
Roof Top	9.72 ac	5.62 ac
Drives and Walks	0.07 ac	0.07 ac
Total Area	15.63	15.63 ac

Assumptions similar to those for Basin A were made for the portion of Area 1 within Basin B. It was assumed that sidewalks would be adjacent to both sides of the road within Area 1. In the LID scenario, sidewalks and driveways within Area 1 use pervious pavement, which can be modeled as 50% lawn and 50% impervious surfacing. It was assumed that roughly 30% of the mid-rise residential buildings would be able to use dispersion to mitigate roof runoff. Roof area which is dispersed for these lots is modeled as lawn. It was assumed that 10% of the midrise residential live/work buildings within Area 1 and 50% of the civic/high residential and office buildings within Area 2 would utilize vegetated roofs. In the stormwater model, these areas were



also modeled as 50% lawn and 50% impervious surfacing. It was also assumed that approximately half of the roadway within the Area 2 portion of Basin B would have sidewalk along only one side of the street. Table 6 below summarizes the stormwater detention volumes for both the baseline and LID developed areas. Raingardens could be used in Area 1 and the northern portion of Area 2 to accommodate some detention, thereby reducing the size of the centralized detention facility.

Table 6 – Stormwater Detention for Basin B

Facility Dimensions	With Traditional Development	With LID Techniques
Depth	9 ft	9 ft
Width	90 ft	73 ft
Length	270 ft	218 ft
Volume	4.36 ac-ft	3.00 ac-ft
% Reduction with LID Techniques: 32%		

Basin C

In Basin C, mixed-use retail/high-density residential is proposed. This Basin corresponds to Development Area 3. In this area, it was assumed that 10% of the roof area would be vegetated. No other LID techniques are proposed due to the high density of this area. Biodetention swales and flow-through planter boxes are methods that would help in decentralizing a traditional stormwater management facility. Table 7 below summarizes the land cover for both the baseline analysis and the LID analysis.

Table 7 – Land Use Areas for Basin C

Developed Area	With Traditional Development	With LID Techniques
Lawn (Moderate Slope, Type C Soil), Landscaping	0.25 ac	0.44 ac
Roads	0.70 ac	0.70 ac
Roof Top	3.75 ac	3.56 ac
Total Area	4.70 ac	4.70 ac

In calculating the developed areas, vegetated roofs were modeled as 50% lawn and 50% impervious surfacing. Table 8 below summarizes the stormwater detention volumes for both the baseline and LID developed areas.

Table 8 – Stormwater Detention for Basin C

Facility Dimensions	With Traditional Development	With LID Techniques
Depth	9 ft	9 ft
Width	48 ft	47 ft
Length	143 ft	140 ft
Volume	1.50 ac-ft	1.45 ac-ft
% Reduction with LID Techniques: 3.5%		



Basin D

In Basin D, rowhouses with a Woonerf type street are proposed. In this area, pervious pavement was proposed for sidewalk and driveways. In addition, the Woonerf street design requires only one travel lane and one sidewalk, reducing impervious surface. Table 9 below summarizes the land cover for both the baseline analysis and the LID analysis.

Table 9 – Land Use Areas for Basin D

Developed Area	With Traditional Development	With LID Techniques
Lawn (Moderate Slope, Type C Soil), Landscaping	1.00 ac	1.70 ac
Roads	0.60 ac	0.30 ac
Roof Top	3.72 ac	3.72 ac
Drives and Walks	0.81 ac	0.40 ac
Total	6.13 ac	6.13 ac

In calculating the developed areas, pervious pavement was modeled as 50% lawn and 50% impervious surfacing. It was assumed that sidewalks would be present along only side of the narrow street. Table 10 below summarizes the stormwater detention volumes for both the baseline and LID developed areas. Though the LID techniques discussed above would reduce stormwater detention volumes, further reduction in the required size of the centralized detention facility for this basin can be accomplished through the use of rain gardens and other small detention facilities. Rain gardens would be placed along the eastern edge of Basin D, adjacent to the buffer of the segment of Hamlin Creek that is proposed to be daylighted under the Master Plan.

Table 10 – Stormwater Detention for Basin D

Facility Dimensions	With Traditional Development	With LID Techniques
Depth	9 ft	9 ft
Width	53 ft	47 ft
Length	157 ft	140 ft
Volume	1.73 ac-ft	1.45 ac-ft
% Reduction with LID Techniques: 16%		

In addition to the table above, rainwater harvesting could be used to reduce water usage and required detention volume. Rainwater harvesting would be ideal for larger buildings, including the civic/high density residential building and the office building located in Basin B, Area 2, and potentially the retail/residential buildings located in Area 3. Rainwater harvesting has to be limited to 5000 gal/day in order to avoid applying for water rights per current Department of Ecology regulations.

Fircrest Campus Excess Property Master Plan

Appendix J

Hamlin Creek Analysis and Concept

January 6, 2010



Fircrest Master Plan: Critical Areas Report and Conceptual Restoration Plan for Hamlin Creek, Shoreline, WA

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and

Washington State Department of
Social and Health Services
Lands and Buildings Division
1115 Washington Street
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November 24, 2008

FIRCREST MASTER PLAN:

Critical Areas Report and Conceptual Restoration Plan for Hamlin Creek, Shoreline, Washington

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November 24, 2008

Cite this document as:

The Watershed Company. 11/24/2008. Hamlin Creek Restoration Plan Critical Areas Design Report; Fircrest Campus Master Plan. City of Shoreline, Washington.

Reference Number: 080510

Hamlin Creek Restoration Plan for Fircrest Campus Master Plan
Critical Areas Design Report

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Appendix A

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CRITICAL AREAS CONCEPT DESIGN

HAMLIN CREEK RESTORATION PLAN CRITICAL AREAS DESIGN REPORT

1 BACKGROUND AND INTRODUCTION: THE FIRCREST CAMPUS EXCESS PROPERTY MASTER PLAN

The Washington Department of Social and Health Services (DSHS) has been directed to complete a master plan of the portion of the Fircrest Campus (located in the City of Shoreline) not utilized by the Fircrest School or the Department of Health (DOH). For a Vicinity Map, see the Overall Concept Plan in Appendix A. In consultation with various agencies and stakeholders, several alternatives for future land uses of the excess property were formulated including recommendations for uses such as housing, government office, retail, recreation, and, the application of “smart growth” concepts. Phase I work on the master plan is presented more fully in the report titled *Fircrest Excess Property Report - Land Use Options and Recommendations*, which can be viewed at <http://cosweb.ci.shoreline.wa.us/uploads/attachments/pds/fircrest/Finalreport.pdf>.

As an element of the DRAFT Conceptual Site Plan for the Fircrest Campus Excess Property Master Plan (see Figure 1), it is proposed, along the east boundary of Area 5, to daylight and/or restore sections of upper Hamlin Creek which are now conveyed mostly in piped systems across the property. Hamlin Creek originates in the watershed areas upstream (north) of the Fircrest Campus including in the City’s Hamlin Park and Shorecrest High School. The piped and open-channel sections of the creek on-site are intermittent, flowing only in response to periods of high precipitation, and are therefore non-fish-bearing. Hamlin Creek is a tributary of Thornton Creek, which it joins approximately 20 blocks south of the Fircrest Campus within the City of Seattle. An overview of the stream location on and near the Fircrest Campus as it flows towards Thornton Creek south of the campus is provided by Figure 2. This urban stream has been significantly impacted by past and present land use activities, and the proposed stream daylighting project is intended to largely restore natural stream headwater functions including biofiltration, water infiltration and storage, wetland and wildlife habitats, and, in general, to provide high-quality, less flashy flows to downstream fish and wildlife habitat areas.

**Fircrest Campus
 Excess Property
 Master Plan** **DRAFT Conceptual Site Plan**



Figure 1. Fircrest Campus Excess Property Master Plan (DRAFT Conceptual Site Plan) provided by AHBL.

Project goals related to and consistent with the proposed daylighting and restoration of sections of Hamlin Creek include:

1. Daylighting piped portions of Hamlin Creek to increase fish and wildlife habitat values, to reduce stormwater surge and flood events, and to achieve other natural drainage benefits such as improved water quality and groundwater supply;
2. Retaining significant stands of trees and vegetation and their ecological benefits. Protect mature specimen trees and to enhance understory functions and species diversity;
3. Reducing the proportion and area of impervious surfaces on the campus; improve site infiltration and enable biofiltration of stream- and stormwater;
4. Integrating green building principles and Low Impact Development (LID) practices into the new development proposal for the Campus to promote environmental stewardship and sustainability; and
5. Providing open space amenities, interpretive and passive recreational opportunities, and site aesthetics for the local community.

2 CRITICAL AREAS REPORT

2.1 Existing Condition of Hamlin Creek on the Fircrest Campus

The Hamlin Creek sub-basin is identified as sub-basin N6 in the *Thornton Creek Watershed Characterization Report* (SPU 2000). This subwatershed is approximately 405 acres in size and includes largely-forested Hamlin Park, the adjacent commercial and educational facilities including the Fircrest Campus, and the surrounding residential neighborhood. Hamlin Park also includes some open-area ball fields (see Figure 3). Hamlin Creek joins the North Branch of Thornton Creek in the City of Seattle near 20th Ave NE just south of NE 130th St. Downstream (south) of 150th Street, between the Fircrest Campus and the confluence with Thornton Creek, Hamlin Creek flows primarily in various open ditches and piped segments along 20th Avenue NE and contains little quality habitat (see Figure 4).

The portion of Hamlin Creek that is located on the Fircrest Campus site consists of two tributaries, the first of which alternates between piped and ditched sections along the eastern property boundary. The other tributary exists as a swale near the north property boundary, and then runs underground in a pipe

southward until it connects with the culverted eastern tributary on the Campus near the southern property line (refer to Appendix A and Figure 2 for the existing locations of these mostly-piped drainage pathways on-site).

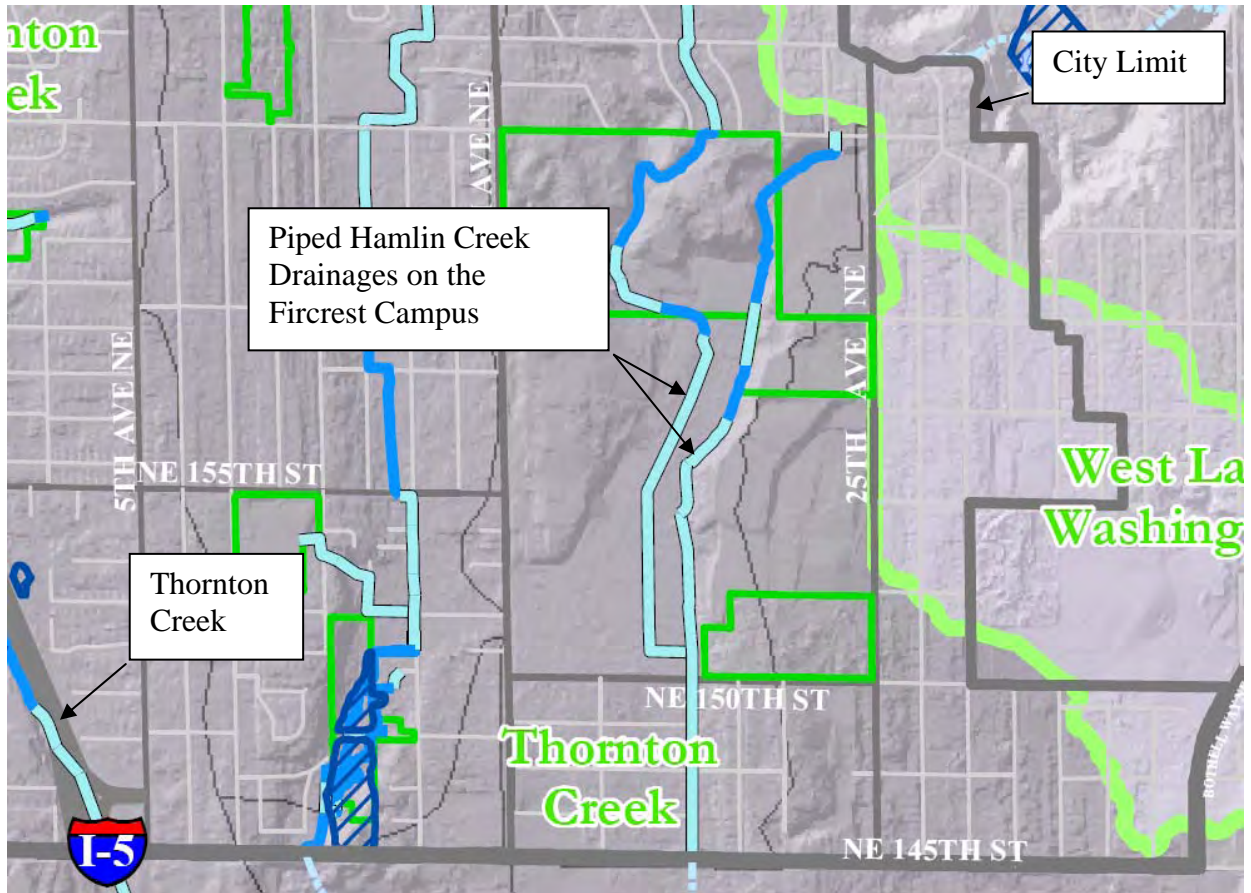


Figure 2. City Drainage Mapping. Dark blue lines indicate open water courses and light blue lines indicate piped watercourses.

Neither tributary currently supports fish populations, and due to their physical characteristics (numerous extended pipe sections, limited exposed channel, intermittent flow), they do not likely have this potential.

Flow in Hamlin Creek on-site is ephemeral, meaning not only that it ceases to flow seasonally, during the normally-drier summer months, but that it also stops flowing in response to periods without precipitation throughout the year, including the normally-wetter winter season. Water has been observed to flow in the on-site, open-channel sections of the stream only during and for periods shortly following significant storm events (4/11/02 Golder Geotechnical report; Golder Associates, Inc. 2002b.). This condition and flow regime clearly precludes any kind of direct, on-site fish use of the stream. In addition, the culvert outfall at the mouth of Hamlin Creek, where it flows into Thornton

Creek, is likely a barrier to upstream fish migration, including anadromous salmon and trout. The gradient is steep and the vertical distance from the culvert outfall to the surface of Thornton Creek is 18-24 inches, depending on flow conditions. The culvert is in poor condition with water flowing out through gaps in its bottom rather than out the end (Golder Fisheries, Streams, and Wildlife Report, Golder Associates, Inc. 2002a). While *seasonal* streams sometimes support fish populations, generally *ephemeral* ones do not. In addition, entirely seasonal stream sections upstream of definitive migration barriers cannot support fish use from year to year (unless artificially planted again each year) because fish are eliminated from such sections each year as flow ceases and natural recolonization is prevented the following wet season by the barrier.



Figure 3. Facing upstream along the east fork of Hamlin Creek in Hamlin Park between the toe of the slope and a baseball field (Taken on 8/4/08).



Figure 4. Ditched Hamlin Creek channel along the west side of 20th Avenue NE, downstream of the Fircrest Campus (Taken on 9/17/08).

Geotechnical analyses conducted in 2002 as part of a prior planning process identified that that poor soil infiltration results in standing water in many of the flat areas of the Campus, especially in low-lying areas, during storm events. Habitat problems identified or confirmed for Hamlin Creek in the 2000 Thornton Creek Watershed Characterization Report focus on the high proportion of piped stream length and the poor habitat with little vegetative cover along the ditched and piped sections extending southward from the campus along 20th Ave NE.

2.2 On-site Stream Presence and Type

Background stream mapping and presence information for the Fircrest Campus site reviewed in the preparation of this report includes the City's *Streams and Basins* map (updated 6/6/07, as downloaded from the City's website), King County i-MAP website information for the parcel and vicinity, Washington DNR Forest Practice Water Type Mapping, the 1975 Washington Department of Fisheries' *Catalog of Washington Streams and Salmon Utilization*, and the *King County Water Features* map. Site mapping provided by AHBL in conjunction with the Master Planning Process indicates the presence of the two mostly-piped drainage pathways from north to south across the site as described previously. City mapping (Figure 2, above) also shows these on-site piped drainages. Flow carried by the west drainage originates from a system of roadside ditches and

pipled drainages in and upslope of Hamlin Park and, for the east drainage, from the vicinity of Kellogg Middle and Shorecrest High Schools.

However, though these mapped drainages across the site are commonly referred to as some aspect of Hamlin Creek, there remains some question as to whether they rigorously meet the definition of jurisdictional stream sections under City of Shoreline Code and, if so, their classification. According to Shoreline Municipal Code (SMC) Chapter 20, Section 20, *Definitions*, regulated stream features in the City are:

Those areas where surface waters produce a defined channel or bed, not including irrigation ditches, canals, storm or surface water runoff devices or other entirely artificial watercourses, unless they are used by salmonids or are used to convey streams naturally occurring prior to construction. A channel or bed need not contain water year-round; provided, that there is evidence of at least intermittent flow during years of normal rainfall.

Since all of the drainage channel sections on and upslope of the site are roadside ditches or other man-made channels, piped drainage sections, and/or carry flow originating exclusively from stormwater drainage system discharges, they could all be construed as or considered to be “entirely artificial watercourses.” Furthermore, a brief, sub-basin reconnaissance revealed no evidence of a historic stream channel through the area or through the relatively less disturbed areas upslope in Hamlin Park.

The 2002 *Fisheries Stream, and Wildlife Ecological Resources Assessment* for the site and the 2002 *Wetland Delineation Report for Fircrest Campus*, both prepared by Golder Associates, Inc., each imply or presume that the on-site drainages are jurisdictional streams, being portions or segments of “Hamlin Creek.” However, according to the *Preliminary Geotechnical Assessment for Fircrest School Site Shoreline, Washington*, also prepared by Golder Associates, Inc., and dated April 11, 2002:

No natural stream channels or bodies of water were observed on the site, although a man-made drainage ditch was observed along the northern half of the eastern side of the site. This ditch conveys stormwater runoff to a municipal storm drain system. Water was observed to flow in this ditch only during and after significant storm events;

and

There were no natural stream channels, creeks, ponds or lakes evident on the site in historic topographic maps dating back to 1909...or on aerial photographs dating back to 1936... There was also no evidence that natural stream channels on the site during our two site-reconnaissance visits.

Of the stream mapping and related materials reviewed, only the City's *Streams and Basins* map and the mapping associated with the master planning process indicate any drainage features to be present on or in the immediate vicinity of the Fircrest Campus site. A portion of the City's map showing the location of the Fircrest Campus within the context of the mapped drainages is reproduced above (Figure 2).

However, since the project proponent does not wish to question whether these drainage features are technically streams, they will henceforth throughout this report be presumed to qualify as regulated streams according to City definition and code. Under that presumption, for which there is some precedent, they would most aptly be classified according to SMC 20.80.470(D) as Type III stream segments, which "are those streams which are not Type I or Type II streams with perennial (year-round) or intermittent flow with channel width of two feet or more taken at the ordinary high water mark and are not used by salmonid fish." This is opposed to Type IV streams which would otherwise be the same but would be 2 feet or *less* in width at ordinary high water. Arguably, establishing a channel width at the ordinary high water mark level for these drainages would result in a width moderately in excess of 2 feet; channels generally tend to lose their definition to become non-streams as they narrow to approaching two feet in width or less.

Type III streams in Shoreline are assigned 65-foot standard and 35-foot minimum buffer widths while Type IV streams are assigned 35-foot standard and 25-foot minimum buffer widths. The application of less than the standard and down to the minimum buffer widths normally requires that applicants 1) demonstrate that the proposed, reduced buffer widths are adequate to protect stream functions and 2) that they implement one or more enhancement measures such that net improvements to streams and buffers can be demonstrated. However, as discussed in Section 4, later in this report, required buffers for *daylighted* stream sections, regardless of stream classification but still contingent on an approved restoration plan, shall be a minimum of 10 to 25 feet. Hence a stream buffer width of 25 feet is proposed for the to-be-daylighted sections of Hamlin Creek on-site.

A lack of salmonid fish use is presumed in the drainages on-site due to their small size in an extreme headwater area, extensive piped segments, documented ephemeral (not even seasonal) flow, likely migration barriers downstream, and a general lack of beneficial habitat features including pool/riffle sequences and in-stream wood.

2.3 Fish Use of Thornton and Hamlin Creeks

Thornton Creek has supported coho and sockeye salmon, and steelhead and cutthroat trout (Williams et al., 1975) and, to a lesser extent, chinook salmon (Ken Milton, 1998 *in* Thornton Creek Watershed Characterization Report, 2000).

Cutthroat trout are present in much of the basin, where flow and fish passage conditions allow, and coho fry have been released into Thornton Creek by various schools participating in the Salmon in the Classroom program run by Washington Department of Fish and Wildlife (WDFW). In 1998, participating schools received 3,350 coho eggs and 1,050 chinook eggs. (Thornton Creek Watershed Characterization Report, 2000.) However, due to generally unsuitable habitat conditions primarily associated with its small size, ephemeral flows, and likely downstream fish passage barriers, Thornton Creek tributary Hamlin Creek does not, and is not expected to, support fish populations on-site. The closest documented fish use is in Thornton Creek at its confluence with Hamlin Creek.

2.4 Wildlife Habitat Potential of the Restored Stream Corridor On-Site

The City of Shoreline code (SCC 20.20) provides a definition of *Stream Functions* as:

Natural processes performed by streams including functions which are important in facilitating food chain production, providing habitat for nesting, rearing and resting sites for aquatic, terrestrial and avian species, maintaining the availability and quality of water, such as purifying water, acting as recharge and discharge areas for ground water aquifers, moderating surface water and stormwater flows and maintaining the free flowing conveyance of water, sediments and other organic matter.

And, according to SCC 20.80.460 (B):

Stream areas and their associated buffers provide important fish and wildlife habitat and corridors; help to maintain water quality; store and convey stormwater and floodwater; recharge groundwater; and serve as areas for recreation, education and scientific study and aesthetic appreciation.

Clearly, the existing on-site piped stream sections are providing little in the way of stream function other than basic conveyance. Arguably, the piped sections provide shade to keep water temperatures cool, however, given the ephemeral (sporadic) nature of the flows through these headwater stream segments, little or no flow is typically present during the warmer-weather periods. As such, temperature is typically not an issue. Virtually all wildlife habitat function is typically lacking for the piped segments along their alignments (refer to the Photos in Figures 7-9).

In contrast, the proposed daylighted channel sections will provide for most of the wildlife functions as listed and described above, including:

1. native vegetation for food production, cover, refuge and resting areas, and nesting sites;
2. biofiltration for downstream water quality, especially for the downstream fish-bearing sections of North Branch and Mainstem Thornton Creek;
3. in-channel and side-channel storage to increase detention capacity; and
4. opportunities for infiltration to supplement groundwater and dry-season flows and reduce flow volatility.

Direct fish use of the daylighted and enhanced stream channel sections on-site will essentially be precluded by the ephemeral nature of the stream flows they will carry in combination with various barriers to upstream migration. However, the buffer areas, revegetated as they will be with a dense assemblage of native plant species, will provide greatly improved habitat opportunities primarily for various birds and small mammals.

2.5 Water Quality: Benefits to Downstream Fish Habitat

The broad channel as proposed will be vegetated with dense groundcover vegetation suitable and adapted for use in biofiltration swales. As such, it will make a significant contribution to water quality extending downstream. Very little biofiltration occurs in pipes, which is the existing condition. In contrast, water flowing in direct contact with densely-growing, fine-stemmed vegetation, interacting with accumulated detrital matter such as fallen leaves, and interacting with soils and shallow groundwater, as will occur along the proposed channel, will provide a very high degree of biofiltration. The downstream, fish-bearing sections of the North Branch and Mainstem of Thornton Creek will benefit from this expected improvement in water quality.

2.6 Open Space: Aesthetic, Recreational, and Interpretive/Educational Benefits

A recreational trail or pathway, possibly with one or more bridged crossings, would be provided along the daylighted channel section as an amenity. This trail would typically be aligned to be within the outer half of the buffer. It would provide opportunities to nearby residents for passive recreation and exercise such as strolling, jogging, and possibly biking; wildlife viewing; and, potentially, educational enrichment through interpretive signage.

3 CONCEPTUAL HAMLIN CREEK RESTORATION PLAN

3.1 General Plan Elements and Description

A description of the proposed project along with supporting background information is provided below. Preliminary design plans are presented in Appendix A.

The basic approach of the stream restoration is to improve habitat and function by daylighting some presently-piped sections and enhancing some existing, open-channel ditched sections. Biologically diverse, well-vegetated stream buffer areas will be created as space allows, also contributing to improved in-stream habitat, especially where new channel sections are created. The proposed new channel alignment has been chosen to provide improved channel characteristics and sinuosity without excessive grading or clearing. Nearly all of the area proposed for the creation of the new, daylighted channel has been disturbed by previous development, now largely removed. Dense planting of the stream corridor with native species, along with planned maintenance and monitoring efforts, will help prevent encroachment by Himalayan blackberry and other non-native species.

There are three primary areas on-site where this concept plan will be implemented, addressing varying treatments along different sections of Hamlin Creek. As shown on the overall site concept plan in Appendix A, the piped section of Hamlin Creek in Area A will be daylighted and designed to facilitate the combined flows of the two parallel piped sections into a single open channel. It is also intended that the two existing open channel sections on-site farther upstream (to the north) in Areas B and C will also be reconfigured to carry this additional flow and improve stream function. Ideally, flows from the two parallel piped sections would be combined at the upstream end of Area C. If however for some reason the channels in Areas B and/or C, or the to-remain piped systems connecting them, cannot be modified to reliably carry the combined flows, alternatives are shown on the Overall Site Concept Plan in Appendix A whereby flows would be combined farther downstream, such as at the upstream end of either Area B or Area A. In those cases, either Area C or both Areas B and C would continue to carry their existing, east branch flows only. With regard to the intervening piped sections to remain, they could possibly be upgraded to carry the combined flows, however this may not be feasible or it may be just as feasible to daylight additional stream length instead.

Area A

The primary area for the proposed stream daylighting is located in the southeastern corner of the overall campus, parallel to the western toe of South Woods. Buildings and formal structures have already been demolished and removed, except for remnant building foundations, concrete hardscapes, and road infrastructure. All remaining debris would be removed in conjunction with implementation of the stream daylighting plan. Existing conditions are shown in Figures 7 to 10 below.

As shown on the cross sections below, in Figures 5 and 6, this particular daylighted stream channel section is designed to carry the combined east and west branch flows with the following features:

- A fairly wide, meandering, swale-like channel;
- Flood plain benches, backwaters, and embayments;
- A trail roughly paralleling the stream surfaced with pervious materials;
- Specific viewing points with interpretive signage along the trail;
- Potential bridged stream crossings (see Figure 6) for additional access to viewing and passive recreation;
- Channel and buffers vegetated with native vegetation, and
- Supplemental wildlife habitat structures including bird and bat boxes, snags, logs, and root wads.

Native vegetation would emphasize and maximize the new channel's functionality with respect to biofiltration, which will improve water quality in the fish-bearing sections of Thornton Creek farther downstream. Buffer vegetation can also attract and benefit birds and other wildlife species on-site, providing wildlife viewing opportunities for site residents and the nearby schools. Both sides of the daylighted channel (25' minimum stream buffer) would be revegetated with native plants equal to or in excess of the following density:

Trees	0.012 per square foot (9-foot on center)
Shrubs	0.028 per square foot (6-foot on center)
Herbs/groundcover	0.25 per square foot (assumes 4" pot) 2-foot on center

Source: *Critical Areas Restoration and Enhancement in King County* (King County, 2007)

A list of suggested native plants extracted from the *Critical Areas Restoration and Enhancement in King County* guidelines (King County, 2007) is included in Appendix B as a reference. In addition to providing ecological benefits, the daylighted stream corridor will serve as an open space amenity, contributing to the overall value of and benefits from the proposed site redevelopment as depicted by the Master Plan.

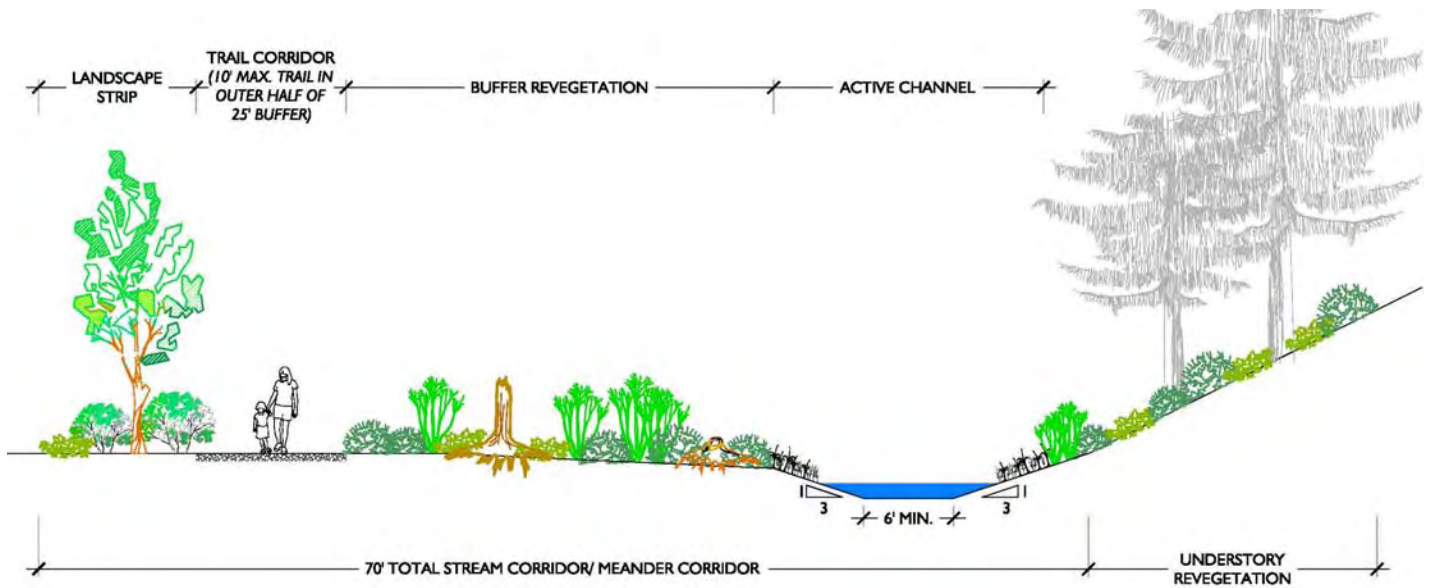


Figure 5. Typical cross-section of daylighted Hamlin Creek in Area A.

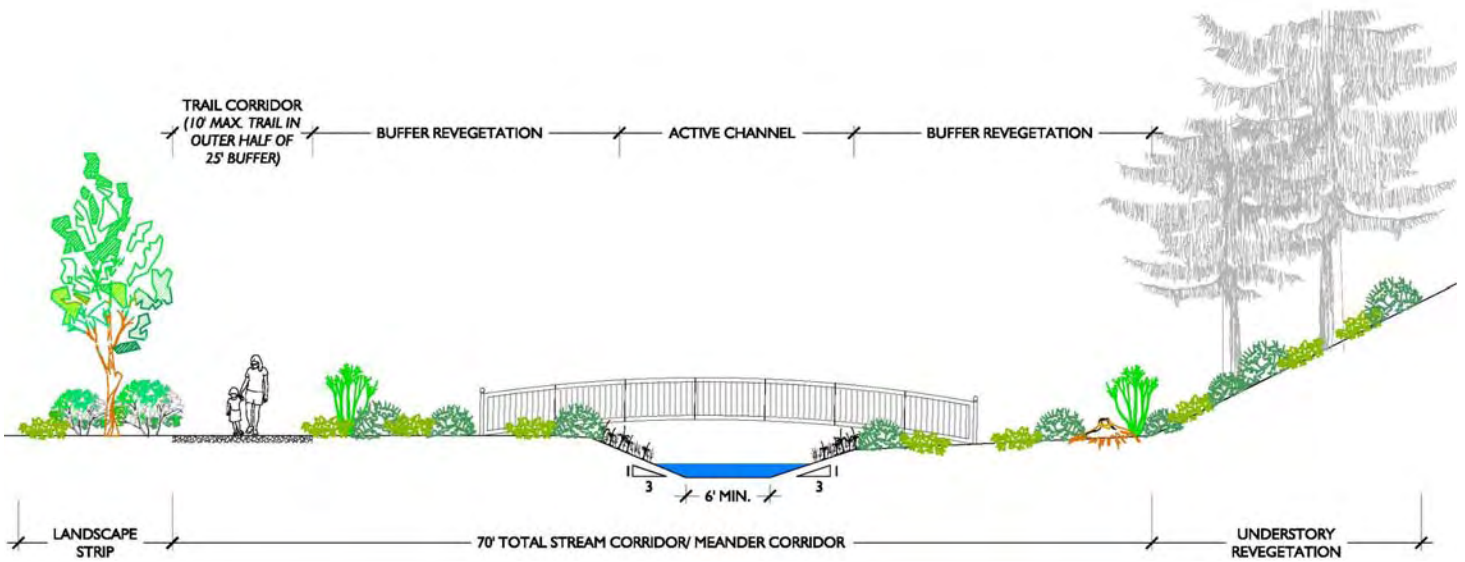


Figure 6. Channel variations in Area A, depicting a potential footbridge crossing and channel meandering away from the toe of the hillslope.

The above cross sections generally conform to the channel dimension requirements for flow-carrying capacity as provided by AHBL. Preliminarily, based on upstream basin analysis and using the Western Washington Hydrology Model (WWHM), the following stream channel cross section dimensions were recommended to maintain flow capacity for up to the 100-yr storm event :

- Bottom Width = 6 feet
- Side slopes = 3(H):1(V)
- Depth = 3.10 feet, including 1 foot of freeboard

These dimensions result in a top width of approximately 25 feet. For purposes of denoting buffer widths and the channel meander corridor, it has been assumed that the ordinary high water line would correspond roughly to 1 foot of flow depth in the 6-foot-toe-width channel. Based on that assumption, the channel width at ordinary high water would be approximately 12 feet at a 3:1 sideslope.

The recommended 1 foot of freeboard has been incorporated into the proposed cross section typically as a gentle, 8:1 or 10:1 slope across the buffer from the trail to the top-of-bank of a more defined, two-foot-deep channel (see Figure 5). Another option for providing the recommended freeboard, without the appearance of a deeper channel, would be to provide it as a low, 1-foot berm along the outer, western edge of the buffer, such as incorporating it into the trail. It would not be needed along the east side due to the presence of the slope extending upward to the east.

The new stream channel, as proposed, largely parallels or aligns with the toe of the South Woods slope extending downward to the east bank (see Figures 8-10, below). Since the slope is presently forested, the proposed channel along this alignment would immediately have the benefits of shade, cooling, and other habitat functions as provided by the already-mature vegetation. In that regard, this proposed alignment is preferable to alternative alignments farther to the west and away from the toe of the slope that would traverse broad, barren, presently-exposed open spaces with little near-term possibility of mature vegetation on either bank (see Figures 7 and 9, below). Supplemental, primarily shrubby vegetation will also be planted along the east bank to enhance understory layers, with a full assemblage of native tree and shrub vegetation to be planted along the west bank and buffer.

Plantings selected for the buffer areas are to be entirely native to western Washington and suited to the climate and conditions that exist at the site. Many of the species to be selected for the site already exist in the vicinity. They will include groundcover species, shrubs, and trees to create a diverse vegetative community, which in turn will foster habitat for a variety of terrestrial fauna. The vegetation will also provide shade and erosion resistance for the stream channel and floodplain, facilitate biofiltration of water entering the stream from the surrounding landscape, and be a source of future woody debris recruitment for stream structure.



Figure 7. Hamlin Creek Area A stream daylighting area, facing North from near NE 150th Street. Catch basin in foreground locates the confluence of the east and west forks, both of which are currently piped at this location (taken on 9/17/08).



Figure 8. Facing South along the Area A daylighting area, showing toe of forested slope to the left [east] (taken on 8/4/08).



Figure 9. Facing North along the Area A daylighting area (Taken on 8/4/08).



Figure 10. Facing South along the Area A daylighting area from part way up the east slope (Taken on 9/17/08).

Areas B and C

For the two upstream, already-daylighted but ditch-like or channelized sections in Areas B and C (refer to Figures 13-16 and the overall site concept plan), their active stream channels would be widened or otherwise modified as feasible to resemble that depicted in the conceptual cross section in Figures 11 and 12. In general, they would be re-formed to provide an approximate 6-foot-wide channel at the bottom (the same as is proposed for Area A), with sideslopes ranging from their current steepness (over 50%) to approximately 30% depending on topography and setback requirements to nearby structures. It is presumed that the intervening, presently-piped sections between areas A and B and B and C would not be modified as part of this proposal.

Supplemental native buffer vegetation would also be planted along the channel in Areas B and C as space allows. However, the proposed buffer dimensions and site amenities (i.e. trail system, wildlife viewing, and bridge crossing) as shown for Area A would not apply in full to these upper stream sections due primarily to the spatial constraints imposed by existing land uses. The existing buffer widths and configuration would remain until the adjacent areas redeveloped, at which time updated buffers complying with current City of Shoreline code regulations would likely apply.

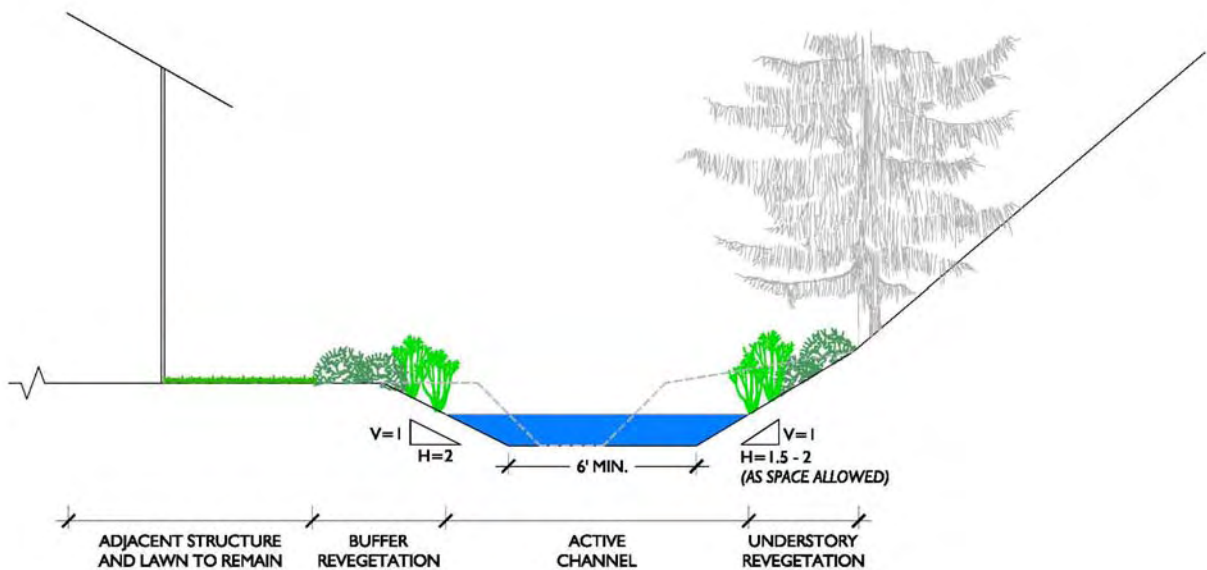


Figure 11. Channel improvements in Area B

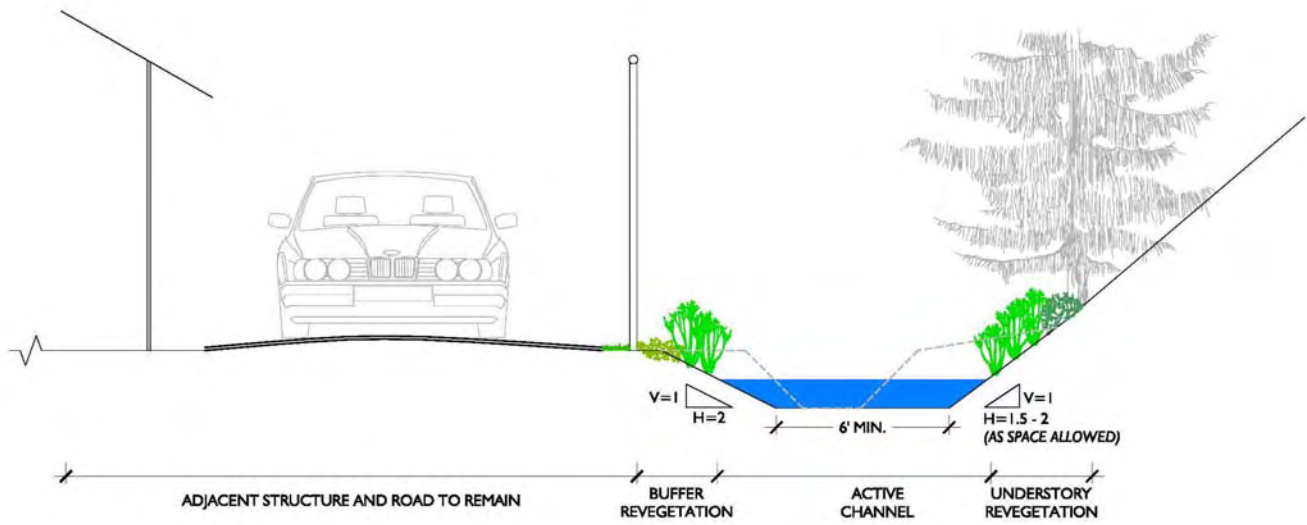


Figure 12. Wider channel and revegetation in Area C



Figure 13. Area B facing downstream. Notice former pipe sections, now removed, and the close proximity of the existing buildings (taken on 8/4/08).



Figure 14. Area B facing upstream. The existing channel is an abrupt, grass-lined ditch. Again, notice the close proximity of the existing buildings (taken on 9/17/08).



Figure 15. Area B facing downstream near lower end. Note slope vegetated with invasive Himalayan blackberry and morning glory (taken on 9/17/08).



Figure 16. Area C facing upstream from near lower end. Little space is available for enhancement between the forested slope to the east (right) and the road and buildings to the west (taken on 9/17/08).

Channel Characteristics Common to Areas A - C

Substrate Materials

Substrate materials for all of the various channel sections in Areas A-C would be a well-graded mixture of granular materials ranging in size from sand and silt to large cobbles, blended by varying degrees with topsoil and/or compost. The larger granular materials would provide stability and resistance to erosion during periods of high or peak flows, while the finer-grained and organic topsoil materials would retain moisture and provide the nutrients needed to support the groundcover (channel bottom) and shrub (sideslopes) vegetation needed to carry on effective biofiltration function. Once established, this vegetation would also contribute substantially to channel stability.

Pools and Large Woody Debris

Various depressions would also be formed along the channel sections to form broad, usually shallow pools. However, due to lack of fish use, this pool formation will not be overly-emphasized, and the ephemeral nature of the stream flow dictates that they would be dry, or empty, much of the time. It is not envisioned that hard-set, log weir grade controls would be included. Such pools would, however, store water temporarily following freshets to increase

infiltration and to provide moisture for plant growth. Some large woody debris materials, logs and stumps, could be placed along the channel sections of all three areas for wildlife usage, in addition to those placed throughout the buffers, however care must be taken that wood placed directly in the channel sections does not overly impede channel flow-carrying capacity.

3.2 Potential Variations

Possible variations on the theme presented thus far include adjustments to buffer widths, modifications to trail alignment and crossing locations, details of the channel form (wetland side channels, embayments, backwaters, number and location of pools, steepness and variability of sideslopes, etc.), which native species would be included in the planted vegetation, amount and placement of stumps and logs, and other aspects.

3.3 Consistency with Master Plan Goals and Objectives

As stated in the introduction, Hamlin Creek on-site has been significantly impacted by past and present land use activities. Proposed stream daylighting is intended to reverse the trend of past impacts and largely restore natural stream headwater functions. The stream daylighting itself, whereby portions of Hamlin Creek would be restored in a swale-like condition to improve Campus drainage and provide an amenity, is an explicitly-stated goal of the Master Plan.

Associated goals include reducing the proportion and area of impervious surfaces on-site, promoting the infiltration and biofiltration of stormwater, and providing clean, attenuated flows for fish and wildlife use downstream. The proposed stream daylighting concept design intrinsically satisfies these goals.

Another stated Master Plan goal is to retain the underlying natural land contours, particularly where they represent the historic landscape and are associated with significant stands of existing trees and vegetation, including mature specimen trees. An associated goal is to provide ecological benefits including directly-useable, on-site wildlife habitat. The proposed stream daylighting concept satisfies these goals as well.

Finally, an adopted goal is to integrate green building principles and Low Impact Development (LID) practices into the proposed development for the campus as depicted by the Master Plan. The proposed daylighting concept design for upper Hamlin Creek, as depicted, comprehensively incorporates the natural drainage system techniques and methodologies adopted by Seattle Public Utilities (SPU).

In addition to the ecological benefits mentioned above, the daylighted channel also serves as an amenity to on-site and nearby off-site communities.

4 REGULATORY COMPLIANCE

4.1 City of Shoreline

Please refer to Figures 5 and 6, which are conceptual cross sections of the to-be-daylighted sections of Hamlin Creek at the Fircrest Campus. The following narrative will describe how this concept design is consistent with all applicable City of Shoreline code sections, including SCC 20.80.480 (H) "Restoring Piped Watercourses."

Under SCC 20.80.480 (H), the City allows and makes provision for the voluntary opening of previously channelized and/or culverted streams, along with their rehabilitation or restoration. This often, but not necessarily, occurs in conjunction with new development. Required protective buffers for such daylighted streams, regardless of stream classification and based on an approved restoration plan "shall be a minimum of 10 to 25 feet, at the discretion of the Director." Such stream and buffer areas are to "include habitat improvements and measures to prevent erosion, landslide and water quality impacts." To gain City approval for daylighting stream segments, it must be demonstrated to the City's satisfaction "that the proposal will result in a new improvement of water quality and ecological functions and will not significantly increase the threat of erosion, flooding, slope stability or other hazards."

Also according to SCC 20.80.480 (D) (3), it is stated that the construction of trails near stream segments is to be consistent with the following criteria:

- a. Trails should be constructed of permeable materials;
- b. Trails shall be designed in a manner that minimizes impact on the stream system;
- c. Trails shall have a maximum trail corridor width of 10 feet; and
- d. Trails should be located within the outer half of the buffer, i.e., that portion of the buffer that is farther away from the stream.

In addition, item (D) (4) of that section indicates that the construction of footbridges (presumably as opposed to culverts) is allowed within stream buffer areas to allow for trail crossings of streams, and item (D) (5) of that section indicates that informational signs or educational demonstration facilities are (presumably each) "limited to no more than one square yard surface area and four feet high, provided there is no permanent infringement on stream flow."

The proposed concept design for stream daylighting as described above has been expressly formulated to be consistent with all these City of Shoreline regulations. The proposed buffer widths of 25 feet exceed the minimums for daylighted stream sections, and proposed trails will be constructed of permeable materials

and will not exceed the 10-foot maximum allowable width within stream buffers. The implemented design will result in a demonstrable improvement in water quality, habitat quality, and other measures of ecological function. Neither will the proposed stream daylighting significantly increase erosion, flooding, or slope instability. Trail crossings of the daylighted stream would consist of appropriately-designed bridges, and interpretive signage would meet the size and other requirements as specified in the code.

4.2 State and Federal Agencies

State and federal permits would also be required to complete the daylighting and other enhancements to Hamlin Creek as described above. Because Hamlin Creek is a tributary to Thornton Creek, it is likely to be considered among “waters of the U.S.”. The U.S. Army Corps of Engineers (Corps) regulates activities within “waters of the U.S.” under Section 404 of the Clean Water Act. Any filling, excavating, or other construction activities within the creek, would require approval from the Corps. Additionally, work within any areas of wetlands located adjacent to Hamlin Creek would also require Corps permits, though no wetlands were found to be present along the creek according to the *Wetland Delineation Report for Fircrest Campus* (Golder Associates, Inc. 2002c.). Any wetlands created in the course of implementing the project would also likely be regulated going forward, as would the daylighted stream. A Corps permit would also trigger the need for compliance with the Endangered Species Act (ESA). However, because Hamlin Creek does not support fish, evaluation under ESA would not likely be necessary. The need for a federal permit from the Corps would necessitate permits from the Washington Department of Ecology (DOE) - Individual 401 Water Quality Certification and Coastal Zone Management Consistency determination. And finally, work within the stream channel would also require the need for Hydraulic Project Approval (HPA) from the Washington Department of Fish and Wildlife (WDFW).

5 SUMMARY AND CONCLUSION

The proposed Hamlin Creek daylighting and enhancement project as described in this report would restore important aspects of stream function, which are now largely absent due to the piped and ditched nature of the stream as it crosses the Fircrest Campus. As defined in the City’s code, these stream functions include facilitating food chain production, providing nesting, rearing and resting sites for aquatic, terrestrial and avian species, maintaining the availability and quality of water (such as purifying water and acting as recharge and discharge areas for ground water aquifers), moderating surface water and stormwater flows, and maintaining the free-flowing conveyance of water, sediments, and organic

matter. Stream areas and their associated buffers also provide important fish and wildlife habitat and migration corridors, connecting habitat units that are spread across the landscape and might otherwise be isolated. They serve people for use as areas for recreation, education, scientific study, and aesthetic appreciation.

As detailed throughout this report, the proposed daylighting and other enhancements proposed for headwater reaches of Hamlin Creek on the Fircrest Campus would provide for an increase in all of these functions, and most to an appreciable or high degree. While improvements in habitat for fish and other types of strictly aquatic wildlife would largely occur in reaches downstream of the Fircrest Campus due to the ephemeral nature of on-site flows, seasonally-wetted habitat for amphibians on-site may be able to be included during the final design process. Downstream improvements would include better water quality and other improvements associated with competent stormwater management, primarily flow attenuation. Vegetated cover would be provided to the creek over time as the planted vegetation matures. Both the area and density of native vegetation would be increased through non-native vegetation removal and native revegetation, and by locating the daylighted stream channel section along the boundary of the existing South Woods to the east. The proportion of impervious surfaces on the Campus, especially near the creek will be reduced.

The proposed concept design for Hamlin Creek daylighting and restoration at Fircrest has been prepared to be consistent with applicable City of Shoreline code sections, including the regulations detailed under SCC 20.80.480 (H) "Restoring Piped Watercourses." The proposed minimum stream buffer width of 25 feet exceeds the required minimum for daylighted stream sections, and the proposal describes a restoration plan at a concept level that will lead to substantial habitat improvements. The completed stream project will result in demonstrable improvements in water quality, habitat quality, and other measures of ecological function, as required by code. Soil stability is addressed through the streambed and bank materials used and the native revegetation plan, and proposed stream daylighting will not significantly increase erosion, flooding, or slope instability. Construction-related soils stability issues will be addressed during the development of the final, construction-level plans for the project. Trails sections in stream buffer areas will be constructed of permeable materials, as required, and will not exceed the allowable 10-foot maximum width. Interpretive signage along the trail and/or bordering the project area would meet the size and other requirements as specified in the code.

REFERENCES

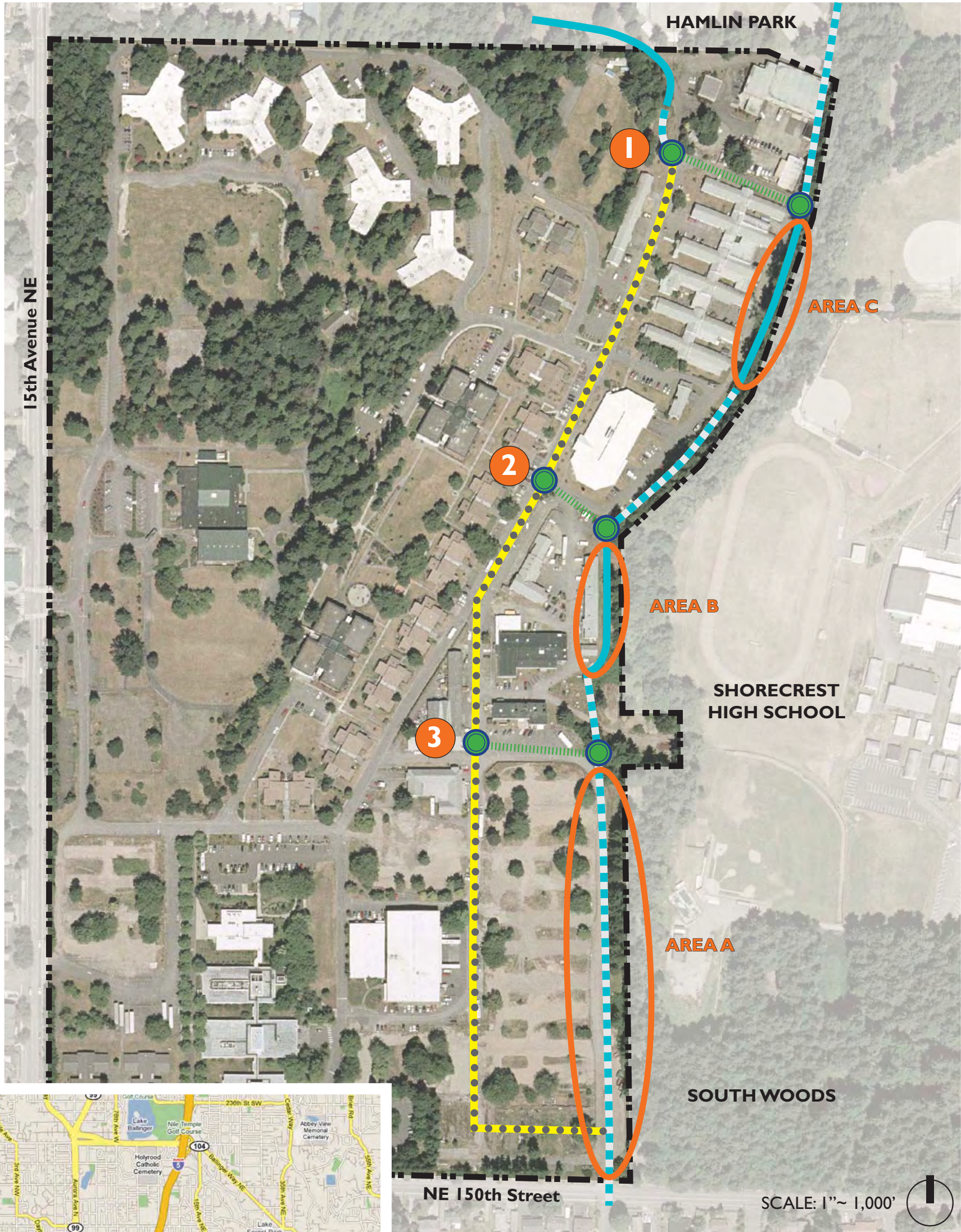
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APPENDIX A

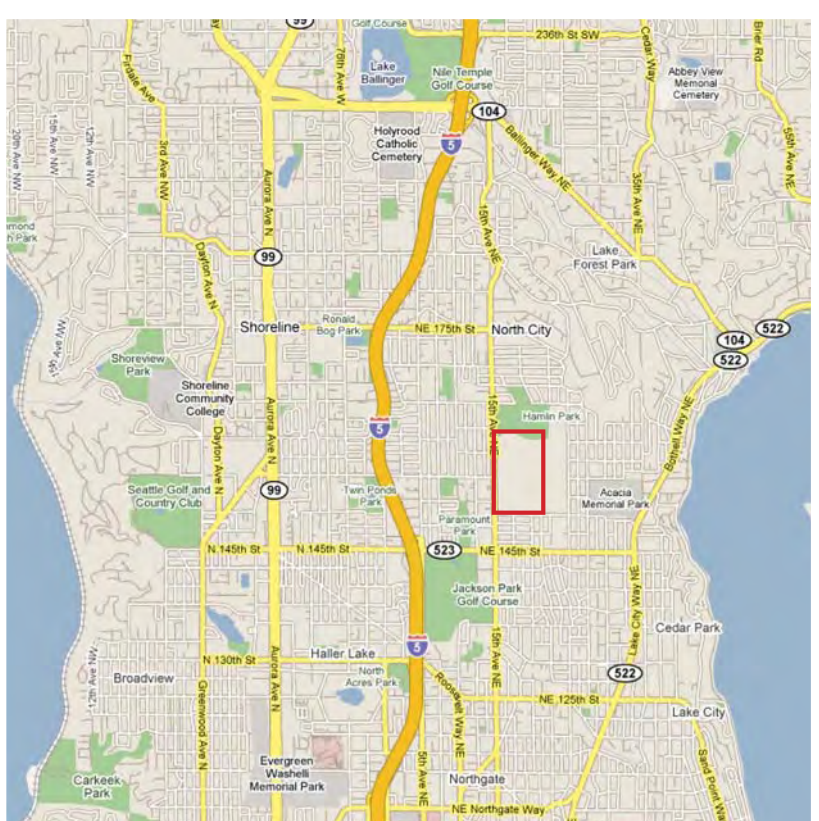
Overall Concept Plan

Hamlin Creek Restoration Plan for Fircrest Campus Master Plan
Critical Areas Design Report

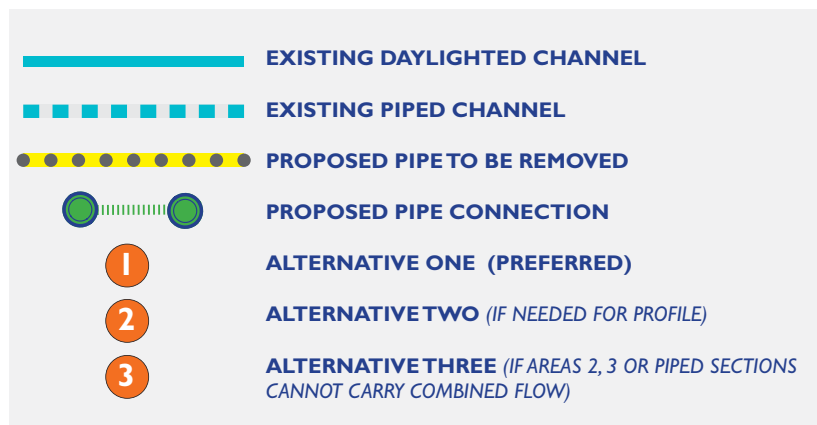
HAMLIN CREEK DAYLIGHTING/RESTORATION PLAN



OVERALL SITE CONCEPT PLAN

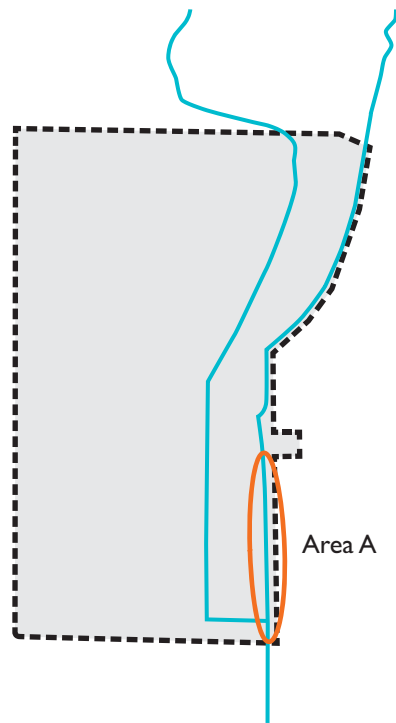


VICINITY MAP



HAMLIN CREEK DAYLIGHTING/RESTORATION PLAN

AREA A

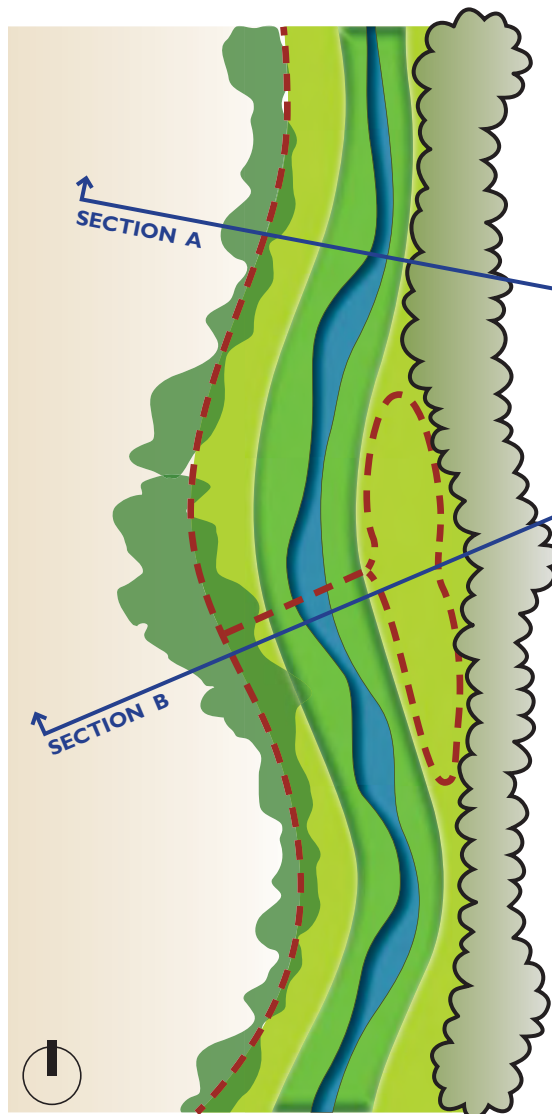
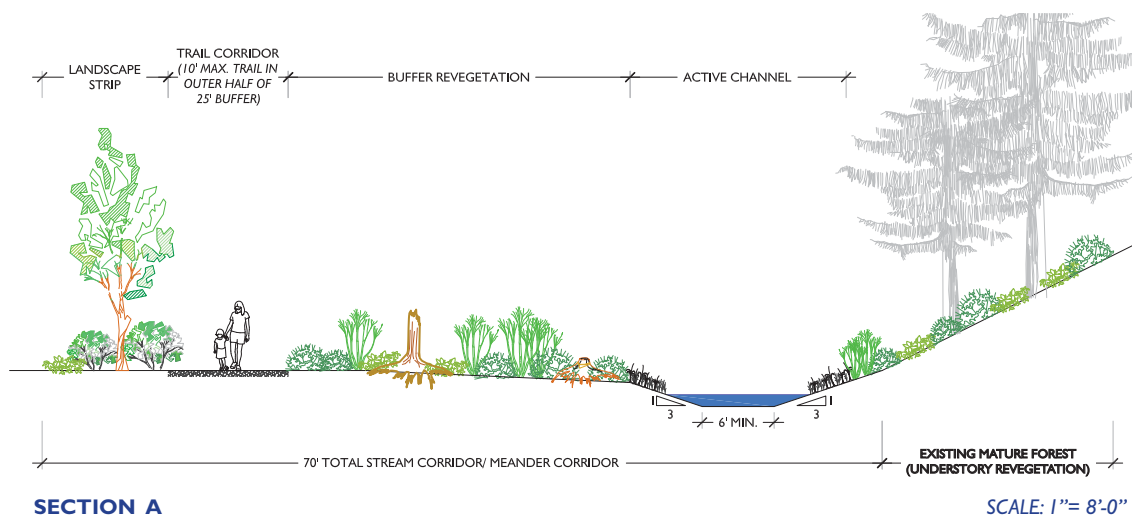


As shown on the cross section below, this particular daylighted section is designed to facilitate the passage of the combined flows through a fairly wide, meandering, swale-like channel including flood plain benches, backwaters, and embayments. It would be roughly paralleled by a trail surfaced with pervious materials.

The channel and its buffers would be vegetated with native vegetation to emphasize and maximize its functionality with respect to biofiltration, which will improve water quality in the fish-bearing sections of Thornton Creek farther downstream.

Native vegetation would be planted along the 25' minimum stream buffer to attract and benefit birds and other wildlife species on-site, providing a wildlife viewing opportunity for site residents and the nearby schools. Specific viewing points with interpretive signage could be provided along the trail, with potential bridged stream crossings for additional access to viewing and passive recreation areas.

Supplemental wildlife habitat structures including bird and bat boxes, snags, logs, and root wads might also be included along the corridor as shown. In addition to providing ecological benefits, the daylighted stream corridor will serve as an open space amenity, contributing to the overall value of and benefits from the proposed site redevelopment as depicted by the Master Plan.



CONCEPTUAL CHANNEL ALIGNMENT IN AREA A



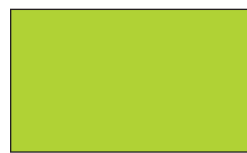
Aquatic Zone

Active stream channel designed to handle the combined surface runoff from the site and existing piped flows of Hamlin Creek. Channel is lined with bioretention soil mix, rock mix, and emergent communities to promote water biofiltration and infiltration. Area will be planted with native species that can tolerate wetter conditions. Channel is designed with 6-foot width in the bottom, meandering laterally within a 30-foot corridor at the top of bank.



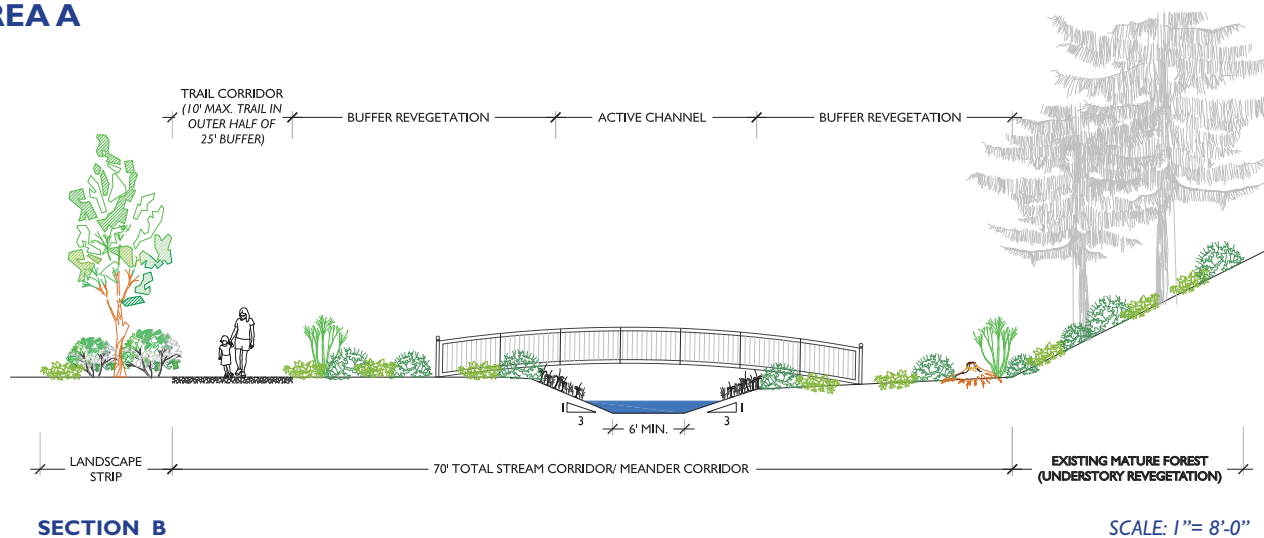
Storage Zone

A seasonally wet zone during storm events and high water surge. Similarly to natural floodplain and channel embayments, a series of depression is formed adjacent to the active channel to pond excess water and create a wet-dry riparian zone. A more resilient plant palette, which is exclusively native shrubs and small trees, will be selected to handle occasional standing water. Supplemental habitat features such as woody debris will be placed within this area.



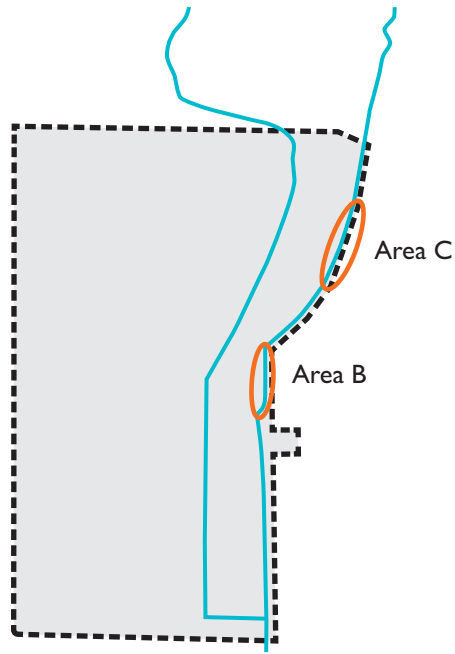
Buffer Zone

This area functions as an ecological and visual buffer for wildlife and site users. Native trees, shrubs, and groundcovers will be planted here to create terrestrial diversities for birds and mammals. Other site features including bat boxes, bird houses, trails, and picnic tables. A bridge or crossings can be placed here to enhance users' experience of a wildlife corridor and a site amenity.



HAMLIN CREEK DAYLIGHTING/RESTORATION PLAN

AREAS B & C

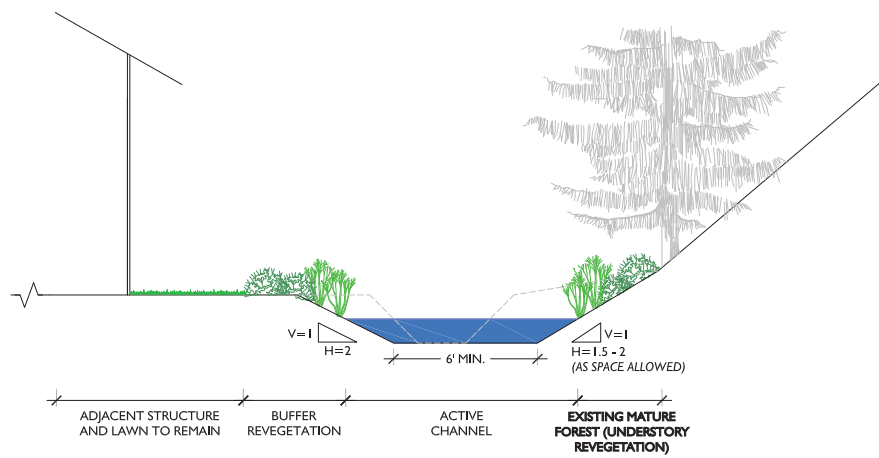


For the two already-daylighted sections in Areas B and C, their active stream channels would be widened or modified as feasible to resemble that depicted in the conceptual cross section below.

In general, they would be re-formed to provide an approximate 6-foot-wide channel at the bottom (the same as is proposed for Area A), with sideslopes ranging from their current steepness (over 50%) to approximately 30% depending on topography and setback requirements to nearby structures.

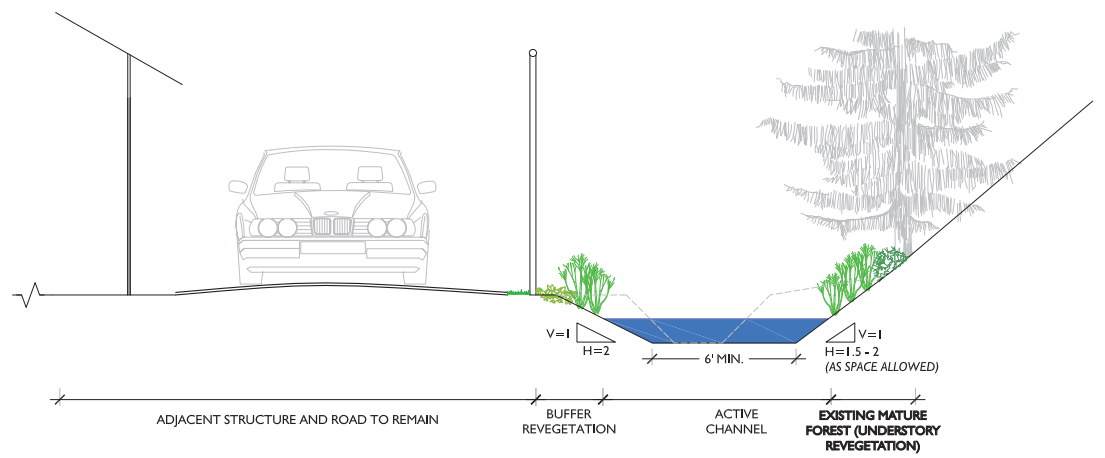
Supplemental native buffer vegetation would also be planted along the channel in Areas B and C as space allows. However, the proposed buffer dimensions and site amenities (i.e. trail system, wildlife viewing, and bridge crossing) as shown for Area A would not likely apply in full to these upper stream sections due primarily to the spatial constraints imposed by existing land uses.

The existing buffer widths and configuration would likely remain until or unless the adjacent areas were to be redeveloped, at which time updated buffers complying with current City of Shoreline code regulations would likely apply.



TYPICAL CHANNEL SECTION IN AREA 2

SCALE: 1"= 8'-0"



TYPICAL CHANNEL SECTION IN AREA 3

SCALE: 1"= 8'-0"

APPENDIX B

List of Native Vegetation in Western Washington

- extracted from Critical Areas Restoration and Enhancement in King County, King County DDES

Hamlin Creek Restoration Plan for Fircrest Campus Master Plan
Critical Areas Design Report

APPENDIX B

Habitat Worksheet

Project Name: _____

Project Number: _____

Location: _____

Contact Name: _____

LIGHT NEEDS*

SI=Shade Intolerant ST=Shade Tolerant
SD=Shade Dependent HA=Highly Adaptable

SITE PLACEMENT**

DB=Drier Buffer WB=Wetter Buffer
WE=Water's Edge SS=Saturated Soils SW=Shallow Water

Habitat requirements derived from: *Flora of the PNW* (Hitchcock & Cronquist); *Plants of the PNW Coast* (Pojar & MacKinnon); Wetland Plants of Western WA (Cooke); Guidelines for Bank Stabilization Projects and Surface Water Design Manual (King County); Proceedings of the Puget Sound Wetlands and Stormwater Management Research Study (9/26/96); and DDES field observations.

TREES						
Scientific Name	Common Name	Indicator	Max	Light	Site**	Comments
		Status	Ht.	Needs*	Placement	
<i>Abies grandis</i> *	grand fir	FACU-	125	SI-ST	DB	Best conifer for soil binding roots
<i>Acer macrophyllum</i>	big leaf maple	FACU+ [FAC]	100	SI-ST	WB,DB	Seral/sprouter - shallow rooter
<i>Alnus rubra</i>	Red alder	FAC	80	SI-ST	WB,DB	Seral, sprouter & spreader
<i>Arbutus menziesii</i>	Pacific madrone	UPL	80	SI	DB	Likes drier, coastal: slow-grower
<i>Betula papyrifera</i>	paper birch	FACW	80	SI	WE, SS	Saturated soils
<i>Fraxinus latifolia</i>	Oregon ash	FACW	80	SI-ST	WE,SS	Requires flat, damp soils
<i>Picea sitchensis</i> *	Sitka spruce	FAC	230	SI	WE,SS	Wettest conifer
<i>Pinus contorta</i> *	Shore pine	FAC	60	HA	WE,WB,DB	Tolerates poor soil
<i>Pinus monticola</i> *	Western white pine	FACU- [FACW]	120	SI	WB,DB	NOT within 900' of <i>Ribes</i> spp.!
<i>Populus tremuloides</i>	quaking aspen	FAC+	75	SI	DB	Seral in montane
<i>Populus trichocarpa</i>	black cottonwood	FAC	200	HA	WE,SS,WB	Seral; sprouter
<i>Prunus emarginata</i>	bitter cherry	FACU	50	SI	DB	Tree form has heavily pubescent leaves.
<i>Pseudotsuga menziesii</i> *	Douglas fir	FACU	300	SI	WB,DB	Driest conifer-seral, fast grower
<i>Taxus brevifolia</i> *	Pacific yew	NI [FAC-]	80	ST-SD	WB	Very slow growing
<i>Thuja plicata</i> *	western red cedar	FAC	230	SD	SS,WE,WB	Basic to PNW & wetlands
<i>Tsuga heterophylla</i> *	western hemlock	FACU-	200	SD	DB	Dry conifer
<i>All plant prices from Fourth Corner Nurseries, Sound Native Plants, Storm Lake Growers, and Wabash Natives (containers); and Abundant Life and Frosty Hollow (seeds).</i>						

SHRUBS		Indicator	Max	Light	Site	Comments
Scientific Name	Common Name	Status	Ht.	Needs*	Placement	
<i>Acer circinatum</i>	vine maple	FAC-	25	SD	WB,DB	Needs canopy shade or lots of moisture.
<i>Amelanchier alnifolia</i>	serviceberry	FACU	20	SI	DB	Edge-loving
<i>Berberis aquifolium</i>	tall Oregon grape	UPL	7	SD	DB	Dry sites
<i>Berberis nervosa</i>	short Oregon grape	UPL	4	ST-SD	DB	Drier sites
<i>Cornus stolonifera</i>	red-osier dogwood	FACW+	20	ST	WE,SS,WB	Takes sun if has lots of moisture
<i>Corylus cornuta</i>	hazelnut	FACU	15	ST	DB	Good wildlife habitat
<i>Crataegus douglasii</i>	black hawthorn	FAC	20	SI	WB,DB	Typically on meadow hummocks
<i>Gaultheria shallon</i>	salal	FACU	7	ST-SD	DB	Basic forest groundcover
<i>Holodiscus discolor</i>	ocean spray	NI	10	SI-ST	DB	Drought-tolerant, edge-loving
<i>Lonicera involucrata</i>	black twinberry	FAC+	10	SI-ST	WE,SS,WB	Takes sun if has lots of moisture
<i>Myrica gale</i>	sweetgale	OBL	6	SI	WE,SS	Common in scrub-shrub wetlands
<i>Oemleria cerasiformis</i>	Indian plum	FACU	15	SD	WB,DB	Sub-canopy
<i>Oplopanax horridus</i>	Devil's club	FAC+	7	ST	WE,WB	Needs good drainage, forms thickets
<i>Philadelphus lewisii</i>	mock orange	NI	10	SI-ST	WB,DB	Likes streams, good drainage
<i>Physocarpus capitatus</i>	Pacific ninebark	FACW-	20	SI-ST	WB,DB	Needs good drainage
<i>Prunus virginiana</i>	choke cherry	FACU	20		DB	Native to the whole US
<i>Pyrus fusca</i>	western crabapple	FACW	35	SI-ST	WE,WB	Edges - most of value in streamside control
<i>Rhamnus purshiana</i>	casacara	FAC-	30	ST-SD	WB,DB	Found in most wetlands
<i>Ribes bracteosum</i>	stink currant	FAC	10	ST	WB,DB	Transition
<i>Ribes lacustre</i>	prickly currant	FAC+	7	ST	WB,DB	Can take drought
<i>Ribes sanguineum</i>	red-flowering currant	NI	7	SI	WB,DB	Doesn't form thickets!
<i>Rosa gymnocarpa</i>	Wood rose	FACU	7	ST	DB	Tough, hardy
<i>Rosa nutkana</i>	Nootka rose	FAC [OBL]	10	ST	SS,WB	Rapid volunteer on damp soil
<i>Rosa pisocarpa</i>	clustered rose	FAC [FACW]	7	ST	WE,SS,WB	Will hybridize with nootka rose
<i>Rubus leucodermis</i>	black raspberry	NI	10	ST	DB	Good buffer planting
<i>Rubus parviflorus</i>	thimbleberry	FAC-	10	SI	DB	Seral groundcover in clear-cuts, drought tolerant
<i>Rubus spectabilis</i>	salmonberry	FAC+	15	HA	WE,WB,DB	Takes sun if has lots of moisture
<i>Salix geyeriana</i>	Geyer willow	FACW+	15	SI	SW,WE	Likes inundation, sluggish water, wet meadows
<i>Salix hookeriana</i>	Hooker's willow	FACW-	20	SI	SW,WE,SS	Only found <5 mi. from coast
<i>Salix lasiandra</i>	Pacific willow	FACW+	50	HA	WE,SS,WB	Common, tolerant, prefers riparian
<i>Salix scouleriana</i>	Scouler willow	FAC	35	ST	SS,WB,DB	Upland & wetland
<i>Salix sitchensis</i>	Sitka willow	FACW	25	HA	WE,SS,WB	Common, tolerant
<i>Sambucus racemosa</i>	red elderberry	FACU	20	HA	WB,DB	Rapid grower, tolerates sun, seral on clear-cuts
<i>Sorbus sitchensis</i>	Cascade mountain	FACU	15	SI-ST	WB,DB	Montane, not to be mistaken for <i>S. aucuparia</i>
<i>Symphoricarpos albus</i>	snowberry	FACU	7	SI	WB,DB	Common, tolerant
<i>Vaccinium ovatum</i>	evergreen	UPL	5	SD	DB	Prefers mature shade
<i>Vaccinium parvifolium</i>	red huckleberry	NI [FACU]	13	SD	DB	Requires lots of organic matter

Sedges and Rushes						
Scientific Name	Common Name	Indicator Status	Max Ht.	Light Needs*	Site Placement	Comments
<i>Carex comosa</i>	Bristly sedge	OBL	2'	SI	SW,WE,SS	Rare in King County
<i>Carex lenticularis</i>	Shore sedge	FACW+	3'	SI	WE,SS	From shore to high mountains
<i>Carex lyngbyei</i>	Lyngby sedge	OBL	3'	SI	SW,WE,SS	Coastal only
<i>Carex obnupta</i>	Slough sedge	OBL	4.5'	ST	SW,WE,SS	Extremely common, coast to Cascade crest
<i>Carex rostrata (utriculata)</i>	Beaked sedge	OBL		SI-ST	SW,WE,SS	Common
<i>Carex stipata</i>	Sawbeak sedge	OBL	3'	SI-ST	SW,WE,SS	Lowland to mid-montane
<i>Eleocharis acicularis</i>	Spikerush	OBL	0.5'	SI	SW,WE	Rhizomatous, lowland to mid-montane
<i>Eleocharis palustris</i>	Common Spikerush	OBL	0.5'	SI	SW,WE	Rhizomatous, coastal to mid-montane
<i>Juncus acuminatus</i>	Tapered rush	OBL	2'	SI	SW,WE	Tolerant
<i>Juncus articulatus</i>	Jointed rush	OBL	2'	SI	SW,WE	Tolerant
<i>Juncus effusus</i> (var. <i>pacificus</i> ,	Soft rush	FACW	3'	SI-ST	SW,WE,SS	Weedy, common, hardy - often invasive
<i>Juncus ensifolius</i>	Dagger leaf rush	FACW	2'	SI	SW,WE,SS	Lowland to mid-montane, lovely flowers & foliage
<i>Juncus oxymeris</i>	Pointed rush	FACW+	3'	SI	SW,WE,SS	Lowland
<i>Scirpus acutus</i>	Hardstem bulrush	OBL	6'	SI	SW,WE	Tolerates up to 3' of water; common, hardy
<i>Scirpus maritimus</i>	Saltmarsh bulrush	OBL	4.5'	SI	SW,WE	Coastal only
<i>Scirpus microcarpus</i>	Small-fruited bulrush	OBL	4.5'	SI-ST	SW,WE,SS	Lowland to mid-montane, very common
Grasses						
Scientific Name	Common Name	Indicator Status	Max Ht.	Light Needs*	Site Placement	Comments
<i>Alopecurus aequalis</i>	Short-awn foxtail	OBL		SI-ST	SW,WE,SS	Often submerged
<i>Alopecurus geniculatus</i>	Water foxtail	OBL	1.5'	SI-ST	SW,WE,SS	Often submerged, tolerant
<i>Beckmannia syzigachne</i>	American	OBL	2'	SI	WE,SS	Good wildlife forage, lowland to mid-montane
<i>Calamagrostis canadensis</i>	Bluejoint reedgrass	FACW+			WE,SS,WB	Rhizomatous, coastal to mid-montane
<i>Cinna latifolia</i>	Wood reed	FACW	6'	ST	WE,SS,WB	Coastal to sub-alpine
<i>Deschampsia caespitosa</i>	Tufted hairgrass	FACW	2'	SI	WE,SS,WB	Common, keystone species in wet meadows
<i>Elymus glaucus</i>	Blue wildrye	FACU	2'	SI	DB	Very drought-tolerant, good wildlife forage
<i>Festuca idahoensis</i>	Idaho fescue	FACU*	2.5'	SI	DB	Drought-tolerant
<i>Festuca rubra</i> var. <i>rubra</i>	Red fescue	FAC+	2.5'	SI	SS,WB	Common, tolerant
<i>Glyceria borealis (occidentalis)</i>	Northern mannagrass	OBL	4'	ST	WE,SS	Tolerates up to 3' of water
<i>Glyceria elata</i>	Tall mannagrass	FACW+	4.5'	SD	WE,SS,WB	Prefers streamside
<i>Panicum occidentale</i>	Western panic-grass	FACW		SI	WE,SS,WB	Coastal to sub-alpine

Ferns						
Scientific Name	Common Name	Indicator Status	Max Ht.	Light Needs*	Site Placement	Comments
<i>Athyrium filix-femina</i>	lady fern	FAC	3'	ST	SS,WB	Very common, tolerant
<i>Blechnum spicant</i>	deer fern	FAC+	2'	SD	WB	Needs shade, moisture
<i>Dryopteris expansa</i>	shield fern	FACW	2'	SD	WE,SS,WB	Likes muddy soil
<i>Polystichum munitum</i>	western sword fern	FACU	5'	ST	DB	PNW basic; needs shade or moisture
<i>Pteridium aquilinum</i>	bracken	FACU	4'	SI	DB	Seral on disturbed areas
Herbs and Groundcovers						
Scientific Name	Common Name	Indicator Status	Max Ht.	Light Needs*	Site Placement	Comments
<i>Achillea millefolium</i>	Yarrow	NI	1'	SI	DB	Self-seeds, robust, tolerant
<i>Anaphalis margaritacea</i>	Pearly everlasting	NI	1'	SI	DB	Robust, tolerant
<i>Arctostaphylos uva-ursi</i>	Kinnikinnick	FACU-	1'	SI	DB	Slow grower - likes dry stony soil
<i>Aruncus dioicus</i>	Goat's beard	FACU+	2'	ST	WB,DB	Streamside
<i>Caltha palustris</i>	Marsh marigold	OBL	9"	ST	SW,WE	Coastal
<i>Dicentra formosa</i>	Bleeding heart	FACU*	18"	ST-SD	WB,DB	Very common, tolerant
<i>Epilobium angustifolium</i>	Fireweed	NI	4'	SI	DB	Seral on clear-cuts, common, tolerant
<i>Fragaria chiloensis</i>	Coast strawberry	NI	6"	SI	DB	Rapid spreader, evergreen
<i>Geum macrophyllum</i>	Big-leaf avens	FACW-	3'	ST	WE,SS,WB	Common
<i>Heracleum lanatum</i>	Cow parsnip	FAC+	6'	ST	WE,SS,WB	Likes riparian, self-seeds
<i>Hydrophyllum tenuipes</i>	Pacific waterleaf	NI [FAC]	12"	ST-SD	WB,DB	Wet forest groundcover
<i>Linnaea borealis</i>	Twinflower	FACU-	6"	ST	DB	Usually in forests, but seral on clear-cuts
<i>Lupinus polyphyllus</i>	Big-leaf lupine	FAC+	3'	SI	DB	Seral, common, tolerant
<i>Lysichiton americanum</i>	Skunk cabbage	OBL	10"	SD	SW,WE	Totemic plant, like cedar
<i>Maianthemum dilatatum</i>	Wild lily of the valley	FAC	14"	ST	WB,DB	Rapid spreader
<i>Mimulus guttatus</i>	Yellow monkey flower	OBL	3'	SI	WE,SS,WB	Forms sheets near seeps
<i>Myosotis laxa</i>	Small forget-me-not	OBL	15"	ST	WE,SS	Uncommon, pretty
<i>Oenanthe sarmentosa</i>	Water parsley	OBL	3'	ST	SW,WE,SS	Common, hardy, good amphibian habitat
<i>Osmorhiza chiloensis</i>	Sweet cicely	NI	6"	ST-SD	DB	Very common in PNW forest
<i>Oxalis oregana</i>	Wood-sorrel	NI	9"	ST	WB,DB	Very rapid spreader, robust, highly tolerant
<i>Petasites frigidus</i>	Coltsfoot	FACW-	20"	ST	WE,SS,WB	Rhizomatous, good spreader
<i>Polygonum persicaria</i>	Lady's thumb	FACW	3'	SI-ST	SW	Many species in this genus, good amphibian habitat
<i>Potentilla fruticosa</i>	Bush potentilla	FAC-	3'	SI	DB	Montane, pretty
<i>Smilacina stellata</i>	Solomon's Star	FAC-	18"	ST	WB	Forms drifts near streams
<i>Stachys cooleyae</i>	Great betony	FACW	4'	SI-ST	WB	Common
<i>Tellima grandiflora</i>	Fringecup	NI	2'	ST	DB	Common, tolerant
<i>Tiarella trifoliata</i>	Foamflower	FAC-	2'	ST	DB	Common, tolerant
<i>Tolmiea menziesii</i>	Piggy-back plant	FAC	30"	SD	WB	Forms drifts near streams
<i>Viola glabella</i>	Stream violet	FACW+	7"	SI-ST	WB	Common, rapid spreader

Fircrest Campus Excess Property Master Plan

Appendix K

Water Systems

January 6, 2010

Appendix K - Fircrest Campus Master Plan Water System Technical Memorandum June 3, 2009

Existing Water System

Water, including domestic services and fire flow, is provided to the Fircrest Campus by the Shoreline Water District. However, DSHS currently purchases water wholesale from the Water District for the Campus, and meets the criteria for a Group A water system. With or without new uses on the Campus, DSHS would ultimately like to terminate the wholesale agreement; this is a subject of a separate, ongoing discussion between the Water District and DSHS. Termination of the wholesale agreement would mean DSHS would dedicate its water infrastructure to the District, provide the necessary easements, and purchase water from the District like its other customers.

The existing water distribution system has two supply locations, one at the northwest corner of the site off of 15th Ave NE, which is a **6" water meter, located north of NE 158th Street**); and the other at the south end of the site offer of NE 150th Street, which is an **8" water meter**.

According to the Water District, the existing water system on the Campus does not meet current fire flow requirements. The Campus relies on the District to provide both fire flow and equalizing (domestic) storage.

Discussion of Fire Flow for Master Plan Uses

The District typically bases fire flow requirements on land use, based on information from local fire authorities and the 2003 International Fire Code. According to the Shoreline Water District Comprehensive Water System Plan (2001), District fire flow requirements by land use are as follows:

Zoning/Land Use Type	Required Fire Flow Rate (gallons per minute)	Required Duration (hour)	Equivalent FSS Volume (gallons)
Low Density Residential	1,000	2	120,000
Medium Density Residential	1,750	2	210,000
High Density Residential	2,500	2	300,000
Commercial/Business Park	3,000	3	540,000
Light Industrial	3,500	3	630,000
Schools	3,500	3	630,000

Source: Shoreline Water District Comprehensive Water System Plan, 2001

The Shoreline Fire Marshal could potentially establish more specific requirements based on a variety of factors, when review of specific building projects is conducted.

Expected Issues

DSHS and AHBL met with the Water District in November 2008 to discuss water system modeling in order to identify if system improvements are needed to serve new Master Plan uses. The District recommended a detailed analysis once information on specific buildings is known. As such, modeling to determine water system improvements was not conducted as part of the Master Plan.

Based on existing water system conditions, **AHBL's recommendation is to coordinate the fire flow requirements for new land uses with the Water District and the Fire Marshal to determine if system improvements are required.** It is expected that, if improvements are needed, DSHS or future developers of new uses would pay a proportional share of these improvements in addition to paying connection fees when developing the new uses.

End of Wholesale Agreement and Installation of Individual Metering

As state above, termination of the current wholesale agreement is expected to occur with or before new Master Plan uses. With development of new Master Plan uses, there may ultimately be multiple customers on the Campus, and each would purchase water directly from the District. DSHS envisions that in the future each building on the Campus would have its own meter, and the District would operate the water system up to the meters. DSHS would provide the necessary easements to the District, or ensure that these easements are provided by the developer. The Master Plan anticipates that the existing water lines on the Campus would be largely replaced in the new use areas.

Suggested Course of Action

If and when DSHS decides to pursue adoption of the Master Plan, AHBL recommends that DSHS meet with Shoreline Fire Marshal to discuss expected fire flow requirements. While specifics may not be able to be determined until building design is known, it is likely that the **Fire Marshal can provide a more detailed estimate than the District's guidelines (see the table above).**

DSHS should then meet with the Shoreline Water District to further discuss modeling. The District has indicated that an interlocal agreement to reimburse the District for costs of their analysis may be necessary. However, it is possible that an intermediate level of detail could be generated that would be sufficient for the first step of the City adoption process (Step One in the adoption process is a Comprehensive Plan and Development Code Amendment to authorize new uses in the Fircrest Campus Zone; Step Two is approval of a Master Development Plan permit).

It is recommended that the analysis cover the following information:

- If more specific information is not available from the Fire Marshal, preliminary estimate of expected fire flow requirements for individual development areas for the purpose of modeling.

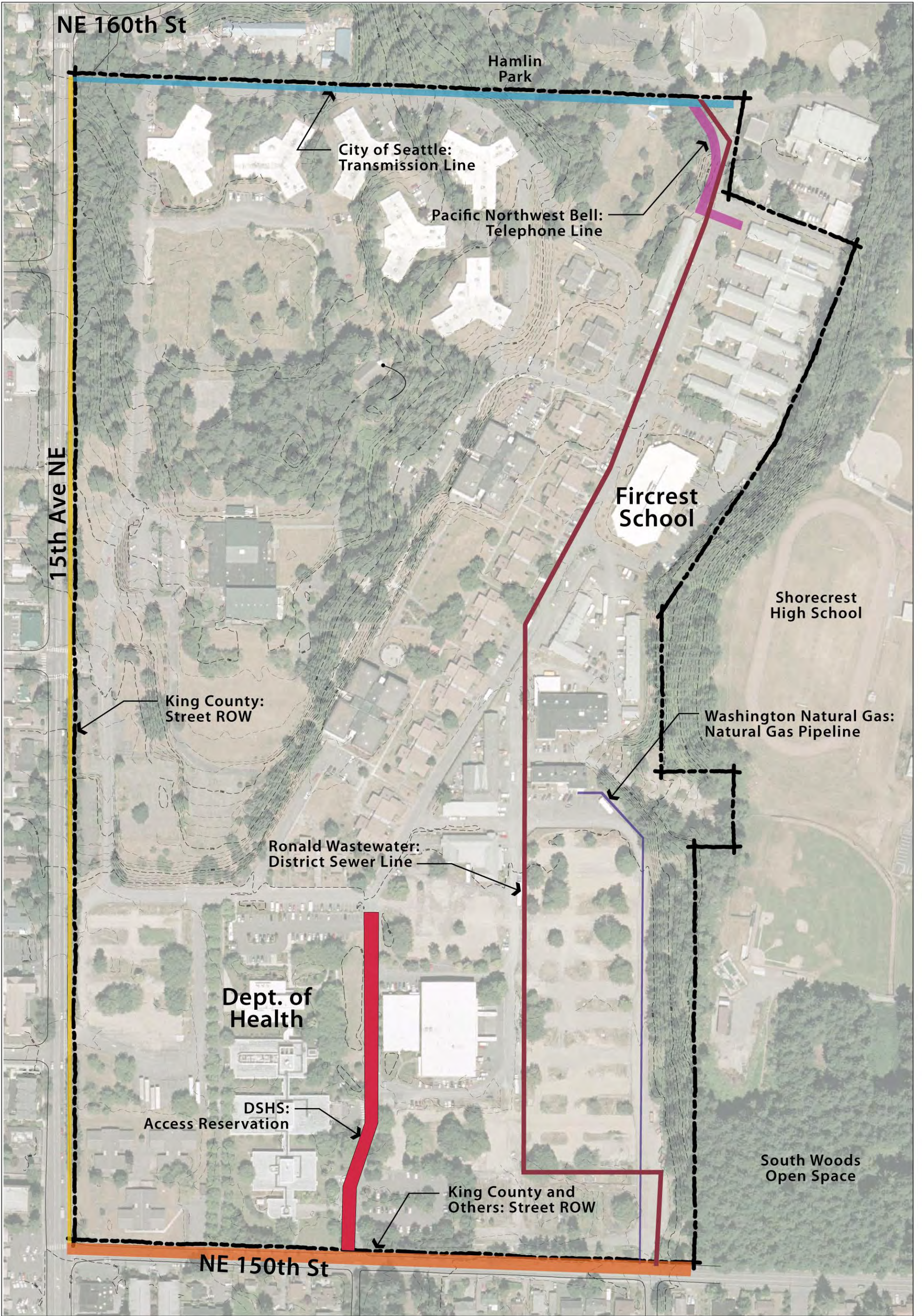
- Necessary upgrades to the water system serving the Campus.
- Whether any of the development areas or portions of those areas could be developed with no or minimal water system improvements. In particular, this should consider the development of Area 3 or 5 (southwest and southeast corners of the Campus, respectively) occurring before other areas.

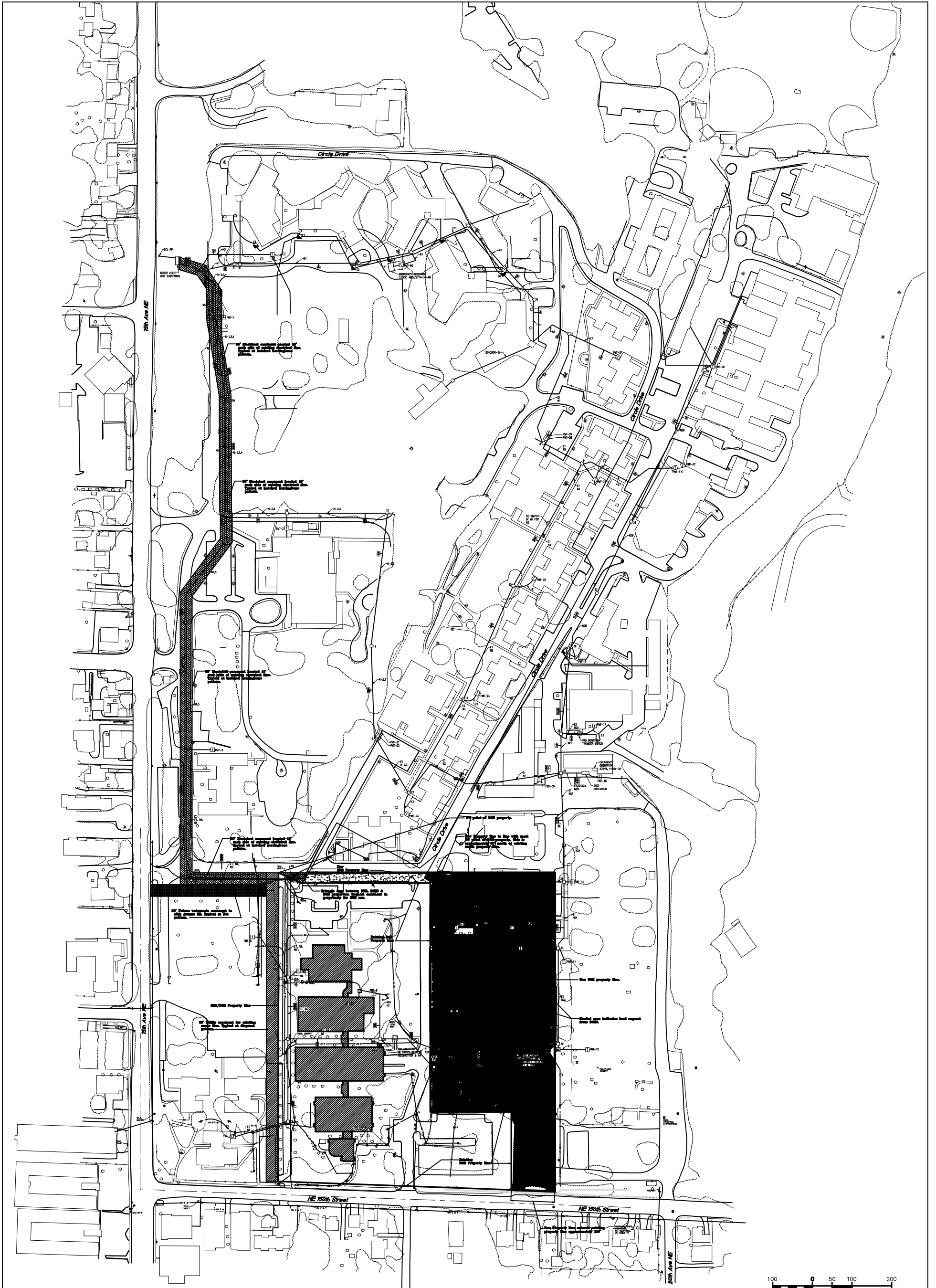
Fircrest Campus Excess Property Master Plan

Appendix L

Existing Easements and Utilities Maps

January 6, 2010



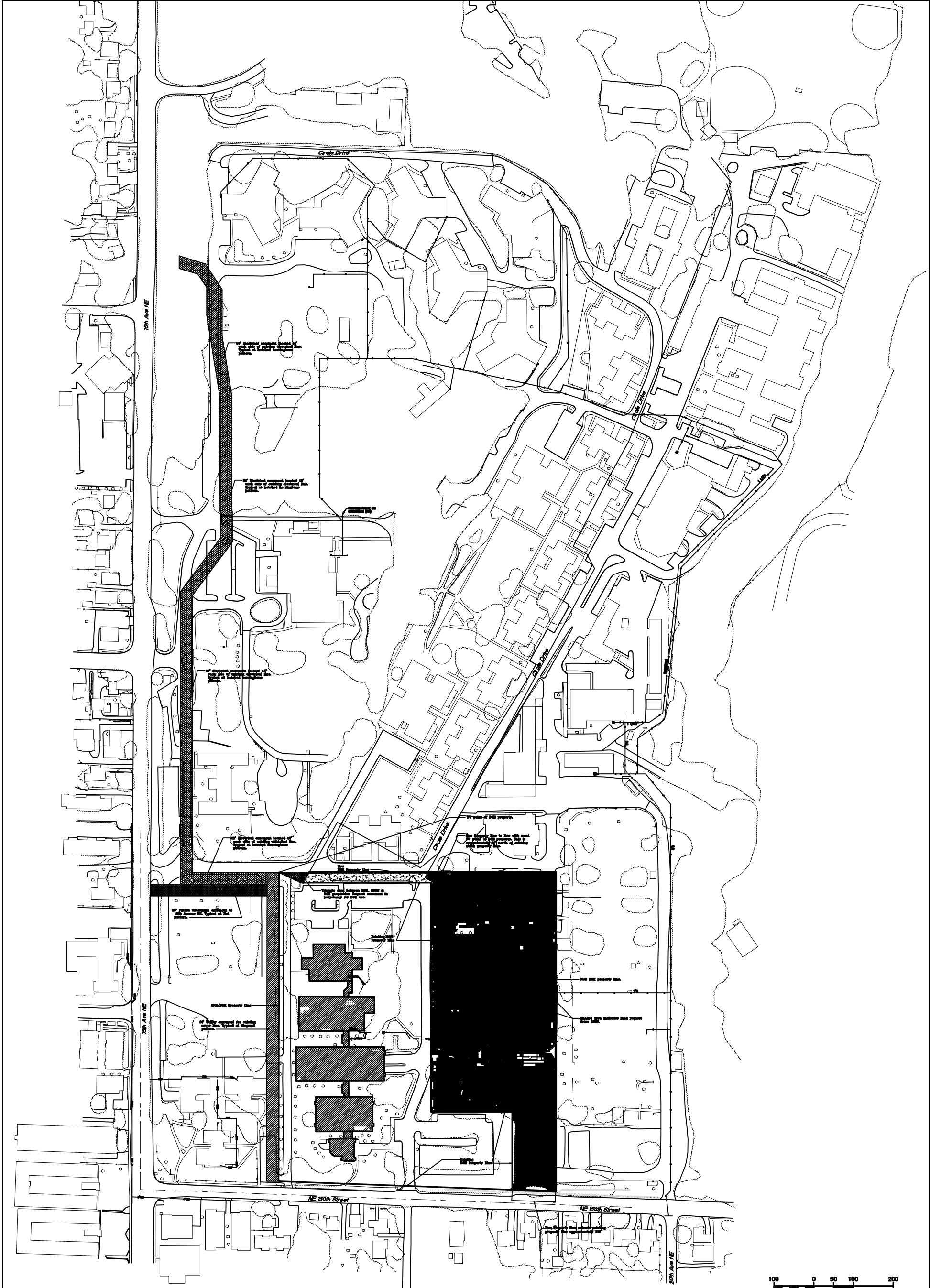


**FIRCREST SCHOOL
ELECTRICAL SYSTEM**

DATE: 10/15/02

ALL UTILITY INFORMATION CONTAINED IN THESE DRAWINGS IS A COMPILATION BASED ON ARCHIVED ENGINEERING PLANS MADE AVAILABLE TO SVR DESIGN COMPANY BY THE FIRCREST MAINTENANCE DEPARTMENT. THESE DRAWINGS ARE FOR INFORMATIONAL PURPOSES ONLY AND DO NOT REFLECT SURVEYED LOCATION, SIZE, OR DEPTH OF UTILITY. CONFLICTING INFORMATION BETWEEN ARCHIVED PLANS WERE REVIEWED IN THE FIELD. WALKER AND ASSOCIATES HAVE PROVIDED THE MAP BACKGROUNDS BASED ON AERIAL PHOTOGRAPHS. UTILITY LOCATIONS SHALL BE CONSIDERED APPROXIMATE UNTIL VERIFIED BY LOCATOR SERVICE PRIOR TO DESIGN OR CONSTRUCTION.

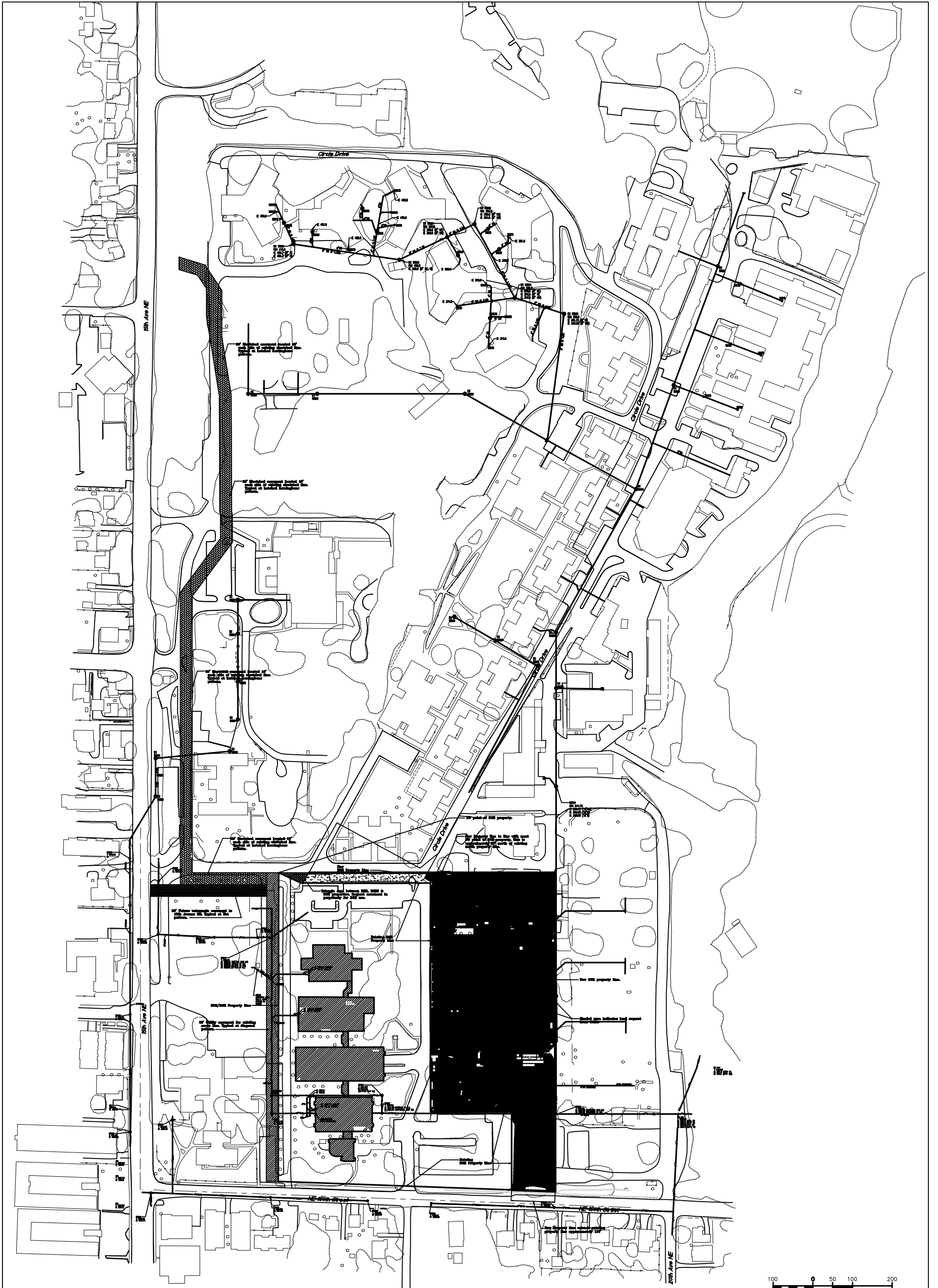
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**FIRCREST SCHOOL
GAS SYSTEM**
DATE: 10/15/02

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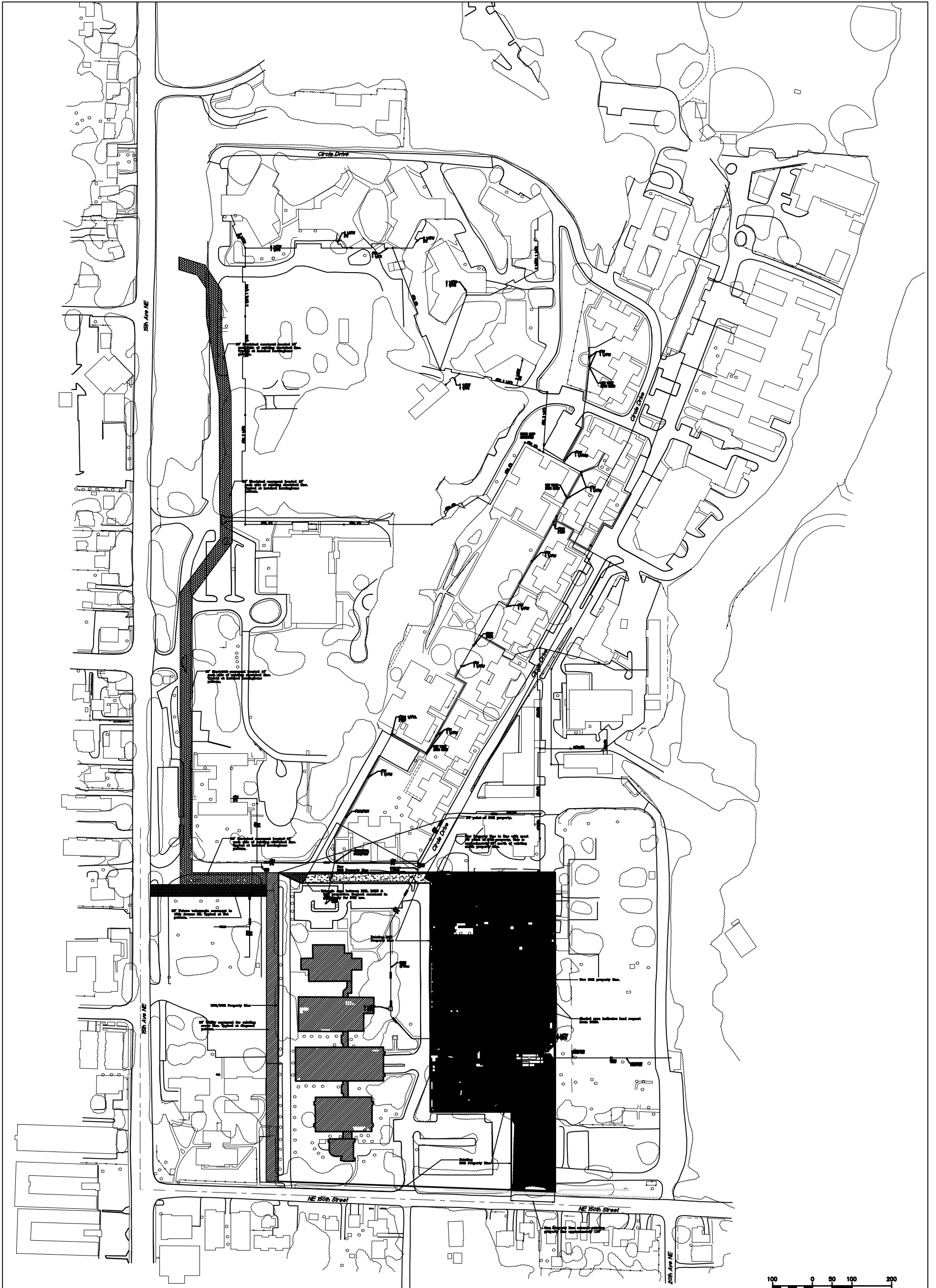
DRAFT



**FIRCREST SCHOOL
SANITARY SEWER SYSTEM**
DATE: 10/15/02

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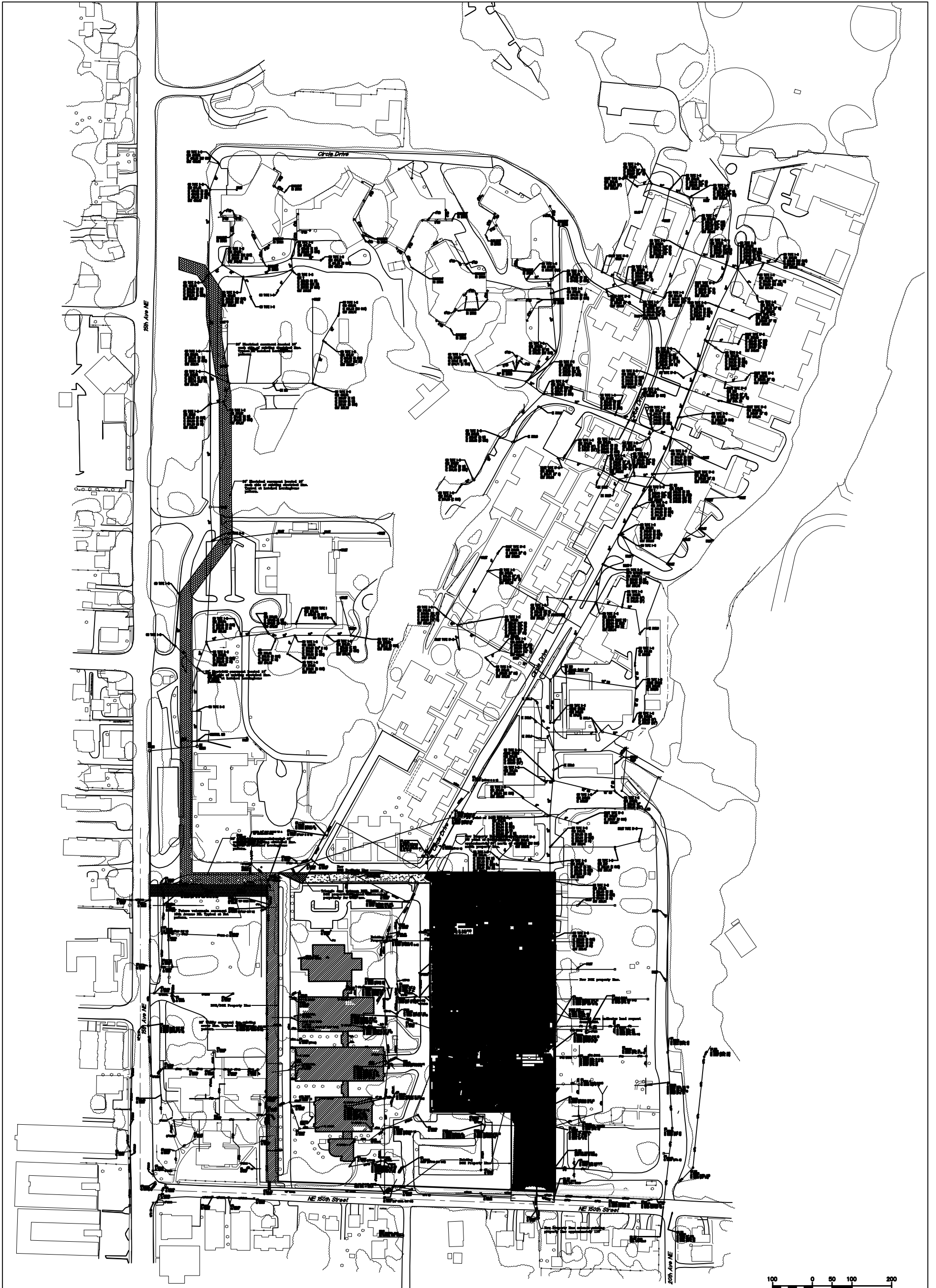
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FIRCREST SCHOOL
STEAM AND CONDENSATE SYSTEM
 DATE: 10/15/02

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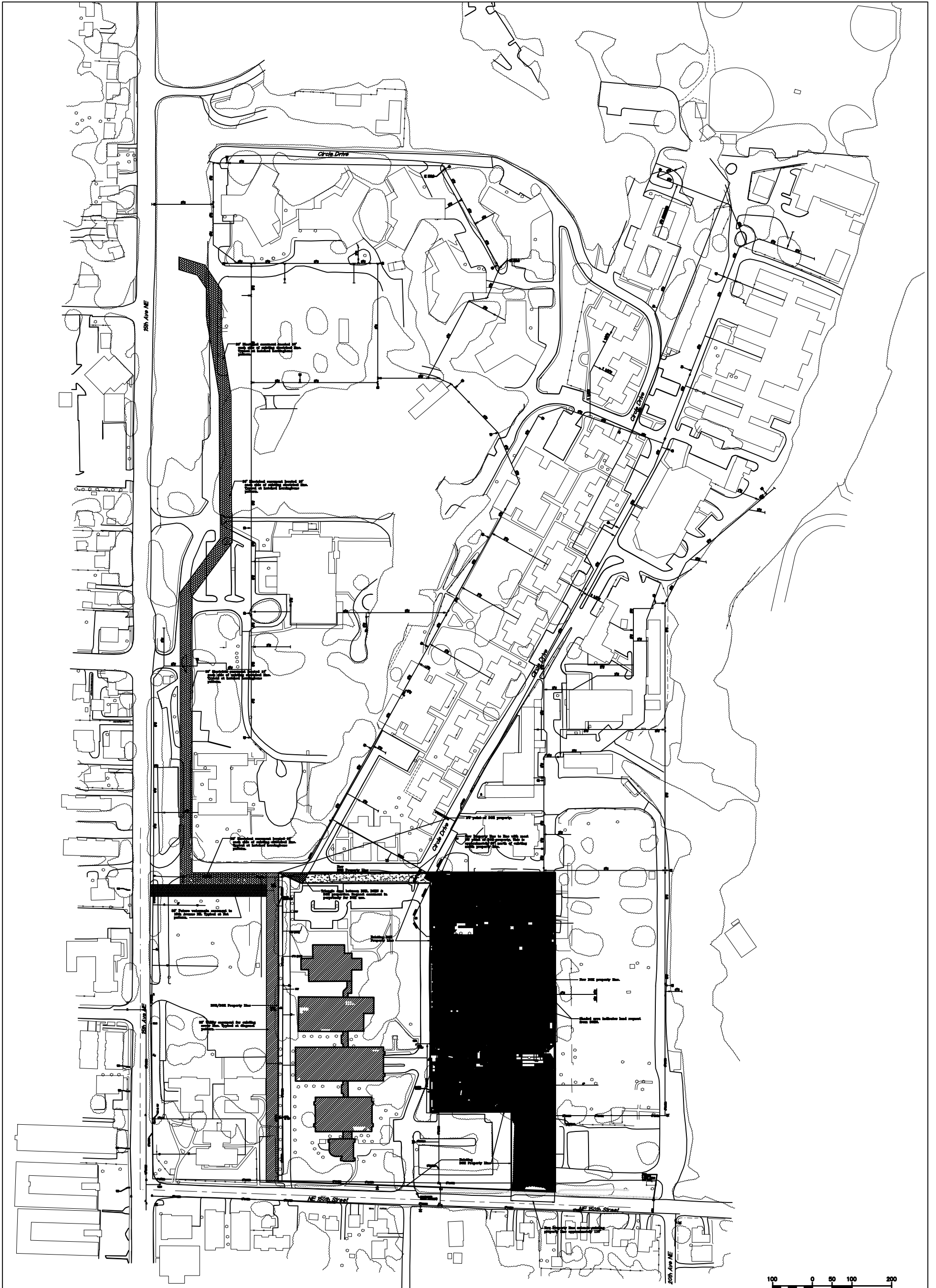
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**FIRCREST SCHOOL
STORM DRAINAGE SYSTEM**
DATE: 10/15/02

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**FIRCREST SCHOOL
WATER SYSTEM**

DATE: 10/15/02

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DRAFT

Fircrest Campus Excess Property Master Plan

Appendix M

Sewer Demand Calculations

January 6, 2010

Appendix M - Estimated Sewer Demand Calculations

Project Fircrest
 Subject Sewer Demands
 With/To _____
 Address _____
 Date 9/19/08

Project No. 2008151.31
 Phone _____
 Fax # _____
 # Faxed Pages _____
 By MAB

- Page 1 of _____
 Calculations
 Fax
 Memorandum
 Meeting Minutes
 Telephone Memo



Civil Engineers

Structural Engineers

Landscape Architects

Community Planners

Land Surveyors

Neighbors

SEWER DEMAND TABLE

AREA	GPD	CFS	PEAKING FACTOR	FINAL FLOW (CFS)
1	88,125	0.14	2.5	$(0.14) \times (2.5) = 0.35$
2	23,870	0.04	2.5	$(0.04) \times (2.5) = 0.10$
3	49,125	0.08	2.5	$(0.08) \times (2.5) = 0.20$
5	54,300	0.08	2.5	$(0.08) \times (2.5) = 0.20$

215,420 0.34

SEWER SIZE TABLE

AREA	DESIGN DIA	CAPACITY (CFS)*
LAND 2	18"	0.87
3	8"	0.87
5	8"	0.87

*CAPACITY OF DESIGN DIA AT FULL-FLOW

TACOMA
 2215 N. 30th St.
 Suite 300
 Tacoma, WA
 98403-3305

253.383.2422
 253.383.2572 FAX

SEATTLE
 1200 6th Avenue
 Suite 1620
 Seattle, WA
 98101-3123

206.267.2425
 206.267.2428 FAX

If this does not meet with your understanding, please contact us in writing within seven days. THANK YOU.

Project Tircrest
 Subject Sewer Demand Calc
 With/To _____
 Address _____
 Date 10/1/08

Project No. 208151-31
 Phone _____
 Fax # _____
 # Faxed Pages _____
 By MAB

- Page 2 of _____
 Calculations
 Fax
 Memorandum
 Meeting Minutes
 Telephone Memo



Civil Engineers

Structural Engineers

Landscape Architects

Community Planners

Land Surveyors

Neighbors

AREA 1

BLDG TYPE	# OF UNITS	DISCHARGE FACILITY	DESIGN UNITS	FLOW (gpd)
Small Lot	55	DWELLING	PER PERSON	100
Townhouse	117	DWELLING	PER PERSON	100
Mid-Rise	168	DWELLING	PER PERSON	100
Mid-Rise	39	SHOPPING CENTER	PER 1,000 SQ FT	200-300

* BASED ON TABLE G2.2, DOE SEWAGE WORKS DESIGN

SMALL LOT FLOW = (55 units) * (3 people) * (100 gpd) = 16,500 gpd

TOWNHOUSE FLOW = (117 units) * (2 people) * (100 gpd) = 23,400 gpd

MID-RISE DWELLING = (168 units) * (2 people) * (100 gpd) = 33,600 gpd

MID-RISE SHOPPING CENTER = [(39 units + 1500 sqft/unit) / (1,000 sqft)] * 250 gpd = 14,625 gpd

TOTAL FLOW = 88,125 gpd

AREA 2

BLDG TYPE	# OF UNITS / TOTAL SQ FT	DISCHARGE FACILITY	DESIGN UNITS	FLOW (gpd)
CIVIC	100	DWELLING	PER PERSON	100
CIVIC	27,000	SCHOOLS w/OUT SHOWERS w/CEMETERY	PER PERSON	10
ACTIVITIES BLDG	11,700	SCHOOLS w/ SHOWER w/CEMETERY	PER PERSON	16

* BASED ON TABLE G2.2, DOE SEWAGE WORKS DESIGN

** ASSUMED 10 PEOPLE PER SQ FT FOR CIVIC AND ACTIVITIES BLDG

CIVIC DWELLING = (100 units) * (2 people) * (100 gpd) = 20,000 gpd

CIVIC SCHOOLS = [(27,000 sq ft) / (1,000 sq ft)] * (10 people) * (10 gpd) = 2,700 gpd

ACTIVITIES BLDG = [(11,700 sq ft) / (1,000 sq ft)] * (10 people) * (16 gpd) = 1,170 gpd

TOTAL FLOW = 23,870 gpd

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 2215 N. 30th St.
 Suite 300
 Tacoma, WA
 98403-3305
 253.383.2422
 253.383.2572 FAX

SEATTLE
 1200 6th Avenue
 Suite 1820
 Seattle, WA
 98101-3123

206.287.2425
 206.287.2429 FAX

Project Fircrest
 Subject Sewer Demand Calcs
 With/To _____
 Address _____
 Date 10/1/08

Project No. 208151.31
 Phone _____
 Fax # _____
 # Faxed Pages _____
 By MAB

- Page 3 of _____
- Calculations
- Fax
- Memorandum
- Meeting Minutes
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Civil Engineers

Structural Engineers

Landscape Architects

Community Planners

Land Surveyors

Neighbors

AREA 3

BLDGTYPE	# OF UNITS / TOTAL SQFT	DISCHARGE FACILITY	DESIGN UNITS	FLOW (gpd)
HIGH-DENSITY RESIDENTIAL	202	DWELLING	PER PERSON	100
RETAIL	34,900	SHOPPING CENTER	PER 1,000 SQFT	200-300

* BASED ON TABLE G2.2, DOE SEWAGE WORKS DESIGN

HIGH-DENSITY RESIDENTIAL = (202 units) * (2 people) * (100 gpd) = 40,400 gpd

RETAIL = [(34,900 SQ FT) / (1,000 SQ FT)] * (250 gpd) = 8,725 gpd

TOTAL FLOW = 49,125 gpd

AREA 5

BLDGTYPE	# OF UNITS	DISCHARGE FACILITY	DESIGN UNITS	FLOW (gpd)
ROWHOUSE	181	DWELLING	PER PERSON	100

* BASED ON TABLE G2.2, DOE SEWAGE WORKS DESIGN

ROWHOUSE = (181 units) * (3 people) * (100 gpd) = 54,300 gpd

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 Tacoma, WA
 98403-3305

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 253.383.2572 FAX

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 1200 6th Avenue
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 Seattle, WA
 98101-3123

206.267.2425
 206.267.2429 FAX

8" SEWER PIPE

Worksheet for Circular Pipe - 1

Project Description

Friction Method Manning Formula
Solve For Full Flow Capacity

Input Data

Roughness Coefficient	0.013
Channel Slope	0.00500 ft/ft
Normal Depth	0.67 ft
Diameter	0.67 ft
Discharge	0.87 ft ³ /s

Results

Discharge	0.87 ft ³ /s
Normal Depth	0.67 ft
Flow Area	0.35 ft ²
Wetted Perimeter	2.10 ft
Top Width	0.00 ft
Critical Depth	0.44 ft
Percent Full	100.0 %
Critical Slope	0.00847 ft/ft
Velocity	2.46 ft/s
Velocity Head	0.09 ft
Specific Energy	0.76 ft
Froude Number	0.00
Maximum Discharge	0.93 ft ³ /s
Discharge Full	0.87 ft ³ /s
Slope Full	0.00500 ft/ft
Flow Type	SubCritical

GVF Input Data

Downstream Depth	0.00 ft
Length	0.00 ft
Number Of Steps	0

GVF Output Data

Upstream Depth	0.00 ft
Profile Description	
Profile Headloss	0.00 ft
Average End Depth Over Rise	0.00 %
Normal Depth Over Rise	100.00 %

Fircrest Campus Master Plan, Uses and Amounts, October 28, 2008

Summary by Area

Area/Use	Master Plan Concept (Maximums)	Notes
Fircrest School Area	454,444 sq ft (existing) Master Plan will allow for up to 500,000 sq ft total	Includes area of existing Nursing Home (Y Buildings) which would be replaced on in the Fircrest School Are. Also includes existing Adult Training Program (ATP), which would be replaced.
Area 1: Townhouse, small-lot single family & mid-rise residential	379 units	55 small-lot 117 townhouse 207 mid-rise & live-work
Area 2: Governmental Office, Mixed-Use Civic/Residential, Expanded Activities Building & Market Garden	100 units 27,000 sq ft civic use 255,000 sq ft govt. office 11,700 sq ft Activities Building Expansion Market Garden/Pea-patch	Units are mid-rise above civic use. Existing Activities Building is 27,286 sq ft.
Area 3: Mixed-Use Retail/Residential	202 units 34,900 sq ft retail	Units are mid-rise above retail.
Area 4: Existing Non-Profit Uses	37,000 sq ft (existing)	No change.
Area 5: Townhouse/Rowhouse	181 units	Mix of ground-related & carriage units.

Summary by Use

Use	Master Plan Concept (Maximums)	Notes
Residential	862 units	All new
Retail	34,900 sq ft	All new
Office	255,000 sq ft	All new
Civic/social service	27,000 sq ft	All new
Activities Building	38,986 sq ft	Includes 27,286 existing
Fircrest School	500,000 sq ft	Includes 454,444 existing
Existing non-profits	37,000 sq ft	Existing
Trails	1.3+ miles	
Public use/open space	14.3 ac	

The hydraulic capacity of the treatment works should be based on the maximum expected flow. The process design of treatment units should be based on either the average design flow or the peak design flow, whichever is controlling. The following items should be determined from the observed rate of flow during the significant period of discharge. Items to be considered in determining design flows are as follows:

- Peak flow rates continuing over a length of time sufficient to adversely affect the detention time of treatment units or the flow characteristics in conduits.
- Applicable data from similar municipalities.
- Wet weather flows.
- Recirculation and implant recycle flows.

The design organic loading should be computed in the same manner used in determining design flow.

G2-1.2.3 Existing Systems

Treatment plants designed to serve existing sewerage systems should be designed on the basis of characteristics of sewage obtained from the operating records of the treatment works.

The design engineer or owner shall provide a plan acceptable to Ecology for eliminating or handling excessive inflow/infiltration (I/I) so that there will be no discharge of inadequately treated wastewaters or impairment of the treatment process.

G2-1.2.4 New Systems

Sewage treatment plants to serve new sewerage systems should be designed on the basis of information in Table G2- 2. Numbers of persons per dwelling should be based on planning projections derived from an official source. Any deviations should be based on sound engineering judgment substantiated in the engineering report.

Table G2- 2. Design Basis for New Sewage Works

Discharge Facility	Design Units	Flow ^a (gpd)	BOD (lb/day)	SS (lb/day)	Flow Duration (hr)
Dwellings	per person	100	0.2	0.2	24
Schools with showers and cafeteria	per person	16	.04	.04	8
Schools without showers and with cafeteria	per person	10	.025	.025	8
Boarding schools	per person	75	0.2	0.2	16
Motels at 85 gal/person (rooms only)	per room	130	0.26	0.26	24
Trailer courts at 3 persons/trailer	per trailer	300	0.6	0.6	24
Restaurants	per seat	50	0.2	0.2	16

Discharge Facility	Design Units	Flow* (gpd)	BOD (lb/day)	SS (lb/day)	Flow Duration (hr)
Interstate or through-highway restaurants	per seat	180	0.7	0.7	18
Interstate rest areas	per person	5	0.01	0.01	24
Service stations	per vehicle serviced	10	0.01	0.01	18
Factories	per person per 8-hr shift	15-35	0.03-0.07	0.03-0.07	Operating period
Shopping centers	per 1,000 sq ft of ultimate floor space	200-300	0.01	0.01	12
Hospitals	per bed	300	0.6	0.6	24
Nursing homes	per bed	200	0.3	0.3	24
Homes for the aged	per bed	100	0.2	0.2	24
Doctor's office in medical center	per 1,000 sq ft	500	0.1	0.1	12
Laundromats, 8 to 12 machines	per machine	500	0.3	0.3	18
Community colleges	per student and faculty	15	0.03	0.03	12
Swimming pools	per swimmer	10	0.001	0.001	12
Theaters, drive-in type	per car	5	0.01	0.01	4
Theaters, auditorium type	per seat	5	0.01	0.01	12
Picnic areas	per person	5	0.01	0.01	12
Resort camps, day and night, with limited plumbing	per campsite	50	0.05	0.05	24
Luxury camps with flush toilets	per campsite	100	0.1	0.1	24

*Includes normal infiltration

G2-1.3 In-Plant Piping and Channels

All piping and channels should be designed to carry the maximum expected flows. The incoming sewer should be designed for free discharge. Bottom corners of the channels should be filleted and pockets and corners where solids can accumulate should be eliminated. Isolation gates should be placed in channels to seal off unused sections where sewage solids might accumulate.

G2-1.4 Design Flows, Collection Systems

See C1-3 and Table G2- 2.

G2-1.5 Plant Location

G2-1.5.1 General

Treatment plant sites should be located as far as practicable from any existing commercial or residential area or any area that will probably be developed within the plant's design life. The plant site should be separated from adjacent