



AGENDA

City Council Study Session

6:30 PM - Monday, October 1, 2018

City Hall Council Chambers, Sammamish, WA

Page		Estimated Time
	CALL TO ORDER	6:30 pm
	TOPICS	
2 - 24	1. Discussion: 2018 Comprehensive Plan Docket Item: Amendments to the Capital Facilities Element View Agenda Item	
25 - 60	2. Discussion: Big Rock Park – Site B Phase I Improvements: Discussion/Update View Agenda Item	
61 - 86	3. Discussion: Roadway Segment Capacity and LOS Analysis Options View Agenda Item	
	ADJOURNMENT	10:00 pm

City Council meetings are wheelchair accessible. American Sign Language (ASL) interpretation is available upon request. Please phone (425) 295-0500 at least 48 hours in advance. Assisted Listening Devices are also available upon request.

Agenda Bill

City Council Study Session
October 01, 2018



SUBJECT:	2018 Comprehensive Plan Docket Item: Amendments to the Capital Facilities Element		
DATE SUBMITTED:	September 21, 2018		
DEPARTMENT:	Community Development		
NEEDED FROM COMMISSION:	<input type="checkbox"/> Action <input type="checkbox"/> Direction <input checked="" type="checkbox"/> Informational		
RECOMMENDATION:	Study session: Proposed amendments to the Capital Facilities Element of the Comprehensive Plan		
EXHIBITS:	1. Exhibit 1 - Strikethrough-Underline Text - Capital Facilities Element Amendments 2. Exhibit 2 - Planning Commission Recommendation Letter 3. Exhibit 3 - R2017-761 - 2018 Comp Plan Amendment Docket 4. 10-01-18 Sch Imp Fees Amendment Presentation		
BUDGET:			
Total dollar amount	N/A	<input type="checkbox"/>	Approved in budget
Fund(s)	N/A	<input type="checkbox"/>	Budget reallocation required
		<input checked="" type="checkbox"/>	No budgetary impact
WORK PLAN FOCUS AREAS:			
<input type="checkbox"/> Transportation	<input type="checkbox"/> Community Safety		
<input type="checkbox"/> Communication & Engagement	<input type="checkbox"/> Community Livability		
<input checked="" type="checkbox"/> High Performing Government	<input type="checkbox"/> Culture & Recreation		
<input type="checkbox"/> Environmental Health & Protection	<input type="checkbox"/> Financial Sustainability		

NEEDED FROM COMMISSION:

Proposed Amendments to the Capital Facilities Element

KEY FACTS AND INFORMATION SUMMARY:

Summary

In 2017, the City Council approved placing a proposal on the Comprehensive Plan docket that would amend the Capital Facilities Element to clarify that school district Capital Facilities Plans are adopted

into the Comprehensive Plan by reference, and do not require an amendment each time they are updated and adopted by City Council.

The Growth Management Act (GMA) enables school districts to collect impact fees on new development. These impact fees, which are levied at different rates for new single-family and new multi-family units, are collected to fund capital projects that accommodate the additional demand that the new development places on the school district's facilities. The impact fee rates are determined by a formula, codified in Sammamish Municipal Code 21A.105.100, which takes into account site acquisition costs, construction costs, other tax revenue streams, and the district's established "student factor," which estimates how many additional students each new dwelling unit will send to each elementary, middle, and high school. (As an example, the Lake Washington School District's impact fees for 2018 are \$11,954 per each new single-family unit and \$733 per each new multi-family unit.) The impact fee rate is contained in each district's six-year Capital Facilities Plan, an annually-updated document that is approved by the School Board and includes information on the calculation of the district's student factor, summarizes current facility and student capacities, lists future facility expansions and projected construction plans, and lays out a six-year financing plan.

The GMA authorizes cities to collect school impact fees on behalf of school districts, which the City of Sammamish does for Lake Washington, Issaquah, and Snoqualmie Valley School Districts. The City remits all school impact fees to these Districts on a monthly basis. Pursuant to the GMA, the City must reference each district's Capital Facilities Plan in the Capital Facilities Element of the Comprehensive Plan in order to collect school impact fees for the districts. The City Council may then adopt an ordinance approving the new school impact fee rate, which becomes effective on January 1 of the following year. The Sammamish City Council's practice has been to annually adopt these Capital Facilities Plans as amendments to the Comprehensive Plan, a process that, while extremely cautious in terms of meeting the legal requirements of the GMA, is time-consuming, process-heavy, and ultimately unnecessary because the GMA simply states that the Capital Facilities Plan must be "addressed by a capital facilities plan element." In practice, this means that the Capital Facilities Element may simply make reference to the school districts' Capital Facilities Plans, and does not necessarily need to be amended every time a new Capital Facilities Plan is adopted by City Council. The reason that the City has made it a practice to adopt the districts' Capital Facilities Plans as amendments to the Comprehensive Plan is partly because the text of the Schools section in Volume II of the Capital Facilities Element is vaguely worded regarding which versions of the districts' Capital Facilities Plans it references. The purpose of this docket item is to remove that ambiguity and make clear that the Capital Facilities Element incorporates the latest version of the school district Capital Facilities Plan as adopted by the City Council, eliminating the need to adopt a Comprehensive Plan amendment every year.

The amendments proposed as part of this docket item include the following:

- Amend Policy CF.1.4 in Volume I of the Capital Facilities Element to clarify that school district Capital Facilities Plans are incorporated by reference into the Comprehensive Plan, meaning that the most recent versions of the school districts' Capital Facilities Plans adopted by the City Council are considered to be part of the Comprehensive Plan.
- Amend the Schools section of Volume II of the Capital Facilities Element to remove text summarizing the school districts' 2014 Capital Facilities Plans that were in effect at the time the last full update of the Comprehensive Plan was adopted, and re-state that the most recent

version of the Capital Facilities Plans adopted by the City Council are considered to be part of the Comprehensive Plan.

Next Steps

On October 2, 2018, the City Council will hold a public hearing and take testimony from the public on the proposed amendments to the Capital Facilities Element of the Comprehensive Plan. However, the City Council will not be voting on the proposed amendment following the October 2 public hearing; instead, any City Council deliberations on October 2 will carry forward to the City Council meeting scheduled for December 4, 2018. At that meeting, there will be a final reading of a consolidated Ordinance and adoption of the Consolidated Annual Amendment of the Comprehensive Plan (simultaneous adoption of all approved docketed 2018 Comprehensive Plan Amendments). The reason the City Council will adopt a consolidated amendment of the Comprehensive Plan is to comply with RCW 36.70A.130(2)(a), which restricts the adoption of amendments to the Comprehensive Plan to no more frequently than once every year, except under specific circumstances. Since more than one proposed amendment was docketed (Exhibit 3), the consolidated amendment ordinance will ensure that the Comprehensive Plan is amended only once in 2018. Additionally, the consolidated approach allows the City Council to assess the cumulative impacts resulting from all docketed amendments to the Comprehensive Plan, in accordance with the GMA.

FINANCIAL IMPACT:

Not Applicable

OTHER ALTERNATIVES CONSIDERED:

Not Applicable

RELATED CITY GOALS, POLICIES, AND MASTER PLANS:

The Capital Facilities Element of the City's Comprehensive Plan is consistent with the guidelines established by the Growth Management Act.



Please look for this icon for goals and policies that focus specifically on sustainability and healthy communities.

conservation of resources both support cost savings for users and providers. Ideally this will add up to an effective investment of public dollars by providing the best service possible for the longest period of time possible for the lowest cost.

The Growth Management Act establishes five requirements for this element, which are to 1) provide an inventory of facilities, 2) list a forecast of needs, 3) show proposed locations and capacity of planned facilities, 4) provide a financing plan for needed facilities, and 5) reassess planned facilities if they cannot be provided and paid for. The process of addressing these five requirements helps us make wise use of city funds by organizing and prioritizing projects. The Capital Facilities Element Background Information contains the background data and analysis that provide the foundation for the Capital Facilities Element goals and policies.

Goals and Policies

- Goal CF.1 Provide capital facilities and public services necessary to support existing and new development envisioned in the land use element.
- Policy CF.1.1 Plan capital facilities that have the capacity and are located to serve existing development and future growth planned in the Land Use Element.
- Policy CF.1.2 Provide all capital facilities necessary to support related services that are the responsibility of the City, including transportation, parks, police, surface water management, city hall and public works.
- Policy CF.1.3 Coordinate with other agencies for their provision of water, sewer, fire protection, schools, library and transit.
- Policy CF.1.4 Incorporate by reference, to the extent not inconsistent or in conflict with ~~the~~ city plans or regulations, the following plans: ~~which are considered to be incorporated into the Sammamish Comprehensive Plan by reference. The plans may be amended as needed to reflect changing development trends or to update the plans as new facilities are constructed.~~
 - a Schools: Issaquah School District Capital Facilities Plan, Lake Washington School District Capital

Based on the assumptions described in the Land Use Element, the City has development capacity to meet the adopted 2035 targets of 4,640 houses and 2,088 jobs.



Sammamish City Hall

Facilities Plan, and Snoqualmie Valley School District Capital Facilities Plan

- b Water: Sammamish Plateau Water and Sewer District Water Comprehensive Plan; and Northeast Sammamish Sewer and Water District Water Comprehensive Plan
- c Sewer: Sammamish Plateau Water and Sewer District Comprehensive Wastewater Plan, and Northeast Sammamish Sewer and Water District Sewer Comprehensive Plan
- d Transportation: Looking to the Future: Six-Year Transit Development Plan (for Metro), PSRC Transportation 2040 Plan and Sound Transit TOD Program Strategic Plan and Long-Range Plan.

Policy CF.1.5 Participate in processes for determining the location of capital facilities of regional or statewide importance.

Policy CF.1.6 Ensure appropriate mitigation if Sammamish is selected as a site for a regional or statewide capital facility, or is otherwise impacted by a regional or statewide facility's development, expansion or operation.

Elizabeth Blackwell
 Elementary School



CF.16

Sammamish Comprehensive Plan
Capital Facilities Background Information
~~October 2015-December X, 2018~~

Capital Projects

There are no capital projects for capital facilities for fire and emergency medical response.

Funding

No funding is projected because there are no capital projects for fire and emergency medical response.

Schools

The City of Sammamish is served by the Lake Washington School District #414 (LWSD), the Issaquah School District #411 (ISD), and the Snoqualmie Valley School District #410 (SVSD) for public elementary, junior and high school education.

~~Summaries of the Capital Facility Plans of each school district are presented below:~~ The complete Capital Facility Plans of the three school districts, as amended and adopted by the City Council, are adopted by reference in this Capital Facilities Plan Element of the City of Sammamish. Each district's complete CFP contains detailed information regarding school facility development and impact fees, including: planning in each district.

a) Deficiencies in facilities serving existing development and the means by which existing deficiencies will be eliminated within a reasonable period of time;

b) Additional demands placed on existing facilities by new development; and

c) Additional facility improvements required to serve new development.

~~The City of Sammamish adopted its school impact fees beginning in September of 1999 to fund capital facilities within these school districts.~~

CF.17

Sammamish Comprehensive Plan
Capital Facilities Background Information
October 2015-December X, 2018

Issaquah School District

Source: 2014 Capital Facilities Plan, July 9, 2014

Inventory of Existing Facilities

Currently, using the 95% utilization factor, the District has the capacity to house 15,560 students in permanent facilities and 3,340 students in portables.

Forecast of Future Needs

The projected student enrollment for the 2019-2020 school year is expected to be 18,388 which leaves a permanent capacity deficit of 1,633.

Capital Projects

Background Table CF-9

Issaquah School District Capital Improvement Projects: 2013-2018

PROJECT	COST (\$)
	2013-2018
Issaquah Middle School	62,500,000
Issaquah High School	2,000,000
Liberty High School	65,200,000
Maywood Middle School	12,500,000
Clark Elementary	19,500,000
Tiger Mountain	3,925,000
Apollo Elementary	7,720,000
Issaquah Valley	8,485,000
Sunny Hills	27,200,000
Portables	3,150,000
TOTAL	211,730,000

CF.18

Sammamish Comprehensive Plan
Capital Facilities Background Information
October 2015-December X, 2018

Funding

The Issaquah School District, with voter approval, has front funded all the projects. The Six-Year Finance Plan also lists \$500,000 of School Impact Fees:

Lake Washington School District

Source: Six-Year Capital Facilities Plan 2014-2019, May 19, 2014

Inventory of Existing Facilities

School capacity is based on the district standard of service and the existing inventory of available classrooms, including both permanent and relocatable (portable) classrooms. The district's overall total capacity is 27,761, including permanent capacity of 24,832 and 2,929 in relocatables. Student headcount enrollment as of October 1, 2013 was 26,220.

Forecast of Future Needs

From the 2012 school year through 2021, the district expects enrollment to increase by over 4,000 students. The district experienced actual growth of 825 students in 2013. During the six-year window from 2013 to 2019, enrollment is projected to increase by 2,826 students to a total of 29,046. An additional 705 students are expected from 2019 to 2021.

CF.19

Sammamish Comprehensive Plan
 Capital Facilities Background Information
 October 2015-December X, 2018

Capital Projects

Completed projects would result in student enrollment exceeding permanent capacity by 1,164 students in 2019.

Background Table CF-10
 Lake Washington School District Capital Improvement Projects: 2014-2020

PROJECT	COST (\$)
	2014-2020
New-Redmond Ridge East Elementary	38,300,000
New-North Redmond Elementary	37,100,000
New-Kirkland Area Elementary	37,100,000
Addition-Lake Washington High School	31,500,000
New-Redmond Area Middle School	72,000,000
Mod-Juanita High School	156,500,000
New-Westside STEM focused school	40,500,000
Portables	7,900,000
TOTAL	420,900,000

Funding

The Six-Year Finance Plan states that the projects are expected to be secured through Impact and Mitigation Fees.

Snoqualmie Valley School District
 Source: Capital Facilities Plan 2014, June 12, 2014

Inventory of Existing Facilities

The District's current overall permanent capacity is 6,891 students (5,069 in permanent classrooms and 1,822 in portable classrooms). October enrollment for the 2013-14 school year was 5,985 full time equivalents ("FTE").

Forecast of Future Needs

FTE enrollment is projected to increase by 19% to 7,142 in 2019.

The District has continuing permanent capacity needs at all levels. Even after the annexation of Snoqualmie Middle School, the anticipated construction of a new middle school and an additional elementary school, the District will have continuing permanent capacity needs. Those additional capacity needs will need to be

CF.20

Sammamish Comprehensive Plan
 Capital Facilities Background Information
 October 2015-December X, 2018

addressed in the short-term with relocatables. The District currently has 26.4% of its classroom capacity in relocatable classrooms. With the addition of relocatable classrooms and the construction of two new facilities, the District would have 22.6% of its classroom capacity in relocatable classrooms in 2019, assuming older relocatable classrooms are not removed from service. The District will continue to work towards reducing the percentage of students housed in relocatable classrooms.

Capital Projects

Background Table CF-11
 Snoqualmie Valley School District Capital Improvement Projects: 2014--2019

PROJECT	COST (\$)
	2014-2019
New Snoqualmie Middle School	58,800,000
Elementary School #6	36,900,000
Portables	1,200,000
Mount Si High School	190,000,000
TOTAL	286,900,000

Funding

The Six-Year Finance Plan lists \$90,775,000 of Bonds, \$3,925,000 of State Match, and \$2,200,000 of Impact Fees. The Mount Si High School project will be funded by the 2015 Bond for \$190,000,000.



801 228th Avenue SE ■ Sammamish, WA 98075 ■ phone: 425-295-0500 ■ fax: 295-295-0600 ■ web: www.sammamish.us

Memorandum

Date: September 6, 2018
To: City Council
From: Shanna Collins, Planning Commission Chair
 Larry Crandall, Planning Commission Vice Chair
Re: Summary of the Planning Commission Recommendation on the 2018 Docket Item Related to Amendments to the Capital Facilities Element of the Comprehensive Plan

On behalf of the Planning Commission, we are pleased to forward to the City Council this recommendation on the 2018 Comprehensive Plan docket item consisting of amendments to the Capital Facilities Element related to the collection of school impact fees.

Project Scope

In 2017, the Department of Community Development proposed a Comprehensive Plan docket item that would amend the Capital Facilities Element that would allow the City to incorporate, by reference, the latest version of the six-year Capital Facilities Plans of the three school districts operating within City limits. Incorporation of the districts' Capital Facilities Plans is required for the City to collect school impact fees, which are established in the Capital Facilities Plans, on new development. The Planning Commission recommended that the item be placed on the Docket, and City Council approved it.

Project History

Below is a summary of the public meetings that have been held for this effort.

1. On November 16, 2017, staff presented the proposal, along with all other docket proposals, to the Planning Commission, which held a public hearing and voted to recommend that the School Impact Fee proposal be placed on the Comprehensive Plan docket. On December 5, 2017, staff presented the Planning Commission's recommendation to the City Council. The Council voted to place the item on the Comprehensive Plan docket.
2. On September 6, 2018, staff presented the proposed text of the amendment to the Planning Commission. The Commission opened a public hearing, deliberated, and voted to recommend that the City Council adopt the proposed amendments as presented.

Planning Commission Recommendation Summary

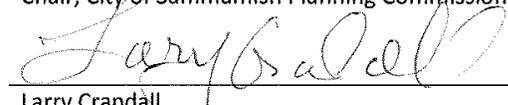
On September 6, 2018 the Planning Commission held a public hearing, deliberated on, and recommended unanimously to the City Council that the proposed amendments to the Capital Facilities Plan be adopted, by a vote of 6-0.

Thank you,



Shanna Collins

Chair, City of Sammamish Planning Commission



Larry Crandall

Vice Chair, City of Sammamish Planning Commission

9-6-2018
Date

9/6/2018
Date

**CITY OF SAMMAMISH
WASHINGTON
Resolution No. R2017-761**

**A RESOLUTION OF THE CITY OF SAMMAMISH,
WASHINGTON RELATED TO SETTING THE 2018
COMPREHENSIVE PLAN AMENDMENT DOCKET**

WHEREAS, the City of Sammamish plans under Chapter 36.70A RCW, the Growth Management Act (“GMA”), which requires cities to adopt a comprehensive plan that is consistent with the GMA and with county and regional planning policies;

WHEREAS, the City Council initially adopted the City’s Comprehensive Plan in 2003 by Ordinance O2003-130, and has adopted various subsequent revisions; and

WHEREAS, the City Council updated the Sammamish Comprehensive Plan in accordance with RCW 36.70A.130 on October 26, 2015 (“2015 Comprehensive Plan”) by adopting Ordinance O2015-396; and

WHEREAS, Sammamish Municipal Code (SMC) Chapter 24.15.040 authorizes the City to consider site-specific land use map amendments and text amendments to the Comprehensive Plan on an annual basis; and

WHEREAS, City staff solicited Comprehensive Plan amendment proposals from citizens and City departments in August and September 2017; and

WHEREAS, a total of 11 proposals were submitted and deemed complete, including five from the general public and six from City departments; and

WHEREAS, proposals that are included on the 2018 docket will be added to the City’s 2018 work plan, thoroughly analyzed, and returned to the Planning Commission and City Council for consideration; and

WHEREAS, on November 2, 2017, the Planning Commission reviewed a staff memo and presentation describing the 11 proposals; and

WHEREAS, on November 16, 2017, the Planning Commission held a public hearing on the proposals for the 2018 Comprehensive Plan docket, considered public comment, and made a recommendation to the City Council regarding which proposals to include on the 2018 docket; and

WHEREAS, on December 5, 2017, the City Council held a public hearing on the proposals for the 2018 Comprehensive Plan docket in order to provide further opportunity for public comment and participation;

NOW, THEREFORE, THE CITY COUNCIL OF THE CITY OF SAMMAMISH, WASHINGTON, DO RESOLVE AS FOLLOWS:

Section 1. Docket Decision. The City Council of the City of Sammamish hereby approves the following proposals to be included on the 2018 Comprehensive Plan docket:

1. City of Sammamish – City Manager’s Office
 - Change future land use designation of Recreation Center property from R-12/18 to CB
2. City of Sammamish - Department of Parks and Recreation
 - Updates related to upcoming approval of new Parks, Recreation, and Open Space (PRO) Plan
3. City of Sammamish – Department of Community Development
 - Fix for School Impact Fees and Capital Facilities Plans
4. City of Sammamish – Department of Community Development
 - Update to Housing Strategy Plan
5. City of Sammamish – Department of Public Works
 - Update to Traffic Impact Fee and 20-year CIP
6. City of Sammamish – Department of Public Works
 - Update to concurrency metrics and level of service standards
7. Frank Santoni
 - Change future land use designation of parcel 1241100042 from TC-E to TC-A

Section 2. Effective Date. This Resolution shall take effect and be in force upon passage and signatures thereon.

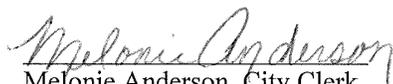
PASSED BY THE CITY COUNCIL AT A REGULAR MEETING THEREOF ON THE 5th DAY OF DECEMBER 2017.

CITY OF SAMMAMISH

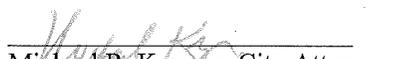


Mayor, Bob Keller

ATTEST/AUTHENTICATED:


Melonie Anderson, City Clerk

Approved as to form:


Michael R. Kenyon, City Attorney

Filed with the City Clerk: November 30, 2017
Passed by the City Council: December 5, 2017
Resolution No.: R2017-761

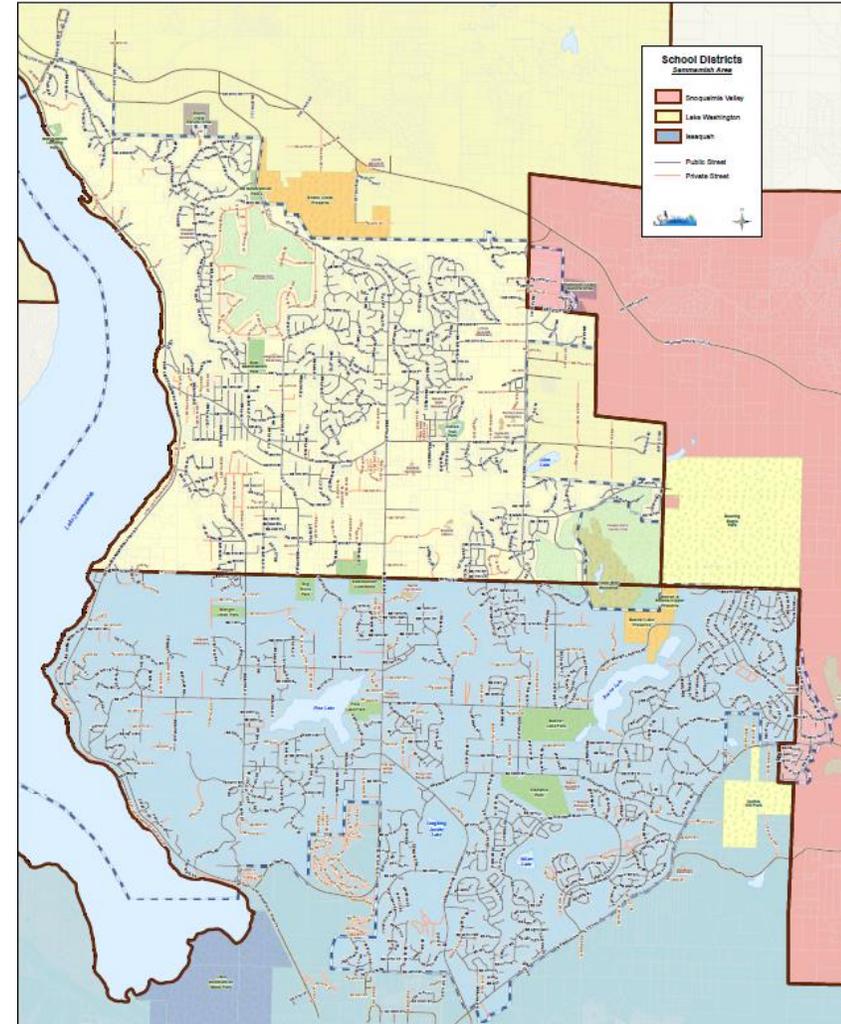
2018 Docket Item: Capital Facilities Element Amendments

Sammamish City Council Study Session
October 1, 2018



School Districts Serving Sammamish

- 3 School Districts in the City
 - Lake Washington
 - Issaquah
 - Snoqualmie Valley
- Each adopts a 6-year Capital Facilities Plan
 - Primary facility planning document
 - Projects enrollment & facility plans
 - Sets standard teacher-student ratio
 - Sets impact fees



School Impact Fees

- GMA authorizes schools to collect impact fees
- School impact fees...
 - Fund capital projects that accommodate additional demand
 - Are determined by formula in SMC
 - Are collected by City on districts' behalf

Six-Year Capital Facilities Plan 2017 - 2022



Rose Hill Middle School – Opened Fall 2013

Board Adopted: June 5, 2017

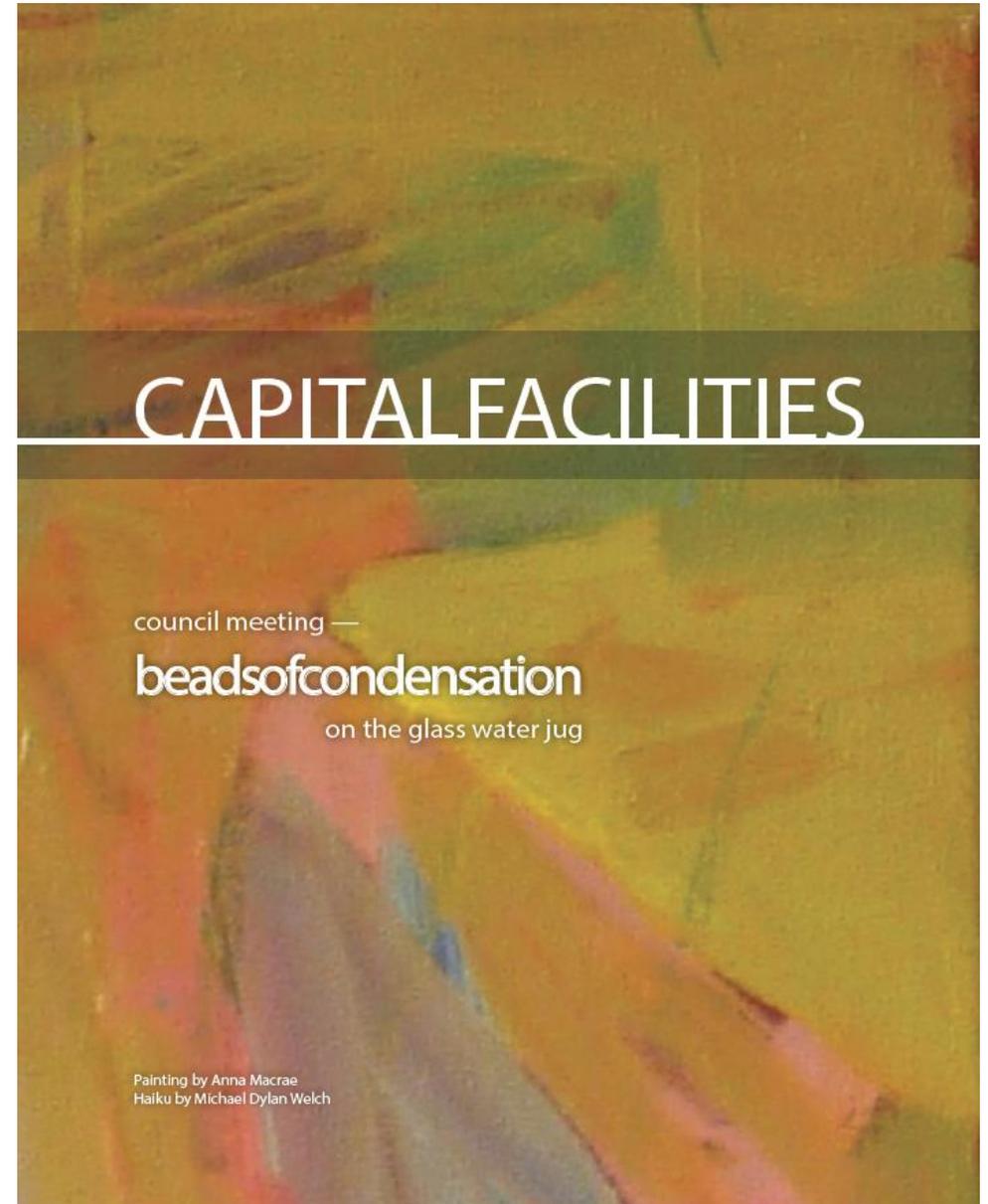
Lake Washington School District #414
Serving Redmond, Kirkland, Sammamish, and King County, Washington

	2019 Impact Fee Rates	
	Single Family	Multi-Family
Issaquah SD	\$15,276	\$4,399
Lk Wash SD	\$12,294	\$624
Snoq Valley SD	\$11,359.65	\$1,700.07

	Impact Fees Collected	
	2017	2018 YTD
Issaquah SD	\$958,617	\$1,023,105
Lk Wash SD	\$1,453,927	\$529,244
Snoq Valley SD	-	-

Purpose of Amendment

- Clarify that Capital Facilities Plans are incorporated **by reference**
- Eliminate need to annually amend the Comprehensive Plan
- Remove obsolete references to past Capital Facilities Plans



Proposed Changes – Capital Facilities Volume I

Policy CF.1.4: Incorporate by reference, to the extent not inconsistent or in conflict with the city plans or regulations, the following plans. ~~which are considered to be incorporated into the Sammamish Comprehensive Plan by reference. The plans may be amended as needed to reflect changing development trends or to update the plans as new facilities are constructed.~~

a) Schools: Issaquah School District Capital Facilities Plan, Lake Washington School District Capital Facilities Plan, and Snoqualmie Valley School District Capital Facilities Plan

Proposed Changes - Capital Facilities Volume II

Schools: The City of Sammamish is served by the Lake Washington School District #414 (LWSD), the Issaquah School District #411 (ISD), and the Snoqualmie Valley School District #410 (SVSD) for public elementary, junior and high school education.

~~Summaries of the Capital Facility Plans of each school district are presented below.~~ The complete Capital Facility Plans of the three school districts, as amended and adopted by the City Council, are adopted by reference in this Capital Facilities Plan Element of the City of Sammamish. Each district's complete CFP contains detailed information regarding school facility development and impact fees in each district, including:

- Deficiencies in facilities serving existing development and the means by which existing deficiencies will be eliminated within a reasonable period of time;
 - Additional demands placed on existing facilities by new development; and
 - Additional facility improvements required to serve new development.
- ~~The City of Sammamish adopted its school impact fees beginning in September of 1999 to fund capital facilities within these school districts.~~

Comp Plan Amendments – Capital Facilities Timeline

DATE	TOPIC
September 6	Planning Commission Public Hearing
✓ October 1	City Council Work Session
October 2	City Council Public Hearing
December	Ordinance – Final Reading for the Annual Amendments to the Comprehensive Plan

Agenda Bill

City Council Study Session
October 01, 2018



SUBJECT:	Big Rock Park – Site B Phase I Improvements: Discussion/Update		
DATE SUBMITTED:	September 26, 2018		
DEPARTMENT:	Parks & Recreation		
NEEDED FROM COUNCIL:	<input type="checkbox"/> Action <input checked="" type="checkbox"/> Direction <input type="checkbox"/> Informational		
RECOMMENDATION:	Proceed with the preliminary design, additional amenities and associated project costs for Phase I Improvements at Big Rock Park – Site B.		
EXHIBITS:	1. Exhibit 1 - Preliminary Design 2. Exhibit 2 - Preliminary Design PowerPoint Presentation		
BUDGET:			
Total dollar amount	\$3,850,000	<input type="checkbox"/>	Approved in budget
Fund(s)	Parks Capital Improvement Fund	<input checked="" type="checkbox"/>	Budget reallocation required
		<input type="checkbox"/>	No budgetary impact
WORK PLAN FOCUS AREAS:			
<input type="checkbox"/> Transportation	<input type="checkbox"/> Community Safety		
<input type="checkbox"/> Communication & Engagement	<input type="checkbox"/> Community Livability		
<input type="checkbox"/> High Performing Government	<input checked="" type="checkbox"/> Culture & Recreation		
<input checked="" type="checkbox"/> Environmental Health & Protection	<input type="checkbox"/> Financial Sustainability		

NEEDED FROM COUNCIL:

Shall the City Council direct staff to proceed with the attached preliminary design and the associated project costs for Phase I Improvements at Big Rock Park – Site B? Shall the City Council direct staff to proceed with the inclusion of a selection of additional costs, such as an ADA ramp to the existing treehouse, a new maintenance building, utility connections to the Reard Freed House and an allowance for trail restoration work?

KEY FACTS AND INFORMATION SUMMARY:

The purpose of this discussion is to brief City Council on the history and status of Phase I Improvements at Site B, in addition to seeking direction on the inclusion of a selection of additional amenities and the associated project costs.

Summary:

In March, 2018, a Request for Proposals (RFP) was published for consultant services for phase I improvements. Based on the quality of previous planning and design work with projects of similar nature, the experience and qualifications of their staff, KPG was selected through the consultant selection process for the project.

Phase I improvements will consist of a diverse set of improvements necessary to open the site to the public. These include vehicular and pedestrian circulation, construction of a new parking lot, a new restroom building, possible renovations to an existing tree house, maintenance shed replacement, modifications to existing utilities, landscaping and irrigation, and associated site improvements for Big Rock Park. In addition, the project scope includes right-of-way improvements along 220th Avenue SE and 221st Avenue SE.

Due to the complexity of this project, it became evident that several components required additional investigation and review prior to moving forward with design development. Therefore, a small contract was executed with KPG for a schematic design to respond to the following components:

- ADA accessibility to treehouse: a treehouse to be built by Mary Pigott was identified on Site B during the master plan process and was constructed before the property was donated to the City. It is currently only accessible via stairs. As part of the site improvements and opening the park to the public, the City has an opportunity to provide universal access to the treehouse with the addition of an ADA ramp and removal of the existing staircase.
- Right-of-way roadway requirements: access to Site B is provided off 220th Ave SE and 221st Ave SE. 220th Ave SE will serve as the primary access to the park and needs to be built to accommodate public use. 221st Ave SE will serve as the secondary access with parking located within the right-of-way. Park Planning staff worked with Public Works to determine the most appropriate solution that is proportional to the scale of the parks' development and one that reduces impact to adjacent properties, while still preserving future road connectivity. The solutions deviate from Public Works' Standards but maintains appropriate vehicular and pedestrian access.
- Investigation of reuse of existing septic field for restroom: the existing septic system was evaluated and inspected for reuse, but due to the change of property use, King County Health Department will require the construction of a new septic system that meets current codes.
- Investigation of on-site well for irrigation purposes: the master plan determined that the on-site well would be used for irrigation purposes. Upon further review, the existing wells on both Site A and B are considered one project because the properties are adjoining and would be subject to a cumulative daily threshold of 5,000 gallons per day and ½ acre of land. This threshold will preclude sufficient irrigation supply to both sites. Therefore, the existing well on Site B will be decommissioned and irrigation will be provided from Sammamish Plateau Water. Water is available at 220th Ave SE and will be brought in to serve irrigation, the restroom, maintenance storage building and the Reard Freed House.
- Complete structural assessment of detached garage for remodel feasibility: a structural conditions assessment was completed to determine the feasibility of the existing garage potentially being used for maintenance storage. The anticipated magnitude of repairs and associated costs are extensive and only increase the structure's lifespan for 5 to 10 years. As a

result, staff are proposing to demolish the existing garage and replace with a new structure that has a similar footprint, can better accommodate park maintenance needs and have a minimum lifespan of 10 years for nearly the same cost.

- Determine utility connections to Reard Freed House and proposed kitchen addition: City Council allocated funds to the Sammamish Heritage Society (SHS) to prepare architectural drawings for the exterior of the addition of a kitchen. This will require a connection to potable water and the new septic system to accommodate a kitchen and restroom. Additionally, the SHS installed restroom plumbing on the second floor of the house, requiring a connection to the new septic system. These utility connections were not anticipated in the master plan and not included in the original cost estimate. The first floor of the Reard Freed House will include a heritage museum and public meeting space, while the second floor will serve as offices and storage for SHS.
- Preliminary Traffic Analysis: a preliminary assessment of potential vehicle trip and parking associated with this first phase of improvements was completed to help shape the program for the site and identify potential areas of impact to the surrounding neighborhood. The preliminary assessment anticipates traffic levels to increase 8 to 13 percent, which is approximately 30 - 50 trips per day. For reference, this would be comparable to daily trips to Beaver Lake Preserve.
- Complete conceptual connectivity to Site C: although Site C is not currently under City ownership, it was critical to review connectivity between Site B and C to provide a long-term vision for connections between properties.

As part of this phase, the following studies were completed:

- Topographic survey
- Wetland delineation
- Preliminary geotechnical investigation
- Structural assessment of the existing garage
- Preliminary septic feasibility
- Preliminary assessment of traffic analysis
- Treehouse occupancy calculation

Through this feasibility study, the aforementioned components have been resolved and the project is now ready to move forward with a contract for full planning and design services for Phase I Improvements at Big Rock Park – Site B.

Timeline:

- Feasibility: Summer - Fall 2018
- Design, Construction Documents & Permitting: Fall 2018 - Winter 2019
- Bidding & Council Award: Spring 2020
- Construction: Spring - late Fall 2020

Parks & Recreation Commission:

Staff presented the preliminary design and associated project costs at the September 5, 2018 Parks & Recreation Commission meeting. The Commission voted to recommend the City (1) include an ADA

ramp to the existing treehouse and (2) remove the maintenance building from the scope for phase I improvements.

Project Background:

In 2010, Mary Pigott gifted three parcels located in the center of the City (Site A, B and C) totaling 51 acres to the City of Sammamish as part of a phased land donation agreement. The agreement between Ms. Pigott and the City states that the properties will be used as a park, now called Big Rock Park, for the benefit of the community. The City and Ms. Pigott envision a park facilitating a variety of low impact active and passive activities that may include nature trails, open space and passive sports meadows.

Site A, the first parcel of three, is 16 acres and was transferred in early 2011. Shortly after the “soft” opening of Big Rock Park in 2011, the Park Planning team began work on the master plan for Site A and B. Over a year of site reconnaissance, studies, an extensive public process, a public park naming contest, concept development and refinement was completed and incorporated into the final master plan for the park which was adopted by City Council in July 2014. Phase I development of Site A concluded in early 2016.

Site B, the second parcel of three, was transferred to the City in January 2017. The 20 acres that make up Site B include dense forest cover, open meadows, a stream in the northern third, two ponds and meandering trails that navigate through varying topography. Buildings on the site include a single-family home, detached garage, sauna/laundry structure, and the historic Reard-Freed House.

The final master plan site features and programming for Site B are intentionally more passive than Site A with design elements that include meandering trails and boardwalks. These amenities allow for an up-close and exploratory experience in support of outdoor education. The master plan identifies improvements to be implemented in two phases. The phased plan includes proposals for new park elements and upgrades to existing features.

After completion of the master plan and prior to transferring to the City, Mary Pigott added a significant, custom-built tree house to Site B.

The third and final parcel, Site C, is 16 acres and currently the private property and residence of Ms. Pigott and will continue as such for the foreseeable future.

Reard Freed House:

The Reard Freed House was built in 1895 and relocated to Site B in 2012. The house was donated in 2001 and became the first building in Sammamish to be listed on the King County Historic Resource Inventory as a registered landmark. The house is currently undergoing renovations led by the Sammamish Heritage Society. At the June 5, 2018 City Council Regular Meeting, a total of \$14,000 was allocated to the Heritage Society to prepare architectural drawings for the exterior of a kitchen addition. The kitchen was located on the historic home’s western wing and was demolished prior to the house relocation in 2012.

To date, the City has allocated \$135,386 to the Sammamish Heritage Society for the relocation and renovation of the Reard Freed House. Of the allocated funds, a total of \$23,750 came from the City's Historic Preservation Fund.

FINANCIAL IMPACT:

\$200,000 is allocated in the 2018 Parks CIP budget for the Big Rock Park Site B, Phase I Improvements design costs. The Parks, Recreation & Open Space (PRO) Plan, adopted in February 2018 allocated \$2,000,000 in 2019 for construction.

The following amenities were not factored into the scope and costs during the master plan phase:

- Addition of an ADA accessible ramp to the treehouse
- Existing well decommissioning and addition of an irrigation meter
- Removal and replacement of existing septic system
- Demolition and replacement of the garage with a new maintenance/storage structure
- Utility connections to the Reard Freed House and addition
- Demolition of existing structures
- Updated stormwater regulations
- Extent of right-of-way improvements for 220th Avenue SE

The estimated costs at 10% design development, with the addition of the aforementioned amenities are \$3,831,200. These costs include applicable taxes, utility connection fees, contingencies and soft costs. Although the estimated costs exceed the current budget, there are sufficient funds within the Parks Capital Improvement Fund that can be allocated to this project. For example, a total of \$1,675,000 is available from the East Sammamish Park Playground and Parking Improvements Project, which has been placed on hold as a result of the Margaret Mead Elementary School rebuild.

The following tables are separated between costs that are required for this initial phase of improvements and optional amenities that City Council may elect to not incorporate or delay as part of a later phase of improvements:

Preliminary Project Costs:	
Master Plan Base Costs:	\$1,400,000
Right-of-Way Improvements:	\$530,000
WSST (10%)*:	\$140,000
Utility Connection Fees:	\$81,000
Contingency (20%):	\$402,200
Soft Costs (30%)**:	\$579,000
Subtotal	\$3,132,200
Optional Additional Costs:	
Treehouse ADA Ramp:	\$81,000
Maintenance Building:	\$245,000
<u>Reard Freed House</u> Utility Connections:	\$121,000
Allowance for Trail Restoration:	\$252,000
Total Anticipated Project Costs	\$3,831,200

**Work in the right-of-way and Utility connection fees are not subject to WSST*

***Soft Costs are inclusive of all design, engineering, construction administration, survey, inspection & report fees*

OTHER ALTERNATIVES CONSIDERED:

- City Council may elect to not direct or defer the inclusion of any or all of the additional amenities and related costs to a later phase.
- City Council may choose not to approve the preliminary project design and associated costs. The park will remain closed to the public until the required improvements are completed.

RELATED CITY GOALS, POLICIES, AND MASTER PLANS:

Work under this contract is outlined in the following documents:

- [Big Rock Park Master Plan](#), adopted by City Council in July 2014
- [Parks and Recreation Open Space \(PRO\) Plan](#), adopted by City Council in February 2018

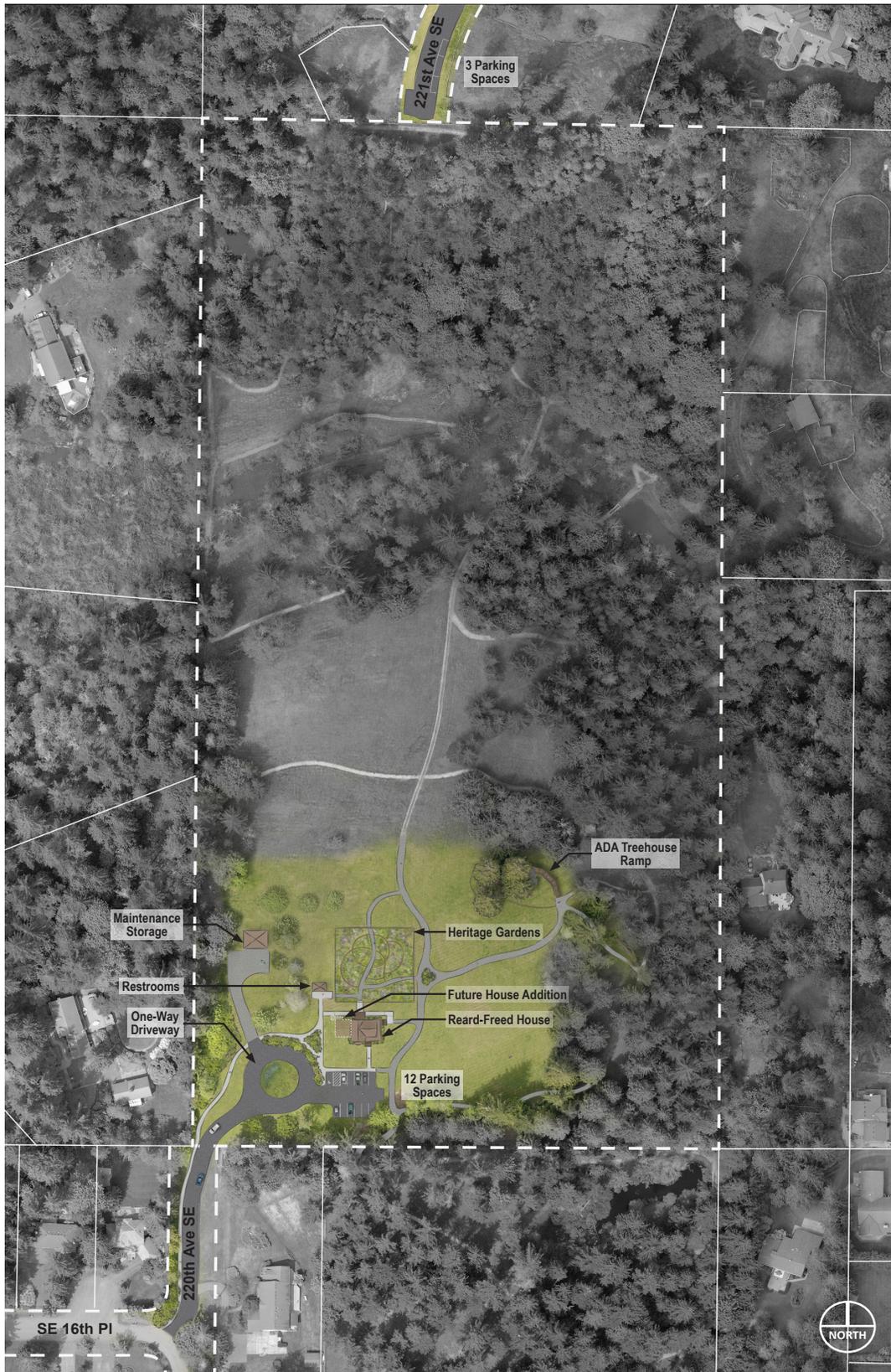


Exhibit 1 - Site B Preliminary Design



BIG ROCK PARK - SITE B PHASE I IMPROVEMENTS

Presentation to City Council

October 1, 2018

Sammamish
Parks and Recreation

Overview

What we will be discussing

- Big Rock Park
 - Project Background
- Big Rock Park – Site B
 - Phase I Improvements Overview
 - Phase I Improvements Discussion & Additional Amenities (Requiring Council Input)
 1. Treehouse ADA Ramp & Programming
 2. New Maintenance Building
 3. Reard Freed House Utility Connections
 4. Allowance for Necessary Trail Restoration
- Q & A

BIG ROCK PARK PROJECT BACKGROUND

BIG ROCK PARK:

Background

- 2010 – Site A, B, C, gifted to the City by Mary Pigott
- 2011 – Site A transferred to the City
- 2012 – Reard Freed House relocated to Site B
- 2014 – Big Rock Park Site A & B Master Plan adopted & Site A Design began
- 2016 – Site A construction completed & opened to the public
- 2017 – Site B transferred to the City
- 2018 – Site B Design Development began



BIG ROCK PARK:

Reard Freed House Background

- 1895 – Reard Freed House (RFH) constructed
- 2001 – RFH donated to City
- 2012 – City relocated RFH to Site B
- 2013 – City authorized funds for structural improvements & exterior painting
- 2014 – City entered in to lease agreement with Sammamish Heritage Society (SHS) for RFH renovations
- 2018 – City authorized funds for exterior architectural drawings of RFH kitchen & for fireplace restoration



BIG ROCK PARK:

Reard Freed House Funding

City Contributions

\$135,386

- **2007 – 2013: \$106,636**
 - Related to moving, fencing, painting & other restoration activities
- **2018: \$37,750**
 - Exterior architectural drawings for house addition, fireplace restoration & House programming study

Grants & Private Fundraising

\$390,163

- **2010 – 2017: \$251,763**
 - Construction of porch, installation of utility rough-ins & insulation
- **2018: \$138,400***
 - Fireplace restoration & house addition

**\$123,400 pending legislative approval*

Total: \$525,549



BIG ROCK PARK – SITE B:

2014 Master Plan Overview

The Woods

- Parking on 221st Avenue SE
- Environmental Education & Habitat Enhancement
- Trail Improvements

South Meadow

- Site Entrance & Parking
- Open Meadow
- Reard Freed House & Heritage Gardens
- Picnic Shelter
- Existing Structures

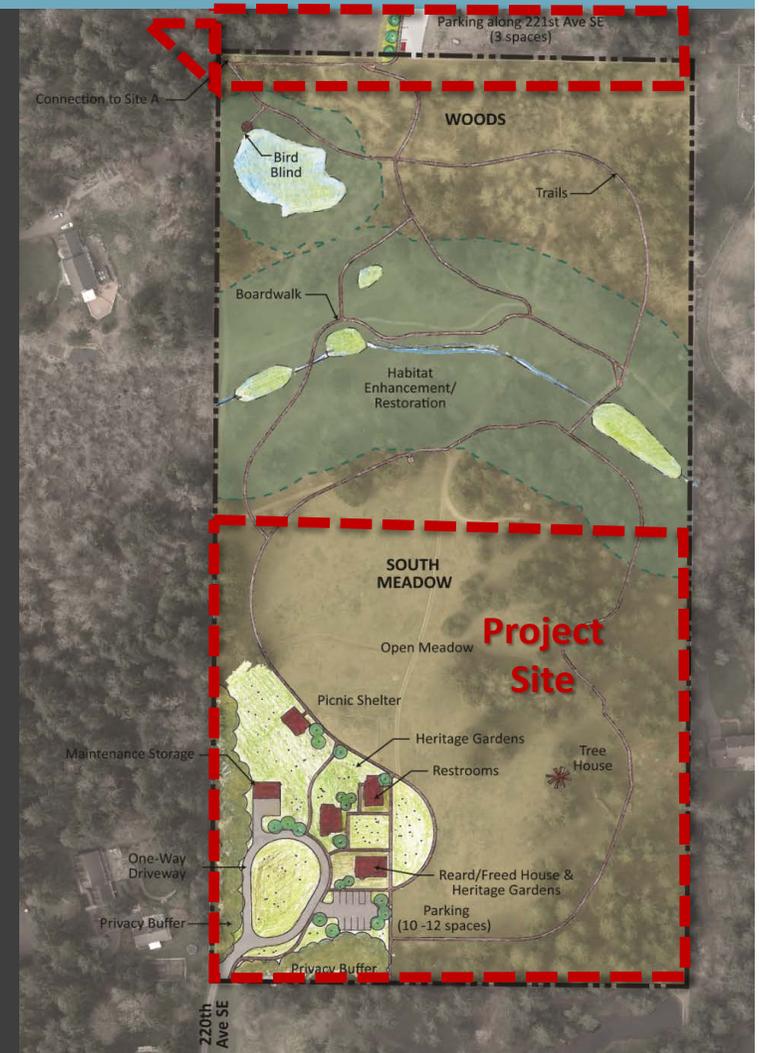


BIG ROCK PARK – SITE B:

Master Plan Phase I Development

Programming Requirements

- Right-of-way improvements
- Access
- Parking
- Utilities
- Restrooms & park storage
- Accessible meadow trails
- Walkways between buildings
- Irrigation
- Heritage gardens
- Site furniture
- Trail enhancements between Site A & B
- Buffer landscaping



BIG ROCK PARK – SITE B:

Master Plan Phase II Development

Programming Requirements

- Picnic shelter
- Bird blind
- Trail construction & enhancement
- Trail decommissioning
- Wetland & stream restoration/enhancement
- Habitat features
- Boardwalk
- Invasive removal
- Buffer landscaping
- Forest restoration & enhancement

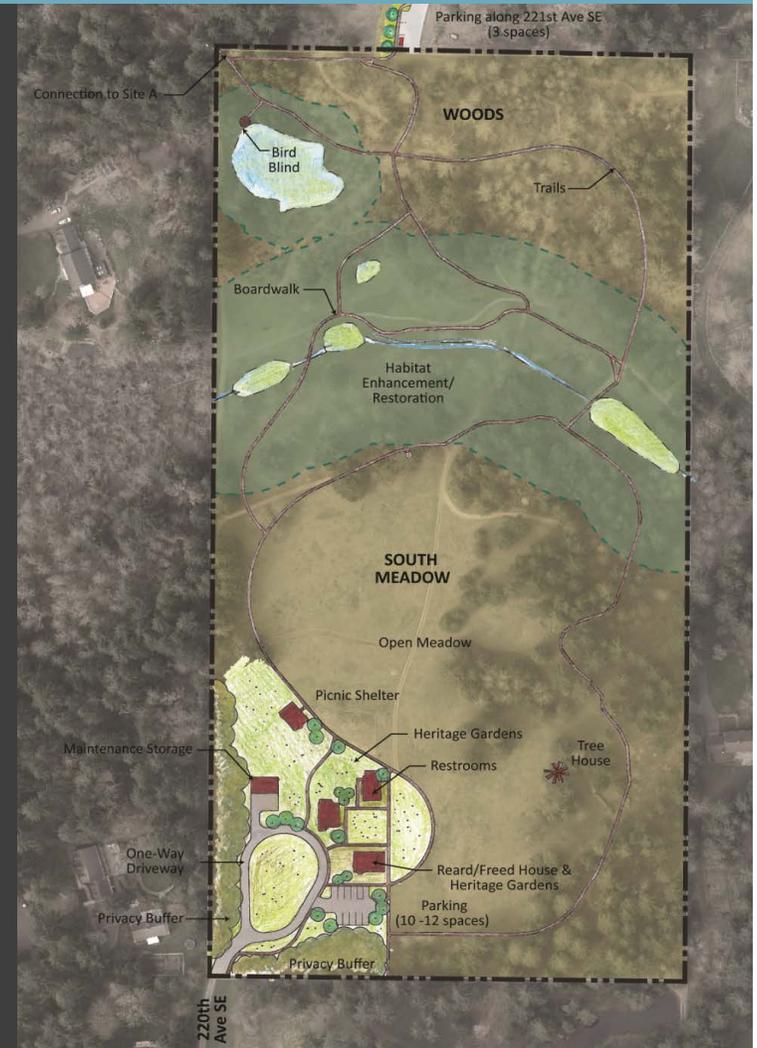


BIG ROCK PARK – SITE B:

Phase I Feasibility Work

Components Reviewed

- ADA accessibility to treehouse
- Right-of-way roadway requirements
- Investigation of reuse of existing septic field
- Investigation of on-site well for irrigation
- Detached garage remodel feasibility
- Determine utility connections to Reard Freed House & proposed addition
- Preliminary traffic analysis
- Conceptual connectivity to Site C

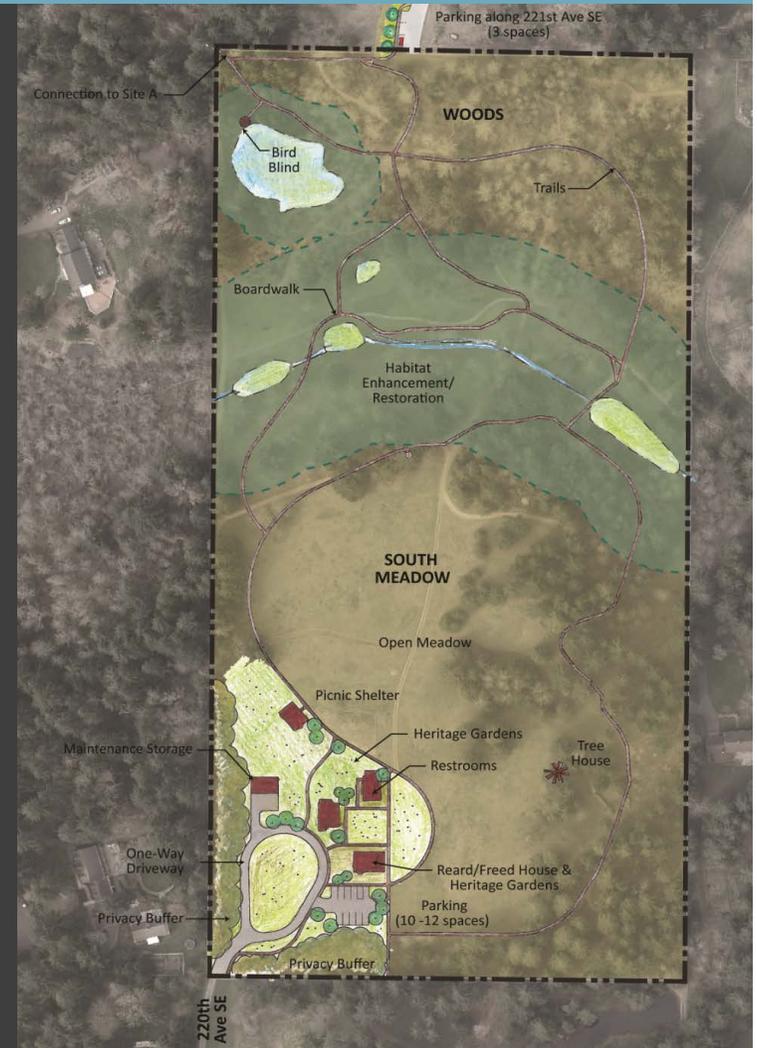


BIG ROCK PARK – SITE B:

Phase I Feasibility Work

Preliminary Studies Completed

- Topographic survey
- Wetland delineation
- Preliminary geotechnical investigation
- Structural assessment of the existing garage
- Preliminary septic feasibility
- Preliminary assessment of traffic analysis
- Treehouse occupancy calculation
- Reard Freed House preliminary programming



BIG ROCK PARK – SITE B:

Preliminary Design

Similarities

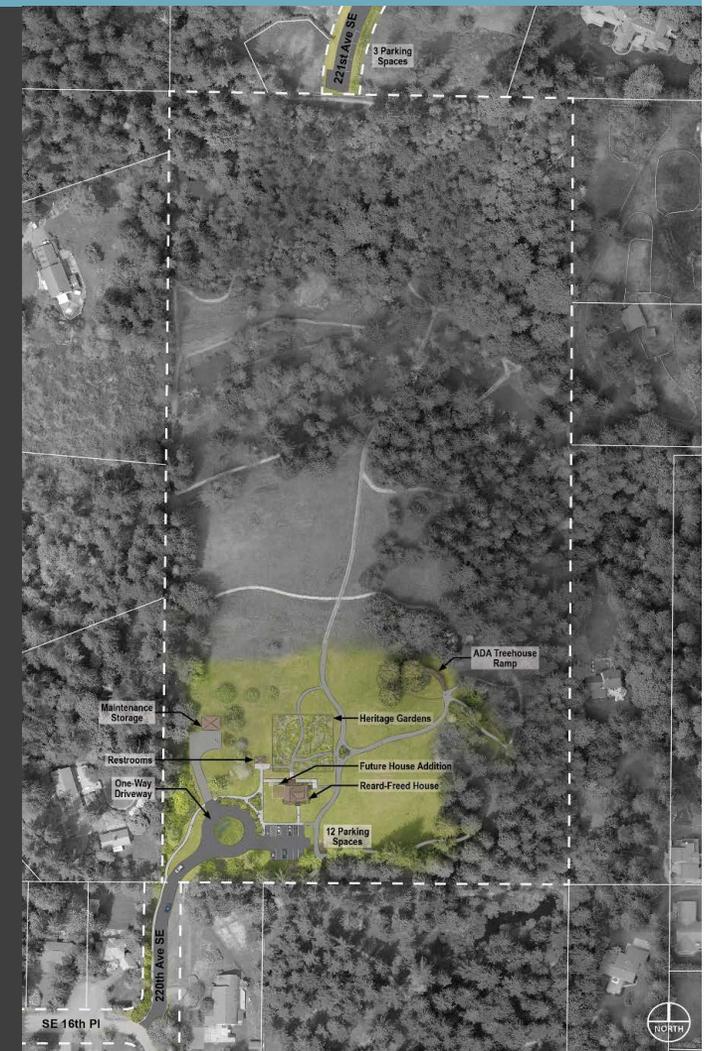
- Park access on 220th Avenue SE
- One-way driveway
- Parking lot
- Parking on 221st Avenue SE
- Heritage gardens
- Restrooms
- Maintenance storage

Differences

- Treehouse ADA Ramp
- Structure demolition
- Trail restoration for park access
- Utility connections to Reard Freed House

Site B Phase I Preliminary Design

Site B Final Master Plan Graphic



BIG ROCK PARK – SITE B

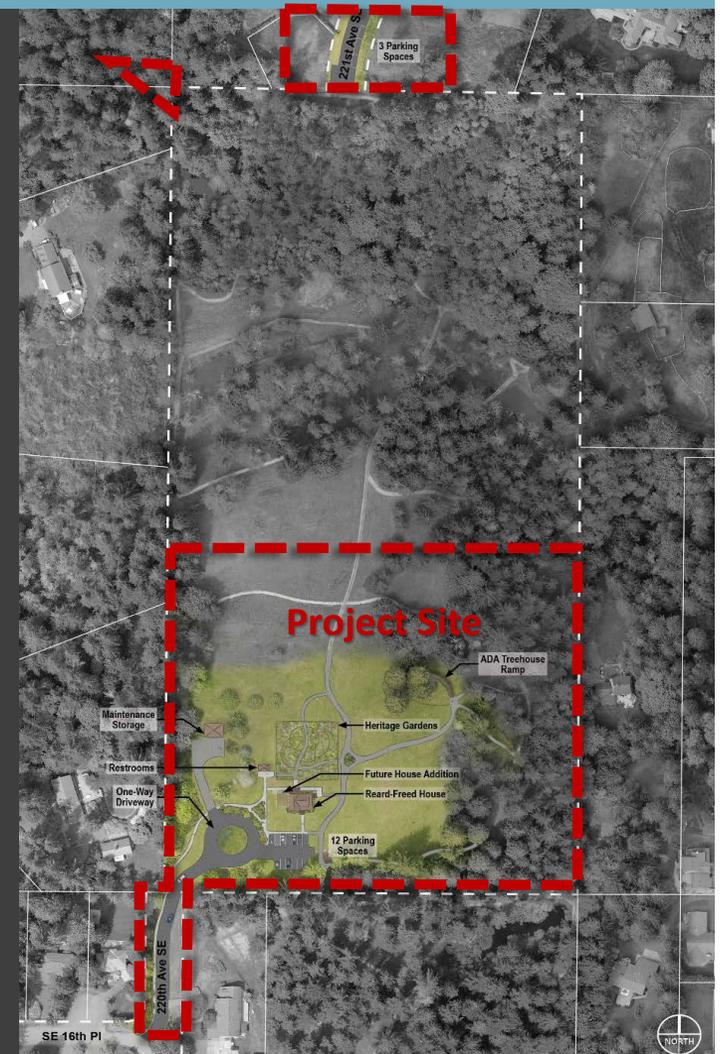
PHASE I IMPROVEMENTS OVERVIEW

BIG ROCK PARK – SITE B:

Phase I Improvements Overview

Programming Requirements

- Right-of-way improvements
- Access
- Parking
- Utilities
- Restrooms & park storage
- Accessible meadow trails
- Walkways between buildings
- Irrigation
- Heritage gardens
- Site furniture
- Trail enhancements between Site A & B
- Buffer landscaping



BIG ROCK PARK – SITE B :

221st Avenue SE Parking

Overview

- Secondary park access
- 3 parallel parking spaces in 221st Ave SE right-of-way



BIG ROCK PARK – SITE B :

220th Avenue SE Entrance

Overview

- Primary access to Site B
- Construct road for public use
- Private property restoration



BIG ROCK PARK – SITE B :

Site Access and Parking

Overview

- 12 parking spaces
- One-way driveway
- Accessible trails between buildings



BIG ROCK PARK – SITE B :

Existing Structures to be Demolished

Overview

- Detached Garage
- Tanner House
- Sauna/Laundry Building



BIG ROCK PARK – SITE B :

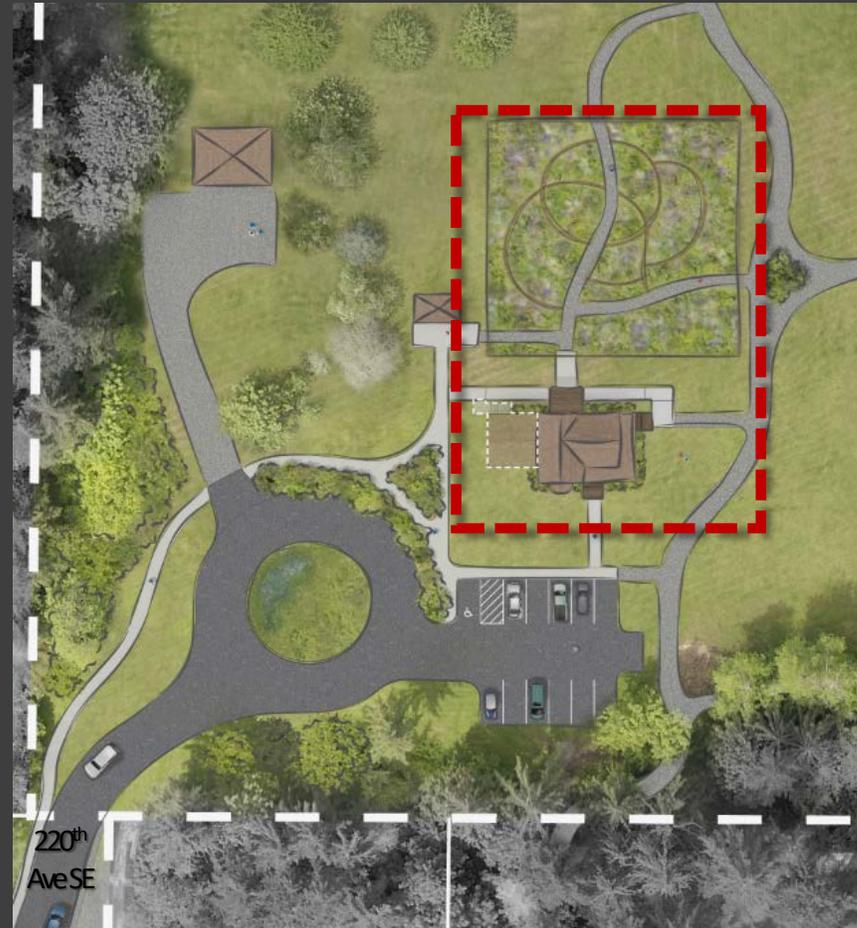
Reard Freed House & Heritage Gardens

House Overview

- 1st Floor heritage museum & public meeting space
- 2nd Floor office space/artifact storage
- House improvements not included in project scope

Garden Overview

- Preliminary design
- Community partnership opportunity



BIG ROCK PARK – SITE B :

Restrooms and Park Storage

Overview

- Pre-fabricated restroom
- New maintenance storage building



BIG ROCK PARK – SITE B :

Treehouse – Existing Conditions



Bunkhouse



Tension Bridge



Gathering Room



Gathering Room Platform



BIG ROCK PARK – SITE B :

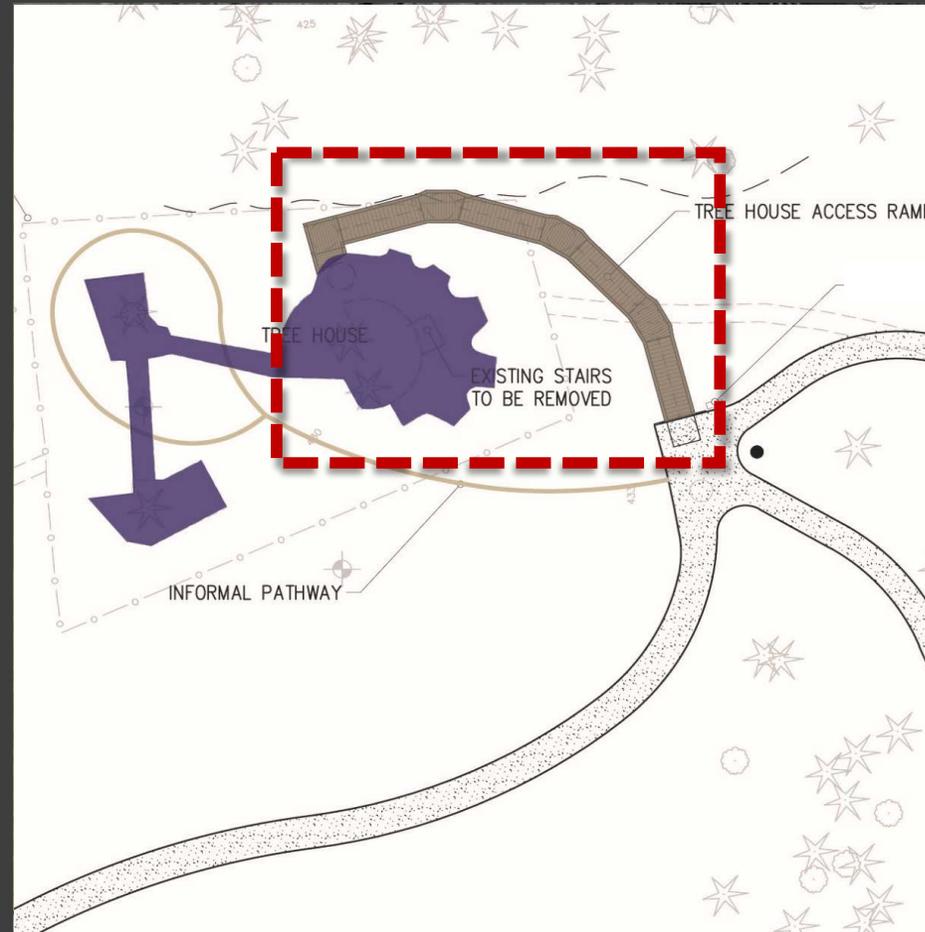
Treehouse ADA Ramp

Overview

- Remove existing stairs
- Replace with ADA ramp
- Pathway underneath treehouse between trees

Programming

- Rental and/or open to public



BIG ROCK PARK – SITE B :

Utilities

Overview

- Well decommissioning & irrigation meter
- New septic drain field
- Utility connections to Reard-Freed House (electrical, water and septic)
- New stormwater regulations



BIG ROCK PARK – SITE B :

Preliminary Anticipated Project Costs

REQUIRED	Master Plan Base Costs:	\$1,400,000
	Right-of-Way Improvements:	\$530,000
	WSST (10%)*:	\$140,000
	Utility Connection Fees:	\$81,000
	Contingency (20%):	\$396,200
	Soft Costs (30%)**:	\$570,000
	Subtotal	\$3,132,200
OPTIONAL	Treehouse ADA Ramp:	\$81,000
	Maintenance Building:	\$245,000
	Reard Freed House Utility Connections:	\$121,000
	Allowance for Necessary Trail Restoration:	\$252,000
	Total Anticipated Project Costs	\$3,831,200

*Work in the right-of-way and utility connection fees are not subject to WSST

**Soft Costs inclusive of Design, Engineering, Construction Administration, Preliminary Studies, Inspection & Report Fees

BIG ROCK PARK – SITE B

PHASE I IMPROVEMENTS DISCUSSION

BIG ROCK PARK – SITE B :

Phase I Improvements Discussion – Council Input

Treehouse ADA Accessible Ramp **\$81,000**

- Providing ADA access to treehouse is not required, but optional

Maintenance Building **\$245,000**

- Removal of existing structure and replacement with similar footprint

Reard Freed House Utility Connections **\$121,000**

- Electrical, water and septic stub outs to existing house & future addition

Allowance for Trail Restoration **\$252,000**

- Necessary trail work to open park to public. Trail work included as part of Phase II in Master Plan

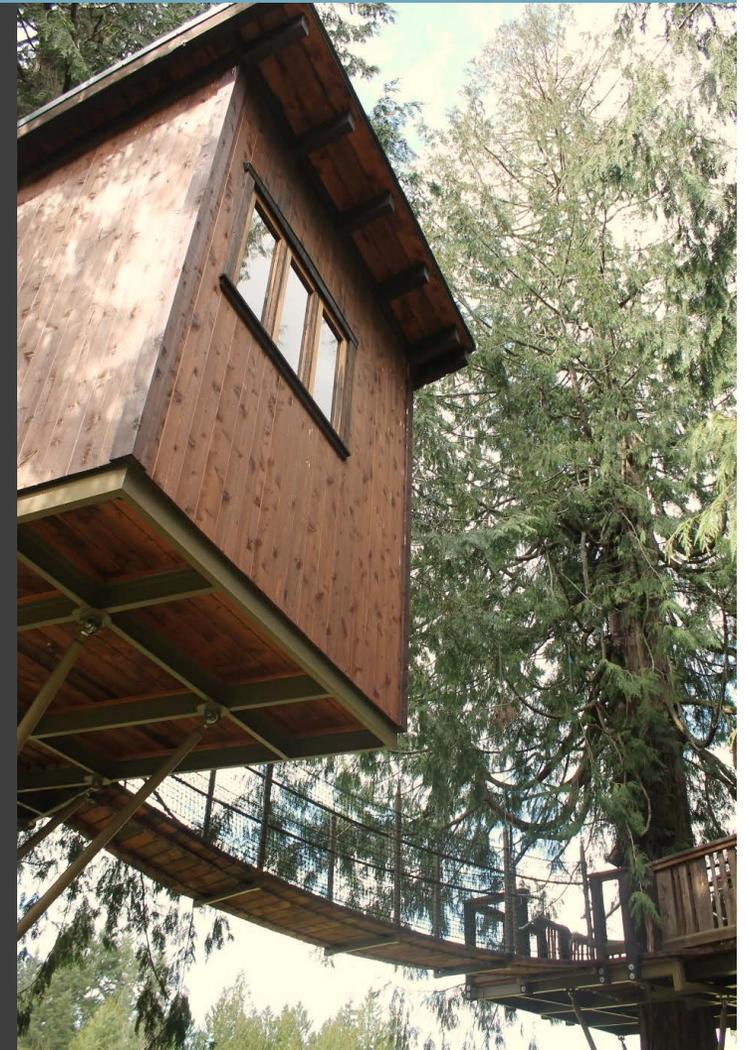


BIG ROCK PARK – SITE B :

Phase I Improvements Discussion – Programming

Treehouse Programming Opportunities

1. Open to public
2. Rented facility
3. Combination of rental and open to public
4. Phased implementation – modify programming after Site C comes under City ownership



BIG ROCK PARK – SITE B :

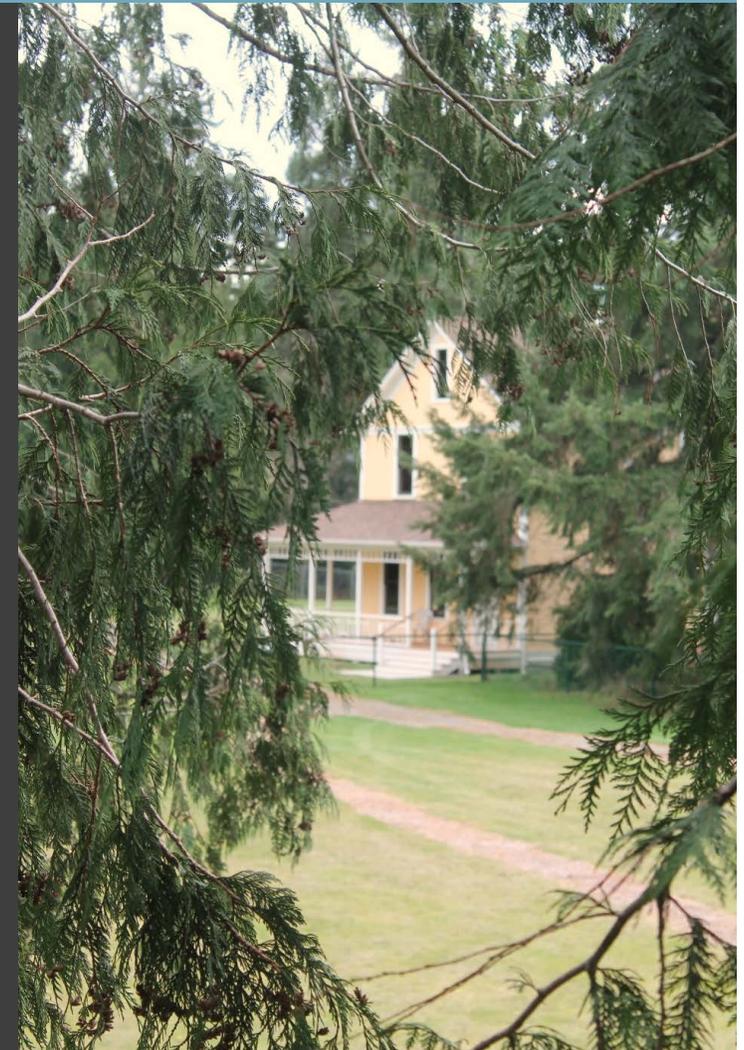
Phase I Improvements Discussion – Next Steps

Next Steps

1. Revise preliminary design and update project costs
2. Prepare contract for planning & design services to be approved by City Council

Project Timeline

Feasibility:	Summer – Fall 2018
Design, Construction Documents & Permitting:	Fall 2018 – Winter 2019
Bidding & Council Award:	Spring 2020
Construction:	Spring – late Fall 2020



QUESTIONS?



Agenda Bill
 City Council Study Session
 October 01, 2018



SUBJECT:	Roadway segment capacity and LOS analysis options.		
DATE SUBMITTED:	September 27, 2018		
DEPARTMENT:	Public Works		
NEEDED FROM COUNCIL:	<input type="checkbox"/> Action <input type="checkbox"/> Direction <input checked="" type="checkbox"/> Informational		
RECOMMENDATION:	Review and discuss options to determine roadway capacities and volume-to-capacity Level of Service standards for potential inclusion in the City's concurrency program.		
EXHIBITS:	1. Exhibit 1 - 20181001 Segment Methods Memo 2. Exhibit 2 - 20181001 Segments Presentation		
BUDGET:			
Total dollar amount	N/A	<input type="checkbox"/>	Approved in budget
Fund(s)	N/A	<input checked="" type="checkbox"/>	Budget reallocation required
		<input type="checkbox"/>	No budgetary impact
WORK PLAN FOCUS AREAS:			
<input checked="" type="checkbox"/> Transportation	<input type="checkbox"/> Community Safety		
<input type="checkbox"/> Communication & Engagement	<input checked="" type="checkbox"/> Community Livability		
<input type="checkbox"/> High Performing Government	<input type="checkbox"/> Culture & Recreation		
<input type="checkbox"/> Environmental Health & Protection	<input type="checkbox"/> Financial Sustainability		

NEEDED FROM COUNCIL:
 Review and discuss options to determine roadway capacities and volume-to-capacity Level of Service standards for potential inclusion in the City's concurrency program.

KEY FACTS AND INFORMATION SUMMARY:
 After much analysis and discussion, the Council affirmed their preferred concurrency policy to be an intersection-wide, volume weighted average delay approach with a Level of Service (LOS) of C for minor and collector arterials, and an LOS of D for principal arterials, with allowance for LOS E where LOS D cannot be achieved with three approach lanes per direction on [September 18th](#). Council unanimously approved emergency amendments to the Comprehensive Plan and updates to the affected codes that reflect this revised concurrency policy, with the understanding that staff would

return in October to discuss three options for establishing roadway LOS standards. Per Council direction, the three methods (one has two variations) to be discussed at the October 1 meeting are the 2015 Comp Plan method using Table T-8 (with and without the non-motorized components), the Florida Department of Transportation (see Sept 4th packet material) and the Highway Capacity Manual (HCM 6th Ed.).

The project team will discuss the attached memo (Exhibit 1) which describes the remaining policies requiring Council direction, the different features of each methodology, and the capacities and volume-to capacity ratios of a sample of nine road segments that illustrate the results of each method.

FINANCIAL IMPACT:

It is unknown what the financial impact is until the Council approves the scope of work needed to address their concerns.

OTHER ALTERNATIVES CONSIDERED:

None, as this implements Council's direction regarding evaluating the potential to add road segments to the City's concurrency and LOS policies.

RELATED CITY GOALS, POLICIES, AND MASTER PLANS:

[Comprehensive Plan](#) - [Transportation Element](#)

City of Sammamish
 September 27, 2018
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MEMORANDUM

Date: September 27, 2018
 To: Cheryl Paston, City of Sammamish
 From: Kendra Breiland and Rebecca Schwartzman, Fehr & Peers
 Subject: **Options for Incorporating Segments into LOS Standard for Concurrency**

SE17-0536

Over the past several months, we have worked with Council to update the City's concurrency program. The Council adopted a program based on AM and PM peak hour delay at intersections at the September 18th meeting. This system recognizes that intersections are the pinch points in Sammamish's transportation system that cause congestion.

At the September 4th, 2018 Council meeting, staff were provided direction to explore how four potential methods for determining segment capacity might be incorporated into Sammamish's concurrency program:

- Restore the prior concurrency segment methods described in Table T-8 of the 2015 Comprehensive Plan
- Use a modified approach based on Table T-8, but eliminate capacity considerations related to non-vehicular capacity elements (eg, bikeways, sidewalks, trails, shoulder width)
- Apply the segment methods described in the Florida Department of Transportation (FDOT) for generalized planning¹
- Apply the Generalized Daily Service Volumes for Urban Street Facilities methodologies described in Table 16-16 of the Highway Capacity Manual (HCM), 6th Edition

Table 1 summarizes the key considerations of these four options.

Table T-8, modified Table T-8, and FDOT have been recently discussed with Council. Table 16-16 of the HCM has not been discussed as extensively. While this option comes directly from the newest edition of the HCM, it should be noted that it is more generalized (considers fewer roadway characteristics that impact capacity) than the other three options proposed.

¹ For more details on this approach, please see the September 4th Council Packet



Table 1: Segment Methodology Considerations Summary

<i>Consideration</i>	<i>Table T-8</i>	<i>Modified T-8</i>	<i>HCM</i>	<i>FDOT</i>
Evaluates Daily Volumes	Yes	Yes	Yes	Yes
Evaluates Peak Hour Volumes	No	No	Yes	Yes
Evaluates Peak Direction Volumes	No	No	Yes	Yes
Considers Non-Motorized Capacity	Yes	No	No	No
Considers Roadway Characteristics	<ul style="list-style-type: none"> • Base capacity • Number of lanes • Lane width • Bike lane/shoulder width • Median • Walkway/bikeway • Regional trail width 	<ul style="list-style-type: none"> • Base capacity • Number of lanes • Lane width • Median 	<ul style="list-style-type: none"> • Base capacity • Speed limit • Number of lanes 	<ul style="list-style-type: none"> • Base capacity • Urban/Rural • Speed limit • Median • Number of lanes • Turn lanes • Signalization

Prior to presenting technical results of how these four options perform in evaluating roadway segments, it's important to outline the policy direction needed from Council for staff to move forward in potentially revising Sammamish's concurrency program. Below, we outline these questions and indicate prior Council direction (if received) in **bold**.

- **Question 1:** What facilities should be subject to segment evaluation? Potential options include:
 - Roadways identified in the adopted 2015 Comprehensive Plan, but include Issaquah Fall City Road (IFCR)
 - Roadways identified in the draft 2017 update
 - Principal and minor arterials identified in the draft 2017 Comp Plan update

- **Question 2:** Will facility performance be based on individual segments or be aggregated into corridors?
 - Corridors identified in the adopted 2015 Comprehensive Plan, but include IFCR
 - Individual segments identified in the 2015 Comprehensive Plan, but include IFCR
 - Corridors identified in the draft 2017 update



- Individual segments identified in the draft 2017 update
- **Question 3:** What time period does City want to consider for facility performance assessments?
 - Tuesday-Thursday all day (24-hour volumes)
 - **Tuesday-Thursday peak hour volumes (AM and PM peak hours)**
- **Question 4:** Should facility performance be based on two-way or directional volumes?
 - Two-way volumes
 - **Directional (one-way) volumes**
- **Question 5:** What capacity methodology do we want to use? This will establish the capacity of each road segment.
 - Table T-8 of the 2015 Comprehensive Plan
 - Modified Table T-8, eliminates capacity considerations related to non-vehicular capacity elements
 - Generalized Daily Service Volumes for Urban Street Facilities methodologies described in Table 16-16 of the HCM, 6th Edition
 - FDOT methodology for generalized planning²
- **Question 6:** What volume-to-capacity (V/C) threshold should we use to define acceptable roadway operations?
 - Council has complete discretion on establishing the capacity threshold standard.

As the questions above highlight, this memo mainly addresses Question 5. Receiving Council direction on all of these questions will be critical for staff to finalize a development review approach.

The remainder of this memo provides the generalized capacity tables (**Attachments A-D**) that would be applied for each of the four options on the two and four lane arterials. These generalized capacities are then used to test the segment capacity analysis results for the following sample roadway segments:

- 1 East Lake Sammamish Parkway, City limits - 196th Avenue NE
- 2 East Lake Sammamish Parkway, 196th Avenue NE to NE 26th Place
- 3 East Lake Sammamish Parkway, NE 26th Place to NE Inglewood Hill Road
- 4 Sahalee Way/228th Avenue NE, City limit to NE 37th Way
- 5 Sahalee Way/228th Ave NE, NE 36th Street to 223rd Avenue NE
- 6 228th Avenue NE, NE 8th Street/Inglewood Hill Road to Main Street
- 7 228th Avenue, SE 8th Street to SE 10th Street
- 8 228th Avenue, SE 10th to SE 20th Street
- 9 Issaquah Pine Lake Road, SE 46th Street to SE 48th Street

² For more details on this approach, please see the September 4th Council Packet

City of Sammamish
September 27, 2018
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Attachments E-G summarize the technical findings for how these segments are analyzed with each of the four methods described above. It should be noted that the volume to capacity (V/C) calculations shown in the tables are based on the theoretical vehicle carrying capacity assumed by each method for a roadway facility. The theoretical vehicle carrying capacity is defined at the point where traffic conditions become stop-and-go and cannot carry any more vehicles per lane in a given period of time.

City of Sammamish
 September 27, 2018
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Attachment A: Table T-8, Sammamish 2015 Comprehensive Plan

*Background Table T-8
 Background Assumptions for Concurrency AWDT Threshold Definitions*

TWO-LANE ROADWAY		TWO-DIRECTIONAL CAPACITY (VEHICLES PER DAY)		
		<i>Principal or Minor Arterial</i>	<i>Collector</i>	<i>Neighborhood Collector</i>
Base Capacity		12,850	9,020	2,850
Lane Width	10 feet	0	0	0
	11 feet	1,620	1,130	320
	12 feet	3,240	2,260	640
Striped Bike Lane/ Shoulder width¹	8 feet max.	580	410	120
Median	None	0	0	0
	Median	4,640	3,240	920
	Left-Turn Lane	4,640	3,240	920
Walkway/Bikeway²	None	0	0	0
	Walkway	1,160	810	230
	Bikeway	1,620	1,130	320
	Both	1,620	1,130	320
Regional Trail width³	12 feet max.	580	0	0
MAXIMUM CAPACITY		25,370	17,800	5,100
FOUR-LANE ROADWAY		TWO-DIRECTIONAL CAPACITY (VEHICLES PER DAY)		
		<i>Principal or Minor Arterial</i>	<i>Collector</i>	<i>Neighborhood Collector</i>
Base Capacity		25,920	18,100	5,180
Lane Width	10 feet	0	0	0
	11 feet	3,240	2,260	640
	12 feet	6,480	4,540	1,300
Striped Bike Lane/ Shoulder width¹	8 feet max.	580	410	120
Median	None	0	0	0
	Median	4,630	3,240	930
	Left-Turn Lane	4,630	3,240	930
Walkway/Bikeway²	None	0	0	0
	Walkway	1,160	810	230
	Bikeway	1,620	1,130	330
	Both	1,620	1,130	330
MAXIMUM CAPACITY		41,670	29,160	8,370

1. To qualify as a bike lane, the pavement must be marked as such, and have a minimum width of 5 feet.
 2. For the purpose of these calculations, a bikeway is defined as a bicycle facility that is physically separated from the roadway. Walkway and bikeway values only apply if the roadway has shoulders of less than 4-foot width.
 3. In order to realize the capacity benefits, the "regional trips" must be parallel and in close proximity to the City's arterial. The measured portion of the trail must be paved.



Attachment B: Modified Table T-8, Revised to Only Consider Motorized Capacity

*Background Table T-8
 Background Assumptions for Concurrency AWDT Threshold Definitions*

TWO-LANE ROADWAY		TWO-DIRECTIONAL CAPACITY (VEHICLES PER DAY)		
		Principal or Minor Arterial	Collector	Neighborhood Collector
Base Capacity		12,850	9,020	2,850
Lane Width	10 feet	0	0	0
	11 feet	1,620	1,130	320
	12 feet	8,248	2,260	640
Striped Bike Lane/ Shoulder width¹	0 feet max.	300	410	120
Median	None	0	0	0
	Median	4,640	3,240	920
	Left-Turn Lane	4,640	3,240	920
Walkway/Bikeway²	None	0	0	0
	Walkway	1,160	810	230
	Bikeway	1,620	1,130	320
	Both	1,620	1,130	320
Regional trail width³	12 feet max.	500	0	0
MAXIMUM CAPACITY		25,370	17,800	5,100

FOUR-LANE ROADWAY		TWO-DIRECTIONAL CAPACITY (VEHICLES PER DAY)		
		Principal or Minor Arterial	Collector	Neighborhood Collector
Base Capacity		25,920	18,100	5,180
Lane Width	10 feet	0	0	0
	11 feet	3,240	2,260	640
	12 feet	6,480	4,520	1,280
Striped Bike Lane/ Shoulder width¹	0 feet max.	300	410	120
Median	None	0	0	0
	Median	4,630	3,240	930
	Left-Turn Lane	4,630	3,240	930
Walkway/Bikeway²	None	0	0	0
	Walkway	1,160	810	230
	Bikeway	1,620	1,130	320
	Both	1,620	1,130	320
MAXIMUM CAPACITY		41,670	29,160	8,370

1. To qualify as a bike lane, the pavement must be marked as such, and have a minimum width of 5 feet.
 2. For the purpose of these calculations, a bikeway is defined as a bicycle facility that is physically separated from the roadway. Walkway and bikeway values only apply if the roadway has shoulders of less than 4-foot width.
 3. In order to realize the capacity benefits, the "regional trips" must be parallel and in close proximity to the City's arterial. The measured portion of the trail must be paved.

* If a section has a median and turn pockets along its entire length, full credit (4,640 for 2-lane or 4,630 for 4 lane) is applied. If there's a median along part of the length or if only some intersections have a turn pocket, then 50% credit is applied.

City of Sammamish
 September 27, 2018
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Attachment C: HCM, 6th Edition Table 16-16³

K-Factor	D-Factor	Daily Service Volume by Lanes, LOS, and Speed (1,000 veh/day)														
		Two-Lane Streets					Four-Lane Streets					Six-Lane Streets				
		LOS	B	C	D	LOS E	LOS B	C	D	LOS E	LOS B	C	D	LOS E		
<i>Posted Speed = 30 mi/h</i>																
0.09	0.55	NA	1.7	11.8	17.8	NA	2.2	24.7	35.8	NA	2.6	38.7	54.0			
	0.60	NA	1.6	10.8	16.4	NA	2.0	22.7	32.8	NA	2.4	35.6	49.5			
0.10	0.55	NA	1.6	10.7	16.1	NA	2.0	22.3	32.2	NA	2.4	34.9	48.6			
	0.60	NA	1.4	9.8	14.7	NA	1.8	20.4	29.5	NA	2.2	32.0	44.5			
0.11	0.55	NA	1.4	9.7	14.6	NA	1.8	20.3	29.3	NA	2.1	31.7	44.1			
	0.60	NA	1.3	8.9	13.4	NA	1.7	18.6	26.9	NA	2.0	29.1	40.5			
<i>Posted Speed = 45 mi/h</i>																
0.09	0.55	NA	7.7	15.9	18.3	NA	16.5	33.6	36.8	NA	25.4	51.7	55.3			
	0.60	NA	7.1	14.5	16.8	NA	15.1	30.8	33.7	NA	23.4	47.4	50.7			
0.10	0.55	NA	7.0	14.3	16.5	NA	14.9	30.2	33.1	NA	23.0	46.5	49.7			
	0.60	NA	6.4	13.1	15.1	NA	13.6	27.7	30.3	NA	21.0	42.7	45.6			
0.11	0.55	NA	6.3	13.0	15.0	NA	13.5	27.5	30.1	NA	20.9	42.3	45.2			
	0.60	NA	5.8	11.9	13.8	NA	12.4	25.2	27.6	NA	19.1	38.8	41.5			

Notes: NA = not applicable; LOS cannot be achieved with the stated assumptions.
 General assumptions include no roundabouts or all-way stop-controlled intersections along the facility; coordinated, semiactuated traffic signals; Arrival Type 4; 120-s cycle time; protected left-turn phases; 0.45 weighted average *g/C* ratio; exclusive left-turn lanes with adequate queue storage provided at traffic signals; no exclusive right-turn lanes provided; no restrictive median; 2-mi facility length; 10% of traffic turns left and 10% turns right at each traffic signal; peak hour factor = 0.92; and base saturation flow rate = 1,900 pc/h/ln.
 Additional assumptions for 30-mi/h facilities: signal spacing = 1,050 ft and 20 access points/mi.
 Additional assumptions for 45-mi/h facilities: signal spacing = 1,500 ft and 10 access points/mi.

K-Factor = Proportion of the annual avg daily traffic occurring in the analysis period.
 D-Factor = Density of vehicles/hr
 Most conservative numbers are used.

Ex: Segment 1: ELSP, City limits - 196th Ave NE, 30MPH, LOS E

K-Factor, D-Factor	Daily Volumes (DV)	PM Peak Hour, (K*DV)	Peak Hour by Direction, (K*D*DV)
0.09, 0.6	16,400	1,476	
0.09, 0.55	17,800		881

³ Highway Capacity Manual, 6th Edition Generalized Daily Service Volumes for Urban Street Facilities



ATTACHMENT D1: FDOT ANNUAL AVERAGE DAILY VOLUMES FOR URBANIZED AREAS⁴

INTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS					
Class I (40 mph or higher posted speed limit)					
Lanes	Median	B	C	D	E
2	Undivided	*	16,800	17,700	**
4	Divided	*	37,900	39,800	**
6	Divided	*	58,400	59,900	**
8	Divided	*	78,800	80,100	**
Class II (35 mph or slower posted speed limit)					
Lanes	Median	B	C	D	E
2	Undivided	*	7,300	14,800	15,600
4	Divided	*	14,500	32,400	33,800
6	Divided	*	23,300	50,000	50,900
8	Divided	*	32,000	67,300	68,100
Non-State Signalized Roadway Adjustments					
(Alter corresponding state volumes by the indicated percent.)					
Non-State Signalized Roadways - 10%					
Median & Turn Lane Adjustments					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors	
2	Divided	Yes	No	+5%	
2	Undivided	No	No	-20%	
Multi	Undivided	Yes	No	-5%	
Multi	Undivided	No	No	-25%	
-	-	-	Yes	+ 5%	
One-Way Facility Adjustment					
Multiply the corresponding two-directional volumes in this table by 0.6					

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.

⁴ 2012 Florida Department of Transportation (FDOT) Quality/Level of Service Handbook Tables



ATTACHMENT D2: FDOT PEAK TWO-WAY VOLUMES FOR URBANIZED AREAS

INTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS					
Class I (40 mph or higher posted speed limit)					
Lanes	Median	B	C	D	E
2	Undivided	*	1,510	1,600	**
4	Divided	*	3,420	3,580	**
6	Divided	*	5,250	5,390	**
8	Divided	*	7,090	7,210	**
Class II (35 mph or slower posted speed limit)					
Lanes	Median	B	C	D	E
2	Undivided	*	660	1,330	1,410
4	Divided	*	1,310	2,920	3,040
6	Divided	*	2,090	4,500	4,590
8	Divided	*	2,880	6,060	6,130
Non-State Signalized Roadway Adjustments					
(Alter corresponding state volumes by the indicated percent.)					
Non-State Signalized Roadways - 10%					
Median & Turn Lane Adjustments					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors	
2	Divided	Yes	No	+5%	
2	Undivided	No	No	-20%	
Multi	Undivided	Yes	No	-5%	
Multi	Undivided	No	No	-25%	
-	-	-	Yes	+ 5%	
One-Way Facility Adjustment					
Multiply the corresponding two-directional volumes in this table by 0.6					

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.



ATTACHMENT D3: FDOT PEAK DIRECTIONAL VOLUMES FOR URBANIZED AREAS

INTERRUPTED FLOW FACILITIES					
STATE SIGNALIZED ARTERIALS					
Class I (40 mph or higher posted speed limit)					
Lanes	Median	B	C	D	E
1	Undivided	*	830	880	**
2	Divided	*	1,910	2,000	**
3	Divided	*	2,940	3,020	**
4	Divided	*	3,970	4,040	**
Class II (35 mph or slower posted speed limit)					
Lanes	Median	B	C	D	E
1	Undivided	*	370	750	800
2	Divided	*	730	1,630	1,700
3	Divided	*	1,170	2,520	2,560
4	Divided	*	1,610	3,390	3,420
Non-State Signalized Roadway Adjustments					
(Alter corresponding state volumes by the indicated percent.)					
Non-State Signalized Roadways - 10%					
Median & Turn Lane Adjustments					
Lanes	Median	Exclusive Left Lanes	Exclusive Right Lanes	Adjustment Factors	
1	Divided	Yes	No	+5%	
1	Undivided	No	No	-20%	
Multi	Undivided	Yes	No	-5%	
Multi	Undivided	No	No	-25%	
-	-	-	Yes	+ 5%	
One-Way Facility Adjustment					
Multiply the corresponding directional volumes in this table by 1.2					

* Cannot be achieved using table input value defaults.

** Not applicable for that level of service letter grade. For the automobile mode, volumes greater than level of service D become F because intersection capacities have been reached. For the bicycle mode, the level of service letter grade (including F) is not achievable because there is no maximum vehicle volume threshold using table input value defaults.



Attachment E: Daily Volumes

	Segment	Volume	Capacities				V/C			
			Table T-8 ⁵	Mod. Table T-8	HCM	FDOT	Table T-8	Mod. Table T-8	HCM	FDOT
1	ELSP, City limits - 196th Ave NE	19,068	24,330	14,470	16,400	11,232	0.78	1.32	1.16	1.70
2	ELSP, 196th Ave NE to NE 26th Pl	18,679	24,330	14,470	16,400	11,232	0.77	1.29	1.14	1.66
3	ELSP, NE 26th Pl to NE Inglewood Hill RD	18,988	28,970	19,110	16,400	14,040	0.66	0.99	1.16	1.35
4	Sahalee Way/228th Ave NE, City limit to NE 37th Way	21,210	18,530	16,790	16,800	13,541	1.14	1.26	1.26	1.57
5	Sahalee Way/228th Ave NE, NE 36th St to 223rd Ave NE	16,961	18,530	16,790	16,800	13,541	0.92	1.01	1.01	1.25
6	228th Ave NE, NE 8th St/Inglewood Hill Rd to Main St	24,915	34,950	33,790	32,800	31,941	0.71	0.74	0.76	0.78
7	228th Ave, SE 8th St to SE 10th St	26,653	34,950	33,790	32,800	37,611	0.76	0.79	0.81	0.71
8	228th Ave, SE 10th to SE 20th St	29,749	34,950	33,790	32,800	37,611	0.85	0.88	0.91	0.79
9	IPLR, SE 46th St to SE 48th St	21,629	20,400	16,790	16,400	13,541	1.06	1.29	1.32	1.60

⁵ Capacities as reported in the 2015 Comprehensive Plan



Attachment F: PM Peak Hour Volumes

	Segment	Volume	Capacities				V/C			
			Table T-8	Mod. Table T-8	HCM	FDOT	Table T-8	Mod. Table T-8	HCM	FDOT
1	ELSP, City limits - 196th Ave NE	1,789	N/A	N/A	1,476	1,015	N/A	N/A	1.21	1.76
2	ELSP, 196th Ave NE to NE 26th Pl	995	N/A	N/A	1,476	1,015	N/A	N/A	0.67	0.98
3	ELSP, NE 26th Pl to NE Inglewood Hill RD	1,832	N/A	N/A	1,476	1,269	N/A	N/A	1.24	1.44
4	Sahalee Way/228th Ave NE, City limit to NE 37th Way	1,675	N/A	N/A	1,512	1,224	N/A	N/A	1.11	1.37
5	Sahalee Way/228th Ave NE, NE 36th St to 223rd Ave NE	1,385	N/A	N/A	1,512	1,224	N/A	N/A	0.92	1.13
6	228th Ave NE, NE 8th St/Inglewood Hill Rd to Main St	2,110	N/A	N/A	2,952	2,873	N/A	N/A	0.71	0.73
7	228th Ave, SE 8th St to SE 10th St	2,286	N/A	N/A	2,952	2,873	N/A	N/A	0.77	0.80
8	228th Ave, SE 10th to SE 20th St	2,537	N/A	N/A	2,952	3,383	N/A	N/A	0.86	0.75
9	IPLR, SE 46th St to SE 48th St	1,924	N/A	N/A	1,476	1,079	N/A	N/A	1.30	1.78



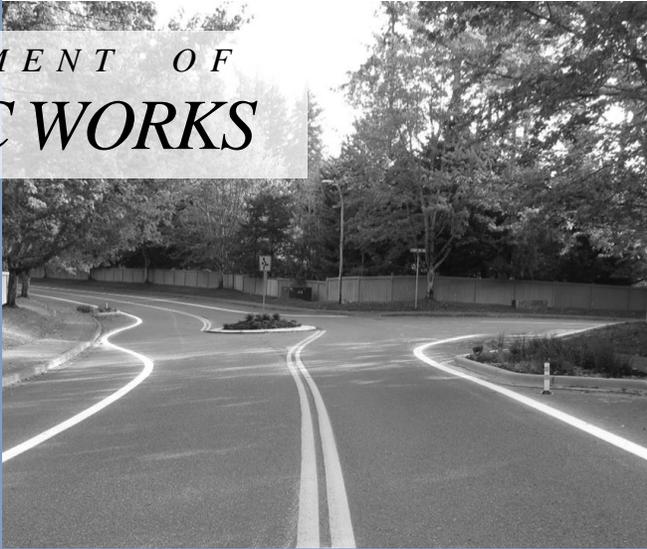
Attachment G: PM Peak Hour Directional Volumes

	Segment	Volume	Capacities				V/C			
			Table T-8	Mod. Table T-8	HCM	FDOT	Table T-8	Mod. Table T-8	HCM	FDOT
1a	NB ELSP, City limits - 196th Ave NE	586	N/A	N/A	881	576	N/A	N/A	0.66	1.02
1b	SB ELSP, City limits - 196th Ave NE	1,203	N/A	N/A	881	576	N/A	N/A	1.37	2.09
2a	NB ELSP, 196th Ave NE to NE 26th Pl	614	N/A	N/A	881	576	N/A	N/A	0.70	1.07
2b	SB ELSP, 196th Ave NE to NE 26th Pl	1,167	N/A	N/A	881	576	N/A	N/A	1.32	2.03
3a	NB ELSP, NE 26th Pl to NE Inglewood Hill RD	623	N/A	N/A	881	720	N/A	N/A	0.71	0.87
3b	SB ELSP, NE 26th Pl to NE Inglewood Hill RD	1,209	N/A	N/A	881	720	N/A	N/A	1.37	1.68
4a	NB Sahalee Way/228th Ave NE, City limit to NE 37th Way	573	N/A	N/A	906	634	N/A	N/A	0.63	0.90
4b	SB Sahalee Way/228th Ave NE, City limit to NE 37th Way	1,102	N/A	N/A	906	673	N/A	N/A	1.22	1.64
5a	NB Sahalee Way/228th Ave NE, NE 36th St to 223rd Ave NE	545	N/A	N/A	906	673	N/A	N/A	0.60	0.81
5b	SB Sahalee Way/228th Ave NE, NE 36th St to 223rd Ave NE	840	N/A	N/A	906	673	N/A	N/A	0.93	1.25
6a	NB 228th Ave NE, NE 8th St/Inglewood Hill Rd to Main St	1,058	N/A	N/A	1,772	1,607	N/A	N/A	0.60	0.66
6b	SB 228th Ave NE, NE 8th St/Inglewood Hill Rd to Main St	1,052	N/A	N/A	1,772	1,607	N/A	N/A	0.59	0.65
7a	NB 228th Ave, SE 8th St to SE 10th St	1,209	N/A	N/A	1,772	1,607	N/A	N/A	0.68	0.75
7b	SB 228th Ave, SE 8th St to SE 10th St	1,078	N/A	N/A	1,772	1,607	N/A	N/A	0.61	0.67



8a	NB 228th Ave, SE 10th to SE 20th St	1,303	N/A	N/A	1,772	1,890	N/A	N/A	0.74	0.69
8b	SB 228th Ave, SE 10th to SE 20th St	1,233	N/A	N/A	1,772	1,890	N/A	N/A	0.70	0.65
9a	NB IPLR, SE 46th St to SE 48th St	1,207	N/A	N/A	881	612	N/A	N/A	1.37	1.97
9b	SB IPLR, SE 46th St to SE 48th St	717	N/A	N/A	881	612	N/A	N/A	0.81	1.17

DEPARTMENT OF
PUBLIC WORKS



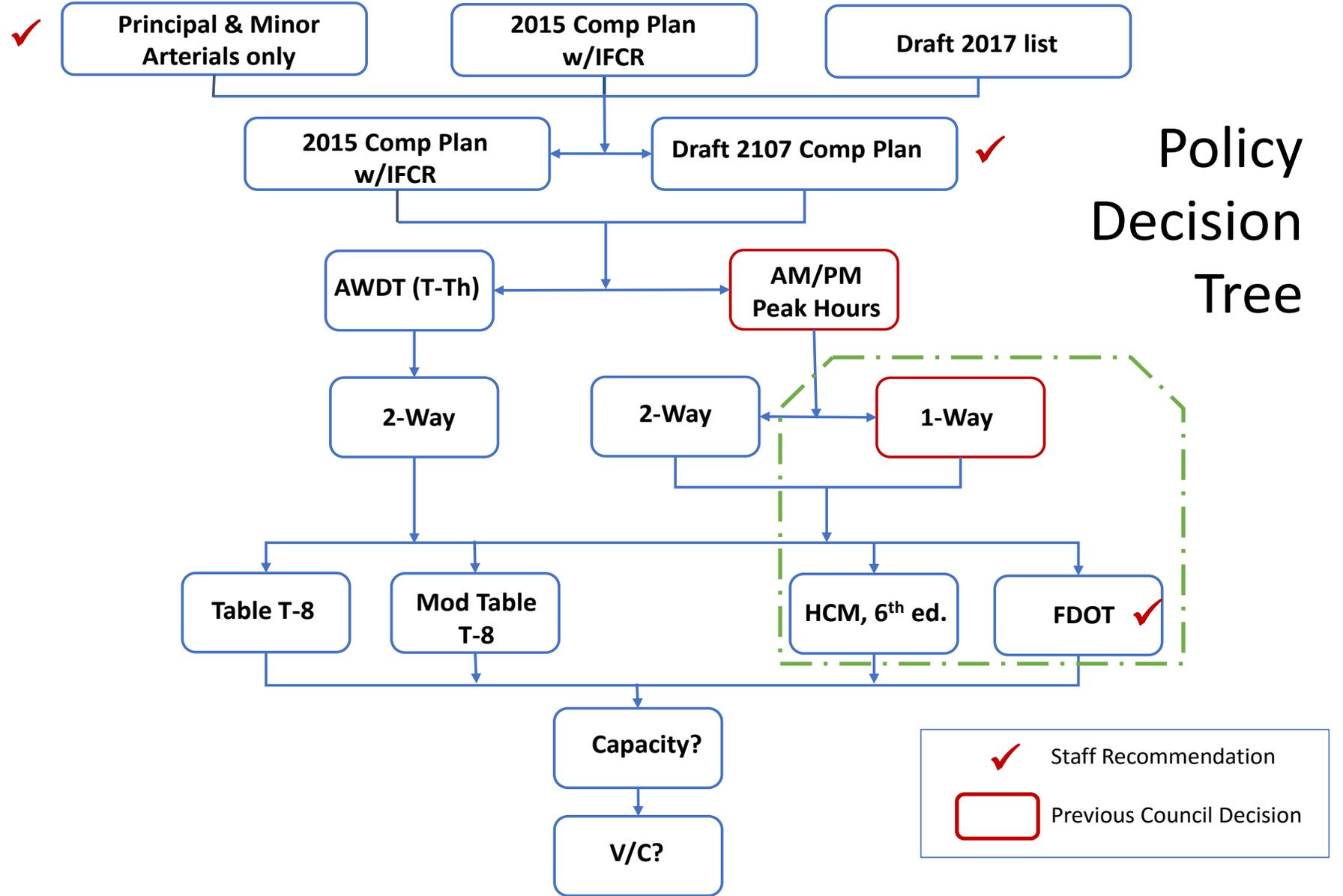
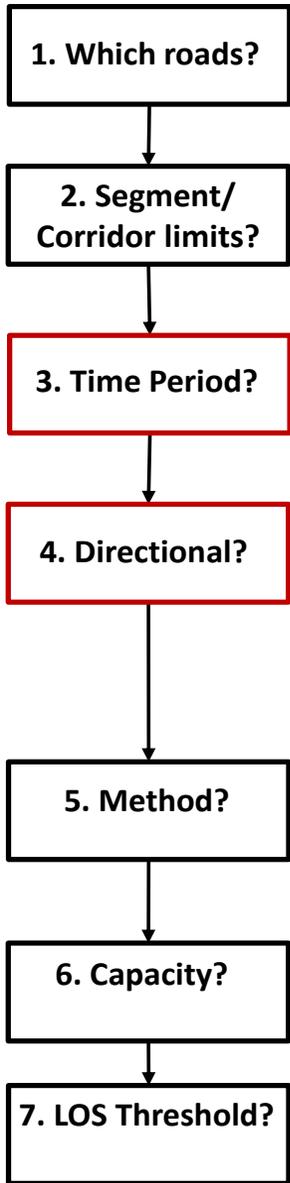
**Transportation Concurrency and LOS
Intersections and Segments Revisited**

**City Council Meeting
October 1, 2018**



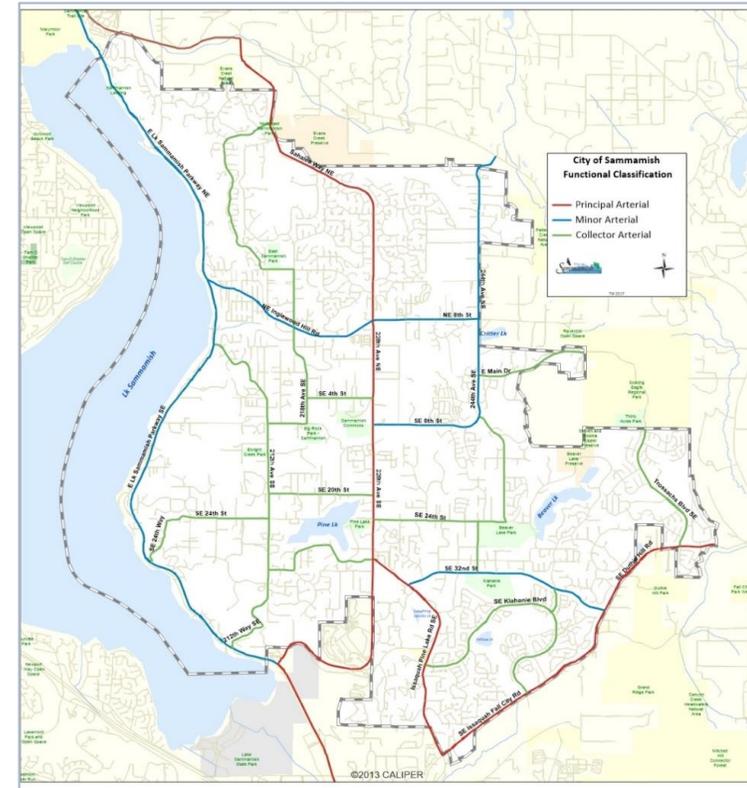
Meeting Purpose

- Discuss key policies needing Council's direction to complete analysis
- Present four methods to calculate road segment capacities
- Discuss sample road capacities and V/C results



Determining Roadway Capacities

- Table T-8
 - Method used in 2015 Comp Plan
- Modified Table T-8
 - Adjusted for medians/turn lanes if any, deleted non motorized credits
- Highway Capacity Manual, 6th Ed.
 - Generalized daily volumes
- Florida Dept of Transportation
 - Generalized planning approach



Comparison of Key Features

<i>Consideration</i>	<i>Table T-8</i>	<i>Modified T-8</i>	<i>HCM</i>	<i>FDOT</i>
Evaluates Daily Volumes	Yes	Yes	Yes	Yes
Evaluates Peak Hour Volumes	No	No	Yes	Yes
Evaluates Peak Direction Volumes	No	No	Yes	Yes
Considers Non-Motorized Capacity	Yes	No	No	No
Considers Roadway Characteristics	<ul style="list-style-type: none"> • Base capacity • Number of lanes • Lane width • Bike lane/shoulder width • Median • Walkway/bikeway • Regional trail width 	<ul style="list-style-type: none"> • Base capacity • Number of lanes • Lane width • Median 	<ul style="list-style-type: none"> • Speed limit • Number of lanes 	<ul style="list-style-type: none"> • Base capacity • Urban/Rural • Speed limit • Median • Number of lanes • Turn lanes • Signalization

Daily Volumes

	Segment	Volume	Capacities				v/c			
			Table T-8 ⁵	Mod. Table T-8	HCM	FDOT	Table T-8	Mod. Table T-8	HCM	FDOT
1	ELSP, City limits - 196th Ave NE	19,068	24,330	14,470	16,400	11,232	0.78	1.32	1.16	1.70
2	ELSP, 196th Ave NE to NE 26th Pl	18,679	24,330	14,470	16,400	11,232	0.77	1.29	1.14	1.66
3	ELSP, NE 26th Pl to NE Inglewood Hill RD	18,988	28,970	19,110	16,400	14,040	0.66	0.99	1.16	1.35
4	Sahalee Way/228th Ave NE, City limit to NE 37th Way	21,210	18,530	16,790	16,800	13,541	1.14	1.26	1.26	1.57
5	Sahalee Way/228th Ave NE, NE 36th St to 223rd Ave NE	16,961	18,530	16,790	16,800	13,541	0.92	1.01	1.01	1.25
6	228th Ave NE, NE 8th St/Inglewood Hill Rd to Main St	24,915	34,950	33,790	32,800	31,941	0.71	0.74	0.76	0.78
7	228th Ave, SE 8th St to SE 10th St	26,653	34,950	33,790	32,800	37,611	0.76	0.79	0.81	0.71
8	228th Ave, SE 10th to SE 20th St	29,749	34,950	33,790	32,800	37,611	0.85	0.88	0.91	0.79
9	IPLR, SE 46th St to SE 48th St	21,629	20,400	16,790	16,400	13,541	1.06	1.29	1.32	1.60

⁵Capacities as reported in the 2015 Comprehensive Plan

PM Peak Hour Volumes

	Segment	Volume	Capacities				V/C			
			Table T-8	Mod. Table T-8	HCM	FDOT	Table T-8	Mod. Table T-8	HCM	FDOT
1	ELSP, City limits - 196th Ave NE	1,789	N/A	N/A	1,476	1,015	N/A	N/A	1.21	1.76
2	ELSP, 196th Ave NE to NE 26th Pl	995	N/A	N/A	1,476	1,015	N/A	N/A	0.67	0.98
3	ELSP, NE 26th Pl to NE Inglewood Hill RD	1,832	N/A	N/A	1,476	1,269	N/A	N/A	1.24	1.44
4	<u>Sahalee Way</u> /228th Ave NE, City limit to NE 37th Way	1,675	N/A	N/A	1,512	1,224	N/A	N/A	1.11	1.37
5	<u>Sahalee Way</u> /228th Ave NE, NE 36th St to 223rd Ave NE	1,385	N/A	N/A	1,512	1,224	N/A	N/A	0.92	1.13
6	228th Ave NE, NE 8th St/Inglewood Hill Rd to Main St	2,110	N/A	N/A	2,952	2,873	N/A	N/A	0.71	0.73
7	228th Ave, SE 8th St to SE 10th St	2,286	N/A	N/A	2,952	2,873	N/A	N/A	0.77	0.80
8	228th Ave, SE 10th to SE 20th St	2,537	N/A	N/A	2,952	3,383	N/A	N/A	0.86	0.75
9	IPLR, SE 46th St to SE 48th St	1,924	N/A	N/A	1,476	1,079	N/A	N/A	1.30	1.78

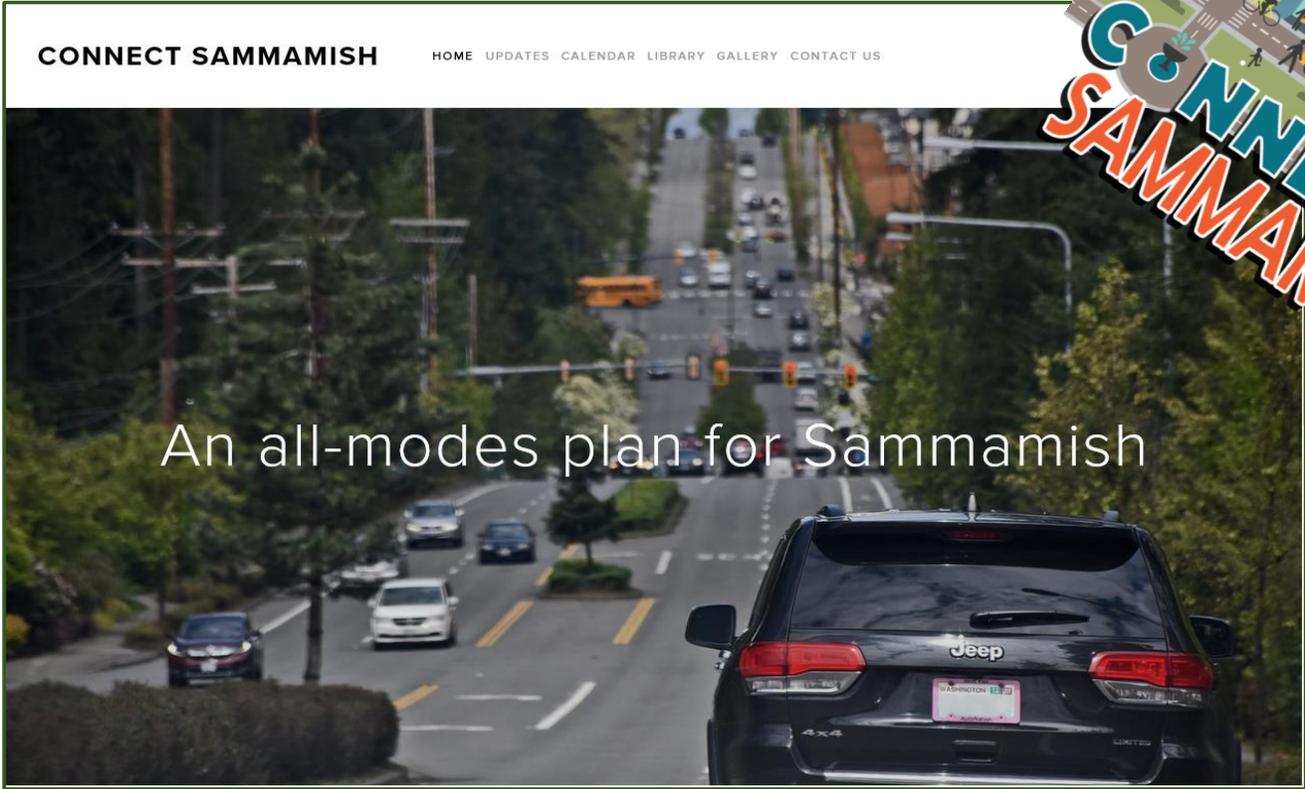
PM Peak Hour by Direction

	Segment	Volume	Capacities				V/C			
			Table T-8	Mod. Table T-8	HCM	FDOT	Table T-8	Mod. Table T-8	HCM	FDOT
1a	NB ELSP, City limits - 196th Ave NE	586	N/A	N/A	881	576	N/A	N/A	0.66	1.02
1b	SB ELSP, City limits - 196th Ave NE	1,203	N/A	N/A	881	576	N/A	N/A	1.37	2.09
2a	NB ELSP, 196th Ave NE to NE 26th Pl	614	N/A	N/A	881	576	N/A	N/A	0.70	1.07
2b	SB ELSP, 196th Ave NE to NE 26th Pl	1,167	N/A	N/A	881	576	N/A	N/A	1.32	2.03
3a	NB ELSP, NE 26th Pl to NE Inglewood Hill RD	623	N/A	N/A	881	720	N/A	N/A	0.71	0.87
3b	SB ELSP, NE 26th Pl to NE Inglewood Hill RD	1,209	N/A	N/A	881	720	N/A	N/A	1.37	1.68
4a	NB <u>Sahalee Way</u> /228th Ave NE, City limit to NE 37th Way	573	N/A	N/A	906	634	N/A	N/A	0.63	0.90
4b	SB <u>Sahalee Way</u> /228th Ave NE, City limit to NE 37th Way	1,102	N/A	N/A	906	673	N/A	N/A	1.22	1.64
5a	NB <u>Sahalee Way</u> /228th Ave NE, NE 36th St to 223rd Ave NE	545	N/A	N/A	906	673	N/A	N/A	0.60	0.81
5b	SB <u>Sahalee Way</u> /228th Ave NE, NE 36th St to 223rd Ave NE	840	N/A	N/A	906	673	N/A	N/A	0.93	1.25

PM Peak Hour by Direction (cont)

	Segment	Volume	Capacities				v/c			
			Table T-8	Mod. Table T-8	HCM	FDOT	Table T-8	Mod. Table T-8	HCM	FDOT
6a	NB 228th Ave NE, NE 8th St/Inglewood Hill Rd to Main St	1,058	N/A	N/A	1,772	1,607	N/A	N/A	0.60	0.66
6b	SB 228th Ave NE, NE 8th St/Inglewood Hill Rd to Main St	1,052	N/A	N/A	1,772	1,607	N/A	N/A	0.59	0.65
7a	NB 228th Ave, SE 8th St to SE 10th St	1,209	N/A	N/A	1,772	1,607	N/A	N/A	0.68	0.75
7b	SB 228th Ave, SE 8th St to SE 10th St	1,078	N/A	N/A	1,772	1,607	N/A	N/A	0.61	0.67
8a	NB 228th Ave, SE 10th to SE 20th St	1,303	N/A	N/A	1,772	1,890	N/A	N/A	0.74	0.69
8b	SB 228th Ave, SE 10th to SE 20th St	1,233	N/A	N/A	1,772	1,890	N/A	N/A	0.70	0.65
9a	NB IPLR, SE 46th St to SE 48th St	1,207	N/A	N/A	881	612	N/A	N/A	1.37	1.97
9b	SB IPLR, SE 46th St to SE 48th St	717	N/A	N/A	881	612	N/A	N/A	0.81	1.17

Thank You



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