CHAPTER 3 – PROBABLE SIGNIFICANT ADVERSE IMPACT REVIEW OF THE PROPOSAL

The purpose of SEPA is to examine the potential environmental consequences of a project that "have a reasonable probability of more than a moderate impact on the environment" resulting from the proposal. SEPA is also used to identify means of avoiding the impact or mitigating the impact where avoidance is not feasible, and to identify alternatives that may provide a beneficial result.

The County issued a determination June 13, 2006 concerning the probable significant adverse impact for the proposed Master Planned Resort, based on three alternatives:

- No action
- The proposal
- The conceptual plan described in the Brinnon Subarea Plan.

During subsequent discussions, the County requested analysis of a "hybrid model" which looked at the proposal in context with the surrounding Master Planned Resort (MPR) lands outside the MPR to view the overall impact of the project in context with other anticipated development. This alternative is referred to as the "hybrid" model.

All four alternatives are addressed in the EIS.

As a result of the scoping process, the County concluded that the potential for adverse impact affected nine areas of the environment and related sub issues: (1) shellfish, (2) water, (3) transportation, (4) public services, (5) shorelines, (6) fish and wildlife, (7) rural character, (8) archeological and cultural resources, and (9) critical areas. (See Scoping Notice dated June 13, 2006.)

This section will address the base conditions for each, the proposal and the preliminary recommendations for avoidance or mitigation. The alternatives share many of the impacts and the difference may be in timing or scale. The analysis of the alternatives and the resulting impacts will be discussed in Chapter 4.

At the programmatic level, the approval of the Comprehensive Plan amendment and Master Plan and associated development agreement do not vest the right to construct any specific project. If approved, the Master Plan is the guideline for future permitting to assure the permits issued for the development of projects within the approved Master Plan area are consistent with the guidelines and mandatory elements set forth in the EIS.

The format here will be to address the specific inquiry by scoping notice topic and address how the issue is affected by and to be addressed by any specific Master Plan approval.

Supplemental environmental review and the opportunity for the public to address project-specific environmental issues will be provided at each permit review process.

3.1 Existing Conditions

The golf course resort is located south of Black Point Road and occupies approximately 220 acres. The site was previously devoted to a 500-unit campground formerly owned by Thousand Trails and NACO, and was well developed with a clubhouse, roads water system, and camp sites. (See map at Appendix 1.) The site is characterized by several relatively flat terraces, interspersed with steep slopes and a series of kettles or depressions; the bottoms of three kettles are characterized by wetland vegetation. Most natural runoff on the site is presently contained in the kettles or filtered through natural vegetation. The southern portion of the site is a steep bluff (100+ feet high) and a narrow beach

fronting the shellfish beaches on the Duckabush River delta. A small path presently leads from the top of the bluff to the beach, but no development is located in proximity to the bluffs or the beaches.

Pleasant Harbor is an all-weather deepwater harbor along the western edge of the Hood Canal, 18 nautical miles south of the Hood Canal floating bridge, near Brinnon, Washington.

The existing marina contains 285 boat slips, including 21 that can accommodate vessels up to 150 feet in length and dates from the late 1940s and was most recently permitted for expansion in 1997.[1]

The current Pleasant Harbor Marina is equipped with a fuel dock for marine fueling with a sewage pump-out located on the dock.

The marina was expanded to its current configuration under permits granted in 1997 and the occupancy and planned operations of the marina as a functional part of the resort are within the range of uses and densities contemplated when the marina expansion was approved. Further expansion of the marina or its operations, beyond that approved under previous permits, is not anticipated as part of the proposed project by Statesman Corporation.

Most recently, permits were approved for the expansion of the WDFW boat launch (constructed and put into operation in 2007) located at the southerly end of the marina.

While the presence of the resort may increase the overall use of both the marina and boat launch as a destination or launch site for boating activities, both the marina and the boat launch are planned for public activity and both facilities are anticipated to operate within previously approved limits even with the development of the resort. Any expansion of either marina or boat launch facilities would require new permits and review. None is planned in conjunction with the resort.

The Pleasant Harbor/Black Point area is ringed with residential development on small lots with septic disposal. Many of the waterfront lots in the harbor have docks or float facilities that are used for boating, making the harbor an active maritime area, particularly in the summer. Pleasant Harbor has some live aboards, and, to a greater extent so does the marina to the north.

The WDOH has a water quality monitoring station, #293, in the Hood Canal near the mouth of Pleasant Harbor to measure bacteria levels used to determine shellfish closure zones (WDOH 2005). Water quality in Pleasant Harbor "meets standards but there are some concerns;" however, the WDOH has prohibited shellfish harvesting in Pleasant Harbor based on standard concerns with any shellfish grown in an area adjacent to a marina (WDOH 2006a). This decision is not likely to change due to the risk of shellfish containing harmful biotoxins and pollutants to humans. Commercial and recreational shellfish harvesting is not allowed in prohibited areas.

3.2 Shellfish

Jefferson County received scoping comments concerning potential adverse impacts:

- Whether the resort would result in increased vessel operation in Pleasant Harbor that may create a risk of increased closure to shellfish harvesting in the immediate surrounding area.
- How to address an invasive species, Club Tunicates (*Styela clava*),[2] that has been found in the marina and reduce the potential that Pleasant Harbor will be the catalyst for a rapid bloom of Tunicates onsite having specific, localized impacts on the shellfish in Black Point and Pleasant Harbor.

[1] The shoreline permit for the marina expansion is SDP96-0009, issued July 14, 1997. The Final Binding Site Plan for Marina Expansion at Pleasant Harbor Marina was approved August 18, 1998, Sheets 1-5. The permits and associated terms and conditions are available at the Jefferson County Department of Community Development office and Headquarters Fire District # 4.

[2] Club Tunicates are not shellfish, but are addressed here for convenience purposes.

- How to assure the potential for the project to affect water quality in Hood Canal, as it may affect fish or shellfish is addressed, and means are identified to eliminate or mitigate potential significant adverse impacts.

If water quality degradation occurs as a result of the resort activity, other marine-dependent organisms, including fish, invertebrates, whales, and porpoise may be affected. Where such impacts are identified, measures to eliminate the source of contamination must be identified and addressed in any permit review. The purpose of the mitigation measures suggested and/or required by this EIS is to assure that the project is designed to avoid water quality impacts.

3.2.1 Shellfish—Pleasant Harbor

No additional shellfish closures are anticipated as a result of the approval of the Pleasant Harbor Marina and Golf Resort. Water quality data for Pleasant Harbor and the existing marina, including data relating to the existing marina operation, was collected as available and summarized in the report found in Marina Impact Report. (See August 15, 2006, Report at Appendix 2.)

Shellfish closure zones established by the Washington State Department of Health (WDOH), marine water quality data records from Jefferson County Department of Health, Washington State Department of Ecology (WDOE), Washington Department of Fish and Wildlife (WDFW), and local Tribes were sought and collected as available.

The water circulation patterns of Pleasant Harbor were collected from current and tidal records. The boating movement around the piers and docks was also recorded and examined to determine the route of travel in the harbor.

A field assessment of Pleasant Harbor and the marina environment was conducted to assess the existing conditions to obtain information on the areas of concern and to obtain site photographs. The marine survey was conducted from a boat and included water quality measurements as well as wildlife observations. The field survey also documented general characteristics in the harbor.

Additional information is also provided based on meetings and discussions regarding the *Styela clava* and proposed dock replacement program with the WDFW since September 2006. A site visit to the marina with the WDFW occurred on September 15, 2006.

Shellfish resources, including mussels, clams, and oysters were observed within Pleasant Harbor and in the vicinity of the Pleasant Harbor Marina.

The number of slips at the Pleasant Harbor Marina will not increase as a result of the proposed resort, nor will the operation capacity of the marina increase from previously approved expansion as a result of the resort. Boating traffic and movement in the harbor may be expected to increase from the general public over time as a result of increased interest in the resort. However, increased level of activity is occurring in marinas regionally due to the limited number of marinas available, and no material increase is predicted over that contemplated in permits for the existing marina.

A new boat launch has been constructed by the WDFW on the western side of the harbor. See Figures 3-1 and 3-2. This boat launch will require a fee to launch a boat. This new boat launch will attract more boaters to Pleasant Harbor to enjoy the recreational activities in the area. All of Pleasant Harbor is designated as a no-wake zone. Pleasant Harbor Marina typically receives about 1,000 guest moorages per year (Pleasant Harbor Marina 2006). There has been no dredging of Pleasant Harbor in the past 20 years and there are no plans for any marina expansion located in Pleasant Harbor.

Figure 3-1 New WDFW boat launch

Figure 3-2 New WDFW boat launch

The shoreline permit conditions for the marina expansion approved in 1997 (at a time when a Master Planned Resort was already under discussion for the area) do remain in effect, and as discussed below, certain additional mitigation requirements will be imposed to assure water quality is maintained, but no significant change or deterioration is expected.

3.2.1.1 Shellfish Mitigation Measures—Pleasant Harbor

Mitigation for impacts resulting from the current operations, including stormwater runoff and the dependence of the area on wells and septic tanks, is found in requirements to upgrade the public facilities at the Maritime Village, upgrading the fueling and pump out docks, and the onshore facilities to minimize the risk of spill. The marina is required to have spill prevention plans and spill containment facilities in place, and all such plans shall be reviewed at the time of the shoreline permit review to assure that the plans are up to date and consistent with best management practices.

The permit and mitigating conditions required for the marina will remain in place, and additional mitigation will be required to provide additional assurance that the marina operations will not adversely affect the use or health of shellfish operations.

All of the marina and golf course shoreline areas are subject to regulation under the County's existing and planned shellfish protection district. The resort shall be required to comply with shellfish protection district conditions.

There is always a potential for water quality or conditions to shift over time, and the shift may or may not be due to marina or resort operations. Taking advantage of the existing state water quality monitoring program at the mouth of Pleasant Harbor, however, the resort will be required to annually collect all water quality monitoring data from the state monitoring stations in the area and to summarize any changes to the County. The owner is also required to conduct water quality monitoring under the terms of the marina permits, which shall be continued. Should any changes in water quality be identified, the County and agencies with jurisdiction may require changes in operation to end, minimize, and/or mitigate any recent activities causing adverse change. The resort will be required to participate in an adaptive management program to rectify the problem, including eliminating the source, mitigating and treating to avoid the problem, or taking other steps necessary and appropriate to preserve water quality for any source tied to the resort or resort marina operations.

The marina also provides the opportunity for an expansive boater education program similar to those under review by the County in conjunction with its shellfish protection district and shoreline permits will assure that a boater education program appropriate to the size and setting of Pleasant Harbor is incorporated into any shoreline permit operational requirement for the marina and/or Maritime Village.

The most significant mitigation resulting from the Master Plan proposal is found in the replacement of the existing septic system for the marina (a common source of contamination, particularly in harbors and bays) with a sewer system to eliminate the risk of effluent or treated wastewater entering the bay (all wastewater is treated to Class A standards in the new wastewater treatment system and used for irrigation in the golf course area away from the harbor). The elimination of septic tanks, particularly those serving commercial uses, is a priority goal of groups seeing to clean up Puget Sound and should provide significant long-term benefit where usage of the overall facilities increases.

3.2.2 Shellfish—Outside Pleasant Harbor

The overall health of the shellfish resources in the adjacent portions of the Hood Canal is good, with only a few harvest advisories and one shellfish closure in the area. The shellfish closure nearest to the closed waters of Pleasant Harbor is located more than 1 mile north in the Hood Canal along the shoreline of Brinnon, Washington (WDOH 2006). Significant shellfish beaches are found to the south fronting the Duckabush river system and north of Brinnon (see generally Chapter 2, section 2.4.1).

A review of available literature identifies no presence of Priority Shellfish, Sea Urchin (*Strongylocentrotus spp*.), Dungeness Crab (*Cancer magister*), or Pandalid Shrimp (*Pandalus spp*.) located in Pleasant Harbor (WDFW 2006). However, presence of these species is documented in the water of the Hood Canal surrounding Black Point. Priority marine species may be present in Pleasant Harbor during certain times of the year. A detailed discussion of marine species in the vicinity of the site is found in the Shoreline Characterization Report, August 3, 2006, at Appendix 3. Pacific oysters were observed in the inter-tidal zone along the shoreline in Pleasant Harbor.

It is possible that there will be an increased demand for public shellfish harvesting by visitors to the proposed development. Notification and information (before harvesting shellfish) will be available at the proposed development at specific locations, such as the marina, Maritime Village, and Conference Center. Identification of public shellfish harvest areas and limitations and mapping of private beds for which public shellfish harvesting is not permitted will be part of the public service kiosk information at the Maritime Village.

Shellfish harvesting is a popular activity in the area, with open beaches for public use managed by the State. The resort is located in an area central to the local shellfish interest and provides an alternative for visitors to the area, taking some pressure off the Dosewallips State Park, which presently sees almost 400,000 visitors per year. The park allows visitors to take advantage of local fish, shellfish and other recreational opportunities.

3.2.3 Aquatic Invasive Species Tunicates

Since 2004, at least a dozen invasive Tunicate colonies (Figure 3-3) have spread throughout the sound, turning up in Hood Canal, Birch Bay, Totten Inlet, Des Moines, and Neah Bay. Their proliferation concerns state biologists, who worry the non-native invader will continue to expand along the coast causing ecological damage and threatening native species. (Fact Sheet, Washington Department of Fish and Wildlife, March 2006). See Figures 3-3 and 3-5.

Figure 3-3 Invasive Species

Certain non-native Tunicates are considered an "aquatic invasive species"—non-native plants and animals ranging from spartina to zebra mussels, which threaten the biological diversity of Washington State's coastal waters. Tunicates, also known as Sea Squirts, are siphon-feeding marine animals that have a heart, stomach, and intestines. They have no known predators

and can quickly blanket the hull of boats, pilings, and other hard surfaces, out competing or suffocating other sea life, including clams, mussels, and oysters.

WDFW representatives believe that as Tunicates continue to multiply in Washington waters, they pose a serious threat to the State's multi-million dollar shellfish aquaculture industry, just as the creatures have done in other parts of North America.

The Washington Legislature took action in 2004 to halt the advance of Tunicates and other invasive species. Lawmakers directed the WDFW to develop a response plan to address discoveries of aquatic invasive species. The response plan is currently being developed.

The State also has developed standards for discharging ballast water, which is considered the likely source for the introduction of most invasive plants and animals. Ballast water is drawn into ships for stability and often contains many foreign species. Each year, approximately 3,500 large vessels enter Washington, and approximately 40 percent of those ships discharge ballast in state waters.

Figure 3-4 Pleasant Harbor Meeting

Vessels themselves also pose a threat. Tunicates and other aquatic invasive species can attach to hulls and anchors. Recreational boats can also spread invasive species if the vessel is moved from one body of water to another.

Beginning in 2006, as part of the mitigation efforts, WDFW will provide boaters at boat ramps and harbors throughout the coastal region information on invasive species and how to properly clean boats and trailers. WDFW enforcement also will be involved in the effort, educating other law enforcement agencies on the invasive species problem, monitoring aquatic plant and animal dealers, and checking vessels at boat launches and harbors.

As part of the response plan initiative the Department of Fish and Wildlife contacted the current owners of Pleasant Harbor Marina and the applicant to discuss the opportunity for partnership in addressing the issue.

Through experiments the WDFW has determined that power-washing vessels and concrete docks are a more effective removal process than hand-picking *Styela clava* (Sea Squirts). In Pleasant Harbor approximately 40% of the docks are wooden or have Styrofoam billets, which are not conducive to the preferred method of power washing. In order to facilitate the management and/or ultimate eradication of *Styela clava* in Pleasant Harbor, the WDFW is seeking to have all the wooden docks and those with Styrofoam billets to be replaced over time with concrete docks and concrete floats.

Figure 3-5 Club Tunicate (*Styela clava*)

3.2.4 Tunicate Mitigation

The proposed wooden dock replacement program for Pleasant Harbor Marina, which includes all of D, E and F docks, is the mitigation measure requested by the WDFW. In addition, I-dock will be replaced as it utilizes the Styrofoam billets and not the concrete floats as the rest of the marina docks. The concrete docks and floats will enable and facilitate the WDFW's initiative to minimize the impact and/or eradicate *Styela clava* from Pleasant Harbor.

The ideal time for the dock replacement is during the off season, since this will have the least impact on peak season demand and occupancy. Logistically there is less activity during off season, and off-season timing will minimize the impact on existing operations and customers. Peak season is from

May through September and off season is from October through April. It is also important to note that *Styela clava* are less active when the water temperatures are below 15 degrees Celsius, making this the ideal time for the dock replacement.

There are two options for dock replacement, Figure 3-6, depending upon the source of funding and timing, which is yet to be determined. The preferred option is to replace the docks in stages in order to minimize the financial burden and impact on overall operations of the marina. For example, D-dock year 1, E-dock year 2, F-dock year 3, and I-dock year 4. See phasing plan at Section 3.3.3. The alternative is to replace all the docks in one season; however this would be more disruptive to existing operations and customers. This alternative is dependent upon the source of funding to make this option viable over a short time frame.

The WDFW is working to make *Styela clava* a prohibitive species in the State of Washington. When *Styela clava* is named a prohibitive species, it will provide the WDFW additional powers and authority needed to eradicate this evasive species. Within Pleasant Harbor, it is anticipated that this new legislation will enable the WDFW to expedite the wooden dock replacement program, which would ultimately impact our proposed timeline and phasing plan. This would result in the upgrades to the marina and Maritime Village to occur in an earlier phase.

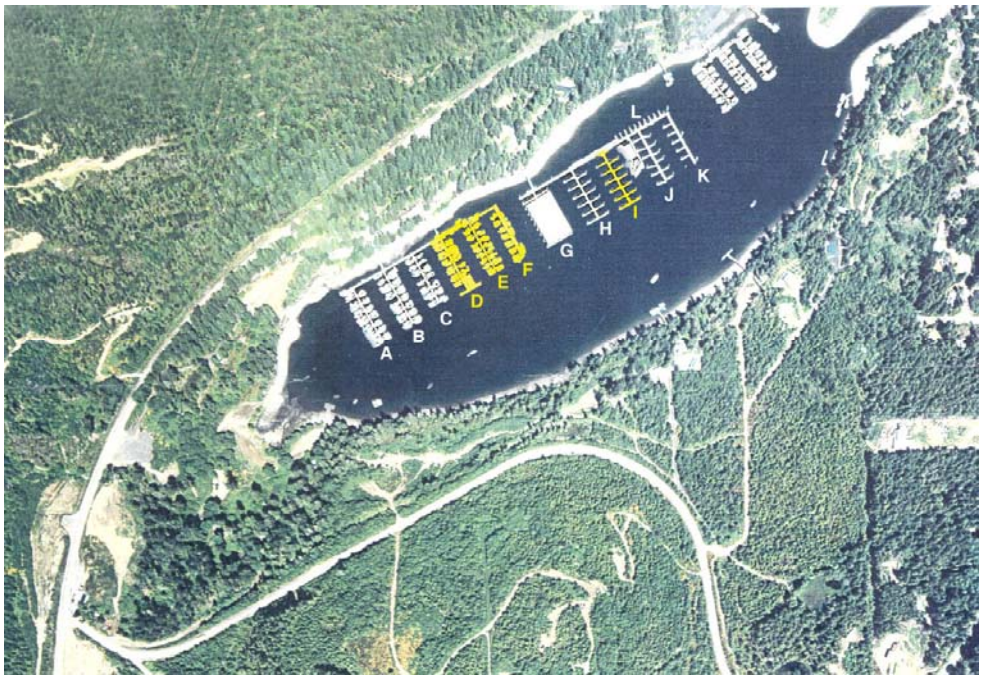


Figure 3-6 Pleasant Harbor Aerial

As part of the dock replacement program, consideration should be given to the opportunity for dock reconfiguration. The number of slips that can accommodate boats longer than 50 feet is limited and most marinas in Hood Canal have long waiting lists for these longer slips.

3.2.5 Shellfish—Water Quality—Protection

Protection of the water quality in Pleasant Harbor and Hood Canal is a principle concern of the region during the construction and operation of the resort. The program will focus on means to avoid, minimize, or mitigate any anticipated impact.

Impacts occur from existing operations (septic fields and untreated or partially treated stormwater), and could occur from construction (sediment and debris) and operations, particularly wastewater, stormwater and nutrient loading from operations.

Pleasant Harbor is vulnerable to water quality issues, as is the adjoining Hood Canal. A shallow sill, approximately 150 feet deep, exists at the entrance of the Hood Canal that restricts the exchange of water between Hood Canal and the Puget Sound. It is estimated that water exchange within Hood Canal takes a magnitude of two years to completely flush (UW-HCDOP 2006). Studies conducted by the University of Washington have identified that the restricted circulation of the water within Hood

Canal, coupled with a high input of nutrients from numerous natural and non-natural sources, have led to serious water quality issues in the marine waters of the canal (UW-HCDOP 2006). A detailed discussion of water quality outside of Pleasant Harbor in the vicinity of the site is found in the report titled Shoreline Characterization Report Pleasant Harbor Marina and Golf Resort August 3, 2006 (Appendix 3).

Water circulation in Pleasant Harbor is limited by a narrow (100 feet) and shallow (10 feet at low tide) inlet located at the east end of the harbor. The harbor area itself ranges from 30 to 40 feet in depth (Pleasant Harbor Marina 2006). The harbor water levels fluctuate with the tides and currents of the Hood Canal. The water quality samples are detailed in the Marina Impact Analysis, Appendix 2. The level of pH varied by less than 0.28 inside and outside of the harbor. Dissolved oxygen levels were within 2.36 mg/L in the upper sampling layer and within 2.24 mg/L in the lower sampling layer throughout all monitoring locations. Water temperatures inside of the marina were 3 to 4°C higher than the water quality samples taken outside of the harbor; however, this is expected to occur in shallow harbors such as Pleasant Harbor (Curley 2002 and University of Washington 2005). The salinity levels in Pleasant Harbor were also lower than those observed outside of the harbor. This lower salinity value can be attributed to circulation in combination with precipitation, groundwater, and seasonal and perennial freshwater input on the shoreline of the harbor (Curley 2002 and University of Washington 2005). Even though Pleasant Harbor has a narrow inlet and there are two marinas located in the harbor, water quality data suggests that the harbor is flushed by the tides on a regular basis to obtain the same water quality levels of the Hood Canal.

With the elimination of the septic system serving the existing marina and the capture and treatment of stormwater from the marina development prior to entering the harbor, the overall effect of the Master Plan proposal is a reduction in pollutant pathways to the harbor and should result in greater protection of the overall harbor water quality than exists presently.

On the Black Point land of the development, all rainwater percolates through the soils on site. Rainwater contributes to the wetland systems on the center and east side of the property, and there is no or limited runoff to the Canal from the majority of the site. See Figure 3-19. The construction of the golf course, residences, and commercial facilities are all designed to capture rainwater and stormwater onsite. This water will be utilized onsite, treated, and then be infiltrated back into the aquifer to eliminate site runoff and to maintain the aquifer system. This innovative approach eliminates offsite impacts and the potential for degradation of water quality and shellfish populations outside of Pleasant Harbor. The avoidance of offsite stormwater discharge either during construction or operation of the golf course facility achieves the objective of no net impact to the water quality of Hood Canal by reason of the construction and operation of the golf course resort.

3.2.6 Shellfish Mitigation—Construction Period

On the marina side, construction grading is limited to the new road alignment, development pads, and parking areas, taking advantage of the natural conditions. On the golf course side, significant grading will occur, so special care must be taken to assure stormwater management measures will be implemented concurrently with clearing and grading for all phases, to protect water quality, both off site and in existing wetlands, during construction.

The area to be cleared was previously cleared for the RV park. The cleared area is located in the internal portions of the site and a 200-foot buffer is planned along the southern shore that provides protection from wind. Narrow strips of trees are likewise avoided to reduce the risk of wind damage.

Potential impacts during the clearing phase include the risk of runoff to the harbor or Hood Canal, a change in the hydrology of the site due to the removal of trees, and changing of the topography and potential impact to wetlands from silts, sediments, or hydrologic flow, both surface and subsurface. Habitat management plans and stormwater protection are required at the permit phase to address site-specific issues and mitigation.

The proposal does include a program to dedicate the central kettle to onsite retention and stormwater management, and the depth of the kettle is such that it can easily accommodate preconstruction stormwater from much of the site and prevent any accidental release. (See soils report at Appendix 4 and site plan conditions.)

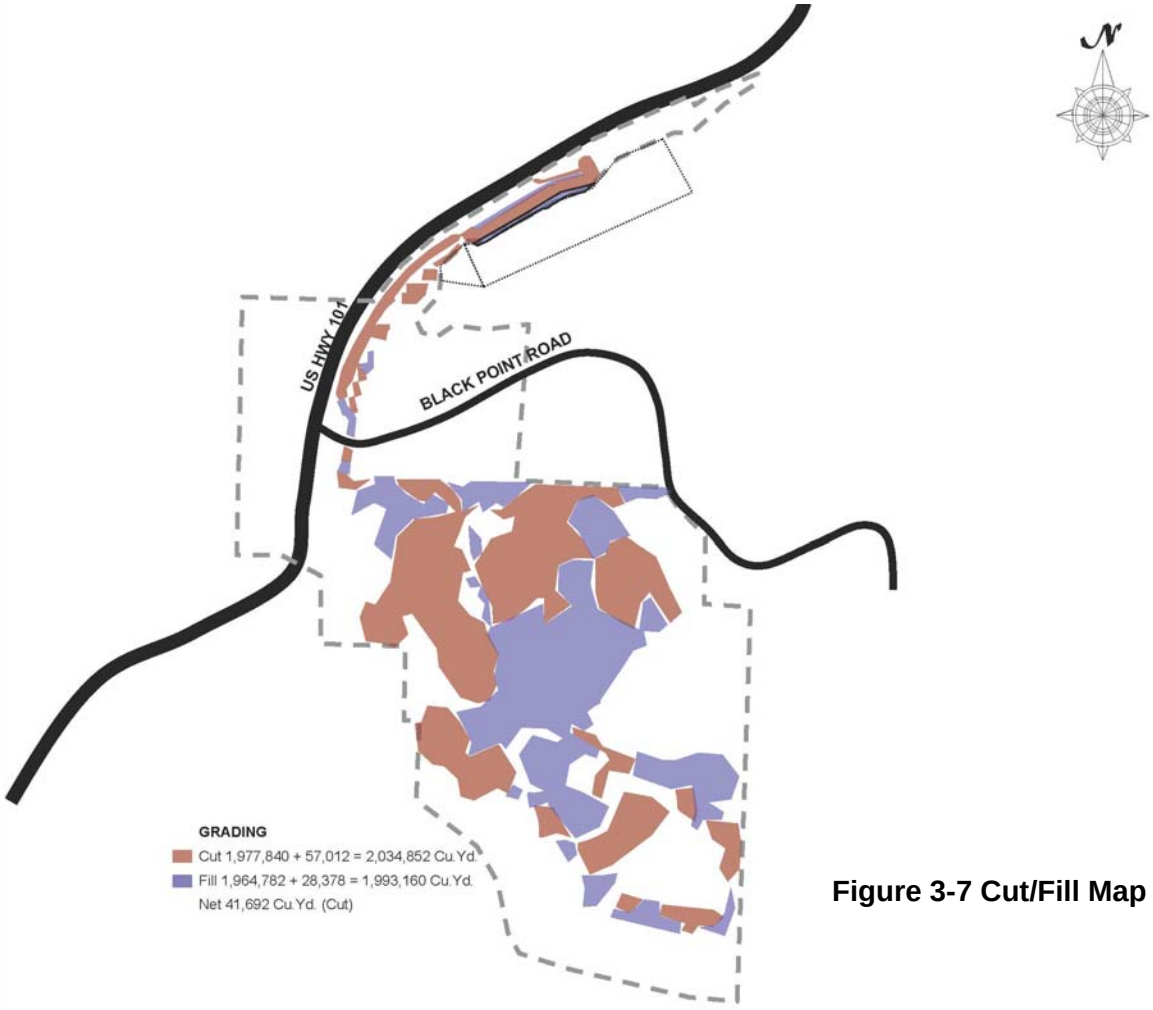


Figure 3-7 Cut/Fill Map

To achieve adequate controls during grading and infrastructure construction, the County requires a detailed cut and fill plan with a stormwater management plan approved by the Public Works Department. Details shall be sufficient to demonstrate protection of Pleasant Harbor, Hood Canal, and onsite wetlands and streams prior to approval of each permit, or plan requiring review. See discussions at Section 3.3.7, Stormwater Management. See also detailed discussions at Section 3.10.1 discussing the need to preserve wetland hydrology during all phases of construction, development, and operation of the resort.

3.2.7 Shellfish, Tunicate, Water Quality Mitigation

The Master Plan sets the guidelines for future development and any permit approval for the Master Plan, or any phase thereof must contain conditions which provide assurance that the objectives of the Master Plan will be achieved. To assure that result, the following conditions will be required of all plats, shoreline substantial development permits, and site plan approvals for portions of the Master Planned Resort project.

- During construction (all permits).
  - Construction period NPDES general permits will need to be obtained and conditions followed to control stormwater during construction to assure no offsite discharge.
  - All construction shall be covered by a stormwater management plan to show how stormwater shall be collected and infiltrated to prevent any turbidity, sediment, or other contaminants from reaching the harbor or waters of Hood Canal.
  - All stormwater crossing newly constructed surfaces shall be captured and treated onsite before discharge, including the golf course side, where irrigation and stormwater shall be captured treated, retained, and infiltrated onsite with no offsite discharge.
  - A stormwater site plan that includes a construction stormwater pollution prevention plan shall be developed by the proponent and reviewed and approved by Jefferson County prior to conducting land disturbing activity on the site.
- During operation (Maritime Village permits)
  - All stormwater from impervious surfaces shall be captured and treated to Puget Sound Water Quality standards (2005 edition) before discharge.
  - There shall be no discharge of sewage or contaminated bilge waters at the marina. Pump out facilities shall be provided and operational at all times.
  - Cleaning of fish or sea life shall be prohibited within the controlled access areas of the marina.
  - The Project permits shall incorporate shellfish protection district guidelines.
  - The marina shall have the right to inspect any vessel at any time.
  - The marina shall develop and manage an active boater education program appropriate to the marina setting to supplement the County program developed as part of the shellfish protection district.
  - All fueling operations shall be brought up to current codes and protection against leaks, and unauthorized discharges shall be provided as part of any permit issued for work on the marina side of the resort. This is a first priority for the project. Fueling permits for facilities shall also require a refueling plan approved by the local Fire Code official as part of the first permit and in place prior to the issuance of any certificate of occupancy for work at the marina or Maritime Village.
  - Fuel storage or transfer shall be prohibited on marina floats, docks, piers, and storage lockers.
  - No storage shall be permitted on docks, including storage of oily rags, open paints, or other flammable or environmentally hazardous materials except emergency equipment as approved in the Emergency Service MOU.
  - Painting, scraping, and refinishing of boats shall be limited to minor repairs when in the water, which do not result in any discharge to the waters of the harbor.
  - Any minor repairs must employ a containment barrier that prevents debris from entering the marine waters.
  - Notification and information (before harvesting shellfish) will be available at the proposed development at specific locations, such as the marina, Maritime Village, and Conference Center.
  - The marina operations shall incorporate mitigation requirements appropriate under the County Shellfish Protection Plan, and shall integrate a boater education program into a

marina public education plan, which shall be implemented and maintained for so long as the resort is in operation, as part of a resort habitat management plan.

- The marina operations shall collect water quality data (from State sources so long as available or from approved testing plan should the state sources move or not accurately reflect Pleasant Harbor conditions), and shall be required to participate with the County in an adaptive management program to eliminate, minimize, and fully mitigate any changes arising from the resort and related Pleasant Harbor or Maritime Village.

- During operation (Black Point Golf Course Lands)
  - Construction and grading permits shall require stormwater management plans to demonstrate no discharge to waters of Pleasant Harbor or Hood Canal of any contaminants, turbid waters, or sediments as a result of operations.
  - The stormwater management system for all phases shall capture, treat, and infiltrate or store for reuse all stormwater from impervious surfaces of the improved golf course areas.
  - The golf course shall be operated in accordance with the best practice standards of the King County golf course management guidelines, or substantial equivalent, including, but not limited to, American Golf Association standards.
  - The golf course/resort facilities will be required to participate in any adaptive management programs required by the County as a result of the water quality monitoring program described above and any changes caused by the resort operations.

By improving the current water treatment system at the marina area and the elimination of septic systems, and by the assurance that the golf operations will be managed to generally accepted best management practices for Pacific Northwest golf courses and the Master Planned Resort can avoid, minimize, and fully mitigate potential impacts to the shellfish and water quality of Pleasant Harbor and Hood Canal.

3.2.8 Shellfish Summary

Shellfish are not harvested in the harbor and additional boat traffic is not expected to materially increase over that planned when the marina expansion was approved. Nevertheless, additional marina operation mitigation is required to control marina operations (see Section 3.2.1 *infra*).

Puget Sound Water Quality Manual standards and County standards for stormwater management, for demolition, construction and operation phases shall be identified and approved as a part of any permit issuance for the marina side of the project.

The golf course portion of the resort shall capture and control all stormwater onsite (except rain falling on the natural buffer areas and not crossing any portion of the built environment) to avoid risk of contamination to waters of Hood Canal south of the project site. Requirements for onsite waste treatment and Class A reuse and recycle systems also facilitate this requirement, and protect shellfish outside of Pleasant Harbor.

In concert, the combined mitigation is protective of shellfish both inside and outside of Pleasant Harbor.

The developer is working with the State to facilitate a Tunicate eradication program tied to dock replacement and using materials less likely to attract and harbor Tunicates.

Water quality as an element of shellfish protection is protected by controlling runoff in the Maritime Village area to assure it is properly treated prior to discharge, and on the golf course side by requiring onsite treatment and use or infiltration rather than offsite discharge.

3.3 Water Resources: Use, Reuse, Management, Treatment, and Disposal

The management of water has been a primary focus of the development planning; the goal has been to utilize onsite water resources with an eventual no impact or positive impact to the groundwater, surface

water, and wetland systems. The proposal will utilize an innovative concept of use, treatment, and reinfiltration. The specific issues required to be addressed in the scoping notice included:

- Sewer service (on site system)
- Rainwater harvesting
- Water quality
- Groundwater and saltwater intrusion
- Surface water and particularly irrigation water and potential migration to the harbor or the Canal.

3.3.1 Sewer Service Onsite System

The Brinnon Subarea Plan specifically referenced the use of an onsite waste treatment and disposal system in identifying the potential BSAP MPR site, to avoid wastewater discharge to Hood Canal or the harbor. The Statesman MPR proposes to use such a system. No specific system has yet been selected or approved (this would be a condition of final plat approval), but several alternatives are all capable of creating water that may be recycled and reused on the project area and meet the objectives and criteria set forth in this Master Plan.

3.3.1.1 Treatment Technologies

There are wide ranges of proven biological treatment technologies capable of producing the necessary effluent quality to meet the resort goal of a wastewater reuse/recycling system. The three principle technologies being considered for this project are the Sequencing Batch Reactor (SBR), Membrane Bioreactor (MBR), and the Recirculating Biofilter (RBF). All three processes are capable of being designed and operated to achieve either advanced secondary or tertiary (phosphorus and/or nitrogen {nutrient} removal) treatment. A detailed discussion of the programs are found in case studies in reclaimed water use, WDOE Publication 05-10-013, June 2005.

Sequencing Batch Reactor (SBR)

The SBR process is essentially an activated sludge process in which biological treatment and clarification are accomplished in a single basin by changing the operating conditions in that basin on a timed sequential basis. The first stage involves filling the bioreactor under anaerobic conditions (without oxygen). Aeration is then applied providing mixing conditions to keep bacteria in suspension and providing bacteria with a supply of oxygen for aerobic digestion.

After a specified period of time the aeration is stopped and the bacteria are allowed to settle. Clarified liquid is decanted off of the surface and the cycle is repeated.

The elimination of the need for a separate secondary clarifier tank or activated sludge pumping is the primary advantage of SBR systems. The primary disadvantage is the potential for upset conditions that can adversely affect the effectiveness of clarification. WDOE has approved operation of such systems under NPDES permit terms designed to minimize or eliminate upset conditions. Because the Statesman program is a closed system, any upset condition is contained onsite in the retention/irrigation pond, which prevents potential contamination to Hood Canal or the harbor, even in the event of an upset. This condition is applicable to all systems under review for the project.

Membrane Bioreactor (MBR)

The MBR process is essentially a conventional extended aeration activated sludge process in which the secondary clarifier has been replaced by an ultra-filtration membrane with a nominal pore size small enough to filter out bacteria, resulting in a high quality effluent. The membrane pores are typically 0.1 to 0.5 microns in size, so bacteria, micro-orgasms, and other insoluble solids cannot pass through. This eliminates the need for downstream clarification and filtration. However, the pore size is not a complete barrier to viruses, so disinfection is still required.

One of the key advantages of the MBR process over the SBR process, is that bacteria populations can be maintained at a much higher concentration in MBR systems or other clarifier-based treatment

technologies. Because the bioreactor contains a much greater number of bacteria, the volume of the MBR bioreactor is much smaller than that required for SBR processes, and the land area and tank sizes are smaller than for SBR processes.

The primary disadvantages of MBR processes include the high cost of membranes and the potential for membrane fouling. Membrane manufacturers use several techniques to prevent fouling including coarse air scrubbing and chemical treatment (chlorine and/or acid treatment either internally or externally). The expected life of a membrane is in the order of 7 to 8 years, but may be considerably shorter depending on the propensity of the wastewater to produce fouling conditions.

Two commercially available MBR processes are under consideration, both of which involve placing the membranes within the bioreactor: Zenon Zeeweed, and Sanitherm Sanibrane process.

Recirculating Biofilter (RBF)

The RBF process is also based on a conventional treatment process, but in this case one in which bacteria are attached to media with a high surface area, and bathed in wastewater rather than being kept in suspension. The wastewater effluent must pass through the media, providing an inherent level of filtration, and no clarification is required. The treated effluent is then collected and recirculated back over the filter media.

The key advantages of this technology over the SBR and MBR processes include simpler operation, lower energy requirements, and inherent modularization enabling treatment to be carried out efficiently on a decentralized cluster basis, rather than a central treatment facility. The key disadvantage is the need for a larger land area than either the SBR or MBR technologies. Despite the inherent filtration, like the SBR process, the effluent from the RBF process must be tertiary filtered (e.g. chemical coagulation and sand filtration) to meet a Class A reuse standard.

The RBF process being considered for this project is the AdvanTex textile-based system manufactured by Orenco Systems Inc. of Sutherlin, Oregon.

3.3.1.2 Wastewater Treatment Approval

Wastewater treatment in a reuse/recycling program to create useable Class A water is a process permitted through WDOE. The specific plan approval requires an engineering feasibility report identifying the flows and range and volume of treatment required, a demonstration that the proposed system can achieve the required treatment to meet Class A recycled water standards, and ultimately licensing and approval by the WDOE for operation. Facility permits are continuing in nature, requiring inspection and reporting of periodic limits to assure proper operation and maintenance, including daily, weekly, monthly, and periodic reports, as well as specific inspections and reports.

Under the program proposed, the applicant would be required to seek the approval of the wastewater treatment system after preliminary plat approval, but before permits for construction and development are issued. In this way, the agencies will know precisely the treatment loads to be addressed and the proper facilities to accommodate such loads.

A detailed environmental review of the project-specific wastewater treatment elements is included in the WDOE approval process and will be required as part of the project-specific review of the first development phase of the resort.

3.3.1.3 Class A Standard

All residential and commercial wastewater collected within the development will be treated to a Class A reuse standard.

The use of reclaimed water is permitted in Washington State and is jointly regulated by WDOH and WDOE. The guidelines for water reuse contained in the "State of Washington Reclamation and Reuse Standards," September 1997, Publication #97-23, define four levels of treatment of which Class A is the highest quality. Washington's 1992 Reclaimed Water Act provided a new program for treatment and

management of wastewater as a new water supply to replace drinking water for non-drinking (nonpotable) purposes. Reclaimed water use is a fundamental element of our state's strategy to provide sustainable water supplies that will meet our future needs.

Class A water requires advanced secondary treatment plus chemical coagulation and filtration, and disinfection to reduce total coliform bacteria to less than detection levels (i.e. less than 2.2 MPN per 100ml). In addition, a reclamation system must include emergency storage for upset conditions and must have automatic alarms, treatment unit redundancy, and qualified operations staff.

3.3.1.4 Permitted Uses

Once water has been treated to a Class A standard, it will be reused on the resort for nonpotable purposes, including:

- Irrigation of landscaping, including golf courses.
- Discharge to wetlands.
- Groundwater recharge by percolation.
- Use for toilet flushing.

The primary reuse applications under consideration for this project include toilet flushing and storage for use in seasonal irrigation application to the development's golf course and ultimately infiltration back into the aquifer for reuse and recharge. Wastewater treated to Class A standards will be discharged to the central large kettle. This kettle will be lined and will serve as a reservoir for the resort's irrigation needs. The reservoir will hold enough water to maintain irrigation even in drought years, and will have sufficient storage to retain water in the event of a failure of the wastewater system. As the reservoir area is a lined pond that will prevent infiltration, remediation of any upset may then occur under onsite controlled conditions without disrupting Hood Canal fish or shellfish or area-wide water quality.

3.3.1.5 Biosolids

Wastewater treatment involves the collection of organic and inorganic solids and the removal of biodegradable materials from solution by bacteria. Bacteria digest the biodegradable organic material in the wastewater and increase in population. They periodically need to be removed along with undigested solids (a byproduct referred to as biosolids). These biosolids require a further stage of treatment before they can be beneficially used. This treatment must comply with Federal Regulations 40CFR, Part 503 and similar State standards which specify three criteria for the sludge to be beneficially applied to land.

- The biosolids must meet pollution standards, particularly toxics such as heavy metals and pesticides. Since there are no significant sources of these types of pollutants from the uses planned for the resort, meeting these criteria should not be a problem.
- The biosolids must not generate significant odors that would attract vectors such as rats and other animals and nuisance insects. This may be accomplished by enabling the bacteria to continue to consume the residual organic materials contained within the biosolids through mechanical digestion processes or by composting, or stabilization through the application of lime and/or high temperatures to the waste biosolids.
- The biosolids must be treated to reduce the level of pathogens (disease causing micro-organisms) to one of two specific biosolids application Classes: Class A and Class B. Both Class A and B involve stabilizing the biosolids to reduce the volatile organic content, and level of pathogens through digestion or chemical means. Class A biosolids are further treated, usually by subjecting the biosolids to elevated temperatures for prolonged periods, to achieve further pathogen destruction. Composting is considered to be an effective means of achieving a Class A biosolids product due to the heat produced during the process. Class B biosolids can be land applied on sites that have limited public access, whereas Class A biosolids may be freely

distributed or sold to the public for various soil amendment uses and to take advantage of its nutrient content.

The proposal will dispose of the biosolids produced from wastewater in one or all of the following methods:

- Stabilize through aerobic digestion, and haul the biosolids away in a dilute slurry for spreading on agricultural lands.
- Dewater to about 16% solids and stabilize with lime treatment; producing a biosolids product that is a semi-solid and can be hauled in a dump truck to a commercial land-spread site.
- Dewater to about 16% and compost to stabilize the biosolids, converting it to a useful byproduct that can be sold or used onsite as a soil amendment material.

3.3.1.6 Wastewater Mitigation Summary

- The wastewater system, which is to be reviewed and approved for use by WDOE, shall be approved and installed and in operation prior to final plat approval and prior to the construction of the first residential or commercial structures with kitchen or bathroom facilities.
- The facility shall be installed with capacity to serve the phase being constructed (including any required reserve capacity by WDOE), but phasing of the system may be allowed if approved for system operation by WDOE.
- Construction period waste may be handled in septic tank systems approved for RV pump out.

3.3.2 Water Supply, Groundwater, Rainwater Harvesting, and Recycling/Reuse

The water supply approach for the development is an integrated use of groundwater (wells), rainwater harvesting, and treatment and reuse of wastewater (reclaimed water). The water management approach is designed to have no impact or a net positive impact on the groundwater resources of the peninsula.

3.3.2.1 Daily Water Supply

The overall water demand for the resort results from two factors: first, the potable water demand from the resort itself, and, second, the irrigation and nonpotable uses of water used in the operation and maintenance of the golf course and marina.

The estimated potable water use is based on a daily residential demand used to establish the Equivalent Residential Unit (ERU) for the development. Current resource estimates are provided in Water Supply and Groundwater Impact Analysis, Appendix 5.

The maximum annual water utilization anticipated is 137 acre feet and if the Master Plan is approved, Statesman will proceed with approval for a water right in that amount. The intent of the resort is to utilize rainwater harvesting in concert with groundwater as the source of potable water. Even though groundwater will be used as a supply source, the water management system designed by the resort will result in the aquifer receiving about the same recharge from resort operations than prior to construction of the resort.

The first objective when evaluating the impact of a water use is the evaluation of water supply sources, and how those sources may be efficiently be addressed. Jefferson County encourages projects to pursue water-efficient strategies, and such strategies shall be incorporated into the Master Planned Resort to reduce water consumption. Not all strategies can be used in all circumstances, but efforts in the following provide realistic opportunities to achieve maximum benefit in controlling or limiting overall water use.

Existing Water Rights

Statesman has available 28 acre feet plus the potential for an additional 12.5 acre feet, per the discussions with Pleasant Tides Water Co-op (an acre foot is approximately 325,830 gallons) from existing water rights. WDOE is currently evaluating the rights, but use of existing water rights will be a first objective of the project.

Shared Water Rights

Pleasant Tides Water Co-op, which serves the Black Point area, presently has significant water rights. These rights are consumed in serving the existing customers. Statesman has determined, however, that the project could, with the consent of the Pleasant Tides Water Co-op, install new equipment and facilities to modernize the Pleasant Tides water system, and in doing so achieve a net savings from the current system, which could then be used in the resort. WDOE would have to approve the system upgrades and increase in place of use, and the owners of the Pleasant Tides system would need to consent to any change. The Master Plan program will require the applicant to investigate the feasibility of improvements to existing systems as a potential source of water, to achieve some degree of new water through water saving efficiencies built into the Pleasant Tides system.

Rainwater Harvesting

Rainwater harvesting is a technique where water that falls onto the site is captured and contained in a manner where it is available for reuse. Roof top drains, road way swales, and stormwater management systems all provide means for capturing, treating, and reusing rainwater, reducing the ultimate draw on the aquifer. Rainwater harvesting does not reduce recharge to the aquifer system. The water will be treated and partially used for potable supply purposes and then treated for irrigation uses. The only net loss of water in this approach is from evaporation of water as it is stored in the ponds, and evapotranspiration of the portion of the water used for irrigation. The advantage of this system is that only a bit over 20 percent of the captured water is used for irrigation; the remaining water will be infiltrated back into the aquifer. The infiltration is a more direct means of aquifer recharge, where a larger portion of that water is now lost to evapotranspiration or discharge through seeps at the bluffs. The net effect will be an increase in aquifer recharge compared to predevelopment conditions.

Reuse Recycling

State policy promotes reuse and recycling of wastewater, and the Master Planned Resort is designed with an onsite treatment and Class A recycled water program for use and reuse on the site. (See discussion *supra*.)

The water supply approach for the development is an integrated use of groundwater (wells), rainwater harvesting, and treatment and reuse of wastewater (reclaimed water). Groundwater wells will be the potable water supply source for the resort. Water for other uses, such as for toilet flush and irrigation, will come from stored reclaimed water, and from stormwater runoff and rainwater collected from the site.

Because the source of the irrigation water is partly provided by the collected rainwater (in addition to the reclaimed water), the irrigation supply is dependant upon the local climatic conditions. Irrigation requirements are highest during the drier periods of the year; thus water will be collected during rain events and stored in ponds for water demands during the remainder of the year. The storage ponds will be located in the existing topographic depressions found on the site (glacially formed kettles). The ponds will be constructed for the storage of water by grading and lining the bottoms of the kettles. The ponds will be designed to hold up to 110 million gallons of water. Some of the water that is stored in the ponds will be directly infiltrated to recharge the underlying aquifer to maintain and enhance the aquifer system beneath Black Point and the seeps dependent on the existing aquifer regime. The direct infiltration of excess water also meets the requirement of zero direct discharge of onsite waters to Hood Canal, and serves to recharge the aquifers to maintain seeps and other food and nutrient sources, particularly along the south beach.

The project management plan must be designed to retain a natural hydrologic flow to the protected wetlands and the replacement wetlands for the irrigation kettle to provide assurance that wetland functions and values will be maintained at all times.

Rainwater from building roof tops and roadway surfaces of the resort will be collected and routed to the storage ponds. The rainwater that is collected from roof runoff is considered "clean" water and therefore does not need additional treatment before entering the storage ponds. The stormwater runoff from roadway and parking surfaces is considered "polluted" and must be treated before entering the ponds. Natural treatment facilities (i.e., rain gardens) are proposed to meet runoff water quality requirements per the DOE stormwater management treatment criteria. (See Section 3.3.7 on stormwater management for details about proposed LID design methods.)

Wastewater from residential and commercial uses will be conveyed to one or more treatment facilities that will treat the wastewater to a Class A reuse standard (reclaimed water). The reclaimed water will either be stored in a reclaimed water reservoir for toilet flush uses or it will be conveyed to the storage ponds for irrigation and sustainable fire flow. (Sustainable fire flow is 1,000 gallons per minute for 60 minutes.)

The aquifer will be recharged through both natural infiltration and direct infiltration. Natural infiltration will occur in the golf course and other landscape and natural areas. Direct infiltration will be accomplished through the use of designed infiltration facilities in which some of the stored water in the ponds will be directed into a designed infiltration area to provide additional aquifer recharge.

Some minor amounts of water losses from the system are expected throughout the year due to evaporative and evapotranspiration processes. These losses have been estimated to be less than 3 percent of the annual pre-development water budget. This provides for an aquifer recharge program that can be maintained over the year by designing controlled water releases using the direct infiltration system. Together with the water stored in the ponds, this will allow the flexibility to provide a desired seasonal recharge rate that can be adjusted to meet monthly water balance quantities.

In concert, the existing rights, improved efficiency of the Pleasant Tides system, if available, and the reuse recycling program could account for the entire water budget for the program without any new draw on the aquifer. Even if rainfall were deficient, or the Pleasant Tides water was not available, or available only in limited quantities, the maximum water draw on the aquifer is estimated to be 137 acre feet per year. The efficient use of water by reason of reuse and recycling, wetland recharge, and ultimately stormwater infiltration will minimize overall water consumption and assure no net material impact, which is the Master Plan goal. Detailed environmental studies will be required at the project-specific level for approval of wells, upgrades, and the construct of the use/reuse system to assure this goal is met. Once water rights are acquired and the full rainwater/reuse system is in place, it is possible that in many years the resort could operate without a net groundwater draw.

A material condition of the Master Plan is that the applicant demonstrate the availability of water resources at the time of preliminary plat or binding site plan approval, and that no approval shall be given without a written finding, based on agency and expert approvals in the record, that water resources are adequate to serve planned demand is in fact available and ready for use. Washington law requires such a demonstration at the building permit level, but for purposes of the Master Plan and assuring adequate resource protection, such showing must be made before any preliminary plat may be approved.

3.3.2.2 Daily Water Demand

The second way to manage and conserve water resources is to reduce demand and more efficiently use water that is available. The Master Planned Resort is proposing a number of factors to reduce overall water demand, which in concert will significantly reduce overall demand on the aquifer. These techniques include low flow and other low-impact development techniques within the resort to reduce water demand, the use and reuse of recycled wastewater to allow water to be used multiple times on site and eventually recharge the aquifer, and identification and use of existing and alternate sources of

water that may serve a significant portion of the water demand from existing water rights rather than new water rights.

The estimated daily water demand provides the quantity of water that will be used for the design of the potable water system and the wastewater (reclaimed water) treatment system. These daily demands are based on full occupancy of the resort. The estimated maximum residential potable water demand is approximately 62,300 average daily demand (ADD) at 70 gpd/ERU. See Table 3-2. Statesman Corporation estimates 25,000 gallons per day for commercial uses at the resort, including the Club House, restaurants, and Maritime Village. See Table 3-2 Daily Water Demand (Commercial and Residential) for a summary of the total estimated daily water demands. Measured in acre feet, the overall annual water demand is approximately 121 acre feet, potentially less if full efficiency can in fact be achieved. See Water Supply and Groundwater Impact Analysis, Appendix 5, Section 3.3.7.2 and Table 2.

The use of low impact development techniques indicates that an overall onsite water use per unit may be reduced from 175 gpd to as low as 70 gpd. The goal of achieving reduction from the 175 gpd to a lower amount over time shall be one objective of project design. For safety and planning purposes, the standard 175 gpd has been used.

Table 3-1 Residential Potable Water Demand

TOTAL ESTIMATED POTABLE WATER USE WITH HIGH-EFFICIENCY CONSERVATION FIXTURES

Usage	Flow Rate	Flow Units	Usage	Usage Units	Total Use Per Person		%
Shower and Tub	1.50	gpm	8.2	min/day	12.30	gal/day	38%
Kitchen Sink	0.50	gpm	8.1	min/day	4.05	gal/day	13%
Bathroom Sink	0.50	gpm	8.1	min/day	4.05	gal/day	13%
Clothing Washer	25.00	gal/load	0.37	loads/day	9.25	gal/day	29%
Dishwasher	6.00	gal/load	0.1	loads/day	0.60	gal/day	2%
Leaks					1.70	gal/day	5%
Total Consumption Per Person:					**32**	**gal/day**	**100%**

ERU - Total Consumption Per Residence (2.2 people per unit):	**70**	**gal/day**

Note:
Usage figures obtained from: American Water Works Association (AWWA) Research Foundation, *Residential End Uses of Water study* , Mayer and DeOreo, et al., 1999

DAILY INDOOR POTABLE WATER DEMAND ESTIMATE

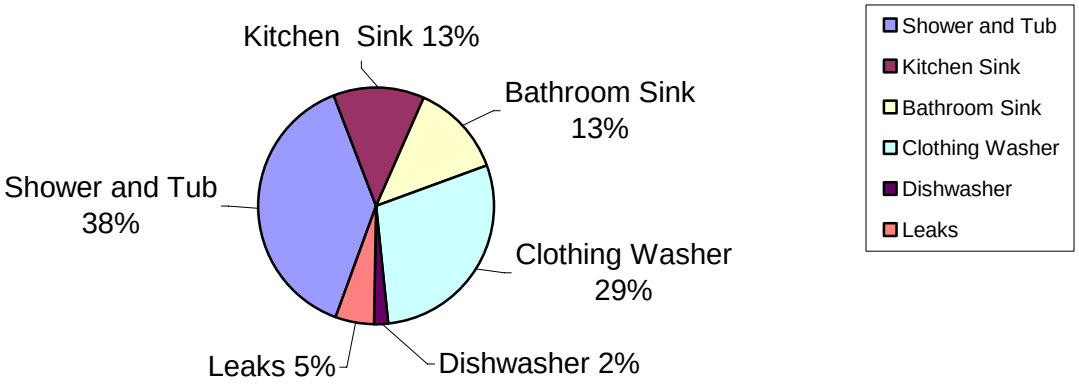


Table 3-2 Daily Water Demand (Commercial and Residential)

DAILY WATER DEMAND SUMMARY
(Not Including Reclaimed Water for Irrigation)

POTABLE WATER				
Residential	**gpd/ERU**	**ERU**	**gpd**	**Notes**
ADD	70	890	62,300	Avg. Daily Demand, based on *Est. Daily Residential Potable Water Demand* spreadsheet
MDD	140	890	124,600	Max. Daily Demand = 2*ADD
Commercial	**gpd/ERU**	**ERU**	**gpd**	**Notes**
ADD	70	357	25,000	Avg. Daily Demand, based on 25,000 gpd given by Statesman. Equivalent ERUs = 25,000/70
MDD	140	357	50,000	Max. Daily Demand = 2*ADD
Residential + Commercial	**gpd/ERU**	**ERU**	**gpd**	**Notes**
ADD	70	1247	**87,300**	Avg. Daily Demand, based on residential + commercial ERUs
MDD	140	1247	**174,600**	Max. Daily Demand = 2*ADD
PHD			**234**	gpm, Peak Hourly Demand based on Eq. 5-3, *WSDOH WSDM*

RECLAIMED WATER				
Residential	**gpd/ERU**	**ERU**	**gpd**	**Notes**
ADD	11	890	**9,790**	Avg. Daily Demand, based on *Est. Daily Residential Potable Water Demand* spreadsheet, with toilet flush
MDD	22	890	**19,580**	Max. Daily Demand = 2*ADD

WASTE WATER				
Residential + Commercial	**gpd/ERU**	**ERU**	**gpd**	**Notes**
ADW			**97,090**	Avg. Daily Waste, based on potable water demand + reclaimed water demand
MDW			**194,180**	Max. Daily Waste = 2*ADW

Note:
Demands based on full occupancy.
Demand formulas from: *WSDOH Water System Design Manual*, August 2001.

3.3.2.3 Potable Water Storage

The storage requirements are as follows for an Average Daily Demand (ADD) of 70 gpd/ERU. The total storage is comprised of operating & dead storage (OS/DS), equalizing storage (ES), and the larger of standby storage (SB) or fire supply storage (FSS).

The OS/DS is dependent upon the actual tank and appurtenances selected, and will be in the ball park of 15,000 gallons. The ES provides a buffer in the event the wells are not able to produce the peak hourly demand (PHD), which is 234 gpm for an ADD of 70 gpd/ERU. Since the two wells are expected to be able to produce 280 gpm which is more than the PHD, ES will not need to be provided. The SB provides enough water for the ADD per ERU for 2 days, which is approximately 174,600 gallons. The FSS is 120,000 gallons, based on a fire flow of 1000 gallons for 120 minutes, and is counted as nested in the SB storage since it is the larger of the two. This nested FSS will provide potable water to the fire sprinklers and fire hydrants.

Thus the total conventional storage required is approximately 189,530 gallons for an ADD of 70 gpd/ERU. Should final design parameters require a higher ADD per unit, storage would be increased commensurately.

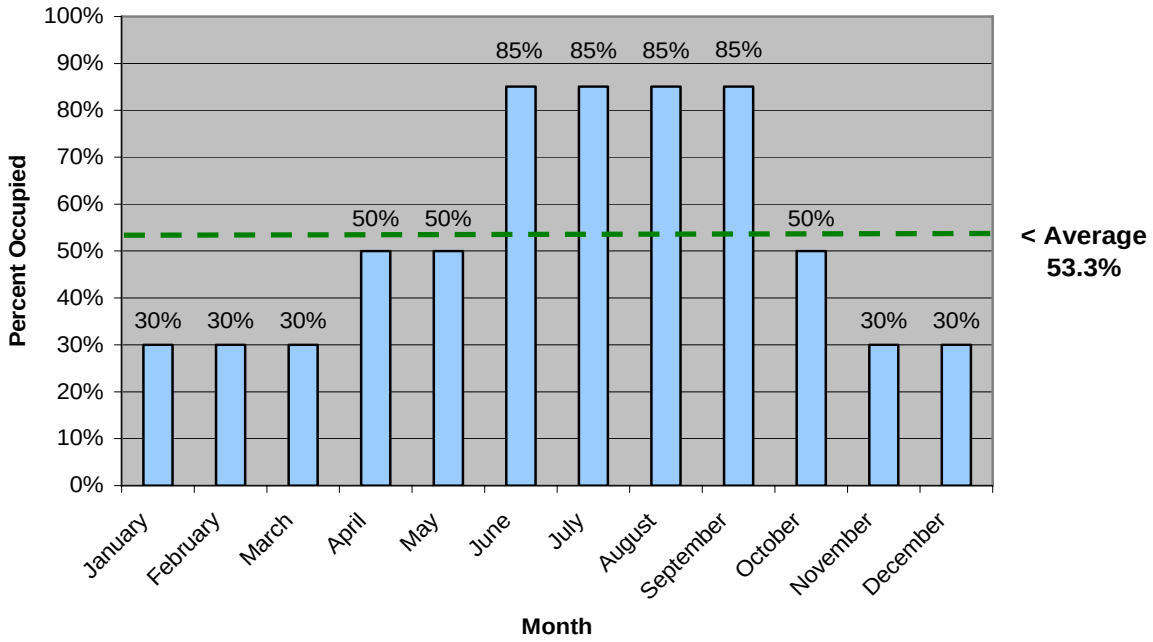
3.3.2.4 Occupancy and Seasonal Occupancy

The Master Plan projects 10% of the total resort units as full-time residential, up to 30% of the units for seasonal or long-term (one month or more) guests, and at least 50% of the units for short-term tenancies (less than one month). The total estimated annual water demand is related to both the type of water use (i.e., potable, reclaimed, and irrigation requirements) and the seasonal uses of the resort. The resort will have seasonal occupancy that would vary by season for both owner and non-owner guests. Occupancy estimates in Table 3-3 reflect the combination of seasonal residents and high vacation/convention use during peak seasons. The annual average residential unit occupancy is estimated at 2.2 people per unit for the Condo-tel and vacation residences.

Table 3-3 Seasonal Occupancy

Occupancy Category	Months Included	Number of Months	Units Occupied	Percent Occupied
Peak Season	June, July, August, September	4	757	85%
Mid Season	April, May, October	3	445	50%
Low Season (Full Time Residences)	November, December, January, February, March	5	267	30%
Average Annual	January to December	12	474	53.3%

Table 3-4 Seasonal Occupancy Summary



The averages reflect fuller occupancy on weekends and holidays and lower occupancy earlier in the week, a common pattern for resorts. While the units may in fact be sold out for several weeks during the summer, such loading is not the norm, and the 85% reflects a truer picture of resort demand for facilities of this size over a full season.

Winter season 30% occupancy is based on full-time residents and much more limited use during the winter, with limited winter tourist attraction and some conference use (typically two and three day conferences). The percentages were taken from resorts throughout the Jefferson County/Hood Canal area.

The estimated daily water demand provides the quantity of water that will be used for the design of the potable water system and the wastewater (reclaimed water) treatment system. (See Table 3-2 Daily Water Demand (Commercial and Residential).) For determination of annual water budgets, such as water quantities that are the basis for water rights, the annual water demands are based on the seasonal occupancy rates as described in section 3.3.5 Seasonal Occupancy.

3.3.3 Phased Water Demand

A project of this size will be developed in phases over a series of years. Water demand changes as the phases are completed. A summary of the estimated daily potable water demand is summarized in Table 3-5 Phased Potable Water Demand based on a likely completion scenario. These estimated daily demands assume a full occupancy rate, which could occur at times during the peak season of the year. During the seasonally lower occupancy times of the year the daily flows would be proportionally lower. (See Table 3-3 Seasonal Occupancy.)

Golf Course Resort Area (measured from Preliminary Plat approval)

Year 1. Clearing and grading and grading—-rough in the golf course, install main roads and utilities, water for dust control and cover planting the graded areas for stormwater management and runoff control.

Year 2. Construct the golf course, pave main roads, complete sewer system, complete stormwater management system for main roads and first phase, clubhouse, hotel and restaurant, staff housing, final plat approval.

Year 3. 1/3 Residential units

Year 4. 1/3 Residential units

Year 5. 1/3 Residential units

Marina Resort Area (measured from Shoreline Substantial Development permit approval)

Year 1 Install road, parking and utilities (water and sewer) (begin marina dock replacement)

Year 2. Maritime Village upgrade (commercial development and 88 units)

Year 3. Water side development, 63 units.

Table 3-5 Phased Potable Water Demand

Phase	Total Residential ERUs	Percent	Total Daily Water Demand	Average Daily Water Demand (gpd)	Cumulative Water Use	Acre Feet Utilized
Phase 1	198	22	25,000	5,500	30,500	24
Phase 2	428	48	54,500	12,000	66,500	52
Phase 3	615	69	78,300	17,200	95,500	74
Phase 4	703	79	89,600	19,800	109,400	85
Phase 5	890	100	113,500	25,000	138500	108

The water phase in plan shows that the 28 acre feet existing water rights could supply the first two years of project development, with rainwater harvesting and recycling/reuse alone providing the balance. The water supply and groundwater impact analysis is detailed in Pleasant Harbor Marina and Golf Resort—Water Supply and Groundwater Impact Analysis. See Appendix 5.

Statesman has available two ground water rights issued for community domestic supply totaling 115 gallons per minute (gpm) and 28 acre feet per year (afy), Water Rights No G2-20465 and No. G2-24359. Statesman also has a claim to a right for an additional 12 afy under water rights held by the Pleasant Tides Water Co-op for community domestic use. Water Rights No. G2-21134, No. G2-23623, and No. G2-27946P. See Shared Water Rights below.

As discussed in other sections of this DEIS, the Master Planned Resort is designed in five phases. The phasing is important in satisfying the water requirements of the Master Planned resort and in determining the necessary water rights. The WDOH has recommended that the water system be developed for a maximum daily demand (MDD) of 350 gallons per day (gpd) per equivalent residential unit (ERU), or on average 175 gpd/ERU (ADD). In a letter dated April 19, 2007, WDOH recognized that if the Master Planned Resort was developed in phases, WDOH would consider approving the Statesman Sustainable Water Resources Management Plan for 70 gpd/ERU (ADD) and 140 gpd/ERU (MDD) if the water usage records from the early phases confirms these estimates. WDOH's policy is to review monitoring records from two non-drought years of water use.

The storage requirements are as follows for an ADD of 175 gpd/ERU. The total storage is comprised of operating & dead storage (OS/DS), equalizing storage (ES), and the larger of standby storage (SB) or sustainable fire supply storage (FSS). The OS/DS is dependent upon the actual tank and appurtenances selected, and is approximately 15,000 gallons. The ES provides a buffer in the event the wells are not able to produce the peak hourly demand (PHD), which will be approximately 41,700 gallons. The SB provides enough water for the ADD per ERU for 2 days, which is approximately 436,450 gallons. The FSS is 120,000 gallons, based on a fire flow of 1000 gallons for 120 minutes, and is counted as nested in the SB storage since it is the larger of the two. Thus the total conventional storage required is approximately 493,150 gallons for an ADD of 175 gpd/ERU. Similarly, for an ADD

of 70 gpd/ERU the total storage is calculated as 189,580 gallons.

Based on the higher 175 gpd/ERU ADD, the current water rights will provide a potable water supply for 204 ERUs, sufficient to cover the units for Phase 1 and a portion of Phase 2. When WDOH approves the ADD of 70 gpd/ERU, the number of ERUs authorized under the existing rights will then allow for 510 ERUs which will satisfy potable water requirements for Phases 1 and 2 and a portion of Phase 3. Statesman will not, however, rely on the 40 afy of existing water rights or need to wait for 2 years of monitoring data prior to proceeding with full development. As discussed herein, the final intent is to fully supply the Master Planned Resort with rainwater and reuse, which permits the phases to be constructed as set out above.

Statesman is filing applications for both a groundwater right and a surface water right. The surface water right will request authorization to use rainwater and runoff, which will be treated and available for potable water supply. The groundwater right will be providing a supplemental or back up supply to the surface water use, the existing water rights, and a reclaimed water permit for irrigation of the golf course and the fire smart program. The groundwater right will request 280 gpm and 239 afy, which is the maximum total quantity that will be necessary for all water use at the Master Planned Resort assuming the maximum of 175 gpd/ERU ADD. The full balanced operation at 70 gpd/ERU (ADD) shows a total balance of 259 acre feet available and 259 acre feet in use, for a net balanced draw of zero. See Figure 3-8, Water Balance Summaries.

A schematic of the planned systems and alternative, likely used in concert in the final plan, reflects the variety of techniques available for water supply and utilization on the site.

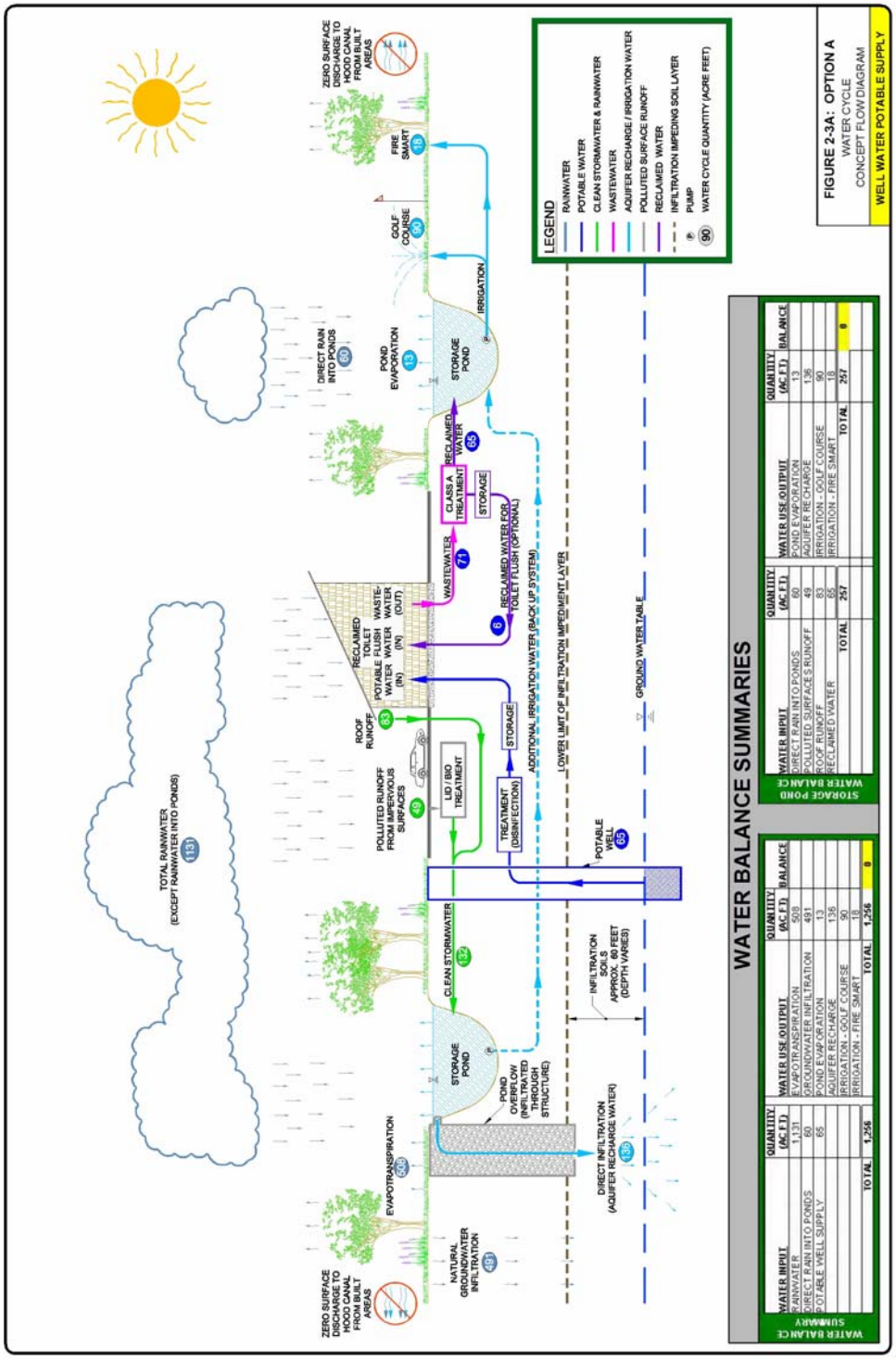


Figure 3-8 Water Cycle Concept Flow Diagram; Well Water Potable Supply

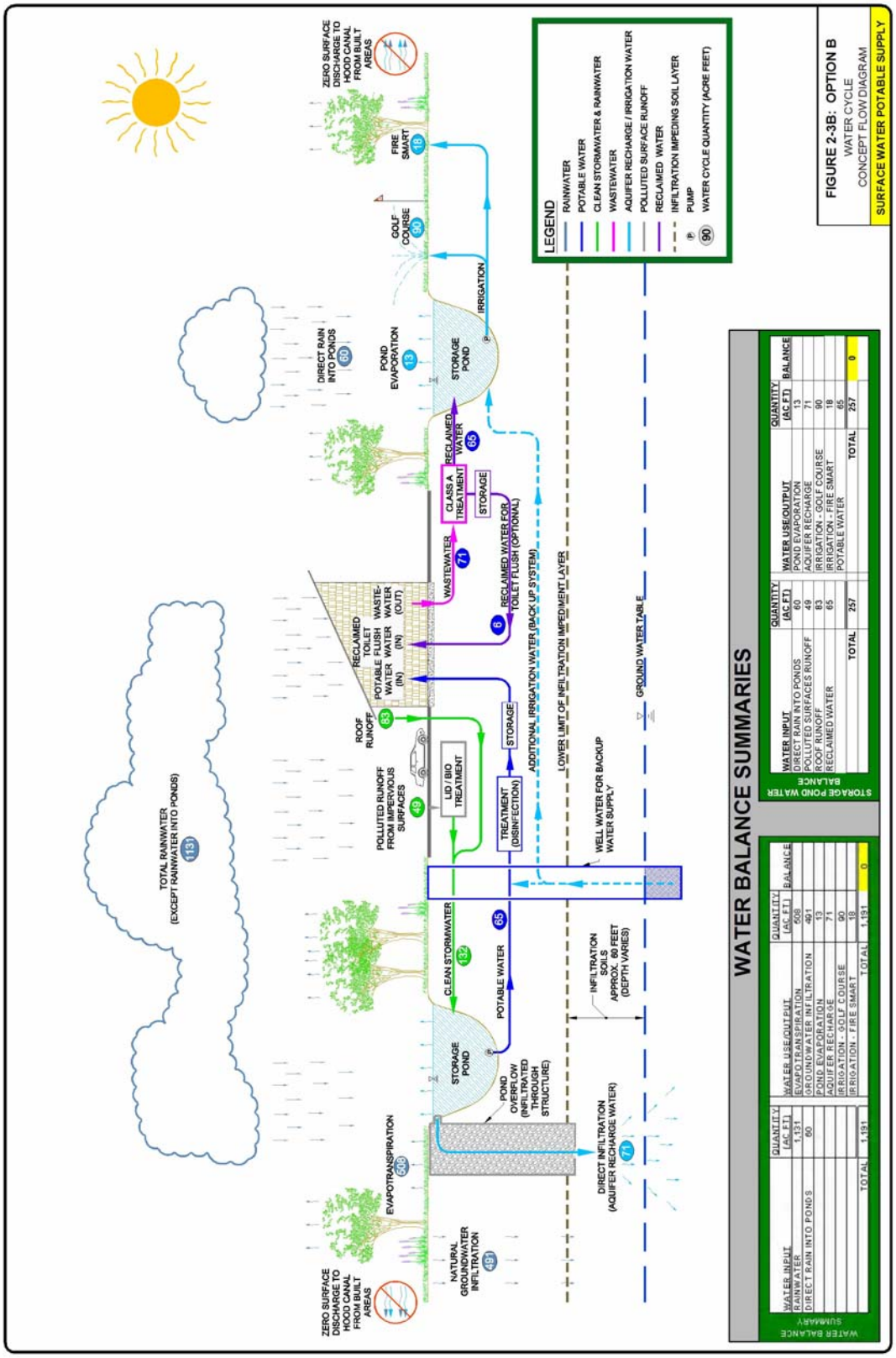


Figure 3-9 Water Cycle Concept Flow Diagram; Surface Water Potable Supply

3.3.4 Water Use and Potential Impact—Geologic Conditions

The Master Plan site is typically composed of Vashon Age glacial soils that are dense to very dense sand and gravel, with varying amounts of silt and some cobbles. Older Pre-Vashon non-glacial deposits consisting of dense to very dense sands and hard silts and clays were observed in one test boring and exposed in the bluffs along Hood Canal. The ground surface throughout the area is hummocky and typical of a site modified by glacial processes; the site includes a number of kettles, which are large glacial depressions. Ground surface elevations range from about 60 feet in the bottom of the deepest kettle, to elevation 320 feet on a hill in the southeast portion of the site. Though ground surface elevation varies considerably across the site, the average site elevation is about 180 to 200 feet. The slopes along Hood Canal consist of near vertical 100 ft high bluffs. Human activity has altered the landscape for construction of roads and other improvements.

The peninsula is surrounded on three sides by sea water. Due to density differences, fresh water essentially floats on sea water. The fresh water head (above sea level) beneath the peninsula ranges between 11 and 34 feet. As such, there is a significant fresh water lens beneath the peninsula. Though there is a very significant fresh water aquifer beneath the peninsula, it is important to maintain a positive fresh water head above sea level in the aquifer. The water supply and reuse strategy of the resort has been designed to prevent adverse impacts on the groundwater resources of Black Point and to avoid risk of saltwater intrusion.

The development area averages about 55 inches of precipitation annually. Most of the precipitation events in the site area are generated from southerly storms that move north up the canal. The climate is marine; winter months are typically moderate and wet, while summer months are typically mild and dry.

Complete discussion of site geology and local climatic conditions are provided in the Appendix documents. See Soils and Geology Evaluation at Appendix 4 and Water Supply and Groundwater Impact Analysis at Appendix 5.

3.3.5 Water Quality—Water System Management by Public Agencies

Maintenance of drinking water quality for all potable water and reuse/recycling standards fall under the auspices of the permit treatment and effluent standards for both the water system and the wastewater treatment system. The potable water system will be a conventional water system design, including a well combination with collected surface water treatment/disinfection system, storage reservoir, and conveyance piping to points of use. The size of the project will require a Class A water system approval. While the system could be operated privately, the proposal is construction of the system by the developer and operation by the Jefferson County Public Utility District, which has indicated a willingness to operate such a system.

The wastewater treatment system is also proposed to be managed by the Jefferson County PUD, but could be managed by a local utility or privately.

The advantage of a PUD operation is that the overall water quality system is under long-term public control to assure proper maintenance, reporting to the key regulatory agencies (WDOE and WDOH), and providing long-term assurance and safe operation. Public operation of the facilities will require the development of both a comprehensive plan and an engineering plan for water service and sewer service, which will explore in much greater detail the specifics of a given design and operation. At the Master Plan level the requirement is to assure that both systems are designed, approved, and operational in advance of the completion of the first phase of the golf course portion of the resort intended for additional public use.

Should public operation not prove feasible, the alternative is private operation with water system control and wastewater treatment operations under the supervision of properly licensed technicians, reporting as required under water system operational permits and the Chapter 90.48 RCW wastewater discharge permit.

3.3.6 Surface Water Management–Irrigation Water

The water stored in the irrigation water pond, which includes a combination of reclaimed water, treated stormwater, and rainwater, will be pumped in a pressurized piping system for the irrigation of the golf course and for water supply to the sustainable fire flow and other needs. Other landscape areas will be maintained or designed as native planting areas to minimize or eliminate the need for irrigation.

At this preliminary phase, the overall water budget for irrigation is projected at 108 acre feet for the golf course, fire suppression, and other uses during the irrigation season, which is April to October. The pond has been designed to retain sufficient water to provide full irrigation supply to the golf course, and supply is dependent upon securing necessary water rights permits. See Water Supply and Groundwater Impact Analysis, Appendix 5.

The precise calculations will depend on the specific design of the golf course and will be part of the golf course permit review. At the Master Plan level the feasibility and operability of such a system is demonstrated as both achievable and appropriate for the setting.

A key element of any irrigation plan for the golf course will be the adoption of best management practices to minimize the use of potentially harmful chemicals and a best management program to address golf course operation to assure that any opportunity for direct runoff to Hood Canal or the harbor is eliminated, and the potential for ground water impact is minimized. To achieve this result, the plat review for the golf course shall prohibit discharge of irrigation water to Hood Canal or the harbor, and include the adoption of a series of best management practices. Jefferson County uses the King County aquifer protection guide for golf course management BMPs, and the same conditions or substantially similar programs are required for this project at the permit level.

3.3.7 Stormwater Management

The site will be designed to meet the recommendations of the current edition of WDOE's Stormwater Management Manual for Western Washington, February 2005 together with WDOE's adopted Low Impact Development Technical Guidance Manual for Puget Sound, January 2005.

The stormwater management plan will be designed to meet the project's requirement for zero-discharge of water to the Hood Canal from the golf course resort area, and the full treatment of all site water from the marina area before discharge to the harbor (a significant upgrade from current direct discharge conditions). Stormwater management plans are approved by the Jefferson County Public Works Department. As a condition of any permit approval, including shoreline or preliminary plat approval, the approved stormwater management plan be included as part of the submittal presented for final approval.

The project has a significant cut and fill program planned for the golf course area which could cause significant adverse impact if not properly controlled. A separate stormwater management plan is required for the clearing and grading and subsequently for the development and operation of the facility. Prevention of pollution and maintenance of hydrology for protected wetland areas are the twin goals of the stormwater pollution prevention plans for the project

Construction Stormwater Pollution Prevention Plan (SWPPP)

Construction site stormwater runoff for this project is regulated at the state level by WDOE through the 2005 Stormwater Management Manual for Western Washington (SWMM) and at the local level by Jefferson County through the Jefferson County Stormwater Management Plan (Plan). WDOE requires a Construction General Stormwater Permit for all development activities where more than one acre will be disturbed and stormwater will be discharged to surface water or to storm drains that discharge to surface water. If all stormwater is retained on site, a General Stormwater Permit is not required. Although this development is well over an acre, the project will be designed, both during construction and post-development, to retain and/or infiltrate all stormwater on site as part of the overall sustainable water management plan. Therefore there will be no stormwater from the developed areas of the site that will be discharged off the site and into the Hood Canal.

The project will require a construction Stormwater Pollution Prevention Plan (SWPPPP) addressing how the stormwater will be treated and retained on site. There are 12 elements of the SWPPP that must be addressed:

- Mark clearing limits
- Establish construction access
- Control flow rates
- Install sediment controls
- Stabilize soils
- Protect slopes
- Protect drain inlets
- Stabilize channels and outlets
- Control pollutants
- Control de-watering
- Maintain Best Management Practices (BMPs)
- Manage the Project

If one element is considered unnecessary, the SWPPP must provide a justification. Each of these elements is discussed in detail in the SWMM. Each element lists several BMPs that can be utilized in reducing or eliminating the pollution of surface waters from construction activities.

Stormwater runoff during construction will be handled through the use of Best Management Practices (BMPs) as defined in WDOE's Volume II of the SWMM. BMPs are methods that reduce or prevent the release of pollutants to surface waters. For this project, several BMPs will be used to treat and retain stormwater on the project site. Some of the common methods that will most likely be used include:

- BMP C101: Preserving natural vegetation
- BMP C102: Buffer zones
- BMP C105: Stabilized construction entrance(s)
- BMP C107: Construction road/parking area stabilization
- BMP C120: Temporary and/or permanent seeding
- BMP C121: Mulching
- BMP C122: Nets and blankets
- BMP C123: Plastic covering
- BMP C130: Surface roughening
- BMP C162: Scheduling
- BMP C200: Interceptor dike and swale
- BMP C201: Grass-lined channels
- BMP C202: Channel lining
- BMP C207: Check dams
- BMP C230: Straw bale barrier
- BMP C233: Silt fence
- BMP C234: Vegetated strip
- BMP C235: Straw waddles
- BMP C240: Sediment trap
- BMP C241: Temporary sediment pond

The golf course construction will require land clearing and grading activity. The construction of the course will be carried out so that soil exposure is kept to a minimum by completing earthwork activity in phases, including stability and seeding of all disturbed areas. Stormwater runoff will be directed via lined channels with sediment barriers to several "kettles," or natural closed depressions, sediment traps, and/or sediment ponds located around the project site. The stormwater will either infiltrate in the kettles, traps, and ponds or be pumped to dispersion trenches. A 200-ft undisturbed natural vegetation

buffer will be kept between the shoreline and golf course resort development. Silt fencing and other BMPs as needed will be used along the site perimeter to prevent sediment from entering the natural undisturbed and shoreline areas.

In order to ensure that the Construction Stormwater Pollution Prevention Plan is implemented appropriately and that approved stormwater management facilities are constructed as per the approved plans, the proponent shall designate a civil engineer licensed in the State of Washington as the Project Engineer. The Project Engineer shall be responsible for ensuring that State and County stormwater management standards are met. Clearing, grading, implementation of the Construction Stormwater Pollution Prevention Plan, and construction of roads and stormwater management facilities shall be conducted under the supervision of the Project Engineer. The Project Engineer shall submit regular reports to Jefferson County while construction is in progress.

Low Impact Development (LID) Site Design

As part of the development's requirement to protect Hood Canal, all water on the site will be collected and either used appropriately onsite, will be routed to the storage ponds, or infiltrated to the groundwater aquifer. The development's sustainable water resource management plan also includes site design requirements to meet a zero-discharge of water from any of the built areas of the property. In summary, this zero-discharge criterion will be met by collecting and conveying water to storage ponds that will be built within the existing onsite kettles. The ponds will store water during high precipitation periods and, as needed, the stored water will be used to meet water demands. Any surplus water will be directed into the ground to provide aquifer recharge and to ensure that all water sources on the site are not discharged into Hood Canal.

The project will incorporate LID design methods in the construction of the civil infrastructure systems. The site will be designed to meet the recommendations of the SWMM, together with WDOE's adopted Low Impact Development Technical Guidance Manual (LID Manual) for Puget Sound, January 2005. Some of these recommended LID techniques are proposed for the project's roadways and stormwater management systems including narrow streets, raingardens (to provide water quality), and rainwater harvesting (to provide flow control).

Narrow streets serve several purposes in a LID design. First, they reduce the amount of pollution-generating impervious surface. Second, narrow streets also reduce traffic speeds which create a safer community.

Raingardens are typically shallow man-made depressions with compost-amended soils and plantings that are used to treat and infiltrate stormwater runoff. The amended soils in the raingardens will capture pollutants as water percolates through them. The water would be collected by perforated underdrain pipes below the amended soil layer and be conveyed to a stormwater pond for reuse. Raingardens also provide a nice landscaping feature, and they can also act as a natural buffer between the street and residential units. Native plants and shrubs tolerant of water inundation, soil saturation, and dry periods would be utilized. Raingardens used for treating street runoff are typically located parallel to streets adjacent to the street shoulder or in medians.

Rainwater harvesting utilizes above or below-ground cisterns, usually located by downspouts, to collect rainwater for later use such as irrigation. Overflow from the cisterns would be directed into the Raingardens for infiltration and conveyance to an on-site pond for later reuse.

The stormwater management plan will be designed to meet the project's requirement for zero-discharge of water to the Hood Canal. This will be accomplished by stormwater treatment and storage, appropriate water uses, and infiltration of water for aquifer recharge.

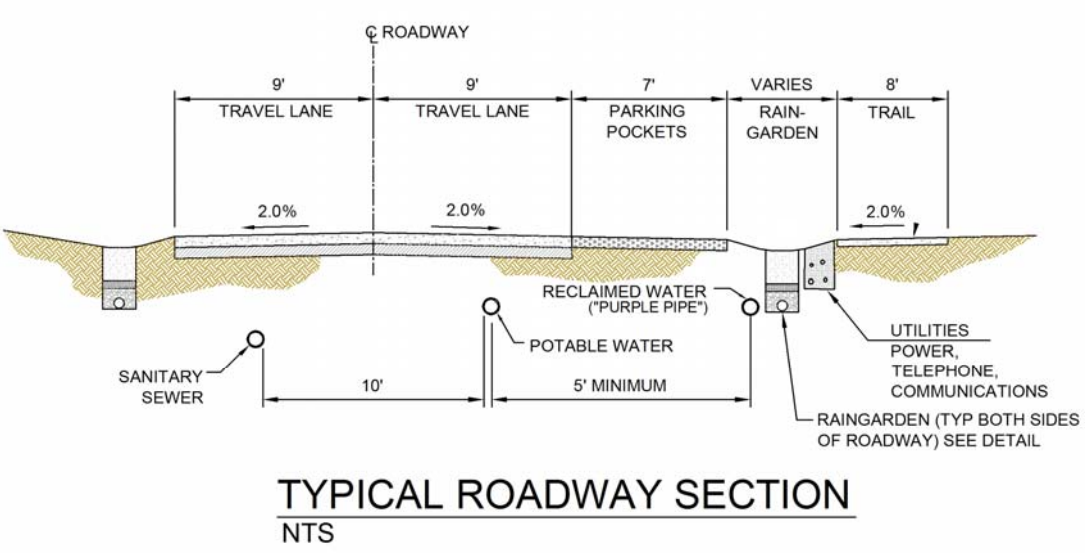


Figure 3-10 Typical LID Roadway Section (including narrow travel lanes and raingardens)

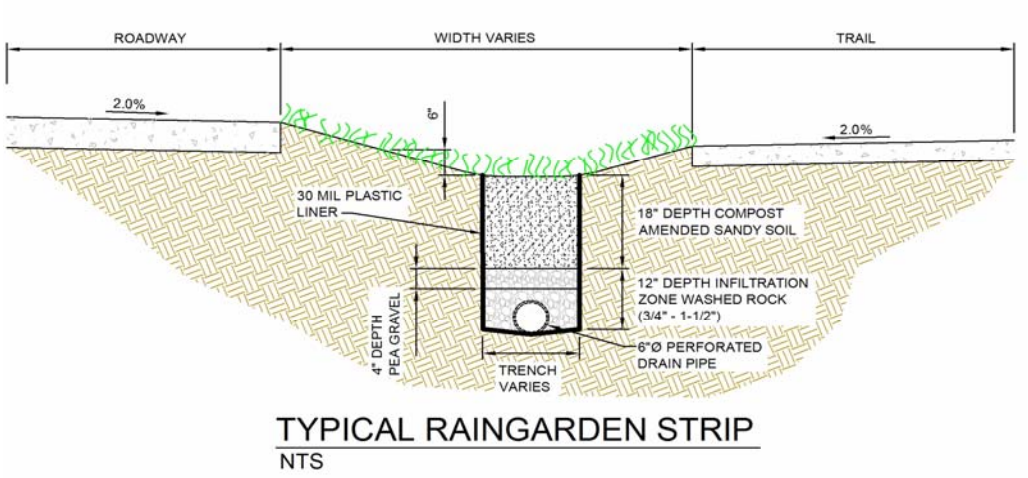


Figure 3-11 Typical Raingarden Section

Figure 3-12 Conceptual Stormwater Layout

Final layout approval for the golf course approval will require specific approval of the system to assure that no offsite discharge goal is in fact achieved.

On the Maritime Village portion of the project, a zero discharge system cannot be achieved due to topography. However, the existing retention, treatment, and discharge system can be significantly upgraded to assure that all stormwater from upland impervious surfaces are captured and treated prior to release to the aquifer. Permit approvals will consider the feasibility of capturing and pumping some portion of the Maritime Village stormwater for collection into the reuse system. All stormwater not so captured will be treated as provided above. Here again, consistency with the Master Plan will require approval of a stormwater management system for the Maritime Village area that demonstrates compliance with the stormwater treatment manual, including provision for addressing potential upsets or spills upland and mechanisms to assure such events can be handled onsite and do not pose a risk to the harbor.

3.3.8 Water Summary and Conditions

- **Sewer service (onsite system)**
- Any project approval for the golf course area will require construction and operation permits for a wastewater treatment system for the project by WDOE and an operational plan in place as a condition of final plat approval and construction of any structures for occupancy or residency.
- Any project approval for the Maritime Village remodel and upgrade shall include a demonstration that existing facilities can adequately serve the remodel areas. No additional residential units would be approved until the sewer system is installed and operating.

- **Water supply, groundwater, and rainwater harvesting**
- Any project approval for the resort shall contain a condition that the applicant demonstrate entitlement to sufficient water rights to serve the approved phase from WDOE (water rights transfer and/or rainwater harvesting rights and use conditions) prior to preliminary plat approval and construction of any facilities on the property.

- **Water quality**
- Stormwater management plans for clearing and grading and for construction and operation phases must be approved and systems in place to assure control of the stormwater as provided above.
- The golf course project approval shall require the adoption of best management practices for the management of stormwater onsite and the reuse of water as irrigation water, with a condition that the system demonstrate no direct discharge to Hood Canal of any stormwater from impervious or golf course surfaces, and that the grass management program include specific BMPs to assure proper management of all elements of the golf course management system consistent with the King County manual for golf course management in aquifer sensitive areas or its substantial equivalent.
- Approval of any permits for the marina redevelopment area shall be conditioned upon the approval of a stormwater management plan that intercepts and treats all stormwater from existing or new impervious surfaces to Puget Sound water quality management standards prior to discharge, and that the Maritime Village has a plan and facilities in place to deal with any upland upset that may threaten pollutant discharge to Pleasant Harbor.
- The Project Engineer shall be responsible for ensuring that State and County stormwater management standards are met. Clearing, grading, implementation of the Construction Stormwater Pollution Prevention Plan, and construction of roads and stormwater management facilities shall be conducted under the supervision of the Project Engineer. The Project Engineer shall submit weekly reports to Jefferson County while construction is in progress.

- **Groundwater protection and saltwater intrusion**
- Preliminary plat approval for the golf course resort that requires water use in excess of current approved water rights. Preliminary plat approval shall require a hydrogeological report demonstrating that the additional water use does not pose a threat of saltwater intrusion to existing wells or sources of water supply. A hydrogeological report is required for each construction or development phase to demonstrate compliance with this condition.
- Surface water and particularly irrigation water and potential migration to the harbor or Hood Canal were addressed in the section on water quality above.

- **Fire fighting flow**

- Adequate and sustainable fire flow will be provided by the Class A water system. The Class A water system will provide this level of service at all times.

3.4 Transportation

The County identified five specific issues to be addressed as part of the transportation review. (1) US HWY 101, (2) internal circulation, (3) marina circulation, (4) pedestrian circulation, and (5) bicycle circulation.

This section summarizes traffic and transportation existing conditions, project impacts, and mitigation measures of the Alternatives. A more detailed discussion and relevant technical supporting information and attachments are contained in Appendix 6: Transportation Impact Study.

3.4.1 Site Vicinity and Access Assumptions

The Pleasant Harbor development is located on US HWY 101 in the vicinity of Black Point Road in Jefferson County, Washington. A project site vicinity map is shown in Figure 3-13. The subject properties would include two main development districts under the Statesman proposal: Black Point Property and Maritime Village (see Figure 1-5).

There are existing facilities in the subject area, including a boat launch, beach, parking area, approximately 30 acres of forest, cottage business, a bed & breakfast, real estate office, vehicle/boat maintenance and repair shop, welding service, and vehicle and boat storage facility. Pleasant Harbor Marina currently provides moorage and fuel services with limited shopping and food service.

For transportation evaluation purposes, full build-out and occupancy of the project is within six to seven years from commencement. Vehicular site access would be consolidated for the Maritime Village and Black Point Property at US HWY 101 and Black Point Road. A egress-only driveway from the Maritime Village onto US HWY 101 would also be provided. All other five existing access connections onto US HWY 101 would be closed and removed.

There are three new site access roadways proposed onto Black Point Road for the Black Point Property and Maritime Village, including:

- A private frontage road that parallels US HWY 101 between Black Point Road and the Maritime Village. Existing traffic associated with the WDFW Boat Launch at Pleasant Harbor could intersect this new frontage road in a consolidated access onto Black Point Road.
- An emergency-only access into Black Point properties, located opposite the proposed golf course resort on Black Point Road. This access roadway would serve as an emergency secondary access/egress.
- A main entry roadway onto Black Point Road, approximately 0.35 miles from US HWY 101, that would serve all traffic to/from the Black Point Property.

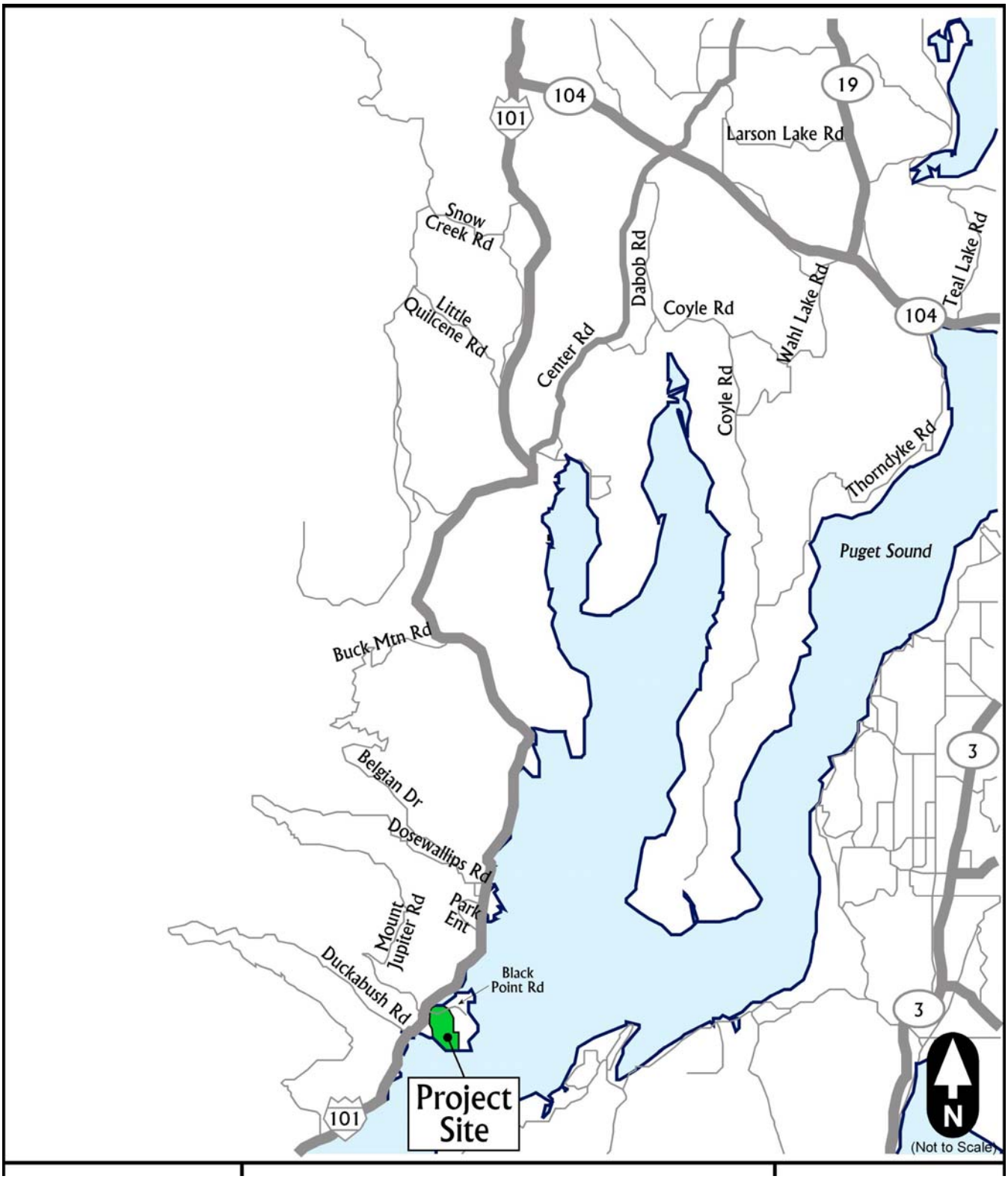


Figure 3-13 Project Site Vicinity

3.4.2 Existing Transportation 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, collision history, public transportation services, nonmotorized transportation facilities, and planned roadway improvements.

3.4.2.1 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.

US HWY 101 is classified by the Washington State Department of Transportation (WDOT) as a rural principal arterial. The roadway generally consists of 2 travel lanes 11-feet wide with 3- to 10-foot paved shoulders. The posted speed limit is 50 mph in the vicinity of the subject properties.

SR 104 is classified by WDOT as a rural principal arterial. The roadway consists of 2 travel lanes 11 feet wide with 8-foot paved shoulders. The speed limit is posted at 60 mph.

Center Road north of US HWY 101 is a two-lane major collector roadway with 11-foot travel lanes and 7- to 9-foot paved shoulders. Curbs, gutters, and sidewalks are located on the west side of the street, and a raised curb is located on the east side of the street. The curb-to-curb pavement width is 38 feet. The posted speed limit is 30 mph in the vicinity of Quilcene and 35 mph further north of Quilcene.

Dosewallips Road is a two-lane minor collector roadway with 11-foot travel lanes and 1-foot paved shoulders. The speed limit is posted at 35 mph.

Dosewallips Park Entrance Road is a two-lane, 20-foot local access roadway. The posted speed limit is 10 mph west and 5 mph east of US HWY 101.

Black Point Road is a two-lane local access street, with existing demand of less than 300 daily vehicles. The Jefferson County Public Works Road Log identifies 24 feet of pavement and 3-foot shoulders. However, based upon measured conditions in the field by Transportation Engineering Northwest (TENW) at several points along Black Point Road (in the vicinity of all proposed access points), the total pavement width ranges between 26 and 27 feet in width with 1- to 3-foot grass/gravel shoulders. The speed limit is posted at 35 mph. Black Point Road was constructed between 1974 and 1975, with a structural section of 12 inches of Class B gravel base overlaid with 2 shots of bituminous surface treatment.

Old Black Point Road is an undefined County Road that potentially serves as the first 0.04 miles of the existing entrance into the K.O.A. campground on the subject properties. According to the County Road Log, it intersections Black Point Road at approximately 0.05 miles from US HWY 101 and was established as a 12-foot of right-of-way. No record of this right-of-way is noted on recent property Alta surveys or title reports.

Duckabush Road is a two-lane minor collector roadway with 11-foot travel lanes and no shoulders. The posted speed limit is 25 mph.

3.4.2.2 Existing Traffic Volumes

Daily traffic volumes represent the number of vehicles traveling a roadway segment over a 24-hour period on an average weekday. Peak hour traffic volumes represent the highest hourly volume of vehicles passing through an intersection during a typical 4-6 p.m. peak period. For the purposes of this traffic study, the p.m. peak period was used as the peak hour since the proposed project would generate the highest traffic during this period. Existing channelization and traffic control at all study

intersections is provided in Appendix 6. Figures 3-14 and 3-15 show existing daily and p.m. peak hour traffic volumes.

Daily traffic volumes were obtained from WDOT. Traffic Count Consultants Inc. also conducted daily traffic counts on US HWY 101 (south of Quilcene and south of Brinnon) and Center Road, including p.m. peak hour turning movement counts at all study intersections in August/September 2006 (traffic counts are provided in Attachment A). Historical traffic volumes on US HWY 101 and study intersection roadways in the project site vicinity indicate a weighted average growth rate of 2 percent per year between 1998 and 2004. Furthermore, Jefferson County traffic and population forecasts in Quilcene and Brinnon estimate a 2 percent annual growth rate out to 2024. Therefore, a 2 percent per year growth rate was used to factor historical daily traffic volumes to estimate 2006 conditions.

At milepost 324.80 on US HWY 101 (approximately 15 miles south of Black Point Road), WDOT maintains a permanent traffic recorder station. During the peak summer month of August, traffic volumes recorded on US HWY 101 are approximately one-third higher than the annual average daily volumes. Traffic counts collected by TENW were collected prior to and during the Labor Day Weekend in 2006, representing a conservative period and allowing for evaluation of potential traffic impacts during a worst-case scenario of peak use of the proposed resort facilities during peak summer traffic flows in the study area.

3.4.2.3 Intersection Levels of Service

Levels 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. of Appendix 6 summarizes the delay range for each LOS at 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 unsignalized intersections, an LOS 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.

LOS standards in Jefferson County are LOS C for rural roads and LOS D for all other roads.

LOS on State Highways is LOS C for US HWY 101 and SR 104.

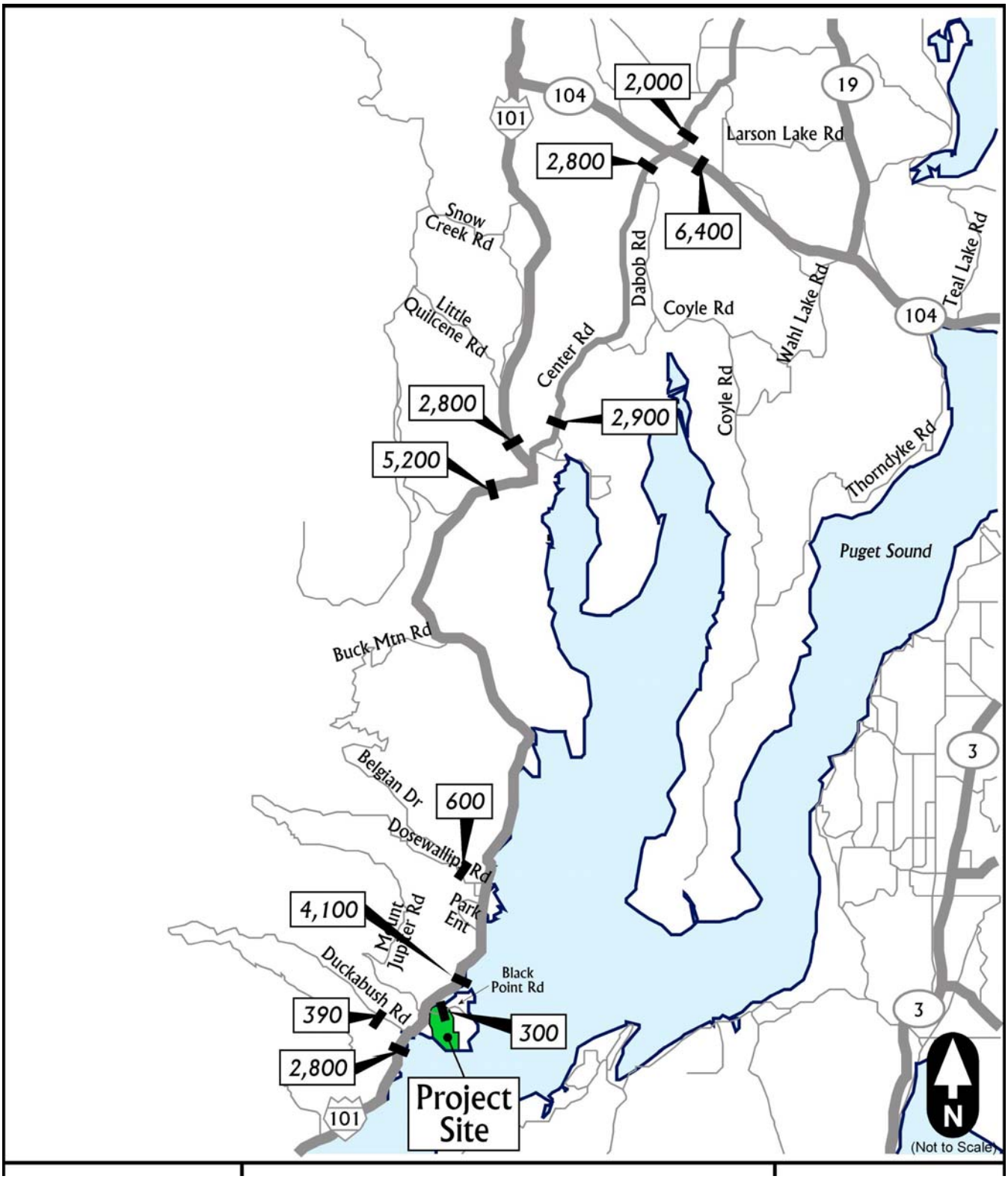


Figure 3-14 2006 Existing Daily Traffic Volumes (from WDOT tables)