

Chapter 10

UTILITIES

Utility Districts Serving Birch Bay

Water and sewer services for the Birch Bay area are provided primarily by the Birch Bay Water and Sewer District. The service boundary of the Birch Bay Water and Sewer District covers about 6,700 acres and is shown in Figure 10-1. The District presently purchases potable water from the City of Blaine and distributes it to its metered customers through a District owned piping system. The District operates a wastewater treatment plant located south of the Birch Bay State Park. The Birch Bay Water and Sewer District is governed by three publicly elected commissioners and managed by professional staff.

In addition to the Birch Bay Water and Sewer District, two additional water districts provide water to the residents of Birch Bay area. They are the Bell Bay Jackson Water Association and the Grandview Beach Water Association as shown in figure 10-1. The Bell Bay Jackson Water Association serves about 100 customers along Bay, Jackson and Kickerville Roads. The smaller Grandview Beach Water Association is located along the beach, south of Point Whitehorn, and serves about 15 customers. Customer demands and government regulations may necessitate the annexation of the Bell Bay Jackson Water Association and the Grandview Beach Water Association into the Birch Bay Water and Sewer District, or assumption of these systems by the County or PUD in the event the associations could not continue to serve their customers.

Water

Water Supply

As stated above, the Birch Bay Water and Sewer District purchases its water supply from the City of Blaine. The District and the City, just recently renewed their water supply agreement so that the District can purchase water to meet its customer demand. The contract extends for a period of 30 years with options for renewal after that. Currently the District uses about 1.4 million gallons per day on maximum days and the new agreement provides for up to 2.11 million gallons per day for maximum day

supply. Water is pumped through a main supply station to three ground level reservoirs. These reservoirs, together with two booster pump stations, serve a fully metered distribution system. In addition to the City of Blaine water supply, the District recently drilled a well that has a measured capacity of about 500 gallons per minute. The District is waiting for Washington State Department of Ecology's approval to begin withdrawal of water from the well. The Department of Health will also require completion of planning and source protection documents, and additional infrastructure will be necessary before the third well can be put into service.

Further, the Birch Bay Water and Sewer District has a contract with Whatcom County PUD 1 for delivery of 3 million gallons per day of water from the Nooksack River. This contract is currently being updated.

Water Consumption

Today, the peak day demand for water in the Birch Bay Water and Sewer District amounts to about 1,057 gallons per minute, serving a permanent population of about 3,200 persons, plus an undetermined number of seasonal persons. The District has approximately 3.1 million gallons of storage and this should be sufficient for the projected water demands for the next twenty years. However, additional storage will be necessary to improve or expand service to the water service area above 100 feet in elevation.

CHS Engineers, Inc., consultants to the Birch Bay Water and Sewer District, estimate that by the year 2011, the peak day supply requirement will increase to 1,200 gallons per minute, assuming effective conservation efforts. .

In addition to supplying potable water to the Birch Bay residents and commercial customers, the Birch Bay Water and Sewer District also provides wholesale water to Whatcom County Public Utility District #1, for distribution to the British Petroleum - Cherry Point facility. Wholesale

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Figure 10-1
Utility Districts

distribution to British Petroleum - Cherry Point is expected to continue for the foreseeable future. It is understood by British Petroleum - Cherry Point that their water is of the lowest priority to the Birch Bay Water and Sewer District and that service may be interrupted if water is required by the District's customers. The District, at this time, does not provide water for new golf course irrigation. Two golf courses that connected to the system prior to 1991 are still being served by the District for irrigation. The District has initiated a number of water conservation measures. Recently, the Washington State Department of Ecology recognized the Birch Bay Water and Sewer District for having one of the best managed waste water treatment plants in the State of Washington.

Water Distribution System

The water distribution system consists of three reservoirs, totaling 3.1 million gallons. The distribution system is made up of water mains measuring up to 16 inches in diameter. In addition there are two booster pump stations and eight pressure reducing valve mechanisms. Table 10-1 shows the amount of pipe by pipe size. Figure 10-2 shows the District's current water distribution area.

**Table 10-1
Existing Water System Pipe Quantities
Feet**

Pipe Size	Linear Feet
4 inches or less	69,900
6 inches	62,900
8 inches	122,700
10 inches	64,900
12 inches	25,400
14 inches	15,100
16 inches	7,300
Total	368,200

Note: Linear footage rounded to nearest 100

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Figure 10-2
Water Service Area

Capacity to Serve Future Water Demand

Supply. Is there adequate supply to serve future water demand as projected in the land use plan? Will the Blaine source be adequate to supply the year 2022 water needs for Birch Bay?

On 2 April 2002, the District entered into a 30 year agreement under which the City of Blaine is obligated to deliver water adequate to meet the District's projected water supply needs through 2022. The water contract for delivery will be supplied under existing water rights not requiring further approval from the State Department of Ecology. The District, moreover, has a pending application for additional groundwater rights (500 gallons per minute) and transfer of 3 million gallons per day from the Nooksack River by means of a contract with Whatcom County PUD 1 (once again utilizing existing water rights). In addition, the District has actively participated in the aforementioned Whatcom Regional Interagency Watershed planning process.

The year 2021 peak day water consumption demand is estimated to amount to about 1,500 gallons per minute, assuming effective conservation efforts.

Distribution. Will the District be able to deliver the water service to developing areas in the Birch Bay planning area? The answer to that question is yes. The area currently being serviced with water is shown in Figure 10-2. As shown in Figure 10-2, it will not be hard to supply water to areas currently not being served by simply extending existing service. Any significant expansion, however, needs to be accompanied by expanding the storage capacity in higher pressure zones for fire flow and reliability.

The cost of extending water service is born by the user. A user can be a single family home on a platted lot or it can be a developer building an entire subdivision of multi-unit condominiums. A builder or developer pays the entire cost of bringing the water line to the site, plus a connection charge. Any costs associated with fire flow requirements are also paid by the builder or developer.

Wastewater

Treatment Capacity

As stated above, the Birch Bay Water and Sewer District provides wastewater collection and treatment services to the residents and commercial customers in the Birch Bay area. The service began in 1976 when the District's 0.5 million gallons per day wastewater treatment plant went into operation. The capacity was expanded to 1.28 million gallons per day in 2001, thereby creating a growth capacity of 0.33 million gallons per day. This added treatment capacity is estimated to be adequate to at least the year 2007. Other improvements are planned that will bring the treatment capacity to 1.4 million gallons per day and to 1.95 million gallons per day. The peak summer plant flows are approximately 700,000 to 950,000 gallons per day. The wastewater treatment plant discharges to the Strait of Georgia via a 24 inch gravity out-fall. The out-fall discharge capacity is 5.9 million gallons per day. There are no controlled overflows from the wastewater collection system to the environment.

Collection System

The collection system is composed of approximately 46 miles of gravity and pressure sewers including 10 lift stations. The lift stations along Birch Bay Drive are the backbone of the collection system. As of March 1998, there were 4,956 sewer residential customer equivalents (RCE's) connected to the sewer system. Existing sewer pipe quantities are presented in Table 10-2.

Capacity to Serve Future Sewer Service Needs

Treatment Plant Capacity. As stated earlier, the treatment plant has the capacity to treat 1.28 million gallons per day. The current reserve capacity is about 0.33 million gallons per day. This reserve capacity should be sufficient to treat the increased load through 2007.

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Table 10-2
Existing Sewer Pipe Quantities
Feet

Size of Sewer Pipe	Linear Feet
6 inch	400
8 inch	154,400
10 inch	9,000
12 inch	14,300
14 inch	200
15 inch	26,400
18 inch	16,100
21-27 inch	300
Force main	29,000
Out-fall	7,700
Total	257,700

The Birch Bay Water and Sewer District's forecasts of wastewater flows indicate that the District needs to nearly double the capacity of the treatment plant by the year 2020. The current capacity of 1.28 million gallons per day needs to be increased to about 2.0 million gallons per day in 2020.

Collection System. A wastewater collection system, composed of gravity flow pipes, force-mains, and pump stations, is in place and it covers a good part of the Birch Bay planning area. The area that is serviced by sewers is shown in Figure 10-3. As can be seen in Figure 10-3, sewer services could be extended to currently non-service areas. Some unserved areas will require new trunk lines, pump stations, force mains or other system improvements.

From the financial point of view, it is the responsibility of the builder or developer to pay for the sewer extensions to the building site. The builder or developer is also required to pay a sewer hookup fee. This fee is collected to create a reserve fund which will be expended on system-wide improvements and expansion of the wastewater treatment plant.

Figure 10-3
Sewer Service Area

Stormwater Management

Stormwater management in the Birch Bay planning area is handled by Whatcom County Public Works Department. Stormwater problems are solved or mitigated as they appear, on a case by case basis. Most of the stormwater problems are created by runoff from man made impervious surfaces. All stormwater drainage eventually ends up in Birch Bay, Drayton Harbor and the Strait of Georgia. The Whatcom County Public Works Department is conducting a study of shoreline and associated upland drainage and stormwater issues. The results of this study should be a key component in devising short and long range stormwater action plans.

Stormwater management associated with new development is the responsibility of the builder or developer. The County has a threshold, above which a building or development needs to adhere to stormwater management requirements. Stormwater management requirements are spelled out in a stormwater management manual.

An inventory was taken of all man-made stormwater management facilities. Each facility was plotted on a map and these maps appear in each of the Neighborhood Baseline Data Reports. For example, stormwater facilities consisting of a number of culverts in the Point Whitehorn Neighborhood are shown in figure 18 in the Point Whitehorn Neighborhood Baseline Data Report.

Utilities Vision, Goals and Policies

Vision of Utility Services

“Endless supply of fresh water, that was taken for granted many years ago, no longer exists. The Birch Bay Water and Sewer District has been able to meet the growing fresh water demand by a combination of increasing its supply, curtailing its use by conservation measures and using treated wastewater to irrigate golf courses and supply industrial users. The wastewater collection system has been expanded and the treatment plant has been enlarged. All of the troubled septic systems along Drayton Harbor have been corrected, either by connecting them to the sewer system or by modernizing their operations through technological advances. Improved utility systems have significantly improved the water quality conditions in Drayton Harbor. Oyster growers are again bringing in abundant healthy crops.”

Goals and Policies - Water and Sewer

Goal UT 1: To assure that proposed commercial and housing projects do not jeopardize existing utilities service levels.

Goal UT 2: To provide water and sewerage systems that are safe and that adequately provide for projected growth.

Goal UT 3: To coordinate utility planning among the Birch Bay Water and Sewer District, City of Blaine, Whatcom County and other agencies.

Goal UT 4: To implement conservation measures that complement the community's commitment to stewardship of resources and that result in long-range economic benefit.

Goal UT 5: To assure that utility corridors are located, built and maintained in a manner that provides the least amount of impact possible on neighborhood and community landscapes.

Policy UT-5a: Explore possibilities to maximize joint utility corridors for both above and below ground lines.

Policy UT-5b: Protect viewsheds wherever and whenever possible.

Stormwater Management Goals and Policies

Goal SW 1: To protect water resources and natural drainage systems by controlling the quality and quantity of stormwater runoff.

Policy SW-1a: Designate the Birch Bay watershed as a "Stormwater Special District" under Whatcom County Code 20.80.635, Stormwater special districts.

Policy SW-1b: Develop Low Impact Development standards to encourage narrow streets, preservation of

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pervious surfaces, retentions of trees, natural vegetation and on-site stormwater infiltration.

Policy SW-1c: Include the Birch Bay Watershed as a “water resource special management area” in Whatcom County Code 20.80.735, Water resource special management areas, critical areas and critical area buffers; applying only sections (2) (a), (b), and (c), which address temporary sediment and erosion control, phased clearing and soil stabilization Respectively.

Policy SW-1d: Review zoning density and development standards in areas where engineering standards may not be sufficient.

Policy SW-1e: Avoid stormwater infiltration adjacent to eroding bluffs in areas where increased stormwater infiltration would exacerbate slope instability problems.

Goal SW 2: To implement stormwater management policies and strategies which recognize the value of wetland areas in solving stormwater problems.

Goal SW 3: To implement on-going monitoring of stormwater so that fresh and salt water quality problems can be identified early on.

Action Strategies

1. Urge the Birch Bay Water and Sewer District to continue appropriate planning, engineering and financial studies, leading to the expansion of the wastewater treatment plant.
2. Urge the Birch Bay Water and Sewer District to continue their proactive efforts to look for and secure development rights for additional water supply.
3. Urge the Birch Bay Water and Sewer District to continue efforts to coordinate utility line placement with county road construction and maintenance to minimize disruption to local residents and businesses.

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4. Urge the Birch Bay Water and Sewer District, Whatcom County Planning Commission and the Whatcom County Council to update and approve water and sewer comprehensive plans that expand water and sewer utility service area boundaries to corresponds to the adopted urban growth area as shown in Figure 10-4.
5. Ask the Whatcom County Public Works Department to prepare a long-range and a short-range action plan to solve many of the current stormwater management problems.
6. Designate the Birch Bay watershed as a “Stormwater Special District” under Whatcom County Code section 20.80.636, Stormwater Special Districts.
7. Include the Birch Bay Watershed as a “water resource special management area” in Whatcom County Code 20.80.735, Water resource special management areas, critical areas and critical area buffers; applying only sections (2) (a), (b), and (c), which address temporary sediment and erosion control, phased clearing and soil stabilization respectively.
8. Pursue efforts to underground utilities along Birch Bay Drive wherever and whenever feasible.
9. Develop Low Impact Development standards for Birch Bay and other sensitive watersheds. Low Impact Development regulations should consider allowance or requirement of narrower streets, limitations on impervious surfaces, tree retention policies, with the goal of retaining or replanting 65% tree cover in sensitive areas, and stormwater management techniques such as rain gardens and bioswales designed to increase stormwater retention and infiltration.
10. Work with the County Public Works Department, Birch Bay Water and Sewer District and appropriate agencies and organizations to develop funding sources for storm water management and shellfish protection.
11. Develop special stormwater requirements for land adjacent to eroding bluffs to require water quality treatment and reduced rates of flow through lined facilities with flow discharged off-site.

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Figure 10-4
Proposed Utility Service Area - Year 2020

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Figure 10-5
Birch Bay Watershed