



REGIONAL
DISTRICT
OF NANAIMO

**Growth Management Plan Review:
Issues Associated With the Plan's Land Use and
Servicing Strategies**

December 20, 2001

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EXECUTIVE SUMMARY

The report Growth Management Plan Review: Issues Associated with the Plan's Land Use and Servicing Strategies was undertaken as a part of the 2001-2002 review of the Regional District of Nanaimo's Growth Management Plan.

The Growth Management Plan is the regional growth strategy for the Regional District of Nanaimo. It is a regional vision that commits affected municipalities and electoral areas to a course of action to meet common social, economic, and environmental objectives. It is a long-term land use, development and servicing strategy for an area that is experiencing a high level of growth.

This report, which examines issues associated with the Growth Management Plan land use and servicing strategies, is comprised of four parts. The first part describes the Growth Management Plan land use and servicing strategies. The second part provides information about the current provision of domestic water and wastewater management services in the region. The third part provides information about the planning framework for domestic water and wastewater management services in the region. Existing and potential issues related to the Growth Management Plan's land use and servicing strategies are described in the fourth part.

Overall, the objectives of the Growth Management Plan land use and servicing strategies are compatible. However, some issues have arisen in the interpretation of land use and servicing strategy policies as they relate to the level and type of development envisioned, the impact of decisions of other agencies, and planning for the provision of services. Options for addressing the issues identified in this report should be examined as a part of the Growth Management Plan Review.

1.0 INTRODUCTION

The Growth Management Plan for the Regional District of Nanaimo was adopted in January 1997 as a regional growth strategy¹ to provide a long-term strategy for the management of development in the region.

The Growth Management Plan is being reviewed in 2001-2002 to consider whether amendments should be made to the strategy to improve the region's ability to achieve the desired future of the region, as articulated in the Plan's vision statement. One of the key components² of the review project is an examination of the compatibility of the Plan's future land use and servicing strategies.

Growth Management Plan

The Growth Management Plan establishes a vision, goals, policies, guidelines and broad regional land use designations to guide development over the next 25 years.

Vision Statement

The vision statement for the Growth Management Plan is a statement of the desired future for the region. It identifies what residents want the region to be like in 25 years and provides the overall guidance for the Growth Management Plan.

The vision statement is:

Communities in the Regional District of Nanaimo will seek to improve the quality of life for residents while respecting the ecological integrity of the environment. The region and its interdependent communities will possess a vibrant, sustainable economy, and will contain a mix of land uses and housing types in safe, friendly, well designed neighbourhoods. The form and design of settlement will reflect the diversity of the region's landscapes and cultural qualities, and will maintain the distinction between urban and rural areas. Residents will have easy access to workplaces, services and natural areas, and educational opportunities by a choice of mobility options. Each community will be surrounded by designated urban boundaries and permanently protected, contiguous corridors of open space. Growth and development will be managed to improve the quality of the region's communities, protect open space, and enhance the environment for the benefit of all life.

¹ A regional growth strategy covers a period of at least 20 years. It includes:

- a comprehensive statement of the future of the region, including social, economic and environmental objectives of the board in the relation to the regional district;
- population and employment projections;
- actions proposed by the regional district to provide for the needs of the projected population in relation to housing, transportation, regional district services, parks and natural areas, and economic development.

Regional growth strategies must be reviewed at least every five years to consider possible amendments.

² The Growth Management Plan Review will also include updating population and demographic projections, analyzing the development potential of the land in the region and its ability to accommodate the projected population and demographics of the region, assessing whether additional direction is merited regarding environmental protection, assessing the impact of the strategy on economic development opportunities, and assessing ways to make alternative, more environmentally friendly development forms more attractive.

Goals

The main ingredients of the better quality of life identified in the vision statement are sorted into eight specific goals:

1. Strong Urban Containment
2. Nodal Structure
3. Protection of Rural Integrity
4. Environmental Protection
5. Improved Mobility
6. Vibrant and Sustainable Economy
7. Efficient Services and Resource Use
8. Cooperation Among Jurisdictions

Policies

The eight goals of the Growth Management Plan are to be implemented through the incorporation of policies and actions into the official community plans for the electoral areas and member municipalities in the region that are consistent with the Growth Management Plan's 36 policies (see *Appendix A*).

Guidelines

Guidelines recommend directions and actions to be taken by regional and local jurisdictions and senior governments as the Growth Management Plan is implemented, to better achieve Plan goals. Unlike policies, guidelines are only advisory. The Growth Management Plan has 34 guidelines (see *Appendix B*).

Map of Land Use Designations

The Growth Management Plan Map of Land Use Designations includes seven designations:

1. Urban Containment Boundaries – lines that separate urban and rural areas, they define the limit of urban servicing and urban type development;
2. Resource Lands and Open Space – land that is in the Agricultural Land Reserve, the Forest Land Reserve, is an ecologically sensitive area or a golf course;
3. Rural Residential – lands where rural subdivision has already occurred and where modest future subdivision may occur without affecting the rural economy or environmental quality;
4. Industrial Areas – lands that support activities such as manufacturing, and may have many employees, as well as activities that require the transshipment and storage of goods in large buildings;
5. Urban Areas – those areas that are already developed to urban densities or are designated for such use;
6. Present Status Lands – lands outside the Urban Containment Boundary where the present zoning may continue to control the development potential of the land; and
7. Village Centres – land that is intended to be developed as a limited service centre outside of existing urbanized areas for the purpose of increasing the degree of self-sufficiency in rural areas, they are to be semi-rural in character.

Growth Management Plan Future Land Use and Servicing Strategies

The Growth Management Plan vision, goals, policies, guidelines and map of land use designations translate into overall regional land use and servicing strategies.

The Growth Management Plan **land use** strategy is:

- to protect rural character:
 - by identifying and designating land considered rural as either Resource Lands and Open Spaces (if it has resource value because of its presence in the Agriculture Land Reserve or Forest Land Reserve, presence of ecologically sensitive areas, Crown ownership or resource use) or Rural Residential (if it has rural values because of the presence of large residential parcels) and
 - by advocating larger parcel sizes and traditional rural uses on these lands considered rural, and
- to recognize that population growth will continue in the region and that the optimum way to accommodate population growth in the region and protect rural character is to designate lands for urban development that are already being used or have historically been used for urban development and advocate compact mixed use 'nodal' forms of development within these urban areas.

Key policies that establish this land use strategy are as follows:

Policy 1A: Official community plans will designate Urban Containment Boundaries consistent with those shown on the Growth Management Plan maps.

Policy 1C: Additional urban development will not be approved outside of Urban Containment Boundaries, other than in Village Centres and Present Status Lands.

Policy 2A: Official community plans will direct development into nodes, and discourage development elsewhere.

Policy 3A: Official community plans will promote and encourage retention of large rural holdings.

Policy 3B: Opportunities for "clustering" development through the principles of "open space subdivision" will be emphasized in rural areas.

Policy 3C: Official community plans will contain policies that support the Forest Land Reserve (FLR).

Policy 3D: Official community plans will include policies supporting retention of land in the Agricultural Land Reserve (ALR).

Policy 3E: Urban areas will be designed to protect rural integrity.

The Growth Management Plan **servicing** strategy is to provide cost efficient and environmentally compatible water and liquid waste treatment and disposal services that support the Growth Management Plan future land use strategy. Key policies that establish the Plan's servicing strategy are as follows:

Policy 1B: Services will not be extended outside of Urban Containment Boundaries, Village Centres, and Present Status Lands except where existing developments threaten public health or the environment.

Policy 7A: Servicing decisions will be linked to the land use elements of the Growth Management Plan and local official community plans.

Policy 7C: Servicing decisions of the Liquid Waste Management Plan will be consistent with the goals of growth management.

Policy 7D: Community water and waste treatment will be provided in all Urban Areas, Village Centres, and Present Status Lands.

The focus of this report is on the compatibility of the Growth Management Plan's **land use** and **servicing** strategies.

2.0 CURRENT PROVISION OF WASTEWATER MANAGEMENT AND DOMESTIC WATER SERVICES

A range of different methods and types of domestic water and wastewater management services are provided in the Regional District of Nanaimo.

This section describes the present methods of wastewater management and domestic water service in the region.

Wastewater Management

Wastewater management³ is the process of removing, reconditioning, and reusing or disposing water that has been used by humans once or more, and is no longer wanted in its present location and condition.

This section describes the four methods that wastewater is managed in the Regional District of Nanaimo: community sewer service, septic tanks and onsite disposal systems, package treatment plants and pump and haul.

Community Sewer Service

The community sewer service method of wastewater management is a communal method of wastewater management. It consists of collecting wastewater through a network of pipes and conveying it (typically by the force of gravity⁴) to a wastewater treatment plant, releasing the treated liquid residue (effluent) to a river, lake, or ocean, and disposing of the solid residue (sludge) by whatever means is available, economical and not environmentally damaging.

Wastewater treatment plants provide either primary, secondary, or tertiary treatment to the wastewater prior to its disposal. Primary treatment consists of screening and settling out solids from sewage. Secondary treatment consists of a biological process in which organic materials in the sewage are oxidized and digested. Tertiary treatment consists of a process in which detrimental inorganic chemicals such as salts and heavy metal compounds and nutrients are removed. Nitrates and phosphates are usually the major targets of tertiary treatment.

Community sewer systems are used to treat and dispose wastewater primarily in the urban areas of the region, such as the City of Nanaimo, the Town of Qualicum Beach, and the City of Parksville.

'Local sewer service areas' define the areas within the 'sewer benefitting area'⁵ that are currently provided with community sewer service. The Regional District of Nanaimo defines 'local sewer service areas' in the electoral areas. The Cities of Nanaimo and Parksville and the Town of Qualicum Beach request the Regional District of Nanaimo to establish 'local sewer service areas' within their respective jurisdictions. Regional District of Nanaimo acceptance and approval of each 'local sewer service area' is required, through the adoption of a bylaw, to establish 'local sewer service areas' in the municipalities because the Regional District operates the wastewater treatment facilities

³ The term 'wastewater management' is used rather than the term 'sewage disposal' in recognition of the fact it is difficult to eliminate sewage from the ecosystem. Typically sewage is just moved from one location to another.

⁴ The wastewater may also be forced through the system with the use of force mains and lift stations, when the terrain of the land does not facilitate the flow of wastewater according to the principles of gravity. Force mains are pipes in which wastewater flows under pressure. Lift stations are pumps that raise the vertical elevation of wastewater.

⁵ The 'sewer benefitting area' defines the area that the wastewater treatment plant is engineered and planned to service.

and the wastewater treatment facility must be able to handle the wastewater that will be generated in each 'local sewer service area'.

There are currently nine 'sewer local service areas' in the Regional District of Nanaimo. 'Sewer local service areas' have been defined in the City of Nanaimo, the City of Parksville, and the Town of Qualicum Beach. Outside of these municipalities 'sewer local service areas' have been defined for the Surfside area, the Pacific Shores area, French Creek, the Fairwinds area, and the Cedar school area by the Regional District of Nanaimo.

Sewage treatment is provided to the 'sewer local service areas' by one of the four treatment facilities operated by the Regional District of Nanaimo in the region: the Greater Nanaimo Pollution Control Centre, the French Creek Pollution Control Centre; the Nanoose Pollution Control Centre; and the Duke Point Pollution Control Centre.

The Greater Nanaimo Pollution Control Centre provides service to approximately 71,000 residents in the 'sewer local service areas' in the City of Nanaimo and surrounding areas.

The French Creek Pollution Control Centre provides service to approximately 16,000 residents in the 'sewer local service areas' for the Town of Qualicum Beach, the City of Parksville, and surrounding areas.

The Nanoose Bay Pollution Control Centre provides service to 300 residents in the 'sewer local service area' in Nanoose Bay.

The Duke Point Pollution Control Centre provides service to a limited customer base that presently includes industries and public uses in the Duke Point and Cedar areas.

Septic Tanks and Onsite Disposal

The septic tank and onsite disposal method of wastewater management involves allowing the wastewater from an individual source to flow to a septic tank where it settles and is anaerobically digested by a natural process, and then allowing the effluent to flow through a drain field⁶ into the soil. Septic tanks and onsite disposal systems provide a degree of treatment by removing some of the solids and discharging effluent into the ground through the drain field. The soil absorbs and provides a measure of treatment, and in the right circumstances can renovate waste water. Sludge accumulations should be removed from septic tanks every three to five years to help ensure the system continues to function effectively.

A permit must be obtained prior to the construction of a septic tank and onsite disposal system. The Central Vancouver Island Health Region is the approving authority for onsite disposal systems with a capacity under 22,750 litres per day. The Ministry of Water, Land and Air Protection is the approving authority for onsite disposal systems with a capacity greater than 22,750 litres per day.

The septic tank and onsite disposal method of wastewater management is typically used in rural areas.

Package Treatment Plants

The package treatment plant method of wastewater management involves using a small, prefabricated mechanical device designed and constructed to treat sewage. Package

⁶ A drain field is a network of perforated pipes laid in a bed of sand and gravel.

treatment plants are usually designed to serve from 10 to 500 dwelling units. They generally provide secondary treatment.

Package treatment plants must be approved by either the Ministry of Health or the Ministry of Water, Land and Air Protection in accordance with provincial guidelines for approval. The Ministry of Health is responsible for the approval of package treatment plants for smaller developments⁷ and the Ministry of Water, Land and Air Protection is responsible for the approval of package treatment plants to service larger developments⁸. Package treatment plants installed under the Health Act are mostly for single family dwellings.

Package treatment plants can produce a better quality effluent than conventional septic tank systems. They typically produce an effluent with a maximum Biochemical Oxygen Demand (BOD) of 45 mg/L and a Total Suspended Solids (TSS) of 60 mg/l when functioning properly. The higher quality effluent allows for a reduced length of tile field than would be required with a conventional septic tank system. This is important in areas of poor ground conditions where a sufficient tile field length cannot be obtained. In certain circumstances, effluent of this quality meets the government standards for direct discharge into streams or the ocean. Some package treatment plants can produce effluent with a quality as good as a BOD of 10 mg/l and a TSS of 10 mg/l. Proposals for sewage treatment and disposal are reviewed by provincial inspectors. The quality of effluent required is related to the disposal site characteristics.

The Regional District of Nanaimo Board passed a resolution in 1996 requesting the Ministry of Health and the then Ministry of Environment, Lands and Parks (now Ministry of Water, Land and Air Protection) to cease approval of package treatment plants as a means of sewage treatment in connection with strata and other private developments within the boundaries of the Regional District of Nanaimo, except where the application has first been referred to the Regional District for consideration and where the Regional District has approved the application as not being against its interest. The Regional District passed this resolution because it was concerned:

- that package treatment plant approval might be approved on a site-by-site basis with no assessment of the cumulative impact of such approvals;
- that package treatment plant approval might conflict with its strategy to provide community sewer service;
- that package treatment plant approval might conflict with its capital plans to provide community sewer service⁹;
- about the inadequacy of bonds required for package treatment plants;
- the insufficiency of measures to monitor and maintain package treatment plants.

At the time of writing a 1995 report on servicing in the region, it was noted that the Regional District's desire for package treatment plants not to be approved without its consent had not been supported by other levels of government (due to legislative and other issues), and that some developments that use package treatment plants have been approved.

It is difficult to determine the prevalence of package treatment plant use in the Regional District of Nanaimo because of the way that information regarding package treatment

⁷ The Ministry of Health is the approval authority for package treatment plants that have a capacity less than or equal to 22,750 litres per day and discharge to the ground.

⁸ The Ministry of Water, Land and Air Protection is the approval authority for package treatment plants that have a capacity over 22,750 litres per day.

⁹ A property owner would probably be reluctant to want to pay for a community solution to waste water management, such as a community sewer system, if s/he had paid for an individual solution to wastewater management such as a package treatment plant.

plant approval is filed¹⁰, the fact that package treatment plants are approved by two provincial ministries, and the fact that the ministries have limited time and financial resources to collect and monitor data regarding package treatment plants.

The Central Vancouver Island Health region indicates that about 15% of all the permits it issues for liquid waste disposal in the region are for package treatment plants. It is estimated that approximately 150 permits have been issued for package waste treatment plants by the Central Vancouver Island Health Region in the District 68 area of the region (south part) since 1994, and that approximately 60 permits for package treatment plants have been issued for package treatment plants in the District 69 area of the region (north part) since 1994. Extensive research would be required to determine the number of permits for package treatment plants issued by the Ministry of Health between 1969¹¹ and 1994.

The Ministry of Land, Water and Air Protection estimates that it has issued permits for approximately twenty package treatment plants in the Regional District of Nanaimo.

Pump and Haul

The pump and haul method of wastewater management consists of collecting waste in a holding tank on a property, pumping the wastewater out regularly, and transporting the waste to a disposal and or treatment facility.

Pump and haul is a user pay method of wastewater management that is available to property owners in the region that:

- cannot obtain a permit from the Ministry of Health or the Ministry of Water, Land and Air Protection,
- have a property 700 m² or greater in size,
- are not able to access a community sewer system; and
- are using their property in conformity with all other zoning bylaws.

“Regional District of Nanaimo Pump and Haul Local Service Area Amendment Bylaw No. 975.24, 2001” establishes the pump and haul service area and conditions for provision of the service in the region. The pump and haul service area includes Electoral Areas A, B, D, E, F, and H. At present, thirty-one properties¹² utilize pump and haul as their method of wastewater management in the region. A new pump and haul local service area is currently being considered to manage wastewater for the Horne Lake recreational property area. The Regional District requires property owners to register a covenant on the property that obligates the property owner to maintain a contract with a pump out company at all time and to provide the Regional District with a current copy of the contract.

Domestic Water

This section describes the two methods of providing domestic water in the region: communal water service and individual water service. There are two sources of domestic water in the region: groundwater¹³ and surface water¹⁴. The Central Vancouver Island Health Region monitors drinking water quality under the Safe Drinking Water Regulation.

¹⁰ The Central Vancouver Island Health Region files paper copies of files regarding package treatment plant approvals by legal property description. The information is not filed electronically.

¹¹ 1969 was the first year that permits for package treatment plants could be issued by the Ministry of Health.

¹² The 31 properties are allocated as follows: Electoral Area A – 7 parcels, Electoral Area D – 2 parcels, Electoral Area E – 12 parcels, Electoral Area F – 3 parcels, Electoral Area H – 6 parcels, and 1 parcel in the City of Nanaimo.

¹³ Groundwater is water that is obtained from sources within the ground. It is defined as “water in the zone of saturation, that is under pressure equal to or greater than atmospheric pressure” (BC Environment and Environment Canada, 1994). No license is required to obtain groundwater resources. Water systems that draw upon groundwater in the region include:

Communal Water Service

Communal water service systems typically include four key components: a water source, a method of filtering and treating water, a pressure tower and storage, and a local distribution system. Sources of water may include underground sources (such as wells), surface water sources (such as continually flowing rivers, lakes, ponds and human made reservoirs). Water filtering¹⁵ and treatment infrastructure may be required between the water source and the water distribution system. The filtering system is used to filter out sediments and other solid materials. Water treatment is used to provide water with a desirable chemical balance and to eliminate any undesirable biological contaminants. Water is pumped from the treatment infrastructure to a pressure and storage tank. The purpose of the water pressure and storage tank is to establish adequate water pressure throughout the water system, and to provide an adequate supply of water for normal use and firefighting. Water leaves the pressure tower in a main trunk (the largest pipe in the system), branches out into supply mains, then to street mains, then to house branches (or laterals). Water is under pressure in community water systems.

Communal water systems are used to provide domestic water primarily in the urban areas of the region, such as the City of Nanaimo, the Town of Qualicum Beach, and the City of Parksville, although communal water systems have become quite prevalent in the more traditional rural areas as well.

The Regional District, the member municipalities, improvement districts, private water utilities and other water systems provide communal water supply systems in the Regional District of Nanaimo. The following provides information about communal water services provided by each of these bodies.

Regional District

Regional districts may establish water service areas and provide water service pursuant to the Local Government Act¹⁶.

The Regional District of Nanaimo operates ten water services or local water service areas in the region: Surfside, French Creek, Madrona Point, West Bay Estates, Arbutus Park, Nanoose, Fairwinds, Nanoose, Pylades, and San Pareil. A local water service area delineates the properties served and sets the tax rate and user fees for maintaining and operating the system. Property owners within the local water service area are responsible for the cost of their system, including the operation, maintenance, capital improvements, administration, and enforcement of water restrictions. Properties within a water local service area enjoy many benefits, including a supply of water for drinking and inside house use, fire protection, and limited outside use, weekly testing to ensure the water meets safety and quality standards, system maintenance (with crews on call to respond

North Cedar Improvement District, Town of Qualicum Beach, City of Parksville, Nanoose Area water systems, Lantzville Improvement District, Gabriola Island, French Creek area systems, and Electoral Area H water systems.

¹⁴ Surface water is water obtained from a surface water body such as river, lake or pond. Surface water falls under the jurisdiction of the provincial government ministry responsible for water management. Licenses must be obtained from the provincial ministry with this responsibility prior to drawing water from a surface water source. The province monitors and records water usage that draws upon creeks, streams and rivers in the province for water supply. The water systems for the Cities of Nanaimo and Parksville draw upon surface water.

¹⁵ Water filtering is a form of water treatment.

¹⁶ Section 796 of the Local Government Act states, "Subject to the specific limitations and conditions established by or under this or another Act, a regional district may operate any service that the board considers necessary or desirable for all or part of the regional district". Section 800 of the Local Government Act requires the regional district to first adopt establishing bylaws prior to the establishment of most services. Section 865 (1) of the Local Government Act states, " All bylaws adopted by a regional district board after the board has adopted a regional growth strategy, and all services undertaken by a regional district after the board has adopted a regional growth strategy, must be consistent with the regional growth strategy".

to emergencies), administration and engineering support, long range planning, public education and information on water conservation, fire hydrants, and water metering.

Municipalities

Municipalities may establish water service areas and provide water service pursuant to the Local Government Act.

The Greater Nanaimo Water District (GNWD) provides the City of Nanaimo and South West Extension Waterworks District with water. Surface water is drawn from the South Fork watershed, an upper tributary of the Nanaimo River system, to provide community water service to approximately 75,000 residents over a 85 square kilometer area of land. The GNWD has water licenses for 177,000 m³ per day to serve its users. Water is piped from the lower of the two dams on the river and chlorinated before entering the city limits. Virtually the whole of the Nanaimo River watershed is privately owned forest land, and most of the south fork is actively harvested. The watershed is jointly managed, under agreement, by the City and the logging company. The company manages access and patrols the creek for silt and blockages. Water quality is jointly monitored. Turbidity levels occasionally rise above the Guidelines for Canadian Drinking Water Quality, but monthly testing has not shown a risk for coliform bacteria, Giardia, or Cryptosporidium. There are three reservoirs, two built by the Water District on the South Fork and 1 by the logging company on the north fork, to help ensure the necessary supplies for city and industrial users. The flows in the lower reaches are affected by groundwater removal from the Cassidy Aquifer, south of Nanaimo, for domestic, irrigation, community and industrial uses. Additional storage facilities will be required to meet the population expected in the area in 2016.

The Town of Qualicum Beach provides community water service to land within the Town of Qualicum Beach. The Town obtains groundwater from two aquifers. The Town has five wells in the Little Qualicum River well field and four wells in the Berwick aquifer. The Little Qualicum River field had capacity for additional wells in 1995.

The City of Parksville provides community water service to land within the City of Parksville. Groundwater is obtained from wells in the Springwood and Railway Station areas. The City of Parksville also draws upon surface water to supply its residents. Surface water is obtained from Englishman River¹⁷. Water is drawn from the Englishman River at a location between the Island Highway and ocean. The City draws approximately 6,500 m³ per day of water from the Englishman River. Water from this source can suffer from excessive suspended solids and turbidity in times of high river flows.

Improvement Districts and Waterworks Districts

Three improvement and five waterworks districts provide water service in the Regional District of Nanaimo, as outlined in the table below:

¹⁷ The City of Parksville obtains water from the Englishman River source in the summer only at this point, due to river turbidity in the winter.

Improvement or Waterworks District	Properties Provided Water Service (#)
Deep Bay Waterworks District	Approximately 560.
Bowser Waterworks District	Approximately 225.
Qualicum Bay / Horne Lake Waterworks District	Approximately 350.
Little Qualicum Waterworks District	Specific information not provided to date. Between 15 and 300.
William Springs Improvement District	Approximately 19.
Lantzville Improvement District	Approximately 866.
South West Extension Waterworks District	Approximately 81. Another 60 properties are eligible for service.
North Cedar Improvement District	Approximately 1100 properties. Another 100 properties are eligible for service.

Improvement and waterworks districts¹⁸ are incorporated as public corporate bodies and may establish water service areas and water service provision pursuant to the Local Government Act.

Citizens who lived outside incorporated municipalities relied primarily upon improvement districts to provide local services (such as water) prior to the creation of regional districts in 1965.

Private Water Utilities

Four private water utilities provide water service in the Regional District of Nanaimo, as outlined in the table below:

Private Water Utility	Properties Provided Water Service (#)
Breakwater Enterprises Limited	1423
Whiskey Creek Estates	Between 15 and 300.
Whiskey Creek Utilities	Between 15 and 300.
Bel Oak Drive Water Utility	Between 2 and 14 connections.

Private water utilities are established pursuant to the Water Utility Act.

¹⁸The Water Act was the initial legislation that provided for improvement districts. However, in recognition of the fact that many improvement districts were providing more than just water service, improvement districts were later placed under the domain of the then Ministry of Municipal Affairs, Recreation and Culture and its legislation (the then Municipal Act, now the Local Government Act). Improvement districts are established through incorporation by letters patent under the Local Government Act. Section 731 of the Act states, "The Lieutenant Governor in Council may, by letters patent, incorporate an area of land comprising 2 or more parcels, whether contiguous or not, and its owners into an improvement district, under and name and with objects that appear advisable and with powers considered necessary to carry out those objects". Section 745 of the Local Government Act specifies that an improvement district may "regulate the distribution of water". Section 752 of the Local Government Act states, "An improvement district has no obligation to convey or supply water...or to provide any services to any person, land or premises," and "...a person to whom any improvement district refuses to convey or supply water...or to provide any service, may appeal to the inspector, who make any order in the matter that the inspector considers just and reasonable". However, section 865 (2), which states, "All bylaws adopted by a greater board or an improvement district board after the adoption of a regional growth strategy applicable to its jurisdiction, all works and services provided by a greater board or an improvement district board after the adoption of a regional growth strategy applicable to its jurisdiction, must be consistent with the regional growth strategy," obligates improvement districts to make servicing decisions that are consistent with the applicable regional growth strategy. This may include the denial of services in cases where a higher level of development than that envisioned by the regional growth strategy may be facilitated by the provision of the service.

The Water Utility Act defines a water utility as follows:

- “(a) a person who owns or operates in British Columbia equipment or facilities for the diverting, developing, pumping, impounding, distributing or furnishing of water, for compensation,
 - (i) to or for more than the prescribed number of persons, if no number is prescribed, 5 or more persons, or
 - (ii) to a corporation,
- (b) the lessee, trustee, receiver or liquidator of a person referred to in paragraph (a),
but does not include
- (c) a municipality in respect of services furnished by the municipality,
- (d) a person who furnishes services or commodity only to himself or herself, the person’s employees or tenants, if the service or commodity is not resold to or used by others,
- (e) the Greater Vancouver Water District under the Greater Vancouver Water District Act,
- (f) an improvement district or water users’ community under the Water Act,
- (g) a regional district under the Local Government Act in respect of the service of the supply of water
 - (i) in bulk to a municipality or electoral area participating in that service, or
 - (ii) to consumers in a municipality participating in that service,
- (h) a person who supplies water by tanker truck,
- (i) a person who sells bottled water, or
- (j) a strata corporation, if the comptroller is satisfied that the owner developers within the meaning of the Strata Property Act have ceased to own a majority of the strata lots in the strata plan” (Water Utility Act).

Water Users’ Communities

Three water users’ communities provide water service in the Regional District of Nanaimo, as outlined in the table below:

Water User Communities	Properties Provided Water Service (#)
Boat Harbour Water Users Society	Between 15 and 300 connections.
Olympic Springs Water System	Between 2 and 14 connections.
Seagirt Water Users Association	Between 2 and 14 connections.

Water users’ communities are established under the Water Act for the purpose of providing a legal organization to coordinate and manage the delivery of water to groups of six or more water users. Section 51 of the Water Act states, “The comptroller may at any time issue to a group of 6 or more licensees a certificate of incorporation incorporating them into a water users’ community with the name the comptroller considers advisable”.

Water users’ communities are defined as “any public corporate body incorporated under section 51, and includes a water users’ community formed under the former Act” (Water Act).

Water users’ communities are like improvement districts, but there are no elected trustees. Each community has a manager, the first of which is appointed by the Provincial Comptroller of Water Rights. Subsequent managers are chosen, or elected, by members of the community. All policies are decided by votes of the membership and voting interests are proportioned to the area of land irrigated, the volume of water delivered, or both. Water users’ communities are financed by assessments based upon a member’s interest in the community and by user charges.

Water users' communities are the simplest form of government. They are created to accomplish a single task – water delivery. They resemble a cooperative more than a government.

Other Systems

Thirty-seven other water systems provide water service in the Regional District of Nanaimo, as outlined below:

Other Systems	Properties Provided Water Service (#)
Casa Blanca	Between 15 and 300.
Cassidy Mobile Home Park	Between 15 and 300.
Englishman River Falls Mobile Home Park	Between 15 and 300.
Graaten's Mobile Home Park	Between 15 and 300.
Graycrest / Strata Plan 1734	Between 15 and 300.
Island Park Estates	Between 15 and 300.
Little Qualicum Holdings	Between 15 and 300.
Maple Glen Mobile Home Park	Between 15 and 300.
Melrose Terrace Water System	Between 15 and 300.
Ocean Trails Condos	Between 15 and 300.
Parklands Mobile Home Park	Between 15 and 300.
ParkstonePlace	Between 15 and 300.
Pinetree Water System	Between 15 and 300.
Pires Mobile Home Park	Between 15 and 300.
Qualicum Beach RV and Mobile Home Park	Between 15 and 300.
Seabird Mobile Home Park	Between 15 and 300.
Tanglewood Condominiums	Between 15 and 300.
Timberlands Mobile Home Park	Between 15 and 300.
Trees Water System	Between 15 and 300.
Westburne Heights	Between 15 and 300.
Willow Mobile Home Park	Between 15 and 300.
Zuiderzee Campground	Between 15 and 300.
3117 Van Horne Road	Between 2 and 14.
Arbutus Beach Water Users Association	Between 2 and 14.
Arnsville Water System	Between 2 and 14.
Cooperville Water System	Between 2 and 14.
Country Air Mobile Home Park Water System	Between 2 and 14.
Errington Centre Water System	Between 2 and 14.
Kayla Place Mobile Home Park	Between 2 and 14.
Pinetree Water System	Between 2 and 14.
Rinvold Village	Between 2 and 14.
Rondalyn Resort Water System	Between 2 and 14.
Rumming Road Water System	Between 2 and 14.
Shady Acres	Between 2 and 14.
Starline Windows	Between 2 and 14.
Triple E Campsite	Between 2 and 14.
Twin Oaks Water System	Between 2 and 14.

These other water systems are established under the Health Act Safe Drinking Water Regulation and typically provide water to developments such as mobile home parks, resorts, and campgrounds. Under this legislation a person may apply to the Ministry of

Health for a 'construction permit'¹⁹, and an 'operation permit'²⁰, for a 'waterworks system'. This legislation defines a 'waterworks system' as "a system of water supply including its source, treatment, storage, transmission and distribution facilities, where water is furnished or offered for domestic purposes, but does not include a water supply serving only one single family residence". Water purveyors must provide potable²¹ water to all users served by the waterworks system.

It is difficult to determine the number of properties or residents that are provided water from private water suppliers, as the Regional District does not have readily available access to up-to-date information regarding the service area for each private water system. Furthermore, private water systems do not necessarily establish service areas, like the Regional District does when it establishes a new service, to define the benefiting area.

Individual Water Systems

Residents in the Regional District of Nanaimo that are not within one of the community water service areas provided by the Regional District, a member municipality, or one of the other above described communal water systems obtain their water from individual wells.

There are three basic types of wells – drilled wells, driven wells, and dug wells. A drilled well typically accesses a water source that is at least 15 metres deep and, preferably, protected from surface contamination by an impervious layer of rock or clay. Driven wells are wells that are commonly used when the water table is more than 6 metres from the surface. A steel pipe is driven into the ground, and a pump or pressure system is attached to the top. Dug (or pit) wells are commonly used when a drilled or driven well cannot be installed. Dug wells can be established with the use of a backhoe excavator if the water source is less than 7.5 metres below the earth's surface.

All three types of wells are susceptible to pollution, with drilled wells having the greatest likelihood of being pollution-free and dug wells facing the greatest contamination risks.

It is difficult to determine the number of properties or residents that obtain water from a private well because permits are not required to establish a well, and information is not readily available regarding the number of properties and residents that obtain water from private water systems.

¹⁹ Applications to construct waterworks systems under this legislation require an application, complete with plans and specifications, and the results of a water analysis for those water quality parameters that have been specified by a medical health officer for a water source.

²⁰ Applications to operate a waterworks system may be made to the medical health officer or public health inspector. The medical health officer or public health inspector may attach terms and conditions to the operating permit respecting the operation and monitoring of the waterworks system by the purveyor.

²¹ To monitor water potability the water purveyor must collect water samples in accordance with established procedures and have the samples analyzed by a laboratory in accordance with established procedures.

3.0 PLANNING FRAMEWORK FOR THE PROVISION OF WASTEWATER MANAGEMENT AND DOMESTIC WATER SERVICES IN THE REGION

Special purpose plans can be developed to establish the long-term strategy for the provision of wastewater management and domestic water services.

This section of the paper describes the plans in place regarding the provision of wastewater management and domestic water services in the Regional District of Nanaimo.

Wastewater Management

The Liquid Waste Management Plan, approved January 28, 1999 by the province, sets out a region wide²², 20-year strategy to manage wastewater in the region, according to the Growth Management Plan.

The guiding principles of the Liquid Waste Management Plan are:

- To not exceed the capacity of the environment to assimilate waste;
- To ensure the protection of human health;
- To use strategies in line with the precautionary principle;
- To reduce the liquid waste stream as much as possible;
- To be consistent with the Growth Management Plan;
- To locate, design, and operate sewage treatment facilities in a way that minimizes adverse impacts on neighbouring development through the provision of aesthetic and odour mitigation measures;
- To take into account, in the assessment of liquid waste management alternatives, technical, life cycle costs, environmental and social factors in order to provide decision makers with a balanced perspective on the alternatives for consideration.

The Liquid Waste Management Plan identifies actions to be taken by the Regional District of Nanaimo to manage wastewater. These actions include: a source control program, a volume reduction program, a stormwater management program, an odour control program, a program to provide community sewer service in rural areas for the sole purpose of addressing environmental or health problems created by existing development, and a program of four sewer service areas. The final component of the Liquid Waste Management Plan consists of operational certificates²³ for the water pollution control centres that correspond to the four sewer service areas.

Community Sewer Service

'Sewer benefiting areas' define the area of land that the Regional District of Nanaimo has engineered and planned to provide community sewer service. There are two 'sewer benefiting areas' in the Regional District: the Northern Community Sewer Benefiting Area and the Southern Community Sewer Benefiting Area.

The French Creek Pollution Control Centre is designed and engineered to serve a population of approximately 64,000 people. It is intended to provide wastewater

²² The Liquid Waste Management Plan does not apply to Gabriola Island (as it is under the Islands Trust's jurisdiction) or First Nation's Indian Reserves.

²³ Operational certificates authorize the quantity and quality of discharge to the environment and specify the general requirements relating to the construction, operation and maintenance of facilities, and the monitoring and reporting requirements.

management for all of the land inside the Urban Containment Boundary²⁴ in the Qualicum Beach, French Creek and Parksville areas, and potentially the Village Centres in Electoral Areas F and H. If more land is included within the Urban Containment Boundary, or services are provided to land outside the Urban Containment Boundary (either to fix environmental health problems or to provide for more development) then the design capacities of the treatment plant would need to be reassessed and the cost apportioned to the new areas of growth.

The Nanoose Pollution Control Centre is designed and engineered to serve a population of approximately 12,000 people. It is intended to provide wastewater management for all of the land within the Urban Containment Boundaries²⁵ in Nanoose, as well as limited wastewater management services in designated areas²⁶ outside the Urban Containment Boundary in Nanoose. If more land is included within the Urban Containment Boundary (thus requiring community sewer service to facilitate development), or if services are provided to more land than presently included in the 'local sewer service area' (i.e. land that is not designated by the Nanoose Bay Official Community Plan as Coast Residential or Urban Area), or if services are provided to land outside the Urban Containment Boundary (i.e. Coast Residential) to provide for more development rather than just address health issues associated with existing development, then the design capacities of the treatment plant would need to be reassessed and the cost apportioned to the new areas of growth..

The Nanaimo Pollution Control Centre has been engineered and designed to serve approximately 200,000 people. It is intended to provide wastewater management for all of the land within the Urban Containment Boundaries²⁷ in the Nanaimo and Lantzville areas. If more land is included within the Urban Containment Boundary (thus requiring community sewer service to facilitate development), or if services are provided to land outside the Urban Containment Boundary to address public health issues, or if services are provided to land outside of the Urban Containment Boundary to provide for more development rather than just address existing public health issues, the design capacities of the treatment plant would need to be reassessed and the cost apportioned to the new areas of growth.

The Duke Point Pollution Control Centre has been engineered and designed to serve a population equivalent of approximately 6000 people. At this point it is intended to provide wastewater management for the Duke Point industrial area and a school in Cedar. The recently completed Electoral Area A Official Community Plan proposes that community sewer service be provided to the designated urban areas of Cedar (i.e. land within the Urban Containment Boundary²⁸). The design capacities of the treatment plant need to be reassessed and the cost apportioned to these new areas of growth. As with the other Pollution Control Centres, if plans are put into place to provide community sewer service to land outside the Urban Containment Boundary, either to just address public health issues associated with existing development (and not enable additional development) or to allow the maximum development permitted by the current zoning, the design capacities of the treatment plant would need to be reassessed, to determine the facility's capability of providing service to an expanded population base.

²⁴ As designated by the current Growth Management Plan.

²⁵ As designated by the current Growth Management Plan.

²⁶ Limited community sewer service is planned for the area of land in Nanoose that is designated as within a Restricted Community Sewer Service Area by the Nanoose Bay Official Community Plan.

²⁷ As designated by the current Growth Management Plan.

²⁸ As designated by the current Growth Management Plan.

Septic Tank and Onsite Disposal

Septic tank and onsite disposal are planned to continue to be used as the primary method of wastewater management in rural areas, except in those situations where an environmental or health threat warrants the connection of properties to a community sewer system or the use of an alternative sewage treatment technology. Community sewer service is to be provided in these rural areas with the proviso that the provision of the service not facilitate any additional development on the property. This agreement is to be secured through either a zoning changes (to limit subdivision and connections) and or the registration of a restrictive covenant on the property (to limit subdivision and connections). The Liquid Waste Management Plan also provides for the Regional District to investigate alternative minimum standards for septic tank on site disposal systems to supplement the Health Act, with stakeholders and the Central Vancouver Island Health Region.

Package Treatment Plants

The Liquid Waste Management Plan recognizes the properties currently using package treatment plants will continue to use package treatment plants based on the legislation governing them. The Liquid Waste Management Plan proposed that the Regional District of Nanaimo be the holder of the permits or operational certificates for all new sewage systems issued by the Ministry of Water, Land and Air Protection. The Liquid Waste Management Plan also supported a review of the Regional District of Nanaimo role with respect to new sewage systems processed under the jurisdiction of the Central Vancouver Island Health Region. The intent of both of these proposals was to minimize the use of package treatment plants to facilitate development on lands outside Urban Containment Boundaries. Due to legislative issues²⁹ these proposals have not been fulfilled and may be reviewed. Package treatment plants approved *after* the adoption of the Liquid Waste Management Plan would only be approved with the condition that the property be connected to community sewer service when it becomes available.

Pump and Haul

The Liquid Waste Management Plan supports the use of pump and haul as a temporary strategy to manage wastewater in areas that are not yet serviceable but are planned for community sewer service. It also supports the principle that the establishment of pump and haul should not enable additional development of a property.

Since the adoption of the Liquid Waste Management Plan new policy criteria have been established regarding the provision of pump and haul services. Applications to provide pump and haul service are now evaluated with respect to whether an alternative sewage disposal system is available, whether the establishment of pump and haul service will permit new development, and whether the current property use is in conformance with the current zoning. These new criteria facilitate the possible approval of pump and haul service to properties outside the Urban Containment Boundary (i.e. not in a designated growth area), unlike the policy approach established by the Liquid Waste Management Plan.

Domestic Water

There is no comprehensive region wide plan regarding the provision of water services for the region.

²⁹ The system of regulating package treatment plants has changed.

The Regional District of Nanaimo will assume authority for the ownership, operation, and maintenance of private water systems upon the request of private systems, subject to the agreement of property owners served by the private system to absorb all of the costs associated with operating and maintaining the water supply works to the Regional District's standards.

The Arrowsmith Water Service was established in the 1990's to develop and implement a plan to provide enough domestic water for 70,000 residents in the north part of the region. The Arrowsmith Water Service is a joint venture amongst the Regional District of Nanaimo, the City of Parksville, and the Town of Qualicum Beach. Water storage for the Arrowsmith Water Service is provided by a dam on Arrowsmith Lake. The dam is the first phase of the bulk water supply project. Ultimately, water supply will be extracted from the Englishman River by a new water intake on the lower reach of the river. More comprehensive capital planning is required for the Arrowsmith Water Service to identify the specific methods and infrastructure required to serve the land within the bulk water supply area, the costs of these methods and infrastructure, and the schedule for constructing infrastructure and implementing water service to the supply area.

4.0 ISSUES ARISING IN THE IMPLEMENTATION OF GROWTH MANAGEMENT PLAN LAND USE AND SERVICING PLANS

Since the Growth Management Plan was adopted in 1997 a number of issues have arisen in the course of implementing the servicing and related land use strategies of the Plan. Generally, three types of issues have arisen: issues concerning the current Growth Management Plan policy on servicing, issues concerning actions by other agencies that are not in line with the Growth Management Plan, and issues regarding plans for the provision of services. This section describes the issues that have arisen in these three categories.

Concerns About Current Growth Management Plan Policy on Servicing

Determination of Environmental or Public Health Threats

The Growth Management Plan may not provide sufficient clarity with respect to what constitutes an 'environmental or public health' threat within the context of Policy 1B.

Policy 1B states, "Services will not be extended outside of Urban Containment Boundaries, Village Centres, and Present Status Lands except where *existing developments threaten public health or the environment*".

Existing developments have been deemed to threaten 'public health or the environment' and warrant connection to community services in the context of Policy 1B when the Central Vancouver Island Health Region issues a letter that states that there is a "documented health hazard". The Central Vancouver Island Health Region defines a "documented health hazard" as "an area wide failure of on-site sewage disposal systems or other sewage disposal practices resulting in the discharge of inadequately treated wastewater to the environment as demonstrated by sanitary surveys or other data collection methods and confirmed by the Medical Health Officer as posing a threat to public health".

Issues have arisen in the interpretation of a threat to the 'public health or the environment' regarding the need for documentation from the Central Vancouver Island Health Region to that effect. It has been argued that, although the Central Vancouver Island Health Region is not in a position to issue a letter stating that there is a 'public health or environment' threat based on the above criteria, the disposal of liquid waste via a septic system may comprise an "public health or environment' threat that warrants the provision of community services because of other characteristics, such as the relatively small size of properties in the neighbourhood, the proximity of the properties to the ocean or another waterbody, and the potential challenges associated with constructing a house on the property that meets the minimum setbacks required from septic system components. It has also been argued that community sewer systems are a superior method of managing liquid waste in terms of minimizing environmental or public health threats, and as such, the management of liquid waste via this method should be facilitated. Second, it can be the case that the Central Vancouver Island Health Region does not have records on file regarding septic system malfunction in the area because property owners and residents are typically not inclined to report such difficulties and choose to remedy the situation themselves.

Another issue to be considered in the interpretation of what constitutes an environmental and public health threat is that environmental threats and public health threats are different. What constitutes an environmental threat may not constitute a public health

threat. For example, groundwater quality degraded by human activity may not constitute a public health threat if drinking water is supplied from surface sources. Also, land clearing and development may create an environmental threat, but not pose no public health concern. Also, environment and public health threats may be different in the context of water services and liquid waste management service provision.

Determination of Existing Development

The Growth Management Plan may not provide sufficient clarity with respect to what constitutes 'existing development' within the context of Policy 1B.

Policy 1B states, "Services will not be extended outside of Urban Containment Boundaries, Village Centres, and Present Status Lands except where *existing developments* threaten public health or the environment".

It has been suggested that 'existing development' could be defined many different ways, depending upon the zoning of a property and its current and proposed state of service provision. Three basic scenarios exist:

- Is existing development the existing size of parcel and the existing number of dwelling units on a parcel?
- Is existing development the minimum size of the parcel and the maximum number of dwelling units that are possible given the existing servicing scenario and current zoning?
- Is existing development the minimum size of parcel and the maximum number of dwelling units that are possible with additional services (i.e. community water or community sewer) and current zoning?

Example:

The Nanose Bay Official Community Plan supports the provision of community sewer service to specific residential areas for the purpose of fixing environmental or public health problems and not for the purpose of enabling additional development. These residential areas are typically zoned Residential 1 Subdivision District N (RS1N). Subdivision district N provides for the development of the following minimum parcel sizes:

- with no services: 1 hectare
- with community sewer and no community water service: 1 hectare
- with community water and no community sewer service: 1600 m²
- with community water and community sewer service: 1000 m²

In the case of the extension of community sewer services to a 1 hectare property with the zoning Residential 1 Subdivision District N that has community water service but is located outside the Urban Containment Boundary, is *existing development*:

- the current size of parcel (i.e. 1 hectare); or
- the size of parcel possible under the current zoning provisions with the provision of community water services (i.e. 1600 m²); or
- the size of parcel possible under the current zoning provisions with community water service and the provision of community sewer services with the proviso that no additional development is permitted (i.e. 1600 m²)? or
- the size of parcel possible under the current zoning provisions with community water service and the provision of community sewer services with no proviso regarding additional development (i.e. 1000 m²)?

In the case of the extension of community sewer service to a 2.02 hectare property with one house on it, located outside the Urban Containment Boundary and therefore not in an area designated for future growth, with the zoning Rural 1 Subdivision District F (1.0 hectare minimum parcel size permitted), is *existing development*.

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- the current size of the parcel (i.e. 2.02 hectares) or the minimum permitted size of the parcel (i.e. 1 hectare)?
 - the current number of homes on the parcel (i.e. 1) even though a maximum of two homes are permitted by the current zoning irrespective of community sewer service?

Community Water and Sewer Service Demand in Rural Residential Areas

Demand to provide community services to land that is either outside of planned service areas, land that is not planned for additional development, or land where there has been no “documented health hazards” associated with onsite septic disposal or water potability required pursuant to Policy 1B has also been an issue. Some residents in rural residential areas are interested in community services because they believe it will provide a higher quality service. Other residents are interested in the community service as a means to facilitate additional development. The demand for services, particularly community sewer services, is an issue because existing capital plans and servicing areas were not created to include these areas³⁰, and the service provision could facilitate more intensive development than intended by the Growth Management Plan.

Example:

Property owners along Northwest Bay Road have expressed desire for community water and sewer service connection because the service pipes are adjacent to their properties.

Provision of Services to Public Uses Outside the Urban Containment Boundary

The provision of services to land zoned for public uses outside of Urban Containment Boundaries is an issue.

The strategy of the Growth Management Plan is to encourage development to occur in areas where urban development is desired and where community services can be provided cost efficiently, and to encourage the maintenance of rural integrity where urban development is not desired. Public uses are often thought of as ‘urban’ developments because they include such things as schools, community halls, government offices, water and sewer treatment facilities, and recreation facilities. The fact that public uses are often used as places for large public gatherings may also warrant their definition as ‘urban’ developments. Providing services to public uses outside of the Urban Containment Boundary could therefore compromise the Growth Management Plan.

Examples:

The Town of Qualicum Beach has indicated an interest in providing services to a proposed fire hall facility located outside of the Urban Containment Boundary.

Securing Development Potential with Provision of Servicing

The method of securing development potential with the provision of services to land outside the Urban Containment Boundary is another issues. Specifically, when services are provided to properties outside of the area where sewer services are to be provided to facilitate development, actions need to be taken to ensure that the provision of services does not enable additional development. Two methods are presently used to ensure that the provision of services does not enable additional development. One method consists of changing the zoning provisions regarding the minimum permitted parcel size, so that no parcels smaller than 1.0 hectare are permitted. The second method consists of requiring the property owner to register a restrictive covenant on the property title that restricts the minimum parcel size to 1.0 hectare. Covenants are probably the best single method to limit development, as the perception is that covenants are more permanent.

³⁰ Existing plants may not be capable of providing service to additional customers.

The best method to limit development with the provision of services, however, is to require the zoning change and the covenant, so that two assurances are provided.

Provision of Services to Industrial Lands

The policy regarding the provision of services to land designated as Industrial Areas by the Growth Management Plan is another issue to be addressed.

The Growth Management Plan policies are silent with respect to the servicing of industrial lands specifically, but provide for the servicing of industrial lands that are within Urban Containment Boundaries³¹. Some of the industrial land that is located outside of the Urban Containment Boundary is presently provided community sewer service, while other industrial land outside the Urban Containment Boundary is not provided community sewer service.

Concerns About the Impact of Decisions of Other Agencies

Creation of Private Water Utilities to Enable Development

The Comptroller of Water Rights can approve new private water utilities that may enable a greater level of development than envisioned by the Growth Management Plan. Specifically, the Comptroller's approval of private water utilities may result in more intensive development of land outside the Urban Containment Boundaries than is intended by the Growth Management Plan where existing zoning provides for a greater level of development than the intended by the Growth Management Plan.. There has been a reluctance to change the zoning of land to match up with the direction of the Growth Management Plan, and hence there has been a reliance upon other bodies to make decisions that are consistent with the Plan to implement the Plan in the absence of the required zoning changes.

The Comptroller of Water Rights has a duty under the Water Utility Act and the Utilities Commission Act to consider each application for a new water utility on its own merit. In other words, where water service cannot be provided by another water authority and where it is in the public interest to do so, the Comptroller is bound by the legislation to consider applications for Certificates of Public Convenience. Despite the fact that the Comptroller is bound to consider applications for new water utilities it would rather see the creation of Local Service Areas than private water systems within the region where it is in the public interest to do so.

Septic Tank and Onsite Disposal Operation and Maintenance

Areas of poorly functioning septic tank and on site wastewater disposal systems that might require community services have been identified.

Under normal conditions, septic tanks and percolation fields are a satisfactory method of dealing with standard household sewage. Problems arise where soil conditions are unsuitable³² for in-ground sewage disposal, when there is a high groundwater table near

³¹ Policy 1B states, "Services will not be extended outside of Urban Containment Boundaries, Village Centres, and Present Status Lands except where existing developments threaten public health or the environment. Policy 7D states, "Community water and waste treatment will be provided in all Urban Areas, Village Centres, and Present Status Lands".

³² To function properly, septic systems require 1.2 metres of free-draining soil. Impervious or poorly draining soil is unsuitable for septic systems. Soil that drains too quickly does not retain the sewage long enough to provide proper aeration and decomposition of the sewage effluent and is of marginal use for in-ground disposal systems. Soil that drains too slowly also cannot treat sewage. Effluent often appears on the surface of the poorly drained soils and produces obnoxious odours and a health risk. Bedrock, clays, silts and any soil comprised of more than 10% clay or silt will be poorly drained and are unsuitable for use in sewage disposal

the disposal field, when the population density becomes too great for septic fields to successfully absorb and treat effluent, or when the systems are not properly maintained. Improperly treated sewage can pollute groundwater and render it unsuitable for domestic consumption. Septic systems usually have a lifespan of 20 years with proper maintenance and suitable soil conditions.

Improperly functioning septic fields release poorly treated sewage effluent into the surrounding area. The effluent either becomes part of the surface water runoff and pollutes streams, ditches, ponds, lakes, and shorelines, or it can enter the groundwater system and contaminate water wells in the area. Sewage effluent can travel a long distance in the groundwater and have a measurable affect on the quality of the water over a broad area.

Soil surveys indicate that about 50% of the soils in the Regional District of Nanaimo have marginal suitability for long-term use of septic systems. Much of the early development in the Parksville and Qualicum areas took place in areas suitable for septic fields and inground disposal. Over time and with increased density, however, some of these areas have become part of sewer service areas and are served by a community sewer system. Hence, many areas suitable for septic fields are now within sewer service areas.

The coastal strip has traditionally been favoured for development. The area between Qualicum River and Nile Creek has a large amount of potentially suitable soil but the suitability of the area between Nile Creek and Deep Bay is mainly marginal. These areas will require careful scrutiny with regards to allowable population densities to ensure long-term suitability for onsite sewage disposal.

Forty-seven areas of the region that are experiencing on-site disposal system failures were identified in January 2001 by the Regional District, in consultation with the Central Vancouver Island Health Region, and classified according to risk³³.

A matrix of eleven criteria was developed to prioritize each problem area for the purpose of developing strategies. An area on Gabriola Island was identified as the highest priority area. An application has been made for a provincial government grant to undertake a study to assess the options available to address the septic disposal issue at this area.

The Central Vancouver Island Health Region indicates that it is possible that many inadequate septic systems exist because they were installed at a time when the regulatory requirements for septic systems were different (e.g. allowed for a smaller parcel size or smaller minimum set back requirements between buildings and septic systems or between water bodies and septic systems). There are also aging systems, many of which may not have been adequately maintained or upgraded. In some cases the disposal quantity may have been increased without a corresponding increase in disposal capacity.

Package Treatment Plant Operation and Maintenance

The approval, operation and maintenance of package treatment plants to manage wastewater may result in development not consistent with the regional growth strategy land use or servicing strategies, and or development that may threaten the environment.

The fact that package treatment plants are *approved* by the Ministry of Health and the Ministry of Water, Land and Air Protection is an issue for the Regional District in the implementation of its regional growth strategy because:

³³ See Regional District of Nanaimo On Site Sewage Disposal Problem Areas Map Sheets 1 to 8.

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- Decisions to permit package treatment plants may not be made with due consideration of the cumulative effects which one system will have on the functioning and operation of other wastewater management methods in the immediate vicinity;
 - Decisions to permit package treatment plants may enable a type or level of development that would not have been possible otherwise (possibly contrary to Policy 1B); and
 - the fact that the Regional District operates local services for the provision of trunk sewer services within the boundaries of the Regional District and the approval of package treatment plants makes the construction and extension of trunk sewers and collector sewers more expensive and less viable.

The *operation* of package treatment plants is also an issue in the implementation of the Growth Management Plan's land use and servicing strategy. Whereas the Ministries of Health and Water, Land and Air Protection are responsible for decisions regarding the approval of package treatment plants, the current legislation does not establish a government body responsible for monitoring the ongoing operation and maintenance of package treatment plants³⁴. With some exceptions, property owners that utilize package treatment plants may not be obligated to engage qualified personnel to operate and maintain the package treatment plant systems, nor to maintain a reserve fund to deal with maintenance and repairs to package treatment plants. Consequently, package treatment plants may malfunction and appropriate personnel may not be aware or available to remedy the problem. The failure of a package treatment plant can be more serious than the failure of a septic tank for an on site disposal system because package treatment plants often utilize smaller disposal fields or are located on smaller properties with less ability to absorb wastewater.

Groundwater Supply

There is a need for more information and certainty regarding groundwater supply. Knowledge about our groundwater resources is limited. Little is known about the location of underground water sources, their recharge patterns, or the state of the water in them. The Ministry of Water, Land and Air Protection's aquifer classification program has been mapping aquifers, and has done parts of eastern Vancouver Island. However, it is difficult to prepare such maps because data is limited to that voluntarily³⁵ provided by well drillers as well as the Province's observation wells and No licenses are required to take groundwater.

The Office of the Auditor General of British Columbia report Protecting Drinking Water Sources 1998/1999: Report 5 identifies four actions it feels are necessary to protect groundwater from depletion. The actions are: control the quantity of groundwater removed, monitor aquifer levels, require that any negative impacts be remediated by the party responsible for removing the groundwater, and establish enforceable consequences to prevent further depletion by the responsible party.

Potential Contamination of Water Sources

The potential contamination of water sources is another issue that needs to be addressed. No one part of the provincial government has sole responsibility for the many issues related to protecting drinking water sources. All fresh water, both surface water and groundwater, belongs to the Crown, and so does most of the land area in the

³⁴ However, it should be noted that package treatment plant systems authorized by the Regional District of Nanaimo pursuant to its Liquid Waste Management Plan, and the systems authorized by the Ministry of Water, Land and Air Protection, do require package treatment plant operators to engage qualified personnel, post security, and maintain and monitor system performance.

³⁵ Well drillers are not required to provide data regarding the wells they've drilled to the Province. Nor is a permit required for each well drilled.

Province, and therefore the watersheds supplying most of the drinking water systems. The Office of the Auditor General Of British Columbia report Protecting Drinking Water Sources 1998/1999: Report 5 asks, “ Does the level of protection provided by the Province to drinking water sources from human-related³⁶ impacts appropriately balance the costs and benefits of drinking water and other resources?” The overall conclusion of the report is the Province is not adequately protecting drinking water from human impacts and this could have significant costs to the Province, for municipal and regional governments and citizens in general. The key findings of the report are that water resource management is not integrated in British Columbia (despite the fact that water quality is linked to land use intimately, and effective water protection hinges on managing land uses on the surfaces over or through which water flows because of the hydrological cycle), that improvements are needed to manage the effects of resource uses on drinking water sources, that the absence of groundwater management has resulted in increasing problems, and that small water systems are particularly vulnerable to the impacts of inadequate water-source protection.

Eight private water systems in the Regional District of Nanaimo are experiencing boil water advisories as of November 26, 2001. These systems obtain water from either surface or groundwater sources. Affected private water systems include: Forest Glade Mobile Home Park (since January 11, 2001), Graatan’s Mobile Home Park Water System (since January 11, 2001), Little Qualicum Waterworks (since January 5, 2001), Williams Spring Improvement District (since May 5, 1994), Zuiderzee Campground (since September 21, 2000), Olympic Springs Water System (since April 21, 1994), and Seagirt Water Users Association (since August 15, 2000).

Natural or human made chemicals can contaminate groundwater, and if contamination occurs it may persist for a long period of time.

Vulnerability of Small Water Systems

The vulnerability of small water systems is an issue. Small water systems are particularly vulnerable to the impacts of inadequate water-source protection. Small water systems are considered to be individual systems that supply a single property or community water systems that supply two or more connections. Smaller water systems face more threats than larger ones because they are typically located in areas that are also more likely to support activities such as logging, agriculture, mining, grazing, and outdoor recreation, and there is a probability that these activities will take place near the drinking water source. Small water systems also face more threats than larger ones because they are more likely to rely on small water bodies which have less capacity to dilute contaminants and they are more likely to experience greater variations in their flow levels. Less protection of water resources is typically available to small water systems as well. Lastly, small water systems often lack the resources for adequate tapwater protection³⁷.

Concerns About Planning for the Provision of Services

Affordability of Community Sewer Service

Some property owners in planned community sewer service areas do not want to be provided the service due to the cost they must bear, despite the fact that plans are in

³⁶ The report focuses on human related impacts because the government can control human behaviour, whereas it cannot control natural processes.

³⁷ Any water supply system that provides water for public domestic use for more than one single family residence is required, under the Safe Drinking Water Regulation of the Health Act, to have an operating permit from the regional health authority. The granting of the operating permit triggers a monitoring process. As a part of this monitoring process, water’s bacterial quality is tested. Private water systems are not required to monitor this, nor are they required to have permits under the Act.

place to provide the service and there is evidence that the current wastewater management practices on the property are contaminating the land.

Example:

The Barclay Crescent South Sewer Service Area Initiative undertaken in 2001 proposed the provision of community sewer service to approximately 115 properties in the Barclay Crescent area of Electoral Area G. Property in this area is inside the Urban Containment Boundary. The French Creek Official Community Plan and the Growth Management Plan support the provision of community sewer service to the Barclay Crescent area properties from the nearby French Creek Pollution Control Centre. As a part of the Initiative the Regional District of Nanaimo asked the residents in this area for their consent to be provided community sewer service at a series of open houses and a questionnaire in 2001. Residents were to be responsible for half the cost of the service provision, given that the Province had granted the Regional District \$820,117 to cover half the construction costs of the sewer extension. It was estimated that connection to the community sewer service would cost each property owner in the area an annual parcel tax of \$933³⁸, a user fee of \$216 per year, and a capital³⁹ charge of \$2636 for connection to the system. Extension of services to the area is a pressing matter because 10% to 40% of the septic systems in the area malfunction, and these malfunctions range from sewage reaching the surface to escaping into ditches. Untreated sewage can cause diseases such as typhoid, salmonella, e-coli, and giardia. Residents indicated that they did not want to be provided with community sewer service because they were concerned about the cost of community sewer service and financial ability of the residents to absorb this cost. Consequently the Regional Board has not moved forward on plans to provide community sewer service to the Barclay Crescent area. Despite the fact that the area residents do not support the provision of community services in their area due to the cost, residents could be obligated to connect to the community service at either the Regional Board or the Central Vancouver Island Health Region could require that malfunctioning septic systems be repaired.

Providing Planned Services to Village Centres

Specific servicing plans for some of the Village Centres designated by the Growth Management Plan to accommodate new development are not in place when prospective developers of these lands wish to develop lands in these areas. Community sewer and water services need to be provided to the Village Centres in order to accommodate the level and type of development and population growth anticipated in these areas. The Growth Management Plan designates Villages Centres in Bowser, Qualicum Bay, Dunsmuir, Qualicum River Estates, Coombs, Errington, Hilliers, Bellevue/Church Road, Red Gap, Lantzville, Cedar, Extension, and Cassidy.

Community sewer service plans are in place or well underway for Red Gap, Lantzville and Cedar.

Community sewer service plans are presently not in place for the Bowser, Qualicum Bay, Dunsmuir, Qualicum River Estates, Coombs, Errington, Hilliers, Bellevue/Church Road, Extension and Cassidy Village Centres.

The Regional District is currently evaluating the wastewater management alternatives for the Bowser, Qualicum Bay, Dunsmuir and Extension Village Centres. The potential wastewater management alternatives for these Village Centres include either a regional⁴⁰

³⁸ The parcel tax of \$933 was based on a 20 year pay back.

³⁹ Capital charges are collected as compensation for connection to the existing system and using capacity in the existing infrastructure, including trunk mains, pump stations, treatment plants and outfalls.

⁴⁰ Regional in the sense that one of the existing wastewater treatment facilities, such as the French Creek Treatment Plant, would be used.

sewerage system or a local community sewer system⁴¹ or upgrading existing individual onsite septic disposal systems. Three generic categories of local community sewer systems will be examined: conventional, innovative, and natural. The analysis will include an assessment of the operation and maintenance costs for each of the options. The concept of providing one community sewer system treatment facility for the three Electoral Area H Villages Centres versus the concept of providing a community sewer system treatment facility for the Bowser Village Centre and a community sewer system treatment facility for the Qualicum Bay and Dunsmuir Village Centres is also being explored.

Servicing Plans Needed for Land Outside Urban Containment Boundary to Respond to Environmental or Health Issues

Servicing plans are needed for land outside of the Urban Containment Boundary to respond to environmental or health threats.

The two fundamental first steps in the wastewater planning process are to determine the size and location of the service area and to identify the probable future land uses in the service area. Once these two planning policy issues are determined, the rest of the wastewater planning process focuses on more technical issues related to wastewater flow, collection and treatment.

⁴¹ It had been determined that the only alternative for Extension is connection to the regional sewerage system. This will need to be reconfirmed.

5.0 CONCLUSION

This report examines issues associated with the Growth Management Plan land use and servicing strategies. On an overall basis, the objectives of the Plan's land use and servicing strategies are compatible. However, some issues have arisen in the interpretation of land use and servicing strategy policies as they relate to the level and type of development envisioned, the impact of decisions of other agencies that are inconsistent with the land use and servicing strategies, and planning for the provision of services as envisioned in the land use and servicing strategies. Options for addressing these issues should be examined as a part of Phase III of the Growth Management Plan Review.

APPENDIX A: GROWTH MANAGEMENT PLAN POLICIES

Goal 1: Strong Urban Containment

- 1A. Official Community Plans will designate Urban Containment Boundaries consistent with those shown on Growth Management Plan maps.
- 1B. Services will not be extended outside of Urban Containment Boundaries, Village Centres, and Present Status Lands except where existing developments threaten public health or the environment.
- 1C. Additional urban development will not be approved outside of Urban Containment Boundaries, other than in Village Centres and Present Status Lands
- 1D. The Regional Board may consider amendment to Urban Containment Boundaries at 5-year intervals.
- 1E. The Regional Board may consider boundary extensions and incorporations in accordance with the Urban Containment and Fringe Area Management Implementation Agreement (UCFAMIA). (Bylaw No. 985.01, adopted November 9, 1999)

Goal 2: Nodal Structure

- 2A. Official Community Plans will direct development into nodes, and discourage development elsewhere.
- 2B. A variety of land uses of differing scales and character will be developed in nodes.
- 2C. The design, character, land uses, and ultimate level of development for each node will be developed collaboratively at the local level by governments, residents, and business interests.
- 2D. Once implementation of the Growth Management Plan is underway, the feasibility and desirability of creating "new towns" will be studied
- 2E. A destination alpine resort node adjacent and linked to Mount Arrowsmith may be permitted if it addresses documented regional needs which cannot be met elsewhere and complements the environmental, economic, and social attributes of the area. (Bylaw No. 985.01, adopted November 9, 1999)

Goal 3: Protection of Rural Integrity

- 3A. Official Community Plans will promote and encourage retention of large rural holdings.
- 3B. Opportunities for "clustering" development through the principles of "open space subdivision" will be emphasized in rural areas.
- 3C. Official Community Plans will contain policies that support the Forest Land Reserve (FLR).
- 3D. OCPs will include policies supporting retention of land in the Agricultural Land Reserve (ALR).
- 3E. Urban areas will be designed to protect rural integrity.

Goal 4: Environmental Protection

- 4A. A program of open space protection will be developed by local, regional, and senior governments, including implementation of the *Regional Parks System Plan*.
- 4B. The RDN and local jurisdictions will base development and open space protection decisions on the ecological character of the land
- 4C. A system of interconnected trails, greenways, and natural corridors capable of sustaining or enhancing native plant and animal species will be established regionally.
- 4D. Measures to protect the supply and quality of surface and groundwater will be developed and implemented in each jurisdiction.
- 4E. Development of remaining natural segments of the coastal zone will be discouraged.
- 4F. Floodplains and other aquatic features will be protected or restored to a natural condition

Goal 5: Improved Mobility

- 5A. Development in nodes will be designed to minimize dependence on the automobile, and will emphasize walking, cycling, and transit.
- 5B. OCPs, neighbourhood plans, zoning bylaws and subdivision bylaws will provide for developments that minimize the need for travel outside of nodes.
- 5C. Engineering, building, and development standards will be reviewed and revised to support mobility alternatives
- 5D. Residential and commercial densities in nodes and along transit routes and the E&N corridor will be designed to support economical, convenient transit service.

Goal 6: Vibrant and Sustainable Economy

- 6A. OCPs and Neighbourhood Plans will seek to attain a jobs/housing balance in all nodes.
- 6B. OCPs will provide for balanced economic development that is consistent with a changing global and regional economy.
- 6C. Tourism activities that require a large area of land or water may be permitted in rural areas provided that the proposed tourism activity contributes to the economic well-being of the region, includes no permanent residential development, includes no commercial development that is not ancillary to the proposed tourism activity, complements the environment, and is compatible with the rural area. (Bylaw No. 985.01, Adopted November 9, 1999).

Goal 7: Efficient Services and Resource Use

- 7A. Servicing decisions will be linked to the land use elements of the Growth Management Plan and local Official Community Plans
- 7B. The RDN will work with the Ministry of Environment, Lands and Parks, Agriculture, Fisheries and Food, other Ministries, local jurisdictions, and water purveyors to develop a coordinated approach to water management.
- 7C. Servicing decisions of the Liquid Waste Management Plan (LWMP) will be consistent with the goals of growth management
- 7D. Community water and waste treatment will be provided in all Urban Areas, Village Centres, and Present Status Lands.
- 7E. Water conservation measures will be required in new and existing developments.

Goal 8: Cooperation Among Jurisdictions

- 8A. Each jurisdiction will consider the effects of plans, development applications, and servicing decisions on other jurisdictions.
- 8B. The mutual efforts of municipalities, the RDN, and senior governments will be applied to implementing the Growth Management Plan.
- 8C. Every municipality and electoral area in the RDN will have in place an OCP or Rural Land Use Bylaw and all necessary land use and other regulations needed to fully implement the Growth Management Plan.

APPENDIX B: GROWTH MANAGEMENT PLAN GUIDELINES

Goal 1: Strong Urban Containment

- 1.1 Land outside of UCBs or villages is intended to be open space, rural, and resource land.
- 1.2 Industrial development outside of UCBs should only be permitted in designated regional industrial nodes and when environmental impacts are avoided.

Goal 2: Nodal Structure

- 2.1 Zoning and planning policies that encourage increased residential densities or commercial activity should apply only to nodes; internodal and rural areas should be the subject of actions to discourage speculation and reduce the extent of development.
- 2.2 Linear and car-oriented developments should be discouraged.
- 2.3 Each node should contain an attractive public realm that provides focus and identity to the community.
- 2.4 Open space, including natural areas, should be part of each nodal community.
- 2.5 To the extent possible, open space should be used to provide more definition to nodes.
- 2.6 Nodes should emphasize high quality design, neighbourhood cohesion, vibrancy, and resident safety and security.
- 2.7 Nodal communities should be designed to accommodate people from a variety of cultural, economic, and employment backgrounds.
- 2.8 Government offices, schools, hospitals, recreation centres, and other government and Crown corporation facilities should be located in nodes.

Goal 3: Protection of Rural Integrity

- 3.1 Amending the provision for two dwellings per parcel in rural areas should be considered during the OCP review and preparation process.
- 3.2 Measures to increase minimum lot size and reduce subdivision potential in rural protection areas should be considered during the OCP preparation process.
- 3.3 Lot sizes in rural areas should be appropriate for uses conducted.
- 3.4 Jurisdictions should seek ways of improving the viability of agriculture and other resource-based industries in the RDN.

Goal 4: Environmental Protection

- 4.1 Environmental reviews should be required for all projects with potential to negatively affect ecologically significant areas, the coastal zone, or environmental quality.
- 4.2 Air quality should be protected by enacting measures to reduce automobile travel and to minimize emission pollutants from industry and other sources.
- 4.3 Emphasize the use of native plant species for all new public area landscaping and restoration work.

Goal 5: Improved Mobility

- 5.1 Site plans prepared by developers should be required to show how mobility alternatives are provided.
- 5.2 Transit should provide a high level of service in nodes before extending service to other areas.
- 5.3 A system of arterial roads that complement provincial highways should be developed within urban boundaries.
- 5.4 Nodal development within walking distance of the E&N corridor should be linked to efforts to enhance the use of the E&N for transit and inter-city transportation.
- 5.5 Rural roads and provincial highways should be designed to improve access to nodes and limit it elsewhere.
- 5.6 A collaboratively-prepared transportation study should be prepared to guide mobility decisions in RDN jurisdictions.

Goal 6: Vibrant and Sustainable Economy

- 6.1 Commercial development should be located in nodes.
- 6.2 RDN jurisdictions should work with the business community to explain the Growth Management Plan and identify ways that business can benefit from new opportunities.
- 6.3 Further automobile-dependent retail development, such as malls and "mega-stores" should be discouraged.
- 6.4 RDN jurisdictions should adopt policies that encourage efficient and appropriate use of designated industrial land, based on results of the Economic and Industrial Land Planning Study.
- 6.5 The importance of the primary industrial sector in the RDN should be reflected in OCP policies.

Goal 7: Efficient Services and Resource Use

- 7.1 The full cost of utilities and services should be recovered and used to encourage conservation of resources.
- 7.2 Service planning and design decisions should consider the cumulative effects on the community, resource supply, and the environment.
- 7.3 A stormwater management program should be developed to reduce environmental impact and financial costs.

Goal 8: Cooperation Among Jurisdictions

- 8.1 Deleted By Bylaw No. 985.01, 1999.
- 8.2 Communications with adjacent regional districts should be maintained and improved to seek capability of land uses and growth management initiatives.
- 8.3 Jurisdictions should collaborate in managing land use adjacent to the Inland Island Highway.

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