

CHAPTER 8 - INFRASTRUCTURE AND MUNICIPAL SERVICES

8.1 BACKGROUND

Infrastructure and municipal service is a general term used to describe public utilities, assets of a community, and all other services such as policing, fire protection, private utilities required to support our lives and lifestyle. For the purpose of this Official Community Plan the term infrastructure and municipal service can be described as those services provided for by the Municipality as follows:

- DWSD -Drinking water supply and distribution;
- WCTD - Wastewater collection, treatment and disposal;
- SWCD -Stormwater collection and discharge;
- Tran - Transportation system;
- SWM - Solid Waste Management.

Without these services, sustainable development may be compromised if community infrastructure is not in place or cannot be provided. It is important, therefore, that the City of Williams Lake considers the availability of infrastructure that is both suitable and sufficient for our current and future community needs. There is a need to address the long term capacity of drinking water supply and distribution system, the long term capacity of the Williams Lake's wastewater collection system and sewage treatment plant through which treated wastewater from the City is discharged into the Fraser River. In addition it is important to consider the long term capacity of the demolition debris landfill in Williams Lake as well as the regional landfill at Gibraltar Mine. The City of Williams Lake is well positioned to adapt future development to the capacity of its existing and future infrastructure upgrades.

8.2 GOALS AND OBJECTIVES

Efficient provision for Municipal Infrastructure and Services are provided for in the community to ensure the adequate servicing to all residents of Williams Lake in the present and future.

Specific Objectives include:

1. Continuing to operate and administer the publicly-owned utilities of water, sanitary and storm sewer.
2. Requiring that developers pay for the servicing costs associated with new developments.
3. Providing funding for key capital works projects through the use of development cost charges.

4. Restricting development to areas where municipal services and facilities are available, unless such services and facilities are provided at no cost to the City and its taxpayers.
5. Securing Statutory Right-of-ways for water, sanitary sewer and storm drainage areas to ensure access for maintenance and provide for the upgrading of existing drainage courses.
6. Ensuring, in partnership with the Cariboo Regional District, that adequate land is available to accommodate the City's future solid waste requirements, while promoting waste reduction, reuse, and recycling measures to decrease demand for garbage disposal.
7. Restricting extension of municipal services outside municipal boundaries without Council and CRD Board approval.
8. Encouraging the provision of adequate fire and police protection services for both present and future development.

8.3 POLICY DIRECTIONS

DWSD - Drinking Water Supply and Distribution Background

The City of Williams Lake water utility serves a population of nearly 12,000 residents, businesses, and industrial enterprises. With over 109 kilometres of water pipes, pumps, reservoirs and wells under its jurisdiction providing over 5,000,000 m³ of water every year, the City water utility provides safe, clean, high quality water.

The source for potable water in Williams Lake is a series of four deep wells located on Scout Island and a fifth deep well located on the north shore of the lake. These deep wells were developed over a long period of time and as such have increased in size and capacity, starting at 450 litres per minute to the newest of the wells, which produces 11,250 litres/minute.

In addition to the underground infrastructure, the water system includes nine reservoirs which totals 20,000 m³ of storage capacity in the distribution network. Booster pumps through the system drawing a total of 7,400 horsepower move water between zones within the system. All water is drawn from a single source – the Williams Lake aquifer.

Starting in 1973, the City has been watching water levels in the aquifer through a series of special monitoring wells located throughout the city. Observations indicate that the water level in the aquifer has been dropping slowly but steadily. In a recent study done by a hydro-geological engineer it was estimated that the recharge rate of the aquifer is approximately 150 litres per second originating from other groundwater sources, drainage from the San Jose Valley, and slow downward filtering from Williams Lake itself. This is equivalent to a yearly pump out rate of 5,000,000 m³ per year. The City has already reached and passed that limit and is projected to continue to exceed the recharge rate of the aquifer in the future; that is not sustainable in the long term. As such the City has been working with the Cariboo Conservation Society on a number of soft conservation measures to facilitate public education on water conservation, implementing homeowner incentive programs and other conservation initiatives. In addition, the City

continues to explore additional water conservation measures and further studies and monitoring of the water supply for the region.

Currently, the Williams Lake Airport lands have an independent water supply and reservoir servicing the Airport and the additional tenants in the area.

DWSP - Drinking Water Supply and Distribution General Policies

- DWSD.1** Protect and enhance water quality in the region by continuing to engage in land use and system management practices that protect the long term quality / integrity / health of the City's water supply.
- DWSD.2** Continue to support and promote soft conservation measures including Water Wise programming, educational initiatives with local community groups and area schools, and conservation initiatives such as building retro-fit, xeriscaping, and special homeowner incentive programs.
- DWSD.3** Continue to require that all new development or redevelopment install a water meter and backflow prevention device in conjunction with their municipal water service.
- DWSD.4** Work towards the implementation of a Universal Metering Program and subsequent changes to the rate structure for all sectors to provide a direct incentive for water conservation, and develop an equitable system that recognizes the value and importance of water management across all sectors.
- DWSD.5** Support the Cariboo Regional District in its efforts to provide future community water service development to their residents.
- DWSD.6** Explore opportunities for an alternative industrial water supply system to service the industrial users with untreated water.
- DWSD.7** Ensure that developers pay for the extension of water servicing associated with new developments.
- DWSD.8** Require that all service extensions outside of the municipal boundary seek City Council's and the Regional District's approval.
- DWSD.9** Water Infrastructure can be seen on the Water and Sewer Infrastructure **Map 2**, at the end of this chapter. In addition to existing water Infrastructure, proposed new major water infrastructure improvements include:
- Prioritize the **extension of water services** to the residents on Woodland Drive;
 - Instillation of the **No. 6 production well** to be located on South Lakeside; and
 - **Future Reservoir** additions to be developed within City boundaries.

WCTD - Wastewater Collection, Treatment and Disposal Background

The City maintains 91 kilometres of sanitary sewer mains, which is a combination of gravity and pressure sewers. There are 3 lift stations in Williams Lake that pump wastewater from topographically low spots in the community to the nearest gravity sanitary line. These sanitary sewer lift stations are located at North Lakeside, South Lakeside and Scout Island. All sanitary sewer is collected in the sanitary sewer collection system and funnelled to the Sewage Treatment Plant where it is treated before being discharged in the Fraser River.

The City of Williams Lake's sewage treatment facility is a series of lagoons for biological nutrient removal. There are four steps in the process: the first step is grit removal, step two is the passage of waste to the anaerobic lagoons where bacteria break the organic waste down, step three is passage of semi-treated effluent into the aerobic lagoons where bacteria uses oxygen to further break down the organics. The final step is to have the treated effluent settle out from any remaining solids before being discharged by way of a 5 kilometre pipe directly into the Fraser River. The City treatment facility processes an average of 5 Million litres a day! That's around 400 litres per person a day!

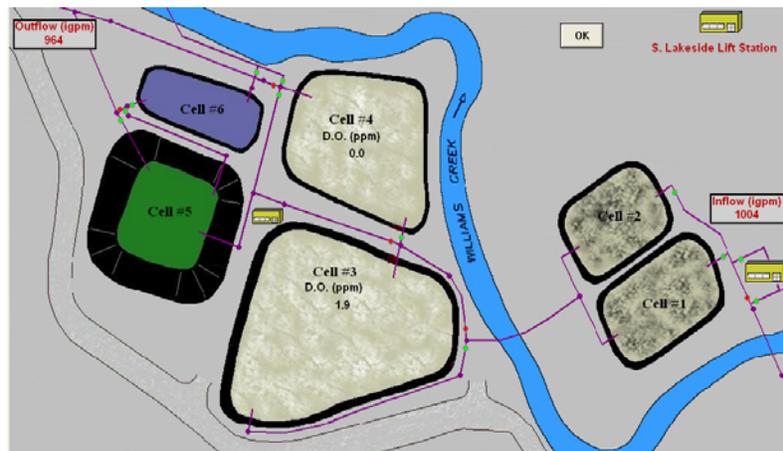


Figure 8-1 - Williams Lake Sewage Lagoon Control Screen

Currently the Williams Lake Airport lands are linked to the Cariboo Regional District Pine Valley Treatment facilities that are near capacity. Capacity issues will have a significant future impact on the efficient and effective development of this important land base. However, recently the City of Williams Lake passed an Airport Sanitary Sewer Holding Tank bylaw, which will allow for future development of properties on Airport grounds.

WCTD - Wastewater Collection, Treatment and Disposal General Policies

- WCTD.1** Prioritize the extension of sanitary sewer services to the residents on Woodland Drive as identified in the Water and Sewer Infrastructure [Map 2](#).
- WCTD.2** Ensure that developers pay for the extension of sanitary sewer servicing associated with new developments.

- WCTD.3** Continue to support soft conservation measures to reduce the strain on the sewage collection and treatment systems.
- WCTD.4** Continue to work with and support the Cariboo Regional District for future community waste water collection service development.
- WCTD.5** Work with the appropriate provincial ministries to adapt to future changes in regulations for sanitary sewer collection and treatment.
- WCTD.6** Require that all service extensions outside of the municipal boundary seek City Council's and the Cariboo Regional District's approval.

SWCD - Stormwater Collection and Discharge Background

The City maintains a storm drainage system that is a combination of 35 kilometres piped underground storm sewer mains in some areas, and a system of grassed swales and ditches in other areas. Eleven separate stormwater catchment areas exist within the City of Williams Lake as a result of varying elevation and topography throughout the city. The eleven drainage areas are similar in nature as they are all comprised of typical municipal storm sewer infrastructure and they all discharge into the Williams Lake River through stormwater outfall structures.

In 2003, the City of Williams Lake received notification from Fisheries and Oceans Canada that the water quality from the discharge of the stormwater outfalls was adversely impacting fish and fish habitat in the Williams Lake River. In response, the City completed an overall assessment of the stormwater system, with the objective of addressing concerns related to impacts on the environment and fish habitat. The resulting report supplied a general strategy with a prioritized list of six outfall upgrade phases based on an integrated stormwater management approach for the complete rainfall spectrum, which mimics or approximates a natural watershed. Phases 1 and 2, completed in 2006 and 2009 respectively, rely on the use of infiltration ponds to prevent direct discharge to the river, and testing has shown significant improvements on water quality. The use of ponds in the various phases allows the creation of important animal habitat, and the addition of benches and interpretive signage provides an excellent addition to the River Valley trail network.

Stormwater management is an important issue to sustainable development in Williams Lake. Recently, there have been improvements in the pre-treatment of stormwater before collected stormwater is discharged into the Williams Lake River. As development continues within the City's boundaries it is important for the City to address onsite stormwater management practices through the development of a City-wide Stormwater Management Plan. This plan will be drafted in favour of innovative practices to reduce the potential environmental impact of increased storm water runoff from continued development. Stormwater runoff volume will increase once land-clearing starts and trees removed, replacing previously vegetated areas with paved surfaces and the like. By adopting standards to innovatively manage stormwater "naturally" instead of using "the big-pipe-mentality," the City can work with the development community to address the effects of stormwater management.

SWCD - Stormwater Collection and Discharge General Policies

- SWCD.1** Create a City-wide Integrated Stormwater Management Plan that will include guidelines for new developments within the City of Williams Lake.
- SWCD.2** Implementation of the remaining phases of the River Valley Storm Water Outfall project.
- SWCD.3** Ensure that developers pay for the extension of storm sewer servicing associated with new developments.
- SWCD.4** Explore the creation of a storm water utility within the City of Williams Lake.

Tran - Transportation Background

Located at the junction of Highway 97 and Highway 20, Williams Lake has excellent potential linkages to the BC Rail Main Line and is the transportation centre of the Cariboo. Williams Lake also serves as a shopping and service centre for the rural population who frequently visit the city by vehicle and bus. In addition, truck and rail traffic use the City as a destination for the bulk movement of both raw and manufactured goods

As the City has grown over the years, so have the issues regarding transportation routes, access and safety. City Council, staff, the ICBC Traffic Safety Committee and the Ministry of Transportation and Infrastructure work in close collaboration on a variety of issues. These include cost sharing of highway improvements, access and accessibility issues for highway commercial development, beautification of rights-of-ways and improvements to the City's road network. Increasingly, the focus on traditional transportation systems is shifting towards the prioritization of more sustainable transportation modes.

For new road works the City has identified two gravel pits that will be suitable for road aggregate extraction for the projects identified below and additional projects that have yet to be identified. The pits are both located outside of the City limits, one being "the Ball Pit" just west of the City landfill site, and the other being the "Deny Pit" on the Bond Lake Road.

Tran - Transportation General Policies

- Tran.1** Continue to maintain the Soda Creek Gravel Pit and the Denny Pit at Bond Lake as reserve for future road improvement and infrastructure improvement projects.
- Tran.2** Maintain the existing street network adequately to allow for improved safe passage of bicycles, transit vehicles, safe movement and general purpose traffic and to avoid or delay the significant costs of reconstruction.
- Tran.3** Ensure ongoing implementation of the Pavement Management Program.

- Tran.4** Continue to work with the Ministry of Transportation and Infrastructure (TRAN) in respect to the planning of future roads and highway corridors. Accordingly, no new development will be encouraged that proposes direct access to Highway 97 or Highway 20. Highway and Service Commercial areas are encouraged to be accessed by frontage roads and other means to minimize the number of access point along these highways.
- Tran.5** Continue to work with TRAN to prioritize improved connection to the Westside over Highway 20 for vehicle, bicycle and pedestrian traffic.
- Tran.6** Ensure that developers pay for the extension of municipal roads associated with new developments.
- Tran.7** Encourage and support development of rail expansion in the North Industrial end of Williams lake.
- Tran.8** Designate major roads can be seen on the Major Road Network **Map 1**, that can be found at the end of this chapter. In addition to existing municipal road infrastructure, proposed new major roads include:
- **Highway 97 and 11th Avenue.** Consideration be given to the upgrades at Highway 97, 11th Ave N and Toop Road in accordance with the “Highway 97 & 11th Avenue/Toop Rd Conceptual Design Report July 14th, 2009”.
 - **Highway 97 Corridor Plan Implementation.** “Functional Design Report to MOTH (Ministry of Transportation and Infrastructure) for Highway No. 97 Arterial Corridor” highlights the expansion of Hwy 97 through the City of Williams Lake. The following major intersection improvements have been identified in the corridor plan: Borland and Broadway Ave, Mackenzie Ave and Hwy 97, Donald Road-Windmill and Hwy 97, Carson Drive and Hwy 97, Toop and Hwy 97 and a proposed intersection on Broadway Ave N South of Fox Mountain Road.
 - **Secondary Access to the Pioneer Lands.** A proposed new unsignalized intersection off Highway 20 and a new access (west) road is to serve as an additional access in to the development of the Pioneer lands. This road development would carry traffic from Highway 20, passing through Hodgson Road into the circulatory rind road off the commercial and bareland developments.
 - **Modification to Highway 20.** In the past two years a number of modifications and highway improvements have been identified by traffic engineers as a result of proposed development on both the Pioneer lands and the RC cotton site. These modifications include Highway 20 and Mackenzie Ave intersection, Williams Creek Bridge crossing, safe access to the RC cotton site, proposed intersection upgrades at dog creek road and the BCR Rail Bridge.
 - **Dog Creek Connector.** An arterial road through the Westside Lands connecting to the Chilcotin Highway at Dog Creek Road.
 - **Westside Connector.** An arterial road coming off the Dog Creek Connector through the Westside lands northwest to the City boundary.

Other roads proposed for potential development include:

- **Proctor Street to Lakeview Avenue.** Connect Proctor Street through to Lakeview Avenue to ensure proper emergency vehicle access. This would require land acquisition from the Crown and consideration of a trail head and signage development to the Fox Mountain recreations trail network.
- **Williams Lake River Crossing.** A road crossing of the Williams Lake River connecting the new residential subdivisions in the Westside with the Town Centre.
- **Western Avenue Connector.** A new road connecting the north end of Western Avenue with Mackenzie Avenue to provide improved access for residents of the northern portion of the City to Highway 97. This route will run adjacent to the new railway spur north of Glendale and then connect with Maple Street through to Mackenzie Avenue.

SWM - Solid Waste Management Background

The City of Williams Lake runs the waste and recycling collections systems within City boundaries, which includes the new curbside automated waste and recycling collection system for all residential properties. However, the Cariboo Regional District runs the Solid Waste Management for the entire region, including two landfill sites: the Frizzi Road site and Gibraltar Mine site, and multiple transfer stations. The City has an agreement to allow for the use of the landfill sites and the Frizzi Road transfer station, for which the City pays a percentage of the operating costs.

Currently, the Cariboo Regional District is updating its Solid Waste Management Plan for the entire region, as required by the Ministry of Environment. This plan provides direction for the types of garbage, recycling and other waste reduction programs the region plans to develop over the next ten years. The goal is to create a plan by 2011 with input from residents and businesses that will meet the regions needs for managing waste. The plan, once approved, will provide direction for what new services could be offered in the years to come that will help the region reduce waste and conserve resources.

SWM - Solid Waste Management General Policies

- SWM.1** Continue to work closely with the Cariboo Regional District on the review and implementation of the CRD Solid Waste Management Plan and general public information regarding solid waste reduction, reuse, recycling and disposal.
- SWM.2** Continue to improve automated waste and recycling collection system.
- SWM.3** Investigate option to increase the types of materials that can be recycled, such as glass.