

# MMM Group Limited

RED RIVER PLANNING DISTRICT  
WASTEWATER MANAGEMENT PLAN

Prepared for:  
Red River Planning District

Submitted by:



December 2014 | 5513128.130

**RED RIVER PLANNING DISTRICT  
WASTEWATER MANAGEMENT PLAN**

Prepared for:

**Red River Planning District**

Submitted by:

**MMM Group Limited**

December 2014

5513128.130

# TABLE OF CONTENTS

<b>1.0</b>	<b>INTRODUCTION.....</b>	<b>1</b>
1.1	Purpose and Methods .....	1
1.2	Plan Format.....	1
<b>2.0</b>	<b>REGIONAL PERSPECTIVE .....</b>	<b>1</b>
2.1	Summary of Infrastructure.....	1
2.2	Regulatory Framework.....	2
2.3	Wastewater Infrastructure Funding .....	6
2.4	Population Trends and Wastewater Production .....	6
2.5	Regional Growth and Planning Considerations .....	7
2.6	Policy Recommendations .....	8
<b>3.0</b>	<b>CITY OF SELKIRK .....</b>	<b>9</b>
3.1	Current Wastewater Infrastructure .....	9
3.2	Costs and Financing .....	11
3.3	Projected Growth Rates and Development Pattern .....	11
3.4	Future Wastewater Production.....	11
3.5	Regional Infrastructure Options.....	12
3.6	Summary .....	12
<b>4.0</b>	<b>RM OF ST. ANDREWS .....</b>	<b>12</b>
4.1	Current Wastewater Infrastructure .....	12
4.2	Costs and Financing .....	14
4.3	Projected Growth Rates and Development Pattern .....	14
4.4	Future Wastewater Production.....	15
4.5	Regional Infrastructure Options and Cost .....	15
4.6	Summary .....	15
<b>5.0</b>	<b>RM OF ST.CLEMENTS .....</b>	<b>16</b>
5.1	Current Wastewater Infrastructure .....	16
5.2	Costs and Financing .....	17

5.3	Anticipated Short-Term Development .....	17
5.4	Future Wastewater Production.....	18
5.5	Regional Infrastructure Options and Cost .....	18
5.6	Summary .....	19
<b>6.0</b>	<b>RM OF EAST ST. PAUL.....</b>	<b>19</b>
6.1	Current Wastewater Infrastructure .....	19
6.2	Costs and Financing .....	21
6.3	Projected Growth Rates and Development Pattern .....	21
6.4	Future Wastewater Production.....	21
6.5	Regional Infrastructure Options and Cost .....	22
6.6	Summary .....	22
<b>7.0</b>	<b>RM OF WEST ST. PAUL.....</b>	<b>22</b>
7.1	Current Wastewater Infrastructure .....	22
7.2	Costs and Financing .....	23
7.3	Projected Growth Rates and Development Pattern .....	24
7.4	Future Wastewater Production.....	24
7.5	Regional Infrastructure Options and Cost .....	24
7.6	Summary .....	25
<b>8.0</b>	<b>VILLAGE OF DUNNOTTAR.....</b>	<b>25</b>
8.1	Current Wastewater Supply and Infrastructure .....	25
8.2	Costs and Financing .....	26
8.3	Projected Growth Rates and Development Pattern .....	26
8.4	Future Wastewater Production.....	26
8.5	Regional Infrastructure Options.....	26
8.6	Summary .....	27
<b>9.0</b>	<b>SUMMARY OF RRPD WASTEWATER PLANNING CONSIDERATIONS.....</b>	<b>27</b>

### **STANDARD LIMITATIONS**

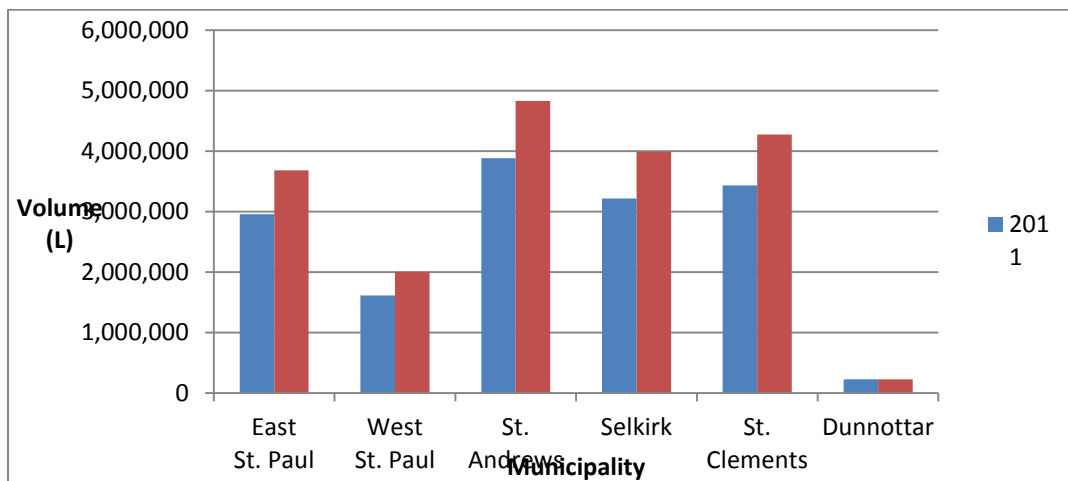
This report was prepared by MMM Group Limited (MMM) for the account of Red River Planning District (the Client). The disclosure of any information contained in this report is the sole responsibility of the client. The material in this report reflects MMM's best judgment in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. MMM accepts no responsibility for damages, if any, suffered by a third party as a result of decisions made or actions based on this report.

## EXECUTIVE SUMMARY

The Red River Planning District's (RRPD) Development Plan guides land use planning for its six member municipalities. Wastewater management is an essential planning component for the District as communities grow and develop. The Department of Conservation and Water Stewardship is responsible for licensing and monitoring wastewater systems in Manitoba and there are a variety of on-site and centralized wastewater treatment methods currently in service throughout the district. Some of the systems are underperforming or failing and are in need of replacement in order to meet Provincial regulations. The Wastewater Management Plan (WWMP) recommends centralized collection and treatment systems to provide the most effective wastewater management solution to meet Provincial regulations and mitigate potential negative environmental impacts within the more densely-developed areas along the Red River Corridor.

The Planning District faces future increases in wastewater production that require a proactive management approach. Wastewater volumes associated with population growth in the district's municipalities are estimated to increase 27.4% by 2033. Figure 1 depicts the increase for each member municipality.

**Figure 1: Current and Future Daily Wastewater Volumes in the RRPD**



Growth in residential subdivisions and densities is projected to occur in the commutershed areas of East St. Paul, West St. Paul, south St. Andrews and St. Clements where some planning for upgraded wastewater systems has recently been initiated. Regional coordination is recommended on new and expanded centralized service to address the future wastewater increases in the Lockport and South St. Andrews areas to meet similar demand.

## **1.0 INTRODUCTION**

### **1.1 Purpose and Methods**

The purpose of this plan is to identify wastewater needs and considerations related to future land use planning in the Red River Planning District (RRPD). This plan is submitted as part of the RRPD Development Plan amendment process with research and information gathering conducted concurrently with the RRPD Drinking Water Plan. The information in both plans is intended to inform the RRPD Development Plan regarding land use designations, population changes and growth patterns for the municipalities.

As part of the data collection process, existing infrastructure and planning studies were reviewed in the context of wastewater infrastructure and treatment. Information sources included municipal budgets and presentations, feasibility studies, interviews with Provincial staff and meetings with municipal representatives.

### **1.2 Plan Format**

This plan is organized into two main sections for wastewater background information and planning: Regional Perspective and Municipal Perspective.

The Regional Perspective section covers infrastructure, regulatory aspects, general future growth patterns, population changes and infrastructure sharing potential. It provides policy direction for those areas within the RRPD that may require a more coordinated approach for wastewater infrastructure to meet increasing demand in the future.

The Municipal Perspective section provides wastewater information for each municipality within the RRPD. Topics include current wastewater sources and infrastructure, current and future demands, financing and regional participation.

## **2.0 REGIONAL PERSPECTIVE**

### **2.1 Summary of Infrastructure**

Wastewater management infrastructure and systems vary throughout the Planning District depending on the type of land use and development. Rural residential and resort area properties use private on-site systems including holding tanks and septic fields that require periodic wastewater/septage removal by truck haul to a receiving lagoon or the City of Winnipeg North End Water Pollution Control Centre. Monitoring of truck haul volumes and frequencies is

increasing throughout the district as municipalities assess the ongoing functionality of receiving lagoons.

Five residential subdivisions in West St. Paul use low pressure piped centralized wastewater treatment systems however these systems no longer meet regulatory requirements and require upgrade or replacement. They service a relatively low number of homes that results in high per capita replacement costs. The centralized systems in East St. Paul, Selkirk and Lockport are generally meeting current demand although upgrades are being implemented to meet regulatory requirements and to accommodate future growth.

Maps 1 and 2 show the locations of all wastewater treatment infrastructures divided into a northern and southern region within the planning district. Individual residential on-site systems are not shown due to the map scale. There are 15 wastewater lagoons in operation throughout the RRPD as listed in Sections 3.0-8.0. These lagoons are both private and municipal lagoons operating under license conditions from Manitoba Conservation and Water Stewardship. License conditions generally describe the timing of effluent discharge and the scheduling of water quality sample collection.

## 2.2 Regulatory Framework

Manitoba Conservation and Water Stewardship regulate wastewater management and administer the acts and regulations for all public and private on-site wastewater facilities. The following legislation applies to wastewater management:

- Environment Act
- Classes of Development Regulation (164/88R)
- Public Health Act
- Water Works, Sewerage and Sewage Disposal Regulation MR 331/88R
- Water and Wastewater Facility Operators Regulation 77/2003
- The Save Lake Winnipeg Act

The Save Lake Winnipeg Act requires planning authorities subject to *The Planning Act* within the capital region to prepare wastewater management plans. According to the Act:

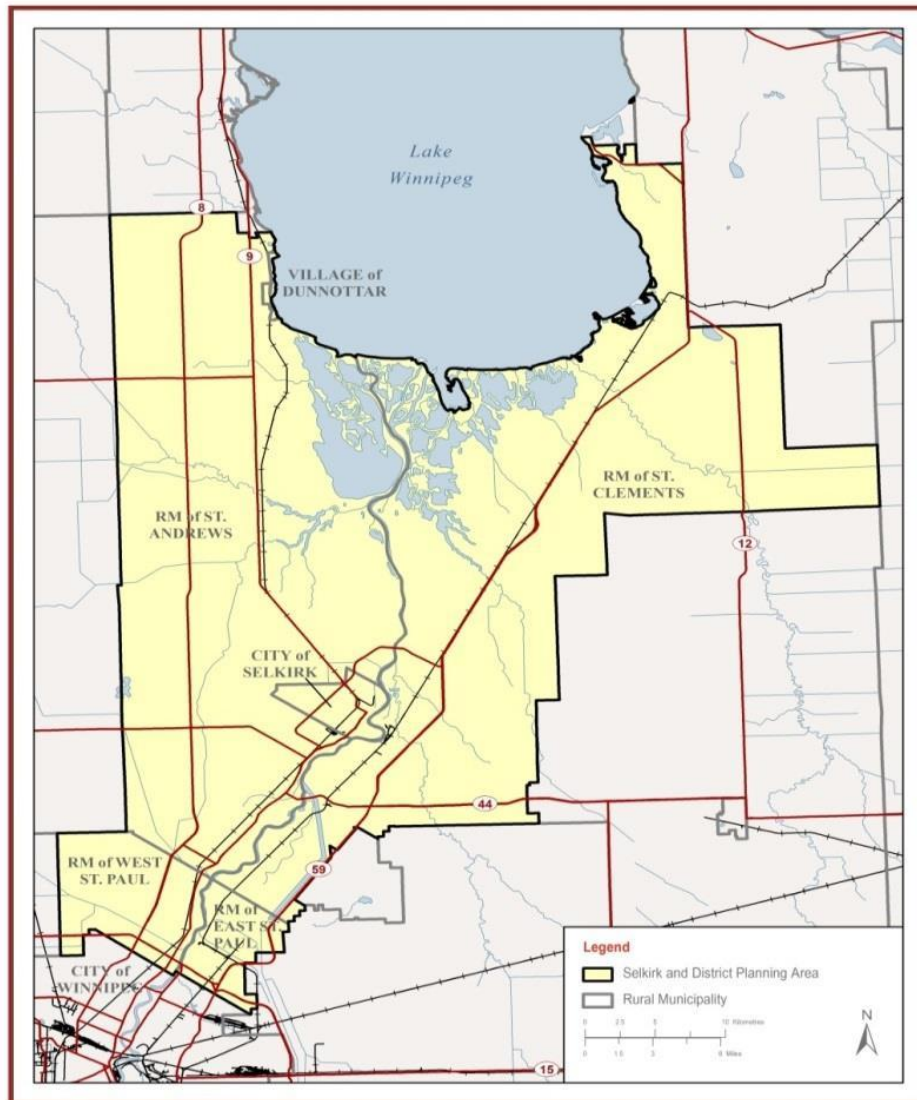
*These plans are to confirm if projected development can be serviced by existing drinking water and wastewater services, and the measure that will be taken to ensure that those services are provided in an appropriate and responsible manner (Province of Manitoba, 2011).*



The Act was adopted in 2011 as a means to reduce the harmful amounts of phosphorus and other nutrients entering into Lake Winnipeg and improve the quality of local drinking water.

### RRPD Development Plan

The Development Plan guides land use and future development for the member municipalities in the Planning District as shown in Figure 1.



**Figure 1: Red River Planning District Municipalities**

Part 4 of the RRPD Development Plan contains policies relating specifically to wastewater to ensure future developments are coordinated with expanded and more efficient water and

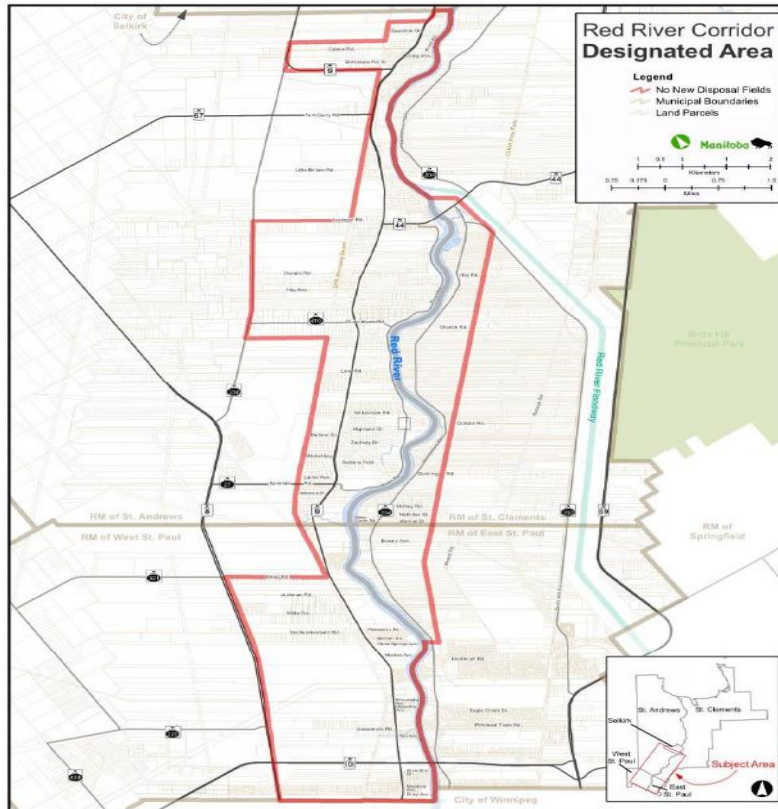
wastewater infrastructure in compliance with the above legislation and regulations. The policies are:

- Densification of residential development in Settlement Centres and General Development Areas where appropriate services can be provided will be encouraged to make the provision of sewer and water services increasingly fiscally feasible.
- Large development proposals shall be guided by secondary or concept plans to consider phasing of infrastructure and in order to determine service provision requirements for the subject property as well as adjoining lands.
- Options for effective waste management and treatment shall be considered to ensure cost effectiveness and sustainability.
- New or expanded development, including proposed subdivisions, shall be limited so as to ensure there are facilities and the capacity in place to adequately manage the waste that will be generated. This includes solid, liquid and septage waste.
- No new zoning for new development will be permitted within the General Development, Settlement Centre and adjoining Rural Residential areas until secondary plans and plans for improved municipal infrastructure and services, including sewer and/or water, have been prepared.

This Wastewater Management Plan provides further policy direction in Section 2.6 in conjunction with the Development Plan and subsequent Secondary Plans.

#### Red River Corridor Designated Area

In 2009, Manitoba created the Red River Corridor Designated Area (RRCDA) as a defined area along the Red River between Winnipeg Selkirk (Figure 2).



Source: Manitoba Conservation and Water Stewardship

**Figure 2: Red River Corridor Designated Area**

The area was created in response to an increasing number of failing septic systems on properties adjacent to the river. New on-site septic fields are prohibited in this area and any new developments are required to connect to a piped municipal system where available. The area covers a significant portion of the existing and future residential lands in RMs of West St. Paul and St. Andrews and a smaller portion in the RM of East St. Paul.

### Manitoba Water Services Board

The Manitoba Water Services Board is a non-regulatory agency that is an important contributor to wastewater system planning and development. The Board's primary objectives are to ensure that public health and/or environmental concerns are alleviated; and to ensure the sustainability of rural communities. Fulfillment of these objectives promotes sustainable community development activities.

The Water Services Board provides technical and financial assistance to municipalities for obtaining:

- Development, transmission, distribution and control of water supplies.

- Collection, treatment and disposal of municipal sewage in a manner consistent with environmental sustainability.

## 2.3 Wastewater Infrastructure Funding

Municipal wastewater system components can include a combination of wastewater treatment plant, lagoon, lift station and force main. The most common funding formula for municipal wastewater systems is a combination of a Local Improvement District (LID), grant funding through Provincial and/or Federal governments, tax debentures and user fees from each service connection. Recently municipalities have accessed capital funds from the Federal Gas Tax Fund to support public infrastructure projects that achieve positive environmental results.

The specific design configuration and functionality of a system may vary among projects and the project developer would be responsible for capital construction costs. The municipality would administer the ongoing operating costs funded by service fees paid by users on the system within a LID. User fees currently fund all municipal wastewater annual operating costs within the Planning District at a total cost of approximately \$2.7 million. This figure includes the \$500,000 annual budget in the Village of Dunnottar for the truck hauling program from on-site systems that is operated as a municipal service.

## 2.4 Population Trends and Wastewater Production

Average per capita wastewater production is 327 litres per day according to Manitoba's Guide to Developing a Wastewater Management Plan. The amount of wastewater produced in an area over a given period of time can be estimated when linked to population figures.

The population of the RRPD is projected to increase 27.4% (12,838 people) over the next 20 years using updated figures from the 2013 Capital Region Transportation Master Plan (MMM Group, 2013). Table 1 shows the projected increase in population and wastewater production for each municipality between 2011 and 2033.

**Table 1: Projected Population Changes from 2011 to 2033.**

Municipality	Population in 2011	2011 Estimated Daily Wastewater Production (L)	Projected Population in 2033	2033 Estimated Daily Wastewater Production (L)
East St. Paul	9,046	2,958,042	11,260	3,682,020
West St. Paul	4,932	1,612,764	7,730	2,527,710
St. Andrews	11,875	3,883,125	14,770	4,829,790
Selkirk	9,834	3,215,718	12,200	3,989,400
St. Clements	10,505	3,435,135	13,070	4,273,890
Dunnottar	696	227,592	696	227,592
<b>Total RRPD</b>	<b>46,888</b>	<b>15,332,376</b>	<b>59,726</b>	<b>19,007,202</b>

A summary of current and future projected wastewater volumes for each municipality is provided in Sections 3.0 – 8.0.

## 2.5 Regional Growth and Planning Considerations

A large portion of the future growth in the RRPD is projected to occur within the Red River Corridor Designated Area where existing septic fields are failing and new septic fields are prohibited. This includes portions of the RMs of St. Andrews, East St. Paul, West St. Paul and St. Clements where the Development Plan provides for increased residential densities through new subdivisions and infill developments. New dwellings constructed in the Red River Corridor will need to install a holding tank in areas not serviced by a piped municipal system and are required to connect when systems are established. Holding tanks require regular wastewater pump out when used as the primary residential wastewater system and this increases the wastewater volume transported to municipal lagoons.

The City of Selkirk is currently conducting a wastewater study to determine the infrastructure needs that will accommodate future growth particularly in the 500 acre west Selkirk lands adjacent to PTH 9. There is potential for development in this area although the current system of sewer mains does not have the capacity to accommodate increased volumes. Any future development in this area would require new mains directly connected to the Selkirk Wastewater Treatment Plant.

Table 2 and Map 3 describe the general location of potential future growth areas in the district. Phased development in these areas will be guided by the Development Plan and Secondary Plans to ensure wastewater infrastructure has the capacity to handle increased volumes.

**Table 2: Potential Future Growth Patterns in the RRPD Municipalities**

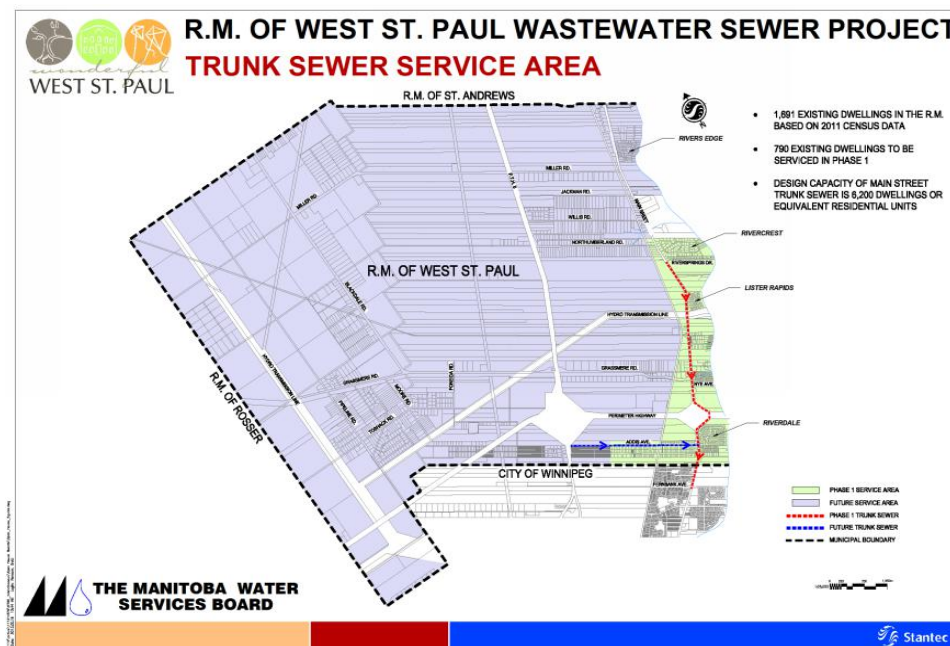
Municipality	Potential Growth Pattern
East St. Paul	Infill projects in the south portion
West St. Paul	Middlechurch Settlement Centre, Main Street North,
St. Andrews	Lockport Settlement Centre, South St. Andrews, St. Andrews Airport
Selkirk	Infill residential and mixed-use development in the Water Tower neighborhood
St. Clements	East Selkirk north, Grand Marais, South St. Clements
Dunnottar	Community is built-out within the village boundary

The establishment of piped wastewater service is a key planning consideration given the projected population increase and future intensification of residential development in settlement areas adjacent to the Red River north of Winnipeg. Subdivision development projects should be

required to incorporate centralized piped wastewater depending upon the size, location and land use designation.

The RM of West St. Paul has initiated the first phase of the trunk sewer extension from the City of Winnipeg northward to Rivercrest as shown in Figure 3. The system is to be in operation by March of 2015 initially serving 790 dwellings and sized to accommodate 6,200 dwellings as funding becomes available in the future. A total of 2,043 dwellings are projected for West St. Paul by 2033 and future extension of the system northward into South St. Andrews could service approximately 4,150 dwellings in that municipality.

**Figure 3: RM of West St. Paul Trunk Sewer Phase 1**



Source: West St. Paul 2013 Financial Plan Presentation

Infrastructure sharing is also possible with the City of Selkirk and the RM of St. Andrews south to Lockport along Main Street. A service agreement is already in use for the Mapleton Lane condominium and Pruden Avenue wastewater projects.

## 2.6 Policy Recommendations

The following wastewater policies provide more specific planning guidance in addition to the Development Plan:

1. Centralized wastewater systems should be implemented within the Red River Corridor Designated Area to alleviate future negative impacts of failing septic systems.



2. The Planning District should consider coordinating future wastewater projects through a regional technical body to make efficient use of funding and provide consistency in servicing new developments.
3. During Development Plan reviews or when establishing new land use designations, the Planning District should ensure that appropriate wastewater facilities and capacities are established for the designation areas. Where facilities and capacities are not in place, the Planning District should ensure wastewater servicing plans are developed.
4. An infrastructure servicing study should be conducted for the City of Selkirk's west lands adjacent to PTH 9. The study should coordinate with Selkirk's current wastewater study to address the servicing requirements and potential development of the 500 acre site.
5. New development proposals that incorporate a centralized wastewater system should consider addressing the decommissioning of septic fields in conjunction with Manitoba Conservation and Water Stewardship
6. Regional infrastructure sharing should be explored between:
  - City of Selkirk and the portion of the RM of St. Andrews along the Main Street corridor between Selkirk and Lower Fort Garry
  - RM of West St Paul, the South St. Andrews Secondary Plan area and the Lockport Settlement Centre west of the Red River
  - RM of St. Clements (Grand Marais) and Grand Beach Provincial Park
  - RM of St. Clements and RM of East St. Paul
7. All wastewater and septage hauled and delivered by truck should be recorded at the receiving facilities within the planning district. This will assist in monitoring the origin and the total wastewater being transported.
8. Municipalities should include water conservation measures when granting new development approvals and should promote water conservation with existing residents particularly in areas where holding tanks and truck haul contribute wastewater directly to a receiving lagoon.

## **3.0 CITY OF SELKIRK**

### **3.1 Current Wastewater Infrastructure**

Selkirk has an urban standard gravity sewer system for collection, treatment and discharge of wastewater into the Red River. The wastewater treatment plant was constructed in 1976 and consists of screening, grit removal, extended aeration treatment, clarification and ultraviolet light

disinfection. There are six lift stations throughout the city and decant lagoons located on the very northern edge of Selkirk’s boundary. There are two locations where the sewer system is extended beyond Selkirk’s boundary and into the R.M. of St. Andrews: one to the north to the Behavioral Health Foundation facility and one to the south to a Mapleton Lanes condominium development. The wastewater from these facilities are connected by sewer lines and treated at Selkirk’s treatment plant. Newer areas of Selkirk have separate sewer and storm water systems. Selkirk’s first storm sewers were installed in approximately 1965 and in different areas of the City at different times.

The older parts of Selkirk have been serviced by a combined sanitary sewer system and storm water drainage system. Selkirk is currently upgrading the wastewater system to meet specifications of Manitoba’s Nutrient Management Regulation and the Water Quality Standards, Objectives and Guidelines Regulation. This will improve the efficiency of the facility and will eliminate the combined sewers through a sewer separation program. Flows to the treatment plant will consist of domestic sewage and rainfall dependent inflow and filtration and the upgrades will remove total nitrogen levels to below 15 mg/L and phosphorus levels to below 1 mg/L. The project is approximately 31% complete and the total cost is \$27.2 million with funding contributions from City of Selkirk, the provincial and federal governments.

The treatment plant has a dry weather treatment capacity of 11.4 million litres per day (mL/day), and a wet weather capacity of 34.1 mL/day and a hydraulic capacity of 40.4 mL/day. These capacities adequately support the needs of Selkirk. Approximately 78 properties within the city are serviced by on-site wastewater systems including septic fields and holding tanks. These systems require that wastewater is hauled by truck to the Selkirk treatment plant which is gated and locked to control access and monitor septic truck haulers. Haulers are charged a fee for every visit depending upon the amount of waste being delivered and only wastewater originating within Selkirk is allowed in the facility.

Domestic wastewater production in Selkirk is estimated at 3.2 million litres per day based on a 2011 population 9,834 as shown in Table 3.1. The estimated daily volume of 3.2mL/day is approximately 10% of the wastewater treatment plant design capacity of 34.1 mL/day.

**Table 3.1: Current Estimated Daily Wastewater Production**

Year	Population	Average Daily Volume/Person (L)	Estimated Daily Wastewater Production (L)
2011	9,834	327	3,215,718

Gerdau Ameristeel operates a wastewater treatment plant for its operations in Selkirk. The system has adequate capacity for its needs and treats approximately 600,000 m<sup>3</sup> of wastewater annually.



## **3.2 Costs and Financing**

The 2013 operating budget for the wastewater system was \$626,810. All operating costs for wastewater are financed through fees paid by users on the system. The fees are linked to the amount of metered water and operating revenue will fluctuate depending on the amount of water used. Financing mechanisms include utility fees, development fees, utility reserves, and capital project funding derived from property taxes and support from other levels of government to finance the wastewater system.

Selkirk provides wastewater service to the Mapleton Lanes condominium in the RM St. Andrews south of the City boundary. The R.M. of St. Andrews charges the users the rate Selkirk is charging and adds a fee for administering the process and a percentage for future replacement cost of the sewer line that runs through St. Andrews.

Selkirk has recently developed a fee calculator that helps determine the true cost of development and these costs are passed on to developers. This revenue formula recognizes the benefits of infill development by charging lower fees than greenfield development. The reduction can be as much as 40 percent for a 55 foot infill lot which can provide economic, environmental and social benefits from an efficient use of infrastructure. This tool complements the Development Plan policies that encourage infill development.

Septage haulers are charged a fee of \$21.12, a general cost per 1000 gallon and must record the estimated volume of waste they are dumping.

## **3.3 Projected Growth Rates and Development Pattern**

Selkirk's population is projected to increase from 9,843 in 2011 to 12,200 in 2033. The City is supporting increased densities and infill development that will achieve economic benefits including increased revenues from existing infrastructure, increases in land value and higher densities to support local businesses. The City's economic base consists of a range of commercial and industrial businesses that produce wastewater into the municipal system.

Selkirk is currently conducting a wastewater study to determine the infrastructure needs that will accommodate future growth. The study will provide the general servicing requirements for potential development of the 500 acre west Selkirk lands adjacent to PTH 9. The current system of sewer mains does not have the capacity to accommodate increased volumes from this area and would require new mains directly connected to the Selkirk Wastewater Treatment Plant.

## **3.4 Future Wastewater Production**

According to the Selkirk and District Planning Area Wastewater Servicing Plan (2010), future growth within Selkirk will be serviced by the existing wastewater treatment plant. Future

domestic wastewater production is estimated to increase to 3.9 million L/day according to the population growth projections shown in Table 3.2.

**Table 3.2: Future Population and Daily Wastewater Volumes in Selkirk<sup>1</sup>**

Municipality	Population in 2011	Total Estimated Daily Wastewater Production (L)	Projected Population in 2033	Total Estimated Daily Wastewater Production (L)
Selkirk	9,834	3,215,718	12,200	3,989,400

### 3.5 Regional Infrastructure Options

There is potential to provide further wastewater service extension into the R.M. of St. Andrews between PTH 44 and the southern City limit within the Red River Corridor Designated Area where new septic fields are not permitted. New dwellings in this area would be required to connect to a piped municipal system where available. Wastewater service extension in this area will depend upon future demand and the level of residential densities increased densities for the system to be economical.

### 3.6 Summary

The continued upgrading of Selkirk’s wastewater system will ensure that Provincial Surface Water Quality Guidelines are met. The treatment plant has the capacity to meet future population increases and accommodate any potential expanded service within and beyond the city limits. Secondary Plans will ensure a phased implementation of wastewater servicing to meet volume increases and comply with Provincial legislation.

## 4.0 RM OF ST. ANDREWS

### 4.1 Current Wastewater Infrastructure

The primary wastewater treatment systems in the R.M. of St. Andrews are private on-site systems consisting of septic systems and holding tanks. Septage from septic systems and wastewater from holding tanks is pumped and truck-hauled to the St. Andrews Wastewater Lagoon. The municipality monitors truck haul activity at the lagoon by providing access keys and collecting delivery reports from haulers.

<sup>1</sup> The daily volume amount in Table 3.2 is 63% of the total average daily dry weather volume of 513 L per capita per day generated in Selkirk according to an assessment of Selkirk’s wastewater volumes conducted by MMM Group in 2012. That assessment incorporated average peak flow rates, which anticipate the need for a larger capacity of wastewater during peak periods of the day since wastewater is not generated at equal times of the day.

There are failing septic systems due to low-permeability soils in the municipality mostly in the more heavily developed Red River corridor area. Addressing septic system failure by pursuing alternative wastewater management options is a critical issue for monitoring future growth.

There are 13 wastewater treatment facilities located within the boundaries of the R.M. of St. Andrews and licensed by Manitoba Conservation and Water Stewardship under the Environment Act.

Location	Wastewater Treatment Facility
Lord Selkirk School Division No.11	Sewage Treatment Plant and Holding Ponds
St. Andrews Airport Inc.	Wastewater Treatment Plant and Retention Pond
Lower Fort Garry National Historic Site	Sewage Treatment Plant (proposed to be replaced with a new wastewater treatment plant)
Lartier's at St. Andrews	Sewage and Wastewater Treatment Plant
Village at Dunnottar	Wastewater Treatment Lagoon (Serving Dunnottar)
RM of St. Andrews	Wastewater Treatment Lagoon and Constructed Wetland
Town of Winnipeg Beach	Wastewater Treatment Lagoon (serving Winnipeg Beach)
Netley Colony	Wastewater Lagoon
Forall Campground Ltd.	Aerated Lagoon
Masters Development	Mission Campgrounds Wastewater Treatment Lagoon
Lord Selkirk School Division No.11	(Lockport) Wastewater Treatment Lagoon
Highway Gardens Mobile Trailer Court	Wastewater Treatment Lagoon
Gerdau Ameristeel	Wastewater Lagoon (serving the industrial development)

Estimated total domestic wastewater production in St. Andrews is 3.9 million litres per day based on a 2011 population of 11,875 as shown in Table 4.1.

**Table 4.1: Current Estimated Daily Wastewater Production**

Year	Population	Average Daily Volume/Person (L)	Estimated Daily Wastewater Production (L)
2011	11,875	327	3,883,125

The only municipally-run facility is the R.M. of St. Andrews Wastewater Treatment Lagoon and Constructed Wetland which receives truck-hauled septage from private on-site septic systems and wastewater from holding tanks. This lagoon is licensed to receive up to 8,000 L of septage per day between June 1 and October 15.

## 4.2 Costs and Financing

Costs associated with on-site wastewater management are the responsibility of individual property owners. The RM of St. Andrews operates the wastewater treatment lagoon with a 2013 operating budget of \$1,500. Capital funds for future municipal wastewater projects are allocated as part of the RM's five-year capital plan which projects a \$50 million total cost for the South St. Andrews sewer project. The South St. Andrews sewer project will provide a connection to the City of Winnipeg trunk sewer to provide wastewater services.

## 4.3 Projected Growth Rates and Development Pattern

The population in the R.M. of St. Andrews is projected to increase from 11,875 in 2011 to 14,770 in 2033. There is higher pressure for development in the southern portion where it is attractive to individuals who enjoy a rural lifestyle but would like to live within a commutable distance from Winnipeg or Selkirk. The predominant residential lot size varies between one to two acres in this area and there is potential for future densification to accommodate future population growth.

The Lockport Settlement Centre Secondary Plan guides land use and development within this area of the R.M. of St. Andrews. The plan identifies where existing residential areas should be intensified in consideration of future municipal servicing.

The St. Andrews Airport is located in the southern region of the municipality and is promoting "Business Park" Development. Part of the existing development is located on airport lands and other industrial development is located just outside the airport boundaries in the St. Andrews Industrial Park. Approximately 142 acres of additional land just south of PTH 27 was recently re-designated from "Agriculture" to "Business Park" and is considered an integral part of the St. Andrews Airport and Area Secondary Plan study area. This land is seeing interest for future commercial and light industrial development and is anticipated to be fully-built out in approximately five to ten years. The change in land use designation creates an opportunity for additional development that may increase the demand on the wastewater system. As developments are proposed, the landowners will need to work with the RM to address any required upgrades to the wastewater service.

Future airport-related commercial and industrial development is being considered on the airport lands but will require an expansion to the wastewater lagoon capacity. Future development in the area should work with the St. Andrews Airport to upgrade the wastewater service.

Residential development in the northern region of the R.M. of St. Andrews is scattered with concentrations of dwellings in the "Resource and Agriculture" designation. The communities of Petersfield and Clandeboye are the primary "Settlement Centres" with the majority of development situated along the waterfront in Petersfield. There is an abundance of land

designated for future “Settlement Centre” in Petersfield, but the majority of this land is not waterfront and the demand for non-waterfront cottage lots is low.

#### 4.4 Future Wastewater Production

Future domestic wastewater production is estimated to increase to 4.8 million L/day according to the population growth projections shown in Table 4.2.

**Table 4.2: Future Population and Daily Wastewater Volumes in St. Andrews**

Municipality	Population in 2011	Total Estimated Daily Wastewater Production (L)	Projected Population in 2033	Total Estimated Daily Wastewater Production (L)
St. Andrews	11,875	3,883,125	14,770	4,829,790

#### 4.5 Regional Infrastructure Options and Cost

Much of the RM’s future growth will occur with the Red River Corridor Designated Area where construction of new septic fields is prohibited. Residential developments installing wastewater collection in this area must use holding tanks or connect to a piped municipal wastewater system where available. Provision of a piped system will depend upon factors such as partnership funding, residential demand and development densities.

The South St. Andrews sewer project has been identified as a future municipal project in the RM’s five-year capital plan. The project involves a connection to future phases of the City of Winnipeg trunk sewer when it extends north from Rivercrest in the RM of West St. Paul. The preliminary cost estimate for this project in South St. Andrews is approximately \$50 million. The RM reviews its capital plan each year to identify its funding requirements based on cost revisions, scheduling and potential funding agreements with project partners.

The RM has a service sharing agreement with the City of Selkirk that provides wastewater service from Selkirk’s system to the Mapleton Lane condominium. This service could be expanded further south into St. Andrews to meet future demand adjacent to Main Street between Selkirk and Lower Fort Garry.

#### 4.6 Summary

Wastewater volumes in St. Andrews are projected to increase 24.4 percent by 2033. The majority of wastewater production will occur in the Lockport and South St. Andrews settlement areas where increased residential densities are projected. The future availability of piped municipal wastewater service is an option that will address the issue of failing septic systems and meet Provincial requirements under the Red River Corridor Designated Area.

The St. Andrews wastewater treatment lagoon will continue to receive truck hauled septage from private on-site systems. The municipality monitors the truck haul activity and volumes to ensure compliance with the provincial license conditions.

## **5.0 RM OF ST.CLEMENTS**

### **5.1 Current Wastewater Infrastructure**

Holding tanks and septic fields are used by rural and seasonal resort area properties along the east shore of Lake Winnipeg in the north portion of the municipality. Wastewater and septage from these systems is transported by truck to the Grand Marais Wastewater Treatment Lagoon and Constructed Wetland. The municipality is implementing a tracking system through a combination of on-site attendant and key-lock card access to monitor truck haul volumes being delivered to the lagoon. The system is intended to support ongoing monitoring of the lagoon's capacity and functionality.

Dwellings and buildings located in Lockport are serviced by a low-pressure sewer system that flows to the Lockport Sewage Treatment Plant. There is currently a sewer main expansion being completed to service approximately 500 properties located along Henderson Highway in the southern region of the municipality that were using septic fields that would overflow during heavy rains. The project includes a main line along Henderson Highway, force main along the Central Manitoba Railway (CEMR) right of way and lateral connections along the municipal roads. The homes on Old River Road will connect to the system in 2015 and the remaining homes in the area will have the option to connect in the future. Rural residential properties in this area that use on-site systems will continue to have wastewater hauled by truck to the City of Winnipeg North End Treatment Plant.

In 2001, approximately 60 residences in the East Selkirk area received public health orders from the Province of Manitoba as a result of contaminated water due to failing septic systems. The Health Officer stated that these health orders would not be lifted until East Selkirk established a municipal water and waste treatment system. A new low-pressure wastewater collection system and treatment lagoon is currently being constructed and will service 260 existing dwellings in East Selkirk. The system will be sized to accommodate an additional 300 dwellings through infill development and expansion over the next 20 years. This area has been identified as a priority area within the R.M. of St. Clements and all buildings located in the East Selkirk Settlement Centre are required to hook up to the new sewer and water service system.

There are five wastewater treatment facilities in the municipality:

- Grand Marais Wastewater Treatment Lagoon and Constructed Wetland located in SW 9-18-7 EPM in the Rural Municipality of St. Clements

- Lockport Sewage Collection System and Sewage Treatment Plant located on a portion of the Winnipeg Floodway P. 13006, North and East of the junction of Provincial Trunk Highway 44 and Henderson Highway
- Lord Selkirk School Division's Private Lagoon and System located adjacent to East Selkirk Middle School. The treatment plant and holding pond will be closed once the new East Selkirk Wastewater Collection System and Treatment Lagoon are fully functional
- Pineridge Village Trailer Park's Private Lagoon and System
- Greenwald Colony Farms Ltd. Sewage Lagoon

Estimated domestic wastewater production in St. Clements is 3.4 million litres per day based on a 2011 population of 10,505 as shown in Table 5.1.

**Table 5.1: Current Estimated Daily Wastewater Production**

Year	Population	Average Daily Volume/Person (L)	Estimated Daily Wastewater Production (L)
2011	10,505	327	3,435,135

## 5.2 Costs and Financing

The current operating budget of the Lockport wastewater system is \$100,000 and is funded entirely through fees paid by users connected to the system. Forecasted annual operating costs for the East Selkirk wastewater system are approximately \$110,000. The total capital cost of the East Selkirk system was \$13.1 million and included the water service component as part of the total infrastructure project. Financing was split 31 percent grants, 30 percent LID, 26 percent gas tax funds and 13 percent utility. Costs associated with private and semi-public systems are the responsibility of the property owner.

## 5.3 Anticipated Short-Term Development

A 166-lot residential subdivision is planned for the Grand Marais Settlement Centre. The development at full build-out will include seasonal and permanent residences, affordable multi-family housing for seniors and retail commercial within the existing community of Grand Marais. Construction is expected to begin in the summer of 2014 and is consistent with the Grand Marais Secondary Plan that will direct all future commercial development to the existing commercial area in Grand Marais to create a town centre.

There is potential for expanded residential development in East Selkirk northeast of PTH 59 and north of PTH 44 where up to 200 residential lots could be developed over the next ten years. The Old Henderson Highway area has the potential for an additional 100 residential lots and the



current secondary planning processes are expected to provide guidance on phased development in this area.

These developments represent up to 466 new residential units. At an average household size of 2.5, this suggests a potential population increase of 1,165 people which is consistent with the population projections shown in Table 5.2.

The southern area of the municipality has potential for an additional 420 new dwellings that will now be supported by the sewer extension project currently being completed. Development in this part of the municipality has been heavily restricted due to the fact that septic fields are no longer permitted in the Red River Corridor Designated Area.

## 5.4 Future Wastewater Production

Future domestic wastewater production is estimated to increase to 4.2 million L/day according to the population growth projections shown in Table 5.2.

**Table 5.2: Future Population and Daily Wastewater Volumes in St. Clements**

Municipality	Population in 2011	Total Estimated Daily Wastewater Production (L)	Projected Population in 2033	Total Estimated Daily Wastewater Production (L)
St. Clements	10,505	3,435,135	13,070	4,273,890

The municipality must ensure that existing and planned wastewater treatment facilities can accommodate the wastewater production from population increases. Plans are in place for many of the development areas that are in progress.

## 5.5 Regional Infrastructure Options and Cost

There is a potential for regional infrastructure sharing between the Grand Marais Settlement Centre and Grand Beach Provincial Park. Wastewater that is currently truck hauled within the park could be directed to the Grand Marais lagoon and constructed wetland through a new low-pressure connection. This would allow for decommissioning of the existing lagoon within the provincial park. A piped extension from the park could potentially provide for service connections within the Settlement Centre where most of the seasonal properties use holding tanks. An established piped wastewater system would also be beneficial for future commercial and higher density residential development as identified in the Grand Marais Secondary Plan.

The low pressure system being constructed in East Selkirk will connect to the wastewater lagoon being constructed in the southern portion of the East Selkirk Settlement Centre. Cost for the East Selkirk system including wastewater and drinking water components is approximately



\$13.1 million. This includes current servicing of 260 homes and capacity to service an additional 305 homes.

There had been past discussions between St. Clements and East St. Paul regarding wastewater infrastructure sharing. There was no agreement from this process and St. Clements has proceeded with the expansion of piped service within the Old Henderson Highway area.

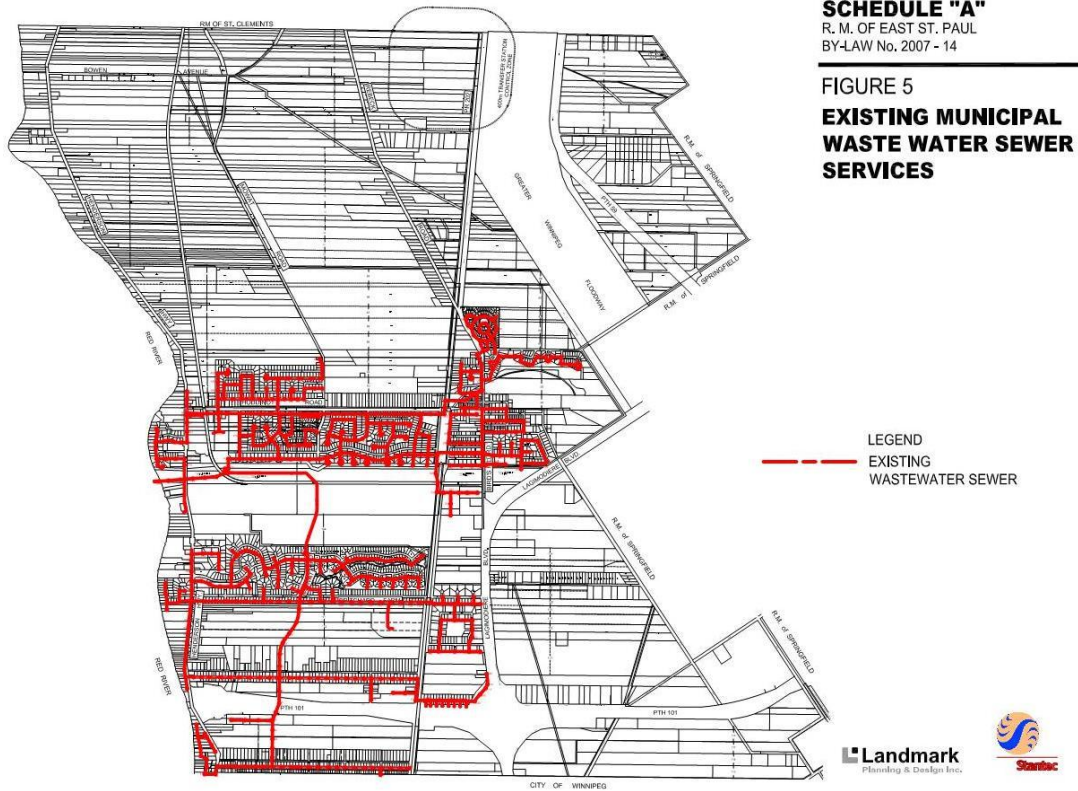
## **5.6 Summary**

Wastewater volumes in St. Clements are projected to increase 24.4 percent by 2033. The majority of wastewater production will occur in East Selkirk with growth also projected in South St. Clements and Grand Marais. The piped wastewater service in East Selkirk and the operation of the Grand Marais lagoon and constructed wetland subdivision are projected to meet future demand in those areas. The expansion to the wastewater system in South St. Clements along Henderson Highway will meet the requirements under the Red River Corridor Designated Area. St. Clements should continue to pursue a wastewater service partnership with Grand Beach Provincial Park that will also service the Grand Marais commercial and residential areas.

## **6.0 RM OF EAST ST. PAUL**

### **6.1 Current Wastewater Infrastructure**

A piped municipal wastewater system services the area east of the Red River to Raleigh Street and north of the Manitoba Hydro transmission line to approximately 1200 feet north of Hoddinott Road. Also included in the service area are Birds Hill Village, Pritchard Farm Properties, Whidbey Harbour, Silverfox Place, Garven Road, Sperring Gardens, Sperring Road, Wallace Avenue, DeVries Avenue, Foxgrove Avenue and Eastwood Drive (Figure 4). There are 2581 connections to the municipal system in seven collection districts.



**SCHEDULE "A"**  
 R. M. OF EAST ST. PAUL  
 BY-LAW No. 2007 - 14

**FIGURE 5**  
**EXISTING MUNICIPAL**  
**WASTE WATER SEWER**  
**SERVICES**

**Figure 4: RM of East St. Paul Wastewater System**

The municipal system consists of a Sewage Treatment Plant that houses a Rotating Biological Contactor (RBC) and a Sequencing Batch Reactor (SBR) system. The original plant was constructed in 1980 and an SBR upgrade was commissioned in 2009 to meet increasing demand. Treated effluent from the plant is directed through an outfall to the Red River and the current estimated capacity of the system is 12,000m<sup>3</sup> per day.

Estimated domestic wastewater production in East St. Paul is 2.9 million litres per day based on a 2011 population of 9,046 as shown in Table 6.1.

**Table 6.1: Current Estimated Daily Wastewater Production**

Year	Population	Average Daily Volume/Person (L)	Estimated Daily Wastewater Production (L)
2011	9,046	327	2,958,042

Individual on-site wastewater systems including septic fields and holding tanks and are used in areas not serviced by the municipal system, including the area within the Red River Corridor Designated Area. Properties in this area will be required to connect to the municipal system if it becomes available in the future.

## 6.2 Costs and Financing

The RM has a 2013 operating budget for the wastewater system of \$1.1 million and a capital budget of \$3.5 million. Approximately 85 percent of the wastewater system operating costs is recovered through service charges to users. Capital expenses are funded from municipal reserves as determined through the Council's annual budgeting process. Individual property owners are entirely responsible for costs associated with their private on-site wastewater systems.

## 6.3 Projected Growth Rates and Development Pattern

The following subdivisions are planned for development in the next 5 years:

- By-the Park (74 lots)
- Countryside (300 lots)
- Eastlands (165 lots)
- A&S Homes Garven Road
- Fahr Subdivision

The future general growth pattern in the municipality is in a south to north direction beginning with infill developments in the more densely populated southern area. Expansion northward is possible into a larger portion of undeveloped land between the Red River Floodway and Henderson Highway in accordance with the land use designations in the Development Plan.

## 6.4 Future Wastewater Production

Total daily wastewater volumes are projected to increase to 3.7mL/day according to the population growth projections are shown in Table 6.2.

**Table 6.2: Future Population and Daily Wastewater Volumes in East St. Paul**

Municipality	Population in 2011	Total Estimated Daily Wastewater Production (L)	Projected Population in 2033	Total Estimated Daily Wastewater Production (L)
East St. Paul	9,046	2,958,042	11,260	3,682,020

The population numbers above differ from those used in a 2011 study by Stantec that showed a total of 3800 system connections at 3.2 persons per household connection resulting in an estimated population of 12,160 by 2033. This figure is approximately 3,500 less than the projections in this report.

## **6.5 Regional Infrastructure Options and Cost**

The municipal wastewater system will be upgraded from 2013-2020 by increasing lift station capacity, upgrading the headworks facility and expanding the SBR capacity at a total estimated cost of \$13 million. There is an option to decommission the RBC and the RM will assess this option in the next few years. Sludge will continue to be transported to the City of Winnipeg's North End Water Pollution Control Centre.

Wastewater collection in rural residential areas outside of the Red River Corridor Designated Area will continue to use on-site septic systems and will be required to connect to any future extensions of the municipal system. There is currently no requirement for properties outside of the Designated Area to connect to a municipal system.

There had been discussions on sharing services with south St. Clements as stated in Section 5.5. There may be similar opportunity for East St. Paul to partner with the RM of Springfield should East St. Paul choose to extend piped service north eastward into Ward 3 near Garven Road.

## **6.6 Summary**

Wastewater volumes in East St. Paul are projected to increase 24.5% percent by 2033. The municipality is currently implementing wastewater system upgrades to meet demand associated with future residential development. Capital reserves and service fees are in place to finance the system. Development outside of the Red River Corridor Designated Area may continue to use on-site private systems depending on densities and the cost feasibility of providing centralized wastewater service. The municipality may consider future regional partnership opportunities with St. Clements and Springfield if development demand and patterns are compatible.

## **7.0 RM OF WEST ST. PAUL**

### **7.1 Current Wastewater Infrastructure**

There is a combination of private on-site wastewater systems and centralized piped service in the municipality. Failing septic systems primarily due to low permeability soils have been identified within the more heavily developed Red River corridor in the municipality.

In addition to on-site systems, there are eight wastewater treatment facilities in the R.M. of West St. Paul which primarily serve small residential subdivisions or specific buildings. The five public municipal wastewater treatment plants are located at River's Edge, Rivercrest, Rivergate, Lister Rapids and Riverdale. Table 7.1 lists the number of service connections and capacities

of the municipal plants. A combined daily capacity of 638,000 litres currently exists. Capacity should be monitored by the RM to avoid over-connection and plan for upgrades.

**Table 7.1: Municipal Wastewater Systems in West St. Paul daily capacity**

System Location	Number of Connections	Capacity (m <sup>3</sup> )
Rivercrest	142	178 (178,000 litres)
Lister Rapids	69	87 (87,000 litres)
Riverdale	52	192 (192,000 litres)
River's Edge	97	122 (122,000 litres)
Rivergate	44	59 (59,000 litres)
Combined Capacity		638,000 litres

Private wastewater treatment plants are located at Middlechurch Home of Winnipeg, St. Benedict's Monastery and West St. Paul School.

Estimated domestic wastewater production in West St. Paul is 1.6 million litres per day based on a 2011 population of 4,932 as shown in Table 7.2. Part of this population is accommodated by the municipal systems and part is individual septic systems.

**Table 7.2: Current Estimated Daily Wastewater Production**

Year	Population	Average Daily Volume/Person (L)	Estimated Daily Wastewater Production (L)
2011	4,932	327	1,612,764

## 7.2 Costs and Financing

The total annual operating budget for the five municipal systems is \$267,000 in 2013 and \$263,080 in 2014 funded by fees paid by users within the Local Improvement Districts (LID). Costs associated with private on-site wastewater systems are the responsibility of individual property owners.

Total estimated domestic wastewater production from all sources in West St. Paul is 1.6 million litres per day based on a 2011 population of 4,932. Service issues have been identified with failing on-site septic systems and centralized systems that do not meet the treatment requirements of Provincial regulations.

### 7.3 Projected Growth Rates and Development Pattern

Middlechurch Settlement Centre is the primary growth area in the municipality. The Middlechurch Secondary Plan guides infill development and provides strategies and planning guidelines for land use, transportation and municipal servicing for the community of Middlechurch and surrounding areas. According to the secondary plan, the policy directions for the area are designed to create a more sustainable settlement pattern by replacing private service systems and independent waste water treatment plants with a comprehensive municipal service system. The plan includes objectives and policies to help guide sustainable and cost-effective development in conjunction with municipal servicing. The key objective links new subdivision and infill development with the phased implementation of piped wastewater service.

There are approximately 1200 acres currently identified for residential development throughout the municipality. This growth is generally projected northward along Main Street, north of PTH 101 near Grassmere Creek and south of PTH 101 near Rossmore Avenue.

### 7.4 Future Wastewater Production

Total daily wastewater volumes are projected to increase 56.7 percent according to the population growth projections are shown in Table 7.3.

**Table 7.3: Future Population/Dwellings and Daily Wastewater Volumes in West St. Paul**

Municipality	Population and Dwellings in 2011 *	Total Estimated Daily Wastewater Production (L)	Projected Population and Dwellings in 2033	Total Estimated Daily Wastewater Production (L)
West St. Paul	Pop: 4,932	1,612,764	Pop: 7,730	2,527,710

This increase is associated with future residential development primarily in the Main Street area and within the Red River Corridor Designated Area. There are currently 790 dwellings that will be connected to the Phase One area of the trunk sewer project between Winnipeg and Rivercrest. The total number of dwellings in the RM of West St. Paul connecting to the future expanded system is projected to be 2,043 by the year 2033.

### 7.5 Regional Infrastructure Options and Cost

The estimated replacement cost for the municipal treatment plants is \$8.2 million according the RM West St. Paul’s 2013 Financial Plan presentation. In response, the municipality is

constructing a regional collection system that will connect to the City of Winnipeg's wastewater treatment system. Phase one of the project has commenced and will provide service from the City of Winnipeg boundary north to Rivercrest. The total cost for phase one the regional collection system is \$16 million.

The Phase One regional connection to the City of Winnipeg trunk sewer is the primary infrastructure project for the municipality. The system is designed to service 6,200 dwellings of which a total of 2,043 are projected for West St. Paul by 2033. This will allow for future extension northward into the South St. Andrews to service a total of approximately 4150 dwellings in that municipality. The extension into St. Andrews will be contingent on service sharing agreements and funding commitments from various partners. Properties outside of the Phase One are in West St. Paul will continue to use private on-site systems in accordance with Provincial regulations respecting the Red River Corridor Designated Area until the trunk sewer is extended. Costs to extend the regional system beyond Phase One have not been determined.

## **7.6 Summary**

Wastewater volumes in West St. Paul are projected to increase 24 percent by 2033. The majority of wastewater production will result from increased residential densities and developments in the Middlechurch area along Main Street at PTH 101. Piped wastewater service will address the failing on-site and community treatment plant systems within the Red River Corridor and will provide opportunity for extension within West St. Paul and regionally into the southern portion of the RM of St. Andrews.

## **8.0 VILLAGE OF DUNNOTTAR**

### **8.1 Current Wastewater Supply and Infrastructure**

The municipality operates a wastewater lagoon under license from Manitoba Conservation and Water Stewardship. The lagoon is located at NW8-17-4-EPM in the RM of St. Andrews with discharge into Tegula Creek and further into Lake Winnipeg. The lagoon is currently being upgraded with a passive filter system to ensure discharged water meets Manitoba's Surface Water Quality Guidelines and Objectives.

Wastewater is collected by on-site holding tanks from 1166 dwellings and is transported by truck to the lagoon. There is no piped collection system in the community although the truck haul service is funded and administered as a municipal service under contract with a commercial operator. Total estimated domestic wastewater production from all sources in Dunnottar is 227,000 litres per day based on a 2013 population of 696 permanent residences as stated by



the 2011 Census. The seasonal population increases to approximately 2,800 people, producing an estimated 915,000 litres of domestic wastewater per day.

## 8.2 Costs and Financing

The Village has an annual operating budget of \$500,000 to operate the lagoon and provide truck haul service for residential wastewater collection. The truck haul service is tendered for bid and awarded to the successful commercial operator under a three-year contract with the Village. Revenue for the wastewater system is generated through property tax levy paid by owners of properties within the Village.

## 8.3 Projected Growth Rates and Development Pattern

The community is fully built-out within its municipal boundary and future growth is limited to isolated infill or re-development projects within the village area. There was an attempt in 2013 by the village to annex lands in the RM of St. Andrews to expand its land base, increase development potential and meet the new population requirements in order to maintain municipal status. The annexation proposal was not successful and the Province continues to recognize the village's municipal status.

The permanent resident population is projected to remain unchanged in the future. Growth opportunities and population increase will only be possible if Dunnottar increases its municipal land base to provide for more development in the future.

## 8.4 Future Wastewater Production

Total daily wastewater volumes are projected remain constant according to the population growth projections as shown in Table 8.1.

**Table 8.1: Future Population and Daily Wastewater Volumes in Dunnottar**

Municipality	Population in 2011	Total Estimated Daily Wastewater Production (L)	Projected Population in 2033	Total Estimated Daily Wastewater Production (L)
Dunnottar	696	227,592	696	227,592

## 8.5 Regional Infrastructure Options

The Village has previously considered developing a piped centralized wastewater treatment system within the densely developed residential area. Community members rejected the idea due to the high costs associated with the system and there are currently no plans to revisit the project. A future regional wastewater system could potentially service the resort communities of Dunnottar and Winnipeg Beach. This would require interest from each municipal government to



conduct a feasibility assessment to determine population growth potential, future wastewater volumes, service options and a funding mechanism.

## **8.6 Summary**

Dunnottar is meeting its current and future wastewater demand through the use of its lagoon and the municipal truck haul system. The community is fully built-out within its current boundary and there is limited opportunity for population growth and associated increases in future wastewater volumes.

## **9.0 Summary of RRPD Wastewater Planning Considerations**

Municipalities must ensure that current and future wastewater systems can accommodate the projected population increases in the Planning District over the next 20 years. The projected population increase and related wastewater production within the Red River Corridor Designated Area is the primary wastewater planning consideration for future development. The Settlement Centres of Middlechurch, Lockport and South St. Andrews are projected to have more intensive development through residential subdivision and infill projects and will require piped wastewater systems with sufficient capacity to accommodate the increased wastewater demand.

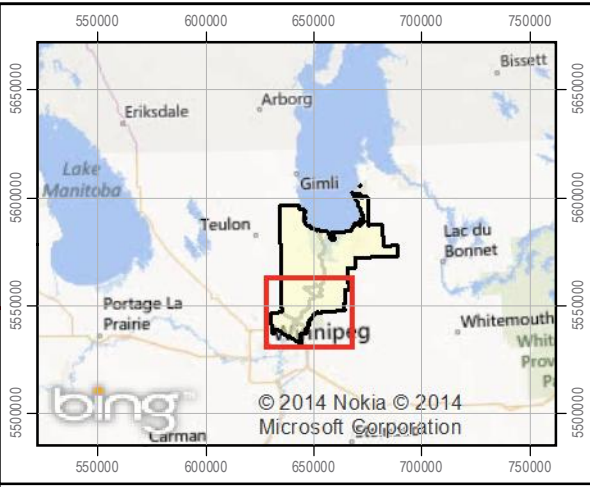
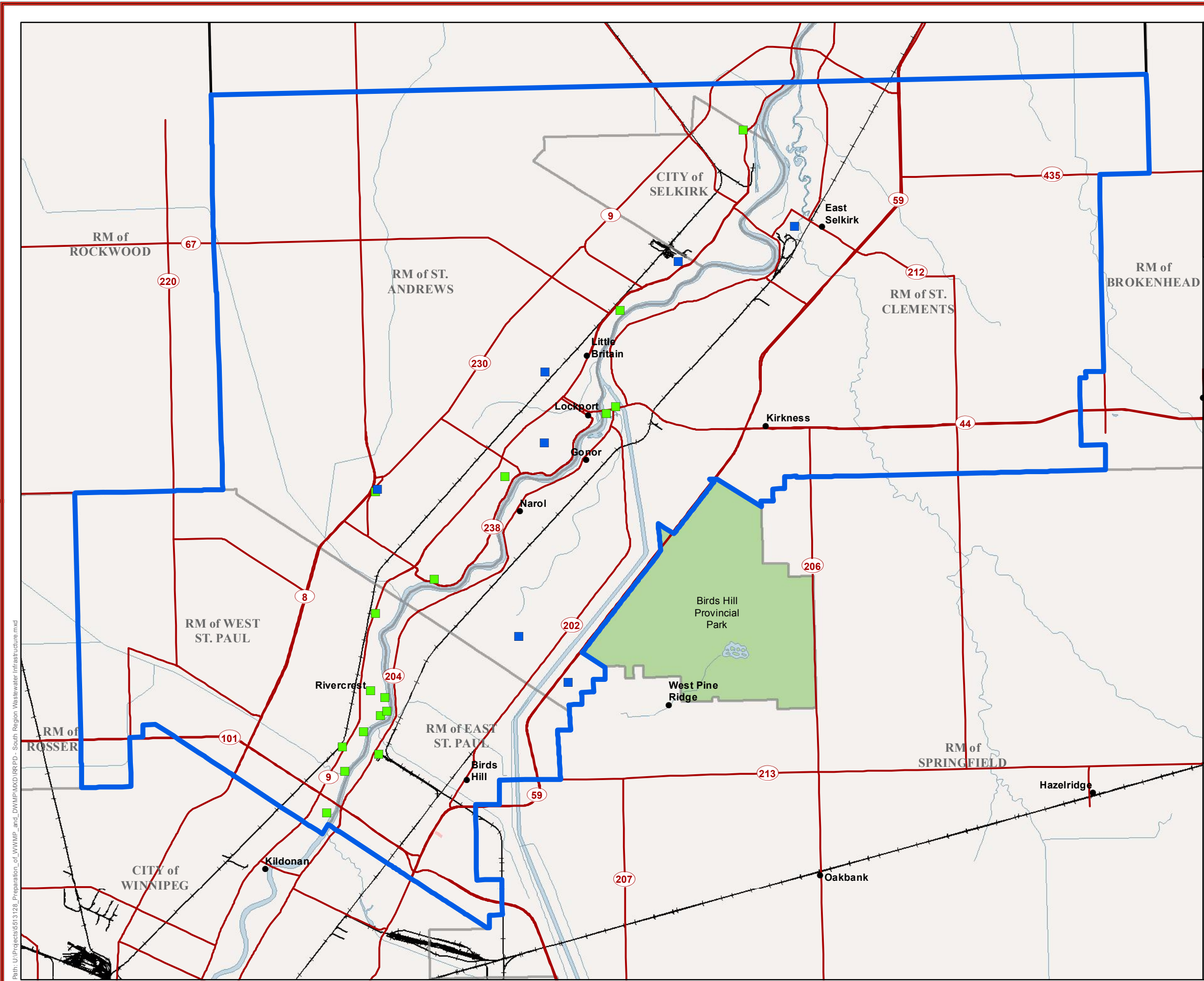
Continued monitoring of existing septage and wastewater volumes from private on-site systems to receiving lagoons is required. There may also be increased wastewater volumes transported to lagoons if more holding are installed particularly in resort areas of the district. In order to reduce volumes, nutrient loading and the potential for emergency discharges at lagoons, municipalities should incorporate water conservation methods into the development approval process. This may include requirements for low flow fixtures or restrictions/ban on use of garburators.

Table 9.1 provides a summary of the current wastewater situation and planning recommendations for each municipality.

**Table 9.1 Summary of Current Situation and Planning Recommendations for Wastewater**

Municipality	Current Situation	Recommendations
<b>Selkirk</b>	Currently completing upgrades to separate the combined sewer system. The project is approximately 1/3 complete. Current and future wastewater volumes can be met with the City's system.	Consider expanding the existing service agreement with RM of St. Andrews to receive wastewater from the area between Lower Fort Garry and the City boundary.
<b>St. Andrews</b>	<p>Holding tanks are used in the resort areas in the north part of the municipality and septic systems are used mostly in the southern more densely developed region.</p> <p>No new septic systems are permitted within the RRCDA. Properties within the RRCDA must use holding tanks or connect to a piped wastewater system where available.</p> <p>St. Andrews is planning a future connection to the Winnipeg/West St. Paul trunk sewer to serve south St. Andrews. The St. Andrews Airport lagoon requires increased capacity to accommodate future growth in this "business park" area.</p>	<p>Connect South St. Andrews to the Winnipeg/West St. Paul trunk sewer when available. The airport lagoon capacity should be expanded if airport is not included in the piped system.</p> <p>Pursue an expanded service agreement to have wastewater north of Lower Fort Garry directed to City of Selkirk.</p> <p>Continue to monitor wastewater volumes at the municipal lagoon.</p>
<b>St. Clements</b>	<p>Low pressure sewer systems are being installed and/or expanded in East Selkirk and Old Henderson Highway (south St. Clements) to address the issue of water quality from failing septic systems. Rural residential properties use on-site septic systems.</p> <p>The Grand Marais lagoon and constructed wetland services the resort communities that use holding tanks. A low pressure sewer will connect to the lagoon as part of a new 166 lot subdivision.</p>	<p>Future demand of up to 1000 dwellings in East Selkirk can be accommodated with the new low pressure system.</p> <p>Future demand at Grand Marais can be met with the existing infrastructure. There is potential partnership opportunity with Grand Beach Provincial Park to pipe wastewater to the lagoon at Grand Marais.</p> <p>There may opportunity to service future development in south St. Clements in partnership with East St. Paul.</p>

Municipality	Current Situation	Recommendations
<b>East St. Paul</b>	<p>East St. Paul has studied its future growth needs and is expanding its municipal wastewater capacity to meet demand.</p> <p>Private on-site systems are used in the northern rural residential area.</p>	<p>There may be opportunity for East St. Paul to partner with the RM of Springfield should East St. Paul choose to extend piped service north eastward into Ward 3 near Garven Road or with St. Clements if piped service extends north.</p>
<b>West St. Paul</b>	<p>Most dwellings in West St. Paul use on-site septic systems or are connected to one of the local wastewater treatment plants. The City of Winnipeg trunk sewer project is under construction to service West St. Paul along Main Street from the City boundary north to Rivercrest. Future phases will service the rest of West St. Paul and south St. Andrews as partner/capital funding becomes available.</p> <p>Existing wastewater treatment plants serving subdivisions will be decommissioned as part of the trunk sewer project.</p>	<p>Continue the implementation of the trunk sewer project and require all future subdivisions and infill developments to connect to the system.</p>
<b>Dunnottar</b>	<p>All properties in the village use holding tanks for wastewater management. The Council provides wastewater pump out and truck haul service for the 1166 dwellings in the community. Wastewater is transported to the Dunnottar lagoon and passive filter complex in the RM of St. Andrews.</p>	<p>Based upon past discussions among the community, there is no interest in pursuing a piped wastewater system. The community will continue with its current wastewater management system.</p>



### Wastewater Management Plan for The Red River Planning District

- Wastewater Treatment Facilities**
- Aerated Wastewater Lagoons
  - Wastewater Treatment Plants
  - Wastewater Treatment Lagoons

- Land Base**
- Community
  - Road
  - Rail Line
  - Watercourse
  - Lake
  - Aboriginal Lands
  - Provincial Park
  - Rural Municipality
  - South Region

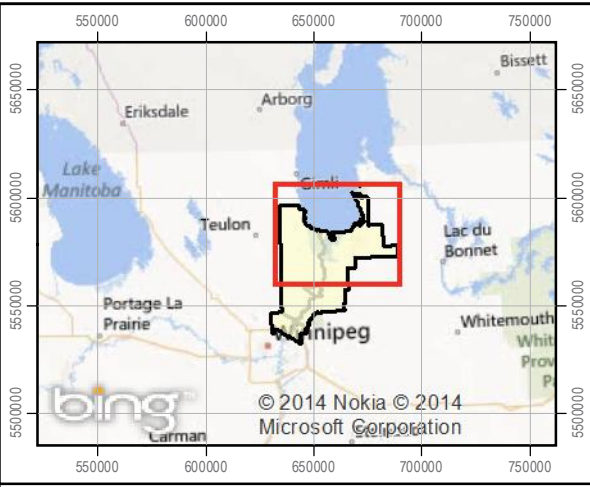
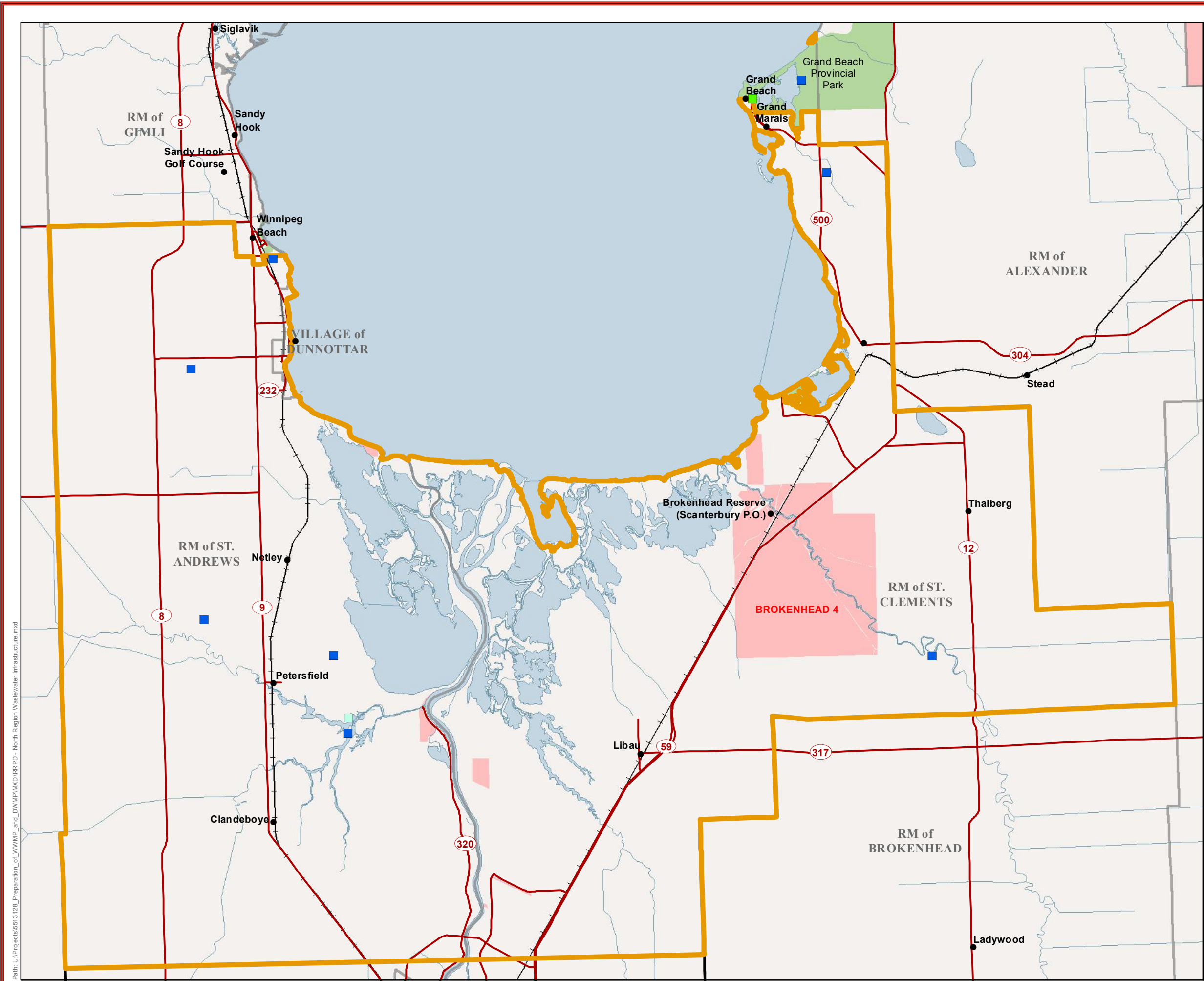
Coordinate System: NAD 83, UTM Zone 14 N  
 Data Source: CanVec, ESRI, Prov MB, NRCan, MMM Group  
 Date Created: January 20, 2014  
 Revision Date: February 26, 2014

**Map 1**  
**Wastewater Infrastructure**  
**in the South Region**



Path: U:\Projects\5513128\_Preparation\_of\_WWMP\_and\_DWMP\MXD\RRPD - South Region Wastewater Infrastructure.mxd



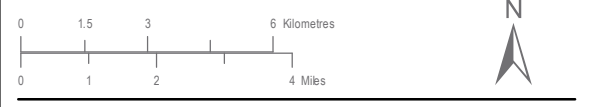


**Wastewater Management Plan for The Red River Planning District**

- Wastewater Treatment Facilities**
- Aerated Wastewater Lagoons
  - Wastewater Treatment Plants
  - Wastewater Treatment Lagoons

- Land Base**
- Community
  - Road
  - +— Rail Line
  - Watercourse
  - Lake
  - Aboriginal Lands
  - Provincial Park
  - Rural Municipality
  - North Region

Coordinate System: NAD 83, UTM Zone 14 N  
 Data Source: CanVec, ESRI, Prov MB, NRCan, MMM Group  
 Date Created: January 20, 2014  
 Revision Date: February 26, 2014

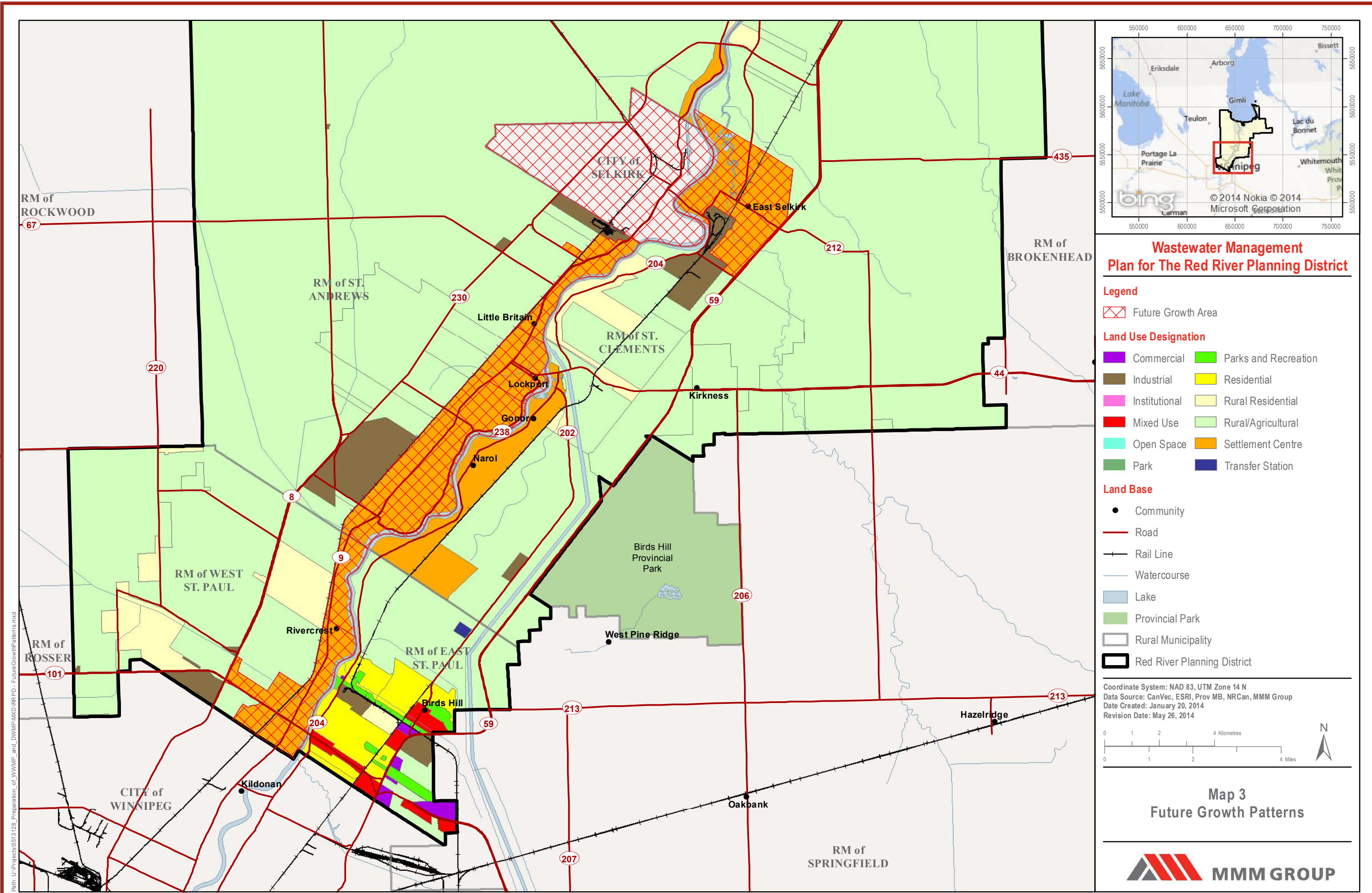


**Map 2  
 Wastewater Infrastructure  
 in the North Region**



Path: U:\Projects\513128\_Preparation\_of\_WWMP\_and\_DWMP\MXD\RRPD - North Region Wastewater Infrastructure.mxd





### Wastewater Management Plan for The Red River Planning District

#### Legend

- Future Growth Area
- Land Use Designation**
- Commercial
- Industrial
- Institutional
- Mixed Use
- Open Space
- Park
- Parks and Recreation
- Residential
- Rural Residential
- Rural/Agricultural
- Settlement Centre
- Transfer Station

#### Land Base

- Community
- Road
- Rail Line
- Watercourse
- Lake
- Provincial Park
- Rural Municipality
- Red River Planning District

Coordinate System: NAD 83, UTM Zone 14 N  
 Data Source: CanVec, ESRI, Prov MB, NRCan, MMM Group  
 Date Created: January 20, 2014  
 Revision Date: May 26, 2014



**Map 3**  
**Future Growth Patterns**



Path: U:\Projects\513128\_Preparation\_of\_WWMP\_and\_DWMP\MXD\RRPD - FutureGrowthPatterns.mxd