COMMUNITIES

TRANSPORTATION

BUILDINGS

INFRASTRUCTURE



R.M. OF ST. ANDREWS & R.M. OF WEST ST. PAUL

WASTEWATER MANAGEMENT PLAN

JULY 2012 | 5511160.111

PREPARED BY:

MMM GROUP

R.M. OF ST. ANDREWS AND R.M. OF WEST ST. PAUL

WASTEWATER MANAGEMENT PLAN

Prepared for:

The R.M. of St. Andrews and the R.M. of West St. Paul

Submitted by:

MMM Group Limited

July 2012

5511160.333

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1.0 INTRODUCTION

This Wastewater Management Plan (WWMP) has been prepared for the Rural Municipalities (R.M.s) of St. Andrews and West St. Paul. A WWMP identifies existing wastewater infrastructure and services, explores options for addressing any issues or concerns regarding current wastewater treatment, and proactively plans for future development in terms of sustainable wastewater management. The purpose of this particular WWMP is to assist the R.M.s of St. Andrews and West St. Paul in providing and maintaining healthy wastewater systems in the midst of a growing population and existing environmental issues.

1.1 Methodology

MMM Group (MMM) prepared this WWMP for the R.M.s of St. Andrews and West St. Paul as part of a Beta Test of the Provincial Wastewater Management Guide (Guide). The R.M.s of St. Andrews and West St. Paul WWMP is one of three plans prepared by MMM as part of the Beta Test. MMM was also tasked with providing an assessment of the Guide as a means to ensure its' ability to assist planning authorities and qualified professionals in the process of producing a WWMP.

As part of the data collection process, MMM consulted with:

- Brent Olynyk, Chief Administrative Officer (CAO), R.M. of West St. Paul
- David Romanow, Acting Director of Infrastructure, R.M. of West St. Paul
- Sue Sutherland, Chief Administrative Officer (CAO), R.M. of St. Andrews
- Gerry Lemoine, Maintenance and Operations for Lord Selkirk School Division
- Lloyd Talbot, Manager of Planning with Selkirk and District Planning Area
- Jennifer Ferguson, Planner for the Selkirk and District Planning Area
- Katy Walsh, Policy Planner, Policy and Legislation, Manitoba Local Government
- Kristy LeBaron, Manager, Policy and Legislation, Manitoba Local Government
- Greg Kaletzke, GIS Specialist, Manitoba Local Government
- Darren Keam, Senior Soil Scientist, MMM Group Limited
- David Jopling, Senior Planner, MMM Group Limited
- Lauren Lange, Planner, MMM Group Limited

These individuals were consulted to provide information and insight into the WWMP. The SDPA provided land use maps produced using Geographic Information System (GIS) data. These maps, along with additional maps created by MMM using GIS data, are included throughout this report.

Engineering studies were not completed as part of the WWMP. However, a number of planning and engineering documents, studies and reports were reviewed to inform the WWMP, including:

- *Environment Act Licence No. 2704*, Province of Manitoba, 2005.
- *Environment Act Licence No. 2660,* Province of Manitoba, 2004.
- *Environment Act Licence No. 2436,* Province of Manitoba, 2000.
- *Environment Act Licence No. 2308,* Province of Manitoba, 1998.
- *Environment Act Licence No. 2211,* Province of Manitoba, 1996.
- *Environment Act Licence No. 1457,* Province of Manitoba, 1993.
- *Environment Act Licence No. 1089 E RR,* Province of Manitoba, 1989.
- *Selkirk and District Planning Area Development Plan – Five Year Review Background Report*, Selkirk and District Planning Area Board (SDPA), 2007.
- *Red River Infrastructure Committee (RRIC) Draft Report on the Public Sector Comparator*, MMM Group, 2008.
- *Selkirk and District Planning Area Wastewater Servicing Plan,* Selkirk and District Planning Area Board (SDPA), 2010.
- *Selkirk and District Planning Area Development Plan*, Selkirk and District Planning Area Board (SDPA), 2011.
- *The Save Lake Winnipeg Act*, Province of Manitoba, 2011.

1.2 Context

In 2011, the Province of Manitoba adopted Bill 46 - *The Save Lake Winnipeg Act* 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. *The Save Lake Winnipeg Act* amends provincial acts, including *The Planning Act*. Legislation now states that planning authorities subject to *The Planning Act* within the capital region must prepare drinking water and wastewater management plans. Consequently, the adoption of *The Save Lake Winnipeg Act* provides a basis for the creation of this WWMP. 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).

There are failing on-site septic systems located throughout the Red River Corridor, including areas within the R.M.s of St. Andrews and West St. Paul. The failing septic systems are primarily due to unsuitable soils and can result in serious environmental and health concerns. Soil conditions throughout the Selkirk and District Planning Area are not favourable to septic fields due to the low permeability of the soils where the performance can be characterized as poor, particularly in heavily developed areas along the Red River where river lots dominate (SPDA, 2011).

There are numerous residences in the R.M. of West St. Paul whose properties have wastewater leaking from septic fields. This WWMP aims to ensure wastewater management issues such as this are brought to the forefront of infrastructure, capital and land use planning discussions and dealt with in a timely and sustainable manner.

1.3 Regulatory Framework

The Selkirk and District Planning Area Development Plan (Development Plan) guides land use and future development throughout the Planning District, including the R.M. of St. Andrews and R.M. of West St. Paul. The Plan (Part 4) outlines objectives and policies to address various land use issues. The following policies pertain specifically to wastewater servicing and treatment for the member municipalities and to the Planning District as a whole.

- 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.

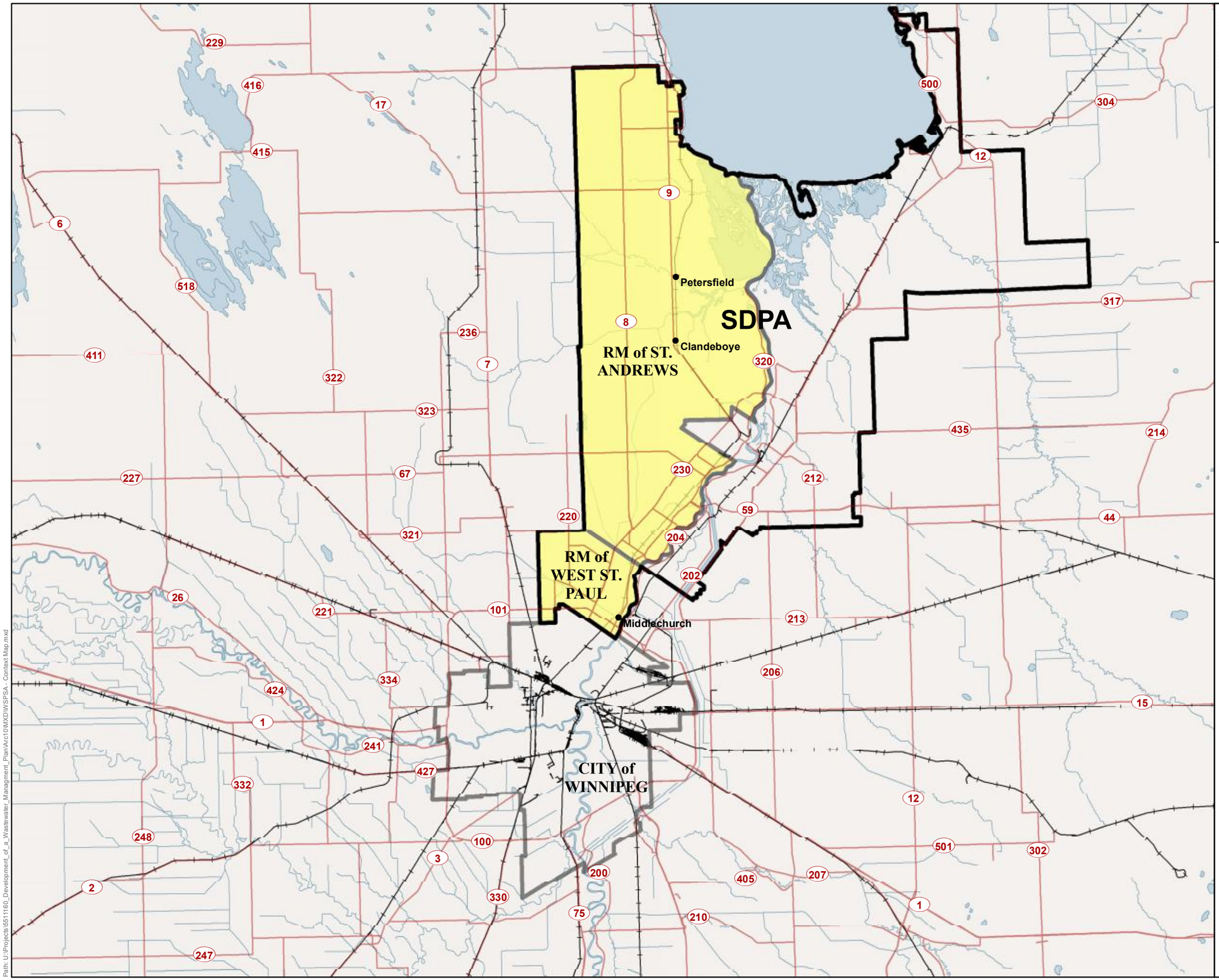
These policies play an essential role in wastewater management planning. If a proposed development does not follow the wastewater servicing and treatment policies, as outlined in the Development Plan, it will not be permitted within the Planning District. Moreover, more specific policies in secondary plans have provided additional direction for municipal servicing in the SDPA planning area. Secondary plans have either been created or are currently being creating for each of the areas where future development is projected to occur. There are three secondary plans drafted in the R.M. of St. Andrews (and waiting for adoption) and one in the R.M. of West St. Paul, including the following:

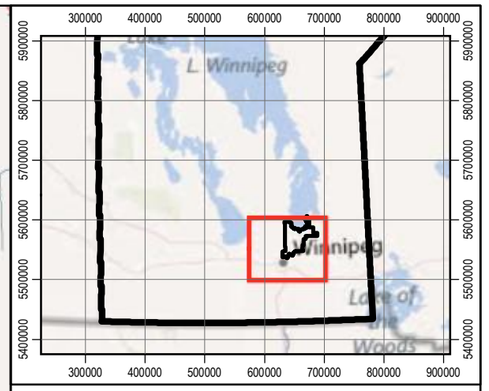
- Lockport Secondary Plan (R.M. of St. Andrews)
- South St. Andrews Secondary Plan
- St. Andrews Airport Area
- Middlechurch Secondary Plan (R.M. of West St. Paul)

1.4 Location, Communities and Economy

The R.M.s of St. Andrews and West St. Paul are located at the south end of Lake Winnipeg and north of the City of Winnipeg boundary, both west of the Red River, spanning an area of approximately 312 square miles and 34 square miles respectively within the Selkirk and District Planning Area (**Figure 1**). A significant amount of un-serviced rural residential development exists along the Red River between the City of Selkirk and the City of Winnipeg. The population of the R.M. of St. Andrews increases during summer months with an influx of cottagers attracted to water-based recreation activities associated with Lake Winnipeg. Within the R.M. of West St. Paul, a desire for larger residential lot sizes has resulted in the expansion of suburban residential communities and low-density rural residential development, shifting the land use away from agriculture (SPDA, 2011). Agriculture is the major land use throughout both the R.M. of St. Andrews and the R.M. of West St. Paul, although a significant 14,943 acres (6,050 hectares) of annual crop land was converted to other uses between 1994 and 2001 (SDPA, 2011).

Local residential developments are diverse in nature, consisting of a combination of commuter, rural residential and seasonal residents. Settlement areas in the R.M. St. Andrews are best characterized by dividing the municipality into two regional areas (**Figure 2 and corresponding Figures 2A and 2B**): the northern region and southern region. In the northern region, seasonal residential development is occurring in the vicinity of the Town of Winnipeg Beach and the Village of Dunnottar (both outside the R.M. of St. Andrews boundaries), and in the settlement centres of Petersfield and Clandeboye. In the southern region, there is one settlement centre, Lockport.





Wastewater Management Plan Guide Beta Test

Land Base

- Provincial Highway
- Rail Line
- St. Andrews; West St. Paul
- Winnipeg
- Selkirk and District Planning Area (SDPA)
- Watercourse
- Waterbody

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: June 8, 2012
Revision Date: June 8, 2012

0 5 10 20 Kilometres
0 2.5 5 10 Miles

N

Figure 1:
R.M. of St. Andrews &
R.M. of West St. Paul Context Map

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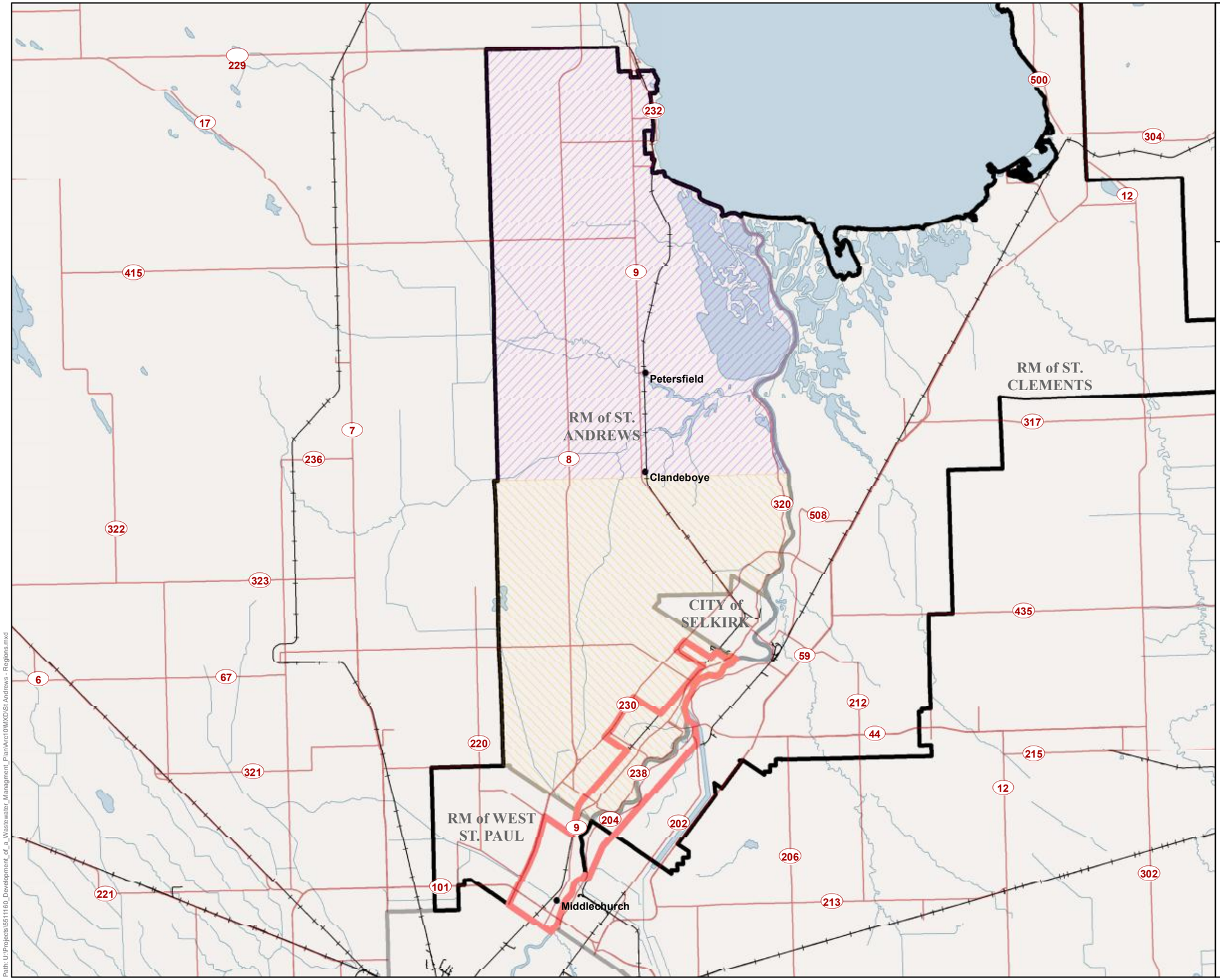

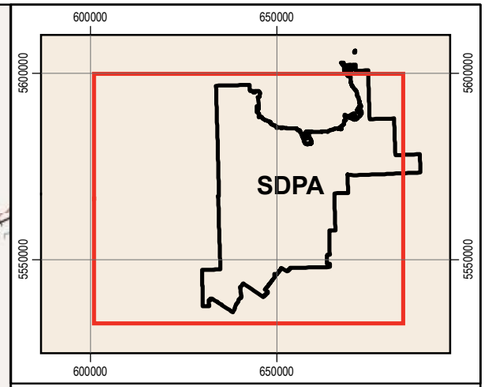

Wastewater Management Plan Guide Beta Test

Legend

- Northern Region
- Southern Region
- Selkirk and District Planning Area (SDPA)
- Red River Corridor Designated Area

Land Base

- Provincial Highway
- Rail Line
- Watercourse
- Waterbody

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: June 8, 2012
Revision Date: June 8, 2012

0 2.5 5 10 Kilometres
0 1 2 4 Miles

N

Figure 2:
R.M. of St. Andrews Regions

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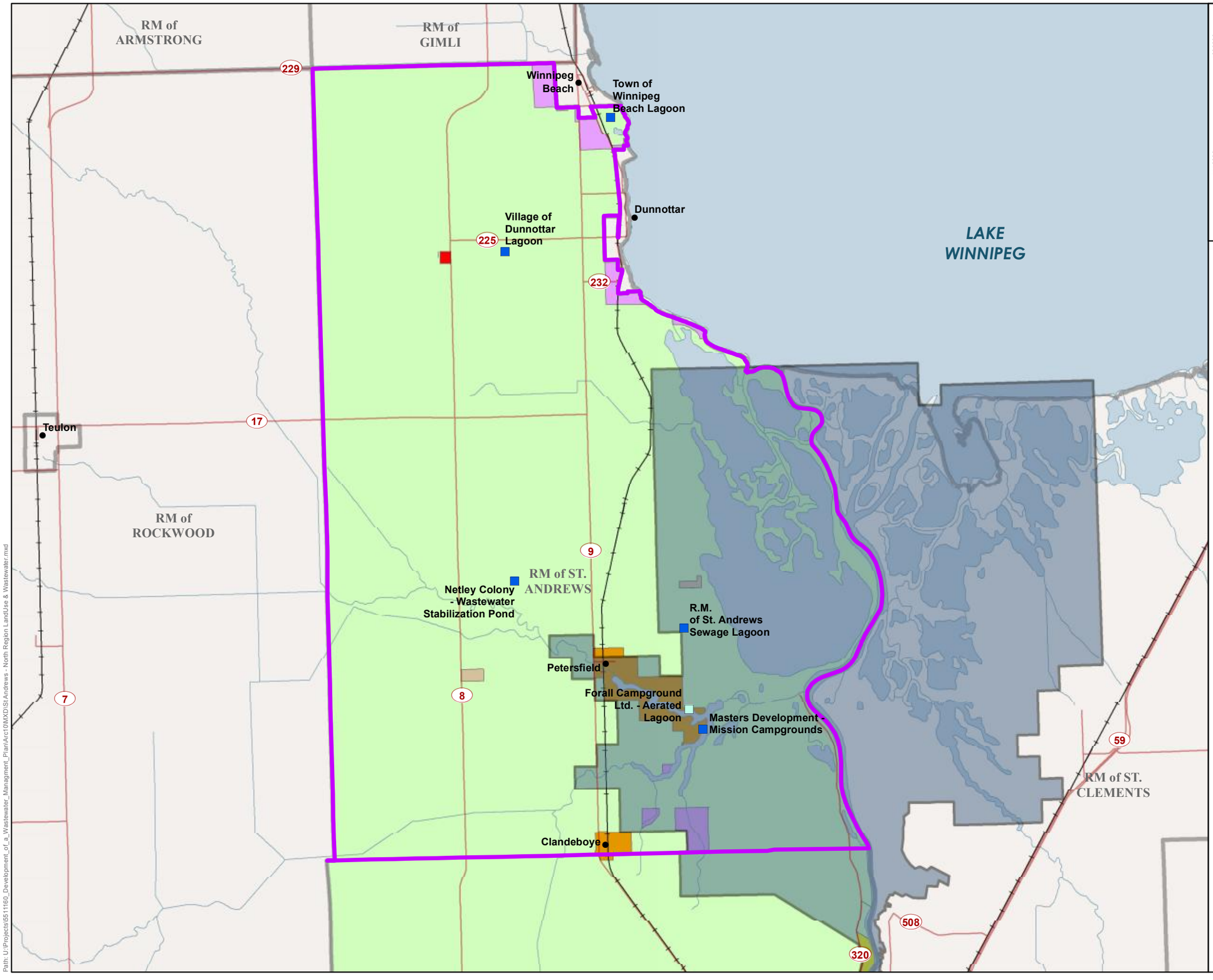

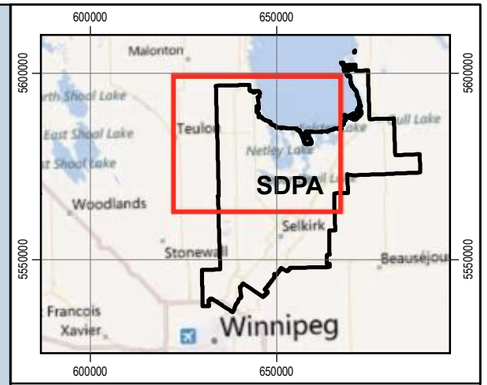

Wastewater Management Plan Guide Beta Test

Legend

Wastewater Treatment Systems

- Aerated Wastewater Lagoons
- Treatment Plant
- Wastewater Treatment Lagoons
- Northern Region
- Rural Municipality
- Designated Flood Area

Land Use Designations

- Rural Residential
- Business Park
- Resort
- Industrial
- Resource & Agriculture
- Agriculture Restricted
- Settlement Centre
- General Development

Land Base

- Provincial Highway
- Rail Line
- Watercourse
- Waterbody

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: June 8, 2012
Revision Date: July5, 2012

0 1.25 2.5 5 Kilometres
0 0.5 1 2 Miles

N

Figure 2A: R.M. of St. Andrews Land Use Designations and Wastewater Infrastructure Inventory Northern Region

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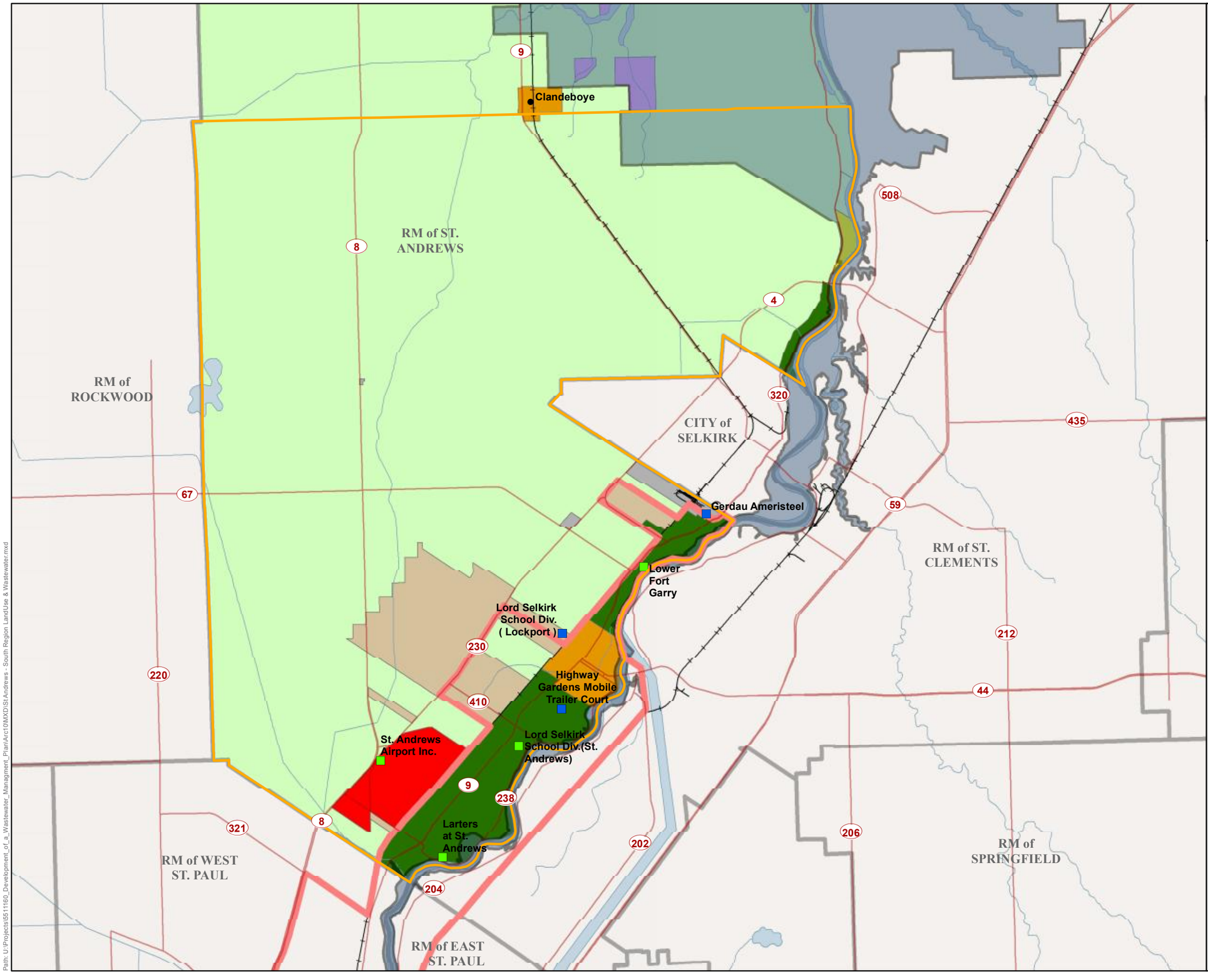

Wastewater Management Plan Guide Beta Test

Legend

Wastewater Treatment Systems

- Treatment Plant
- Wastewater Treatment Lagoons
- Southern Region
- Red River Corridor Designated Area
- Designated Flood Area
- Rural Municipality

Land Use Designations

- Rural Residential
- Business Park
- Resort
- Industrial
- Resource & Agriculture
- Agriculture Restricted
- Settlement Centre
- General Development

Land Base

- Provincial Highway
- Rail Line
- Watercourse
- Waterbody

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: June 8, 2012
Revision Date: July 5, 2012

0 1 2 4 Kilometres
0 0.5 1 2 Miles

N

Figure 2B: R.M. of St. Andrews Land Use Designations and Wastewater Infrastructure Inventory Southern Region

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In the R.M. of West St. Paul there is a mix of "Rural Residential", "General Development", "Settlement Centre", and "Business Park" designations. In the "Settlement Centre" and "General Development" designations, there are five suburban-type subdivisions, including: River's Edge, River Crest, Rivergate (or River Springs), Lister Rapids and Riverdale (**Figure 3**). The settlement centre of Middlechurch is spread out along Main Street from the boundary of the City of Winnipeg to Rivergate (River Springs).

There are two large "Business Park" designations, one in the R.M. of St. Andrews, which includes the St. Andrews Airport and surrounding area, and one in the R.M. of West St. Paul. Although there is an abundance of land designated for future "Commercial" development, the existing uses do not generate a significant amount of wastewater. Future uses that generate large amounts of water will be directed away from locating in these areas. The St. Andrews Airport has its own wastewater management system, which serves development on the airport lands. However, the facility is at capacity and in need of upgrading. The intention is to connect to a future regional wastewater system. Gerdau Ameristeel has a large steel manufacturing industrial operation in the R.M. of St. Andrews which is adjacent to the southern boundary of the City of Selkirk. This facility uses a large amount of water and generates significant amounts of wastewater. However, it is handled by its own wastewater facility, which is located onsite.

2.0 SOURCES OF WASTEWATER AND ANNUAL PRODUCTION

2.1 Annual Production and Disposal

According to Census Canada (2011), there are currently a total of 4,625 private dwellings in the R.M. of St. Andrews, with 4,259 occupied by permanent residents and 366 occupied by seasonal residents (associated with cottage developments). There are currently 1,691 private dwellings in the R.M. of West St. Paul, with 1,647 occupied by permanent residents. According to Environment Canada (2009), the average Canadian produces approximately 327 L of wastewater per capita per day. With a 2011 population of 11,875, residents in the R.M. of St. Andrews would produce approximately 3,883,125 litres of wastewater per day. With a 2011 population of 4,932, residents in the R.M. of West St. Paul would produce approximately 1,612,764 litres of wastewater per day. It is important to note that these wastewater volumes are based on the total number of residents in the municipality, including both permanent and seasonal residents.

In the northern region of the R.M. of St. Andrews, it is assumed that the on-site wastewater (septic and holding tank) is transported by private haul trucks to the St. Andrews Sewage Lagoon. There is no way to determine the total amount of wastewater deposited in the lagoon or identify where the wastewater originated. There is no fee charged to dump at the St. Andrews Lagoon. However, haulers are required to have a business licence to operate in the R.M. of St. Andrews and gain access to the lagoon.

RM of ST. ANDREWS

RM of WEST ST. PAUL

RM of ST. CLEMENTS

River's Edge Subdivision

Rivercrest Subdivision

St. Benedict's Monastery

Rivergate Properties Inc. Subdivision

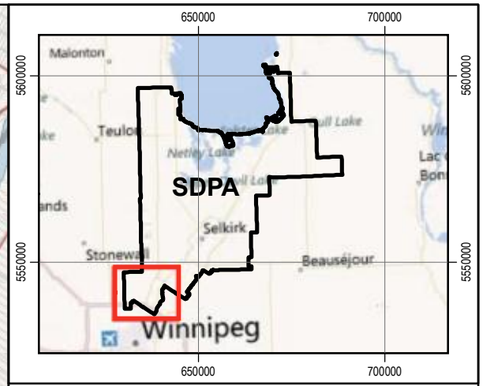
Lister Rapids Subdivision

West St. Paul School

Middlechurch Home of Winnipeg

Riverdale Subdivision

321 230 627 9 27 238 220 8 204 409 101 202 59



Wastewater Management Plan Guide Beta Test

Legend

Wastewater Treatment Systems

- Treatment Plant
- Sewer Line
- Discharge Route
- Sewage Disposal Bed

Land Use

- Business Park
- Rural residential
- Settlement Centre
- Resource & Agriculture
- Agriculture Restricted
- General Development

Land Base

- Road
- Rail Line
- Rural Municipality
- Land Parcels
- Selkirk and District Planning Area
- Watercourse
- Lake

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: January 9, 2012
Revision Date: July 5, 2012

0 0.5 1 2 Kilometres
0 0.25 0.5 1 Mile

N

Figure 3: West St. Paul Land Use Designations and Wastewater Infrastructure Inventory

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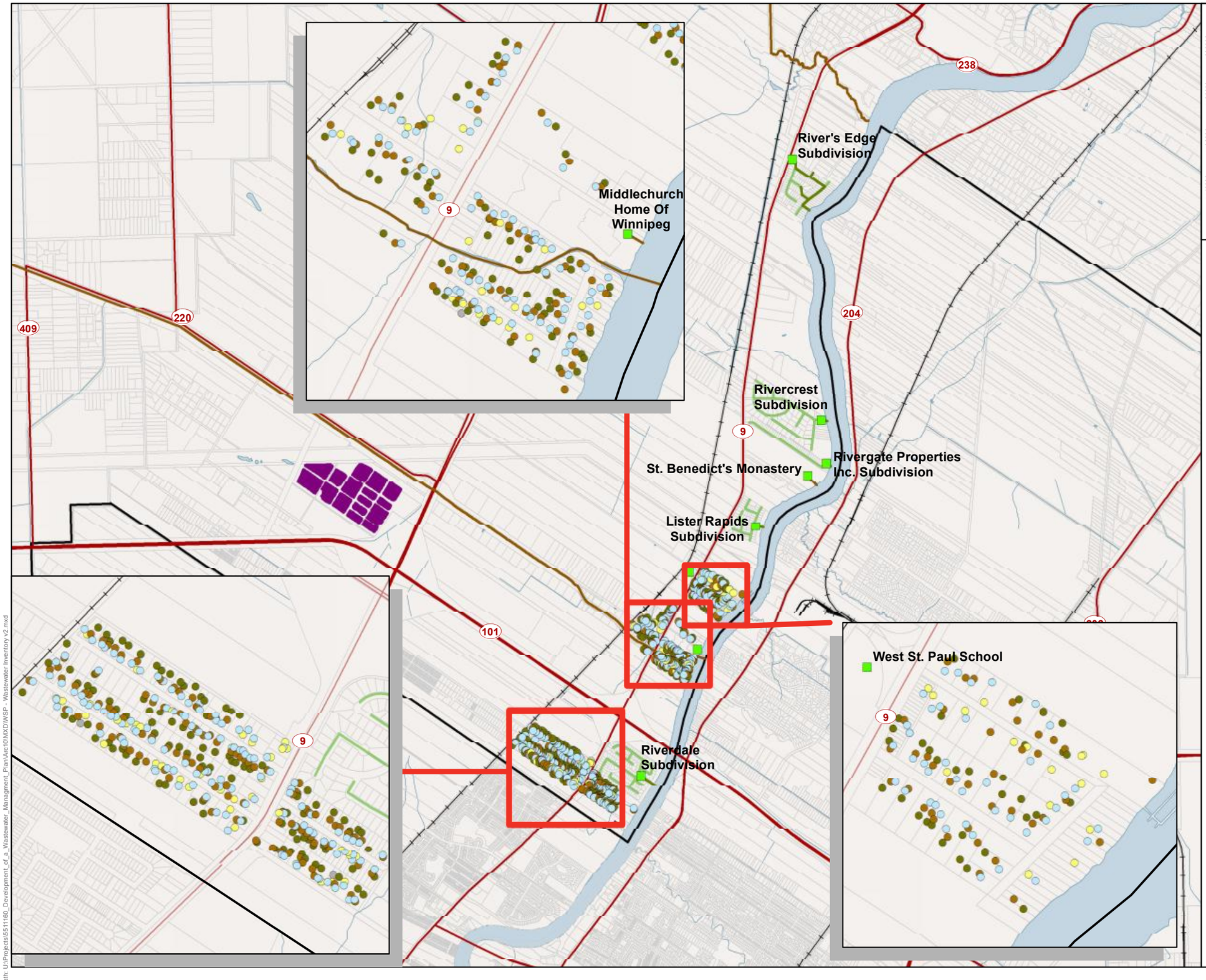
In the southern region of the R.M. of St. Andrews, most dwellings and buildings are serviced by on-site wastewater septic systems and holding tanks that require truck haul periodically to a local wastewater treatment facility. There are some individual wastewater treatment facilities that serve individual buildings or land uses and a few systems that are communal in nature, such as the St. Andrews Airport and Highway Gardens Mobile Trailer Court, which serve a number of dwellings/buildings.

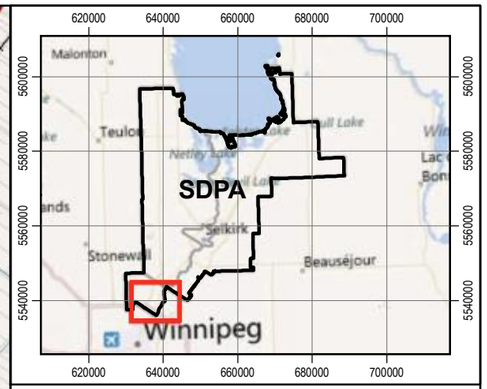
It is assumed that a portion of the on-site wastewater is hauled to the St. Andrews Lagoon and a portion to the City of Winnipeg North End Treatment Plant. The exact volumes and sources of wastewater dumped at these facilities are not available. The North End Treatment Plant charges $4.50/kilolitre as of July 1, 2012 (up significantly from $2.51/kilolitre in 2011) for hauled household wastewater. These fees are planned for further significant increases to $6.50/kilolitre in 2013 and $8.50/kilolitre in 2014. The household wastewater hauled to the treatment plant is typically two to four times more concentrated than regular piped wastewater. With the significant increase in dumping fees at the North End Treatment Plant, more sewage may be directed to the St. Andrews Lagoon, where there is no charge for dumping.

The City of Selkirk does not allow septage haul to dump at their treatment plant from areas outside of Selkirk's boundaries. However, there are two buildings located in the R.M. of St. Andrews that are connected by pipes to the Selkirk wastewater treatment plant: the Behavioral Health Centre (north of Selkirk) and the Mapleton Lane Condominiums (south of Selkirk).

The R.M. of West St. Paul is serviced primarily by on-site wastewater systems, many of which are failing. The Province of Manitoba recently mapped some of the failing systems, indicated in **Figure 3B**. The municipality also has a number of local batch treatment plants that serve various subdivisions. Of the 1691 dwellings in the R.M. of West St. Paul, approximately 504 dwellings are serviced by the batch treatment plants (**Figure 3A**). There is no municipal wastewater facility to accept hauled wastewater in the R.M. of West St. Paul.

In 2009, the Province of Manitoba created the "Red River Corridor Designated Area" (**Figure 2**). It is an area surrounding the Red River, including portions of the R.M.s of St. Andrews and West St. Paul (and beyond), in which no new on-site septic fields will be permitted. This has significant implications on the amount of wastewater produced. New dwellings constructed in the designated Red River Corridor will need to be serviced by an on-site holding tank, due to the lack of a communal system. Manitoba Conservation is also requiring people to decommission their failing fields and replacing them with holding tanks. The volume of wastewater produced by a holding tank over a septic system is rather significant. Dwellings with large families may need to empty their holding tanks every few weeks whereas septic field tanks only required emptying every year or two. Any additional development in the Red River Corridor designated area will require more frequent truck haul services and will result in an increased volume of wastewater dumped at the local wastewater treatment facility.





Wastewater Management Plan Guide Beta Test

Legend

- Land Parcels
- Selkirk and District Planning Area

Wastewater Treatment Infrastructure

- Septic Field
- Greywater Field
- Holding Tank
- Septic Tank
- Well
- Sewer Line
- Discharge Route
- Sewage Disposal Bed

Wastewater Treatment Systems

- Treatment Plant
- Lagoon
- Aerated Lagoon
- Other

Land Base

- Road
- Watercourse
- Rail Line
- Lake

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: January 10, 2012
Revision Date: July 5, 2012

0 375 750 1,500 Metres
0 0.25 0.5 1 Mile

N

Figure 3A
West St. Paul
Wastewater Infrastructure Inventory
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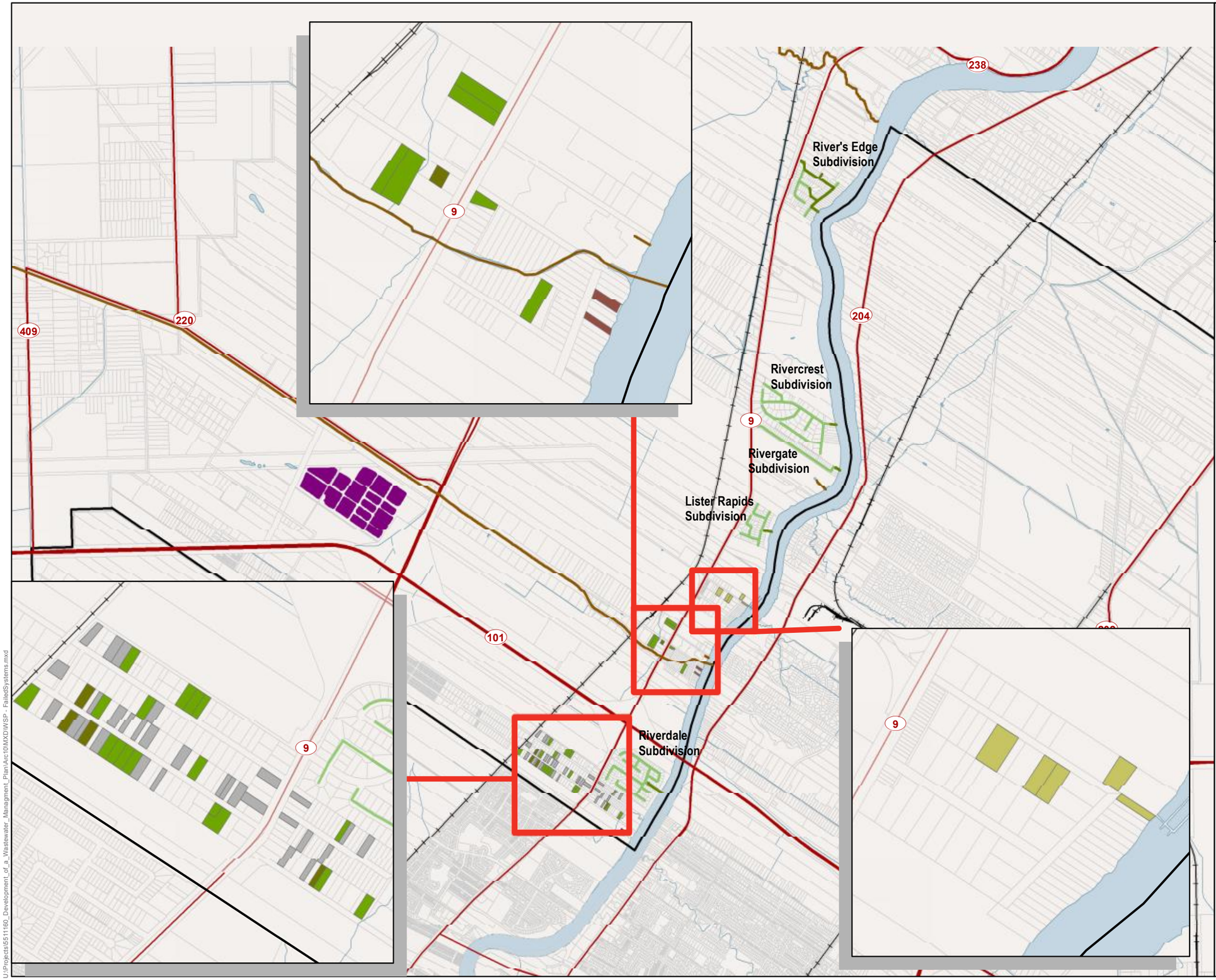

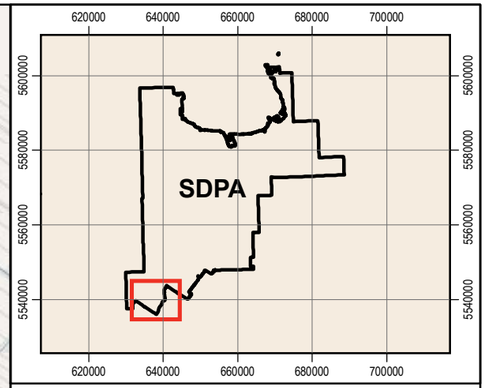

Wastewater Management Plan Guide Beta Test

Legend

Properties with Issues

- Direct discharge to river
- Discharging greywater to surface
- Leaking septic field
- Leaking septic field / Discharging greywater to surface
- Septic tank to main line discharge
- Sewer Line
- Discharge Route
- Land Parcels
- Selkirk and District Planning Area
- Sewage Disposal Beds

Land Base

- Road
- Watercourse
- Rail Line
- Lake

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: January 10, 2012
Revision Date: June 8, 2012

0 375 750 1,500 Metres
0 0.25 0.5 1 Mile

N

Figure 3B
West St. Paul
Failed On-site Treatment Systems
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2.2 Observations

- It is difficult to accurately determine the true volume of wastewater dumped at the St. Andrews Lagoon because on-site wastewater is trucked by haulers and there is no monitoring of its source.
- As the cost to dump sewage at the North End Treatment Plant increases, there may be an increase in the number of trips made to the St. Andrews Lagoon. If development occurs on lands in the Red River Corridor, the volume of waste dumped at the St. Andrews lagoon will likely increase because they will be serviced by holding tanks.
- With no wastewater facility in the R.M. of West St. Paul to accept on-site system wastewater leaves it in a vulnerable position to other municipalities to accommodate its wastewater.
- A future wastewater management plan should ensure that the areas experiencing failing on-site systems are a priority to address.

3.0 EXISTING AND PROPOSED WASTEWATER MANAGEMENT SYSTEMS

As mentioned above, the primary wastewater treatment systems in the R.M. of St. Andrews are on-site systems. In the rural and agricultural areas, dwellings and buildings have on-site wastewater treatment systems including septic systems, holding tanks, ejector fields and grey-water fields. Septage from septic systems and holding tanks is pumped and truck-hauled to the St. Andrews Wastewater Lagoon or the City of Winnipeg's North End Treatment Plant for disposal. The exact volume of sewage that is hauled out of the municipality is unknown. In many cases, treatment systems are inadequate due to their age, capacity limits, and suitability for local conditions (SDPA, 2010).

There are 13 wastewater treatment facilities located within the boundaries of the R.M. of St. Andrews. The only municipally-run facility is the R.M. of St. Andrews Wastewater Treatment Lagoon and Constructed Wetland. The others primarily serve their immediate site, land use or adjacent communities. The wastewater treatment facilities located in the R.M. of St. Andrews are as follows:

- 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)
- Larter's at St. Andrews Sewage and Wastewater Treatment Plant
- Village of Dunnottar Wastewater Treatment Lagoon (Serving Dunnotar and in process of expanding)
- Rural Municipality 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)

Figures 2A and 2B identify the general locations of the wastewater treatment facilities in the R.M. of St. Andrews.

There are eight wastewater treatment facilities within the boundaries of the R.M. of West St. Paul which primarily serve small residential subdivisions or specific buildings. The remainder of the municipality utilizes on-site wastewater disposal methods. There is no municipal wastewater treatment facility in West St. Paul that receives septage or holding tank wastewater. The wastewater treatment facilities in the R.M. of West St. Paul are as follows:

- Middlechurch Home of Winnipeg Wastewater Treatment Plant.
- St. Benedict's Monastery Wastewater Treatment Plant.
- West St. Paul School Wastewater Treatment Plant.
- River's Edge Sewage Treatment Plant.
- Rivercrest Wastewater Treatment Plant.
- Rivergate Properties Sewage Treatment Plant.

- Lister Rapids Wastewater Treatment Plant.
- Riverdale Wastewater Treatment Plant.

The City of Winnipeg utilizes an area in the R.M. of West St. Paul to dry sludge that was removed from the North End Treatment Plant in Winnipeg. The wastewater treatment facilities and the sludge dewatering system are identified in **Figure 3A**.

The following sub-sections further describe the existing treatment systems in the R.M.s of St. Andrews and West St. Paul, where details were available.

3.1 Lord Selkirk School Division No. 11 Sewage Treatment Plant and Holding Ponds

According to *Environment Act Licence No. 2660*:

> The Lord Selkirk School Division No. 11 sewage treatment plant and holding ponds are located on parts of River Lots 104, 105 and 106 in the Parish of St. Andrews in the Rural Municipality of St. Andrews, with discharge of treated effluent into holding ponds and then the Red River, in accordance with the Proposal filed under *The Environment Act* on April 29, 2003, and subsequent information dated June 24, 2003, July 4, 2003, November 19, 2003 and June 30, 2004.

The existing wastewater treatment facility, being a rotating biological contactor sewage treatment plant, was upgraded with alterations made to an existing effluent holding pond and the addition of a second effluent holding pond. The supplementary effluent holding pond was located to the east and immediately adjacent to the existing holding pond. The wastewater treatment plant has a maximum allowable daily flow rate of 40.8 m^3 for any 24-hour period. Effluent discharge from the treatment plant is restricted to the period between May 1st and June 15th of any year and between October 1st and November 1st of any year. Effluent discharge is to a drainage route that flows east to the railway line, north along the west side of the railway line to a drain which flows east, crosses PTH 9 and passes through the Lower Fort Garry site to the Red River.

3.2 Lord Selkirk School Division No. 11 Wastewater Treatment Lagoon

According to a filed Notice of Alteration related to an existing licence (Licence Order No. 1150) held by the Lord Selkirk School Division for the Lockport School wastewater treatment facility, a request was made in 2003 for holding pond alteration and expansion. The proposed alteration related to the repair of the existing treated effluent holding pond and an expansion by way of

construction of an additional holding pond to the east, immediately adjacent to the existing pond. The treated effluent is held in the existing holding pond between November 1st and May 1st as well as June 15th to October 1st each year and discharged from May 1st to June 15th and/or the month of October. The pond discharges to the Red River via open ditches along the north side of the pond, which proceeds south across Lockport Road and then generally east towards the Red River. The loading capacity of the existing pond was 1,775 m^3 and was considered inadequate in light of increased enrollment numbers at the school. Future effluent storage requirements were projected to be 6,200 m^3 in comparison.

Subsequent to the filing of this proposal, and additional requested information, Manitoba Conservation issued a new licence (Licence Order No. 2660) with respect to the existing Lord Selkirk School Division (Lockport) sewage treatment plant and altered/expanded holding ponds, and rescinded existing License No. 1150. Details on the wastewater treatment facility subject to Licence Order No. 2660 are presented in subsection 3.1 above.

3.3 St. Andrews Airport Inc. Wastewater Treatment Plant and Retention Pond

According to *Environment Act Licence No. 2436:*

> The St. Andrews Airport Inc. Wastewater Treatment Plant and Retention Pond are located on Lot 1, Plan 26781 (WLTO) in the Rural Municipality of St. Andrews in accordance with the Proposal filed under *The Environment Act* on October 14, 1999.

The St. Andrews Airport Inc. wastewater treatment plant and retention pond services the lands within the St. Andrews Airport boundaries. Sewage is collected by a gravity collector system flowing to a lift station, which then passes the wastewater through a force main to the sewage treatment plant. Treated effluent is then pumped into the processed wastewater holding pond. The sewage load design capacity for the wastewater treatment plant is not to exceed 22.7 m^3 for any 24-hour period (or 8,297 m^3 per year). The retention pond is discharged once annually into a vegetated ditch that flows into Parks Creek and the Red River. The holding pond has a design capacity of approximately 9,589 m^3 and an overflow capacity of approximately 14,604 m^3. Effluent discharge from the holding pond is prohibited between November 1st of any year and May 1st of the following year. The existing lagoon is at capacity and the airport will need to expand the existing treatment facility, including the expansion of the existing lagoon, in order to accommodate future development plans at the airport or find an alternative treatment option. Additional upgrades have been identified by airport staff. The lands adjacent to the St. Andrews Airport are currently subject to the development of a Secondary Plan being prepared for the Selkirk and District Planning Area Board (SDPA).

3.4 Village of Dunnottar Wastewater Treatment Lagoon

According to *Environment Act Licence No. 2704*:

> The Village of Dunnottar Wastewater Treatment Lagoon is located in the northwest quarter of section 8-17-4 EPM in the Rural Municipality of St. Andrews, with discharge of treated effluent to Tugela Creek which discharges into Lake Winnipeg and in accordance with the Proposal filed under *The Environment Act* on February 14, 2005 and additional information submitted on June 16, 2005, July 20, 2005, July 27, 2005, August 2, 2005 and August 15, 2005.

The Village of Dunnottar received approval to expand their existing wastewater treatment lagoon, with the construction of an additional secondary cell, located directly north of the existing secondary cell of the lagoon. The annual design discharge volume of the expanded lagoon is 60,000 m^3. Discharge of the treated wastewater from the lagoon is restricted to the period between September 15th and November 1st of any given year. The treated wastewater discharge route proceeds east in the ditch along PR 225, then north along PTH 9 to Tugela Creek before entering Lake Winnipeg. This facility only serves the Village of Dunnottar, which is outside of the jurisdiction of the R.M. of St. Andrews.

3.5 Rural Municipality of St. Andrews Wastewater Treatment Lagoon and Constructed Wetland

According to Environment Act Licence No. 2211:

> The Rural Municipality of St. Andrews wastewater treatment lagoon and constructed wetland are located in the southwest quarter of Section 36, Township 15, Range 4 EPM in the Rural Municipality of St. Andrews, with discharge of treated effluent to Netley Lake, in accordance with the Proposal filed under *The Environment Act* on February 5, 1996 and a letter dated May 29, 1996.

The development consists of a two-cell sewage lagoon followed by a constructed wetland tertiary cell. Trucks transport sewage to the lagoon. Septage is not to be discharged into the wastewater treatment lagoon between October 15th of any year and June 1st of the following year. Between June 1st and October 15th of any year, septage is not to be discharged into the wastewater treatment lagoon at a rate in excess of 8,000 litres per day. An effluent pump-out pit is located at the discharge end of the constructed wetland cell to pump effluent out to the east side of an existing flood protection dike and into the natural marsh. According to municipal officials, there was no need to release effluent last year because evaporation has reduced the volume of water accommodated at the facility.

Constructed wetlands are designed to emulate the features of a natural wetland. These marsh or swamp-like areas not only perform a tertiary treatment of wastewater, stormwater runoff or sewage treatment, but also provide habitats for local species and migratory birds. Just as in a natural wetland, the vegetation in a constructed wetland acts as a biofilter, removing sediments, pollutants and significant amounts of phosphorous and other nutrients from the water. Extensive root systems, such as those of a cattail, help to create an environment where bacteria can grow and help break down unwanted organic materials.

According to the St. Andrews Sewage Lagoon Environment Act Proposal, the estimated current annual hydraulic load is 4,832 m^3 while the estimated projected annual hydraulic load is 6,884 m^3, based on a projected growth rate of 1.7 percent over 20 years. The primary cell's current operating volume is 7,600 m^3, indicating sufficient capacity to meet the projected population growth. However, only half of the operating volume in the primary cell can be considered in determining storage capacity, as per Manitoba Environment guidelines – 3,800 m^3. Storage capacity does not appear to be an issue for the St. Andrews Sewage Lagoon due to the size of its' secondary cell, with an operating volume of 7,000 m^3 and a constructed wetland with an operating volume of 770 m^3 in the summer and 2,300 m^3 in the winter.

3.6 Lower Fort Garry National Historic Site Water and Wastewater Upgrade

Lower Fort Garry National Historic Site (LFGNHS) has an existing wastewater treatment plant that is nearing the end of its life cycle. According to a Water and Wastewater System Study conducted for LFGNHS in 2005, the wastewater treatment plant consists of three Aer-O-Flo treatment units, each designed to treat 28.4 m^3 of wastewater per day, for a total design rate of 85.2 m^3 of wastewater per day (J.R. Cousin Consultants Ltd., 2005). The Lower Fort Garry National Historic Site of Canada Management Plan (2007) notes the development of sewer and water infrastructure dates from the 1960s and 1970s. Re-capitalization options for renewing this infrastructure were identified as under review. A key action under the Strategic Goal for Stewardship of Infrastructure in the Management Plan noted Parks Canada participation in a regional water and wastewater study being undertaken by the Regional Municipality, and was to include consideration of the relative merits of partnering in this system versus recapitalizing onsite infrastructure.

According to a Canadian Environmental Assessment Agency (CEAA) Notice, in 2009, Parks Canada proposed to replace the existing water and wastewater systems at Lower Fort Garry National Historic Site in the R.M. of St. Andrews. The proposed project consisted of the construction of a new water treatment plant, the construction of a new wastewater treatment plant, and the renewal of 1,088 m of gravity sewer, among other water main, force main and water supply pressure main renewals. In February 2010, a final decision was taken by CEAA in that Parks Canada as the authority could exercise any power or perform any duty or function with respect to the project (CEAA Archives, 2011).

3.7 Middlechurch Home of Winnipeg Wastewater Treatment Plant

According to *Environment Act Licence No. 2308RRR*:

> The Middlechurch Home of Winnipeg wastewater treatment plant is located at 280 Balderstone Road in River Lot 13 in the Rural Municipality of West St. Paul, in accordance with the Proposal filed under *The Environment Act* on September 29, 1997.

The development consists of a package wastewater treatment plant for the collection of all sewage generated by Middlechurch Home of Winnipeg. Effluent from the wastewater treatment plant is discharged into the Red River through an existing discharge outfall. The sewage load from the wastewater treatment plant is not to exceed the design capacity of 240,000 litres per day.

3.8 City of Winnipeg Sludge Dewatering System

The City of Winnipeg previously operated sludge drying beds in the R.M. of West St. Paul when the municipality was still part of the Metropolitan Corporation of Greater Winnipeg. Ongoing development and expansion at the North End Water Pollution Control Centre in the late 70s, early 80s and finally in 1990, which included the addition of a sludge dewatering facility at the plant, allowed the City to stop using the sludge drying beds located in the R.M. of West St. Paul. Subsequent to this, the City of Winnipeg received a licence to continue to operate a temporary storage facility for biosolids in the municipality.

According to *Environment Act Licence No. 1089 E RR*:

> The development being the operation of a sludge dewatering system, a facility for the temporary storage of biosolids in the Rural Municipality of West St. Paul, the transportation of biosolids, and the disposal of biosolids on agricultural land, was issued to the City of Winnipeg in February 1989. The legal description of land for the temporary storage facility consisted of five parcels including portions of 46 lots in the Outer Two Miles of the Parish of St. Paul and encompassing Plans of Survey 1665 and 9777 (Winnipeg Land Titles Office), taken for the Sludge Drying Beds.

The City of Winnipeg was restricted to following for biosolids deposit: not less than 300 m from an occupied residence (other than residences associated with farms on which biosolids were applied); not less than 15 m from a First Order Waterway; and not less than 30 m from a Second, Third, or Fourth Order Waterway, and not less than 90 m from any other waterway. In addition, the deposit of biosolids was not permitted to exceed 56 tonnes per hectare dry weight on any parcel of land except on designated test plots as determined by a Technical Advisory

Committee. The City was required to store biosolids at the temporary storage facility only in circumstances when agricultural land was not accessible for direct biosolids disposal. Biosolids were to be removed from the temporary storage facility for application to agricultural land as soon as the agricultural land was available.

4.0 DEMOGRAPHICS AND LAND USE PATTERNS – CURRENT DEVELOPMENT

4.1 Demographics

The SDPA Development Plan (2011) provides an age analysis for the Planning District, including residents living within the R.M.s of St. Andrews and West St. Paul. The analysis indicates that baby boomers (individuals born between 1946 and 1964) dominate the population throughout the District. In terms of wastewater management, this suggests there may be a large number of dwellings with only one or two persons per dwelling in the area. Many dependents move out to attend university and/or purchase their own homes, while parents may choose to remain in their homes well into their retirement years. This could equate to lower than average wastewater flow per dwelling than in communities where the majority of households consist of families with one or more children. As mentioned above, the average individual produces approximately 327 litres of wastewater per capita per day (Environment Canada, 2009). This suggests that the average one or two-person household will produce slightly less wastewater than a household with three or more individuals.

As baby boomers (individuals born between 1946 and 1964) continue to retire, some may decide to remain in their homes while others may prefer to downsize, but remain in their community. This could lead to an increased demand for multi-family condominiums throughout the R.M.s of St. Andrews and West St. Paul. The SDPA Board would like to see multi-family and mixed-use development directed to specific nodes throughout the Planning District, including Lockport, St. Andrews Road, and the intersection of PTH 9 (Main Street) and PTH 27. Commercial development currently exists at these accessible nodes and could be intensified as needed. Intensification is supported by policy in the SDPA Development Plan (2011). The Development Plan states, “Subdivision and higher density residential development may be considered to enable improved municipal services such as piped sewer and water” (SDPA 2011, pg. 93). Policies such as this do not require municipalities to incorporate higher density multi-family or mixed-use buildings, but rather support and encourage this type of development as a means to improve municipal services, such as wastewater infrastructure and treatment facilities. The secondary plans drafted for the area provide further direction to intensify and accommodate infill development at higher densities.

4.2 R.M. of St. Andrews - Current Development in the Northern Region

In the northern region of the R.M. of St. Andrews, there is a significant amount of scattered residential development with concentrations of dwellings in several areas, across 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.

There are two concentrated cottage subdivision areas located along the west shore of Lake Winnipeg in designated "Resort" areas in the vicinity of the Town of Winnipeg Beach and the Village of Dunnottar **(Figure 4A)**. As such, it is probable that a large portion of wastewater at these two locations would only be generated over three seasons (spring, summer and fall).

4.3 R.M. of St. Andrews – Current Development in the Southern Region

In the southern region, there is a significant amount of scattered residential development across the "Resource and Agriculture" designation and greater density in areas designated "General Development" and "Agriculture Restricted".

This southern region is one of the most densely populated areas in the R.M. of St. Andrews. The area consists of approximately 1113 dwellings, including those located within the community of Lockport (which is designated "Settlement Centre"). There is one area, south of the City of Selkirk, east and west of PTH 9, and at the junction with PTH 44 to the R.M. of West St. Paul boundary, where dwellings are densely clustered in the "General Development" designation **(Figure 4B).** Average lot size varies between approximately one to two acres. The majority of intensive land use designations in this area are subject to the Red River Corridor Designated Area, a region in which where any future on-site septic systems are not permitted.

4.4 R.M. of West St. Paul – Current Development

In the R.M. of West St. Paul, there is scattered residential development across the "Resource and Agriculture", "General Development" and "Business Park" designations and greater density in areas designated "Rural Residential", "Settlement Centre" and "Agriculture Restricted". There is a significant amount of un-serviced residential development throughout the municipality, specifically along the Red River and PTH 9. Some of these dwellings are serviced by holding tanks while some are serviced by septic systems, many of which are failing and must therefore be decommissioned and replaced by a holding tank. These failing systems have been identified by the Province of Manitoba and are illustrated in **Figure 3B**.

RM of ARMSTRONG

RM of GIMLI

RM of ROCKWOOD

RM of ST. ANDREWS

RM of ST. CLEMENTS

229

225

232

17

7

9

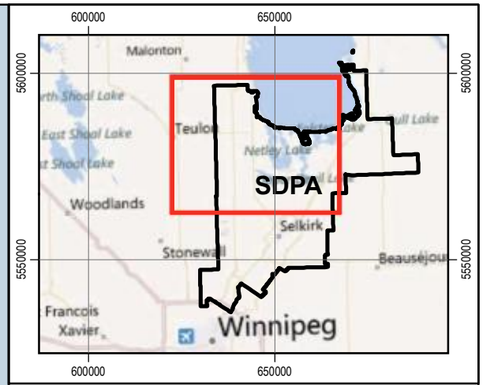
8

320

59

317

508



Wastewater Management Plan Guide Beta Test

Legend

- Building
- Northern Region
- Rural Municipality

Land Use Designations

- Rural Residential
- Business Park
- Resort
- Industrial
- Resource & Agriculture
- Agriculture Restricted
- Settlement Centre
- General Development

Land Base

- Provincial Highway
- Rail Line
- Watercourse
- Waterbody

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: June 8, 2012
Revision Date: June 11, 2012

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Figure 4A: R.M. of St. Andrews Land Use Designations and Buildings Northern Region

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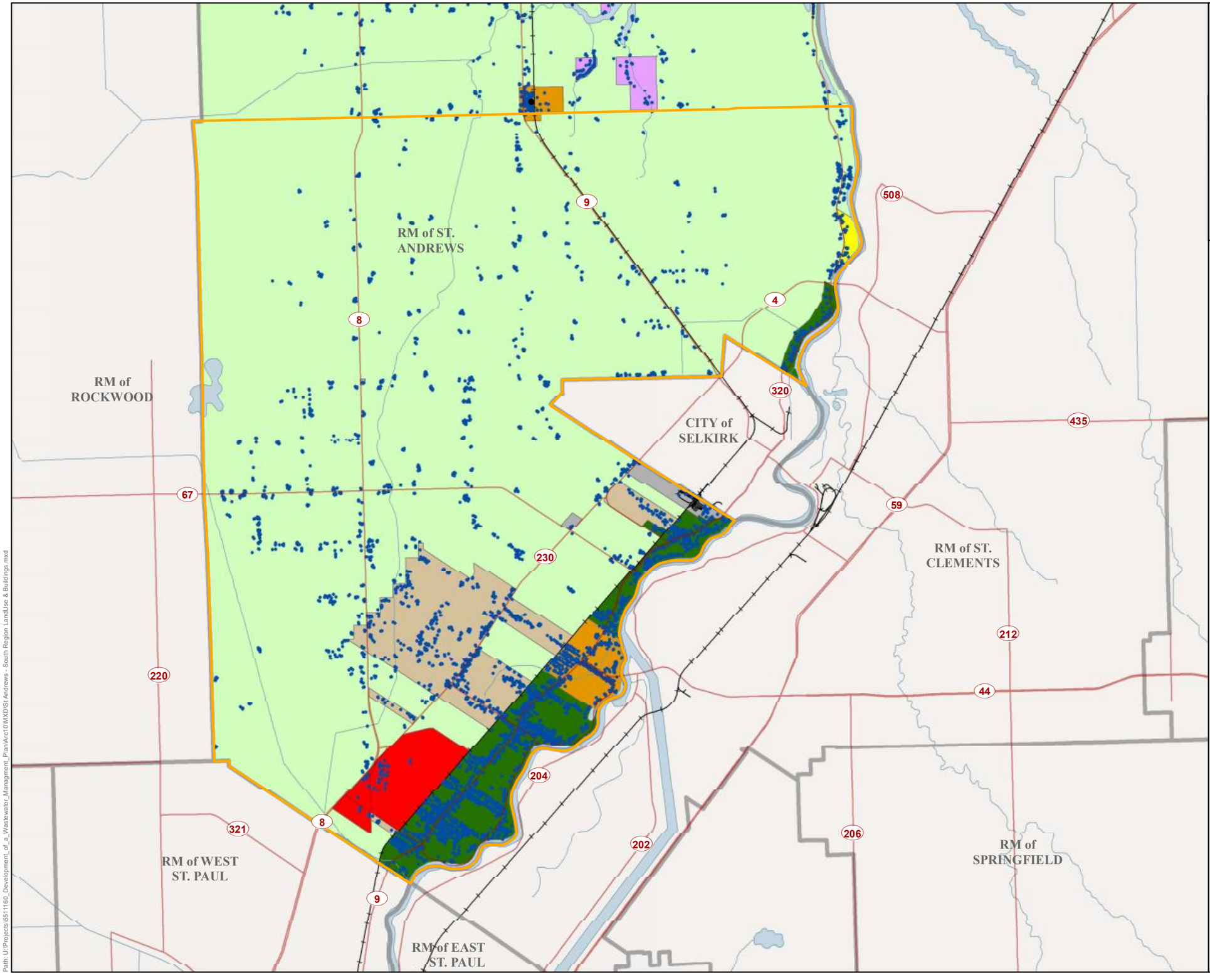

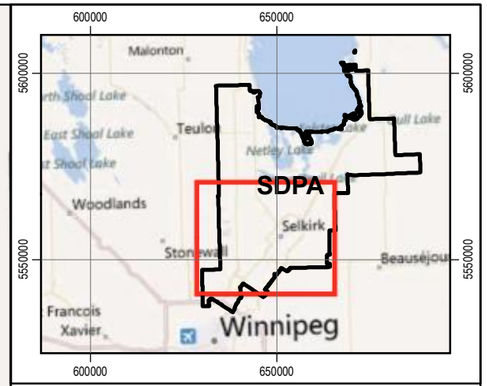

Wastewater Management Plan Guide Beta Test

Legend

- Building
- Southern Region
- Rural Municipality

Land Use Designations

- Rural Residential
- Business Park
- Resort
- Industrial
- Resource & Agriculture
- Agriculture Restricted
- Settlement Centre
- General Development

Land Base

- Provincial Highway
- Rail Line
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Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: June 8, 2012
Revision Date: June 11, 2012

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Figure 4B: R.M. of St. Andrews Land Use Designations and Buildings Southern Region

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There are five residential subdivisions within the "Settlement Centre" designation (**Figure 5**), including: Riverdale, Lister Rapids, Rivercrest, Rivergate, and Rivers Edge along PTH 9. These subdivisions are currently serviced by localized sewage treatment plants (batch plants). The following table highlights the number of homes connected to these batch plants as well as the capacity and age of each treatment plant, including the treatment plant servicing St. Benedicts Monastery and Retreat Centre (SDPA Background Report, 2007):

Table 1: Sewage Treatment Plants in West St. Paul

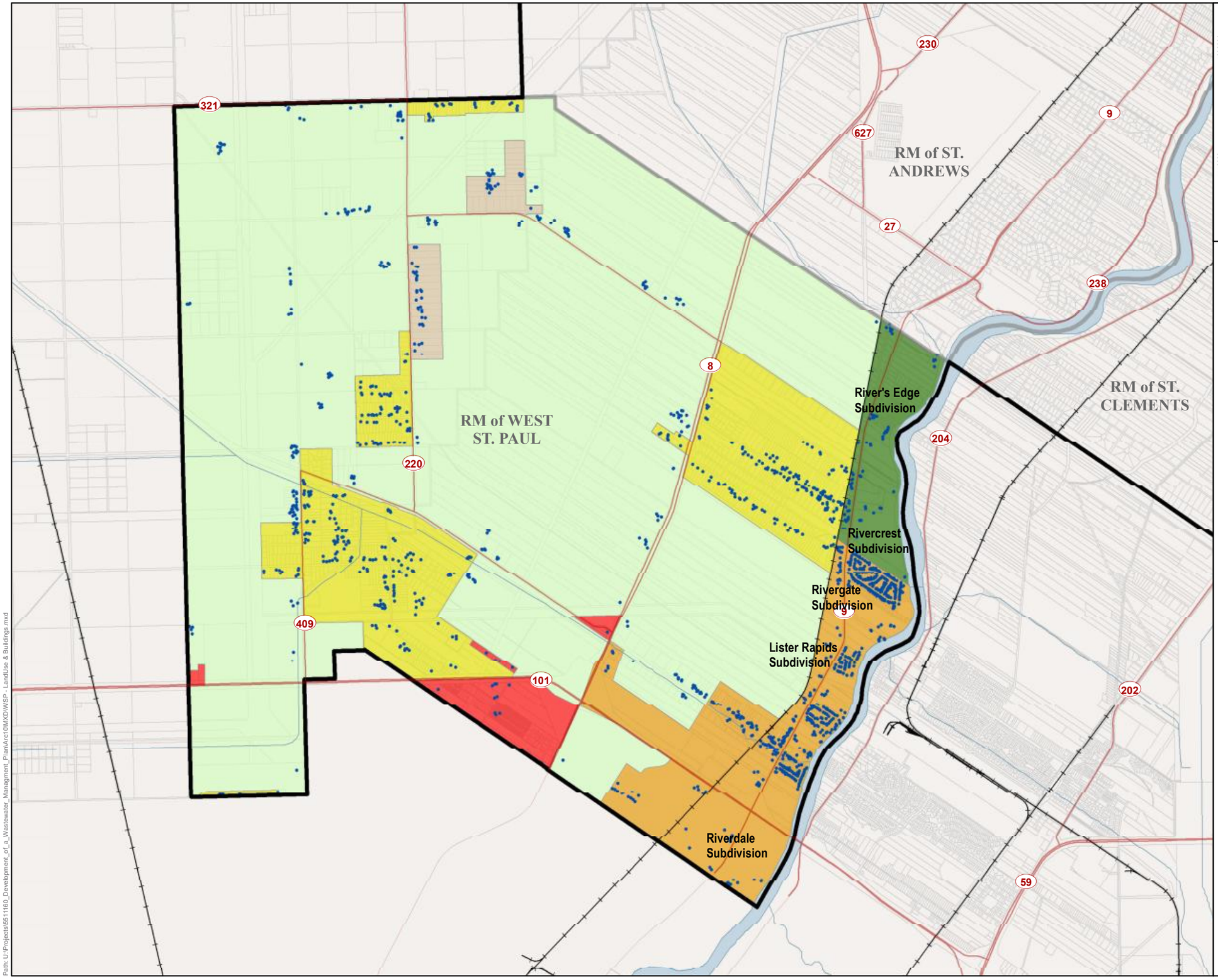
Rural Municipality	Service Area	Number of Homes Connected	% Capacity	Age of Plant
West St. Paul	Riverdale	152	100	1979
	Lister Rapids	69	60	1985
	Rivercrest	142	100	1946,1979
	Rivergate	44	60	1996
	Rivers Edge	97	NA	2006
	Middlechurch	Care Home	60	1989
	St. Benedicts	Monastery and Retreat Centre	50	1961
	West St. Paul School	School	N/A	N/A

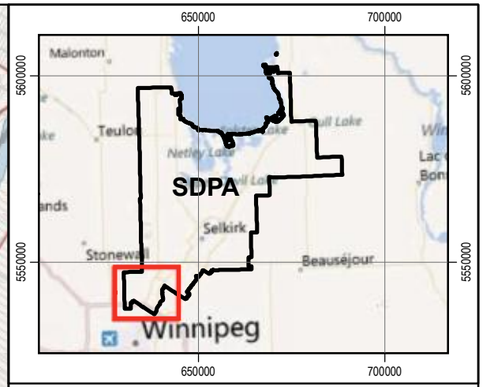
According to Statistics Canada (2011), there are approximately 1691 dwellings (the majority of which are single-family) in the R.M. of West St. Paul. Average lot size is approximately one to two acres. In addition to single-family dwellings, the Middlechurch area also includes the Middlechurch Home of Winnipeg (care home), municipal offices, community centre, faith institutions, restaurants, and small business operations.

5.0 DEMOGRAPHICS AND LAND USE PATTERNS – FUTURE DEVELOPMENT

5.1 Population Growth

The R.M.s of St. Andrews and West St. Paul have growing populations. These municipalities have experienced positive population growth over the past 20 years and are projected to continue to grow at a constant rate in upcoming years (SDPA, 2011). Over the past five years, the R.M. of West St. Paul has experienced the fastest growth in the SDPA, with an average of 1.33 percent growth per year. The R.M. of St. Andrews, with the largest population in the SDPA, has experienced an average of 1.24 percent growth per year over the past five years. It is important to note that a significant portion of this population growth has occurred, and continues to occur, in areas without wastewater infrastructure or services.





Wastewater Management Plan Guide Beta Test

Land Use

- Resource & Agriculture
- Agriculture Restricted
- Rural residential
- Settlement Centre
- Business Park
- General Development

Land Base

- Building
- Road
- Rail Line
- Rural Municipality
- Land Parcels
- Selkirk and District Planning Area
- Watercourse
- Lake

Coordinate System: NAD 83, UTM Zone 14 N
Data Source: CanVec, ESRI, Prov MB, MMM Group
Date Created: January 9, 2012
Revision Date: June 11, 2012

0 0.5 1 2 Kilometres
0 0.25 0.5 1 Mile

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Figure 5:
West St. Paul Land Use Designations & Buildings
DRAFT: For Discussion Purposes Only

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As indicated in the SDPA Development Plan (2011), it is integral that the SDPA Board encourage "growth, development and redevelopment within its existing urban areas or in areas where, with increased development, future servicing could be established in an economical manner" (pg. 19). It is recognized that planning for wastewater management regionally is far more effective than having each individual dwelling operating on its own holding tank with waste hauled and treated at nearby wastewater treatment facilities (i.e., R.M. of St. Andrews Sewage Lagoon and the City of Winnipeg North End Treatment Plant).

The SDPA Board promotes densification of residential development in the "Settlement Centres" and "General Development Areas" within the SDPA. Densification ensures the provision of sewer and water services becomes increasingly more fiscally feasible. Moreover, secondary plans have been or are currently being prepared for various regions within the R.M.s of St. Andrews and West St. Paul to ensure the future sustainability of wastewater servicing as well as the orderly phasing of development within the Red River Corridor. Once wastewater servicing is provided, a goal of three dwellings per acre will be permitted.

5.2 R.M. of St. Andrews - Future Development in the Northern Region

In the northern region of the R.M. of St. Andrews, future development is expected to be slow to moderate. The majority of waterfront lots have already been developed and demand for non-waterfront lots is low.

5.3 R.M. of St. Andrews – Future Development in the Southern Region

There is higher pressure for development in the southern portion of the R.M. of St. Andrews than in the northern region. The area is attractive to individuals who enjoy a rural lifestyle but would like to live within a commutable distance from Winnipeg or Selkirk (employment centres). As future development occurs in the southern region, each new dwelling will be required to have a holding tank within the Red River Corridor area. Lots outside of the Red River Corridor area must be two acres in size to accommodate a septic field or the development is built on smaller lots it must be serviced by a wastewater treatment facility. Properties utilizing holding tanks or septic fields must connect to municipal services once they become available. If other wastewater management options (i.e., smaller batch plants or municipal wastewater systems) are not pursued, the implementation of a number of holding tanks in the area will lead to a significant increase in the amount of wastewater hauled to the R.M. of St. Andrews Wastewater Treatment Lagoon or North End Treatment Plant. Therefore, if the R.M. of St. Andrews approves additional development, an understanding of the impact from the increased capacity of waste directed to the municipal lagoon needs to be assessed. A supply and demand analysis will be conducted in a following section.

The Lockport Settlement Centre Secondary Plan (adopted June 2011) and South St. Andrews Secondary Plan (draft) have been created to help guide land use and corresponding wastewater management issues within the southern area of the R.M. of St. Andrews. The two secondary plans include the following objectives and policies to help guide sustainable and cost-effective development and wastewater servicing:

- Existing residential areas should be intensified in order to support the cost of implementing future municipal wastewater services.
- New residential development that is constructed before wastewater services are available shall locate the dwelling unit and accessory buildings to one side of the lot to allow for future subdivision into smaller parcels.
- Once wastewater servicing to the area is available, new residential development shall be constructed at a target density of three dwelling units per acre.

According to each secondary plan, it is the intent of the R.M. of St. Andrews to establish a combination of gravity and low pressure sewer systems in the southern portion of the municipality. Due to health and environmental concerns, the establishment of service connections is vital to the growth and development of the area and should be in place prior to further development.

The St. Andrews Airport and area is located in the southern region of the municipality and is identified as “Business Park” in the SDPA Development Plan (2011). A secondary plan for this area is currently in draft form. 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. On-site wastewater systems will be required for any future development. Septic fields are permitted here (subject to Manitoba Conservation’s approval).

The St. Andrews Airport wastewater lagoon is currently at capacity and in need of upgrading. Ideally, the Airport would like to connect to a regional system that would service a large area. However, if this does not occur, septage from on-site systems will likely be hauled to the R.M. of St. Andrews Wastewater Lagoon and Treatment System or to the City of Winnipeg’s North End Wastewater Treatment Facility. Commercial or industrial uses that utilize high volumes of water/wastewater will be discouraged from locating in this Business Park and instead directed to Selkirk.

5.4 R.M. of St. Andrews – Supply and Demand Analysis

MMM Group calculated a rough estimate of undeveloped lands designated for residential use in the R.M. of St. Andrews. Using GIS land area calculations, there are approximately 3743 acres of land available for residential development within the R.M. of St. Andrews including land designated "Rural Residential", "General Development", "Settlement Centre" and "Resort". If it is assumed that 25 percent of this land is required for roads and greenspace, approximately 2807 acres remains. If development is constructed at one dwelling per every two acres, this would equate to a total of approximately 1405 new single-family dwellings. However, if wastewater servicing is established, a target density of three dwellings per acre (in accordance with the Lockport Secondary Plan and South St. Andrews Secondary Plan) could equate to approximately 8194 new single-family dwellings. This includes all of the developable land developed to three dwellings per acre except for the lands designated "Rural Residential", which would remain at one dwelling per every two acres.

The Conference Board of Canada (2011) has projected the population of the Capital Region (including the R.M. of St. Andrews) to grow at a rate of approximately 2.42 percent. (For the purposes of this section, the Conference Board's population projection will be used as the moderate growth rate for the municipality). The average household size is 2.6. Based on the average growth rate and household size (current demand), the municipality's developable land (un-serviced) would be fully developed for residential purposes in approximately 11 to 12 years. Based on the average growth rate and household size (current demand), the municipality's developable land (if assumed the General Development, Settlement Centre and Resort areas were serviced) would be fully developed for residential purposes in approximately 43 to 44 years. These estimates have been determined by comparing **Tables 2 and 3** with **Table 4** and the number of new households created versus the number of new units required for the projected population.

According to this analysis, it appears as though the R.M. of St. Andrews would have a significant amount of land available for residential development if improved servicing was implemented. This would also reduce the amount of land required to accommodate the increased growth. Phasing of development should ideally be directed to existing developed areas with infill development to attain higher density residential developments and then directed to areas adjacent to these built up areas in order to increase the affordability and efficiency of the wastewater infrastructure and servicing.

Table 2: R.M. of St. Andrews – Un-serviced Residential Development

Designation	Density	Total Acres of Designated Land Available for Development	Total Acres of Designated Land Available for Development (minus 25% for roads and pathways)	Total Number of New Households	Number of People Accommodated (at an average of 2.6 people per household)
General Development	1 dwelling per 2 acres	827	620	310	806
Settlement Centre	1 dwelling per 2 acres	1,489	1,117	559	1,453
Resort	1 dwelling per 2 acres	1,305	979	490	1,274
Rural Residential	1 dwelling per 2 acres	122	92	46	120
Grand Total		**3,743**	**2,808**	**1,405**	**3,653**

Table 3: R.M. of St. Andrews – Serviced Residential Development

Designation	Density	Total Acres of Designated Land Available for Development	Total Acres of Designated Land Available for Development (minus 25% for roads and pathways)	Total Number of New Households	Number of People Accommodated (at an average of 2.6 people per household)
General Development	3 dwellings per acre	827	620	1,860	4,836
Settlement Centre	3 dwellings per acre	1,489	1,117	3,351	8,713
Resort	3 dwellings per acre	1,305	979	2,937	7,636
Rural Residential	1 dwelling per 2 acres	122	92	46	120
Grand Total		**3,743**	**2,808**	**8,194**	**21,305**

Table 4: Projected Population Growth and Demand for Residential Development in the R.M. of St. Andrews

Moderate Growth 2.42% (Conference Board of Canada Projection)

Time Period	Estimated Population	Dwelling Units Required	New Units Required
2016 (5 years)	13,383	5,147	522
2021 (10 years)	15,083	5,801	1,176
2022 (11 years)	15,448	5,942	1,316
2023 (12 years)	15,822	6,085	1,460
2024 (13 years)	16,205	6,233	1,608
2026 (15 years)	16,998	6,538	1,913
2036 (25 years)	21,590	8,304	3,679
2054 (43 years)	33,203	12,770	8,145
2055 (44 years)	34,007	13,079	8,455
2056 (45 years)	34,830	13,396	8,771

5.5 R.M. of West St. Paul – Future Development

The R.M. of West St. Paul has experienced the most significant population growth over the past five years with an average population increase of 2.64 percent growth per year. A substantial amount of this growth has occurred in the designated "Settlement Centre" of Middlechurch. The SDPA Development Plan (2011) designates Middlechurch as one of the regional settlement centres to which the SDPA will be directing future growth. Consequently, the preparation of a secondary plan for this area was seen as a priority. The Middlechurch Secondary Plan (adopted 2010) 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 Middlechurch 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" (Lombard North 2010, pg. 5).

The Middlechurch Secondary Plan includes the following objectives and policies to help guide sustainable and cost-effective development and wastewater servicing:

- The Municipality will promote infill lots within existing neighbourhoods as a means to provide a variety of housing options and to facilitate the transition from private to municipal wastewater services.
- Infill lot development will be considered within existing neighbourhoods based only upon the extension of approved municipal sewage collection and treatment services.
- All new development within Middlechurch must be connected to the municipal wastewater collection and treatment system.
- Within the RM of West St. Paul, a gravity trunk sewer system is being proposed. The existing municipal and private wastewater treatment plants will be connected to the Gravity Main street trunk sewer.

Although the secondary plan does not apply to the entire municipality, it does set a precedent for how the R.M. of West St. Paul would like to see future development serviced and will likely guide the direction of future development throughout the municipality.

5.6 R.M. of West St. Paul - Supply and Demand Analysis

MMM Group calculated a rough estimate of undeveloped lands designated for residential use in the R.M. of West St. Paul. Using GIS land area calculations there are approximately 2882 acres of land available for residential development within the R.M. of West St. Paul including land designated “Rural Residential”, “General Development” and “Settlement Centre”. If it is assumed that 25% of this land is required for roads and greenspace, approximately 2161 acres remains to support residential development. If developed at the current standard of approximately one dwelling for every two acres, this would equate to a total of approximately 1082 new single-family dwellings. However, if wastewater servicing is established, a target density of three dwellings per acre (in accordance with emerging residential areas within the municipality) could equate to approximately 4039 new single-family dwellings. This includes all of the developable land using three dwellings per acre minus the 1305 acres designated “Rural Residential”, which would remain at one dwelling per every two acres.

The Conference Board of Canada (2011) has projected the population of the Capital Region (including the R.M. of West St. Paul) to grow at a rate of approximately 2.42 percent. (For the purposes of this section, the Conference Board’s population projection will be used as the moderate growth rate for the municipality). The average household size is 2.9. Based on the average growth rate and household size (current demand), the municipality’s developable land (un-serviced) would be fully developed for residential purposes in approximately 20 to 21 years. Based on the average growth rate and household size (current demand), the municipality’s developable land (assuming General Development and Settlement Centre designations were serviced) would be fully developed for residential purposes in approximately 50 to 51 years. These estimates have been determined by comparing **Tables 5** and **6** with **Table 7** and the number of new households created versus the number of new units required for the projected population.

Table 5: R.M. of West St. Paul – Un-serviced Development

Designation	Density	Total Acres of Designated Land Available for Development	Total Acres of Designated Land Available for Development (minus 25% for roads and pathways)	Total Number of New Households	Number of People Accommodated (at an average of 2.9 people per household)
General Development	1 dwelling per 2 acres	424	318	159	461
Settlement Centre	1 dwelling per 2 acres	1,153	865	433	1,256
Rural Residential	1 dwelling per 2 acres	1,305	979	490	1,421
Grand Total		**2,882**	**2,162**	**1,082**	**3,138**

Table 6: R.M. of West St. Paul – Serviced Development

Designation	Density	Total Acres of Designated Land Available for Development	Total Acres of Designated Land Available for Development (minus 25% for roads and pathways)	Total Number of New Households	Number of People Accommodated (at an average of 2.9 people per household)
General Development	3 dwellings per acre	424	318	954	2,767
Settlement Centre	3 dwellings per acre	1,153	865	2,595	7,526
Rural Residential	1 dwelling per 2 acres	1,305	979	490	1,421
Grand Total		**2,882**	**2,162**	**4,039**	**11,714**

Table 7: Projected Population Growth and Demand for Residential Development in the R.M. of West St. Paul

Moderate Growth 2.42% (Conference Board of Canada Projection)

Time Period	Estimated Population	Dwelling Units Required	New Units Required
2016 (5 years)	5,558	1,917	226
2021 (10 years)	6,264	2,160	469
2026 (15 years)	7,060	2,435	744
2031 (20 years)	7,956	2,744	1,052
2032 (21 years)	8,149	2,810	1,119
2056 (45 years)	14,466	4,988	3,297
2061 (50 years)	16,303	5,622	3,931
2062 (51 years)	16,697	5,758	4,066
2063 (52 years)	17,101	5,897	4,205
2066 (55 years)	18,373	6,336	4,645

Again, according to this analysis, the R.M. of West St. Paul has a significant amount of land available for residential development in terms of the amount required for the projected population growth using both density scenarios. However, even though there is an abundance of designated land, it is important to note that development should be carefully planned and directed so that it does not occur haphazardly or in a leap-frog manner. Phasing of development should ideally be directed around existing uses and growth directed to infill areas to support the development and increase the affordability of wastewater infrastructure and servicing.

6.0 PROJECTED FUTURE WASTEWATER VOLUMES

According to Environment Canada (2009), the average Canadian produces approximately 327 L of wastewater per capita per day. With a 2011 population of 11,875, the R.M. of St. Andrews residents would produce approximately 3,883 m^3 of wastewater a day. With a 2011 population of 4,932, the R.M. of West St. Paul residents would produce approximately 1,612 m^3 of wastewater a day. **Tables 8** and **9** illustrate the amount of sewage that would be produced in the R.M.s of St. Andrews and West St. Paul over the short (5 years), medium (15 years), and long term (25 years) based on low, moderate and high population projections. It is important to note that the projected wastewater volumes indicated below are based on the total number of residents in the municipality, including both permanent and seasonal residents. This calculation would include the generation of all wastewater and not a reduced amount that would result from using septic systems or ejector systems.

Table 8 outlines the projected wastewater volumes for the R.M. of St. Andrews assuming that all wastewater is being directed to a treatment facility (327 L./person/day). This of course is not occurring because most of the development in the R.M. is on a septic field or ejector system which drains the majority of the liquids on-site and the septage is only emptied and hauled to the lagoon perhaps yearly. However, the figures do provide an indication of the capacity that would be required if the entire municipality hooked into a wastewater collection system and directed all wastewater to a treatment facility.

Table 8: Projected Wastewater Volumes for the R.M. of St. Andrews

Time Period	Low Growth (0.5%)			Moderate Growth (2.42%)			High Growth (2.5%)		
	Estimated Population	Daily Volume per Capita (L)	Total Daily Volume (m^3)	Estimated Population	Daily Volume per Capita (L)	Total Daily Volume (m^3)	Estimated Population	Daily Volume per Capita (L)	Total Daily Volume (m^3)
2016 (5 Years)	12,175	327	3,981	13,383	327	4,376	13,436	327	4,394
2026 (15 Years)	12,798	327	4,185	16,998	327	5,558	17,199	327	5,624
2036 (25 Years)	13,452	327	4,399	21,590	327	7,060	22,016	327	7,199

Table 9 outlines the projected volume of wastewater generated in the R.M. of West St. Paul using an average of 327 L. of wastewater generated per person per day. This does not reflect the actual situation because some households are on batch plants and others are on septic systems, ejectors and others on holding tanks. However, this provides an indication of the wastewater system capacity that would be required to manage future wastewater volumes.

Table 9: Projected Wastewater Volumes for the R.M. of West St. Paul

Time Period	Low Growth (1.0%)			Moderate Growth (2.42%)			High Growth (2.64%)		
	Estimated Population	Daily Volume per Capita (L)	Total Daily Volume (m^3)	Estimated Population	Daily Volume per Capita (L)	Total Daily Volume (m^3)	Estimated Population	Daily Volume per Capita (L)	Total Daily Volume (m^3)
2016 (5 Years)	5,184	327	1,695	5,558	327	1,818	5,618	327	1,837
2026 (15 Years)	5,726	327	1,872	7,060	327	2,309	7,291	327	2,384
2036 (25 Years)	6,325	327	2,068	8,967	327	2,932	9,461	327	3,094

R.M. of St. Andrews

The R.M. of St. Andrews has a number of differing development pressures depending on the location within the municipality. Pressures for residential development are high in the Selkirk-Winnipeg corridor and there is a desire to implement a regional wastewater management system due to the occurrence of failing on-site wastewater systems. Because the St. Andrews Lagoon is located rather far from the Selkirk Corridor area, the establishment of a treatment facility is desired nearby, or the opportunity to hook into an existing system nearby would be beneficial. This will be examined in more detail in the next section.

The R.M. of St. Andrews also has a demand for cottage lots in the northern region of the municipality. These cottage-type developments would most likely require on-site systems and there seems to be adequate capacity in the St. Andrews Lagoon to manage this wastewater. Otherwise, growth in other areas of the municipality is slow. If a new wastewater management system is implemented in the Selkirk Corridor area, this will free up space in the St. Andrews Lagoon to support additional development in the northern region, as less waste would be directed to the Lagoon, depending on the system designed.

R.M. of West St. Paul:

Development pressure in the R.M. of West St. Paul is high and any future development should outline ways in which future wastewater will be managed. The R.M. of West St. Paul does not have a treatment plant that can treat septage and requires that the septage is hauled to another jurisdiction for treatment. There is a large number of failing on-site wastewater systems in the R.M. of West St. Paul and the existing batch treatment plants are aging. Because the subdivisions with batch treatment plants are already serviced with underground pipes, hooking into a new regional wastewater treatment system can occur with relative ease and efficiencies. A detailed wastewater management strategy needs to be established with costs outlined clearly for each land owner. The R.M. of West St. Paul is currently working on such a strategy with the City of Winnipeg, but details are not available at this point in time.

7.0 WASTEWATER MANAGEMENT OPTIONS

Improving wastewater management through a regional strategy in the R.M.s of St. Andrews and West St. Paul is seen as one of the top issues in the region, due to:

- On-site wastewater system failures experienced in the Selkirk Corridor area and the negative impact on the natural environment.
- The R.M. of West St. Paul's current batch treatment plants are aging and in need of repair or upgrade as provincial regulations change to reflect federal changing standards.

- The high cost of implementing a new wastewater treatment plant and implementation of pipes.

A new wastewater management system is needed to service both existing development and new areas that have been designated in the SDPA Development Plan. The following sections provide a number of wastewater management options considered.

7.1 Selkirk and District Planning Area Wastewater Servicing Plan (2010)

In 2010, the SDPA developed *The SDPA Wastewater Servicing Plan* as part of the approval process of its development plan. This document includes some proposed wastewater servicing strategies for each of the municipalities within the Planning District at that time. Recommendations made specifically for the R.M.s of St. Andrews and West St. Paul include:

R.M. of St. Andrews

- The only option for the southern area of the R.M. of St. Andrews is to be serviced by a future regional wastewater treatment plant. There is potential to extend these future services to the St. Andrews Airport business park area.
- There is the option to service part of the R.M. of St. Andrews by extending the City of Selkirk service south to service the area along the Red River, north of PTH 44. To date, services have been extended to Mapleton Lane Life Lease condominiums from the City of Selkirk.

R.M. of West St. Paul

- There is potential for wastewater treatment services to be extended from the City of Winnipeg. This would result in the decommissioning of existing treatment plants (batch plants).

7.2 Red River Infrastructure Committee – Report on the Public Sector Comparator (2008)

In 2008, the Red River Infrastructure Committee (RRIC), including the City of Selkirk and the Rural Municipalities of St. Andrews, West St. Paul, East St. Paul and St. Clements released a report based on recommendations regarding regional wastewater, potable water and solid waste issues (RRIC, 2008) within the aforementioned municipalities. The project was inspired by the following four main principles:

- A focus on the environmental objectives of maintaining a pure aquifer and improving the quality of the surface drainage being discharged into local waterways and Lake Winnipeg.
- The need to address public health concerns regarding potential contamination of potable water.
- The need for a cooperative venture that will promote regional economies of scale making the project more feasible.
- The emphasis on innovation through the selection process of a private partner and the possible utilization of a public-private partnership structure to introduce private sector schedules, practices and efficiencies.

RRIC conducted a thorough analysis of the area, including: demographic and land use analysis; population projections; determination of potential future development areas; and determination of the required sewer and water capacity to accommodate a reasonable amount of future development. The committee then established four potential business cases outlining best-practice scenarios for wastewater management and treatment within the study area, including the associated costs. The RRIC options were not implemented due to the high costs associated with each project. However, the report would be an excellent resource to use when considering potential future wastewater management options.

7.3 Regional System: Joint Application for Funding Support

The R.M. of St. Andrews and R.M. of West St. Paul received funding to support the development of a wastewater treatment facility and regional pipelines to service some of the developed areas in the R.M.s of West St. Paul and St. Andrews. The Canada Manitoba Infrastructure Fund was to provide eight million dollars to the project. It was planned that these funds would be used to build a new treatment facility in West St. Paul and connect lines to serve the Middlechurch area and northward to the R.M. of St. Andrews.

This option was moving forward until an announcement was made by the City of Winnipeg that it was entertaining the opportunity to extend municipal water and wastewater servicing to its neighbours. The R.M. of West St. Paul met with the City of Winnipeg and came to a preliminary agreement on implementing an option to extend City wastewater (and water) services into the R.M. of West St. Paul. However, this agreement is dependent upon funding support from the Canada Manitoba Infrastructure Fund program. Discussions are currently underway to determine if funding from the joint application should be allocated or if a new application process is required.

7.4 City of Winnipeg Connection

For a number of reasons, the R.M. of West St. Paul preferred the option to extend municipal services from Winnipeg rather than pursue a joint application with the R.M. of St. Andrews. The regional system planned with the R.M. of St. Andrews was adequate. However, the treatment facility constructed would have been at capacity the day it was built, as it was primarily hooking up existing development with only a few infill opportunities. Furthermore, this joint system would not service a number of areas and determining the priority areas was a challenge. The City of Winnipeg option has no cap and both existing and new growth can be supported. The City of Winnipeg option does not require the R.M. of West St. Paul to hire engineers and qualified staff to operate a new facility, which adds significant operating costs to the municipality. At this point in time, details have not yet been released, but the option is currently being planned.

The R.M. of West St. Paul would require the entire allocation of funds from the joint application in order for the plan to work. Meetings with the R.M. of St. Andrews and the funders have been held to discuss options.

7.5 City of Selkirk Connection

The City of Selkirk has discussed the option of servicing areas of the R.M. of St. Andrews, south of the City boundaries along the Red River Corridor, to just north of PTH 44. The City has the capacity to support additional wastewater, particularly as it has been working on improvements to their system providing them with additional capacity (storm sewer separation in particular). Further discussion should occur.

7.6 Stony Mountain Connection

The R.M. of St. Andrews was exploring an option to partner in a regional system (as part of funding requirements) as the federal prison wastewater system was in need of replacement. The synergies for working together was seen as positive and this option would depend on being able to allocate their share of the joint funding received in Section 7.3.

8.0 COSTS AND FUNDING

R.M. of West St. Paul

There are currently five municipal wastewater treatment systems (batch plants) in the R.M. of West St. Paul, located in the suburban neighbourhoods of Rivercrest, Riverdale, Lister Rapids, Rivergate and River's Edge. Each treatment system is located within a Local Improvement District (LID). A LID or special services area is an area in which businesses or properties are expected to benefit from a local improvement or special service and are therefore expected to help cover the costs for the improvement. The following tables illustrate the total revenues and expenditures for each of the wastewater treatment systems within the five LIDs:

Table 10: L.I.D #1 – RIVERCREST Revenues and Expenditures

2012 REVENUES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
Transfer from Revenue Fund	69,206.00	69,206.00	69,206.00	69,206.00
Transfer from Reserve	0	0	10,000.00	0
TOTAL REVENUE	69,206.00	69,206.00	79,206.00	69,206.00
2012 EXPENDITURES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
SEWAGE COLLECTION AND DISPOSAL				
Administration	2,750.00	3,100.00	1,500.00	1,500.00
Sewage Lift Station - Salaries	9,000.00	7,152.00	4,500.00	4,500.00
Membership and Training	1,000.00	487.60	1,000.00	1,000.00
Sewage Treatment and Disposal	4,556.00	2,969.96	20,556.00	20,556.00
Other Sewage Collection and Disposal Costs	22,000.00	12,731.78	9,500.00	9,500.00
Transfer to Capital	0	0	10,000.00	0
Utility Reserve Fund	0	14,290.42	3,900.00	3,900.00
TOTAL EXPENDITURE	69,206.00	69,206.00	79,206.00	69,206.00

Table 11: L.I.D #2 – RIVERDALE Revenues and Expenditures

2012 REVENUES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
Transfer from Revenue Fund	53,960.00	53,960.00	53,960.00	53,960.00
Transfer from Reserve	0	0	0	0
TOTAL REVENUE	**53,960.00**	**53,960.00**	**53,960.00**	**53,960.00**
2012 EXPENDITURES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
SEWAGE COLLECTION AND DISPOSAL				
Administration	8,000.00	3,100.00	5,000.00	5,000.00
Sewage Lift Station - Salaries	14,000.00	10,255.55	14,000.00	14,000.00
Membership and Training	1,000.00	487.60	1,000.00	1,000.00
Sewage Treatment and Disposal	18,000.00	14,954.36	18,000.00	18,000.00
Other Sewage Collection and Disposal Costs	12,960.00	13,140.77	13,960.00	13,960.00
Transfer to Capital	0	0	0	0
Utility Reserve Fund	0	12,021.72	2,000.00	2,000.00
TOTAL EXPENDITURE	**53,960.00**	**53,960.00**	**53,960.00**	**53,960.00**

Table 12: L.I.D #3 – LISTER RAPIDS Revenues and Expenditures

2012 REVENUES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
Transfer from Revenue Fund	38,624.00	38,624.00	38,624.00	38,624.00
Transfer from Reserve	0	0	0	0
TOTAL REVENUE	**38,624.00**	**38,624.00**	**38,624.00**	**38,624.00**
2012 EXPENDITURES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
SEWAGE COLLECTION AND DISPOSAL				
Administration	8,800.00	3,100.00	7,000.00	7,000.00
Sewage Lift Station - Salaries	10,824.00	8,778.28	10,824.00	10,824.00
Membership and Training	1,000.00	487.60	1,000.00	1,000.00
Sewage Treatment and Disposal	8,000.00	7,939.99	8,000.00	8,000.00
Other Sewage Collection and Disposal Costs	10,000.00	7,144.91	11,000.00	11,000.00
Transfer to Capital	0	0	0	0
Utility Reserve Fund	0	11,173.22	800.00	800.00
TOTAL EXPENDITURE	**38,624.00**	**38,624.00**	**38,624.00**	**38,624.00**

Table 13: L.I.D #4 – RIVERGATE Revenues and Expenditures

2012 REVENUES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
Transfer from Revenue Fund	35,640.00	35,640.00	35,640.00	35,640.00
Transfer from Reserve	0	0	0	0
TOTAL REVENUE	**35,640.00**	**35,640.00**	**35,640.00**	**35,640.00**
2012 EXPENDITURES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
SEWAGE COLLECTION AND DISPOSAL				
Administration	8,550.00	3,100.00	7,000.00	7,000.00
Sewage Lift Station - Salaries	13,000.00	10,792.95	13,000.00	13,000.00
Membership and Training	1,000.00	487.60	1,000.00	1,000.00
Sewage Treatment and Disposal	6,500.00	7,184.92	6,500.00	6,500.00
Other Sewage Collection and Disposal Costs	6,590.00	6,412.18	7,590.00	7,590.00
Transfer to Capital	0	0	0	0
Utility Reserve Fund	0	7.662.35	550.00	550.00
TOTAL EXPENDITURE	**35,640.00**	**35,640.00**	**35,640.00**	**35,640.00**

Table 14: L.I.D #5 – RIVER'S EDGE Revenues and Expenditures

2012 REVENUES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
Transfer from Revenue Fund	65,665.00	65,665.00	65,665.00	65,665.00
Transfer from Reserve	0	0	60,000.00	0
TOTAL REVENUE	**65,665.00**	**65,665.00**	**125,650.00**	**65,650.00**
2012 EXPENDITURES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
SEWAGE COLLECTION AND DISPOSAL				
Administration	7,450.00	3,000.00	5,000.00	5,000.00
Sewage Lift Station - Salaries	13,500.00	12,883.55	13,500.00	13,500.00
Membership and Training	4,500.00	487.60	4,500.00	4,500.00
Sewage Treatment and Disposal	32,715.00	25,183.01	33,715.00	33,715.00
Other Sewage Collection and Disposal Costs	7,500.00	1,616.64	7,500.00	7,500.00
Transfer to Capital	0	0	60,000.00	0
Utility Reserve Fund	0	22,494.20	61,435.00	1,435.00
TOTAL EXPENDITURE	**65,665.00**	**65,665.00**	**125,650.00**	**65,650.00**

According to the preceding financial data, the revenue appears to cover the costs of the wastewater systems in Rivercrest, Riverdale, Lister Rapids, Rivergate and River's Edge. There is also the provision of annual transfers to the Utility Reserve Fund from all five of the LIDs and transfers to the municipality's Capital Fund from LID #1 and LID #5. According to this data, all five of the wastewater systems appear to be self-sufficient within the LIDs.

The R.M. of West St. Paul's 2012 Capital Budget and Five Year Capital Expenditure Program are included below. The three major projects for 2012, in terms of wastewater treatment, include a municipal water and sewer project, replacement of two decant pumps in LID #1, and a pre-treatment system in LID #5. The cost of the projects in LID #1 and #5 will be covered by Reserve Funds. The municipal water and sewer project will require borrowed money, which will be re-paid in full over the next 10 years, as well as money obtained through debenture sales and an unmentioned funding source identified as "Other".

Table 15: R.M. of West St. Paul 2012 Capital Budget

CAPITAL EXPENDITURES			
Particulars of Expenditure	**Estimated Total Cost**	**Borne by Reserves**	**Borne by Borrowing**
R.M. Water and Sewer Project	175,000.00		175,000.00
LID #1 - Replace 2 decant pumps	10,000.00	10,000.00	
LID #5 - Pre-treatment System	60,000.00	60,000.00	
TOTAL EXPENDITURES	**560,000.00**		
GENERAL AND SPECIFIC RESERVE FUND WITHDRAWLS			
Reserve Name and By-Law No.	**Utility Fund Transfers To Operating**	**Dec. 31, 2011 Cash Resources**	
LID #1 Reserve Fund	10,000.00	43,200.00	
LID #5 Reserve Fund	60,000.00	176,500.00	
TOTAL WITHDRAWLS	**70,000.00**	**874,850.00**	
BORROWING (Subject to Municipal Board Approval)			
Proposal	**Temporary Financing Bank Loan**	**Repayment Amount**	**Repayment Term**
R.M. Water and Sewer Project	175,000.00	175,000.00	10 years
TOTAL BORROWING		**175,000.00**	

Table 16: R.M. of West St. Paul Five Year Capital Expenditure Program

PURPOSE	CAPITAL EXPENDITURE						SOURCE OF FUNDS			
	2013	2014	2015	2016	2017	Total	Operating	Reserves	Debenture Sales	Other
R.M. Water and Sewer Project	8,820,000	5,880,000	5,000,000			**19,700,002**			8,350,002	11,350,000

R.M. of St. Andrews

There is only one wastewater treatment facility operated by R.M. of St. Andrews, the Wastewater Treatment Lagoon and Constructed Wetland. The following chart illustrates the total 2012 budgeted expenditures for the wastewater treatment lagoon in the R.M. of St. Andrews.

Table 17: R.M. of St. Andrews 2012 Financial Plan (Excerpt)

2012 EXPENDITURES				
	2011 Budgeted	2011 Actual	2012 Budgeted	2013 Budgeted
Water and Waste Reserve	0	200,000.00	0	0
Lagoon Reserve	0	0.00	20,000	20,000
TOTAL EXPENDITURES		**200,000.00**	**20,000.00**	**20,000.00**

9.0 CONCLUSION AND HIGHLIGHTS

There is a significant environmental issue in the R.M. of St. Andrews and R.M. of West St. Paul Winnipeg-Selkirk Corridor area due to the number and concentration of failing on-site wastewater treatment systems. If there is no plan to remove and decommission the failing systems in the near future, the chance of extended environmental damage will inevitably increase over time. This area should be considered a priority area for the implementation of a wastewater treatment system. Having a regional system will help implement a solution to the problem more quickly and address the high cost of each municipality doing it on their own.

Studies are currently being conducted to assess the feasibility of extending the City of Winnipeg wastewater system to the R.M. of West St. Paul. It is too early in the process to be able to report on the logistics and costing that has been explored. Furthermore, the funding support that was previously allocated to the R.M. of St. Andrews and R.M. of West St. Paul joint initiative is being re-assessed as to whether it can be divided up or not. This will have a significant impact on the implementation of the wastewater treatment system.

There seems to be plenty of capacity available at the St. Andrews Lagoon and the future capacity is uncertain as a new regional system in the Selkirk Corridor could result in having less septage directed to this lagoon. The development in the northern region of St. Andrews is at a fairly low pace that is not a concern for wastewater servicing. However, the R.M. of St. Andrews is restricted from implementing a new system anytime soon unless it wants to explore a regional system with Selkirk, for a portion of the municipality. Further discussions with Stony Mountain and the Penitentiary are in progress and no details are available at this time. The R.M. of St. Andrews may want to start collecting user fees at its wastewater lagoon and start a system of tracking the amount and location of where the wastewater is originating. The user fees collected could be directed to future improvements to the system, which would ensure that the users of the system are helping pay for future upgrades to the system.

10.0 APPENDIX

10.1 Appendix A – Population Projections and Anticipated Rate of Residential Development

The R.M. of St. Andrews has a 2011 population of 11,875, a 4.5 percent increase from 11,359 in 2006, equating to an average increase of 0.9 percent per year over the previous five-year period (Statistics Canada, 2011). The R.M. of West St. Paul has a 2011 population of 4,932, a 13.2 percent increase from 4,357 in 2006, equating to an average increase of 2.64 percent per year over the previous five-year period (Statistics Canada, 2011). The R.M. of West St. Paul has experienced a significant increase in population over the past five years due to the development of several large residential subdivisions. The homes within these subdivisions are highly desirable due to their somewhat rural location within a commutable distance from the City of Winnipeg.

In order to project the future wastewater treatment needs of the R.M.s of West St. Paul and St. Andrews, three growth scenario options are presented here: low, moderate and high. Because the two municipalities have experienced slightly different population growth in recent years, different growth rates will be applied. A 0.5 percent growth rate will be used for the R.M. of St. Andrews and a 1.0 percent growth rate for the R.M. of West St. Paul for the low population projection. In 2010, the Conference Board of Canada prepared population projections for the Manitoba capital region (including the R.M.s of St. Andrews and West St. Paul), using an annual growth rate of 2.42 percent (SDPA, 2011). Therefore, a 2.42 percent growth rate will be used for the moderate population projection for both municipalities. For the high projection, a 2.64 percent growth rate will be used for the R.M. of West St. Paul, which directly reflects the municipality's significant growth rate over the last five years. However, only a 2.5 percent growth rate will be used for the R.M. of St. Andrews, due to its' lower population increase of 0.9 percent per year over the past five years.

According to the Canada Census (Statistics Canada, 2011), the average dwelling unit in the R.M. of St. Andrews is occupied by an average of 2.57 residents, as there are currently 4,625 dwelling units and 11,875 residents (11,875/4,625 = 2.57) in the municipality. Using the population statistics above in conjunction with the current number of dwelling units (4,625) and the average number of residents/dwelling unit (2.57), the chart below (**Table 18**) illustrates the anticipated rate of residential development over the short (next five years), medium (15 years) and long term (25 years) based on low, moderate and high population projections. It is important to note that these projections are based on the total number of dwelling units in the municipality (4,625), including 4,259 permanent residences and 366 dwellings assumed to be seasonal residences (Statistics Canada, 2011).

According to the Canada Census (Statistics Canada, 2011), the average dwelling unit in the R.M. of West St. Paul is occupied by an average of 2.92 residents, as there are currently 1,691 dwelling units and 4,932 residents (4,932/1,691 = 2.92) in the municipality. Using the population statistics above in conjunction with the current number of dwelling units (1,691) and the average number of residents/dwelling unit (2.92), the chart below (**Table 19**) illustrates the anticipated rate of residential development over the short (next five years), medium (15 years) and long term (25 years) based on low, moderate and high population projections. It is important to note that these projections are based on the total number of dwelling units in the municipality (1,691), including 1,647 permanent residences and 44 dwellings assumed to be seasonal residences (Statistics Canada, 2011).

Table 18: Growth Scenarios - Rate of Residential Development in the R.M. of St. Andrews

Time Period	Low Growth (0.5%)			Moderate Growth (2.42%)			High Growth (2.5%)		
	Estimated Population	Dwelling Units	New Units	Estimated Population	Dwelling Units	New Units	Estimated Population	Dwelling Units	New Units
2016 (5 Years)	12,175	4,737	112	13,383	5,207	582	13,436	5,228	603
2026 (15 Years)	12,798	4,980	355	16,998	6,614	1989	17,199	6,692	2067
2036 (25 Years)	13,452	5,234	609	21,590	8,401	3776	22,016	8,567	3942

Table 19: Growth Scenarios - Rate of Residential Development in the R.M. of West St. Paul

Time Period	Low Growth (1.0%)			Moderate Growth (2.42%)			High Growth (2.64%)		
	Estimated Population	Dwelling Units	New Units	Estimated Population	Dwelling Units	New Units	Estimated Population	Dwelling Units	New Units
2016 (5 Years)	5,184	1,775	84	5,558	1,903	212	5,618	1,924	233
2026 (15 Years)	5,726	1,961	270	7,060	2,418	727	7,291	2,497	806
2036 (25 Years)	6,325	2,284	593	8,967	3,071	1,380	9,461	3,240	1,549