• The information displayed around the room will help explain the concept.

• Please feel free to view the information and speak with anyone wearing a name tag with questions, concerns, or thoughts you may have.

• The project team has begun speaking with stakeholder groups, such as local landowners, Ducks Unlimited, local water users, and other user groups to hear how a potential project might affect them and what could be done to address any concerns.

• Our goal for today is to explain the potential project, the process for the project, provide an opportunity to answer questions, and to listen to any feedback you may have.

Before leaving, please take a minute or two to fill out a comment sheet.

Thank you.
PROJECT BACKGROUND

CLIENT:
- The City of Selkirk and the Manitoba Water Services Board have initiated this study.

CONSULTANT STUDY TEAM:
- These companies have been hired to assist with the process of studying the water supply, communicating with stakeholders, and making a water license application as required:
  - Friesen Drillers Ltd.
  - Landmark Planning & Design Inc.

OVERVIEW:
- The purpose of the study is to examine the feasibility of a new expanded water supply for the City of Selkirk.
- If tests show that a new water supply, in this location, is not environmentally sustainable or will damage the existing the well system within the RM, the project will not be undertaken.
- Many stakeholders are interested and may be concerned about this project and it is important that our team hears all of those interests.
This map illustrates the approximate local area that will be studied in order to determine potential water supply options and issues.
STUDY PURPOSE AND TIMELINE

There are three main reasons for this study:

1. To establish a water supply for the City of Selkirk that will help meet its current and future demands.
2. To modify the existing water supply so that it can serve as a long-term back up water supply.
3. To ensure that existing and future wells in the immediate area are protected.

The study will include the following steps as illustrated below:

1. Hold landowner meetings, stakeholder meetings, and public meetings to discuss the overall study and to identify any concerns (January to March 2015).
2. Conduct field investigations to determine potential water supply issues and options (Spring and Summer 2015).
3. Hold follow-up meetings with landowners, stakeholders, and the general public to discuss study results (Fall 2015).
4. Apply for water licenses based on community dialogue and study results (Late 2015/Early 2016).
LANDOWNER/RESIDENT, STAKEHOLDER, AND PUBLIC CONSULTATION PROGRAM

A critical part of studying the water supply issue is ensuring that all individuals that have an interest in the study can be involved in the process. The study team will take the following steps to encourage participation in the study:

1. We will meet with individual landowners in the local study area to discuss the project.
2. We will identify and contact stakeholder groups and individuals that may have an interest in the project.
3. We will prepare contact information and prepare ways of notifying groups and individuals about project meetings. For example, we will meet with the RM of St. Andrews and the City of Selkirk, Manitoba Conservation and Water Stewardship, Manitoba Infrastructure and Transportation, Ducks Unlimited, the Lord Selkirk School Division, the Health Authority, and major water users.
4. We will hold public meetings for all those who are interested to discuss the project.

Meeting topics will include:
- Project Parameters
- Public Consultation Process
- Current Water Supply
- Water Supply Options
- Resident/Landowner Concerns
- Stakeholder Concerns
- Local Well Inventory
- Aquifer Testing
- Hydrogeological Analysis
- Government Approvals
The current City of Selkirk water supply system consists of four groundwater wells (used as the primary source since the early 1900s).

There was a brief period in the late 1970s/early 1980s when water was drawn from the Red River.
Since the 1970s it has been recognized by a variety of researchers that the City of Selkirk groundwater supply system is challenged to meet peak day water demands.

Over the last few years there have been occasions when the City of Selkirk has been at risk of not being able to provide sufficient water for its users during peak times, including the need for fire fighting protection.

The water supply system for the City of Selkirk will become critical in the next few years.

Existing studies are too old to be relied upon; the proposed new studies are needed.

The Christie Well supplies the majority of water to the City.
WATER SUPPLY CHALLENGES

CARBONATE EVAPORITE UNIT (INTERLAKE AQUIFER)

- This drawing illustrates how large the water source for this region is.

- The boundaries of the aquifer extend from the United States border to northern Manitoba through the Interlake region.

- The following display board illustrates specific areas where this aquifer is recharged each year.
WATER SUPPLY CHALLENGES

- The main problem with the current water system is the ability of the aquifer to transmit groundwater from outside the city limits to within the city boundaries. This is due to a series of natural flow restrictions within the aquifer near the city limits.

- The regional aquifer, located mainly in the RM of Rockwood, appears capable of sustaining the required withdrawal rates, but not capable of transmitting the water to the current withdrawal locations (wells) at a sufficient rate.

- In order for the City of Selkirk to make use of the regional water supply, a well would have to be located within the RM of St. Andrews or further west.
• The Stonewall Uplands are known to be the major source of groundwater recharge to the St. Andrews/Selkirk area, contributing about 80% of the groundwater in the area.

• The groundwater flows from west to east, but is limited from entering the City of Selkirk by geographic features under the ground that form a kind of “underground dam”.

• As a result, groundwater to the west of this “dam” “backs-up”, which creates an artesian well effect in the area.

• These flowing artesian conditions result in groundwater discharge through springs and relief wells to the east of Oak Hammock Marsh, with excess flow ending up in local ditches.

• The majority of the groundwater that would be withdrawn by a future well would be replenished by groundwater that normally discharges to the surface. The technical study will confirm this.
The following steps outline the major technical components of the water supply investigation. Once the technical investigations are complete, a decision would need to be made as to whether to proceed or not.

1. Apply for a Groundwater Exploration Permit from Manitoba Conservation and Water Stewardship
2. Complete a Test Drilling Program, Install a Well and Perform a 7-Day Pumping Test
3. Assess the Potential Effects of the Proposed Withdrawal Rates on Existing Wells
4. Assess the Potential “Far-Field” Effects of the Potential Wells
5. Review Previous Assessments of the Aquifer Sustainability
6. Predict the Effects on the Groundwater Flow Regime
7. Prepare a Hydrogeologic Report with the Results of the Assessment
8. Prepare Environmental Assessment Report with the Specified Requirements of the Environment Act
9. Summarize Existing Environment and Potential Effects in the Immediate Project Area

Decision to Proceed or Not Proceed

Submit License Application
# Water Supply Options

Over the years there have been a number of investigations to assess water supply options. This chart summarizes various considerations associated with each option.

<table>
<thead>
<tr>
<th>OPTION 1</th>
<th>OPTION 2</th>
<th>OPTION 3</th>
<th>OPTION 4</th>
<th>OPTION 5</th>
<th>OPTION 6</th>
<th>OPTION 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construct RM of St. Andrews Groundwater Wells</td>
<td>Construct Oak Hammock Marsh Area Groundwater Wells</td>
<td>Use Oak Hammock Marsh Surface Water</td>
<td>Construct Birds Hill Groundwater Wells</td>
<td>Construct Other Well Sites around Selkirk</td>
<td>Use Existing or New Wells plus Water Conservation Program</td>
<td>Use Red River Surface Water</td>
</tr>
</tbody>
</table>

### Description
- **OPTION 1**: Construct a well and supply line in the RM of St. Andrews as identified in 1973.
- **OPTION 2**: Similar to Option 1 but there would be an additional six miles of piping.
- **OPTION 3**: As this is surface water, upgrades to the Selkirk water treatment plant may be required and an additional six miles of piping.
- **OPTION 4**: With this option, the water quality would be good and quantity is excellent, however water would be piped and pushed below the Red River and possibly the floodway.
- **OPTION 5**: New wells near the Manitoba Rolling Mills (MRM) plant and/or wells east of the City of Selkirk, including East Selkirk/Garsen/Tyndall.
- **OPTION 6**: Construct a new well within the City of Selkirk. This may meet short term requirements but within a few years the supply problem would return.
- **OPTION 7**: Construct a new water treatment plant along the Red River. This surface water would require treatment to meet new regulations.

### Potential Risk/Impact
- **OPTION 1**: VERY LOW
- **OPTION 2**: VERY LOW
- **OPTION 3**: VERY LOW
- **OPTION 4**: MODERATE
  - Groundwater protection is limited due to permeable soil conditions.
- **OPTION 5**: MODERATE TO HIGH
  - MRM wells may include pathogens and bacteria issues.
  - New wells near the Manitoba Rolling Mills (MRM) plant and/or wells east of the City of Selkirk, including East Selkirk/Garsen/Tyndall.
- **OPTION 6**: HIGH
  - Will not meet Selkirk's medium or long term water requirements.
- **OPTION 7**: MODERATE TO HIGH
  - There are pathogen and bacteria concerns during flooding periods, there may not be adequate treatment.

### Quality of Supply
- **OPTION 1**: VERY GOOD
  - This will be confirmed by detailed technical investigation.
- **OPTION 2**: VERY GOOD
  - Would require further investigation to confirm.
- **OPTION 3**: ACCEPTABLE
- **OPTION 4**: VERY GOOD
  - MRM wells blend groundwater with river water, quality is good but requires treatment.
  - High shallow bedrock conditions to the east have created some issues with nitrates in the groundwater.
- **OPTION 5**: ACCEPTABLE
- **OPTION 6**: APPROVED
  - New regulations (put in place following the Walkerton and North Battleford E. coli outbreaks) would mitigate this risk.
- **OPTION 7**: GOOD
  - Water treatment plant required.

### Construction Feasibility
- **OPTION 1**: GOOD
  - Extensive piping required.
- **OPTION 2**: MODERATE
  - Water treatment plant upgrades and expensive piping.
- **OPTION 3**: MODERATE
  - Extensive piping distance and the difficulty in piping across the Red River and floodway.
- **OPTION 4**: POOR
  - City of Selkirk may not be able to acquire the rights to use the water.
  - High bedrock conditions and transmissive conditions are not good.
  - In some cases pipes cross the Red River.
- **OPTION 5**: QUESTIONABLE
  - The bedrock in Selkirk is not transmissive enough to allow the volume of water to enter the area to meet current demands.
- **OPTION 6**: GOOD
  - But supply not feasible.
- **OPTION 7**: GOOD
  - Water treatment plant required.

### Cost
- **OPTION 1**: GOOD
- **OPTION 2**: MORE EXPENSIVE
- **OPTION 3**: EXPENSIVE
- **OPTION 4**: VERY EXPENSIVE
  - May be costly to deal with MRM water rights.
  - Piping costs expensive.
- **OPTION 5**: MORE EXPENSIVE
  - May be short term or VERY EXPENSIVE and not cost effective (long term).
- **OPTION 6**: MORE EXPENSIVE
  - Upgrade or construct the treatment plant and river intake.
- **OPTION 7**: LOW
  - Since existing supply is not feasible and conservation measures are slow to be accepted.

### Community Acceptance
- **OPTION 1**: Concerns from local residents and landowners have to be addressed.
- **OPTION 2**: Likely LOW due to high costs and potential concern from environmental groups.
- **OPTION 3**: Likely LOW due to high costs. Concerns from local residents/landowners have to be addressed.
- **OPTION 4**: LOW with MRM water as it has a high percentage of river water.
- **OPTION 5**: LOW
  - Since existing supply is not feasible and conservation measures are slow to be accepted.
- **OPTION 6**: LOW
  - There were many complaints about the quality of water in the 1977/80 period and the poor perception of using river water.
EXISTING LOCAL WELLS

• A very important part of the work relates to investigating existing wells or water supplies in the area to ensure they will not be negatively impacted.

• To obtain regulatory approval from the Province it must be demonstrated that existing wells in the area will not be negatively affected by the withdrawal of groundwater.

• With a well inventory program, all wells within the area of influence of a proposed supply location can be assessed to obtain information on existing condition and capacity. This way if any change occurs in the future, it will be clear what the change is and what must be done to address any change.

• All test results would be provided to the resident/landowner.

All residents and landowners within a two-mile radius of the supply well location would have their wells tested as part of this program, if they wish to participate.
INTER-MUNICIPAL WATER SHARING

- There are good examples of communities in Manitoba that obtain groundwater from sources located below other municipalities including:
  - The RM of East St. Paul has wells located in the RM of Springfield.
  - The City of Winkler has wells within the RM of Stanley, as does the City of Morden, and the Town of Roland.
  - Water supply for the RM of Headingly, the RM of St. Francis-Xavier, and the RM of Portage la Prairie are all serviced by a water treatment plant within the RM of Cartier. The RM of Rosser and the RM of Rockwood will be added to the system in the near future.
  - The City of Winnipeg acquires its water from Shoal Lake First Nation within the Province of Ontario.
  - The Town of Neepawa acquires its water supply from the RM of Langford.

- Potential benefits to the RM of St. Andrews include:
  - Potential for existing and future RM of St. Andrews residents/businesses to access this water supply.
  - Potential for filling station for firefighters or other agricultural or municipal purposes.
  - Examples of regional cooperation with a neighbouring municipality facing a challenging water shortage problem.
The City of Selkirk has instituted a number of water conservation measures including:
- Water meters on all homes and businesses.
- The City of Selkirk has changed every toilet in public facilities to be low flow toilets.
- The City of Selkirk has updated its computerized water use monitoring equipment.
- The City of Selkirk will be reducing the volume of water at the Selkirk Park pool by approximately 1500 cubic metres by raising the elevation of the base.
- Retrofitting program for bathroom fixtures and kitchen appliances to reduce flows.
- Water leakage review on public infrastructure.
- Working with major water users (e.g. Lord Selkirk School Division) to reduce water usage.

These measures will reduce the overall water requirement for the City of Selkirk but will not remove the need for a new water service.

Further conservation measures may be explored.
The following are some common questions/inquiries from past consultation meetings:

1. Will there be safeguards put in place to prevent the aquifer from being drawn down too much? If yes, what are they?
   This project will not proceed if there are concerns that cannot be mitigated.

2. What guarantees are there that this project would not cause local residents to have water supply issues?
   An extensive analysis will be undertaken that includes water sampling and other scientific studies. If there are water quantity or quality issues, the project will not go ahead.

3. Will there be maximum limits on what the City of Selkirk will be able to draw from the aquifer?
   Limits need to be established to reflect the capacity of the aquifer to provide the water. The Province of Manitoba will not allow any groundwater extraction that is not sustainable.

4. If water levels drop and local residents need to drill new or deeper wells, who will pay for this?
   Even though the chances of an issue arising would be extremely low (to be confirmed by the studies), the City of Selkirk will be responsible for resolving any such issues. This will be a condition in the Water Rights License. A groundwater interference program will be put in place to deal with the possibility of water supply problems.
NEXT STEPS

The next steps will be to:

- Review the feedback provided.
- Conduct required technical studies and field work.
- Respond to questions as they arise.
- Schedule follow-up meetings.
- Make a decision as to how to proceed.

Thank you for attending this information session.

Please feel free to fill out a comment sheet before you leave.

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PROJECT WEBSITE
These display boards are available online at: landmarkplanning.ca