

# International Joint Commission

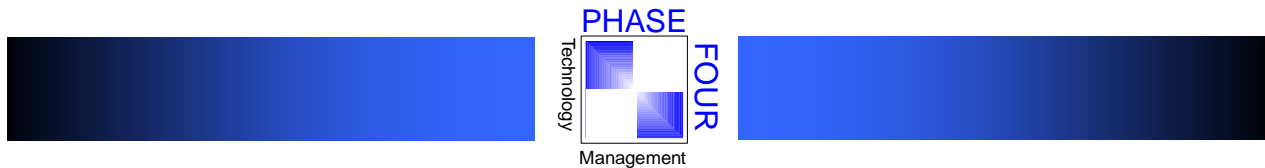
## RED RIVER BASIN – VIRTUAL DATABASE

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### Data Assessment Report

Version 1.2 FINAL

November 10<sup>th</sup>, 1998



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International Joint Commission

# RED RIVER BASIN VIRTUAL DATABASE

Data Assessment Report

Version 1.2  
FINAL

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Scientific Authority, Red River Task Force

**DATE:**

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# 1. EXECUTIVE SUMMARY

This Data Assessment Report has been prepared for the International Joint Commission (IJC) as part of the first stage of development of the Red River Basin Virtual Database (RRBVDB).

This report represents the preliminary assessment of potential and actual data providers that have in the past, or have the ability currently or in the near future, to provide land related information relevant to the issue of flood management within the Manitoba portion of the Red River basin.

During the preliminary data assessment exercise, 33 agencies were contacted through various means of communication for the purpose of identifying what data the agency is responsible for and currently maintains, as well as a description of their native data management environment and their ability to serve data over the Internet.

Note that at the time of writing of this report, information is still pending from several agencies.

In summary:

- 33 agencies were contacted
- 132 data sets were identified (some duplicate data sets still need to be eliminated but further analysis is required)
- 26 agencies have Internet capability in some form, ranging from basic web site presence to data delivery and applications currently on the web, or on an Intranet not accessible to the public
- many agencies were reluctant to provide information to our project team until proper notice has been given to them from the IJC stating the intent of the project and PHASE FOUR's role in the project.

A quick analysis of the preliminary findings suggests that the amount of effort required to catalogue all of the identified data sets will require in excess of 60 days effort. This estimate is based on our current level of understanding of the volume and complexity of the data to be catalogued, the amount of supporting documentation and / or metadata that exists, and the level of support we can expect from the provider agency.

Our estimates suggest that the greatest effort be placed on cataloguing the highest ranking priority data sets first, and only when time permits will the remaining data sets be catalogued.

Compilation of actual metadata has already begun to ensure that the remaining time is used effectively in reaching the desire project end date of December 31<sup>st</sup>, 1998.

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## 2. INTRODUCTION

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### 2.1 Background

#### 2.1.1. The International Joint Commission

The Red River flood of 1997 was recorded in many locations as the worst flood on record, causing widespread damage throughout the Red River valley in Manitoba and north central United States. The governments of Canada and the United States have taken proactive measures to reduce the impact of future flooding in the Red River basin. In June of 1997, both governments asked the International Joint Commission (IJC) to analyze the causes and effects of the Red River flood of 1997, and to recommend ways to reduce the impact of future floods. An Interim Report was prepared by the IJC in December of 1997 outlining a number of steps and recommendations that could be taken. Later in 1997, the IJC announced the appointment of the International Red River Basin Task Force to examine a range of alternatives to prevent or reduce future flood damage.

#### 2.1.2. The Red River Basin Virtual Database

The initiation of the Red River Basin Virtual Database project is a direct result of recommendations put forth by the IJC as outlined in the Interim Report. Specifically, this project will support the recommendation for technical improvements in the area of hydrologic modeling and the development of a consolidated database containing hydrometric, climatic, topographical, and other technical data within the basin needed to improve forecasting and modeling capability.

In order to achieve the development of a consolidated land information database that will improve flood forecasting and hydrologic modeling, the IJC has presented a conceptual model of the Red River Basin Virtual Database and a process for how it may be constructed.

#### ***Stage One***

The first stage in the process is to identify all potential and actual information providers that have in the past or can in the future contribute land related information to the “virtual database” (data catalog or library). A comprehensive digital catalog will be developed in accordance with the U.S. Federal Geographic Data

Committee (FGDC) Content Standards for Digital Geospatial Metadata. Metadata, or data about data, is critical for users of a distributed database to accurately evaluate data sets in terms of availability and usefulness for various types of analyses. Metadata provides a method of capturing and documenting *long term memory* about data, and will be required as a prerequisite for any data set that becomes incorporated in the RRBVDB.

### **Stage Two**

The second stage in the process is to develop the virtual database in the form of an internet web site, in sufficient detail to provide the following services:

- Quickly locate data required for flood reporting and flood fighting in the Red River Basin and
- Describe in detail the contents and limitations of the data.

The virtual database will be searchable by data type, data holder / owner, location, etc. It is proposed that a single link, such as a web page, be established that will provide a single entry point through which the overall Red River Basin Virtual Database (RRBVDB) is accessed. The RRBVDB will have no single data repository thereby eliminating the need to provide regular updates of data to a data clearinghouse. Some data sets, however, may need to be centralized depending on the preferences of the data set providers.

Development of the RRBVDB must also take into consideration the needs and capabilities of data providers, and data users, as well as future progression towards the Red River Basin Decision Support System Framework.

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## **2.2 Project Objectives**

### **2.2.1. Goals**

The primary goals of this project are to identify all potential and actual data providers in the Red River Basin, and to create a metadata catalog of all actual information providers that is compliant with US Federal Geographic Data Committee (FGDC) Content Standards for Digital Geospatial Metadata.

### **2.2.2. Process**

A phased approach to the collection of metadata will be taken in order rapidly determine the range of land related information that is

relevant and available within the study area, and then focus efforts on the collection of metadata for data sets that bring the most value to the RRBVDB.

### ***Phase 1 – Data Assessment***

A preliminary meeting will be held with each data provider to ascertain the availability and accessibility of target data and to determine their capability to serve data.

Identification of all potential data providers in the Red River Basin will be carried out by:

- Reviewing Public Meeting notes and Data Needs Workshop Report
- Identifying all Internet information providers during the 1997 flood
- Contacting agencies that may include Federal, Provincial, Municipal and town authorities, Watershed Boards, Universities, Private Industry, Commissions, Police, General Public, and the Media.

Completing the preliminary Data Assessment will allow the project team to identify *actual* data providers that can contribute data to the Red River Basin Virtual Database. Duplicate data sources will be identified and eliminated.

The result of this phase shall be a detailed estimate of time required to collect the metadata fields (elements). The FGDC Content Standards for Digital Geospatial Metadata stipulates a minimum requirements list of metadata elements in order for the metadata entry to be compliant. Additional knowledge gained from this phase may include an assessment of time required to gather optional metadata fields as outlined in the standard. Upon completion of these preliminary meetings, a presentation will be made to the project steering committee to discuss the findings, determine the priority for metadata collection and cataloguing, and to refine the project time line and scope if necessary.

### ***Phase 2 – Metadata Collection***

This phase involves the actual collection of metadata from each data provider. The level of detail collected for each data set will be first decided upon by the project steering committee, based on findings and estimates made in Phase 1. Effort shall focus on obtaining the minimum set of required fields (elements) for compliance. Optional metadata fields will only be collected during this phase if they are readily accessible at the time of collection of mandatory fields and time permitting.

Metadata will be collected for those datasets falling within the boundaries of the Red River Basin within the Province of Manitoba only.

### **Deliverables**

This project will result in the identification of all data sources from which metadata will be compiled for all relevant data sets.

The following deliverables will be made available to the project steering committee during the course of the project:

Deliverable	Estimated Delivery Date
1. Data Assessment Report	November 16 <sup>th</sup> , 1998
2. Final Report	December 31 <sup>st</sup> , 1998
3. FGDC Compliant Metadata Records	December 31 <sup>st</sup> , 1998

### **2.2.3. Study Area**

This project, funded by the Government of Canada, will focus its efforts on the collection of metadata for the Red River Basin in the province of Manitoba as depicted in the following illustration.

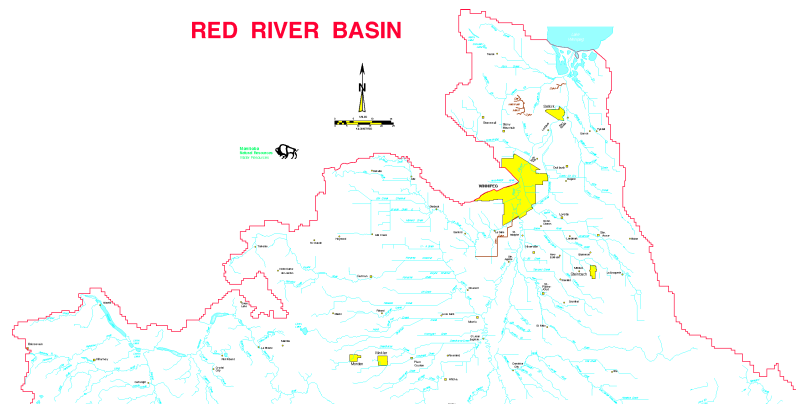


Figure 1 - Red River Basin (Source MB Water Resources Branch)

## **2.3 Project Steering Committee**

A project steering committee has been formed to provide technical authority and direction to the project team.

The project steering committee consists of:

- Slobodan Simonovic, Co-Chair Red River Basin Task Force, Data Subgroup

- Terry Birkenstock, US Co-Chair Red River Basin Task Force, Data Subgroup

Coordination and alignment of project objectives and methodologies will be made between Manitoba and the U.S. via the project steering committee.

Project deliverables will be reviewed by both steering committee members.

Sign-off on project deliverables will be made by Slobodan Simonovic prior to release to the International Joint Commission.

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## 3. NEEDS ASSESSMENT

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### 3.1 RRBVDB Components

The Red River Basin Virtual Database will be used in three modes:

- planning and design for flood protection
- real time flood emergency, and
- flood recovery

The initial database components include the following data categories:

- Infrastructure data
- Terrain / Environmental data
- Hydro Meteorological data
- Template data
- Imagery data
- Miscellaneous data

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### 3.2 FGDC Standard for Digital Geospatial Metadata

Metadata will be compiled in accordance with the Federal Geographic Data Committee (FGDC) Content Standard for Digital Geospatial Metadata.

The metadata collection and generation software 'CORPSMET95' will be used to compile the FGDC compliant metadata entries for relevant digital and analogue land related data sets identified within the Red River Basin in Manitoba. This software has been acquired from 'ftp://corpsgeo1.usace.army.mil/pub/corpsmet95/'.

#### 3.2.1. Required Metadata Fields

The following metadata fields make up the minimum required metadata content in order to achieve compliance with the FGDC Content Standard for Digital Geospatial Metadata.

1.0 Identification\_Information:

Citation:

Originator:

Publication\_Date:

Title:

Geospatial\_Data\_Presentation\_Form:

Description:

Abstract:

Purpose:

Supplemental:

Time\_Period\_of\_Content:

Time\_Period\_Information:

Currentness\_Reference:

Status:

Progress:

Maintenance\_and\_Update\_Frequency:

Spatial\_Domain:

Bounding\_Coordinates:

Keywords:

Theme:

Place:

Stratum:

Temporal:

Access\_Constraints:

Use\_Constraints: *The data represent the results of data collection/processing for a specific activity and indicates the general existing conditions. As such, it is only valid for its intended use, content, time, and accuracy specifications. The user is responsible for the results of any application of the data for other than its intended purpose.*

Point\_of\_Contact:

Native\_Data\_Set\_Environment:

4.0 Spatial\_Reference\_Information:

Horizontal\_Coordinate\_System\_Definition:

Geodetic\_Model:

Vertical\_Coordinate\_System\_Definition:

Altitude\_System\_Definition:

Depth\_System\_Definition:

6.0 Distribution\_Information:

7.0 Metadata\_Reference\_Information:

Metadata\_Date: *Current Date (format 1998xxxx)*

Metadata\_Contact:

Metadata\_Standard\_Name: *FGDC Content Standards for Digital Geospatial Metadata*

Note: information in *italics* indicates default values.

### 3.3 Future Considerations

The current metadata collection project will take into consideration, where appropriate, the future implementation of technical measures designed to achieve the following:

- develop a virtual database in the form of an internet web site in order to facilitate easy and wide spread accessibility by agencies and the general public in Canada and the U.S. for operational use.
- select potential improvements to data availability, and implement a solution to the highest priority improvement such that critical data can be found online;
- provide an inventory of potential services performed by the RRBVDB in support of the conceptual Red River Basin Decision Support System; and
- implement a plan to increase public awareness of the RRBVDB and to promote its use by relevant agencies, institutions, and news media.
- linking the RRBVDB to unsteady flow models that are being developed. Model input data is to be obtained through the RRBVDB and model output is to be displayed on a map and made available through the RRBVDB so that communities, roads, individual homes and buildings that are at risk of flooding can be identified.

## 4. DATA ASSESSMENT

During the course of the data assessment stage, 33 agencies were contacted for the purpose of determining:

- the agency contact(s) for authority on land related information
- the datasets created, maintained, or managed by the agency and general characteristics, and status of the datasets
- the native systems environment in which the datasets are managed
- the agency's capability to serve data on the internet, and
- a measure of effort and complexity that is anticipated in the compilation of the metadata to achieve compliance with the FGDC Content Standard for Digital Geospatial Metadata.

Information has been collected through various means including site visits, telephone interviews, email exchange, catalog review, and internet research.

The form used to collect preliminary information during this stage is presented in Appendix A.

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## 4.1 Culture, Heritage and Citizenship

### 4.1.1. Historic Resources Branch

#### Agency Information:

Historic Resources Branch  
Main Floor, 213 Notre Dame Ave.  
Winnipeg, Manitoba  
R3B 1N3

**Contact Name:** Peter Walker

**Phone:** 945-5808

**Fax:** 948-2384

**Email:** Pwalker@escape.ca

**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Historic Building Sites Inventory	Digital	No	ArcView	All Manitoba	Current
2. Archaeological Sites Inventory	Digital	No	ArcView	All Manitoba	Current

#### Systems Environment and Applications

##### Internet Capabilities

None.

##### Miscellaneous Information and Notes

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## 4.2 Cantel AT&T

### Agency Information:

Cantel AT&T  
1600 – 330 Portage Avenue  
Winnipeg, Manitoba  
R3C 0L4

**Contact Name:** Art Mantler

**Phone:** (204) 942-1400

**Fax:** (204) 942-6647

**Email:** amantler@oss.cantel.rogers.com

**Web Site:** www.cantelatt.com

### Land Related Data:

Dataset Name	Format	Existing Metadata	Data Structure	Area Extent	Time Period
1. Cell Tower Distribution Network	Digital	No	MS Excel	Southern Manitoba	current

### Systems Environment and Applications

#### Internet Capabilities

Corporate web site.

#### Miscellaneous Information and Notes

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## 4.3 City of Winnipeg

### 4.3.1. Hydro

#### Agency Information:

City of Winnipeg  
Winnipeg Hydro  
1315 Notre Dame  
Winnipeg, MB  
R3E 3G2

**Contact Name:** Rodney Boychuck

**Phone:** (204) 946-3143

**Fax:** (204) 772-3872

**Email:** rboychuk@city.winnipeg.mb.ca

**Web Site:**

#### Land Related Data:

Dataset Name	Format	Existing Metadata	Data Structure	Area Extent	Time Period
1. Distribution network	Analogue	No	Linen on Plywood Plates	Dist. Area	Current

#### Systems Environment and Applications

None

#### Internet Capabilities

None

#### Miscellaneous Information and Notes

Winnipeg Hydro has not yet implemented any GIS for their infrastructure. There records although up to date are virtually unusable, given the format they are stored in (plywood plates). Cataloguing of this information should be brief at most.

### 4.3.2. Property and Development Services

#### Agency Information:

City of Winnipeg  
 Property and Development Services  
 2<sup>nd</sup> Floor, 65 Garry Street  
 Winnipeg, Manitoba

**Contact Name:** Brian Lund  
 Land Information Services  
 Coordinator  
**Phone:** (204) 986-4313  
**Fax:**  
**Email:** blund@citygw.city.winnipeg.mb.ca  
**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Digital Parcel Base Map	Digital	Yes	GDS	City of Winnipeg	Daily updates
2. Property Addressing Database	Digital	No	Sybase	City of Winnipeg	Daily updates
3. Applications and Permits	Digital & Analogue	Some	Amanda ORACLE DB	City of Winnipeg	Daily additions
4. Assessment Data	Digital	Some	IMS DB on OS/390 / CAMUS to ORACLE	City of Winnipeg	Current – annual updates

#### Systems Environment and Applications

The City of Winnipeg stores and maintains graphic data in a number of digital files using software by Graphic Data Systems Corporation (GDS). This system will be replaced in the near future.

#### Internet Capabilities

Corporate web site. Digital map data is served through an Intranet using MapGuide for internal City of Winnipeg operations use only.

#### Miscellaneous Information and Notes

- The Digital Parcel Base Map consists of a number of theme layers including:
  - Assessment and Register parcels
  - City owned land and Boundaries
  - Property Address
  - Proposed Subdivision
  - Street Centre Line Network (GeoCode) and Street Outline
  - Zoning
  - Topographic
  - Various other items

### 4.3.3. Works and Operations

#### Agency Information:

City of Winnipeg  
 Works and Operations  
 1500 Plessis Road  
 Winnipeg, Manitoba  
 R2C 5G6

**Contact Name:** Ken Dalton

**Phone:** (204) 986-4453

**Fax:** (204) 224-0032

**Email:** Kdalton@city.winnipeg.mb.ca

**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Water and Sewer Network	Digital	No	GDS	City of Winnipeg	current
2. Primary Line of Defense	Digital	No	MapInfo	City of Winnipeg	
3. As-Builts	Analogue	No		City of Winnipeg	
4. Aerial Photos of Rivers	Analogue	No		City of Winnipeg	
5. Flood Risk Maps	Analogue	No		City of Winnipeg	

#### Systems Environment and Applications

The City of Winnipeg stores and maintains graphic data in a number of digital files using software by Graphic Data Systems Corporation (GDS). This system will be replaced in the near future.

#### Internet Capabilities

Corporate web site. Digital map data is served through an Intranet using MapGuide for internal City of Winnipeg operations use only.

#### Miscellaneous Information and Notes

1. Water and Sewer network data contains elevation data.
2. Some data exists in the Digital Parcel Base Map regarding retention ponds, layout and piping but is only 50% complete.
3. Flood Risk Maps are obtained from the Province of Manitoba

Additional Contacts:

Doug McNeil – Waste Water Engineer – responsible for flood related data  
 Andy Nagy 986-7673

### 4.3.4. Underground Structures

#### Agency Information:

City of Winnipeg  
 Underground Structures  
 100 Main Street  
 Winnipeg, Manitoba  
 R3C 1A4

**Contact Name:** Bob Sciberras

**Phone:** (204) 986-6400

**Fax:** (204) 942-4811

**Email:** Bsciberr@city.winnipeg.mb.ca

**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Approval Application Underground Structures	Digital and Analogue	Yes	GDS	City of Winnipeg and St. Norbert	1800's to present
2. Various Maps	Analogue	No		City of Winnipeg	1800's to present

#### Systems Environment and Applications

The City of Winnipeg stores and maintains graphic data in a number of digital files using software by Graphic Data Systems Corporation (GDS). This system will be replaced in the near future.

#### Internet Capabilities

Corporate web site. Digital map data is served through an Intranet using MapGuide for internal City of Winnipeg operations use only.

#### Miscellaneous Information and Notes

None.

## 4.4 CN Rail

### Agency Information:

CN Rail  
 8<sup>th</sup> Floor, 277 Front St. W.  
 Toronto, Ontario  
 M5V 2X7

**Contact Name:** Carole D'Aoust-Martin  
 GIS Manager  
**Phone:** (416) 217-6818  
**Fax:** (416) 217-6743  
**Email:** daoust08@cn.ca  
**Web Site:** www.cn.ca

### Land Related Data:

Dataset Name	Format	Existing Metadata	Data Structure	Area Extent	Time Period
1. Railroad Alignment and Elevations 1:2,000,000	Digital	No	AutoCAD & MapInfo	Manitoba	current
2. CN Real Estate Properties	Digital	No	CAD	Manitoba	current
3. CN Condensed Track Profile (Letelier to Winnipeg)	Analogue	No	Map – linen print	Letelier to Winnipeg	Approx 1954

### Systems Environment and Applications

#### Internet Capabilities

Web site www.cn.ca. No information is made available over the internet to the public as related to railway alignment or elevations.

#### Miscellaneous Information and Notes

1. During the spring of 1997 – CN's internal network had many flood related postings and digital information relating to bank stabilization, line repairs, etc.
2. Toronto office manages the GIS system.
3. Edmonton office manages the Real Estate information
4. Winnipeg office has only analogue information regarding track alignment and elevations, but is not detailed.

#### Other Contacts:

- CN Real Estate  
 Harold Sweetland  
 CNR  
 1000 – 1004 104<sup>th</sup> Ave, 25<sup>th</sup> Floor  
 Edmonton, Alberta  
 T5J 0K2  
 Ph. (403) 421-6821  
 Fax: (403) 421-6431  
 Email: sweet02@cn.ca

- Winnipeg Office
    - Ms. Jose Bergeron
    - Technical Services Manager – Letelier Division
    - Ph. 934-8656
    - Cell 981-9806
  
    - Bob Paetsch
    - Technical Services Assistant Manager – Letelier Division
    - Ph. 934-8698
    - Fax 934-8516
    - Email: paetsch@cn.ca
    - CNR
    - 1400 – 433 Main St.
    - Winnipeg, Manitoba
    - R3C 2P8
      - has condensed track profile maps, scale 1" = 40,000 feet
      - Geographic extent from Letelier to Ft. Rouge Yards
      - Not updated in last 40 – 50 years
      - Contains percent gradient and elevation points at the time of construction
- 
- Ian Thompson – Public Affairs in Toronto (416) 217-6811
- Derek Wehner – Web Design in Toronto (416) 217-6811

## 4.5 Conservation Data Centre

### Agency Information:

Conservation Data Centre  
 Box 24 – 200 Saulteaux Crescent  
 Winnipeg, Manitoba  
 R3J 3W3

**Contact Name:**

Francois Blouin

**Phone:** (204) 945-6998

**Fax:** (204) 945-3077

**Email:** [Fblouin@nr.gov.mb.ca](mailto:Fblouin@nr.gov.mb.ca)

**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Threatened and Endangered Species	Digital	No	Advanced Revelation Database	Manitoba	Early as 1920's

### Systems Environment and Applications

AREV (Advanced Revelation) is a mainframe system developed by The Nature Conservatory (TNC) for tracking all plant, animal and plant community information for North America.

Biotics (developed by Linnet Geomatics) links ArcView map layers to AREV.

### Internet Capabilities

### Miscellaneous Information and Notes

CDC uses AREV system to track all "occurrences" of animal and plant species, as well as rank degree of endangerment. Currently houses 20,000 entries at approximately 3000 species occurrence locations.

AREV also contains Research References and Biological Abstracts containing descriptions of Behaviour habits of species throughout the year.

Boitics contains various point and polygon layers reference sitings / observations, true extents of species, plant communities, wetlands and managed areas / parks.

## 4.6 Ducks Unlimited Canada

### Agency Information:

Ducks Unlimited  
 P.O. Box 1160  
 Stonewall, Manitoba  
 R0C 2Z0

**Contact Name:** Brian Kazmerik

**Phone:** (204) 467-3000

**Fax:** (204) 467-9028

**Email:** B\_kazmerik@ducks.ca

**Web Site:** www.ducks.ca

### Land Related Data:

Dataset Name	Format	Existing Metadata	Data Structure	Area Extent	Time Period
1. Habitat Inventory Records	Digital	Yes	Geo-Coded	RR Basin	Since mid 1980's
2. Project Inventory Records	Digital	Yes	Geo-Coded	RR Basin	Since late 1930's
3. Aerial Photographs	Digital & Analogue	No	TIFF	Southern MB	1997
4. Plans of Construction Projects	Analogue	No	Maps, Records	Southern MB	Current
5. Flow Information for Projects	Analogue	No	Maps, Records	Southern MB	Current

### Systems Environment and Applications

ArcView GIS

### Internet Capabilities

Ducks Unlimited uses an ESRI map server and have the capability to serve digital map data over the Internet.

### Miscellaneous Information and Notes

1. The Habitat Inventory Records are based on Landsat data and 1980's Forest Inventory. This is a quarter section statistical database containing wetland habitat and marsh land data with over 1 million records.

Other Contacts:

- Larry Leavens - Hydraulic Engineer
- Brian Kazmerik – GIS Manager
- Dieter Bonas – I.S. Manager
- Bill Tedfor – GIS Analyst

## 4.7 Emergency Preparedness Canada

### Agency Information:

Emergency Preparedness Canada  
 MacDonald Building  
 403 – 344 Edmonton Street  
 Winnipeg, Manitoba  
 R3B 2L4

**Contact Name:** Larry French  
 Manitoba Regional Director  
**Phone:** (204) 983-6790  
**Fax:** (204) 983-3886  
**Email:** Larryf@escape.ca  
**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Cross Border Agreements on Flood Emergency Preparations	Digital	No	Word Perfect v5.1 and 6.5	All of Canada	current

### Systems Environment and Applications

#### Internet Capabilities

#### Miscellaneous Information and Notes

1. The Cross Border Agreements database is available only through Ottawa. Contact Chris Tucker, Scientific Advisor (613) 991-7071.

## 4.8 Environment Canada

### 4.8.1. Atmospheric Environment Branch

#### *Meteorology Section*

#### Agency Information:

Atmospheric Environment Branch  
 Suite 150-123 Main Street  
 Winnipeg, MB  
 R3C 4W2

**Contact Name:** Brain Fehr

**Phone:** (204) 983-0586

**Fax:** (204) 983-4884

**Email:** Brian\_fehr@ec.gc.ca

**Web Site:** www.cmc.ec.bc.ca/climate

#### Land Related Data:

Dataset Name	Format	Existing Metadata	Data Structure	Area Extent	Time Period
1. Climatic Station Catalogue	Digital	Some	Web App	All sites in Canada	Current
2. National Data Archive	Digital	Some	Oracle	All sites in Canada	Period of Records
3. Timely Climate Monitoring	Digital	Some	Flat files accessed via - ftp		
4. RealTime Observations	Digital	Some	Flat files	Various sites	Period of Record

#### Systems Environment and Applications

##### Internet Capabilities

Climate Station Catalogue is available on-line from [www.cmc.ec.bc.ca/climate](http://www.cmc.ec.bc.ca/climate).

##### Miscellaneous Information and Notes

Timely Climate Monitoring is a commercial product distributed by EC. Provides near real-time H/L temperatures and precipitation data daily. In operation for 6 years. Data is available on-line for a week and then archived.

Real time observations are available through direct dial up. EC only. Frequency ranges from every minute, hourly or ¼ day. Data is not archived.

## 4.8.2. Atmospheric Environment Branch

### *Water Survey of Canada Section*

#### **Agency Information:**

Atmospheric Environment Branch  
 Water Survey of Canada  
 Suite 150-123 Main Street  
 Winnipeg, MB  
 R3C 4W2

**Contact Name:** Annette Verley  
 Hydrometric Monitoring Division  
**Phone:** (204) 984-0240  
**Fax:** (204) 983-4506  
**Email:** annette.verley@ec.gc.ca  
**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Cross Sections – Raw Data	Analogue	No	Paper	Gauge Stations	Varies
2. Hydrometric Stations	Digital	No	Proprietary	Gauge Stations	Static
3. WL Records	Digital & Analogue	No	Mixed Paper and Electronic Records	Discharge Stations	From 1930
4. Flow Records	Digital	No	Proprietary	Various Stations in RR Basin	Varies
5. Stage – Discharge Measurements	Digital & Analogue	No	Paper & Electronic (INGRES DB)	Discharge Stations	Varies
6. Stage – Discharge Curves	Digital & Analogue	No	Paper & Electronic (INGRES DB)	Discharge Stations	Varies
7. Real-time Water Levels	Digital	No	Electronic Records	Some Discharge Stations	Varies

#### **Systems Environment and Applications**

##### **Internet Capabilities**

##### **Miscellaneous Information and Notes**

1. **Cross Sections – Raw Data**
  - Field notes containing raw data of sounding measurements, obtained in manual derivation of flow.
  - Some recorded in electronic form.

- All Hydrometric Sites operated by EC

**2. Hydrometric Stations**

- Station descriptions with Lat/Long and site drawing
- Approximately 100-150 sites within RR Basin (80% Discharge, 20% Water Level only)
- Published annually on HYDAT\* CD
- Regina office is working on a GIS (3<sup>rd</sup> party) application which maps the stations. (Contact: Brian Johnson, 306-780-5343)

**3. WL Records**

- Water Levels recorded at Discharge stations (see Item 3)
- Not published but available from office
- Format is time dependant:
  - Electronic (1996-current)
  - Mixed (1970 - 1996)
  - Paper (prior to 1970)

**4. Flow Records**

- Historical flow records for all Federally (and some Provincially) operated Discharge stations – Daily Means, Daily Max and Mins, Monthly Means.
- Approximately 100 stations in the RR Basin
- Data is published annually on HYDATA\* CD
- Period of record varies from station to station, with periods of inactivity in some. May be as early as 1930's.

**5. Stage - Discharge Measurements**

- Predominantly paper based curves and tables
- More recent curves are stored electronically in Ingres Database (Newleaf Software)

**6. Real-time Flow & Levels**

- Some networks exist for retrieving WL records via land lines at Hourly and Minute intervals.
- Satellite data available every 3 hours
- Not readily available for distribution

**7. Ice Data**

- **Indirect information observed on visits to discharge stations**
- **Stored in field notes.**
- **Presence of ice is subjectively interpreted (from WL records) and recorded with daily flow measurements on HYDAT CD**

**8. Sediment**

- Records of Sediment loads, Sediment Concentration, and Particle size
- Recorded at specific sites as part of program ... discontinued in 1996
- Various stations on Red and Assiniboine Rivers (some tributaries)

*Comments:*

Annette requested that she be given advanced notice prior to visits (e-mail preferably), to ensure her availability to assist in cataloging tasks.

MB Highways has good X-Sectional records, at river crossings.

MB Water Resources Branch may have X-Section data.

\* Environment Canada annually publishes all historical flow data on CD. Data is stored in a proprietary (binary) format on the CD, along with an access application for viewing / extracting flow data., (not to be confused with MB Water Resource Branch “Hydata system”).

*Additional Contacts:*

Brian Johnson

***EC-Regina Office***

(306) 780-5343

- GIS - Site locations

## 4.9 Fisheries and Oceans

### Agency Information:

Fisheries & Oceans  
 Small Craft Harbours  
 501 University Crescent  
 Winnipeg, Manitoba  
 R3T 2N6

**Contact Name:** Alan Kathan

**Phone:** 983-5721

**Fax:** 983-7166

**Email:** ka@dfo/mpo.gc.ca

**Web Site:** www.dfo\_mpo.gc.ca/sch/menu\_e.htm

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Engineering Files	Digital & Analogue	Yes	AutoCAD	Manitoba	1920's to present
2. Overview Transfer Plans	Digital & Analogue	Yes	AutoCAD	Manitoba	1980's – 1990's
3. Guide to Federal Small Craft Harbours – Prairies and Northwest Territories	Analogue	No	Map 1:2,000,000	Alberta, Sask., MB., N.W. Ont.	1995

### Systems Environment and Applications

AutoCAD

#### Internet Capabilities

Web site only.

#### Miscellaneous Information and Notes

- Small craft harbours are located in Emerson, Morris, St. Jean Baptiste, Killarney, Netley Creek.
- Engineering Data – older files from 1929 onward to 1980 are in non-digital form  
newer files from 1980 onward are stored in AutoCAD
- Lockport – locks and dry dock: Chris Colp 785-6300
- Bruce Townsend 983-5238, Emergency Measures Coordinator for S.C.H. and Coast Guard

## 4.10 LINNET Geomatics International Inc.

### Agency Information:

LINNET Geomatics International Inc.  
 1600 – 444 St. Mary Avenue  
 Winnipeg, Manitoba  
 R3C 3T1

**Contact Name:** Curtis McCrae

**Phone:** 957-6227

**Fax:** 957-7568

**Email:** Info@land-nav.com

**Web Site:** www.linnet.ca

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Boundaries – ¼ Section Index	Digital	Yes	DXF	Agricultural region of Manitoba	1995
2. Boundaries – various themes	Digital	Some	DXF	Manitoba	1990's
3. Various Survey and Ownership parcel data sets	Digital	Some	DXF	Most major towns in S. Manitoba	1990's
4. 1:6,000 Digital Ortho Images	Digital	Yes	TIF 20cm resolution	Selkirk and N. Winnipeg	1991 – 1992
5. 1:60,000 Digital Ortho Images	Digital	Yes	TIF 2 metre resolution	Agricultural region of Manitoba	1992 to present
6. Digital Elevation Model	Digital	Yes	ASCII	Agricultural region of Manitoba	1992 to present
7. ¼ Section and Riverlot Fabric	Digital	Yes	DXF / DGN	DLS and Parish regions of Manitoba	Updated annually – latest rev. 1997

### Systems Environment and Applications

LINNET operates the Land Information Navigator data warehouse for the Province of Manitoba. This data warehouse stores data in a variety of systems including VISION\*, AutoCAD, ArcView / ArcInfo and Intergraph. Data is brokered to the public and is delivered on CD ROM or diskette.

### Internet Capabilities

A static catalogue is made available on the web via <http://www.land-nav.com>. On Internet query application allows the public to search for Mining claims.

### **Miscellaneous Information and Notes**

- Although LINNET Geomatics stores many provincial data sets in the Land Information Navigator data warehouse, LINNET is not the authority on the data content.
- A rudimentary data catalog exists that holds some metadata; much of which has not be confirmed with the owner agencies and will be only useful as a starting point for the RRBVDB cataloguing effort.

## 4.11 Manitoba Crop Insurance Corporation

### Agency Information:

Manitoba Crop Insurance Corporation  
 400-50 24<sup>th</sup> Street, NW  
 Portage la Prairie, Manitoba  
 R1N 3V9

**Contact Name:**

**Phone:** (204) 239-3246  
**Fax:** (204) 239-3401  
**Email:**  
**Web Site:** www.mmpp.com

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Fertilizer Data	Digital	Some	Tabular	Agricultural region of Manitoba	Current
2. Fungicide Data	Digital	Some	Tabular	Agricultural region of Manitoba	Current
3. Herbicide Data	Digital	Some	Tabular	Agricultural region of Manitoba	Current
4. Production Data	Digital	Some	Tabular	Agricultural region of Manitoba	Current
5. Tillage Data	Digital	Some	Tabular	Agricultural region of Manitoba	Current
6. Agency District Boundaries	Digital	Some	DXF	Agricultural region of Manitoba	
7. Agro-ecological Resource Area Boundaries	Digital	Some	DXF	Agricultural region of Manitoba	1992
8. Agricultural Risk Areas	Digital	Some	DXF	Agricultural region of Manitoba	1992
9. Soils Classification System	Digital	No	Mainframe – linked to Integraph GIS	Agricultural region of Manitoba	Static
10. Yield Data (by Crop & Acreage)	Digital	No	Mainframe – georeferenced to legal land description	Agricultural region of Manitoba	Current since 1990

### Systems Environment and Applications

Mainframe system houses all historical soils survey data, referenced by ¼ section or river lot description. Integraph system provides GIS capabilities, linked to mainframe data. Currently in the process of migrating Integraph systems to ArcView.

Management and production data is available on-line through the Management Plus Program (MPP) - the result of a pilot project conducted as a joint effort between Canada-Manitoba Farm Business Management Council and Manitoba Agriculture and Manitoba Crop Insurance Corporation (MCIC). MPP was created with the intent of "Providing farmers with improved access to meaningful production and management information improves on farm decision making and in turn reduces Crop Insurance payouts"

### **Internet Capabilities**

The MPP application is available at [www.mmpp.com](http://www.mmpp.com).

### **Miscellaneous Information and Notes**

The Soils Classification System identifies and ranks all ¼ sections and river lots in agricultural extents of Manitoba. Soils are described and ranked with respect to yield potential based on a number of classification parameters such as soil characteristics, terrain, climate, hydrology, sensitivity to erosion, etc.)

#### *Additional Contacts:*

#### **Items 9 & 10**

Doug Wilcox  
Manitoba Crop Insurance Corp.  
400-50 24<sup>th</sup> Street N.W.  
Portage La Prairie, MB  
R1N 3V9  
Phone: (204) 239-3269  
Fax: (204) 239-3401  
Email: [dwilcox@mcic.gov.mb.ca](mailto:dwilcox@mcic.gov.mb.ca)

## 4.12 Manitoba Department of Agriculture

### 4.12.1. Soils and Crops Branch

#### Agency Information:

Soils and Crops Branch  
 Soils Research Section  
 University of Manitoba – Main Campus  
 Room 346 Ellis Building  
 Winnipeg, Manitoba  
 R3T 2N2

**Contact Name:** Jim Griffith

**Phone:** (204) 474-6112

**Fax:** (204) 474-7643

**Email:** Griffith@cc.umanitoba.ca

**Web Site:** www.gov.mb.ca

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Detailed Soil Survey Maps	Digital	No	GIS – Pamap	RRB (various locations)	Static – majority collected in past 20 years. As early as 1940.
2. Non-Detailed Soil Maps	Digital	No	GIS – Pamap	Enitre RRB	Static – most collected in 1950 – 70s
3. Information Booklets	Digital & Analogue	No			Current
4. Soil Surveys Point Data	Digital	No	Tabular - D-Base	RRB (various locations)	Same as 1.
5. Lab Analysis of Soil Surveys	Digital	No	Tabular - D-Base	RRB (various locations)	Same as 1.

#### Systems Environment and Applications

Pamap is used as the GIS system. D-Base is used as the database management system.

#### Internet Capabilities

None other than provincial web site.

## Miscellaneous Information and Notes

1. **Detailed Soil Survey Maps**
  - By Rural Municipality, maps (polygons) with corresponding soil descriptions resulting from soil surveys and analysis
  - Descriptions include soil type, classifications, characteristics and interpretations of suitability for various uses
  - 25 RM's throughout Manitoba.
  - Scale: 1:20,000 and 1:50,000
  - Some metadata exists, indexing data
  - Coverage is localized in various parts of RRB, by RM
  - Not great south of Winnipeg, (Morris, Montcalm, Franklin, etc)
  - Good coverage south of Portage La Prairie to the US Border.
  - GIS = PAMAP
2. **Non-Detailed Soil Maps**
  - maps (polygons) based on Reconesence soil surveys conducted in 1950-1970's
  - In comparison to Item 1, - less detailed descriptions, less specific, quality / correctness is inconsistent or questionable
  - include soil type, classifications, characteristics and interpretations of suitability for various uses
  - Scale: 1:125,000 NTS
  - Collected under Federal Government mandate
  - Coverage is complete in RRB, by RM
  - Not great south of Winnipeg, (Morris, Montcalm, Franklin, etc)
  - Good coverage south of Portage La Prairie to the US Border.
  - GIS = PAMAP
3. **Booklets by Rural Municipality**
  - Produced by RMs for non-detailed datasets (Item 2)
  - Available in Paper or digital format
  - Descriptions of soil types
4. **Soil Surveys Point Data**
  - Raw collected survey information for all detailed surveys (Item 1)
  - Stored in D-Base database file
  - Descriptions of soil characteristics, UTM coordinates
  - Used in the development of soil survey maps (Item 1)
5. **Lab Analysis of Soil Surveys**
  - Lab results from samples collected in Point Surveys (Item 4)
  - Stored in D-Base database file
  - Descriptions of soil characteristics
  - Used in the development of soil survey maps (Item 1)

*Additional Contacts:*

**Items 4 & 5** Chris Aglugub 474-6116  
MB Agriculture Soils and Crops Branch

## 4.13 Manitoba Department of Energy and Mines

### 4.13.1. Geological Services

#### Agency Information:

Manitoba Dept of Energy and Mines  
 Geological Services  
 1395 Ellice Avenue  
 Winnipeg, Manitoba  
 R3J 3P2

**Contact Name:** Dr. Erik Nielsen

**Phone:** (204) 945-6506

**Fax:** (204) 945-1406

**Email:** Enielsen@em.gov.mb.ca

**Web Site:**

#### Land Related Data:

Dataset Name	Format	Existing Metadata	Data Structure	Area Extent	Time Period
1. Base Maps 1:20,000	Digital	Yes	ArcView and MapInfo	Most of Manitoba	Current
2. Base Maps 1:50,000	Digital	yes	ArcView and MapInfo	Most of Manitoba	Current
3. Red River Historical Flood Studies (not operational yet)	Digital	No		RR flood plain from US border to L. Wpg	

#### Systems Environment and Applications

ArcView and MapInfo GIS systems.

#### Internet Capabilities

None.

#### Miscellaneous Information and Notes

*Additional Contacts:*

**Items 1 & 2** Paul Lenton (Head of GIS Section)  
 945-6553

## 4.14 Manitoba Department of Highways & Transportation

### Agency Information:

Manitoba Dept of Highways & Transportation  
 12<sup>th</sup> Floor, 215 Garry Street  
 Winnipeg, Manitoba  
 R3C 3S1

**Contact Name:** Grant Forsman

**Phone:** (204) 945-5151

**Fax:** (204) 945-1608

**Email:** Gforsman@hwy.gov.mb.ca

**Web Site:** roadinfo.hwy.gov.mb.ca

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Municipal Road Network	Digital	No		Manitoba	Current
2. Provincial Highways	Digital	No		Manitoba	Current
3. Roads – Alignment and Elevation	Digital & Analogue	Yes	ORACLE & Paradox	Manitoba	Late 1980's to 1990's
4. Bridge & Culvert Openings > 50 feet	Digital & Analogue	Yes	ORACLE & Paradox	Manitoba	Late 1980s' to 1990's
5. Road Inventory Information	Digital	Yes	Intergraph	Manitoba	early 1990's

### Systems Environment and Applications

Intergraph's GIS system is used to manage the provincial road network and inventory.

### Internet Capabilities

None, other than departmental web site.

### Miscellaneous Information and Notes

- Transportation network is adjusted and corrected according to 1:60,000 scale digital orthoimagery and 1:60,000 Scale National Topographic Surveys.
- A federal department had performed some studies and data gathering on Raised Pads and Elevations during the flood of 1997, but MB Highways does not have this information

## 4.15 Manitoba Department of Natural Resources

### 4.15.1. Manitoba Geographical Names

#### Agency Information:

Manitoba Dept of Natural Resources  
 Land Information Centre  
 Manitoba Geographical Names Program  
 1007 Century Street  
 Winnipeg, Manitoba  
 R3H 0W4

**Contact Name:** Gerald Holm  
 Provincial Toponymist  
**Phone:** (204) 945-1798  
**Fax:** (204) 945-1365  
**Email:** Gholm@nr.gov.mb.ca  
**Web Site:** Geonames.nrcan.gc.ca

#### Land Related Data:

Dataset Name	Format	Existing Metadata	Data Structure	Area Extent	Time Period
1. Manitoba Geographical Names Database	Digital	Yes	Tabular – FoxPro	All of Manitoba	Current

#### Systems Environment and Applications

A customized application has been developed by Linnet Geomatics for the purpose of creating and maintaining the Manitoba Geographical Names. Information is synchronized with the national database stored in Ottawa and managed by the Canadian Permanent Committee on Geographical Names.

#### Internet Capabilities

Geographic names can be searched from the national web site <http://geonames.nrcan.gc.ca>.

#### Miscellaneous Information and Notes

- Geographic name locations are identified by Feature type and include latitude / longitude coordinates and are associated to 1:50,000 and 1:250,000 map sheets.

### 4.15.2. Parks and Natural Areas Branch

#### Agency Information:

Manitoba Dept of Natural Resources  
 Parks & Natural Areas Branch  
 Box 52, 1495 St. James Street  
 Winnipeg, Manitoba  
 R3H 0W9

**Contact Name:**

**Phone:** (204) 945-8844  
**Fax:** (204) 945-0012  
**Email:**  
**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Geology – Mineral Map	Digital	Some	PC Arc/Info	All of Manitoba	1995
2. Geology – Surficial Map	Digital	Some	PC Arc/Info	All of Manitoba	1995

#### Systems Environment and Applications

PC ArcInfo

#### Internet Capabilities

#### Miscellaneous Information and Notes

- These datasets are being used by Parks and Natural Areas Branch to support the Endangered Spaces Campaign

### 4.15.3. Remote Sensing Centre

#### Agency Information:

Manitoba Dept of Natural Resources  
 Remote Sensing Centre  
 1007 Century Street  
 Winnipeg, Manitoba  
 R3H 0W4

**Contact Name:** Hartley Pokrant

**Phone:** (204) 945-6597

**Fax:** (204) 945-1365

**Email:** Kpokrant@nr.gov.mb.ca

**Web Site:** www.gov.mb.ca/natres/

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Land Use / Land Cover (Landsat TM)	Digital & Analogue	No	Raster, 30 m resolution	All Manitoba	Since 1974
2. Radarsat	Digital	No	Raster, 25 m resolution		14 passes Apr – May 1997
3. NOAA	Digital	No	Raster		

#### Systems Environment and Applications

##### Internet Capabilities

None other than provincial web site

##### Miscellaneous Information and Notes

### 4.15.4. Surveys and Mapping Branch

#### Agency Information:

Manitoba Dept of Natural Resources  
 Surveys and Mapping Branch  
 1007 Century Street  
 Winnipeg, Manitoba  
 R3H 0W4

**Contact Name:** Wayne Leeman  
 Director, Surveys Services  
**Phone:** (204) 945-6599  
**Fax:** (204) 945-1365  
**Email:** Wleeman@nr.gov.mb.ca  
**Web Site:** Not yet available

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Manitoba Stational Reference Network (M.S.R.N.)	Digital & Analogue	Yes	GIS – Intergraph, ArcInfo, DXF	Southern Manitoba	Current
2. Aerial Photographs – Standard, black & white and stereo pairs	Analogue Prints	Yes		Southern Manitoba & most of province	Most 1980's to early 1990's, some newer
3. Digital Ortho-imagery – 1:60,000 scale	Digital	Yes	TIF	Southern Manitoba up to Ashern & Swan River	1990's
4. Township – Section Corners	Digital	Some	Tabular	Manitoba	current
5. Township Fabric	Digital	Some	DXF	Manitoba	current
6. Topographic Maps – Digital 1:30,000 scale on CD ROM	Digital	No	ArcView, DXF	All Manitoba	1990's
7. Topographic Maps – 1:10,000 1:20,000 and 1:30,000 scale	Analogue	No		All Manitoba	1990's
8. 1:20,000 Topographic Maps	Digital	Yes	DXF	Most of S. Manitoba	ongoing
9. 1:500,000 Topographic Map	Digital	Yes	DXF	All Manitoba	1996
10. 1:1,000,000 Topographic Map	Digital	Yes	DXF	All Manitoba	1996
11. 1:2,000,000 Topographic Map	Digital	Yes	DXF	All Manitoba	1996
12. Township Mosaics – Digital Ortho-images	Digital	No	TIF	Most of Manitoba	
13. Township Mosaics – Analogue black & white prints	Analogue	No		Most of Manitoba	1990
14. Political Municipality Boundaries	Digital	Yes	Caris, DXF	Southern Manitoba	1826 - present

## **Systems Environment and Applications**

GIS systems used include CARIS, ArcInfo, ArcView and Intergraph.

## **Internet Capabilities**

None other than provincial web site. New web site is under construction with a targeted release date of January 1999.

## **Miscellaneous Information and Notes**

1. Additional contact for Political Municipality Boundaries
  - Dr. Rodney Lehmann
  - Email: rlehmann@nr.gov.mb.ca

## 4.15.5. Water Resources Branch

### *Water Planning and Development Section*

#### **Agency Information:**

Manitoba Dept of Natural Resources  
 Water Resources Branch  
 Water Planning & Development Section  
 BOX 14  
 200 Saulteaux Crescent  
 Winnipeg, Manitoba  
 R3J 3W3

**Contact Name:** Ron Bryer  
 Development Review Engineer  
 Water Planning and Development  
**Phone:** (204) 945-6498  
**Fax:** (204) 945-5339  
**Email:** rbryer@nr.gov.mb.ca  
**Web Site:** www.gov.mb.ca/natres/watres

#### **Land Related Data:**

<b>Dataset Name</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
1. Flood Proofing Program Project Information	Digital & Analogue	No	Tabular – MS Access	RRB (various locations)	Since 1997
2. Flood Proofing Program Applications	Digital	No	Tabular- MS Excel	RRB (various locations)	Prior to 1997
3. High Water Marks – Surveys (Raw Data)	Analogue	No	Surveyor Field Books	Area resulting from flooding of Red River	Various dates. 1950, 1979 few 1997 some

#### **Systems Environment and Applications**

Microsoft Office including MS Access and MS Excel Spread Sheets.

#### **Internet Capabilities**

None other than provincial web site.

#### **Miscellaneous Information and Notes**

1. Flood Proofing Program Project Information:
  - completed project records (approximately 800)
  - survey field notes for buildings, and flood proofing structures (dikes) relating to project, where applicable
  - elevations of dikes, buildings, etc.
  - short term plan includes integration into GIS by Surveys and Mapping Branch by spring of 1999 – point locations will reference project information stored in MS Access DB.
2. Flood Proofing Program Applications:

- applications for flood proofing (2500 – 3000)
- include building information, elevations
- considered by WRB as obsolete (out of date), since applicants may have changed landscape since filing of application

3. High Water Marks – Surveys (Raw Data)

- Survey filed books for high water marks recorded after flood receded.
- Approximate data surveys completed:
  - 500 – 600 (1997)
  - 100 – 150 (1979)
  - few (1950)
- No coordinates, typically referenced to a ¼ section
- Water Resources Branch will eventually record these Water Marks in a GIS as point data, by cross-referencing with Orthophotos. This work will be performed by Surveys and Mapping Branch (Land Information Centre).

### **Ground Water Management Section**

#### **Agency Information:**

Manitoba Dept of Natural Resources  
 Water Resources Branch  
 Ground Water Management Section  
 BOX 14  
 200 Saulteaux Crescent  
 Winnipeg, Manitoba  
 R3J 3W3

**Contact Name:** Eric Carlson  
 Ground Water Management  
**Phone:** (204) 945-7401  
**Fax:** (204) 945-7419  
**Email:** Ecarlson@nr.gov.mb.ca  
**Web Site:** www.gov.mb.ca/natres/watres

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Aquifer Maps	Analogue	No	Paper	RR Basin	1960s
2. Chemistry Data	Digital	No	ORACLE (Hydata system)	RR Basin	Varies
3. Well Locations	Digital	No	ORACLE (GW drill application)	RR Basin	Static
4. Well Driller Logs	Digital	No	ORACLE (GW drill application)	RR Basin	Historical - current

#### **Systems Environment and Applications**

GW Drill is a client / server application developed for Water Resources Branch to archive well driller logs and chemical analysis results.

#### **Internet Capabilities**

- WRB has very limited access to post HTML pages on the provincially managed web-site.
- URL: [www.bov.mb.ca/natres/watres/wrb\\_main.html](http://www.bov.mb.ca/natres/watres/wrb_main.html)

#### **Miscellaneous Information and Notes**

1. **Aquifer Maps**
  - Various paper maps of Hydrogeology
  - Boundaries of major aquifers (S. of Assinaboine, W/E Red River, N/S of Rat River)
2. **Chemistry Data**
  - Raw chemical data (lab analysis) of well water, sampled at drill time or any time after
  - Approximately 50,000 well locations in RR Basin
  - Some (100) stations are monitored on regular basis, forming time-series data
3. **Well locations**
  - Approximately 50,000 well locations in RR Basin

- Point data, geo-referenced to section corners, some may have UTM coordinates
- Stored in GW Drill application\*

**4. Well Driller Logs**

- Collected and archived in GW Drill application\*

*Additional Contacts:*

**Item 3:** Frank Render  
Section Head  
Phone: 945-7402  
Fax: 945-7419  
Email: [frrender@nr.gov.mb.ca](mailto:frrender@nr.gov.mb.ca)

### **Surface Water Management Section**

#### **Agency Information:**

Manitoba Dept of Natural Resources  
 Water Resources Branch  
 Surface Water Management Section  
 BOX 14  
 200 Saulteaux Crescent  
 Winnipeg, Manitoba  
 R3J 3W3

**Contact Name:** Bob Harrison

**Phone:** (204) 945-7411

**Fax:**

**Email:** Bharrison@nr.gov.mb.ca

**Web Site:** www.gov.mb.ca/natres/watres

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Water Level Records – Regular	Digital	No	ORACLE	RR Basin	Typically after 1970 some as early as 1940
2. Water Level Records – Temporary	Digital	No	ORACLE	Various point locations	Current since 1970's
3. Stage Discharge Measurements	Digital	No	MS Excel	Various point locations	30 – 40 years of records
4. Gauge Locations	Digital	No	Report / MS Excel	All federal & prov. Run stations	Static
5. Hydata Time Series Data Archive	Digital	No	ORACLE	RR Basin	Varies
6. Flood Frequency Curves	Digital	No	Report (Electronic)	Main Stem (Red River and some tributaries)	Specific flood years
7. Cross-sections	Digital	No	HEC II	Red River channel and other tributaries	1951, 1970's, 1979
8. Stage-Damage Curves	Analogue	No	Paper Reports & Graphs	Various communities	1966, 1979
9. Flood Plain	Analogue	No	Paper Topographic maps - contour lines	Red River Vallley	1951

#### **Systems Environment and Applications**

WRB is currently considering web-enabling their Hydata system, for limited public access to flow and water level records.

Source of meteorological data is from Environment Canada (Atmospheric Environment Branch) and some is downloaded in near real-time (BBS or satellite) from remote stations where available. Both are archived in Hydata by WRB.

## Internet Capabilities

- WRB has very limited access to post HTML pages on the provincially managed web-site.
- URL: [www.bov.mb.ca/natres/watres/wrb\\_main.html](http://www.bov.mb.ca/natres/watres/wrb_main.html)

## Miscellaneous Information and Notes

- 1. Water Level Records - Regular**
  - Approximately 12 stations recording Water Levels in RR Basin, operated by WRB on a consistent basis
  - Most in operation since 1970's, some as early as 1940's
  - Records may be suspended during winter (icing conditions)
  - Records are retrieved as often as once every week or for remote stations, once every 2-3 months.
  - Daily WL records are computed and eventually archived in Hydata system, (see item 5).
  - Depending on site, may be published on Water Survey of Canada "HYDAT" CD.
- 2. Water Level Records - Temporary**
  - 4 or 5 stations established during flood events to record continuous water level
  - Most in operation since 1970's
  - WL records are considered supplementary to other station readings for analysis purposes
  - Translated to daily averages and posted on Web during flood events
  - Eventually archived in Hydata system, (see item 5)
- 3. Stage Discharge Measurements**
  - S/D measurements taken a random locations during floods (and other times, to support flow analysis).
  - Some locations repeatedly used but not permanent station exists
  - 30-40 years of measurements
  - S/D measurements include velocity and area computations
- 4. Gauge Locations**
  - Excel Spreadsheet of active gauge stations (Flow and Level), complete with Twp/Rng/Sec Description, Lat/Long
  - Some Lat/Long values converted UTM
  - Original source for Federally run stations are taken from Environment Canada HYDAT CD
- 5. Hydata Time Series Data Archive**
  - Desktop application for accessing all archived Flow, Water Level and Meteorological Time Series Data
  - Integrated with Real-time Data Acquisition Software (BBS, Satellite)
  - Resolution includes Daily, Hourly and Instantaneous measurements.
  - Data dates back to 1930's for older stations.
  - Technology: 2-Tier C/S, Windows 95/NT, Novell, and Oracle.

- Excel Spreadsheet of active gauge stations (Flow and Level), complete with Twp/Rng/Sec Description, Lat/Long

**6. Flood Frequency Curves**

- Flood frequency curves (Equations) for select locations
- Updated upon request – typically annually, incorporating all significant flood (discharge) events for period of record

**7. Cross-Sections**

- Various surveyed sections along Red River Channel, other tributaries and manmade drains and ditches
- Stored in Hec II format.

**8. Stage-Damage Curves**

- Reports and graphs (paper) included in various economic analysis for flood proofing
- Analysis conducted on various communities after 1966 and 1979 floods.

**9. FloodPlain**

- Contour line maps drawn based on surveys conducted in 1951.
- Verified for accuracy over time from more recent surveys
- Red River only, Emerson to South Winnipeg

*Additional Contacts:*

**Item 3:** Roy Vosper  
Senior Hydrometric Technician  
Surface Water Management  
Water Resources Branch  
Phone: 945-6484  
Fax: 945-7419  
Email: [rvosper@nr.gov.mb.ca](mailto:rvosper@nr.gov.mb.ca)

**Item 6:** Neil Harden  
Surface Water Management  
Water Resources Branch  
Phone: 945-6118  
Email: [nharden@nr.gov.mb.ca](mailto:nharden@nr.gov.mb.ca)

**Item 7 & 9:** Eugene Kozera  
Water Resources Branch  
Phone: 945-7657  
Email: [ekozer@nr.gov.mb.ca](mailto:ekozer@nr.gov.mb.ca)

**Item 8:** Rick Hay  
Regional Water Manager (former)  
Water Resources Branch  
Phone: 945-6496  
Email: [rhay@nr.gov.mb.ca](mailto:rhay@nr.gov.mb.ca)

### 4.15.6. Wildlife Branch

#### Agency Information:

Manitoba Dept of Natural Resources  
 Wildlife Branch  
 Box 24  
 200 Saulteaux Crescent  
 Winnipeg, Manitoba  
 R3J 3W3

**Contact Name:** Dan Teillet  
 Habitat Section  
**Phone:** (204) 945-7746  
**Fax:** (204) 945-3077  
**Email:** Dteillet@nr.gov.mb.ca  
**Web Site:** www.gov.mb.ca/natres

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Critical Wildlife Habitat – Boundaries	Digital	No	ArcView / ArcInfo	Tallgrass Prairie Preserve	Current
2. Critical Wildlife Habitat – Vegetation Analysis	Analogue	No	MS ACCESS	Tallgrass Prairie Preserve	

#### Systems Environment and Applications

##### Internet Capabilities

None other than provincial web site.

##### Miscellaneous Information and Notes

1. **Critical Wildlife Habitat – Boundaries**
  - Tallgrass Prairie Reserve only.
  - All boundaries recorded in ArcView as defined.
2. **Critical Wildlife Habitat – Vegetation Analysis**
  - Database non-linked to GIS (Tallgrass Prairie Preserve)

**Note:** There are virtually no Critical Habitats within the Red River Valley. Few exist outside the valley, which only extend slightly into valley area. Outside the valley there are numerous habitats recorded by Wildlife Branch in ArcView GIS. Information includes Land base info (Crown lands references, ownership), links to Orthophotos, Landuse activities, etc.

##### *Additional Contacts:*

Conservation Data Centre – Carol Scott.

## 4.16 Manitoba Emergency Management Organization

### Agency Information:

Manitoba Emergency Management  
 Organization  
 15<sup>th</sup> Floor, 405 Broadway  
 Winnipeg, Manitoba  
 R3C 3L6

**Contact Name:** Paul Robinson

**Phone:** (204) 945-4772

**Fax:** (204) 945-4620

**Email:** Probinson@gs.gov.mb.ca

**Web Site:** www.gov.mb.ca/gs.memo

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Provincial Emergency Plans	Digital & Analogue	No	Word Perfect and MS Word	All of Manitoba	Last 5 years
2. Municipal Emergency Plans	Digital & Analogue	No	Word Perfect and MS Word	All of Manitoba	Last 5 years
3. Organization Charts	Digital & Analogue	No	Word Perfect and MS Word	All of Manitoba	Last 5 years

### Systems Environment and Applications

#### Internet Capabilities

Road closures during the 1997 flood were posted to the Internet at [www.gov.mb.ca/gs/memo](http://www.gov.mb.ca/gs/memo). Web site coordinator is Brian Kozak – 944-2662.

#### Miscellaneous Information and Notes

None

## 4.17 Manitoba Environment

### Agency Information:

Manitoba Environment  
 284 Reimer Avenue, Unit 5  
 Steinbach Towne Square  
 Box 21450  
 Steinbach, Manitoba  
 R0A 2T3

**Contact Name:** Dave Walsh

**Phone:** (204) 346-0065

**Fax:** (204) 326-2472

**Email:** Dawalsh@env.gov.mb.ca

**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Water Quality *	Digital	No	Tabular – FoxPro with Lat/Long ref.	RRB (various Point locations)	Since mid 1960's
2. Air Quality					
3. Transportation					
4. Contaminated Sites					
5. Environmental Monitoring Information System (EMIS)	Digital	No	Tabular – FoxPro and GIS	RRB (various locations)	

### Systems Environment and Applications

EMIS is a custom GIS application developed by Linnet Geomatics, and has been implemented in four regional offices. This system stores a variety of environmentally related data items.

A new system 'MELODI' is scheduled for implementation by mid 1999 that will integrate all regional data into one system.

All Water Quality data is stored in departmental Water Quality Data Management System implemented in a PC FoxPro database.

### Internet Capabilities

None other than provincial web site.

### Miscellaneous Information and Notes

1. The Winnipeg office is responsible for urban environmental issues, whereas the 5 regional offices are concerned with rural environmental issues.
2. Information on contaminated sites and emergency response is coordinated through the Winnipeg office.
3. Water Quality data is available for approximately 40 sites (point locations) in RRB since mid-1960's. Currently operating 10-12 active sites in the basin. Other sites were either discontinued

or relates to data collected for project specific studies. Updates to system on active stations is made either monthly or quarterly. Data is geo-reference using Lat/Long coordinates.

*Additional Contacts:*

Randy Weber, Winnipeg office and Edwon Yee (Steinbach)

\* - Contact for Water Quality Data

Dwight Williamson

Manager – Water Quality Management Section

123 Main Street

Winnipeg, MB

R3C 1A5

Phone: (204) 945-7030

Fax: (204) 948-2357

[Dwight\\_williamson@env.gov.mb.ca](mailto:Dwight_williamson@env.gov.mb.ca)

[www.gov.mb.ca/envirom](http://www.gov.mb.ca/envirom)

## 4.18 Manitoba Hydro

### Agency Information:

Manitoba Hydro  
 1090 Waverley  
 Winnipeg, Manitoba  
 R3T 0P4

**Contact Name:** Jim Campbell

**Phone:** (204) 474-3020

**Fax:** (204) 475-4587

**Email:** mjcampbell@hydro.mb.ca

**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Transmission Lines	Analogue	No	Maps 1:20,000 and 1:50,000	All Manitoba	1960 to present
2. Street Network Files for Rural Communities	Digital & Analogue	No	AutoCAD	Most major towns in S. MB.	current
3. Transformer Stations and Distribution Network	Digital	Yes	AutoCAD		
4. 1:20,000 Topographic Maps	Digital & Analogue	Yes	DXF / DWG & maps	Most S. MB.	Late 1980's
5. Cadastral Maps – Property and Survey Layers	Digital & Analogue	Yes	DXF / DWG & maps		
6. 1:60,000 Digital Ortho imagery	Digital	Yes	TIF	All Southern MB	1991 – 1997
7. 1:10,000 Digital Ortho Imagery for City of Winnipeg	Digital	Yes	TIF	City of Wpg	1994 - 1998

### Systems Environment and Applications

Manitoba Hydro has extensive GIS systems for managing hydro-electric infrastructure data and relevant base map information data sets. AUTO CAD is used as the primary CAD engine with custom developed GIS applications.

### Internet Capabilities

AutoCAD MapGuide is used to serve digital map data over an internal network. A prototype is currently available that can serve data to the public in the event of a natural calamity. Scheduled for completion within 3 months.

### Miscellaneous Information and Notes

- Street network files are licensed from LINNET Geomatics
- City of Wpg 1:1,000 scale property and survey data is licensed from the City of Wpg

## 4.19 MTS Communications Inc.

### Agency Information:

MTS Communications Inc.  
 P.O. Box 1690, 222 Main Street  
 Steinbach, Manitoba  
 R0A 2A0

**Contact Name:** Cathy Funk

**Phone:** (204) 326-8237

**Fax:** (204) 326-6123

**Email:**

**Web Site:**

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Land Lines Network					
2. Call before you Dig					

### Systems Environment and Applications

MTS uses CABLECAD to manage outside plant inventory information

### Internet Capabilities

MTS has an extensive internal intranet infrastructure and hosts some applications and information through their current website at <http://www.mts.mb.ca>.

### Miscellaneous Information and Notes

*Additional Contacts:*

- Henry Dyck 958-1768

## 4.20 MTS Mobility

### Agency Information:

MTS Mobility  
 555 Madison Avenue  
 Winnipeg, Manitoba

**Contact Name:**

**Phone:**  
**Fax:**  
**Email:**  
**Web Site:** [www.mtsmobility.mb.ca](http://www.mtsmobility.mb.ca)

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Cellular Towers Network					

### Systems Environment and Applications

#### Internet Capabilities

#### Miscellaneous Information and Notes

## 4.21 Prairie Farm Rehabilitation Administration (PFRA)

### Agency Information:

PFRA  
 200 – 303 Main Street  
 Winnipeg, Manitoba  
 R3C 3G7

**Contact Name:** Ron Lewis  
 GIS Specialist  
**Phone:** (204) 983-4833  
**Fax:** (204) 983-2178  
**Email:** Pf21317@em.agr.ca  
**Web Site:** www.agr.ca/pfra

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. 1:50,000 base maps	Digital	Some	ArcInfo / E00	Southern MB	Last updated in 1992 – 1993
2. Prairie Farm Locator System	Digital	No	ArcInfo/ E00	Southern MB	
3. Soils	Digital	No	ArcInfo	Southern MB	
4. Building Elevations Surveys	Analogue	No	Paper Surevey fieldbooks	RR valley lots & variable extents E/W of Red River	Weeks prior to 1997 flood.

### Systems Environment and Applications

PFRA developed an application called the Prairie Farm Locator (PFL), during the flood of 1997 to assist in locating people and resources in rural Manitoba according to quarter section identifiers.

### Internet Capabilities

Web site [www.agr.ca/pfra](http://www.agr.ca/pfra)

### Miscellaneous Information and Notes

PFRA's Soil data is based on GIS (PAMAP) data provided by Department of Agriculture. Data has been converted into ArcInfo (from PAMAP) and "cleaned up".

Building elevations were surveyed in the Red River valley and neighboring areas, by numerous crews, weeks prior to the flood of 1997. Surveys turned over to Water Resources Branch (Ron Bryer).

## 4.22 Statistics Canada

### Agency Information:

Statistics Canada  
 CN Union Station  
 #200 – 123 Main Street  
 Winnipeg, Manitoba  
 R3C 4V9

**Contact Name:** Jade Clavet  
 Account Executive  
**Phone:** (204) 983-4028  
**Fax:** (204) 983-7543  
**Email:** Wclajad@statcan.ca  
**Web Site:** www.statcan.ca

<b>Land Related Data:</b>	Format	Existing Metadata	Data Structure	Area Extent	Time Period
<b>Dataset Name</b>					
1. Demographic Profile	Digital	Yes	CD ROM & 3.5" diskette	Manitoba	1997
2. Street Network Files	Digital	Yes	CD ROM & 3.5" diskette	Manitoba	1997
3. Enumeration Areas	Digital	Yes	CD ROM & 3.5" diskette	Manitoba	1997
4. Economic Regions	Digital	Yes	CD ROM & 3.5" diskette	Manitoba	1997

### Systems Environment and Applications

#### Internet Capabilities

Datasets are made available through the national web site at [www.statcan.ca](http://www.statcan.ca)

#### Miscellaneous Information and Notes

## 5. Initial Analysis

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### 5.1 Process

The intent of the analysis is to

- help refine our estimate for the effort required to complete the minimum compliance of the RRBVDB metadata catalog and
- ensure that no major data set categories have been overlooked.

The scale used to represent our measure of effort required to complete the metadata capture is established at the agency level rather than the data set level at this point and takes into consideration:

- factors that will *increase* effort
  - the volume of data to be catalogued (# of datasets)
  - the complexity of the data (i.e. time series, tiled, number of features of layers, etc.) where 1 = simple, and 2 = complex
- factors that will *decrease* effort
  - the availability of existing metadata or documentation where 0.5 = good documentation and 1.0 = poor or none
  - the level of assistance to be provided by the owner agency (may be determined by geography) where 0.5 = agency support and 1.0 = no or little agency support

The four factors for each agency are multiplied together to arrive at a weight or measure of effort. Example:

$$\begin{aligned} &(2) \text{ Datasets} \\ &* (1) \text{ Simple} \\ &* (0.5) \text{ Good Doc'n} \\ &* (1.0) \text{ Little Agency support} \\ &= \mathbf{1.0} \end{aligned}$$

The weight is roughly translated into a measure of effort in days.

## 5.2 Measure of Effort

Agency	Branch / Section	Factors increasing Effort		Factors Decreasing Effort		Measure of Effort
		Volume (# Data sets)	Complexity 1 = low 2 = high	Support materials 0.5 = good 1.0 = poor	Agency Support 0.5 = good 1.0 = little	
Culture, Heritage & Citizenship	Historic Resources Branch	2	1	0.5	0.5	0.5
Cantel AT&T		1	1	1.0	1.0	1.0
City of Winnipeg	Hydro	1	1	1.0	0.5	0.5
	Property and Development Services	4	2	0.5	0.5	2.0
	Works and Operations	5	1	1.0	0.5	2.5
	Underground Structures	2	1	1.0	0.5	1.0
CN Rail		2	1	1.0	1.0	2.0
Conservation Data Centre		1	1	1.0	0.5	0.5
Ducks Unlimited Canada		5	2	0.5	0.5	2.5
Emergency Preparedness Canada		1	1	1.0	1.0	1.0
Environment Canada	Atmospheric Environment Branch (Meteorology)	4	2	0.5	0.5	2.0
	Atmospheric Environment Branch (Water Survey)	7	1	1.0	0.5	3.5
Fisheries and Oceans		3	1	0.5	0.5	0.75
LINNET Geomatics		7	1	0.5	0.5	1.75
MCIC		10	1	0.5	0.5	2.5
MB Dept of Agriculture	Soils and Crops Branch	5	1	1.0	0.5	2.5
MB Dept of Energy & Mines	Geological Services	3	1	1.0	0.5	1.5
MB Dept of Highways		5	1	1.0	0.5	2.5
MB Dept of Natural Resources	MB Geographical Names	1	1	0.5	0.5	.25
	Parks and Natural Resources	2	1	1.0	0.5	1.0
	Remote Sensing Centre	3	1	1.0	0.5	1.5
	Surveys and Mapping	14	1	1.0	0.5	7.0
	Water Resources Branch (Water Planning & Dev.)	3	1	1.0	0.5	1.5
	Water Resources Branch (Ground Water Mgt)	4	1	1.0	0.5	2.0
	Water Resources Branch (Surface Water Mgt)	9	1	1.0	0.5	4.5

	Wildlife Branch	2	1	1.0	0.5	1.0
MB Emergency Mgt Organization		3	1	1.0	0.5	1.5
Manitoba Environment		5	1	1.0	0.5	2.5
Manitoba Hydro		7	1	0.5	0.5	1.75
MTS Communications		2	1	1.0	1.0	2.0
MTS Mobility		1	1	1.0	1.0	1.0
PFRA		4	1	1.0	0.5	2.0
Statistics Canada		4	1	0.5	0.5	1.0
<b>Total Data sets</b>		<b>132</b>	<b>TOTAL Weight</b>			<b>61.0</b>

Using the basic parameters for gauging the complexity and effort of collecting metadata for all of the identified land related datasets in the Red River Basin, we arrive at an estimate of > 60 days effort.

### 5.3 Priority of Cataloguing Efforts

Given that the estimated effort of 60+ days to compile the metadata would exceed initial project estimates, it is imperative that the initial data set priority ranking be considered, to ensure that the most significant data sets are catalogued completely before other lesser significant data sets are catalogued.

The following table suggests the priority of data set cataloguing efforts.

<b>Priority 1</b>	
<b>Agency</b>	<b>Branch / Section</b>
City of Winnipeg	Hydro
	Property and Development Services
	Works and Operations
	Underground Structures
CN Rail	
Ducks Unlimited Canada	
Emergency Preparedness Canada	
Environment Canada	Atmospheric Environment Branch (Meteorology)
	Atmospheric Environment Branch (Water Survey)
LINNET Geomatics	
MB Dept of Highways	
MB Dept of Natural Resources	MB Geographical Names
	Parks and Natural Resources
	Remote Sensing Centre

	Surveys and Mapping
	Water Resources Branch (Water Planning & Dev.)
	Water Resources Branch (Ground Water Mgt)
	Water Resources Branch (Surface Water Mgt)
	Wildlife Branch
MB Emergency Mgt Organization	
Manitoba Hydro	
MTS Communications	
<b>Priority 2</b>	
<b>Agency</b>	<b>Branch / Section</b>
Cantel AT&T	
Conservation Data Centre	
Fisheries and Oceans	
MB Dept of Agriculture	Soils and Crops Branch
MB Dept of Energy & Mines	Geological Services
Manitoba Environment	
MTS Mobility	
PFRA	
Statistics Canada	
<b>Priority 3</b>	
<b>Agency</b>	<b>Branch / Section</b>
Culture, Heritage and Citizenship	Historic Resources Branch
MCIC	

# Appendix A



**International Joint Commission  
RED RIVER BASIN VIRTUAL DATABASE**

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# DATA ASSESSMENT

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This form is used to gather preliminary information about a data provider organization and the information datasets that they create / maintain which are of relevance to the RRBVDB project.

## Agency Information:

Agency Name: _____	Contact Name: _____
Address: _____	Phone: _____
_____	Fax: _____
_____	Email: _____
	Web Site: _____

## Land Related Data:

Dataset Name	Digital	Analogue	Does Metadata exist?	Data Format (i.e. DXF, ArcView.. or Map, Report..)	Geographic Extent	Time Period
1.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
2.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
3.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
4.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
5.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
6.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
7.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			

## Miscellaneous Information / Notes:

Does the agency have the capability to serve data through the Internet?

- Yes      \_\_\_\_\_ URL: \_\_\_\_\_  
 No





**International Joint Commission  
RED RIVER BASIN VIRTUAL DATABASE**

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# **DATA ASSESSMENT**

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**Miscellaneous Information / Notes:**

