
Resource Access Roads Geospatial Data

Information Management Plan & Data Management Guide



Ministry of Natural Resources

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1.0 INTRODUCTION AND BACKGROUND

Roads and information about roads is part of the Ministry of Natural Resources (MNR) business. The MNR plays a significant role by being one of the leading road authorities in Ontario. Provincial legislation the MNR may be responsible for, or must abide by, includes:

1. Environmental Assessment Act
2. Crown Forest Sustainability Act
3. Provincial Parks and Conservation Reserves Act
4. Public Lands Act
5. Municipal Act
6. Local Roads Board Act
7. Mining Act

Roads under MNR jurisdiction may fall within the responsibility of several different MNR branches and program areas. They include:

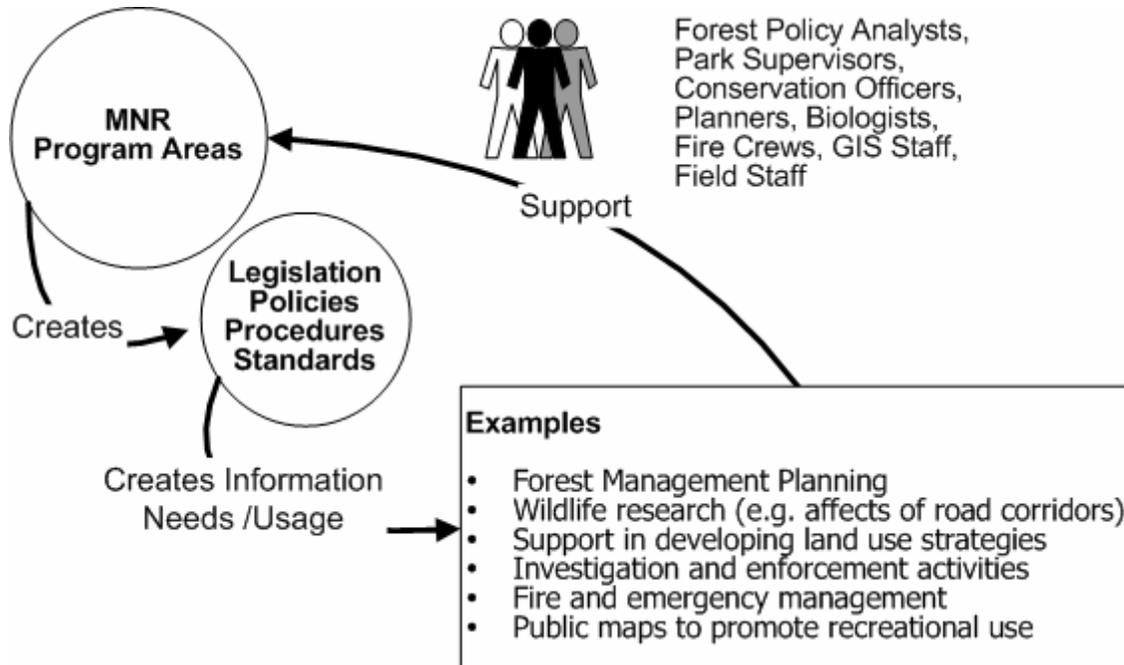
- Forests Division
Roads that are part of forest management, as described in the *Class Environmental Assessment for Timber Management on Crown Lands in Ontario*, are governed by the *Crown Forest Sustainability Act*.
- Parks
Non-forestry roads within a provincial park or conservation reserve are governed by the *Provincial Parks and Conservation Reserves Act*, which is administered by Ontario Parks.
- Lands & Waters Branch
Other roads on Crown Land are governed by the *Public Lands Act*, which is administered by the Land Management Section.

Staff wishing to find more information related to accountabilities and practices associated with the MNR's resource access roads should refer to the *Crown Land Roads Manual (CLRM)*. The CLRM is a compendium of directives (policies, procedures and bulletins) to guide ministry staff in their Crown Land roads related work. It is planned that the CLRM will be placed on an MNR website for accessibility in early 2007.

Beyond the above noted legislated requirement, the location of roads (resource access roads, municipal roads and provincial highways) is fundamental information needed by many business areas and staff across the MNR for planning and managing resources or emergencies within Ontario.

Location based information is used extensively by MNR staff to deliver or support the MNR's business activities as highlighted in the examples below.

Diagram 1



Location based information related to resource access roads are a responsibility of both local and main office levels within the MNR. Geospatial data containing the x, y ground coordinates of the road centreline plus a series of descriptive attributes associated with the road is created and maintained through the MNR's corporate Natural Resources and Values Information System (NRVIS).

The MNR's geospatial roads data within NRVIS has become dated and no longer addresses today's business requirements. As a result, users have had to build their own solutions in order to meet day-to-day business demands. The MNR now has varying corporate and local data standards, road network classification systems and ad-hoc data maintenance activities.

In order to remedy these data issues, a *Strategy for the Improvement and Maintenance of the MNR's Geospatial Data on Resource Access Roads* was developed through 2004 to 2006. An internal consultative process across MNR business areas and programs was conducted to obtain agreement on data content, standards and responsibilities in producing and maintaining roads data. With positive support received across the organization, the strategy moved to the project implementation stage in the fall of 2006.

The Strategy identified a series of steps to successfully improve the MNR's geospatial data for resource access roads:

1. Create an *Information Management Plan*.
2. Agree upon a set of established *Data Standards* (spatial and tabular).
3. Develop a *new NRVIS Resource Access Roads Layer* and tools to collate and integrate existing datasets.
4. Develop *Data Maintenance Procedures* for Resource Access Roads.
5. Have the MNR become a *user and contributor* to the Ontario Road Network.

1.1 Purpose of Document

The Information Management Plan and Data Management Guide was developed by the Resource Access Roads Team to provide direction, information and assistance in understanding:

- the MNR's resource access roads geospatial data
- how it is being improved and managed
- who has what responsibilities
- what data processes and support models are in place.

1.2 Audience

This document is intended to provide direction to staff across the MNR's business and program areas who are involved in creating, maintaining and using resource access roads geospatial data.

This document will also be of interest to the MNR's partners and people or groups with a direct interest in how the MNR manages its resource access roads geospatial data.

1.3 Data Scope

The geospatial data that falls within scope of this Information Management Plan and Data Management Guide are resource access roads that meet the following definition:

"A travel route that was constructed for and used by conventional street legal vehicles and may include winter roads"

Recreation trails and short-term forest operation roads (skidder trails) are out of scope.

2.0 INFORMATION MANAGEMENT PLAN

The better the information we have, the better the decisions we can make.

“Information Management is the ongoing organized activities undertaken by an organization to efficiently manage information throughout its life-cycle which includes the planning, collection, use, maintenance, disposition and evaluation phases”. (IM Strategy, I&IT Strategy, Policy and Planning Branch, Ontario Ministry of Government Services)

The provision of quality information results in products and services that meet the MNR’s needs, and public trust and credibility. To ensure that the information used in the ministry’s activities is of high quality, this plan provides short and long-term direction on how the MNR can effectively and efficiently manage and maintain its location based resource access roads data.

This IM Plan and Data Management Guide promotes information management at both local and corporate levels and is intended to:

- ✓ Improve the reliability of the MNR’s location based road data used to meet its’ legal responsibilities and delivery of services to the public.
- ✓ Leverage existing roads data vs. recollecting existing data or information.
- ✓ Support the quality of products and services delivered by the MNR’s business and program areas.
- ✓ Provide leadership in the development of roads data maintenance activities.
- ✓ Provide guidance in the use of the MNR’s roads data to internal and external users.
- ✓ Provide a more financially efficient method of improving Ontario’s roads data assets through cooperation and coordination of resources.

2.1 IM Plan for Resource Access Roads Data

To ensure the MNR's resource access roads data is managed appropriately through its data life cycle, the following information describes each IM phase and the activities that have been or will be followed.

IM Phase INFORMATION AND DATA REQUIREMENTS PLANNING

Determining the MNR's information requirements in a new NRVIS roads layer was conducted by the RAR Inventory Team from 2004 to 2006. The data requirements were determined by:

- circulating the Strategy to Divisions and Business Areas in October 2005 for comment
- performing refinements based upon comments received and direct follow-up discussions with program areas, (e.g. forestry, lands and parks)
- circulating a refined list of data attributes to Divisions and Business Areas in July 2006 for final comment
- incorporating changes based upon the above noted 2nd review.

The standards and data content associated with a new NRVIS 3.3 roads layer was completed in the fall of 2006.

Changes to the NRVIS 3.3 data model or data contents of the roads layer will be addressed through the data evaluation phase described below.

IM Phase DATA COLLECTION OR CREATION

Migrating to the new NRVIS 3.3 roads layer will make use of existing road geometry and attributes. These data holdings may be internal or external to the MNR as described in Section 4.

Where attribute information does not exist, it may be addressed in the data preparation exercises and migration phase each District office will undertake. These data preparation exercises are described further in this document.

Collection of missing attributes or road geometry will become part of future maintenance activities undertaken by District offices, other MNR business areas, and the Ontario Road Network to the standards described within this document.

IM Phase DATA USE AND DISSEMINATION

Provincial legislation and MNR policies related to access and use of data must be adhered to when providing the resource access roads data to external parties.

Roads, which are indicated as sensitive within the NRVIS 3.3 roads layer, can only be provided to individuals or organizations that have been authorized by the Data Steward or the Data Custodian.

Access to the MNR's resource access roads data is managed by existing licensing mechanisms such as the Forest Information Manual, local data sharing agreements and the Ministry's Base Data Unrestricted Use License. These agreements are administered by the MNR's Information Access Section.

The MNR's resource access roads data will be disseminated through the Ontario Land Information Warehouse. The data can be acquired as:

- the NRVIS roads layer and its data standards
- integrated into the Ontario Road Network and its data standards.

IM Phase DATA STORAGE

Storage of the MNR's resource access roads data will occur within:

- each MNR District office as part of their NRVIS roads data
- the Ontario Land Information Warehouse
- the Ontario Road Network.

System back-ups of NRVIS data and the Ontario Land Information Warehouse are performed by the Land and Resources Cluster through its schedules, policies and procedures.

IM Phase DATA MAINTENANCE

Various activities and sources will be used to maintain the roads data within NRVIS. Resource access roads will be maintained by the MNR, while updates for non-MNR roads (e.g. municipal roads, provincial highways, other) will flow from the ORN.

Districts, regions and program areas will play varying roles in maintaining the MNR's resource access roads data.

Data exchanges with forest industry as described in the Forest Information Manual (FIM) will also be used to maintain roads in NRVIS. There may be cases where the MNR will have to collect attributes not provided through FIM, i.e. FIM does not require the exchange of all the attributes found in NRVIS.

Maintenance of the MNR's resource access roads will follow the standards defined within this document.

IM Phase DATA RETENTION OR DISPOSAL

The MNR's NRVIS 3.2 roads data will not be "disposed of"; it will be retained as historic data within NRVIS. Following completion of the migration phase, the NRVIS 3.2 roads data will not be maintained and will not be editable within NRVIS.

Unlike the NRVIS 3.2 roads data model, which did not deal with retired roads, the new NRVIS 3.3 roads data model includes a retired roads layer.

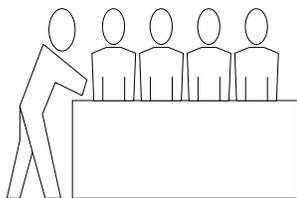
IM Phase DATA EVALUATION

Acting as data custodian, the Geographic Information Branch will be responsible for ensuring the continued suitability and usefulness of the MNR's resource access roads data.

Changes or additions to the content or data model of the NRVIS roads layer will be based upon comments or suggestions from various committees, e.g. the NRVIS Advisory Committee, the Joint MNR Forest Industry Information Committee, user input, etc.

MNR staff can provide their suggestions on the roads content or data model of future NRVIS releases to the Geographic Information Branch using the support model described in Appendix C.

2.2 Data Governance and Management



A data custodian establishes policies, definitions, standards and rules for business data and information.

A data steward is responsible for collecting, maintaining and/or managing data to the policies and standards.

2.2.1 Roles and Responsibilities

Throughout this document, references are made to specific MNR business areas or legislation, which direct or guide the management and use of resource access roads. These individual business areas hold direct accountability for their particular legislated act or policies related to roads.

In many cases, there is little consideration given in these legislative acts or internal policies related to location based information, its creation, maintenance and use across all ministry business areas. To ensure local and corporate information needs are met, a business model of shared roles will be used to coordinate the management of the MNR's resource access roads geospatial data. These shared roles include the MNR's Districts, Regions, and Main Office business areas as described below.

2.2.2 Data Custodian

The custodian for the MNR's resource access roads geospatial data is the Geographic Information Branch. The Branch will:

- lead and maintain the definition of the standards and data content
- be accountable for the dataset integrity
- consult and manage the data accessibility within NRVIS by providing Edit and Check-In rights according to District staff approvals
- manage the accessibility of the data to external users
- provide support and guidance to end users of the data
- accept input for consideration for future revisions that can improve the quality and utility of the data
- provide dataset level metadata and ensure records are present and accurate in the Ontario Land Information Directory (OLID).

2.2.3 Data Stewards

The MNR's resource access roads geospatial data will be managed within NRVIS. Staff within Districts, Regions, Main Office and selected business areas all have a shared role in maintaining this valuable asset.

Maintaining all roads data within NRVIS may be broken into the following roles:

1. Districts are responsible for resource access roads on Crown Land within their District boundaries:
 - these may be roads that MNR is directly responsible for or they may be roads that forest industry or other partners are responsible for.
 - the role of a District Data Steward is described in Section 4.1.2.
2. Geographic Information Branch (Base Data Infrastructure staff) is responsible for ensuring municipal roads and provincial highways across the province are:
 - maintained via the ORN and integrated within NRVIS to the MNR's standards and attributes.
 - the role of Base Data Infrastructure staff acting as Stewards is described in Appendix B, Part C.
3. Other MNR Business Areas:
 - internal business areas that have a responsibility for roads, e.g. Parks would be the Data Steward for roads within provincial parks.
 - others who may be able to provide road update data, e.g. Fire Management Program.

Staff assigned as NRVIS editors are responsible for ensuring the data is entered in a timely fashion. They are also responsible for ensuring that the appropriate feature level metadata (source and justification) within NRVIS are populated.

NRVIS users wishing Editing and Check-In privileges should contact their District GSO or District Data Steward for approval. The custodian will assign the requested privileges if the District consents.

Proposed changes to municipal roads or provincial highways must be directed to the Geographic Information Branch (Base Data Infrastructure staff) who is responsible for the ORN. They will decide the appropriate use and if needed speak to the local contributing municipality or the Ministry of Transportation as to their acceptability of the proposed change. Sections 4.1.1 and 4.1.2 further describe this process.

3.0 DATA STANDARDS

The following resource access roads standards have been adopted by the MNR.

3.1 Spatial Datum

Ontario has officially recognized standards related to horizontal and vertical datums. These provincial standards follow the accepted national and international georeferencing standards for describing the location of features in North America.

The following standards are mandatory in Ontario:

- North American Datum 1983 (NAD83) – horizontal geodetic datum.
- Canadian Vertical Geodetic Datum 1928 (CGVD28) – vertical geodetic datum.
- The National Transformation version 2 (NTv2) for Ontario.

Documents for the Government of Ontario Information Technology Standard (GO-ITS) 45.1, 45.2, and 45.3 - Georeferencing Family of Standards (NAD83, NTv2, and Ontario Specification for GPS Control Surveys) can be found at the following location:

http://www.gov.on.ca/MGS/graphics/STEL02_047446.pdf

GO-ITS 45.1 - NAD83

http://www.gov.on.ca/MGS/graphics/STEL02_047447.pdf

GO-ITS 45.2 - NTv2:

http://www.gov.on.ca/MGS/graphics/STEL02_047448.pdf

GO-ITS 45.3 - Ontario Specification for GPS Control Surveys

The MNR's resource access roads geospatial data will follow the above standards.

3.2 Spatial Accuracy

The MNR requires location based roads information beyond just resource access roads; it also requires municipal roads, provincial highways and federal roads. Therefore, the “roads” data in NRVIS will contain data from the ORN with the spatial accuracies determined by contributing provincial road authorities, i.e. municipalities and the Ministry of Transportation.

The ORN was initially collected to a positional accuracy of 10 metres or better at the 90 % confidence interval. As the ORN matures, geographic areas of the province will see a change towards higher positional accuracy through:

- increased number of data sharing partnerships with municipal road authorities
- advances in technology such as data capture applications and or the use of high resolution digital imagery by these road authorities.

It is known that achieving a positional accuracy of better than 10 metres for all of MNR's resource access roads may prove to be difficult at times. This may be due to:

- A. The first phase of improving the MNR's roads data is to use its existing data holdings. Some existing District data may not meet the current standard of 10 metres or better at the 90 % confidence interval.
- B. There are resource access roads that may be impassable at some points and /or covered by thick tree canopy. Update projects that utilize GPS or remote sensed images may have data collection issues, e.g. GPS signal blockage, or the tree canopy blocks the location of a portion of roads on remote sensed images.

For the reasons noted above, the positional accuracy of resource access roads data will be targeted to 10 metres or less.

The location of the data may be improved at a later date based upon priorities or other opportunities. It is important that NRVIS editors correctly populate the accuracy code for road segments.

3.3 Data Currency

Data currency associated with the MNR's NRVIS roads layer can apply to the road geometry and /or the attributes associated with the road. During the migration phase, some geometry or attributes might not exist in digital form and will have to be captured as part of maintenance activities. As the data matures over the next 2 - 3 years, the completeness and currency of the geometry and attribution in the NRVIS roads layer will increase.

The currency of the MNR's NRVIS roads layer will vary by location across the province. Currency of the data will be determined by business activities or drivers such as:

- The vintage of OBM roads still in use by a District
- Forest Management Planning – a 5 Year cycle with road updates each year
- Local District, Regional or program area needs or specific projects
- Data exchanges with forest industry or other resource sector partners
- Corporate initiatives that deal with resource access roads
- Schedules of data provided by municipal or provincial road authorities to the ORN.

3.4 Attributes

The MNR's road attributes will be maintained in NRVIS. Attributes shown in the four tables below are in whole or in part specific to MNR business requirements while some leverage existing attributes found in the ORN. Attributes adopted from the ORN are highlighted in grey in table 1 below.

Appendix A, "Data Dictionary", provides full details for each attribute including which attributes are mandatory.

Table 1 – Road Segment Attributes

1) Road Segment ID	19) ORN Segment ID
2) Road Ownership Class	20) Road Authority
3) Road Responsibility Class	21) Road Name
4) Road Responsibility Detail	22) Road Alternate Name
5) Road Responsibility History	23) Road Surface
6) Data Sensitivity	24) National Road Class
7) Emergency Access Identifier	25) Number of Lanes
8) Road Status	
9) Use Restriction	
10) Use Restriction Year	
11) Use Restriction Detail	
12) Road Maintenance Level	
13) Year Constructed	
14) Year Constructed Modifier	
15) FMP Class (Old)	
16) FMP Class	
17) FMP Class Year	
18) Road Segment Comment	

Table 2 – Road Network Attributes

1. Road Network ID	6. Road Network Maintenance
2. Road Network Group	7. Road Network Monitoring
3. Road Network Business Identifier	8. Road Network Access
4. Road Network Description	9. Road Network Future
5. Road Network Comment	10. Road Network Transfer Year

Table 3 – Road Barrier Attributes

1. Barrier ID	5. Barrier Effective Year
2. Barrier Business Identifier	6. Barrier Responsibility
3. Barrier Group	7. Barrier Description
4. Barrier Type	8. Barrier Comment

Table 4 – Road Retired Segment Attributes

1. Road Retired Segment ID	2. Road Retired Segment Comment
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3.5 Coordinate Precision

The MNR uses ESRI's SDE technology to store its geospatial data. SDE uses an integer based spatial reference model.

The parameters used in the MNR are:

XMIN	YMIN	PRECISION
-180.0	0	10000000

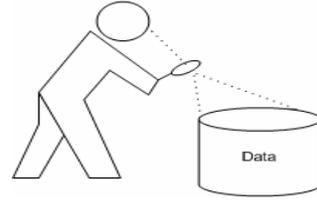
The MNR's geospatial data is stored in the Geographic Coordinate System (Lat/Long). Since the units are decimal degrees, the parameters above will result in a minimum distance between any two vertices of approximately 11.1 mm in the northing and 6.8 and 8.8 mm in the easting depending on where you are in the province.

Forest industry or other partners are not required to work in Geographic Coordinates; however a precision model should be used such that the coordinates would not move if brought back into the MNR corporate databases. In other words, they must meet or exceed the MNR precision model. If their data exceeds the MNR precision model, the coordinates will be snapped to the MNR precision model when the data is loaded into the MNR corporate systems.

Double precision must be used for ArcInfo coverages to preserve the coordinate precision. This is not an issue with shapefiles since they are always in double precision.

4.0 DATA MANAGEMENT

Good data management involves the development and execution of policies, practices and procedures to properly manage the full data lifecycle.



Managing the MNR's resource access roads geospatial data can be broken into two distinct activities:

- Data Migration - the one time exercise of merging existing data holdings to the new NRVIS 3.3 roads layer.
- Data Maintenance - the ongoing actions that will deal with the currency and quality of data within the NRVIS roads layer.

4.1 Data Migration

District, regions and main office staff will have varying roles with respect to the migration to the new NRVIS 3.3 roads layer. These will include:

- creating the new roads database design and needed editing tools
- gathering sources of roads data or information
- actual data migration.

Supportive roles may involve:

- establishing priority areas for migration
- identifying or providing supporting data or information
- redirecting resources to assist in various tasks.

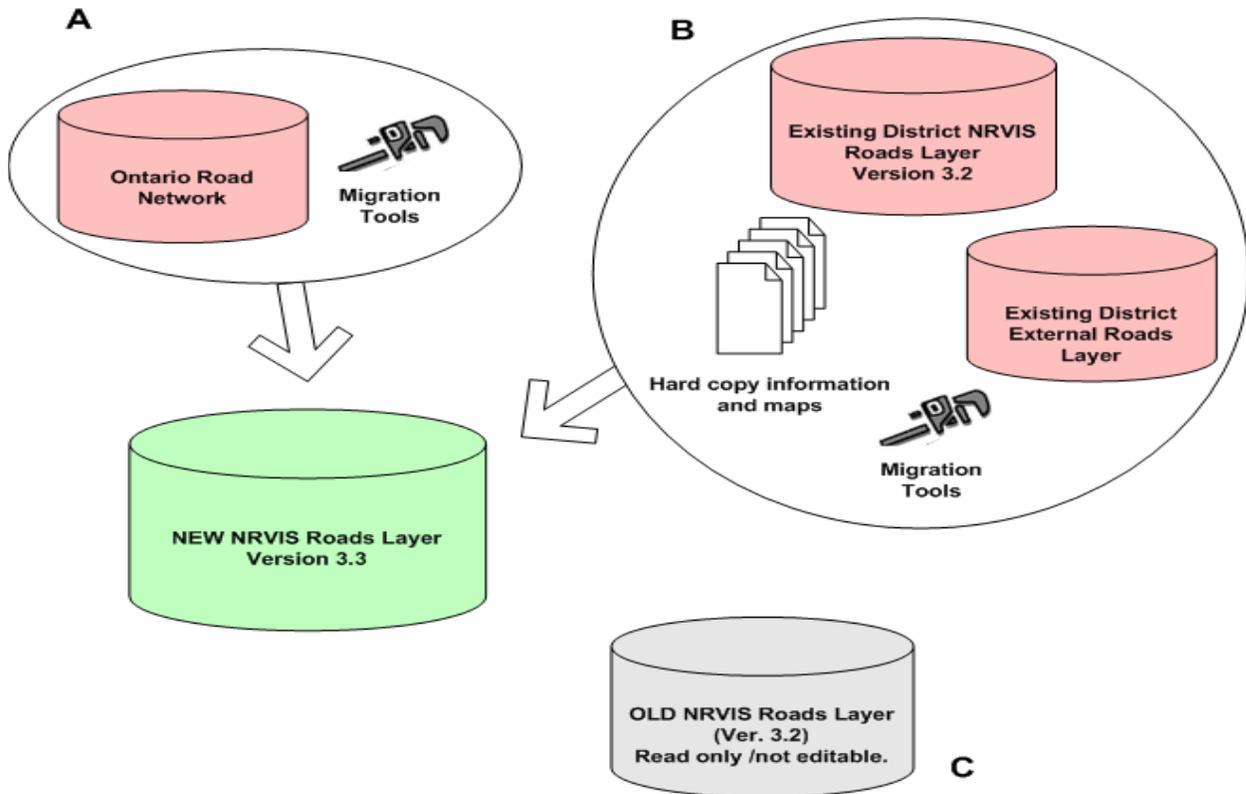
The use of a new NRVIS data migration tool will ensure a standard approach in migrating existing data into the new NRVIS 3.3 roads layer, however different business approaches may be used by Districts or Regions in the migration phase.

It is suggested that Districts, Regions, Parks and main office staff work together in defining active and supportive roles for the migration phase. This can contribute to a common understanding of who will lead or ultimately be responsible to ensure the best data is used and business priorities are met.

The following sections provide an overview of the role the Geographic Information Branch will have in the migration phase and a proposed approach Districts can use in migrating data.

Schematic Overview of Migration Phase

Diagram 2



A) GI Branch Migration Role (NRVIS/LIO Team)

- Create new NRVIS Ver. 3.3 roads layer and populate with:
 - existing ORN municipal roads, provincial highways and resource access roads.
 - only those ORN attributes required by the MNR (e.g. road names, road surface, national road classification, etc.)
- Create tools for District use to migrate their resource access roads into the new NRVIS 3.3 roads layer.

B) District Migration Role

- Gather roads data from NRVIS 3.2, external databases and paper sources or maps.
- Use migration tools to integrate resource access roads into the new NRVIS 3.3 roads layer (geometry and attributes).
- Determine the quality of resource access roads geometry used from the ORN and replace with better geometry if available. * This geometry replacement can be undertaken as part of the migration phase and /or the maintenance phase.

C) NRVIS Roads Layer Ver. 3.2 - Read Only Access

- The NRVIS 3.2 roads layer will continue to reside in NRVIS, however it changes to read only access in March 2008. Beyond this date, data maintenance will not occur in the NRVIS 3.2 roads layer and this historic data will not be editable.

4.1.1 Geographic Information Branch – Roles and Responsibilities

The NRVIS Team will be responsible for creating and supporting the NRVIS 3.3 roads layer and NRVIS editing tool for use by District staff to migrate existing data sources (NRVIS 3.2 and other road databases).

The NRVIS 3.3 roads layer will include the following layers:

- MNR Road Segment
- MNR Road Network
- MNR Road Barrier
- MNR Retired Road Segment

The MNR Road Segment layer will be loaded with the most current ORN road geometry and a selected set of ORN attributes, i.e. only those attributes required by the MNR as described below.

New NRVIS tools will enable import of geometry and mapping of tabular data from within NRVIS or external datasets into the new NRVIS 3.3 roads layer.

The NRVIS 3.2 roads data layer will be phased out in March 2008 and become read only access.

ORN Geometry

The first build of the NRVIS 3.3 road layer will use the most current version of the ORN, which contains provincial highways, municipal roads and resource access roads. Where roads inside of parks were collected as part of the ORN, these too will be used.

Under the earlier 2002 ORN collection specification, only roads wide enough to allow two vehicles to pass and /or had a posted road name were collected. Across the province, this specification may have meant not all of the MNR's resource access roads were captured, i.e. the level or amount of resource access roads initially captured as part of the ORN will vary by District. In addition, the contractor of the day may not have captured gated roads, washed out or impassable roads, etc.

Geometry for those MNR resource access roads not in the ORN and the new NRVIS 3.3 roads segment layer can be:

- incorporated during the migration phase by District staff by adding the missing resource access roads from the NRVIS 3.2 road layer and other external roads databases they may have, i.e. take missing roads and append to Ver. 3.3 or,
- addressed as part of future data maintenance activities.

It will be the responsibility of the Geographic Information Branch and its private sector contractor to integrate NRVIS road segment updates for MNR roads into the ORN.

MNR Attributes Needed from the ORN

The database attribute fields in NRVIS 3.3 will be defined and populated with only those ORN attributes which the MNR requires to meet its business needs, i.e. the MNR has additional attributes not contained in the ORN, and it uses only a few ORN attributes. Table 5 below lists the NRVIS 3.3 attributes and their status when it is initially populated.

District staff will populate the missing or remaining attributes from the NRVIS 3.2 roads layer or other external roads databases they may have, i.e. take missing attributes and append to Ver. 3.3.

Table 5 - MNR Road Segment Attributes on Initial Data Load from Ontario Road Network (ORN)

ATTRIBUTE	NRVIS DATABASE FIELD
FMF_OBJECT_ID	System generated
ORN_SEGMENT_ID	Generated by BDI
NATIONAL_ROAD_CLASS	From the ORN
ROAD_AUTHORITY	Derived from the ORN
ROAD_NAME	From the ORN
ALTERNATE_NAME	From the ORN
SURFACE_TYPE	From the ORN
NUMBER_OF_LANES	From the ORN
OWNERSHIP_CLASS	Left blank
RESPONSIBILITY_CLASS	Left blank
RESPONSIBILITY_DETAIL	Left blank
RESPONSIBILITY_HISTORY	Left blank
EMERGENCY_ACCESS_IDENT	Left blank
USE_RESTRICTION	Defaulted to 'None'
USE_RESTRICTION_DETAIL	Left blank
STATUS_LEVEL	Defaulted to 'Open'
MAINTENANCE_LEVEL	Defaulted to 'Unknown' for Road Authority = 'MNR' and to 'Routine' for Road Authority = 'MTO' or 'Municipal'
YEAR_CONSTRUCTED	Left blank
YEAR_CONSTRUCTED_MODIFIER	Left blank
OLD_FMP_ROAD_CLASS	Left blank
FMP_ROAD_CLASS	Left blank
FMP_ROAD_YEAR	Left blank
SEGMENT_COMMENT	Left blank
EFFECTIVE_DATETIME	System generated; current date

NRVIS 3.3 attributes for which no data or information exists during the migration phase will become part of a future maintenance strategy developed by a District or Region based upon resources and /or priorities.

4.1.2 Districts – Roles and Responsibilities

Districts will act as Stewards of the resource access roads data class and be responsible for the spatial and tabular editing data within their respective administrative boundaries.

Staff resources and the time needed to complete the migration phase will vary by District due to a number of variations, e.g. size of the District, Districts in southern Ontario as compared to northern Ontario, the number of kilometres of roads, ORN data captured, and past District activities in updating their spatial and tabular roads data. These factors need to be taken into account when estimating time and resource requirements.

Recent efforts by Districts to update their data to improve quality by denoting retired roads and meeting obligations related to road network responsibilities with local forest companies will only be beneficial during this migration process.

Districts and or Regions can set priorities related to areas of their responsibility, or migration may be based upon forest management plans and their schedules, etc. They may choose to define priority areas based on administrative boundaries such as FMU's or Area boundaries.

If Districts or Regions have not started discussions with their local SFL holders, they should refer to the decision tree provided in the "Forest Roads and Water Crossings Initiative - Forest Industry-MNR Task Team Report – Responsibility" and the Crown Land Roads Manual (CLRM) when available.

Special Note:

Updates to municipal roads and provincial highways within the NRVIS roads layer are the responsibility of Base Data Infrastructure staff in their role as data stewards for these roads.

In some cases a District could act as the road authority and data steward for roads in a municipality, e.g. there may be cases where a municipality has no ability to collect or provide digital data and the District has a need for local roads information, or there may be an agreement between a District and a municipality to share data.

In all cases of data sharing, the MNR must ensure there are no Intellectual Property or Copy Right violations. The MNR on behalf of the government of Ontario has a legal obligation to ensure that any roads data entered into NRVIS and the ORN is done so under a license that allows the MNR to further distribute a partner's data.

To avoid any potential legal issues, reduce confusion and avoid duplication, District staff and Base Data Infrastructure staff should consult and share information when engaging local or regional municipalities in sharing roads data. Base Data Infrastructure staff and their telephone numbers are listed in Appendix C.

4.1.3 Proposed Data Migration Approach

1. Assign a Project Management Lead
2. Identify positions and roles such as:

A Roads Data Steward assigned within the District to be the keeper of all roads related data/information and to monitor the migration process. It may not be necessary for the individual to be completely familiar with the data however, he/she should know where it is located. Datasets would include:

- bridge inventory
- water crossing data
- FMP road classifications
- road use strategies
- Local Roads Board agreements, etc.

Often this position is held by the District GSO.

Dedicated GIS Staff are necessary to implement and successfully complete the migration process into the new NRVIS 3.3 roads layer. It is beneficial to select an individual that has the opportunity to commit to the project until migration is completed. This will ensure continuity and integrity of the final product.

Resource Staff in the MNR, Industry and other government agencies (Federal and Municipal) who are familiar with the land base will be integral to identification of drivable roads.

Planning Staff from MNR, Industry and other government agencies (Federal and Municipal) will be required.

3. Assemble available data, maps, images, reports, etc. on roads within your District that can assist in conducting a gap analysis, e.g.
 - NRVIS 3.2 roads layer
 - External roads datasets
 - Other road datasets, e.g. forest industry
 - GPS data
 - Supplementary aerial photography or high resolution imagery
 - Roads Commissions/Boards road information
 - Bridge and water crossing inventories
 - FMP road Strategies
 - Annual Report roads data
 - Road inspection reports

4. Review Data Holdings

It is recommended that the Roads Data Steward and GIS staff catalogue data sources documenting projection, datum, accuracy, currency, extents, completeness and any other details necessary. Keep the catalogue updated as migration progresses.

To estimate the scope of spatial editing required, it may be useful to produce a series of map products displaying the new NRVIS 3.3 road features and the roads data regularly used by the District. Areas of discrepancy will require review /evaluation by GIS and Resource staff to determine the best source.

Districts and Sustainable Forest Licence holders should review roads data and verify known roads or identify retired roads. Districts should conduct similar reviews with other agencies they work with to acquire additional or missing attribute information.

5. District Road Geometry vs. ORN Geometry - Considerations

Generally, it is expected that the ORN geometry (collected to a positional accuracy of 10 metres or better at the 90 % confidence interval) will remain as the source geometry in the NRVIS road segment layer.

There may be situations where a MNR District office has information that is more accurate either within NRVIS 3.2 roads or external to the NRVIS database, however, District staff can only edit spatial features where the road authority is designated as the MNR.

Districts must contact Base Data Infrastructure staff with information to support changes to road segments where the road authority is designated anything other than the MNR.

6. Data Migration

NRVIS tools will provide functionality for updating Resource Access Roads, Barriers and Historic Roads. Tools include import of geometry and mapping of tabular data. GIS staff must adhere to data standards rules when adding or changing source geometry (see section 3.0). Tasks may include:

- replacement of existing road segments with more representative geometry
- importing new feature geometry into the NRVIS 3.3 roads layer
- transfer and removal of historical road features
- update of tabular data from various sources

The most efficient method for populating the new NRVIS 3.3 roads layer is to export all existing NRVIS 3.2 road segment data from NRVIS to a shapefile or use an existing external roads dataset. From the information collected in Step 4 above, add the necessary fields as described under “entity attributes” in Appendix A, Part A. Then add as many attributes as possible before moving the data to the NRVIS 3.3 roads layer. Undertake a final attribute verification with the NRVIS 3.3 MNR roads Concrete Class segment layer to ensure that the imported attributes are compatible and massage the data as necessary. Devise a plan to import the shapefile in groups of no more than 500 segments per version, and import the data using the Multi-feature Update Tool instead of the Import Shapefile tool.

There are six (6) types of edits:

Shape on MNR roads

MNR **can** update and post roads with road authority = MNR only. If you suspect the road authority is incorrect, contact Base Data Infrastructure staff.

Shape on non-MNR roads

MNR **cannot** update roads with road authority other than MNR. These updates must be sent to the Base Data Infrastructure staff for posting or rejection.

ORN attributes on MNR roads

There are seven (7) ORN attributes brought over to the Resource Access Roads Layer. These ORN attributes can be edited only for segments with road authority = MNR.

ORN attributes on non-MNR roads

These attributes cannot be edited by MNR. If you suspect the attribute value is incorrect, contact Base Data Infrastructure to discuss.

MNR attributes on MNR roads

MNR attributes can be updated for all roads in the database with road authority = MNR.

MNR attributes on non-MNR roads

MNR attributes can be updated for all roads in the database with road authority other than MNR.

For more detailed information on networks, barriers, private roads, etc please refer to Appendix B, Part E – Guidelines for Editors and Users of the NRVIS 3.3 Roads Layer.

4.2 Data Maintenance

4.2.1. Roles and Responsibilities

There are a variety of agencies who will be involved in resource access road data maintenance. Most maintenance will be the responsibility of the MNR. Table 6 shows the roles and responsibilities for resource access road data, with the organization units set in order of authority.

Table 6

ROLE	Org Unit 1	Org Unit 2	Org Unit 3	Org Unit 4
Custodian	GI Branch	District		
Standards	GI Branch	ORN		
Metadata	LIO	GI Branch	District	
Data Management	NRVIS	ORN		
Data Collection	District	Forest Industry	Parks Ontario	
Data Entry or Provision	District	Forest Industry	Parks Ontario	Fire Management
Data Retention	GI Branch	ORN	District	

The timing of resource access roads edits will vary somewhat but generally will be continuous. In those Districts with Forest Management Plans (FMP), the majority of changes will likely come with the FMP Annual Report roads data as required by the Forest Information Manual.

While NRVIS will enforce the collection of specific data attributes, the District acting as Data Stewards are responsible for ensuring that data is collected appropriately and meets the minimum spatial standards for resource access roads as set out by the Custodian.

The NRVIS 3.3 roads layer is designed to provide spatial and tabular data at the segment level (with linkages to barrier features) as well as the network level. Networks can be created to meet program area needs. For more detail on networks, see Appendix B, Part E.

4.2.1 Business and Technical Considerations

Data maintenance cycles and technical approaches used to update the MNR's resource access roads data will vary District by District. Priorities for Districts may be driven by such factors as:

- where and when to collect road updates, e.g.
 - immediate vs. long term business needs
 - known data issues needing attention
 - annual work plans vs. special projects
 - legislation and policies to adhere to and leverage
- what and how to collect road updates, e.g.
 - update road geometry first and attributes later, or vice versa
 - GPS vs. imagery collection of road geometry
 - notifications from staff who travel roads and can report to the District Data Steward on particular road attributes, e.g. drivability of a road can be confirmed /updated
 - replacement of roads data with improved data from external partners

For Districts within the "Area of Undertaking", some resource access roads data will come from forest industry as prescribed by the Forest Management Planning Manual (FMPM) and the Forest Information Manual (FIM). These two documents detail the timing and content of roads data to be exchanged between the MNR and forest industry.

The Crown Land Roads Manual provides an overview and context for the planning, management and administration of all roads on Crown land. It also contains a series of Public Lands Act policies and procedures that guide the administration and management of roads. Road use strategies developed by a District based upon these policies and procedures will influence priority areas within a District where updates to roads data will occur.

As part of the Ministry's Mobile GIS Taskforce, the GPS Working Group is assessing the current situation of mobile GPS across the organization. The Working Group is to create a document in early 2007 with guidelines and best practices for the use of GPS technology within the Ministry. Their document will be posted to the MNR's Geomatics Portal when complete.

With the increasing acquisition of imagery across the province, various tools and techniques to leverage these products will begin to be developed. The Geographic Information Branch will be undertaking a pilot project in 2007-08 to use imagery for purposes of change detection and road centreline collection. This information will be shared with NRVIS editors when complete.

APPENDIX A – DATA DICTIONARY

Included in Appendix A are the Business View Logical Data Model and Data Dictionary for:

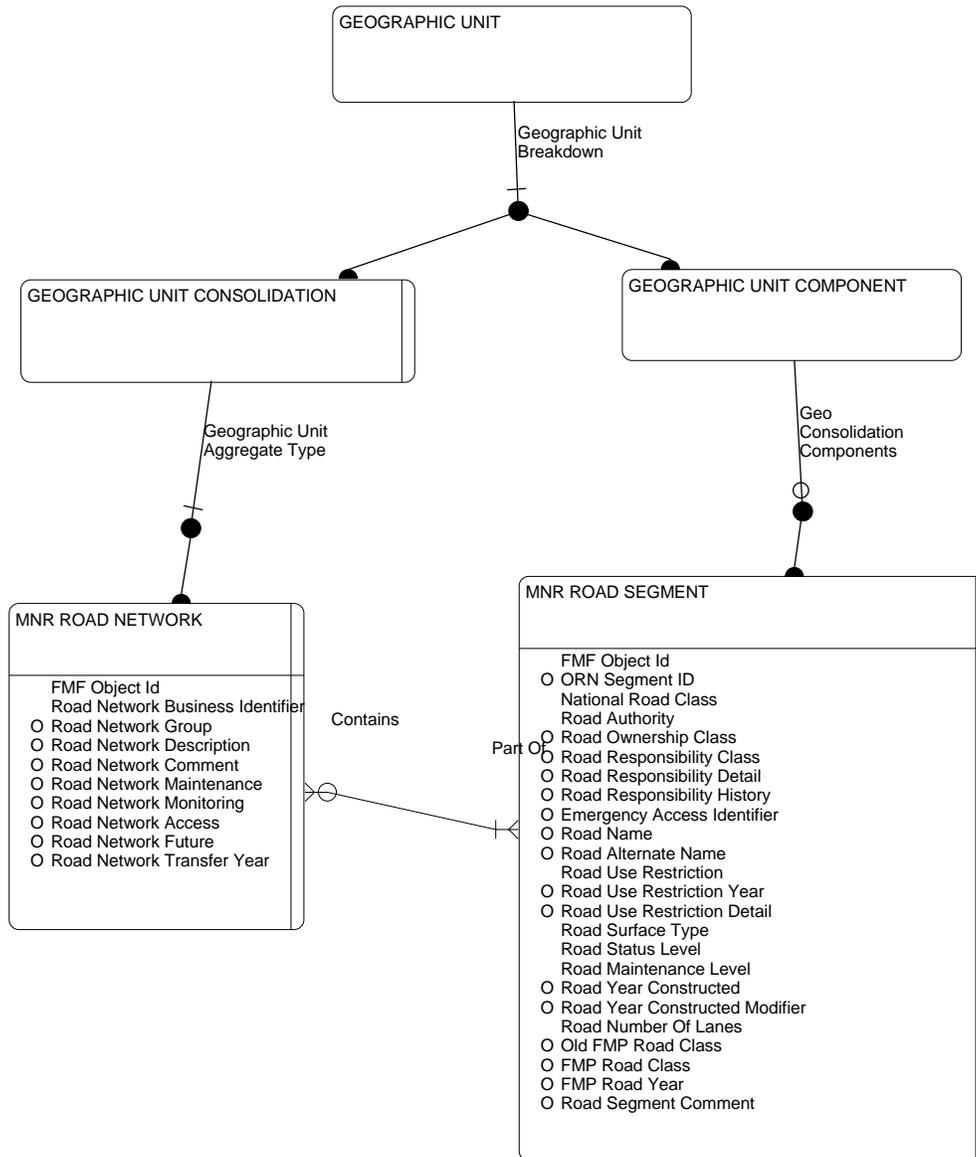
Part A - MNR Road Segment and MNR Road Network

Part B - MNR Road Retired

Part C – MNR Road Barrier

Part A - MNR Road Segment & MNR Road Network:

Business View Logical Data Model
 Information Class: MNR Road Consolidation
 Subset: MNRROAD



Entity : MNR ROAD SEGMENT

Entity Description:

A road segment is the linear geometry of the road.

Road segments can be consolidated into networks using the MNR Road Network entity.

Each MNR ROAD SEGMENT May be Part Of One or more MNR ROAD NETWORK(s).

To exist in the Road Segment layer the road must have actually existed as a path supporting conventional four-wheel street legal vehicles. Specifically not to be included are paths constructed for off-road vehicles (e.g. ATV trail) and temporary paths related to forest management (e.g. skidder trail) or forest fire management (e.g. rehabilitated fire trail)

The MNR Road Segment layer will contain all road geometry found in the Ontario Road Network (ORN) layer along with some ORN attribute information. Selective updates to the MNR Road Segment layer will be passed back to the ORN database operator for consideration as ORN updates.

Entity Attributes:

<u>FMF Object Id</u>	Integer (long)	13	Mandatory
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System generated identifier, unique at the application level.

<u>ORN Segment ID</u>	Integer (long)	13	Optional
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The identifier for the source ORN segment.

This attribute is not changeable by the user.

If the segment is sourced from ORN then it must have a ORN segment identifier.

More than one NRVIS road segment may belong to the same ORN segment and have the same ORN Segment ID.

<u>National Road Class</u>	Character (variable length string)	30	Mandatory
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A functional (versus administrative) based classification system applied to all ORN road segments.

The National Road Class list is as follows:

Freeway - An unimpeded, high speed controlled access thoroughfare for through traffic with typically no at grade intersections, usually with no property access or direct access and which is accessed by a ramp. Pedestrians prohibited.

Expressway/Highway - A high speed thoroughfare with a combination of controlled access and intersections at grade level.

Arterial - A major thoroughfare with medium to large traffic capacity

Collector - A minor thoroughfare mainly used to access properties and to feed traffic with right of way.

Local / Street - A low speed thoroughfare dedicated to provide full access to the front of properties.

Local / Strata - A low speed thoroughfare dedicated to provide access to properties with potential public restriction, trailer parks, first nations, strata or private estates.

Local / Unknown - A low speed thoroughfare dedicated to provide access to the front of properties but for which the access regulations are unknown.

Alleyway / Laneway - A low speed thoroughfare dedicated to provide access to the rear of properties.

Ramp - A system of interconnecting roadways providing for the controlled movement between two or more roadways.

Resource / Recreation - A narrow passage which has as a primary function access for resources extraction and also may have a role in providing an access for the public to back country.

Rapid Transit - A thoroughfare restricted 24 hours a day, for the sole use of public transportation buses.

Service - A stretch of road permitting vehicles to come to a stop along a Freeway or Highway. These include weigh scales, emergency lanes, lookouts and rest areas.

Winter - A road that is only useable during the winter months when conditions allow for passage over lakes, rivers and wetlands.

Note: Although not explicitly stated, it is expected that most of the NRC classes will be reserved for permanent all-weather roads belonging to the Municipal & MTO road authorities. This

means that most roads managed by MNR will be of the 'Resource/Recreation' class and occasionally 'Local/Strata' or 'Winter' class.

This national road classification is found in the Ontario Road Network data model.

Permissible Values:

- Freeway
- Expressway/Highway
- Arterial
- Collector
- Local/Street
- Local/Strata
- Alleyway/Laneway
- Ramp
- Resource/Recreation
- Rapid Transit
- Service
- Winter

<u>Road Authority</u>	Character (variable length string)	10	Mandatory
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The provider of road segment updates to Ontario Road Network contractor.

This attribute is actually a grouping of the detailed road authority name into the following class groups: MNR, MTO, Municipal, Other.

Definitions: 'MNR' means Ministry of Natural Resources; 'MTO' means Ministry of Transportation; 'Municipal' means Road Authority is a municipal government; 'Other' means none of the above.

A road segment must be assigned to one and only one Road Authority.

Permissible Values:

- MNR
- MTO
- Municipal
- Other

Road Ownership Class Character (variable length string) 40 Optional

Legal ownership of the road right-of-way and authority to assign responsibility for a road to another party.

Classification: Unalienated Crown Land, MTO, Ontario Parks, Conservation Reserve, Municipal, First Nation, Federal, Private (Crown agency), Private (Non-Crown), Other (Crown Surface Rights), Other

The particular MNR business need for this attribute is to track which roads are on Crown Land even though the responsibility for the road may be assigned to a third party (e.g. SFL , Local Roads Board, etc.).

The owner of the right-of-way is a stakeholder in the road regardless of who is the 'Road Authority' and who has 'Responsibility' for the road.

In some areas it may be possible to derive this information from a topological overlay with a land ownership layer.

Permissible Values :

- Unalienated Crown Land
- MTO
- Ontario Parks
- Conservation Reserve
- Municipal
- First Nation
- Federal
- Private (Crown agency)
- Private (Non-Crown)
- Other (Crown Surface Rights)
- Other

Road Responsibility Class Character (variable length string) 30 Optional

A classification of the agents listed in the Road Responsibility Detail attribute.

Classification: Ministry of Transportation (MTO), Municipal, Ministry of Natural Resources (MNR), Sustainable Forest Licence (SFL), Aggregate License Holder, Local Roads Board, Road Commission, Mining Company, Power Company, First Nation, Ontario Parks, Federal, Other Public, Other Private, Other Mixed.

Responsibility Class and Detail are linked in that there should be not one without the other.

This attribute should be considered mandatory for all roads on Crown Land and perhaps all roads of which 'MNR' is the Road Authority.

Operational responsibility for roads on Crown Land may be assigned to third parties or to a specific Ontario government org unit.

Permissible Values:

- MTO
- Municipal
- MNR
- SFL
- Aggregate License Holder
- Local Roads Board
- Road Commission
- Mining Company
- Power Company
- First Nation
- Ontario Parks
- Federal
- Other Public
- Other Private
- Other Mixed

Road Responsibility Detail Character (variable length string) 80 Optional

Name of the specific group or individual legally responsible for activities associated with a road including condition and maintenance.

May refer to the reference number of a shared use agreement involving a number of parties.

Responsibility Class and Detail are linked in that there should be not one without the other.

This attribute should be considered mandatory for all roads on Crown Land and roads which the MNR is the Road Authority.

For private roads on Crown Land it is appropriate to list the reference to the legal agreement (e.g. Land Use Permit; Memorandum of Understanding) instead of the name of the individual due to privacy issues.

Road Responsibility History Character (variable length string) 500 Optional

Details of responsibility for the road segment being transferred between parties.

Needed to track responsibility history for liability purposes.

A road on Crown Land may initially be the responsibility of forest industry who may eventually turn it back to the MNR when forest management operations are complete. The MNR may assign the road to another interested party through a legal agreement (e.g. Land Use Permit; Memorandum of Understanding; etc.).

Emergency Access Identifier Character (variable length string) 80 Optional

The identifier for the segment used to dispatch and route emergency service vehicles (e.g. fire, police, ambulance). This may be a compound key combining a jurisdiction with an identifier.

MNR Fire Management will be participating in Fire & Emergency Response Plans for northern settlements and communities as part of an initiative being led by the Ontario Fire Marshall. Road networks with Emergency Access Identifiers will be part of these plans.

Note: The standard for emergency access identifiers is not uniform across Ontario; most municipalities have a 911 system based on civic addressing.

Road Name Character (variable length string) 150 Optional

The road's primary (or official) street name.

Within a single municipal jurisdiction, a road's official name may be unique. There is no jurisdiction framework to assign and maintain unique official names in unorganized territory (i.e. most of Northern Ontario) .

Road Name value will be sharable between MNR Road Segment and the ORN.

Road Alternate Name Character (variable length string) 150 Optional

Road name that has no official status but is used or known by the general public.

Road Alternate Name value will be sharable between MNR Road Segment and the ORN.

Unlike in the Ontario Road Network data model, where more than one alternate road name can be maintained, this data model only allows for one alternate road name.

Road Use Restriction Character (variable length string) 25 Mandatory

Known restriction on use of the road by the general public.

Restriction classification: 'None' (No known Restriction); 'Conditionally Restricted' (restriction involves particular uses and seasons); 'Restricted' (closed to the public; permit or permission required).

Defaults to 'None'.

Details of the restriction can be stored in the Road Use Restriction Detail attribute field.

Class: Code Description

Permissible Values:

- None
- Conditionally Restricted
- Restricted

Road Use Restriction Year Character (variable length string) 15 Optional

Reference to the year that the current road use restriction was first in effect.

The text string entered may be the actual year, a range of years, and approximate year or a before or after year.

For the actual year, only the four digits of the year should be entered (e.g. '1994')

For a range of years, the two four digit years should be entered with a hyphen in between (e.g. '1992-1994')

For an approximate year, the four digit year should be prefixed with '~' (e.g. '~1994')

For before a year, the four digit year should be prefixed with '<' (e.g. '<1993', meaning 'less than 1993')

For after a year, the four digit year should be prefixed with '>' (e.g. '>1993', meaning 'greater than 1993')

Used for audit and reporting purposes related to road use strategies

Road Use Restriction Detail Character (variable length string) 150 Optional

Brief details of the road use restriction referred to in the Road Use Restriction attribute, particularly when the Road Use Restriction is 'Conditionally Restricted' or 'Restricted'

Road Surface Type Character (variable length string) 10 Mandatory

The surface type of the road whether paved, (unpaved) gravel, or (unpaved) unsurfaced.

This attribute is somewhat exchangeable with ORN attributes Pavement Status and Surface Type

Winter roads will be classified by their operating surface which is expected to be 'Unsurfaced ' in most instances.

Defaults to 'Unknown'.

Permissible Values:

- Paved
- Gravel
- Unsurfaced
- Unknown

Road Status Level Character (variable length string) 20 Mandatory

An indicator of how drivable the road is.

Definitions for permitted values: 'Open' (2W drive vehicles); 'Limited' (may require 4x4 truck); 'Not Passable' (due to assessed conditions); 'Decommissioned' (not drivable as a result of a known decommissioning process); 'Inaccessible' (can't be assessed due to barrier or obstruction in road network), 'Winter' (only passable when maintained as a winter road), 'Unknown' (status not known)

Defaults to 'Unknown'

Along a road network, change in road status may be logically related to objects in the Barrier (point) layers where a barrier or physical control measure may occur at the same location as a change in road status.

For older roads 'Inaccessible' is expected to be common when it is not possible to accurately assess their condition; for more recent roads 'Decommissioned' is expected to be more common.

Permissible Values:

- Open
- Limited
- Not Passable
- Decommissioned
- Inaccessible
- Winter
- Unknown

Road Maintenance Level Character (variable length string) 15 Mandatory

Maintenance planned for the road.

Meanings for permissible values: 'Routine' means road maintained on a continuous basis to keep expected condition constant; 'Limited' means maintenance is limited to things like maintaining water crossings required to keep the road passable; Not Maintained means no official maintenance is carried out except for action to address environmental or public safety issues; 'Unknown' means status not known.

Defaults to 'Unknown'

Winter roads will be classified by their operating maintenance level.

Permissible Values :

- Routine
- Limited
- Not Maintained
- Unknown

Road Year Constructed Character (variable length string) 15 Optional

The year in which the road segment was constructed

If construction spans more than one year then the year that the segment was first opened to vehicular traffic.

The text string entered may be the actual year, a range of years, and approximate year or a before or after year.

For the actual year, only the four digits of the year should be entered (e.g. '1994')

For a range of years, the two four digit years should be entered with a hyphen in between (e.g. '1992-1994')

For an approximate year, the four digit year should be prefixed with '~' (e.g. '~1994')

For before a year, the four digit year should be prefixed with '<' (e.g. '<1993', meaning 'less than 1993')

For after a year, the four digit year should be prefixed with '>' (e.g. '>1993', meaning 'greater than 1993')

To assist in querying the text sting entered, the Road Year Constructed Modifier attribute must be populated if a Road Year Constructed value is entered.

FMP Road Class Character (variable length string) 11 Optional

The FMP Road Class according to the Forest Management Planning Manual and Forest Information Manual for forest management plans effective 2007 and beyond. The road classification is Primary, Branch and Operational.

If Road Responsibility is coded 'MNR' or 'SFL' then either Old FMP Road Class or FMP Road Class must be populated.

FMP Road Class value must come from an approved forest management plan and not be changed after the fact. The FMP Road Class entered is tied to the FMP Road Year value.

Permissible Values:

- Primary
- Branch
- Operational

FMP Road Year Numeric 4 Optional

The first year year of the five-year forest management planning period phase of when the road was planned as a road of the FMP Road Class.

Required if 'FMP Road Class' is populated as it ties the road to a specific forest management plan.

Road Segment Comment Character (variable length string) 100 Optional

Brief comments about the road segment

Entity : MNR ROAD NETWORK

Entity Description:

A road network is a consolidation of one or more road segments and relies on the road segment for its geometry. A road segment may belong to one or more road network consolidations.

Each MNR ROAD NETWORK Must Contain One or more MNR ROAD SEGMENT(s).

Entity Attributes:

<u>FMF Object Id</u>	Integer (long)	13	Mandatory
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System generated identifier, unique at the application level.

<u>Road Network Business Identifier</u> length string)	80	Character (variable Mandatory
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A text string containing the business identifier for the road network assigned by the author of the network.

Road networks can be used for a number of purposes, including naming routes (e.g. ' Highway 17', 'Trout Lake Road'), and organizing roads for forest management purposes or road use management strategies.

This is the identifier that might be used to annotate a map.

This is identifier could be used as a link to a Road Network Management Strategy database (for SFL and MNR road networks)

<u>Road Network Group</u>	Character (variable length string)	80	Optional
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A user defined text string allowing the road network to be assigned to a sub-type or group.

This attribute can be used to group Business Identifiers so that a Group/Business Identifier set would uniquely identify a particular road network A group could be used for selection when mapping and map labelling A group might identify the author of the road network.

<u>Road Network Description</u>	Character (variable length string)	500	Optional
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Description of the road network. May include why the network was created.

<u>Road Network Comment</u>	Character (variable length string)	100	Optional
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Brief comments about the road network.

<u>Road Network Maintenance</u>	Character (variable length string)	250	Optional
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Description of the maintenance plan for the road network.

Used for audit and reporting purposes related to road use strategies

<u>Road Network Monitoring</u>	Character (variable length string)	250	Optional
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Description of the monitoring program for the road network.

Used for audit and reporting purposes related to road use strategies

<u>Road Network Access</u>	Character (variable length string)	250	Optional
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Description of the access controls planned or in place on the road network.

Used for audit and reporting purposes related to road use strategies.

<u>Road Network Future</u>	Character (variable length string)	80	Optional
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MNR intent for the future use of the road once it is transferred to MNR responsibility.

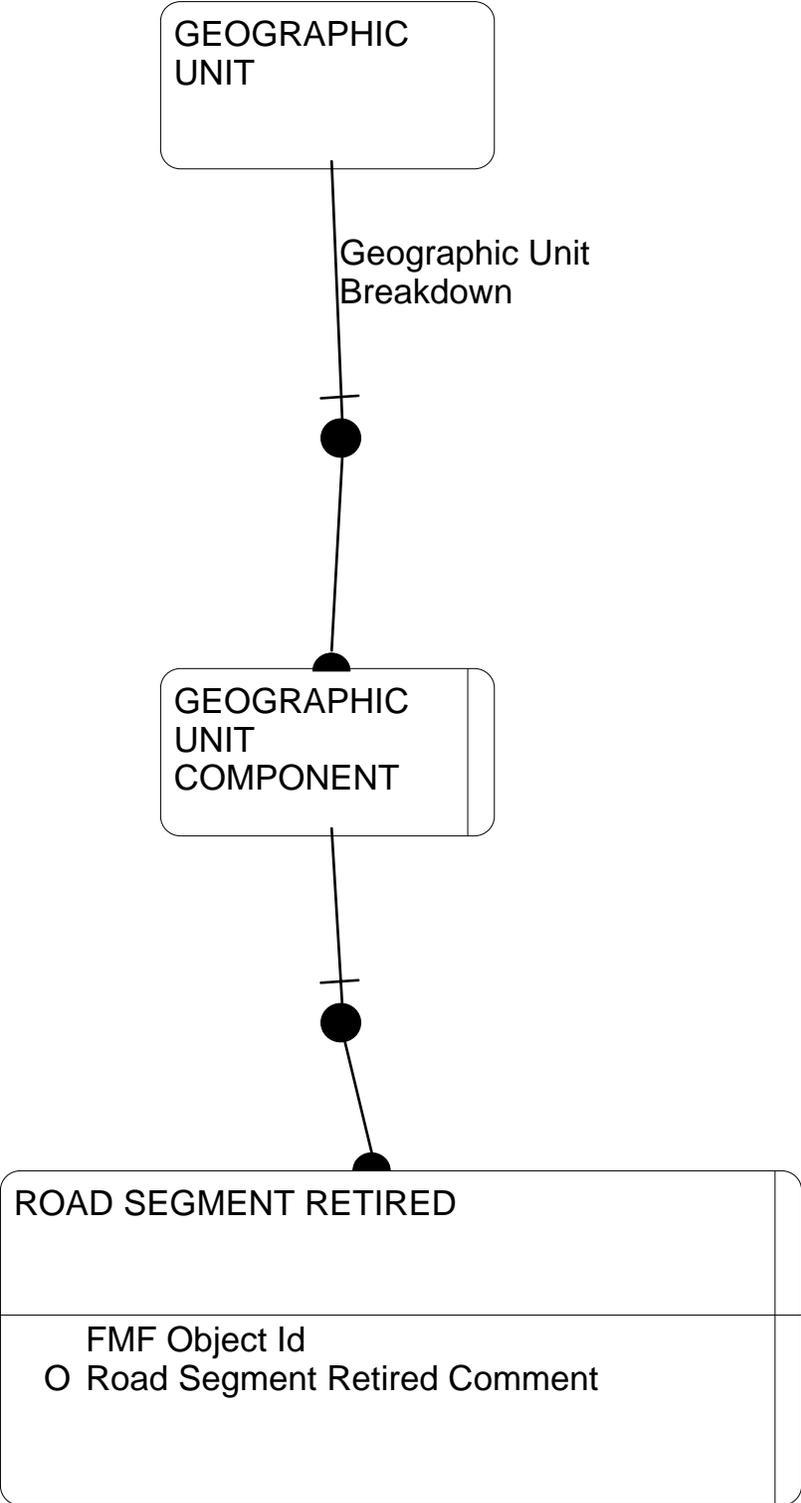
Used for audit and reporting purposes related to road use strategies.

<u>Road Network Transfer Year</u>	Character (variable length string)	15	Optional
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Year that the road segments of the network were or are expected to be transferred to MNR responsibility.

Used for audit and reporting purposes related to road use strategies

Part B: MNR Road Segment Retired:



Entity : ROAD SEGMENT RETIRED

Entity Description:

A retired road segment comes from the Road Segment layer when the road segment is no longer a road. Instead of deleting a road segment from the database it is moved to the Road Segment Retired layer.

Entity Attributes:

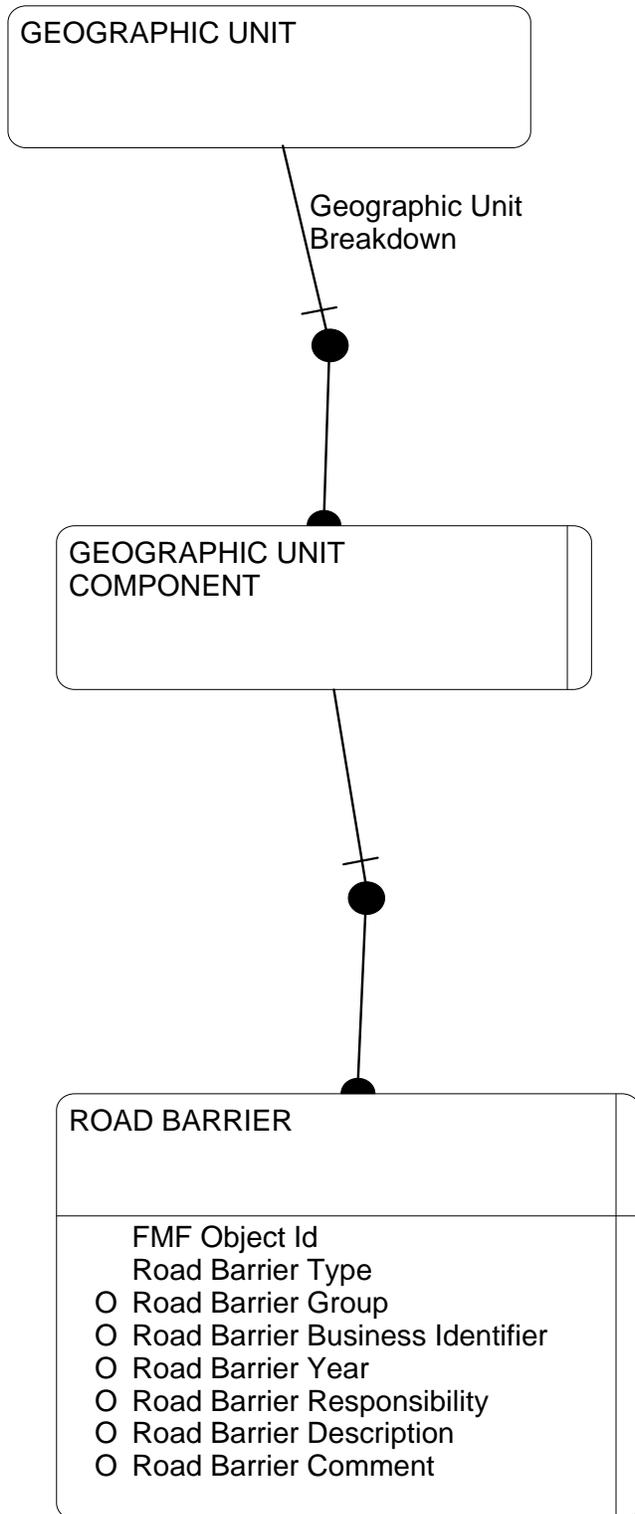
<u>FMF Object Id</u>	Integer (long)	13	Mandatory
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System generated identifier, unique at the application level.

<u>Road Segment Retired Comment</u>	Character (variable length string)	100	Optional
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A brief comment related to the retired road segment.

Part C: MNR Road Barrier:



Entity : ROAD BARRIER

Entity Description:

A road barrier is a point feature related to the restriction or control of access to a road segment or road network.

Entity Attributes:

<u>FMF Object Id</u>	Integer (long)	13	Mandatory
-----------------------------	----------------	----	-----------

System generated identifier, unique at the application level.

<u>Road Barrier Type</u>	Character (variable length string)	15	Mandatory
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The type of barrier restricting passage along the road.

Meanings for selected permissible values: 'Berm' means berm and/or ditch; 'Water' means water crossing bridge or culvert removed.

Permissible Values :

- Gate
- Berm
- Sign
- Water
- Other Permanent
- Other Removable

<u>Road Barrier Group</u>	Character (variable length string)	80	Optional
----------------------------------	------------------------------------	----	----------

A user defined text string allowing the barrier to be assigned a group. [RD_BAR_GRP]

This attribute can be used in combination with the Road Barrier Business Identifier to uniquely identify the barrier or to assign a group for selection, mapping and map labeling.

<u>Road Barrier Business Identifier</u>	Character (variable length string)	15	Optional
--	------------------------------------	----	----------

The business identifier for the road barrier.

Combined with the Road Barrier Group, could create a unique identifier for an individual barrier.

Road Barrier Year Character (variable length string) 15 Optional

The year that the road barrier came into effect.

Can be expressed as an actual year, a range of years, and approximate year using the prefix '~' or before or after a specific year using the prefix '>' or '<'.

Used for audit and reporting purposes related to road use strategies.

Road Barrier Responsibility Character (variable length string) 80 Optional

The name of the organization unit that is responsible for the barrier.

In most cases this will be the same as the responsibility for the related road; however there may be instances where this is not the case or where road responsibility changes at the barrier.

Road Barrier Description Character (variable length string) 500 Optional

Additional details about the road barrier.

Further information about the barrier can be stored here including date of installation (e.g. if it's a locked gate then who has the key or if it's a sign then who put it up, what direction does it face, and what does it say)

Road Barrier Comment Character (variable length string) 100 Optional

Brief comments about the barrier.

APPENDIX B – DATA MANAGEMENT GUIDELINES

This appendix provides general information and guidelines to data stewards that should be considered when updating roads data in NRVIS. Included is:

- Part A - General Information – The Business of Roads in Ontario
- Part B – General Information – Linking Data Updates to the Business of the Roads
- Part C - The Ontario Road Network (ORN) and Data Flows
- Part D – Data Flow between NRVIS Roads and Forest Industry
- Part E - Guidelines for Editors and Users of NRVIS Roads Data
- Part F - Restriction/Sensitivity Designations for NRVIS Roads Data

Part A – General Information – The Business of Roads in Ontario

Road authorities in Ontario have the mandated responsibility to construct roads or have them constructed on their behalf. They also have the responsibility to assign names and or addresses associated with roads. Road authorities include:

- Municipalities
- The Ministry of Transportation
- The Ministry of Natural Resources (resource access roads and park roads)
- The Ministry of Northern Development and Mines
- Federal government (roads on federal lands, e.g. national parks, Dept of Defence)
- First Nations
- Other, e.g. local roads boards

Funding and business processes associated with the construction of roads can vary across the province. Many road authorities hire private sector firms to deliver their services, e.g. build, maintain, clear snow, etc. In other cases, funds or grants are provided to local boards that have an interest in a particular road network.

The actual collection and management of location based information by these road authorities varies across the province. At the provincial and federal level of government, use of geospatial roads data is common. Municipal governments vary in the degree of sophistication and use of geospatial roads data. Generally speaking, the smaller the organization or road authority, the less likely they are able to collect or provide updated roads data.

The following pages in this part provide a brief business overview of provincial road authorities in northern Ontario. The information is extracted from:

- Ministry of Transportation – Northern Ontario Highway Strategy, 2005
<http://www.mto.gov.on.ca/english/>
- Ministry of Northern Development and Mines - Northern Transportation Program
http://www.mndm.gov.on.ca/mndm/nordev/nortra_e.asp

Northern Ontario Overview of Roads

The Ministry of Northern Development and Mines (MNDM) and the Ministry of Transportation (MTO) are responsible for provincial highways in the North. MNDM funds highway construction and establishes priorities based on advice/recommendations from MTO. MTO delivers the Northern Highways Program, including engineering, property acquisition, construction, contract administration and highway maintenance.

Municipal Roads

Municipal roads provide local access within and near cities, towns and villages. Municipalities are responsible for the construction and maintenance of these roads.

Included in the municipal road network are “connecting links.” These are designated sections of municipal roads that connect two ends of a provincial highway through an urban municipality. There are approximately 130 kilometres of connecting links in 24 Northern Ontario communities.

Local Roads Boards

Local road boards are groups assigned the responsibility for roads in a given area under the Local Roads Boards Act.

There are approximately 7,000 lane-kilometres of local roads that are maintained through more than 300 cost sharing agreements between the province and Local Roads Boards, Statute Labour Boards, cottagers and First Nation communities.

MNDM allocates the funding for the Local Roads Boards and in conjunction with the Ministry of Transportation supports the maintenance and construction of 4,363 km of local roads for over 300 Local Roads Boards, Statute Labour Boards and Special Maintenance Agreements (50/50) Agreements with cottagers and First Nations.

First Nations Roads

The government also supports basic road construction and maintenance projects in 46 First Nations that operate as small lower tier municipalities. Provincial funding supports road activities such as grading, resurfacing, ditching, culvert repairs, minor road improvements and winter maintenance.

Resource Access Roads

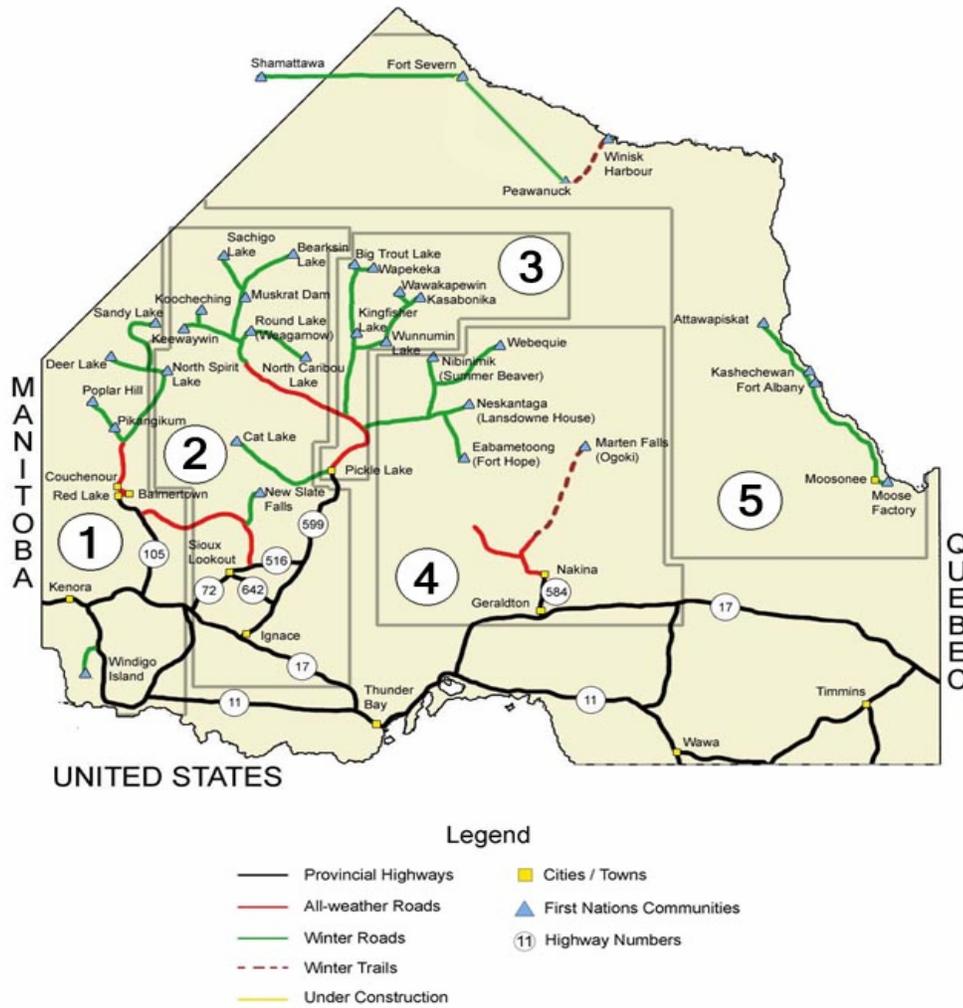
Much of this system is maintained by the forest products industry. However, the province allocates funding and establishes priorities for the construction and reconstruction of sections of the approximately 30,000 kilometres of forest access roads in the North that serve multiple users. This road system, which is primarily gravel-surfaced, provides access to timber and mineral resources, provides recreational access for northern residents and tourists, and facilitates the province's resource management activities.

Winter Roads

A 3,018-kilometre network of winter roads provides a transportation alternative for remote Northern Ontario communities that would otherwise be accessible only by air. These seasonal roads are re-built annually by packing and ploughing snow and ice over bush, muskeg swamp and lakes.

MNDM allocates funding to support the construction and maintenance of a winter road system to 31 remote Northern Native communities that currently do not have permanent road access. In most cases, the communities cost-share and manage the construction project, generating training and employment opportunities.

Northern Ontario Winter Roads 2006-2007



Map Source: http://www.mndm.gov.on.ca/mndm/nordev/nortra_e.asp

Part B – General Information – Linking Data Updates with the Business of Roads

The following section provides a brief list of considerations for Data Stewards in linking business activities and road update sources with the NRVIS 3.3 roads layer.

Municipal Roads and Provincial Highways

Updated data for municipal roads and provincial highways will flow from the ORN into the NRVIS road segment layer. Most of this data will be assigned a Road Authority which is not 'MNR' and thus is not editable in NRVIS.

If a data steward or District staff believe the ORN is incorrect or they have updates for municipal roads or provincial highways, they should contact the Geographic Information Branch (Base Data Infrastructure staff).

Where ORN data sharing agreements are in place, Base Data Infrastructure staff will speak to the local municipality or the Ministry of Transportation as to the suitability of the data and their acceptance of the data.

In many cases, ORN data sharing agreements with smaller communities in northern Ontario do not exist. Comments on errors or omissions in the ORN from MNR staff for these municipalities are welcome and should be directed towards Base Data Infrastructure staff.

Local Roads Boards

In most cases, local roads boards are concerned with a particular road network that is on Crown Land. Their interest is more associated with the drivability of the roads and its infrastructure of bridges or culverts. It is highly unlikely that a local roads board is capable of providing actual geospatial data.

Information related to which road or roads form a local roads board may be needed by a District. There may be local arrangements where paper based updates might be provided to a data steward or District staff for their use.

The MTO Regional Office may also be of assistance in identifying a local roads board and their associated road networks within a MNR district.

In the Road Segment layer, 'Local Roads Board' is one of the choices for Road Responsibility Class and details of which local road board can be stored in the Road Responsibility Detail attribute.

First Nations Roads

Across the province, the availability of source updates for roads on First Nations lands will vary. Under the initial ORN data capture, some of these roads were collected. Future updates to these roads will be based upon priorities.

In southern Ontario, some municipalities are able to provide this information to the ORN as part of their municipal data sharing agreement.

In Northern Ontario, some Districts may have a local relationship which can provide updated roads information.

If a data steward or District staff believe they have roads data on First Nations lands which is better than currently in the ORN, they should contact Base Data staff to discuss if the data can be used.

Resource Access Roads

Data stewards or District staff are responsible for maintaining their roads data in NRVIS through various sources of change detection and update technologies.

Roads that are the responsibility of a Sustainable Forest Licensee are to be provided to the MNR as required by the Forest Management Planning Manual and the Forest Information Manual. Data stewards or District staff can use this information to update roads within their respective district.

Data stewards or District staff should consult with neighbouring Districts as how best to handle roads data in cases where a Forest Management Unit spans more than one district.

Parks staff will act as data stewards for roads inside provincial parks. They may edit the roads directly within NRVIS or work with a District office to undertake the work on their behalf.

Other business areas within the MNR who can provide updates to resource access roads should consult and work with the local data steward or District staff.

Winter Roads

Winter roads are seasonal access roads that are created after the ground has frozen. During the remainder of the year, a winter road is not passable in a 4wd passenger vehicle and does not meet the true definition for resource access roads. However, Districts may need the location of winter roads for various business purposes. Winter roads can be entered into the NRVIS 3.3 roads layer.

Data stewards should only consider winter roads that are built on an annual basis as described earlier in Part A above. ***Winter roads that are built for a one time extraction of timber should not be entered into NRVIS 3.3 as these features are truly temporary in nature.***

At the time of the initial NRVIS 3.3 data load, no winter roads data was included. Districts may:

- use existing data they might have (The source and accuracy should be described in the appropriate NRVIS data fields): or,
- contact the Base Data Infrastructure staff to discuss winter roads data they have in hand. (The source of these winter roads is federal 1:50 000 or 1:250 000 map data.)

Roads on Federal Lands

The number of roads on federal land in Ontario is relatively small and does not change often.

Within the federal government, there is currently no single department responsible for managing geospatial data for roads on federal lands. Discussions between the Geographic Information Branch and Natural Resources Canada as to sources of updated roads data within national parks and Canada's Department of Defence lands are ongoing.

Under the initial ORN data capture, some of these roads on federal lands were collected. Future updates to these roads will be based upon priorities.

If a data steward or District staff believe they have roads data on federal lands which is better than currently in the ORN, they should contact Base Data Infrastructure staff to discuss if the data can be used.

Other Roads - Private

Private roads on private land are not collected or maintained by the ORN. However, these roads may be required by District staff. These roads can be entered into NRVIS at the discretion of the District.

The data steward may want to consider the points noted in Appendix B, Part F regarding sensitive roads.

Part C - The Ontario Road Network (ORN) and Data Flows

As part of the MNR's business of leading geographic information for Ontario, the Geographic Information Branch administers the Land Information Ontario program. The Ontario Road Network (ORN) is one of Land Information Ontario's primary data sets.

The ORN is a standard province-wide geo-referenced database that features information on the province's municipal roads, provincial highways, and resource access roads. The attributes in the ORN are commonly needed by many users. These include: street names and road numbers, address information, road classification, surface type and condition, direction of traffic flow, and speed limit.

The ORN does not contain attributes that are specific to an organization, e.g. a FMP road classification is specific to the MNR business, while a road surface type of asphalt or poured concrete may be specific to a municipality or MTO.

The ORN uses a series of business and technical models to efficiently maintain the data by bringing together data from government bodies with a legislative responsibility for roads in the province. The Geographic Information Branch is responsible for receiving data in multiple standards from road authorities and to convert those data standards into the ORN standard. The services of a private sector contractor are used to integrate the data and submit the data to Base Data Infrastructure staff for their QA/QC processes and acceptance. The ORN is then made available from the Ontario Land Information Warehouse.

The ORN data model supports multiple road network events and more than 45 different attributes. These attributes are managed using the functionality of Linear Referencing Systems (LRS). An LRS data model allows the maintenance of common geometry and attributes independent of each other.

Although the MNR maintains an LRS version of the ORN, it also developed a segmented data set with an address version of the Ontario Road Network (ORN). This segmented version is a derived product of the ORN linear reference system (LRS) version.

To meet the needs of emergency services across Ontario, five (5) attribute classes from the ORN LRS version are used in the segmented version:

1. Street Name
2. Address Information
3. Route Identification
4. Road Classification
5. Direction of Traffic Flow

This segmented version of the ORN is the product that is in predominate use by the user community, including MNR.

Both the LRS and Segmented version of the ORN is capable of storing official and alternate street names.

Flow of Data in the ORN

Roads data will flow to and from NRVIS and the ORN through a series transfers between the MNR and the ORN private sector contractor, i.e. the MNR will send updates to resource access roads and receive updates to municipal roads and provincial highways. The description below provides a brief overview of this data flow:

MNR Resource Access Roads

- MNR enters /updates /maintains its resource access roads in NRVIS.
- NRVIS publishes changes to Ontario Land Information Warehouse (resource access roads only).
- Ontario Land Information Warehouse makes the changes available to the ORN Contractor.
- ORN Contractor incorporates the changes according to the rules of the ORN and provides the updated ORN to the MNR for QA/QC. (Geographic Information Branch /Base Data Infrastructure staff.)

Forest Industry & Resource Access Roads

- Forest companies provide their resource access roads data to MNR via the Forest Information Portal.
- MNR enters /updates /maintains resource access roads in NRVIS.
- NRVIS publishes changes to resource access roads to Ontario Land Information Warehouse which makes the changes available the ORN Contractor.
- ORN Contractor incorporates the changes according to the rules of the ORN and provides the updated ORN to the MNR for QA/QC by Base Data Infrastructure staff.

Municipal Roads and Provincial Highways

- Municipalities and the Ministry of Transportation provide updates to municipal roads and provincial highways to the ORN Contractor.
- ORN Contractor incorporates the changes according to the rules of the ORN and provides the updated ORN to the MNR for QA/QC. (Geographic Information Branch /Base Data Infrastructure staff.)
- ORN data from the Ontario Land Information Warehouse is then used to update the municipal roads and provincial highways in the NRVIS roads layer.

A similar process is followed by municipalities and the Ministry of Transportation to receive updates to resource access roads, i.e. they receive the ORN geometry and attributes, they do not receive all off the MNR attributes it has in the NRVIS road segment layer.

Timeline expectations of data updates flowing between a contributing road authority, the ORN contractor contributors and eventually to a user could vary between a matter of weeks to a year. Factors that effect timelines of data flows include:

- Attribute changes can sometimes be easy and some of these changes might be automated, on the other hand there may large volumes to be managed.
- Spatial changes require manual process and can vary based upon complexity and volume.
- Scheduled data updates from a road authority to the ORN may not meet the business timelines of a user.

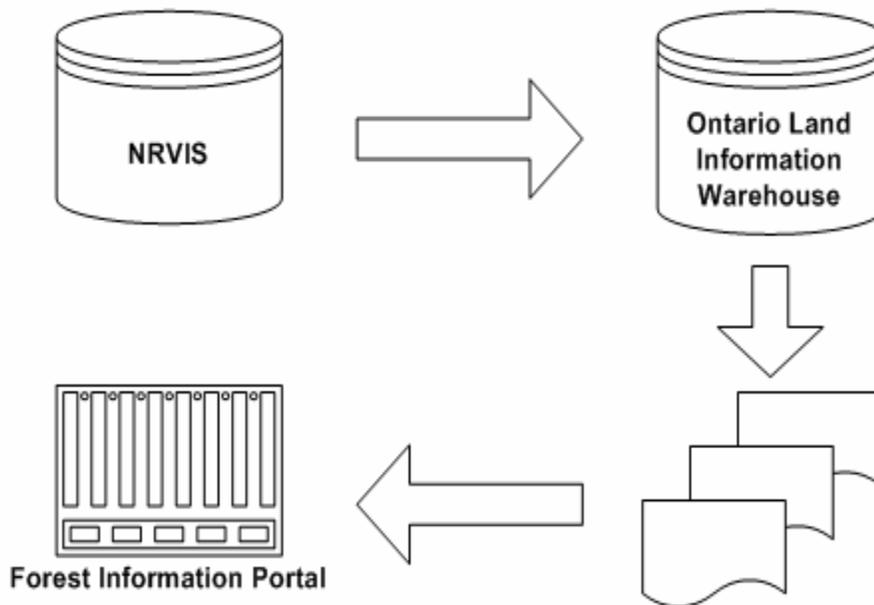
Part D – Data Flow between NRVIS Roads and Forest Industry

The diagram below illustrates how data flows when it is changed in NRVIS, through to being delivered to a Sustainable Forest Licensee. The timelines shown are approximate, actual time may be more or less depending upon available resources, number of data classes ordered, etc.

Diagram 1

- NRVIS Change data exported
- Process time: every 7 - 14 days.
- Next day for adhoc requests.

- NRVIS Changes loaded into the OLI Warehouse
- Process time: 2 - 3 days.
- Adhoc requests handled sooner.



- E00 files and documentation are packaged according to sensitivity and passed onto the MNR's Information Access Section.
- The Information Access Section posts these files and documentation to the appropriate client through the Forest Information Portal (typically District and SFL contacts).
- Process time: same to next day.

- Change data (or entire changed data class) is extracted as SNIF packages from the OLIW.
- Process time: 1 - 2 day process.
- SNIF packages are processed with the MNR /Industry .e00 generation utility.
- Process time: 1 - 2 days.
- There may be overlap in the timing of the two above noted processes.

Part E - Guidelines for Editors and Users of NRVIS 3.3 Roads Layer

This section provides general information and guidelines for editors and users of the NRVIS roads layer.

Editable Data

The amount of editing rights will depend on the value in the ROAD_AUTHORITY field. If the ROAD_AUTHORITY is MNR, then full access to geometry and attributes are provided and the MNR NRVIS user may post the changes. If the ROAD_AUTHORITY is something other than MNR (Municipal, MTO, Other), the ORN attributes will not be editable but all other attributes are editable (MNR attributes). If the geometry is edited on non-MNR segments, the version must be transferred to the Base Data Infrastructure staff to post into the Database.

The table below provides a series of scenarios NRVIS editors or users may encounter and a solution for these common scenarios.

Table 1:

Scenario 1:	Jurisdiction field is incorrect (MNR responsible road marked as MTO or Municipality; this would mean that MNR staff cannot spatially edit the MNR road segment)
Support Solution:	Contact a member of the Base Data Infrastructure staff and ask them to change the Jurisdiction value to MNR. If the user was correct, the change will be made and posted to the database. The user will then be able to edit the MNR road segment.
Scenario 2	NRVIS road segment layer is incorrect spatially
Support Solution:	If the MNR road segment is a MNR responsibility, correct the spatial geometry of the NRVIS road segment layer. If the NRVIS road segment is not MNR responsibility and you feel you have more accurate data than the data portrayed in the NRVIS roads, you can update the segment and transfer the version to a Base Data Infrastructure staff member. They will contact the appropriate people and determine if the version can be posted to the database.
Scenario 3	NRVIS road segment layer has incorrect tabular data
Support Solution:	If the NRVIS road segment is MNR responsibility, correct the tabular data for the NRVIS road segment. If the NRVIS road segment is not MNR responsibility and the tabular errors are in the ORN fields which will be marked as read-only in NRVIS, contact a Base Data Infrastructure staff member and inform them of the error. If the tabular problems are in editable fields, correct the errors in NRVIS.

Scenario 4	All other issues including but not limited to; - perceived data errors, - questions about, use of data, quality of data, sources of data, maintenance of data, SNIF data packages, access to data and Exchange protocols.
Support Solution:	Attempt to resolve issue at local level, if no resolution, send question(s) to the NRVIS /LIO Help Desk noted in Appendix C .

Best Practices when Editing MNR Road Segments in NRVIS

Set Snap Tolerance to an appropriate setting.

Set Snapping environment to appropriate settings. (MNR Road Segment - Edge and End)

Set User Settings > Topology Settings to Intersect ALL features.

Use the new Multi Feature Update tool to update existing roads or import new roads from another source either inside of NRVIS (the old Road Segment layer) or external to NRVIS.

This tool allows users to conduct feature to feature mapping for import or update based on field mapping specified by the user. The user also has the ability to save the feature mapping table and reload it at any time.

Imports or updates can be done in batches of 50 at a time. There are no limits on the number of edits which can be done in one version, but for optimum performance in the system with other tools which are required for validation and posting it is recommended that versions have less than 500 edits.

Spatial Edits:

ROAD AUTHORITY drives which edits can be checked in by MNR and which edits will be passed to Base Data Infrastructure staff for consideration.

- MNR can only check-in spatial edits for segments where ROAD AUTHORITY = 'MNR'.
- Spatial edits for road segments with a Road Authority that is not 'MNR' should be done separately and passed to BDI for consideration.

Attribute Edits:

Read-Only Attributes (never editable):

FMF_OBJECT_ID
ORN_SEGMENT_ID
EFFECTIVE_DATETIME

Read-Only Attributes (if the Road Authority is **not** 'MNR'):

[Note: Must contact BDI regarding any issues with these attributes]

NATIONAL_ROAD_CLASS
ROAD_AUTHORITY
ROAD_NAME
ALTERNATE_NAME
SURFACE_TYPE
NUMBER_OF_LANES

Editable Attributes (if the Road Authority is 'MNR'):

NATIONAL_ROAD_CLASS
ROAD_AUTHORITY [Note: once changed to not 'MNR', the attributes in this group become read-only]
ROAD_NAME
ALTERNATE_NAME
SURFACE_TYPE
NUMBER_OF_LANES

Editable Attributes (for segments of any Road Authority):

OWNERSHIP_CLASS
RESPONSIBILITY_CLASS
RESPONSIBILITY_DETAIL
RESPONSIBILITY_HISTORY
EMERGENCY_ACCESS_IDENT
USE_RESTRICTION
USE_RESTRICTION_DETAIL
STATUS_LEVEL
MAINTENANCE_LEVEL
YEAR_CONSTRUCTED
YEAR_CONSTRUCTED_MODIFIER
OLD_FMP_ROAD_CLASS
FMP_ROAD_CLASS
FMP_ROAD_YEAR
SEGMENT_COMMENT

Barriers

This point layer is designed to store objects related to road access and use restriction. Barriers are categorized by type (gate, berm, sign, etc) and further described by group (user defined), year, and responsibility. Road segments that have a use restriction may have related objects in the barriers layer.

Network Consolidations and Symbolizing Data

Road networks allow one or more road segments to be logically consolidated into a single object.

Networks allow an opportunity to create special or 'user defined' attributes.

Districts may require networks to identify road segments within specific Road Use Strategies. Parks may want to create networks to define 'date-last used' for park roads (to track the when resource access roads within provincial parks and conservation reserves were last used or maintained)

Features can also be consolidated for ease in symbolizing features (FMP classes or categories of Highway, Primary, or Secondary). Features are normally symbolized based on attributes within the feature table. Roads data is somewhat unique in that business areas have very broad interests and methods of analysis.

Networks can be created to meet 'user needs' for symbolizing roads. Fisheries Branch may want to select road systems to identify lake access, Wildlife Branch to define road networks of high hunting pressure or habitat fragmentation and Field Services for road classification.

External Databases

The ability to link to external databases, such as the Water Crossing Access database is a new function in NRVIS 3.3. A user can link to a database by:

- Copying it to their Personal Folder in NRVIS
- Adding one of the tables to a Map
- Right clicking on the layer in ArcMap
- Selecting Join from the SubMenu.

The last menu option from list above allows the user to join to a table in the map by an attribute that both the layer and the table have in common. The user could also join to another layer such as the Water Crossing Shapefile based on spatial location.

Retired Roads

The 'Road Segment Retired' layer is intended to store the location of historic roads that are no longer of any consequence. Before deleting objects from the Road Segment layer, they can be copied to the Road Segment Retired layer.

The Road Segment Retired layer will initially be populated with segments from the NRVIS 3.2.1 road segment layer that have a Geographic Unit Type number 2605 (Inactive Road).

For an object to move from the Road Segment layer to the Road Segment Retired layer the following conditions should be met:

- segment is not easily recognizable on the ground as a former road,
- there is no need to track any attributes on the segment (or there never was any real information in the first place), and
- the segment is no longer required to be part of a road network (consolidation)

The 'Road Segment Retired' layer does have a comment field attribute which can be used to store any information considered useful.

Updating Roads from FMP Annual Reports

Each year Sustainable Forest Licensees provide digital spatial roads information as a component of the FMP Annual Report for their Forest Management Unit. MNR Districts are to use this information to update the NRVIS roads layers. The information provided by the licensee will identify all roads that they have constructed, maintained, monitored, access controlled, and decommissioned in the previous year, by classification (primary, branch, operational, existing).

The attributes provided by the licensee are for the purpose of meeting the requirements of the Forest Management Planning Manual (FMPM), not necessarily for directly populating the NRVIS road attributes. MNR Districts will have to make decisions on how to populate some NRVIS attributes based on the information provided by the licensee. For example, if a licensee has indicated that a road has been maintained in the last year, then the MNR District may choose to populate the "Road Status Level" attribute in NRVIS as *Open*.

It is crucial that MNR updates the NRVIS roads layers with the annual report information on a regular basis as the NRVIS roads layer is considered to be the source of all roads information used in forest management planning. If the NRVIS roads layer is not kept current with the information provided by the licensee, then the problem of dealing with multiple roads databases will continue.

Private Roads

Private roads can be many miles long. They may be held under a Land Use Permit (LUP) by commercial operations such as tourist resorts, quarry operators, mining operations, railways, Ontario Hydro as well as private individuals. Some of these roads were built by the user. Many of these roads were built by other users i.e. the forest industry and then taken over by the current user when the original user no longer wanted to maintain them.

When updating roads, staff need to consider whether a road is on Crown Land or private lands, e.g.:

- are the private roads on Crown Land (control of and responsibility for the road is in private hands but the road allowance is still owned by the Crown), or,
- are the private roads on private land (road allowance is private property).

To ensure consistency in the entry of private roads, the following data standards are recommended.

Private Roads on Crown Land

Road Ownership class = one of the Crown like choices [Unalienated Crown Land, Ontario Parks, Conservation Reserve, Private (Crown agency), Other (Crown Surface Rights)]

Road Responsibility class = Private

Road Responsibility detail = Name of Organization or MNR file reference to LUP, MOU, etc (particularly if there is a FIPA issue)

Private Roads on Private Land

Road Ownership class = Private (Non-Crown)

Road Responsibility class = Private

Road Responsibility detail = <blank> in most instances, but actual details if it's a road important to MNR business (e.g. where the private road provides critical access to a resource road on Crown Land)

To identify private roads within an administrative boundary such as an MNR District, complete a spatial selection. The private road will require a split at the private /crown boundary.

The data steward may want to consider the points noted in Appendix B, Part F regarding data sensitivity.

Part F - Restriction/Sensitivity Designations for NRVIS Roads Data

In most cases, the MNR's resource access roads within NRVIS will not be restricted or marked as sensitive. Many of these roads are open to the public and the information is shown on internal and external map products.

There are however cases where roads and their access are a serious concern for managers of national and provincial parks and nature reserves in Ontario. Roads can threaten ecological integrity and park values. In protected areas, systems of roads can pose a threat to endangered species, other species at risk, as well as other sensitive environmental, heritage and social values. This is increasingly a concern as development encroaches on the boundaries of rare habitats and protected areas.

Data distribution may be restricted in cases where if the information were readily available it could jeopardize the protection of sensitive resource values or result in increased disturbance on private property. In Ontario, there is legislative framework, which treats roads in parks differently than elsewhere. The intent of this legislation is to recognize the many issues related to roads and access and the right and responsibility of park managers to control access. One way to control access is to limit the distribution of data and mapping of roads.

Within NRVIS, Low Sensitivity value can be justified for one of the following purposes:

User will have one of two options within NRVIS to denote an individual road segment as sensitive:

A.) Restriction of access to private property

When a landowner has requested that information regarding a private road on their private property not be made publicly available through the MNR database.

B.) Restriction of access to sensitive wildlife values and public safety issues on authorized travel restricted roads:

Low sensitivity may be designated on roads to limit unauthorized access to sensitive and protected resource values as well as to limit the ease of discovery of the same resource values:

- to restrict public knowledge of roads which if travelled would cause the location of sensitive feature locations to be readily identifiable.
- to restrict access to VTE species or other sensitive fisheries or wildlife resource or values.
- to restrict public knowledge of roads closed to the public within a Park or protected to help prevent unauthorized and/or inappropriate uses of these roads which would impact Park values such as remoteness, solitude and access to sensitive values.

The designation of 'low sensitivity' may be used to restrict public knowledge of resource extraction roads, which if traveled without proper communication equipment and training would cause endanger the unauthorized traveler. This should be restricted to roads on which unauthorized travel is not permitted at any time, including travel by foot or bicycle.

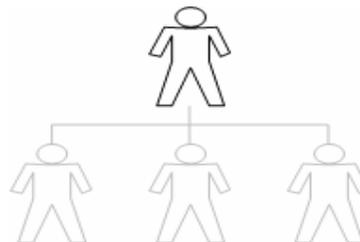
NRVIS users working with road data that is classified (designated with a low sensitivity), should familiarize yourself themselves with the 'Policy for the Management of Classified Data in the Ontario Land Information Warehouse'.

Questions regarding the above noted policy can be directed to the Information Access Section noted in Appendix C.

APPENDIX C – DATA SUPPORT MODEL

Assistance to MNR staff and data users is available through three forms:

1. Resource Access Roads Team
2. NRVIS /LIO Support Team
3. Information Access Section



This appendix describes the mechanism for dealing with questions or issues MNR staff or users may have related to the NRVIS 3.3 roads layer.

1. Resource Access Roads Team

MNR staff should feel free to contact Team members with questions related to the strategy, the migration phase and tools and development of future maintenance approaches. The names, telephone numbers and support role of Team members are listed at the end of this appendix.

2. NRVIS /LIO Support Team

The NRVIS/LIO Support Team will be the point of contact for data related issues. This support is available by phone (705) 755-1650 or by email at nrvis.support@mnr.ontario.ca

Staff can log issues with NRVIS/LIO Support Team. The NRVIS/LIO Support Team will log the client's issue with as much detail as possible and answer any questions they can.

For those issues that the support staff cannot respond to, they will forward the person to the appropriate person (referred to as "recipient"). In addition, support staff will send an email to the recipient with the logged details and request a response. Support staff will have a list of appropriate staff for various data sets and types of issues.

Recipients of the forwarded issue will be responsible to respond directly to the client as soon as possible. Support staff will attempt to ensure the issue is dealt with; however, the client can contact Support again if no response is forthcoming.

3. Information Access Section

MNR staff, its partners and users should contact the Information Access Section within the Geographic Information Branch with questions related to dissemination, intellectual property rights, data use licenses and concerns or requests related to Freedom of Information and Privacy. For more information, contact the Information Access Section at:

Email: lio@ontario.ca

Phone: (705) 755 - 1878

Information Access
Ministry of Natural Resources
P.O. Box 7000
300 Water Street
Peterborough, Ontario
K9J 8M5

Resource Access Roads Inventory Team

Name	Location	Role
Richard Abraham Spatial Database Specialist	Geographic Information Branch Peterborough (705) 755-2136	Base Data Infrastructure Staff – ORN Questions and Support.
Dennis Gertridge GIS Specialist	Geographic Information Branch Peterborough (705) 755-2186	As above.
William Millar Base Data Analyst	Geographic Information Branch Peterborough (705) 755-1295	As above.
Shawn Kelleher Base Data Specialist	Geographic Information Branch Peterborough (705) 755-1296	ORN and NRVIS 3.3 roads layer data model and data dictionary.
Don McGorman Data Analyst	Geographic Information Branch Sault Ste Marie (705) 946-7464	NRVIS 3.3 roads layer data model and data dictionary.
Kevin Casselman Senior Technical Analyst - NRVIS Development	Land and Resources Cluster Peterborough (705) 755-1615	NRVIS 3.3 road layer migration /editing tools.
Brad Eagleson A/Area Supervisor	Field Services Division, Chapleau (705) 356-0005	NRVIS 3.3 roads layer business and technical advice, use of editing tools.
Barb Elliott GIS Officer	Field Services Division, Fort Frances (807) 274-8649	As above.
Ted Hiscock GIS Officer	Field Services Division, Pembroke (613) 732-5512	As above.
Paula Klockars GIS Systems Officer	Field Services Division, Kirkland Lake (705) 568-3232	As above.
Venessa Michalsen GIS Technician /Resource Data Technician	Algonquin Provincial Park 705-755-2248	As above.
Peter Schaffer Senior Resource Tech Info Management Section	Field Services Division, Kenora (807) 468-2708	As above.
Rick Recoskie Northeast Region GIS Support Officer	Field Services Division, Northeast Regional Office (705) 235-1111	As above.
Tom Malone Manager Base Data Infrastructure	Geographic Information Branch Peterborough (705) 755-2130	Overall project, suggested changes or improvements to future NRVIS road layer.