Nova Scotia Road Network
Appendix B

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Nova Scotia Road Network

1 INTRODUCTION

This appendix explains the basics of the Nova Scotia Road Network (NSRN) and describes how this database is used as the source for other provincial and federal road network files for Nova Scotia. Figure B-1 provides a conceptual overview of how different attribute tables are used to modify the NSRN and produce separate derived products. These components are described in this appendix.

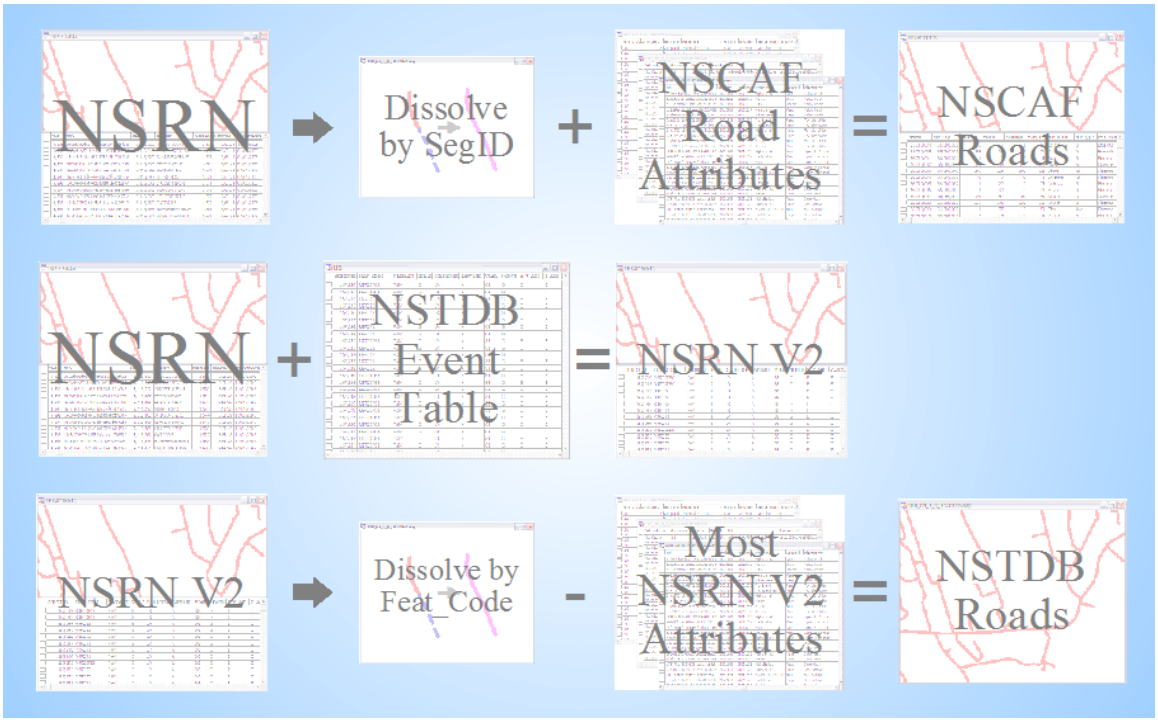

Figure B- 1 Conceptual Model for Deriving Products from NSRN

The user must understand the differences between each data product to use the data effectively. Dissolving the NSRN by SegID, feature code, NID, or any other field will result in a loss of attribute detail. Dissolving on appropriate fields is required to make the data suitable for its intended uses, but it may make the data unsuitable or difficult to use for other applications.

2 NOVA SCOTIA ROAD NETWORK

The NSRN is a 3-D province-wide road centreline and attribute file that is maintained in a segmented form in Oracle using ESRI SDE layers, supplemented by linear event tables. It is accurate to 2.5 m (horizontal) and is updated continually, thus making it the definitive source for road centreline data in Nova Scotia. It is the source for the road centreline and attributes for the Nova Scotia Topographic Database (NSTDB) and the Nova Scotia Civic Address File (NSCAF). It is also used to derive NSRN V2 - the source of the geometry for the Nova Scotia contribution to the Federal National Road Network (NRN).

Even though every effort is made to constantly update the NSRN, new road construction, road maintenance, temporary obstructions and other features may not be reflected in the data. This observation may be more relevant to some features than others.

2.1 NSRN Segmentation

The database contains road segments and point features. The road segments are noded at the following locations:

- intersections with other roads (including dry weather roads, but excluding tracks, trails, and driveways);
- endpoints of dead-end roads;
- community boundaries;
- road name changes;
- road ownership change.

These individual road segments are referenced by the unique IDS database key. Among other attributes associated directly with the segments are the creation date, status, and retired date. Additional attributes are stored in an event table that links to the segments based on the IDS key. The event table allows multiple attributes to be associated with a portion of an unique segment, thus avoiding noding the segment for every attribute change while facilitating database management. For example, IDS 123456 from 0 m to 42 m is two lane paved and then from 42 m to 90 m is gravel.

2.2 NSRN Key Structure

The primary key for the NSRN geometry is the IDS. There are also two foreign keys that are used to associate the geometry to attributes for the NSCAF (SegID key) and NRN (NID key). A sample of NSRN geometry to illustrate the keying structure is shown in Figure B-2 and Table B-1.

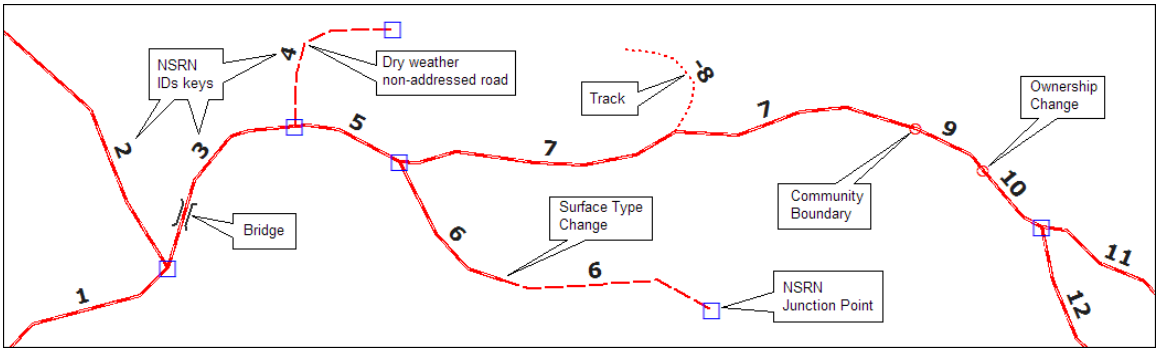

Figure B- 2 Sample NSRN Geometry

Table B-1 Sample Keys for NSRN Geometry							
IDS	**NID**	**SegID**	**OldSegID**	**Street**	**Start Date**	**End Date**	**...**
1	ab121	1010					
2	ab122	1011					
3	ab123	1012					
4	ab124	0					
5	ab125	1012					
6	ab126	1013					
7	ab127	1014					
-8	0	0					
9	ab127	1015					
10	ab127	1016					
11	ab128	1017					
12	ab129	1018					

The notable features are:

- Each entity (road segment) has a unique IDS key. Entities that are not part of the road network are assigned a negative IDS (e.g. Cart track at IDS=-8);
- Multiple entities can have the same NID because new NIDs are only assigned at network nodes, dead-end roads, provincial boundaries, and ferry junctions. In general, there can be a one to many relationship. Changes in surface type, ownership, and community boundaries do not result in new NIDs;
- Multiple entities can have the same SegID. Intersections with non-addressed roads do not result in new SegIDs. New SegIDs are only assigned at the junctions of other addressed roads, community boundaries, road name changes, and ownership changes;
- Non-addressed components of the NSRN have no SegID.

2.3 Basic NSRN Attributes

There are a core set of attributes stored with the NSRN geometry. The descriptions of these fields are provided in Table B-2.

Table B-2 NSRN Table Feature Catalogue	
Table Name	NSROADS_NSRN (NSRN Road Segment Graphics Table)
Description	The NSRN table stores the road segment geometry and selected attributes for the centreline network.

NSRN			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
Internal Record ID **OBJECTID**	N	double precision	Internal identifier that uniquely identities the record.
NSRN Identifier **IDS**	N	double precision	Primary NSRN key that is used to uniquely identify NSRN geometry records and to link event table records to the NSRN geometry.
National Identifier **NID**	C	32	Foreign key that links NSRN records to the NRN. One or more adjacent NSRN road segments may share a NID value.
NSCAF Segment Key **SEGID**	N	double precision	Foreign key that links NSRN records to the NSCAF. One or more adjacent NSRN road segments may share a SegID value, and the NSRN geometry must be dissolved on SegID before linking to the NSCAF tables.
Previous NSCAF Segment Key **OLDSEGID**	N	double precision	Previous key assigned to this segment. Some edits to the segment geometry may result in a new SegID, and this field lists the previous key value to provide a partial lineage. If two segments are merged, only one of the original SegID values is retained in this field.
Street Name **STREET**	C		Official (E-911) street name, concatenated and expanded to its full form (e.g Main Street East). For cases where the street has separate names on the left and right sides, the STREET field will contain the dominant street name.
Start Date **STARTDATE**	Date		The date that the road segment was entered into the NSRN.
End Date **ENDDATE**	Date		The date that the road segment was retired from the NSRN. A change in status or other attributes such as a segment converted from an addressed to non-addressed road will not result in setting the EndDate value. It is only set when the physical segment is retired or replaced.
Traffic Direction	I		Identifies the direction of traffic flow

NSRN			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
TRAFFICDIR			relative to the digitized direction of the graphic segment. Domain: 1 Two-way 2 One-way with arc direction 3 One-way against arc direction 5 Impassable (e.g. abandoned or overgrown roads)
Object Type **SHAPE**	I		Identifies the type of graphic entity referenced by the record.
Department of Transportation and Infrastructure Renewal Road Authority Number **ANUM**	C	6	Records the TIR identification number for roads under its jurisdiction (e.g. NS0006).
Road Classification **ROADCLASS**	C	2	Road classification based on access (e.g. seasonal; restricted), TIR category (e.g. arterial; local), and type (e.g. trail; track; water access). See RoadClass_LUT for domain.
Edit Verification **VERIFIED**	C	1	Identifies whether quality control checks have been applied to an edited record. (Domain: Y|N)
Retired Flag **RETIRED**	C	1	Identifies retired records. These are normally excluded when data are exported, but are available on request. (Domain: Y|N)
Record Lock **LOCKED**	C	1	Enables record locking during edit operations. (Domain: Y|N)
EDIT_V I	I		Identifier used for record locking during edit operations.
Federal Address Range Key **ADRANGENID**	C	32	Key to link the address range to the Federal NRN database.

2.4 NSTDB Event Table

The NSTDB event table stores supplemental attributes for the NSRN. An illustrative sample referencing the IDS keys of the road segments in Figure B-1 is shown in Table B-3.

Table B-3 NSTDB Event Table Sample for NSRN Geometry							
IDS	**Start_Dist**	**Stop_Dist**	**Surface**	**#Lanes**	**Class**	**Structure**	**Feat_Code**
1	0	229	Paved	2	Local	None	RRRDLOY1
2	0	354	Paved	2	Local	None	RRRDLOY1
3	0	50	Paved	2	Local	None	RRRDLOY1
3	50	65	Paved	2	Local	Bridge	RRBROY1
3	65	250	Paved	2	Local	None	RRRDLOY1
4	0	204	Gravel	1	Dry weather	None	RRRDRADWZ2
5	0	132	Paved	2	Local	None	RRRDLOY1
6	0	191	Paved	2	Local	None	RRRDLOY1
6	191	440	Gravel	2	Local	None	RRRDLOY2
7	0	316	Paved	2	Local	None	RRRDLOY1
-8	0	158	Gravel	1	Track	None	RRRDTK50
...	...	...					

The descriptions of the NSTDB fields are provided Table B-4. The number of lanes, road class, and surface type are coded in the Feat_Code field.

Table B-4 NSRN Table Feature Catalogue	
Table Name	NSROADS_LRS (NSTDB Event Table Attributes)
Description	The application of this event table to the NSRN graphic table produces the NSTDB road segmentation. The table stores the primary attribute of the NSTDB (Feat_Code) along with graphic segment metadata such as the collection type and accuracy descriptors. All NSRN records will have at least one corresponding record in the LRS table.

LRS			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
Internal Record Identifier **ROADSEGID**	N	double precision	Internal identifier that uniquely identities the object record.
NSRN Identifier **IDS**	N	double precision	Key to uniquely identify an NSRN road segment. This is the link to the NSRN table.
Start Distance **START_DIST**	N	double precision	Linear event start index in geometric 3-D metres from the beginning of the segment.
Stop Distance **STOP_DIST**	N	double precision	Linear event end index.
NSTDB Feature Code **FEAT_CODE**	C	12	The attributes that comprise the feature code in the NSTDB are the surface type, number of lanes, road class, and structure

LRS			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
			type. These attributes are coded to a single value stored in the Feat_Code field. These values are decoded and parsed into separate fields when the data are formatted for the NRN.
Unique Structure Identifier **STRUCTID**	N	double precision	Key to uniquely identify the structure.
Start Date **STARTDATE**	Date		The date that the event record was added.
End Date **ENDDATE**	Date		The date that the event record was retired.
Collection Date **COLL_DATE**	Date		The date that the original field data were collected.
Type of Product (source information) **PRODUCT**	C	3	Identifies the source product used to generate the entity being referenced (e.g. aerial photography, NSARDB). Domain: AAA Original / Newly generated Data APH Aerial Photography BIO Biophysical Maps of NS CHC CHS Nautical Chart CAR Cartographic Enhancement IAP Colour IR Aerial Photography CAP Colour Aerial Photography DER Derived Data ENC CHS Electronic Nav. Chart FCL Forest Cover Crown Land Data PAM Monochrome Aerial Photography ETB NS Enhanced Topographic Database ZZZ Type of Product Unknown ARD NS Addressed Roads Database MUN Municipal Unit Database
Scale Code (source information) **SCALE**	C	1	Identifies the scale of the source material which was used to generate the entity. (See SCA_LUT for coding options for this field.)
Data Collector / Contributor Code (source information) **COLLECTR**	C	2	Identifies the agency that provided the data collection. (See COL_LUT for coding options for this field.)

LRS			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
Method of Data Capture (source information) **CAPTURE**	C	1	Identifies only the most recent method of capturing the feature in a digital form. (See CAPT_LUT for coding options for this field.)
Horizontal Accuracy **X_Y_ACC**	C	1	Accuracy code represents an estimate of the horizontal spatial accuracy of the road segment. (See ACC_LRS_LUT for coding options for this field.)
Vertical Accuracy **Z_ACC**	C	1	Accuracy code represents an estimate of the vertical spatial accuracy of the road segment. (See ACC_LRS_LUT for coding options for this field.)
Product Year **PRODYEAR**	C	2	Two digit year describing when the dataset was initially released.
Product Month **PRODMONTH**	C	1	Coded value describing when the dataset was initially released [A=January .. L=December]
Retired Flag **RETIRED**	C	1	Identifies retired records. (Domain: Y|N)

2.5 Companion NSRN Tables

Blocked passages, toll locations, and junctions for the primary road network are stored as point tables with associated attributes. These point tables contain keys that references the IDS or NID of the segment in the NSRN. Junctions must be located at a road segment node, but blocked passage and toll points can be located anywhere along a road segment, as long as they are at a road segment vertex or at a node. Ferry segments are provided to maintain network continuity over water. The content of these tables is explained below.

Table B-5 Blocked Passages Feature Catalogue	
Table Name	NSROADS_BLKPASSAGE (Network Blocked Passages Points Graphics Table)
Description	The BLKPASSAGE table stores points and attributes defining obstructions on the road network that prevent the flow of traffic. Unless there is a physical gap in the road, obstructions do not result in a break in the road network geometry or assignment of junction points. Thus, processing of the BlkPassage and NSRN tables is required to manage traffic flow at blocked passages. The ROADNID and IDS fields are used to link the blocked passage point to a network or road segment.

BLKPASSAGE			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***

BLKPASSAGE			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
Internal Record Identifier **OBJECTID**	N	double precision	Internal identifier that uniquely identities the object record.
Record Identifier **BLKPASSAGE**	N	double precision	Numeric identifier
National Identifier **NID**	C	32	National NRN key that is used to uniquely identify blocked passage point records.
Blocked Passage Type **BLKPASSTY**	I	3	Description of whether the blockage is removable. Domain: -1 (Unknown) a blocked passage for which the specific type is unknown. 1 (Permanently Fixed) an obstacle placed across a road that must be demolished or removed with heavy equipment in order to allow further access (e.g., boulders, erected structures). 2 (Removable) a manmade obstacle placed across a road and designed to easily allow further access when so desired (e.g., the gate). 3 (Temporary) an obstacle or condition which temporarily restricts further access. (i.e., road wash-out, fallen log, damaged bridge, blocked accessed, bridge under construction).
Provincial Identifier **MDOOBJECTFK**	I		Numeric value identifying the province or territory (Nova Scotia = 2).
Accuracy Descriptor **ACCURACY**	I		Planimetric accuracy expressed in metres as the circular map accuracy standard.
Acquisition Method **ACQTECH**	C	23	The data source or method to acquire the geographic point. For the NSRN, this value is usually “Vector Data”.
Data Provider **ACQPROVIDR**	C	8	Identifies the level of government that provided the data. Value is either Federal, Provincial / Territorial, Municipal, or Other.

BLKPASSAGE			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
National Road Identifier **ROADNID**	C	32	The NID of the road segment that the blocked passage is located on. Note that since NID is not a unique identifier to road segments in the NSRN, this key may have limited value unless the road network is dissolved by NID.
NSRN Identifier **IDS**	N	double precision	Key to uniquely identify the NSRN road segment that the blocked passage is located on.
Shape SHAPE	I		
Edit Verification **VERIFIED**	C	1	Identifies whether quality control checks have been applied to an edited record. (Domain: Y|N)
Retired Flag **RETIRED**	C	1	Identifies retired records. These are normally excluded when data are exported, but are available on request. (Domain: Y|N)
Record Lock **LOCKED**	C	1	Enables record locking during edit operations. (Domain: Y|N)
EDIT_V	I		Identifier used for record locking during edit operations.
Creation Date **CREDATE**	Date		The date that the created in the database.
Revision Date **REVDATE**	Date		The date that the record was last edited.

Table B-6 Ferry Segments Feature Catalogue	
Table Name	NSROADS FERRYSEG (Ferry Segments Graphics Table)
Description	The FERRYSEG table stores segments and attributes for vehicle ferry routes. The segments begin at the intersection with road segment nodes and these intersections are identified with network JUNCTION points. Note: Intra-provincial ferry segments are now contained in the NSROADS_NSRN table and identified in the ROADCLASS field. FERRYSEG only contains ferry segments that leave the province.

FERRYSEG			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
Accuracy Descriptor	I		Planimetric accuracy expressed in metres

FERRYSEG			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
ACCURACY			as the circular map accuracy standard.
Data Provider **PROVIDER**	I		Identifies the level of government that provided the data. Value is either Federal, Provincial / Territorial, Municipal, or Other.
Acquisition Date **ACQDATE**	Date		The date the data were acquired.
Revision Date **REVDATE**	Date		The date of the last revision to the data.
Metadata Coverage **METACOVER**	I		Identifies whether the metadata is applicable to the entire segment, or only a portion. Domain: -1. Unknown. Extent not known. 1. Complete. Metadata apply to the entire route segment. 2. Partial. Metadata apply to only part of the segment.
Connecting Route Class **ROADCLASS**	I		The road class of the road segment that joins to the ferry segment.
Route Name[1..4] **RTENAME[1..4]EN**	C	100	Concatenated and expanded names for the route in English. There are fields for up to four names. Note that some interprovincial ferry routes are considered part of the Trans Canada Highway system and are named accordingly.
Route Name[1..4] **RTENAME[1..4]FR**	C	100	Concatenated and expanded names for the route in French. There are fields for up to four names.
Route Number **RTNUMBER[1..5]**	C	10	Route numbers associated with the ferry route.

Table B-7 Network Junction Feature Catalogue	
Table Name	NSROADS_JUNCTIONS (Network Junction Points Graphics Table)
Description	The JUNCTIONS table stores points and attributes defining the junctions of road segments for the NSRN road network (including dry weather roads, but excluding tracks, driveways, and railroads).

	Junction points are placed at the intersection of road segments, end points of dead-end segments, provincial boundaries, and ferry connections.

JUNCTIONS			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
Internal Record Identifier **OBJECTID**	N	double precision	Internal identifier that uniquely identities the object record.
Junction Record Identifier **JUNCTIONID**	N	double precision	NSRN key that is used to uniquely identify junction point records.
National Identifier **NID**	C	32	National NRN key that is used to uniquely identify junction point records.
Junction Type **JUNCTYPE**	C	12	Description of the type of junction. Typically either "Intersection" or "Dead End", but other codes also used. (See JUNCTYPE_LUT for coding options for this field.)
Exit Number **EXITNBR**	C	10	Typically "None", but for ramps at interchanges it identifies the exit number at each end of the ramp.
Provincial Identifier **DATASETNAM**	I		Numeric value identifying the province or territory (Nova Scotia = 2).
Specification Version **SPECVERS**	C	5	Version of the specification to which the entity conforms.
Start Date **STARTDATE**	Date		The date that the junction point was added.
End Date **ENDDATE**	Date		The date that the junction point was retired.
Shape **SHAPE**	I		
Edit Verification **VERIFIED**	C	1	Identifies whether quality control checks have been applied to an edited record. (Domain: Y|N)
Retired Flag **RETIRED**	C	1	Identifies retired records. These are normally excluded when data are exported, but are available on request. (Domain: Y|N)
Record Lock **LOCKED**	C	1	Enables record locking during edit operations. (Domain: Y|N)
EDIT_V	I		Identifier used for record locking during edit operations.

Table B-8 Toll Points Feature Catalogue	
Table Name	NSROADS_TOLLPOINT (Toll Points Graphics Table)
Description	The TOLLPOINT table stores points and attributes defining toll booth locations along network segments. Toll points do not result in a break in the road network geometry or assignment of junction points. The ROADNID field is used to link the toll point to a network segment.

TOLLPOINT			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
Internal Record Identifier **OBJECTID**	N	double precision	Internal identifier that uniquely identities the object record.
National Identifier **NID**	C	32	National NRN key that is used to uniquely identify toll point records.
Provincial Identifier **DATASETNAM**	I		Numeric value identifying the province or territory (Nova Scotia = 2).
Specification Version **SPECVERS**	C	5	Version of the specification to which the entity conforms.
Acquisition Method **ACQTECH**	C	23	The data source or method to acquire the geographic point. For the NSRN, this value is usually "Vector Data".
Accuracy Descriptor **ACCURACY**	I		Planimetric accuracy expressed in metres as the circular map accuracy standard.
Data Provider **PROVIDER**	I		Identifies the level of government that provided the data. Value is either Federal, Provincial / Territorial, Municipal, or Other.
Creation Date **CREDATE**	Date		The date that the created in the database.
Revision Date **REVDATE**	Date		The date that the record was last edited.
METACOVER			
Toll Point Type **TOLLPTTYPE**	I		Numeric value indicating the type of toll. Domain: -1. Unknown Unknown type 1. Physical Toll structure requiring the user to stop and pay a toll. 2. Virtual Toll location with automated

TOLLPOINT			
Field Description and Field Name	***Field Type***	***Field Size***	***Table Content***
			identification and billing of users that do not require the user to stop. 3. Hybrid Tolls with both physical and virtual toll payment.
National Road Identifier **ROADNID**	C	32	The NID of the road segment that the toll point is located on. Note that since NID is not a unique identifier to road segments in the NSRN, this key may have limited value unless the road network is dissolved by NID.
Shape **SHAPE**	I		
Edit Verification **VERIFIED**	C	1	Identifies whether quality control checks have been applied to an edited record. (Domain: Y|N)
Retired Flag **RETIRED**	C	1	Identifies retired records. These are normally excluded when data are exported, but are available on request. (Domain: Y|N)
Record Lock **LOCKED**	C	1	Enables record locking during edit operations. (Domain: Y|N)
 EDIT_V	I		Identifier used for record locking during edit operations.
Toll Point Identifier **TOLLPOINT**	N	double precision	
NSRN Identifier **IDS**	N	double precision	Key to uniquely identify the NSRN road segment that the toll point is located on.

2.6 Lookup Tables

These tables provide descriptions for the coded values in the main NSRN tables.

Table Name	ACC_LRS_LUT (Road Segment Event Table (LRS) Accuracy Code Table)
Description	Identifies the spatial accuracy of the spatial references in the LRS accuracy fields (X_Y_ACC and Z_ACC).

ACC_LRS_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
Accuracy Code **CODE**	C	1	CODE ACCURACY B 1 metre C 1.5 metres

ACC_LRS_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
			D 2 metres E 2.5 metres F 3 metres G 3.5 metres H 4 metres I 5 metres J 6 metres K 7 metres L 8 metres
Accuracy Code Description **ACCURACY**	C	15	M 9 metres N 10 metres O 15 metres P 20 metres Q 25 metres R 35 metres S 50 metres T 75 metres U 100 metres V 150 metres W 200 metres X 300 metres Y >300 metres Z unknown

Table Name	CAPT_LUT (Method of Data Capture Code Table)
Description	Identifies the method used to capture spatially referenced data. This component only identifies the most recent method of capturing the feature in a digital form.

CAPT_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
Method of Data Capture Code **CAPTURE**	C	2	CAPTURE DESCRIBE 0 NSGC web based application 1 GPS Municipal A Photogrammetry - Analogue B Photogrammetry - Analytical C Survey - COGO D Digitally Compiled - Digitized E Photogrammetry - Analogue - Aerial F Survey - Tape G Survey - Global Positioning Systems

CAPT_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
			H Photogrammetry - Analytical - Aerial I Digitally Compiled - Interactive (on screen editing) J Survey - Traditional
Method of Data Capture Code Description **DESCRIBE_**	C	155	K Photogrammetry - Analytical - Satellite L Photogrammetry - Analytical - Terrestrial M Digitally Compiled - Computer N Digitally Compiled - Scanned O Digitally Compiled (method unknown) P Photogrammetry Q Survey - Questionnaire R Survey - Ground Truthing S Survey (specific survey type unknown) T Survey - Total Station U Survey - Ground Transportation Sensors V Photogrammetry - Analogue - Satellite W Survey - Windshield X Original Data Y Photogrammetry - Analogue - Terrestrial Z Unknown

Table Name	COL_LUT (Data Collector / Contributor Code Table)
Description	Identifies the agency carrying out the data collection.

COL_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
Data Collector / Contributor Code **COLLECTR**	C	2	Two letter abbreviation and name of the agency collecting the data. It includes municipal, provincial, and federal agencies as well as private companies.
Data Collector / Contributor Code Description **DESCRIBE_**	C	50	

COL_LUT Domain	
Collectr	Describe_
AA	Atlantic Air
AC	Academia
AD	Annapolis District Planning Commission
AG	Agriculture and Marketing
AL	AltMapping
AM	Town of Amherst

COL_LUT Domain	
Collectr	Describe_
AP	Municipality of the County of Annapolis
AR	Town of Annapolis Royal
AS	Town of Antigonish
AT	Municipality of the County of Antigonish
AY	Municipality of the District of Argyle
BA	Municipality of the District of Barrington
BC	Business and Consumer Services
BE	Town of Berwick
BT	Town of Bridgetown
BW	Town of Bridgewater
CA	Town of Canso
CB	Cape Breton Regional Municipality
CC	CAD/CAM
CH	Town of Clark's Harbour
CL	Municipality of the District of Clare
CO	Municipality of the County of Colchester
CS	Community Services
CT	Municipality of the District of Chester
CU	Municipality of the County of Cumberland
DG	Town of Digby
DI	Municipality of the District of Digby
EA	Eastcan
EC	Education and Culture
ED	EDM
EH	Municipality of the District of East Hants
EN	Environment
EP	Eastern District Planning Commission
ER	Economic Renewal
FA	Federal Agencies
FE	Department of the Environment
FI	Finance
FL	Elections Canada
FN	Department of National Defense
FO	Forest Industry
FR	Natural Resources Canada
FS	Fisheries
FT	Transportation Canada
GC	Nova Scotia Geomatics Centre
GE	Geomatics Canada
GG	Geodetic Surveys of Canada
GN	GeoNet
GP	Geoplan
GU	Municipality of the District of Guysborough

COL_LUT Domain	
Collectr	Describe_
HA	Housing and Municipal Affairs
HE	Health
HM	Hauts-Monts
HP	Town of Hantsport
HR	Human Resources
HS	Canadian Hydrogrphic Services
HX	Halifax Regional Municipality
IN	Municipality of the County of Inverness
JU	Justice
KE	Town of Kentville
KI	Municipality of the County of Kings
LA	Labour
LG	Landmark Geographic Solutions
LN	Town of Lunenburg
LO	Town of Lockeport
LR	Land Registration and Information Service
LU	Municipality of the District of Lunenburg
MB	Town of Mahone Bay
MG	Membertou Geomatics Consultants
MI	Town of Middleton
MM	Confederacy of Mainland Mi'kmaq
MU	Town of Mulgrave
NA	Department of Indian and Northern Affairs
NG	Town of New Glasgow
NR	Natural Resources
OX	Town of Oxford
PA	Town of Parrsboro
PC	Town of Pictou
PD	Pictou County District Planning Commission
PE	Petroleum Industry
PG	Provincial Government Departments and Agencies
PH	Town of Port Hawkesbury
PI	Municipality of the County of Pictou
PO	Power Companies
PP	Priorities and Planning Secretatiat
QU	Region of Queens Municipality
RI	Municipality of the County of Richmond
RS	CCRS
SB	Town of Shelburne
SC	Statistics Canada
SH	Municipality of the District of Shelburne
SL	Town of Stellarton
SM	Municipality of the District of St. Mary's

COL_LUT Domain	
Collectr	Describe_
SN	Service Nova Scotia and Municipal Relations
SP	Town of Springhill
ST	Spatial Metrics Atlantic
SW	Town of Stewiacke
TI	Telecommunications Industry
TN	Town of Trenton
TP	Transportation and Public Works
TS	Technology and Science Secretariat
TU	Town of Truro
VI	Municipality of the County of Victoria
WE	Town of Westville
WH	Municipality of the District of West Hants
WI	Town of Windsor
WO	Town of Wolfville
YA	Municipality of the District of Yarmouth
YB	Yar_Argyle_Barr District Planning Commission
YR	Town of Yarmouth
ZZ	Unknown

Table Name	JUNCTYPE_LUT (Junction Type Code Table)
Description	Identifies the type of network junction for the JUNCTION table.

JUNCTYPE_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
Junction Type Code **JUNCTYPE**	I	5	JUNCTYPE DESCRIBE_ 1 Intersection 2 Dead End 3 Ferry 4 Provincial Boundary
Junction Type Code Description **DESCRIBE_**	C	30	

Table Name	PROD_LUT (Type of Product Code Table)
Description	Identifies the type of product which was the source of the data being described.

PROD_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
Type of Product Code **PRODTYPE**	C	3	PRODTYPE DESCRIBE AAA Original / Newly generated Data APH Aerial Photography BIO Biophysical Maps of Nova Scotia CHC Canadian Hydrographic Services

PROD_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
			Navigational Chart CAR Cartographic Enhancement IAP Color Infrared Aerial Photography CAP Color Aerial Photography DER Derived Data ENC Canadian Hydrographic Services Electronic Navigation Chart FCL Forest Cover Crown Land Database MAP Monochrome Aerial Photography ETB Nova Scotia's Enhanced Topographic Database ZZZ Type of Product Unknown ARD Addressed Roads Database - NSARDB MUN Municipal Unit Database
Address Parity Code Description **DESCRIBE**	C	255	

Table Name	ROADCLASS_LUT (Road Type Code Table)
Description	Provides a classification for road segments to identify type (including water access, trails and rail lines) and access (e.g. seasonal or restricted).

ROADCLASS_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
Road Classification **ROADCLASS**	C	2	Road Classification Code.
Road Class Description **DESCRIPTIO**	C	100	Describes road classification, providing an indication of type and access.
Addressable Segment **ADDRESSABL**	C	1	Identifies whether the road class is allowed to have a name and address range assigned. Segments with ADDRESSABL=N will have no SegIDs assigned. (Domain: Y|N)
Network Segment **NETWORK**	C	1	Identifies whether the road class is noded to the road network. Segments not noded to the network cannot be used for routing analysis and will have negative IDS values and no NIDs. (Domain: Y|N)

ROADCLASS_LUT Domain			
RoadClass	Descriptio	Addressabl	Network
AR	Abandoned Rail Road	N	N

ROADCLASS_LUT Domain			
RoadClass	Descriptio	Addressabl	Network
AT	Arterial	Y	Y
CO	Collector	Y	Y
DR	Driveway	N	N
DW	Dryweather	N	Y
FC	Ferry Connector	N	Y
HW	Highway	Y	Y
LO	Local	Y	Y
MC	Median Crossover	Y	Y
LA	Local Arterial	Y	Y
LC	Local Collector	Y	Y
LH	Local Highway	Y	Y
PP	Desktop Import	N	N
PR	Private Use	Y	Y
RP	Ramp	Y	Y
RR	Active Rail Road	N	N
RS	Restricted	Y	Y
SE	Seasonal	Y	Y
SL	Service Lane	Y	Y
SW	Slipway	Y	Y
TC	Trans Canada	Y	Y
TK	Track	N	N
TR	Trail	N	N
WA	Water Access	Y	Y
XX	TIR Undetermined	Y	Y
ZZ	Added via Web Maintenance	Y	Y

Table Name	SCA_LUT (Scale Code Table)
Description	Identifies the scale of the source material that was used to generate the entity.

SCA_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
Scale Code **SCALE**	C	1	SCALE DESCRIBE A 0 - 500 B 501 - 1000 C 1001 - 2500 D 2501 - 5000 E 5001 - 10000 F 10001 - 25000 G 25001 - 50000 H 50001 - 100000
Scale Code Description **DESCRIBE**	C	20	

SCA_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
			I 100001 - 250000 J 250001 - 500000 K 500001 - 1000000 L greater than 1000000 Z if scale is unknown

Table Name	TRAFFIC_DIR_LUT (Traffic Directionality Code Table)
Description	Identifies the direction of traffic flow relative to the digitized direction of the graphic segment.

TRAFFIC_DIR_LUT			
Field Description and Field Name	***Field Type***	***Field Size***	***Lookup Table Content***
Traffic Direction **TRAFFICDIR**	I	2	TRAFFICDIR DESCRIBE_ 1 Two-way 2 One-way with arc direction 3 One-way against arc direction 5 Impassable (e.g. abandoned or overgrown roads)
Traffic Direction Description **DESCRIBE_**	C	30	

3 PRODUCTS DERIVED FROM NSRN

The NSRN is an internal database maintained by the Government of Nova Scotia. It is not normally provided as a standard product, but is instead used to derive the road network products. The level of segmentation of the geometry varies for each product. A summary of the noding for each product is shown in Table B-9, and the products are explained in further detail in the following sections.

Table B-9 Sample Road Network Noding Requirements			
Node Type	**NSRN**	**NSRN V2**	**NSCAF**
Addressed Road Intersection	✔	✔	✔
Non-addressed Dry Weather Road Intersection	✔	✔	
Non-addressed road Intersection	✔	✔	
Community Boundary	✔	✔	✔
Bridges (start & end)	LR*	✔	
Ownership	✔	✔	✔
Street Name Change	✔	✔	✔
Surface Type	LR	✔	
No. Lanes	LR	✔	
Road Class	LR	✔	
*LR - Attribute maintained in an event table using linear referencing			

3.1 NSRN V2

Applying the NSTDB event table to the basic NSRN geometry results in additional segmentation to account for changes in surface type, number of lanes, road class, and structure type. As well, it effectively appends these attributes to the basic NSRN attributes in Table B-9, as shown in Table B-10.

Table B-10 Sample Attributes for NSRN V2 Geometry								
Road SegID	**IDS**	**NID**	**SegID**	**Traffic Dir**	**Feat_Code**	**Status**	**ProdType**	**...**
1	1	ab121	1010	1	RRRDLOY1	A	ETB	
2	2	ab122	1011	1	RRRDLOY1	A	ETB	
3	3	ab123	1012	1	RRRDLOY1	A	ETB	
4	3	ab123	1012	1	RRBROY1	A	ETB	
5	3	ab123	1012	1	RRRDLOY1	A	ETB	
6	4	ab124	0	1	RRRDRADWZ2	A	ETB	

Table B-10 Sample Attributes for NSRN V2 Geometry								
Road SegID	**IDS**	**NID**	**SegID**	**Traffic Dir**	**Feat_Code**	**Status**	**ProdType**	**...**
7	5	ab125	1012	1	RRRDLOY1	A	ETB	
8	6	ab126	1014	1	RRRDLOY1	A	ETB	
9	6	ab126	1014	1	RRRDLOY2	A	ETB	
...	...	...	...	...	...	...	...	...

Note that as a result of the additional segmentation, the IDS is no longer a unique key. At this level of segmentation a new key, RoadSegID, is used to uniquely reference the road segments, as shown in Figure B-3.

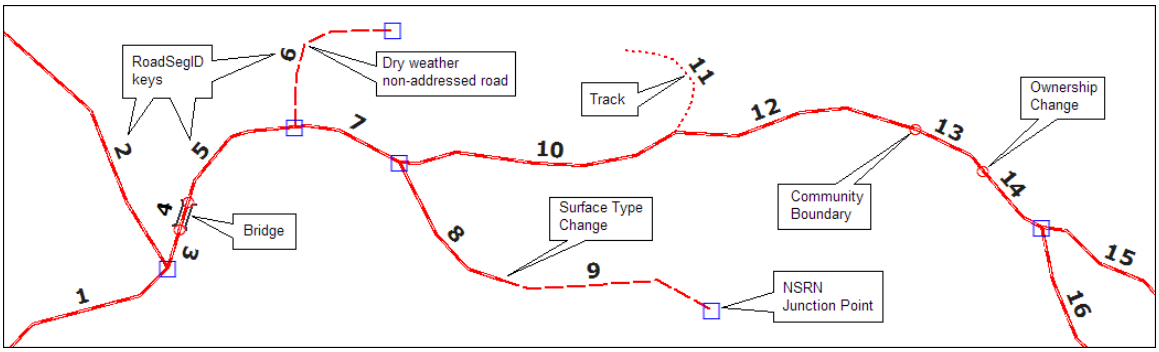

Figure B- 3 Sample NSRN V2 Geometry

The NSRN geometry and attributes at this level of segmentation is one of the available products of the NSRN. With the NSTDB event table applied, all attributes (basic NRN attributes and NSTDB attributes) are merged into a single attribute table that uses RoadSegID as the primary key.

3.1.1 Nova Scotia Topographic Database (NSTDB) Roads

Previously, the road network geometry was distributed as part of the Nova Scotia Topographic Database (NSTDB). In future, the NSRN V2 will be used to provide the road network component of the NSTDB. Road attributes are defined by the Feat_Code field that includes values for road class, surface type, structures, and number of lanes. For example, Feat_Code=RRRDLOY1 is a local road, 2 lanes, paved. Since Feat_Code is the main attribute used in the NSTDB, the NSRN V2 geometry should be dissolved by Feat_Code. A sample is shown in Figure B-4. Further detail on the NSTDB is available at http://www.nsgc.gov.ns.ca/mappingspecs/Specifications/.

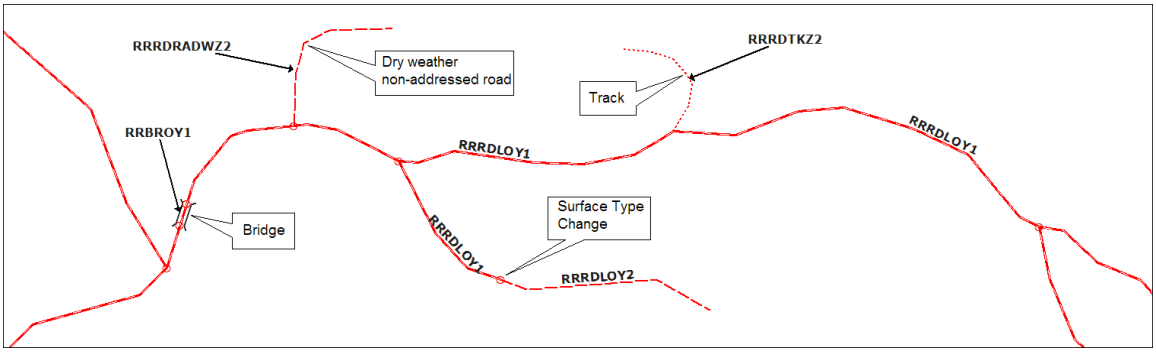

Figure B- 4 Sample NSTDB Geometry

3.1.2 National Road Network (NRN)

The NRN is a national database of 2-D road centreline data supplied to the Federal government. For Nova Scotia, contribution to the NRN is NSRN V2. As a result, the NRN contains the same segmentation as the NSRN V2. The companion tables of the NSRN such as toll points, blocked passages, and junctions are also provided to the NRN. The attributes are linked to the graphic segments using a system of NID keys. Further information on the structure and content of the NRN is available at http://www.geobase.ca/geobase/en/data/nrn/description.html. The NSRN data are only provided to the Federal government once per year; thus, the provincial sources of the NSRN will generally provide more up to date data than the NRN. The NRN is available for download at http://www.geobase.ca/geobase/en/search.do?produit=nrn&language=en.

3.1.3 Nova Scotia Civic Address File (NSCAF) Roads

The NSCAF maintains substantial attribution using a relational database structure and focuses primarily on civic addressing. The road centreline attributes relate to the graphic segments using the SegID key. There is a many-to-one relationship between the primary NSRN key (IDS) and the NSCAF key (SegID). For this reason, the NSRN geometry is dissolved by SegID as part of the process of preparing the data for distribution in the NSCAF, as illustrated in Figure B-5.

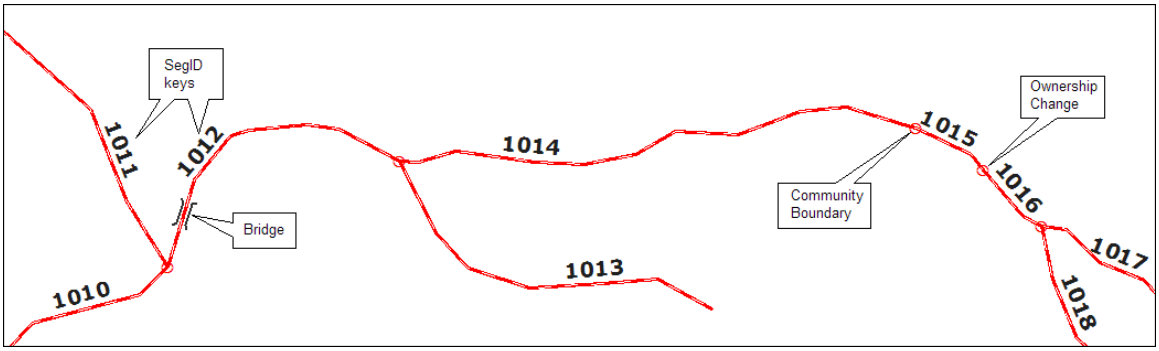

Figure B- 5 Sample NSCAF Geometry

Not all NSRN segments are included in the primary road table in the NSCAF. Tracks, driveways, and other unnamed segments are not included in the core NSCAF structure,

but are usually provided as a separate table with a minimum of attribution to distinguish roads, tracks, trails, and driveways.

The NSCAF also does not maintain the point features of the NSRN, such as blocked passages and junctions. If a blocked passage results in a physical break in the road network (such as a destroyed bridge span), this may be represented in the NSCAF as a gap in the geometry, but otherwise the NSCAF alone has no capacity to manage blocked passages. Further detail on the NSCAF structure and attributes is available at http://nscaf1.nsgc.gov.ns.ca/civicmain/docs.aspx.

4 WORKING WITH NSRN DATA

The standard road centreline deliverables are the NSCAF and NSRN V2. Persons wishing to acquire these data should contact mailto:geoinfo@gov.ns.ca.

The derived product of the NSRN that is used depends on the particular application. Be aware that the attributes provided with each of the derived products may not be readily transferable between products.

For example, the NSCAF roads are dissolved by SegID, so the Feat_Code information is dropped since a single segment in the NSCAF may have multiple surface types, numbers of lanes, road classes, or structure types.

Currently, NSRN V2 is not dissolved by Feat_Code and the SegID is maintained in the distributed data. However, the NSCAF road attribute tables (Seg_Tab, Seg_Link, and Str_Tab) cannot be joined directly to the NSRN V2 geometry since the SegIDs in this version are not unique. A join of this segmentation with the Seg_Tab will, for example, result in duplicate range values being assigned.

The NSRN provides an efficient and centralized storage of road network data for Nova Scotia. But the multiple roles of the data require an understanding of the appropriate uses of each form in order to use the data effectively.