Intersection Data Field Descriptions

VTrans is working toward the development of a comprehensive intersection database containing intersection points (nodes) and the highways that make up the approaches to the intersections (node legs). A data model has been developed by leveraging the existing road centerline data layer at VTrans and building out the necessary fields to support the Minimum Inventory of Roadway Elements (MIRE) and fields to support the Safety Analyst application. Some of the data is yet to be populated and this document can aid in defining each field. In some cases, the field definitions haven't been fully defined and require aid from the consultant in establishing the appropriate contents to the fields. Areas of ambiguity or questions have been noted.

Intersections – Node Feature Class

1. **NodeID** (Long Integer)

Unique identifier for each node, pseudonode, and dangle in the road centerline data layer. This value is sequential and does not reflect any standardized methodology, it is simply an assigned integer for the node.

2. **NodeLegCount** (Short Integer)

The number of node legs intersecting and connected to a node, or "node degree" in mathematical network terms

3. **NodeClass** (Text 30)

Not yet fully defined, for querying categories of nodes

Attributes:

TL - Town Line
SC - Surface Change
GS - Not At Grade (Grade Separated)
DI - Begin or End of divided portion of highway
DL - Departing lane
EL - Entering lane
Local - Node with at least two FUNCL = 7 (and none 1-6) and two paved approaches flagged for RPC editors
Loop - Node is where an arc intersects itself

4. **Complex** (Short Integer - Boolean)

Identifies which nodes are part of a multi-node intersection.

Attributes:

0 - Node is not part of a multi-node intersection
1 - Node is part of a multi-node intersection
Other integers - Values were automatically generated reflecting the number of nodes found within a circular radius of 100 or 200 ft (potential complex Nodes)

5. **IsPrincipal** (Short Integer - Boolean)

Identifies which node in a multi-node intersection is the principal node feature for referencing that intersection

Attributes:

0 - Node is not Principle Node and is secondary in the intersection
1 - Node is identified as the Principle Node

6. **PrincipalNodeID** (Long Integer)

Same as NodeID for simple (single node) intersections and for primary nodes. Non-primary intersection nodes carry the NodeID value of their intersection's principal node (i.e. different than their own NodeID)

7. **IntersectionID** (Long Integer)

Unique identifier for each intersection (from a data management perspective) that may encompass single or multiple nodes. Equals the PrincipalNodeID if the node feature is the principal node defining the intersection.

8. **IntersectionNodeCount** (Short Integer)

Number of nodes included in an intersection. Simple intersections have a single node (and at least 3 legs).

9. **IntersectionLegCount** (Short Integer)

The number of approaches from a data management perspective, generally the number of primary direction routes entering/leaving a virtual polygon encompassing all the nodes of an intersection. Exceptions include untraveled centerlines, and approaches not represented by the centerline data

10. **IntersectionLegException** (Short Integer)

    Indicates whether the intersection has legs not represented in the centerline data (+1), or if the primary node has auto-generated NodeLegs representing untraveled or non-existing roadways (-1)

11. **DividedStartEnd** (Short Integer - Boolean)

    A node that indicates where a highway changes from single to dual carraigeway or vice versa. This allows for filtering on nodes connected to begin and end divided highway segments.

12. **NotAtGrade** (Short Integer - Boolean)

    Node has legs that are not on the same grade (some legs under a structure and some legs carried by a structure). Nodes have been generated from the road centerline data, which is topologically connected and contains grade separated intersections. The NotAtGrade field provides a flag to identify these nodes.

    Attributes:

    0 - Node is not at a grade separated intersection
    1 - Node is at a grade separated intersection

13. **StructureNumber** (Text 15)

    Unique identifier for a structure (bridge or culvert) as derived from the Bridge Inventory System and associated with grade separated nodes. The NotAtGrade field provides a flag for StructureNumber being populated.

14. **IsInterchange** (Short Integer - Boolean)

    Indicates that the node is part of a (not at grade) interchange, including nodes belonging to all associated ramps

    Attributes:

    0 - Node is not part of an interchange

1 - Node is part of an interchange

15. **InterchangeID** (Long Integer)

Unique identifier for the Interchange, based on MIRE data field 178.

16. **InterchangeType** (Short Integer)

Type of interchange as defined in MIRE data field 182.

Attributes:

1-Diamond
2-Full cloverleaf
3-Partial cloverleaf
4-Trumpet
5-Three-leg directional
6-Four-leg all-directional
7-Semi-directional
8-Single entrances and/or exits (partial interchange)
9-Single point interchange (SPI)
10-Other (e.g., double crossover diamond, displaced left turn, diverging diamond)

17. **NodeLegID_A1** (Long Integer)

Unique identifier of the intersecting node leg (NodeLegID) with the smallest azimuth (with zero degrees indicating due north and 180 degrees due south, and 359 being almost due north)

18. **NodeLegID_A2** (Long Integer)

Additional unique identifiers of intersecting node legs (NodeLegID), listed in order of increasing azimuth, may have zero values depending on number of node legs associated with each node.

19. **NodeLegID_A3** (Long Integer)

See NodeLegID_2 for details.

20. **NodeLegID_A4** (Long Integer)

    See NodeLegID_2 for details.

21. **NodeLegID_A5** (Long Integer)

    See NodeLegID_2 for details.

22. **NodeLegID_A6** (Long Integer)

    See NodeLegID_2 for details.

23. **SignalID** (Text 8)

    Unique identifier for traffic signals defined by the VTrans Traffic, Safety Management and Operations Bureau (TSMO)

24. **INT_ID** (Long Integer)

    Unique intersection identifier used by the VTrans Traffic Research Section to define intersections for turning movement counts and other purposes.

    Note: The data that has been populated was extracted from the TrafficResearchIntersection_pts feature class, which was derived from a table provided by Traffic Research. There may be some intersection values remaining to be added.

25. **CRS_ID** (Long Integer)

    Unique identifier for intersections defined in the Crash System and populated using the feature class CRS_ID_Events. This data may require additional effort to insure all crash intersections have been properly populated in the node data layer.

26. **InterchangeSeqNum** (Long Integer)

    Interchange sequence number, which is a unique identifier for the bounding box of an interchange and extracted from the feature class Boundingboxes.

27. **QAQC_FLAG** (Short Integer)

QAQC_Flag for the node and node data – not yet defined

28. QAQC_NOTE (Text 100)

QAQC_note

29. Urban_Code (Long Integer)

Federal Aid Urban Area and rural codes. Nodes have been defined as urban if any of the legs are within the urban area.

Attributes:

11755 = Five-digit code to uniquely identify the Census 2010 Urbanized Area (population greater than or equal to 50,000) of Burlington, VT, adjusted for transportation planning purposes by VTrans in conjunction with regional planning partners.

99998 = Small Urban area to identify the Census Urban Clusters with a population greater than or equal to 5,000 and less than 50,000, adjusted for transportation planning purposes by VTrans in conjunction with regional planning partners.

99999 = Rural areas; all areas outside the adjusted Urbanized Area and Small Urban Area boundaries, for transportation planning purposes.

30. CTCODE (Text 4)

County-Town Code - defined by the Vermont Agency of Transportation, VTrans. The CTCODE is comprised of the first two digits representing the County and the last two digits representing the Town in alphabetical order within the County. The counties are numbered sequentially starting with Addison County (01) and ending with Windsor County (14). Each town is then numbered sequentially within each county, producing a unique CTCODE. The county-town code identifies the municipality in which each road falls. The CTCODE is evident on reference markers in the field, which include the CTCODE, route identifier and mile marker.
http://vtransmaps.vermont.gov/Maps/Publications/CTCODE_listing.pdf

31. County (Text 30)

County name based on location of the node. This is MIRE field 1. Some nodes may exist on the county line and should be associated to with two counties. The

assignment of county should be based on the first county that the route is in based on primary direction of the route. For example, if the route starts in Chittenden County and goes into Washington County, the node on the boundary would be assigned as Chittenden County.

This list of county names is defined in the VT GIS Geographic Ara Codes Standard at the following link:

http://vcgi.vermont.gov/sites/vcgi/files/VT_GIS_Geographic_Area_Codes_Standard.pdf

32. CountyCode (Text 5)

County code as defined in MIRE field 2. Derived from the FIPS county code and defined in the VT GIS Geographic Ara Codes Standard at the following link:

http://vcgi.vermont.gov/sites/vcgi/files/VT_GIS_Geographic_Area_Codes_Standard.pdf

33. District (Short Integer)

Highway district number, as defined by VTrans. This value is 1 – 9, with the omission of 6. This is MIRE field 3

34. Town (Text 32)

Local Jurisdiction Name. This is MIRE field 6. The town name is defined in the Geographic Codes Standard, as referenced in the County field, and a can also be leveraged through the CTCODE listing.

35. Owner (Short Integer)

Type of Governmental Ownership as defined in MIRE field 4.

Attributes:

1 - State Highway Agency
2 - County Highway Agency
3 - Town or Township Highway Agency
4 - City or Municipal Highway Agency
11 - State Park, Forest, or Reservation Agency

12 - Local Park, Forest, or Reservation Agency
21 - Other State Agency
25 - Other Local Agency
26 - Private (other than Railroad)
27 - Railroad
31 - State Toll Authority
32 - Local Toll Authority
?? - Other Public Instrumentality (e.g. Airport, School, University)
60 - Other Federal Agency
61 - Indian Tribe Nation
62 - Bureau of Indian Affairs
63 - Bureau of Fish and Wildlife
64 - U.S. Forest Service
66 - National Park Service
67 - Tennessee Valley Authority
68 - Bureau of Land Management
69 - Bureau of Reclamation
70 - Corps of Engineers
72 - Air Force
73 - Navy/Marines
74 - Army
?? - Other
80 - Unknown

36. MajorRoute (Text 30)

Unique identifier for the Major Route, as defined in MIRE field 8. This value has been pulled from the field TWN_LR field in the road centerline data layer, has a unique value for each route, and corresponds to the route code used in VTrans town-based Linear Reference System.

"Major" is defined in this dataset to reflect the Intersection leg with the highest AADT, without regard to route continuity (terminating, through, or turning). The NodeLegId for this "Major leg" is indicated by the Major_LegID field in this dataset. See descriptions for Major_Leg and Minor_Leg for clarification.

37. MinorRoute (Text 30)

Unique Identifier for the Minor Route, as defined in MIRE field 8.This value has been pulled from the field TWN_LR field in the road centerline data layer, has a unique value for each route, and corresponds to the route code used in VTrans town-based Linear Reference System.

"Minor" is defined in this dataset to reflect the Intersection leg with the highest AADT that intersects the "Major" route. This, by definition, excludes the Intersection Leg with the second highest AADT if it is functionally a "through-route" with the Major Leg, regardless of whether it has the same route code as the Major Leg. The NodeLegId for this "Minor Leg" is indicated by the Minor_LegID field in this dataset. See descriptions for Major_Leg and Minor_Leg for clarification.

38. MajorRoadName (Text 30)

Route Name for the Major Road (MIRE field 8). This value should be pulled from the RDFLNAME for the major route, which is the road full name in the road centerline data layer. The PRIMARYNAME, which is the E911 defined road name would be preferable to be used but may not be fully populated in the road centerline data layer.

39. MinorRoadName (Text 30)

Route Name for the Minor Road (MIRE field 9). This value should be pulled from the RDFLNAME for the major route, which is the road full name in the road centerline data layer. The PRIMARYNAME, which is the E911 defined road name would be preferable to be used but may not be fully populated in the road centerline data layer.

40. MajorRoadLocSystem (Text 1)

SafetyAnalyst Location System for Major Road

Attributes:

A - Route/Milepost - Route/milepost location system
B - Route/County/Milepost - Route/county/milepost location system
C - Route/Section/Distance - Route/section/distance location system
D - Section/Distance - Section/distance location system

41. MajorRouteType (Text 2)

Route Type for Major Road, defined in Safety Analyst.

Attributes:

I - Interstate - Route category interstate
US - US route - Route category US route
SR - State route - Route category state route
BR - Business route - Route category business route
BL - Business loop - Route category business loop
SP - Spur route - Route category spur route
CR - County road - Route category county road
TR - Township road - Route category township road (Functional Class <> 7)
L - Local road - Route category local road (Functional Class = 7)
O - Other - Route category other
X - Unknown - Route category unknown

42. MinorRoadLocSystem (Text 1)

SafetyAnalyst Location System for Minor Road

Attributes:

A - Route/Milepost - Route/milepost location system
B - Route/County/Milepost - Route/county/milepost location system
C - Route/Section/Distance - Route/section/distance location system
D - Section/Distance - Section/distance location system

43. MinorRouteType

Route Type for Minor Road, defined in Safety Analyst.

Attributes:

I - Interstate - Route category interstate
US - US route - Route category US route
SR - State route - Route category state route
BR - Business route - Route category business route
BL - Business loop - Route category business loop
SP - Spur route - Route category spur route
CR - County road - Route category county road
TR - Township road - Route category township road (Functional Class <> 7)
L - Local road - Route category local road (Functional Class = 7)
O - Other - Route category other
X - Unknown - Route category unknown

44. **Rural_Urban** (Text 1)

Rural/Urban Designation

Attributes:

U - Urban - Urban area type
R - Rural - Rural area type
X - Unknown - Unknown area type

Nodes on the boundary of an urban area have been coded as urban.

45. **Major_MM** (Double 8 3)

Location Identifier for Road 1 Crossing Point. Mile marker of the major route at the intersection.

46. **Minor_MM** (Double 8 3)

Location Identifier for Road 2 Crossing Point

47. **Minor3_MM** (Double 8 3)

Location Identifier for Additional Road Crossing Points

48. **IntersectionType** (Text 30)

Type of intersection or junction – matches MIRE data field 121. Type of Junction being described in the data record.

Attributes:

R1 - Roadway/roadway (not interchange related)

R2 - Roadway/roadway (interchange ramp terminal)

R3 - Roadway/pedestrian crossing (e.g., midblock crossing, pedestrian path or trail)

R4 - Roadway/bicycle path or trail

R5 - Roadway/railroad grade crossing

R6 - Other

D1 – Divided Start and End

49. **IntersectionGeometry** (Short Integer)

Intersection/Junction Geometry as defined in field intersectionType1 in Safety Analyst

Attributes:
1 - Tee intersection - Two or more roadways intersect at grade in a Tee intersection
2 - Y intersection - Two or more roadways intersect at grade in a Y intersection
3 - Four-leg intersection - Two or more roadways intersect at grade in a four-leg intersection
4 - Traffic circle/roundabout - Two or more roadways intersect at grade in a traffic circle or roundabout
5 - Multileg intersection, five or more legs - Two or more roadways intersect at grade in a multileg intersection of five or more legs
0 - Other - Two or more roadways intersect at grade in another intersection type *
99 - Unknown - Two or more roadways intersect at grade in an unknown intersection type

50. **SchoolZone** (Short Integer)

Indication on whether the intersection is in a School Zone (MIRE field 127)

Attributes:
1 - Yes
2 - No

51. **BusStopCount** (Short Integer)

Bus Stop Indicator - Count of the bus stops within 1000 feet of the intersection.

52. **AlcoholSalesCount** (Short Integer)

Alcohol Sales Indicator - Count of the alcohol sales locations within 1000 feet of the intersection.

53. **RailCrossingNumber** (Text 8)

Railroad Crossing Number (MIRE field 128) - Railroad (RR) crossing number if a RR grade crossing (for linkage to National Highway-Rail Crossing Inventory).

54. IntersectionMinAngle (Short Integer)

Intersecting Angle (MIRE field 129) - The measurement in degrees of the smallest angle between any two legs of the intersection. This value will always be within a range of 0 to 90 degrees (i.e., for non-zero angles, always measure the acute rather than the obtuse angle).

55. IntersectionSkewAngle (Short Integer)

Intersection Skew Angle as defined in Chapters 9 and 10 in the Highway Safety Manual: Degrees departure from 90 degrees of the Minor route's intersection with the Major Route. If two minor legs have different skew angles, their values are averaged.

56. TrafficControlType(Short Integer)

Intersection/Junction Traffic Control - as defined in trafficControl1 for Safety Analyst

Attributes:
1 - No control - No Traffic control at intersection *
2 - Stop signs on cross street only - Traffic control at intersection consists of stop signs on cross street only
3 - Stop signs on mainline only - Traffic control at intersection consists of stop signs on mainline only *
4 - All-way stop signs - Traffic control at intersection consists of all-way stop signs
5 - Two-way flasher (red on cross street) - Traffic control at intersection consists of two-way flasher (red on cross street)
6 - Two-way flasher (red on mainline) - Traffic control at intersection consists of two-way flasher (red on mainline) *
7 - All-way flasher (red on all) - Traffic control at intersection consists of all-way flasher (red on all)
8 - Yield signs on cross street only - Traffic control at intersection consists of yield signs on cross street only *
9 - Yield signs on mainline only - Traffic control at intersection consists of yield signs on mainline only *
10 - Other non-signalized - Traffic control at intersection consists of other non-signalized *
11 - Signals pre timed (2 phase) - Traffic control at intersection consists of signals pre timed (2 phase)
12 - Signals pre timed (multi-phase) - Traffic control at intersection consists of signals pre timed (multi-phase)

13 - Signals semi-actuated (2 phase) - Traffic control at intersection consists of signals semi-actuated (2 phase)
14 - Signals semi-actuated (multi-phase) - Traffic control at intersection consists of signals semi-actuated (multiphase)
15 - Signals fully actuated (2 phase) - Traffic control at intersection consists of signals fully actuated (2 phase)
16 - Signals fully actuated (multi-phase) - Traffic control at intersection consists of signals fully actuated (multiphase)
17 - Other signalized - Traffic control at intersection consists of other defined signalized
18 - Roundabout - Traffic control at intersection consists of roundabout
99 - Unknown - Unknown traffic control at intersection *

57. IntersectionLighting (Short Integer)

Intersection/Junction Lighting - Presence of lighting at intersection/junction (MIRE field 133)

Attributes:

0 - No
1 - Yes

58. Roundabout_LaneCount (Short Integer)

Circular Intersection - Number of Circulatory Lanes (MIRE field 134)

59. Roundabout_LaneWidth (Short Integer)

Circular Intersection - Circulatory Lane Width in Feet (MIRE field 135)

60. Roundabout_Diameter (Double 8 3)

Circular Intersection - Inscribed Diameter (MIRE field 136) - distance between the outer edges of the circulatory roadway of a circular intersection, expressed in feet.

61. Major_AADT (Long Integer)

Major Road AADT (MIRE field 79)

62. **Minor_AADT** (Long Integer)

    Minor Road AADT (MIRE field 79)

63. **Major_AADT_Year** (Short Integer)

    Year of Count (major road) (MIRE field 80)

64. **Minor_AADT_Year** (Short Integer)

    Year of Count (minor road) (MIRE field 80)

143. **MajorRouteDirection** (Text 2)

    Safety Analyst attribute 'majorRouteDirection', indicating the designated direction of the major roadway. For example, the direction of a State designated north-south highway must be either northbound or southbound even though a short segment of the highway or the approach to the intersection may have an east-west orientation.

    Attributes:

    NS - North-South – The designated direction is north-south
    EW - East-West – The designated direction is east-west
    X - Unknown – The designated direction is unknown

144. **MinorRouteDirection** (Text 2)

    Safety Analyst attribute 'minorRouteDirection', indicating the designated direction of the minor roadway. For example, the direction of a State designated north-south highway must be either northbound or southbound even though a short segment of the highway or the approach to the intersection may have an east-west orientation.

    Attributes:

    NS - North-South – The designated direction is north-south
    EW - East-West – The designated direction is east-west
    X - Unknown – The designated direction is unknown

Intersections – Node Leg Feature Class

1. **NodeID** (Long Integer)

   Indicates which NodeID the node leg intersects

2. **NodeLegID** (Long Integer)

   Unique identifier for each centerline arc intersecting each node feature. Each road centerline arc is represented by two NodeLegs, one for each end of the arc. The two legs derived from the same arc can be distinguished by the StartEnd field.

3. **NodeLegCount** (Short Integer)

   Total number of node legs associated with the connected node, including this leg.

4. **Complex** (Short Integer - Boolean)

   Attributes:

   0 - NodeLeg is not part of a multi-node intersection
   1 - NodeLeg is part of a multi-node intersection

5. **IsPrincipal** (Short Integer - Boolean)

   Identifies which of the node legs in a multi-node intersection represent the principal intersection approaches from a data management perspective.

6. **IntersectionID** (Long Integer)

   Indicates the leg's associated intersection (principal node) even if the leg belongs to a non-principal node in that intersection

7. **IntersectionLegID** (Long Integer)

   Equals NodeLegID if the leg is a principal leg. If the node leg is not a principal leg but contains attributes that are relevant to an intersection leg, this value equals the NodeLegID of the principal leg representing the same intersection leg. This way attributes relevant to specific carriageways or approaches can be maintained individually as well as in a generalized (single approach) manner. Attribute values

can be summed or averaged over multiple legs whenever it is appropriate to do so. Even if a leg does not carry values, it can most likely be associated with an "approach" which is represented by a principal node leg.

8. **IntersectionLegCount** (Short Integer)

   The number of Legs in the generalized representation of an intersection. Equals the NodeLegCount for single-node intersections, or the number of Principal legs for Complex intersections.

9. **NodeLegRank**(Short Integer)

   Not Currently used. Retained in case of future need. Unique value within an intersection used for sorting all routes/legs into an order of decreasing importance, with lower values representing greater importance (i.e. 1 = most important). The NodeLegRank is determined by sorting by decreasing AADT when available, or other importance indicators (e.g. surface type) if AADT is not available.

10. **CompassAngle** (Double 8 3)

    The geographic angle of the node leg, relative to the origin at the node point and with zero degrees due north, increasing clockwise.

11. **DividedStartEnd** (Short Integer – Boolean)

    Indicates if the leg intersects a node where a single carriageway splits into a dual (divided) carriageway, or merges from single to double carriageway. (Is there use for differentiating splits/merges based on inventory direction?)

    A node that indicates where a highway changes from single to dual carriageway or vice versa. This allows for filtering on nodes connected to begin and end divided highway segments.

    Attributes:

    0 - Node is not at the begin or end of a divided highway
    1 - Node is at the begin or end of a divided highway

12. **NotAtGrade** (Short Integer)

    A flag indicating that not all legs associated with the current NodeID are on the same grade because that node is associated with a structure with a highway

under. Some node legs with the same NodeID are under a structure while others are carried by the structure.

13. **StructureNumber** (Text 15)

    Unique identifier for a structure (bridge or culvert), as derived from the Bridge Inventory System and associated with grade separated nodes. The NotAtGradeNode field provides a flag for StructureNumber being populated.

14. **StructureOnUnder**(Short Integer)

    Indicates, for legs associated with a NotAtGrade node, which legs are (1) on the structure, (6) under the structure, or (11) on a second structure at the same location

15. **IsRamp** (Short Integer – Boolean)

    Indicates whether the node leg represents a road centerline arc that is part of a ramp (MIRE Interchange/Ramp elements)

16. **IsApproach** (Short Integer – Boolean)

    Indicates whether the node leg represents a road centerline arc that is not a main line. Approaches are part of multi-node intersections and will generally not be principal legs or intersect principal nodes.

17. **IsInterchange** (Short Integer - Boolean)

    Indicates that the node leg is part of an interchange

18. **InterchangeID** (Long Integer)

    Indicates which interchange the leg is associated with, if the node leg is not part of an interchange, the value should be zero.

19. **TWN_LR** (Text 15)

    Town-based linear reference code used to generate the town-based Linear Reference System data layer, related to ETE_LR field by adding the CTCODE

20. **TWN_MM** (Double 8 3)

    Same as coincident calibration point for the TWN_LR route, same as Major_MM, Minor_MM, and Minor1_MM

21. **ETE_LR** (Text 15)

    End-to-End-based linear reference code used to generate the end-to-end Linear Reference System data layer, related to TWN_LR field by removing the CTCODE

22. **ETE_MM** (Double 8 3)

    Same as coincident calibration point

23. **RDFLNAME** (Text 30)

    Road Full Name from the road centerline data layer. See road centerline data guide for more details

    http://vtransmaps.vermont.gov/Maps/Publications/VTrans_Road_Centerline_User_Guide.pdf

24. **RTNAME** (Text 12)

    The Route Name for a highway segment, providing highway category and number, such as “VT-100” or “TH-5”. Private roads carry no value and are coded with “-“. See the road centerline data guide for more details

    http://vtransmaps.vermont.gov/Maps/Publications/VTrans_Road_Centerline_User_Guide.pdf

25. **RTNUMBER_N** (Double 8 3)

    Numeric version of the route number, providing the ability to sort routes in order. See the road centerline data guide for more details

http://vtransmaps.vermont.gov/Maps/Publications/VTrans_Road_Centerline_User_Guide.pdf

26. HWYSIGN (Text 12)

Primary route that carries highway signs. This is similar to the RTNAME, but may not be the official route number for a segment. This field is helpful with class 1 town highways. See the road centerline data guide for more details

http://vtransmaps.vermont.gov/Maps/Publications/VTrans_Road_Centerline_User_Guide.pdf

27. FUNCL (Short Integer)

Functional class of the highway segment, as defined using FHWA classification.

Attributes:

0 = Not part of Functional Classification System
1 = Interstate
2 = Principal Arterial – other freeways and expressways
3 = Principal Arterial – other
4 = Minor Arterial
5 = Major Collector
6 = Minor Collector
7 = Local

28. AOTCLASS (Short Integer)

Code used to define the classification of a road centerline segment. See the road centerline data guide for more details.

http://vtransmaps.vermont.gov/Maps/Publications/VTrans_Road_Centerline_User_Guide.pdf

29. Urban_Code (Long Integer)

Federal Aid Urban Area and rural codes. Nodes have been defined as urban if any of the legs are within the urban area.

Attributes:

11755 = Five-digit code to uniquely identify the Census 2010 Urbanized Area (population greater than or equal to 50,000) of Burlington, VT, adjusted for transportation planning purposes by VTrans in conjunction with regional planning partners.

99998 = Small Urban area to identify the Census Urban Clusters with a population greater than or equal to 5,000 and less than 50,000, adjusted for transportation planning purposes by VTrans in conjunction with regional planning partners.

99999 = Rural areas; all areas outside the adjusted Urbanized Area and Small Urban Area boundaries, for transportation planning purposes.

30. **CTCODE** (Text 4)

County-Town Code - defined by the Vermont Agency of Transportation, VTrans. The CTCODE is comprised of the first two digits representing the County and the last two digits representing the Town in alphabetical order within the County. The counties are numbered sequentially starting with Addison County (01) and ending with Windsor County (14). Each town is then numbered sequentially within each county, producing a unique CTCODE. The county-town code identifies the municipality in which each road falls. The CTCODE is evident on reference markers in the field, which include the CTCODE, route identifier and mile marker.
http://vtransmaps.vermont.gov/Maps/Publications/CTCODE_listing.pdf

31. **FAID** (Double 38 0)

Unique identifier for an arc within the road centerline data layer. This value carries the FIPS code with state and county, as well as an ArcID that is unique by town. This field can provide a link between the Node Legs and the road centerline data.

32. **StartEnd** (Text 5)

Indicates whether the node leg represents the start or end of the original centerline arc from which it was obtained

33. **QAQC_FLAG** (Short Integer)

QAQC_Flag for the node and node data – not yet defined

34. **QAQC_NOTE** (Text 100)

    QAQC_NOTE

35. **SignalApproachSeq** (Long Integer)

    TSMO_signals

36. **TrafficResearchRoadNum** (Long Integer)

    TrafficResearchIntersection_pts

37. **CrashLineNum** (Long Integer)

    CRS_ID_Events (with Master Intersection File joined)

38. **AADT** (Long Integer)

        Approach AADT

39. **AADT_YEAR** (Short Integer)

    Approach AADT Year

40. **SpeedLimit** (Short Integer)

    Approach Speed Limit

41. **OneWay** (Short Integer)

    Approach Directional Flow

    Attributes:

    0 - One Way against arc's digitized direction
    1 - One Way
    2 - Two Way

42. Direction (Text 2)

Approach Direction for each leg, as defined by the Safety Analyst attribute 'legDirection'. If a leg corresponds to a route that is State designated as a North-South route, the leg's direction must be either northbound or southbound even though a short segment of the highway or the approach to the intersection may have an east-west orientation.

Attributes:

NB - Northbound approach - The approach of the intersecting leg is Northbound
SB - Southbound approach - The approach of the intersecting leg is Southbound
WB - Westbound approach - The approach of the intersecting leg is Westbound
EB - Eastbound approach - The approach of the intersecting leg is Eastbound
X - Unknown - Directional approach of the intersecting leg is unknown

43. Through_Lanes (Short Integer)

(MIRE2.0 #134, Number of Approach Through Lanes) Total number of through lanes on approach (both directions if two-way, one direction if one-way).
The number of through lanes on the approach to the intersection. This count includes all lanes with through movement (including through and left-turn lanes; through and right-turn lanes; through, left-turn, and right-turn lanes; and left-turn and right-turn lanes at three leg intersections) but not exclusive turn lanes.

44. Turn_Lanes_L (Short Integer)

Number of exclusive left turn lanes that accommodate left turns from this approach

45. Control_Turn_Lanes_R (Text 25)

Traffic control of exclusive right turn lanes on approach, was MIRE 1.0 Element 148, now MIRE 2.0 Element 139

Attributes:

1.0:
Signal - Signal
Yield - Yield sign
Stop - Stop sign
None - No control (e.g. free flow)

2.0:

1 - Unsignalized
2 - Permissive signal
3 - Protected all day(s)
4 - Protected, peak hour only
5 - Protected - permissive with green arrow/green ball (all day)
6 - Protected - permissive with green arrow/green ball (peak hour only)
7 - Protected - permissive with flashing yellow arrow (all day)

46. **Turn_Lanes_R** (Short Integer)

Number of exclusive right turn lanes on approach

47. **Turn_Lanes_L_Length** (Double 8 3)

Length of Exclusive Left Turn Lanes

48. **Turn_Lanes_R_Length** (Double 8 3)

Length of Exclusive Right Turn Lanes

49. **Median_Type** (Short Integer)

Median Type at Intersection as defined in legMedianType in Safety Analyst.

Attributes:

1 - Raised median with curb - Intersection median type is a raised median with curb
2 - Depressed median - Intersection median type is a depressed median
3 - Flush paved median [at least 4 ft in width] - Intersection median type is a flush paved median, at least 4 ft in width
4 - Other divided - Intersection median type is classified as other divided
5 - Undivided - Intersection median type is undivided
0 - Other - Intersection median type is classified as other
99 - Unknown - Intersection median type is unknown

50. **TrafficControl** (Short Integer)

Traffic control present on approach, as defined in trafficControl1 for Safety Analyst

Attributes:
1 - No control - No Traffic control at intersection *
2 - Stop signs on cross street only - Traffic control at intersection consists of stop signs on cross street only
3 - Stop signs on mainline only - Traffic control at intersection consists of stop signs on mainline only *
4 - All-way stop signs - Traffic control at intersection consists of all-way stop signs
5 - Two-way flasher (red on cross street) - Traffic control at intersection consists of two-way flasher (red on cross street)
6 - Two-way flasher (red on mainline) - Traffic control at intersection consists of two-way flasher (red on mainline) *
7 - All-way flasher (red on all) - Traffic control at intersection consists of all-way flasher (red on all)
8 - Yield signs on cross street only - Traffic control at intersection consists of yield signs on cross street only *
9 - Yield signs on mainline only - Traffic control at intersection consists of yield signs on mainline only *
10 - Other non-signalized - Traffic control at intersection consists of other non-signalized *
11 - Signals pre timed (2 phase) - Traffic control at intersection consists of signals pre timed (2 phase)
12 - Signals pre timed (multi-phase) - Traffic control at intersection consists of signals pre timed (multi-phase)
13 - Signals semi-actuated (2 phase) - Traffic control at intersection consists of signals semi-actuated (2 phase)
14 - Signals semi-actuated (multi-phase) - Traffic control at intersection consists of signals semi-actuated (multiphase)
15 - Signals fully actuated (2 phase) - Traffic control at intersection consists of signals fully actuated (2 phase)
16 - Signals fully actuated (multi-phase) - Traffic control at intersection consists of signals fully actuated (multiphase)
17 - Other signalized - Traffic control at intersection consists of other defined signalized
18 - Roundabout - Traffic control at intersection consists of roundabout
99 - Unknown - Unknown traffic control at intersection *

51. LeftTurnPhasing (Short Integer)

Approach Left Turn Protection as defined in leftTurnPhasing in Safety Analyst

Attributes:

1 - Protected left-turn - Protected left-turn phasing provided on the approach
2 - Protected/permitted left-turn - Protected/permitted left-turn phasing provided on the approach
3 - Permitted left-turn - Permitted left-turn phasing provided on the approach
4 - No left-turn phase - No left-turn phasing provided on the approach
98 - Not applicable - Left-turn phasing is not applicable on the approach
99 - Unknown - Unknown left-turn phasing provided on the approach

52. **CrossingPedCount** (Short Integer)

    Crossing Pedestrian Count

53. **TurnProhibitions** (Short Integer)

    Left/Right Turn Prohibitions

    Attributes:

    1 - No left turns any time - Left turns are prohibited at all times for vehicles leaving the approach
    2 - No left turns during specific times - Left turns are prohibited during specific times for vehicles leaving the approach
    3 - No right turns any time - Right turns are prohibited at all times for vehicles leaving the approach
    4 - No right turns during specific times - Right turns are prohibited during specific times for vehicles leaving the approach
    5 - No U turns - U turns are prohibited for vehicles leaving the approach
    6 - Other - Other prohibitions apply for vehicles leaving the approach
    98 - No turn prohibitions - No turn prohibitions for vehicles leaving the approach
    99 - Unknown - Unknown prohibitions for vehicles leaving the approach

54. **RightTurnRedProhibitions** (Short Integer)

    Right Turn-On-Red Prohibitions

55. **LanesCrossedByPed** (Short Integer)

    Maximum Number of Lanes Crossed by a Pedestrian

56. **SurfaceType** (Short Integer)

Note: The surface type for some highways has not been reviewed or updated since the development of the road centerline data layer in the 1990's and is based off the last field inventory to be performed on the highway. Surface types may have changed since this point, either being upgraded through maintenance or downgraded. VTrans seeks input regarding the quality and content of the surface type of the highway network.

Attributes:

1 = Paved
A road whose surface is bituminous concrete or other treated surface such as cement concrete, bricks, or cobblestone.

2 = Gravel
A graded and drained road, the surface of which consists of gravel, broken stone, slag, slate and shale or other similar fragmental material coarser than sand. A gravel highway as applied to Town highways is defined as a highway having a gravel base and widths sufficient to provide reasonable transportation facilities at all times of the year, according to the classification of the highway.

3 = Soil or graded and drained earth
A road which has been improved to provide more adequate traffic service by the addition of sand, coarse loam or light course of gravel, but not in sufficient amount to prevent a break-through in the spring, or a road of natural earth, aligned and graded to permit reasonably convenient use by motor vehicles.

5 = Unimproved/primitive
An earth road consisting of the natural ground and which is maintained in a condition of bare passability, or an unimproved road on which there appears to be no public maintenance and which may or may not be traveled or passable.

6 = Impassable or untraveled
A public highway in a primitive condition on which there appears to be no public travel and which is not maintained.

9 = Unknown

57. Ownership (Short Integer)

Type of Governmental Ownership as defined in MIRE field 4, extracted from our road centerline data
http://vtransmaps.vermont.gov/Maps/Publications/VTrans_Road_Centerline_Use

r_Guide.pdf. This field also has the same domain as the “Owner” field for the Nodes feature class above (Nodes field #35).

Attributes:

1 - State Highway Agency
2 - County Highway Agency
3 - Town or Township Highway Agency
4 - City or Municipal Highway Agency
11 - State Park, Forest, or Reservation Agency
12 - Local Park, Forest, or Reservation Agency
21 - Other State Agency
25 - Other Local Agency
26 - Private (other than Railroad)
27 - Railroad
31 - State Toll Authority
32 - Local Toll Authority
?? - Other Public Instrumentality (e.g. Airport, School, University)
60 - Other Federal Agency
61 - Indian Tribe Nation
62 - Bureau of Indian Affairs
63 - Bureau of Fish and Wildlife
64 - U.S. Forest Service
66 - National Park Service
67 - Tennessee Valley Authority
68 - Bureau of Land Management
69 - Bureau of Reclamation
70 - Corps of Engineers
72 - Air Force
73 - Navy/Marines
74 - Army
?? - Other
80 - Unknown

Additional Node and Node_Leg Fields used in Processing

See “NewFieldsAppended” Sheet in IntersectionSchema.xlsx