Public Review Comments and Responses for the
Minnesota Geospatial Advisory Council
Road Centerline Data Standard V0.6

The Standards Committee of the Minnesota Geospatial Advisory Council (GAC) held a public review period for proposed version 0.6 of the GAC Road Centerline Data Standard from January 28, 2019 to March 13, 2019. Below is a table showing the comments received and responses approved by the Standards Committee on 4/11/19. Responses include changes to the standard and other actions.

#	Comment	Submitter	Standards Committee Response
	Section 1. Identification Elements		
1	1.2 Inconsistencies between RCL and ADP – Unique ID The primary unique ID (the global ID without the brackets) is called Address Unique Identifier while in the roads layer it is called Feature Unique Identifier. In addition this field is first in the address point layer, and second in the road layer. 1) Should the field be called ROAD_ID to keep it consistent with the address point standard, or should it be left alone so it is not confused with ROUTE_ID. Alternatively the address layer could use UNIQUE_ID unless it is too late. 2) Should the Feature Unique be the very first element in the layer?	Mark Volz, Lyon County	**Action: Move the unique identifier to be the first item in the standard. Change the name to Road Segment Unique Identifier (ROADSEG_ID) to have more consistency with other GAC standards.**
	Section 2. Linear Reference Elements		
2	Section 2.1 should be not be mandatory. I would suggest that it be optional, like the other elements in section 2. We've never seen any of this information from MNDOT, and would not have a business need to add it to our data.	Mark Sloan, Clay County	Because this field has many important uses beyond linear referencing and has been requested by many stakeholders, including counties, it has been defined as mandatory.

| 3 | 2.1, Route System and 6.1 Route Abbreviation are redundant.
I noticed that Route System and Route Abbreviation have completely coincident values in the domain. Originally I was under the impression that Route System was to be used to identify the type of road while Route Abbreviation was for creating short labels and for shielding. These domains should NOT be coincident as there are some roads that do not have shields, and there are some route types such as State Highways that may need different labels based on the state.
Please consider
• **LEAST DESIREABLE:** Removing Route Abbreviation in favor of Route System as they are redundant. Route System has the code that MNDOT prefers.
• **OKAY:** Removing Route System in favor of Route Abbreviation as they are redundant. Route Abbreviation is human readable and therefore easier to understand, can be translated back to Route System (If MNDOT needs those codes) and is useful for labeling roads with a short abbreviation such as "US 169".
• **PREFERRED:** Return Route Abbreviation to its original intent, which is to have a domain of values that only intended for creating road shields and creating abbreviated labels. Some of the changes to the domain may include:
   o Adding TC for Trans Canadian Highway in the Route Abbreviation domain. In addition Route System 2 would change from "US Highway" to US Highway or Trans Canadian Highway"
   o Adding all the neighboring state and providence codes to the Route Abbreviation domain. This will include "MN", "WI", "IA", "SD", "ND", "MB", "ON". In addition the value for Route System 03 will need to change from "MN Highway" to "State or Providence Highway".
   o Remove any values from the Route Abbreviation domain that will never have a route name such as Municipal Street, Airport Road, Frontage Road, Railroad Service Road, etc.
   o Remove any values from the Route Abbreviation domain that are part of another existing route abbreviation. For example, we do not need a route abbreviation for HOV/HOT Reversible lanes on Interstate as these Routes do not need a unique road shield. Instead these routes would have the regular Interstate and only need be identified as a HOV/HOT Reversible lanes on Interstate in the Route System domain.

Most importantly I think we need to add codes for the neighboring states. I am looking at a map now and it uses the Minnesota State Highway Road Shield for South Dakota State Highways. YUCK! | Mark Volz, Lyon County | **Action: remove element 6.1 Route Abbreviation and domain RouteTypeAbbreviation. Add the abbreviations from the RouteTypeAbbreviation domain to the RouteSystem domain as an additional reference column. Also add rows for other state highways and Trans-Canada Highway.** |

	Section 3. Geocoding Elements		
4	3.8.5 - Removed ST_CONCAT I think that the concatenated version of the full street name is useful for labeling. Without it data consumers will need to create annoyingly long expressions to reproduce this label that they might otherwise expect. If most counties will use and export the concatenated street name why not keep this attribute to the attribute name is consistent across the state?	Mark Volz, Lyon County	**Action: add this field back into the standard as an optional field. In the description, say that it may be populated or overwritten by a data aggregator.**
5	Reconsider benefit of including a concatenated street name attribute. It is anticipated that, as the statewide dataset becomes readily available, there will be increased use of the data for public safety applications. New data consumers may not have a high-level of GIS expertise, however. As noted by Mark Volz, Lyon County, a concatenated version of the full street name is useful for labeling, as well as quick searches. A readily available concatenated street name within the dataset, while not essential, may actually facilitate its use, especially for those who may not be able to easily form the expressions to create it.	Marcia Broman, MESB	See response above.
6	Why is the Street Name Pre Type field width 35, while the Street Name Post Type field width is 15?	Chelsey Bagent, Swift County	The possible values for the pre type field are different than for the post type field. This necessitated an increased field width for the pre type field. For example, "United States Forest Service Road" is a valid pre type but not a post type.
7	The MRCS defines use of a domain for ST_PRE_TYP that includes the values of "County State Aid Highway" and "Township Road." These values are not currently included in the NENA Registry domain of street pre- and post-types used for the similar field in the NENA GIS Data Model. The state will need a plan for dealing with this.	Marcia Broman, MESB	This comment has been forwarded to MnGeo.
8	The MRCS defines use of a domain for ST_POS_TYP that does not completely match the current version of the NENA Registry domain of street pre- and post-types. It may be that MnGeo has evaluated all differences and has not identified any concerns, however, if they have not done so already, the differences should be identified and reviewed by MnGeo.	Marcia Broman, MESB	This comment has been forwarded to MnGeo.

9	The MRCS does not define a domain for ST_PRE_SEP, however, NENA does define a domain for this attribute. NENA's domain includes the values of: 1) of the, 2) at, 3) de las, 4) des, 5) in the, 6) to the, 7) of, 8) on the, 9) to. Any values used in the statewide centerline dataset not conforming to the NENA domain may create issues. Use of a domain with the MRCS attribute should be evaluated.	Marcia Broman, MESB	**Action: Adopt the NENA domain for Street Name Pre Separator (ST_PRE_SEP). This would apply to the GAC parcel and address standards too.** • at • de las • des • in the • of • of the • on the • to • to the
	Section 4. Geocoding Side Feature Elements		
10	4.9 – 4.12 – Inconsistencies between RCL and ADP – CTU ID and Name The CTU Name and ID are in a different order between RCL and ADP. In RCL the code is first. In ADP the name is first.	Mark Volz, Lyon County	Note: in the GAC address point and parcel standards, the area elements are in this order: 1. CTU Name 2. CTU Code 3. Postal Community Name 4. County Code 5. County Name 6. State Code **Action: Adjust the order of the similar right and left fields in the road standard to be consistent with the other GAC standards.**
11	Sections 4.11 & 4.12 should be placed in front of sections 4.9 & 4.10 so the elements are in the same order as they are in the Addressing Standard.	Mark Sloan, Clay County	Ditto
12	Sections 4.19 & 4.20 should be placed in front of sections 4.13 so the elements are in the same order as they are in the Addressing Standard.	Mark Sloan, Clay County	Ditto

13	4.19, 4.21 – POSTCOMM_L and POSTCOMM_R I think that Postal Community should have a domain to lower the chances of a type-o in this field.	Mark Volz, Lyon County	It would be beneficial to have a domain for the Postal Community Name for the reason listed. The US Postal Service is the authoritative source of valid postal community names. Unfortunately, the USPS does not freely distribute this data. They do make it available as a licensed data product which costs thousands of dollars for the right to redistribute. The Standards Committee does not see this as a viable solution. The GAC will explore other possibilities for acquiring such data. To try to make the situation a little better, a GAC partner organization has used USPS free online data lookup tools to create a lookup table of USPS "Preferred" postal community names. Note: there are many valid postal communities that are not the preferred community. **Action: add this topic to a future best practices guide.**
14	A suggestion would be to include two fields in section 4, ADR_LOW and ADR_HIGH that are just the lowest and highest address numbers on that segment. We have those fields and find them useful.	Mark Sloan, Clay County	This topic will be considered in a future version of the standard. Individual data producers may choose to collect this for their internal needs.
15	Please consider adding the following fields to the Road Centerline Standard: • FromStreetName • ToStreetName	Duane Anderson, City of Woodbury	This topic will be considered in a future version of the standard. Individual data producers may choose to collect this for their internal needs.
16	Item 4 - Geocoding Side Feature Elements This is mainly a personal preference. I suggest using database field names: ADDR_FR_L, ADDR_TO_L, ADDR_FR_R and ADDR_TO_R for items 4.1 - 4.4 As a second choice I suggest using the field names: ADD_FR_L, ADD_TO_L, ADD_FR_R and ADD_TO_R for items 4.1 – 4.4	Curt Peterson, Ramsey County	**Action: Change the abbreviation for address in the database names for these elements from ADR to ADD to be consistent with the abbreviation for address in database names in other GAC standards.**
17	Please note that the Width of 4.5 and 4.6 in the Schema spreadsheet need to be updated to 4.	Jared Hovi, Carlton County	**Action: change field width from 1 to 4 in the table on page 6 of the standard and in the schema spreadsheet.**

18	Page 6, under Database Summary Table, the field width for PARITY_L and PARITY_R should each be changed to "4" and the domain names changed to "StParity" to match the domain names noted on page 13.	Marcia Broman, MESB	**Action: Change the field width to 4. Change "StParity" on page 13 to "Parity".**
19	The link for "CTU Identifier Codes Standard" does not work. The links for the MN county code standard and the MN state code standard do not work.	Chelsey Bagent, Swift County	**Action: update these links to point to the correct location.**
20	The description for CTU_NAME_L/R is misleading. I do not think it should say that it is "the name of the incorporated municipality (city, township, or other local government…)" since a township is not a municipality. Perhaps it is supposed to say "the name of the incorporated municipality (city), township, or other local government…"	Chelsey Bagent, Swift County	**Action: make the following change to the description for Left and Right CTU Name to match the description for Left and Right CTU Code:** The name of the <u>city, township or unorganized territory (CTU)</u> ~~incorporated municipality (city, township, or other local government, excluding counties)~~ in which addresses on the left side of the road centerline are physically located.
21	For postal community name, it would be helpful to clarify if the standard will be to use the default USPS city name for the zip code or if this does not matter as long as a valid USPS city name is used.	Chelsey Bagent, Swift County	**Action: Make the following change to the language in this standard and other GAC standards:** "~~A~~ <u>Any</u> city name recognized by the USPS as valid for the ZIP Code…"
22	Appendix A table (Field Structure): • The Lookup Table "LUT_CTU_County" should be added for CTU_ID_L, CTU_ID_R, CTU_NAME_L, and CTU_NAME_R. • The Lookup Table "LUT_State" should be added for STATE_L and STATE_R.	Chelsey Bagent, Swift County	**Action: make these changes to the lookup table column in the schema spreadsheet.**
23	Appendix B table (Domains): • A reference field of "County" should be added to the tabs CTUIDText, CTUName.	Chelsey Bagent, Swift County	This would work well if each city was in only one county. Unfortunately, some cities are in multiple counties. Because of this, the suggestion would create complexities that we do not feel are suitable for a domain table.
24	Appendix C table (Lookup Tables): • It would be helpful to add the county info on the tab LUT_USPSDefaultCity.	Chelsey Bagent, Swift County	This would work well if each city was in only one county. Unfortunately, some cities are in multiple counties. Because of this, the suggestion would create complexities that we do not feel are suitable for this lookup table.
	Section 5. Routing Elements		

25	5.6 – Speed Limit I don't know if speed limit should be mandatory. It might be difficult to canvas. Speed limits also might not apply on driveways, and private roads. At most it should be conditional for some types of roads.	Mark Volz, Lyon County	**Action: Keep this as a mandatory element in the standard due to its criticality for routing functions, but change the name and definition as follows:** Routing Speed ~~Limit~~ (ROUTESPEED~~LIMIT~~) The ~~legal~~ posted or estimated speed limit in miles per hour (MPH) for the road segment for purposes of routing. ~~If this is not available, an approximation of the legal speed limit may be used.~~ Where no speed limit is posted or where speed limit information is not available, MN Statute 169.14 Subd. 2 may be used as guidance in estimating a speed limit. **Add this topic to a future best practices guide.**
26	Item 5 - Routing Elements I suggest using the data type short integer for items 5.1 ELEV_FROM and 5.2 ELEV_TO. I assume a valid range of -5 thru 5?	Curt Peterson, Ramsey County	**Action: Change this field to a short integer.**
27	I have question/comment on the mandatory field "Elevation From – Elevation To" fields. It sounds like this is an indicator on whether or not a road goes above or below another. Not the actual elevation of the node. A number of 0 would indicate at grade and be able to go below 2 and above 5. Is this correct?	Justin Lutterman, Le Sueur County	Yes, your understanding is correct.
28	Impedance Speed – an example of how it is used should be given for clarification.	Chelsey Bagent, Swift County	**Action: add an example for this field.**
	Section 6. Cartographic Elements		
29	2.1, 6.1 Route System and Route Abbreviation are redundant. (See section 2 above).	Mark Volz, Lyon County	See response in section 2 above.

30	How will multiple route numbers be handled if the double line segments are eliminated and only alternate road name fields are used? I know that this field is for labeling the primary route number, but for our own county maps the secondary route numbers are also needed.	Chelsey Bagent, Swift County	Coincident/stacked line segments are allowed in this standard at the discretion of the data publisher. **Action: Change 2.4 Primary Status element from Optional to Conditional and state that it must be populated where coincident/stacked segments exist.** **Add this topic to a future best practices guide.**
	Section 7. 911 Elements		
31	7.2, 7.3 – Inconsistencies between RCL and ADP – ESN RCL has a domain for ESN. ADP does not. I think ADP should have a domain in the next update.	Mark Volz, Lyon County	**Action: Add the ESN domain to the Address Point Data Standard**
32	Regarding Section 7.1 GIS911POC, I'm curious as to why this is included in the attribute table and as a mandatory field when this is addressed in any Metadata. Can this data not be stored in a contact list at the state level instead of an attribute? MNGEO already houses lists for County GIS contacts, City GIS Contacts and Tribal GIS contacts? Could a 911 contacts list also be added to MNGEO site?	Jonathan Graves, Blue Earth County	The purpose is to make certain it is known what entity is responsible for submitting any given snapshot of road centerline data to the state. It is more reliable to keep this info in the data itself than only in the metadata because once datasets are aggregated, the metadata for a specific data submission can be more difficult to track down.
34	Appendix B table (Domains): • A reference field of "County" should be added to the tab MSAGCommunity.	Chelsey Bagent, Swift County	This would work well if each city was in only one county. Unfortunately, some cities are in multiple counties. Because of this, the suggestion would create complexities that we do not feel are suitable for a domain table.
35	Appendix B table (Domains): • The ESN Domain is incomplete. Why doesn't it cover the ESNs for all of the counties?	Chelsey Bagent, Swift County	**Action: work with MnGeo to populate the ESN domain table for the rest of the state.**

36	Include Civic Address Validation attributes that are now part of NENA GIS Data Model for Road Centerlines. Since the initial drafts of the MRCS were created, NENA has updated its GIS Data Model schema for road centerlines. The road centerline schema now includes two attributes that are not currently part of the MRCS v 0.6 and are worthy of inclusion. They may have importance as the statewide datasets are used in geospatial-derived Master Street Address Guide creation and in NG9-1-1 Location Validation Function (LVF) platforms. A separate document is attached (jointly developed by MESB and Vic Barnett of Ramsey County) discussing the proposal in more detail and outlining possible use cases for the attributes.	Marcia Broman, MESB	See response below:

| 37 | Since the original creation of the MRCS proposal, NENA has added two attributes to its NG9-1-1 data model. These attributes will be valuable in ensuring accurate address validation in both transitional and end-state NG9-1-1 systems. Therefore, it is recommended that the following two attributes pertaining to section 7 – 911 Elements be added to the MRCS schema. | Vic Barnett, Ramsey County | Action: Add these two attributes to the standard with domain YesNoUnknown. Rename them as follows: |

Since the original creation of the MRCS proposal, NENA has added two attributes to its NG9-1-1 data model. These attributes will be valuable in ensuring accurate address validation in both transitional and end-state NG9-1-1 systems. Therefore, it is recommended that the following two attributes pertaining to section 7 – 911 Elements be added to the MRCS schema.

Proposed Element Name	Proposed Database Field Name	Proposed Field Type	Proposed Field Width	Proposed Inclusion	Domain Name
Civic Address Validation Left	CAV_L	Text	3	Conditional	YesNo
Civic Address Validation Right	CAV_R	Text	3	Conditional	YesNo

Description:
Attribute indicates whether the primary Street name and address range on the left or right side of a RCL segment is valid for civic address validation, inclusion in a NG911 Location Validation Function (LVF), and/or inclusion in a geospatially created MSAG

Notes:
1. The CAV_L/R attributes are consistent with the Validation Left/Right attributes in the NENA Standard for the NG9-1-1 GIS Data Model (NENA-STA-006.1-2018). NENA added the Validation Left/Right attributes after the MRCS draft process began. In the NENA standard:

   4.139 Validation Left
   Description: Indicates if the address range on the left side of the road segment should be used for civic location validation. A value of "Y" MAY be entered if any Address Number within the address range on the left side of the road segment should be considered by the LVF to be valid. A value of "N" MAY be entered if the Address Number should only be validated using the Site/Structure Address Points layer. If not present, a value of "Y" is assumed.
   Domain: Y, N
   Example: Y; N

   Note: This field does not affect routing of emergency calls, nor display of GIS data. It controls how the LVF determines its response when an address does not match a Site/Structure Address Point, but is within a valid range of a Road Centerline.

   4.140 Validation Right

Vic Barnett, Ramsey County

Marcia Broman, MESB

Action: Add these two attributes to the standard with domain YesNoUnknown. Rename them as follows:

Proposed Element Name	Proposed Database Field Name
Validation Left	VALID_L
Validation Right	VALID_R

Description: Indicates if the address range on the right side of the road segment should be used for civic location validation. A value of "Y" MAY be entered if any Address Number within the address range on the right side of the road segment should be considered by the LVF to be valid. A value of "N" MAY be entered if the Address Number should only be validated using the Site/Structure Address Points layer. If not present, a value of "Y" is assumed.
Domain: Y, N
Example: Y; N

Note: This field does not affect routing of emergency calls, nor display of GIS data. It controls how the LVF determines its response when an address does not match a Site/Structure Address Point, but is within a valid range of a Road Centerline.

2. NENA does not define "Unknown" as a valid domain value for these attributes. If GAC is unwilling to create a new YesNo domain, then the field width would be 10 and the YesNoUnknown domain would be used. "Unknown" will be assumed to be "Yes" when exporting in NENA-compliant format.

3. From the perspective of NG9-1-1 Location Validation Function (LVF) and geospatial MSAG creation, use of the civic address validation left/right attributes has the potential of eliminating the need for attributes **3.10**, **3.12** & **3.14** *Alt1/2/3 Legitimate MSAG Value* and **7.8** *911 Validation Error* of the MRCS schema.

4. Multiple use cases exist for these proposed attributes and would need to be evaluated on a case-by-case basis.

See below this table for more information about potential use cases provided with this comment to the standard.

Section 8. Maintenance Elements

38	8.1 Lifecycle Status – Add Seasonal Please consider adding seasonal road condition identifiers to the lifecycle status. I know Out of Service is available, however the purpose of Out of Service in my mind is more for events such as the destruction of a regular road such as the I35W bridge collapse. These seasonal codes will identify what roads are subject to seasonal limitations (such as floods) and if they are currently active or not. This will also help the Highway Department identify "known problem areas" in the County	Mark Volz, Lyon County	**Action: Make the following changes to the domain for Lifecycle Status**

Table within item 38:

SHORTCODE	CODE	VALUE	Comment
ACT	Active	Active	
RET	Retired	Retired	
PRO	Proposed	Proposed	
PLAN	Planned	Planned	
UC	Under Construction	Under Construction	
OOS	Out of Service	Out of Service	Example: 35W bridge collapse
NB	Not Built	Not Built	
SEAS_ACT	**Seasonal Active**	**Seasonal Active**	**Road has seasonal limitations and is currently known to be active**
SEAS_OOS	**Seasonal Out of Service**	**Seasonal Out of Service**	**Road has seasonal limitations and is currently known to be Out of Service**
SEAS_UNK	**Seasonal Unknown**	**Seasonal Unknown**	**Road has seasonal limitations and the status has not been validated**

Action column content for item 38:

CODE	VALUE
Active	Active
Retired	Retired
~~Proposed~~	~~Proposed~~
~~Planned~~	~~Planned~~
~~Under Construction~~	~~Under Construction~~
Out of Service	Out of Service
Seasonal	Seasonal
~~Not Built~~	~~Not Built~~

The reason some domain values have been removed is because it is believed that geometry for roads that do not yet exist will not be contributed to standardized datasets for aggregation. Individual data creators may choose to use additional domain values for their own internal needs.

39	Item 8 - Maintenance Elements I suggest including "Proposed" and "Retired" in the examples or the possible choices for item 8.1 STATUS.	Curt Peterson, Ramsey County	The domain LifecycleStatusRoad did include the values of "Proposed" and "Retired", though "Proposed" has been eliminated.
	Section 9. Business Elements		

40	9.3 Surface Type Requirement I think Surface Type should be required? At a minimum I would like to know if roads are paved, or gravel as it is important for cartographic representation of many regional maps that we create.	Mark Volz, Lyon County	**Action: Change this to mandatory.**
41	9.3 Surface Type Bituminous or Asphalt? I was under the impression that Asphalt is the correct term instead of Bituminous. https://iowadot.gov/maps/msp/pdf/black-hawk-co.pdf?fmt=raw http://www.asphalt.com.au/why-asphalt/bitumen-vs-asphalt/	Mark Volz, Lyon County	Some organizations use "bituminous", some use "asphalt" and some use both. Because MnDOT uses the word bituminous, we will stay with that word in our standard. **Action: Add to the future best practices guide that they are to be considered the same thing.**
42	Item 9 – Business Elements I suggest including "Bituminous" in the examples or the possible choices for item 9.3 SURF_TYPE	Curt Peterson, Ramsey County	"Bituminous" is a valid value in domain SurfaceType
43	Appendix B table (Domains): • It would be helpful if definitions of the values in FunctionalClassFederal and FunctionalClassMetro were added to the table as a reference field.	Chelsey Bagent, Swift County	Definitions would be valuable but would be too involved to fit into a domain table. **Action: from the field descriptions in the standard document, add a link to information about the definitions of the functional classification. metro link and federal link**

| 44 | 9.1 - Federal Functional Classification

The Federal Highway Administration and other states have a functional class that includes "Other Freeways & Expressways." Please consider changing the value for FCLASS =2 from "Other Freeways (OFE)" to "Other Freeways and Expressways (OFE)."
I think this classification should include for example Highway 52 between the Twin Cities and Rochester.

Reference:
HwyFunctionalClassification.pdf
FunctClassMap.pdf
Ottawa.pdf
*Note the other states around us do not specify between principal arterial subtypes in their functional classification maps.

FYI I recently noticed that the Federal Highway Functional Classification Manual includes Expressways under FClass –Federal code 2 Principal Arterial – Other Freeways & Expressways (OFE). We should either:
Change the value of FClass –Federal code 2 to: "Other Freeways & Expressways (OFE)" This classification would include roads such as Highway 52 running from the cities to Rochester Change the value of FClass –Federal code 2 to: "Other Freeways (OF)" This would get rid of the "E" for expressways in that code. This change would be inconsistent with other maps | Mark Volz, Lyon County | **Action: Change domain FunctionalClassFederal code 2 from value of "Principal Arterial – Other Freeways (OFE)" to "Principal Arterial – Other Freeways and Expressways (OFE)** |

The image text reads:

3.1.2 Other Freeways & Expressways
Roadways in this functional classification category look very similar to Interstates. While there can be regional differences in the use of the terms 'freeway' and 'expressway', for the purpose of functional classification the roads in this classification have directional travel lanes are usually separated by some type of physical barrier, and their access and egress points are limited to on- and off-ramp locations or a very limited number of at-grade intersections. Like Interstates, these roadways are designed and constructed to maximize their mobility function, and abutting land uses are not directly served by them.

14

U.S. Department of Transportation
Federal Highway Administration

	General Comments		
45	Page 4, under Compliance Notes, the first word "organization" should read "organizations."	Marcia Broman, MESB	**Action. Make this change.**
46	Page 4, under Conditional, the example seems to refer to addresses, not roads, and should be re-worded. Suggestion: *Example: A roadway "West Seventh Street" has a Pre Directional of "West." All road centerline segments of this street are required to have the Pre Directional field populated, but not the Post Directional field. The Pre Directional field applies to this feature.*	Marcia Broman, MESB	**Action: Change the example to be specific to road centerline data.**
47	Other Thoughts We are missing a way to designate divided highways. Knowing if a road is divided or not could be useful for higher end cartographic such as the State Highway Map, Rand McNally, and others. Should a Divided yes/no/unknown field be included?	Mark Volz, Lyon County	Currently this is typically handled by having multiple line segments. The topic of adding a field for this will be discussed for a future version of the standard. **Action: in future best practices guide, add guidance about when to have multiple line segments for a road.**
48	Please include number of lanes as part of the data structure	Rachel Wiken, Metropolitan Council	**Action: Add new attribute Number of Lanes (NUM_LANES) Optional** **Integer field. Description: number of thru lanes along a segment.**

| 49 | I noticed that the MTFCC based Road Class (ROADCLASS) attribute has been removed from this draft standard. I think this is okay within Minnesota as I don't think the MTFCC codes are very useful when compared to the other classification attributes such as Route System or Route Type Abbreviation. However, I wonder if removing the attribute will cause issues when exchanging data across state lines. I have a few concerns that may need to be addressed if we remove Road Class.

First,
The Federal Government and other states might expect us to have the MTFCC codes in our attribute dataset. Can we calculate the MTFCC codes based on the functional class, route system, and route type? Should we create a script or conversion chart that will calculate the MTFCC code so we can send data to other agencies that depend on the MTFCC codes? | Mark Volz, Lyon County | We are not aware of any significant use of these codes in Minnesota. MnDOT reports that they do not use these codes for any reporting to the federal government. We believe the codes could be generated from functional classification codes if needed. Therefore, we will not include these codes in the standard. |

Route System	Functional Class Federal	MTFCC Code
01,41,51	Any	S1100
Any	1,2	S1100
02,03,04,05,07	Any except 1,2	S1200

Figure 1. Portion of a conversion chart between MN classification systems and NENA Road Class based on MTFCC.

Second,
I know the state is responsible for importing data from other counties adjacent to Minnesota into our standard. How often will the state update the surrounding counties datasets? If the state did not update data at a fast enough pace then some counties that neighbor other states might choose to use the MTFCC code for classifying maps in the dispatch center. All of the surrounding states have MTFCC codes, and by classifying by MTFCC some counties could get more regular and quicker updates as they are using the same classification method? That being said, this all depends on if 1) Minnesota MUST process all of the adjacent county data for every update. 2) How often Minnesota is willing to convert the neighboring county data into our format. If the state converts data regularly enough then this point may be moot.

50	Jasper MN straddles both Rock County, and Pipestone County, however, the entirety of Jasper is in the Pipestone County PSAP, which I maintain. Arline Gehrke from Rock County and I were questioning if it would be better for Rock County to maintain the 9-1-1 data for the area of Jasper within Rock County or if I should because that part of Jasper is within Pipestone County PSAP. Either way, it is a small area, so I don't mind who maintains the data in the Southern part of Jasper. However there are advantages and disadvantages depending on who maintains the data. I was informed by Akiko Nakamura today that each PSAP will maintain all the data within the PSAP, and not the County boundary. Which can create a couple issues:	Mark Volz, Lyon County	We believe this is an implementation question that needs to be resolved between state government and county government partners. Once that is done, if appropriate, those stakeholders may choose to propose a change to this standard. MnGeo is aware of this situation.
	Issues if Pipestone County maintains all of Jasper, including the part that is in Rock County:		
	• There is no way for Rock County to make an extract of all the roads in Rock County.		
	o End users do not care about who the GIS911POC is for a road. They care about what county the road applies to.		
	o I originally was going to use the GIS911POC to extract data by County. However, I will be the GIS911POC for all of Jasper		
	▪ The address point layer does not have this problem as it has a "County" attribute.		
	▪ There is a County Left and County Right attribute in the dataset. However, that may be difficult to use around county boundaries because users will not know if they need to use County Left, County Right, or both.		
	• Rock County will lose the opportunity to have specific information in the address dataset that extends the 9-1-1 schema.		
	o I suppose if Rock County maintained the data as well we would lose the ability to have our own data in the dispatch. However, the most important information that we would need would be included in the required NG9-1-1 fields		
	Anyways, I just wanted to mention that with the current schema that were is not an easy way to extract data by County, which is what most end users may want. Michelle Trager in Rice County also has a similar issue with part of Northfield in Dakota County. Neither of us know at this time if it would be better who should maintain this data so that end users, PSAPS, and counties can get the data that they need for their individual business purposes.		

| 51	Domains: • Consider adding a sentence to explain that in order to adhere to the domains without a table the fields must be populated with the domain CODE (not the value). • Will there be domain templates available or just the existing spreadsheet?	Chelsey Bagent, Swift County	An Esri file geodatabase format schema template will be available for this standard which will include all domain tables. **Action: Make the following change to the paragraph about domains and similar paragraphs in other GAC standards.** "Several domain tables accompany this standard in a schema spreadsheet available at this link. To comply with this standard, a road centerline dataset must ~~adhere to these~~ use the codes from specified domains but does not need to include the domain tables with the data."
52	I have a concern with how much of the attributes will be Mandatory. I am thinking more along the lines of the beginning point of the creation of a new road. Certain sections of the attributes are very specific to different departments. Me working with the local planning department that approves plans will be the start of the process by approving the planned unit development. Much of the information that is mandatory is not available in general or to me specific but I need to include it in our local information to make it available to those that will fill out the information that is mandatory. Some example of what isn't part of my local planning department duties are: Addressing, Engineering (elevation, speed limit, etc), and 911 elements. I support standardization but making too much information mandatory narrows official sources of this information down to very few that are outside the local perspective.	Teri Kouba, GF-EGF MPO	It is expected that complying with this standard will require collaboration among multiple departments in data producing organizations. Some data producing organizations choosing to comply with the standard collect all data included in the standard. Other such organizations collect only some of the data and may choose to work toward full compliance over time. This standard is intended as a data transfer standard. Data producer organizations may choose not to include incomplete preliminary data when creating extracts for data transfer.

53	**Retain as much consistency with MRCC as possible.** In light of its role overseeing the 10-county regional 9-1-1 system, MESB acknowledges and thanks the committee for a statewide centerline schema proposal that builds upon the extensive efforts of the metro region's Metropolitan Road Centerline Collaborative (MRCC). Because of the large investment already made by metro county data producers to create and maintain the MRCC and related validation/aggregation processes, the MESB strongly encourages the committee to keep the MRCS schema as consistent with the MRCC as possible. Use of the existing MRCC dataset is already well established in the metro region for NG9-1-1 data validations and transitionary processes. The learning points gained in the metro area benefit NG9-1-1 stakeholders beyond those within the metro counties. While this is not of key immediate concern, the MESB wants to make the committee aware that significant diversion of the regional and statewide road centerline schemas over time will not serve the best interests of the NG9-1-1 transition.	Marcia Broman, MESB	We appreciate the leadership role the metro counties have played in creating a road centerline data standard that has been the basis for creating a standard for the MN geospatial community. We are also appreciative that members of the metro community (2 counties and MESB) are active members of the GAC Standards Committee to help guide the development of this standard to meet the needs of the metro stakeholders as well as the broader, statewide geospatial community.
54	Resolve any domain value issues between MRCS and NENA. When using the statewide centerline dataset in NG9-1-1 platforms, it will be necessary for an appropriate ETL to be created by the State of MN (MnGeo) in order to export the dataset in a NENA-compliant format for consumption by NG9-1-1 vendors. MnGeo has stated to MESB that it has reviewed the MRCS v 0.6 proposal and will raise any issues it finds in being able to create this 'crosswalk.' For the record of comments, MESB would, however, like to raise the following regarding GAC domain values applicable to the MRCS proposed standard. *Note: specific examples were provided with this comment and are included above under the relevant sections of the standard.* MESB recommends that, if it has not done so already, MnGeo conduct a full review of the GAC MRCS domains with the related NENA domains. This will confirm that there are no domain value conflicts preventing MnGeo from successfully exporting the statewide dataset into NENA-compliant format for use by NG9-1-1 vendors.	Marcia Broman, MESB	It is desirable to have domains that are consistent with the NENA standard. Because this standard is intended for a wide variety of uses, in addition to NG9-1-1, it is possible that the standard will include domain values that are not included in the NG9-1-1 specific NENA standard. The Standards Committee will be aware of this possibility to ensure that the standard will facilitate ETL processes to meet NG9-1-1 needs. This comment has been forwarded to MnGeo

Potential Use Cases

Example 1: The Golden Valley addresses are Douglas Ave and the St Louis Park addresses are 16th St W.

Potential Use Case

There are no stacked RCL segments in this area. Primary street name = 16th St W (St Louis Park) and Alt Name 1 = Douglas Ave (Golden Valley). To ensure 16th St W is only valid for St Louis Park in 911 address validations, the Golden Valley side should be set to CAV_R=No and the St Louis Park side to CAV_L=Yes.
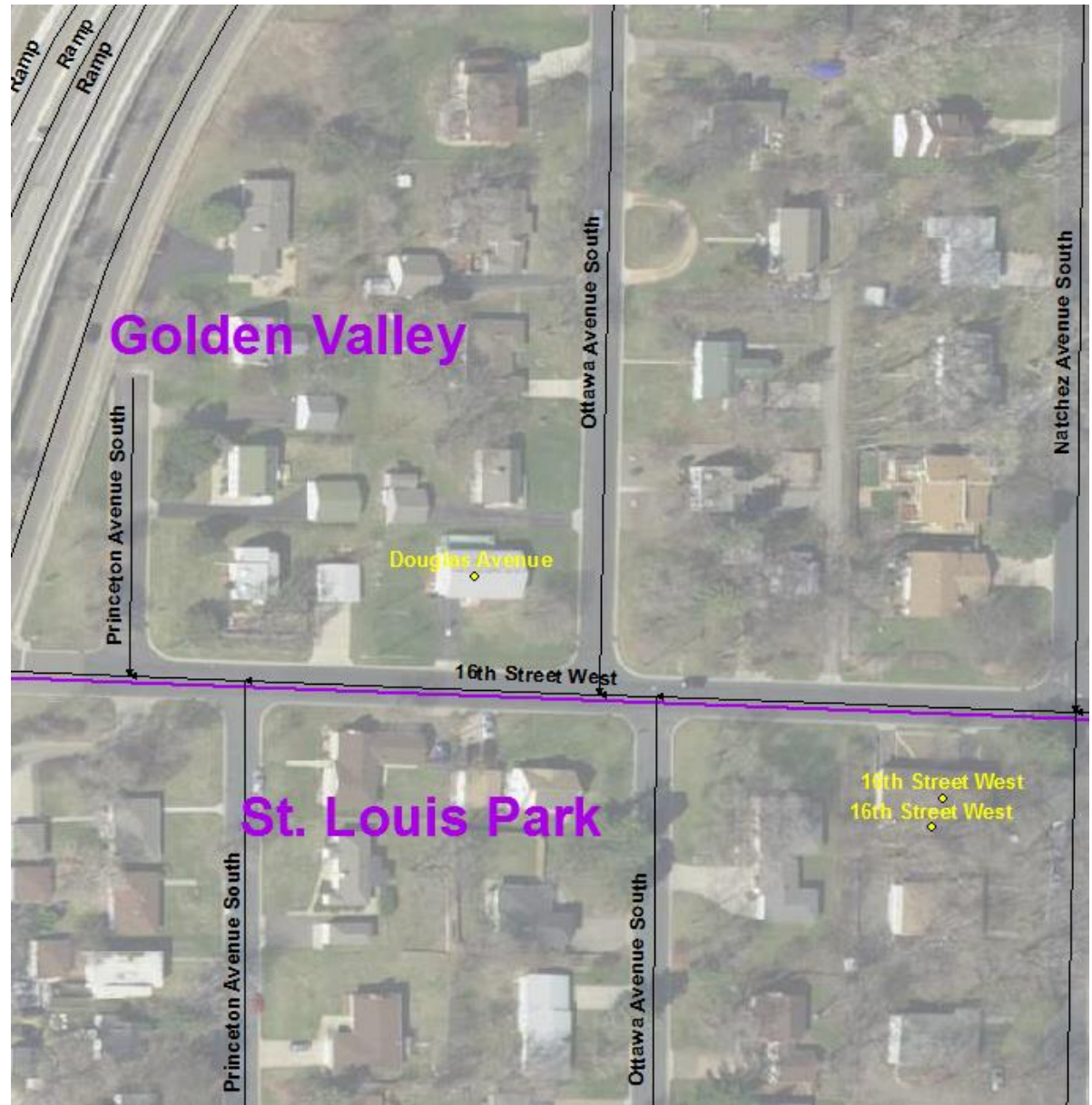
Example 2: Addresses with long driveways may be in a different community than the RCL on which they are addressed.

Potential Use Case

In this situation, the Dodd Blvd RCL segment would be populated as CAV_R=No & CAV_L=Yes.

Example 3: Address is valid in a different CTU from the CTU of the roadway.

Potential Use Case

The roadways of Rachel Ridge Court and Geneker Way sit within the CTU of Independence. Addresses off of these roads may be in Independence or Greenfield.

Set CAV_L and CAV_R to "No" in order to use the address points when determining the correct CTU for 911 civic address validation and geospatial MSAG creation.

Example 4: Address is valid in a different PSAP's MSAG from the PSAP covering the RCL's right of way.

Potential Use Case

Set CAV_L and CAV_R to "No" in order to use the address points when determining the correct PSAP (and ESN) for geospatial MSAG creation.