

Public Review Comments and Responses for the Minnesota Geospatial Advisory Council Trails and Bikeways Data Standard V0.5

The Standards Committee of the Minnesota Geospatial Advisory Council (GAC) held a public review period for proposed version 0.5 of the GAC Trails and Bikeways Data Standard from September 23, 2020 to December 23, 2020. Below is a table showing the comments received and responses approved by the Standards Committee on 3/17/2021. Responses include changes to the standard and other actions.

#	Comment	Submitter	Standards Committee Response
Section 1. Identification Elements			
1	Kudos on including a GUID-style UNIQUE_ID. I too often see this critical piece missing from other standards.	Mike Dolbow, MnIT	Thank you. The Committee will consider including information about using GUIDs in a future best practices document.
2	Feature Unique ID This should be called out as a GUID/UUID type field, not just a 36 Byte random string if you want these to follow the GUID/UUID pattern.	Jonathan Lord, MnIT partnering with DNR	Action: Modify the language to specifically recommend the use of GUID/UUIDs.
Section 2. Primary Feature Elements			
3	I know there are limits to detailing every trail of every type, but it might be useful to be able to record different seasonal uses in cases where a major trail has significantly different and mutually exclusive uses in summer and winter, i.e. a trail use is “mountain bike” in summer and “ski trail” in winter. It might be useful to have this information selectable on the same segment from the one attribute table, perhaps with a SUMMER_FACTYPE and a WINTER_FACTYPE.	Elizabeth Miller, MnIT	This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this. It will not include other trail types at this time. In the future a broader trails standard may be proposed by stakeholders.
4	As the MPO for the Rochester-Olmsted County metropolitan planning area, ROCOG looked at the information on the project website. We noted that the Domains spreadsheet included a FacilityType domain that included values for bike-only trails, multi-use trails, etc. There is also a SeasonalAccess domain that indicates if the facility is open year-round, summer-only, etc. It might be helpful to elaborate more about how some shared trails might be used by users other than cyclists. For example, transportation planners and general users would benefit from knowing if trails were also used by snowmobiles or horses, even if those trails were separate from/parallel to the bike trail.	Bryan Law, Olmsted County	This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this. It will not include other trail types at this time. In the future a broader trails standard may be proposed by stakeholders.

5	<p>Lake County manages CAD 911 data for several counties in the Arrowhead region. We're interested in putting our trail data into your new standard, however we feel the standard is very "bicycle-centric"? There's nothing wrong with that, but we're curious if the standard is meant to be for bicycle trails only? Furthermore, would this standard ever be expanded to additional types of trails (hiking, snowmobiling, ATV, cross-country ski, etc.)?</p>	<p>Ross Hoffmann, Lake County</p>	<p>This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this. It will not include other trail types at this time. In the future a broader trails standard may be proposed by stakeholders.</p>
6	<p>General Facility Type domain could include some slight changes;</p> <ul style="list-style-type: none"> ○ Change "Bike Lane" to "Designated Lane" (can work for bike, mountain bike, and Ped) ○ Use "Separated Bikeway", and "Wide Shoulder" (surface type attribute tells if paved) ○ "Pedestrian Only", "maintenance access", ○ Sidepath = ped walkway,terminology? ○ "Desire Line" (an unauthorized trail worn by traffic) 	<p>Clayton Watercott, MetroTransit</p>	<p>This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this. It will not include other trail types at this time. In the future a broader trails standard may be proposed by stakeholders.</p>
7	<p>My main comment is why are sidewalks not included in the facility type? The pedestrian network is already partially covered with multi-use trails, especially in the suburban counties of the Metro. I gather this is meant to be a bike-specific dataset, but I think that just adding sidewalks would round out this dataset for general non-motorized travel. Many road datasets include every centerline, from gravel and private roads to the interstate system. I think this layer should be a one-stop shop for non-motorized travel. Also, do you see recreational trails like mountain biking and hiking as a separate dataset?</p>	<p>David Kratz, MnDOT</p>	<p>This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this. It will not include other trail types at this time. In the future a broader trails standard may be proposed by stakeholders.</p>
8	<p>2.4 On or Off Street:</p> <ul style="list-style-type: none"> • The description/definition should be improved upon for this element. Some counties/cities have been classifying bikeways that are parallel to roadways as on-street (like on-street alignment). On-street should be used exclusively for General Facility Types: Bike Lane, Paved Shoulder, Shared Roadway, and some instances of separated bike lane depending on vertical separation (i.e. street level and intermediate level, not including sidewalk level) 	<p>Jesse Thorsen, MnDOT</p>	<p>Action: expand/further define our definition of On-Street vs. Off-Street, either in standard or in a best practices guide.</p>
9	<p>2.5 General Facility Type:</p> <ul style="list-style-type: none"> • May be helpful to clearly point towards MnDOT's Bicycle Facility Design Manual for definitions of each bike facility type. (Mountain Bike would need its own definition) 	<p>Jesse Thorsen, MnDOT</p>	<p>We will consider including this information in a future best practices guide.</p>

10	<p>2.6 Facility Type: A contraflow bike lane could also be a cycle track or buffered bike lane. A better solution here may be to not include contraflow as a facility type and instead create a new field/element that indicates if the direction of travel is contraflow. This element could be YES or NO. A two-way cycle track would probably be considered YES for the sake of having to install signs/signals facing</p>	Jesse Thorsen, MnDOT	Action: Add a new element Trail Direction with values of One Way, Two Way, Contraflow, Unknown
11	<p>2.6 Facility Type: What is the difference between a separated-use trail and multi-use trail? If the intention is to determine striping for separation, then may be better to be called separated-use facility and mixed-use facility</p>	Jesse Thorsen, MnDOT	We have reorganized the facility type information to address this comment.
12	<p>2.6 Facility Type: Other, not specified, and unknown are similar and are vague at this data level. Consider combining “not specified” and “unknown”.</p>	Jesse Thorsen, MnDOT	Action: Eliminate the “not specified” domain value
13	<p>Primary Feature Elements ONOFF_STREET This could become confusing. Define what it means. E.g. If there is a painted buffer, is that on street or off street?</p>	Saara Snow & Melissa Moser, Adventure Cycling Association	Action: expand/further define our definition of On-Street vs. Off-Street, either in standard or in a best practices guide.
14	<p>"Paved Shoulders" are included in General Facility Type. Does that mean that shoulder widths will be inventoried as part of this bikeways data?</p>	Saara Snow & Melissa Moser, Adventure Cycling Association	We will consider adding shoulder width as an optional element in a future version of this standard. Organizations that collect bikeways data now may choose to collect shoulder width data regardless of the standard.
15	<p>Shared Name: Couldn't a trail have n number of shared names if multiple trails cross a single point? It seems that this should be normalized out of the table into its own table.</p>	Jonathan Lord, MnIT partnering with DNR	The GAC Standards Committee has wrestled with the pros and cons of using a single flat file vs. multiple relational tables in GAC standards. Given our experience in working with the diverse set of stakeholders in the MN geospatial community with varying resources, at this time we feel the simplicity of a flat files outweighs the benefits of relational tables for purposes of wide adoption of standards. The Committee will continue to assess this in the future.

16	<p><u>Primary Feature Elements:</u></p> <ul style="list-style-type: none"> • FacilityType domain might include other more specific uses common to remote/rural communities such as: <ul style="list-style-type: none"> ○ Cross Country Ski (skate), Cross Country Ski (Classic), Skijor, Snowmobile, Dogsled, Ice Climb, Snowshoe, Backcountry Ski, Horseback/Equestrian, Hike, OHV/ATV, Singletrack Mountain Bike, Paddle/Water, Mountain Climb, hunting, fishing, etc. • Oftentimes trails have a “designated use”, but support certain other “allowed uses” – these could be fields that utilize an expanded UseType/Facility Type Domain. “Multi-Use” is helpful, but limiting. 	Kyle Oberg, Cook County	The Standards committee has chosen to limit the scope of this standard to just bicycling for now.
17	<p>Regarding the ‘Facility type’ attribute (# 2.6) we recommend that the facility types listed should be a set of mutually exclusive categories to minimize confusion and potential coding errors; to accomplish this we recommend the following adjustments:</p> <ul style="list-style-type: none"> • Remove ‘bicycle boulevard’ as a facility type; ‘bike boulevards are plan designations, but are not a distinct facility type as they typically include “sharrows/shared lane” markings and/or bicycle route signage. • Revise ‘bike-only trail’ to ‘mountain bike trail’ (see comment below). • ‘Cycle tracks’ are a subset of ‘separated-use trails’ as they are designed as on-street bicycle-only facilities; we recommend replacing the ‘separated-use trail’ category with mode-specific types such as ‘mountain bike trail’ and any other mode-specific designation included in the database; also, we recommend further classifying ‘cycle tracks’ into 2 new sub-types: <ul style="list-style-type: none"> • ‘On-street protected bikeways’ which include ‘buffered bike lanes’ with painted and/or vertical plastic pilon-separated buffers, and • ‘On or adjacent-street, barrier-separated bikeways’ which use physical concrete or other materials to construct jersey barriers, curbs, planters, concrete pillars, etc. <p>Remove ‘contraflow bike lanes’ from the standards because there are very few one-directional contraflow bike lanes in Minnesota and the fact that they are most always designed with physical separation barriers; therefore, the new ‘barrier-separated bikeways’ category described above would cover this rare facility type.</p>	Steve Elmer, Metropolitan Council	We have reorganized the facility type element to address these comments.

18	Most of the attributes listed under 'Primary Feature Elements' only apply to trails as most on-street bikeways do not have a 'trail name,' 'trail system name,' or a 'shared name.' It appears there may be additional attributes to include in this group that would be specific to on-street bikeways; these might include bikeway termini (specified by the segment terminal intersections or other features) for the specific facility type and segment length, among other possibilities.	Steve Elmer, Metropolitan Council	Segment lengths and nodes are default aspects of geospatial data formats.
19	Because there is a wider range of on-street bikeway facility types that are in practical use in the Twin Cities metro area, further discussions among Metro area cities to confirm, revise, and/or supplement the facility type attribute recommendations above may be warranted.	Steve Elmer, Metropolitan Council	Thanks for the input. We will likely have a second round of public review and would encourage you to reach out to cities for input.
20	2.1 Trail Name: This is consistent with our data	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
21	2.2 Trail System Name: This is consistent with our data	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
22	2.3 Shared Name: We have this but there are situations where there are more than two name variants (Local, Regional, etc)	Timothy Loesch, MnIT partnering with DNR	Action: modify this element to allow multiple shared names within this field.
23	2.4 On or Off Street: This is the same as environment. Treadway would be on street and others would be offstreet	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
24	2.5 General Facility Type and 2.6 Facility Type: These fields seem to imply a heirarchy but it doesn't seem to fit as there are values that seem to contradict heirarchy.	Timothy Loesch, MnIT partnering with DNR	We have reorganized the facility type element to address this comment.
Section 3. Ownership and Administration Elements			
25	I do not see a field to record the agency/authority in charge of trail maintenance such as sweeping/cleaning and snow plowing – in some cases this may differ from the owner of the facility.	Elizabeth Miller, MnIT	Element 3.11, "Managing Agency" covers the facility's managing or administrative agency, which may be different from the landowner.

26	<p>Add an attribute titled, “LandOwnerType” with a domain list including;</p> <ul style="list-style-type: none"> ○ “Public Agency” (Agency owned with parcel PIN) ○ “Public Right-of-Way” (No parcel maintained) ○ “Conservation Corridor” (specific parcels with specific encumbrance) ○ “Private Owned” land (private owned with parcel PIN) ○ “Easement” (general long-term agreement) ○ “Unplatted” ○ “Unknown” 	Clayton Watercott, MetroTransit	The standard includes a LandownerType field with these values: Federal, State, County, Special District, Municipal, Tribal, Regional Government, Port Authority, Joint, School District, Unknown, No Value, and Private.
27	<p>Consolidate the attributes 3.3 through 3.8 into one attribute with domain values as;</p> <ul style="list-style-type: none"> ○ “SystemType” = Private, State, Regional, Municipal, Tribal, Multi-Agency, Multi-Private, or undefined. 	Clayton Watercott, MetroTransit	Consolidating was a consideration in the creation of these fields. The issue was that some trails can have more than one System Designation.
28	<p>3.10 Landowner Type:</p> <ul style="list-style-type: none"> • From MnDOT’s perspective, it would be helpful for this to be a mandatory field. 	Jesse Thorsen, MnDOT	Sometimes it is difficult to choose whether a field should be mandatory or optional. At this time the Standards Committee feels that Optional is the best choice for this field because many organizations do not collect trails data segments at the parcel level. The Committee will reevaluate this in the future.
29	<p>1. Ownership and Administration Elements</p> <ol style="list-style-type: none"> 1. Would U.S. Bicycle Routes (USBRs) be marked as part of a National System or a Private System? Make it clear what the different designations are. 2. National designation <ol style="list-style-type: none"> 1. Include type. Have defined list. E.g. <ol style="list-style-type: none"> 1. USBR 2. Historic 3. Scenic.... 	Saara Snow & Melissa Moser, Adventure Cycling Association	Action: Add “USBR” to the list of examples for element 3.2.
30	<p>Could you have a field to account for whether a route is signed or not? This would be particularly helpful for USBRs</p>	Saara Snow & Melissa Moser, Adventure Cycling Association	Action: add a new Signage element with values Yes/No/Unknown and remove the “Signed Bike Route” domain value from the Facility Type element.

31	What happens if there are multiple landowners along the track of the trail system? (In reference to Element 3.9 Landowner)	Jonathan Lord, MnIT partnering with DNR	In these cases, the trail will be split into segments to correctly attribute landowner. Landowner is an Optional field so in some cases it could also be left blank (of course, ideally populated if the landowner is known)
32	<u>Ownership and Administration Elements:</u> <ul style="list-style-type: none"> Consider inclusion of a managing agency website field. 	Kyle Oberg, Cook County	Thank you for the suggestion. The standard already includes a trail URL element. The Standards Committee has considered the idea of a managing agency URL but has chosen not to include this in the standard at this time.
33	3.1 Federal System: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
34	3.2 National Designation: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
35	3.3 State System: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
36	3.4 Regional System: Yes but this seems to be not clearly defined and inconsistent	Timothy Loesch, MnIT partnering with DNR	Action: add “multi-county” to the description of regional.
37	3.5 County System: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
38	3.6 Local System: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
39	3.7 Tribal System: No	Timothy Loesch, MnIT partnering with DNR	Thank you for letting us know this element is not captured in DNR data.

40	3.8 Private System: This needs a definition	Timothy Loesch, MnIT partnering with DNR	Action: add some examples of private systems or clearer definition.
41	3.9 Landowner: This would require that the trails be broken up based on the parcel data so that these elements could be incorporated. Would this include the name of the landowner in the case of privately owned trails. This is not something we are prepared to do	Timothy Loesch, MnIT partnering with DNR	To effectively populate this element, the trail segments would have to be broken by changes in ownership. This is an optional element, so it is not required for compliance with the standard.
42	3.10 Landowner Type: See above. Is Landowner conditional on Landowner type?	Timothy Loesch, MnIT partnering with DNR	Action: change Landowner Type to Optional
43	3.11 Managing Agency: This seems to imply that all trail managers are agencies. What about "Managing_Org".	Timothy Loesch, MnIT partnering with DNR	Action: change name of element 3.11 to Managing Organization
Section 4. Location Elements			
44	<p>4.1 CTU Name – If a bikeway crosses more than one CTU, what is the expectation for populating this field in such a scenario? Or, is it preferred to have bikeways “broken” at CTU boundaries and each portion attributed appropriately?</p> <p>4.2 County Code – The same as with the CTU Name, if a bikeway crosses more than one county, what is the expectation for populating this field in such a scenario? Or, is it preferred to have bikeways “broken” at county boundaries and each portion attributed appropriately?</p>	Todd Lusk, Dakota County	Action: Remove CTU Name, County Code and State Code from the standard.
45	With accurate locations, elements 4.1-4.3 are completely unnecessary, in my opinion. Including them and making them mandatory makes data sharing harder – especially given how many of these records will span municipal and county boundaries, requiring data sharers to unnecessarily “split” elements purely for the purpose of including these elements. If really necessary to the user, they can be derived by GIS processes we’re all familiar with.	Mike Dolbow, MnIT	Action: Remove CTU Name, County Code and State Code from the standard.
46	Location Elements: If there is a State and County code for location, why isn’t there a Nation Code? It seems like making the standar parocchial to the USA could prevent it from being adopted globally, or superceded by an ISO standard.	Jonathan Lord, MnIT partnering with DNR	Action: Remove CTU Name, County Code and State Code from the standard.

47	4.1 CTU Name: This would require us to intersect our trail data with CTU data.	Timothy Loesch, MnIT partnering with DNR	Action: Remove CTU Name, County Code and State Code from the standard.
48	4.2 County Code: This would require us to intersect our trail data with county polygon data. We do have this for snowmobiles	Timothy Loesch, MnIT partnering with DNR	Action: Remove CTU Name, County Code and State Code from the standard.
49	4.3 State Code: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
Section 5. Access and Descriptive Elements			
50	<p>Thank you for soliciting feedback on this issue. As they say, you cannot manage what you do not measure. The following are some of the metrics I wanted to suggest:</p> <ol style="list-style-type: none"> 1. Proximity to public transportation 2. ADA accessibility 3. Climate resiliency plans- in particular, exposure to extreme heat- i.e. is it located in an urban heat island? Area of poor air quality, and area at risk for flooding. While seasonal variation is being considered, collecting data on climate impacts will plan for us to collect data and implement appropriate interventions as needed 4. Similarly other health measures are access to shade, water, and rest areas for longer trails. 5. Neighborhood statistics: Given that BIPOC communities traditionally have less access to safe biking and walking pathways, would it be possible to collect data on nearby neighborhoods or data on users of the bikeways in order to promote equity. 	Laalitha Surapaneni, U of M	This is very useful information that goes beyond the scope of the GAC standard. We believe this standard will foster the creation of aggregated, standardized trails and bikeways data which could then be processed in conjunction with other datasets (e.g. public transportation, areas of poor air quality, information about neighborhoods, etc.) to answer these types of questions.
51	<p>The City of Fridley wishes to express its support for the proposed statewide standard for trails and bikeways data in Minnesota. The proposed items are comprehensive and will improve the ability to collect and share data related to trails and bikeways at the regional level. Additionally, the City would like to provide the following suggestion:</p> <p>Provide an element to describe if the trail is ADA-compliant. Trails complement the sidewalk network and are an important transit and recreational corridors for mobility-assisted users.</p>	Rachel Workin, City of Fridley	We will consider the inclusion of ADA compliance in a future version of this standard.

52	<p>“Trail Surface Type” attribute domain could be honed. Use attribute, "Asphalt" because the State no longer sprays bitumen on top of gravel – this is an outdated practice that is going away. Include “Asphalt” as more specific and differentiated from, “bitumen” or “oiled” (It goes without saying that asphalt contains bitumen)</p>	Clayton Watercott, MetroTransit	The Standards Committee had a detailed conversation about “Asphalt” vs. “Bituminous” when developing the Road Centerline Data Standard and chose to use “Bituminous”.
53	<p>“Trail Surface Type” attribute domain could be honed. Shorten “Dirt/Unimproved/Natural Earth/Native” to simply, "Unimproved/Natural Surface"</p>	Clayton Watercott, MetroTransit	Action: Shorten “Dirt/Unimproved/Natural Earth/Native” to simply, "Unimproved/Natural Surface"
54	<p>“Trail Surface Type” attribute domain could be honed. Add values, “Compacted gravel” and “Loose/sandy surface”</p>	Clayton Watercott, MetroTransit	We feel both of these values are accommodated within the existing domain values.
55	<p>“Trail Surface Type” attribute domain could be honed. Remove “Minimum Maintenance” from “Surface Type” because that is a road classification as opposed to a surface type.</p>	Clayton Watercott, MetroTransit	“Minimum Maintenance” is not a value in our “TrailSurface” GAC Standards domain- it is, however, a value in the “SurfaceType” GAC Standard Domain which applies to the Road Centerline Data Standard.
56	Propose attribute 5.1, “Trail Status” be changed from “optional” to <u>“mandatory.”</u>	Clayton Watercott, MetroTransit	The Standards Committee prefers this element to be optional. We may reconsider this in the future.
57	<p>Propose attribute 5.6, “Seasonal Accessibility” be named, “Seasonal Status” and include the following domain values;</p> <ul style="list-style-type: none"> ○ “groomed” and “un-groomed” for cross-country ski trails ○ “mowed” for facilities such as horse and hiking trails ○ “Snow plowed” and “Un-plowed” for bike/ped trails. ○ “Seasonally Closed” (urban pedways can be closed for winter due to legal liability) 	Clayton Watercott, MetroTransit	The Standards Committee has chosen to limit the scope of this standard to bicycling for now.
58	It would be helpful if the attributes differentiated a “Corridor width” value vs a “Trail width” or “Facility width” value. (the trail corridor is usually much wider than the trail itself in outstate areas) although corridor width data may be harder to maintain. Some trails are more complex than others; The Gateway State Trail consists of 2 different trails that are adjacent in places. There is a natural surface equestrian trail in the same corridor as the paved bike trail. This is distinct from a single multi-use trail because the 2 uses are not intended for the same trail and each trail has a different surface, use, and maintenance type.	Clayton Watercott, MetroTransit	We will consider including corridor width in a future version of the standard.

59	Propose a new attribute titled, “SegmentLength” with the length of trail segment to one-tenth of a mile precision.	Clayton Watercott, MetroTransit	Length is a default characteristic of geospatial data formats.
60	Propose a new attribute titled, “TrailLength” with the total length of a trail in miles. If this is planned to be a network data set, we will need length values for analyses.	Clayton Watercott, MetroTransit	Users may calculate length from the geospatial data for their own business needs.
61	5.2, “Trail Surface Type: Will there be a set list of types to select from? Or how will consistency across that descriptor look?”	Mackenzie Turner Borgen, MnDOT	The domain TrailSurface lists the values for this element.
62	5.6, “Seasonal Accessibility”: Specific example came to mind and I'm curious how it would be handled. Luce Line - part of the trail currently routes through theo wirth. Technically open year round, but it's shared use bike/ped in summer; groomed cross country skiing in winter. I assume three rivers has some of those in other recreational areas of Henn Co? Maybe other jurisdictions as well?	Mackenzie Turner Borgen, MnDOT	The Standards Committee has chosen to limit the scope of this standard to bicycling for now.
63	5.6, “Seasonal Accessibility”: Is there any opportunity to document frequency of maintenance? Maybe doesn't make sense here, but is there monthly sweeping, is the snow removed only after x inches of snowfall? Monthly vegetation maintenance/mowing in summer? These comments are arising from considering some of the frequent questions we receive in Metro, but I appreciate this may not be the best place to document that.	Mackenzie Turner Borgen, MnDOT	We will consider this in a future version of the standard.
64	5.5 Width in Feet: <ul style="list-style-type: none"> Consider making this element mandatory. This field can be used to filter out substandard facilities that may be erroneously classified as bike facilities. 	Jesse Thorsen, MnDOT	The Standards Committee prefers this to be optional.
65	Provide greater clarity around what is considered “open” under Element 5.6 Seasonal Accessibility. If the state of being open in the winter relates to the type of maintenance performed on the trail, update values to include different types of maintenance such as plowed, not plowed, de-iced, groomed, etc. or create an additional element to provide this information. A trail may be considered technically open to the public but not passable to all users.	Rachel Workin, City of Fridley	The Standards Committee will consider adding this level of detail in a future version of the standard.
66	Trail status: What about when one part of a trail is closed, but the whole trail is not closed? How is that supposed to be coded, or is that managed as events or other transactions against the data?	Jonathan Lord, MnIT partnering with DNR	This would be a data implementation and/or data maintenance decision for each data collection organization based on their business needs.

67	Year Open: The description could be clearer as in, “Year that the facility first opened for use, or initial trail construction completed year.	Jonathan Lord, MnIT partnering with DNR	Action: change description to “Year that the facility <u>first</u> opened for use.”
68	<u>Access and Descriptive Elements:</u> Consider including distance fields for “Trail Miles” and “Trail Kilometers”	Kyle Oberg, Cook County	Distances may be calculated by users from the default length information within geospatial data format.
69	<u>Access and Descriptive Elements:</u> Consider including fields for “Trail Difficulty” (Domain) and “Difficulty Source/Standard used” (Domain)	Kyle Oberg, Cook County	Trail difficulty information goes beyond the scope of this standard.
70	<u>Access and Descriptive Elements:</u> Consider a Yes/No/Maybe field for “Trail Pass Required”	Kyle Oberg, Cook County	Trail fee information is included in the Trail Status element.
71	<u>Access and Descriptive Elements:</u> Consider fields for “Trail From” and “Trail To” as often trail systems are signed with alpha characters or other routing/locational references at intersections.	Kyle Oberg, Cook County	This is beyond the current scope of this standard.
72	5.1 Trail Status: We can accommodate this	Timothy Loesch, MnIT partnering with DNR	Sounds good!
73	5.2 Trail Surface Type: We have these data. Minimum Maintenance is not a surface type	Timothy Loesch, MnIT partnering with DNR	“Minimum Maintenance” is not a value in our “TrailSurface” GAC Standards domain- it is, however, a value in the “SurfaceType” GAC Standard Domain which applies to the Road Centerline Data Standard.
74	5.3 Year Programmed: Not in our data	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know.
75	5.4 Year Open: Not in our data	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know.
76	5.5 Width in Feet: Our data is captured as a range domain and not as a discrete value	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know.

77	5.6 Seasonal Accessibility: We can abide	Timothy Loesch, MnIT partnering with DNR	You and The Dude. Thanks for letting us know.
Section 6. Trail Amenity Elements			
78	Thanks for getting this out to review. I appreciated the standards and definitions, and here’s what I’m wondering under “trail amenity elements” there are “pavement markings present” and “lighting.” I’m wondering if there was discussion about signage? I’m thinking of MRT route signage in particular, and how that may be identified.	Amber Dallman, MnDOT	Action: Add a new element Signage as optional. Change Pavement Markings Present and Lighting to optional.
79	<p>Propose new attribute domain 6.3 named, “WayFinding”:</p> <ul style="list-style-type: none"> ○ “WayFinding” attribute should be included in Safety Elements – (i.e., 7.5). These attributes would never be considered anything but Safety attributes if talking about automobiles. In other words, I think the “Amenities” are just termed “Safety” elements in the automotive world. This domain could include the following attributes: ○ “Direction/distance signage” (remove “Signed Bike Route” from “Facility Type”) ○ “Map board” ○ “Pavement markings” (official = direction arrows, stop ahead, yield, one-way, share the road, Cyclists may use full lane, lane coloring) ○ “Safety/trail lighting” ○ “Ped/Bike traffic signal” ○ “Unofficial signage” (small businesses) ○ “Passive alignment marking” (ROW markers, fog line, colored pavement) ○ “Critical facilities signage” (nearest hospital, restrooms, potable water, help point, etc.) ○ “None” ○ “Unknown” 	Clayton Watercott, MetroTransit	Action: remove “Signed Bike Route” from Facility Type and add a Signage element. We will consider adding more bikeway feature elements in a future version of the standard.

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To Whom It May Concern,
I am requesting inclusion of the following in, "Section 6. Trail Amenities Elements"

6.4 U.S. National Grid Emergency Location Markers

Database Name	USNGELM		
Data Type	String	Inclusion	Mandatory
Width	10	Domain	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether Emergency Location Markers which employ the national coordinate standard for emergency response, U.S. National Grid, have been installed on the trail segment.		

Discussion: In 2009, the Emergency Preparedness Committee of the Minnesota Geospatial Advisory Council was approached by Lake County Emergency Manager BJ Kohlstedt who needed help with marking trails in Northern Minnesota to facilitate emergency response for injured and lost recreational trail users. In response, several Minnesota and national focus groups collaborated to create a blue and white Emergency Location Marker (ELM) for trails which employs the national coordinate standard for search rescue, U.S. National Grid. This system is now in use in multiple Minnesota counties and nine other states, and can be found at Kennedy Space Center, National Park facilities, and U.S. Fish and Wildlife Service lands.

Potential additional information for inclusion with this item:

1. Spacing of the markers: Range from approximately every ¼ mile on urban trails, to about 1 mile on rural trails.
2. Style of ELM: There are two styles (1) standard rectangle sign, and (2) vertical breakaway post.

Examples:

- NASA: <https://blogs.nasa.gov/kennedy/tag/emergency-location-markers/>
- Cobb County, GA: <https://www.arcgis.com/apps/MapSeries/index.html?appid=60309f4f1bd048139e8add5be02420f5>
- Cook County, MN: <https://www.youtube.com/watch?v=wg7DOAXphk0>

Thank you for your time. Please contact me with any questions or concerns.

Stephen D. Swazee Sr.,
MGAC
Emergency Preparedness Committee

The scope of this standard has changed to just bikeways. Because of this scope change and the fact that this is a line feature standard, we are choosing not to include USNG location markers as an attribute in this standard. If a future version of the standard expands the scope to other trail types, we will revisit this decision.

81	<u>Trail Amenity Elements:</u> <ul style="list-style-type: none"> Consider including field for "Trail Signage" (YesNoMaybe) 	Kyle Oberg, Cook County	Action: Add a new element Signage as optional.
82	6.1 Pavement Markings Present: Not in our data, would be unknown	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know.
83	6.2 Lighting: Not in our data, would be unknown	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know.
Section 7. Safety Elements			
84	<p>My suggestion for the trails and bikeways data standard is to add more detail for element 7.1 Protected System on how a bikeway is protected. It seems like the current language will group bikeways that are protected only by paint together with those protected by bollards. I think there is a difference between having a bike lane that is protected by paint/space but is also squeezed between traffic and parked cars vs a bikeway that has bollards and no parking next to it. The picture on the right is definitely more protected than the left but it seems like both bikeways might be classified as equally protected under the current language.</p> 	Grant Cooper, MnDOT	Action: eliminate 7.1 Protected System and replace with Type of Protection with values including Painted Stripe, Physical Barrier, Vertical Separation, Other, Unknown, None

85	I don't know that protected is the appropriate term here. Separated? Also - bollards the weakest example of "protected". Consider other language. Also - would there be an opportunity to identify type of separation? Flexible delineators being interim vs. elevated separation (i.e. raised median or facility elevated above roadway grade at curb height, etc.)?	Mackenzie Turner Borgen, MnDOT	Action: eliminate 7.1 Protected System and replace with Type of Protection with values including Painted Stripe, Physical Barrier, Vertical Separation, Other, Unknown, None
86	<p>Safety Elements - Rumble Strips</p> <p>Is it possible to provide more detail on rumble strip data? We have a Rumble Strip Best Practices White Paper we could share to help with this. Include things like:</p> <ol style="list-style-type: none"> 1. Location on road <ol style="list-style-type: none"> 1. Right, 2. Left, 3. Centerline 2. Location within shoulder / Offset <ol style="list-style-type: none"> 1. Outside shoulder 2. On painted stripe 3. Inside, within 1 ft of painted stripe 4. etc. 3. Type <ol style="list-style-type: none"> 1. gaps vs no gaps, 2. rumble strips vs stripes; 3. etc. 4. Parallel width 	Saara Snow & Melissa Moser, Adventure Cycling Association	While we would like to provide support in the standard and domains for capturing more detail about rumble strips, we feel the detail is unrealistic for our data producer community at this time. We will consider adding more detail in a future version of the standard.
87	Cable barrier. Wouldn't it be better to have a domain called Barrier and have values for Cable, Wall, Guardrail, wooden fence, chain link fence, et cetera. What happens when a new kind of barrier is created, do you need to adjust your standard?	Jonathan Lord, MnIT partnering with DNR	Action: Change this element to define the type of roadside barrier.
88	7.1 Protected System: Not in our data, would be unknown	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know. Action: change all section 7 elements to optional.
89	7.2 Cable Barrier: Not in our data, would be unknown	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know.

90	7.3 Guardrail: Not in our data, would be unknown	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know.
91	7.4 Rumble Strips: Not in our data, would be unknown	Timothy Loesch, MnIT partnering with DNR	Thanks for letting us know.
Section 8. Data Maintenance Elements			
92	Thank you for including the data maintenance elements. While I think the URL may be unnecessary, the others are extremely useful, and I think our community really benefits from this kind of “record level metadata”.	Mike Dolbow, MnIT	Thank you for the feedback.
93	8.1 Trail URL: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
94	8.2 Data Source: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
95	8.3 Editing Organization: Yes	Timothy Loesch, MnIT partnering with DNR	Thank you for confirming this element aligns with DNR data.
96	8.4 Edit Date: most of the data will reflect the same date	Timothy Loesch, MnIT partnering with DNR	Thank you for your feedback.
General Comments			

<p>97</p>	<p>I was reviewing the domains and see a lot of crossover with the MnDOT LRS, but I also see some different codes (FIPS instead of GNIS for jurisdictions) and many domains that look like duplicates of existing LRS domains.</p> <ol style="list-style-type: none"> 1. Is the intent to update these fields manually or pull data from the LRS with its weekly update cycle? 2. Some proposed domains are also identified in MIRE 2.0 https://safety.fhwa.dot.gov/rsdp/downloads/fhwasa17048.pdf which should be contained within the LRS, will some data domains be recorded in the LRS or in the Bikeways? (duplication of effort) 3. My office is building a statewide intersection database that might be of some value to you or perhaps some of your data would be valuable to us. I'm always on the lookout for coordination of data gathering/reporting. 	<p>Nathan Drews, MnDOT</p>	<p>Thank you for your comments. These are specific database implementation questions that are outside the scope of MN GAC standards. Each organization can make their own decisions about if and how to implement GAC standards.</p>
<p>98</p>	<p>Based on the domains it seems that this is more of a “Bikeways” standard than a “Trails and Bikeways” standard. Please consider one of the following:</p> <ol style="list-style-type: none"> 1) Rename the standard to “Bikeways Standard” 2) Include other trail systems such as walking paths, and snowmobile trails. This however may require additional domains such as: <ol style="list-style-type: none"> a. General Use Facility: Walking Trail, Snowmobile Trail. b. Facility Type: If needed add domains specifying “Walking Trail Only” “Snowmobile Trail Only” and possibly some other designations for shared trails such as “Shared Bike/Walk Trail” c. The addition to Trail Surface Types such as “Grassy Ditch” 	<p>Mark Volz, Lyon County</p>	<p>This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this.</p>
<p>99</p>	<p>Could you clarify if the intent of the project is to include ALL types of recreational trails in Minnesota? It's not entirely clear from the context whether the focus is only on bicycle trails or other types of trails. I manage the off-highway vehicle program for the Department of Natural Resources, so this is an important question for us. It appears from a quick review of the materials that the focus is more on paved trails.</p> <p>Another quick note – I don't see a data field that captures ‘allowed uses’. I may have overlooked it; if not, I would suggest you consider this. With the explosion in trail use in recent years and the great diversity of types of users, often sharing (or attempting to share) the same trail, this is key information.</p>	<p>Paul Purman, DNR</p>	<p>This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this.</p>

100	<p>Which uses/modes are included in this data? Is it only people biking and walking or more? Definition of the term “trail”: is this inclusive of all recreational trails that might exist? i.e. equestrian, snowmobile, ATV, cross country ski, other?</p> <p>Depending - is trail the correct default? Concerned that all of the shared use sidepaths; those facilities located parallel and adjacent to roadways, serving an important transportation (and accessibility) purpose will be lumped in as "trails". Is that the case currently?</p>	Mackenzie Turner Borgen, MnDOT	This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this.
101	<p>Because of some critical and substantial differences in trail types, uses, stakeholders, permits, and maintenance requirements, I propose specifying this draft data set as “Non-motorized Trails” with a separate schema for “Motorized Trails” (if at all). For example, the network of snowmobile trails across the state is managed far differently than something like cross-country ski trails. ATV trails are also substantially different facilities than something like horse-trails or hiking trails. The “Motorized Trails” data would obviously be a separate effort, distinct from Non-motorized trails thereby removing and redefining some critical trail definitions. Also, Are these only <i>terrestrial</i> trails, or will this data include non-motorized water trails?</p>	Clayton Watercott, MetroTransit	This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this.
102	<p>Should data elements be added to handle maintenance work history data and condition data (either as multiple attributes or one linked) to align with agency strategy?</p> <p>Attached active discussion with MnDOT Asset Management Strategic Plan Team Matrix, the Asset Management Approaches shows trails and bikeway assets requiring cyclical maintenance work, and for those sharing pavement bridge, condition data. I’m thinking about how to link together as the AM approaches provide benefits such as prioritizing work planning, calculating total life cycle costing/level of service, which can aid a program in justifying additional funding/defend decision making.</p>	Michael Cremin, MnDOT	This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this.

103	<p>While it's good to see we only have 38 data elements, and not some 90 that we see in other standards, I submit that this may still be too many. Toward that: With a unique ID, a lot of these elements could be relegated to related tables. Or, even better, to a key:value system similar to what is used by OpenStreetMap. In my opinion, our community is bound too rigidly to structured data schemas that are hard to fulfill and too often end up with a flat table full of blank columns. A key:value system can be much more efficient both in terms of storage and in lookup/use. Outside of elements 1.1, 2.1, and 8.2-8.4, I submit that all of the data elements could be placed into a key:value system instead. (And I'm not talking about storage – I'm talking about exchange.) Even if we're "not ready" for that type of system, I think there are too many mandatory elements here.</p>	Mike Dolbow, MnIT	<p>In the past, the standards committee has discussed and considered this proposal and concluded that based on workload of volunteer committee members and other factors, it will not pursue this at this time. The standards committee is open to taking up this topic in the future.</p> <p>After review of comments received and discussion amongst the committee, focus groups and other stakeholders, the number of mandatory elements has been reduced.</p>
104	<p>If we simply can't move away from a structured/flat file standard, can we consider giving permission to sharers to skip columns when they don't have the data? If they provide the data they do have, using the standard for column name, type, and contents, that's still a big improvement over no standard and relatively easy to compile into aggregations. Otherwise we just end up with a lot of shared data full of empty columns or "Unknown" cells, cluttering up the essential data that is available.</p>	Mike Dolbow, MnIT	<p>This gets down to an implementation question. Each organization is free to implement all or part of this standard as they see fit for their own business needs. An aggregating organization might work with stakeholders to say (just give us the fields where you have data). That would not fully comply with the standard, but there is nothing "wrong" with doing that.</p>
105	<p>When domains are in use, I think it's a really great idea to publish those as spreadsheets the way you have. While I don't envy the maintenance task of keeping them updated, they are a critical resource. I think we should also describe these as constraints so DBAs know what we're talking about.</p>	Mike Dolbow, MnIT	<p>The Standards Committee will discuss this idea in the future related to all standards.</p>
106	<p>For the "Route System" attribute domain;</p> <ul style="list-style-type: none"> • Are there toll roads in Minnesota now? • HOV/HOT lanes are not legal for trail use. • Is there such a thing as a, "Non-Numbered Interstate" in the Midwest? • Is there an example of a <i>Trail</i> on a "Non-numbered Interstate"? It is illegal to travel on controlled 'freeways' if a person is not in a street-legal motorized vehicle. 	Clayton Watercott, MetroTransit	<p>The RouteSystem domain is not used in this standard.</p>
107	<p>Define meaning of "ElevationToFrom" values; feet above sea-level? Percent slope of segment? Which datum is used? (Not as difficult as it may seem, since we have a lot more LiDAR data these days)</p>	Clayton Watercott, MetroTransit	<p>The ElevationToFrom domain is not used in this standard.</p>

108	A few additional ideas: Year of implementation	Colin Harris, Alta Planning & Design, Inc.	We have both “Year Programmed” and “Year Open” (Elements 5.3 and 5.4) “Year Programmed” is described as “Year that the facility is programmed for construction or funding” and “Year Open” is described as “Year that the facility opened for use”. We believe “Year Open” and “Year of Implementation” would describe the same thing.
109	A few additional ideas: Corridor Type (I.e. Highway, Rail to Trail, Active Rail, Urban, Rural, Riparian/Creek)	Colin Harris, Alta Planning & Design, Inc.	We will consider the inclusion of corridor type in a future version of the standard.
110	A few additional ideas: Intersection Types (I.e. Grade separated, at-grade)	Colin Harris, Alta Planning & Design, Inc.	We feel intersections would be captured as point data and are out of the scope of this standard.
111	A few additional ideas: Full range of approved modes identified (Ped, Bike, ATV, Snowmobile,...)	Colin Harris, Alta Planning & Design, Inc.	This standard will be more clearly defined as a bicycling specific standard and will be renamed to reflect this.
112	We don't see anything about bike count data in here. Would that not be included in these data?	Saara Snow & Melissa Moser, Adventure Cycling Association	Trail usage count information will not be included in this standard. Organizations that capture trail usage counts could choose to relate that data to segments within a trails dataset that uses this standard.
113	Mixed Case: If they can uppercase the field values why can't they lowercase the field values?	Jonathan Lord, MnIT partnering with DNR	It is easy to automate a conversion to all uppercase or all lowercase. It is more challenging to automate conversion to mixed case because of unique situations that don't align with common rules about the use of mixed case.
114	My suggestion for the trails and bikeways standard is that a new field be added to help describe the speed and directness of a route. Similar to how roads are classified into highways, county roads, and local roads, I think it would be very helpful to classify bike routes as either “bike highways” or “local bikeways.” Routes like the midtown greenway and cedar lake trail that have few stops, are well protected, and very direct would be “bike highways” while bike lanes that have many stops, are not well protected, and not direct would be “local bikeways.” The creation of highways 694/494/94 and 35W/E were instrumental in the development of car based transportation and I think classifying “bike highways” could do the same for bicycle based transportation.	Grant Cooper, MnDOT	Thank you for this interesting idea. We feel it is beyond the scope of the GAC Standards Committee to create and standardize this concept, but if it becomes a common practice in the bicycle transportation world, we will consider including it into the standard.

115	<p>Thank you for providing the opportunity to review and comment on these trail standards. As a trail data steward for the DNR our intent is to comply with these standards for data interchange when the standard is finalized.</p> <p>The attached spreadsheet has an added column that includes our concerns/comments about the individual fields in the standard. Thanks for your consideration.</p>	<p>Timothy Loesch, MnIT partnering with DNR</p>	<p>Note: Comments from the spreadsheet have been added to their corresponding element groups above.</p>
116	<p>On a related note – are there any plans for naming conventions for the files themselves so that consumers of the information could search for standard dataset names and/or keywords? For example, at the DNR we fully intend to publish a feature class meeting these standards to the Minnesota GeoCommons and it would be helpful to know if there was a framework to use when publishing information that meets this standard (names, keywords, etc).</p>	<p>Timothy Loesch, MnIT partnering with DNR</p>	<p>File naming is an implementation consideration that goes beyond the scope of this standard. Data aggregating organization may wish to consider this topic. The MN Geospatial Commons Implementation Team may also have some thoughts on this topic.</p>
117	<p>Our number one concern, as a trail data steward for DNR, is that there are no definitions for the valid values in the set of domains for this standard. Some are self-explanatory but some are not and without an established definition/meanings the values are ambiguous and run the risk of being interpreted differently by different organizations which would lead to inconsistent and inaccurate data.</p>	<p>Timothy Loesch, MnIT partnering with DNR</p>	<p>Action: Consider adding an additional explanatory column in domains as appropriate. Also, consider creating a best-practices guide to support the adoption of this standard.</p>
118	<p>As a general comment, we recommend providing attribute definitions throughout the standards document for all data categories; this is especially important for the bicycle facility type attributes for which we recommend that accurate definitions for each of the final set of facility categories should be clearly documented so users will understand how to categorize their specific jurisdiction’s trails and bikeways.</p>	<p>Steve Elmer, Metropolitan Council</p>	<p>Action: Consider adding an additional explanatory column in domains as appropriate and for facility information in particular.</p>

<p>119</p>	<p><u>General Comments:</u></p> <ul style="list-style-type: none"> • Grateful for this...lots of good reasons to have and use a statewide trail standard! • Purpose of Standard cites intent “for a wide variety of purposes”, however proposed standard seems heavily focused on trails in an urban setting with particular emphasis on bikeways • Trails Standard could easily be expanded to include additional supporting features such as: Trailheads (Point), Trail Intersections (Point), Trail Features (Point), Trail System (Polygon), Trail Loop (Polygon), etc. Of course lots more could be accomplished utilizing Linear Referencing but likely beyond the scope of a data transfer standard. <p>Thanks again for getting this out there and for considering any of the above comments that might aid in relating this to greater Minnesota.</p>	<p>Kyle Oberg, Cook County</p>	<p>Thank you for the input. This standard will be more clearly defined as a biking specific standard. Other feature types are out of scope of this standard.</p>
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