Minnesota Geospatial Advisory Council

Bikeways Data Standard

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About the GAC

The mission of the Minnesota Geospatial Advisory Council (GAC) is to act as a coordinating body for the Minnesota geospatial community. The GAC is authorized by legislation passed in 2009 and reauthorized in 2014 Minnesota Statutes (16E.30, subd. 8). It represents a cross-section of organizations that include city, county, regional, state, federal and tribal governments as well as education, business and nonprofit sectors.

As part of this mission, the GAC works with the Minnesota geospatial community to define and adopt standards needed by the community. GAC standards are developed and proposed by geospatial community subject matter experts. The GAC's Standards Committee administers a process to ensure community-wide public review and input for any proposed standards.

The GAC does not mandate or enforce standards. It offers the standards as a resource to the community. Organizations may choose to adopt the standards and require their use internally.

Introduction

Bikeways data are a key component of mapping, planning, measuring and engineering for multimodal transportation and recreation infrastructure. Having standardized specifications for sharing, converting and organizing bikeways information makes these processes more efficient while providing decision-makers with the information they need to do their jobs effectively.

This standard establishes a common set of attributes and field definitions for local, regional and state governments and other partner organizations to utilize for bikeways data sharing in Minnesota.

Purpose of this Standard

The purpose of this standard is to provide a single, commonly accepted set of attribute specifications (field name, type, and length) for transferring and aggregating bikeways data in Minnesota for a wide variety of purposes. It is intended to be used when data are being transferred between organizations. Its use will improve the ability to share data resources by reducing incompatibilities when acquiring, processing, and disseminating bikeways data.

A secondary goal of this standard is to support the establishment of a repeatable process for improving inventory and knowledge of what bikeways exist in Minnesota. This inventory will be useful to local, regional and state governments for identifying network gaps within and between jurisdictions, easing data transfer between all levels of government and across partnering stakeholder organizations, and providing data critical for level of service, level of traffic stress and other network evaluations.

Applicability

Data producers may have unique methods, definitions, and criteria for capture and storage of bikeway data that satisfy their own business requirements. This standard seeks to establish attribute specifications for data exchange purposes. It does not attempt to define internal data capture or storage specifications for data producers, though some may find benefit in storing data in this format. Organizations within Minnesota are encouraged to adopt this standard for purposes of data exchange.

Sources of this Standard

The proposed standard draws heavily from the Metro Collaborative Trails and Bikeways data specifications that were developed by the seven Metropolitan Counties and Metropolitan Council, working through MetroGIS beginning in fall 2016. The National Recreation and Park Association standard was slightly modified and forms the basis of the Metro Collaborative Trails and Bikeways specifications which support the collective business needs of the MetroGIS collaborative parties.

Compliance Notes

Organizations in Minnesota are encouraged to adopt and comply with this standard for purposes of data exchange. Some data producing organizations choosing to comply with the standard collect all data included in the standard. Other organizations collect only some of the data and may choose to work toward full compliance over time. A dataset that fully complies with this standard will consist of geospatial lines with all attribute fields specified in this standard. It will also comply with the inclusion, mixed case, abbreviation and domain specifications of this standard.

Inclusion

Inclusion is a term used to explain the requirement for a field to be populated in a dataset to comply with the standard. Three types of inclusion are possible: Mandatory, Conditional, and Optional.

Mandatory

Field must be populated for each record to be compliant with Standard. Null values are not allowed.

Example: Bikeway Facility Type is a Mandatory field in this standard. If Bikeway Facility Type values are missing, the database does not comply with the Bikeways Data Standard.

Conditional

Each field must be populated with a non-null value for each record that is applicable to the feature or for which a specified condition exists.

Example: Not all bikeways will have a Bikeway System Name. However, when one does the field must be populated to comply with this standard.

Optional

Field is not required to be populated to comply with the standard.

Mixed Case

Like other GAC standards, all field values in this standard will use a mixed case format. Some end users may want an all-caps format for a specific purpose. Data may be converted to all caps by end users if desired. It is more difficult to automatically convert all caps back to mixed case.

Abbreviations

All field values in this standard must be spelled out unless specifically defined otherwise in the field description. This is done to remove ambiguity and better align with other existing standards.

Domains

Several domain tables accompany this standard in a spreadsheet available at this link. To comply with this standard, a bikeways dataset must use the codes from specified domains, but it does not need to include the domain tables with the data. If a local value exists that is not included in a domain (e.g. a facility type), it may be submitted to the MN Geospatial Advisory Council, Standards Committee to be included in the domain. Domains will be updated on a periodic basis, as needed. The date of the most recent change to each domain table is included in the spreadsheet.

Data Element Details

Appendix A: MN GAC Bikeways Data Standard Schema Spreadsheet

Appendix A is a spreadsheet available at this link showing the schema for this standard. It includes all data elements in the standard, with field name, type, width and other important information about each data element.

1. Identification Elements

1.1 Feature Unique ID

Database Name	UNIQUE_ID		
Data Type	String	**Inclusion**	Mandatory
Width	36	**Domain**	
Examples	28A7BCD3-2AD1-46BF-B34F-DE1ABBE1ABD8		
Description	This is intended to be a persistent unique identifier derived from a Globally Unique Identifier (GUID) for the segment. A GUID is a 36-character unique identifier generated using a standardized process to ensure a minimum probability of duplication.		

2. Primary Feature Elements

2.1 Bikeway Name

Database Name	BKWYNAME		
Data Type	String	**Inclusion**	Conditional
Width	150	**Domain**	
Examples	Luce Line State Trail, Luce Line Regional Trail		
Description	Proper name of the bikeway or bikeway segment.		

2.2 Bikeway System Name

Database Name	BKWYSYSTEM		
Data Type	String	**Inclusion**	Conditional
Width	150	**Domain**	
Examples	Grand Rounds Scenic Byway System		
Description	Name of the overall bikeway system that may be comprised of multiple bikeways.		

2.3 Bikeway Shared Name

Database Name	SHAREDNAME		
Data Type	String	**Inclusion**	Conditional
Width	150	**Domain**	
Examples	Luce Line Trail, Winter Recreation Trail		
Description	Alternate bikeway name that is used when the bikeway is part of more than one route or has more than one use. Multiple bikeway names may be included in this field separated by a comma.		

2.4 Bikeway Facility Type

Database Name	FACTYPE		
Data Type	String	Inclusion	Mandatory
Width	100	Domain	BikewayFacilityType
Examples	On Road Bicycle Boulevard, Off Road Shared-Use Path		
Description	This field indicates the bicycling facility's main function. It also describes whether the bicycling facility is located on-road (on the same grade as a parallel road) or off-road (on a different grade from a parallel road).		

3. Ownership and Administration Elements

3.1 Federal System

Database Name	FED_SYS		
Data Type	String	**Inclusion**	Mandatory
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether the bikeway is part of the federal system. Bikeways can be managed by a federal agency without being given a national designation.		

3.2 National Designation

Database Name	NATION_SYS		
Data Type	String	**Inclusion**	Mandatory
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether the bikeway has a national bikeway designation (i.e. United States Bicycle Route (USBR), historic, scenic, recreation, millennium, or legacy).		

3.3 State System

Database Name	STATE_SYS		
Data Type	String	**Inclusion**	Mandatory
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether the bikeway is part of a state system.		

3.4 Regional System

Database Name	REGION_SYS		
Data Type	String	**Inclusion**	Mandatory
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether the bikeway is part of a regional or multi-county system.		

3.5 County System

Database Name	COUNTY_SYS		
Data Type	String	**Inclusion**	Mandatory
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether the bikeway is part of a county system.		

3.6 Local System

Database Name	LOCAL_SYS		
Data Type	String	**Inclusion**	Mandatory
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether the bikeway is part of a local/municipal system.		

3.7 Tribal System

Database Name	TRIBAL_SYS		
Data Type	String	**Inclusion**	Mandatory
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether the bikeway is part of a tribal organization system.		

3.8 Private System

Database Name	PRIV_SYS		
Data Type	String	**Inclusion**	Mandatory
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether the bikeway is part of a private system such as velodromes, summer mountain bike trails at private ski hills, and bikeways on company campuses.		

3.9 Landowner

Database Name	LANDOWNER		
Data Type	String	**Inclusion**	Optional
Width	150	**Domain**	
Examples	City of St. Paul, White Bear Township		
Description	Owner of the land beneath the bikeway.		

3.10 Landowner Type

Database Name	OWNERTYPE		
Data Type	String	**Inclusion**	Optional
Width	50	**Domain**	LandownerType
Examples	County, School District		
Description	Type of entity which owns the land beneath the bikeway.		

3.11 Managing Organization

Database Name	ORGNAME		
Data Type	String	**Inclusion**	Optional
Width	150	**Domain**	
Examples	Three Rivers Park District, Jonathan Association		
Description	Name of the bikeway's managing or administrative organization. This may be different from the landowner.		

3.12 Managing Organization Type

Database Name	ORGTYPE		
Data Type	String	**Inclusion**	Optional
Width	50	**Domain**	LandownerType
Examples	Regional Government, Unknown		
Description	Type of the bikeway's managing or administrative organization.		

4. Access and Descriptive Elements

4.1 Bikeway Status

Database Name	BKWYSTATUS		
Data Type	String	**Inclusion**	Optional
Width	50	**Domain**	BikewayStatus
Examples	Open, Planned, Closed, Construction		
Description	Current status of the bikeway. That is, if and how the bikeway is available to users.		

4.2 Bikeway Surface Type

Database Name	BKWYSURF		
Data Type	String	**Inclusion**	Optional
Width	50	**Domain**	BikewaySurface
Examples	Concrete, Asphalt/Bituminous, Wood Chips		
Description	The predominant surface type users would expect to encounter on the bikeway.		

4.3 Year Programmed

Database Name	YEAR_PRGRM		
Data Type	Integer	**Inclusion**	Optional
Width	Short	**Domain**	
Examples	2020, 2025		
Description	Year that the bikeway is programmed for construction or funding.		

4.4 Year Open

Database Name	YEAR_OPEN		
Data Type	Integer	**Inclusion**	Optional
Width	Short	**Domain**	
Examples	1994, 2008		
Description	Year that the bikeway first opened for use.		

4.5 Width in Feet

Database Name	WIDTH_FT		
Data Type	Double	**Inclusion**	Optional
Width	default	**Domain**	
Examples	6.5, 8		
Description	Width of the bikeway segment in feet. May be approximated if there are frequent changes in width.		

4.6 Seasonal Accessibility

Database Name	SEASNL_ACC		
Data Type	String	**Inclusion**	Optional
Width	20	**Domain**	SeasonalAccess
Examples	All Year Round, Summer Only, Winter Only		
Description	Whether the bikeway is open for seasonal or year-round use.		

4.7 Bikeway Direction

Database Name	DIRECTION		
Data Type	String	**Inclusion**	Optional
Width	20	**Domain**	BikewayDirection
Examples	One Way, Two Way, Contraflow		
Description	Permitted direction of travel on the bikeway.		

5. Bikeway Feature Elements

5.1 Pavement Markings

Database Name	PVMNTMARKS		
Data Type	String	**Inclusion**	Optional
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether pavement marking exists along the bikeway. Pavement markings exist on bikeways to indicate the separation of the lanes for road users, assist the bicyclist by indicating assigned travel paths, indicate correct position for traffic signal actuation, and provide advance information for turning and crossing maneuvers		

5.2 Lighting

Database Name	LIGHTING		
Data Type	String	**Inclusion**	Optional
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether lighting exists along the bikeway segment.		

5.3 Signing

Database Name	SIGNING		
Data Type	String	**Inclusion**	Optional
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether active transportation related signing (i.e., regulatory, warning, or wayfinding signs) exists along the bikeway segment.		

6. Safety Elements

6.1 Separation Type

Database Name	SEPARATION		
Data Type	String	**Inclusion**	Optional
Width	100	**Domain**	BikewaySeparation
Examples	Buffer-Separation, Barrier-Separation, None, Other, Unknown		
Description	Whether the bikeway is part of a separation system, as well as the type of separation. A separated bikeway can be an on-street bicycle lane that has physical separation from vehicles, such as bollards.		

6.2 Roadside Barrier Type

Database Name	ROAD_BR		
Data Type	String	**Inclusion**	Optional
Width	100	**Domain**	RoadsideBarrier
Examples	Flexible, Rigid, None		
Description	Whether the bikeway has a roadside barrier, as well as the type of barrier. Roadside barriers are used to protect all traffic from roadside obstacles or hazards, such as steep slopes or bodies of water.		

6.3 Rumble Strips

Database Name	RMBL_STRIPS		
Data Type	String	**Inclusion**	Optional
Width	10	**Domain**	YesNoUnknown
Examples	Yes, No, Unknown		
Description	Whether rumble strips (any type) exist along the bikeway segment.		

6.4 Rumble Strip Type

Database Name	RMBL_TYPE		
Data Type	String	**Inclusion**	Optional
Width	100	**Domain**	RumbleStripType
Examples	Rectangular Corrugated, Sinusoidal, Other, Unknown		
Description	The type of rumble strip that exists along the bikeway segment.		

6.5 Rumble Strip Placement

Database Name	RMBL_PLACE		
Data Type	String	**Inclusion**	Optional
Width	100	**Domain**	RumbleStripPlacement
Examples	Edgeline Rumble Stripe, Shoulder Rumble Strip, Other, Unknown		
Description	The placement of the rumble strip if one exists along the bikeway segment.		

7. Data Maintenance Elements

7.1 – Bikeway URL

Database Name	BKWY_URL		
Data Type	String	**Inclusion**	Optional
Width	255	**Domain**	
Examples	https://www.threeriversparks.org/location/cedar-lake-farm-regional-park		
Description	Link to a website with information about the bikeway.		

7.2 – Data Source

Database Name	DATASOURCE		
Data Type	String	**Inclusion**	Mandatory
Width	50	**Domain**	BikewayDataSource
Examples	Google Maps, Local Imagery, Site Visit		
Description	The source of the data, as input by the Editing Organization.		

7.3 – Editing Organization

Database Name	EDIT_ORG		
Data Type	String	**Inclusion**	Mandatory
Width	100	**Domain**	
Examples			
Description	The organization that made the last substantial change to the data record including geospatial edits. **Note**: This is not intended to be used to identify an aggregating organization that ran a batch process to populate fields derived from existing data (e.g. populating the State Code).		

7.4 – Edit Date

Database Name	EDIT_DATE		
Data Type	Date	**Inclusion**	Mandatory
Width	default	**Domain**	
Examples	4/5/2018 4:34:15 PM		
Description	The date of the last substantial change to the data record including geospatial edits. **Note**: This is not intended to be used to identify the date a batch process was used to populate fields derived from existing data (e.g. populating the State Code).		

7.5 – Comments

Database Name	COMMENTS		
Data Type	String	**Inclusion**	Optional
Width	255	**Domain**	
Examples			
Description	A general comments field for additional notes.		

Appendix A: MN GAC Bikeways Data Standard Schema

Appendix A is a spreadsheet available at this link showing the schema for this standard. It includes all the data elements in the standard, with field name, type, width and other important information about each data element.

Appendix B: MN GAC Standards Domains

Appendix B is a spreadsheet available at this link showing all the domain tables used in Minnesota Geospatial Advisory Council standards. It includes a tab showing when each domain table was last updated.

Appendix C: MN GAC Standard Lookup Tables

Appendix C is a spreadsheet available at this link showing all the lookup tables used in Minnesota Geospatial Advisory Council standards. It includes a tab showing when each table was last updated.