

Fostering collaboration and cooperation among agencies across the Denver region is at the heart of the Denver Regional Council of Governments' mission. One of the ways DRCOG fulfills its mission is by providing technical assistance, such as data collection and analysis.

As part of the development of the regional Active Transportation Plan, the project team reviewed DRCOG's process for obtaining and categorizing bicycle facility data provided by local agencies. Following a comprehensive review, the project team developed recommendations to improve the dataset schema, including a revision of the facility types used in the inventory to classify bicycle facilities. The project team recommended the changes to better align with the current state-of-the-practice facility definitions and introduce new attributes that enhance the usability and functionality of the data for analysis, evaluation, and review.

Perhaps the most important use for this data is to map existing facilities in order to provide cyclists and planners with an up-to-date view of our region's current bicycle facility infrastructure. Other potential uses of local agency data include mapping planned or proposed facilities to encourage information-sharing and collaboration across agencies, benchmarking and analysis of facility implementation trends, comparison across geographic areas, standardization of bicycle facility data, and conducting network analysis, such as level of traffic stress analysis.

Bicycle Facility Inventory

DRCOG maintains a dataset of local bicycle facilities, including both on- and off-street travelways that are not exclusively recreational (such as single-track loops in parks). Staff compiled the regional dataset from local inventories and plans submitted by local governments via DRCOG's annual request for data and updates it on an on-going basis. This inventory is available online at the Regional Data Catalog (<https://data.drcog.org/dataset/bicycle-facility-inventory>).

Denver Regional Bicycle Map

The Denver Regional Bicycle Map (<http://gis.drcog.org/bikeroutes>) provides information about bicycle facilities in the region. Bicycle facilities shown include both on- and off-street bicycle facilities. The facilities shown on the map are categorized according to regional DRCOG definitions, which may differ from local naming conventions. The map also includes additional information such as bicycle share stations and Regional Transportation District Park-n-Ride locations. Map users can determine which facilities are on- or off-street, and whether they are paved or unpaved.

Updating and filtering the dataset

DRCOG's staff maintains and updates the bicycle facility inventory dataset annually. Staff conducts quality control on data submitted annually by local governments as each segment is reviewed for inclusion in the regional dataset and classified based on the regional bicycle facility definitions.

Staff then applies two levels of filtering to the dataset before making it accessible to the public through DRCOG's Regional Data Catalog:

1. Bicycle facilities that match any of the following criteria are removed:
 - a. FAC_TYPE field is UNASSIGNED or SHARED LANE or OTHER/UNKNOWN.
 - b. STATUS field is PROPOSED or UNKNOWN or UNASSIGNED.
 - c. SBSTNDRD field is any value other than NOT APPLICABLE.
2. Bicycle facility attributes listed below are removed:
 - a. SBSTNDRD, SOURCE, NOTES, UPDATED, RSTRCTNS, COUNTY, EDITOR, EDIT_DT, CREATOR, CREATE_DT.
 - b. See dataset schema tables that follow for descriptions of these fields.

Dataset schema

The complete bicycle facility inventory dataset includes both publicly available attribute fields, as well as attribute fields internal to DRCOG. The internal fields are filtered out during the annual data update process (in addition to the facilities that are excluded, as explained earlier), before serving the filtered dataset publicly through DRCOG's Regional Data Catalog.

Below is a list of attributes included in the publicly available bicycle facility inventory dataset. See the Dataset Domains table for possible values.

External field name	Description
FAC_NUM	Indicates the bicycle facility type number corresponding with the FAC_TYPE attribute.
FAC_TYPE	Bicycle facility type (described in detail in the "Bicycle facility types" table).
STATUS	Describes the status of a bicycle facility segment. See the "Dataset domains" table for possible statuses.
NAME	For on-street, the street name. For off-street, the primary trail name.
ALT_NAME	If there is another name, the alternative name.
ROUTE	The name of the bicycle facility route.
CROSSING	Describes whether the segment is a crossing and whether it is marked or unmarked.
SIGN	Describes signage present for the facility.
NUM_SDS	For on-street facilities, describes the number of sides of the roadway on which the facility is present.

External field name	Description
TRVLWYS	Describes the number of directions that one can travel on each facility.
ON_ST_PK	The presence of on-street parking for on-street facilities.
SURFACE	Describes the facility surface type.
PLN_YR	For proposed facilities, lists year of plan.
PRPSD_PLN	For proposed facilities, lists plan where data came from.
HORIZ_BUF	Describes horizontal separation from the travel lane (in feet).
VERT_BAR	Describes whether there is a vertical barrier (such as Jersey barrier, bollards, or planters).
WIDTH	Describes the existing facility width (in feet).
RUM_STRIPS	Describes whether rumble strips are present.
ATC	Describes whether the facility is part of a regional Active Transportation Corridor shown in the DRCOG Active Transportation Plan (drcog.org/atp).
ON_OFF	Indicates whether the segment is an on- or off-street facility; it is based on the FAC_TYPE attribute.
LEN_FT	The facility length in feet.

Below is a list of attributes not included in the publicly available bicycle facility inventory dataset (these attributes are filtered out during the annual data update process using the criteria explained in the “Updating and Filtering the Dataset” section above).

Internal Field Name	Description
SBSTNDRD	Internal attribute which describes whether the segment can be categorized in each facility type based on standards described (such as bike lanes not marked or signed); valid facilities should be populated with N/A.
SOURCE	Internal attribute which indicates the original source of the data.
NOTES	Internal attribute which describes any additional information.
UPDATED	Internal attribute which indicates update process.
RSTRCTNS	Internal attribute which indicates if there is a restriction on sharing or posting the data.

Internal Field Name	Description
COUNTY	Internal attribute indicating which county the facility lies within.
EDITOR	Internal attribute which indicates the most recent person who edited the data.
EDIT_DT	Internal attribute which indicates the last edit date.
CREATOR	Internal attribute which indicates the person who originally created the data.
CREATE_DT	Internal attribute which indicates the original creation date.

Dataset domains

Below is a list of possible values for the publicly available version of the bicycle facility inventory dataset.

External field name	Domain values
FAC_NUM	1 – 11 99
FAC_TYPE	*See the “Bicycle facility types” table for a detailed description
STATUS	Existing Proposed Unknown Unassigned
CROSSING	Marked No Unassigned Unmarked
SIGN	Yes No Unsure Sidewalk No Evidence of Signage Horse Trail No Bike Allowed Other Unassigned

External field name	Domain values
NUM_SDS	0 1 2
TRVLWYS	1 2
ON_ST_PK	No Parking Parking One Side Parking Both Sides Not Applicable Unknown Unassigned
SURFACE	Paved Unassigned Unknown Unpaved
RUM_STRPS	Yes No Unassigned Unknown Not Applicable
ON_OFF	Not Applicable Off-Street On-Street Unassigned

Bicycle facility types

The bicycle facility type descriptions are as follows:

Facility category	Description
Bicycle lane (conventional and buffered)	Bicycle lane (conventional and buffered) are lanes or portions of the roadway designated for bicyclists. This includes conventional bicycle lanes and buffered bicycle lanes with no vertical barrier (such as painted buffered bicycle lanes). The minimum width of a bike lane is 4 feet with no curb and gutter is present or 5 feet when adjacent to a curb face, guardrail or other vertical surface or on-street parking. Bike lanes should be marked with a normal solid white line and standard bike lane symbol marking or signage.
Separated bicycle lanes	Separated bicycle lanes are bicycle lanes which are physically separate from general travel lanes and the sidewalk. They are for exclusive use by bicyclists and are not the same as shared-use paths because they are bicycle-only. They are distinct from conventional or buffered bicycle lanes because there is a physical vertical separation element (such as a barrier, raised island or parked cars) between the bicyclists and the outside travel lane. They also may be referred to as protected bicycle lanes or cycle tracks.
Bicycle boulevard	Bicycle boulevards are streets designed to prioritize bicycle traffic by minimizing motorized traffic volume to a maximum of 3,000 vehicles per day or less and operating speeds of 25 miles per hour or less. They are also referred to as neighborhood greenways, neighborhood bikeways (the City and County of Denver's preferred title), slow streets or bicycle priority streets. Often these facilities include traffic calming treatments. These are locally designated and, in order to be included in the DRCOG inventory, should include signage.
Shared-use path	Shared-use paths are paved paths used by bicyclists and pedestrians that are physically separated from motor vehicle traffic by an open space or barrier and either within the highway right-of-way or within an independent right-of-way. These facilities are bi-directional, multi-use and not exclusively for bicycle travel. Shared-use paths are a minimum of 8 feet wide.
Sidepath	Sidepaths are a type of shared-use path that is adjacent and parallel to the roadway. Sidepaths typically have regular at-grade crossings, such as at driveways and intersections. Sidepaths, like shared-use paths, must be bidirectional, a minimum of 8' wide and for use by both bicyclists and pedestrians. Sidepaths should not be attached to the roadway, rather they should have separation from the roadway (such as vertical separation element, rumble strip or vegetative buffer). These facilities must include signage.
Unpaved path	Similar to a shared-use path, but unpaved. Unpaved paths in the DRCOG inventory are a minimum of 8 feet wide and used in a similar fashion to shared-use path.
Local path	Local paths provide off-street connection or informal direct access to neighborhood connections. These paths may not meet minimum width standards for a shared-use path (for example, less than 8 feet wide) and can be paved or unpaved, the surface type is distinguished in attribution.
Paved shoulders	Paved shoulders are marked and have a minimum of 4 feet from edge of pavement to shoulder marking or rumble strips. This must be signed.

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