

Osmaxx Data Model

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Version 2 - March 2015

Technical Report

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Revision History:

- 2015-02-13 V.1 Draft
- 2015-03-15 V.2

1. Introduction

1.1. Credits and legal issues

Credits go to OpenStreetMap and to Geofabrik.

This document is licensed under CC-BY-SA.

The data referred to is from OpenStreetMap planet file licensed under ODbL 1.0.

1.2. Goal, scope and limits

Notes regarding limits, quality and out of scope of the data model and the related datasets.

Goal and scope: Das Osmaxx-Datenmodell ist zur möglichst breiten Nutzung ausgelegt (Kartendarstellung, Orientierung, POI-Suche und räumliche Analyse und später Routing). D.h. es wird versucht, so viele Informationen (Tabellen, Attribute und Wertebereiche) wie möglich aus OSM herauszuholen, die einigermaßen konsistent erfasst werden bzw. die sich filtern („Cleansing“ und Homogenisierung) oder aus den Daten herleiten lassen („Data Curation“). Das ist zwangsläufig mehr, als beispielsweise für die (gedruckte) Kartendarstellung eines topografischen Landschaftsmodells nötig ist.

These are known limits, omissions and bugs:

- 1 . Current data export exports POLYGON instead of MULTIPOLYGON
- 2 . Statistics is missing
- 3 . Missing tables: coastline_l, adminunit_a
- 4 . tbd.

Tbd.

1.3. Status of this document and future releases

This document and the project just started and thus is in a pre-mature state.

These are possible enhancements in next releases

- File STATISTICS.txt which contains a report about tables, attributes and its rows and values.
- Final data model (V.3?)
- Adding attribute height to tables like poi_p from external digital terrain model data like SRTM3.
- Routing (see e.g. table route_l)

1.4. How OSM data is being curated (discussion)

Semicolons in tag values:

- Data value will be changed to 'others' for such events

Data Cleaning:

- Spelling errors
- Upper case errors
- Values singular and plural
- Handling values which contains words

Elevation: Elevation values will not be set in this release.

Type='others'. Data value will be change to 'others' as it cannot be categorized. This is introduced to ensure values that are misspelled, concatenated, illegible or user defined are sorted accordingly into their table. Seeing this type of value given to some feature is due to a few reasons. 1) Data is not in the list of core value to be considered. 2) Value is being given by users where we might know understand the value significance.

Grouping of features. unable to group features like airports and power station as buildings are not defined to specific areas to be able to group them together.

Multiple Table. There are instances where different table can contain the same feature. e.g. buildings_a and poi_a (like campus areas or school areas) where it can overlap one another. This have not been resolve, therefore, users do take note of double entry.

'Refer to *table*'. This is to keep the documentation short and not allowing it to repeat the common attribute value which is similar to other table.

Administrative boundary extracted on the fly and placed into boundary_I table but these are without warranty to be consistent. There exist other sources with validated boundaries including country borders and coastlines.

Landcover contains partial landuse elements while some landcover elements are put into natural or water.

Building addresses are not yet handled due to the complexity of this issue.

2. Specification

2.1. Identifiers

The original OSM schema contains an id (type bigint) for every element node, way and relation. This OSM id is mapped to attribute `osm_id` (see chapter “Common Attributes”). The id in OSM is not stable but often the only one, one can work with. During transformation it can happen that this `osm_id` is being changed or duplicated:

- `osm2pgsql` generates areas/polygons out of ways and relations. These objects get negative values of the way or the relation.
- `osm2pgsql` splits ways which are too long
- tags can contain many values separated by semicolon (e.g. “shop=a;b”); this object may be split into two for each shop-value (“shop=a” and “shop=b”) while the `osm_id` is maintained.

2.2. Metadata

- Datum (coordinate reference system) of data: WGS84 (EPSG: 4326)
- Character Encoding: UTF-8

2.3. File Names

Base file names are formed according to following template:

`osm_tablename_g_vNN` (example: `osm_building_a_v01.gpkg`)

... with following meaning:

- `osm_`: Prefix
- `tablename`: A table name from the data model.
- `_g`: layer geometry type (g is a char out of “p”, “l” or “a”, meaning point, linestring, area/polygon)
- `vNN`: Version of the data model

For some roads and other tables of geometry type (Multi-)Linestring, there will be tables with generalized geometry, called `_gen0`, `_gen1` as follows (gen= generalized):

- `_gen0`: smoothed for highest zoom level
- `_gen1`: simplified
- `_gen2`: more simplified

example: `osm_building_a_gen1_v01.gpkg`

2.4. Layer Specification Headers

Additional Attribute This is the addition attribute that is introduced to the table to provide more information on top of the Common Layer Attributes.

Values of attributes 'type' Tells what the database values might contain based on the description of the tables under 3. Layer Overview. It also helps to define the value meanings to remove unwanted vagueness.

Values of attributes 'aggtype' and 'type' Same as the above but this table includes the aggregate values which is to group the 'type' with more specific grouping

2.5. Common Attributes

These attributes are common to all tables (eventually except table from external sources).

Attribute	Data Type	Description	Osm Tags
<code>osm_id</code>	<code>bigint</code>	The id taken over from OSM elements node, way or relationship. The uniqueness is only within an OSM element. OSM does not guarantee uniqueness. But it's often the only id one can get from the origin. <code>osm2pgsql</code> generates negative <code>osm_ids</code> when areas are created from relations. And <code>osm2pgsql</code> creates sometimes duplicates by splitting large ways.	<code>osm_id=*</code>
<code>lastchange</code>	<code>timestamp without time zone</code>	The timestamp of the last time the feature was changed (UTC)	<code>osm_lastchange=*</code>
<code>geomtype</code>	<code>varchar(1)</code>	This will define whether it is a node ("N"), a way ("W") or a relation ("R"). Self derivative not from OSM database.	(n/a)
<code>geom</code>	<code>geometry(<<geometry>>, 4326)</code>	The "<<geometry>>" of the feature can be <code>POINT</code> , <code>MULTILINESTRING</code> or <code>MULTIPOLYGON</code>	<code>way=*</code>
<code>type</code>	<code>text (Enum)</code>	This will define the feature type	
<code>name</code>	<code>text</code>	The name which is in general use (which means cyrillic, arabic etc.)	<code>name=*</code>

name_intl	text	The name which is written in english, international	Coalesce(name:en,int_name,name:fr,name:es,name:de,name)
name_fr	text	The name which is written in french	name:fr=*
name_es	text	The name which is written in spanish	name:es=*
name_de	text	The name which is written in german	name:de=*
name_int	text	The international name of the feature	int_name=*
label	text	Translated name through transliterated	
tags	text	Translate the hstore tags into string	tags=*

3. Layer Overview

See file name conventions above about the meaning of “_a” etc.

Tables	Geometry Type	Description
address_p	POINT	Stores address information regarding a place or building.
adminarea_a	MULTIPOLYGON	Administrative boundaries range from large groups of nation states right down to small administrative districts and suburbs, with an indication of this size/level of importance.
boundary_l	MULTILINESTRING	The boundary is used to mark the borders of areas, mostly political, but possibly also of other administrative areas.
building_a	MULTIPOLYGON	To mark the outline of the area of buildings
geoname_l	MULTILINESTRING	The boarder of a settlement which is marked around the node and to mark the specific type of settlement. Eg. City, town, village, etc.
geoname_p	POINT	It is to mark the centre of a named settlement and the specific type of settlement. Eg. City, town, village, etc.
landuse_a	MULTIPOLYGON	Landuse describes the human use of land, for example fields and pastures.
military_a	MULTIPOLYGON	See military_p
military_p	POINT	The military is for buildings and area used by the military.
misc_l	MULTILINESTRING	This contains elements could not be categorized into specific tables. E.g barrier and cliffs.
natural_a	MULTIPOLYGON	see natural_p
natural_p	POINT	Used to describes natural physical land features, including small modification by humans. E.g glacier, volcano, mud, etc.
nonop_l	MULTILINESTRING	non-op./planned infrastructure not usable for traffic or transport
poi_a	MULTIPOLYGON	Points of interest features of a generic place, like shops, amenities, leisure, accomondation, pitches etc.
poi_p	POINT	Points of interest features of a generic place, like shops, amenities, leisure, accomondation, etc.
pow_a	MULTIPOLYGON	See pow_p
pow_p	POINT	This it a place of worship where people of different religion can go. e.g. church, temples(buddist, taoist, etc.), mosque(muslims)
railway_l	MULTILINESTRING	All forms of transport using metal rails, including mainline services, subways, heritage lines and trams.

road_l	MULTILINESTRING	Any road, route, way, or thoroughfare on land which connects one location to another and has been paved or otherwise improved to allow travel by some conveyance, including motorised vehicles, cyclists, pedestrians, horse riders, and others
route_l	MULTILINESTRING	A route is a customary or regular line of passage or travel, often predetermined and publicized. Routes consist of paths taken repeatedly by people and vehicles.
traffic_a	MULTIPOLYGON	See traffic_p
traffic_p	POINT	It contains information regarding the rules of the road. Which allow better flow of traffic. E.g. Road signs, traffic calming, etc.
transport_a	MULTIPOLYGON	See transport_p
transport_p	POINT	Features which mark out points or location where it enable transporting anyone from one place to another. E.g. Bus stops, train station, etc.
utility_a	MULTIPOLYGON	See utility_l
utility_p	POINT	See utility_l
utility_l	MULTILINESTRING	All features which are part of the utility body. E.g. Power structure (powerlines, power building), pipelines (oil, water, gas etc.), etc..
water_a	MULTIPOLYGON	See water_l
water_p	POINT	See water_l
water_l	MULTILINESTRING	All features which are part of the waterbody. E.g. Dams, river, etc.

4. Layer Specification

4.1. address_p

Additional Attribute

Attribute	Data Type	Description	Osm Tags
street	text	street or place name	"addr:street" is not null or "addr:place" is not null
houzenumber	text	houzenumber	"addr:houzenumber"=*
postcode	text	postal code	"addr:postcode"=*
place	text	postal code city	"addr:place"=*

Values of attributes 'type'

value	OSM Tags	Description
b	building<>'entrance'	All building address
e	building='entrance'	All building entrance address
i	"addr:interpolation"=*	All interpolated address
p	place=*	All place address

4.2. adminarea_a

Values of attributes 'type'

value	OSM Tags	Description
admin_level1	boundary='administrative' and admin_level=1	Efnahags-lögsaga(Exclusive Economic Zone) use in Iceland
national	boundary='administrative' and admin_level=2	National border of a country which is listed based on ISO 3166 standard.(Note: Some dependent territories and special areas of geographical interest which do have their own ISO 3166-1 code but aren't a country.)
admin_level3	boundary='administrative' and admin_level=3	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level4	boundary='administrative' and admin_level=4	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level5	boundary='administrative' and admin_level=5	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level6	boundary='administrative' and admin_level=6	Considered as subnational borders where it can be specified as parish, district, region, province and state

admin_level7	boundary='administrative' and admin_level=7	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level8	boundary='administrative' and admin_level=8	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level9	boundary='administrative' and admin_level=9	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level10	boundary='administrative' and admin_level=10	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level11	boundary='administrative' and admin_level=11	Considered as subnational borders where it can be specified as parish, district, region, province and state
administrative	admin_level=*	All empty or User input admin_level values to be placed under
national_park	boundary='national_park'	A national park is a relatively large area of land declared by a government, to be set aside for human recreation and enjoyment, animal and environmental protection.
protected_area	boundary='protected_area'	Protected areas, such as for national-parks, water protection areas or indigenous areas.

4.3. adminunit_a

Tbd.

4.4. boundary_l

Values of attributes 'type'

value	OSM Tags	Description
admin_level1	boundary='administrative' and admin_level=1	Efnahags-lögsaga(Exclusive Economic Zone) use in Iceland
national	boundary='administrative' and admin_level=2	National border of a country which is listed based on ISO 3166 standard.(Note: Some dependent territories and special areas of geographical interest which do have their own ISO 3166-1 code but aren't a country.)
admin_level3	boundary='administrative' and admin_level=3	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level4	boundary='administrative' and admin_level=4	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level5	boundary='administrative' and admin_level=5	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level6	boundary='administrative' and admin_level=6	Considered as subnational borders where it can be specified as parish, district, region, province and state

admin_level7	boundary='administrative' and admin_level=7	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level8	boundary='administrative' and admin_level=8	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level9	boundary='administrative' and admin_level=9	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level10	boundary='administrative' and admin_level=10	Considered as subnational borders where it can be specified as parish, district, region, province and state
admin_level11	boundary='administrative' and admin_level=11	Considered as subnational borders where it can be specified as parish, district, region, province and state
administrative	admin_level=*	All empty or User input admin_level values to be placed under
national_park	boundary='national_park'	A national park is a relatively large area of land declared by a government, to be set aside for human recreation and enjoyment, animal and environmental protection.
protected_area	boundary='protected_area'	Protected areas, such as for national-parks, water protection areas or indigenous areas.

4.5. building_a

Additional Attribute

Attribute	Data Type	Description	Osm Tags
height	text	Stores the height of the building (Unit Meters)	height=*

Values of attributes 'type'

value	OSM Tags	Description
building	building is not null	This marks out the size and area of a building.

4.6. geoname_l

Refer to geoname_p.

4.7. geoname_p

Additional Attribute

Attribute	Data Type	Description	Osm Tags
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population	int	A rough number of citizens in a given place	population=*
wikipedia	text	Provide a reference to an article in Wikipedia about the feature.	wikipedia=*

Values of attributes 'type'

value	OSM Tags	Description
city	place='city'	The largest urban settlement or settlements within the territory.
town	place='town'	An important urban centre, between a village and a city in size.
village	place='village'	A settlement with between 1,000 and 10,000 inhabitants.
hamlet	place='hamlet'	A settlement with less than 100-200 inhabitants.
suburb	place='suburb'	A part of a town or city with a well-known name and often a distinct identity.
island	place='island'	An island is any piece of land that is completely surrounded by water and isolated from other significant landmasses.
farm	place='farm'	A farm can be a part of a human settlement
isolated_dwelling	place='isolated_dwelling'	The smallest kind of settlement (1-2 households)
locality	place='locality'	A named place that has no population.
islet	place='islet'	A very small island.
neighbourhood	place='neighbourhood'	A neighbourhood is a smaller named, geographically localised place within a suburb of a larger city or within a town or village
county	place='county'	a territorial division of some countries, forming the chief unit of local administration.
region	place='region'	an area, especially part of a country or the world having definable characteristics but not always fixed boundaries.
state	place='state'	A large sub-national political/administrative area.
municipality	place='municipality'	a town or district that has local government.
named_place	area='yes' and name is not null	A place where is given a name with a given area but no specific type
place	place=*	Any other place type that are not sorted to any type above except for area without name.

4.8. landuse_a

Values of attributes 'type'

value	OSM Tags	Description
allotments	landuse='allotments'	A piece of land given over to local residents for growing vegetables and flowers.
brownfield	landuse='brownfield'	Brownfield is a land scheduled for new development where old buildings have been demolished and cleared.
commercial	landuse='commercial'	Predominantly offices, business parks, etc.
farm	landuse='farm' or landuse='farmland'	An area of farmland used for tillage and pasture (animals, crops, vegetables, flowers, fruit growing).
farmyard	landuse='farmyard'	An area of land with farm buildings like farmhouse, dwellings, farmsteads, sheds, stables, barns, equipment sheds, feed bunkers, etc. Plus the open space in between them and the shrubbery/trees around them.
fishfarm	landuse='fishfarm'	A place where fishes are bred.
grass	landuse='grass'	For areas covered with grass.
greenhouse	landuse='greenhouse_horticulture'	Area used for growing plants in greenhouses
industrial	landuse='industrial'	Predominantly workshops, factories or warehouses
forest	landuse='forest'	Managed forest or woodland plantation
meadow	landuse='meadow'	An area of land primarily vegetated by grass and other non-woody plants, usually mowed for making hay
military	landuse='military'	For land areas owned/used by the military for whatever purpose
nature_reserve	leisure='nature_reserve'	Protected area of importance for wildlife, flora, fauna or features of geological or other special interest.
orchard	landuse='orchard'	Intentional planting of trees or shrubs maintained for food production
park	leisure='park' or landuse='village_green'	An open, green area for recreation, usually municipal
port	landuse='port'	Port area handling commercial traffic
plant_nursery	landuse='plant_nursery'	Intentional planting of plants maintaining for the production of new plants
quarry	landuse='quarry'	Surface mineral extraction
railway	landuse='railway'	for marshalling yards and sidings, railway sheds, bits of grass with old rails and hardware strewn around, train washes, etc...
recreation_ground	leisure='recreation_ground' or landuse='recreation_ground'	An open green space for general recreation, which may include pitches, nets and so on,

		usually municipal but possibly also private to colleges or companies
residential	landuse='residential'	Predominantly houses or apartment buildings
retail	landuse='retail'	Predominantly shops
vineyard	landuse='vineyard'	A piece of land where grapes are grown.
reservoir	landuse='reservoir'	Man made body of stored water. May be covered or uncovered.
basin	landuse='basin'	An area of water that drains into a river.
landfill	landuse='landfill'	Where waste is collected, sorted or covered over
landuse	landuse=*	Get all landuse that is not classified in any table

4.9. military_a

Refer to military_a

4.10. military_p

Values of attributes 'type'

value	OSM Tags	Description
airfield	military='airfield'	A place where military planes take off and land.
barracks	military='barracks'	Buildings where soldiers live and work.
bunker	military='bunker'	Buildings, often build from concrete, to stand even heavier fire. This includes WW2 pillboxes.
checkpoint	military='checkpoint'	Place of a possible access to a restricted or secured area, where civilian visitors and vehicles will be controlled by a military authority.
danger_area	military='danger_area'	Usually a large marked area around something like a firing range, bombing range, etc which can be an exclusion zone.
naval_base	military='naval_base'	A naval base
nuclear_site	military='nuclear_explosion_site'	Nuclear weapons test site
obstacle_course	military='obstacle_course'	A military obstacle course.
range	military='range'	Where soldiers practice with their weapons (firing, bombing, artillery, ...).
training_area	military='training_area'	An area where soldiers train and weapons or other military technology are experimented with

		or are tested.
military	military=*	Any other military type that are not sorted to any type above

4.11. misc_l

Values of attributes 'aggtype' and 'type'

value	type value	OSM Tags	Description
barrier	barrier	barrier=*	A barrier is a physical structure which blocks or impedes movement. This contains any other barrier except the specifics below.
barrier	gate	barrier='gate'	An entrance that can be opened or closed to get through the barrier.
barrier	city_wall	barrier='city_wall'	A fortification used to defend a city or settlement from potential aggressors. From ancient to modern times, they are used to enclose settlements
barrier	hedge	barrier='hedge'	A line of closely spaced shrubs and bushes, planted and trained in such a way as to form a barrier or to mark the boundary of an area.
barrier	fence	barrier='fence'	A structure supported by posts driven into the ground and designed to prevent movement across a boundary. It is distinguished from a wall by the lightness of its construction.
barrier	retaining_wall	barrier='retaining_wall'	Retaining walls serve to retain the lateral pressure of soil. Right side is bottom, left side is top.
barrier	wall	barrier='wall'	A freestanding solid structure designed to restrict or prevent movement across a boundary. Usually made from solid brick, concrete or stone and almost always built so that it is opaque to vision.

barrier	avalanche_protection	barrier='avalanche_protection'	A variety of linear structures which are placed on steep slopes to hold snow in place.
natural	cliff	natural='cliff'	A vertical or almost vertical natural drop in terrain, usually with a bare rock surface.
traffic_calming	traffic_calming	traffic_calming=*	Describes features used to slow down traffic. This will contain any other traffic calming except the specifics below.
traffic_calming	hump	traffic_calming='hump'	Similar to a bump, but longer - total length usually 2-4 m (in direction of travel)
traffic_calming	bump	traffic_calming='bump'	Short bump - length (in direction of travel) about 30 cm or shorter. Spans the entire width of the road, but can have cuts and small gaps left and right for cyclists.
traffic_calming	table	traffic_calming='table'	Designed as a long speed hump with a flat section in the middle. The flat section is long enough for all wheels of a passenger car to fit on that section simultaneously. Does not slow as much as a hump and is usually used on roads with residential speed limit. It is known as flat top hump or raised pedestrian crossing.
traffic_calming	chicane	traffic_calming='chicane'	Hazards on the street you have to drive round
traffic_calming	cushion	traffic_calming='cushion'	A hump with spaces between or several multiple rectangular humps aligned across the road. This allows emergency vehicles, buses (due to their wider axle) and bicycles to pass through without slowing down.
air_traffic	taxiway	aeroway='taxiway'	Where airplanes manoeuvre between runways and parking areas.
air_traffic	apron	aeroway='apron'	An apron is the surfaced part of an airport where planes park.
air_traffic	runway	aeroway='runway'	Where airplanes take off and

			land
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4.12. natural_a

Values of attributes 'type'

value	OSM Tags	Description
bare_rock	natural='bare_rock'	An area with sparse or no vegetation, so that the bedrock becomes visible. NOTE: Will appear only on natural_p but not natural_a
beach	natural='beach'	Area of shore which is fairly open, slopes smoothly to the water, and is free of trees
cave_entrance	natural='cave_entrance'	The entrance to a cave
fell	natural='fell'	Bare upper lying uncultivated land principally covered with grass and often grazed.
grassland	natural='grassland'	Where vegetation is dominated by grasses (Poaceae) and other herbaceous (non-woody) plants, except for ornamental grass, mowing for hay, etc. and grazing.
heath	natural='heath'	A dwarf-shrub habitat, characterised by open, low growing woody vegetation, often dominated by plants of the Ericaceae.
moor	natural='moor'	Upland areas, characterised by low-growing vegetation on acidic soils.
mud	natural='mud'	Large area covered with mud
sand	natural='sand'	Ground coverage of mostly silica particles, with no or very sparse vegetation.
scree	natural='scree'	Unconsolidated angular rocks formed by rockfall and weathering from adjacent rockfaces.
scrub	natural='scrub' or landuse='scrub'	Uncultivated land covered with bushes or stunted trees.
sinkhole	natural='sinkhole'	A natural depression or hole in the surface topography.
stone	natural='stone'	Freestanding stone; e.g., glacial erratic.
wood	natural='wood'	Used for ancient or virgin woodland, with no forestry use.
glacier	natural='glacier'	A permanent body of ice formed naturally from snow that is moving under its own weight.
wetland	natural='wetland'	The wetland tag is used for natural areas subject to inundation or with waterlogged ground
natural	natural=*	Any other natural type that are not sorted to any type above

4.13. natural_p

Values of attributes 'type'

value	OSM Tags	Description
beach	natural='beach'	Area of shore which is fairly open, slopes smoothly to the water, and is free of trees
cave_entrance	natural='cave_entrance'	The entrance to a cave
fell	natural='fell'	Bare upper lying uncultivated land principally covered with grass and often grazed.
grassland	natural='grassland'	Where vegetation is dominated by grasses (Poaceae) and other herbaceous (non-woody) plants, except for ornamental grass, mowing for hay, etc. and grazing.
heath	natural='heath'	A dwarf-shrub habitat, characterised by open, low growing woody vegetation, often dominated by plants of the Ericaceae.
moor	natural='moor'	Upland areas, characterised by low-growing vegetation on acidic soils.
mud	natural='mud'	Large area covered with mud
peak	natural='peak'	The top (summit) of a hill or mountain
rock	natural='rock'	A notable rock or group of rocks with connection to the ground.
saddle	natural='saddle'	The lowest point along a ridge or between two mountain tops
sand	natural='sand'	Ground coverage of mostly silica particles, with no or very sparse vegetation.
scrub	natural='scrub' or landuse='scrub'	Uncultivated land covered with bushes or stunted trees.
sinkhole	natural='sinkhole'	A natural depression or hole in the surface topography.
stone	natural='stone'	Freestanding stone; e.g., glacial erratic.
tree	natural='tree'	A single tree that stands alone, often significant.
volcano	natural='volcano'	A volcano is an opening exposed on the earth's surface where volcanic material is emitted.
wood	natural='wood'	Used for ancient or virgin woodland, with no forestry use.
glacier	natural='glacier'	A permanent body of ice formed naturally from snow that is moving under its own weight.
wetland	natural='wetland'	The wetland tag is used for natural areas subject to inundation or with waterlogged ground
natural	natural=*	Any other natural type that are not sorted to any type above

4.14. nonop_l

Additional Attribute

Attribute	Data Type	Description	Osm Tags
ref	text	Reference number of this road unset for railways.	ref=*
z_order	smallint	The layer tag is used to describe vertical relationships between different crossing or overlapping map features. Use this in combination with bridge/tunnel tags when one way passes above or under another one.	layer=*
status	text	P for Planned; C for underconstruction; D for disused; A for abandoned; this is dependent on the values.	

Values of attributes 'type'

value	OSM Tags	Description
highway	highway='planned' or highway='construction' or highway='disused' or highway='abandoned'	Contains roads which are disused, planned, under constructions or abandoned. These type of features will be place in this table to keep the feature but display as not available
railway	railway='planned' or railway='disused' or railway='construction' or railway='abandon'	Contains railways which are disused, planned, under constructions or abandoned. These type of features will be place in this table to keep the feature but display as not available

4.15. poi_a

Refer to poi_p.

4.16. poi_p

Additional Attribute

Attribute	Data Type	Description	Osm Tags
aggtype	text	Grouping several different 'type' to a common 'type'. (aka enmu)	
website	text	Specifying the link to the official website for a feature.	website=*
wikipedia	text	Provide a reference to an article in Wikipedia about the feature.	wikipedia=*

phone	text	A telephone number associated with the object.	phone=*
contact_phone	text	Phone number	contact:phone=*
opening_hours	text	The timing of when something is open or close	opening_hours=*
cuisine	text	The type of food served at an eating place.	cuisine=*
access	text	The legal accessibility of a element.	access=*
brand	text	The identity of a specific product, service, or business. Often trademarks	brand=*
tower_type	text	The type of tower	tower:type=*

Values of attributes 'aggtype' and 'type'

aggtype value	type value	OSM Tags	Description
public	police	amenity='police'	A police station
public	fire_station	amenity='fire_station'	A fire station
public	post_box	amenity='post_box'	A box for the reception of mail.
public	post_office	amenity='post_office'	Post office building with postal services
public	telephone	amenity='telephone'	Public telephone
public	library	amenity='library'	A public library (municipal, university, ...) to borrow books from.
public	townhall	amenity='townhall'	Building where the administration of a village, town or city may be located, or just a community meeting place
public	courthouse	amenity='courthouse'	A place where justice is dispensed
public	prison	amenity='prison'	A prison
public	embassy	amenity='embassy'	A representation of a country in another country.
public	community_centre	amenity='community_centre'	A place mostly used for local events and festivities.
public	nursing_home	amenity='nursing_home'	A home for disabled or elderly persons who need permanent care.
public	arts_centre	amenity='arts_centre'	A venue where a variety

			of arts are performed or conducted
public	graveyard	amenity='grave_yard' and landuse='cemetery'	A (smaller) place of burial, often you'll find a church nearby. Large places are usually cemetery.
public	mortuary	amenity='mortuary'	A morgue or mortuary is a building or room (as in a hospital) used for the storage of human corpses awaiting identification, or removal for autopsy, burial, cremation or some other post-death ritual.
public	government	office='government'	Government buildings
public	marketplace	amenity='marketplace'	A place where trade is regulated.
recycling	general_recycling	amenity='recycling'	Container or centre where you can take waste for recycling.
recycling	glass	recycling:glass='yes'	Container or centre where you can take waste for recycling for glass.
recycling	paper	recycling:paper='yes'	Container or centre where you can take waste for recycling for paper.
recycling	clothes	recycling:clothes='yes'	Container or centre where you can take waste for recycling for clothes.
recycling	metal	recycling:scrap_metal='yes'	Container or centre where you can take waste for recycling for metal.
education	university	amenity='university'	An educational institution designed for instruction, examination, or both, of students in many branches of advanced learning.
education	school	amenity='school'	Institution designed for learning under the supervision of teachers.

education	kindergarten	amenity='kindergarten'	A place for looking after preschool children and (typically) giving early education.
education	college	amenity='college'	A place for further education usually a post-secondary education institution
education	public_building	amenity= 'public_building'	A generic public building. (Maybe abandoned by osm but still have data concerning this)
health	pharmacy	amenity='pharmacy'	A shop where a pharmacist sells medications
health	hospital	amenity='hospital'	Institutions for health care providing treatment by specialised staff and equipment, and often but not always providing for longer-term patient stays.
health	clinic	amenity='clinic'	Medium-sized medical centres with tens of staff; smaller than a hospital and larger than a doctor's practice
health	social_facility	amenity='social_facility'	Social work is a profession and a social science committed to the pursuit of social justice, to quality of life, and to the development of the full potential of each individual, group and community in a society
health	doctors	amenity='doctors'	A Doctor's Office is a place you can go to get medical attention or a check up
health	dentist	amenity='dentist'	A place where a professional dental surgeon who specializes in the diagnosis, prevention, and treatment of diseases and conditions on oral care is stationed.
health	veterinary	amenity='veterinary'	It is a place where there

			is a certified doctor that deals with the prevention, diagnosis and treatment of disease, disorder and injury in animals is stationed.
leisure	theatre	amenity='theatre'	Place where live theatrical performances are held.
leisure	nightclub	amenity='nightclub'	A nightclub is a place to dance and drink at night.
leisure	cinema	amenity='cinema'	Cinema/movie theatre - place for showing movies.
leisure	playground	leisure='playground'	These are commonly small outdoor areas with children's play equipment such as swings, climbing frames and roundabouts.
leisure	dog_park	leisure='dog_park'	Designated area, with or without a fenced boundary, where dog-owners are permitted to exercise their pets unrestrained
leisure	sports_centre	leisure='sports_centre'	A distinct facility where a range of sports take place within an enclosed area.
leisure	soccer_pitch	sport='soccer'	An area designed for playing a particular sport, normally designated with appropriate markings for soccer.
leisure	tennis_pitch	sport='tennis'	An area designed for playing a particular sport, normally designated with appropriate markings for tennis.
leisure	pitch	leisure='pitch'	An area designed for playing a particular sport, normally designated with appropriate markings.
leisure	swimming_pool	amenity= 'swimming_pool' or leisure= 'swimming_pool' or sport='swimming_pool'	A swimming pool is a place built for swimming as a recreational activity or sport, typically taking the form of an excavated

			and lined pool
leisure	water_park	leisure='water_park'	An amusement area with water slides, recreational swimming pools and dressing rooms.
leisure	golf_course	leisure='golf_course'	A place or area where you can play golf.
leisure	stadium	leisure='stadium'	A major sports arena with substantial tiered seating.
leisure	ice_rink	leisure='ice_rink'	A place where you can skate or play ice hockey.
leisure	common	leisure='common'	Common land (a common) is land which has an owner, but over which other people have certain rights. Historically these rights typically included the right to graze livestock, collect firewood, or cut turf. Today they include the rights to use the land for certain leisure activities.
leisure	garden	leisure='garden'	Place where flowers and other plants are grown in a decorative and structured manner or for scientific purposes.
leisure	miniature_golf	leisure='miniature_golf'	A place or area that you can play miniature golf.
leisure	track	leisure='track'	A race track for running, cycling and other non-motorised sports such as horses, greyhounds.
catering	restaurant	amenity='restaurant'	Is for a generally formal place with sit-down facilities selling full meals served by waiters and often licensed (where allowed) to sell alcoholic drinks.
catering	fast_food	amenity='fast_food'	Is for a place concentrating on very fast counter-only service and take-away food.
catering	cafe	amenity='cafe'	Generally informal place with sit-down facilities selling beverages and

			light meals and/or snacks.
catering	pub	amenity='pub'	A place selling beer and other alcoholic drinks; may also provide food or accommodation
catering	bar	amenity='bar'	Bar is a purpose-built commercial establishment that sells alcoholic drinks to be consumed on the premises. They are characterised by a noisy and vibrant atmosphere, similar to a party and usually don't sell food.
catering	food_court	amenity='food_court'	An area with several different restaurant food counters and a shared eating area
catering	biergarten	amenity='biergarten'	Biergarten or beer garden is an open-air area where alcoholic beverages along with food is prepared and served.
accommodation_in	hotel	tourism='hotel'	provide accommodation for guests with usually numbered rooms. Some facilities provided may include a basic bed, storage for clothing and additional guest facilities may include swimming pool, childcare, and conference facilities.
accommodation_in	motel	tourism='motel'	It's an establishment that provides accommodation designed for motorists usually on a short-term basis, with convenient parking for motor cars at or close to the room.
accommodation_in	guest_house	tourism='guest_house' or tourism='bed_and_breakfast'	Accommodation without hotel license that is typically owner-operated, offers a room and breakfast with staff not available 24/7, ranging

			from purpose-built guest houses to family-based Bed & Breakfast.
accommodation_in	hostel	tourism='hostel'	Provide inexpensive accommodation, typically with them having shared bedrooms, bathrooms, kitchens, and lounges.
accommodation_in	chalet	tourism='chalet'	is a type of accommodation used in the hospitality industry to describe one or more detached cottages with self-contained cooking facilities and/or bathroom and toilet facilities.
accommodation_out	shelter	amenity='shelter'	Small place to protect against bad weather conditions
accommodation_out	camp_site	tourism='camp_site'	an area where people can temporarily use a shelter, such as a tent, camper van or sometimes a caravan. Typically, the area is spilt into "pitches" or "sites".
accommodation_out	alpine_hut	tourism='alpine_hut'	a mountain hut is a remote building positioned in the mountains designed to provided lodging accommodation for mountaineers, climbers and hikers. The access is usually restricted to foot, mountain bike or ski.
accommodation_out	caravan_site	tourism='caravan_site'	an area where people with caravans, motorhomes, recreational vehicles can stay overnight, or longer, in allotted spaces known as "pitches" or "sites". They usually provide facilities including toilets, waste disposal, water supply, power supply etc.
shop	supermarket	shop='supermarket'	A large store for groceries and other

			goods.
shop	bakery	shop='bakery'	Shop focused on selling bread
shop	kiosk	shop='kiosk'	A small shop on the pavement that sells magazines, tobacco, newspapers, sweets and stamps.
shop	mall	shop='mall'	A shopping mall – multiple stores under one roof (also known as a shopping centre)
shop	department_store	shop= 'department_store'	A single large store – often multiple storeys high – selling a large variety of goods
shop	convenience	shop='convenience'	A small local shop carrying a small subset of the items you would find in a supermarket
shop	clothes	shop='clothes'	Shop focused on selling clothes
shop	florist	shop='florist'	Shop focused on selling bouquets of flowers
shop	chemist	shop='chemist'	Shop focused on selling articles of personal hygiene, cosmetics, and household cleaning products
shop	books	shop='books'	Shop focused on selling books
shop	butcher	shop='butcher'	Shop focused on selling meat
shop	shoes	shop='shoes'	Shop focused on selling shoes.
shop	beverages	shop='beverages' or shop='alcohol'	Shop focused on selling alcoholic and non-alcoholic beverages.
shop	optician	shop='optician'	Shop focused on selling eyeglasses, contact lenses
shop	jewelry	shop='jewelry'	Jewellers shops.
shop	gift	shop='gift'	Shop focused on selling gifts, greeting cards, or tourist gifts (souvenirs)

shop	sports	shop='sports'	Shop focused on selling sporting goods.
shop	stationery	shop='stationery'	Shop focused on selling office supplies
shop	outdoor	shop='outdoor'	Shop focused on selling garden furniture (sheds, outdoor tables, gates, fences, ...).
shop	mobile_phone	shop='mobile_phone'	Shop focused on selling mobile phones and accessories
shop	toys	shop='toys'	Shop focused on selling toys.
shop	newsagent	shop='newsagent'	Shop focused on selling newspapers, cigarettes, other goods
shop	greengrocer	shop='greengrocer'	Shop focused on selling vegetables and fruits.
shop	beauty	shop='beauty'	A non-hairdresser beauty shop, spa, nail salon, etc..
shop	video	shop='video'	Shop focused on selling or renting out videos/DVDs.
shop	car	shop='car'	Car store – a place to buy cars or to get your car repaired
shop	bicycle	shop='bicycle'	Shop focused on selling bicycles, bicycle equipment and may rent or repair them
shop	hardware	shop='doityourself' or shop='hardware'	Shop focused on selling tools and supplies to do-it-yourself householders, gardening, ...
shop	furniture	shop='furniture'	Shop focused on selling furniture, might range from small decoration items to a whole flat interior
shop	computer	shop='computer'	Shop focused on selling computers, peripherals, software,
shop	garden_centre	shop='garden_centre'	Shop focused on selling potted flowers, maybe even trees

shop	hairdresser	shop='hairdresser'	Here you can get your hair cut, coloured,
shop	car_repair	shop='car_repair'	Shop focused on car repair (usually independent of a specific car brand).
shop	car_rental	amenity='car_rental'	A place to rent a car
shop	car_wash	amenity='car_wash'	A place to wash a car
shop	car_sharing	amenity='car_sharing'	A place to share a car
shop	bicycle_rental	amenity='bicycle_rental'	A place to rent a bicycle
shop	travel_agency	shop='travel_agency'	Shop focused on selling tickets for travelling.
shop	laundry	shop='laundry' or shop='dry_cleaning'	A shop to get your normal clothes washed and dry. Might be self-service coin operated, with service staff for drop off or it could be a Shop or kiosk offering a clothes cleaning service. The actual cleaning may be done elsewhere.
vending	vending	amenity='vending_machine' or vending= *	A general machine to vend goods, tickets and so on
vending	vending_cigarette	vending='cigarettes'	A cigarette machine is a vending machine that dispenses packets of cigarettes.
vending	vending_parking	vending= 'parking_tickets'	A machine selling tickets for parking
money	bank	amenity='bank'	Shows the location of a bank branch.
money	atm	amenity='atm'	A device that provides the clients of a financial institution with access to financial transactions.
money	money_changer	amenity='bureau_de_change'	A place to change foreign bank notes and travellers cheques
tourism	information	tourism='information'	An information source for tourists, travellers and visitors
tourism	map	tourism='information' and information='map'	A board with a map.

tourism	board	tourism='information' and information='board'	A board with information
tourism	guidepost	tourism='information' and information='guidepost'	Signposts/Guideposts are often found along official hiking/cycling routes to indicate the directions to different destinations.
destination	attraction	tourism='attraction'	A general place of interest for visitors. Typically used for its natural or historical significance.
destination	museum	tourism='museum'	An institution which has exhibitions on scientific, historical, artistic, or cultural artefacts.
destination	monument	historic='monument'	An object, especially large and made of stone, built to remember and show respect to a person or group of people
destination	memorial	historic='memorial'	Much like a monument, but smaller. Might range from a WWII memorial to a simple plate on a wall.
destination	artwork	tourism='artwork'	Used to tag public pieces of art. Usually such artwork are outdoors.
destination	castle	historic='castle'	Castles are (often fortified) buildings from medieval and modern times
destination	ruins	historic='ruins'	Remains of structures that were once complete, but have fallen into partial or complete disrepair.
destination	archaeological_site	historic='archaeological_site'	A place in which evidence of past activity is preserved
destination	wayside_cross	historic='wayside_cross'	A historical (usually Christian) cross. Frequently found along the way in Southern Germany, Austria and probably elsewhere.
destination	wayside_shrine	historic='wayside_shrine'	A historical shrine often

			showing a religious depiction. Frequently found along the way in Southern Germany, Austria and probably elsewhere.
destination	battlefield	historic='battlefield'	The site of a battle or military skirmish in the past. This could be on land or at sea.
destination	fort	historic='fort'	A military fort – distinct from a castle as it is generally more modern
destination	picnic_site	tourism='picnic_site'	An area that is suitable for eating outdoors and may have a number of facilities within it.
destination	viewpoint	tourism='viewpoint'	A place for visitors, often high, with good a scenery view of the surrounding countryside or notable buildings.
destination	zoo	tourism='zoo'	A zoological garden or park that has confined animals on display for viewing by the public.
destination	theme_park	tourism='theme_park'	An area where entertainment is provided by rides, game concessions, etc., catering to large numbers to people.
miscpoi	toilet	amenity='toilets'	A public accessible toilets
miscpoi	bench	amenity='bench'	A bench to sit down and relax a bit
miscpoi	drinking_water	amenity='drinking_water'	Drinking water is a place where humans can obtain potable water for consumption. Typically, the water is used for only drinking. Also known as a drinking fountain or water tap.
miscpoi	fountain	amenity='fountain'	A fountain for cultural / decoration / recreational purposes.
miscpoi	hunting_stand	amenity='hunting_stand'	Hunting stands are open or enclosed platforms

			used by hunters to place themselves at an elevated height above the terrain.
miscpoi	waste_basket	amenity='waste_basket'	A single small container for depositing garbage that is easily accessible for pedestrians.
miscpoi	surveillance	man_made='surveillance'	To mark places and buildings monitored by public or private camera.
miscpoi	emergency_phone	amenity='emergency_phone' or emergency='phone'	A telephone dedicated to emergency calls
miscpoi	fire_hydrant	amenity='fire_hydrant' or emergency='fire_hydrant'	A fire hydrant is an active fire protection measure, and a source of water provided in most urban, suburban and rural areas with municipal water service to enable firefighters to tap into the municipal water supply to assist in extinguishing a fire.
miscpoi	emergency_access	highway='emergency_access_point'	Sign number which can be used to define you current position in case of an emergency
miscpoi	tower	man_made='tower'	A tall and often lean building or structure e.g. telecoms. All tower except below specifics.
miscpoi	comm_tower	man_made='tower' and tower:type='communication'	Describes the type of tower as communication tower
miscpoi	water_tower	man_made='water_tower'	A tower to store water in, usually found on hills beside or in a town.
miscpoi	observation_tower	man_made='tower' and tower:type='observation'	One use of an Observation tower is a tower that used to watch for and report forest fire.
miscpoi	windmill	man_made='windmill'	Windmill, mostly ancient and out of order
miscpoi	lighthouse	man_made='lighthouse'	Sends out a light beam to guide ships.

miscpoi	wastewater_plant	man_made='wastewater_plant'	Facilities used to treat wastewater (known as sewage in some countries).
miscpoi	water_well	man_made='water_well'	A water well is an excavation or structure created in the ground by digging, driving, boring or drilling to access groundwater in underground aquifers.
miscpoi	watermill	man_made='watermill'	traditional Watermill, mostly ancient and out of order.
miscpoi	water_works	man_made='water_works'	A place where drinking water is found and applied to the local water pipes network.
tourism	tourism	tourism=*	All other types of tourism which is not defined as above
leisure	leisure	leisure=*	All other types of leisure which is not defined as above
sport	sport	sport=*	All other types of sports which is not defined as above
man_made	man_made	man_made=*	All other types of man_made which is not defined as above
shop	shop	shop=*	All other types of shop which is not defined as above
historic	historic	historic=*	All other types of historic which is not defined as above
amenity	amenity	amentity=*	All other types of amenity which is not defined as above

4.17. pow_a

Refer to pow_p.

4.18. pow_p

Additional Attribute

Attribute	Data Type	Description	Osm Tags
aggtype	text	Grouping several different 'type' to a common 'type' (aka enmu)	
website	text	Specifying the link to the official website for a feature.	website=*
wikipedia	text	Provide a reference to an article in Wikipedia about the feature.	wikipedia=*
phone	text	A telephone number associated with the object.	phone=*
contact_phone	text	Phone number	contact:phone=*
opening_hours	text	The timing of when something is open or close	opening_hours=*
access	text	The legal accessibility of a element.	access=*

Values of attributes 'aggtype' and 'type'

aggtype value	type value	OSM Tags	Description
buddhist	buddhist	religion='buddhist'	A buddist place of worship
christian	christian	religion='christian' and denomination=*	A christian place of worship. This is a generalise christian type other then the specific denomination
christian	anglican	religion='christian' and denomination='anglican'	A christian place of worship with denomination
christian	baptist	religion='christian' and denomination='baptist'	A christian place of worship with denomination
christian	catholic	religion='christian' and denomination='catholic'	A christian place of worship with denomination
christian	evangelical	religion='christian' and denomination='evangelical'	A christian place of worship with denomination
christian	lutheran	religion='christian' and denomination='lutheran'	A christian place of worship with denomination
christian	methodist	religion='christian' and denomination='methodist'	A christian place of worship with denomination
christian	orthodox	religion='christian' and denomination='orthodox'	A christian place of worship with denomination
christian	protestant	religion='christian' and denomination='protestant'	A christian place of worship with denomination

christian	mormon	religion='christian' and denomination='mormon'	A christian place of worship with denomination
christian	presbyterian	religion='christian' and denomination='presbyterian'	A christian place of worship with denomination
hindu	hindu	religion='hindu'	A hindu place of worship
jewish	jewish	religion='jewish'	A jewish place of worship
muslim	muslim	religion='muslim' and denomination=*	A muslim place of worship. This is a generalise muslim type other then the specific denomination
muslim	shia	religion='muslim' and denomination='shia'	A muslim place of worship with denomination.
muslim	sunni	religion='muslim' and denomination='sunni'	A muslim place of worship with denomination.
shinto	shinto	religion='shinto'	A shinto place of worship.
sikh	sikh	religion='sikh'	A sikh place of worship.
taoist	taoist	religion='taoist'	A taoist place of worship.
place_of_worship	place_of_worship	religion=* or amenity='place_of_worship'	A place of worship which is not tag to any of the above.

4.19. railway_I

Additional Attribute

Attribute	Data Type	Description	OSM Tag
aggtype	text	Grouping several different 'type' to a common 'type'. (aka enmu)	
z_order	smallint	The layer tag is used to describe vertical relationships between different crossing or overlapping map features. Use this in combination with bridge/tunnel tags when one way passes above or under another one. For describing different floors within a building or levels of multilevel parking decks use levels instead of layers.	layer=*
bridge	boolean	A bridge is an artificial construction that spans features such as roads, railways, waterways or valleys and carries a road, railway or other feature.	bridge='yes'
tunnel	boolean	A tunnel is an underground passage for a road or similar.	tunnel='yes'
voltage	text	The voltage level the electrified cable is running on	voltage=*
frequency	text	The electrical frequency that the electrified cable is running on	frequency=*

Values of attributes 'agdtype' and 'type'

value	type value	OSM Tags	Description
railway	rail	railway='rail'	Full sized passenger or freight trains in the standard gauge for the country or state.
railway	light_rail	railway='light_rail'	A higher-standard tram system, normally in its own right-of-way. Often it connects towns and thus reaches a considerable length (tens of kilometer).
railway	subway	railway='subway'	A city passenger rail service running mostly grade separated
railway	tram	railway='tram'	One or two carriage rail vehicles, usually sharing motor road
railway	monorail	railway='monorail'	A railway with only a single rail.
railway	narrow_gauge	railway='narrow_gauge'	Narrow-gauge passenger or freight trains.
railway	miniature	railway='miniature'	Miniature railways are narrower than narrow gauge and carry passengers. They can be found in parks.
railway	funicular	railway='funicular'	Cable driven inclined railways
railway	railway	railway=*	All other types of railways which is not defined as above
aerialway	drag_lift	aerialway='drag_lift'	an overhead tow-line for skiers and riders.
aerialway	chair_lift	aerialway='chair_lift' or aerialway='high_speed_chair_lift'	Looped cable with a series of single chairs (typically seating two or four people, but can be more). Exposed to the open air (can have a bubble).
aerialway	cable_car	aerialway='cable_car'	Just one or two large cars. The cable forms a loop, but the cars do not loop around, they just move up and down on their own side.
aerialway	gondola	aerialway='gondola'	Many cars on a looped cable.
aerialway	goods	aerialway='goods'	A cable/wire supported lift for goods. Passenger transport is usually not allowed.
aerialway	platter	aerialway='platter'	Platter lift (poma). Overhead tow-line for skiers and riders with platters.
aerialway	t-bar	aerialway='t-bar'	T-bar lift. Overhead tow-line for skiers and riders with T-shaped carriers for two passengers.
aerialway	j-bar	aerialway='j-bar'	J-bar lift or L-bar lift. Overhead tow-line for skiers and riders with carriers in J-shape.
aerialway	magic_carpet	aerialway='magic_carpet'	Ski lift for small children resembling a conveyor belt.
aerialway	zip_line	aerialway='zip_line'	Zip lines, Flying fox and similar

aerialway	rope_tow	aerialway='rope_tow'	Ski tow lift. Tow-line for skiers and riders where passenger hold by hand or use special tow grabbers.
aerialway	mixed_lift	aerialway='mixed_lift'	A lift mixed with gondola and chair_lift
aerialway	aerialway	aerialway=*	All other types of aerialways which is not defined as above

4.20. road_l

Additional Attribute

Attribute	Data Type	Description	Osm Tags
aggtype	text	Grouping several different 'type' to a common 'type'. (aka enmu)	
ref	text	Used for reference numbers or codes. Common for roads, highway exits, routes, etc.	ref=*
oneway	boolean	Oneway streets are streets where you are only allowed to drive in one direction.	oneway=*
maxspeed	smallint	Specifies the maximum legal speed limit on a road, railway or waterway	maxspeed=*
z_order	smallint	The layer tag is used to describe vertical relationships between different crossing or overlapping map features. Use this in combination with bridge/tunnel tags when one way passes above or under another one. For describing different floors within a building or levels of multilevel parking decks use levels instead of layers.	layer=*
bridge	boolean	A bridge is an artificial construction that spans features such as roads, railways, waterways or valleys and carries a road, railway or other feature.	bridge='yes'
tunnel	boolean	A tunnel is an underground passage for a road or similar.	tunnel='yes'

Values of attributes 'aggtype' and 'type'

aggtype value	type value	OSM Tags	Description
major_road	motorway	highway='motorway'	A restricted access major divided highway, normally with 2 or more running lanes plus emergency hard shoulder. Equivalent to the Freeway, Autobahn, etc..
major_road	trunk	highway='trunk'	The most important roads in a country's system that aren't

			motorways. (Need not necessarily be a divided highway.)
major_road	primary	highway='primary'	The next most important roads in a country's system. (Often link larger towns.)
major_road	secondary	highway='secondary'	The next most important roads in a country's system. (Often link smaller towns and villages.)
major_road	tertiary	highway='tertiary'	The next most important roads in a country's system.
minor_road	unclassified	highway='unclassified'	The least most important through roads in a country's system – i.e. minor roads of a lower classification than tertiary, but which serve a purpose other than access to properties. (The word 'unclassified' is a historical artefact of the UK road system and does not mean that the classification is unknown; you can use highway=road for that.)
minor_road	residential	highway='residential'	Roads which are primarily lined with and serve as an access to housing.
minor_road	living_street	highway='living_street'	For living streets, which are residential streets where pedestrians have legal priority over cars, speeds are kept very low and where children are allowed to play on the street.
minor_road	pedestrian	highway='pedestrian'	For roads used mainly/exclusively for pedestrians in shopping and some residential areas which may allow access by motorised vehicles only for very limited periods of the day. To create a 'square' or 'plaza' create a closed way and tag as pedestrian.
highway_links	motorway_link	highway='motorway_link'	The link roads (sliproads/ramps) leading to/from a motorway from/to a motorway or lower class

			highway. Normally with the same motorway restrictions.
highway_links	trunk_link	highway='trunk_link'	The link roads (sliproads/ramps) leading to/from a trunk road from/to a trunk road or lower class highway.
highway_links	primary_link	highway='primary_link'	The link roads (sliproads/ramps) leading to/from a primary road from/to a primary road or lower class highway.
highway_links	secondary_link	highway='secondary_link'	The link roads (sliproads/ramps) leading to/from a secondary road from/to a secondary road or lower class highway.
small_road	service	highway='service'	For access roads to, or within an industrial estate, camp site, business park, car park etc. Can be used in conjunction with service=* to indicate the type of usage and with access=* to indicate who can use it and in what circumstances.
track	track	highway='track' and tracktype is null	Roads for agricultural use, gravel roads in the forest etc. and no tracktype tag is present,
track	grade1	highway='track' and tracktype='grade1'	Solid. Usually a paved or heavily compacted hardcore surface.
track	grade2	highway='track' and tracktype='grade2'	Mostly solid. Usually an unpaved track with surface of gravel mixed with a varying amount of sand, silt, and clay.
track	grade3	highway='track' and tracktype='grade3'	Even mixture of hard and soft materials. Almost always an unpaved track.
track	grade4	highway='track' and tracktype='grade4'	Mostly soft. Almost always an unpaved track prominently with soil/sand/grass, but with some hard materials, or compressed materials mixed in.
track	grade5	highway='track' and tracktype='grade5'	Soft. Almost always an unpaved track lacking hard

			materials, uncompacted, subtle on the landscape, with surface of soil/sand/grass.
no_large_vehicle	bridleway	highway='bridleway'	For horses.
no_large_vehicle	cycleway	highway='cycleway'	Cycling infrastructure that is an inherent part of a road - particularly "cycle lanes" which are a part of the road
no_large_vehicle	footway	highway='footway'	For designated footpaths; i.e., mainly/exclusively for pedestrians. This includes walking tracks and gravel paths.
no_large_vehicle	path	highway='path'	A non-specific path.
no_large_vehicle	steps	highway='steps'	For flights of steps (stairs) on footways.
unclassified	road	highway=* and roundabout is null	A road where the mapper is unable to ascertain the classification from the information available. This is intended as a temporary tag to mark a road until it has been properly surveyed
roundabout	motorway	highway='motorway' and junction='roundabout'	A restricted access major divided highway, normally with 2 or more running lanes plus emergency hard shoulder. Equivalent to the Freeway, Autobahn, etc..
roundabout	trunk	highway='trunk' and junction='roundabout'	The most important roads in a country's system that aren't motorways. (Need not necessarily be a divided highway.)
roundabout	primary	highway='primary' and junction='roundabout'	The next most important roads in a country's system. (Often link larger towns.)
roundabout	secondary	highway='secondary' and junction='roundabout'	The next most important roads in a country's system. (Often link smaller towns and villages.)
roundabout	tertiary	highway='tertiary' and junction='roundabout'	The next most important roads in a country's system.
roundabout	unclassified	highway='unclassified' and junction='roundabout'	The least most important through roads in a country's system – i.e. minor roads of a lower classification than

			tertiary, but which serve a purpose other than access to properties. (The word 'unclassified' is a historical artefact of the UK road system and does not mean that the classification is unknown; you can use highway=road for that.)
roundabout	residential	highway='residential' and junction='roundabout'	Roads which are primarily lined with and serve as an access to housing.
roundabout	living_street	highway='living_street' and junction='roundabout'	For living streets, which are residential streets where pedestrians have legal priority over cars, speeds are kept very low and where children are allowed to play on the street.
roundabout	pedestrian	highway='pedestrian' and junction='roundabout'	For roads used mainly/exclusively for pedestrians in shopping and some residential areas which may allow access by motorised vehicles only for very limited periods of the day. To create a 'square' or 'plaza' create a closed way and tag as pedestrian.
roundabout	motorway_link	highway='motorway_link' and junction='roundabout'	The link roads (sliproads/ramps) leading to/from a motorway from/to a motorway or lower class highway. Normally with the same motorway restrictions.
roundabout	trunk_link	highway='trunk_link' and junction='roundabout'	The link roads (sliproads/ramps) leading to/from a trunk road from/to a trunk road or lower class highway.
roundabout	primary_link	highway='primary_link' and junction='roundabout'	The link roads (sliproads/ramps) leading to/from a primary road from/to a primary road or lower class highway.
roundabout	secondary_link	highway='secondary_link' and junction='roundabout'	The link roads (sliproads/ramps) leading to/from a secondary road from/to a secondary road or

			lower class highway.
roundabout	service	highway='service' and junction='roundabout'	For access roads to, or within an industrial estate, camp site, business park, car park etc. Can be used in conjunction with service=* to indicate the type of usage and with access=* to indicate who can use it and in what circumstances.
roundabout	track	highway='track' and tracktype is null and junction='roundabout'	Roads for agricultural use, gravel roads in the forest etc. and no tracktype tag is present,
roundabout	grade1	highway='track' and tracktype='grade1' and junction='roundabout'	Solid. Usually a paved or heavily compacted hardcore surface.
roundabout	grade2	highway='track' and tracktype='grade2' and junction='roundabout'	Mostly solid. Usually an unpaved track with surface of gravel mixed with a varying amount of sand, silt, and clay.
roundabout	grade3	highway='track' and tracktype='grade3' and junction='roundabout'	Even mixture of hard and soft materials. Almost always an unpaved track.
roundabout	grade4	highway='track' and tracktype='grade4' and junction='roundabout'	Mostly soft. Almost always an unpaved track prominently with soil/sand/grass, but with some hard materials, or compressed materials mixed in.
roundabout	grade5	highway='track' and tracktype='grade5' and junction='roundabout'	Soft. Almost always an unpaved track lacking hard materials, uncompacted, subtle on the landscape, with surface of soil/sand/grass.
roundabout	bridleway	highway='bridleway' and junction='roundabout'	For horses.
roundabout	cycleway	highway='cycleway' and junction='roundabout'	Cycling infrastructure that is an inherent part of a road - particularly "cycle lanes" which are a part of the road
roundabout	footway	highway='footway' and junction='roundabout'	For designated footpaths; i.e., mainly/exclusively for pedestrians. This includes walking tracks and gravel paths.
roundabout	path	highway='path' and junction='roundabout'	A non-specific path.

roundabout	steps	highway='steps' and junction='roundabout'	For flights of steps (stairs) on footways.
roundabout	roundabout	junction='roundabout' and highway is null	This contains any other roundabout except the specifics above.

4.21. route_l

Values of attributes 'type'

value	OSM Tags	Description
bicycle	route='bicycle'	Cycle routes or bicycle route are named or numbered or otherwise signed routes. May go along roads, trails or dedicated cycle paths.
bus	route='bus'	The route of a bus service
inline_skates	route='inline_skates'	Inline skate routes are named or numbered or otherwise signed routes. May go along roads, footways or other suitable paths.
canoe	route='canoe',	Route for canoeing through a waterway.
detour	route='detour'	A detour is a named and permanent route you can take if there is a traffic jam on the main route.
ferry	route='ferry',	Displays the route of a ferry on sea.
hiking	route='hiking'	Hiking route is a distinct path that a person may take to walk which is usually often used.
horse	route='horse'	A route that horses can walk on
light_rail	route='light_rail'	Light rail or light rail transit (LRT) is typically an urban form of public transport often using rolling stock similar to a tramway, but operating primarily along exclusive rights-of-way and having vehicles capable of operating as a single tramcar or as multiple units coupled together to form a train.
mtb	route='mtb'	Mountainbiking route
nordic_walking	route='nordic_walking'	Nordic walking routes are named or numbered or otherwise signed routes.
pipeline	route='pipeline'	For pipelines, pipeline markers, and pipeline stations.
piste	route='piste'	Route of a piste (e.g., snowshoe or XC-Ski trails) in a winter sport area.
power	route='power'	where power lines use the same towers (the same way) most likely in utility_l (power)
railway	route='railway'	All forms of transport using metal rails, including mainline services, subways, heritage lines and trams
road	route='road'	Map various road routes/long roads.

running	route='running'	For running (jogging) routes.
ski	route='ski'	For ski tracks
train	route='train'	Train services
tram	route='tram'	Trams services
route	route=*	This contains any other route except the specifics above.

4.22. traffic_a

Additional Attribute

Attribute	Data Type	Description	Osm Tags
aggtype	text	Grouping several different 'type' to a common 'type'. (aka enmu)	
access	text(later)	For describing the legal accessibility of a element.	access=*

Values of attributes 'aggtype' and 'type'

aggtype value	type value	OSM Tags	Description
fuel	fuel	amenity='fuel'	Petrol station; gas station; marine fuel
parking	parking	amenity='parking' and parking=*	A place for parking cars. This contains any other parking except the specifics below.
parking	surface	amenity='parking' and parking='surface'	Open area parking normally on ground level
parking	multi-storey	amenity='parking' and parking='multi-storey'	A building built to park cars on multiple levels
parking	underground	amenity='parking' and parking='underground'	Carpark is built below the ground level
parking	bicycle	amenity='bicycle_parking'	A place where bicycles can park

4.23. traffic_p

Additional Attribute

Attribute	Data Type	Description	Osm Tags
aggtype	text	Grouping several different 'type' to a common 'type'. (aka enmu)	
access	text(later)	For describing the legal	access=*

		accessibility of a element.	
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Values of attributes 'aggtype' and 'type'

aggtype value	type value	OSM Tags	Description
general_traffic	general_traffic	highway = *	Contain all other highway except the specifics below.
general_traffic	traffic_signals	highway='traffic_signals'	The light that control the traffic
general_traffic	mini_roundabout	highway='mini_roundabout'	Similar to roundabouts, but at the center there is either a painted circle or a fully traversable island.
general_traffic	stop	highway='stop'	A stop sign
general_traffic	crossing	highway='crossing'	Pedestrians can cross a street here
general_traffic	level_crossing	railway='level_crossing'	A crossing between a railway and a road.
general_traffic	speed_camera	highway='speed_camera'	A fixed road-side or overhead speed camera.
general_traffic	motorway_junction	highway='motorway_junction'	Indicates a junction (UK) or exit (US).
general_traffic	turning_circle	highway='turning_circle'	A turning circle is a rounded, widened area usually, but not necessarily, at the end of a road to facilitate easier turning of a vehicle. Also known as a cul de sac.
general_traffic	ford	highway='ford'	The road crosses through stream or river, vehicles must enter any water.
general_traffic	street_lamp	highway='street_lamp'	A street light, lamppost, street lamp, light standard, or lamp standard is a raised source of light on the edge of a road, which is turned on or lit at a certain time every night
barrier	barrier	barrier=*	A barrier is a physical structure which blocks or impedes movement. This contains any other barrier except the specifics below.
barrier	gate	barrier='gate'	An entrance that can be opened or closed to get through the barrier.

barrier	bollard	barrier='bollard'	solid (usually concrete or metal) pillar or pillars in the middle of the road to prevent passage by some traffic.
barrier	lift_gate	barrier='lift_gate'	A lift gate (boom barrier) is a bar, or pole pivoted in such a way as to allow the boom to block vehicular access through a controlled point.
barrier	stile	barrier='stile'	A stile allows pedestrians to cross a wall or fence, but never actually "opens" the barrier
barrier	cycle_barrier	barrier='cycle_barrier'	Barriers to bicycle traffic, most typically a pair of staggered steel bars perpendicular to the way itself whose gaps allow pedestrians to pass.
barrier	fence	barrier='fence'	A structure supported by posts driven into the ground and designed to prevent movement across a boundary. It is distinguished from a wall by the lightness of its construction.
barrier	toll_booth	barrier='toll_booth'	A road usage toll or fee is collected here.
barrier	block	barrier='block'	A large, solid, immobile block that can be moved only with heavy machinery or great effort. Typically big solid things made of concrete for stopping larger vehicles. Sometimes natural boulders are used for the same purpose.
barrier	kissing_gate	barrier='kissing_gate'	A gate which allows people to cross, but not livestock.
barrier	cattle_grid	barrier='cattle_grid'	Bars in the road surface that allow wheeled vehicles but not animals to cross. Sometimes known as a Texas Gate, even outside of Texas
barrier	entrance	barrier='entrance'	A gap in a linear barrier with nothing that limits passing through

traffic_calming	traffic_calming	traffic_calming=*	Describes features used to slow down traffic. This will contain any other traffic calming except the specifics below.
traffic_calming	hump	traffic_calming='hump'	Similar to a bump, but longer - total length usually 2-4 m (in direction of travel)
traffic_calming	bump	traffic_calming='bump'	Short bump - length (in direction of travel) about 30 cm or shorter. Spans the entire width of the road, but can have cuts and small gaps left and right for cyclists.
traffic_calming	table	traffic_calming='table'	Designed as a long speed hump with a flat section in the middle. The flat section is long enough for all wheels of a passenger car to fit on that section simultaneously. Does not slow as much as a hump and is usually used on roads with residential speed limit. It is known as flat top hump or raised pedestrian crossing.
traffic_calming	chicane	traffic_calming='chicane'	Hazards on the street you have to drive round
traffic_calming	cushion	traffic_calming='cushion'	A hump with spaces between or several multiple rectangular humps aligned across the road. This allows emergency vehicles, buses (due to their wider axle) and bicycles to pass through without slowing down.
fuel	fuel	amenity='fuel'	Petrol station; gas station; marine fuel
service	services	highway='services'	Generally for access to a building, motorway service station, beach, campsite, industrial estate, business park, etc.
parking	parking	amenity='parking' or parking=*	A place for parking cars. This contains any other parking except the specifics below.
parking	surface	amenity='parking' and	Open area parking normally

		parking='surface'	on ground level
parking	multi-storey	amenity='parking' and parking='multi-storey'	A building built to park cars on multiple levels
parking	underground	amenity='parking' and parking='underground'	Carpark is built below the ground level
parking	bicycle	amenity='parking' and parking='bicycle'	A place where bicycles can park

4.24. transport_a

Values of attributes 'aggtype' and 'type'

aggtype value	type value	OSM Tags	Description
railway	railway_station	railway='station'	Railway stations (including main line, light rail, subway, etc.) are places where customers can access railway services
railway	railway_halt	railway='halt' or public_transport='stop_position' and train='yes'	A small station, may not have a platform, trains may only stop on request.
bus	bus_stop	highway='bus_stop' or public_transport='stop_position' and bus='yes'	A bus stop is a place where public buses stop.
bus	bus_station	amenity='bus_station'	A station is an area designed to access bus.
taxi	taxi_stand	amenity='taxi'	A place where taxi waits for passengers
air_traffic	airport	amenity='airport' or aeroway='aerodrome'	An Aerodrome (UK), Airport (US)
air_traffic	taxiway	aeroway='taxiway'	Where airplanes manoeuvre between runways and parking areas.
air_traffic	apron	aeroway='apron'	An apron is the surfaced part of an airport where planes park.
air_traffic	runway	aeroway='runway'	Where airplanes take off and land
air_traffic	helipad	aeroway='helipad'	A place where helicopters can land.
water_traffic	ferry_terminal	amenity='ferry_terminal'	Ferry terminal/stop. A place where people/cars/etc. can board and leave a ferry.

other_traffic	aerialway_station	aerialway='station'	A station, where passengers can enter and/or leave the aerialway
aeroway	aeroway	aeroway=*	All other types of aeroway which is not defined as above
aerialway	aerialway	aerialway=*	All other types of aerialway which is not defined as above
public_transport	stop_position	public_transport='stop_position'	Where public transports stop to pick up passengers
public_transport	platform	public_transport='platform'	The place where passengers are waiting for the public transport vehicles.

4.25. transport_p

Values of attributes 'aggtype' and 'type'

aggtype value	type value	OSM Tags	Description
railway	railway_station	railway='station'	Railway stations (including main line, light rail, subway, etc.) are places where customers can access railway services
railway	railway_halt	railway='halt' or public_transport='stop_position' and train='yes'	A small station, may not have a platform, trains may only stop on request.
tram	tram_stop	railway='tram_stop' or public_transport='stop_position' and tram='yes'	A tram stop is a place where a passenger can embark / disembark a tram.
bus	bus_stop	highway='bus_stop' or public_transport='stop_position' and bus='yes'	A bus stop is a place where public buses stop.
bus	bus_station	amenity='bus_station'	A station is an area designed to access bus.
taxi	taxi_stand	amenity='taxi'	A place where taxi waits for passengers
air_traffic	airport	amenity='airport' or aeroway='aerodrome'	An Aerodrome (UK), Airport (US)
air_traffic	taxiway	aeroway='taxiway'	Where airplanes manoeuvre between runways and parking areas.
air_traffic	apron	aeroway='apron'	An apron is the surfaced part of an airport where planes park.
air_traffic	runway	aeroway='runway'	Where airplanes take off and

			land
air_traffic	helipad	aeroway='helipad'	A place where helicopters can land.
water_traffic	ferry_terminal	amenity='ferry_terminal'	Ferry terminal/stop. A place where people/cars/etc. can board and leave a ferry.
other_traffic	aerialway_station	aerialway='station'	A station, where passengers can enter and/or leave the aerialway
aeroway	aeroway	aeroway=*	All other types of aeroway which is not defined as above
aerialway	aerialway	aerialway=*	All other types of aerialway which is not defined as above
public_transport	stop_position	public_transport='stop_position'	Where public transports stop to pick up passengers
public_transport	platform	public_transport='platform'	The place where passengers are waiting for the public transport vehicles.

4.26. utility_a

Additional Attribute

Attribute	Data Type	Description
aggtype	text	Grouping several different 'type' to a common 'type' (aka enmu)

Values of attributes 'aggtype' and 'type'

value	type value	OSM Tags	Description
tower	tower	power='tower'	For towers or pylons carrying high voltage electricity cables. Normally constructed from steel latticework but tubular or solid pylons are also commonly used.
station	station	power='generator'	A device used to convert power from one form to another. This contain all other power except the specifics below.
station	nuclear	power='generator' and generator:source='nuclear'	A nuclear power plant is a thermal power station in which the heat source is one or more nuclear reactors.
station	solar	(power='generator' and generator:source	Solar powerplant does conversion of sunlight into electricity, either

		= 'solar') or power_source = 'photovoltaic'	directly using photovoltaics (PV), or indirectly using concentrated solar power (CSP).
station	fossil	power='generator' and generator:source = 'gas' or 'coal'	Using the combustion of fuels to heat the water to in turn spin the generators turbine
station	hydro	(power='generator' and generator:source = 'water') or power_source = 'hydro'	Hydroelectricity is the term referring to electricity generated by hydropower; the production of electrical power through the use of the gravitational force of falling or flowing water. It is the most widely used form of renewable energy.
station	wind	(power='generator' and generator:source = 'wind') or power_source = 'wind'	A wind turbine is a device that converts kinetic energy from the wind into mechanical energy. If the mechanical energy is used to produce electricity, the device may be called a wind generator.
substation	substation	power='station' or power='sub_station'	A tag for electricity substations. These provide voltage step-up/step-down, switching, conditioning, etc. Substations may be large facilities (up to several acres) for very high voltage transmission lines or just small buildings or kiosks near the street for low voltage distribution lines
transformer	transformer	power='transformer'	A static device for transferring electric energy by inductive coupling between its windings. Large power transformers are typically located inside substations.
man_made	water_works	man_made='water_works'	Place where drinking water is found and applied to the local waterpipes network.
man_made	wastewater_plant	man_made='wastewater_plant'	Facilities used to treat wastewater
man_made	storage_tank	man_made='storage_tank'	A large holding tank, typically cylindrical.
power	power	power=*	All other types of power which is not defined as above

4.27. utility_p

Additional Attribute

Attribute	Data Type	Description
aggtype	text	Grouping several different 'type' to a common 'type' (aka enmu)

Values of attributes 'aggtype' and 'type'

value	type value	OSM Tags	Description
tower	tower	power='tower'	For towers or pylons carrying high voltage electricity cables. Normally constructed from steel latticework but tubular or solid pylons are also commonly used.
pole	pole	power='pole'	For single (often wooden or concrete) poles carrying medium/low voltage electricity cables.
station	station	power='generator'	A device used to convert power from one form to another. This contain all other power except the specifics below.
station	nuclear	power='generator' and generator:source='nuclear'	A nuclear power plant is a thermal power station in which the heat source is one or more nuclear reactors.
station	solar	(power='generator' and generator:source='solar') or power_source='photovoltaic'	Solar powerplant does conversion of sunlight into electricity, either directly using photovoltaics (PV), or indirectly using concentrated solar power (CSP).
station	fossil	power='generator' and generator:source='gas' or 'coal'	Using the combustion of fuels to heat the water to in turn spin the generators turbine
station	hydro	(power='generator' and generator:source='water') or power_source='hydro'	Hydroelectricity is the term referring to electricity generated by hydropower; the production of electrical power through the use of the gravitational force of falling or flowing water. It is the most widely used form of renewable energy.
station	wind	(power='generator' and generator:source='wind') or power_source='wind'	A wind turbine is a device that converts kinetic energy from the wind into mechanical energy. If the mechanical energy is used to

			produce electricity, the device may be called a wind generator.
substation	substation	power='station' or power='sub_station'	A tag for electricity substations. These provide voltage step-up/step-down, switching, conditioning, etc. Substations may be large facilities (up to several acres) for very high voltage transmission lines or just small buildings or kiosks near the street for low voltage distribution lines
transformer	transformer	power='transformer'	A static device for transferring electric energy by inductive coupling between its windings. Large power transformers are typically located inside substations.
man_made	water_works	man_made='water_works'	Place where drinking water is found and applied to the local waterpipes network.
man_made	wastewater_plant	man_made='wastewater_plant'	Facilities used to treat wastewater
man_made	storage_tank	man_made='storage_tank'	A large holding tank, typically cylindrical.
power	power	power=*	All other types of power which is not defined as above

4.28. utility_l

Additional Attribute

Attribute	Data Type	Description	Osm Tags
operator	text	Which company is handling this utility_lines	operator=*
voltage	text	The voltage level the power line is running on	voltage=*
frequency	text	The frequency level the power line is running on	frequency=*

Values of attributes 'aggtype' and 'type'

aggtype value	type value	OSM Tags	Description
power	line	power='line'	A overground high voltage power line
power	minor_line	power='minor_line'	A smaller overhead line
power	cable	power='cable'	A high voltage earth cables

power	minor_cable	power='minor_underground_cable' or power='minor_cable'	A smaller line under earth
man_made	pipeline	man_made='pipeline'	A pipe for carrying various fluids, such as water, gas, sewage.
power	power	power=*	All other power line which is not specific.

4.29. water_a

Values of attributes 'type'

value	OSM Tags	Description
water	natural='water'	Used to mark body of standing water, such as a lake or pond.
spring	natural='spring'	A spring is a point where water naturally surfaces
riverbank	waterway='riverbank'	For tagging wide rivers which need to be defined by an area rather than just shown as a linear way.
slipway	leisure='slipway'	Boats can be launched here
marina	leisure='marina'	For mooring leisure yachts and motor boats
pier	man_made='pier'	A "bridge into the ocean", usually for recreation.
reservoir_covered	man_made='reservoir_covered'	A covered reservoir is a large man-made tank for holding fresh water
dam	waterway='dam'	A wall built across a river or stream to impound the water. A dam normally does not have water flowing over the top of it.
weir	waterway='weir'	A barrier built across a river, sometimes to divert water for industrial purposes. Water can still flow over the top.
waterway	waterway=*	Rivers or other kind of waterways. This contains any other water traffic except the specifics below.

4.30. water_p

Values of attributes 'type'

value	OSM Tags	Description
water	natural='water'	Used to mark body of standing water, such

		as a lake or pond.
spring	natural='spring'	A spring is a point where water naturally surfaces
riverbank	waterway='riverbank'	For tagging wide rivers which need to be defined by an area rather than just shown as a linear way.
slipway	leisure='slipway'	Boats can be launched here
marina	leisure='marina'	For mooring leisure yachts and motor boats
pier	man_made='pier'	A "bridge into the ocean", usually for recreation.
reservoir_covered	man_made='reservoir_covered'	A covered reservoir is a large man-made tank for holding fresh water
dam	waterway='dam'	A wall built across a river or stream to impound the water. A dam normally does not have water flowing over the top of it.
waterfall	waterway='waterfall'	A waterfall is a place where water flows over a vertical drop in the course of a stream or river.
lock_gate	waterway='lock_gate'	To mark the position of gates at each end of a lock.
weir	waterway='weir'	A barrier built across a river, sometimes to divert water for industrial purposes. Water can still flow over the top.
waterway	waterway=*	Rivers or other kind of waterways. This contains- any other water traffic except the specifics below.

4.31. water_l

Additional Attribute

Attribute	Data Type	Description	Osm Tags
width	int	The the measurement or extent of something from side to side; the lesser of two or the least of three dimensions of a body.	width=*
bridge	boolean	A bridge is an artificial construction that spans features such as roads, railways, waterways or valleys and carries a road, railway or other feature.	bridge='yes'
tunnel	boolean	A tunnel is an underground passage for a road or similar.	tunnel='yes'

Values of attributes 'type'

value	OSM Tags	Description
river	waterway='river'	A large natural stream of water flowing in a channel to the sea, a lake, or another river.
stream	waterway='stream'	A small and narrow river.
canal	waterway='canal'	An artificial waterway constructed to allow the passage of boats or ships inland or to convey water for irrigation.
drain	waterway='drain'	A channel or pipe carrying off any excess liquid.
waterway	waterway=*	Other waterways which is user-defined

5. Appendix

5.1. Glossary

- Table: tbd.
- Layer: tbd.
- Type: human-understandable name of a modeled entity (e.g. church, forest).
- Feature: Instance (record) of a feature class).
- Feature Class: same as table with one geometry attribute.
- Symbology: tbd.
- View: tbd.
- Data Curation: Filtering, cleaning, aggregating/categorizing and homogenizing data.