

# BICYCLING INFRASTRUCTURE CLASSIFICATION

## Summary

This document describes the different types of bicycling infrastructure that exist in Greater Melbourne. Each infrastructure class has a corresponding OpenStreetMap (OSM) pseudocode that can be used to extract, classify or map that specific bicycling infrastructure class.

## Types of bicycling infrastructure classified

- Dedicated bike path
- Shared bike path
- Pedestrian path/street with cycling allowed
- Protected bike lane
- Buffered bike lane (kerb-side)
- Buffered bike lane (road-side)
- Buffered bike lane (both sides)
- Painted bike lane
- Painted bike lane (single-side)
- Advisory bike lane
- Advisory bike lane (single-side)
- Peak hour painted bike lane
- Peak hour painted bike lane (single-side)
- Peak hour advisory bike lane
- Peak hour advisory bike lane (single-side)
- Sharrow
- Shared zone
- Bus lane with cycling allowed
- Mixed traffic
- Bicyclists dismount
- Pedestrian path/street with cycling not allowed



## Note

OSM is volunteered geographic information (VGI) and is therefore prone to tagging errors, which may lead to misclassification on rare occasions. OSM tagging varies geographically, meaning anyone using the pseudocodes verbatim for places outside Australia may need to make modifications to calibrate to local infrastructure.

## Authors

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## Details



| Superclass          | Class               | Description  | OSM extract code  | Example  |
|---------------------|---------------------|--|---|--|
| Dedicated bike path | Dedicated bike path | Off-road paths dedicated for bicyclists                            | 'highway' IS IN ['cycleway'] AND 'foot' IS IN ['no']<br><br>OR<br><br>'highway' IS IN ['path'] AND 'bicycle' IS IN ['yes','designated'] AND 'foot' IS IN ['no'] | <br><a href="https://carryononly.org/cycling-the-upfield-bike-path-in-melbourne-australia/">https://carryononly.org/cycling-the-upfield-bike-path-in-melbourne-australia/</a> |
| Shared bike path    | Shared bike path    | Off-road paths that are shared by bicyclists and pedestrians alike | 'highway' IS IN ['cycleway'] AND 'foot' NOT IN ['no']   | <br><a href="https://en.wikipedia.org/wiki/Capital_City_Trail">https://en.wikipedia.org/wiki/Capital_City_Trail</a>  |

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|--|---|--|---|--|
| <p>Pedestrian path/street with cycling allowed</p> | <p>Pedestrian path/street with cycling allowed</p>  | <p>Footways and pedestrian streets where bicycling is allowed</p>  | <p>'highway' IS IN ['footway','pedestrian'] AND 'bicycle' IS IN ['yes','designated']</p>  |  <p><a href="https://www.vicroads.vic.gov.au/safety-and-road-rules/pedestrian-safety/using-shared-paths">https://www.vicroads.vic.gov.au/safety-and-road-rules/pedestrian-safety/using-shared-paths</a></p> |
| <p>Protected bike lane</p>                         | <p>Protected bike lane</p>  | <p>On-road bike lanes that are physically separated and thus protected from motorised traffic via a physical barrier</p> | <p>'highway' NOT IN ['cycleway'] AND ('cycleway' IS IN ['track','opposite_track']) OR 'cycleway:left' IS IN ['track'] OR 'cycleway:right' IS IN ['track'] OR ['cycleway:both'] IS IN ['track'])</p> |  <p><a href="https://twitter.com/MelbourneWay/status/1339795291755610114">https://twitter.com/MelbourneWay/status/1339795291755610114</a></p>  |





|                    |                                |   |  |   |
|--------------------|--------------------------------|---|--|---|
| Buffered bike lane | Buffered bike lane (road-side) | <p>A buffered bike lane (road-side) is separated from the car lanes with extra space and hashed white paint on the side of the road.</p>   | <p>'cycleway:both' IS IN ['lane'] AND ('cycleway:both:lane' IS IN ['exclusive'] OR 'cycleway:left:lane' IS IN ['exclusive']) AND ('cycleway:left:buffer:right' EXISTS OR 'cycleway:both:buffer:right' EXISTS) AND NOT ('cycleway:left:buffer:left' EXISTS OR 'cycleway:both:buffer:left' EXISTS)</p> <p>OR</p> <p>'cycleway:left' IS IN ['lane'] AND 'cycleway:left:lane' IS IN ['exclusive'] AND 'cycleway:left:buffer:right' EXISTS AND 'cycleway:left:buffer:left' NOT EXISTS</p> |  <p><a href="https://www.melbourne.vic.gov.au/sitecollectiondocuments/bike-lane-design-guidelines.pdf">https://www.melbourne.vic.gov.au/sitecollectiondocuments/bike-lane-design-guidelines.pdf</a></p>  |
|                    | Buffered bike lane (kerb-side) | <p>A buffered bike lane (kerb-side) is separated from the car lanes with extra space and hashed white paint on the side of the kerb.</p>  | <p>'cycleway:both' IS IN ['lane'] AND ('cycleway:both:lane' IS IN ['exclusive'] OR 'cycleway:left:lane' IS IN ['exclusive']) AND ('cycleway:left:buffer:left' EXISTS OR 'cycleway:both:buffer:left' EXISTS) AND NOT ('cycleway:left:buffer:right' EXISTS OR 'cycleway:both:buffer:right' EXISTS)</p> <p>OR</p> <p>'cycleway:left' IS IN ['lane'] AND 'cycleway:left:lane' IS IN ['exclusive'] AND 'cycleway:left:buffer:left' EXISTS AND 'cycleway:left:buffer:right' NOT EXISTS</p> |  <p><a href="https://www.melbourne.vic.gov.au/sitecollectiondocuments/bike-lane-design-guidelines.pdf">https://www.melbourne.vic.gov.au/sitecollectiondocuments/bike-lane-design-guidelines.pdf</a></p> |

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|-------------------|---------------------------------|---|---|---|
|                   | Buffered bike lane (both sides) | A buffered bike lane (both sides) is separated from the car lanes and possibly parking spots with extra space and hashed white paint on both sides.   | <p>'cycleway:both' IS IN ['lane'] AND ('cycleway:both:lane' IS IN ['exclusive'] OR 'cycleway:left:lane' IS IN ['exclusive']) AND (('cycleway:left:buffer:both' EXISTS OR 'cycleway:both:buffer:both' EXISTS) OR ('cycleway:left:buffer:left' EXISTS AND 'cycleway:left:buffer:right' EXISTS) OR ('cycleway:both:buffer:left' EXISTS AND 'cycleway:both:buffer:right' EXISTS))</p> <p>OR</p> <p>'cycleway:left' IS IN ['lane'] AND 'cycleway:left:lane' IS IN ['exclusive'] AND (('cycleway:left:buffer:left' EXISTS AND 'cycleway:left:buffer:right' EXISTS) OR 'cycleway:left:buffer:both' EXISTS)</p> |  <p><a href="https://www.flickr.com/photos/philipmallis/49732619551/">https://www.flickr.com/photos/philipmallis/49732619551/</a></p>  |
| Painted bike lane | Painted bike lane               | On-road bike lanes that are separated from motorized traffic by a solid white painted line with the lane painted green on occasion. This lane strictly segregates and is reserved exclusively for cyclists. | 'highway' NOT IN ['cycleway'] AND ('cycleway' IS IN ['lane','opposite_lane'] OR 'cycleway:left' IS IN ['lane'] OR 'cycleway:right' IS IN ['lane'] OR 'cycleway:both' IS IN ['lane'])  |  <p><a href="https://www.carsguide.com.au/car-news/cyclists-should-be-blameless-in-car-accidents-report-33376">https://www.carsguide.com.au/car-news/cyclists-should-be-blameless-in-car-accidents-report-33376</a></p> |
|                   | Painted bike lane (single side) | Painted bike lanes on only one side of the road.  | 'highway' NOT IN ['cycleway'] AND ('cycleway' IS IN ['lane','opposite_lane'] OR 'cycleway:left' IS IN ['lane'] OR 'cycleway:right' IS IN ['lane'] OR 'cycleway:both' IS IN ['lane'])  | As above  |



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| Advisory bike lane  | Advisory bike lane               | On-road bike lanes that are separated from motorized traffic by a dashed white painted line. This lane softly segregates and is reserved exclusively for cyclists, so motor vehicles are allowed to use the bike lane. | <p>Infrastructure classified as Painted bike lane OR Painted bike lane (single side)</p> <p>AND</p> <p>('cycleway:both' IS IN ['lane'] AND ['cycleway:both:lane'] IS IN ['advisory'] OR ['cycleway:left:lane'] IS IN ['advisory'])</p> <p>OR</p> <p>'cycleway:left' IS IN ['lane'] AND 'cycleway:left:lane' IS IN ['advisory'])</p> |  <p><a href="https://tinyurl.com/4ubv64dh">https://tinyurl.com/4ubv64dh</a></p> |
|                     | Advisory bike lane (single side) | Advisory bike lanes on only one side of the road.  | <p>Infrastructure classified as Advisory bike lane</p> <p>AND</p> <p>'cycleway:left' IS IN ['lane'] AND 'cycleway:right' IS IN ['no'] AND 'cycleway:left:lane' IS IN ['advisory']</p>   | As above   |
| Peak hour bike lane | Peak hour painted bike lane      | Lanes which are exclusive bike lanes during peak hours.  | <p>Infrastructure classified as Painted bike lane</p> <p>AND</p> <p>('cycleway:both:conditional' EXISTS OR 'cycleway:left:conditional' EXISTS OR 'cycleway:both:lane:conditional' EXISTS OR 'cycleway:left:lane:conditional' EXISTS)</p>  |    |




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| Peak hour painted bike lane (single-side)  | Peak hour painted bike lane on only one side of the road.  | <p>Infrastructure classified as Painted bike lane (single side)</p> <p>AND</p> <p>('cycleway:both:conditional' EXISTS OR 'cycleway:left:conditional' EXISTS OR 'cycleway:both:lane:conditional' EXISTS OR 'cycleway:left:lane:conditional' EXISTS)</p>  | As above  |
| Peak hour advisory bike lane               | Lanes which are advisory bike lanes during peak hours.     | <p>Infrastructure classified as Advisory bike lane</p> <p>AND</p> <p>('cycleway:both:conditional' EXISTS OR 'cycleway:left:conditional' EXISTS OR 'cycleway:both:lane:conditional' EXISTS OR 'cycleway:left:lane:conditional' EXISTS)</p>               |  |
| Peak hour advisory bike lane (single-side) | Peak hour advisory bike lane on only one side of the road. | <p>Infrastructure classified as Advisory bike lane (single side)</p> <p>AND</p> <p>('cycleway:both:conditional' EXISTS OR 'cycleway:left:conditional' EXISTS OR 'cycleway:both:lane:conditional' EXISTS OR 'cycleway:left:lane:conditional' EXISTS)</p> | As above  |

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|-------------|---|--|--|---|
| Sharrow     | Sharrow   | <p>Streets without a specific bicycle lane but with sharrows indicating priority to cyclists. Cyclists share a lane with motor vehicles, and there are markings indicating that motorists and cyclists should share this lane.</p> | <p>'highway' NOT IN ['cycleway'] AND 'cycleway' IS IN ['shared_lane']</p> <p>OR</p> <p>'cycleway:both' IS IN ['shared_lane'] AND ('cycleway:both:lane' IS IN ['pictogram'] OR 'cycleway:left:lane' IS IN ['pictogram'])</p> <p>OR</p> <p>'cycleway:left' IS IN ['shared_lane'] AND 'cycleway:left:lane' IS IN ['pictogram']</p> <p>OR</p> <p>'cycleway:right' IS IN ['shared_lane'] AND 'cycleway:left' IS IN ['no']</p> |    |
| Shared zone | <p>Shared zone</p>  | <p>Shared spaces (usually urban laneways or on major pedestrian shopping roads) with lower speed limits and priority to cyclists and pedestrians.</p>  | <p>'highway' IS IN ['living_street']</p>   |  <p><a href="https://www.flickr.com/photos/philipmallis/50591884281">https://www.flickr.com/photos/philipmallis/50591884281</a></p> |



|                               |                               |   |  |   |
|-------------------------------|-------------------------------|---|--|---|
| Bus lane with cycling allowed | Bus lane with cycling allowed | Bike lanes taking the form of bus lanes that are also designated for use by cyclists. | 'cycleway:both' IS IN ['share_busway','opposite_share_busway'] OR 'cycleway:left' IS IN ['share_busway','opposite_share_busway'] | <br><a href="https://tinyurl.com/2phu8ftv">https://tinyurl.com/2phu8ftv</a>  |
| Shoulder cyclable             | Shoulder cyclable             | Road shoulders which act as bike lanes  | 'cycleway:both' IS IN ['shoulder'] OR 'cycleway:left' IS IN ['shoulder']   | <br><a href="https://tinyurl.com/z9v63k4a">https://tinyurl.com/z9v63k4a</a> |

|                       |   |   |   |  |
|-----------------------|---|---|---|--|
| Bicycling not allowed | Bicyclists dismount                             | Pedestrian paths or streets where bicyclists cannot ride but have to dismount and walk their bikes.   | 'bicycle' IS IN ['dismount']  | <br><a href="https://www.portplaces.com/riding-in-the-city/">https://www.portplaces.com/riding-in-the-city/</a> |
|                       | Pedestrian path/street with cycling not allowed | Pedestrian paths or streets where bicycling is not allowed (most footpaths/sidepaths). Similar to 'bicyclists dismount', however, may not have explicit signage (e.g. most footpaths) | 'highway' IS IN ['footway','pedestrian','path'] AND 'bicycle' NOT IN ['yes','designated'] |  |

|               |               |   |                                    |  |
|---------------|---------------|---|------------------------------------|--|
| Mixed traffic | Mixed traffic | Roads without any bicycling infrastructure but cyclists are allowed to ride on. | All links that remain unclassified | <br><a href="https://tinyurl.com/5bc27cv7">https://tinyurl.com/5bc27cv7</a> |
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# SUSTAINABLE MOBILITY AND SAFETY RESEARCH

