Sitraffic Map2x

How To

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A Siemens Business

The MAP creation should be carried out taking into account the following guides:

- **C-Roads Profile**

  https://www.c-roads.eu/platform/about/news/News/entry/show/release-18-of-c-roads-harmonised-c-its-specifications.html

- **DiMAP**

  https://oca-ev.org/schlussveranstaltung-dimap

The most important checks can be done with MAP2x validation.

General basic workflow

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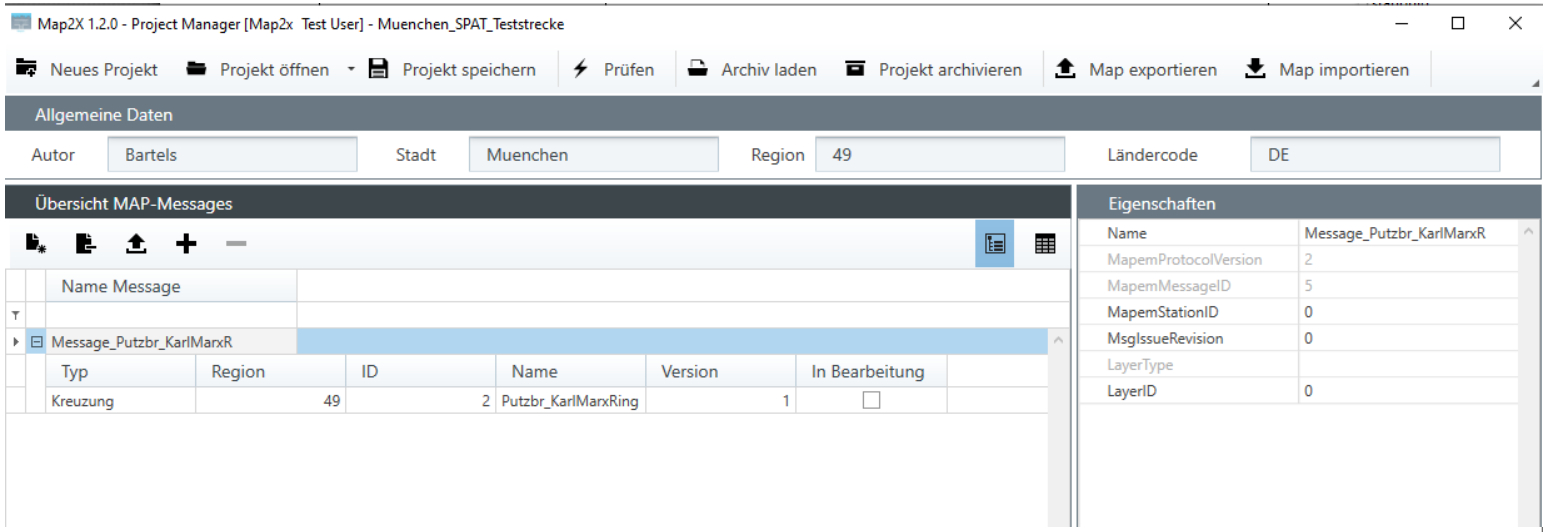
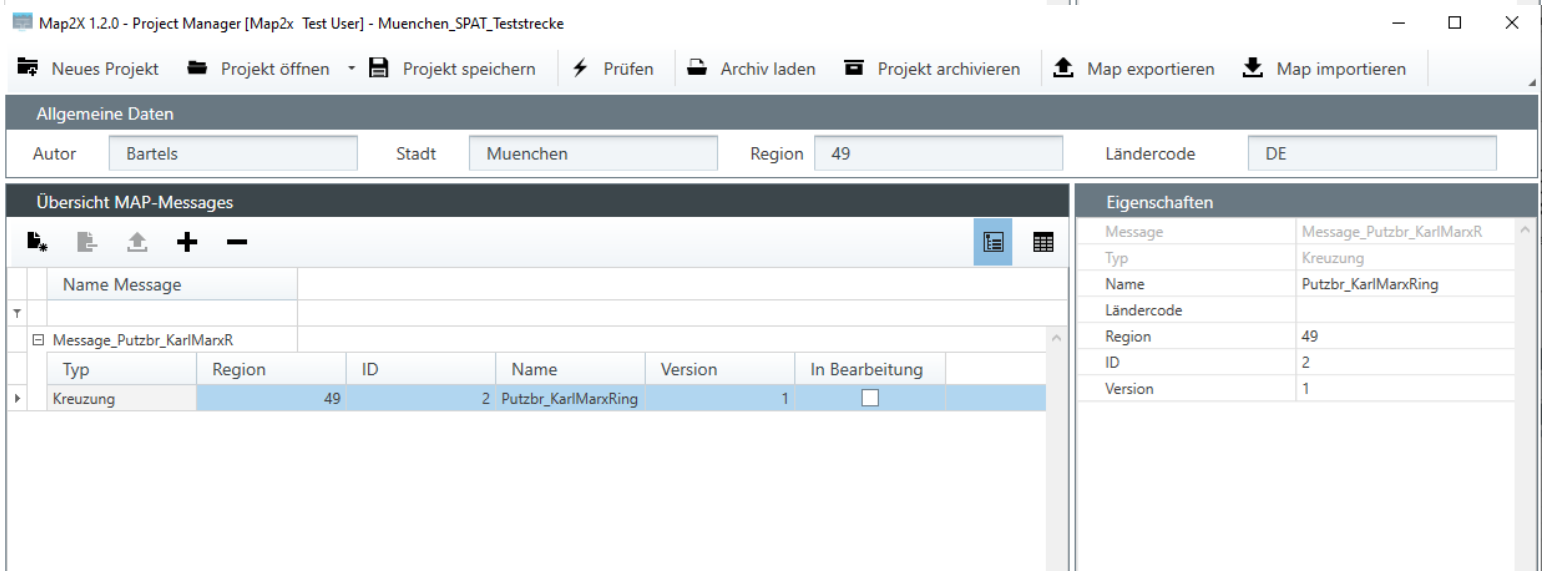
1. Set intersection properties
2. Set reference point
3. Add ingress/egress lanes
4. Set lane attributes
    - Approach numbers
    - Width
    - Ingress/egress
    - Type
    - Allowed maneuvers
    - Attributes
5. Add connections
6. Set connection attributes

MAPEM and intersection attribute

- MsgIssueRevision shall be set to 0



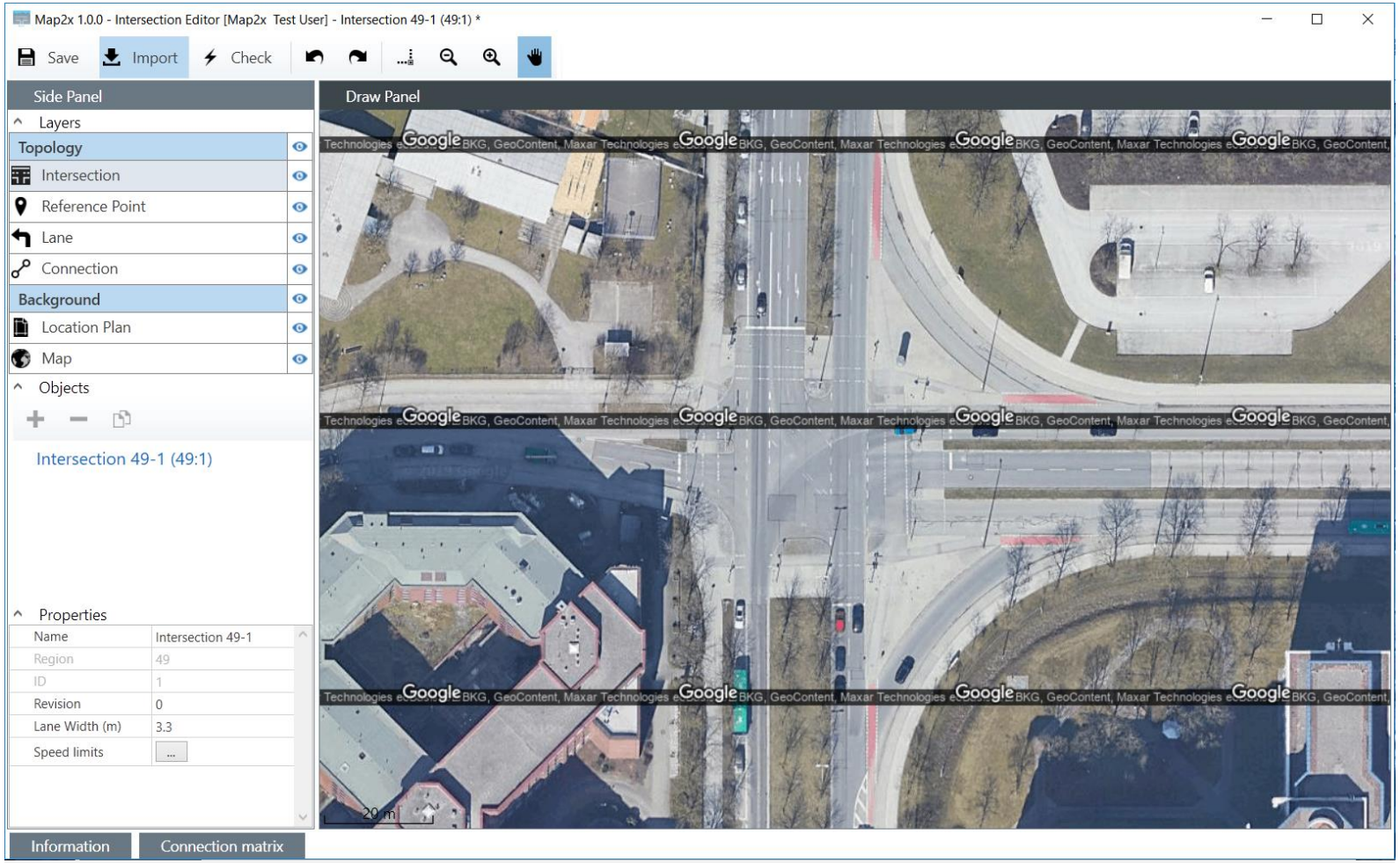
- Country code is optional (e.g.. „EN“)
- Region shall be defined unique
  Proposal for unqiue region given in DiMap paper
- Within region unique identifier for intersection



Set Intersection Properties

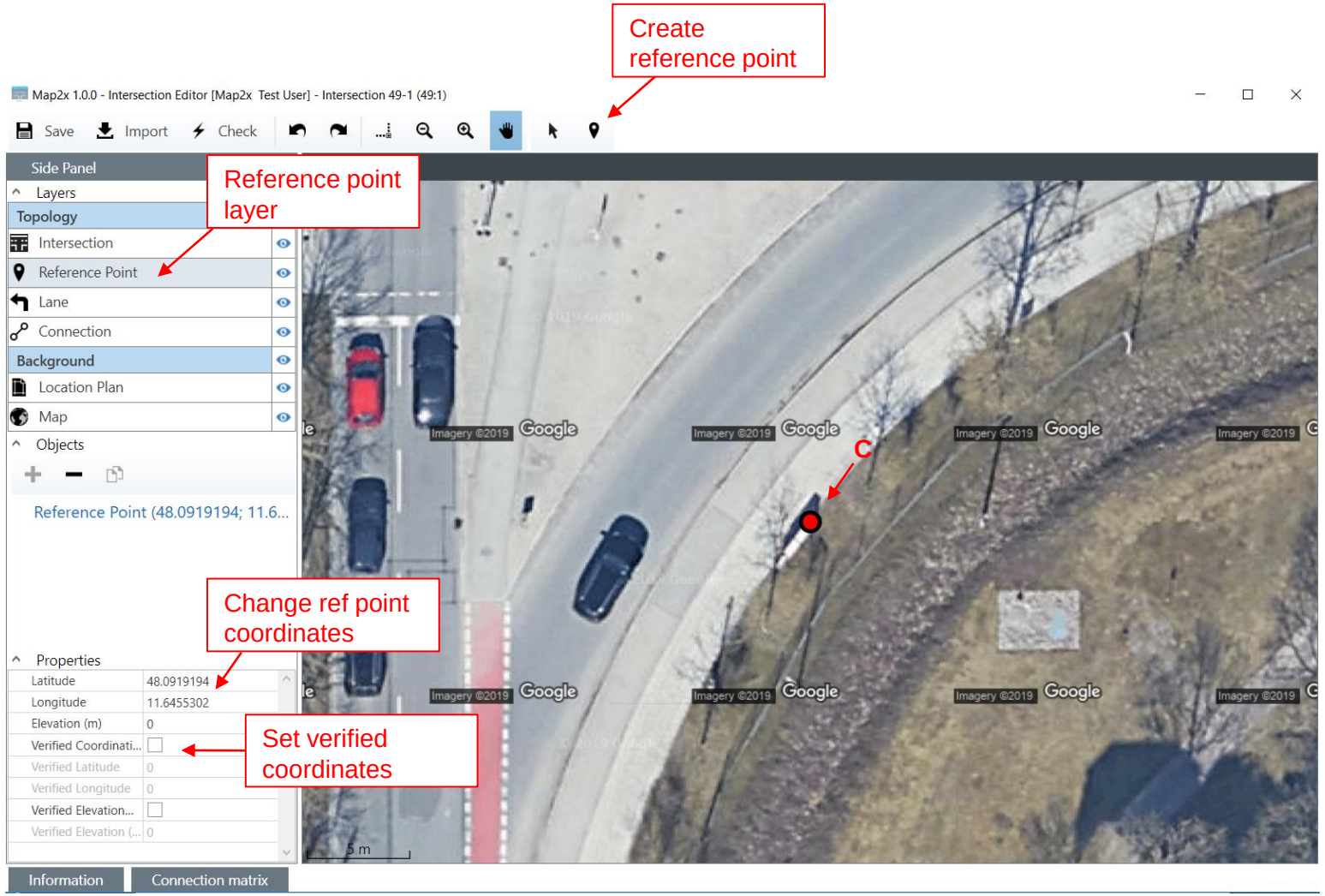
- Set intersection name
- Set default lane width (all lanes will use this unlsess changed manually in node attribute)
- Define maximum allowed speed for intersection (for lane differences define speed via node attribute)

- **Make sure to increment „Revision“ everytime a new MAP is created for this location!**



Reference Point

- Select „Reference Point“ (A)
- Place intersection reference point directly on MAP (B) on a well-known point (C), e.g. north corner of controller cabinet
- Change position of reference point by editing geo coordinates (D)
- If accurate and verified geo position is known, set verified coordinates to increase MAP accuracy (E)

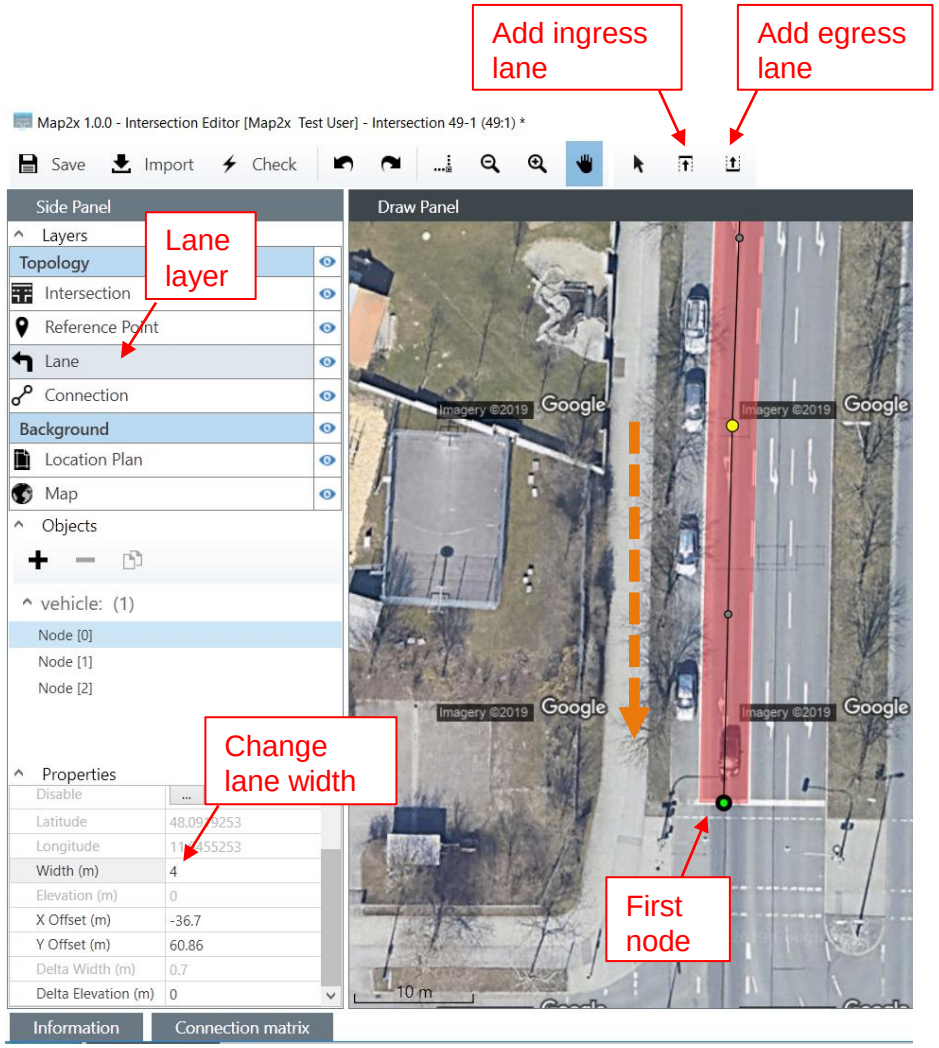


Adding Ingress/Egress Lanes

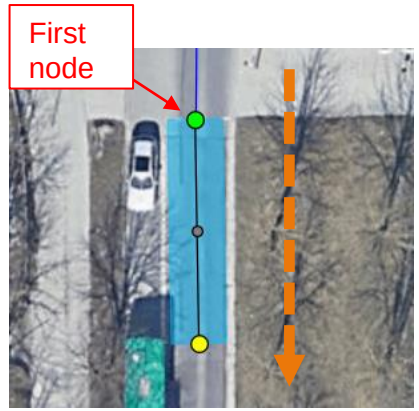
- Select „Lanes“ layer
- Place lanes directly on map after selecting ingress or egress lane type
- First node for lanes has to be put on stop bar
- Lane width can be adjusted via node properties, e.g. to change lane width of whole lane change lane width on first lane node
- Check lane length due to minimum via lane attribute

Best practices

- Ingress lanes shall be ~300m long ideally
- Egress lanes shall be very short (5 to 10m) with two nodes maximum
- Maximum number of lane nodes per ingress lane is 18!



Ingress Lane



Egress Lane

Driving direction

Set Lane Properties

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Ingress Lane mandatory elements

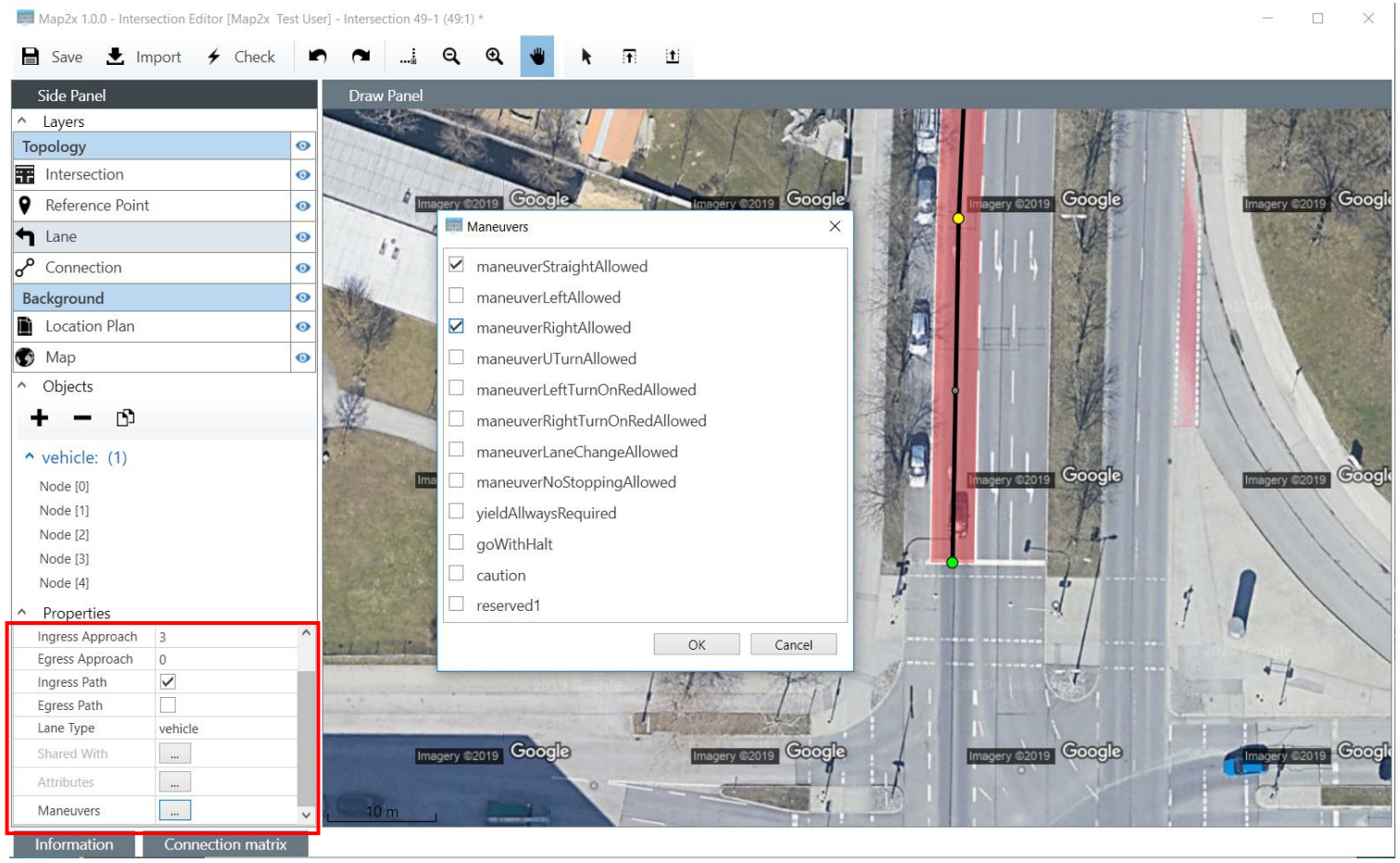
- Ingress Approach ID
- Ingress Path checked
- Lane type
- Do not define maneuvers on lanes

Egress Lane mandatory elements

- Egress Approach ID
- Egress Path checked
- Lane types

Others

- Attributes (e.g. bus lane / taxi lane …)
- Shared With (e.g. shared with tracked vehicles like Tram)
- Leave lane name empty (reduce MAP size)



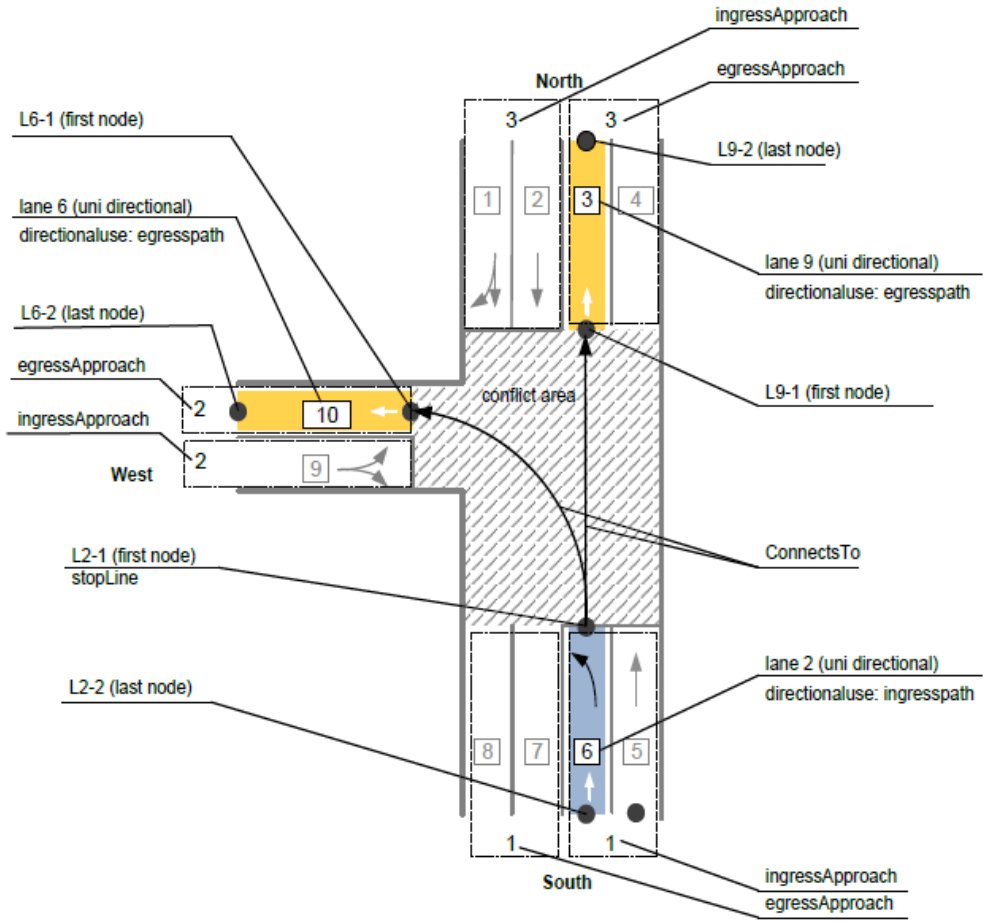
Approach numbering acc. to ISO 19091:2019

- Lanes of an approach are grouped using „ingressApproach“ / „egressApproach“ numbers
- Approach numbering: clockwise starting with „1“ for the south approach

- **Ingress lanes**
  - ingressApproach = approach number
  - egressApproach = 0

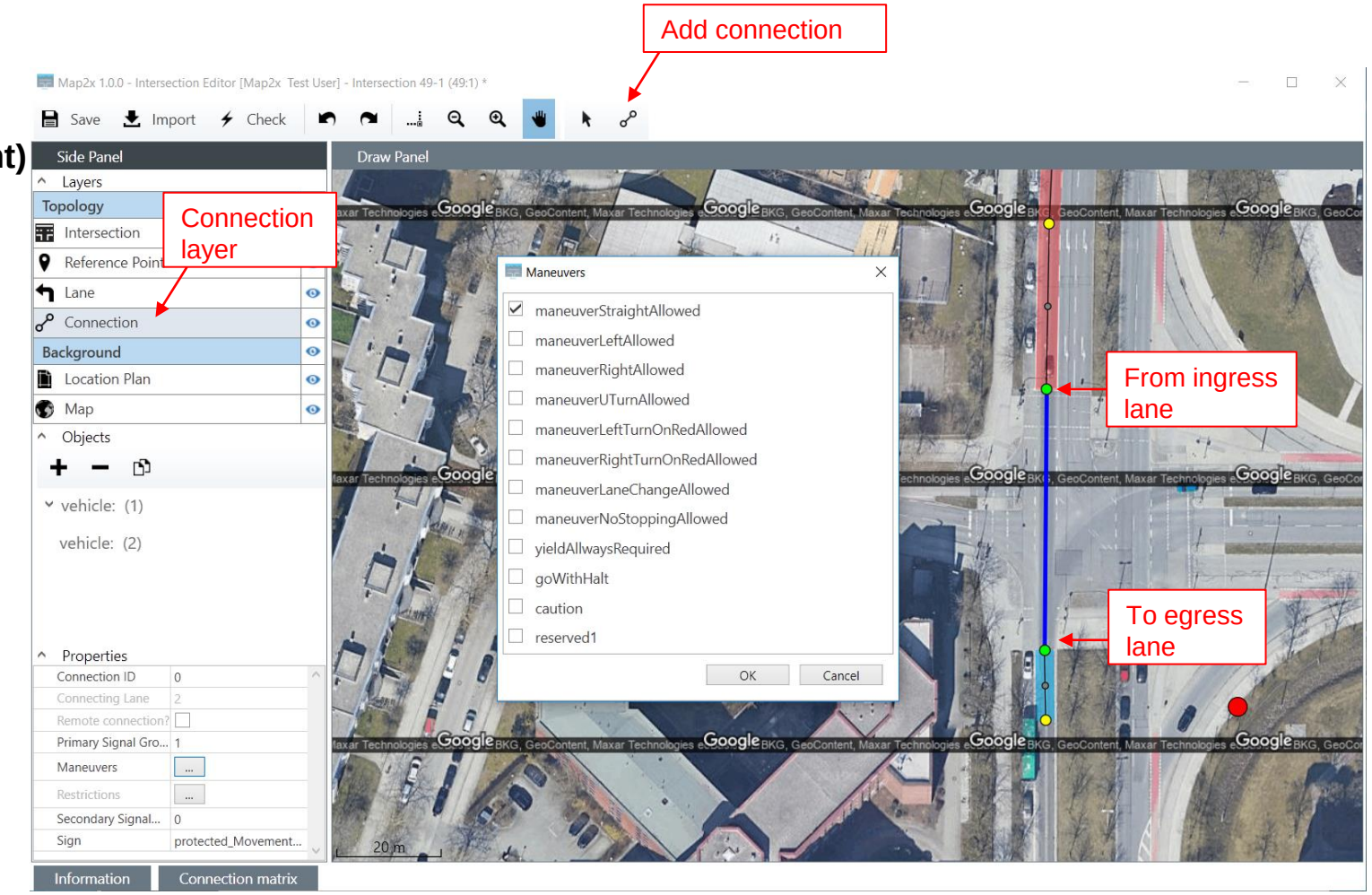
- **Egress lanes**
  - ingressApproach = 0
  - egressAproach = approach number

- **Bidirectional lanes (e.g. crosswalk)**
  - ingressApproach = approach number
  - egressApproach = approach number



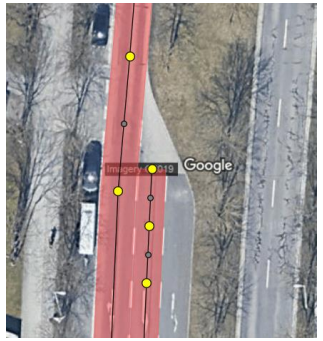
Add Connections

- Connections are always set starting **from ingress lane to egress lane**
- For all connections make sure to correctly set:
  - **primary signal group (protected movement)**
  - **Secondary signal group (permissive movement)**
  - **Exactly one maneuver per connection**
  - **static signage**
- Ids of connections have to be defined within intersection
- For connections driven by two signal groups (e.g. protected/permissive right turn) make sure to correctly set **secondary signal group**
- „Connection ID“ is not needed
- Every possible connection between ingress and egress lanes shall be included, including U-Turns
- U-Turns to be defined as own connection
- However do not include those requiring lane changes in the conflict area!

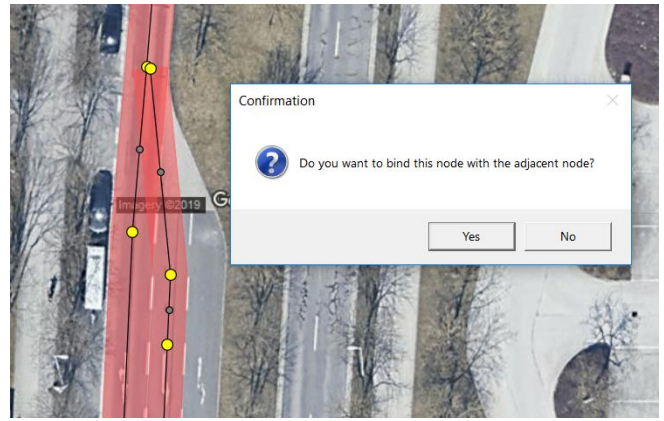


Merging/Diverging lanes

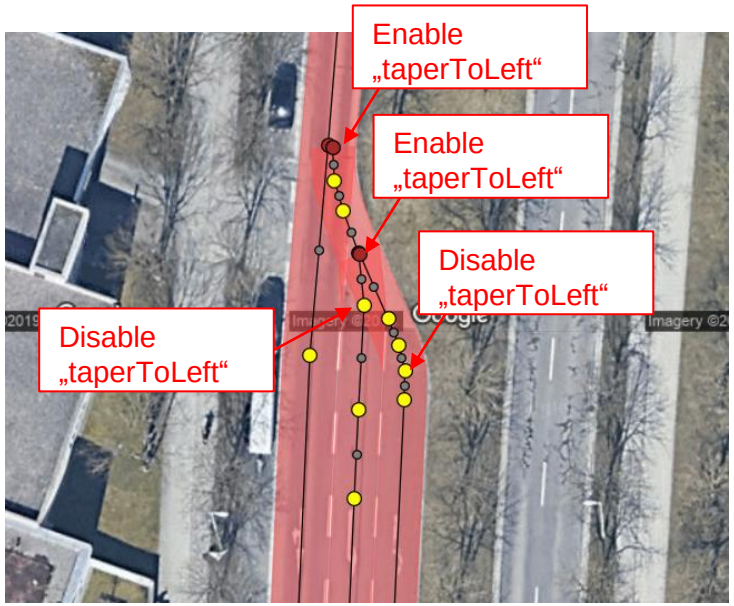
- Merging and diverging lanes share the same lane node at the merging/diverging point
- Simply drag and drop the starting or end note of the merging/diverging lane onto the corresponding node of the other lane
- Ensure to set the node attributes to either „mergePoint“ or „divergePoint“ depending
- Define attributes from the direction of stop line
- Enable the node attribute „taperToLeft“ or „taperToRight“ at first node after merge or diverge
- Disable „taperToLeft“ or „taperToRight“ at the end of the merge or diverge



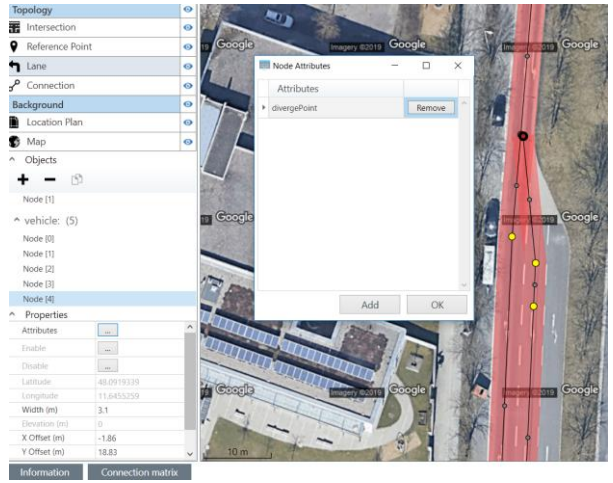
Add lane



Drag and drop lane node diverging lane on parent lane



Add nodes as needed to model curvage



Set node attribute “divergePoint”

Crosswalks

- Defined with at least two lanes on the sidewalks
- Lanes end/start at the curb stone or stop bar
- Crosswalk lanes are bidirectional:
  - Both Ingress Approach/Path AND Egress Aproach/Path have to be set
- Set Lane Type to „crosswalk“
- Add two connections (one for each direction) between the two lanes
- Set primary signal group for each connection
- Bike lanes should be defined as standard lanes with attribute bike with lane length min. 300m