Road network generation

We generate a road network of area of interest from OpenStreetMap (OSM) is a map of the world, created by people and free to use under an open license.

**OSM download**

* Find a bounding box of an area of interest using <http://www.openstreetmap.org>.
  + Output: north, south, west and east coordinates of the bounding box.
* Retrieve OSM road network using OSMnx python library method (osm\_net\_download) that calls an Overpass API query.
  + Output: JSON data of OSM ways and nodes along the ways.

{"**type**": "node",

"**id**": 61328038,

"**lat**": 42.360057,

"**lon**": -71.107667,

"**tags**": {"attribution": "Office of Geographic and Environmental Information (MassGIS)",

"created\_by": "JOSM", "source": "massgis\_import\_v0.1\_20071008165629"}}

{"**type**": "way",

"**id**": 387051949,

"**nodes**": [61327276, 597845243, 61327122, 61320984],

"**tags**": {"attribution": "Office of Geographic and Environmental Information (MassGIS)", "condition": "fair", "highway": "residential", "lanes": "2", "massgis:way\_id": "129000", "name": "Franklin Street", "oneway": "yes", "source": "massgis\_import\_v0.1\_20071008165629", "width": "12.2"}}

**SimMobility road network preparation**

* Convert the OSM ways and nodes to a graphical representation using NetworkX.