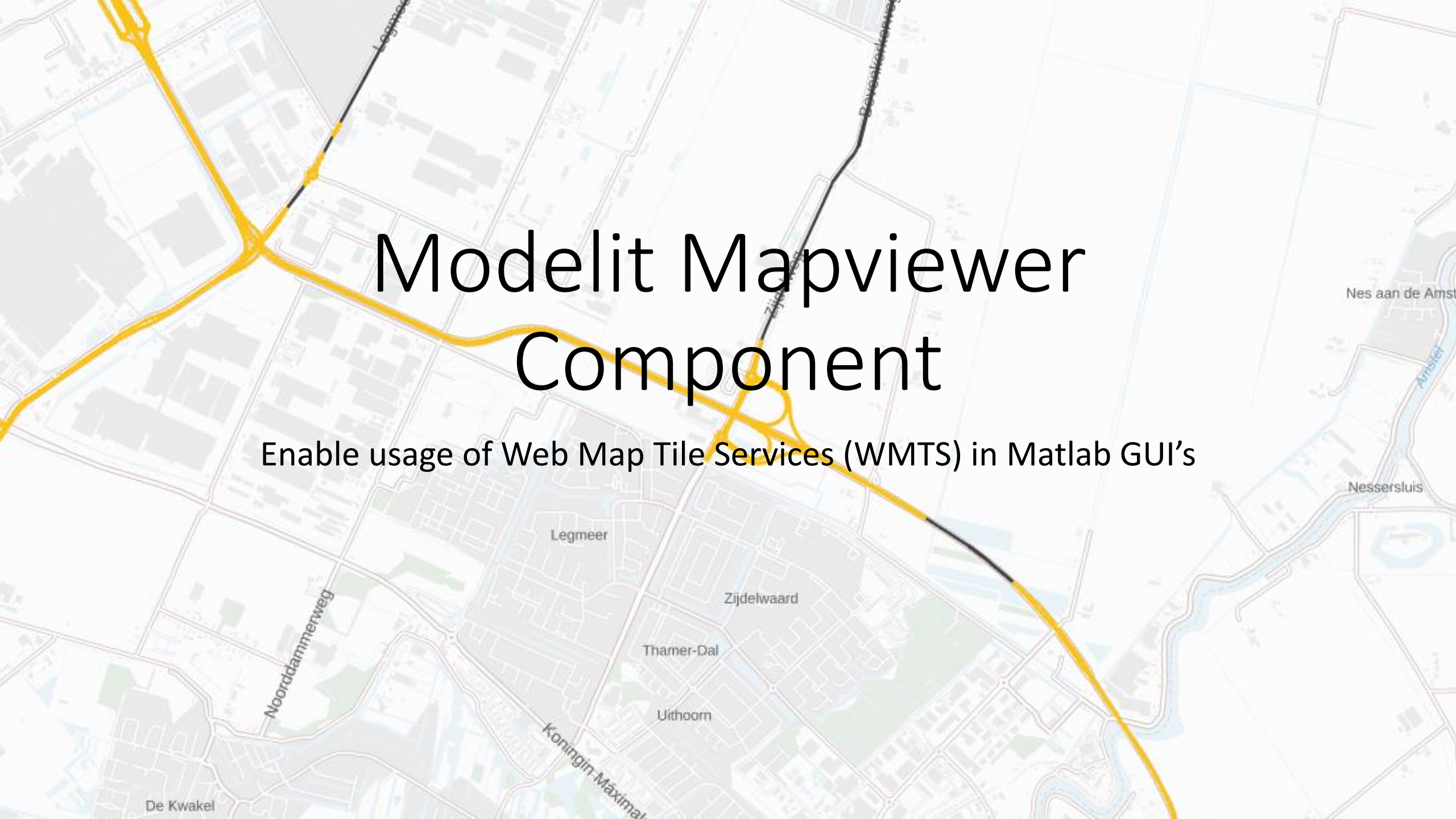
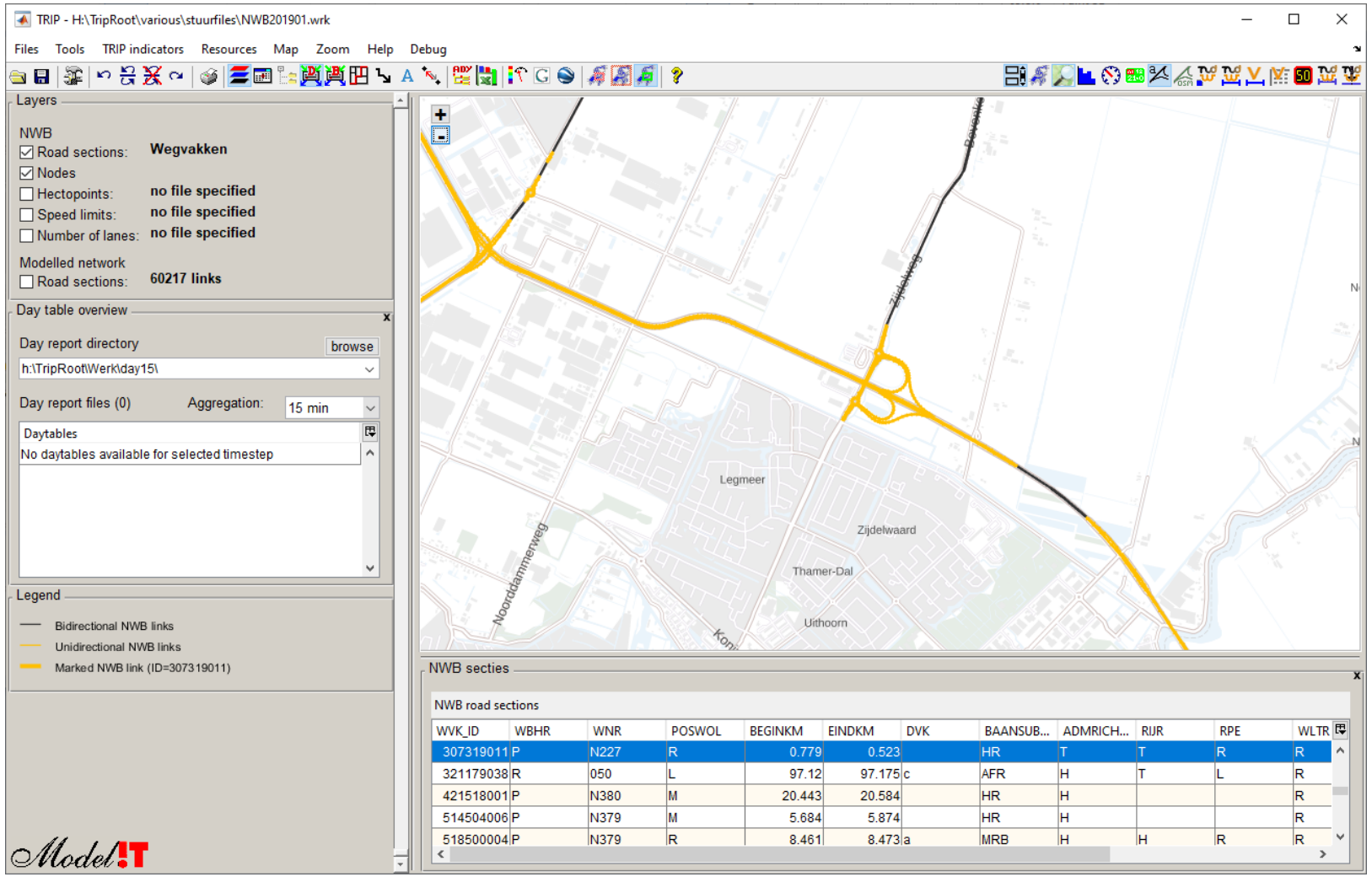
Modelit Mapviewer Component

Enable usage of Web Map Tile Services (WMTS) in Matlab GUI’s



Example of final product



TRIP - H:\TripRoot\various\stuurfiles\NWB201901.wrk

Files Tools TRIP indicators Resources Map Zoom Help Debug

Layers

NWB
- [x] Road sections: **Wegvakken**
- [x] Nodes
- [ ] Hectopoints: **no file specified**
- [ ] Speed limits: **no file specified**
- [ ] Number of lanes: **no file specified**

Modelled network
- [ ] Road sections: **60217 links**

Day table overview

Day report directory browse

h:\TripRoot\Werk\day15\

Day report files (0) Aggregation: 15 min

Daytables

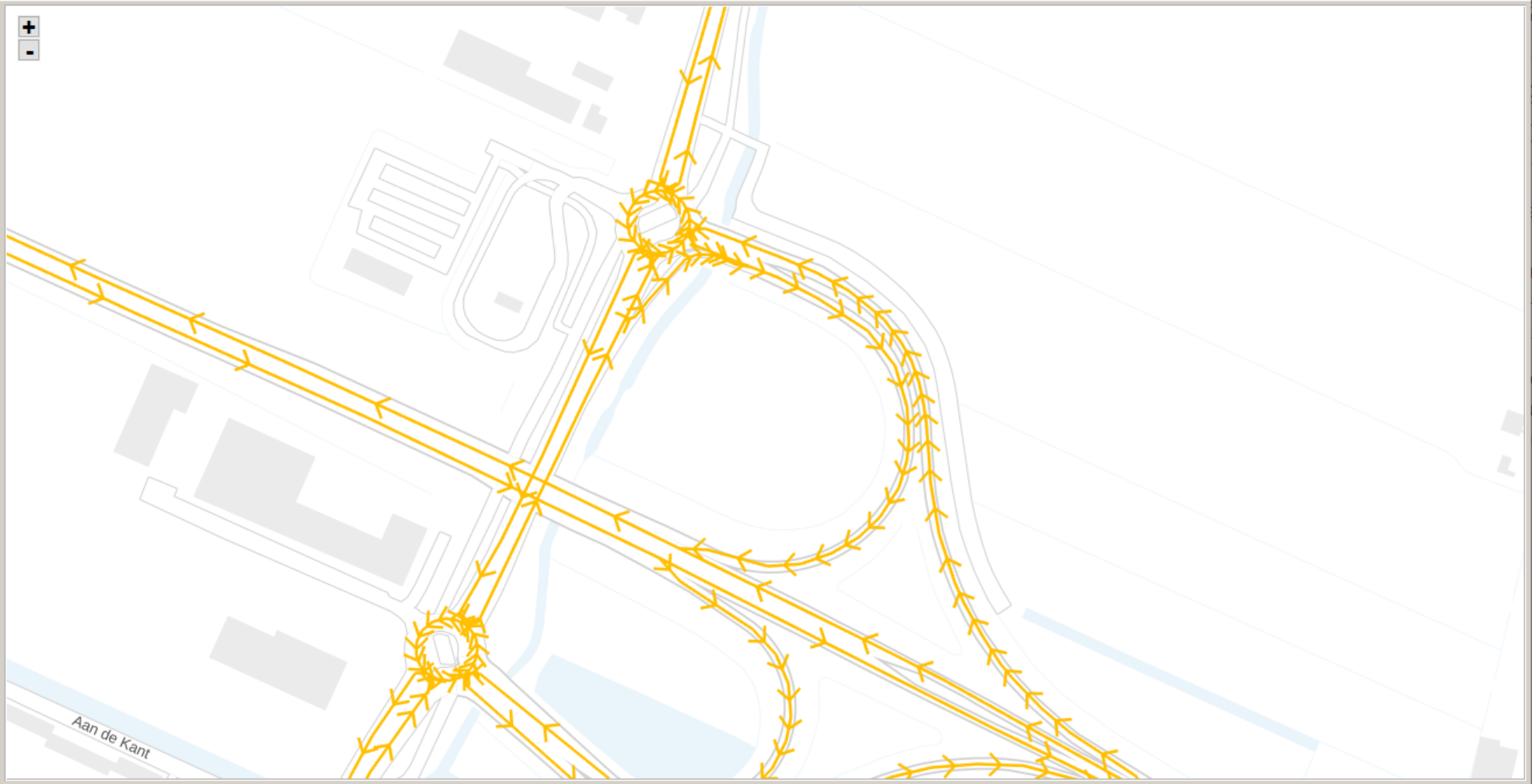
No daytables available for selected timestep

Legend

Bidirectional NWB links

Unidirectional NWB links

Marked NWB link (ID=307319011)



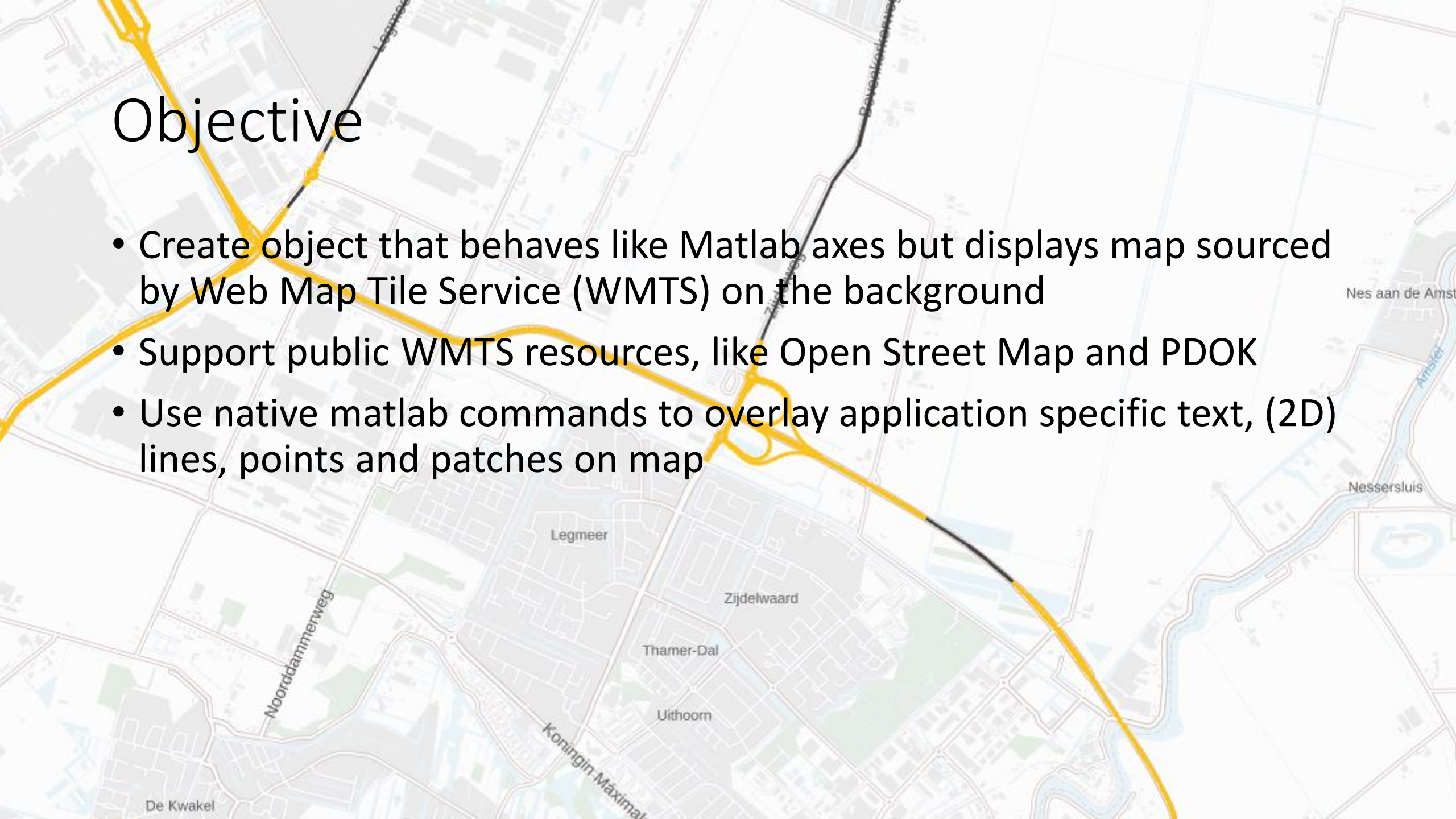
NWB secties

NWB road sections

WVK_ID	WBHR	WNR	POSWOL	BEGINKM	EINDKM	DVK	BAANSUBSRT	ADMRICHT...	RIJR	RPE	WLTR	STT_NAAM	WPSNAAM...	WVK_BEGDAT
307319011	P	N227	R	0.779	0.523		HR	T	T	R	R	Doornseweg	LEUSDEN	20151201
321179038	R	050	L	97.12	97.175	c	AFR	H	T	L	R	IND.EKKER...	SON EN BR...	20170301
421518001	P	N380	M	20.443	20.584		HR	H			R	't West	DONKERBR...	20170301
514504006	P	N379	M	5.684	5.874		HR	H			R	DRENTSE M...	NIEUW-BUIN...	20170601
518500004	P	N379	R	8.461	8.473	a	MRB	H	H	R	R	DRENTSE M...	1E EXLOER...	20170601
322195031	R	050	R	105.715	106.568		HR	H	H	R	R	RYKSWG	SINT-OEDE...	20170101

Objective

- Create object that behaves like Matlab axes but displays map sourced by Web Map Tile Service (WMTS) on the background
- Support public WMTS resources, like Open Street Map and PDOK
- Use native matlab commands to overlay application specific text, (2D) lines, points and patches on map



Reason for developing this component

- Many legacy Matlab GUI's display geographical data but lack a true zoomable background map for these data;
- Usage of "true" maps provides extra feedback that helps users to quickly check and interprete geographical data;
- A variety of public WMTS's is available. These provide relevant contextual information for many disciplines;
- WMTS tile services offer great speed and allow local caching;
- Creating a zoomable map that is fast and robust on a one-off basis is complex and labour intensive.
- With a reusable WMTS componont map functionality can be added to new or existing Matlab GUI's with minimal coding changes

Features

- Supports WGS coördinaties (EPSG:3857) and carthesian coördinate systems (like EPSG:28992)
- Interactive Pan with mouse or Zoom with +/-, area selection by mouse or mousewheel
- Multithreaded download of tiles from WMTS
- Automatic tile-caching

Typical usage

- Create mapViewer object:

```
mapviewer = modelit.mapviewer.MapViewer(HWIN, 'units', 'normalized',…
 'position', [0 0 1 1],…
 'tilesource', modelit.mapviewer.OSMTileSource);
```

- Create line, patch or text objects (specify WGS coordinates if tilesource uses WGS)

```
lonlat=RD2WGS([xx(:),yy(:)]);
line(lonlat(:,1),lonlat(:,2),'parent',mapviewer);
```

- Set required initial zoomlevel and center and map-center:

```
setZoomlevel(mapviewer, 3);
setCenter(mapviewer,mean(lonlat(:,1)), mean(lonlat(:,2)));
```

Additional methods of mapviewer

- addlistener
- getCenter
- getVisibleBox
- getVisibleRectangle
- getZoomlevel
- setCenter
- setPivotCenter
- setTilesource
- setVisibleRectangle
- setZoomlevel

Collaborate?

- Drop an email to zijpp at modelit dot nl