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Traffic censuses in the United Nations Economic Commission for Europe region: 2015 and 2020 E-Road traffic censuses

Status of 2015 E-Road traffic census data collection and dissemination

Note by the secretariat

I. Background

1. At its seventy-sixth session, the Inland Transport Committee adopted the draft resolution on the 2015 E-Road Traffic Census (ECE/TRANS/240 para. 90) inviting governments to supply the results of the 2015 E-Road traffic census to the United Nations Economic Commission for Europe secretariat, if possible before 1 November 2016. The committee also encouraged the secretariat to dedicate more resources to the dissemination of the E-Road and E-Rail census results, in particular by producing a pan-European map.

II. Progress

2. As of 1 March 2018, the secretariat has received E-Road censuses from 21 countries, namely Austria, Azerbaijan, Belarus, Bulgaria, Croatia, Czechia, France, Georgia, Germany, Hungary, Latvia, Lithuania, the Former Yugoslav Republic of Macedonia, Poland, Romania, Serbia, Slovakia, Slovenia, Sweden, Turkey and the United Kingdom of Great Britain and Northern Ireland. The Working Party may recall that at the same time last year that number was twelve.

3. Some of the censuses contain very comprehensive traffic measurement data and in a geospatial format, whereas some contain only very basic E-Road infrastructure numbers.

The secretariat published all the received data in September and October 2017. They are available at www.unece.org/trans/main/wp6/e-roads_census_2015.html.

III. Geospatial Application

4. In order to improve dissemination of the results, upon receipt of the census results the secretariat asked member States for any Geographic Information System (GIS) files (such as Shape files) used to create maps of the traffic volumes (most countries which provided a map of their traffic volumes did so initially in PDF format).

5. In October 2017, the secretariat released the collated results, publishing an interactive pan-European E-Road traffic map showing traffic volumes for those countries providing GIS data. The map is available at www.unece.org/trans/main/wp6/e-roads_maps.html.

6. For 2015 nine countries provided GIS data, namely Austria, Bulgaria, Czechia, France, Latvia, Lithuania, Poland, Slovenia and Sweden. For 2010 three countries provided GIS data, Latvia, Slovenia and Switzerland. For the 2005 census a traffic map was produced by a consultant, and data are available for 23 countries. It should be noted that the 2005 geographical layers are not as accurate as the 2015 files as many segments are point-to-point rather than following the contours of roads. This difference in precision is only apparent at very detailed zoom levels and does not significantly affect the overall visualization effect.

7. In the case of Sweden, data were not provided as an E-Road census file but the secretariat managed to find the relevant traffic data via an official open source application. The 2005 shape files were used as a filter, so that only traffic segments that were 30 km or less from the 2005 E-Roads were included. As such, the 2015 segments may include some segments that are not in the E-Road network, including roads in major cities such as Stockholm.

IV. Map Functionality and Applications

8. Using the map is straightforward. Users can zoom in or out, and click on individual segments to see the Annual Average Daily Traffic (AADT) level for that segment. In addition, the AADT level of Heavy Goods Vehicles (HGVs), can be viewed for those countries with available data.

9. Expanding the “Layer list” allows the user to choose between census results of 2005, 2010 or 2015 (or more than one at the same time). At a continent-level zoom meaningful inference is difficult as the segments with large AADT levels do not look significantly different than those with lower levels of AADT. These differences are more evident when zooming in to a more detailed level. Applying the “filter” allows users to only show traffic segments that are above a user-defined threshold. For example, in the case of France, using a threshold of 70 000 vehicles per day means that only traffic around the larger cities is visible.

V. Future Activities

Documentation

ECE/TRANS/WP.6/2018/11

10. This interactive map is an excellent way of communicating transport statistics to non-specialists. Easy-to-use tools such as this can help showcase the work of transport statisticians, raise awareness of the data collected, and communicate the results to policy makers and the general public.

11. The map of the E-Road census results has already been used by the Group of Experts on Climate Change Impacts and Adaptation for Transport Networks and Nodes (WP.5/GE.3). The traffic information was combined with a map of possible future climate change hotspots, provided by the World Meteorological Organization. Through initiatives such as this, the potential effects of climate change on critical road transport links can be mapped and cost-benefit analyses on potential solutions can be considered.

12. The Working Party may wish to consider the potential applications of the map with respect to intermodality and modal shift. The mapped traffic levels can give a good idea of the key routes and bottlenecks that are faced in the movement of people and goods. Combining this geospatial information with similar data concerning rail or inland waterways, and/or intermodal freight terminals, may allow policy makers to better identify where there is potential for goods transport to be shifted to rail or inland waterways, modes of transport which typically have a lighter environmental footprint.

13. Recalling that the E-Road network often corresponds closely with a country's motorway network, the Working Party may wish to consider combining the census results with geospatial traffic accident data, to determine accidents and fatalities in terms of AADT, and gain further insights into where accident "black spots" exist on the main motorway network.

14. The E-Road census extends back to 1980 and was inaugurated principally to verify road standards as set out in the European Agreement on Main International Traffic Arteries (AGR) of 1975. However, in order to improve the scope of the geospatial tool, the Working Party may wish to consider adding similar data for Canada and the United States to the map, if available.

15. When considering the recommendations for the 2020 E-Road Census (see also ECE/TRANS/WP.6/2018/11), the Working Party may wish to add a requirement for a GIS version of the map in the 2020 E-Road census, and the provision of shape files. In this case the Working Party and the secretariat could together develop guidance for countries that do not have extensive experience in geospatial mapping. To allow direct comparisons of traffic levels over time, a recommendation to measure traffic in the same segments for subsequent censuses could be beneficial. Lastly, the mapping of AADT specifically for heavy goods vehicles, holiday traffic, peak traffic and night traffic could be requested.

16. The Working Party may wish to advise the secretariat on any other improvements it wishes to see of the dissemination of the census results.