

Smart City use case – Monitor preventive road safety

Analyze (part of KBenP) develops tailor-made data-driven solutions in collaboration with local, regional and national governments. Through smart use and combining of different types of data, we contribute to the realization of societal challenges. Our approach is based on the development of concrete practical use cases in areas such as housing, mobility, road safety and citizen participation. We collaborate with partners such as TNO, Cyclomedia, Microsoft and Bridgestone Mobility Solutions.

This document describes a smart city use case for the improvement of road safety in cities, a user friendly web application to identify and monitor unsafe road situations based on various types of data. The Monitor preventive road safety shows how smart use and combination of different types of data can result in relevant new insights that support to the realization of municipal challenges. It is a socially relevant case that is recognizable and applicable to both local, regional and national governments.

The problem

The degree of traffic hazards in the city is currently mainly indicated based on the perception of local residents, which cannot always be substantiated by means of objective figures about actual accidents. This makes it hard to substantiate measures such as adjustments to the road or to green areas. However, sentiment about road safety partly determines the resistance offered to building plans for new homes or to other urban development initiatives that lead to increased traffic.

A data-driven solution: Monitor preventive road safety

Especially at locations where children are involved, it is important to take preventive measures to improve road safety, instead of reacting when an accident has already happened. The Monitor Preventive Road Safety case provides insight into “near” accidents by mapping unusual and risky braking actions from a unique data source that is new for municipalities (floating car data from Bridgestone Mobility Solutions). That in addition to reports made by citizens via Veilig Verkeer Nederland (the Dutch societal organization that is committed to road safety), and data about accidents collected via the ‘Bestand geRegistreerde Ongevallen Nederland (BRON). The BRON is a central file with all the accident reports from the Dutch police linked to the national digital road network (the het Nationale Wegenbestand, NWB).

How does it work?

The most hazardous locations are visualized based on a relative weight, which is the result of an algorithm that looks at relevant features such as:

- The proximity of schools, playgrounds and other locations with many children or other vulnerable people (aggravating factor);
- The abruptness of the braking action (aggravating factor);
- Previous accidents on the same road section (aggravating factor);
- Previous reports of hazardous situations on the same road section by citizens involved (aggravating factor);
- The presence of speed bumps (relieving factor);
- The presence of speed cameras (relieving factor).

It is possible to switch on the 3D view based on the Cyclomedia images for any desired location, in order to assess the road arrangement in a photo-realistic 3D image. The relevant road sections are then highlighted in the 3D view.

What's the result?

The solution creates a perspective for action for the municipality to enter into discussions with local residents and other stakeholders about concrete (traffic) measures to increase safety of intersections, roundabouts and other road sections. There is also a solid foundation for the financing of preventive measures, which means that the governmental officials also have a stronger attitude towards their political administrators. Measures may include, for example:

- Removing or pruning greenery for better oversight;
- Separating bicycle and car traffic;
- Adjusting the maximum speed;
- Installing speed bumps.

The feedback loop is completed by continuous use of the Monitor, making the city increasingly safer by taking preventive measures. This effect is reflected in time in a decreasing number of accidents and reports about hazards, while traffic intensity increases as the city continues to grow.

Contact Analyze

Curious about how smart use of data can also help your organization to combat societal challenges? Visit www.analyze.nl or contact Wouter Huijzendveld: wouter.huijzendveld@analyze.nl / [0031\(0\)6-103 95 935](tel:0031(0)6-10395935).

Some screenshots of the Monitor preventive road safety





