

# Remote management of the Rande bridge

## Overview

The Rande Bridge is located on Autopistas del Atlantico AP-9, which is the main means of communication in Galicia, a region in the north-west of Spain, linking the main Galician cities, A Coruña, Santiago de Compostela, Pontevedra and Vigo among them and with Portugal. The AP-9 highway runs from Ferrol in the north of Galicia to Tuy on the border with Portugal and is 220 km long. AUDASA is the concessionaire company that manages the AP-9 highway. The Rande bridge crosses the estuary of Vigo and is a very important infrastructure because the alternative roads are very bad and time consuming. The bridge is 1.6 km long and has two lanes in each direction. The AADT on the bridge was 55,000 vehicles a day in 2015, reaching 64,000 during the months of July and August, with 7% of heavy vehicles. This level of traffic is very high for a two lane per direction road and made recommendable the widening of the bridge. The bridge is now being widening by adding one extra lane in each direction, separated from the main platform, that allows to carry out the project without affecting existing traffic. The works are expected to end by the end of 2017.

AUDASA is going to set up a remote management system of the traffic on the bridge to improve service quality and safety. The system consists of vehicle counters, speed detectors, variable message signs and a weather station that will provide information to a central system which automatically in some cases, or manually in others, will make changes on the maximum speed allowed on the bridge or the lanes drivers can use.

## Objectives

### General background

The traffic flow on the bridge is very high, so it is very important to avoid any incidents that would stop traffic and cause big delays. In case an incident occurs, there must be foreseen an effective way way to solve it. Therefore, the main objectives of the project are:

- Improve service quality by:
  - Regulating speed dynamically, adapting the maximum speed allowed on the bridge to the traffic intensity at that time
  - Controlling the access to the bridge
- Effective resolution of incidents and accidents by:
  - Monitoring the traffic
  - Having gateways to allow changing lane

## Project description

To improve service quality, we will make a dynamic speed regulation, adapting the maximum speed allowed on the bridge to the traffic intensity at that time. The maximum speed will be displayed on the VMS. For this, there will be vehicle counters and speed detectors at every entrance ramp of the bridge monitoring the traffic. We will also set up a weather station on the bridge that will get information about the wind speed, rainfall, and visual range. Both systems will send data on line to an expert system in the control center.

Depending on the traffic intensity, on the variation gradient of the traffic intensity, on the speed of vehicles and on the weather conditions, the expert system will propose the control operator the maximum speed that allows the maximum traffic capacity of the bridge at that time.

When the bridge is widened, there will be two access lanes from the Morrazo peninsula and two exit lanes. In normal conditions, vehicles from Morrazo that use the right lane will use the new lane, and those that use the left lane, may join the main road of the highway or use the new added lane. When there is a peak of traffic coming from Morrazo, the system will detect it and we will be able to close the right lane to vehicles coming from the north to smooth the joining of the two traffic flows on the bridge.

There will be gateways along the widened bridge that will allow the passage of vehicles between the new lanes and the old ones. These gateways will be closed in normal traffic conditions, but in case it is needed, they will be opened and will allow vehicles pass between the new added lanes and the old lanes or vice-versa. We will set up incident detectors along the bridge which will immediately inform the expert system in the control center, which will propose the control operator what to do.

### *Member States involved:*

Spain, Ministerio de Fomento of the Spanish Government  
Autopistas del Atlántico CESA (AUDASA)

### *Geographical Location (If relevant)*

Please insert a geographical chart with the indication on where the Action take place

### *Implementation schedule*

Start date: 1<sup>st</sup> January 2017  
End date: 31<sup>st</sup> December 2017

### *Budget*

Action promoter: AUDASA

Total project cost covered  
by this Decision: 290,000 €

EU contribution : 58,000 €

Percentage of EU support : 20%



### *Results expected*

This new traffic management system will improve the knowledge of the traffic on the bridge in real time, and will allow us to make decisions on the maximum speed on the bridge and the closing or opening lanes to improve traffic flow. It will also anticipate peaks of traffic and congestions that will allow us to take the necessary measures to avoid them.

### *Contact People*

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