

## **ROAD INFRASTRUCTURE AND SUSTAINABILITY – HOW DOES IT FIT TOGETHER?**

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### **1. ROAD INFRASTRUCTURE AND SUSTAINABILITY – HOW DOES IT FIT TOGETHER?**

The Austrian high-level road network, consisting of 2249 km of motorways and speedways, is part of the “veins” of Austria and connects the biggest cities and centers of Austria with efficient and fast mobility paths. The responsibility for planning, constructing and maintaining the high-level road network lies within the ASFINAG Construction Management Company. It had to continuously adapt to the ever-changing environmental protection and safety requirements. The overall system can only endure by balancing all three pillars of sustainability – ecology, society and economy. Continuous development and improvement are a prerequisite for keeping the balance.

#### **Ecology**

In the 60ies, it was state of the art to build high-level roads without noise barriers, water protection systems or retention systems – nowadays all of the aforementioned protective measures are included in the high-level road network, supplemented by further measures such as traffic guidance systems, roadside greenery and compensation areas.

ASFINAGs compensation areas are made up of high-quality nature conservation compensation areas, wooded areas along embankments as well as mowing and meadow areas.

In the future, the high-level network will also include e-charging infrastructure and different installation for own energy production. Until 2030 ASFINAG aims to cover its own electricity requirements with its own energy production. To reach this goal, the company’s overall power consumption additionally needs to fall by 20%.

#### **Society**

The ASFINAG road network is being equipped with an increasing number of intermodal transfer points – e.g. Park & Drive facilities. Intermodality stands for the interweaving and interlocking of modes of transport, not only considering the car as the sole means of transportation. To make the best use of intermodal transfer points, ASFINAG’s customers need to have a precise overview of all transport carriers, in order to make an informed decisions when it comes to choosing the mode of transportation. All relevant data is already being bundled via the VAO (Verkehrsauskunft Österreich), the Austrian Traffic Information Platform.

#### **Economy**

Investments in the Austrian high-level road network have positive effects on the job market. An optimized infrastructure system also reduces the price of transportation and provides better connections for neighboring markets and regions. In the following 6 years, the ASFINAG Construction Management Company will invest approximately 7 billion EUR in maintaining and optimizing the existing network and facilities – with a focus on responsible construction.

In many areas, innovative construction methods are being carried out in order to improve the existing network. This includes CO<sub>2</sub>-reduced concrete, high recycling rates and sustainable logistics concepts. Additionally, ASFINAG is working with alternative contract models, eco-social procurement criteria and digital construction methods and tools.

With proactive and innovative solutions, ASFINAG plays an active part of the transition to sustainable mobility in Austria and, together with its partners, enables mobility for generations.

### **Aspects and Challenges of Tunnel Safety**

The Road Tunnel Safety Act applies to all 166 tunnel structures in Austria. It aims to achieve a constant and high level of safety for all road tunnels in Austria. Implementing and upholding this law is a top priority for ASFINAG.

Tunnel safety can be categorized in the following three areas:

- Safety of people
- Operational stability
- Data protection and information security

The safety of people is the top priority and is continuously being optimized by ASFINAG by upgrading the technical standard in tunnel systems, installing kerb reflectors, using variable traffic signs, traffic lights, information boards and LED escape route markings. The success of these measures can be seen in the development of accidents since the year 2000: while tunnel structures have continuously increased, the number of accidents with personal injuries has declined significantly.

The maintenance of operational stability is essential for smooth traffic handling. This is ensured by comprehensive maintenance work. Regarding the challenge of securing tunnel facilities in terms of energy technology, ASFINAG is currently testing the energy self-sufficiency of individual tunnel objects by using solar energy. In the event of a blackout, this will continue to guarantee the functionality of the tunnel facilities. A project in this context is the S 1 Vienna Bypass. Starting autumn 2022, the photovoltaic systems installed on this road will be a first step towards energy self-sufficiency.

Tunnel safety is completed by the area of data protection and information security. A legal basis for this area is the Federal Act to Ensure a High Level of Security of Network and Information Systems, the so-called NIS-act. It requires to evaluate existing safety concept as well as implement further measures. ASFINAG is, among other aspects, focused in optimizing user entrances, adapting privileged access rights and installing electric safety doors in areas of highly sensible tunnel facilities. The implementation of the measures needs to be validated by the Austrian Federal Ministry of Internal Affairs in November 2022.

Since planning, constructing and maintaining high-level road network and especially tunnels are highly complex tasks that also bear financial risks and require highly specialized personnel, ASFINAG tries to identify risks as soon as possible, take targeted countermeasures or aims to prevent risks from arising in the first place.