AstaZero is the world’s first full-scale proving ground for future traffic safety solutions. Its opening has brought Volvo Car Group a step closer to realizing their vision that by 2020 no one should be killed or seriously injured in a new Volvo car.

An important measure towards achieving this goal will be the development of active safety systems, which will help to prevent accidents. These active safety systems will be the primary focus at AstaZero proving ground, located in close proximity to the Volvo Cars headquarters in western Sweden.

One of the facility’s greatest assets is its flexibility, with a design that permits the construction of unique, customized environments. As Pether Wallin, CEO of AstaZero says, “You can simulate all types of real-world traffic scenarios. At most proving grounds, the options are more limited.”

The centre can accommodate a wide range of test conditions, such as those found on busy city roads, highways, multi-lane motorways and crossroads. These conditions are crucial for studying the way cars interact with moving obstacles such as other cars, pedestrians, cycles, mopeds, motorcycles, trucks, buses and even animals that suddenly appear. In certain studies, e.g. those involving complex traffic situations and high speeds, robots will operate the test vehicles.

“Safety testing under realistic circumstances is a prerequisite for developing our active safety systems,” says Anders Axelson of Volvo Cars Safety Centre. He continues: “The facility will play several important roles: not only will it help us meet our safety vision, developing cars that don’t crash, it will also help us further develop safety functions that will address non-motorists, such as pedestrians and cyclists.”
Research and development
One of AstaZero’s main functions will be as a platform for the research and development of next-generation safety technologies. Here, in collaboration with universities and industry partners, Volvo Cars will undertake a range of initiatives, from strategic vehicle research and innovation projects to targeted research projects.

The work at AstaZero will also include the development and testing of autonomous driving technology, an intelligent driver support system designed to reduce accidents while improving the driving experience. Advanced systems are also under progress to further help prevent, for example, inattentiveness and driver fatigue.

Although meeting their target date of 2020 may be an ambitious goal, Volvo Cars has every reason to be optimistic. Indeed, as their innovative safety solutions have already shown, the future may not be that far off.

Anders Axelson, for one, is confident: “The Swedish automotive industry is at the leading edge of active safety. Thanks to AstaZero, we have great prospects for keeping our leading position. We’re the only car manufacturing company in the world to have set a goal of zero traffic fatalities for a specific date, and we’re the only country in the world whose government supports a zero traffic fatalities vision.”

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About AstaZero
AstaZero AB has built a 500 million SEK state-of-the-art proving ground outside of Gothenburg, Sweden. Based upon the collaboration between academia, industry and the authorities, the AstaZero facility will serve as an open, international platform for all interested stakeholders like vehicle manufacturers, suppliers, legislators, road agents, universities, and technical institutes from around the world. AstaZero’s industry partners consist of Volvo Car Group, Volvo Group, Scania, Autoliv and Test Site Sweden. The name Asta (Active Safety Test Area) relates to the facility’s connection to a vision of zero traffic fatalities.

Design
AstaZero’s total surface area amounts to about 2 000 000 square metres with a paved surface of 250 000 square metres. The facility is encircled by a 5.7 kilometre highway connected to a city environment with four blocks, 40 by 25 metres. AstaZero also features a high-speed area consisting of a circle, 240 metres in diameter, with “drop add-ons” joined to a 700-metre long multiline road.

Test environments

Rural Road
The rural road contains ten different points, both open and concealed, where objects will appear in front of the vehicles. The area is specially designed for different tests of driver behaviour and is well-suited for the use of hidden or suddenly appearing obstacles. At the road, there will be two T-junctions and a crossroad with signage in the specified language and changeable to suit customer requirements. The Rural Road will also have bus stops/lay-bys at two locations.

City Area
The City Area will primarily be used to test the vehicle’s capacity to interact with the surrounding environment to avoid hitting buses, cyclists, pedestrians or other road users. The area therefore covers a number of different sub-areas, such as a town centre with varying street widths and lanes, bus stops, pavements, bike lanes, street lighting and building backdrops. The City Area also has a road system with different kinds of test environments such as roundabouts, T-junction, return-loop and lab-area.

Multilane Road
The multiline road consists of four lanes. These are connected to the High-Speed Area, with an acceleration road that is approximately 300 metres long, 7 metres wide and with turning loop for long vehicles. Several different scenarios can be tested on the multiline road, such as lane changes, different collision scenarios and crossing scenarios.

High-Speed Area
Located in the centre of the facility, the High-Speed Area consists of two acceleration roads. Acceleration road one is approximately 1 kilometre long. In addition to the two acceleration roads, it is also possible to use the Multilane Road for acceleration, which means vehicles can enter the High-Speed Area from 3 different directions. In this area, focus will primarily be on vehicle dynamics like avoidance manoeuvres at very high speeds.

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Descriptions and facts in this press material relate to Volvo Cars' international car range. Described features might be optional. Vehicle specifications may vary from one country to another and may be altered without prior notification.