

## Safety on the St. Petersburg Ring Road using Axis network cameras.

BCC has built a system to record video and detect motor vehicle accidents on the St. Petersburg Ring Road.



**Organization:**

Metrostroy

**Location:**

St. Petersburg, Russia

**Industry segment:**

Transportation

**Application:**

Traffic monitoring, safety and security

**Axis partner:**

BCC

**Mission**

The project's objective was to build a reliable video surveillance system that could record video and automatically detect accidents as part of an automatic traffic control system (ATCS) for Navigation Structure C1 and a roadway tunnel, parts of the St. Petersburg Flood Protection Barrier (Dam).

**Solution**

Eight AXIS Q6032-E PTZ and 104 AXIS P1343-E fixed Network Cameras were installed on access roads and in the tunnel roadway. The fixed network cameras are integrated with Traficon firmware—104 VIP-IP video image processing modules—that detects accidents and notifies system operators in real time.

**Result**

The project resulted in a fully automatic system for monitoring traffic and accidents on a section of the St. Petersburg Dam that can be used not only for surveillance and recording, but also for managing traffic and responding to accidents in real time. The client is completely satisfied with the system, which has already operated for several years without any major problems.

**“Axis cameras combine 3 important advantages: the ability to integrate with various outside systems, video image quality, and sufficient capacity for connecting and simultaneously working with several systems while maintaining the required video image parameters.”**

Daniil Vladimirovich Potapov, Telecommunications Manager (Directorate for the Flood Protection Barrier).

### Site description

Navigation Structure C1 is part of the St. Petersburg Flood Protection Barrier designed for ships with displacement up to 100,000 tonnes. The navigation structure was officially opened in August 2010. The structure is a channel 273 m long, 200 m wide, and 16 m deep at its mouth. A six-lane tunnel roadway, part of the St. Petersburg Ring Road, nearly two kilometers long runs under the ship channel. The tunnel's lowest point is 28 m deep.

### Project parameters

The Flood Protection Barrier is a strategically critical facility and requires heightened security measures. Traffic accidents in the underwater tunnel can have quite serious repercussions, as emergency services' response time must be much faster than aboveground sections of the road. Therefore, the project required not just a video surveillance system, but a fully intelligent solution with automatic detection of accidents and rapid notification to the appropriate services.

### Equipment selection

The client and installer selected AXIS Q6032-E PTZ and AXIS P1343-E fixed Network Cameras. The key criteria here were high image quality with detail enhancement capability needed for traffic video processing; broad capability to integrate with equipment from various manufacturers; and high camera capacity sufficient for online monitoring and recording in several archives simultaneously. The SCS design allows for Power over Ethernet to Axis and RuggedCom equipment, which saved money by not running separate power lines.

### Analytics selection

Traffic analysis is rather specific and requires specialized solutions; therefore, the Ring Road project uses Traficon firmware, which is considered today's best solution for monitoring traffic and detecting accidents. When integrated with the ATCS SCADA, Traficon can not only promptly notify the operator of accidents, it can also transmit a signal to automatically switch traffic lights to stop or re-route traffic in case of an accident in the tunnel.

Traficon VIP-IP modules are used on 19" and 1/2 19" screens to process video signals from cameras and automatically detect accidents. The modules are connected to the LAN with copper cable. A TMS Flux control system installed on 2 Cisco UCS servers (for backup) with Linux OS are used to control and set up the automatic accident detection system. OPC protocols are used to transmit data to the ATCS SCADA system.



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