



Argoscan – hard shoulder release

for releasing additional lanes on highways

Highlights:

- reliable and fast release of the hard shoulders using multistatic video analysis; automatic evaluation process as application in the background
- support for the operator with the evaluation of results
- user-friendly
- optimal verification using pan/tilt cameras with high-performance optical zoom (Platon)
- the use of dynamic cameras significantly reduces hardware requirements and the related infrastructure costs
- additional uses such as traffic observation and analysis
- prevention of unwanted alarms by intelligent filtering of events

Awards:

- “Best traffic management system 2007” in the federal state of Hesse. Thanks to the Funkwerk video system, traffic flow was increased by 25 percent which equals the reduction of 3200 hours of car traffic daily.
- “Intertraffic Amsterdam Innovation Award 2008” in the category Traffic Management

Evaluation process
in the background

Multistatic detection with
dyn. cameras

Preselection
of events

DESIGNED FOR
traffic infrastructure



Security made in Germany
development & production



Argoscan

Release of hard shoulders using multistatic video detection

For more than 15 years, Funkwerk components have been used at critical motorway sections for traffic observation and to manually open up the hard shoulders. By using Argoscan to release the hard shoulders to traffic this ensures the smooth flow of traffic during rush hour and similar cases of increased traffic without the need for expensive infrastructure like additional lanes.

Conventional systems

Without video support, the hard shoulders cannot be opened unless a worker has driven down the section to confirm it is safe to open it, which is time-consuming and labour-intensive.

A video system with static cameras requires the operator in the traffic control centre to visually inspect the sections to be opened by checking one camera after the other.

Potential for improvement

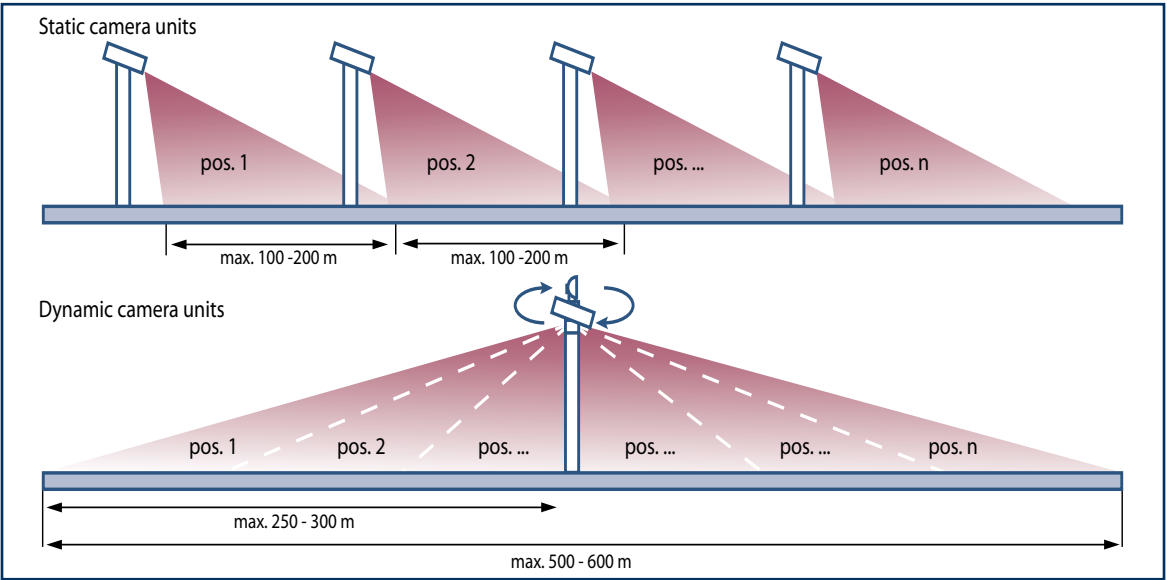
- Manually releasing the hard shoulders requires about one minute per kilometre. Consequently, opening a section of 20 km creates an “observation gap” of about 20 minutes. Once the section is opened, new obstacles might have developed unnoticed.
- The distance between the static cameras is a maximum of 200 metres. By using dynamic pan-tilt units, the distance can be increased to 600 metres.

Solution: Argoscan – hard shoulder release

The use of pan/tilt cameras allows scanning motorway sections in the background as well. The “observation gap” can thus be reduced to less than 10 % (approx. 90 seconds) of the alternative solution.

Benefits of Argoscan

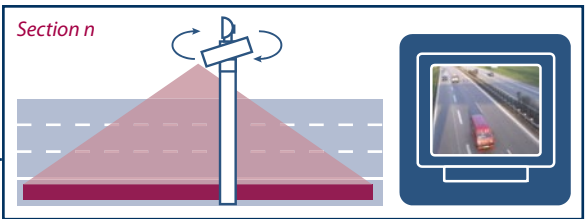
- **Reduced video infrastructure requirements** – with dynamic pan/tilt units, less than 40 % of cameras and poles are required.
- **Reduced traffic infrastructure** – opening the hard shoulders temporarily is significantly cheaper than additional lanes.
- **More efficiency** – compared to conventional systems, Argoscan opens the hard shoulders much faster and more reliably.
- **Environmental protection** – reducing congestion means less fuel consumption and CO2 emissions.
- **Faster response to regularly recurring traffic events** – a foresighted and regular road scan supports the operator.
- **Prevention of false alarms** – irrelevant events are filtered out by intelligent algorithms.
- **Zooming in on details** – dynamic cameras with variable focal lengths allow the detection of minute details.
- **Additional uses** – apart from opening up the hard shoulders, the system can also be used for traffic observation and analysis.



Operating Argoscan - hard shoulder release

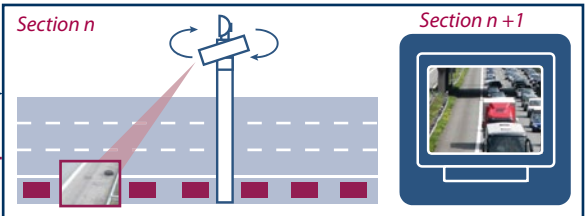
1. System start and visual inspection

- System initialisation and automatic scan of the complete section
- Automatic control of the pan/tilt unit to cover the whole section
- Visual live inspection of the motorway section by the operator



2. Intelligent background scanning

- While the operator continues to check the individual subsections, the system automatically runs a background scan of the sections already checked
- Obstacles are detected by digital image analysis
- Irrelevant interferences (cast shadows, lane violations etc.) are filtered out automatically



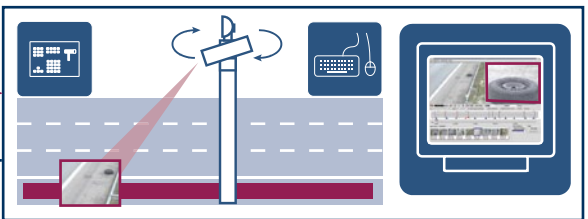
3. Individual presentation of results

- The customised GUI displays the scanned section
- Presentation of detected interferences in each subsection
- Display as a series of images and/or event list
- Additional information for orientation (camera number, position on motorway, date/time)



4. Evaluation of events

- Selection of an event from a series of images or the event list
- Free navigation within the video recording (forward/backward, first frame/last frame, etc.)
- Parallel display of live and recorded images
- Control of dynamic camera (zoom, focus) for a detailed display and unambiguous evaluation



5. Release ?

