Integrated System for
Automatic Speed/Red Light Enforcement of Road Vehicles

SAFETY THAT PAYS FOR ITSELF !

**International Conference on
on Clean, Efficient & Safe Urban Transport**

June 4-6 2003, Gdansk, Poland

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Content

- Enforcement concept
- New technology radar based speed and red light cameras
- Other applications
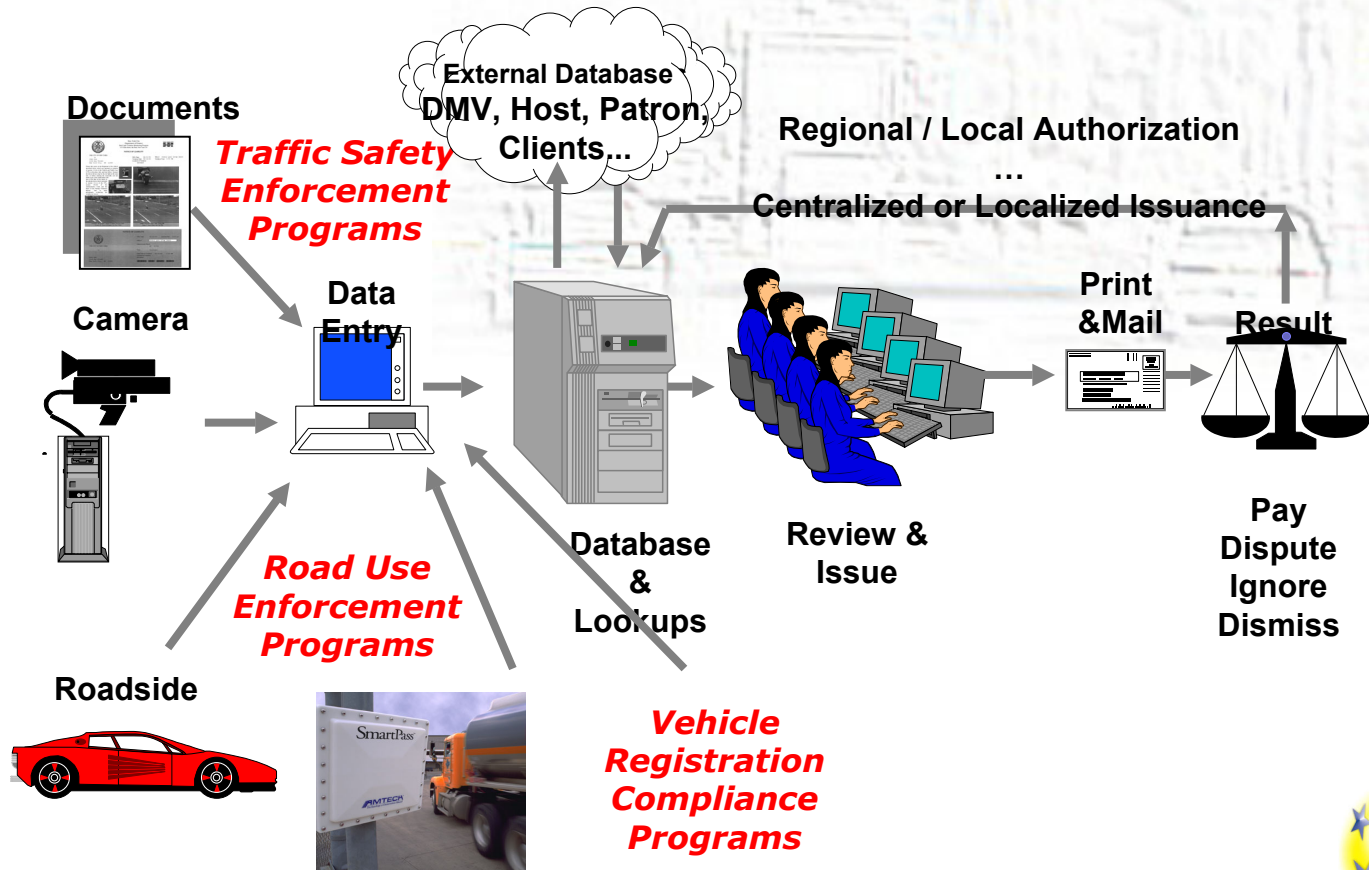- Efficient violation processing

Efficient Enforcement is <u>Key</u> to Law Compliance

- Automated Violation Detection Increases Violation and Non-Compliance Detection

  – Increased Violation Detection ➔ Increased Law Compliance

  – Increased Law Compliance ➔ Improved Traffic Safety

  – Increased Law Compliance ➔ Increased Revenue Collection

- Automated Violation Detection Enables Law Enforcement Officials to Focus on Higher Value / Safety Activities

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Polish National Vehicle Violation Processing System via Automated Violation Detection

Documents

Traffic Safety Enforcement Programs

External Database DMV, Host, Patron, Clients...

Regional / Local Authorization

…

Centralized or Localized Issuance

Camera

Data Entry

Print &Mail

Result

Database & Lookups

Review & Issue

Pay Dispute Ignore Dismiss

Road Use Enforcement Programs

Roadside

SmartPass

AMTECH

Vehicle Registration Compliance Programs

Source: Transcore Inc.

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Speed/red light enforcement systems

Integrated speed/red light enforcement system

- Implementation of **high quality** speed/red light cameras, providing possibility to identify driver and car registration

- Implementation of vehicle/driver data base

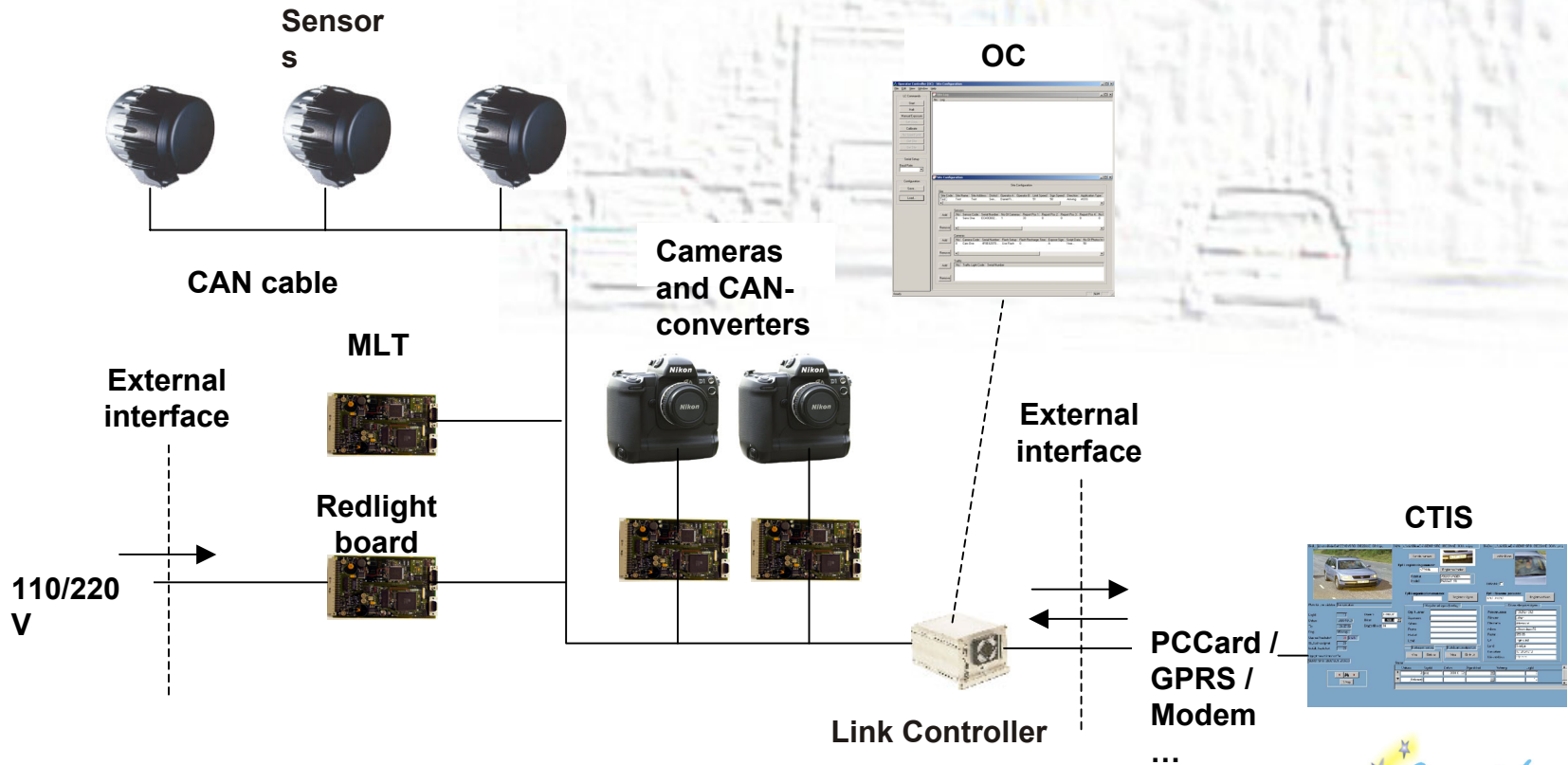- Implementation of efficient violation data processing system

Intelligent radar sensor

Sensor measures:

- Vehicle speed

- Vehicle direction

- Distance from sensor to vehicle

- Time

Complete speed / red light camera

Fixed and mobile versions of speed camera
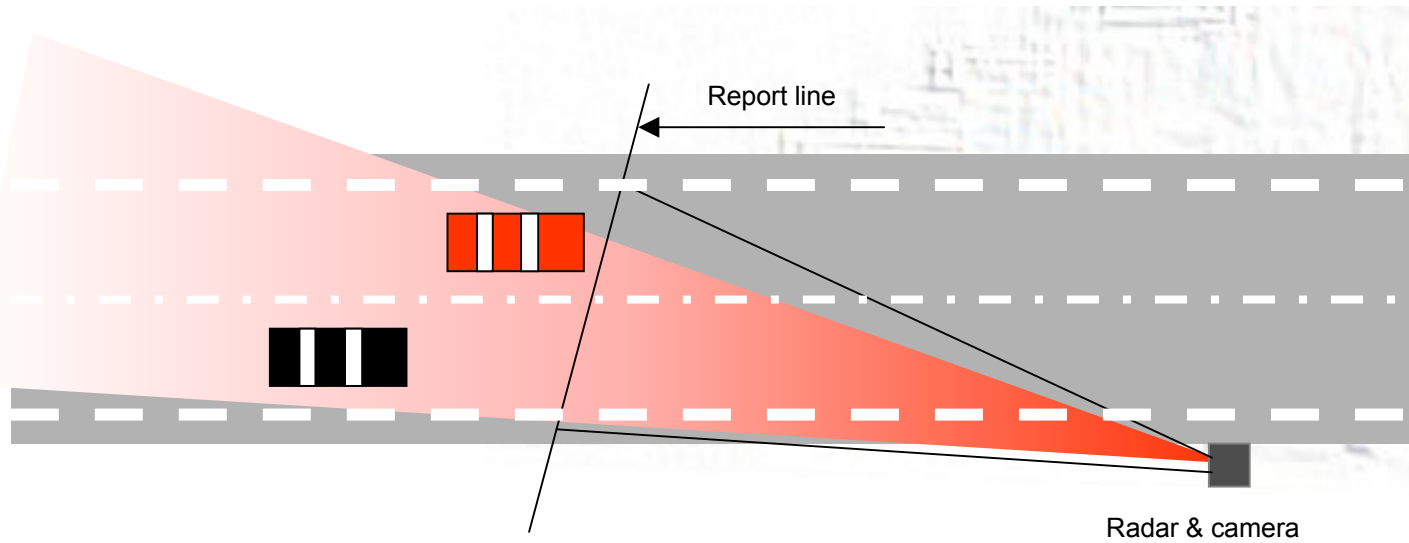

In-vehicle version

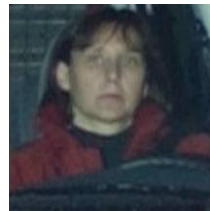

Cabinet version

Mobile version

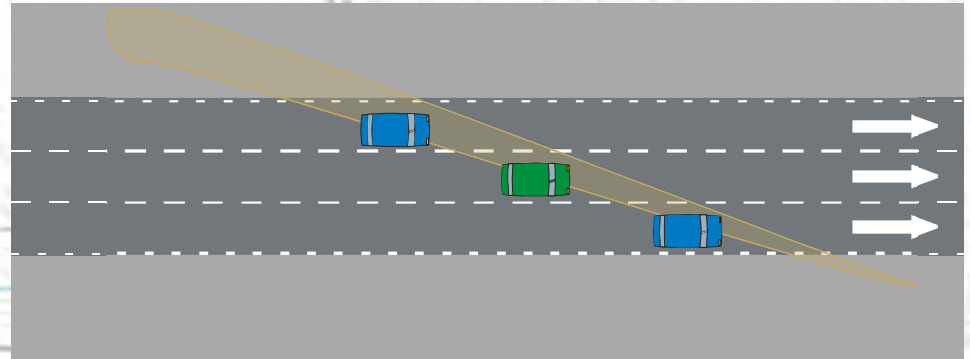Source: Sensys Traffic AB

How modern speed camera works

Report line

Radar & camera

Speed camera takes a picture of the speeding car, registration number and face of driver at „report line"
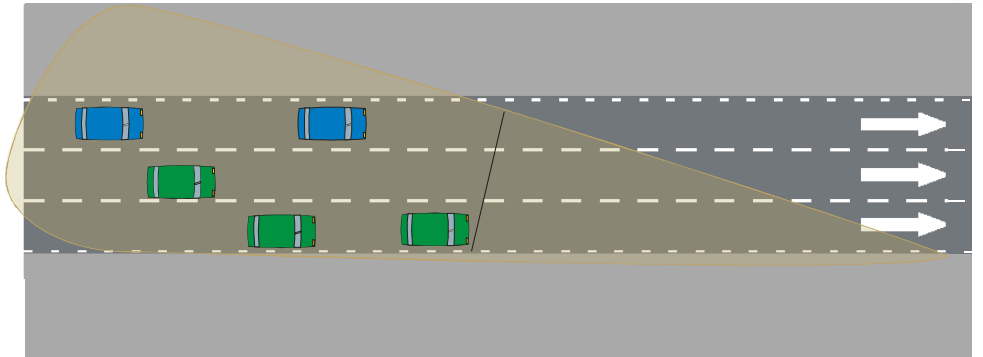
Old vs. New Technology

Old sensors:

- Lower accuracy

- Possible misreading

- Poor pictures quality

New sensors:

- High accuracy and reliability

- Double check of speed and distance

- High quality, digital colour pictures

Red Light Safety System

The system is active during the red phase. When the sensor detects a vehicle running a red light:

• Camera A exposes a photo for license identification.

• Camera B exposes a photo for driver identification.

Report line A

Report line B

Radar-lobe

Camera A

Radar & Camera B
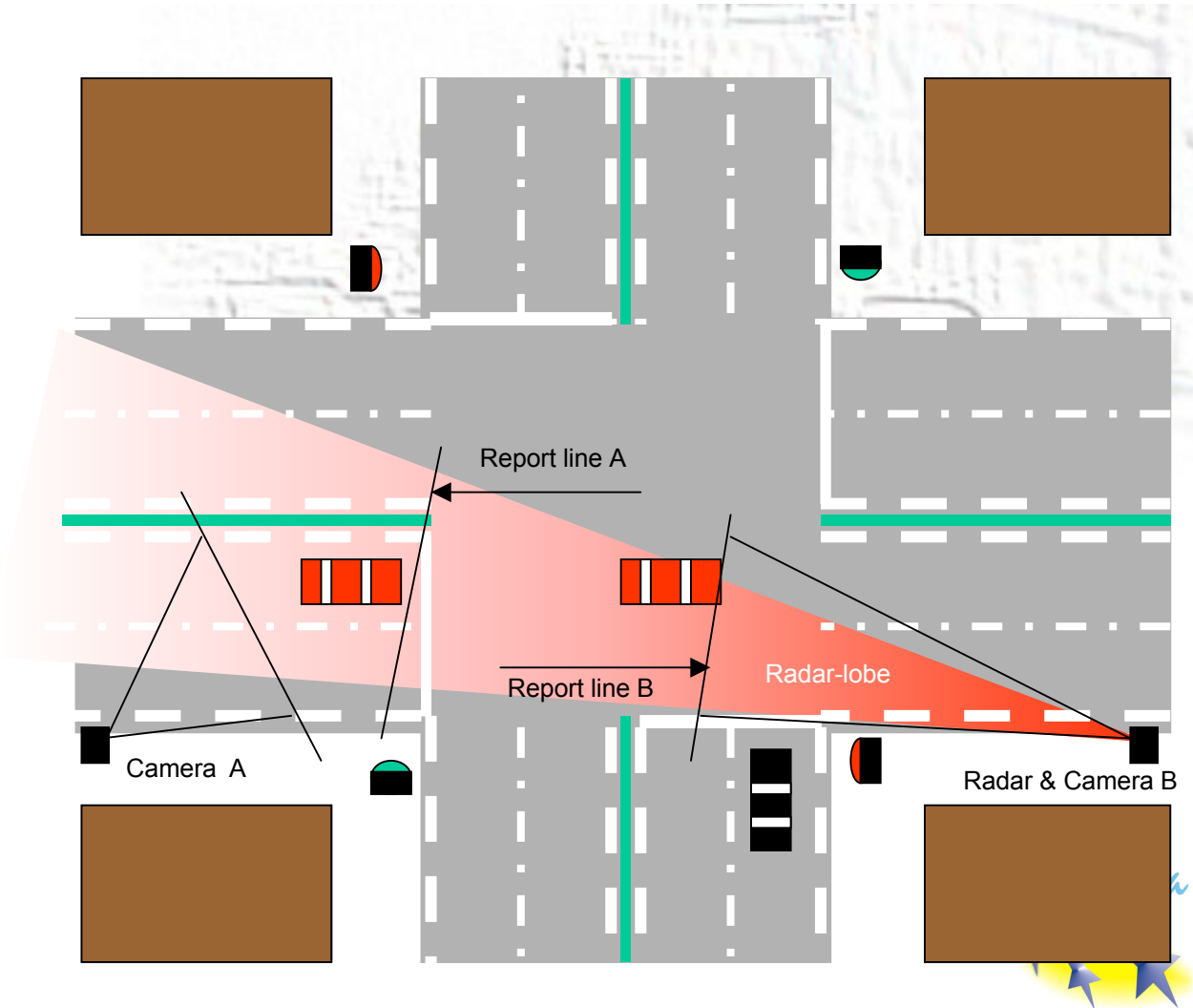
Source: Sensys Traffic AB

Red Light camera in Sweden

Radar sensor other applications

Speed Warning Safety System (SWSS)

- The system gives a sound and light alarm when a vehicle is overspeeding.

- Takes a picture of the infraction if the driver doesn't slow down.

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Road Working Area Safety System (RWASS)

- One of the most dangerous places of work.
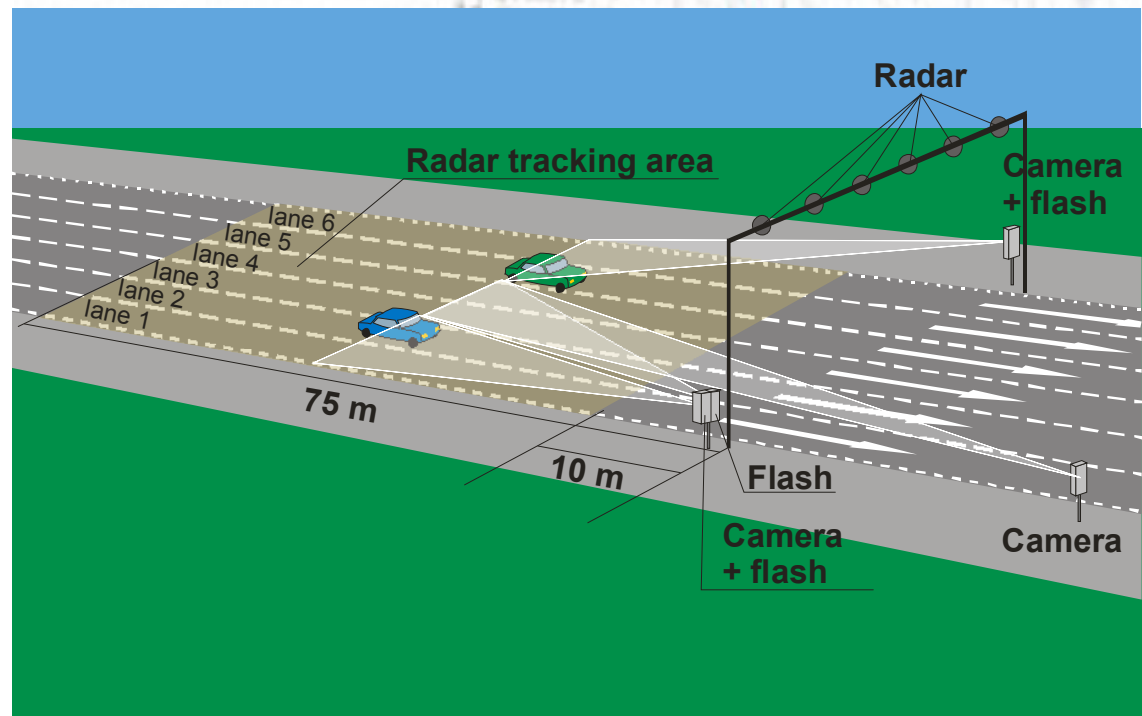- Speeding is extremely common at work sites.

- Small dimensions.
- Warning system for the workers.
- Registration of violators.
- You can put the system almost anywhere.

Multi-lane speed camera

• The Multi-lane system provides a two dimensional location of the vehicles.

• The system can simultaneously detect and register vehicles in different lanes.

Radar

Radar tracking area

Camera + flash

lane 6
lane 5
lane 4
lane 3
lane 2
lane 1

75 m

10 m

Flash

Camera + flash

Camera

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Efficient violation processing

Violation processing system

- Efficient processing of registered violation is a condition of effective enforcement system

- Citations can and should be processed and sent to violators within 1-2 days

- In USA average time spent to process, sent one citation = 2-3 min

- Vehicle / driver computer database
  + back office violation processing software
  = efficient enforcement

Violation processing in Poland

- Lack of national vehicle / driver computer database
- Lack of national violation processing system
- Polish Police uses speed cameras taking very poor quality pictures = problem to prove violation to driver
- Citations are processed long time and very often sent after obligatory 14 days

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Back office violation processing software

Violation processing software shall enable:

- To access to database from different locations
- To process violation simultaneously by many operators
- To search through violation database
- To provide secure use of evidences

Effects

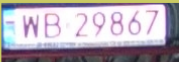# Speed Enforcement System in Sweden Iggesund - Hudiksvall

- 1990-98 seven people were killed and 65 people were injured.
- The society cost estimated by the National Road Administration was during the same period 21 million USD.
- This was the first installation within the new project
- The first two years no accidents were reported.
- The main reason of the result was the reduction on the average speed (9 km/hour).

Red Light Enforcement in USA

Oxnard, CA:

32% reduction in right angle collisions

68% reduction in injury collisions

San Francisco, Oxnard & Fairfax Virginia:

Violation rates reduced between 40% and 45%

Charlotte, NC:

72% Reduction at 20 monitored intersections

San Francisco & Oxnard, CA:

Spillover Effect: Measured reductions in collisions at non-monitored locations

Possible results in Poland

- Reduced number of car accidents (deaths, injuries) – Police statistics reports: 30% accidents caused by speeding cars

- Reduced external and internal costs (one death according to COST313 report costs 1 mln Euros)

- Increased revenue from tickets
  - If 1 speed camera records 500 violations per day = 100 000 zł per day = 36 mln zł per year
  - **100 cameras = 3,6 mld zł of additional revenue**

Global results

- AVI & TSES Camera-based Compliance Enforcement Coupled with one Centralized VPC can Concurrently Support National, Regional and Local Objectives & Needs

- Police can be Re-deployed to Higher Priority Functions (Crime Prevention & Public Safety)

- Infrastructure Investment can be Leveraged to Support Multiple National Objectives Yielding Multiple Benefits:
  – Increased Law Compliance
  – Increased Revenue
  – Enhanced Traffic Safety
  – Centralized Compliance Management / Localized Control
  – Consistent Compliance Practices