SOUTH EAST EUROPE
Transnational Cooperation Programme

ROSEE
ROad safety in South East European regions

Programme co-funded by the EUROPEAN UNION

Proposals for Road Safety Investments and Interventions in South East Europe

Road Safety: risk mapping, infrastructures and behaviour
SEROC Final Conference
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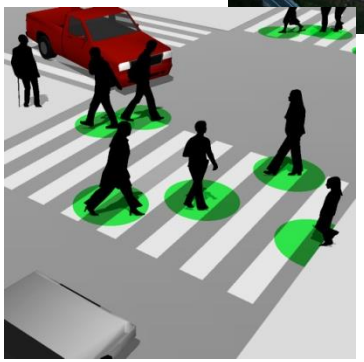
George Yannis, Professor, NTUA
Alexandra Laiou, Research Associate, NTUA

Scope of proposals on investments and interventions

Exploitation of the ROSEE project results for the development of proposals on investments and interventions for the improvement of road safety in South-East European regions with regard to:

- **road safety legislation, policy and institutional capacity**
- **road infrastructure**
- **road user behaviour**



Proposals on investments and interventions drafted:

- **separately** for each of these three subjects
- using a **common methodology**

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Methodology

A **three step** methodology:

1. Use of measures and priorities identified within the ROSEE project
2. Exploitation of input from existing lists of proposals and recommendations
3. Assessment and ranking of road safety measures based on:
   - the estimated safety benefit
   - the implementation cost
   - the implementation time

   by **more than 100** road safety stakeholders

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Legislation, Policy and Institutional Capacity proposals on investments and interventions matrix

Recommendations	Investment Proposals	Safety Benefit				Implementation Cost				Implementation Time (needed for benefit)				Implementation Barriers
		4	3	2	1	4	3	2	1	>5y	1-5y	6-12m	<6m	
Institutional	Development of road safety national Plan													
	Operation of national road safety agency													
	Setting up road safety targets													
	Setting up dedicated road safety budget													
Legislative	Legislation for infrastructure safety management													
	Legislation for new offences													
	Legislation for efficient enforcement													
	Legislation for training, licensing, education													
Infrastructure safety management	European Road Assessment Programme (EuroRAP)													
	Road Safety Audits (RSA)													
	Road safety inspection (RSI)													
	High risk site treatment program													
Monitoring	Accident data collection system													
	Monitoring road safety indicators													
	Monitoring implementation progress of measures													
	Evaluating measures effectiveness													
	Road accident analyses													
Communication	Campaigns supporting the national programme													
	Coordinate enforcement and promotion campaigns													
Post-Crash	Emergency Call system (eCall)													
	Emergency lanes in congestion													
	trauma management performance													
	Improved Emergency Medical Service													

Road Infrastructure proposals on investments and interventions matrix

Recommendations	Investment Proposals	Safety Benefit				Implementation Cost				Implementation Time				Implementation Barriers
		4	3	2	1	4	3	2	1	>5y	1-5y	6-12m	<6m	
Pedestrian crossings	New pedestrian crossing													
	Upgrade of existing pedestrian crossing													
Lighting treatment	Implementation of new street lighting													
	Improving of existing lighting													
Speed limits	Changing from unrestricted speed to speed limit													
	Lowering existing speed limit													
	Creation of speed transition zones													
Traffic control and operational elements	Traffic signs (regulatory)													
	Traffic signs (warning)													
	Traffic signs (guide)													
	Delineators and horizontal road markings													
	Raised road markers													
	Chevrons													
	Post-mounted delineators													
	Rumble strips													
Traffic calming-Speed management measures	Speed humps													
	Raised pedestrian crossings													
	Raised Intersections													
	Central islands													
	Lateral shifts													
Vertical curvature treatment	Reducing gradient													
	Improvement of sight distances													
Cross-section treatment	Increasing lane width													
	Introduction of shoulder													
	Increasing shoulder width													
	Introduction of median													
	Increasing median width													
	Development of bicycle lanes													
	Development of pedestrian sidewalk													
Roadside treatment	Implementation of safety barriers													
	Implementation of motorcyclist safety barriers													
Crossings treatment	Introduction of new pedestrian crossings													
	Upgrading of existing pedestrian crossings													
	Introduction of rail/road grade crossings													
	Protection of rail/road level crossings													
Intersections layout	Development of roundabouts													
	Intersection channelization													
Traffic control at intersections	Implementation of yield signs at intersections													
	Implementation of stop signs at intersections													
	Implementation of traffic lights at intersections													
	Improvement of existing traffic lights													
Parking Facilities	On street parking facilities introduction													

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Road User Behaviour proposals on investments and interventions matrix

Recommendations	Investment Proposals	Safety Benefit				Implementation Cost				Implementation Time				Implementation Barriers
		4	3	2	1	4	3	2	1	>5y	1-5y	6-12m	<6m	
Speeding	Installation of speed cameras													
	Lowering of speed limits													
	Introduction of speed limits													
Alcohol	Intensive police enforcement of drink-driving													
	Penalties for drunk driving													
	Increased random breath testing													
Enforcement	Intensive police enforcement of seat belt use													
	Intensive police enforcement of child restrain use													
	Intensive police enforcement of helmet use													
	Mandatory wearing of helmets for moped and motorcycle riders													
	Intensive police enforcement of mobile use while driving													
	Selective traffic enforcement programs at high-risk times and locations													
Licensing	Gradual driver license													
	Voluntary training for bus and truck drivers													
	Licensing for mopeds													
	Mandatory eyesight test for car drivers													
Pedestrians/ Cyclists visibility	Use of reflective devices by pedestrians													
	Improving bicycle conspicuity													
Education	Mobility and safety education at all school levels													
	Periodically repeated first aid education and training at school, for drivers													
	Education, training for young drivers													
Campaigns	Road safety campaign against drinking and driving													
	Road safety campaign addressing young road users													
	Road safety television advertising supporting increased police enforcement													
	Campaign against dangerous and risky driving													
	Campaigns for seat belt and helmet use													
	Campaigns for speeding													
	Campaigns for the use of mobiles while driving													
	Using health professionals as advocate for road safety													
	Promoting walking and cycling													

LPIC proposals – overall results

Investment Proposals	Partner countries recording high safety benefit	Partner countries recording low implementation cost	Partner countries recording short implementation time
Legislation for infrastructure safety management	**6**	4	0
Legislation for efficient enforcement	**6**	4	1
Evaluating measures effectiveness	**6**	2	0
Development of road safety national Plan	**6**	1	1
Road safety inspection (RSI)	**6**	1	0
Setting up dedicated road safety budget	**6**	0	1
High risk site treatment program	**6**	0	1
Road Safety Audits (RSA)	5	2	0
Monitoring implementation progress of measures	5	2	0
Improved Emergency Medical Service	5	0	2
Emergency Call system (eCall)	5	0	1
Legislation for training, licensing, education	4	4	0
Setting up road safety targets	4	3	1
Road accident analyses	4	0	1
Operation of national road safety agency	4	0	0
Accident data collection system	4	0	0
Monitoring road safety indicators	3	2	0
European Road Assessment Programme (EuroRAP)	3	1	0
trauma management performance	3	0	3
Legislation for new offences	2	5	0
Coordinate enforcement and promotion campaigns	2	1	3
Campaigns supporting the national programme	2	0	3
Emergency lanes in congestion	2	0	2

Legislation, Policy and Institutional Capacity proposals Overall results

- In many partner countries most Legislation, Policy and Institutional Capacity investments are related to **high safety benefit**.
- However, most such proposals are considered relatively **expensive** to implement and **effective on the long-term.**
- The proposals considered to provide **high safety benefit at low cost**, in most partner countries are:
  - legislation for infrastructure safety management
  - legislation for efficient enforcement
- However, both investments **need time** to show their effect on the improvement of road safety.

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Legislation, Policy and Institutional Capacity proposals on investments and interventions

- **Institutional issues, legislative issues** and **infrastructure safety** management concentrate most of the highly effective investment proposals.
- **Legislative issues** are considered the **easiest to implement** in most partner countries.
- Almost **half** of the examined **proposals** were related to **high implementation cost.**
- Almost **all** of the examined proposals are considered **effective in the long-term** in all partner countries.
- In half countries, **communication** and **trauma management performance** proposals are the only ones considered to need a **short implementation time** to provide benefit.

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Road Infrastructure proposals – overall results

Investment Proposals	Partner countries recording high safety benefit	Partner countries recording low implementation cost	Partner countries recording short implementation time
Implementation of safety barriers	6	0	2
Development of roundabouts	4	0	0
Implementation of motorcyclist safety barriers	4	0	2
Speed humps	3	2	4
Raised pedestrian crossings	3	1	4
Creation of speed transition zones	3	1	3
Implementation of traffic lights at intersections	3	0	4
Improvement of sight distances	3	0	2
Delineators and horizontal road markings	2	4	3
Upgrade of existing pedestrian crossing	2	2	3
Traffic signs (regulatory)	1	4	5
Chevrons	1	4	4
Changing from unrestricted speed to speed limit	1	4	4
Raised road markers	1	3	3
Improvement of existing traffic lights	1	1	4
Rumble strips	1	1	3
Traffic signs (warning)	0	5	6
Traffic signs (guide)	0	4	4
Implementation of stop signs at intersections	0	4	5
Lowering existing speed limit	0	4	3
Post-mounted delineators	0	3	4
Implementation of yield signs at intersections	0	3	3

Road Infrastructure proposals – overall results

ROSEE countries differ widely in regard to:

- road network conditions
- road maintenance and managing
- road user behavior
- vehicle fleet and ownership
- general social and economic background
- legislation
- enforcement

Thus, **different measures act differently between countries.**

Generally, measures with the highest safety benefit are neither the fastest nor the cheapest to implement.

Road Infrastructure proposals on investments and interventions

The **highest safety benefit** is related to:

- the implementation of safety barriers
- the development of roundabouts
- the implementation of motorcyclist safety barriers

Installation of traffic signs, such as stop signs at intersections, yield signs at intersections, warning and guide signs is related to the **lowest cost** and **implementation time**.

Cross-analysis of all criteria showed that **speed humps** are the most effective measure, related to high safety benefit, low cost and short time to take effect.

Road User Behaviour proposals – overall results

Investment Proposals	Partner countries recording high safety benefit	Partner countries recording low implementation cost	Partner countries recording short implementation time
Intensive police enforcement of child restraint use	6	4	4
Intensive police enforcement of helmet use	6	4	3
Traffic enforcement programs at high-risk times and locations	6	2	3
Improving bicycle visibility	5	5	3
Penalties for drunk driving	5	4	5
Mandatory wearing of helmets for moped and motorcycle riders	5	4	4
Intensive police enforcement of mobile use while driving	5	3	4
Intensive police enforcement of seat belt use	5	3	3
Education, training for young drivers	5	2	1
Intensive police enforcement of drink-driving	5	1	4
Increased random breath testing	5	1	2
Installation of speed cameras	5	1	2
Mobility and safety education at all school levels	5	0	0
Use of reflective devices by pedestrians	3	6	3
Road safety campaign against drinking and driving	3	2	1
Road safety campaign addressing young road users	3	2	1
Campaigns for the use of mobiles while driving	3	2	1
Using health professionals as advocate for road safety	3	2	1
Promoting walking and cycling	3	1	2
Campaigns for seat belt and helmet use	3	1	2
Campaigns for speeding	3	1	2
Campaign against dangerous and risky driving	3	1	2
Road safety television advertising supporting police enforcement	3	0	2
Lowering of speed limits	2	6	5
Introduction of speed limits	2	6	3
Licensing for mopeds	2	4	1
Periodically first aid education and training at school, for drivers	2	2	1
Gradual driver license	1	2	1
Voluntary training for bus and truck drivers	0	3	1

Road User Behaviour proposals – overall results

- The **highest safety benefit** was related to measures focusing on **speed, enforcement** and **visibility** while the **lowest,** to **voluntary training** for bus and truck drivers, **first aid training** and **campaigns**.
- Measures of **enforcement, legislation, penalties** and **reflective devices for pedestrians and cyclists** are considered to be of **low cost** for achieving the desired safety benefits.
- **Campaigns** and **education** are related to **high cost** and **long implementation time** in most countries.
- **Lowering speed limits** and strengthening **penalties for drinking and driving are measures fast to implement** and will have the **quickest positive safety benefit.**

Road User Behaviour proposals on investments and interventions

- **Not all measures** considered to have the largest safety benefits are the fasted to implement or are of low cost.
- **Legislative measures** such as increasing penalties for drinking and driving and enforcing traffic laws **scored high** overall.
- Most measures with **low overall scores** focus on **education** and **campaigns.**
- These measures were ranked as having **low safety benefit, high costs** and taking generally a **long time to show impact**.

ROSEE - Overall proposals for road safety improvement in South-East Europe

- Focus on **road safety management** and **administrative structure** at national, regional and local level
- Emphasis on systematic **reporting** and **monitoring** of road safety data, measures and results
- **Infrastructure safety management**
  - integrated approach (RSA/RSI, road safety impact assessment, high risk sites' treatment)
  - systematic implementation of low cost measures
- **Focus on the five killers**:
  - speed
  - drink-driving
  - non use of seat belts
  - non use of helmets
  - use of mobile phone while driving

  through **enforcement, training, campaigns**

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ROSEE - Future challenges for road safety in South-East Europe

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