2 Minus 1 Roads Means Improved Mobility

- Security and Safety of Pedestrians and Bicyclists on Roads through Small Towns and Villages

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Background

- Small towns and villages
- Travel by car, both longer and shorter trips
- Bicyclists and pedestrians
- Different demands from different road users
- Narrow road sections, private owned land
- Lack of funding separating vulnerable road users and motor vehicles
- Designs of roads through small towns and villages
The measures

- Traffic planning in non-urban or rural areas for pedestrians and bicyclists

- Sites with low vehicle flows but with motor vehicle speeds higher than desired

Aim this study

- Describe the effect of the new types of design regarding
  - Safety, mobility and security of pedestrians and bicyclists
  - Motor vehicle speeds
Method

Summer of 2006 and spring and summer of 2007

Vehicle speeds and flow
- Automatic tube data provided by Swedish Road Administration Consulting, data from at least one week

Questionnaires (n=263)
- School-aged children
- Adults
- Village’s local interests groups
Road user behaviours

- Description of pedestrians and bicyclists (n=731)
- Encounters from the pedestrians or bicyclists point of view
- Description of motor vehicle (n=2980)
- Encounters from the motor vehicle driver's point of view
Both-sided markings with intermittent line

Gäddvik
2,5 km, total width 9 m
Flow 10 000 vehicles/day
70 km/h
Both-sided markings with intermittent line

Roknäs
600 m, total width 9 m
Flow 2000 vehicles/day
90 km/h
Both-sided markings with intermittent line
Both-sided markings with intermittent line

**Advantage:**
- Needs of pedestrians and bicyclists taken into account
- Pedestrians and bicyclists express improvements
- Continuously safe regarding conflicts and accidents
- Vehicle drivers drive obey the markings

**Disadvantage:**
- Too high vehicle speeds to be safe for vulnerable road users
- Pedestrians and bicyclists express insecurity
- Continuously high vehicle speeds
Both-sided continuously markings

Roknäs
4,7 km, total width 5,5 m
Flow 700-1200 vehicles/day
50 km/h, recommended 30 km/h
Both-sided continuously markings with 21 areas for passing
Both-sided continuously markings

<table>
<thead>
<tr>
<th>Advantages:</th>
<th>Disadvantages:</th>
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<tbody>
<tr>
<td>▪ Needs of pedestrians and bicyclists taken into account</td>
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<tr>
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Single-sided continuously markings with posts

Björsbyn
1 km, total width 6,5 m
Flow 1200 vehicles/day
Lowered from 70 km/h to 50 km/h
Single-sided markings with posts
### Advantages:
- Needs of pedestrians and bicyclists taken into account
- Lowered vehicle speeds
- Pedestrians and bicyclists express improvements
- The posts separate vehicles from vulnerable road users
- Continuously safe regarding conflicts and accidents

### Disadvantages:
- Too high vehicle speeds to be safe for vulnerable road users
- Pedestrians and bicyclists express insecurity
- Continuously high vehicle speeds
- Markings not respected by vehicle drivers
Both-sided markings with intermittent line and hourglass bus stops

4.2 km, total width 6 m
Flow 1950 vehicles/day
50 km/h, recommended 30 km/h
Both-sided markings with intermittent line and hourglass bus stops
Advantages:

- Needs of pedestrians and bicyclists taken into account
- Lowered vehicle speeds
- Pedestrians and bicyclists express improvements
- The bus stops
- Continuously safe regarding conflicts and accidents

Disadvantages:

- Too high vehicle speeds to be safe for vulnerable road users
- Children express insecurity
- Continuously high vehicle speeds
- Length of the link
Summary all measures

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<td>▪ Vulnerable road users not separated from the vehicles</td>
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