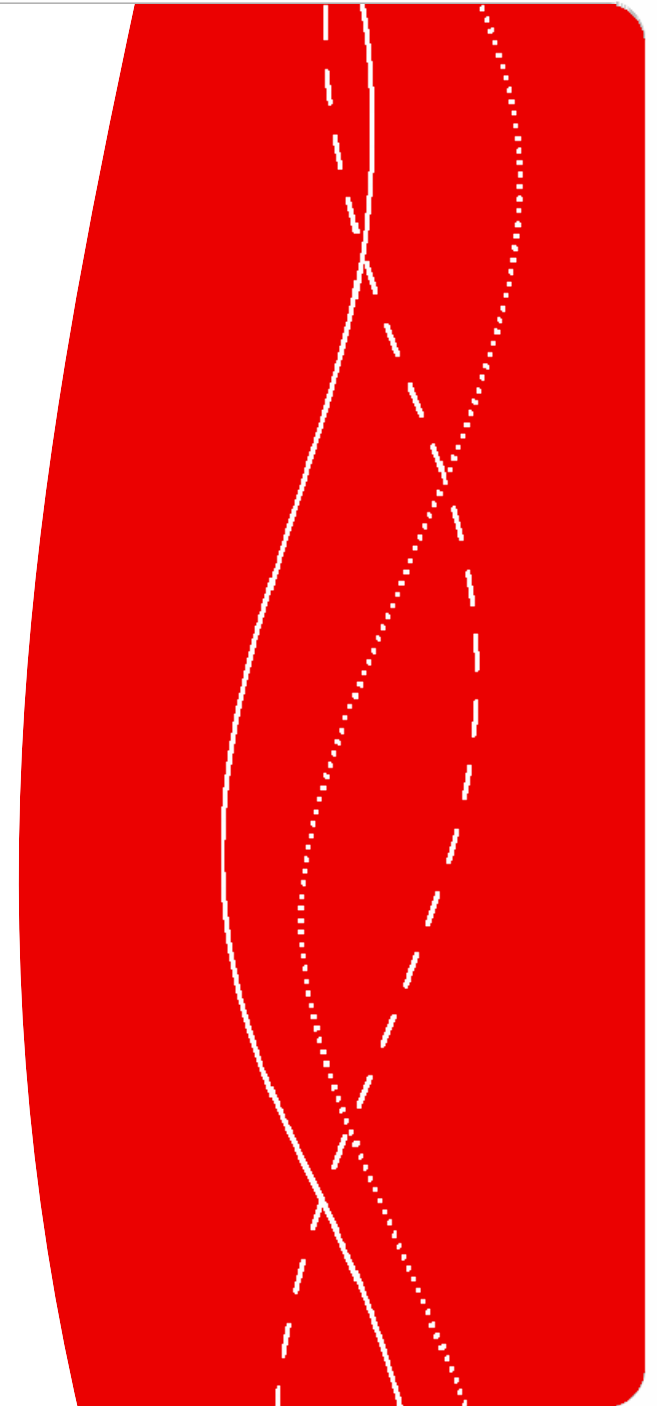




FINDING A BETTER WAY

RMMS

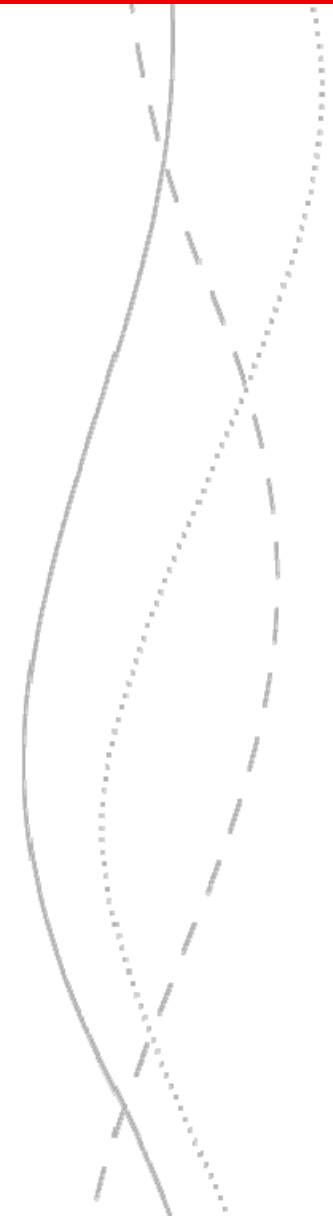
Road Marking Management System






**RMMS is comparable to
PMS for road surfaces**

**Prediction of the road marking
performance, using an
statistical approach**




$$Y_{ijk} = \mu + \alpha_i + \beta_j + \gamma_k + (\alpha \times \beta)_{ij} + (\alpha \times \gamma)_{ik} + (\beta \times \gamma)_{jk} + (\alpha \times \beta \times \gamma)_{ijk} + \varepsilon$$

The idea is to decide what parameters of interest are α, β, γ and estimate their values.

As an example

α may be the age of the road marking

β may be the road marking material

γ may be the contractor

$$R_{\alpha\beta\gamma} = \mu - \Delta GE_{\alpha\beta\gamma} - MTL_{\alpha\beta\gamma} - CTR_{\alpha\beta\gamma} - (\Delta GE \times MTL)_{\alpha\beta\gamma} - (\Delta GE \times CTR)_{\alpha\beta\gamma} - (MTL \times CTR)_{\alpha\beta\gamma} - (\Delta GE \times MTL \times CTR)_{\alpha\beta\gamma} - s$$

Results from Region East, Norway

AGE New (i=0)
 1 year old (i=1)

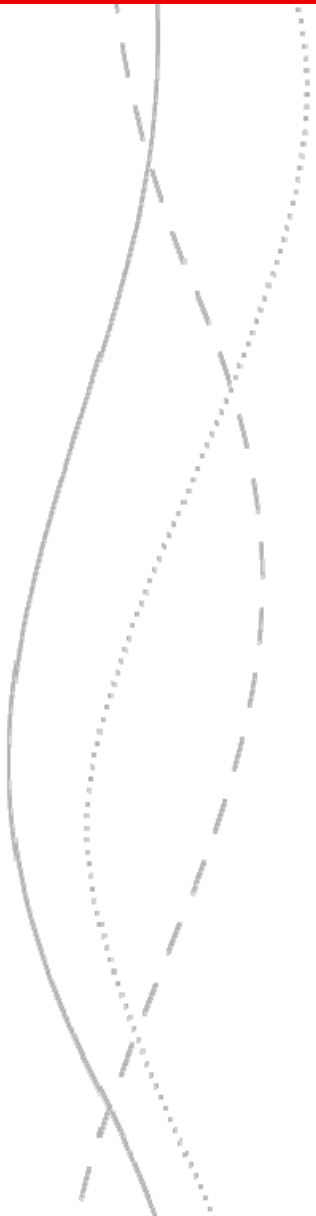
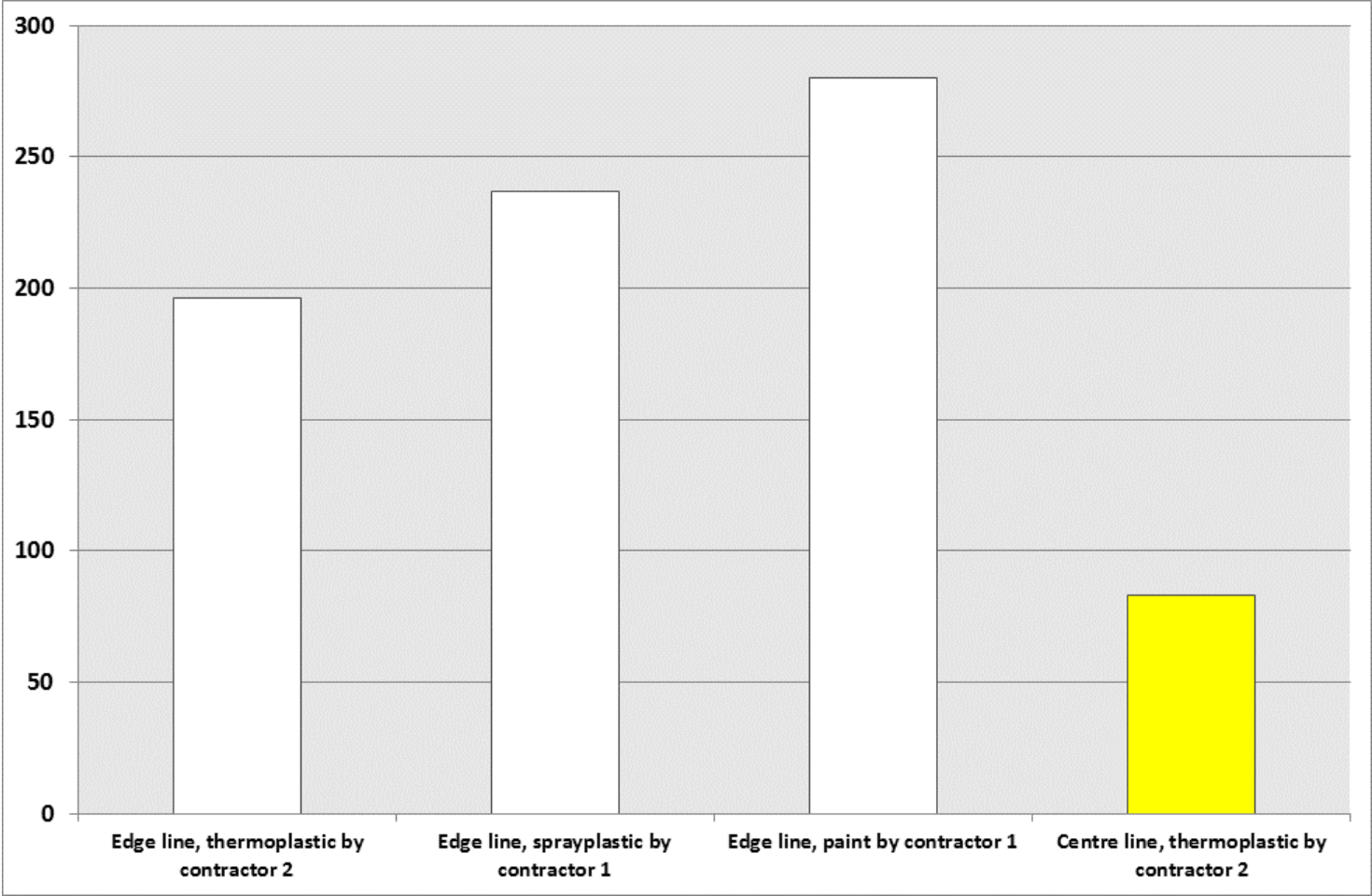
MTL **Thermoplastic (j=1)**
 Sprayplastic (j=2)
 Paint (j=3)

CTR **Contractor 1 (k=1)**
 Contractor 2 (k=2)

| Response variable | Index | Parameter estimation |
|--------------------------------------|-----------------|----------------------|
| <i>constant</i> (μ) | | 256 |
| <i>AGE</i> | $i = 0$ | 39 |
| | $i = 1$ | 0 |
| <i>MTL</i> | $j = 1$ | -60 |
| | $j = 2$ | -43 |
| | $j = 3$ | 0 |
| <i>CTR</i> | $k = 1$ | 24 |
| | $k = 2$ | 0 |
| <i>AGE</i> × <i>MTL</i> | $i,j = 0,1$ | 8 |
| | $i,j = 0,2$ | -7 |
| | <i>others</i> | 0 |
| <i>AGE</i> × <i>CTR</i> | $i,k = 0,1$ | 28 |
| | <i>others</i> | 0 |
| <i>MTL</i> × <i>CTR</i> | $j,k = 1,1$ | -41 |
| | <i>others</i> | 0 |
| <i>AGE</i> × <i>MTL</i> × <i>CTR</i> | $i,j,k = 0,1,1$ | 34 |
| | <i>others</i> | 0 |

$$R_L = 256 + 0 - 60 + 24 + 0 + 0 - 41 + 0 = 179$$

Estimated retroreflectivity in Region South, 1 year old



Estimated and measured retroreflectivity in Region South

