

Signs and Delineation

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Function

- Public Demand
 - They make (Trunk) roads safer
 - They make it easier to drive
 - They cut down travel times
 - They make transport work better
 - (prohibitory)

High Quality Road Markings

- Best safety performance
- Best efficiency
- Very clear road layout, road geometry easy to read
- Ease of decision making, consistent predictable road behaviour
- Vulnerable road users able to use roads - especially at night
- Junctions clear and visible

Additional Benefits of road studs

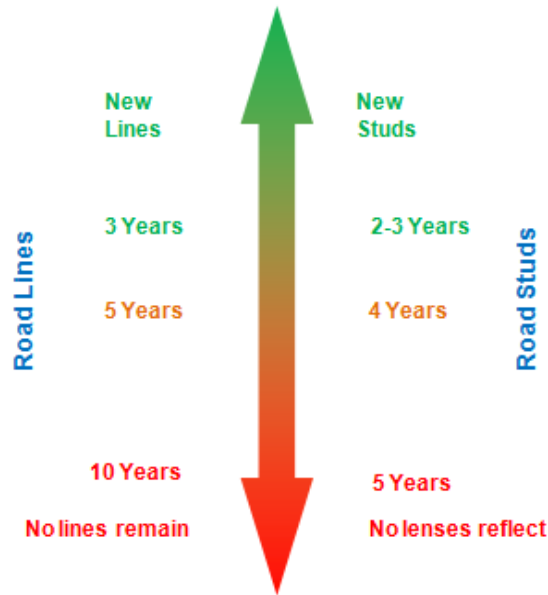
- Visibility in damp or wet where road markings are invisible at night. (Northern Winter)
- Visibility and preview of road geometry for large distances in all conditions.

There is a polar difference in the safety and performance of a trunk road system with no lines and one with high quality lining.

Centre line alone is commonly accepted to reduce collisions and fatalities by 60%.

Safety and performance does not drop in a straight line. Road users compensate for bad lining, or restrict use in the medium bands. Decrease in performance, increased driving demand and reduced availability particularly for vulnerable users are the most marked initial outcomes of reduced quality.

As lining quality decreases further the driver compensation is insufficient to mask the poor lines and safety performance becomes a serious issue.



No Delineation

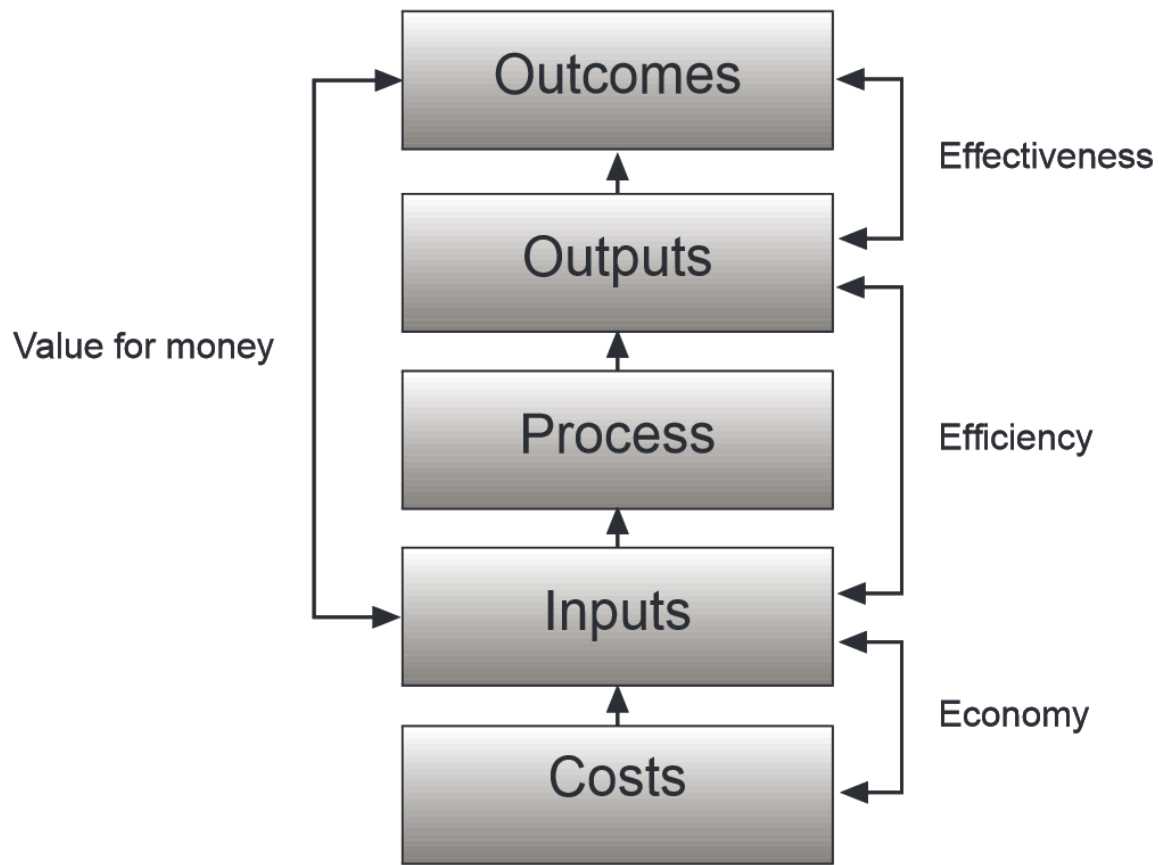
- Very high collision rates day and night, many serious or fatal
- Many drivers don't drive at night. Vulnerable drivers housebound.
- High instance of run-off road, head on collision, junction misread.
- Road behaviour erratic and unpredictable
- Efficiency seriously affected, Journey times very unpredictable.

Inputs

Processes

Outputs

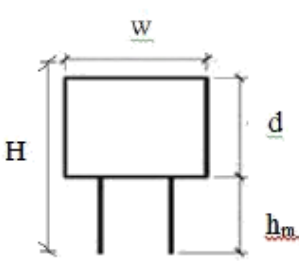
Outcomes



Revised series 1200 Signs

- CE and regulations the main driver
- Performance driven
- Wind loading
- Base requirements
- Incorporate TS4 requirements
- No national annex for signs
- CE mark to employer requirements.

Table 12/2 Recommended wind pressure values for use in the Republic of Ireland for Signs up to a maximum overall Height, H of 9.6m

Maximum Width, w Maximum Depth, d Maximum Mounting Height, h_m (m)	Sign maximum overall height, H (m)	Wind speed v_b (m/s)	Wind pressure value (kN/m ²) for sign maximum overall height, H					
	/	/	Distance from the Shoreline, (d)					
			$d \leq 2\text{km}$		$2\text{km} < d < 10\text{km}$		$d \geq 10\text{km}$	
			—	↘	—	↘	—	↘
Maximum w = 1.8 Maximum d = 1.8 Maximum h_m = 1.8	3.6	≤ 26 (See Fig. 12/1)	0.8	1.2	0.6	1.0	0.6	1.0
		> 26 (See Fig. 12/1)	0.8	1.4	0.8	1.2	0.8	1.2
Maximum w = 4.35 Maximum d = 4.5 Maximum h_m = 1.8	6.3	All wind speeds	1.4		1.4		1.3	
Maximum w = 4.6 Maximum d = 7.8 Maximum h_m = 1.8	9.6	All wind speeds	1.6		1.5		1.5	

Specify base requirements

Table 12/3 Performance requirements for Traffic Sign Faces

Road classification	Unlit	Lit
Rural motorways and rural dual carriageways with 120 km/h speed limit – overhead gantry signs (long distance viewing)	R3A	R3A
Urban motorways and urban dual carriageways with a speed limit of ≤ 100 km/h – overhead gantry signs (short distance viewing)	R3B	R3B
National road	RA1 if AADT < 3500 RA2 if AADT \geq 3500	RA2
Regional road	RA1	RA2
Local roads	RA1	RA1
Roadworks	RA2	RA2

Notes:

- Exceptions to Table 12/3; Parking signs shall be RA1 and Keep Left Bollards shall be R3A or R3B for all road types.*
- Prismatic materials of suitable performance may be substituted for glass bead materials of a particular class on specific permission of the Employer's Representative. Substituted prismatic materials shall not have a retroreflectivity performance equivalent to a higher class of material.*

Specify general requirements

- 4 Flanged posts shall be galvanised steel in accordance with I.S. EN ISO 1461 and be secured by anchorages and attachment systems. Flanged posts shall be fabricated prior to being hot dip galvanised. Galvanised bolts shall be used and shall be lightly greased before final installation and bolts and anchorages shall be installed so as to achieve the required loading and torque settings. Flange plates shall include holes or slots to accommodate the attachment system. Flange plates shall be neat and appropriately designed for their location.
- 5 H Frame and cranked posts (RCD/1200/009) shall comply with the requirements in this specification for steel posts and shall be fabricated before being hot dip galvanised. Posts and crossbars shall be of uniform cross section.
- 6 Passively safe posts shall comply with the performance types in I.S. EN 12767 as set out in the design. The structural performance shall be clearly marked on the post. Passively safe posts shall
-
have a 30 year design life and the design shall have a signed manufacturer's warranty against material failure for 10 years.

Revised series 1200 Delineation

- Set base requirements for different road types.
 - National 200mcd 3 year sliding guarantee
 - Non national 100mcd white 80mcd yellow 2 year steady guarantee
- Set guarantee periods for all delineation.

Current Programme

- Result of 200mcd
 - Operators frequently checking bead depth
 - Well maintained equipment
 - No cheap materials
 - Lines achieve 100mcd baseline over extended period.

Current Programme

- Payment
 - 60% on application
 - 20% on initial proof of quality
 - Typically at year end
 - 20% at 36 months
- Result – Quality rewarded
 - No arguments
 - (money does the talking)

Specification and Measurement

- Ask for what you want
 - (Want what the public wants !)
- Simplify bills
 - Prepare scabble spray
 - Prepare scabble extrude
 - Brush wash and spray (rumble)
 - Remove
- Contractor controls prep
 - Contractor deals with the consequences

Testing

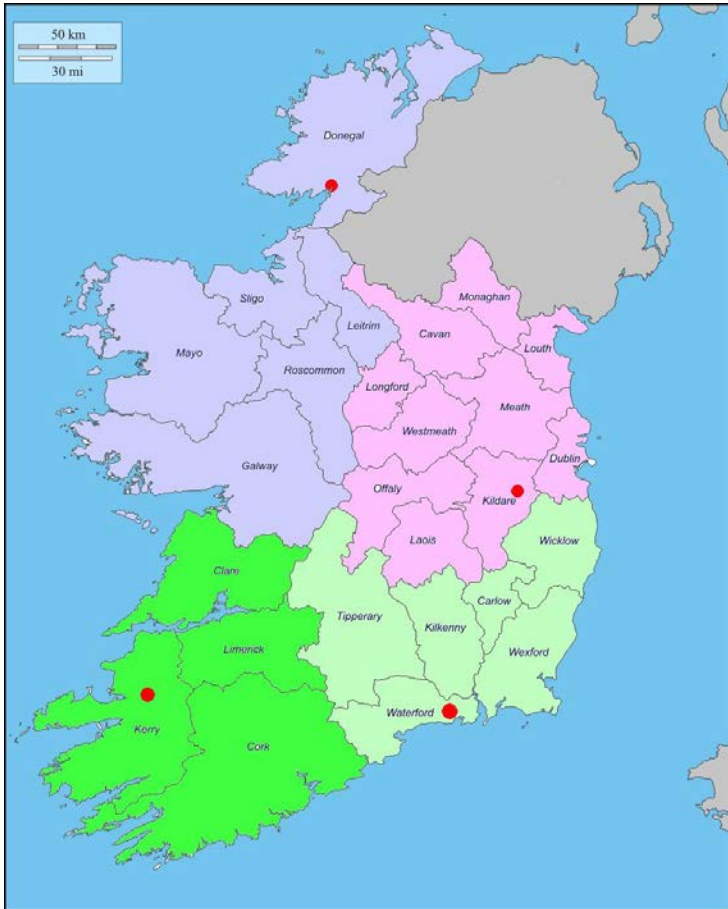
- No point in specifying unless you test
- Contractor provided independent test
 - CE marking
 - Employer spot tests / joint tests

• **Test = Payment**

High studs



Signs and Lines areas



Outside MMaRC and PPP

Signs maintenance
Delineation Maintenance

Contact regional office or
NRA project manager

Signs@nra.ie