



**Statens vegvesen**  
Norwegian Public Roads  
Administration

# Tunnel Safety Audits in Norway

Marius Hofseth  
Inspection Entity  
Norwegian Public Roads Administration  
Directory of Public Roads

# Tunnels in Norway

- NPRA manages ca 1150 road tunnels on the national and county highways
- These differs greatly in age, standard and AADT
- From low trafficked rural highway tunnels to high trafficked urban motorway tunnels



[vegvesen.no](http://vegvesen.no)



**Statens vegvesen**  
Norwegian Public Roads  
Administration



[vegvesen.no](http://vegvesen.no)



**Statens vegvesen**  
Norwegian Public Roads  
Administration

# Tunnel safety management

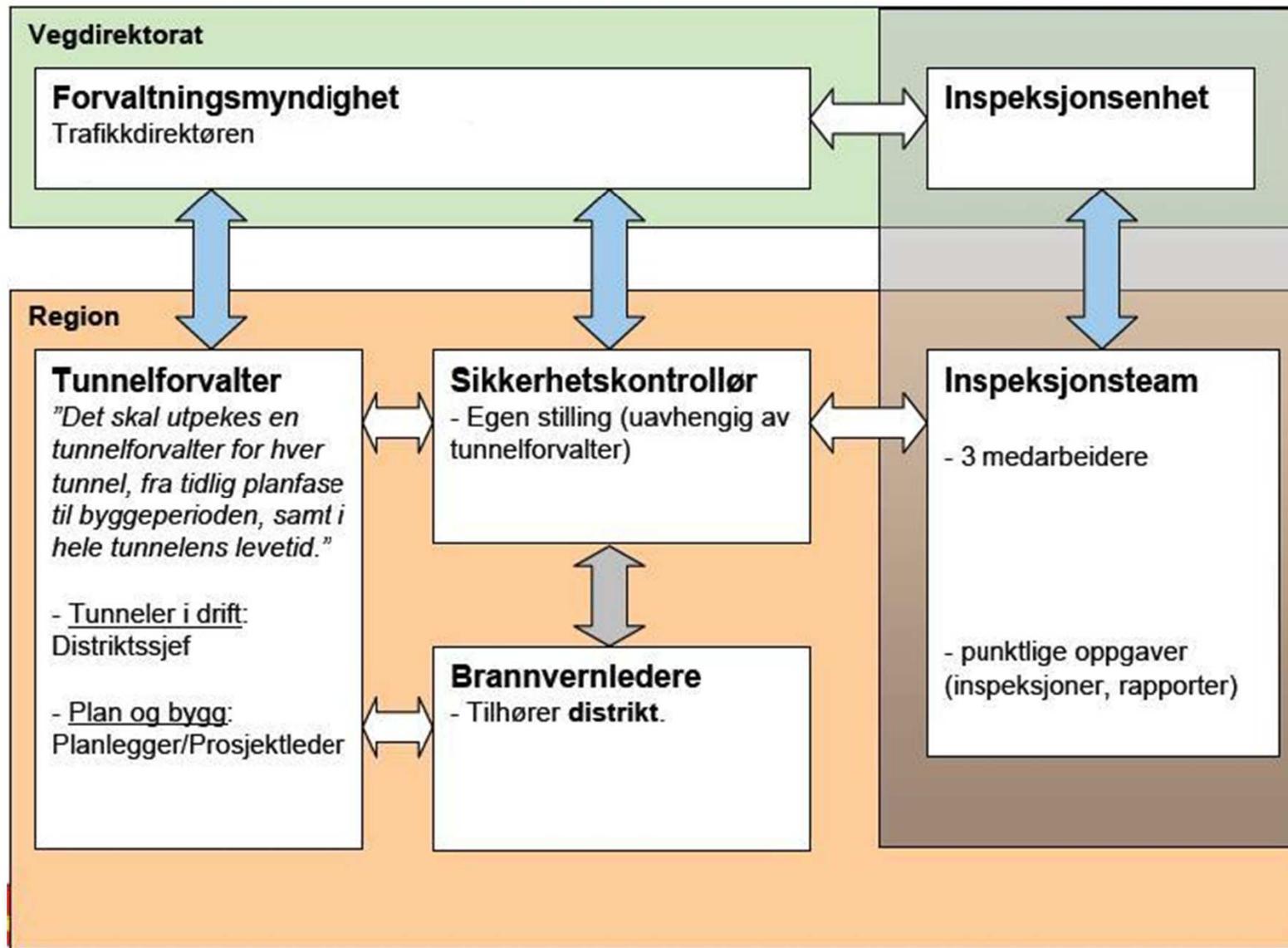
- ✦ The Directive 2004/54/EC was made Norwegian law the 15. May 2007 with the ratification of the Norwegian Tunnel Safety statute
- ✦ The NPRA are given responsibilities to effectuate these through its management of tunnels
- ✦ Two of NPRA`s manuals are especial central
  - Manual 021 Road tunnels (the road tunnel norm)
  - Manual 269 Safety management of road tunnels

# Norwegian tunnel inspections

- Organisation
- Methodology
- Example

# Organisation

- Inspection Entity at DPR coordinating
- 5 Regional Inspection teams



# Inspection teams

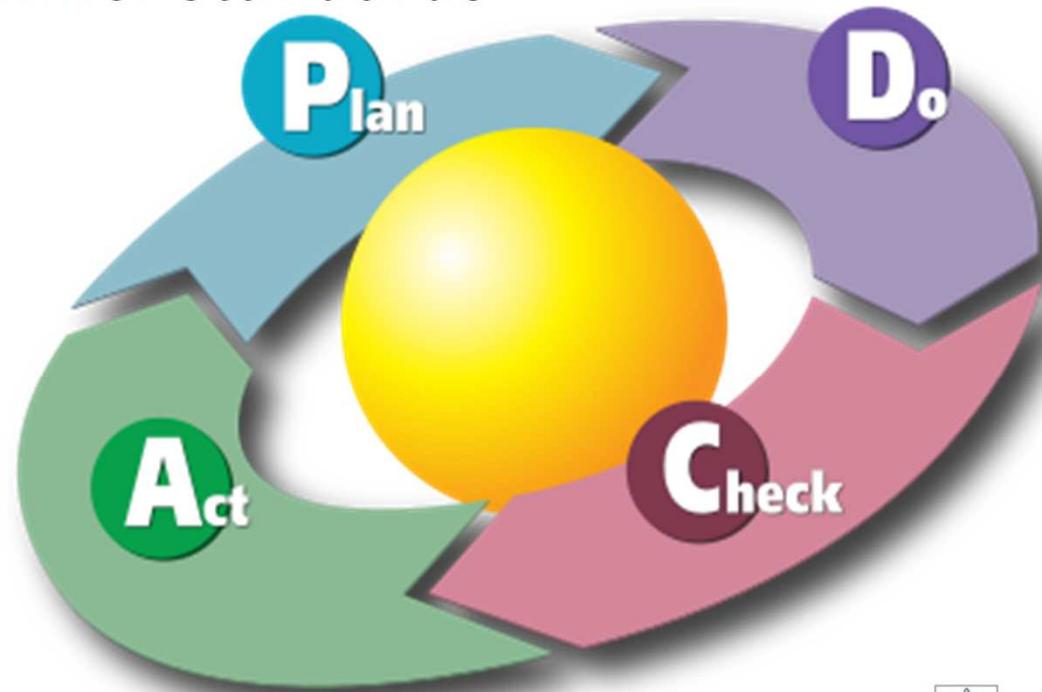
- ✓ Each responsible for their own region (30-250 tunnels each)
- ✓ 3 or more members with different background;
  - Tunnel management
  - Tunnel building
  - Electro

# Inspection team

- Inspection team meetings
- Quality audit course
- Workshops
- Audits and inspections

# Tunnel Inspection=Quality audit

- Methodology based on ISO 9001 and ISO 19011
- Directive 2004/54/EC
- Norwegian road tunnel standards



# A Tunnel Safety Audit

- ✓ Opening meeting
- ✓ Collecting and verifying information (Tunnel safety information)
- ✓ Interview
- ✓ Inspection
- ✓ Closing meeting
  
- ✓ Preparing the audit report

# Collecting and verifying information

Control of Tunnel management documentation

Benchmarking of Tunnels (NPRA Manual 021  
*Road tunnels 2010*)

# Inspections



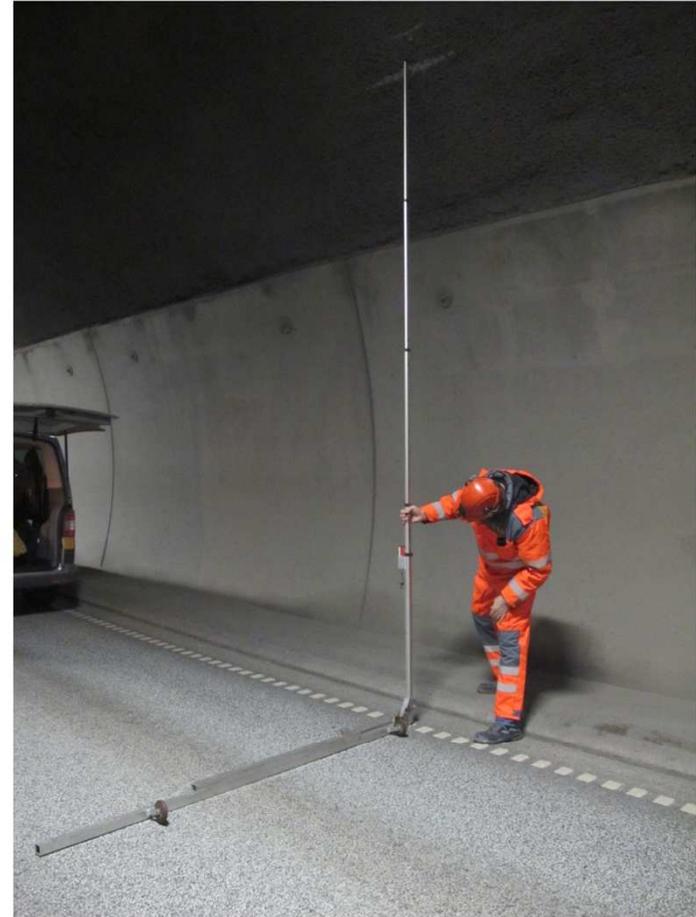
[vegvesen.no](http://vegvesen.no)



**Statens vegvesen**  
Norwegian Public Roads  
Administration



vegvesen.no



**Statens vegvesen**  
Norwegian Public Roads  
Administration

# Audit form

Statens vegvesen Sikkerhetsrevisjonsskjema for tunneler			
Versjon 1.2			
Region	Vest	TERN	ja
Fylke	Sogn og Fjordane	Vegtype (E, R, Fv)	Ev
		Vegnummer	16
Hp	3 km fra (NVDB)	605 km til (NVDB)	3655
Hp	km fra (NVDB)	km til (NVDB)	
Hp ramper	km fra (NVDB)	km til (NVDB)	
Hp ramper	km fra (NVDB)	km til (NVDB)	
Hp ramper	km fra (NVDB)	km til (NVDB)	
Hp ramper	km fra (NVDB)	km til (NVDB)	
Hvis flere ramper eller hovedløp i NVDB, skriv i merknadfelt			
Tunnelnavn	BORGUNDTUNNELEN		
Lengde (m)	3050	Tunnelklasse 2011	B
ADT (2011) (kg/dogn)	2270	Tung trafikk andel 2011 (%)	22
ADT (2019) (kg/dogn)	2770	Sesongvariasjoner/pulstrafikk (kg/dogn)	3960
Max stigning (%)	4	Undersjøisk	nei
Fartsgrense 2011 (km/t)	80		
Restriksjoner farlig gods	nei		
Gang- og sykkeltrafikk	nei		
Åpnet (år)	2004		
Inspeksjonsleder	Howland Sveinung	Inspeksjonsdeltaker	
Inspeksjonsdeltaker	Hegglund Magne		
Øvrige deltakere	Svein Rune Vie	Petter Hole	
Sikkerhetskontrollør	Howland Sveinung		
Tunnelforvalter	Nils Magne Slinde	Brannvernleder	John Rune Kvåle
Dato (DD.MM.AAAA)	30.08.2011	Sist inspeksjon (DD.MM.AAAA)	
<b>Merknader</b>			
Praktisk tunnelforvalter	David Håndlykken		

- General information
- Safety documentation
- Benchmarking
- Special concerns
- Findings (at inspection)

# E6 Eidet tunnel



[vegvesen.no](http://vegvesen.no)



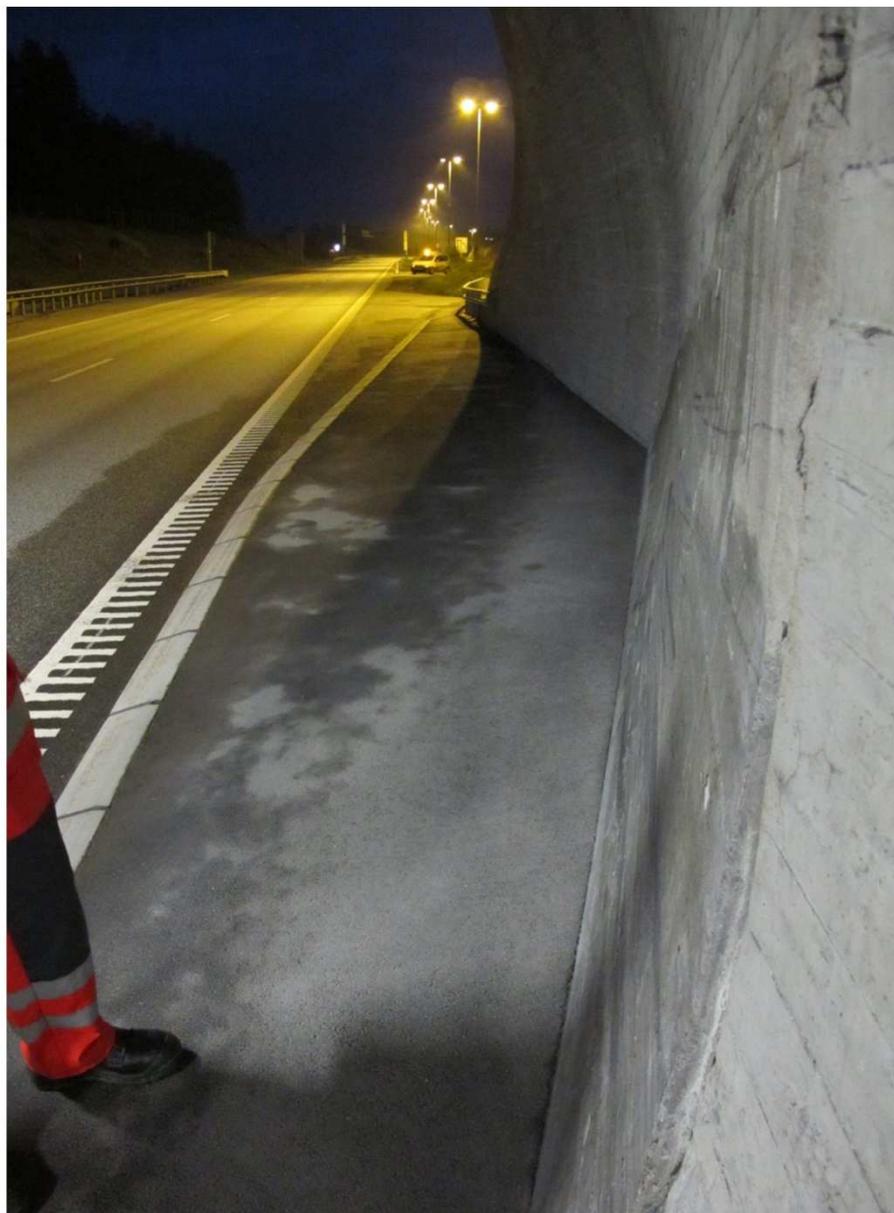
**Statens vegvesen**  
Norwegian Public Roads  
Administration



[vegvesen.no](http://vegvesen.no)



**Statens vegvesen**  
Norwegian Public Roads  
Administration



[vegvesen.no](http://vegvesen.no)



**Statens vegvesen**  
Norwegian Public Roads  
Administration



[vegvesen.no](http://vegvesen.no)

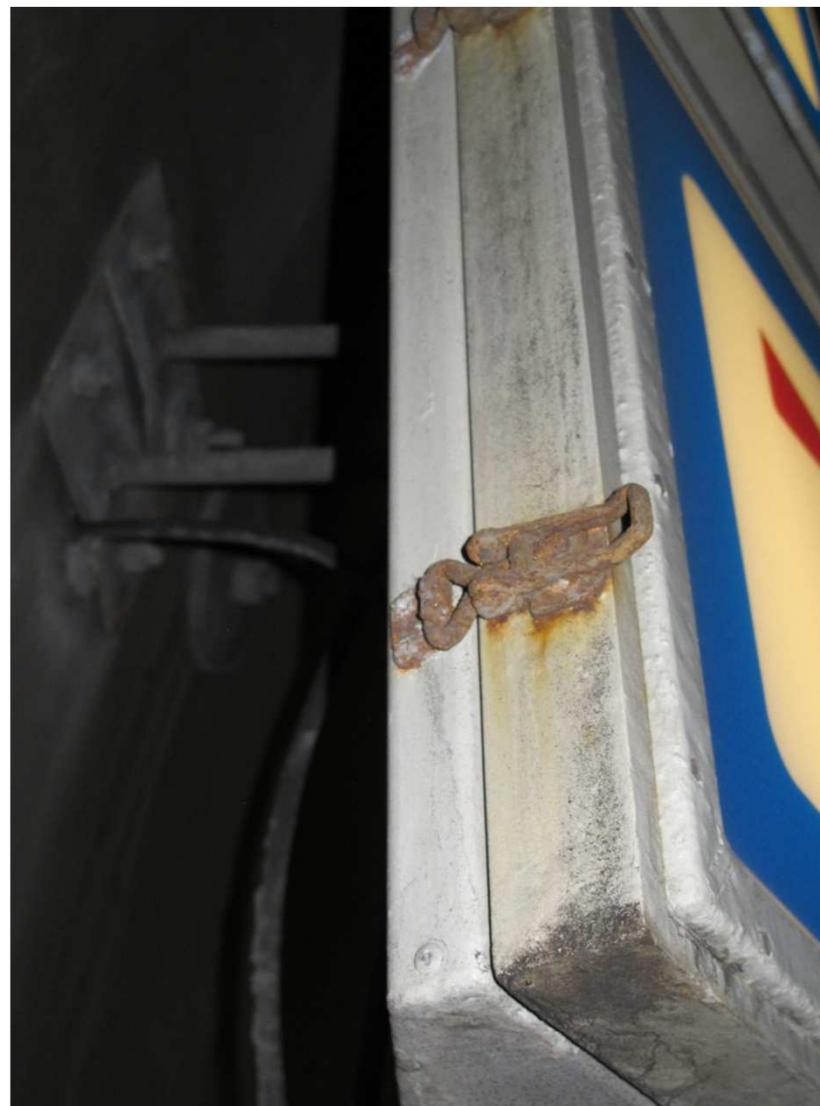


**Statens vegvesen**  
Norwegian Public Roads  
Administration











**Thank you for your attention !**