
EasyWay
Annual Forum 2010
Shortcut to the future.
Lisbon • November 16th-18th

Heavy traffic data collection

Bertille JOUAN-LIGNE
CETE de l'Est

Context

Heavy traffic in France: Key figures

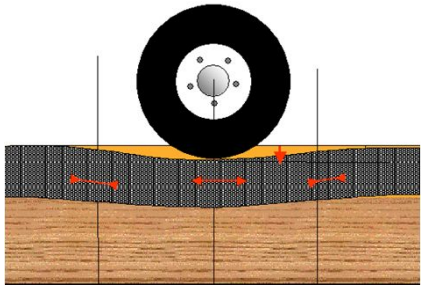
- Road: 81% of the freight.
- 5-axle-HGV: total load < 40 tons ; max load per axle = 13 tons.
- 15 to 20% of the HGVs are overloaded.

Having knowledge of the heavy traffic helps to:

- Increase mobility (adaptation of policies to traffic),
- Optimize the life expectancy of road surfaces and bridges,
- Improve safety.

Stake:

To improve the quantity and the quality of the collected data.



Context

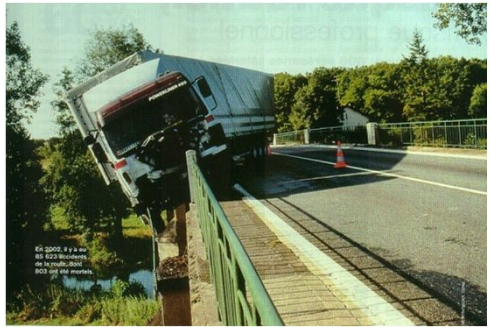
Load legislation: 3 major consequences of law-braking

- Less safety,
  Accident with HGV = probability of being killed X 2,7.

- Unfair competition,
  5-axle-HGV + 20% overload = economic gain : 26 000€ per year.

- Road aging.
  13-ton-axle + 20% overload: aggressivity X 2 to X 9 !

Stake:
To improve knowlegde and control
for a better law-enforcement.



WIM in France

1 - To improve the quantity and the quality of the collected data.

2- To improve knowlegde and control for a better law-enforcement.

-> Since 2005, deployment of weight-in-motion *(WIM)* on sensitive road segments.

Deployment

Between 2008 et 2011:

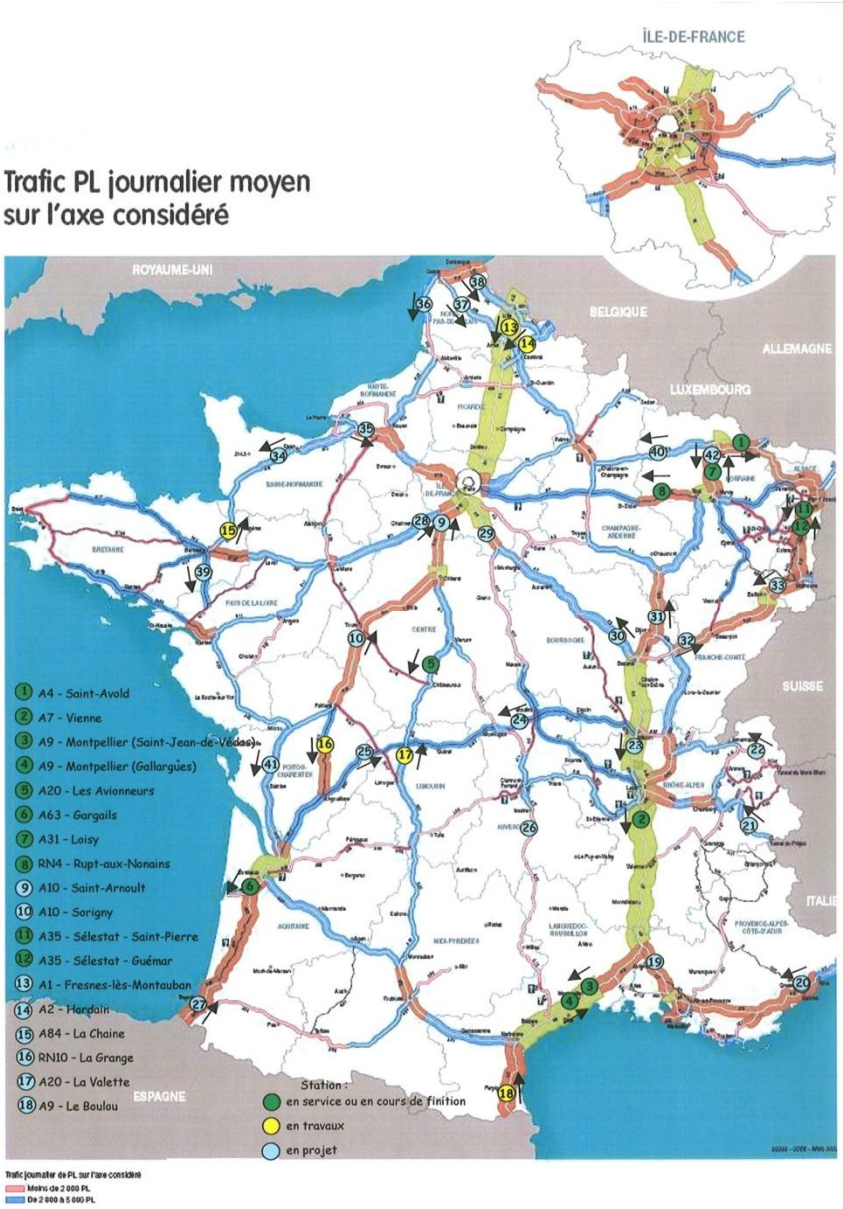
Deployment of 40 stations,

Mainly on the long-distance corridors and at the borders.

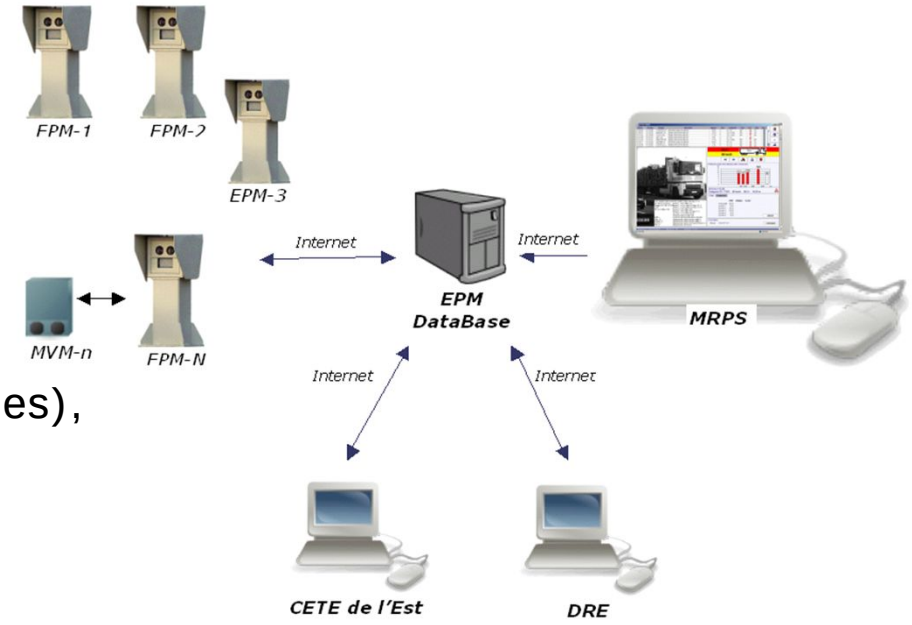
Limit:

WIM is not officially recognized in France,

-> static load measure required for punishment.



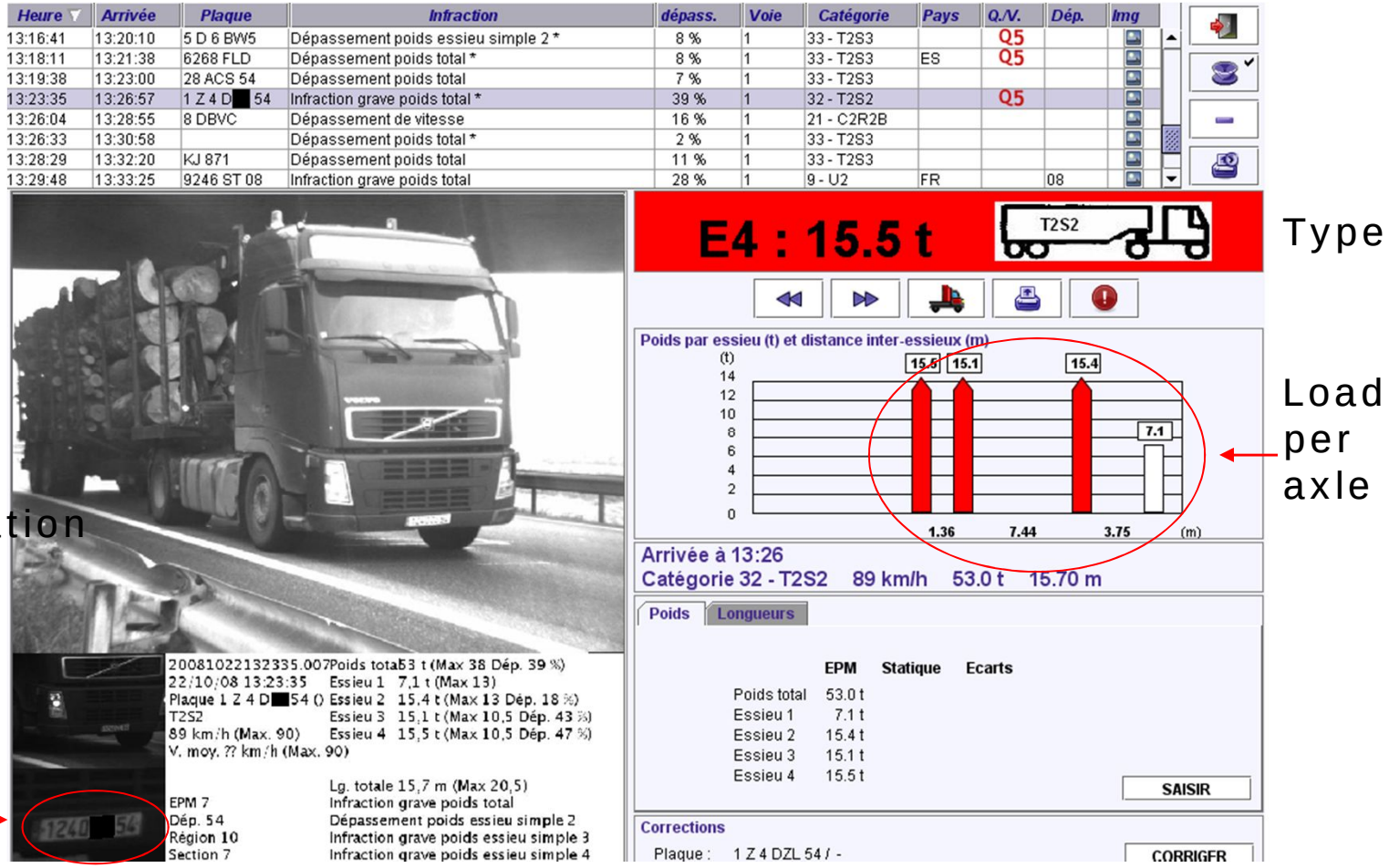
Deployment



Collected data :

Vehicle's features (length, number of axles),
Traffic density,
Speed,
Total and axle load,
Photo and ANPR.

Deployment


Heure | Arrivée | Plaque | Infraction | dépass. | Voie | Catégorie | Pays | Q./V. | Dép. | Img
13:16:41 | 13:20:10 | 5 D 6 BW5 | Dépassement poids essieu simple 2 * | 8 % | 1 | 33 - T2S3 | | Q5
13:18:11 | 13:21:38 | 6268 FLD | Dépassement poids total * | 8 % | 1 | 33 - T2S3 | ES | Q5
13:19:38 | 13:23:00 | 28 ACS 54 | Dépassement poids total | 7 % | 1 | 33 - T2S3
13:23:35 | 13:26:57 | 1 Z 4 D 54 | Infraction grave poids total * | 39 % | 1 | 32 - T2S2 | | Q5
13:26:04 | 13:28:55 | 8 DBVC | Dépassement de vitesse | 16 % | 1 | 21 - C2R2B
13:26:33 | 13:30:58 | | Dépassement poids total * | 2 % | 1 | 33 - T2S3
13:28:29 | 13:32:20 | KJ 871 | Dépassement poids total | 11 % | 1 | 33 - T2S3
13:29:48 | 13:33:25 | 9246 ST 08 | Infraction grave poids total | 28 % | 1 | 9 - U2 | FR | | 08
E4 : 15.5 t
T2S2
Type
Poids par essieu (t) et distance inter-essieux (m)
(t)
14
12
10
8
6
4
2
0
15.5
15.1
15.4
7.1
1.36
7.44
3.75
(m)
Load per axle
Arrivée à 13:26
Catégorie 32 - T2S2 89 km/h 53.0 t 15.70 m
Poids
Longueurs
EPM Statique Ecarts
Poids total 53.0 t
Essieu 1 7.1 t
Essieu 2 15.4 t
Essieu 3 15.1 t
Essieu 4 15.5 t
SAISIR
Corrections
Plaque : 1 Z 4 DZL 54 / -
CORRIGER
Identification
ANPR
20081022132335.007
22/10/08 13:23:35
Plaque 1 Z 4 D 54 ()
T2S2
89 km/h (Max. 90)
V. moy. ?? km/h (Max. 90)
Poids total 53 t (Max 38 Dép. 39 %)
Essieu 1 7,1 t (Max 13)
Essieu 2 15,4 t (Max 13 Dép. 18 %)
Essieu 3 15,1 t (Max 10,5 Dép. 43 %)
Essieu 4 15,5 t (Max 10,5 Dép. 47 %)
Lg. totale 15,7 m (Max 20,5)
EPM 7
Dép. 54
Région 10
Section 7
Infraction grave poids total
Dépassement poids essieu simple 2
Infraction grave poids essieu simple 3
Infraction grave poids essieu simple 4

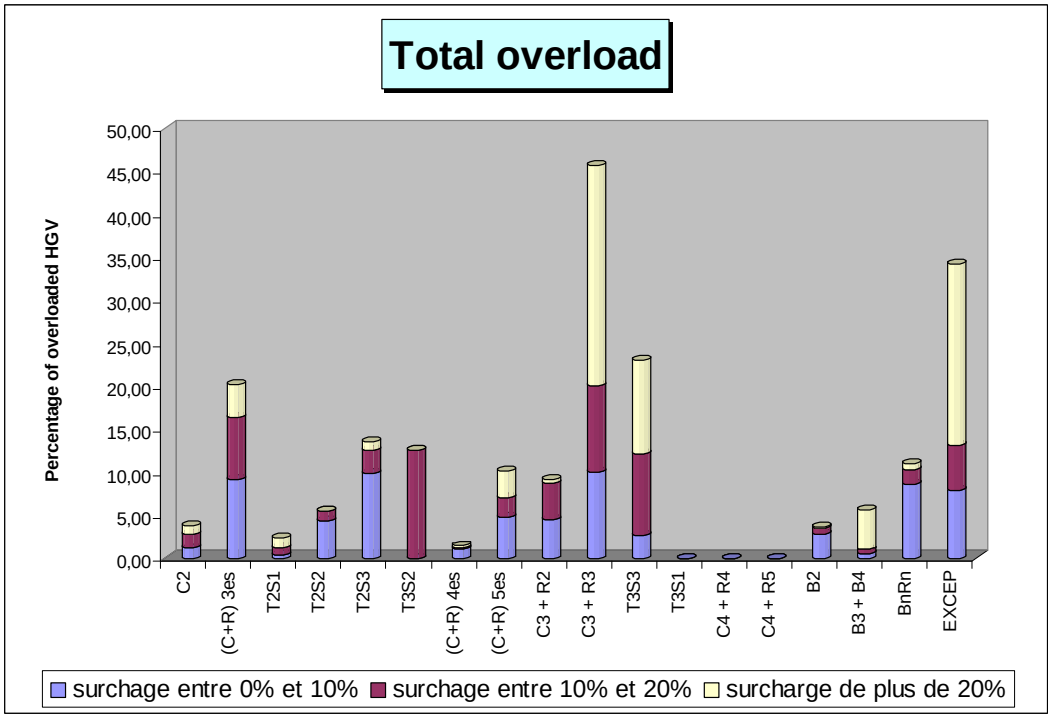
Results: Heavy traffic database

More accurate data on heavy traffic than in the past:

- Per HGV-type,
- ANPR allows traffic studies per corridor.

Average load per HGV-type :

- Studies to improve the methodology on road and bridge aging



Results: Heavy traffic database

Examples:

- Traffic Management Plans and HGV storage,
- Imputs for research on road structures,
- Intelligent truck parking
- “Go fast” tracking.

Results: control

Control efficiency: great improvement

Before:

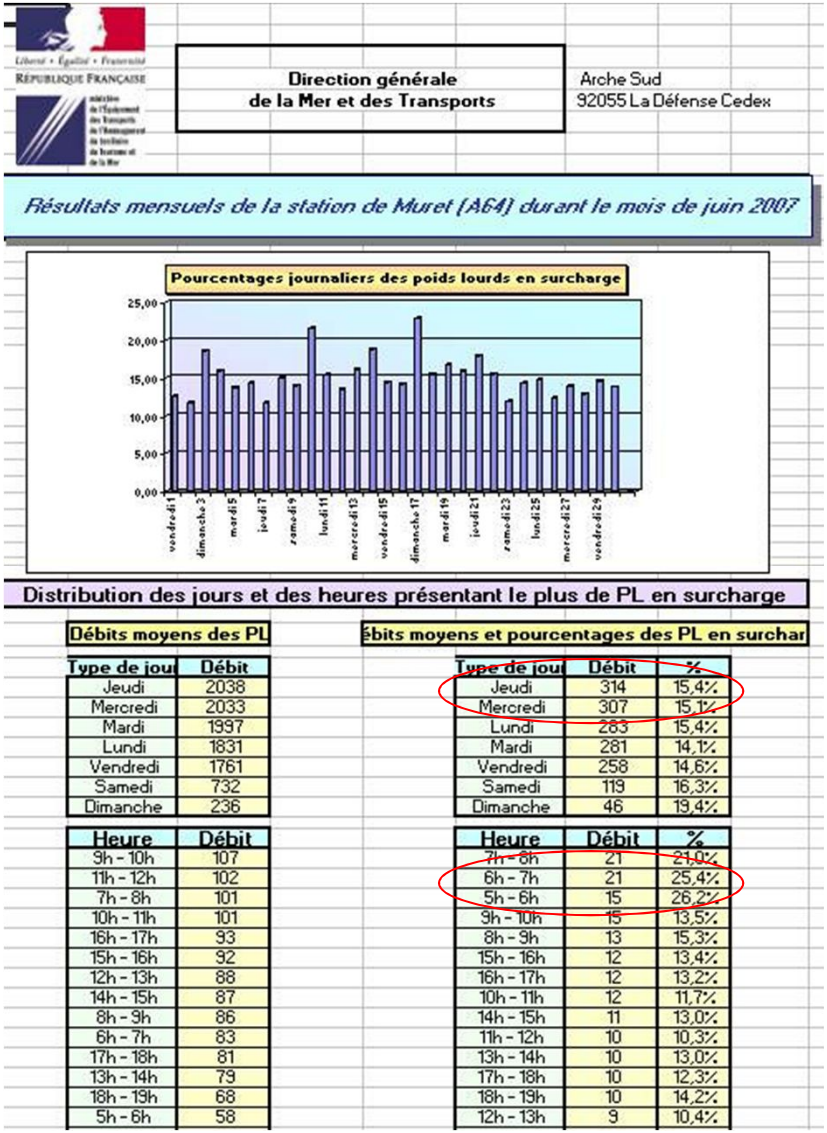
- 10% of randomly stopped HGV were overloaded.

After:

- 96% of HGV stopped are overloaded.
- Identification of regularly law-breaking companies.

Less impact on traffic:

- No more congestion near parking areas caused by controls,
- Selection of the more efficient time and day for control.



Direction générale
de la Mer et des Transports

Arche Sud
92055 La Défense Cedex

Résultats mensuels de la station de Muret (A64) durant le mois de juin 2007

Pourcentages journaliers des poids lourds en surcharge

Distribution des jours et des heures présentant le plus de PL en surcharge

Débits moyens des PL

Type de jour	Débit
Jeudi	2038
Mercredi	2033
Mardi	1997
Lundi	1831
Vendredi	1761
Samedi	732
Dimanche	236

Heure	Débit
9h - 10h	107
11h - 12h	102
7h - 8h	101
10h - 11h	101
16h - 17h	93
15h - 16h	92
12h - 13h	88
14h - 15h	87
8h - 9h	86
6h - 7h	83
17h - 18h	81
13h - 14h	79
18h - 19h	68
5h - 6h	58

ébits moyens et pourcentages des PL en surchar

Type de jour	Débit	%
Jeudi	314	15,4%
Mercredi	307	15,1%
Lundi	283	15,4%
Mardi	281	14,1%
Vendredi	258	14,6%
Samedi	119	16,3%
Dimanche	46	19,4%

Heure	Débit	%
7h - 8h	21	21,0%
6h - 7h	21	25,4%
5h - 6h	15	26,2%
9h - 10h	15	13,5%
8h - 9h	13	15,3%
15h - 16h	12	13,4%
16h - 17h	12	13,2%
10h - 11h	12	11,7%
14h - 15h	11	13,0%
11h - 12h	10	10,3%
13h - 14h	10	13,0%
17h - 18h	10	12,3%
18h - 19h	10	14,2%
12h - 13h	9	10,4%

Next steps

- Completion of the deployment (around 15 stations in 2011-2012).

- Improvement of the stations (wireless, low energy consumption...) and of the database (easier internet access for road operators).

- Homologation of the WIM for automatic controls
  - Load precision <5% for 98% of the vehicules
    (<5% for 90% of the vehicules for the moment)
  - ANPR recognition > 80%
    (>60% for the moment)

Thanks for your attention !