



Cerema

Centre-Est

Traffic management in France

Presentation of two different measures
and their assessments

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Traffic management and control unit

Scanning Tour - Delft - October 4, 2016

Content

- Lowering speeds on urban motorways in Lyon
- Auxiliary lane on eastern Paris highways



(Source : maps.google.fr)

Context

- PPA (atmospheric protection plans) : compulsory for cities of more than 250000 inhabitants since 1996

Context

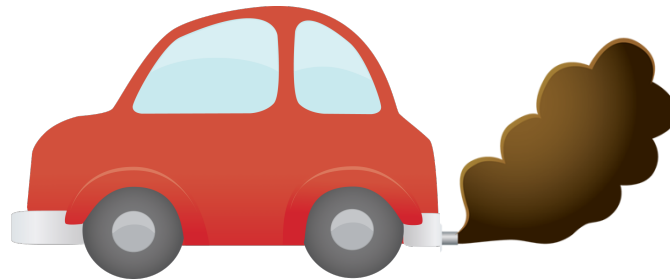
- PPA (atmospheric protection plans) : compulsory for cities of more than 250000 inhabitants since 1996
- Their goal : reduce the concentration of air pollutants

Context

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- Their goal : reduce the concentration of air pollutants
- Approval of the first plan for the Lyon area in 2008

Context

- 6 measures concern roads

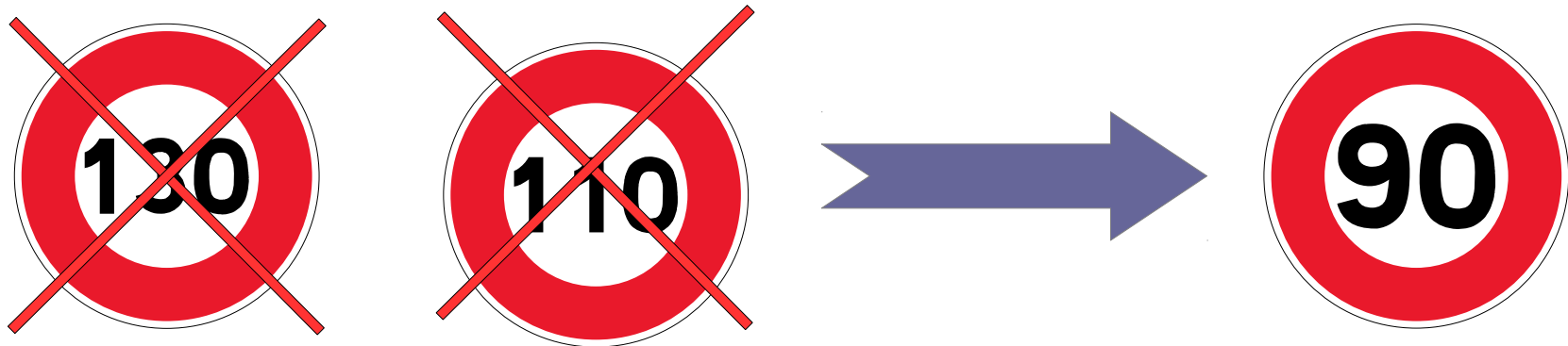


Context

- 6 measures concern roads
- Action T3 : « gradual reduction in speed »

Context

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- Action T3 : « gradual reduction in speed »
- Set in 2012



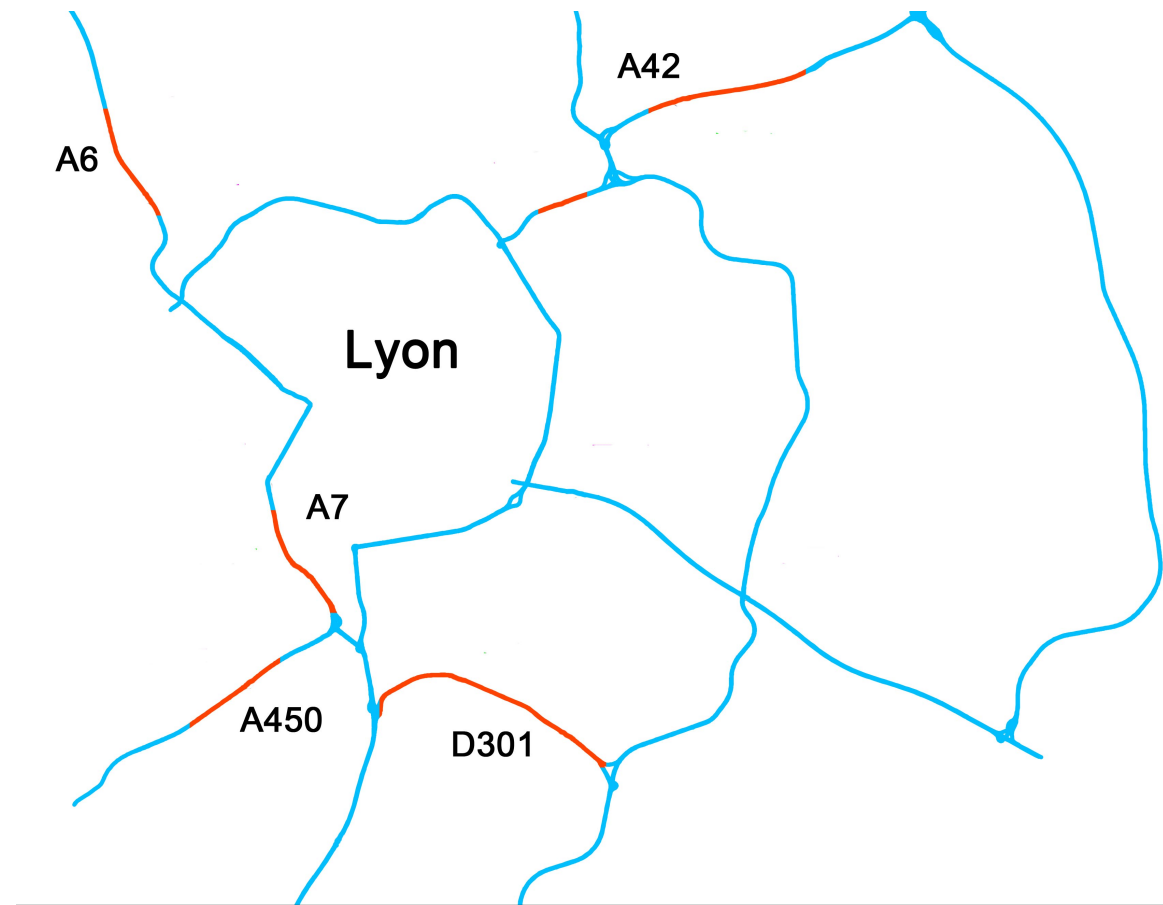
Evaluation goals

- Impacts on traffic conditions
- Environmental impacts



The scope

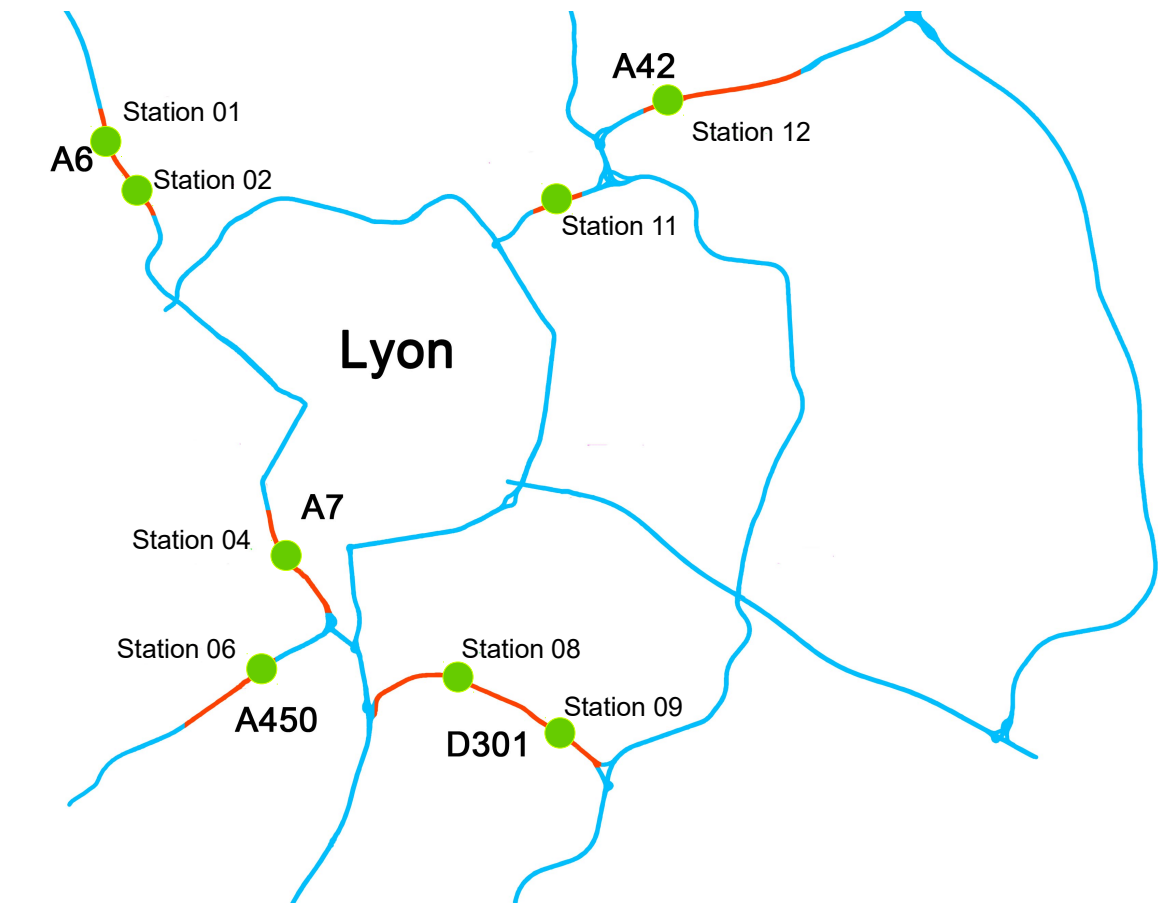
- Sections on 4 motorways and a secondary road



Sources : BdCarto®, © IGN - Paris - 2011 (millésime du référentiel) - Protocole IGN/MEDDTL-MAAPRAT, octobre 2011 - Autorisation de diffusion : Libre/Restreinte - Reproduction : Interdite/Libre

Data collection

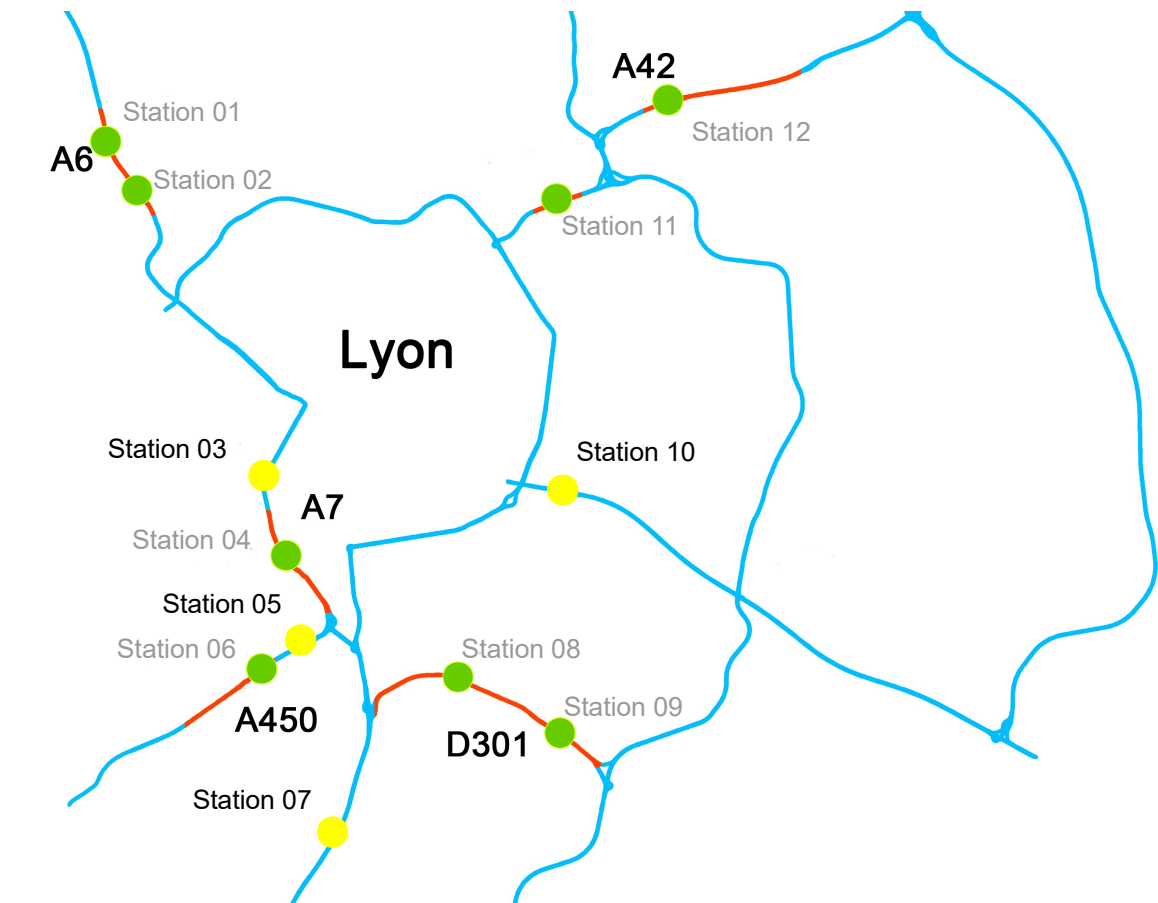
- 8 electromagnetic loops on modified sections



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Data collection

- 4 additional loops on unmodified reference sections



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Data collection

- Comparison between March / April 2012 and March / April 2013

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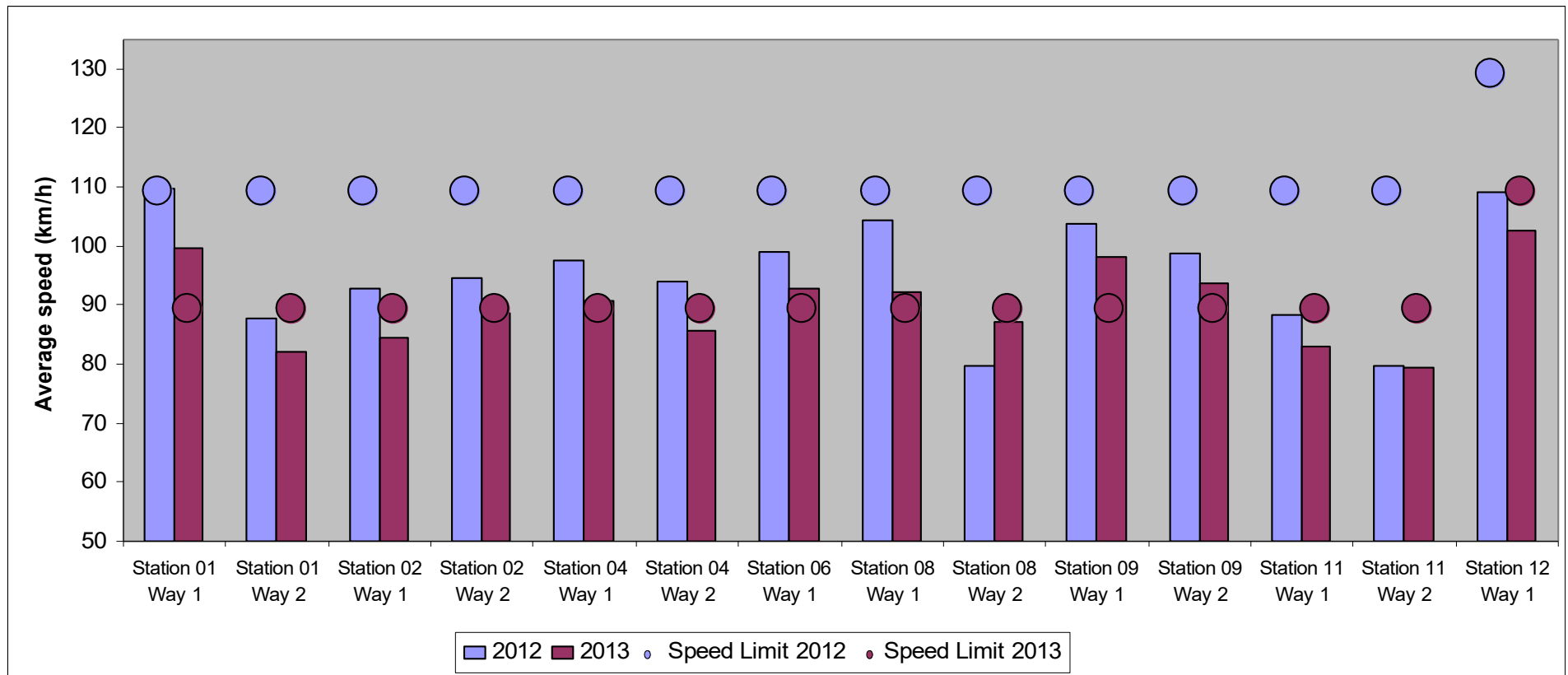
Global indicators

Average speeds

- No change for the stations of reference

Average speeds

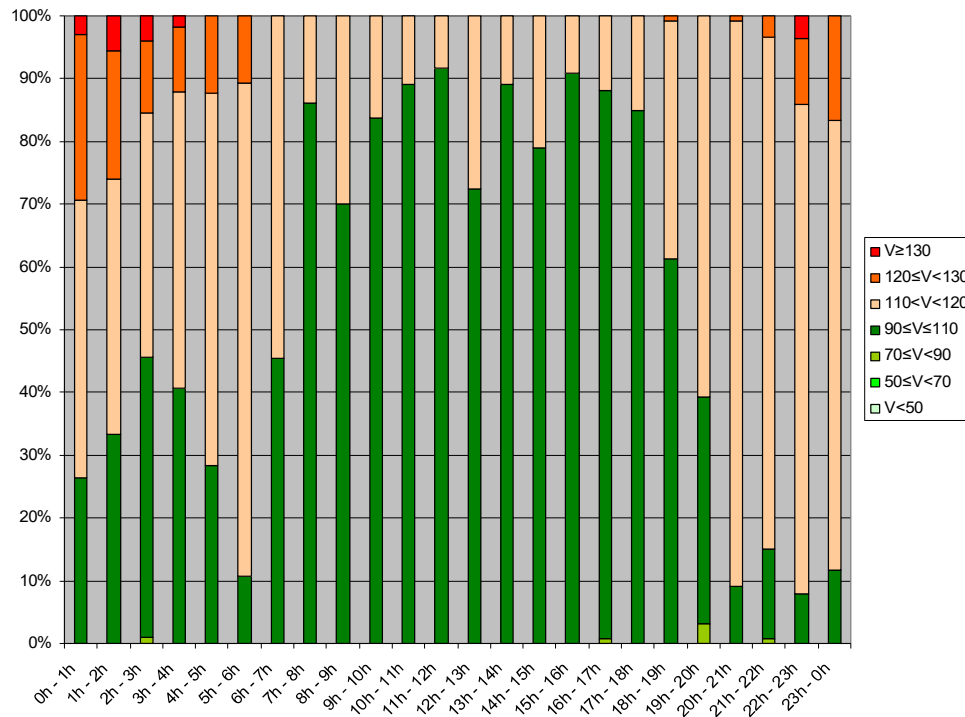
- No change for the stations of reference
- Systematic decreases between 5 and 12%



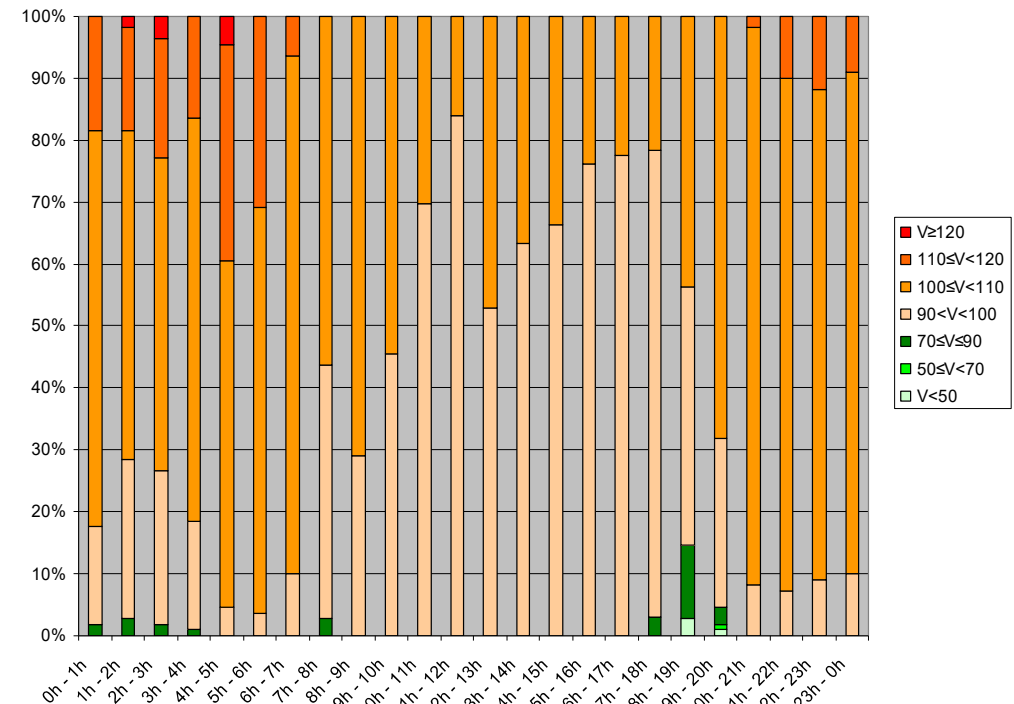
Speed limit compliance

- 6-minute speed categories

Speed categories - Station 01 - Way 1 - Tuesday Thursday 2012

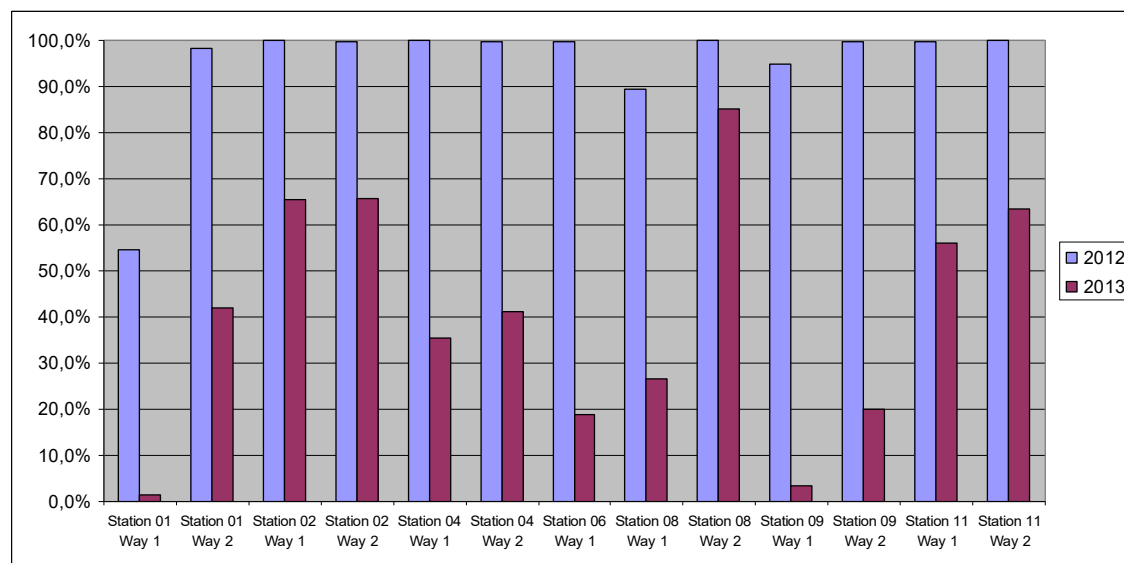


Speed categories - Station 01 - Way 1 - Tuesday Thursday 2013



Speed limit compliance

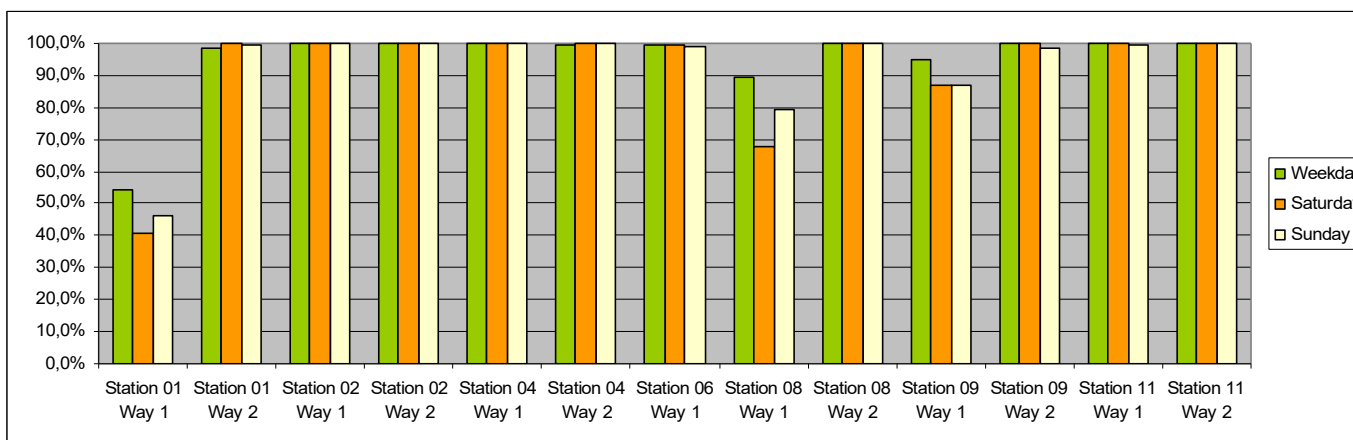
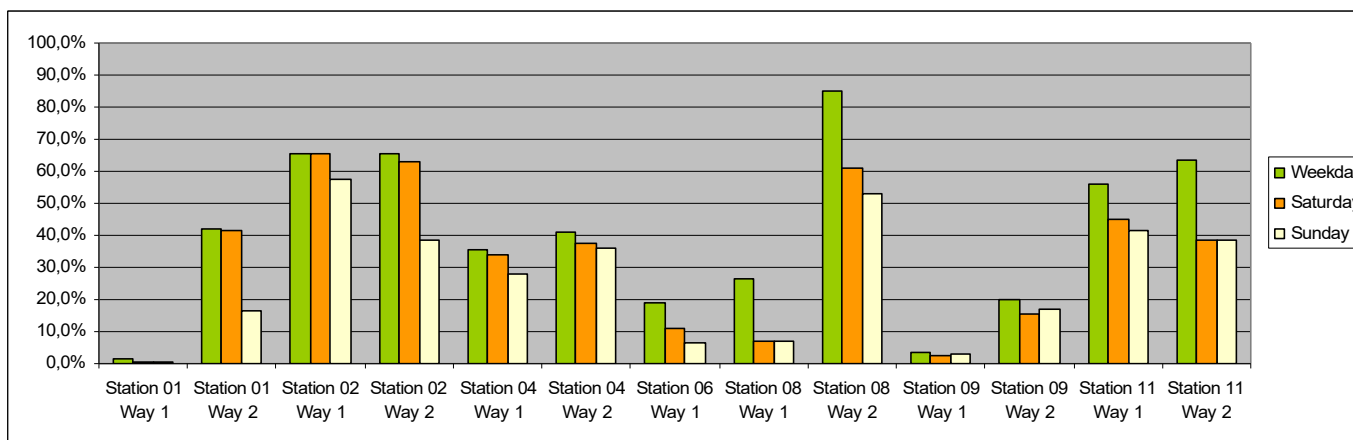
- No change at the reference stations and strong decreases elsewhere



- But a maximum 2 % increase in speedings above 20 km/h (sunday and night)

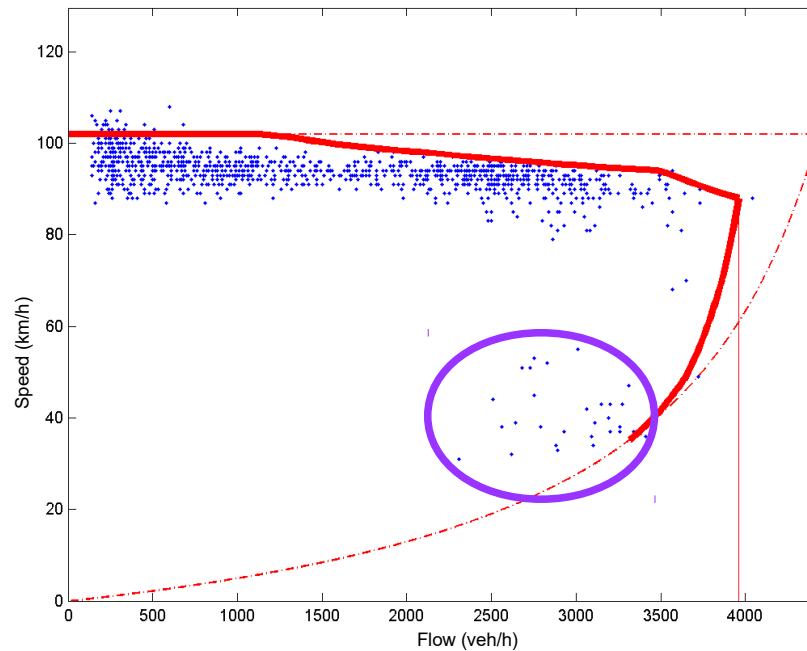
Speed limit compliance

- Weakest compliance rates on Sunday

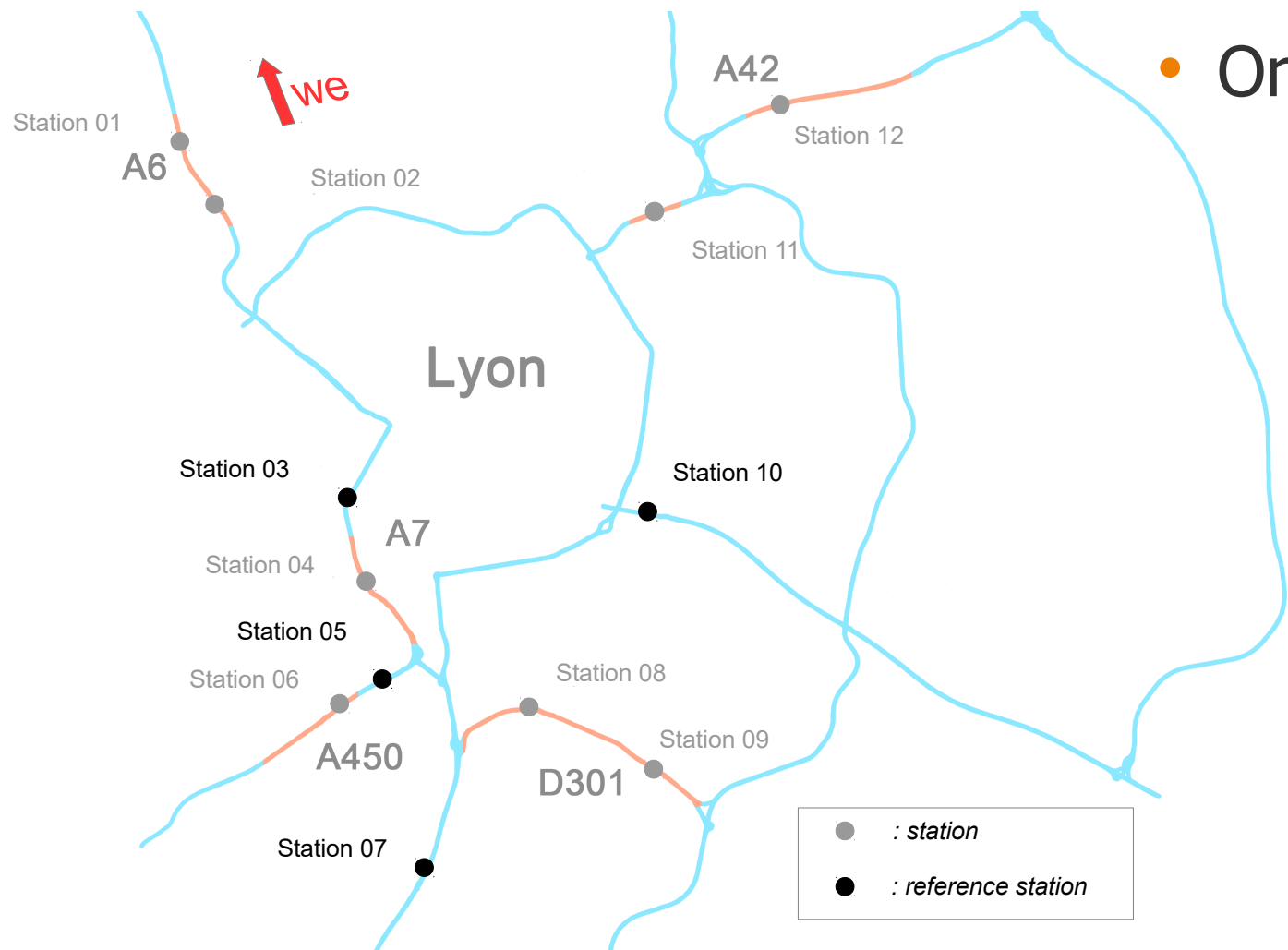


Congestion

- Number of 6' periods below 50 km/h
- Speed-flow diagrams



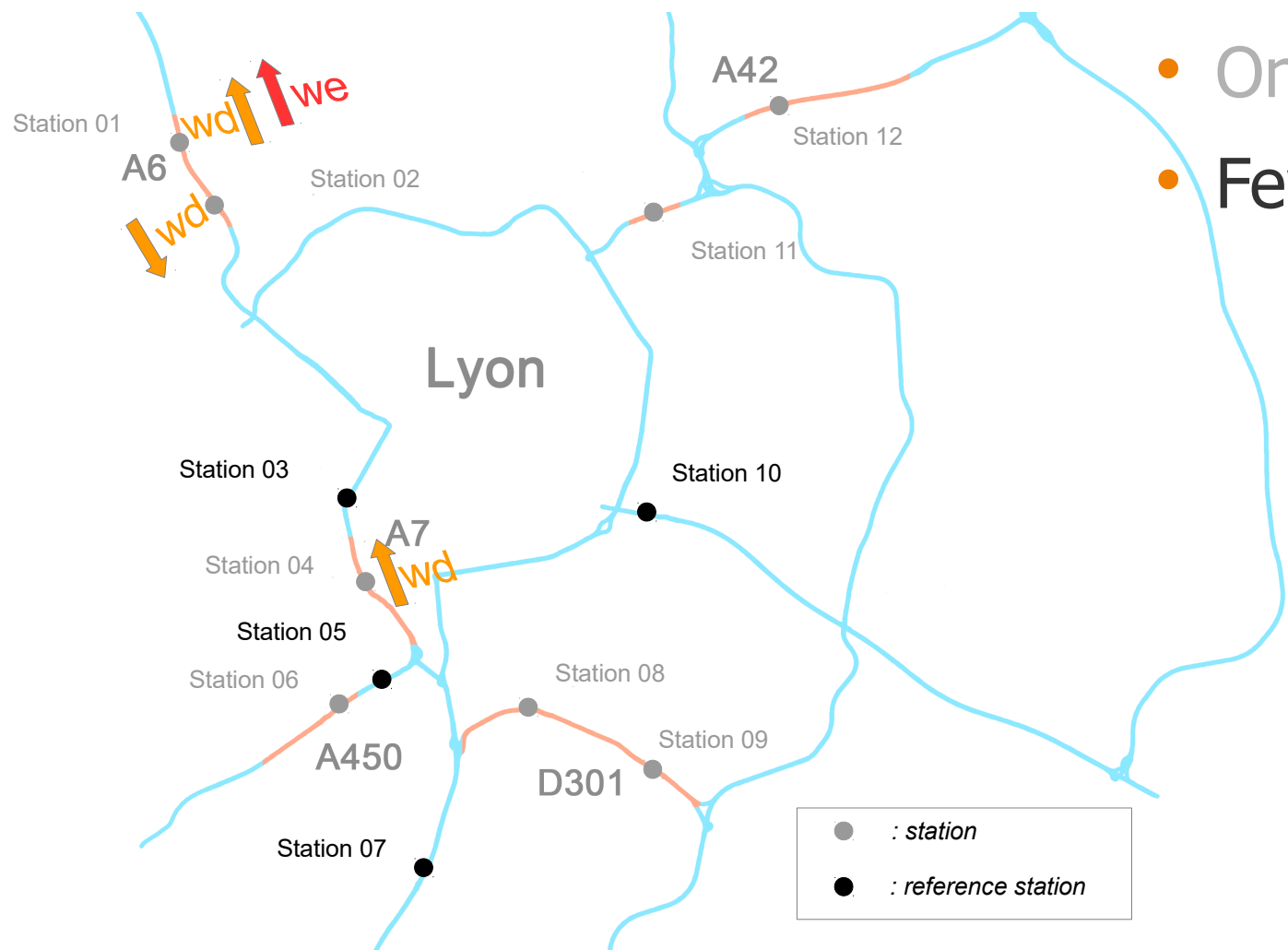
Congestion



- Only one appearance

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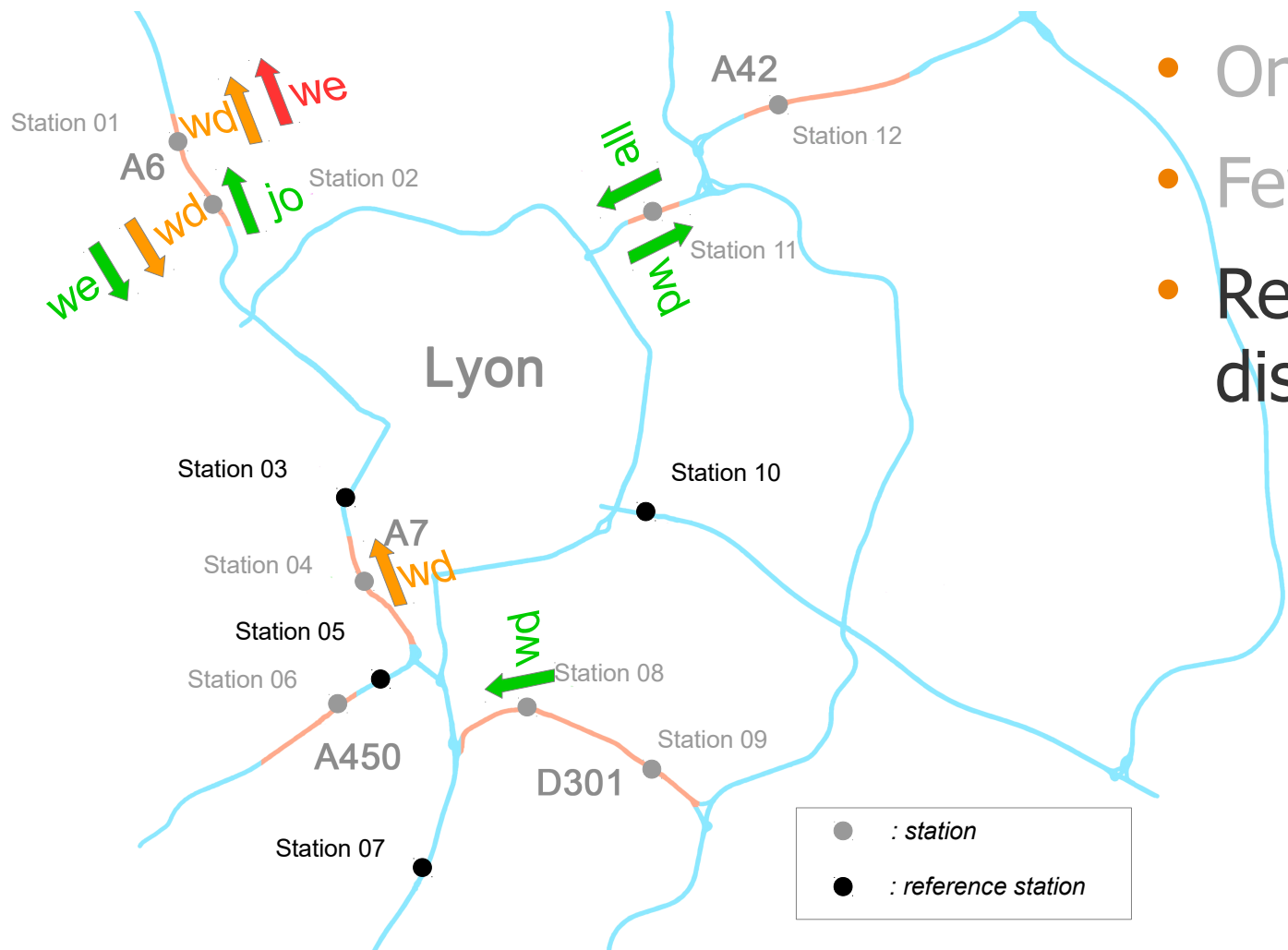
Congestion



- Only one appearance
- Few and low increases

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Congestion

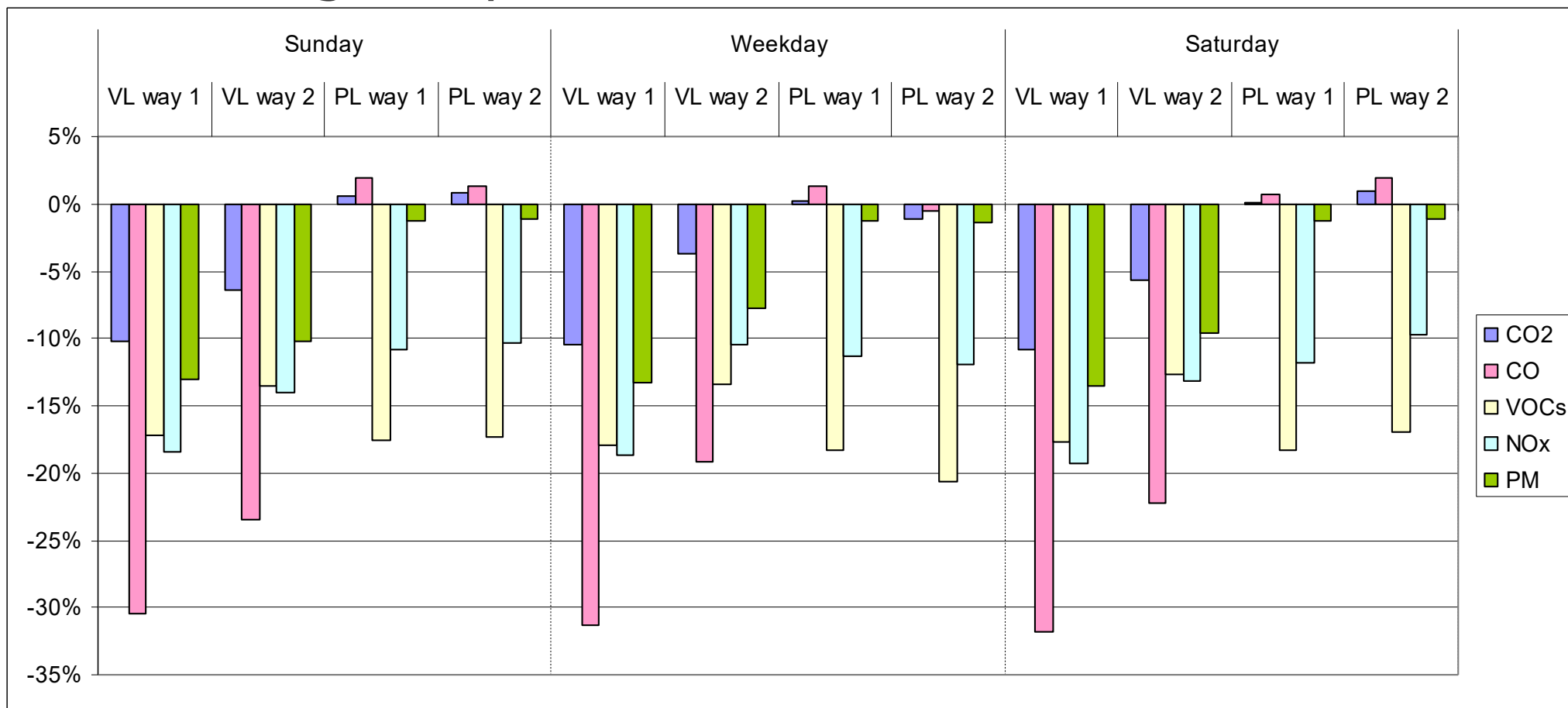


- Only one appearance
- Few and low increases
- Reductions or disappearances

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Environment

- Changes in pollutant emissions



Conclusion : positive impacts...

- Reduction in average speeds at all stations

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- Low increase in number of congestion periods

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- Reduction in average speeds at all stations
- Low increase in number of congestion periods
- **Positive impact on pollutant emissions**

Conclusion : ... but

- Incomplete data

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- Lack of individual data

Conclusion : ... but

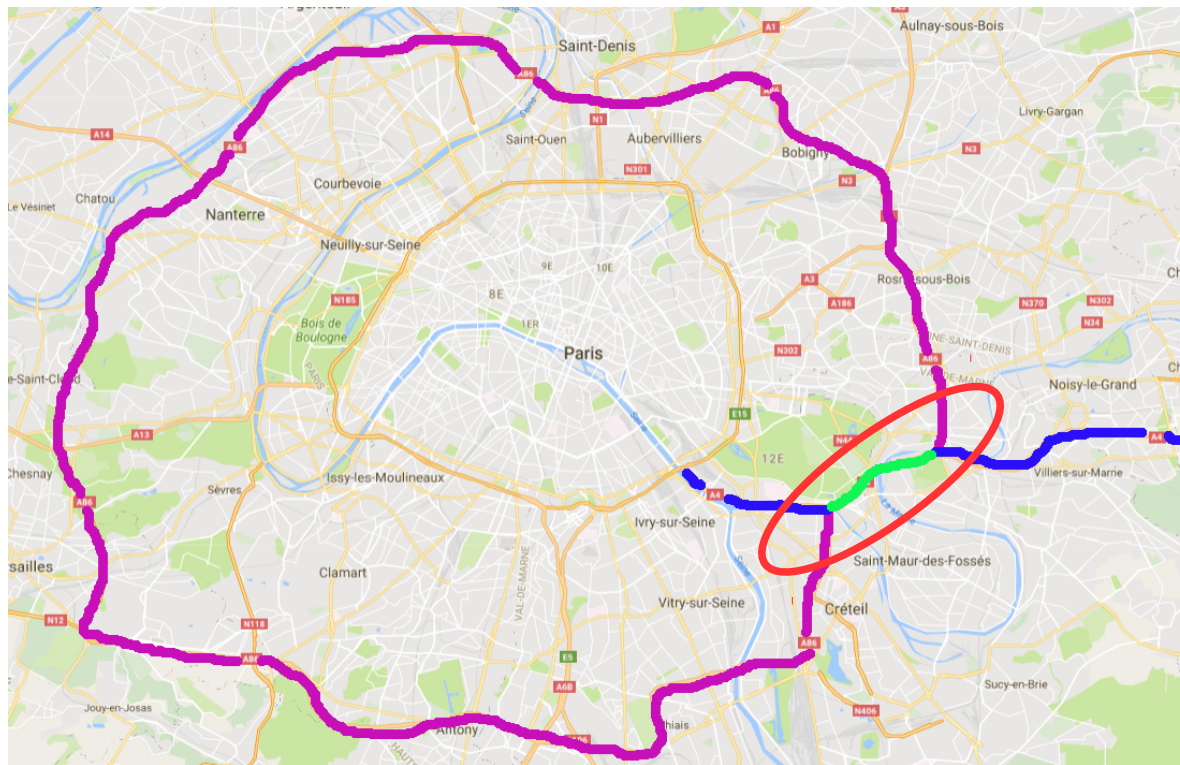
- Incomplete data
- Lack of individual data
- Closeness between data collection and implementation

What about you ?

- Lowering of speed to 80 km/h : similar results ?
- 130 km/h on some highways
 - dynamic speed limit for part of it ?
 - only at night ?
- Did you compare the 2 strategies ?

Context

- In the East of Paris, **A86** and **A4** meet and share a 4-lane **2200-meter long section**



(Source : maps.google.fr)

« The greatest traffic bottleneck in Europe »



(Source : DIRIF)

Context

- Hard shoulder running experiment launched in July 2005

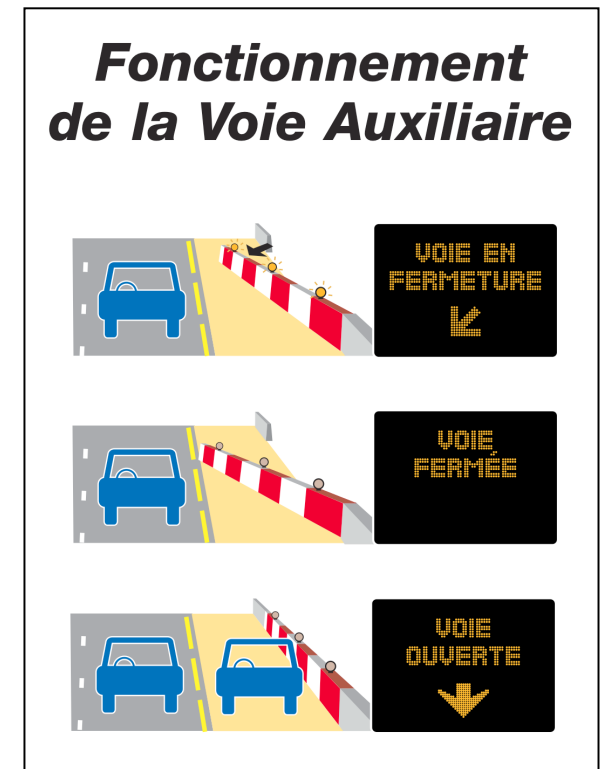


(Source : DIRIF)

Opening and closure activated according to the value of the occupancy : to Paris in the morning peak, from Paris in the evening peak

Context

- Moveable safety barriers and dynamic vertical signing



(Source : DIRIF)

Assessment

- Led by INRETS
- Comparison between 2003 and 2006 in terms of
 - traffic
 - environment
 - security (non significant results)
- 2 loops on the common section

Traffic

- Capacity : weekday

	2003	2006 ^(*)	
A4 to Paris	8 670 veh/h	9 310 veh/h	+ 7,4 %
A4 from Paris	8 820 veh/h	9 725 veh/h	+ 10,3 %

(*) : HSR 4h/day to Paris, 5h/day from Paris

Traffic

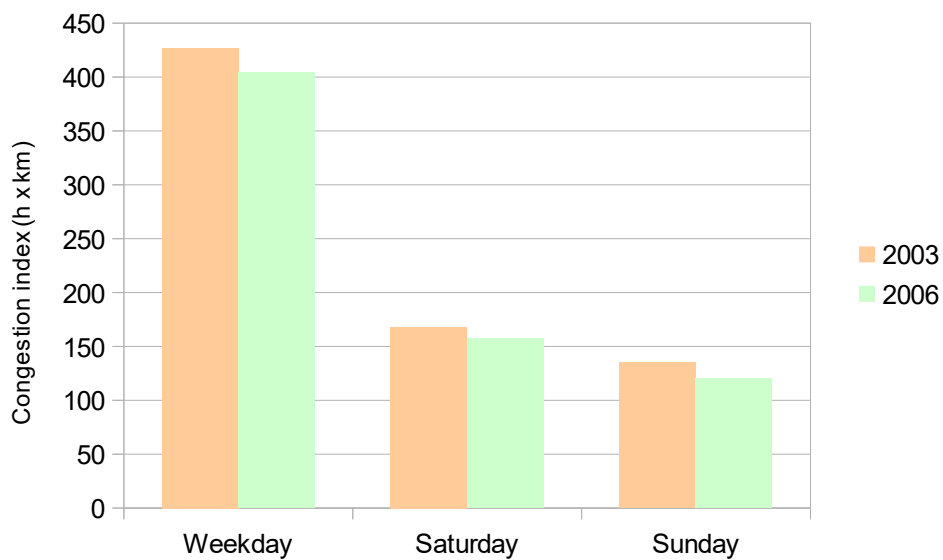
- Capacity : weekday
- Average speed

	2003	2006 ^(*)	
A4 to Paris	58 km/h	72 km/h	+ 24,1 %
A4 from Paris	72 km/h	71 km/h	- 1,4 %

(*) : HSR 4h/day to Paris, 5h/day from Paris

Traffic

- Capacity : weekday
- Average speed
- Congestion index : network length x congestion duration (< 30 km/h) on the influence road network



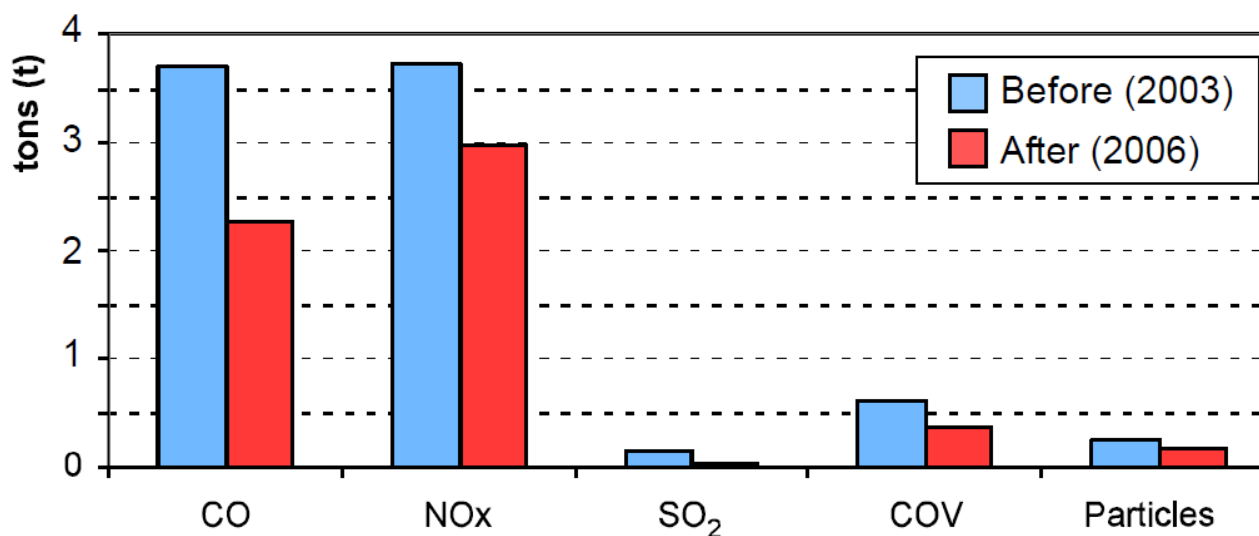
Weekday

0h - 24h : - 6 %

Peak periods : - 19 %

Environment

- Daily evolution of the emissions of pollutants



- Fuel consumption : - 15 % for gasoline vehicles
- 1 % for diesel vehicles

Conclusion

- Reliable, efficient in terms of traffic conditions and drivers feel safe
- Installation cost of € 19 million relatively low compared to the road widening cost (estimated 800 M€)
- Expensive maintenance cost : safety barriers bumped and vandalism (cable theft) : system inoperative from March 2010 to September 2012 in 2 directions

What about you ?

- Use of barriers on hard shoulders ?
- If not, number and management of motorists driving when the lane is closed ?
- Signs : choice, distance...



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Thanks for your attention

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