

**ISWIM**  
International Society for Weigh in Motion



# Introduction to Weigh-In-Motion

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# Content

1. Weighing-In-Motion
2. Applications of WIM data
3. The best WIM system?

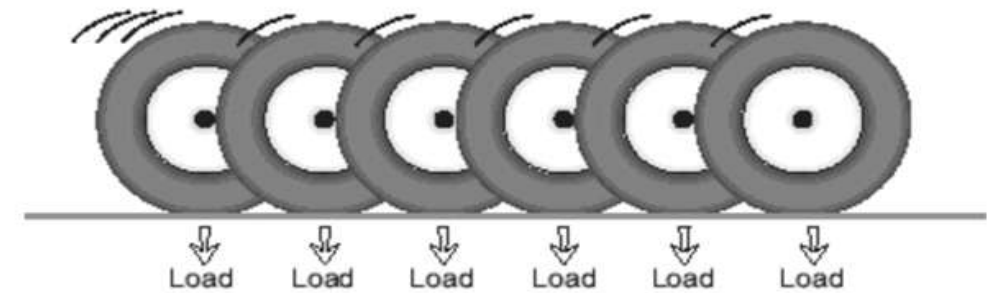
## Weigh-In-Motion



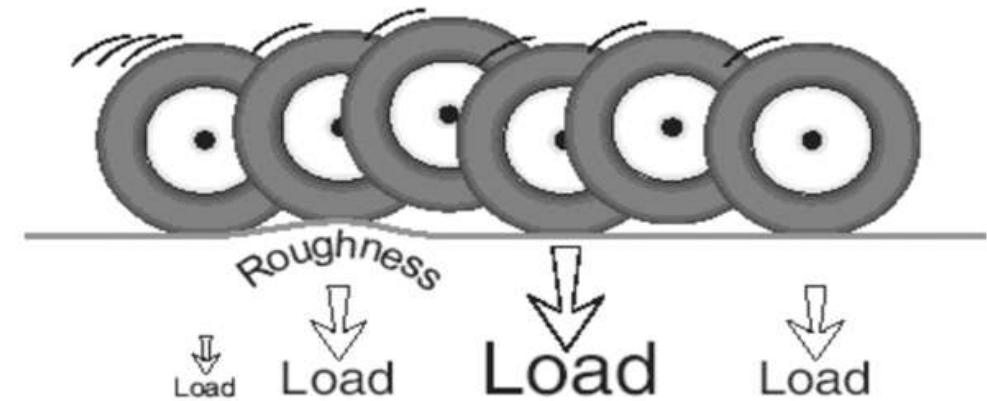
Not Weigh-In-Motion

# Weighing-In-Motion

- Measuring the Dynamic Tire Forces of a moving road vehicle and;
- Calculating the Gross Vehicle Weight (GVW) and;
- the Wheel, Axle and Axle Group Load
  - the portion of the GVW carried by each wheel, axle, and axle group of a corresponding Static vehicle.



The load is relatively constant on smooth roads.



# Weigh-In-Motion Data

- Record for each passing vehicle
- Weighing data:
  - Wheel Loads
  - Axle Loads
  - Axle Group Loads
  - Gross Vehicle Weight


## Additional data:

- Unique vehicle record number
- Location of the WIM system
- Lane and direction of travel
- Date and Time of passage
- Vehicle speed
- Axle distances
- Wheel base and/or Vehicle Length
- Vehicle Classification

**WIM Monitor Category Comparison**

Bestand Verbinding Extra Filter Navigatie Help

04:04:38



Datum: 02 maart 2004  
 Tijd: 10:57:21  
 Voertuig nr.: 551  
 Rijstrook: Rechter rijstrook  
 Meetlocatie: RW12;km41,8;noordbaan,Woerden  
 Sub Categorie: O2235  
 Sub Categorie (ORG): O2235  
 Sub Categorie (DWW): O2235\*  
 Snelheid (km/h): 75

Lees logbestand(en) opnieuw

	Asdruk (ton)	Lengte (m)
Totaal	140,4	27,85
	Asdruk (ton)	Afstand (m)
As 1	7,8	-
As 2	7,6	1,72
As 3	12,8	2,21
As 4	12,3	1,39
As 5	12,2	2,43
As 6	12,0	1,56
As 7	11,7	1,53
As 8	13,0	9,76
As 9	13,5	1,39
As 10	12,9	1,36
As 11	12,3	1,42
As 12	12,3	1,39

B6-6L-69

OVERIGE

Rijkswaterstaat  
Dienst Weg- en Waterbouwkunde

Niet verbonden met WIM-systeem

**Overview**  
**License Plate**  
**Overloading**  
**Class**

- Date
- Time
- Number
- Direction
- Location
- Class
- Speed
- GVW
- Axle Loads
- Axle Dist.

# Why WIM?

Vehicle *mass data* is critical to the ***design, management*** and ***operation*** of the **Road Infrastructure**

and

is important in the support of **Size & Weight Enforcement**

## 2<sup>nd</sup> Law of WIM:

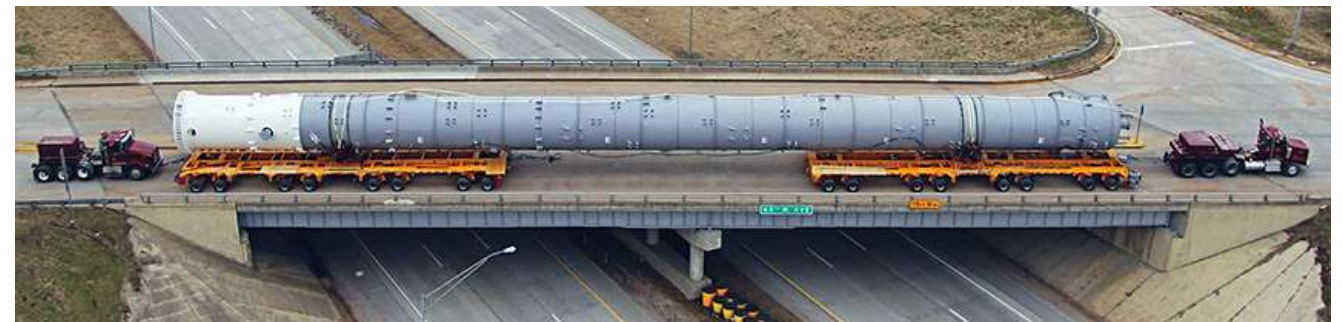
Only a WIM system will provide a complete picture of the actual traffic loading at a particular location.

*ISWIM Guide for Users of Weigh-In-Motion*

[www.is-wim.net](http://www.is-wim.net)

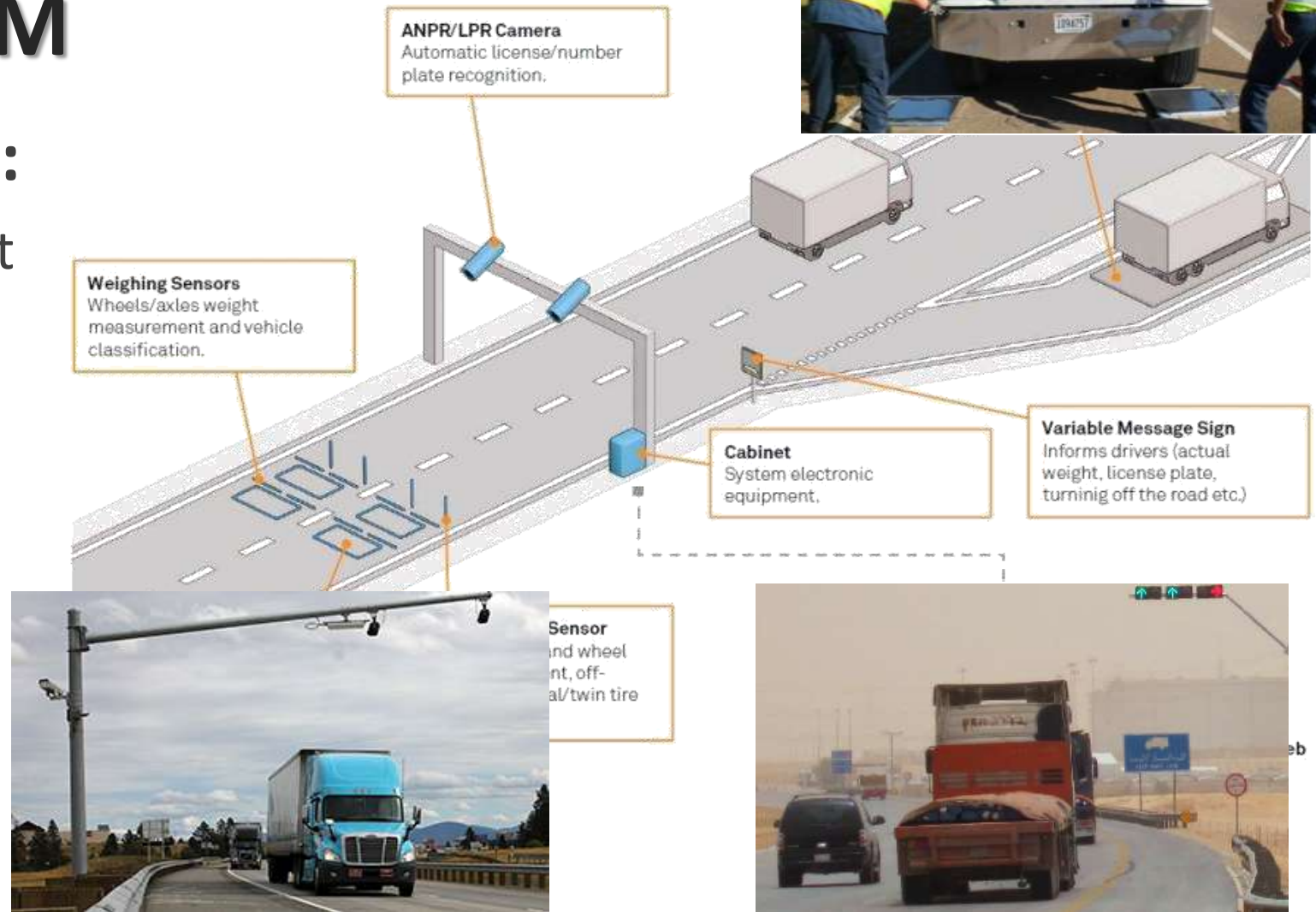
# Applications of WIM

- **Road Infrastructure:**
  - Statistics of Traffic Loading
    - Input for Design Codes
    - Planning of Maintenance
  - Special Transports
    - Matching of Permits and Routes
  - Bridge protection
    - Avoiding damage to infra



# Applications of WIM

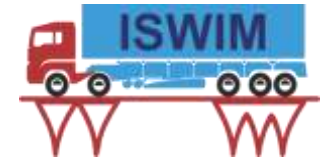
- **Weight Enforcement:**
  - Road side Enforcement
  - Statistics & Planning
  - Pre-Selection
    - *Virtual Weigh Station*
  - Company Profiling
  - Direct Enforcement



# WIM Technologies

- Strips
  - Partial wheel load
- Scales & Plates
  - Full wheel load
- Bridge WIM
  - Response of bridge
- On-Board WIM
  - On vehicles





# Implementation of WIM

## 3 Elements for implementation:

- Selection of a proper location
  - Pavement conditions
  - Traffic conditions
- Proper Installation
  - Depending on technology
  - Use experienced installation crews
- Proper maintenance
  - Depending on technology
  - **Performance will deteriorate over time!**

### 1<sup>st</sup> Law of WIM:

A WIM system installed on a good road may give good results; a WIM installed on a poor road will always give poor results.

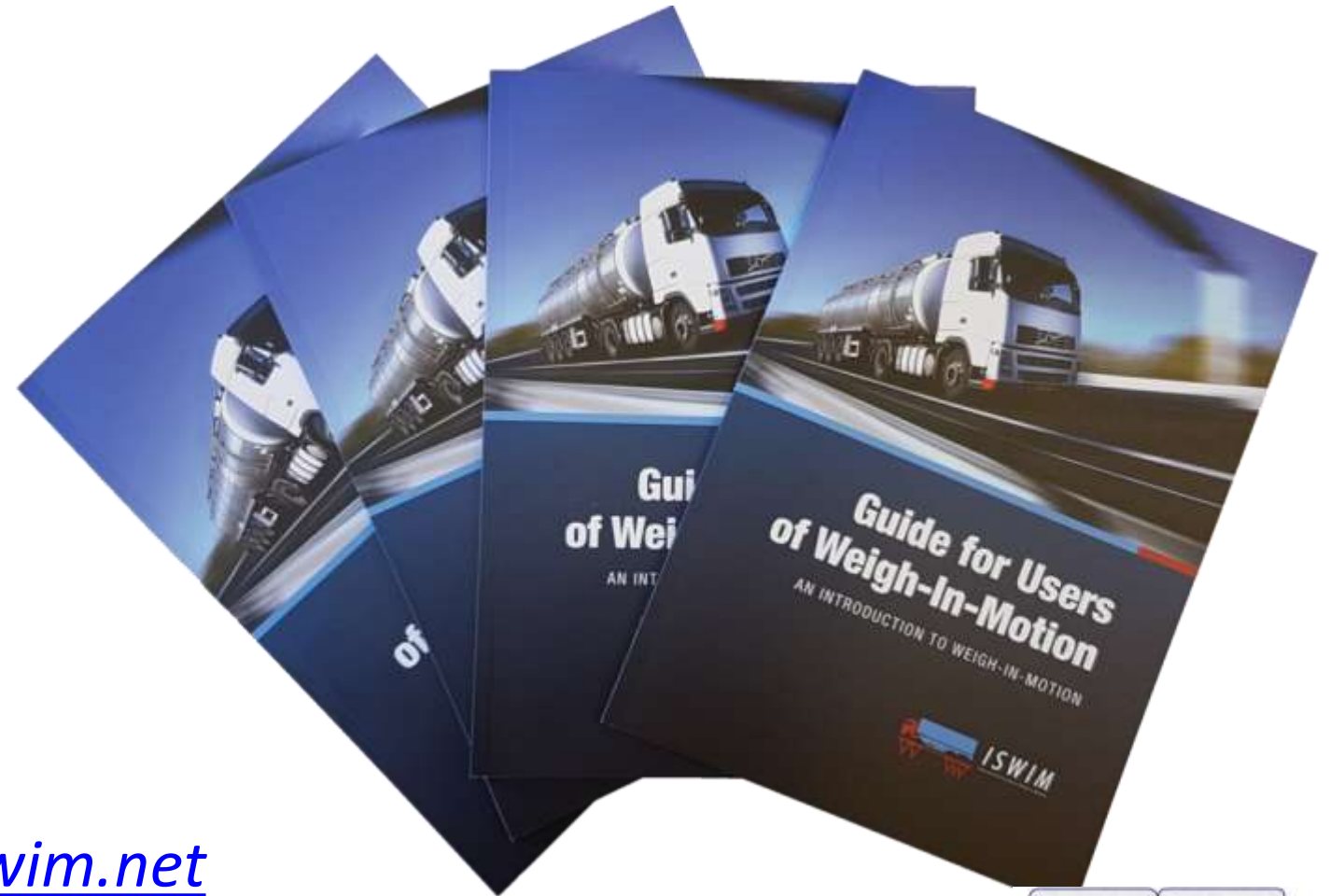
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# ISWIM User Guide

## Introduction to:

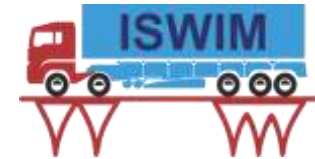
- WIM technologies
- Applications of WIM
- Implementation & Operation of WIM systems
- Use of WIM Data



Free download at: [www.is-wim.net](http://www.is-wim.net)

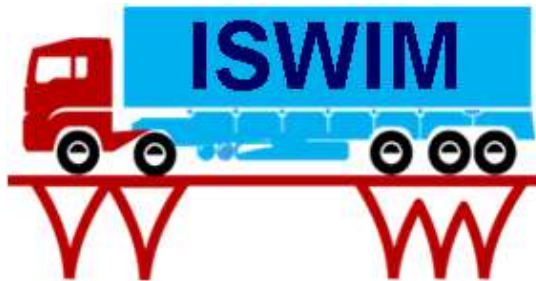
# FAQ about WIM

- What is the best WIM-sensor?
  - *Who cares, as long as the data is good!*
- What is the cheapest WIM-system?
  - *No WIM system at all!*
- How accurate should a WIM-system be?
  - *Depends on your application.*
  - *Don't forget about reliability!*
- What is the best WIM-system?
  - *I don't know, what is the best car?*
  - *Depends on application and conditions.*



# Questions?

## Weigh-In-Motion



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