



**RWS BEDRIJFSVERTROUWELIJK**

## **Market exploration/consultationdocument**

for the purpose of Weigh in Motion

|         |               |
|---------|---------------|
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## Colophon

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# 1 Introduction

## 1.1. Background

Rijkswaterstaat (RWS) is working on Weigh in Motion (WIM) 2.0, a multi-year renewal of the existing WIM systems. The main drivers are:

- The current WIM systems have structural deficiencies.
- RWS requires insight into the costs of automated enforcement.
- The renewal of WIM has a lifecycle extending to 2050, during which old and new sites will operate in parallel.
- OIML R 134 will become the leading standard for future automated enforcement.

International research (ISWIM 2026) shows that successful implementation of WIM for future automated enforcement always relies on three interconnected elements:

1. Legal Acceptance,
2. System Certification, and
3. Data Quality Control (DQM).

This market consultation focuses exclusively on the components that fall within the RWS scope (System Certification and DQM).

The legal component (Legal Acceptance) is addressed separately by DGMo/ILT/OM and falls outside the scope of this consultation.

## 1.2. Purpose of the Market Exploration / Consultation

This consultation has the following objectives:

- Gaining insight into the feasibility (technical, financial, organizational) of using WIM for automated enforcement (i.e., without physical re-weighing and as much as possible without other human checks).
- Gaining insight into the conditions under which automated in-road and bridge WIM is possible, with suppliers of certified systems according to the OIML R134 standard and possible references to the COST 323 and NMI standards.
- Collecting input for several components of the Project Initiation Document (PID), including:
  - Risk management strategy,
  - Quality management strategy,
  - Procurement and tendering strategy,
  - Project approach (phasing up to 2050),
  - Business case refinement,
  - Data governance for DQM.
- Gaining insight into the impact of technological changes on the installed WIM systems up to 2050.

The purpose of this consultation is therefore not to establish a preference or pre-selection, but to systematically gather market knowledge

### **1.3. Target Group of the Market Exploration / Consultation**

This consultation is aimed at suppliers who:

- Develop, manufacture, and deliver WIM systems,
- Are certified according to OIML R134:2006 for an application range that covers at least the Dutch motorway condition ( $\approx 95$  km/h),
- Have substantive expertise in civil integration (including various types of porous asphalt, foundations on soft soil, tolerances), sensor technology, data processing, and long-term system performance,
- Have experience with WIM-related lifecycle projects (15–25 years) and large-scale deployment,
- Are active in relevant innovations (such as AI detection, embedded sensors, data quality monitoring),
- Have demonstrable experience with applications of WIM in automated enforcement.

The use of an integrator falls under the responsibility of the supplier and does not constitute a separate target group in this consultation

### **1.4. High-Level Approach to the Market Exploration / Consultation**

#### **Phase 1 – Written broad consultation**

- The consultation is formally open to all market parties. The primary target group consists of suppliers that meet the criteria in section 1.3.
- Written responses to the questions in this document.

Based on the responses received, RWS may select up to five parties with whom to conduct in-depth discussions in order to best fulfil its knowledge needs.

#### **Phase 2 – In-depth discussions**

- These will focus on gaining insight into feasibility, risks, innovations, total costs and lifecycle aspects.

A summary, without any commercially sensitive information, of both the written responses and the discussions will be published on TenderNed (as described in Chapter 3).

### **1.5. About Rijkswaterstaat**

RWS is the executive agency of the Ministry of Infrastructure and Water Management (IenW) and is responsible for the management, maintenance and development of the national main road network, main waterways and the national water system. RWS ensures smooth and safe traffic flows, a safe and sustainable water system, and the protection of the Netherlands against flooding. For WIM, this means that RWS is responsible for, among other things:

- the technical implementation of WIM systems (hardware, sensors, cameras, data chain), including ensuring compliance with the relevant standards,
- ensuring compliance with the requirements set by the Client,
- the collection, quality assurance and delivery of WIM data,
- the management of the ICT chain and data flows,

- and supporting the certification process (e.g., NMI inspections).

This market consultation is carried out within this mandate of RWS-CIV, in close cooperation with other RWS divisions such as GPO, WVL and the regional departments, which together are responsible for infrastructure, regulation, data usage and civil integration. More information about RWS and RWS-CIV can be found at [www.rijkswaterstaat.nl](http://www.rijkswaterstaat.nl).

## 1.6. Policy

### Market Vision

Rijkswaterstaat (RWS) operates in accordance with the government-wide Market Vision "*Together with the Market*", which emphasizes leveraging the expertise and innovative capacity of market parties. Whereas RWS previously followed the principle of "*Market, unless*", the focus has now shifted to equitable cooperation, shared responsibility, and creating value for society.

For WIM 2.0, this means that RWS engages the market at an early stage to:

- obtain realistic insights into technology, risks, costs, and implementation,
- provide room for innovative solutions (for example in the fields of sensor technology, data processing, or lifecycle management),
- and collaborate on an executable and future-proof WIM system that aligns with societal needs and the requirements of chain partners such as DGMO, ILT, and OM.

This market consultation is an instrument to ensure transparency and a level playing field for market parties, while simultaneously gathering knowledge and expertise from the market.

### Societal Challenge

RWS faces a major challenge: maintaining and renewing an increasingly complex infrastructure network under growing pressure from:

- increasing mobility,
- ageing infrastructure,
- rising demand for reliable and timely data,
- digitalisation and technological developments,
- and societal requirements regarding safety, sustainability, enforcement, reliability, and cost control.

WIM 2.0 contributes directly to this challenge because:

- it provides essential data for asset management, traffic safety, and policy purposes,
- WIM can support automated overloading enforcement in the future,
- and the project enables RWS to manage the national road network more intelligently and efficiently together with the market.

RWS aims to develop, together with market parties, an executable, affordable, and future-proof roadmap for WIM 2.0.

The cooperation focuses on:

- jointly developing insights into technical and civil-engineering boundary conditions,
- lifecycle optimisation for a system that will be deployed and maintained up to 2050,
- innovations that can contribute to reliability, safety, and cost efficiency,
- and a transparent dialogue in which market expertise and RWS knowledge are combined.

RWS pursues this through:

- this market consultation,
- regular contacts with suppliers, industry organisations, and partners such as ILT,
- and knowledge exchange within the network of national and international WIM expertise.

### ICT Strategy 2025-2030

The ICT Strategy of Rijkswaterstaat (RWS) outlines the course for a modern, reliable and future-proof information provision within the organization. This strategy forms an essential framework for the development of WIM 2.0, as the project revolves around data collection, data quality, system integration and digital continuity over multiple decades.

The ICT Strategy requires that RWS infrastructure systems be:

- **agile and innovative**, so that new developments in sensor technology, data processing, AI and certification can be incorporated;
- **robust and manageable**, ensuring that systems operate reliably and meet requirements related to safety, availability, cybersecurity and data quality;
- **open and well-integrated** within the RWS chain and with external chain partners such as DGMo, ILT, OM and RDW.

#### Agile / Innovative

Digitalization plays an increasingly important role in the functioning of Rijkswaterstaat. Civil structures, roadside systems and data collections are interconnected and provide real-time information to various parts of the organization.

For WIM 2.0, this means among other things:

- that systems for identification and data acquisition (such as sensors, cameras, DSRC transponders, etc.) must be flexibly replaceable or upgradeable during the period up to 2050;
- that the WIM data chain must be able to respond to future legal requirements, certification demands and technical innovations (including developments related to asphalt);
- that suppliers must be capable of integrating new technologies (such as AI-driven quality control or embedded pavement sensors) without rendering the system unusable.

### Manageable, Safe & Robust

Digitalization offers many opportunities but also introduces risks. Therefore, the ICT Strategy emphasizes that RWS must design systems that:

- are resilient to cyber threats,
- meet requirements for data security, integrity and traceability,
- remain continuously available to all relevant users,
- and align with the architectural principles and standards of RWS-CIV.

These principles apply directly to WIM 2.0, which must comply with:

- long-term data quality assurance,
- OIML R134 and future NMI certification and enforcement chains,
- requirements for audit trails, tamper-proof logging and sensor data integrity,
- robust integrations with internal and external systems such as those of RDW or supervisory authorities.

The ICT Strategy therefore calls for an architecture that is scalable and future-proof. Accordingly, a Project Start Architecture (PSA) is being developed within WIM 2.0, defining the coherence between physical installation, data provision, system management, ICT security and chain integrations.

More information about the ICT Strategy of Rijkswaterstaat can be found at:

[Werkwijze Informatievoorziening](#)

### **1.7. Development of the Legal Framework for Future Enforcement**

Although WIM 2.0 is being technically prepared for future automated enforcement, there is currently no legal framework in the Netherlands that permits enforcement based on WIM measurements. Existing laws and regulations require that overloading be determined solely on the basis of calibrated static weighing, in accordance with the Public Prosecution Service (OM) instruction [Weighings and Wheel Load Measurements 2022I006](#).

RWS is therefore working in parallel with DGMo, ILT, OM and NMI on a separate legal exploration in which, among other things, the following is being examined:

- how WIM can in the future be designated as a regulated measuring instrument (Metrology Act),
- which error margins (e.g., Maximum Permissible Errors) must be established by law,
- which evidentiary requirements (photo, timestamp, lane, raw data, audit trail) are necessary for drawing up an official report,
- which privacy and chain requirements apply to the automated processing of license plates and vehicle-related data,
- and under what conditions WIM data may be used within the enforcement chain.

For this market consultation, it is important that suppliers are asked only about the technical, operational and organizational conditions under which their systems *could* meet future legal requirements.

The development of that legal framework itself falls outside this consultation and is being addressed separately by DGMo, ILT and OM.



This ensures that the market consultation remains fully within the RWS scope and avoids procurement-law restrictions.

In this consultation, suppliers are asked to describe how their systems can accommodate future changes in this legal framework (modularity, adaptability, certification), so that WIM 2.0 does not become a disinvestment and can evolve in line with changing legislation.

In addition, RWS asks the market to provide insight into which Maximum Permissible Errors (MPE levels) and measurement tolerances are internationally realistic and sustainable, so that future Dutch legislation remains executable and does not lead to unachievable system requirements.

## 2 Scope

*(This is explicitly not the final scope for any potential procurement)*

### 2.1. Scope within the Market Consultation

#### A. Technical solution directions

Orientation on possible WIM systems (in-road and bridge) and the associated technical and civil preconditions.

#### B. Data quality and integrity

Insight into the availability of raw data, data stability, security and audit requirements.

#### C. Preconditions for future automated enforcement

Assessment of the applicability of OIML standards, certification and alignment with supervision and enforcement chains.

#### D. Implementation and lifespan

Insight into feasibility, TCO costs, maintenance, lifespan, modularity and risks related to ageing toward 2050.

#### E. Innovations and additional possibilities

Exploration of new sensor technologies, data applications and possible connections with other functionalities.

### 2.2. Scope outside the Market Consultation

The topics below fall outside the scope of the market consultation because they fall under the responsibility of DGMo, ILT and/or OM.

- Legal enforcement (ILT/OM/DGMo)
- Fine processing
- Political decisions by DGMo
- Final procurement requirements

### 2.3. International Best Practices and Boundary Conditions

In international implementations (ISWIM 2026), it is evident that direct WIM enforcement is only feasible when the WIM system:

- complies with a certified metrological test procedure,
- is supported by continuous Data Quality Control,
- and is part of a chain in which the legal preconditions (such as MPEs, requirements for official reports, and rules of evidence) are clearly established.

For the Dutch context, RWS asks the market to indicate (see chapter 4 for the complete list of questions):

- which technical and operational conditions are necessary for a sustainable Data Quality Management chain,
- how systems deal with vehicle dynamics and variation (speed — including congestion — axle load, shifting of weight from one axle or axle group to another),
- which phasing or grace margins are commonly used internationally during introduction,
- and which dependencies exist with respect to verification infrastructure (LS WIM, static weighing or reference vehicles).

### 3 Procedure of the Market Exploration / Consultation

#### 3.1. Procedure

This market consultation is carried out in accordance with the RWS policy principles and the PIANOo Market Consultation Guidelines. The procedure follows the two-phase approach described in paragraph 1.4 and is aimed at a transparent, objective and open exchange of information with the market.

The consultation consists of the following steps:

##### 1) Publication of the market consultation document on TenderNed

The market consultation begins with the publication of this document on TenderNed, including:

- the purpose and background of WIM 2.0,
- scope and principles,
- the complete written questionnaire.

All market parties are free to participate.

##### 2) Information meeting

RWS will organize an online information session to:

- answer questions about the procedure,
- provide clarification on the purpose and context of WIM 2.0,
- and resolve technical or procedural ambiguities.

Market parties may submit written questions in advance which — if possible — will be answered during this session.

##### 3) Written submission of answers

All interested market parties are invited to answer the written questionnaire.

Answers are to be submitted to: [inkoopcentrum-iv@rws.nl](mailto:inkoopcentrum-iv@rws.nl) by the deadline stated in paragraph 3.1.1.

##### 4) Selection for in-depth discussions (phase 2)

For reasons of efficiency, RWS will select up to five market parties for an in-depth individual meeting (online or in person).

There is no preselection related to a future procurement procedure.

##### 5) In-depth discussions with selected market parties

These discussions will focus more deeply on:

- technical feasibility and innovation,
- chain integration and certification,
- risks and mitigating measures,
- costs (TCO),
- implementation up to 2050.

RWS will prepare minutes and process all input.

##### 6) Analysis and final reporting

RWS will analyze all written and oral input and prepare an anonymized final report, without commercially sensitive information, describing:

- the insights provided by the market,
- which assumptions are confirmed or adjusted,
- and how this input will be used for the next steps.

The final report will be published on TenderNed so that all market parties have equal access to the same information.

## 7) Completion of the market consultation

The consultation will be completed within the timeframe specified in paragraph 3.1.1.

The results will be used for internal decision-making and for developing the procurement strategy for WIM 2.0.

### 3.1.1. Planning

RWS applies the indicative planning below for this market consultation.

The planning is provided for information purposes only; no rights can be derived from it. RWS reserves the right to modify the planning where necessary.

| Activity                                                                            | Date and Time                         |
|-------------------------------------------------------------------------------------|---------------------------------------|
| Publication of the market consultation document on TenderNed                        | Wed. 1 April 2026                     |
| Submission of questions for the information meeting (see Section 3.1.2)             | Fri. 10 April 2026                    |
| Final date for registration                                                         | Mon. 13 April 2026                    |
| Online (MS Teams) information meeting for market parties (see Section 3.1.3)        | Tue. 14 April 2026, 13:00–14:30 hours |
| Final date for submitting questions about the market consultation document          | Thu. 23 April 2026                    |
| Publication of the Information Notice                                               | Thu. 7 May 2026                       |
| Final date for submitting the completed questionnaire (phase 1) (see Section 3.1.4) | Thu. 14 May 2026                      |
| Invitation to participate in individual clarification meetings (if applicable)      | Wed. 3 June 2026                      |
| Dates for possible individual clarification meetings (see Section 3.1.5)            | Tue. 9 June and Wed. 10 June 2026     |
| Completion and publication of the final report                                      | End of June 2026                      |

### 3.1.2. Questions about the Market Exploration / Consultation Document

Market parties have the opportunity to ask questions about unclear wording in the Market Exploration/Consultation Document, with the aim of ensuring transparent and consistent communication. If parties have questions about the Market Exploration/Consultation Document, these may be submitted by email to: [inkoopcentrum-iv@rws.nl](mailto:inkoopcentrum-iv@rws.nl) before the 'Deadline for submitting questions about the Market Exploration/Consultation Document' as stated in paragraph 3.1.1. RWS will answer the (anonymised) questions from market parties in a Memorandum of Information, which will be published on TenderNed

### 3.1.3. Information Meeting

RWS will organize an information meeting to clarify any uncertainties regarding the questionnaire and to provide further explanation about the "how and why" of this

Market Exploration/consultation.

RWS will organize an information meeting on **14 April 2026 from 13:00 to 14:30**.

This meeting will be held online.

Registration and submission of questions for the information meeting is possible until **10 April 2026** via e-mail at [inkoopcentrum-iv@rws.nl](mailto:inkoopcentrum-iv@rws.nl).

A maximum of **2 persons per company** may register. Please include the company name and the names of the persons who will attend the online Teams information meeting.

#### *3.1.4. Submission of the Questionnaire (Phase 1)*

Every interested market party that believes it can contribute to the Market Exploration/consultation is requested to submit its answers to the questionnaire from Chapter 4 of this Market Exploration/consultation document by e-mail to [inkoopcentrum-iv@rws.nl](mailto:inkoopcentrum-iv@rws.nl), before the "Final date for submitting the completed questionnaire" mentioned in paragraph 3.1.1.

#### *3.1.5. Oral Clarification of the Questionnaire*

Based on the written submissions and pre-communicated criteria, RWS will invite up to five market parties for an oral clarification.

These meetings serve to:

- further elaborate on technical details,
- gain insight into innovations and lifecycle approaches,
- better understand cost estimates and risks,
- and clarify any outstanding questions.

RWS will contact the selected parties to schedule a meeting within the timeframe stated in paragraph 3.1.1.

There is no preselection for a procurement procedure — the sole purpose is to enhance understanding of the market.

#### *3.1.6. Completion of the Market Exploration / Consultation and Feedback of Results*

The market consultation will be completed within the timeframe stated in paragraph 3.1.1.

RWS will prepare an anonymized final report that:

1. summarizes the key insights from the written responses and discussions;
2. identifies which ideas and assumptions are confirmed or adjusted;
3. explains how the outcomes will be used in further procurement preparation.

This report will be published on TenderNed. By participating in the consultation, market parties grant RWS permission to use the provided information in anonymized form for the development of the final report and subsequent procurement documents.

Market parties are asked to clearly indicate in advance which information is confidential and/or business-critical. The final report contains no commercial or business-sensitive information and will not be presented to market parties for approval.

### **3.2. Confidentiality**

RWS treats all submitted information confidentially and does not disclose it in full.

Information is shared only with employees and advisors directly involved in:

- the market consultation,
- the preparation of the project,
- and the subsequent procurement process.

Information is only disclosed further if RWS is legally required to do so.

Procurement documents do not contain direct references to individual parties or competition-sensitive information.

### **3.3. Other Provisions Regarding the Market Exploration / Consultation**

- The market consultation is not part of a procurement procedure.
- The results of the consultation will be published to ensure a level playing field.
- Participation in the consultation provides no advantage in a future procurement.
- All information in this consultation is indicative and may differ from future information or final procurement documents.
- No rights can be derived from the information provided in this consultation.
- No compensation is provided for participation in the market consultation.

## 4 Questions to Be Answered

### Questions on Future-proofing & Innovation

**1. In what way is your WIM system equipped with functionality that enables the implementation of new technologies during the system's lifecycle, including the ability to integrate additional detection systems such as height detection and the identification of vehicles transporting hazardous materials?**

**2. For the MUST HAVES and NICE TO HAVES included in the annex to this request, can you indicate to what extent your system functionally supports these, which components are already demonstrably available and certified, which are still under development, and which requirements you are currently unable to meet?**

**3. Which accuracy class(es) according to OIML R134:2006 do you consider achievable under Dutch road and traffic conditions (including congestion, variation in tires/wheels, weak soil conditions and porous asphalt (ZOAB)), and which factors influence this class?**

**4. For which requirements per vehicle type (see appendix Relevant Vehicle Categories) is the system suitable given current legal requirements? According to [wettelijke-maten-en-gewichten-voertuigen.pdf](#) and [EUR-Lex - 01996L0053-20190814 - EN - EUR-Lex](#). And in view of new requirements: <https://data.consilium.europa.eu/doc/document/ST-15611-2025-INIT/nl/pdf>**

**5. Which future changes in laws and regulations that could affect WIM systems, certification, or enforcement chains is your system unable to accommodate?**

### Questions on Introduction Strategy & Preconditions

**6. What do you consider a realistic phased approach or introduction strategy for WIM in the Netherlands, including any temporary relaxations of measurement or performance requirements that may be necessary in the initial phase to responsibly start up the system?**

**7. Which operational, metrological or legal preconditions do you consider essential for a future-proof application of WIM in the Netherlands?**

*Questions on Costs, Risks & Benefits (lifecycle / business)*

**8. Which cost components determine the lifecycle costs (TCO) of a WIM system over a period of approximately 25 years, and what realistic financial ranges do you observe internationally for comparable installations (including civil works, hardware, verification, maintenance and replacement)?**

**A global order-of-magnitude or range is sufficient; exact pricing is not required. Please specify per WIM system type, if applicable.**

**9. What major risks do you foresee for the technical, civil-engineering and operational feasibility of WIM systems during the implementation and operational phases up to 2050?**

**10. Which direct and indirect benefits are demonstrably associated with automated enforcement of overloading (e.g., road safety, infrastructure savings, compliance rate, CO<sub>2</sub> effects)?**

**11. What major opportunities do you foresee for the technical, civil-engineering and operational feasibility of WIM systems during the implementation and operational phases up to 2050?**

*Questions on Design, Maintenance & Quality (engineering / metrology)*

**12. Which design or maintenance strategies can, in your view, contribute to lower lifecycle costs and higher system durability?**

**13. Which design choices, interfaces and system requirements do you consider essential for a reliable, secure and future-proof WIM 2.0 architecture?**

**14. Which requirements, provisions or periodic checks are necessary to structurally safeguard the data quality and accuracy of WIM measurements (DQM), and what international experience do you have with verification intervals?**

**16. Which facilities or infrastructure (e.g., LS WIM, static weighing installations or reference vehicles) do you consider necessary to support verification and DQM of WIM systems?**

*Questions on System Integration & Chain (ITS / data / interfaces)*

**17. Which requirements, dependencies or provisions are needed for integrating the WIM system into the broader ITS chain (e.g., ANPR, gantries, data networks, security, links with back-office systems, pavement**



***and DQM processes)?***  
***And which components of ITS integration capacity do you provide yourself?***

*Final open question*

***18. Do you have any other ideas, suggestions or comments, or do you see any additional risks or challenges for RWS?***

## 5 Annex – MUST-HAVES / NICE-TO-HAVES

### 1. MUST-HAVES

#### **1.1 Compliance with OIML R134:2006**

WIM systems must comply with the internationally recognized OIML R134 standard for vehicles in motion, because this standard:

- forms the basis for future legal enforcement,
- sets conditions for error margins, stability, and test protocols,
- is a necessary requirement for NMi certification.

RWS requests suppliers to specify which variants of their systems are already certified, in which year, and with which accuracy class.

#### **1.2 Certifiable by NMi and suitable for periodic re-verification**

The system must:

- be technically suitable for initial verification and periodic verification,
- suppliers must describe how they ensure ongoing certification compliance,
- systems must support an auditable metrological history (traceable verifications, component changes, software versions).

Clarification: WIM will be deployed at least until 2050; systems must therefore be capable of remaining certified on a structural basis.

#### **1.3 Installation in accordance with COST 323**

These standards safeguard, among other things:

- requirements for asphalt quality, flatness, and foundation,
- sensor positioning and tolerances,
- optimal conditions to ensure accurate axle load measurements,
- conditions to prevent failures and deformation,
- correct processing of variations in tire configurations (such as super single and dual wheel).

Suppliers are asked to indicate which civil engineering conditions are required for their system and which tolerances are acceptable.

#### **1.4 Data traceability & audit trail according to metrological principles**

The system must provide raw data that is:

- fully traceable (timestamp, lane, raw sensor data, temperature, statuses),
- non-manipulable,
- reproducible in legal review,
- enriched with sufficient metadata to enable verification by NMi/ILT.

This is necessary for future enforcement chains.

#### **1.5 Lifetime & maintenance suitable for deployment until 2050**

Given the lifecycle of WIM 2.0, the system must:

- support an operational lifetime of at least 15–20 years,
- allow modular maintenance and replacement,
- include clear remote monitoring and service procedures,
- operate reliably under all traffic conditions, including congestion and closely spaced vehicles,
- withstand civil degradation of the road surface (such as porous asphalt wear, rutting, or settlement) and include procedures for periodic civil inspection to maintain measurement performance,

- exhibit predictable drift behaviour and include mechanisms for detecting and compensating measurement drift over time and temperature.

Suppliers are asked to describe their maintenance strategy and lifecycle planning.

### **1.6 Prepared for future legal enforcement**

Although enforcement lies outside the scope of RWS, the system must be technically capable of meeting future requirements such as:

- mandatory photo registration,
- tamper-proof data logging,
- complete dataset for fine processing (lane, vehicle image, raw signals),
- connection to ILT/OM/CJIB chains.

The market must indicate which functionalities are already available and which may need to be developed.

### **1.7 Adaptability to future legislation and regulations**

Because the legal framework for automated WIM enforcement in the Netherlands is still evolving, the WIM system must support future-proof adaptations. Suppliers are asked to describe:

- how their system can be adapted when legal requirements change (e.g., MPEs, fine-processing requirements, data obligations, certification standards),
- which components can be upgraded via software configuration, modular hardware, or updates,
- how they handle changes in certification frameworks (e.g., NMI requirements, Metrology Act),
- how they can support interoperability with future ILT/OM chain standards.

Clarification:

The system does not need to meet future legal requirements now, but it must be technically prepared for changes so that investment in WIM 2.0 up to 2050 does not lead to obsolescence or major replacement costs.

### **1.8 Connection with verification infrastructure for continuous data validation**

Since international implementations (ISWIM 2026) show that long-term accuracy can only be ensured with a verification infrastructure, suppliers are asked to describe how their system can interoperate with one or more of the following means:

- LS WIM (low speed) installations,
- static weighbridges (connection with reference data),
- or certified reference vehicles.

Systems must be able to operate within a Data Quality Management process in which periodic and continuous validation is possible without loss of certification status.

### **1.9 ITS integration capacity (including use of an ITS integrator if required and provided by the supplier)**

Because WIM systems are part of a broader ITS chain (sensors, cameras, induction loops, communication, asphalt, ANPR, data interfaces, and security layers), suppliers are expected to bring the necessary ITS integration capacity themselves. Suppliers are asked to describe:

- whether and why an ITS integrator is needed to deliver a fully functioning system,

- which roles and responsibilities this integrator fulfills (e.g., ANPR integration, data routes, network and security configuration, sensor synchronisation, integrity, timestamps, lane mapping),
- how the integrator is involved in design, construction, testing, and data quality assurance,
- which requirements the supplier places on RWS or other parties to ensure successful integration.

Clarification:

The chain surrounding WIM 2.0 (cameras, gantries, data transport, security, ANPR, DQM, PSA components) requires an integrated approach. Having suppliers provide their own ITS integrator ensures clear responsibility and reduces implementation risks.

## **2. NICE-TO-HAVE Requirements (recommended; stimulate innovation and efficiency)**

### **2.1 Validation with reference vehicles**

A system that, either independently or in combination with RWS validation measurements (e.g., using vehicles with certified axle loads), provides additional verification contributes to:

- faster validation of data quality,
- insight into deviations,
- risk reduction within the chain.

### **2.2 AI-assisted monitoring and quality analysis**

AI techniques can help to:

- detect anomalies or measurement drift at an early stage,
- identify patterns in degradation,
- plan maintenance predictively.

This supports the RWS objective of data-driven asset management.

### **2.3 Health monitoring dashboards**

Dashboards are desired for:

- real-time system status,
- visualization of anomalies,
- maintenance planning,
- insight into historical performance.

Explanation: particularly valuable for GPO/CIV in managing a national WIM asset portfolio.

### **2.4 Expandable architecture**

Systems that can be expanded with future functionalities, such as:

- hazardous materials recognition,
- vehicle classification,
- integration with traffic models,
- additional sensors (LIDAR/RADAR),
- embedded pavement sensor technology,

are attractive because WIM 2.0 is a programme running until 2050 in which innovations may be integrated.

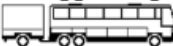
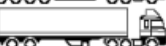
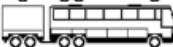
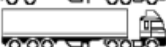
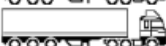
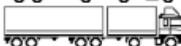
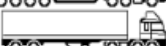
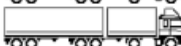
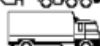
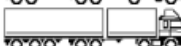
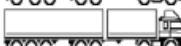
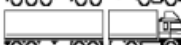
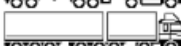
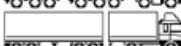
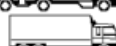
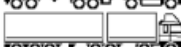
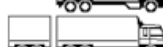
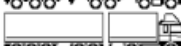
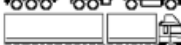
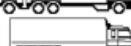
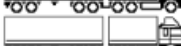
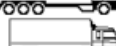
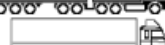
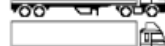
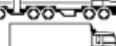
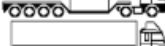
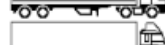
## **2.5 Sustainability**

Preferably, systems contribute to:

- minimal disturbance of asphalt,
- low energy requirements,
- limited CO<sub>2</sub> footprint during implementation,
- longer maintenance intervals.

This aligns with broader RWS sustainability goals (climate-neutral and circular by 2050).

## 6 Annex – Relevant Vehicle Categories

| WIM-NL vehicle sub-classes |                                                                                     | WIM-NL vehicle sub-classes |                                                                                                                                                                                   |
|----------------------------|-------------------------------------------------------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| sub-class                  | symbol                                                                              | sub-class                  | symbol                                                                                                                                                                            |
| B11                        |    | T12O1                      |                                                                                                 |
| B11A1                      |    | T12O2                      |                                                                                                 |
| B11A2                      |    | T12O3                      |                                                                                                 |
| B12                        |    | T12O4                      |                                                                                                 |
| B12A1                      |    | T12O11                     |                                                                                                 |
| B12A2                      |    | T12O21                     |                                                                                                 |
| B21                        |    | T12O111                    |                                                                                                 |
| R11111                     |    | T12O1111                   |                                                                                                 |
| R111111                    |   | T21O11                     |                                                                                                |
| R11112                     |  | V11                        |                                                                                              |
| R111121                    |  | V11A1                      |                                                                                               |
| R11113                     |  | V11A2                      |                                                                                               |
| R11211                     |  | V11A11                     |                                                                                               |
| R112121                    |  | V11A12                     |                                                                                               |
| R1122                      |  | V12                        |                                                                                              |
| R11221                     |  | V12A2                      |                                                                                               |
| R1123                      |  | V12A11                     |                                                                                               |
| R121221                    |  | V12A12                     |                                                                                               |
| R12211                     |  | V13                        |                                                                                               |
| R1222                      |  | V21                        |                                                                                              |
| R12221                     |  | V22                        |                                                                                              |
| R1223                      |  | V22A2                      |                                                                                               |
| T11O1                      |  | V22A11                     |                                                                                               |
| T11O2                      |  | V22A12                     |                                                                                               |
| T11O3                      |  | V111                       |                                                                                              |
| T11O4                      |  | V112                       |                                                                                              |
| T11O11                     |  | V211                       |                                                                                              |
| T11O21                     |  | V1111                      |                                                                                              |
| T11O111                    |  | O                          |                                                                                              |
| T11O1111                   |  | ( <i>"others"</i> )        |  OVERIGE  |
|                            |                                                                                     | Modified: 24-08-2006       |                                                                                                                                                                                   |

Under "*other*", we include at minimum mobile cranes..