Market consultation
Rail maintenance in the Netherlands from 2027

ProRail Asset Management

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Table of contents

Introduction

Dear reader,

Welcome to the ProRail market consultation for rail maintenance from 2027.

Introduction
ProRail B.V. is responsible for the Dutch railway network. This entails construction, management and safety. Our employees ensure that every day, 24/7, 1,200,000 passengers and 100,000 tons of goods reach their destinations, with 6,550 trains on over 7,000 kilometers of track and 6000 turnouts.
The railway network is the beating heart of mobility in the Netherlands. ProRail is working on accessibility in the Netherlands by providing an optimal railway network. We allocate capacity on the railways, control train traffic, build and manage stations and lay new tracks.

ProRail Asset Management is the division responsible for the maintenance of all existing infrastructure. Rail maintenance – as executed in big volumes by heavy machines – is a core activity within this division. Nowadays, ProRail has contracted both Speno International SA and Vossloh ETS B.V. for the execution of preventive (cyclic) and corrective grinding and milling.

From 2027 onwards, ProRail has the ambition to redefine its rail maintenance. This will take place in one or more future contracts, which this market consultation focuses on. This market consultation is specifically about rail maintenance as executed in big volumes by heavy machines.

Purpose and structure of market consultation
This market consultation is initiated to address two main goals:

1. Knowing more about your organization and machines in general. For this purpose, we composed chapter 0.
2. Collecting insight about implementing improvements on various topics. In recent years, ProRail has identified multiple topics with the potential for improvement. Given the diversity of these topics, this market consultation is structured in such a way that each topic relates to a chapter. Obviously, topics might relate to each other.

1	Maintenance strategies and designing contracts
2	Technical specifications
3	Technical specifications for turnouts
4	Quality management and certification
5	Collecting data
6	Planning principles
7	Planning process
8	Rail maintenance without track possessions
9	ERTMS & ETCS
10	Reducing emissions
11	Recycling residues
12	Certainty and flexibility
13	Further innovations

Your response and follow-up
We invite you to handover your input in the attached excel-format by email to wouter.deblocq@prorail.nl.
Afterwards, ProRail might invite you for an individual follow-up meeting. For every individual meeting, ProRail will compose a report to be approved by you. All of your written input, follow-up meeting and reporting about it will be confidential.

To finalize this market consultation, ProRail will create one comprehensive report in which the most important overall conclusions from all participants will be addressed. This report will not contain any sensitive and/or confidential information. We will ask all participants to review the concept version, after which ProRail will finalize towards a final report.
In a future tender this report might be shared together with all other tender documents.

Planning
For the market consultation we have identified the following planning:

Event	**Actor**	**Expected date**
Publishing of market consultation	ProRail	18th March 2024
Sending in input	Market	15th of April 2024
Follow-up meetings	ProRail + market	April and May 2024
Report individual meetings + approval	ProRail + market	May 2024
Comprehensive report + approval	ProRail + market	May 2024

Thank you in advance for participating.

The ProRail market consultation team

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0 General information

Your company

Q.0.1
Please fill in your company details: company name, contact name, address details, your core business, representation etc.

Q.0.2
What is the turnover of your company in the past three years?

Q.0.3
In which countries do you carry out rail maintenance? Which technologies do you use for metal removal?

Q.0.4
Have you ever executed rail maintenance in the Netherlands? Why?

Q.0.5.
Are you certified to take the necessary safety measures to work independently in track possessions on the Dutch railways? Or do you need to cooperate with a certified company?

Q.0.6
Do you have a CO_2 performance certificate and if so, on what level is your company?

Q.0.7
What is most important to you for rail maintenance to be commissioned by ProRail and starting in 2027?

Q.0.8
What are your main constraints to execute rail maintenance for ProRail starting in 2027? How do you see those constraints mitigated?

Q.0.9
What would be the outermost date for you to have a contract awarded in relation to rail maintenance starting in 2027?

Your machines

Q.0.10
We would like to gain insight into characteristics of your fleet of both existing and future machines. We ask you to fill in the matrices in tab 2 of the attached excel-format

Q.0.11
In case your existing and/or future machine(s) are not allowed (homologated) to transport on the Dutch network, over what period would it be possible for a machine to be allowed? Please be in detail if this is about homologation for towed and / or autonomous transportation.
Note: chapter 4 discusses certification of machines and we want to stress that certification is something else: homologation and certification are two distinct topics.

Q.0.12
Can you handover a schematic illustration of the transversal range and transversal limitations of your machines?

1 Maintenance strategies and designing contracts

1.1 What we are looking for

Our main goal
ProRail aims to create an asset management regime which optimizes the lifecycle of our rails in relation to costs and possessions needed. We are looking for a regime which stimulates continuous improvement over time for both preventive and corrective maintenance.

Definitions:
Preventive maintenance: repetitive maintenance with a low-range metal removal in order to remove early-stage defects and corrugation and to improve transversal profile.

Corrective maintenance: incidental intervention with low-to-high metal removal, matching the degenerated condition of the rail. Corrective maintenance can be executed to remove shallow to deep defects, to remove corrugation and to restore the transversal profile.

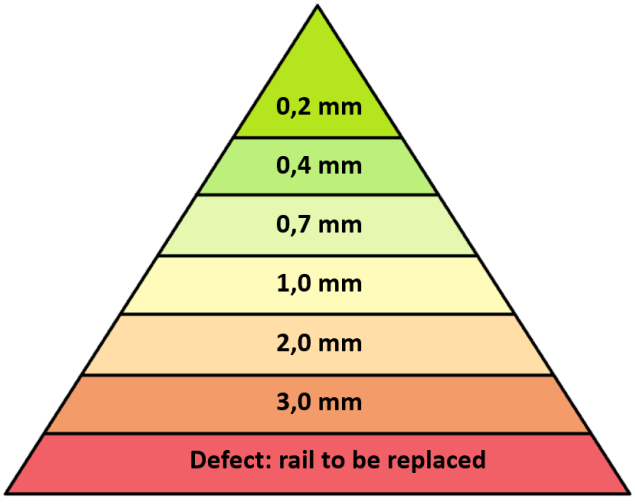
In our ideal world, an intelligent program of preventive maintenance is perfectly tuned to degeneration on defects, corrugation and transversal profile. In this reality, no corrective maintenance is needed – and no single rail has to be replaced because of a defect. But as we did not yet enter the ideal world, ProRail aims to contract both preventive and corrective rail maintenance.

Within the domain of corrective maintenance, we are looking for a regime which emphasizes early-stage lower-range metal removal instead of (later-stage) higher-range metal removal. This because of three reasons:

1. When executing early-stage low-range corrective maintenance, the chance that local defects have propagated deeper than the average found defect-depth is relatively small. This increases the chance that such a corrective intervention removes all defects and clears out the rail completely;
2. When executing early low-range corrective maintenance, we maintain more rail height and therefore more theoretical lifecycle years compared to higher-range corrective maintenance;
3. We assume that costs per meter decrease as metal removal decreases. This is based on our assumption that production speeds correlate with the amount of metal removal.

Hence, we are looking for a regime in which we strive to rise towards the top of the pyramid shown in figure 1.

Figure 1: The rail maintenance pyramid (metal removal classes just for illustrational purposes)



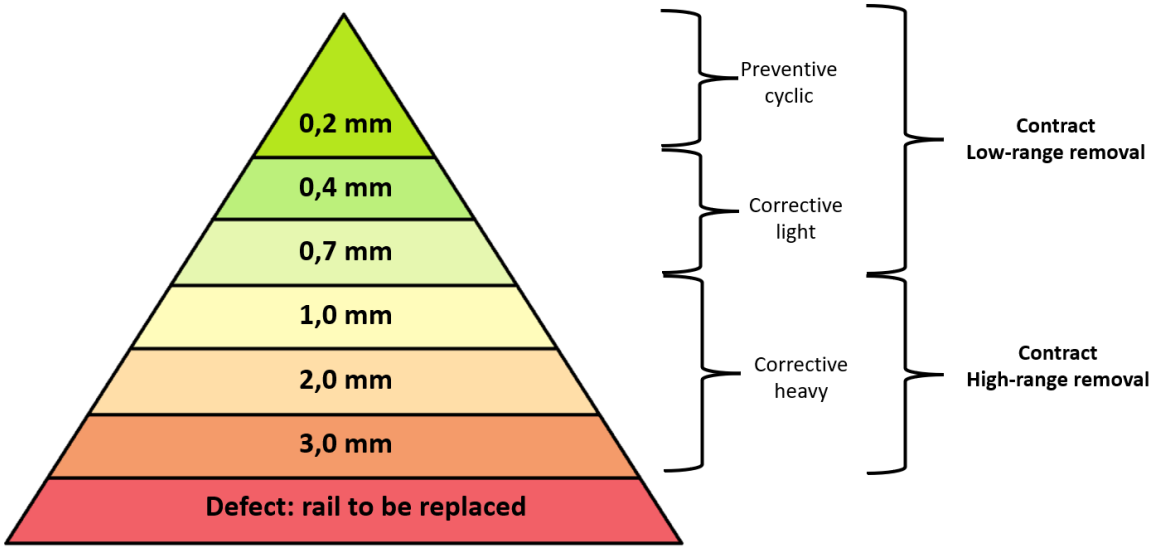
1.2 What we are thinking of

Optimizing on preventive maintenance
We presume that the key for optimizing preventive maintenance lies in condition-based and tailor-fit planning per track. For this topic, we composed chapter 6.

Optimizing on corrective maintenance
Our ambition to rise in the pyramid implies that we will need to contract a wide range of material removal classes within the domain of corrective maintenance. This would allow ProRail to apply various corrective interventions with proportional costs per meter.
Since we strive to rise in this pyramid, over the years we would hope to experience a shift from high-range towards low-range corrective maintenance.

Defining contracts
We are thinking of combining both preventive and 'corrective light' rail maintenance in one contract. Parallel, we foresee a separate contract for 'corrective heavy' rail maintenance. See figure 2 below.

Figure 2: Defining contracts (metal removal classes just for illustrational purposes)



1.3 What we want to ask you

Q.1.1
What are your thoughts about the rail maintenance pyramid and our ambition to rise within this pyramid? Do you feel this to be realistic or too theoretical?

Q.1.2
What are your thoughts about our assumption that costs per meter decrease as metal removal decreases?

Q.1.3
Which techniques would you suggest for the various metal removal classes, taking the quantitative aspect (production speeds) into account?

Q.1.4
Which differentiation in material removal classes as shown in figure 2 would suit your fleet best? Would you suggest any alternative definition of those classes?

Q.1.5
What are your thoughts about the definition of two contracts as shown in figure 2?

Q.1.6
Do you feel the need to divide the total workload over two (or more) contracts, or would you suggest to create one big contract for the total workload (both preventive and corrective)? What would be advantages and disadvantages, taking your fleet into account?

Q.1.7
What do you think about putting objects (specifically: turnouts, level crossings and bridges) into scope of the suggested contracts above? What would this mean for your fleet and machines to be scheduled?

Q.1.8
What do you think about creating a separate contract for both preventive and corrective rail maintenance exclusively on turnouts, taking your fleet into account?

<u>Final questions</u>

Q.1.9
Would any choice in relation to maintenance strategies and defining contracts have a significant negative influence on the attractivity of any future contract? Why?

Q.1.10
Would any choice in relation to maintenance strategies and defining contracts have a significant impact on costs? Why?

Q.1.11
What else do you want to share with us in relation to maintenance strategies and defining contracts?

2 Technical specifications

This chapter focuses on technical specifications for track and objects. Chapter 3 focuses on technical specifications for turnouts.

2.1 What we are looking for

We are looking for technical specifications to address the following sub-goals:

1. Transversal profile: metal removal to remove defects all over transversal profile
2. Transversal profile: improvement of the transversal profile
3. Longitudinal profile: removing corrugation and creating levelness in the longitudinal direction

Besides, we want technical specifications to address the following boundary conditions:

1. Limiting the chance that the execution of rail maintenance itself leads to the initiation of new defects because of material deformation (internal material structure change);
2. Limiting the chance that the execution of rail maintenance itself leads to the initiation of new defects because of a high degree of surface roughness.

2.2 How we want to write it down

We are thinking of the following principles for composing technical specifications:

1. We aim to stick with output-specifications, referring to the end result we want you to achieve after maintaining our rails. We consider that this creates a level playing field for companies with alternative solutions and approaches.
2. Output-specifications should take the ProRail-input (a more or less worn transversal profile) into consideration. Hence, we would like to define a specified output-profile depending on input-profile.
    a. This is a method to specify the unequal amount of material removal needed over several parts of the transversal profile. We aim for this to be more specific and clear compared to specifying just a defined amount of metal removal, without being in detail about the distribution of divergent material removal needed over the transversal profile.
    b. This is a method to specify improvement of the transversal profile given various input-situations as found in the field. We foresee a catalogue with multiple input-profiles and corresponding improved output-profiles.
    c. We are thinking of a differentiation in specified improvement on the transversal profile depending on the metal removal class. We think of a *'proportional improvement of the transversal profile'* in preventive rail maintenance, also because of our quantitative needs. On the other side of the spectrum within the domain of corrective heavy, we aim for *'full restorage of the transversal profile'*.
3. Norms must be proportional, in such a way that we strive for an optimum between our qualitative and quantitative objectives. This relates to our main goal as described in chapter 1.
4. Norms must be realistic and feasible. This allows any inspector (from a contractor, a certification body or ProRail) to examine any output to be compliant with specifications or not.
5. Our specification must be written down in such a way that it avoids any discussion about interpretation.

2.3 What we want to ask you

Q.2.1
What do you think of our definition of three sub-goals and two boundary conditions?

Q.2.2
What do you think of the fact that the two subgoals in relation to transversal profile might correlate with the two boundary conditions, assuming a fixed net production speed? How do you see this field of tension?

Q.2.3
What do you think about principle #1 from paragraph 2.2? Would it be workable for you to work with exclusively output-specifications which are in line with EN-13231-2?

Q.2.4
What do you think about principle #2 from paragraph 2.2? Would it be workable for you to work with a input-output catalogue as described, taking output specifications EN13231-2 into account? Or would you suggest a different methodology for working with input and corresponding output profiles?

Q.2.5
What do you think of the concept that metal removal and the amount of transversal profile improvement (or even restorage) should correlate with each other?

Q.2.6
What would be workable for you in relation to identifying the input-profile? Would you favor any raw data or dashboard to be available by ProRail, in order to identify input-profiles in preparation prior to a shift? Or would you suggest to identify the actual input-profile during the execution of a shift?

Q.2.7
Would it be possible for you to offer a fixed production norm (finished meters per hour) for a certain metal removal class (i.e. 0,2 or 1,0 mm), taking into account a range of input profiles and corresponding output profiles? What do you think of planning and executing any shift with such a fixed production norm?

Q.2.8
What do you think about principle #3 from paragraph 2.2? Do you have any ideas to create proportional norms?
Would it – for example – be workable for you to work with separate norms for straight track and curve? Or would it – for example – be workable to work with specific norms depending on the steel-quality as found in the field?

Q.2.9
What do you think about principle #4 from paragraph 2.2? Do you have any ideas to define norms to be realistic and feasible, without just lowering any threshold?

Q.2.10
What are your experiences with classes P and/or Q in relation to transversal profile? How would this relate to the concept of input-output transversal profiles?

Q.2.11
What are your experiences with executing work according to class 1, EN13231-2 in relation to longitudinal profile?

Q.2.12
What are your experiences with executing work according the Quality Index from EN13231-2 in relation to roughness? Which Quality Index value would you suggest and why?

Q.2.13
Are you capable of surface finishing according EN15610 in relation to acoustic performance? How would you suggest to create an optional acoustic-focused set of technical specifications in future contracts?

Q.2.14
Would you suggest to differentiate technical specifications for preventive and corrective rail maintenance? If yes: why and on which aspects would you suggest to differentiate?

Q.2.15
What do you think of the concept that metal removal and the amount of transversal profile improvement (or even restorage) should correlate with each other?

Q.2.16
What are your ideas to create flexibility in technical specifications, in order to facilitate improvement during the lifespan of a contract?

Final questions

Q.2.17
Would any choice in relation to technical specifications have a significant negative influence on the attractivity of any future contract? Why?

Q.2.18
Would any choice in relation to technical specifications have a significant impact on costs? Why?

Q.2.19
What else do you want to share with us in relation to technical specifications?

3 Technical specifications for turnouts

3.1 What we are looking for

This chapter focuses on technical specifications for turnouts. In general, we strive for consistency in our maintenance strategies between track and turnouts. This implies that:

1. We aim for a wide range of metal removal classes on turnouts for both preventive and corrective maintenance, being consistent with the rail maintenance pyramid as shown in chapter 1.
2. We aim for turnouts to be planned under the new suggested planning principes (chapter 6).
3. We want the technical output-specifications for turnouts to be consistent with the specifications for track (chapter 2).

On top of those three items lies the turnout-specific fact that we aim for a complete treatment of a turnout: a 100% coverage without skipping any of its ridden components. This means that we would favor a contractor who is capable of rail maintenance on which the critical geometry of a turnout is involved, towards the very outermost tips of the nose and the tongues.

3.2 What we want to ask you

Q.3.1
What are your experiences with both preventive and corrective rail maintenance on turnouts and can you explain what kind of machines you operate?

Q.3.2
What are your experiences with removing several types of defects such as headchecks, studs and squats on turnouts?

Q.3.3
What do you think about differentiation in technical specifications depending on the length of a turnout and / or steel quality?

Q.3.4
What would be the consequences of specifying different transversal profiles in different parts of a turnout (i.e. an anti-headcheck profile in the high rail of the curved leg)? What would be the additional production time needed per single profile change?

Q.3.5
What are the limitations of your machines with respect to maintaining turnouts (i.e. high wing rails or check rails)? Could you handover any figure or simulation to illustrate the limitations of your machines with respect to the transversal profile?

Q.3.6
Do you have any qualifications and / or experience with maintenance in which the critical geometry of switch blades, fixed common crossings, or movable crossings is involved?

Q.3.7
In case your machines are not able to maintain a turnout with 100% coverage, can you explain how you would organize additional rail maintenance in order to achieve a complete treatment, taking all technical specifications into account?

Q.3.8
What would you suggest in relation the protection of fragile (electrical) components in and around a turnout, such as gliding surfaces, heating devices etc?

Q.3.9
What do you think of performing inspections of a switch and reporting about any defects and / or irregularities (visual and / or EC-detectable) after executing maintenance?

Q.3.10
What are your experiences with rail maintenance on expansion joints which can be found on and around bridges?

Final questions

Q.3.11
Would any choice in relation to technical specifications for turnouts (for example: asking for a 100% coverage) have a significant negative influence on the attractivity of any future contract? Why?

Q.3.12
What would be the additional costs if ProRail would specify a 100% coverage of a turnout compared to just maintaining outside flangeway gaps or switch blade tips of the turnout without involving the critical geometry of a turnout? Please express in a relative way (percentage).

Q.3.13
What else do you want to share with us in relation to maintenance strategies and / or technical specifications for turnouts?

4 Quality management and certification

4.1 What we are looking for

ProRail wants to be in control of the quality of all rail maintenance to be executed: both preventive and corrective. More specific, we want our contractor(s) to be in control of the quality of all rail maintenance to be executed. Quality management should be executed independent of any ProRail-visit and we foresee it therefore a responsibility of the contractor.

Since a significant part of quality management will be an internal process of a contractor (overhaul, spare part management etc) this chapter focuses on quality management from the perspective of the customer and quality controls being an important instrument for that.

We attach value to consistency of the quality delivered. This because of two reasons:

1. We don't want any major deviations: quality reporting should be constant and repetitive without any surprises.
2. Consistency is fundamental to our ambition to optimize planning of the preventive rail maintenance, for which chapter 6 is composed. Without consistency in quality, it does not make any sense to put effort in optimizing planning.

4.2 What we are thinking of

We are thinking of a few instruments to organize quality management.

1. Initial certification per machine
2. Confirming certifications per machine
3. Quality reporting per shift
4. Inspections ProRail

Initial certification per machine
We would like to arrange an initial certification for every machine, as a guarantee that this machine is compliant with our technical specifications. We would like to organize initial certification per machine prior to final awarding of the contract.
For now, we assume that this initial certification will be executed by an independent certification body.

Confirming certification per machine
For every machine, we would like to arrange a confirmation certification, as a confirmation that the machine is consistent in being compliant to our specifications.
For now, we assume that this confirming certification will be executed by an independent certification body.

Quality reporting per shift
We would like our contractors to report about quality as delivered for every shift, by examining quality measurements during the possession.
Note: quality reporting per shift should not be confused with the topic 'collecting data', which chapter 5 focuses on.

Inspections ProRail
We want to execute inspections and to do quality measurements by ourselves, or by inspectors to be hired by ProRail. We want inspections to be executed both announced and unexpected, obviously as long as this fits in the safety regime of any shift.

4.3 What we want to ask you

Q.4.1
What are your thoughts about the idea that ProRail will not attend most of the shifts to be executed, and the concept that contractor is therefore responsible for quality management?

Q.4.2
What are your thoughts about initial certification? What should in your opinion be the scope of this exercise?

Q.4.3
What are your thoughts about confirming certifications? What should in your opinion be the scope of this exercise?

Q.4.4
What do you think of a certification body as an independent organization to execute initial certification?

Q.4.5
What do you think of a certification body as an independent organization to execute confirmation certification?

Q.4.6
Who should in your opinion be the organization that selects and hires a certification body?

Q.4.7
Who should in your opinion make the final decision about whether a machine acquires a certificate? ProRail or the certification body?

Q.4.8
What are your thoughts about an additional certification for maintaining turnouts?

Q.4.9
Is quality reporting per shift workable for you and do you consider this proportional? Or would you suggest something else?

Q.4.10
What would you suggest for creating transparency in relation to any deviations to be found by the crew during operation? How would you ensure ProRail that all deviations found and/or measured will be consequently reported?

Q.4.11
What do you think of being in control of material deformation (internal material structure change) in combination with the concept of output-specifications, both described in chapter 2? This because of the simple fact that any internal material deformation of a rail cannot be measured in the field.

Q.4.12
What method would you suggest for quality management and being compliant to specifications for material deformation, taking into account that input and matching output profiles will vary?

Q.4.13
What do you think of reporting on parameters (for example: realized engine power and realized speed per pass) per shift? Would parameter-reporting allow for an extra way of quality management, or do you consider this to be inconsequent to the concept of sticking with output-specifications as described in chapter 2?

Q.4.14
What do you think of inspections to be executed by ProRail? What do you think about the concept of unexpected quality measurements?

Final questions

Q.4.15
Would any choice in relation to specifications for quality management have a significant negative influence on the attractivity of any future contract? Why?

Q.4.16
Would any choice in relation to specifications for quality management have a significant impact on costs? Why?

Q.4.17
What else do you want to share with us in relation to quality management?

5 Collecting data

5.1 What we are thinking about

This chapter discusses the on board collection of data, not to be confused with any measurements as being part of quality management (chapter 4). For ProRail, collecting data should be about:

1. quantitative reporting of all executed rail maintenance;
2. collecting condition data.

Quantitative reporting of all executed rail maintenance
ProRail aims for a future process in which any contractor reports all executed rail maintenance in a standardized digital way. This is primary about quantitative reporting of the following parameters:

- Where has rail maintenance been executed (track and km-logging)
- When has rail maintenance been executed (date of execution)
- How has rail maintenance been executed (technique used and amount of metal removed)

Collecting condition data
ProRail has initiated the project 'monitor mix'. The concept of monitor mix is about acquiring condition data out of multiple resources and combining all these datasets into a user friendly interface.
ProRail aims for using condition data out of any rail maintenance as one of the sources for this monitor mix:

- Condition data out of rail maintenance might work out as an extra acquisition of an existing measurement-type. Given a certain measurement-type, such extra 'layers' will create a higher density of measurements over time and create therefore more information;
- Condition data out of rail maintenance might work out as an additional measurement-type, filling in a niche. This would be the case when a contractor is able to execute a certain type of measurements which is unique in the monitor mix;
- Condition data out of rail maintenance will not be used for any safety purposes but exclusively for condition-purposes.

The monitor mix aims to develop a dashboard or an equivalent user friendly application to approach and navigate through all data-sources. Users of the monitor mix might consequently vary from several disciplines within ProRail and/or companies to be hired by ProRail.
Obviously, a higher standard in condition data would allow ProRail to optimize it's rail maintenance better than nowadays (see chapter 6). The flow of information out of rail maintenance towards the monitor mix and back should thus ultimately be reciprocal.

Interface based on spoortakmodel 2.0
For both the quantitative reporting and the collection of data, ProRail is looking for a standardized digital interface between a contractor and ProRail. ProRail wants to engineer any dashboard or GIS-application by itself, to be compatible with (possible) multiple contractors and to avoid any risk of a vendor lock-in.
Hence, ProRail suggests to use the 'spoortakmodel 2.0' for arranging a digital interface between a contractor and ProRail. Spoortakmodel 2.0 stands for the second version of track branches: a schematic approach of our network, dividing tracks in several segments. Segments are either turnout legs, tracks between two turnouts or tracks between a turnout and a buffer stop. Each segment has an ID, a name, a trajectory and a coordinate system that follows the trajectory.

5.2 What we want to ask you

Quantitative reporting of all executed rail maintenance

Q.5.1
Do you have any experience with on-board registration of quantitative data and reporting those data in a standardized digital way? What would you suggest ProRail in relation to this ambition?

Q.5.2
Would it be feasible for you to deliver 100% quantitative reporting of all executed rail maintenance?

Collecting condition data

Q.5.3
How do you feel about sharing condition data with ProRail? Does this imply any advantages or disadvantages for you as a contractor?

Q.5.4
Is possible for you to acquire condition data during transportations outside any track possession with around 80 – 100 km per hour? And what about transportations inside possessions in the range 0 – 40 km per hour? If not possible, would you expect this to be operational by 2027?

Q.5.5
Is it possible for you to acquire any condition data in a possession, on the planned track / object just before executing rail maintenance? Does this influence the net production time?
If not possible, would you expect this to be operational by 2027?

Q.5.6
Is it possible for you to acquire any condition data in a possession, on the planned track / object just after executing any rail maintenance? Does this influence the net production time?
If not possible, would you expect this to be operational by 2027?

Q.5.7
When talking about measuring defects in relation to EN16729-1:2016:
- Which technique do you use for measuring defects?
- What range of depth do your measurements apply?
- What range on the transversal profile do your measurements apply? Are you capable of executing shallow measurements (from up to 0 - 0.1 mm) all over the transversal profile?
- What is the resolution (data points per meter track) of these measurements?
- What is the precision (error margin) of these measurements?
- Which future developments on which timespan do you consider feasible?

Q.5.8
When talking about measuring transversal profiles in relation to EN13231-2:
- Which technique do you use for measuring transversal profiles?
- What is the resolution (data points per meter track) of these measurements?
- What is the precision (error margin) of these measurements?
- Which future developments on which timespan do you consider feasible?
- Do you measure or register anything about the location of the contact band between rail and wheel (i.e. through image recognition on the rail head?

Q.5.9
When talking about measuring corrugation in relation to EN15610 and EN13231-2:

- Which technique do you use for measuring corrugation?
- What is the resolution (data points per meter track) of these measurements?
- What is the precision (error margin) of these measurements?
- Which future developments on which timespan do you consider feasible?

Q.5.10
When talking about track alignment irregularities (i.e. longitudinal level, lateral alignment and cant):

- Which technique do you use for measuring track irregularities?
- What is the resolution (data points per meter track) of these measurements?
- What is the precision (error margin) of these measurements?
- Which future developments on which timespan do you consider feasible?

Q.5.11
What are your experiences with reliability of measurements (mean time between failures)? Please differentiate your answer per measurement type if relevant.

Q.5.12
Do you have experience with executing any additional switch-specific measurements? Please explain.

Q.5.13
How would you feel about ProRail putting any additional sensors on your machines, as long as agreements about the responsibility for operating and maintaining the hardware during the duration of the contract are made?

<u>Interface based on spoortakmodel 2.0</u>

Q.5.14
Are you familiar with the distribution of data on a digital interface like the schematic model ‘spoortakmodel 2.0’?

Q.5.15
What is the accuracy of your measurements (both quantitative reporting and condition data) in relation to location? Would it be possible to determine for example 95% of your measurements within a deviation of 1,5 meter from reality?

Q.5.16
What would be a realistic and feasible interval to upload any measurements with ProRail? Is it feasible to work in for example a weekly or monthly rhythm?

Final questions

Q.5.17
Would any choice in relation to specifications for collecting data have a significant negative influence on the attractivity of any future contract? Why?

Q.5.18
Can you make an estimation about additional costs if ProRail would set the bar high in relation to quantitative reporting in a standardized digital way?
Please express additional costs in a relative way (percentage) based on an 8-year contract and if relevant twice:

- with an assumed annual turnover of EUR 2.000.000
- with an assumed annual turnover of EUR 20.000.000

Q.5.19
Can you make an estimation about additional costs if ProRail would set the bar high in relation to condition data?
Please express additional costs in a relative way (percentage) based on an 8-year contract and if relevant twice:

- with an assumed annual turnover of EUR 2.000.000
- with an assumed annual turnover of EUR 20.000.000

Q.5.20
What else do you want to share with us in relation to collecting data?

6 Planning principles

This chapter discusses planning principles for both preventive and corrective rail maintenance. We define planning principles as the methodology to define when a track and/or object should be maintained with a defined metal removal.
In this chapter, we want to explore the extent to which you could cooperate with us in the search for optimization.

Make sure that planning principles should not be confused with the actual planning processes, for which chapter 7 is composed.

6.1 What we are thinking about

Planning model for preventive rail maintenance
ProRail aims for a planning model for preventive rail maintenance which meets the following criteria:

1. Differentiation based on condition-data: actual data and / or predictive models;
2. Continuous improvement by learning;
3. Having a baseline (a defined minimum) of preventive maintenance per track / object;
4. Having a degree of certainty about annual work volume. Note: this is not a primary technical criterion but must be seen in the context of addressing certainty. See chapter 12.

Within ProRail we have so far identified two alternative models to meet these criteria.

(A) Cyclic baselayer + additional shifts
This model relies on a cyclic program which is based on a defined interval, for example planning a preventive shift after every 45 megatons (MGT) passed. This is considered to be a cyclic baselayer. On top of that, additional shifts will be scheduled based on actual and/or predictive condition of tracks and/or objects. This additional layer creates a degree of differentiation.
In this model, we assume that every contract year will consist of approximately 80-90% baselayer-shifts and an additional 10-20% condition driven shifts. The emphasis of baselayer-shifts is a consequence of limitations and choices in our planning process, see chapter 7.

(B) Cyclic program based on tailor-made interval per track / object.
This model relies on a matrix in which ProRail registers the optimum interval (expressed in MGT) per individual track and/or object. These tailor-made intervals should fit in a predefined bandwidth, for example somewhere between 15 and 45 MGT. This bandwidth addresses criteria 3 and 4.

The intervals registered in this matrix aim to approach the ideal world as described in chapter 1. Over the years, new insights in actual and / or predictive condition should result in adjusted optimum intervals per individual track and/or object. The matrix will hence be a living document.
See matrix below for an illustration of this model, with megatons (MGT) just for illustration purposes.

Track or object	Interval as defined in 2024 (MGT)	Interval as defined in 2026 (MGT)	New insight over the period 2024-2026
Track 1	30	20	Transversal profile degenerates so frequency must be somewhat higher
Track 2	20	30	Defects need a corrective intervention, after which frequency can go down
Track 3	30	30	This frequency is spot-on
Track 3 (level crossings)	30	15	All level crossings must have a much higher frequency due to road traffic pollution
Switches type X	30	45	For the subpopulation of switches type X, frequency can go down

Planning principles for corrective rail maintenance
We define corrective rail maintenance as an incidental additional intervention on a certain location. Every corrective shift can thus be seen as a mini business case at itself.
ProRail is open to any advice about executing those mini business cases prior to initiating corrective interventions.

6.2 What we want to ask you

Q.6.1.
How do you consider your role in relation to planning principles and executing a continuous shared plan-do-check-act process to evaluate the effectiveness of rail maintenance?

Q.6.2
What would you suggest ProRail to specify about a shared plan-do-check-act process, in such a way that your efforts will be guaranteed during the duration of a contract?

Q.6.3
What are your thoughts about the field of tension between the commercial interests between you as a contractor and ProRail?

Planning principles for preventive rail maintenance

Q.6.4
What do you think about our two alternative models? Which would you suggest and why?

Q.6.5
In relation to model A: would it be possible for you to advise us in relation to prioritized additional condition-driven preventive shifts? Would this be about rail contact fatigue (RCF), transversal profiles and / or corrugation? Please explain your methodology.

Q.6.6
In relation to model B: would it be possible for you to advise us in optimizing our living matrix? Would this be about rail contact fatigue (RCF), transversal profiles and / or corrugation? Please explain your methodology.

Q.6.7
In relation to Q.6.5 and Q.6.6: would your advises be based on actual condition data and / or any predictive model? Would this be based on data that you collect by yourself and/or (external) data to be delivered by ProRail? Please explain your methodology.

Q.6.8
Which default interval (expressed in MGT) would you suggest based on a metal removal of 0,2 mm? Would you suggest any differentiation for straight track and curves in relation to intervals?

Q.6.9
In relation to model A and/or B: what do you think of planning with intervals expressed in time (i.e. quarters of a year or months) instead of MGT?

Planning principles for corrective rail maintenance

Q.6.10
Would it be possible for you to advise us for initiating any corrective shift? Would this be about rail contact fatigue (RCF), transversal profiles and / or corrugation? Please explain your methodology.

Q.6.11
In case of a yes on Q.6.9: would you advise us based on actual condition data and / or any predictive model? Would this be based on data that you collect by yourself and/or (external) data to be delivered by ProRail? Please explain your methodology.

Q.6.12
Are you open to advise us in decision-making for any corrective shift in case the actual execution of such a corrective shift is not in scope of the contract that you were awarded? Why?

Q.6.13
How would you feel about being transparent about your methodologies in such a way that ProRail will over time become independent of your expertise, your software etc?

Final questions

Q.6.14
Would any choice in relation to specifications for support in planning methodologies have a significant negative influence on the attractivity of any future contract? Why?

Q.6.15
Can you make an estimation about additional costs if ProRail would set the bar high in relation to your support in relation to planning methodologies?
Please express additional costs in a relative way (percentage) based on an 8-year contract and if relevant twice:

- with an assumed annual turnover of EUR 2.000.000
- with an assumed annual turnover of EUR 20.000.000

Q.6.16
What else do you want to share with us in relation to planning principles?

7 Planning process

This chapter discusses:
1. Planning process for preventive rail maintenance
2. Planning process for corrective rail maintenance
3. Optimizing for costs and possessions needed

7.1 What we are thinking about

Planning process for preventive rail maintenance
In short we define the following process steps for planning preventive rail maintenance for a certain year:
1. Defining scope, provided with a target-quarter (Q1 t/m Q4). See chapter 6.
2. Combining scope with the same target-quarters to work packages fitting in shifts.
3. Scheduling shifts on an execution date during the process of annual timetable composition.

We have identified three arguments to schedule shifts on an execution date during the process of annual timetable composition:
- It allows for certainty for a possession to be acquired;
- It allows for certainty for the contractor to schedule a machine ± a year prior to execution;
- It allows for possessions with a relatively long duration.

Planning process for corrective rail maintenance
As ProRail decides to initiate a corrective shift, two planning processes can be identified.
1. A corrective shift is scheduled in the annual timetable, just like the preventive shifts. All benefits as described above occur, but the trade-off is that the time between decision making and execution easily exceeds a year. We know that defects propagate deeper in time. Therefore, time is a key aspect for planning corrective maintenance.
2. A corrective shift is scheduled in one of the left-over timeslots. The main advantage is that the time between decision making and execution is likely to be under a year. The disadvantages of such a short-time planning process might be a lack of certainty for both possessions and machine-capacity. Besides, the left-over timeslots generally have a relatively short duration.

Optimizing for costs and possession needed
We assume that both costs and possessions correlate with the amount of shifts to be executed. Hence, for both preventive and corrective rail maintenance, we want a certain amount of scope to be planned in a low as possible amount of shifts.
We consider maximizing net production time as key to optimizing towards a low amount of shifts. In this chapter, we stick to the *production time* as *production speeds* will be a significant parameter in the awarding criteria.

We have identified three subtopics in relation to production time.
1. ProRail could investigate if and how possessions might be extended as long as they are requested during the process of annual timetable composition. Today, agreements as confirmed within the sector maximize possessions to 330 minutes. ProRail will take the initiative to rediscuss these agreements and to explore potential for longer durations.
2. The planning of every single shift allows for optimization, in such a way that the we plan as much as production as possible. The outcome will be shifts to be executed with a formula 1-mentality since their possessions contain very little spare time.
3. The contractor might optimize and speed-up all of its secondary activities which take place during a possession. Think of: executing safety measures, starting up a machine, cleaning the tracks etc.

Additionally, combining multiple shifts into one possession would allow for further optimization with regard to possessions and availability of our network.

7.2 What we want to ask you

General questions

Q.7.1
What timespan prior to execution do you favor in relation to planning and getting certainty about your machine to be scheduled, for the first contract year 2027? Does your answer differ for other contract years?

Q.7.2
What would you suggest for machines which work throughout Europe and might be scheduled for just a period of a year for ProRail?

Q.7.3
How many scheduled shifts in a week is the minimum for you? What if a planning does not meet this minimum?

Q.7.4
How do you feel about consecutive shifts taking place in different parts of the Netherlands?

Planning process for preventive rail maintenance

Q.7.5
What do you think about this three-step planning process in general? Would you suggest a radical different process?

Q.7.6
Which role could you fulfill in process step 2 (creating shifts)? How do you see this in relation to the responsibilities of ProRail?

Q.7.7
Which role could you fulfill in process step 3 (scheduling shifts)? How do you see this in relation to the responsibilities of ProRail?

Planning process for corrective rail maintenance

Q.7.8
In case of scheduling a corrective shift in one of the left-over timeslots, how would you cope with the disadvantages as described? What is needed to tackle uncertainties?

Optimizing for costs and possessions needed

Q.7.9
Given a certain amount of scope defined (see chapter 6), what are your thoughts about optimizing for costs and possessions and which ideas would you like to share with us?

Q.7.10
Assuming that costs (and profits) correlate with the amount of shifts, ProRail and its contractor have an opposite interest in optimizing a certain amount of scope towards a low amount of shifts needed. How would you suggest to create a shared interest during the planning process? Does your answer differentiate for preventive and corrective rail maintenance?

Q.7.11
How do you feel about combining multiple machines to be scheduled into one possession? What if this would be machines from both you and a competitor or even a combination with a different kind of machine like a tamping machine?

Q.7.12
What do you think about working in a single-track possession, with nearby tracks on one side being in operation?
What if such single-track possession has a clear entry and exit on one side? And what if such an entry and exit cannot be guaranteed, for example because of working on a large bridge or in a tunnel?

Q.7.13
What do you think about working in a possession in such a way that all crew must stay inside the machine for safety reasons?

Q.7.14
Would it be possible to optimize on secondary activities which take place during each possession? What is needed for any innovation?

Final questions

Q.7.15
Would any choice in relation to specifications for support in planning process have a significant negative influence on the attractivity of any future contract? Why?

Q.7.16
Would any choice in relation to your support in planning process have a significant impact on costs? Why?

Q.7.17
What would be the additional costs for a shift with a maximum of 420 minutes planned in the possession compared to 330 minutes planned? And what for 480 minutes?
Note: this is about the sum of all activities as planned in a possession; not about the duration of the possession itself. The duration of a possession might be a weekend, and we might plan a shift with a total of 420 minutes based on all activities planned within this possession. All activities outside of a possession (transports etc) are out of scope of this definition.

Q.7.18
What else do you want to share with us in relation to planning processes for both preventive and corrective rail maintenance?

8 Rail maintenance without track possessions

8.1 What we are looking for

Forecast show that the amount of trains running on the Dutch railway network will increase with around 30% by 2030. This increased usage influences rail maintenance in two ways:

1. The yearly amount of rail maintenance needed will increase, simply because of the increased of degeneration of tracks and objects
2. Timeslots for track possessions might decrease, in both amount and / or duration of possessions. This might vary heavily depending on location of tracks.

Hence, ProRail is eager to be informed about the possibility of executing rail maintenance without any track possession, implicating working in between running trains on a speed which equals running trains. We have so far identified at least the following aspects:

1. The problem versus solution debate. In case on a certain track the capacity in between running trains is more limited than capacity in possessions, the question arises for which problem this innovation should be a solution. Hence, analyses per region or track should be executed to determine the added value of rail maintenance without possession.
2. Potential risks for our environment (think for example about maintaining bridges and level crossings) and risks related to any objects in our tracks.
3. Maintenance strategies and planning process in cooperation with ProRail traffic control.

8.2 What we want to ask you

Q.8.1
Do you have any experiences with rail maintenance without possessions? If yes, can you differentiate your answer to track and / or objects (turnouts, level crossings and bridges)?

Q.8.2
Do you have any corporate strategy for (further) innovation towards rail maintenance without possessions? Please explain.

Q.8.3
Would it be feasible for you to start off with rail maintenance without any possession by 01-01-2027? In case this is too soon, which alternative starting date would you suggest?

Q.8.4
Would any rail maintenance without possessions imply a different maintenance strategy compared to rail maintenance in possessions?

Q.8.5
Would any rail maintenance without possessions be focused on preventive rail maintenance, corrective maintenance or both?

Final questions

Q.8.6
Would any choice in relation to specifications for rail maintenance without possessions have a significant negative influence on the attractivity of any future contract? Why?

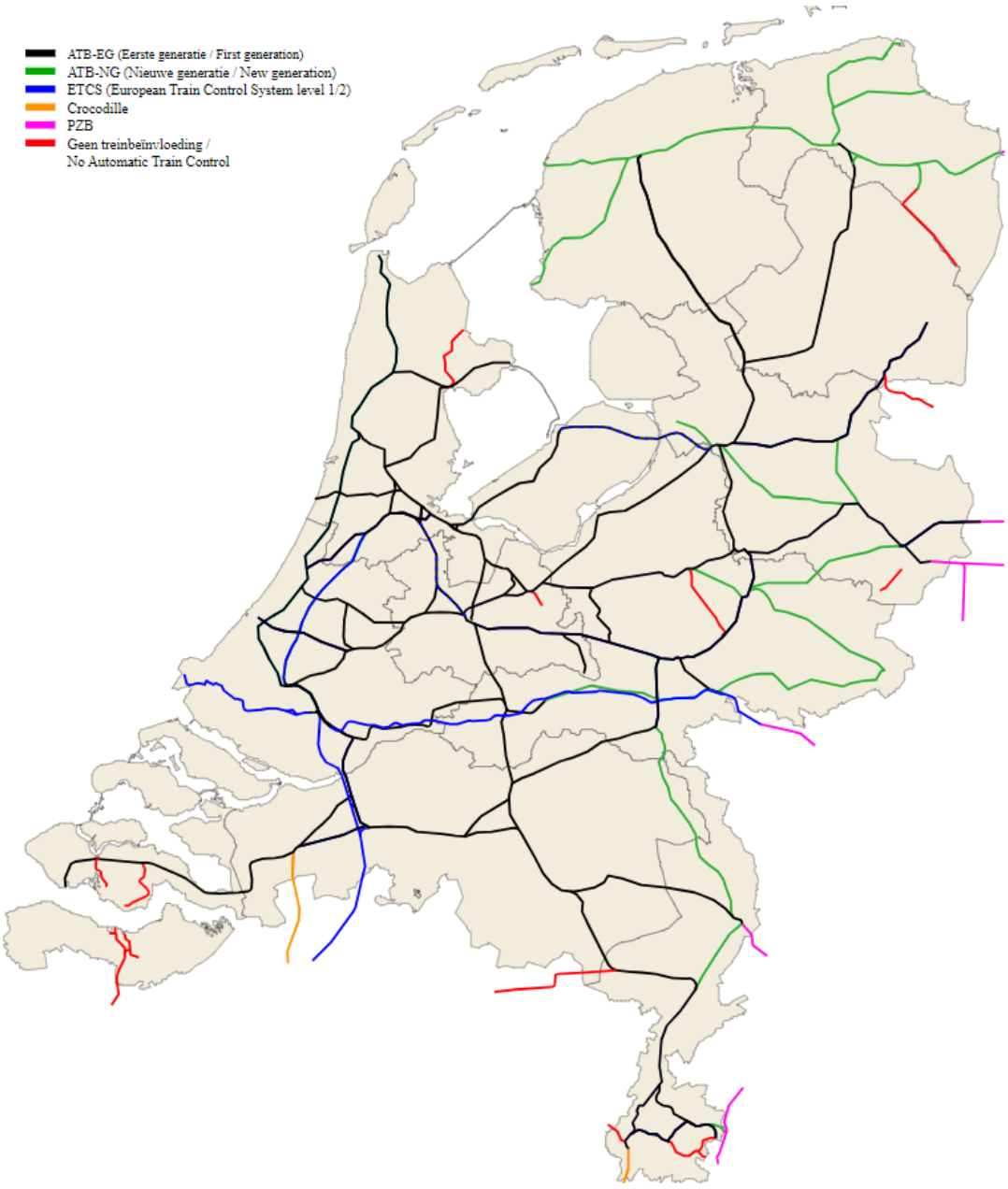
Q.8.7
Would any choice in relation to rail maintenance without possessions have a significant impact on costs? Why?

Q.8.8
What else do you want to share with us in relation to rail maintenance without track possessions?

9 ERTMS & ETCS

9.1 Transport towards and from possessions

Every work train will have to execute rail transports towards and from possessions and/or service locations. ProRail operates several railway safety regimes. The Zee-Zevenaar corridor is nowadays the only track that operates ERTMS-only (ETCS). The High Speed Line (HSL) is ERTMS-only as well, but this track is nowadays out of scope of rail maintenance to be contracted. See figure below.



9.2 Implementation of ERTMS

The European Rail Traffic Management System (ERTMS) is the international standard for railway safety. The European Train Control System (ETCS) is the on-board system that makes trains ERTMS-compatible.
In the near future, multiple tracks will be converted to ERTMS-only. This means that from that moment onwards transports can no longer be executed using a conventional railway safety regime.
Additionally, ProRail expects to implement new 'baselines' (a kind of software update) every ± five years on all ERTMS-tracks.

The website www.ertms.nl gives insight in the implementation of ERTMS in time and geography and contains explanation about baselines. In the most recent implementation planning (v 7.0) the transition of the 'northern lines' is scheduled for the end of 2026.
Any updates will be published on the website. Hence, ProRail chooses to refer to this website for further information and updates.

9.3 Locomotives

An obvious solution to execute a transport on an ERTMS-only track with a non ERTMS-compatible work train is to add an external ETCS-locomotive. However, forecasts show that freight carriers will increase their claims on the (limited) capacity of ETCS-locs. Hence, as the years pass the chances of acquiring external loc-capacity decrease.
This is a major risk for executing transports and therefore a major risk for the execution of the work to be contracted.

Needless to say: this chapter is out of scope for any machine that enters a possession without executing a rail transport, for example small machines which can be lifted by a crane.

9.4 What we want to ask you

Q.9.1
What is the compatibility of your rail maintenance trains with the several safety regimes as shown in the figure?

Q.9.2
How do you handle transporting on ERTMS-only tracks nowadays in Europe?

Q.9.3
Do you have any corporate strategy to create an ERTMS-compatible fleet on a European scale, or do you await any customers specifications in order to upgrade machines?

Q.9.4
Do you have any innovative or already existing ideas to make existing machines independent on adding external ETCS-locs? When would this be operational?

Q.9.5
To what extent are you investing in engineering new machines and when would new machines be ready for operation? If so, to what extent is the implementation of ETCS integrated in this engineering?

Q.9.6
What would you advise ProRail to specify about ERTMS-compatibility in future contracts?

Final questions

Q.9.7
Would any choice in relation to specifications for ERTMS have a significant negative influence on the attractivity of any future contract? Why?

Q.9.8
Can you make an estimation about additional costs if ProRail would set the bar high in relation to ERTMS-compatibility by 01-01-2027?
Please express additional costs in a relative way (percentage) based on an 8-year contract and if relevant twice:

- with an assumed annual turnover of EUR 2.000.000
- with an assumed annual turnover of EUR 20.000.000

Q.9.9
Can you make an estimation about additional costs if ProRail would set the bar high in relation to ERTMS-compatibility by 01-01-2030?
Please express additional costs in a relative way (percentage) based on an 8-year contract and if relevant twice:

- with an assumed annual turnover of EUR 2.000.000
- with an assumed annual turnover of EUR 20.000.000

Q.9.10
What else do you want to share with us in relation to ERTMS and ETCS?

10 Reducing emissions

10.1 What we are looking for

ProRail, Rijkswaterstaat (the Dutch road administrator) and the Dutch Ministry of Infrastructure and Water Management (in consultation with various stakeholders) have developed a roadmap towards Clean & Zero Emission Construction works, called the SEB-program (in Dutch: 'Schoon & Emissieloos Bouwen').
The SEB-roadmap focuses on reducing emissions from road, dike and rail machinery (CO_2, NO_x and particulate matter) and applies to construction equipment (machines, vehicles and vessels) in the entire construction industry. The roadmap concerns the building and construction work as well as maintenance work on roads, dikes and railways. It is about the emissions of the equipment at the construction site (construction equipment) and the emissions resulting from the transport to and from the construction site.

Follow the link below for the Subsidy for Clean and Zero Emission Construction Equipment (SSEB):
https://business.gov.nl/subsidy/clean-and-zero-emission-construction-equipment-sseb/

The SEB-roadmap distinguishes several categories of machines to be used by contractors. We consider rail maintenance machines to be classified in the category 'heavy and specialist equipments' (>560kW). Reducing emissions of machines in this category is complex and requires high investments. It will require more customization, which will start with the use of particulate filters and catalytic converters, and experiments will be carried out in the coming years with zero emission and alternative fuels.
For this niche-category, the roadmap defines a strategy as shown in the matrix below.

	2025 – 2027	**2028 – 2029**	**2030 and beyond**
Minimum-specifications for category 'heavy and specific railway machines'	Start applying selective catalytic reduction and diesel particulate filters	Selective catalytic reduction and diesel particulate filters are a minimum need to have	Selective catalytic reduction and diesel particulate filters are a minimum need to have
Target in relation to total fleet		10-20% of total fleet emission-free	50-100% of total fleet emission-free by 2035-2040

This chapter is composed to explore the potential for future rail maintenance to be a frontrunner in relation to the roadmap, aiming for an emission-free future rail maintenance process.

We have defined the following sub-processes in relation to emissions:
1. Transporting a machine over our network, running as a train in exploitation;
2. Transporting a machine in a track possession;
3. Executing rail maintenance and cleaning residue out of the track in a possession;
4. Executing daily maintenance on a machine at one of the depots;
5. Trucks transporting supplies and waste from and to depots;
6. Cars transporting crews, safety personnel and other personnel needed to execute the work.

Assuming that the electrification of cars and trucks continues, we focus in this market consultation on all subprocesses in which any rail maintenance machine is involved (subprocesses 1 t/m 4).

10.2 What we want to ask you

Q.10.1
Are your machines nowadays equipped with a selective catalytic reduction and diesel particulate filter?

Q.10.2
Do you have any corporate strategy to work towards emission-free and / or emission-reduced (hybrid) rail maintenance, or do you await any customers specifications?

Q.10.3
Do you operate any emission-free and / or emission-reduced (hybrid) machine already? Please explain.

Q.10.4
To what extent are you investing in engineering new emission-free and / or emission-reduced (hybrid) machines? Can you handover some characteristics in relation to (expected) production norms and metal removal?

Q.10.5
Which technical solutions do you consider as feasible for being emission-free and / or emission-reduced (hybrid) in relation to transporting a machine and executing rail maintenance (subprocesses 1 t/m 3) ?

Q.10.6
What would you need from ProRail in relation to your answer on Q.10.5?

Q.10.7
Which technical solutions do you consider as feasible for being emission-free and / or emission-reduced (hybrid) in relation to executing daily maintenance on a machine at a depot (subprocess 4) ?

Q.10.8
What would you need from ProRail in relation to your answer on Q.10.7?

Q.10.9
In case you have answered the questions above in the context of any emission-reduced (hybrid) machines: how significant is the reduction of emissions for such machines?

Q.10.10
Do you have any solution for tracks without any wired electric power supply?

Q.10.11
What are your experiences with using any wired power supply from an infrastructure manager? Do you have any experience with using 1500V (DC) and / or 25000V (AC) ?

Q.10.12
What would you suggest in relation to a possible interdependence between a contractor’s solution and any preconditions to be organized by ProRail?

Q.10.13
What would you suggest as a fallback-scenario in case ProRail cannot deliver the needs (for example: a charging facility at a depot) for a contractor to work emission-free and / or emission-reduced (hybrid)?

Q.10.14
What would you suggest ProRail to compose for a set of sanctions in case a contractor is ultimately not compliant to specifications in relation to emissions?

Q.10.15
What do you think of using the Environmental Cost Indicator (in Dutch: Milieu Kosten Indicator, MKI) as a methodology for taking emissions into account by awarding a contract? Which subprocesses (as described in 10.1 should be in scope of such a calculation?

Final questions

Q.10.16
Would any choice in relation to specifications for emission free maintenance have a significant negative influence on the attractivity of any future contract? Why?

Q.10.17
Can you make an estimation about additional costs if ProRail would set the bar high in relation to emissions by 01-01-2027?
Please express additional costs in a relative way (percentage) based on an 8-year contract and if relevant twice:
- with an assumed annual turnover of EUR 2.000.000
- with an assumed annual turnover of EUR 20.000.000

Q.10.18
Can you make an estimation about additional costs if ProRail would set the bar high in relation to emissions by 01-01-2030?
Please express additional costs in a relative way (percentage) based on an 8-year contract and if relevant twice:
- with an assumed annual turnover of EUR 2.000.000
- with an assumed annual turnover of EUR 20.000.000

Q.10.19
What else do you want to share with us in relation to reducing emissions?

11 Recycling residues

11.1 What we are looking for

In line with the Dutch government, ProRail aims for a full circular economy in 2050 and a 50% reduction in the usage of primary raw materials by 2030. In relation to circularity, six levels can be defined:

R1 Refuse and rethink: avoiding unessential materials if possible
R2 Reduce: reducing the amount of materials in production processes
R3 Re-use: re-using objects as long as they fulfill their function
R4 Repair and refurbish: after which objects can yet be re-used
R5 Recycle: processing raw materials, preferably on a high-quality level without devaluation
R6 Recover: recovering as much as potential energy by burning

This chapter focuses on R5: the recycling of any residues from rail maintenance, being raw materials. Because of the specified metal removal process, we assume that those residues contain a relatively high amount of iron.

Essentially, ProRail aims for the highest environmental gain out of any future recycling process on residues. We assume that the environmental gain is influenced by two key factors:

1. Aiming for a high-quality recycling of raw material, avoiding devaluation;
2. Aiming for a low as possible environmental side effects, for example because of transportations.

11.2 What we want to ask you

Q.11.1
What type of residue do you create during any rail maintenance and what is the composition in terms of amount of iron and other materials? Please explain if your answer depends on technique and or machines.

Q.11.2
Which percentage of the residue that occurs during rail maintenance are you capable of capturing? What happens with any residues that you do not capture?

Q.11.3
What would be needed to strive towards a 100% capture and which timespan would you expect for implementation?

Q.11.4
What are your experiences with any recycling of your residues in general?

Q.11.5
What are your experiences with any recycling of your residues, specifically in relation to a high-quality closed loop towards a new rail to avoid any devaluation of the raw material?

Q.11.6
In relation to Q.11.4 and Q.11.5: do you consider any (dis)advantages of recycling residues specifically in relation to a high-quality closed loop towards a new rail?

Q.11.7
Do you have any ideas to define and / or to prove a high-quality closed loop recycling without any devaluation of the raw material?

Q.11.8
What would you consider to be possible in relation to strive for the lowest possible environmental side effects?

Q.11.9
What do you think of reporting about the amount of residues that you create by rail maintenance during a certain period of time?

Q.11.10
What do you think of using the Environmental Cost Indicator (in Dutch: Milieu Kosten Indicator, MKI) as a methodology for taking recycling residues into account by awarding a contract? Or would you suggest an alternative way for ProRail to specify about recycling residues?

Final questions

Q.11.11
Would any choice in relation to specifications for recycling residues have a significant negative influence on the attractivity of any future contract? Why?

Q.11.12
Can you make an estimation about additional costs if ProRail would set the bar high in relation to recycling residues?
Please express additional costs in a relative way (percentage) based on an 8-year contract and if relevant twice:

- with an assumed annual turnover of EUR 2.000.000
- with an assumed annual turnover of EUR 20.000.000

Q.11.13
What else do you want to share with us in relation to recycling residues (R5) or circularity on R1, R2, R3, R4 and R6?

12 Certainty and flexibility

In this market consultation so far, the concepts of certainty and flexibility have been addressed more than once. Because of the importance, we discuss both certainty and flexibility more in-depth in this chapter.

12.1 Certainty

Our ambitions on for example ERTMS and reducing emissions may imply significant investments to be made by the awarded contractor. We assume that certainty is a precondition for doing investments – and therefore a precondition for setting the bar high in relation to our ambitions to improve.

We have so far defined four optional ways to address certainty.

1. The awarding of future contracts will ideally take place ± 2 years prior to the actual start of the rail maintenance to be executed.
2. We aim for frame work contracts with a total duration (fixed duration + contract-extension) of 8 years, being the maximum duration by law.
3. We aim for a methodology in which any contract-extension of a contract is linked to key performance indicators (KPI's).
4. We aim for a matter of determinability of scope: the annual minimum volume of work to be executed. As amounts of shifts and/or turnover (EUR) are influenced by characteristics of any contractor and its machines, we will stick to the concept of volume of the work to be executed (scope).

12.2 Flexibility

The theoretical downside of certainty – especially in relation to a relatively long fixed duration of a contract – is a lack of flexibility. We aim for flexibility because of two potential reasons.

1. We want to be flexible in relation to new insights. Based on chapter 6, we assume that a shared and continuous plan-do-check-act process will create various new insights to be implemented.
2. We want to be flexible in relation to a changing context in which we operate. External events might influence our strategy for rail maintenance.

For now, we aim to be flexible on at least at the following topics:

- Technical specifications for track and turnouts (chapter 2 and 3)
- Quality management (chapter 4)
- Collecting data (chapter 5)
- Planning principles (chapter 6)
- Planning process (chapter 7)
- The possibility of flipping certain tracks from rail maintenance in possessions towards rail maintenance without possessions (chapter 8)

12.3 What we want to ask you

Certainty

Q.12.1
Which value do you attach to awarding any contract ± 2 years prior to the actual start of the rail maintenance to be executed?

Q.12.2
Can you explain which timespan between awarding any contract and actual start of rail maintenance is minimum in relation to our ambitions (particularly on ERTMS and reducing emissions) as described in previous chapters?

Q.12.3
Which value do you attach to a total duration of 8 years, assuming a suggested differentiation between 6 years fixed duration and 2 years contract extension?

Q.12.4
Which advantages would occur if ProRail would award a contract with a duration above 8 years, for example 8 years fixed duration and 2 years contract extension?
Note: the maximum total duration of any contract to be awarded by ProRail is 8 years by law, regardless of any differentiation between fixed duration and contract extension. Your answer might influence a future ProRail-internal debate about seeking for any exception on law.

Q.12.5
Which value do you attach to linking contract-extensions to key performance indicators (KPI's) and which KPI's would you suggest?

Q.12.6
What do you feel about item 4 in relation to addressing certainty? Would it be suitable for you to calculate any offer based on a determination of scope?

Q.12.7
Can you explain which annual volume is minimum to you for any future contract? Feel free to express in amount of scope or turnover.

Flexibility

Q.12.8
In what way do you feel any need for flexibility from a contractor perspective?

Q.12.9
What would you suggest in future contracts in relation to flexibility, without causing a significant trade-off on certainty?

Final question

Q.12.10
What else do you want to share with us in relation to certainty and flexibility in future contracts?

13 Further innovations

Within the market consultation team, we understand that we might have missed any further potential for improvement. Hence, this chapter creates the opportunity for you to present all other innovations and potential for improvement.

13.1 What we want to ask you

Q.13.1
Which further innovations and or potential for improvement to you want to share with us? Feel free to pitch any ideas and to discuss what is key for successful implementation.