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**Enclosure: 1**

Dear Chairman,

Just like your House, I am also aiming to introduce ERTMS<sup>1</sup> into our country. Alongside improving safety standards, we would also like to achieve the desired transition (system leap) within the railway system. Your House expressed this ambition as a result of the study conducted by the Kuiken Committee and has recently confirmed this by allocating ERTMS 'Major Project' status.

Since the Start Decision in February this year, a number of essential steps have been taken in relation to the phased introduction of ERTMS in the Netherlands from 2016. This letter sets out the most up-to-date state of affairs in terms of these steps and the results of the investigations into the implementation of ERTMS. The result of the investigations will be further elaborated in the Railway map 2.0 which accompanies this letter.

I would like to use this letter to inform you about what has so far been achieved and what follow-up is required. I thus hereby provide substantiation for my pledge to your House on 2 April 2013.

## **0. Introduction**

Over the past few months, much research has been conducted into the technical opportunities provided by ERTMS. Analyses have also looked at the favourable scenarios for the phased implementation of ERTMS in the Netherlands. As a result of these investigations and studies, in line with the MIRT<sup>2</sup> system for major projects, I am moving towards a Preference decision. I hope to take the Preference decision in the first quarter of 2014. This plan is slightly ambitious given that the research conducted up to now seems to suggest that further research is required and given the fact that the technical development of ERTMS is constantly in flux. Later in this letter, I will look at both the research and these particular points in more depth. In the event that the plan turns out to be overly

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<sup>1</sup> ERTMS: European Rail Traffic Management System

<sup>2</sup> MIRT: Meerjarenprogramma Infrastructuur, Ruimte en Transport (Multi-year programme for Infrastructure, Spatial Planning and Transport)

ambitious, I will make a directional decision in the first quarter of 2014 and then make the Preference decision at a later date.

With any major project such as this, transparency and contact with the most important stakeholders is of vital importance. Stakeholders (unions, FMN bodies, consumer organisations and decentralised authorities) and market parties (engineering bureaus, contractors and suppliers) are included in the investigations and the 'funnelling' process with respect to the favourable scenarios that you now have before you. They will also be part of the follow-up.

In addition, use will be made of the experiences that have been gained from the national roll-out of ERTMS in foreign countries, such as Denmark, Belgium, Italy and Switzerland. I gathered information at the beginning of this year from Denmark regarding the progress of the implementation of ERTMS there. There is close collaboration with the project team in Denmark. There are also excellent contacts with Belgium, Germany, Italy and Switzerland regarding their experiences with ERTMS and there is an information-exchange process with all of these countries. Whereas these countries have utilised our initial experiences with ERTMS in the past, we are now benefitting from the expertise they have in terms of the national roll-out process.

## **1. Summary Railway map version 2.0**

Even though ERTMS, in principal, is being introduced to replace and improve our current train protection system ATB<sup>3</sup>, the Knowledge Book suggests that ERTMS can also offer benefits with respect to objectives other than protection. On the basis of the research conducted into the ERTMS options (via Knowledge Book 1.0, among other things), it has been concluded that careful introduction of ERTMS can contribute towards both safety and interoperability, speed, capacity and reliability on the railways. This is of vital importance for both passenger and freight transporters. In order to achieve a transition (system leap) with regard to these objectives, work must focus on ERTMS Level 2 or higher. A number of other important questions also need to be answered. These will be further elaborated later in this letter and in the Railway map 2.0.

Alongside an investigation of the facts, a thorough review of the main points of the possible implementation scenarios has also taken place. On the basis of the MIRT system, there has been a funnelling process from all possible scenarios to the most favourable scenarios. These scenarios, and a 0 scenario, are currently being further investigated. This research will lead to a Memorandum on Alternatives (in this case Railway map 3.0) and a Preference decision.

The studies carried out highlight the fact that the further implementation of ERTMS will be a complex operation and that there is a need for additional development and expertise. This need not be a hindrance in terms of making a forthcoming decision, as has been demonstrated by countries such as Denmark and Belgium. It will, however, mean that extra attention will be required during the further elaboration of the project. Particular focus must be placed on the developments with respect to the ICT components of ERTMS. Throughout the long-term roll-out of ERTMS in the Netherlands (over 10 years), the system will develop technologically.

**Ministerie van  
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<sup>3</sup> Automatische Treinbeïnvloeding (Automatic Train Influencing)

In the follow-up to this letter and the Railway map 2.0, I shall deal with the results of the various studies that have taken place in the past, in much more detail. This involves both factual studies that have focussed on the development of expertise, e.g. with respect to the ERTMS scores on targets, and investigations that have focussed on implementation scenarios. Most of the studies have been enclosed with the Railway map 2.0 so that you can familiarise yourself with them.

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## **2. Knowledge Book ERTMS 1.0**

In order to expand the basis of expertise in relation to ERTMS, but also in order to move from 'opinions to facts', a Knowledge Book ERTMS 1.0 has been drawn up with NS and ProRail. This Knowledge Book contains a factual description of the ERTMS opportunities. The Knowledge Book was distributed to stakeholders and market parties during discussions in October/November so that they could make a critical assessment thereof and the facts regarding ERTMS could be more accurately established. They have all been invited to respond in the coming months. The Knowledge Book ERTMS 1.0 has also been enclosed.

The Knowledge Book contains an overview of the shared knowledge of IenM, ProRail and NS. In this context, consideration must be made of the distinction between the various Levels for ERTMS but also of the question regarding the extent to which and how the desired targets for ERTMS can be achieved. This expertise will be applied in the further research for Railway map 2.0, Railway map 3.0 and with respect to considerations regarding a Preference decision or directional decision in the first quarter of next year. The process of gaining expertise with the Knowledge Book ERTMS 1.0 is an essential element of a careful and well thought-out ERTMS implementation.

The Knowledge Book also provides an insight into the issues and gaps that will have to be further examined in the coming phases.

### *Scores on targets*

The overall picture that is provided by the factual studies (alongside the Knowledge Book and the so-called Maturity Study) connects into the ambition expressed by your House. The need to replace the current train protection system in the Netherlands can, via the introduction of ERTMS, be used to achieve a qualitative transition (system leap) in terms of the performance of the railway system.

The Knowledge Book demonstrates that ERTMS can have added value in relation to the 5 aforementioned objectives from Railway map 1.0. It is clear that the (national) implementation of ERTMS will improve safety on and around the railways in the Netherlands compared to the situation with ATB. The most important reasons why ERTMS can provide safer operations are:

- ERTMS monitors the speed of trains even under 40 km/h;
- ERTMS will lead to the number of SPAD (Signals Passed At Danger) incidents reducing because braking curve monitoring will be used;
- ERTMS more efficiently prevents trains encountering a red signal at all because there is a clearer overview of where the trains are and how quickly they are going;
- ERTMS Levels 2 and 3 mean Temporary Speed Restrictions can be implemented more quickly and easily and this also leads to the creation of a safer situation for track workers.

ERTMS can also contribute towards the other specific objectives. As is the case with safety, however, the various ERTMS levels achieve a range of scores in relation to these objectives. For example, ERTMS Level 2, with supplementary measures such as shortened blocks in the (wider) Randstad<sup>4</sup> in particular, offers capacity gains as a result of shorter follow-up times and better management and adjustment possibilities. These capacity gains can be used to improve the robustness of the services and/or shorten journey times and/or facilitate the use of more trains. All levels also offer the opportunity to improve journey times and drive trains quicker than 140 km/h (on sections of track where the infrastructure permits this).

The precise scope of the gains that can be achieved with the implementation of ERTMS depends on the variables, e.g. the connection between ERTMS and other systems and the use of signal block compression for future-proof capacity gains.

#### *Further factual research*

Alongside the aforementioned facts, there are also uncertainties, gaps in expertise and a need to source experience. I have already initiated the further research that is required to achieve this.

Additional research is required into the following topics:

- the extent to which capacity gains can actually be achieved;
- the required GSM-R communication for national roll-out (including sidings) and the development thereof;
- experiences with ERTMS on larger sidings (including migration);
- market developments (costs and technical solutions, including Level 2 vs. Level 3);
- the feasibility of Level 3 and when this will appear on the market;
- the content of the role of the required system integrator who must ensure that the systems in track and train communicate with one another

The Netherlands is not the only country working on these questions. Countries that have already opted for a national roll-out of ERTMS are puzzling over them too. There are currently many developments underway and this is clear from the Maturity Study ERTMS, among other things. In the coming period, additional expertise and experience will be accumulated that will be useful for the Dutch situation and the project's subsequent phase.

The Knowledge Book ERTMS 1.0 is open to suggestions and supplementary information from stakeholders and market parties. Further expertise and experience must also be processed. The Knowledge Book ERTMS will thus be a dynamic document in the years to come.

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<sup>4</sup> agglomeration of cities in the Netherlands

### 3. Scenarios for implementation

At the moment, in the Netherlands, there are ERTMS 'islands' alongside the sections of track where the train protection system comprises ATB-EG (partially supplemented by ATB-Vv) and ATB-NG. Alongside research into the options and impact of ERTMS on the set objectives, over the past few months favourable scenarios have been developed for the further roll-out of ERTMS in the Netherlands outside these four ERTMS 'islands'. The following steps have been followed (see also Railway map 2.0 and annexes):

1. In line with the MIRT framework of rules that are usually applied to infrastructure projects (from outline to detail), relevant scenarios have been inventoried by setting out the playing field in the Memorandum on Scope and Level of Detail on the basis of search areas thrown up by Railway map 1.0.
2. Quantitative analyses (Memorandum on Favourable Scenarios and quickscan MKBA) were then funnelled into favourable scenarios for further investigation.
3. The favourable scenarios involve:
  - a. A 0 scenario for the Trans European Network corridors (TEN-corridors) that must have ERTMS fitted by 2020 and 2030 (with ERTMS Level 1 on top of the current ATB protection system);
  - b. A scenario where level 2 is rolled out to the TEN-corridors and PHS-corridors<sup>5</sup>;
  - c. A scenario where Level 2 is rolled out to the HRN<sup>6</sup>;
  - d. A scenario where Level 2 is rolled out nationally;
  - e. A glimpse into the possible alternative scenarios with ongoing development of Level 2 (Level 2+) and a mixture of Levels 1 and 2.

These favourable scenarios are investigated more thoroughly in the Memorandum on Alternatives and are combined with a cost estimate, cost/impact estimate, risk analysis and social cost-benefit analysis. This research began quite recently and aims to facilitate a well-founded Preference decision for the further implementation of ERTMS in the Netherlands. An independent, external review will be conducted into the plausibility and robustness of the creation of these scenarios via the NKS and the qsMKBA.

The implementation of ERTMS is a vast project. Two billion euros have currently been set aside for the implementation. This has no relation to an actual cost estimate. A cost estimate will be drawn up on the basis of further research into the favourable scenarios. I shall inform your House of this in the first quarter of 2014. This will also be the moment at which discussions can take place on the basis of the facts and figures that will be available.

### 4. Points for attention

Many issues have become clearer recently as a result of the investigations that have been conducted. As, however, can be expected within a vast replacement project and transfer to new technology, some uncertainties, grey areas and outstanding questions have also come to light. Answers must be sought, however, in order to draw up the definitive migration plans in the following phase, for the rolling stock and the infrastructure and the subsequent tendering procedure. An important point for attention remains the possible technical developments of the ERTMS ICT elements. This involves, for example, issues surrounding the feasibility of Level 3 technology and the substantiation of system integration.

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<sup>5</sup> High Frequency Railway Transport Programme

<sup>6</sup> The Dutch main railway network

Furthermore, there must be an elaboration of how the ICT aspects of ERTMS can be managed in terms of both the approach and the tendering rounds. This also applies to the role of the system integrator who must ensure that ERTMS functions work properly and in an integrated manner (train-track-integration). This is particularly important given the interfaces between the various safety systems in the Netherlands that must be managed during the implementation phase in order to avoid any unsafe situations. Further attention must also be paid to costs, benefits and risks.

Additionally, the integration of ERTMS in track and rolling stock could also be a thorny issue. I shall endeavour to realise the implementation without interruptions and delays for passenger and freight transporters. This will require detailed preparations, planning and tendering rounds and the aforementioned system integration.

## **5. Follow up**

The desire of both your House and myself to implement ERTMS in a phased manner in the Netherlands, which is also included in the Coalition agreement, has been embraced energetically over the past few months. It is clear that ERTMS has huge potential to realise objectives for a transition (system leap) on the railways but also that there are several unanswered questions and outstanding points that need addressing. Even though not all questions can be definitively answered, I will do my best to make a Preference decision or a directional decision in the first quarter of 2014. Everything is now focussed on this decision. The points for attention and unanswered questions must have been appropriately answered in order for this to occur.

After the Preference decision, work will begin on elaborating the plan and engaging in concrete preparations for the phased introduction of ERTMS in the Netherlands. My aim is to start working on this plan with the parties in the sector, under my direction, after the first quarter of 2014. This further elaboration will prioritise caution, particularly given the remaining uncertainties and the corresponding major interests that are at stake.

As a result of the quantity of information in the Railway map 2.0 and the underlying documentation, I would like to offer you the technical briefing prior to the planned AO on the 22nd of January 2014.

Yours sincerely,

STATE SECRETARY OF INFRASTRUCTURE AND THE ENVIRONMENT

Wilma J. Mansveld