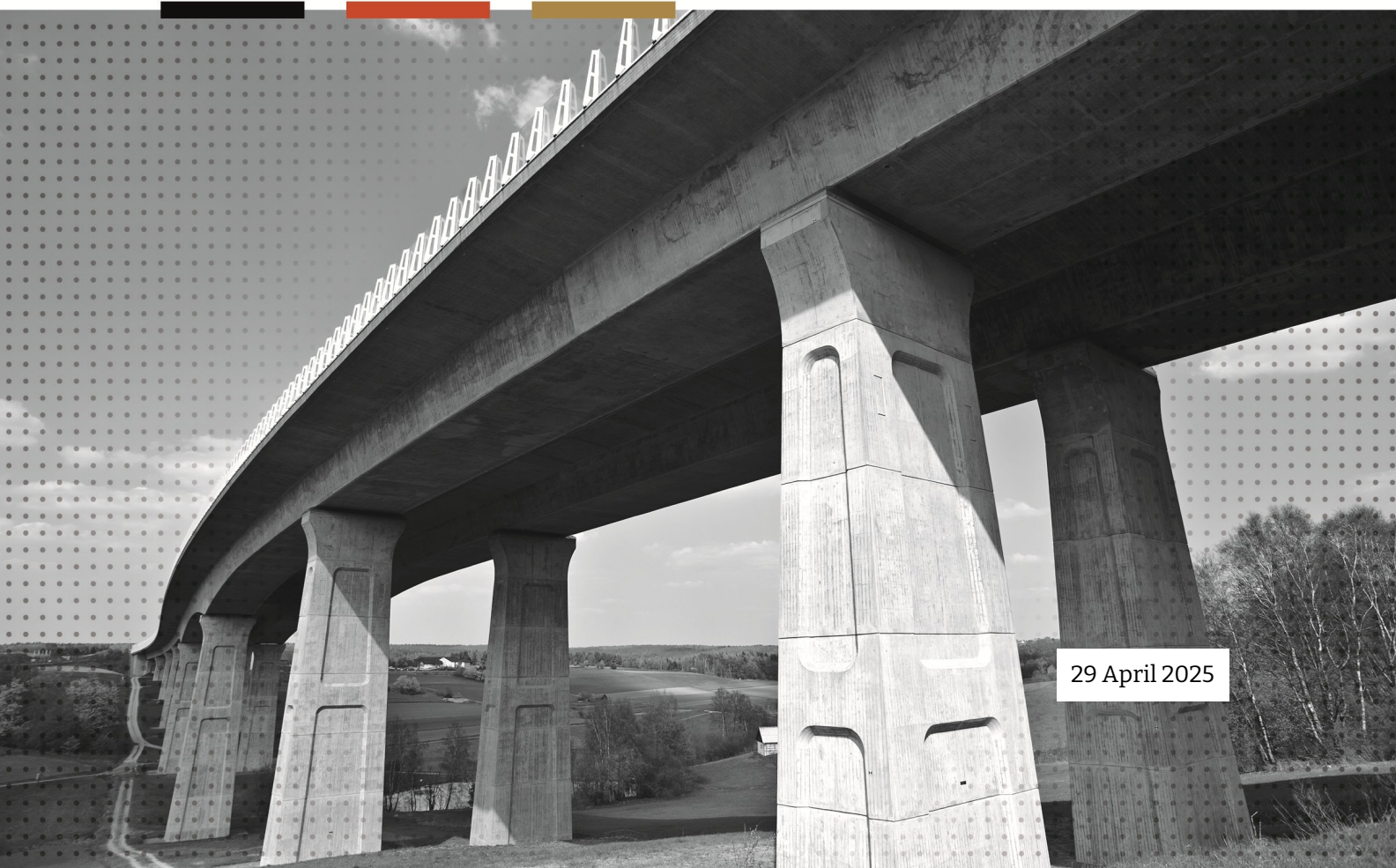


Special Report

Slow refurbishment of dilapidated federal trunk road bridges



29 April 2025

At a glance

Refurbishment of federal trunk road bridges is clearly behind schedule

For years, many bridges in the federal trunk road network (motorways and federal roads) have been in poor condition. Bridge refurbishment does not make any progress. The Federal Ministry for Digital and Transport (the Ministry) needs to make bridge refurbishment a priority. If not, further bridge closures will be inevitable. The budget legislator can help the Ministry to do so.

→ What is it about?

The Ministry launched a programme to refurbish particularly important motorway bridges with the target year of 2032. The Ministry will fail to meet this target. The Autobahn GmbH of the Federal Government (Autobahn GmbH) is clearly behind schedule in terms of implementing the bridge refurbishment programme. The Ministry ignores this backlog and positively reports on the progress made so far. With regard to the federal roads, the Ministry leaves it to the federal states responsible to deal with the bridge refurbishment backlog.

→ What needs to be done?

Autobahn GmbH needs to be equipped with human and financial resources to be able to give priority to bridge refurbishment. The special fund which has its own borrowing authorisation for infrastructure measures and climate neutrality¹ provides new opportunities for the Federal Government. The budget legislator should provide the funds required and earmark them for the purpose of bridge refurbishment. New construction and expansion projects should be deferred. This is how Autobahn GmbH and the federal states may release staff capacity for bridge refurbishment in the short term. Furthermore, the Ministry should set clear goals for bridge refurbishment which the federal states have to meet.

→ What is the objective?

More resolute action needs to be taken to prevent a deterioration of the bridges. The shortcomings in refurbishing federal trunk road bridges need to be addressed as soon as possible. Only when the bridges are available on a permanent basis and without restriction can the federal trunk roads, and especially the motorways, fulfil their key role in traffic management.

¹ Act amending the Basic Law (Articles 109, 115 and 143h) of 22 March 2025, Federal Law Gazette 2025 I No 94.

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0 Executive summary

For years, many bridges in the federal trunk road network have been in poor condition. There is the risk of further closures of motorways and federal roads. This would lead to some large-scale traffic diversions with congestions on roads which are not fit for this traffic volume. Therefore, the Ministry has set itself the target of refurbishing bridges more speedily. The term “refurbishment” covers all structural measures to reinforce a bridge and its partial or complete renewal with adjustment to current technical standards. In a bridge refurbishment programme for motorway bridges, the Ministry determined that, as a first step, Autobahn GmbH is expected to refurbish the most critical motorway bridge partial structures and those in the poorest condition until 2032; that makes approximately 5,000 partial structures. We hold that this target cannot be met anymore. There is no bridge refurbishment programme of the Federal Government for federal roads. The Ministry needs to provide more support to Autobahn GmbH and the federal states responsible for managing federal roads. However, we also consider it to be the legislator’s responsibility to take action.

0.1

In March 2022, the Ministry carried out an evaluation of the condition of federal trunk road bridges. Federal trunk road bridges may consist of several partial structures. In particular in the case of motorways, each direction of traffic has its own partial structure. Approximately 8,100 partial structures of motorway bridges – this corresponds to one third of all partial structures on motorways looked at by the Ministry – and approximately 3,000 partial structures of federal road bridges – this corresponds to about one seventh of all partial structures on federal roads considered – are in need of refurbishment and need to be reinforced or renewed. (No 2)

0.2

Based on its evaluation, the Ministry launched a refurbishment programme for motorway bridges. To that end, the Ministry determined the partial structures in the poorest condition. As a first step, Autobahn GmbH needs to refurbish approximately 5,000 partial structures. The number of bridges annually refurbished is expected to increase steadily. As from 2026, Autobahn GmbH is expected to refurbish 400 partial structures a year. However, Autobahn GmbH should have already have refurbished more than 450 partial structures a year on average since 2022 to complete the bridge refurbishment programme until the target year of 2032. (No 3)

0.3

In September 2024, the Ministry positively reported on the bridge refurbishment programme for motorway bridges. However, we have come to a different conclusion. The Ministry wrongly considered all partial structures completed by Autobahn GmbH to be a programme success even though far more than half of them do not meet the programme criteria. Furthermore, the Ministry understates the scope of the bridge refurbishment programme. Because of these two facts, the programme's success appears to be overly positive.

In the last three years, Autobahn GmbH refurbished only approximately 40 per cent of the number of partial structures which the Ministry had planned in the bridge refurbishment programme for this period. The number of completed bridge refurbishments which meet the criteria decreased from year to year. Instead of the 280 partial structures planned for 2024, Autobahn GmbH merely refurbished 69 partial structures (see figure 4). Also in the years to come, Autobahn GmbH will complete many partial structures which are not part of the bridge refurbishment programme. The main reason is that Autobahn GmbH currently continues to plan and build many projects which the federal states started to plan many years ago when they had been responsible for motorways. The bridge refurbishment programme had not been in place at that time so that the federal states used some other criteria to prioritise bridge refurbishments.

It has already become clear that, in the next years, Autobahn GmbH will complete fewer partial structures of the bridge refurbishment programme than the Ministry has planned. The difference between modernised partial structures and planned refurbishments under the bridge refurbishment programme will continue to grow annually. Furthermore, Autobahn GmbH would have to refurbish approximately 590 partial structures a year as from 2025 to still be able to meet the target of completing the bridge refurbishment programme until 2032. Autobahn GmbH will not succeed in doing so. Autobahn GmbH intends to make personnel and organisational adjustments to give more importance to bridge refurbishment. However, Autobahn GmbH is still in the design and development phase in this context. (No 4)

0.4

In March 2022, the Ministry announced to ensure adequate funding of the bridge refurbishment programme for motorway bridges to increase the number of completed partial structures each year. However, the Ministry has so far not noticeably succeeded in budgeting for the funds the Ministry considers necessary to accelerate bridge refurbishment. Furthermore, the Ministry underestimated the spending requirements. Since the funds for bridge refurbishment are estimated in the federal budget in a way which lacks transparency and Autobahn GmbH cannot state the amount spent annually on bridge refurbishment, the Ministry is unable to assess to what extent funds would have to be increased. We

recommend that the federal budget provide for a separate budget item for bridge refurbishment. In March 2025, the German Bundestag – upon approval by the Bundesrat – decided to amend the Basic Law (the German Constitution).² According to the amendment, the Federal Government may establish a special fund for infrastructure measures and climate neutrality in the amount of €500 billion. If and to what extent funds of this special fund will be available for transport infrastructure and federal trunk road bridge refurbishments in particular remains to be seen. The requirement of a binding estimate also needs to be complied with when providing funds from a special fund. (No 5)

0.5

The Ministry has not set up a refurbishment programme for federal road bridges. The Ministry referred to the fact that the federal states were responsible for this task. The federal states also do not make adequate progress in bridge refurbishment. It is not foreseeable when the federal road bridges will at least be in a condition which will largely be considered satisfactory. So far, the Ministry has only taken note of this situation. Instead, the Ministry which exercises technical oversight should set goals which the federal states have to meet in terms of the partial structures to be refurbished and monitor their accomplishment. This is the only way the Ministry can prevent a standstill in bridge refurbishment or even a further deterioration of the stock. (No 6)

0.6

Already at the beginning of 2024, we recommended that the budget funds for motorway maintenance be further increased. In order to fund this increase, we recommended that funds for the new construction and expansion of motorways be cut temporarily. In this context, we consider earmarking the funds for bridge refurbishment to be of particular importance.

Our advice has so far not been implemented. We therefore reiterate our recommendation emphatically. The budget legislator should earmark the funds required for bridge refurbishment. Autobahn GmbH requires reliable, long-term budget planning. Autobahn GmbH does not only need sufficient investment funds but also enough funds to plan bridge refurbishments. If not, bridge refurbishments are jeopardised and there is the risk that further motorways need to be closed. In order to be able to increase capacity for bridge refurbishment in the short term, Autobahn GmbH needs to redeploy its existing staff internally and to temporarily put on hold the new construction and expansion of motorways in favour of bridge refurbishment. The budget legislator can control this by providing fewer funds for the new construction and expansion of motorways. The Ministry should set specific

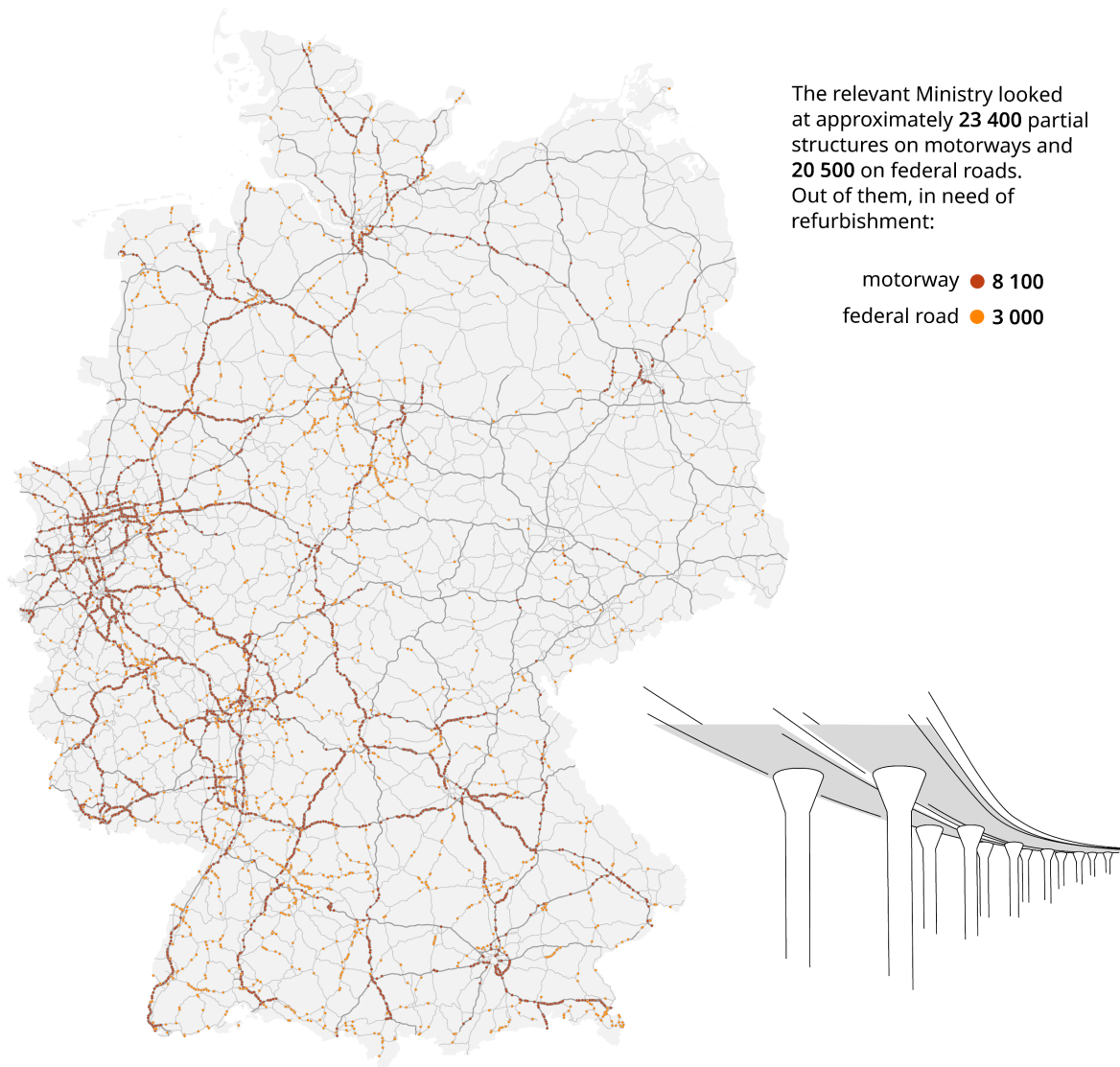
² Act amending the Basic Law (Articles 109, 115 and 143h) of 22 March 2025, Federal Law Gazette 2025 I No 94.

goals which the federal states have to meet in terms of bridge refurbishment. Furthermore, the Ministry should assess – in cooperation with the federal states – whether it would in this case also be possible to put new construction and expansion projects on hold in favour of bridge refurbishment. In doing so, released staff capacity could be deployed for bridge refurbishment. (No 7)

Figure 1

Refurbishing federal trunk road bridges is a mammoth task

Every third partial structure of motorway bridges and every seventh partial structure of federal road bridges is in need of refurbishment. In a bridge refurbishment programme for motorway bridges, Autobahn GmbH is expected to refurbish the most critical motorway bridge partial structures and those in the poorest condition until 2032; that makes approximately 5,000 partial structures.



The figure only serves the purpose of illustration and does not show the exact location of the individual partial structures.

Figure: Bundesrechnungshof. Source: Federal Ministry for Digital and Transport (as of 27 January 2025, map of bridges provided by the Ministry and map of bridges provided by the Federal Highway and Transport Research Institute).

1 Preliminary remarks

With approximately 80 per cent of passenger traffic and about 85 per cent of freight traffic, roads bear the brunt of the German traffic volume. Although the length only accounts for about 6 per cent of the inter-urban road network, motorways are of key importance. They carry about a third of the total annual mileage of vehicles in Germany. This is why it is important that motorways are available in an unrestricted way. Motorways and federal roads form the federal trunk road network. Like motorways, federal roads also serve long-distance traffic. Bridge structures are critical spots of federal trunk roads. The capacity of the federal trunk road network significantly depends on the quality of the bridges.

For some years, dilapidated bridges have been in the public focus – not least because of some bridge closures such as the Rahmede viaduct on the A 45 in December 2021 or the A 100 Ringbahn Bridge in Berlin in March 2025 and the collapse of a large section of the Carola Bridge³ in Dresden in September 2024.

In March 2022, the Ministry presented an evaluation of the condition of federal trunk road bridges (bridge evaluation) at the **bridge summit**. According to the evaluation, every third partial structure of a motorway bridge and every seventh partial structure of a federal road bridge is in need of refurbishment. The term “refurbishment” covers all structural measures to reinforce a bridge and its partial or complete renewal with adjustment to current technical standards.⁴

From its bridge evaluation, the Ministry derived a programme to refurbish motorway bridges: the **bridge refurbishment programme**. By means of this programme, the Ministry intended to set new priorities to address the refurbishment of bridges in a strategic manner. Furthermore, the Ministry intended to create the conditions required: Financial resources should be increased and the planning, procedure and coordination should be accelerated, made digital and streamlined. The Ministry called this set of measures Future Package. With this set of measures, the Ministry aimed to significantly accelerate bridge refurbishment.⁵

In September 2024, the Ministry positively reported on the progress made so far in implementing the bridge refurbishment programme for motorways. The Ministry stated that, until the end of 2024, approximately 30 per cent of the total bridge area to

³ The Carola Bridge is an inner-city bridge for which the Federal Government is not responsible.

⁴ See Guidelines for the strategic planning of structural maintenance work on civil engineering structures (RPE-ING) of 5 February 2021, published at the Federal Highway and Transport Research Institute, last retrieved on 31 March 2025.

⁵ Ministry reports about the bridge summit held on 10 March 2022, here: “Federal trunk road bridges – results and outlook”, Bonn, 10 March 2022, as well as “Future package as to efficient motorway bridges”, Berlin, 10 March 2022; both available at the Ministry’s website (in German only), last retrieved on 31 March 2025.

be refurbished first was expected to be completed. It was important that the high level of investment would also be maintained in the future.⁶

We have come to a different assessment of the situation. Since year-end 2022, we have reviewed the Ministry's bridge refurbishment programme and its implementation carried out by the competent Autobahn GmbH which is owned by the Federal Government. We have already reported on this topic to the Budget Committee of the German Bundestag.⁷ Furthermore, we looked at the challenges Autobahn GmbH faces and how Autobahn GmbH makes progress in bridge refurbishment. We also reported our audit findings and conclusions to the Ministry.⁸

We separately informed the Ministry about our audit findings and conclusions on federal road bridges.⁹ In contrast to motorway bridges, the Ministry did not set time and quantitative goals for refurbishing these bridges. The Ministry refers to the fact that the federal states are responsible for designing, building, operating and maintaining federal roads.

This report summarises our audit findings on the status of the refurbishment of federal trunk road bridges. In doing so, we have taken into account the statements made by the Ministry. The report contains audit findings and conclusions until 31 March 2025.

2 Initial situation: The Ministry's bridge evaluation

Bridge stock

Federal trunk road bridges can consist of several **partial structures**. Especially on motorways, each direction of traffic usually has its own bridge support structure.

As at September 2021¹⁰, the motorway network comprised a total of 27,915 partial structures which Autobahn GmbH needs to maintain permanently. For the federal road

⁶ All information on bridges, last retrieved on 31 March 2025.

⁷ Advisory report of the Bundesrechnungshof addressed to the parliamentary Budget Committee on the federal bridge refurbishment programme for motorway bridges, Ref.: V 4 - 0002050 of 9 January 2024. (Short info in English on our website, long version only available in German).

⁸ Advisory report of the Bundesrechnungshof addressed to the Federal Ministry for Digital and Transport on the scope and progress of the federal bridge refurbishment programme for motorway bridges, Ref.: V 4 – 0002679 of 15 November 2024 (in German only).

⁹ Advisory report of the Bundesrechnungshof addressed to the Federal Ministry for Digital and Transport on structural bridge maintenance in the federal road network, Ref.: V 3 - 0000916 of 28 February 2025 (in German only).

¹⁰ In its report about the bridge summit held on 10 March 2022, the Ministry stated "as at September 2021" with regard to statistical data.

network, the Ministry stated 24,471 partial structures¹¹ for which the federal states acting as agents of the Federal Government are responsible. Bridges have different sizes, accommodate different volumes of traffic and are of different age. Further bridges which are erected on newly built federal trunk roads will be added in the next years. Consequently, the number of bridges to be maintained will continue to increase.

Most of the bridges were built between 1965 and 1985. In the eastern states of Germany, many bridges were built between 1990 and 2005.¹² Because many bridges were built during these periods, an above-average number of bridges therefore needs to be refurbished at a certain time.

Every third partial structure on motorways is in need of refurbishment

Not only the age structure but also the heavy strain on the partial structures caused by the heavy goods vehicle and freight traffic which has increased disproportionately over the last decades require a number of renewals and reinforcements.

In its bridge evaluation, the Ministry has evaluated the bridges by means of the **load rating** for the first time. The load rating compares the load-bearing capacity of a structure (actual load capacity) to the volume of traffic to which the bridge is exposed (target load capacity). The evaluation consists of five levels. Level I as the best level encompasses such structures which fully meet or even exceed today's requirements. According to this classification, the worst level V covers in particular partial structures which

- have almost reached or exceeded the zenith of their planned life span with an age of about 50 years or more;
- were not designed and built in compliance with the current standards and specifications; and
- show the most static and structural shortcomings because of the technical knowledge at that time compared to today's requirements.¹³

The load rating is used to evaluate the load-bearing deficiencies of a structure which emerge from the increase in heavy goods vehicle traffic and the resulting weaknesses of older structural design standards and specifications. The condition rating¹⁴ which

¹¹ As at September 2021.

¹² Ministry report about the bridge summit held on 10 March 2022, here: "Federal trunk road bridges – results and outlook", Bonn, 10 March 2022, figure 1, p. 4.

¹³ Source: Load rating of the Federal Ministry for Digital and Transport, last retrieved on 31 March 2025. Between the two limiting levels I and V, the bridges are categorised in the levels II to IV.

¹⁴ The condition rating is the result of a regular external and close visual inspection of a construction according to DIN 1076. The individual ratings are summarised in a condition rating of 1 (very good condition) to 4 (inadequate condition).

has so far been used exclusively for the evaluation only permits the identification of possible load-bearing deficiencies if they are clearly visible during a visual inspection. The rating is therefore only suitable to a limited extent for statements on possible load-bearing deficiencies.

For its bridge evaluation, the Ministry looked at all structures in the course of motorways (motorway bridges) and bridges of federal, state or district roads which pass over motorways (fly-overs or overbridges).¹⁵ In total, these were 23,395 partial structures in the entire motorway network.¹⁶ The Ministry estimated that out of them, 8,083 partial structures – this means about a third – need to be refurbished. The load-bearing capacity of partial structures in need of refurbishment should be increased to meet today's load level requirements. This means that the structures should be reinforced. If this is not possible, they need to be replaced by a new construction. The Ministry does not count conventional structural maintenance work on bridges such as carriageway resurfacing among the refurbishment measures.¹⁷

The Ministry counted all partial structures with a load rating of IV and V among the partial structures to be refurbished. In these cases, the Ministry expects that almost always a construction of a replacement structure is required since reinforcements are either technically not feasible or inefficient. The Ministry stated that, in the case of partial structures with a load rating of III, it depended on the bridges' year of construction whether the bridges needed to be refurbished. The Ministry considered 1985 to be a crucial year. Older structures were designed for a considerably lower traffic volume. Furthermore, in the case of this generation of structures, technical issues were assessed in a different way than today so that they showed structural shortcomings due to their design. Ultimately, the Ministry expected that about half of the partial structures with a load rating of III were to be refurbished. In addition to that, the Ministry counted some partial structures among those to be refurbished even though their load rating was better than III but they had a poor condition rating.¹⁸

For its bridge evaluation, the Ministry looked at 20,552 partial structures on federal roads out of the total number of 24,471 partial structures in the entire federal road network.¹⁹ Based on the same selection criteria as for the motorways, the Ministry

¹⁵ Motorway traffic flows over motorway bridges. They pass over other transport infrastructure or valleys. Overbridges allow other transport infrastructure to pass over the motorway.

¹⁶ The Ministry did not include local roads and farm tracks in its bridge evaluation, as their importance for the traffic and thus the requirements for this category of roads and tracks are lower and not comparable with the other bridges.

¹⁷ See reply of the Federal Government to a minor interpellation of the CDU/CSU parliamentary group on the results of the bridge summit, Federal Law Gazette 20/5387 of 20 January 2023, reply to question 5, p. 2, last retrieved on 31 March 2025.

¹⁸ 8,083 partial structures = 2,287 partial structures with a load rating of IV + 1,274 partial structures with a load rating of V + 4,461 partial structures with a load rating of III (50 per cent of 8,922 partial structures) + 61 partial structures with a condition rating > 3.5 (as at March 2022). Source: Report of the Ministry about the bridge summit held on 10 March 2022, here: "Federal trunk road bridges – results and outlook", Bonn, 10 March 2022, p. 15, last retrieved on 31 March 2025.

¹⁹ The Ministry did not include local roads and farm tracks that pass over a federal road.

determined that 3,030 partial structures on federal roads need to be refurbished; this is about every seventh of the partial structures looked at.

3 The Ministry's programme for refurbishing motorway bridges

The Ministry intends to accelerate the refurbishment of motorway bridges

The vast majority of motorway bridges today consist of prestressed concrete or reinforced concrete – and this number continues to grow. Their theoretical design life is 70 years.²⁰ It can be assumed that the structures need to be refurbished after this period of time. Since almost 28,000 partial structures exist, this means that 400 partial structures on motorways need to be refurbished on average each year.

Until the end of 2020, the federal states acting as agents of the Federal Government were responsible for motorways. In the end, they refurbished significantly fewer than 200 partial structures each year. Since the beginning of 2021, Autobahn GmbH has been responsible for designing, building, operating, maintaining and managing the motorways.²¹ Autobahn GmbH consists of one headquarters and ten branches. The Ministry stated that the declining number of completed partial structures since 2017 (see figure 2) had been due to the imminent transfer of responsibility to Autobahn GmbH.

In its 2022 bridge evaluation, the Ministry determined that Autobahn GmbH was expected to refurbish more partial structures than the federal states had before. Autobahn GmbH was expected to increase the number steadily. The objective was to refurbish 400 partial structures a year as from 2026 (see figure 2). According to the Ministry's plans, the refurbishment of the approximately 8,100 partial structures to be refurbished could be completed in about 20 years.

²⁰ The theoretical design life is defined in the Directive on the implementation of performance studies on repair works and renewal measures of road bridges. It is an empirical value for the possible design life of a structure or structural elements. The values for the theoretical design life are listed in the Statutory instrument on the calculation of settlement amounts pursuant to the Railway Crossings Act, the Federal Trunk Roads Act and the Federal Waterways Act (Statutory instrument on the calculation of settlement amounts). Depending on the method of construction, the theoretical design life takes up to 110 years.

²¹ As of 1 January 2021, the Autobahn GmbH has taken over the planning, construction, operation, maintenance and management for all motorways and federal roads in the city states of Berlin, Bremen and Hamburg from the federal states. The federal states, however, are still in charge of the federal roads in the non-city states and act as agents of the Federal Government.

Figure 2

The number of annual refurbishments of motorway bridges should triple

In the years from 2017 to 2020, the federal states refurbished fewer and fewer partial structures (PS). According to the Ministry's plans made in 2022, Autobahn GmbH was expected to significantly increase the number and refurbish 400 partial structures a year as from 2026.

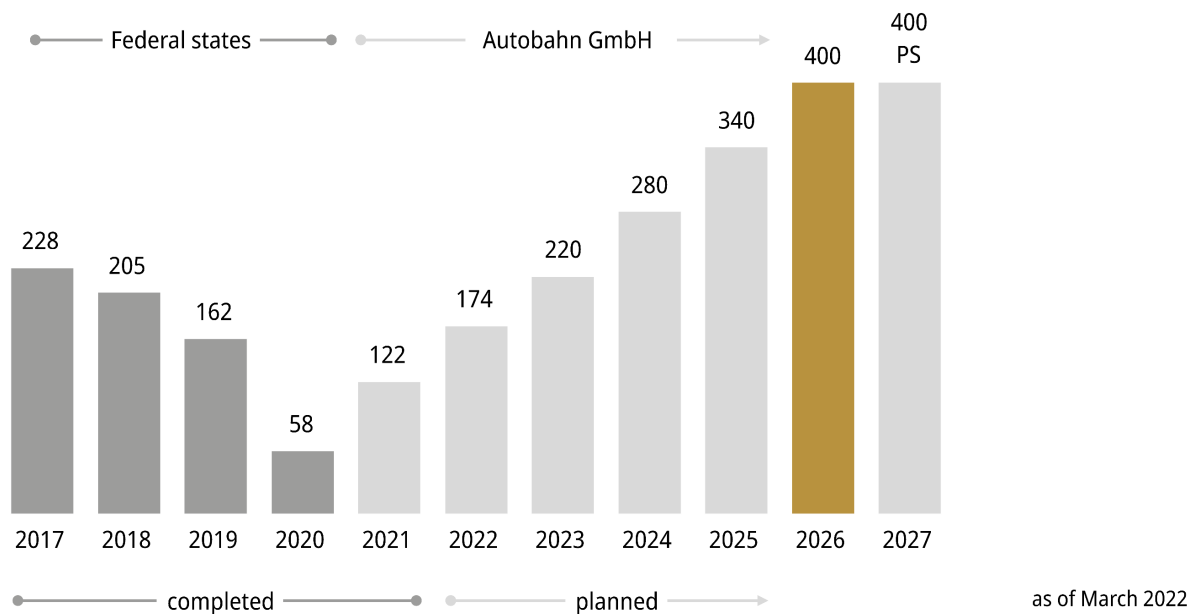


Figure: Bundesrechnungshof. Source: Ministry report about the bridge summit held on 10 March 2022; here: "Brücken an Bundesfernstraßen – Bilanz und Ausblick des BMDV" (*Federal trunk road bridges – results and outlook of the Ministry*), Bonn, 10 March 2022, figure 14, p. 20.

First step: particularly important bridges and those in the poorest condition

For a systematic refurbishment of bridges in the motorway network, the Ministry did not consider it to be effective to have works carried out on individual bridges without considering connected road sections. Therefore, the Ministry defined a national network of particularly important motorway sections and corridors with a high volume of traffic – the **bridge refurbishment network**. The bridge refurbishment network covers about half of the motorway network and contains approximately one third of all partial structures. The network largely corresponds to the core network of the Trans-European Transport Network (TEN-T) which aims to provide a better network and standardised traffic systems in Europe. The Ministry intends to first refurbish the

partial structures included in the bridge refurbishment network. Nevertheless, the Ministry announced that it would not neglect particularly urgent individual structures which do not belong to that network.

In the bridge refurbishment network,

- all motorway bridges with a load rating of IV and V; and
- approximately 70 per cent of motorway bridges with a load rating of III

should be refurbished.²² Which partial structures with a load rating of III will be concerned should depend on the result of structural recalculations. These recalculations involve elaborate calculation methods which have to be carried out for each individual partial structure. They provide information on how future proof a structure still is. According to Autobahn GmbH, such recalculations usually take several months depending on the structure's complexity.

Number of bridges to be refurbished as a priority

In March 2022, the Ministry determined that a total of 4,495 motorway bridges were partial structures to be refurbished in the bridge refurbishment network under its bridge refurbishment programme according to the criteria mentioned above. The Ministry is of the view that about 500 partial structures do not have to be included in the bridge refurbishment programme since they have already been in progress ("Works have just started" up to "measures are shortly before completion"). If these are deducted from the total volume, 4,000 partial structures to be refurbished will remain in the bridge refurbishment network. We disagree with the Ministry: A structure is not refurbished until it has been completed. Therefore, these structures have to be included. The number of about 4,500 motorway bridges coincide with our findings.²³

At first, the Ministry did also not include the particularly urgent partial structures which do not belong to the bridge refurbishment network. It was not until March 2023 that the Ministry included all partial structures with a load rating of V in the refurbishment

²² Ministry report about the bridge summit held on 10 March 2022, here: "Federal trunk road bridges – results and outlook", Bonn, 10 March 2022, p. 18, last retrieved on 31 March 2025.

The Ministry justifies this large share as follows: The bridge modernisation network tends to cover the main routes in the federal motorway network, often in western Germany, which have to carry a lot and heavy freight due to their function of connecting large cities and industrial centres. Nearly always older motorways are concerned with structures which had been built for far less traffic before 1985 and which show a permanent high utilisation due to the constant busy traffic.

²³ Advisory report of the Bundesrechnungshof addressed to the Federal Ministry for Digital and Transport on the scope and progress of the federal bridge refurbishment programme for motorway bridges, Ref.: V 4 – 0002679 of 15 November 2024 (in German only).

programme.²⁴ The Ministry thus added another 500 particularly poor motorway bridges to the bridge refurbishment programme.

In all, we therefore count almost 5,000 motorway bridges among the bridge refurbishment programme (with regard to the status at the time of the bridge summit held on 10 March 2022).²⁵ The Ministry set 2032 as the target year for the completion of all partial structures of its bridge refurbishment programme.²⁶ The Ministry did not explain why it did not include overbridges in the bridge refurbishment programme.

We note: Out of the partial structures included in the bridge evaluation in March 2022, about **5,000 partial structures** are part of the bridge refurbishment programme. Out of these number, 4,500 partial structures are in the bridge refurbishment network and 500 do not belong to the network. In the case of a period of 11 years, Autobahn GmbH therefore should have refurbished more than 450 partial structures a year as from 2022. According to the Ministry's plans, Autobahn GmbH should refurbish 400 partial structures a year as from 2026. These plans alone are therefore not enough to successfully complete the bridge refurbishment programme in 2032.

Poor overbridges can also pose a problem to the motorway which passes under the bridges. Therefore, we would have expected that the Ministry also included them in the bridge refurbishment programme.

Future Package of the Ministry

In March 2022, the Ministry also introduced its Future Package. The Package includes measures which the Ministry intends to take "to ensure that Germany has efficient and modern motorway bridges also in the future". These concern, inter alia, the areas "experts", "digital transformation" and "more efficient awarding of contracts, faster implementation". In addition to other measures, the Ministry intends to accelerate the construction processes. Tender and contract award procedures should be shaped in a more efficient way and incentives for shorter construction periods should be provided, for example, by means of functional tendering. In doing so, contractors are also

²⁴ Reply to a minor interpellation of the CDU/CSU parliamentary group on measures taken to plan and accelerate the implementation of transport infrastructure projects by the Federal Government, Federal Law Gazette 20/6236 of 28 March 2023, reply to question 51, p. 15, last retrieved on 31 March 2025.

²⁵ Within the framework of the bridge refurbishment network, 3,025 partial structures with a load rating of III (70 per cent of 4,322 partial structures) + 947 partial structures with a load rating of IV + 523 partial structures with a load rating of V = 4,495 partial structures. In addition: 478 partial structures (1,001 partial structures of table 1 – 523 partial structures of table 5) with a load rating of V outside the bridge modernisation network: 4,495 + 478 = 4,973 partial structures. Ministry report about the bridge summit held on 10 March 2022, here: "Federal trunk road bridges – results and outlook", Bonn, 10 March 2022, last retrieved on 31 March 2025.

²⁶ Reply of the Federal Government to a minor interpellation of the CDU/CSU parliamentary group on the results of the bridge summit, Federal Law Gazette 20/5387 of 20 January 2023, reply to question 12, p. 4, last retrieved on 31 March 2025.

entrusted with large parts of the planning and design process in addition to the execution. This is to facilitate the tender and the invoicing process. Furthermore, where possible and appropriate, parallel construction steps should be aimed at and standardised construction methods should be used to build faster and cheaper. However, the Ministry did not quantify the expected effects of the targeted changes. In the meantime, the legislator adopted the Approval Acceleration Act²⁷ in December 2023. In accordance with the Act, environmental impact assessments and a plan approval procedure, among others, are no longer required for the construction of replacement structures, even if these structures are built in new dimensions in anticipation of a capacity enhancement of the road following the bridge.

4 Slow implementation of the bridge refurbishment programme

Partial structures refurbished so far

Autobahn GmbH informed us that it had completed a bit more than 200 partial structures of motorway bridges in both 2022 and 2023 and even close to 300 partial structures of motorway bridges in 2024. We reviewed the partial structures mentioned and found that the majority of them were not bridge refurbishments according to the criteria of the bridge refurbishment programme. This was primarily due to the following reasons:

Autobahn GmbH also reported partial structures which it

- had first built in the context of new motorways;
- had replaced because of motorway expansions which would not have needed to be refurbished yet;
- had refurbished outside the bridge refurbishment network with a load rating better than V;
- had only temporarily reinforced to bridge the time period until a new structure had been built (emergency reinforcement);
- had repaired without significantly improving the load capacity (corrective maintenance);
- had erected on federal roads; or

²⁷ Act to Accelerate Approval Procedures in the Transport Sector and to implement the Directive (EU) 2021/1187 on streamlining measures for advancing the realisation of the trans-European transport network, Federal Law Gazette 2023 I No. 40, issued on 28 December 2023, last retrieved on 31 March 2025.

→ had counted twice.

Furthermore, Autobahn GmbH reported that it had also refurbished numerous bridges which pass over a motorway. A number of these structures are also too small to meet future demands and can no longer carry the load of the increasingly heavier agricultural traffic. We informed the Ministry about the figures.

Ultimately, more than 50 per cent of the partial structures completed in 2022 and 2023 did not meet the criteria of the bridge refurbishment programme. In 2024, the number even exceeded 75 per cent. Only less than 25 per cent met the criteria (see figure 3).

Figure 3

Only a few of the partial structures completed so far meet the criteria of the bridge refurbishment programme

In the years from 2022 to 2024, fewer than half of the partial structures (PS) completed by Autobahn GmbH met the criteria of the bridge refurbishment programme. In 2024, they were even fewer than 25 per cent.

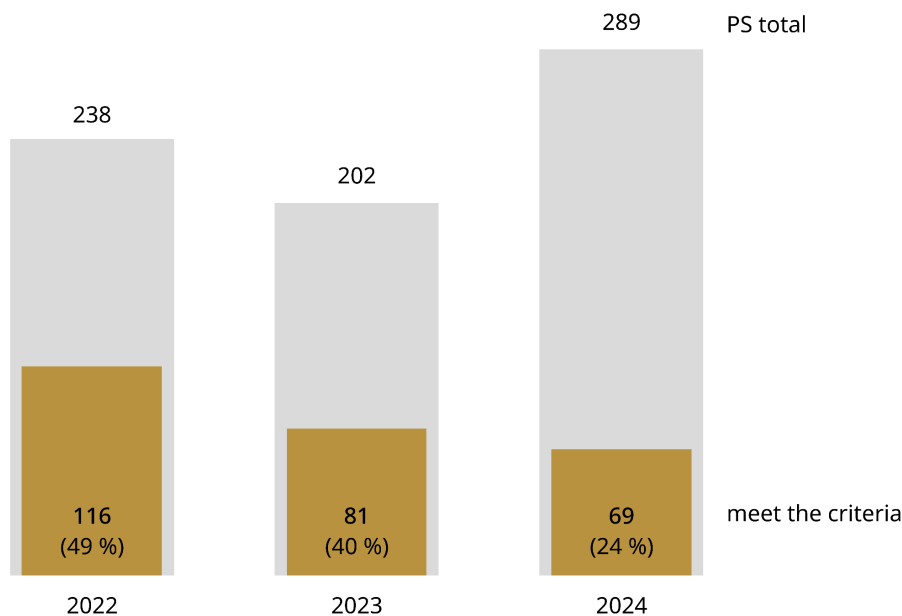


Figure: Bundesrechnungshof. Source: Own collection of audit evidence at Autobahn GmbH.

The Ministry and Autobahn GmbH gave an inaccurate answer to the question asking for completed partial structures of the bridge refurbishment programme. They state the annual number of all completed partial structures and fail to recognise that

considerably more than half of the number stated is not part of the bridge refurbishment programme.

The Ministry will fail to meet the target of the bridge refurbishment programme

Autobahn GmbH fails to meet the milestones set by the Ministry. The gap between “target number” and “actual number” continues to widen. The comparison between completed bridge refurbishments which meet the criteria from 2022 to 2024 and the Ministry’s planned ramp-up of road construction projects make this clear (see figure 4).

Figure 4

Autobahn GmbH fails to keep up with refurbishment needs

Autobahn GmbH is to considerably increase the number of refurbished partial structures (PS). So far, it has not succeeded in doing so. The gap to the annual increases planned by the Ministry widens every year.

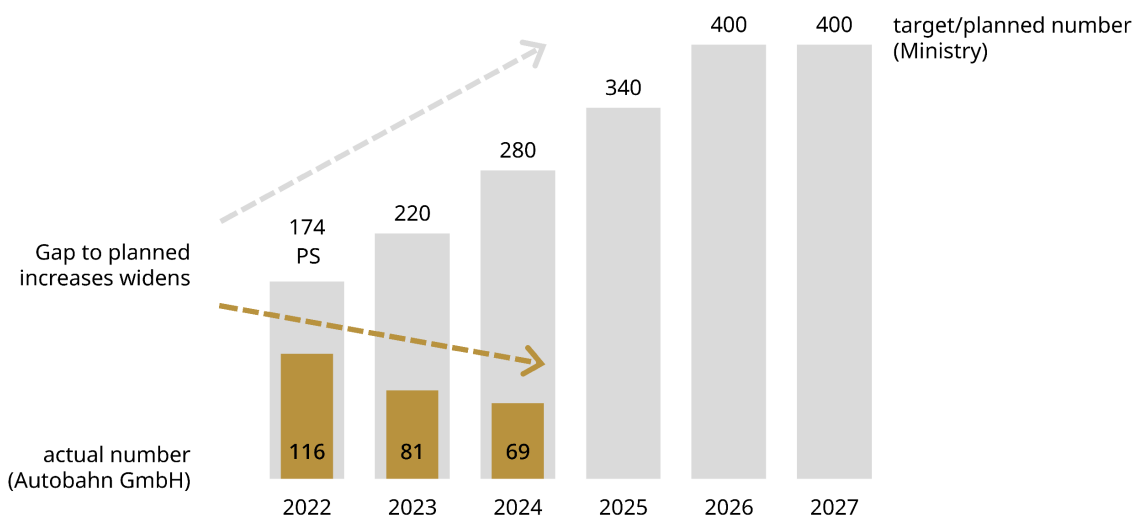


Figure: Bundesrechnungshof. Source: Ministry report about the bridge summit held on 10 March 2022; here: “Brücken an Bundesfernstraßen – Bilanz und Ausblick des BMDV” (*Federal trunk road bridges – results and outlook of the Ministry*), Bonn, 10 March 2022, figure 14, p. 20; and own collection of audit evidence.

From 2022 to 2024, Autobahn GmbH overall completed fewer than 300 partial structures of the bridge refurbishment programme. This only corresponds to about 40 per cent of the number of partial structures which the Ministry intended to have refurbished during this period. Approximately 4,700 partial structures are still lacking

until 2032. This means that Autobahn GmbH would have to refurbish about 590 partial structures a year on average as from 2025. With every year in which Autobahn GmbH completes fewer partial structures of the bridge refurbishment programme than intended by the Ministry, the number of partial structures to be refurbished increases which would be required to complete the bridge refurbishment programme until 2032.

In its comments, the Ministry stated that Autobahn GmbH has the obligation to ensure traffic safety not only for bridges within the bridge refurbishment network but also for the entire network including overbridges. If the condition of the structures which do not belong to the bridge refurbishment network requires to do so, Autobahn GmbH needs to intervene and take corrective action. This would be at the expense of the bridge refurbishment network.

It becomes clear that the gap between the refurbished partial structures and the refurbishments planned in the bridge refurbishment programme increases annually. This also stems from the fact that Autobahn GmbH necessarily refurbishes partial structures which are not part of the bridge refurbishment programme.

In order to still complete the bridge refurbishment programme until 2032, Autobahn GmbH would have to refurbish considerably more than 400 partial structures each year from now on. However, we expect that Autobahn GmbH will complete fewer partial structures of the bridge refurbishment programme in the next years than planned by the Ministry. Therefore, Autobahn GmbH will not succeed in completing the bridge refurbishment programme until 2032.

The Ministry still positively reports on the progress made

In September 2024, the Ministry informed that it had made good progress in the bridge refurbishment programme. Instead of measuring the programme's progress based on the number of structures as the Ministry has done before, the Ministry now measures the programme's progress based on the bridge deck area completed. As a reason for this change in measurement, the Ministry stated that Autobahn GmbH primarily refurbished larger partial structures at first for which more time was needed. Therefore, the number of partial structures was less meaningful than the bridge deck area covered. The target area to be refurbished in the bridge refurbishment programme totals 3.2 million square metres according to the Ministry. The Ministry announced that it estimated to have refurbished about 30 per cent of this bridge deck

area until the end of 2024.²⁸ In 2023, Autobahn GmbH had completed 318,000 square metres of bridge deck area and thus about 10 per cent of the target area.²⁹

The Ministry determined the target area based on the bridge deck areas of 4,000 partial structures of the bridge refurbishment programme. However, the Ministry should have assumed a target area of 5,000 partial structures to be refurbished, i.e. about 1,000 partial structures more. Based on the information taken from the bridge evaluation, we determined a target area of 5.67 million square metres for the 5,000 partial structures of the bridge refurbishment programme to be refurbished.³⁰

Furthermore, we found that the information provided by the Ministry on the bridge deck area refurbished in 2023 had covered all partial structures reported by Autobahn GmbH. If we only take into account the partial structures which have met the criteria of the bridge refurbishment programme, the area covered was merely 105,000 square metres in 2023. This does not even correspond to 2 per cent of the target area of 5.67 million square metres calculated based on the bridge evaluation.

The Ministry positively reported on the progress made in the bridge refurbishment programme. However, we consider the Ministry's evaluation to be misleading in material respects: The Ministry understates the total number of partial structures of the bridge refurbishment programme by about 20 per cent and the total area by even more than 40 per cent. Furthermore, the Ministry also wrongly considers many partial structures which are not part of the bridge refurbishment programme to be a programme success. In doing so, the Ministry's interim evaluation of the bridge refurbishment programme is overly positive.

We pointed out to the Ministry that the bridge refurbishment programme covered 5,000 partial structures. Accordingly, the total deck area of the bridges to be refurbished is larger than the deck area stated by the Ministry.

We hold that the refurbished deck area of partial structures is, in principle, an appropriate benchmark for describing the progress made in the bridge refurbishment programme. However, since the Ministry understated the scope of the bridge refurbishment programme by 1,000 partial structures when it calculated the deck area, the Ministry assumes an incorrect total deck area. Therefore, the Ministry's figures on

²⁸ All information on bridges, last retrieved on 31 March 2025.

²⁹ Reply of the Federal Government to a minor interpellation of the AfD parliamentary group on the feasibility of the Ministry's targets for bridge refurbishment, Federal Law Gazette 20/10601 of 11 March 2024, Reply to questions 7 and 8, pp. 3/4, last retrieved on 31 March 2025.

³⁰ 2,661,758 square metres of motorway bridges with a load rating of V (bridge evaluation, table 1) + 1,125,719 square metres of motorway bridges with a load rating of IV (bridge evaluation, table 5) + 70 per cent of 2,685,315 m² motorway bridges with a load rating of III (bridge evaluation, table 5) = 5,667,198 m²; Basis: Ministry report about the bridge summit held on 10 March 2022, here: "Federal trunk road bridges – results and outlook", Bonn, 10 March 2022, last retrieved on 31 March 2025.

the programme's success are not reliable. For the time being, we adhere to our view that the Ministry should use the number of partial structures as a benchmark.

Outlook for the next years

We discussed with Autobahn GmbH its strategy of structural bridge maintenance and its planned construction programme for the time after 2024. Autobahn GmbH stated that currently most of the bridge construction projects had still been initiated by the federal states which had been responsible for motorway bridges before. The federal states could not place the focus on the bridge refurbishment programme which had not been launched until 2022.

According to the information provided by Autobahn GmbH, bridge construction projects take five to six years on average for the design and approval of an individual partial structure before construction works can begin. Now, Autobahn GmbH initiates projects which have not been prepared by the federal states anymore. Autobahn GmbH assumes that this increases the share of projects which meet the criteria of the bridge refurbishment programme. However, Autobahn GmbH states that it also needs to comply with its statutory responsibilities and work on requirement plan projects which would considerably tie up human resources of Autobahn GmbH.

Autobahn GmbH stated that it had approved designs for about 300 partial structures in 2023. This means that construction work might commence shortly afterwards. This involved both new construction and structural bridge maintenance projects. We reviewed the designs for about a third of the partial structures. We found that only about 30 per cent of them had met the criteria of the bridge refurbishment programme. This was also due to the fact that these designs were still based on preliminary designs of the federal states. Autobahn GmbH is therefore still not free to select the projects to place the focus consistently on projects of the bridge refurbishment programme.

Also in the years ahead, Autobahn GmbH will primarily complete partial structures which are not part of the bridge refurbishment programme. Since Autobahn GmbH currently approves plans for only about 300 partial structures a year, Autobahn GmbH will not reach the Ministry's benchmark of 400 partial structures a year in the foreseeable future which would meet the criteria of the bridge refurbishment programme. Furthermore, Autobahn GmbH is far from refurbishing approximately 590 partial structures which would be required each year.

Bridge refurbishment is a priority task for Autobahn GmbH

Almost all ten branches of Autobahn GmbH informed us that they lacked staff to complete the planned partial structures of the bridge refurbishment programme in time. First of all, some positions were still vacant. Furthermore, Autobahn GmbH had difficulties in replacing departures resulting from retirements. Apart from that, further positions were lacking since the number of bridge structures was too high with which Autobahn GmbH had to deal at the same time. Neither headquarters nor the branches of Autobahn GmbH stated how many positions they were lacking.

Autobahn GmbH in particular tries to recruit new bridge construction engineers. However, Autobahn GmbH also considers redistributing tasks of the existing staff internally. Furthermore, Autobahn GmbH intends to increasingly focus on standardised designs of structures and modular types of construction. Autobahn GmbH intends to streamline tender and contract award procedures in terms of time and content, inter alia, by means of functional tendering or the combination of several project phases. It summarised all of these measures in a ten-point plan.

Since summer 2024, Autobahn GmbH has established a competence centre for bridge construction which is to ensure the implementation of the ten-point plan. Furthermore, the competence centre is expected to have more staff than before to monitor and control the bridge refurbishment programme. The competence centre belongs to a headquarters' division. Currently, the competence centre is in the set-up phase. Many positions were still vacant in November 2024.

Because of the current organisational set-up of Autobahn GmbH, the competence centre does not have any authority to give instructions to the branches which implement the bridge refurbishment programme at the operational level. If it considers a consistent approach of the branches to be necessary, Autobahn GmbH intends to regulate the approach through internal rules of procedure and policies which Management is expected to introduce. For example, they should also stipulate that the branches always assess whether prefabricated components can be used to accelerate the planning and construction of bridges.

Autobahn GmbH is currently making organisational adjustments to place more emphasis on bridge refurbishment. It tries to deploy more staff for bridge refurbishment. At the same time, Autobahn GmbH intends to accelerate its planning and construction processes. In doing so, Autobahn GmbH takes up individual points of the future package which the Ministry has seen as a prerequisite for the successful implementation of the bridge refurbishment programme. So far, however, Autobahn

GmbH has been in the design and development phase. Therefore, noticeable acceleration effects have not yet been visible in bridge refurbishment.

5 Not enough funds budgeted for motorway bridge refurbishment

In order to ensure that Autobahn GmbH is provided with enough budget funds to increase the number of partial structures completed to 400 partial structures a year, the Ministry announced at its bridge summit its intention to increase the budget funds required to that end. The funds for refurbishing motorway bridges should increase from about €600 million in 2022 by €200 million annually and, ultimately, amount to €1.4 billion in 2026. In doing so, the Ministry has taken into account an annual increase in construction prices of 4 per cent.³¹ The Ministry calculated the spending requirements on the basis of an average cost estimate for a square metre of bridge deck area. The Ministry assumed that a partial structure in the motorway network covered 750 square metres on average. However, we hold that the Ministry needs to focus on the bridges of the bridge refurbishment programme. The partial structures included in the programme cover 1,140 square metres on average according to our approximate estimate.³² Therefore, the spending requirements total €2.1 billion for 400 partial structures in 2026. So the Ministry considerably underestimates the spending requirements.

The funds for motorway bridge refurbishment are not separately appropriated in the federal budget. The 2022 federal budget included a note indicating that €625 million were earmarked for motorway bridge refurbishment.³³ Since 2023, however, an annual amount of €1.5 billion has been budgeted for maintaining all civil engineering structures on motorways. The Ministry stated that, in doing so, it intended to show the financial efforts for structural maintenance on the whole. However, the funds for bridge refurbishment are not earmarked for this purpose. As a consequence, we cannot see whether the Ministry implemented its announcement to increase the funds for bridge refurbishment gradually.

³¹ Ministry report about the bridge summit held on 10 March 2022, here: “Federal trunk road bridges – results and outlook”, Bonn, 10 March 2022, figure 15, p. 21, last retrieved on 31 March 2025.

³² On the basis of the information provided by the Ministry in its bridge evaluation for the 4,973 partial structures to be refurbished (see No 3), we identified a total area of nearly 5.67 million square metres. $5,667,198 \text{ square metres} / 4,973 \text{ partial structures} \approx 1,140 \text{ square metres}$.

³³ Notes on Title 891 11 in Chapter 1201 of departmental budget 12.

For the years from 2022 to 2024, Autobahn GmbH could not state the actual expenditure for refurbishing bridges. Instead, Autobahn GmbH knew only the total expenditure for all structural maintenance projects which also included the funds spent on bridge refurbishments. These projects encompass both individual bridge projects and mixed projects with bridges and carriageway sections of roads. The money Autobahn GmbH spent on maintaining individual and mixed projects totalled €2.17 billion in 2023, for example. The respective share which was exclusively used for bridge refurbishment is not known. This means that neither the annual funds earmarked for bridge refurbishment in the federal budget nor the actual expenditure is known.

In November 2024, Autobahn GmbH informed that it lacked about €1.5 billion for 2025 according to the planning at that time. This concerned both the funds to invest in traffic infrastructure and the funds for Autobahn GmbH and thus also the funds required to commission engineers and other external parties. Autobahn GmbH would require the funds almost exclusively for the refurbishment of bridges and other structural maintenance works. Currently, the amount of budget funds at the disposal of Autobahn GmbH for 2025 is not clear.

In its comments, the Ministry confirmed that the bridge refurbishment programme needed to come to the fore and enough budget funds needed to be provided to that end.

In March 2025, the German Bundestag – upon approval by the Bundesrat – decided to amend the Basic Law (the German Constitution).³⁴ According to the amendment, the Federal Government may establish a special fund for additional investments in infrastructure and for additional investments to reach climate neutrality by 2045 in the amount of up to €500 billion.³⁵ Investments from the special fund can be appropriated within a period of twelve years. If and to what extent funds of this special fund will be available for transport infrastructure and federal trunk road bridge refurbishments in particular remains to be seen.

Since the Ministry has so far underestimated the funds for bridge refurbishment and has not budgeted enough funds, the Ministry could now provide an appropriate amount through the special fund. However, if more money is in the system, the construction prices are expected to rise. As a consequence, bridge refurbishment becomes more expensive than before. The Ministry has to take this into account when calculating the costs.

³⁴ Act amending the Basic Law (Articles 109, 115 and 143h) of 22 March 2025, Federal Law Gazette 2025 I No 94. The funds are planned in addition to the federal budget.

³⁵ Pursuant to Article 143h, para. 1, sentence 2 of the Basic Law, investments shall be deemed to be additional if an appropriate investment ratio is achieved in the federal budget for the respective year. The special fund for infrastructure and climate neutrality shall cover up to €500 billion. From this special fund, €100 billion shall be made available to the federal states for investments in infrastructure. A further amount of €100 billion shall be made available to the Climate and Transformation Fund.

The Ministry has so far not noticeably succeeded in including in the government proposals for the budget estimates the budget funds which it considered necessary in 2022 to accelerate bridge refurbishment. Since the Ministry underestimates the average bridge deck area of the bridges included in the bridge refurbishment programme, the spending requirements calculated are also too low. Federal budgeting lacks transparency and is not appropriate to earmark the budget funds for bridge refurbishment. Furthermore, Autobahn GmbH cannot provide any information on the money annually spent on bridge refurbishment. Therefore, the Ministry cannot assess to what extent the funds annually provided would need to be increased. We recommend that a separate budget item for bridge refurbishment be included in the federal budget. This would ensure earmarking of funds. This also applies to funds possibly provided from the special fund for infrastructure and climate neutrality.

6 Bridge refurbishment on federal roads

While the Federal Government is responsible for managing motorways, the federal states still manage the federal roads and act as agents of the Federal Government.³⁶ When the federal states act as agents of the Federal Government, they perform tasks such as designing, building, operating and maintaining federal roads. The Ministry exercises legal and technical oversight over the federal states' road construction authorities. While the Federal Government funds the construction, operation and maintenance of federal roads through the federal budget, the federal states bear the costs for their management. This also includes the planning. Therefore, the Ministry cannot stipulate how and where the federal states have to deploy their staff. However, the Ministry may intervene as part of its technical oversight role. Preparing construction projects is also a task of the federal states.

In its bridge evaluation, the Ministry also showed the condition of federal road bridges. In contrast to motorways, the Ministry did not launch a national bridge refurbishment programme for federal roads. It did not specify the period during which the federal states should refurbish their structures. The Ministry referred to the fact that the federal states are responsible for this task.

The partial structures on federal roads in the western states are older than those in the eastern states of Germany. More than half of the partial structures in the western

³⁶ With the exception of: the city states of Berlin, Bremen and Hamburg.

states of Germany were built before 1985 and thus before there had been major changes in structural bridge design. These structures are often undersized. The major part of the partial structures to be refurbished is in these states.

On the basis of structural data of the Federal Highway Research Institute, we estimated the refurbishment needs in the western states of Germany. According to our estimate, the federal states would have to refurbish, on average, 85 partial structures each year in the next 20 years because of their poor condition. As from 2033 at the latest, at least 50 further partial structures can be added each year which will then have reached their end of design life – and this number continues to grow over the years. In the last years, the western states of Germany refurbished just a bit more than 50 partial structures on average (see figure 5).

Figure 5

Required structural maintenance of federal road bridges of the next 20 years clearly exceeds recent years' average

In the next 20 years, 85 partial structures need to be refurbished each year in the western states of Germany. Further bridges can be added which would have to be refurbished because of their age. In 2050, the number therefore increases to more than 300 partial structures. On average, only 53 partial structures were refurbished in the years from 2019 to 2023.

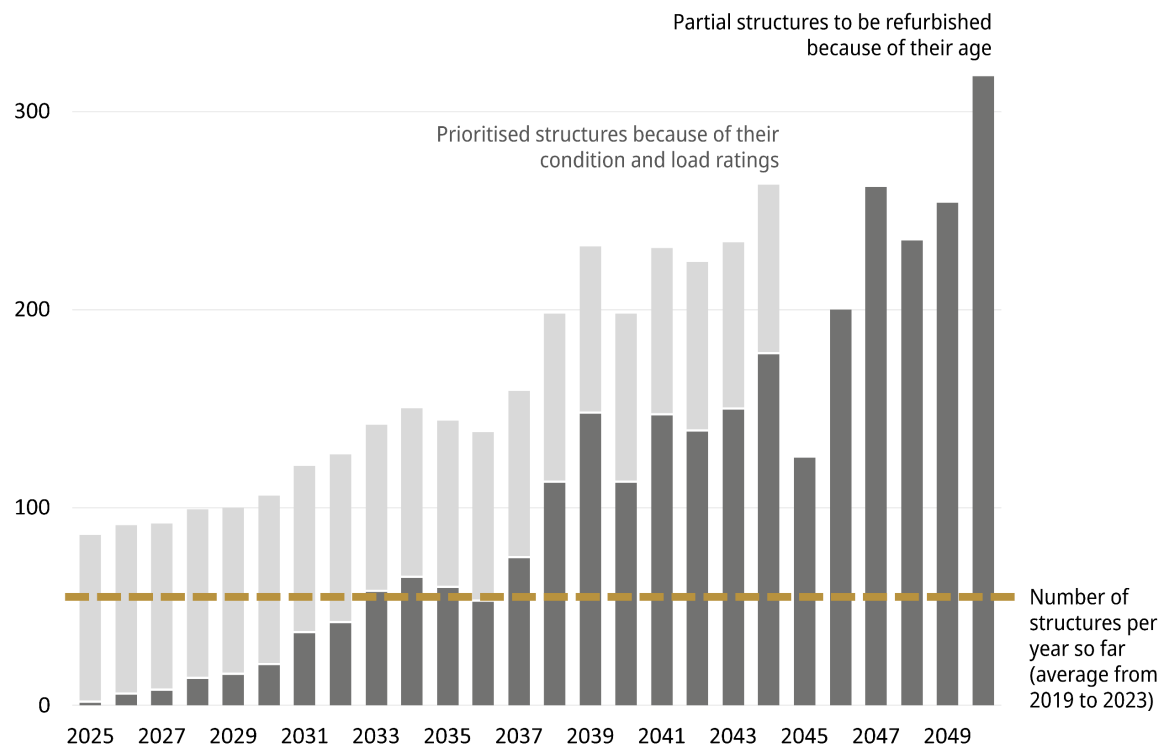


Figure: Bundesrechnungshof. Source: Bridge date of the Federal Highway Research Institute and information provided by the federal states.

In light of this emerging weakness, we collected audit evidence on the strategy for structural bridge maintenance in the western non-city states of Germany. In our view, the works make only very slow progress even though these federal states try to make further progress. They have understood the urgency of structural bridge maintenance and are now aligning their structural maintenance planning with the goals set by the Federal Government for maintaining engineering structures. However, the federal funds actually spent on structural bridge maintenance by the federal states³⁷ in the last years did not reflect this urgency. In the years from 2019 to 2023, they were always below the spending requirements of the forecast of structural maintenance

³⁷ Actual expenditure of all federal states, commencing from 2021 without the city states of Berlin, Bremen and Hamburg.

requirements determined by the Ministry in 2016 for the respective years. Due to increases in construction prices, the spending requirements increased continuously. Adjusted for the effect of increases in construction prices, however, they corresponded to a maximum of half of the spending requirements determined in the forecast of structural maintenance requirements. In the case of the western non-city states of Germany, expenditure totalled only 43 per cent on average. Even though the funds have been shown in the federal budget in such a way that no longer permits to draw any conclusions on the funds spent on bridge refurbishment since 2023, similar to the motorway, we have to expect that they have not been increased for federal roads since 2022.

Many federal states refer to the fact that they can only increase their performance in structural bridge maintenance if they have more staff available for this task. Therefore, it is not foreseeable when the federal road bridges will at least be in a condition again which will largely be considered satisfactory. Given the high number of bridges which are in need of refurbishment but have not been refurbished in the last years, the problem might continue to escalate.

The changes initiated by the Ministry and the federal states so far have not yet achieved the desired effect in federal road bridge refurbishments. In this context, we noted with concern the passive role of the Ministry. For example, the Ministry entrusts the planning of structural maintenance projects to the federal states alone and largely only takes note of their problems.

The Ministry accepts that the federal states have so far not taken full advantage of the funds provided for bridge refurbishment based on the spending requirements determined in the forecast of structural maintenance requirements. It therefore also tolerates that not all bridge refurbishments are performed which would be financially possible. According to the federal states, they can only increase their performance and use more funds for refurbishing federal road bridges if they have more staff available. Furthermore, in consideration of increases in construction prices, fewer and fewer bridges can actually be refurbished with the budget funds provided.

Even though the federal states acting as agents of the Federal Government are in principle responsible for maintaining the federal road network and for recruiting the staff required to perform this task, the Ministry exercises technical oversight over the federal states. The Ministry should set goals which the federal states have to meet in terms of the partial structures to be refurbished and monitor their accomplishment to prevent a standstill in bridge refurbishment or a further deterioration of the stock.

7 Conclusion

Bridge refurbishment programme for motorways does not really make progress

Autobahn GmbH increased its output of completed bridge structures in the last years compared to the output generated by the federal states. Furthermore, Autobahn GmbH created new structures and processes which should help further increase the annual output. However, Autobahn GmbH is still far from reaching the bridge refurbishment programme goals set by the Ministry. The output of completed bridge structures shown by the Ministry is not equivalent to the progress of the bridge refurbishment programme. Only less than half of the completed partial structures are part of the bridge refurbishment programme.

Since the current plans of Autobahn GmbH still rely on preliminary works conducted by the federal states that did not focus on the bridge refurbishment programme, there will be no other result in the next years. We clarify: It is not useless that Autobahn GmbH is currently refurbishing many structures which are not part of the bridge refurbishment programme. However, they are not part of the bridge refurbishment programme because those are structures, for example, which pass over the motorway.

As the Ministry does not make a distinction between the output of Autobahn GmbH and the structures of the bridge refurbishment programme, this leads to a considerably more positive evaluation of the progress made in the bridge refurbishment programme. Unlike the Ministry, our interim review is negative. The bridge refurbishment is by far behind schedule. Furthermore, the Ministry understates the number and deck area of bridge structures which need to be given priority in the refurbishment when reporting on the programme's progress. The Ministry needs to change its overly positive presentation and ensure realistic and problem-oriented reporting.

The Ministry needs to steer its bridge refurbishment programme for motorways

In its 2022 bridge evaluation, the Ministry expressed how precarious the bridge refurbishment situation is. It set up a bridge refurbishment programme and prioritised the bridge projects required in a transparent way based on clear criteria. Furthermore, the Ministry set measurable goals: Autobahn GmbH is expected to gradually increase

the number of refurbished partial structures until 2026 to 400 partial structures and complete the bridge refurbishment programme until 2032.

We made it clear: The bridge refurbishment programme will not be completed until 2032; not even if Autobahn GmbH would increase the number of refurbished partial structures as planned by the Ministry. The Ministry is responsible for aligning and adjusting the goals. To this end, the Ministry needs to evaluate the programme on a regular basis and take corrective action if necessary. Since the Ministry bases its assumption on wrong figures, the Ministry is of the view that the programme is on schedule. We hold that the difference between the Ministry's targets and the partial structures annually completed by Autobahn GmbH in the bridge refurbishment programme is so great that Autobahn GmbH will miss the goals set by the Ministry.

Therefore, the Ministry is urged to provide the best possible support to Autobahn GmbH in achieving the goals set. Based on the assumption that Autobahn GmbH continues to carry out projects which are not part of the bridge refurbishment programme, the Ministry should clarify the extent to which it may support Autobahn GmbH in overcoming staff shortages in bridge refurbishment. Furthermore, Autobahn GmbH should redistribute its human resources internally, when possible, and deploy them in projects of the bridge refurbishment programme.

Our advice on the bridge refurbishment programme has so far not been implemented

Already at the beginning of 2024, we recommended, in a report submitted to the parliamentary Budget Committee, that the Budget Committee examine how it may further increase the budget funds for the structural maintenance of motorway bridges. In order to fund this increase, we recommended that funds for the new construction and expansion of federal trunk roads be cut at least temporarily. At the same time, Autobahn GmbH required more staff for bridge refurbishment.³⁸

The Ministry replied that focusing solely on the bridge refurbishment programme would not be in line with the tasks entrusted to Autobahn GmbH by law. The Ministry continued that Autobahn GmbH needed to generally comply with its funding and implementation schedule but was flexible in acting in accordance with the schedule. This schedule also provided for new construction projects. The government proposal on the 2025 federal budget shows that the Ministry did not follow our recommendations in terms of the allocation of funds between structural maintenance and new construction in federal trunk roads.

³⁸ Advisory report of the Bundesrechnungshof addressed to the parliamentary Budget Committee on the federal bridge refurbishment programme for motorway bridges, Ref.: V 4 - 0002050 of 9 January 2024. (Short info in English on our website, long version only available in German).

It is a fact: Autobahn GmbH is already clearly behind schedule. Because of this backlog, the risk of further bridge closures increases. In order to significantly improve the condition of the poor motorway bridges and to close the gap, Autobahn GmbH would already have to refurbish considerably more than 400 partial structures a year. To do so, Autobahn GmbH would need to be provided with enough budget funds and staff.

The legislator needs to take action

Autobahn GmbH requires enough budget funds and reliable, long-term budget planning. Project contracts for the design and the construction extend beyond legislative terms. Furthermore, we point out that Autobahn GmbH does not only need enough investment funds but also enough design funds. As noted above, the construction requires a preparatory planning stage of several years.

We suggest once again that the funds required for structural bridge maintenance of motorways be provided for the next years. For motorways, the Ministry currently underestimates the spending requirements for bridge refurbishment. Should additional funds for bridge refurbishment be available from the special fund for infrastructure and climate neutrality in the next years, these funds could help to budget an appropriate amount of funds. We hold that the special fund needs to be used in such a way that the measures funded by it achieve a major economic benefit. In doing so, the refurbishment of dilapidated motorway bridges should have a high priority.

In the short term, however, Autobahn GmbH will only be able to spend additional funds for bridge refurbishment if it can redeploy staff in favour of bridge refurbishment internally. We suggest that the budget legislator temporarily provides fewer funds for the new construction and expansion of motorways until Autobahn GmbH succeeds in recruiting additional staff. Autobahn GmbH will not be in a position to implement more projects with more funds until it has additional staff. In doing so, however, Autobahn GmbH depends on the capacities available in engineering offices and in the construction sector.

The applicable Federal Transport Infrastructure Plan, as a key tool of federal transport infrastructure planning, also stipulates the principle of “structural maintenance before new construction”. Should the budget legislator intend to pursue this goal, it is of particular importance that the funds are earmarked for bridge refurbishment by appropriating the respective funds in the budget estimates. The same applies to a possible estimate in the special fund for infrastructure and climate neutrality.

Outlook for the bridge refurbishment programme

In 2032, the bridge refurbishment programme for motorways will not even be close to completion. Furthermore, when this bridge refurbishment programme is completed, the bridges in the bridge refurbishment network and the poorest bridges in the remaining motorway network will be refurbished. However, many other bridges in need of refurbishment which do not belong to the bridge refurbishment network still need to be refurbished. Autobahn GmbH will have to continue to refurbish 400 partial structures a year even when the bridge refurbishment programme will be completed to maintain the *status quo* of the bridges in future. Both the Ministry and Autobahn GmbH therefore need to devote all their efforts to refurbishing structures. How long it takes depends on the budget funds available for this purpose in the long term and the efforts made to increase the number of refurbished partial structures completed as quickly as possible. In addition, the initiated measures of the future package need to be made a success to considerably accelerate bridge refurbishment projects. In doing so, Autobahn GmbH must use the funds available efficiently.

The Ministry needs to set goals which the federal states have to meet in terms of federal road bridge refurbishment

For structural bridge maintenance in the federal road network, it is not enough if the Ministry just takes note of weaknesses. Even though the task of maintaining the federal road network, in principle, lies within the responsibility of the federal states, the Ministry which exercises technical oversight for bridge refurbishment should set specific goals which the federal states have to meet. This also includes monitoring implementation and target achievement. Where these goals cannot be reached, the Ministry needs to assess – in cooperation with the federal states – whether it would also be possible in the case of federal roads to defer new construction and expansion measures provided for in the Federal Transport Infrastructure Plan in favour of bridge refurbishment. In this way, the federal states could deploy released staff capacity for designing and implementing bridge refurbishments. Without reservation, the Ministry should – in cooperation with the federal states – identify and pursue all options that permit an acceleration of bridge refurbishment.

Bridges of other modes of transport

Bridges are also of vital importance for other federal transport infrastructure and are equally in the focus of our audits. We will provide a separate report on the need for action in terms of railway bridges in due course.

Bonn, 29 April 2025

As Chairman of the Governing Board, which adopted this report in accordance with
Section 14 (1) No 2 of the Bundesrechnungshof Act,

Kay Scheller
President of the Bundesrechnungshof