

March 21, 2024

The Honorable Shailen Bhatt
Administrator
Federal Highway Administration
1200 New Jersey Avenue, SE
Washington, DC, 20590

The attached letter from the NTSB Chair provides information about the NTSB's February 21, 2024, report *Collapse of the Fern Hollow Bridge, Pittsburgh, Pennsylvania, January 28, 2022*, NTSB/HIR-24-02. The details of this accident investigation and the resulting safety recommendations may be found in the attached report, which can also be accessed at <http://www.nts.gov>.

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement these recommendations. When replying, please refer to the safety recommendations by number (for example, H-24-1 through H-24-5, and H-23-13).

We encourage you to submit your response to ExecutiveSecretariat@nts.gov. If your reply exceeds 20 megabytes, including attachments, please e-mail us at the same address for instructions on how to send larger documents. Please do not submit both an electronic copy and a hard copy of the same response.



NTSB Executive Secretariat-LRM
Office of the Managing Director
National Transportation Safety Board
490 L'Enfant Plaza SW
Washington, DC 20594
Email: ExecutiveSecretariat@nts.gov

National Transportation Safety Board

Office of the Chair

Washington, DC 20594



March 21, 2024

The Honorable Shailen Bhatt
Administrator
Federal Highway Administration
1200 New Jersey Avenue, SE
Washington, DC, 20590

Dear Administrator Bhatt:

This letter provides information about the National Transportation Safety Board's (NTSB) February 21, 2024, report *Collapse of the Fern Hollow Bridge, Pittsburgh, Pennsylvania, January 28, 2022*, NTSB/HIR-24-02. The details of this accident investigation and the resulting safety recommendations may be found in the attached report, which can also be accessed at <http://www.nts.gov>.

As a result of this investigation, we identified the following safety issues:

- Lack of action on repeated recommendations from the bridge inspection reports, including the City of Pittsburgh's (City) failure to maintain and repair the Fern Hollow Bridge and the Pennsylvania Department of Transportation's (PennDOT) failure to ensure that the City completed the maintenance and repairs specified in the recommendations from the bridge inspection reports
- PennDOT's ineffective bridge inspection program, which used bridge inspection methods and measures that were noncompliant with Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials guidance, failed to identify all of the bridge's fracture-critical members, and produced inaccurate bridge load rating calculations
- Insufficient oversight by the City, PennDOT, and the FHWA of their responsibilities within the bridge inspection program to detect and prevent bridge failures

Accordingly, the NTSB makes the following safety recommendations to the FHWA. Additional information regarding these recommendations can be found in the noted sections of the report.

- Require state departments of transportation, as well as federal agencies and tribal communities that own and operate bridges, to conduct a one-time review of the existing fracture-critical member (nonredundant steel tension member) inspection plans for bridges with nonredundant steel frame leg designs in their inventory, and update these plans as necessary to ensure that all fracture-critical members, especially those in the legs, have been properly identified and accounted for in the fracture-critical member inspection plans and inspections. (H-24-1) (See section 2.4.2.)
- Update your *Bridge Inspector's Reference Manual* to include guidance that addresses the identification of localized tension zones and tension components in nonredundant steel members that are generally considered to be fully or partially in compression. (H-24-2) (See section 2.4.2.)
- Update your *Bridge Inspector's Reference Manual* and bridge inspection training courses to include reference material on the selection, frequency of use, and application of non-destructive inspection methods for assessing the wearing surface thickness on bridge decks. (H-24-3) (See section 2.4.3.1.)
- Establish a process for conducting targeted reviews of the safety issues identified in this investigation, to include at a minimum (1) an evaluation of bridge owners' determinations of the need to conduct new load ratings of bridges with advancing deterioration, and (2) an evaluation of inspection reports on bridges with advanced deterioration to determine if the assumptions and methods used in the load rating calculations are correct; and incorporate the results of these reviews into the *National Bridge Inspection Program Compliance Review Manual* as necessary. (H-24-4) (See section 2.5.3.1.)
- Incorporate the findings of the Fern Hollow Bridge collapse investigation into your bridge inspection training courses and use the Fern Hollow Bridge as a case study to emphasize the need to complete maintenance and repair recommendations from inspection

reports, follow guidance to ensure that bridge inspections are properly performed, correctly identify fracture-critical members, and correctly calculate load rating analyses. (H-24-5) (See section 2.5.3.2.)

In the same report, we also classified one previously issued safety recommendation to the FHWA:

- Develop a risk-based, data-driven process and encourage its use by state Departments of Transportation, as well as highway-bridge-owning federal agencies and tribal governments, to help them identify, prioritize, and perform follow-up actions documented in inspections of bridges with uncoated weathering steel components. (H-23-13, classified Closed–Acceptable Action in section 2.3.)

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement these recommendations. When replying, please refer to the safety recommendations by number (Safety Recommendations H-24-1 through -5). We encourage you to submit your response to ExecutiveSecretariat@ntsb.gov. If your reply, including attachments, exceeds 20 megabytes, please e-mail us at the same address for instructions on how to send larger documents. Please do not submit both an electronic copy and a hard copy of the same response.

Sincerely,

[Original Signed]

Jennifer Homendy
Chair

Cc: Joey Hartmann, PhD
Director, Office of Bridges and Structures
Federal Highway Administration

March 21, 2024

Mr. Michael Carroll
Secretary of Transportation
Pennsylvania Department of Transportation
Keystone Building
400 North St., Fifth floor
Harrisburg, Pennsylvania 17120

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in the other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA. We do not regulate the aviation industry; that is the responsibility of the FAA.

The attached letter from the NTSB Chair provides information about the NTSB's February 21, 2024, report *Collapse of the Fern Hollow Bridge, Pittsburgh, Pennsylvania, January 28, 2022*, NTSB/HIR-24-02. The details of this accident investigation and the resulting safety recommendation may be found in the attached report, which can also be accessed at <http://www.nts.gov>. For more information about NTSB and our recommendation process, please see the attached one-page summary.

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement these recommendations. When replying, please refer to the safety recommendation by number (for example, H-24-6 and H-24-7). We encourage you to submit your response to ExecutiveSecretariat@nts.gov. If your reply exceeds 20 megabytes, including attachments, please e-mail us at the same address for instructions on how to send larger documents. Please do not submit both an electronic copy and a hard copy of the same response.

All communications regarding safety recommendations will be stored by the NTSB and viewable by the public. Please do not send privileged or confidential communications in response to this recommendation. Responses marked as confidential or privileged (or similar designations) will be considered nonresponsive.

If you have concerns about this protocol, please contact us at ExecutiveSecretariat@ntsb.gov.



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National Transportation Safety Board

Office of the Chair
Washington, DC 20594



March 21, 2024

Mr. Michael Carroll
Secretary of Transportation
Pennsylvania Department of Transportation
Keystone Building
400 North St., Fifth floor
Harrisburg, Pennsylvania 17120

Dear Secretary Carroll:

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in the other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

We are providing the following information to urge the Pennsylvania Department of Transportation (PennDOT) to act on the safety recommendations in this letter because we believe your department can help reduce the risk of future accidents. For more information about the NTSB and our recommendation process, please see the attached one-page summary.

This letter also includes information about our February 21, 2024, report *Collapse of the Fern Hollow Bridge, Pittsburgh, Pennsylvania, January 28, 2022*, NTSB/HIR-24-02. The details of this accident investigation and the resulting safety recommendations may be found in the attached report, which can also be accessed at <http://www.nts.gov>.

As a result of this investigation, we identified the following safety issues:

- Lack of action on repeated recommendations from the bridge inspection reports, including the City of Pittsburgh's (City) failure to maintain and repair the Fern Hollow Bridge and PennDOT's failure to ensure that the City completed the maintenance and repairs specified in the recommendations from the bridge inspection reports
- PennDOT's ineffective bridge inspection program, which used bridge inspection methods and measures that were noncompliant with Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials guidance, failed to identify all of the bridge's fracture-critical members, and produced inaccurate bridge load rating calculations
- Insufficient oversight by the City, PennDOT, and the FHWA of their responsibilities within the bridge inspection program to detect and prevent bridge failures

Accordingly, the NTSB makes the following safety recommendations to PennDOT. Additional information regarding these recommendations can be found in the noted sections of the report.

- Lead the effort to evaluate and publish a report documenting the effectiveness of the changes made by the City of Pittsburgh to ensure that bridges are safe for the traveling public. Evaluated changes should include completing necessary bridge maintenance and repair recommendations and confirming that bridges have correct load ratings that account for deterioration. (H-24-6) (See section 2.5.1.)
- Develop and implement a plan to publish yearly aggregate data on bridge maintenance and repair recommendations to monitor completion of these recommendations. (H-24-7) (See section 2.5.2.)

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement these recommendations. When replying, please refer to the safety recommendations by number (Safety Recommendations H-24-6 and -7). We encourage you to submit your response to ExecutiveSecretariat@ntsb.gov. If your reply, including attachments, exceeds 20 megabytes, please e-mail us at the same

address for instructions on how to send larger documents. Please do not submit both an electronic copy and a hard copy of the same response.

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Sincerely,

[Original Signed]

Jennifer Homendy
Chair

Cc: Richard Runyen
Director, Bureau of Bridge
Pennsylvania Department of Transportation

March 21, 2024

Mayor Ed Gainey
City of Pittsburgh
414 Grant Street
5th Floor
Pittsburgh, Pennsylvania, 15219

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in the other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA. We do not regulate the aviation industry; that is the responsibility of the FAA.

The attached letter from the NTSB Chair provides information about the NTSB's February 21, 2024, report *Collapse of the Fern Hollow Bridge, Pittsburgh, Pennsylvania, January 28, 2022*, NTSB/HIR-24-02. The details of this accident investigation and the resulting safety recommendation may be found in the attached report, which can also be accessed at <http://www.nts.gov>. For more information about NTSB and our recommendation process, please see the attached one-page summary.

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement these recommendations. When replying, please refer to the safety recommendation by number (for example, H-24-8 and H-24-9). We encourage you to submit your response to ExecutiveSecretariat@nts.gov. If your reply exceeds 20 megabytes, including attachments, please e-mail us at the same address for instructions on how to send larger documents. Please do not submit both an electronic copy and a hard copy of the same response.

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National Transportation Safety Board

Office of the Chair
Washington, DC 20594



March 21, 2024

Mayor Ed Gainey
City of Pittsburgh
414 Grant Street
5th Floor
Pittsburgh, Pennsylvania, 15219

Dear Mayor Gainey:

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in the other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA.

We are providing the following information to urge the City of Pittsburgh (City) to act on the safety recommendations in this letter because we believe your administration can help reduce the risk of future accidents. For more information about the NTSB and our recommendation process, please see the attached one-page summary.

This letter also includes information about our February 21, 2024, report *Collapse of the Fern Hollow Bridge, Pittsburgh, Pennsylvania, January 28, 2022*, NTSB/HIR-24-02. The details of this accident investigation and the resulting safety recommendations may be found in the attached report, which can also be accessed at <http://www.nts.gov>.

As a result of this investigation, we identified the following safety issues:

- Lack of action on repeated recommendations from the bridge inspection reports, including the City's failure to maintain and repair the Fern Hollow Bridge and the Pennsylvania Department of

Transportation's (PennDOT) failure to ensure that the City completed the maintenance and repairs specified in the recommendations from the bridge inspection reports

- PennDOT's ineffective bridge inspection program, which used bridge inspection methods and measures that were noncompliant with Federal Highway Administration (FHWA) and American Association of State Highway and Transportation Officials guidance, failed to identify all of the bridge's fracture-critical members, and produced inaccurate bridge load rating calculations
- Insufficient oversight by the City, PennDOT, and the FHWA of their responsibilities within the bridge inspection program to detect and prevent bridge failures

Accordingly, the NTSB makes the following safety recommendations to the City. Additional information regarding these recommendations can be found in the noted sections of the report.

- Establish a system to ensure that you maintain paving records indicating how much asphalt wearing surface is removed and how much is subsequently placed during every bridge resurfacing operation. (H-24-8) (See section 2.4.3.1.)
- Work with the Pennsylvania Department of Transportation to evaluate the effectiveness of the changes made by the City of Pittsburgh to ensure that bridges are safe for the traveling public. Evaluated changes should include completing necessary bridge maintenance and repair recommendations and confirming that bridges have correct load ratings that account for deterioration. (H-24-9) (See section 2.5.1.)

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Sincerely,

[Original Signed]

Jennifer Homendy
Chair

Cc: Eric Setzler
Chief Engineer, Department of Mobility and Infrastructure
City of Pittsburgh

March 21, 2024

Jim Tymon
Executive Director
American Association of State Highway and Transportation Officials
555 12th Street NW, Suite 1000
Washington, DC 20004

The NTSB is an independent federal agency charged by Congress with investigating every civil aviation accident in the United States and significant events in the other modes of transportation—railroad, transit, highway, marine, pipeline, and commercial space. We determine the probable causes of the accidents and events we investigate and issue safety recommendations aimed at preventing future occurrences. In addition, we conduct transportation safety research studies and offer information and other assistance to family members and survivors for each accident or event we investigate. We also serve as the appellate authority for enforcement actions involving aviation and mariner certificates issued by the Federal Aviation Administration (FAA) and US Coast Guard, and we adjudicate appeals of civil penalty actions taken by the FAA. We do not regulate the aviation industry; that is the responsibility of the FAA.

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National Transportation Safety Board

Office of the Chair
Washington, DC 20594



March 21, 2024

Jim Tymon
Executive Director
American Association of State Highway and Transportation Officials
555 12th Street NW, Suite 1000
Washington, DC 20004

Dear Mr. Tymon:

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We are providing the following information to urge the American Association of State Highway and Transportation Officials (AASHTO) to act on the safety recommendations in this letter because we believe your organization can help reduce the risk of future accidents. For more information about the NTSB and our recommendation process, please see the attached one-page summary.

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Department of Transportation's (PennDOT) failure to ensure that the City completed the maintenance and repairs specified in the recommendations from the bridge inspection reports

- PennDOT's ineffective bridge inspection program, which used bridge inspection methods and measures that were noncompliant with Federal Highway Administration (FHWA) and AASHTO guidance, failed to identify all of the bridge's fracture-critical members, and produced inaccurate bridge load rating calculations
- Insufficient oversight by the City, PennDOT, and the FHWA of their responsibilities within the bridge inspection program to detect and prevent bridge failures

Accordingly, the NTSB makes the following safety recommendations to AASHTO. Additional information regarding these recommendations can be found in the noted sections of the report.

- Update your *Manual for Bridge Evaluation* to include guidance that addresses the identification of localized tension zones and tension components in nonredundant steel members that are generally considered to be fully or partially in compression. (H-24-10) (See section 2.4.2.)
- Update your *Manual for Bridge Evaluation* to include reference material on the selection, frequency of use, and application of non-destructive inspection methods for assessing the wearing surface thickness on bridge decks. (H-24-11) (See section 2.4.3.1.)

The NTSB is vitally interested in these recommendations because they are designed to prevent accidents and save lives. We would appreciate a response within 90 days of the date of this letter, detailing the actions you have taken or intend to take to implement these recommendations. When replying, please refer to the safety recommendations by number (Safety Recommendations H-24-10 and -11). We encourage you to submit your response to ExecutiveSecretariat@ntsb.gov. If your reply, including attachments, exceeds 20 megabytes, please e-mail us at the same address for instructions on how to send larger documents. Please do not submit both an electronic copy and a hard copy of the same response.

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Sincerely,

[Original Signed]

Jennifer Homendy
Chair

Cc: Patricia Bush
Program Manager for Engineering
American Association of State Highway and Transportation Officials