



Second-Party Opinion

# Norfolk Southern Green Financing Framework

## Evaluation Summary

Sustainalytics is of the opinion that the Norfolk Southern Green Financing Framework is credible and impactful and aligns to the four core components of the Green Bond Principles 2018. This assessment is based on the following:



**USE OF PROCEEDS** The eligible categories for the use of proceeds – Clean Transportation, Renewable Energy, Energy Efficiency, Green Buildings, Pollution Prevention and Control, and Environmentally Sustainable Management of Living Natural Resources and Land Use – are aligned with those recognized by the Green Bond Principles 2018. Sustainalytics considers that investments in the eligible categories will lead to positive environmental impacts and advance the UN Sustainable Development Goals (“SDGs”), specifically SDGs 7, 9, 12, and 15.



**PROJECT EVALUATION / SELECTION** Norfolk Southern Corporation’s Treasury Department, along with its Chief Sustainability Officer, will be responsible for evaluating and recommending the potentially Eligible Projects to its Green Finance Working Group, comprising members from its Finance Division, and Law, Sustainability, and Internal Audit departments, which will provide the final approval. Sustainalytics considers the project selection process to be in line with market practice.



**MANAGEMENT OF PROCEEDS** Norfolk Southern Corporation’s Finance Division will be responsible for the allocation and management of the bond proceeds. Norfolk Southern Corporation intends to allocate majority of the proceeds within 36 months from the date of bond issuance. The unallocated proceeds will be managed per the Issuer’s normal liquidity practices. This is in line with market practice.



**REPORTING** Norfolk Southern Corporation intends to publish Allocation Reports on its website on an annual basis until full allocation. The allocation reporting is expected to include category-level allocations made to Eligible Projects, and the balance of unallocated proceeds. In addition, Norfolk Southern Corporation intends to report on relevant quantitative impact where feasible and has provided indicative metrics within the Framework. Sustainalytics views Norfolk Southern Corporation’s allocation and impact reporting as aligned with market practice.

**Evaluation Date** April 28, 2021

**Issuer Location** Norfolk, U.S.

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## Introduction

Norfolk Southern Corporation (“Norfolk Southern”, or the “Issuer”) is a major freight railroad headquartered in Virginia, U.S., that is primarily engaged in the rail transportation of raw materials, intermediate products, and finished goods within the country. The Issuer also transports overseas freight through several Atlantic and Gulf Coast ports. As of December 2020, the Issuer had over 19,000 employees and reported around US\$9.8 billion in annual railway operating revenues.<sup>1</sup>

Norfolk Southern has developed the Norfolk Southern Green Financing Framework (the “Framework”) under which it intends to issue one or more green bonds and use the proceeds to finance and/or refinance, in whole or in part, existing and/or future projects that are expected to create positive environmental impacts. The Framework defines eligibility criteria in six areas:

1. Clean Transportation
2. Renewable Energy
3. Energy Efficiency
4. Green Buildings
5. Pollution Prevention and Control
6. Environmentally Sustainable Management of Living Natural Resources and Land Use (“Environmentally Sustainable Management”)

Norfolk Southern engaged Sustainalytics to review the Norfolk Southern Green Financing Framework, dated April 2021, and provide a Second-Party Opinion on the Framework’s environmental credentials and its alignment with the Green Bond Principles 2018 (GBP).<sup>2</sup> This Framework has been published in a separate document.<sup>3</sup>

### Scope of work and limitations of Sustainalytics’ Second-Party Opinion

Sustainalytics’ Second-Party Opinion reflects Sustainalytics’ independent<sup>4</sup> opinion on the alignment of the reviewed Framework with the current market standards and the extent to which the eligible project categories are credible and impactful.

As part of the Second-Party Opinion, Sustainalytics assessed the following:

- The Framework’s alignment with the Green Bond Principles 2018, as administered by ICMA;
- The credibility and anticipated positive impacts of the use of proceeds; and
- The alignment of the issuer’s sustainability strategy and performance and sustainability risk management in relation to the use of proceeds.

For the use of proceeds assessment, Sustainalytics relied on its internal taxonomy, version 1.8, which is informed by market practice and Sustainalytics’ expertise as an ESG research provider.

As part of this engagement, Sustainalytics held conversations with various members of Norfolk Southern’s management team to understand the sustainability impact of their business processes and planned use of proceeds, as well as management of proceeds and reporting aspects of the Framework. Norfolk Southern representatives have confirmed (1) they understand it is the sole responsibility of Norfolk Southern to ensure that the information provided is complete, accurate or up to date; (2) that they have provided Sustainalytics with all relevant information and (3) that any provided material information has been duly disclosed in a timely manner. Sustainalytics also reviewed relevant public documents and non-public information.

This document contains Sustainalytics’ opinion of the Framework and should be read in conjunction with that Framework.

<sup>1</sup> Norfolk Southern report, “2020 Annual Report” (p2), at: <http://www.nscorp.com/content/dam/nscorp/get-to-know-us/investor-relations/annual-reports/annual-report-2020.pdf>

<sup>2</sup> The Green Bond Principles are administered by the International Capital Market Association and are available at <https://www.icmagroup.org/green-social-and-sustainability-bonds/green-bond-principles-gbp/>.

<sup>3</sup> The Norfolk Southern Green Financing Framework is available on Norfolk Southern Corporation’s website at: <http://www.nscorp.com/content/dam/nscorp/get-to-know-us/about-us/environment/sustainability/better-planet/Green-Financing-Framework-2021.pdf>

<sup>4</sup> When operating multiple lines of business that serve a variety of client types, objective research is a cornerstone of Sustainalytics and ensuring analyst independence is paramount to producing objective, actionable research. Sustainalytics has therefore put in place a robust conflict management framework that specifically addresses the need for analyst independence, consistency of process, structural separation of commercial and research (and engagement) teams, data protection and systems separation. Last but not the least, analyst compensation is not directly tied to specific commercial outcomes. One of Sustainalytics’ hallmarks is integrity, another is transparency.

Any update of the present Second-Party Opinion will be conducted according to the agreed engagement conditions between Sustainalytics and Norfolk Southern.

Sustainalytics' Second-Party Opinion, while reflecting on the alignment of the Framework with market standards, is no guarantee of alignment nor warrants any alignment with future versions of relevant market standards. Furthermore, Sustainalytics' Second-Party Opinion addresses the anticipated impacts of eligible projects expected to be financed with bond proceeds but does not measure the actual impact. The measurement and reporting of the impact achieved through projects financed under the Framework is the responsibility of the Framework owner.

In addition, the Second-Party Opinion opines on the potential allocation of proceeds but does not guarantee the realised allocation of the bond proceeds towards eligible activities.

No information provided by Sustainalytics under the present Second-Party Opinion shall be considered as being a statement, representation, warrant or argument, either in favour or against, the truthfulness, reliability or completeness of any facts or statements and related surrounding circumstances that Norfolk Southern has made available to Sustainalytics for the purpose of this Second-Party Opinion.

## Sustainalytics' Opinion

### Section 1: Sustainalytics' Opinion on the Norfolk Southern Green Financing Framework

Sustainalytics is of the opinion that the Norfolk Southern Green Financing Framework is credible and impactful and aligns to the four core components of the GBP. Sustainalytics highlights the following elements of Norfolk Southern's Green Financing Framework:

- Use of Proceeds:
  - The eligible categories – Clean Transportation, Renewable Energy, Energy Efficiency, Green Buildings, Pollution Prevention and Control, and Environmentally Sustainable Management – are aligned with those recognized by the GBP.
  - Norfolk Southern has indicated a two-year look-back period for its refinancing activities, which Sustainalytics considers to be in line with market practice.
  - Under the Clean Transportation category, Norfolk Southern intends to finance expenditures related to low-carbon transportation and associated infrastructure including, among other things: (i) the purchase of low-emission locomotives and other rolling stock, (ii) acquisition and installation of technological improvements for its existing locomotives, including its DC to AC conversion program,<sup>5</sup> aimed at improving their fuel consumption and greenhouse gas ("GHG") emission profile, (iii) energy efficient technological solutions for its road fleet, (iv) railway infrastructural upgrades, in particular, purchase and installation of new sidings, double-tracks, rails, ties, and ballasts, and (v) replacement and expansion of identified intermodal facilities as well as the Issuer's Thoroughbred Bulk Terminals.<sup>6</sup>
    - For expenditures related to the purchase or technological improvements of its rolling stock, the Issuer has communicated that it intends to direct investments in energy and fuel-efficient upgrades that will help it maintain its emission levels well below its 2030 emission threshold for freight activities (21 gCO<sub>2</sub>/t-km),<sup>7</sup> in line with the decarbonization trajectory included in International Energy Agency's 2 Degree Scenario mobility model.<sup>8</sup> While Sustainalytics views the intended emission threshold favorably, it notes that the Framework does not commit to this threshold as a criterion for making investments in rolling stock, and considers this to be a limitation to the Framework. Nonetheless, Sustainalytics recognizes the Issuer's efforts in promoting low-carbon

<sup>5</sup> Norfolk Southern report, "2020 Corporate Responsibility Report" (p8), at: <http://nscorp.com/content/dam/nscorp/get-to-know-ns/about-ns/environment/NS-2020-CRR-report.pdf>

<sup>6</sup> Norfolk Southern website, "Bulk Facilities", at: <http://www.nscorp.com/content/nscorp/en/shipping-options/transload-network.html>

<sup>7</sup> Sustainalytics notes that in 2020, the Scope 1 emission intensity of Norfolk Southern's existing railroad operations was estimated at around 16.3gCO<sub>2</sub>/t-km. More information at: <http://nscorp.com/content/dam/nscorp/get-to-know-ns/about-ns/environment/NS-2020-CRR-report.pdf>

<sup>8</sup> Climate Bond Initiative website, "Low Carbon Transport", at: <https://www.climatebonds.net/standard/transport>

- freight transportation (refer to Section 2 for more details) and encourages the Issuer to continue reporting on its progress in this area in order to provide assurance of the impacts achieved by these investments.
- For the financing of technological solutions and railway infrastructural upgrades, Sustainalytics recognizes that the investments support the optimization of transport use, duration and/or distance in many cases, thus hold potential to reduce fuel consumption and associated GHG emissions.
  - For investments in intermodal facilities, Sustainalytics recognizes the Issuer's intention of promoting the modal shift of freight transportation from trucks to railroads, which have a potential to reduce GHG emissions by 75% compared to trucks,<sup>9</sup> and considers these investments to be aligned with market practice. Refer to Section 3 for further discussion on the environmental impacts of promoting clean freight transportation.
- Under the Renewable Energy category, the Issuer may finance expenditures related to renewable energy projects, including solar photovoltaic power, and the purchase of long-term (more than five years) power purchase agreements ("PPAs") and virtual PPAs with solar and wind energy projects. Sustainalytics views the criteria to be aligned with market practice.
  - For the Energy Efficiency category, the Framework allows for investments in energy efficiency upgrades related to lighting, and heating, ventilation, and air conditioning. Sustainalytics considers investments in energy efficient improvements to be aligned with market practice.
  - Under the Green Buildings category, the Issuer intends to finance the construction or improvements of buildings that have achieved a nationally or internationally recognized green building certification. Sustainalytics views the scheme specified by the Framework – LEED ("Gold" or above) – to be credible and the levels selected to be indicative of positive impact and aligned with market practice. For Sustainalytics' assessment of this certification, please refer to Appendix 1.
  - Under the Pollution Prevention and Control category, Norfolk Southern intends to finance expenditures related to programs aimed at (i) reducing or eliminating waste to landfill sites, and (ii) recycling and recovery of waste.
    - For efforts related to waste diversion activities, the Issuer has communicated that it intends to finance primarily capital expenditures associated with managing waste from railroad ties. Sustainalytics recognizes the benefits of investments in initiatives that divert waste from landfill and consider them to be aligned with market practice.
  - Under the Environmentally Sustainable Management category, the Framework includes investments in partnership-based land restoration projects, such as living shoreline restoration,<sup>10</sup> and reforestation projects.<sup>11</sup> Please refer to Section 2 for details on the Issuer's efforts in this area. Sustainalytics views conservation activities to be aligned with market practice.
- Project Evaluation and Selection:
    - Norfolk Southern's Treasury Department, along with its Chief Sustainability Officer, will be responsible for evaluating and recommending the potentially Eligible Projects to the Issuer's Green Finance Working Group comprising of members from its Treasury, Accounting, Financial Planning & Analysis and Investor Relations teams (collectively, the "Finance Division"), and its Law, Sustainability, and Internal Audit departments.
    - The Green Finance Working Group will provide the final approval on Eligible Projects based on the criteria defined in the Framework and determine the expected bond proceed allocation across selected projects.
    - Based on the clear delineation of responsibility, Sustainalytics considers this process to be in line with market practice.
  - Management of Proceeds:
    - Norfolk Southern's Finance Division will be responsible for the allocation and management of the bond proceeds.

<sup>9</sup> Association of American Railroads, "Freight Railroads & Climate Change" (p2), at: <https://www.aar.org/wp-content/uploads/2021/02/AAR-Climate-Change-Report.pdf>

<sup>10</sup> Norfolk Southern website, "Living Shoreline", at: <http://www.nscorp.com/content/nscorp/en/about-ns/sustainability/living-shoreline.html>

<sup>11</sup> Norfolk Southern website, "Trees and Trains", at: <http://www.nscorp.com/content/nscorp/en/about-ns/sustainability/trees-and-trains.html>

- Norfolk Southern intends to allocate majority of the proceeds within 36 months from the date of bond issuance. The unallocated proceeds will be managed per the Issuer's normal liquidity practices.
- Based on the stated internal processes, Sustainalytics considers this process to be in line with market practice.
- Reporting:
  - The Issuer intends to publish Allocation Report(s) on its website to report on the allocation and the impact of proceeds on an annual basis until full allocation, and thereafter in case of any material developments.
  - The Allocation Reports are expected to include category-level allocations made to Eligible Projects and the balance to unallocated proceeds. In addition, the Issuer intends to seek assurance on the allocation reporting.
  - Where feasible, the impact reporting is expected to provide category-wide quantitative impact of the projects against respective key performance indicators including (i) reduction in Scope 1 and Scope 2 emissions, (ii) reduction in energy consumption, and (iii) percentage of waste diverted, along with narrative-based or qualitative reporting.
  - Based on Norfolk Southern's commitment to allocation reporting and, where feasible, impact reporting, Sustainalytics considers this process to be in line with market practice.

### Alignment with Green Bond Principles 2018

Sustainalytics has determined that the Norfolk Southern Green Financing Framework aligns to the four core components of the GBP. For detailed information please refer to Appendix 2: Green Bond/Green Bond Programme External Review Form.

## Section 2: Sustainability Strategy of Norfolk Southern

### Contribution of framework to Norfolk Southern Corporation's sustainability strategy

Sustainalytics is of the opinion that Norfolk Southern demonstrates a commitment to sustainability with a focus on reducing the environmental impact of operations through the adoption of low-carbon transportation infrastructure, and waste management and land conservation or restoration initiatives.

Sustainalytics highlights the following aspects of the Issuer's strategy for being particularly aligned with the Framework:

- Low-carbon fleet: As part of improving the efficiency of its rail operations, Norfolk Southern set a target in 2015 to improve its fuel efficiency by 8.6% over five years.<sup>12</sup> Between 2015 and 2020, it exceeded this target with a 9.4% improvement in fuel efficiency.<sup>13</sup> As of Q2 of 2020, it had retired nearly 1,000 older locomotives.<sup>14</sup> The Issuer has confirmed that it also expects to convert 600 DC locomotives to use AC technology, resulting in more pulling power, reliability and reduced fuel use. The Issuer is investing in predictive analysis and automation systems to improve the efficiency of its operations. For example, 100% of its road locomotive fleet is being equipped with advanced energy management technology to achieve optimum fuel efficiency.<sup>15</sup> It also has an Optimized Terminal Control System to automate and streamline operations at intermodal rail facilities, resulting in less fuel consumption and emissions.<sup>16</sup>
- Waste management: Norfolk Southern commits to reducing and recycling waste generated through its operations and divert them from landfills. As a part of the Operation Clean Sweep Pledge to eliminate plastic pollution, the Issuer is working to achieve zero loss of plastic resin into the environment from rail operations.<sup>17</sup> In FY2019, the Issuer diverted around 284,000 tons or 66% of the waste generated at its rail facilities from landfills.

<sup>12</sup> Norfolk Southern website, "2015 Fuel Efficiency Scorecard", at: <http://nssustainability.com/planet/efficiency.php>

<sup>13</sup> Norfolk Southern report, "2021 Notice of the Annual Meeting of the Shareholders and Proxy Statement" (p8), at:

[http://nscorp.com/content/dam/nscorp/get-to-know-nsc/investor-relations/proxy-statements/nsc\\_proxy\\_2021.pdf](http://nscorp.com/content/dam/nscorp/get-to-know-nsc/investor-relations/proxy-statements/nsc_proxy_2021.pdf)

<sup>14</sup> Norfolk Southern report, "2020 Corporate Responsibility Report" (p8), at: <http://nscorp.com/content/dam/nscorp/get-to-know-nsc/about-nsc/environment/NS-2020-CRR-report.pdf>

<sup>15</sup> Norfolk Southern report, "2020 Corporate Responsibility Report" (p8), at: <http://nscorp.com/content/dam/nscorp/get-to-know-nsc/about-nsc/environment/NS-2020-CRR-report.pdf>

<sup>16</sup> Norfolk Southern website, "Corporate Responsibility", at: <http://www.nscorp.com/content/nscorp/en/about-nsc/sustainability.html>

<sup>17</sup> Norfolk Southern report, "2020 Corporate Responsibility Report" (p9), at: <http://nscorp.com/content/dam/nscorp/get-to-know-nsc/about-nsc/environment/NS-2020-CRR-report.pdf>

- Land conservation: The Issuer's "Trees and Trains" project focuses on reforestation 10,000 acres with 6 million trees, capturing over 50,000 metric tons of CO<sub>2</sub> each year.<sup>18</sup> It has also communicated the completion of the restoration of 300 acres of wetland area in 2017. The Issuer also led the Living Shoreline project to transform 9 acres of severely eroded shoreline at the Lambert's Point railroad terminal into a wetland habitat for native grass, fish and wildlife.<sup>19</sup>

Sustainalytics notes that Norfolk Southern is exploring the integration of ESG criteria into investment and financing strategies and intends to incorporate new targets and encourages the Issuer to make them available publicly when finalized. Sustainalytics is of the opinion that the Norfolk Southern Green Financing Framework is aligned with the Issuer's overall sustainability strategy and initiatives and will further the Issuer's action on its key environmental priorities.

### **Well-positioned to address common environmental and social risks associated with the projects**

Sustainalytics recognizes that the net proceeds from the bonds issued under the Framework will be directed towards eligible projects that are expected to have positive environmental impacts. However, in the context of investments in this Framework, Sustainalytics is aware that such eligible projects could also lead to negative environmental and social outcomes. Some key environmental and social risks associated with the eligible projects, could include air pollution, waste management, and health and safety of workers and community.

Sustainalytics is of the opinion that Norfolk Southern is able to manage and/or mitigate potential risks through implementation of the following:

- As part of its Eco-locomotive Initiative, Norfolk Southern is upgrading older locomotives to cleaner ones to reduce air pollution and comply with the Federal Clean Air Attainment standards. It uses an idle-reduction technology to enable locomotives that are not needed for operations to be turned off while simultaneously using a plug-in system to charge batteries and heat engines. This protects engines from freezing in the cold weather while reducing emissions and noise.<sup>20</sup>
- Norfolk Southern's waste management partners are compliant with regulations and policies around the management and recycling of operational waste, including e-waste. In the case of the U.S., federal regulations under the Resource Conservation and Recovery Act guide the management of hazardous and non-hazardous waste<sup>21</sup> and around 25 states have also adopted legislations around e-waste recycling.<sup>22</sup> Further, the Issuer reported that all hazardous waste is managed in compliance with applicable state and federal laws governing hazardous waste.<sup>23</sup>
- As of Q2 of 2020, Norfolk Southern invested US\$2.0 billion in positive train control safety technology.<sup>24</sup> In 2020, Norfolk Southern's Board of Directors established a Safety Committee to review and monitor the safety program.<sup>25</sup> Norfolk Southern complies with federal and state regulations regarding handling and transportation of waste and hazardous materials. For example, the Federal Resource Conservation and Recovery Act has provisions for tracking, storage and handling of such materials at transfer facilities, during transport, and in the case of accidents and spills. Norfolk Southern also has internal guidelines in place for handling such materials.<sup>26</sup> It is also actively involved in voluntary efforts to help communities prepare for and respond to hazardous transport incidents. In 2015, it launched its Operation Awareness & Response program<sup>27</sup> to strengthen relationships with first responders across its network by providing training and resources. For example, it provides training on the AskRail app which allows first responders to look up

<sup>18</sup> *Ibid.*

<sup>19</sup> Norfolk Southern website, "Norfolk Southern's living shoreline initiative is good for the environment, community and business", at: <http://www.nscorp.com/content/nscorp/en/news/norfolk-southerns-living-shoreline-initiative-is-good-for-the-en.html>

<sup>20</sup> Norfolk Southern website, "Corporate Responsibility", at: <http://www.nscorp.com/content/nscorp/en/about-ns/sustainability.html>

<sup>21</sup> United States Environmental Protection Agency website, "Regulatory Information by Topic: Waste", at: <https://www.epa.gov/regulatory-information-topic/regulatory-information-topic-waste>

<sup>22</sup> National Center for Electronics Recycling website, "Laws", at: [https://www.electronicrecycling.org/?page\\_id=39](https://www.electronicrecycling.org/?page_id=39)

<sup>23</sup> Norfolk Southern report, "2020 Corporate Responsibility Report" (pDS-5), at: <http://nscorp.com/content/dam/nscorp/get-to-know-ns/about-ns/environment/NS-2020-CRR-report.pdf>

<sup>24</sup> Norfolk Southern report, "2021 Notice of the Annual Meeting of the Shareholders and Proxy Statement" (p7), at: [http://nscorp.com/content/dam/nscorp/get-to-know-ns/investor-relations/proxy-statements/nsc\\_proxy\\_2021.pdf](http://nscorp.com/content/dam/nscorp/get-to-know-ns/investor-relations/proxy-statements/nsc_proxy_2021.pdf)

<sup>25</sup> *Ibid.*

<sup>26</sup> Norfolk Southern website, "Rules for Municipal Solid Waste, Contaminated Soil, Hazardous Waste, and Others", at: <http://www.nscorp.com/content/nscorp/en/transportation-terms/other-requirements/rules-and-regulations-for-handling-municipal-solid-waste-contaminated-soil-hazardous-materials-and-related-articles.html>

<sup>27</sup> Norfolk Southern website report, "Safety", at: <http://www.nscorp.com/content/nscorp/en/about-ns/safety.html>



commodity and shipment information while responding to a rail emergency. In FY2019, 5,800 first responders were trained by Norfolk Southern across 21 states.<sup>28</sup>

Based on these policies, standards and assessments, Sustainalytics is of the opinion that Norfolk Southern has implemented adequate measures and is well-positioned to manage and mitigate environmental and social risks commonly associated with the eligible categories.

### Section 3: Impact of Use of Proceeds

All six use of proceeds categories are aligned with those recognized by the GBP. Sustainalytics has focused on clean freight transportation and green buildings below where the impact is specifically relevant in the local context.

#### Importance of clean freight transportation in the U.S.

The freight rail system in the U.S. accounts for about a quarter of the global freight rail activity as of 2019<sup>29</sup> and extends across 140,000 miles, moving more than 1.7 billion tons of goods annually.<sup>30</sup> In 2018, it accounted for nearly 33% of freight movement in the U.S.,<sup>31</sup> and yet, only 2% of the transport sector emissions.<sup>32</sup>

According to a study by the Association of American Railroads, transporting freight over railway is three to four times more fuel efficient than trucks and uses around 90% less energy than trucks per unit of freight. It also suggests that if 10% of freight transported by trucks moves to rail, it could save close to 17 million tons of GHG emissions.<sup>33</sup> Over the past two decades (from 2000 to 2019), freight rail has also seen an increase in fuel efficiency by 17%, because of improved operational practices and technological improvements such as fuel-efficient locomotives and fuel management systems.<sup>34</sup>

Based on the above, Sustainalytics is of the opinion that the expenditures made by Norfolk Southern to improve the efficiency of its rail operations are expected to have positive environmental benefits.

#### Importance of green buildings in the U.S.

In 2019, 55% of the global electricity consumption and 28% of CO<sub>2</sub> emissions came from buildings.<sup>35</sup> In the U.S., the buildings sector accounted for about 76% of electricity use and 40% of GHG emissions in the same year.<sup>36</sup> The World Green Building Council ("WGBC") points out that the decarbonization process in the building sector is slowing down globally (almost halving from 2016 to 2019) and all actors need to redouble their efforts to achieve WGBC's Net Zero Carbon Buildings Commitment for all buildings to be net-zero carbon by 2050. According to the Global Alliance for Buildings and Construction, although the spending for energy efficient buildings increased in 2019 at US\$152 billion, it is a small proportion of the US\$5.8 trillion spent in the building and construction sector that same year.<sup>37</sup>

In this context, Sustainalytics is of the opinion that the projects financed as part of the Framework are expected to provide positive environmental benefits in the green building sector.

<sup>28</sup> Norfolk Southern report, "2020 Corporate Responsibility Report" (p6), at: <http://nscorp.com/content/dam/nscorp/get-to-know-ns/about-ns/environment/NS-2020-CRR-report.pdf>

<sup>29</sup> International Energy Agency report, "The Future of Rail: Opportunities for energy and the environment", (2019), at: <https://webstore.iea.org/download/direct/2434>

<sup>30</sup> Association of American Railroads website, "Freight Rails in Your State", at: <https://www.aar.org/data-center/railroads-states/#:~:text=Workforce-Freight%20Rail%20in%20Your%20State,that%20runs%20through%2049%20states>

<sup>31</sup> U.S. Department of Transportation website, "U.S. Ton-Miles of Freight", at: <https://www.bts.gov/content/us-ton-miles-freight>

<sup>32</sup> U.S. Environmental Protection Agency website, "Fast Facts on Transportation Greenhouse Gas Emissions", at: <https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions>

<sup>33</sup> Association of American Railroads report, "Freight Railroads and Climate Change", (2021), at: <https://www.aar.org/wp-content/uploads/2021/02/AAR-Climate-Change-Report.pdf>

<sup>34</sup> Association of American Railroads report, "Freight Railroads and Climate Change", (2021), at: <https://www.aar.org/wp-content/uploads/2021/02/AAR-Climate-Change-Report.pdf>

<sup>35</sup> United Nations Environment Programme report, "Global Status Report 2020", at: [https://globalabc.org/sites/default/files/inline-files/2020%20Buildings%20GSR\\_FULL%20REPORT.pdf](https://globalabc.org/sites/default/files/inline-files/2020%20Buildings%20GSR_FULL%20REPORT.pdf)

<sup>36</sup> U.S. Department of Energy report, "Quadrennial Technology Review: An Assessment of Energy Technologies and Research Opportunities", (2015), at: <https://www.energy.gov/sites/prod/files/2017/03/f34/qtr-2015-chapter5.pdf>

<sup>37</sup> Global Alliance for Buildings and Construction, "2020 Global Status Report for Buildings and Construction", (2020), at: [https://globalabc.org/sites/default/files/inline-files/Buildings%20GSR\\_Executive\\_Summary%20FINAL\\_0.pdf](https://globalabc.org/sites/default/files/inline-files/Buildings%20GSR_Executive_Summary%20FINAL_0.pdf)

### Alignment with/contribution to SDGs

The SDGs were set in September 2015 by the United Nations General Assembly and form an agenda for achieving sustainable development by the year 2030. The bonds issued under the Norfolk Southern Green Financing Framework advances the following SDGs and targets:

Use of Proceeds Category	SDG	SDG target
Clean Transportation	12. Responsible Consumption and Production	12.2 By 2030, achieve the sustainable management and efficient use of natural resources
Renewable Energy	7. Affordable and Clean Energy	7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
Energy Efficiency		7.3 By 2030, double the global rate of improvement in energy efficiency
Green Buildings	9. Industry, Innovation and Infrastructure	9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes, with all countries taking action in accordance with their respective capabilities
Pollution Prevention and Control	12. Responsible Consumption and Production	12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse
Environmentally Sustainable Management of Living Natural Resources and Land Use	15. Life on Land	15.2 By 2020, promote the implementation of sustainable management of all types of forests, halt deforestation, restore degraded forests and substantially increase afforestation and reforestation globally

### Conclusion

Norfolk Southern has developed the Norfolk Southern Green Financing Framework under which it may issue green bonds and the use of proceeds to finance and/or refinance a range of environmental projects related to low-carbon transportation and buildings, renewable energy, pollution prevention and control, and land restoration. Sustainalytics considers that the projects funded by the green bond proceeds are expected to have provide positive environmental impact.

The Framework outlines a process by which proceeds will be tracked, allocated, and managed, and commitments have been made for reporting on the allocation and impact of the use of proceeds. Furthermore, Sustainalytics believes that the Framework is aligned with the overall sustainability strategy of the Company and that the green use of proceeds categories will contribute to the advancement of the UN SDGs 7, 9, 12, and 15. Additionally, Sustainalytics is of the opinion that Norfolk Southern has adequate measures to identify, manage and mitigate environmental and social risks commonly associated with the eligible projects funded by the use of proceeds.

Based on the above, Sustainalytics is confident that Norfolk Southern Corporation is well-positioned to issue green bonds and that the Framework is robust, transparent, and in alignment with the four core components of the Green Bond Principles 2018.



## Appendices

### Appendix 1: Summary of the Referenced Green Building Certification Scheme

	LEED <sup>38</sup>
<b>Background</b>	Leadership in Energy and Environmental Design (LEED) is a US Certification System for residential and commercial buildings used worldwide. LEED was developed by the non-profit U.S. Green Building Council (USGBC) and covers the design, construction, maintenance and operation of buildings.
<b>Certification Levels</b>	<ul style="list-style-type: none"> <li>• Certified</li> <li>• Silver</li> <li>• Gold</li> <li>• Platinum</li> </ul>
<b>Areas of Assessment</b>	<ul style="list-style-type: none"> <li>• Energy and Atmosphere</li> <li>• Sustainable Sites</li> <li>• Location and Transportation</li> <li>• Materials and Resources</li> <li>• Water Efficiency</li> <li>• Indoor Environmental Quality</li> <li>• Innovation in Design</li> <li>• Regional Priority</li> </ul>
<b>Requirements</b>	<p>Prerequisites (independent of level of certification) + Credits with associated points.</p> <p>These points are then added together to obtain the LEED level of certification.</p> <p>There are several different rating systems within LEED. Each rating system is designed to apply to a specific sector (e.g. New Construction, Major Renovation, Core and Shell Development, Schools-/Retail-/Healthcare New Construction and Major Renovations, Existing Buildings: Operation and Maintenance).</p>
<b>Performance Display</b>	
<b>Accreditation</b>	<p>LEED AP BD+C</p> <p>LEED AP O+M</p>
<b>Qualitative Considerations</b>	Widely recognised internationally, and strong assurance of overall quality.

<sup>38</sup> USGBC, "LEED rating system", at: [www.usgbc.org/LEED](http://www.usgbc.org/LEED).

## Appendix 2: Green Bond / Green Bond Programme - External Review Form

### Section 1. Basic Information

Issuer name:	Norfolk Southern Corporation
Green Bond ISIN or Issuer Green Bond Framework Name, if applicable:	Norfolk Southern Green Financing Framework
Review provider's name:	Sustainalytics
Completion date of this form:	April 28, 2021
Publication date of review publication:	

### Section 2. Review overview

#### SCOPE OF REVIEW

The following may be used or adapted, where appropriate, to summarise the scope of the review.

The review assessed the following elements and confirmed their alignment with the GBP:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Use of Proceeds        | <input checked="" type="checkbox"/> Process for Project Evaluation and Selection |
| <input checked="" type="checkbox"/> Management of Proceeds | <input checked="" type="checkbox"/> Reporting                                    |

#### ROLE(S) OF REVIEW PROVIDER

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Consultancy (incl. 2 <sup>nd</sup> opinion) | <input type="checkbox"/> Certification |
| <input type="checkbox"/> Verification   | <input type="checkbox"/> Rating        |
| <input type="checkbox"/> Other <i>(please specify)</i> :                        |  |

Note: In case of multiple reviews / different providers, please provide separate forms for each review.

#### EXECUTIVE SUMMARY OF REVIEW and/or LINK TO FULL REVIEW *(if applicable)*

Please refer to Evaluation Summary above.

### Section 3. Detailed review

Reviewers are encouraged to provide the information below to the extent possible and use the comment section to explain the scope of their review.

#### 1. USE OF PROCEEDS

Overall comment on section *(if applicable)*:

The eligible categories for the use of proceeds – Clean Transportation, Renewable Energy, Energy Efficiency, Green Buildings, Pollution Prevention and Control, and Environmentally Sustainable Management of Living Natural Resources and Land Use – are aligned with those recognized by the Green Bond Principles 2018. Sustainalytics considers that investments in the eligible categories will lead to positive environmental impacts and advance the UN SDGs, specifically SDGs 7, 9, 12, and 15.

#### Use of proceeds categories as per GBP:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Renewable energy  | <input checked="" type="checkbox"/> Energy efficiency   |
| <input checked="" type="checkbox"/> Pollution prevention and control  | <input checked="" type="checkbox"/> Environmentally sustainable management of living natural resources and land use |
| <input type="checkbox"/> Terrestrial and aquatic biodiversity conservation  | <input checked="" type="checkbox"/> Clean transportation  |
| <input type="checkbox"/> Sustainable water and wastewater management  | <input type="checkbox"/> Climate change adaptation  |
| <input type="checkbox"/> Eco-efficient and/or circular economy adapted products, production technologies and processes                            | <input checked="" type="checkbox"/> Green buildings   |
| <input type="checkbox"/> Unknown at issuance but currently expected to conform with GBP categories, or other eligible areas not yet stated in GBP | <input type="checkbox"/> Other ( <i>please specify</i> ):   |

If applicable please specify the environmental taxonomy, if other than GBP:

## 2. PROCESS FOR PROJECT EVALUATION AND SELECTION

Overall comment on section (if applicable):

Norfolk Southern Corporation's Treasury Department, along with its Chief Sustainability Officer, will be responsible for evaluating and recommending the potentially Eligible Projects to its Green Finance Working Group, comprising members from its Finance Division, and Law, Sustainability, and Internal Audit departments, which will provide the final approval. Sustainalytics considers the project selection process to be in line with market practice.

#### Evaluation and selection

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Credentials on the issuer's environmental sustainability objectives            | <input checked="" type="checkbox"/> Documented process to determine that projects fit within defined categories    |
| <input checked="" type="checkbox"/> Defined and transparent criteria for projects eligible for Green Bond proceeds | <input type="checkbox"/> Documented process to identify and manage potential ESG risks associated with the project |
| <input type="checkbox"/> Summary criteria for project evaluation and selection publicly available                  | <input type="checkbox"/> Other ( <i>please specify</i> ):  |

**Information on Responsibilities and Accountability**

- ☒ Evaluation / Selection criteria subject to external advice or verification
 ☐ In-house assessment
- ☐ Other (please specify):

**3. MANAGEMENT OF PROCEEDS**

Overall comment on section (if applicable):

Norfolk Southern Corporation's Finance Division will be responsible for the allocation and management of the bond proceeds. Norfolk Southern Corporation intends to allocate majority of the proceeds within 36 months from the date of bond issuance. The unallocated proceeds will be managed per the Issuer's normal liquidity practices. This is in line with market practice.

**Tracking of proceeds:**

- ☒ Green Bond proceeds segregated or tracked by the issuer in an appropriate manner
- ☐ Disclosure of intended types of temporary investment instruments for unallocated proceeds
- ☐ Other (please specify):

**Additional disclosure:**

- |  |   |
|--|---|
| <input type="checkbox"/> Allocations to future investments only                  | <input checked="" type="checkbox"/> Allocations to both existing and future investments |
| <input type="checkbox"/> Allocation to individual disbursements                  | <input type="checkbox"/> Allocation to a portfolio of disbursements                     |
| <input type="checkbox"/> Disclosure of portfolio balance of unallocated proceeds | <input type="checkbox"/> Other (please specify):  |

**4. REPORTING**

Overall comment on section (if applicable):

Norfolk Southern Corporation intends to publish Allocation Reports on its website on an annual basis until full allocation. The allocation reporting is expected to include category-level allocations made to Eligible Projects, and the balance of unallocated proceeds. In addition, Norfolk Southern Corporation intends to report on relevant quantitative impact where feasible and has provided indicative metrics within the Framework. Sustainalytics views Norfolk Southern Corporation's allocation and impact reporting as aligned with market practice.

**Use of proceeds reporting:**

- ☐ Project-by-project
 ☒ On a project portfolio basis
- ☐ Linkage to individual bond(s)
 ☐ Other (please specify):

**Information reported:**

- ☒ Allocated amounts
 ☐ Green Bond financed share of total investment

☐ Other (please specify):

**Frequency:**

- ☒ Annual
 ☐ Semi-annual

☐ Other (please specify):

**Impact reporting:**

- ☐ Project-by-project
 ☒ On a project portfolio basis
- ☐ Linkage to individual bond(s)
 ☐ Other (please specify):

**Information reported (expected or ex-post):**

- ☒ GHG Emissions / Savings
 ☒ Energy Savings
- ☒ Decrease in water use
 ☒ Other ESG indicators (please specify): Number of buildings with LEED Gold, Platinum or an equivalent certification, and percentage of waste diverted.

**Frequency**

- ☒ Annual
 ☐ Semi-annual

☐ Other (please specify):

**Means of Disclosure**

- ☐ Information published in financial report
 ☐ Information published in sustainability report
- ☐ Information published in ad hoc documents
 ☒ Other (please specify): Allocation Reports on the Issuer's website
- ☐ Reporting reviewed (if yes, please specify which parts of the reporting are subject to external review):

Where appropriate, please specify name and date of publication in the useful links section.

**USEFUL LINKS** (e.g. to review provider methodology or credentials, to issuer's documentation, etc.)

**SPECIFY OTHER EXTERNAL REVIEWS AVAILABLE, IF APPROPRIATE****Type(s) of Review provided:**

- ☐ Consultancy (incl. 2<sup>nd</sup> opinion)
 ☐ Certification

☐ Verification / Audit

☐ Rating

☐ Other (*please specify*):

**Review provider(s):**
**Date of publication:**
**ABOUT ROLE(S) OF INDEPENDENT REVIEW PROVIDERS AS DEFINED BY THE GBP**

- i. **Second-Party Opinion:** An institution with environmental expertise, that is independent from the issuer may issue a Second-Party Opinion. The institution should be independent from the issuer's adviser for its Green Bond framework, or appropriate procedures, such as information barriers, will have been implemented within the institution to ensure the independence of the Second-Party Opinion. It normally entails an assessment of the alignment with the Green Bond Principles. In particular, it can include an assessment of the issuer's overarching objectives, strategy, policy and/or processes relating to environmental sustainability, and an evaluation of the environmental features of the type of projects intended for the Use of Proceeds.
- ii. **Verification:** An issuer can obtain independent verification against a designated set of criteria, typically pertaining to business processes and/or environmental criteria. Verification may focus on alignment with internal or external standards or claims made by the issuer. Also, evaluation of the environmentally sustainable features of underlying assets may be termed verification and may reference external criteria. Assurance or attestation regarding an issuer's internal tracking method for use of proceeds, allocation of funds from Green Bond proceeds, statement of environmental impact or alignment of reporting with the GBP, may also be termed verification.
- iii. **Certification:** An issuer can have its Green Bond or associated Green Bond framework or Use of Proceeds certified against a recognised external green standard or label. A standard or label defines specific criteria, and alignment with such criteria is normally tested by qualified, accredited third parties, which may verify consistency with the certification criteria.
- iv. **Green Bond Scoring/Rating:** An issuer can have its Green Bond, associated Green Bond framework or a key feature such as Use of Proceeds evaluated or assessed by qualified third parties, such as specialised research providers or rating agencies, according to an established scoring/rating methodology. The output may include a focus on environmental performance data, the process relative to the GBP, or another benchmark, such as a 2-degree climate change scenario. Such scoring/rating is distinct from credit ratings, which may nonetheless reflect material environmental risks.



## Disclaimer

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The issuer is fully responsible for certifying and ensuring the compliance with its commitments, for their implementation and monitoring.

In case of discrepancies between the English language and translated versions, the English language version shall prevail.

## About Sustainalytics, a Morningstar Company

Sustainalytics, a Morningstar Company, is a leading ESG research, ratings and data firm that supports investors around the world with the development and implementation of responsible investment strategies. The firm works with hundreds of the world's leading asset managers and pension funds who incorporate ESG and corporate governance information and assessments into their investment processes. The world's foremost issuers, from multinational corporations to financial institutions to governments, also rely on Sustainalytics for credible second-party opinions on green, social and sustainable bond frameworks. In 2020, Climate Bonds Initiative named Sustainalytics the "Largest Approved Verifier for Certified Climate Bonds" for the third consecutive year. The firm was also recognized by Environmental Finance as the "Largest External Reviewer" in 2020 for the second consecutive year. For more information, visit [www.sustainalytics.com](http://www.sustainalytics.com).

### 5th Green Bond Pioneer Awards

Climate Bonds Initiative

Largest Verifier for Certified  
Climate Bonds of 2019

awarded to Sustainalytics



More information [conference.climatebonds.net/awards](http://conference.climatebonds.net/awards)



**GlobalCapital**  
SRI Awards

**Named**

**2015:** Best SRI or Green Bond Research or Rating Firm  
**2017, 2018, 2019:** Most Impressive Second Opinion Provider

