

# ESG Materiality Map

## Transportation Infrastructure

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The sector has a central role in the mobility of people and movement of goods critical to economic activity. Access and affordability, impact on communities, customer health and safety, and physical climate risk are among the most material social and environmental factors from stakeholder and credit perspectives.

*This report does not constitute a rating action*



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## Transportation Infrastructure

In line with the research report “[Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#),” published on May 18, 2022, S&P Global Ratings is publishing research on the ESG materiality map for the transportation infrastructure sector. We provide an illustration of our current view of the relative materiality of certain environmental and social (E&S) factors, from both the stakeholder and credit perspectives, for the sector. The materiality map does not represent any new analytical approach to the treatment of E&S factors in our credit ratings. See our ESG criteria for more information on how we incorporate the impact of ESG credit factors into our credit ratings analysis.

### Transportation Infrastructure Sector

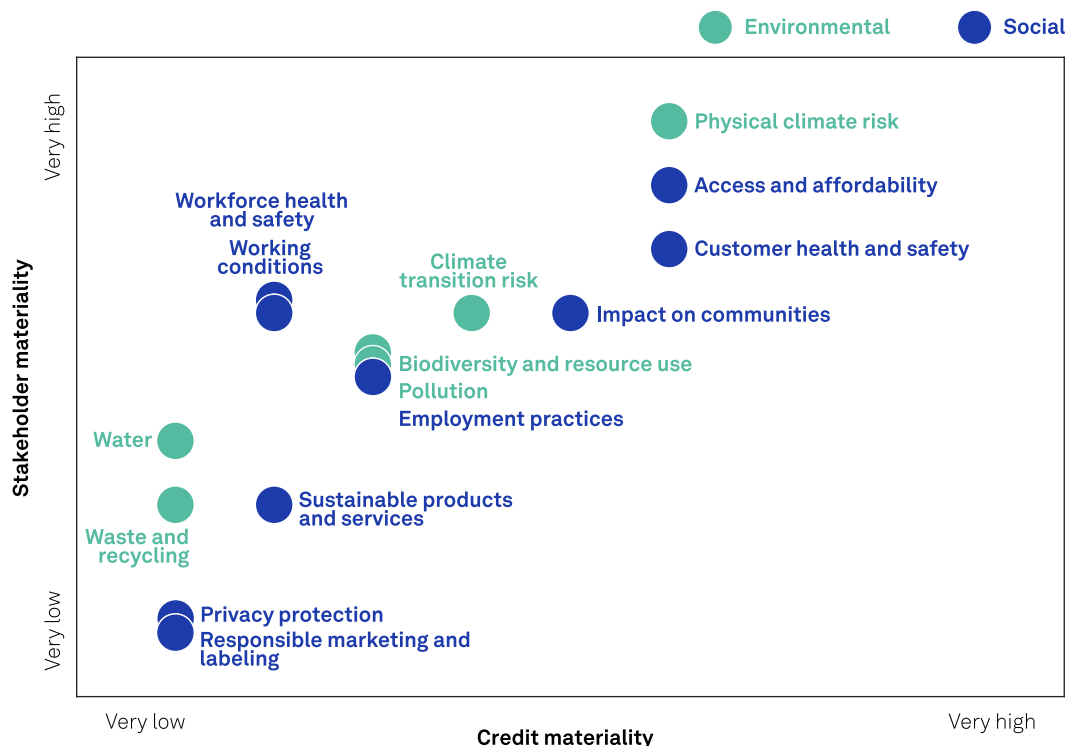
The transportation infrastructure industry includes various subsectors—airports, roads, parking garages, rail and mass transit, and ports. Some subsectors primarily serve other businesses, while others directly serve users.

#### Key Takeaways

- The sector has a central role in the mobility of people and movement of goods critical to economic activity. Therefore access and affordability, and impact on communities are material factors for both stakeholders and credit. Health and safety events, such as the recent pandemic, infrastructure failures, and risk of more frequent travel disruptions, are also material considerations.
- Physical climate risk is becoming more material for both stakeholders and credit and may require early and costly adaptation strategies. More frequent and severe physical risks may cause major damage to fixed-located infrastructure assets, thereby reducing local transportation access and demand.
- Key stakeholder considerations with more limited credit consequences are workforce-related factors and climate transition risk. The latter is more important when considering the value chain and the influence of infrastructure investment on transportation user decision-making.

See materiality map on the following page.

## ESG Materiality Map For The Transportation Infrastructure Sector



The materiality map provides an illustration at a point in time, of our findings on the relative materiality of certain environmental and social (E&S) factors, from both the stakeholder and credit perspectives, for the sector. It does not represent any new analytical approach to the treatment of E&S factors in our credit ratings. See our ESG Criteria for more information on how we incorporate the impact of ESG credit factors into our credit ratings analysis. Source: S&P Global Ratings.

### How To Read The ESG Materiality Map

The stakeholder materiality (Y axis) reflects our assessment of the relative level of impacts and dependencies of the sector on the environment, society, and economy.

The credit materiality (X axis) reflects our assessment of the relative level of potential and actual credit impact for the sector. The credit implications for the factors positioned on the left side to the middle of the X-axis would be more limited and absorbable. On the right side, there is higher potential for these implications to be more disruptive. We assess credit implications for an entity based on its individual characteristics.

Assessing E&S factors' materiality: We consider both the likelihood of the impact from a given factor, as well as the magnitude of the impact. The materiality of the factors varies depending on the perspective (stakeholder or credit) as well as the evolving and dynamic interactions between these two dimensions.

The main areas of the map:

- The upper-right quadrant displays the most material, on a relative basis, E&S factors identified for the sector from both a stakeholder and credit perspective.
- The upper-left quadrant presents factors that are more material from a stakeholder than credit perspective. These factors have the potential to become more material from a credit perspective.
- The bottom-left quadrant shows factors that are less material for both stakeholders and credit. Their materiality may evolve over time and this dynamic may not be linear.

## Examples Of Material Factors

Below we provide the rationale of some of the material factors to illustrate the above findings.

### Physical climate risks

Acute physical risks--such as storms, wildfires, and floods--can impair, disrupt, or even destroy assets, limiting the availability of essential infrastructure including roads and mass transit systems. Over time, both acute and chronic risks--changing temperature and precipitation patterns and sea level rise--may shorten the useful life of vehicles and infrastructure. Many service interruptions are regional, but the key role of transportation access in communities and economies can lead to major impacts. Stakeholder impacts can also be much broader if key assets--like bridges, tunnels, or ports--are unavailable for extended periods. Although credit impacts have been limited so far as disruptions have typically been temporary, the increasing frequency and often severity of acute physical risks and the assets' long-term nature and fixed locations point to growing materiality. Hence, we expect greater capital expenditures and ongoing investment in adaptation measures over time. The impacts of physical climate risks may extend beyond the assets themselves and play out to infrastructure provider's region or service area. This could have more prolonged impacts on demand, potentially affecting stakeholders and credit quality.

### Access and affordability

Transportation infrastructure enables travel for work, health care, education, and reliable movement of goods. Given the essential nature of transportation infrastructure, access and affordability of the services is highly material for both stakeholders and credit, as they could weigh on household purchasing power, affect access to means of livelihood or essential services, and limit economic activity. Projects that extend or improve service for select communities while potentially isolating others may prompt public opposition; these are regional issues but can have severe adverse effects on vulnerable populations. Tariff increases for toll roads, airports, or mass transit, are subject to strong regulatory oversight and if considered excessive, could lead to strong opposition from users or communities as well as regulatory or political actions reducing demand and affecting credit. This could also limit the infrastructure provider's ability to make ongoing investments to maintain reliable service.

### Customer health and safety

Constructing and maintaining safe transportation infrastructure is key to policy makers and users, especially for tunnels, bridges, mass transport, and rail. In case of fatal or large-scale injury incidents, issues related to customer health and safety can not only undermine public trust but question an entity's license to operate, lower usages, result in litigation, and disrupt future opportunities. Another consideration relates to the severe travel restrictions during health events, such as the COVID-19 pandemic, which challenge the industry's capacity to manage public health risks. The pandemic caused major financial impacts for airports and mass transit. It is a clear example of a low-frequency, high-impact event, yet we recognize that these subsectors will remain highly sensitive to future such events, particularly if they become more frequent.

## Impact on communities

Developing infrastructure can be highly disruptive to existing communities, particularly in cases of redevelopment. This may include permanent demolition of existing structures (in some cases involving eminent domain) and temporary service interruptions for essential utilities and existing transportation routes. Greenfield development may reduce the amount of green space, affecting quality of life. Also, during operation, projects may cause hinderance to communities, notably due to noise pollution; this has for instance constrained operating hours at various airports. Conversely, projects may also improve or extend service for select communities or for the nation, bolstering economic productivity. However, these may still face adversity from local opposition if benefits or compensation are not sufficiently balanced. This can cause extended construction delays or litigation, increasing project costs and challenging a project's financial viability. It can also lead to future government counterparties ending their contractual commitments. The need for broad consensus and benefits is therefore a key credit consideration.

## Climate transition risk

Climate transition risk is material from a stakeholder perspective, as it considers emissions across the value chain. Transportation is the fastest growing source of emissions worldwide, and transportation users like autos, airlines and freight, account for around a quarter of global GHG emissions according to the IEA. Infrastructure design and condition can affect GHG emissions (such as if rail lines are electrified or the availability of ship-to-shore power at ports) and existing transportation infrastructure may require investment to support wider decarbonization trends. Infrastructure development also produces significant emissions due to land use changes and reliance on carbon-intensive materials such as steel and cement. The lesser credit materiality stems from the lower direct emissions of infrastructure entities compared with users, and from the long-term need for basic transportation infrastructure even if the energy transition will influence regulation and policy, customer behavior and long-term demand potential. Hence, we do not foresee material disruptive change or substitution risk for transportation infrastructure due to climate transition.

## Employment practices

Employment practices generally have more pronounced stakeholder materiality than credit materiality in this industry. Diverse hiring, fair wages with appropriate benefits, equal treatment in the workplace, and ongoing training and education, are important in maintaining workers' commitment and service reliability. In addition, during construction, the workforce can be particularly large including the presence of contractors and third-party employees in the workforce. At the same time, despite the organized labor presence for some infrastructure construction and services entities, we believe credit impacts arising from labor relations and labor unions bargaining to obtain benefit increases, and the related exposure to strikes, will remain limited, as disruptions to transportation services tend to be temporary.

## What is our approach to research on the ESG materiality map?

Referring to the research report “[Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#),” published on May 18, 2022, this research is built on the ESG materiality concept that considers ESG issues as material when they could affect stakeholders, potentially leading to material direct or indirect credit impact on entities. It considers that all businesses, through their activities and interactions, impact and depend, directly or indirectly, on stakeholders such as the environment (natural capital), society (human and social capital), and economy (financial capital). Using this ESG materiality concept, S&P Global Ratings has worked toward identifying a common, global, cross-sector set of E&S factors that we believe are material to stakeholders, and either are already, or have the potential to become, credit material for entities. The materiality map we propose provides an illustration at a point in time, of our findings on the relative materiality of those factors, from both the stakeholder and credit perspectives.

## How does the sector ESG materiality map relate to credit ratings or ESG evaluations?

The sector materiality map is a visual representation of the factors that we consider impactful to the sector from a stakeholder and credit perspective for the purposes of this research. It does not represent any new analytical approach to the E&S factors in our credit ratings.

The relative materiality of the factors indicated on the materiality maps may inform the E&S Risk Atlas scores and the weights of the E&S factors used in ESG evaluations.

They may also inform our discussions with issuers on those factors’ existing or potential credit materiality.

## Related Research

- [Materiality Mapping: Providing Insights Into The Relative Materiality Of ESG Factors](#), May 18, 2022
- [Environmental, Social, And Governance Principles In Credit Ratings](#), Oct. 10, 2021
- [ESG Evaluation Analytical Approach](#), Dec. 15, 2020

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