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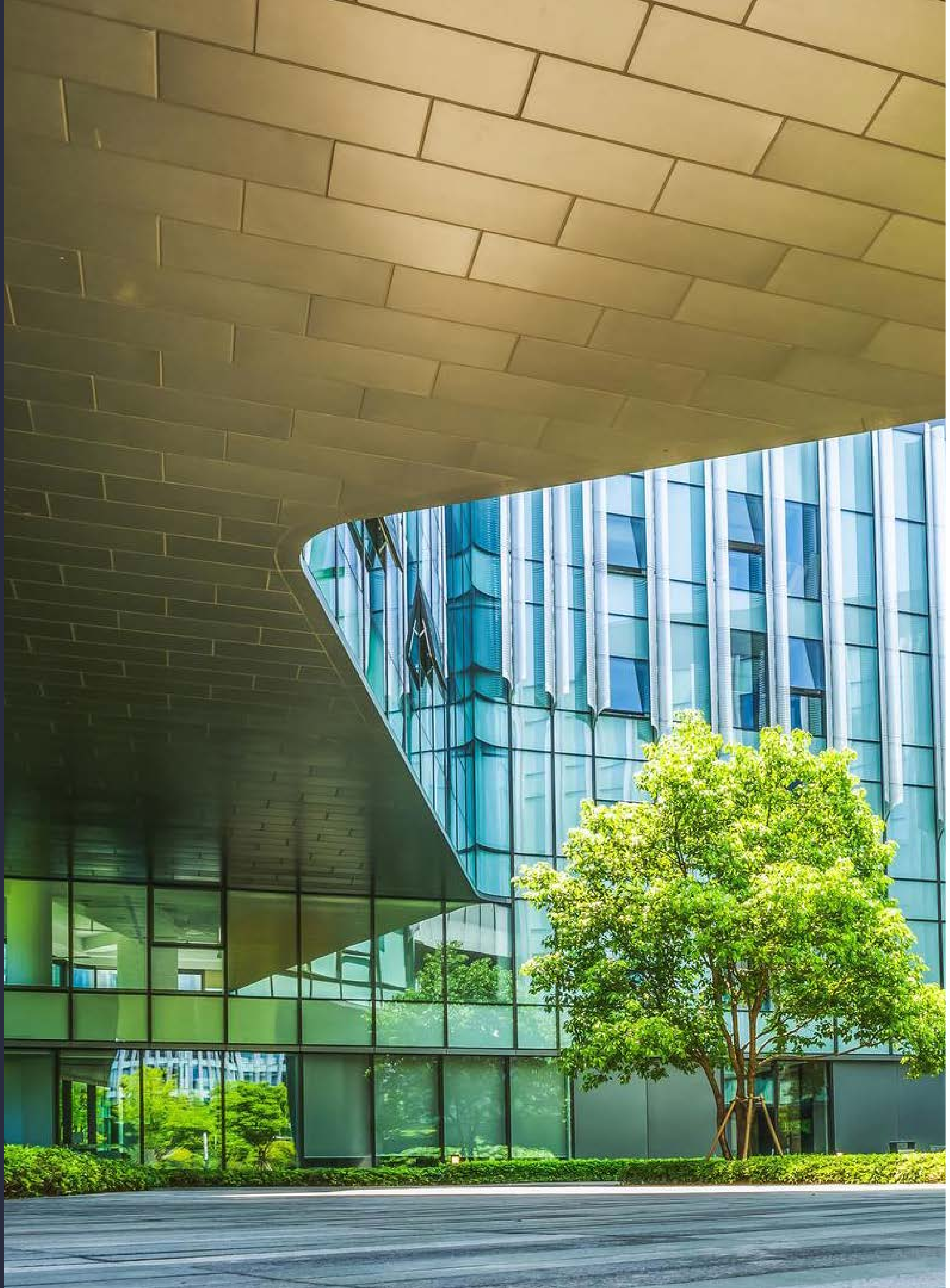

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The *scope* of this report

At Manulife Investment Management, we believe climate change is one of the greatest challenges we face today. As the impacts of climate change are increasingly felt around the world, we must stay ahead of the curve by addressing the risk it poses to our business, buildings, and communities. We must also realize the opportunities to deliver on the needs of our investors, employees, and tenants, both today and tomorrow.

We're pleased to release Manulife Investment Management's inaugural "Real estate climate disclosure report." The content within this report is informed by the Taskforce on Climate-related Financial Disclosures (TCFD) recommendations.

This report details the climate-related physical and transition risks we may face in the short, medium, and long term. It also details the opportunities and our plans to address both, supporting the transition to a low-carbon economy.

Alignment with Task Force on Climate-related Financial Disclosures recommendations

We've aligned the contents of this report with TFCD recommendations to provide transparency into our climate change management practices. Climate change factors are evolving and so is our management approach. We seek to continuously align our practices and disclosures with the most up-to-date TCFD recommendations and guidance.

Based on real estate assets under management by Manulife Investment Management's real estate platform from January 1, 2021, to December 31, 2021. All facts and figures are as of December 31, 2021.

Core elements of TCFD-recommended climate-related disclosures

Governance—the organization's governance around climate-related risks and opportunities

Strategy—the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning

Risk management—the processes used by the organization to identify, assess, and manage climate-related risks

Metrics and targets—the metrics and targets used to assess and manage relevant climate-related risks and opportunities

Source: Recommendations of the Task Force on Climate-related Financial Disclosures final report, 2017.

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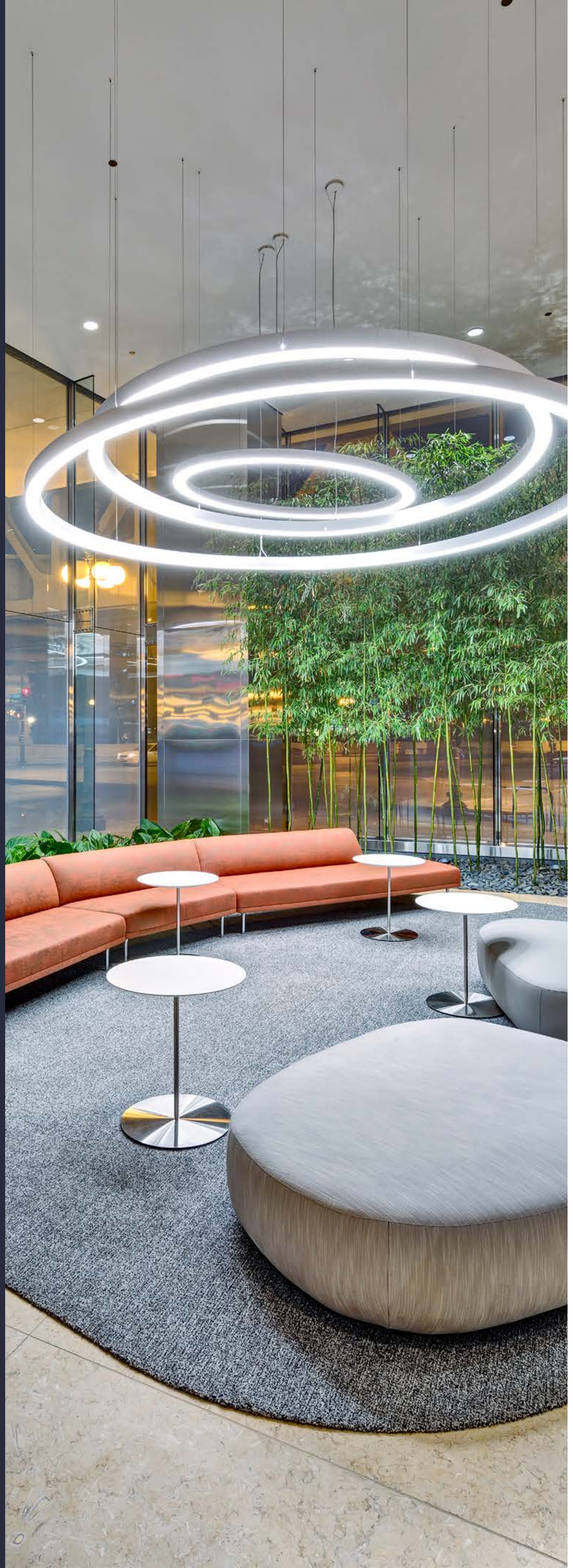
Our climate-related financial disclosure

Our parent, Manulife Financial Corporation (Manulife), has been a supporter of the TCFD since November 2017, publishing its first disclosure aligned with the TCFD in 2019, and is committed to adopting and aligning its disclosures to TCFD recommendations.

This report covers Manulife Investment Management's real estate capabilities. Manulife Investment Management functions as part of the broader Manulife group, not a stand-alone entity and, as such, parts of this report must necessarily refer to processes at a wider corporate level while other sections relate only to Manulife Investment Management or Manulife Investment Management's real estate capabilities. That said, this document doesn't purport to reflect Manulife's overall climate initiatives or to comprehensively disclose its approach to climate risks and opportunities. It seeks to holistically cover Manulife Investment Management's capabilities across real estate and should be read in conjunction with Manulife's 2020 sustainability report and public accountability statement and Manulife Investment Management's 2020 climate-related financial disclosure.



Governance

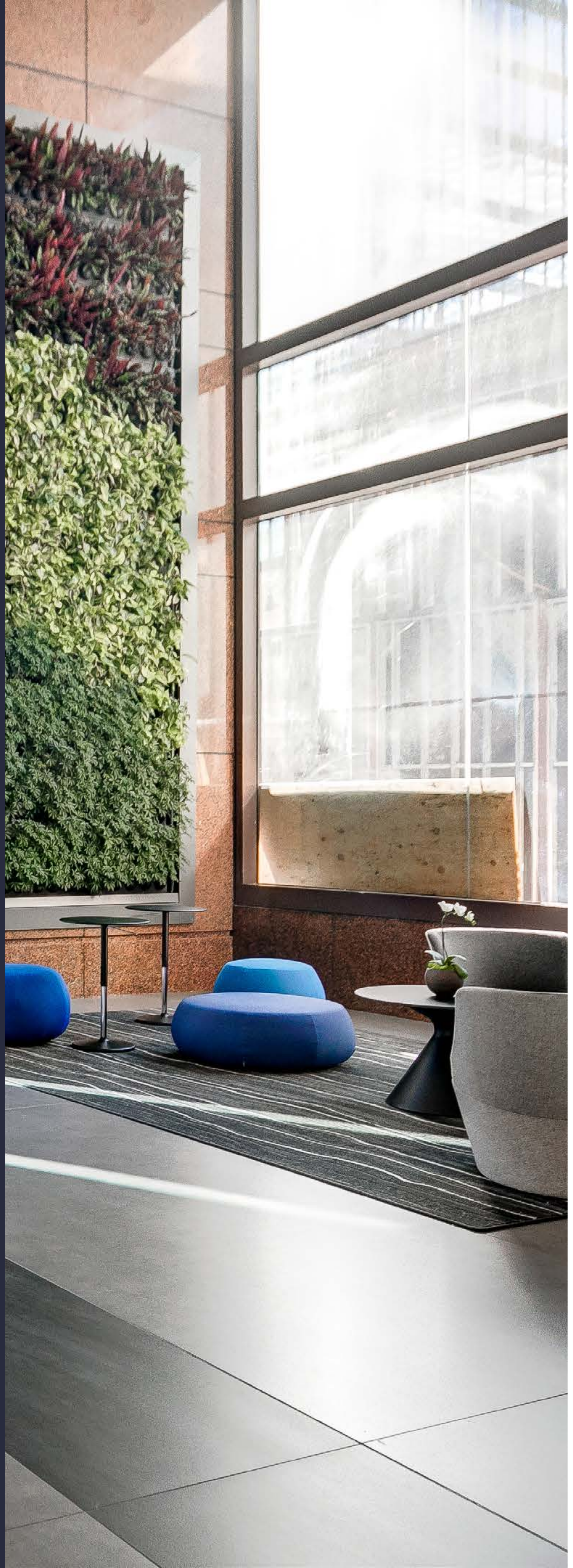
Structure

Manulife Investment Management has established a governance structure to support implementing our sustainable investing and sustainability risk statement and oversee investing activities within our overall strategy and business priorities, including climate change management.

This framework comprises multiple reporting structures, committees, and working groups with representation from different business functions and seniority levels within the organization. The heads of the public and private markets businesses chair their respective sustainable investing committees, enabling oversight of each asset class's sustainable investing agenda; the chief sustainability officer for private markets, the head of real assets and the head of real estate equity are members of the private markets sustainable investing committee. In turn, the private markets sustainability team members communicate directly with their asset class-specific committees, as well as with sustainability leaders of Manulife through the Sustainability Center of Expertise (COE), which is chaired by Manulife's global chief sustainability officer.

Board and executive oversight

Matters related to climate change are a component of Manulife's ESG framework, overseen by the corporate governance and nominating committee of the Manulife board of directors. Climate-related risks and opportunities are considered by the board's risk committee through the ongoing monitoring and reporting of emerging risks by Manulife's Executive Sustainability Council (ESC), which consists of members from Manulife's executive leadership team, including the chief executive officer. The ESC is responsible for Manulife and its subsidiaries' sustainability ambition and climate change strategy and is committed to the ongoing management of climate change-related risks. The ESC is advised by Manulife's



climate change task force, headed by Manulife's chief sustainability officer, on climate-related matters, risk management, and compliance obligations. The climate change task force comprises relevant members from Manulife's COE, a cross-functional business team tasked with integrating sustainability into the Manulife business. In alignment with private markets' sustainability strategy, the head of real estate sustainability represents Manulife Investment Management's real estate capabilities on Manulife's COE and climate change task force.

Real estate executive oversight and management

Within Manulife Investment Management's real estate capabilities, oversight of climate-related issues is managed by the Sustainability Steering Committee (steering committee), which includes the private markets chief sustainability officer and representatives from across the real estate business. The steering committee, which is responsible for overseeing the real estate sustainability strategy and providing direction on climate-related change initiatives across the portfolio, is updated semiannually on sustainability and climate change programs and performance.

The head of real estate sustainability, as part of the private markets sustainability team, works closely with the real estate leadership team, including asset management, investments, marketing, and engineering and technical services, to guide physical climate risk and efficiency programs. The head of real estate sustainability also coordinates annually with asset management and Manulife's insurance team to review the real estate's portfolio exposure to physical climate risks and implications on the portfolio insurance program.

Sustainability governance

For a visual representation of our sustainability governance, please see page 14 of the Manulife Investment Management's 2020 climate-related financial disclosure report.

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Strategy

As a global real estate manager, identifying and monitoring various climate-related risks are essential to making better-informed decisions and ensuring our business and buildings are built for the future.

Transition risks—or the general costs associated with moving from a current business-as-usual scenario to a low-carbon economy—and physical risks—or the impacts associated with extreme weather events and changing climatic conditions—present the greatest climate-related challenges and opportunities to our real estate assets.

We consider the following risks as having potential impacts on our business across either short-term (1 to 5 years), medium-term (5 to 10 years), or long-term (10+ years) time horizons.

Identified transition risks and opportunities[1]

Risk	Timeline	Mitigation and opportunity
Regulation: Increasing climate-related regulations, including carbon pricing, regional efficiency, or emissions standards, and increasing disclosure requirements. Regulation changes could lead to increasing operating and compliance costs.	Short to long term	We continue to monitor emerging regulations and incorporate assessment of building performance and efficiency in our due diligence to stay ahead of carbon pricing and minimum efficiency requirements.
Market: Shift in capital away from high-emitting products and services, potentially affecting tenant demand, asset value, and fundraising.	Short to long term	Improving portfolio efficiency could create new avenues for financing and increase investor and tenant demand. We continue to certify and build assets to green building standards such as LEED, Energy Star, Comprehensive Assessment System for Built Environment Efficiency, and BOMA BEST, implement energy and emission reduction programs, and collaborate with tenants and clients on shared climate goals.
Technology: There is a cost to move to a low-carbon economy, including capital upgrades to retrofit assets, advanced technologies for buildings, demand for high-quality transactable ESG data, real-time metering, and shifting to renewable energy sources.	Short to long term	Short-term capital costs are expected to be offset from paybacks on lower operating costs and meeting tenant demand. Our ongoing energy, water, greenhouse gas (GHG), and waste programs support our team in allocating capital toward low-carbon technology and improving property performance.
Reputation: Failure to act or the perception of not acting on climate change could affect our reputation as a global real estate leader and risk our relationship with tenants, employees, communities, and investors.	Short to medium term	To communicate our climate change action and impact, we disclose our objectives and performance annually through several independent and industry frameworks, including Principles for Responsible Investment (PRI), Global Real Estate Sustainability Benchmark (GRESB), our annual real estate sustainability report, and this real estate climate disclosure report. We also support Manulife's disclosure to CDP.

1 Represent a non-exhaustive list of the main risks and opportunities currently identified across our real estate portfolio. Risks and opportunities are subject to change over time and are ultimately addressed on a case-by-case basis depending on the individual characteristics of each property.

Identified physical risks and opportunities[1]

Risk	Timeline	Mitigation and opportunity
Acute risks		
Flooding: Flooding can cause asset damage, downtime, and incurred costs through insurance premiums and deductibles. Flooding may affect our ability to obtain insurance in vulnerable markets.	Short to long term	Our insurance team reviews portfolio flood exposure annually to understand insurance implications. Properties have regular site assessments completed by our insurer, which include recommendations for protection measures.
Extreme storms: Climate change is expected to increase the frequency and severity of extreme storms, high winds from hurricanes, typhoons, snowfall, or ice storms from extreme temperature fluctuations. This can cause asset damage and downtime from power loss.	Short to long term	We prepare properties for storms through our emergency management planning and seek to minimize downtime by using on-site backup power generators.
Wildfires: Wildfires can not only cause asset damage, but may also affect occupant health through reduced air quality.	Short to long term	Our teams consider various resilience measures, including fire-resistant building materials, on-site emergency water supply, and high-efficiency air filters to protect indoor air quality.
Chronic risks		
Heat stress: Rising global temperatures can affect employee and tenant productivity and increase operational costs to maintain safe and comfortable building conditions.	Short to long term	We seek to identify opportunities to improve cooling efficiency and costs through capital upgrades, building commissioning, and operating procedures.
Water stress: Water scarcity can affect water availability and increase operational costs.	Short to long term	We seek to maximize operational efficiencies while minimizing consumption through practices such as water audits and installing low-flow appliances and faucets, and minimizing landscaping water requirements, where applicable throughout our portfolio.
Sea-level rise: Rising sea levels can present similar challenges to flooding while also risking failed development approvals and “stranded” assets in vulnerable areas.	Long term	We review and consider exposure to sea-level rise in acquisition and new development decisions, as well as across our existing portfolio. We invest in preventative infrastructure and consider underwriting, where applicable.

1 Represent a non-exhaustive list of the main risks and opportunities currently identified across our real estate portfolio. Risks and opportunities are subject to change over time and are ultimately addressed on a case-by-case basis depending on the individual characteristics of each property.

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Emergency management plan

An important aspect of resilience is preparation and planning. As such, property teams need to be aware of their most material risks.

In 2020, we completed a portfoliowide study that included exposure ratings to seven physical climate risks for every property. In 2021, we added a standard to our proprietary Sustainable Building Standards—Climate Change Resilience. While many properties already used emergency management plans for a variety of risks (e.g., physical security, medical, cybersecurity), they now need to also have emergency management plans to address climate-related risks. These plans are expected to identify key steps that property teams need to take to deescalate an emergency, protect the safety of building occupants, and prevent or minimize property damage.

As a foundational resilience practice, we created template emergency management plans that could be tailored by property teams to address risks identified in the 2020 exposure ratings. This included both landlord-controlled and tenant-controlled properties.

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Risk management

Manulife Investment Management's real estate platform has built a rigorous risk management approach and framework, which lays out how we identify and manage the climate-related risks and opportunities to which we're exposed. Our three-step approach involves raising awareness, evaluating risk and opportunities, and integrating best practices.

Climate change risk and opportunity management approach

Raise awareness

To arm our teams with the right information and build internal capacity to manage climate risk and improve resilience

Evaluate risks and opportunites

To identify and understand climate risks and opportunities

Integrate best practices

By embedding management processes and tools throughout our business to mitigate risks and capitalize on opportunities

1 Raise awareness

Raising awareness is vital to educating our property and asset management teams and stakeholders to understand the science of climate change, how it can put a business and its operations at risk, what we can do to mitigate it, and how we can prepare and become resilient to its shocks and stressors.

We've implemented two approaches in improving climate risk and resilience awareness through training and access to climate data.

Approach to climate change awareness	
Training	Training is an effective tool to build internal competencies on climate change risk and resilience, and the potential consequences for our business. We train our property and asset management teams on how to incorporate GHG emission reductions and climate-related physical risk and resilience into property decision-making through dedicated webinars and our global Sustainable Building Standards program. In 2021, we held GHG101 and climate resilience sessions, which were recorded and are available to all property teams. We also host training sessions across our various business units and leadership levels. For example, in 2020, we held an education session, in partnership with the Intact Centre on Climate Adaptation, for our leadership team. We also held separate sustainability and climate training sessions for our investments and developments teams in 2020 and 2021, respectively.
Access to climate data	A fundamental component to better understanding and analyzing climate risk is data. We use several analytic and modeling tools to provide relevant and usable information to assess and quantify climate risk and incorporate it across our business teams. Property sustainability data is collected through third-party ESG data platforms. Management and property teams use this data to understand emissions and make better-informed decisions on GHG management. Furthermore, our investment and development teams have access to property-specific physical climate reports from our third-party provider. These reports outline future potential exposure to physical climate risks based on property location.

2 Evaluate risk and opportunities

Identifying and understanding the climate risk to a portfolio enables the development of resources and tools to effectively manage that risk and improve resilience. To understand our real estate portfolio's climate threats, we inventory our existing resilience practices and features and identify improvement opportunities for climate change management.

Our approach includes an evaluation on both the organizational and portfolio levels.

Approach to risk and opportunity evaluation

Manulife Investment Management's global real estate platform

We conduct an assessment across our real estate asset class to evaluate our current methods and programs that address or intersect with climate risks and resilience. We use industry standards, including the GRESB Real Estate Assessment and PRI reporting, to assess our climate risk management practices annually.

Evaluation of organizational risks

Our assessment of current practices, policies, and programs in 2020 resulted in the development of our proprietary Climate Risk and Resilience Sustainable Building Standard to provide property teams with a road map to manage physical climate change risks. This was launched in 2021.

Real estate assets under management

On the property level, we conduct property-level surveys to understand property-specific risks and resilience practices. We also evaluate our portfolio to understand how climate risks will affect our assets and regions.

In addition, our insurance program includes physical risk and probable loss assessments for flooding and earthquakes on a three-year rolling cycle across all properties. High-risk properties have resilience actions recommended, which are considered for implementation.

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Approach to risk and opportunity evaluation (continued)

Real estate assets under management (continued)

Evaluation of portfolio risks

In 2020, we assessed exposure and resilience to seven physical climate risks at all our assets with a two-pronged approach using third-party data to model climate risk exposure out to 2040 and inventorying property resilience measures through our internal property survey. The assessment results identified asset-specific physical risks and opportunities to enhance property resilience. We continue to maintain this climate risk assessment across our real estate under management, as well as for new acquisitions.

Evaluation of transition risks

As regulations evolve, tenant behavior shifts, and new technologies emerge, we continuously work to manage transition risk and reduce emissions. In 2019, we evaluated regulatory emission reduction requirements to meet federal policies and associated costs through participation in the United Nations Environment Programme Finance Initiative (UNEP FI). We furthered this analysis by developing a portfolio GHG model to forecast emissions reduction scenarios. We'll use the model outputs to plan portfolio reduction opportunities, including fuel switching, on-site renewables, storage, and power purchase agreements.

Learn more—Manulife Investment Management published its second climate-related financial disclosure report in 2021. Manulife also publishes TCFD disclosures through its annual report and 2020 TCFD Disclosure in the MD&A.

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Preparing for change: physical climate risk and resilience assessment

It's expected that climate change will increase both the severity and frequency of many natural disasters and meteorological hazards—acute events such as flooding and storms, as well as chronic conditions such as drought and rising temperatures.

In 2019, we began evaluating physical climate change risks to our properties by piloting a "climate value at risk" model. We also contributed to a scenario analysis and guidance report produced as part of our membership in UNEP FI's real estate TCFD pilot project.

Building on this momentum, in 2020, we conducted our own portfoliowide risk study. Drawing on third-party sources combining both historical data and forward-looking climate model outputs, we identified seven distinct risks—floods, extreme windstorms, wildfire, sea-level rise, drought, heat stress, and earthquakes—and then produced comprehensive risk exposure profiles out to 2040.

Complementing this detailed understanding of our risk exposure, we also surveyed our global portfolio for resilience measures—property features and practices that help us prepare for and mitigate these physical climate change risks. We now have an inventory of standard resilience measures that we're working to implement and track across our portfolio, primarily by adding a new resilience standard to our existing proprietary Sustainable Building Standards.

Assessing both our risks and resilience aligns us with the recommendations of the TCFD, but more importantly, it helps us manage long-term risk—the right strategy for a responsible building owner and manager.

3 Integrate best practices

Once opportunities for climate change management have been identified, it's necessary to develop operational standards to enhance the resilience of current practices. We seek to integrate best practices into each stage of the real estate investment lifecycle. We use a stepwise process to ensure that teams are putting into place essential measures to make our portfolios more resilient, which we supplement with training, guidance, and tools to support action, while incorporating new initiatives to help teams progress and improve.

Approach to risk and opportunity integration

Acquisitions

- Climate considerations are integrated into the due diligence and underwriting process.
- Investment teams use third-party climate risk data to assess physical and transition risks for every new deal.
- Sustainability and climate-related aspects are embedded into acquisition ESG checklists and tools are offered to help identify opportunities for buildings operational efficiency and resilience measures.
- Risks, opportunities, and associated recommendations are communicated to asset managers for inclusion in business planning and budgets.

Developments

- Development practices consider site environmental attributes. Developments are reviewed for climate risk. Physical resilience measures are built into developments, where appropriate.
- In 2021, we updated the development team's sustainability guidance and tools to formalize how material sustainable topics are considered and to set minimum design requirements for our developments. Climate change considerations are a key part of this update, including building energy and GHG emissions performance, enhanced understanding of site exposure to physical risks, and consideration of more climate resilience measures.

Operations/asset management

- All buildings participate in our Sustainable Building Standards program, which guides property teams in implementing operational best practices. In 2021, we expanded the program by adding two new standards on GHG management and climate risk and resilience.
- In 2017, we set a five-year portfoliowide 10% energy reduction target for all properties to work toward.[1]
- In 2020, we set a GHG reduction target of 80% by 2050[2] to support both Manulife's GHG target of 35% by 2035[3] and net-zero ambition by 2050.
- Property teams are supported by the engineering and technical services team in identifying GHG reduction measures to include in asset plans through property-level assessments and energy performance monitoring, including access to real-time utility data.
- Property teams and asset managers coordinate to complete the sustainability dashboard annually to summarize property sustainability performance and to inform capital and operational budgets and asset plans.
- Properties have regionally specific emergency management plans to prepare to respond to and protect assets from climate risks such as flooding and severe storms.

1 Target is an Intensity- based reduction compared with a 2017 baseline, with a 2% reduction target per year. **2** Target is an intensity-based reduction of scope 1 and scope 2 emissions for the properties that are within our operational control. **3** Manulife's 35% target by 2035 is an absolute target for scope 1 and scope 2 that are within operational control.

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Carbon Management Working Group

In 2021, we formed the Carbon Management Working Group (working group) to develop a strategy to meet our GHG reduction target of 80% by 2050.* The working group, which has representation from our real estate, engineering and technical services, asset management and sustainability teams, is responsible for:

- Overseeing property-specific carbon reduction plans and the rollout of portfolio GHG management plan.
- Providing GHG tools, resources, and support to property and asset management teams to inform strategies to reduce emissions.

The working group's immediate goals focus on education and development of property-level GHG management tools. Going forward, the working group will oversee the GHG reduction strategy, support property teams to develop long-term GHG management plans, and track progress against our target.

* Target is an intensity-based reduction of Scope 1 and 2 emissions, compared to a 2021 baseline, for the properties that are within our operational control.

Metrics and targets

We use a variety of metrics and targets to manage and monitor our progress. These are also used to identify and monitor the potential financial effects associated with climate change on our business.

Some of the metrics we use include:

GHG reduction: Our ambition to manage our carbon impact has never been more imperative and as such we set a long-term GHG reduction target of 80% by 2050.[1] This carbon reduction goal will keep us accountable and help measure our GHG emissions reduction in line with our global targets.

Energy, water, and waste reduction: We monitor property and portfolio energy, water, and waste performance through our Sustainable Building Standards twice a year. Properties we operationally control aim to conduct an energy audit to identify improvements every three years.

Asset specific: We set asset-type targets in our Sustainable Building Standards program. Performance against targets is monitored semiannually. We also encourage teams to include both utility and Sustainable Building Standards targets in their annual performance objectives to drive improvement and encourage action to meet our goals.

Physical risk: We track property resilience score, which combines third-party physical risk data with property resilience survey results. We also track the number of properties located in 100-year flood zones and report in alignment with the Sustainability Accounting Standards Board (SASB) through our insurance program.

1 Target is an intensity-based reduction of scope 1 and scope 2 emissions, compared to a 2021 baseline, for the properties that are within our operational control.

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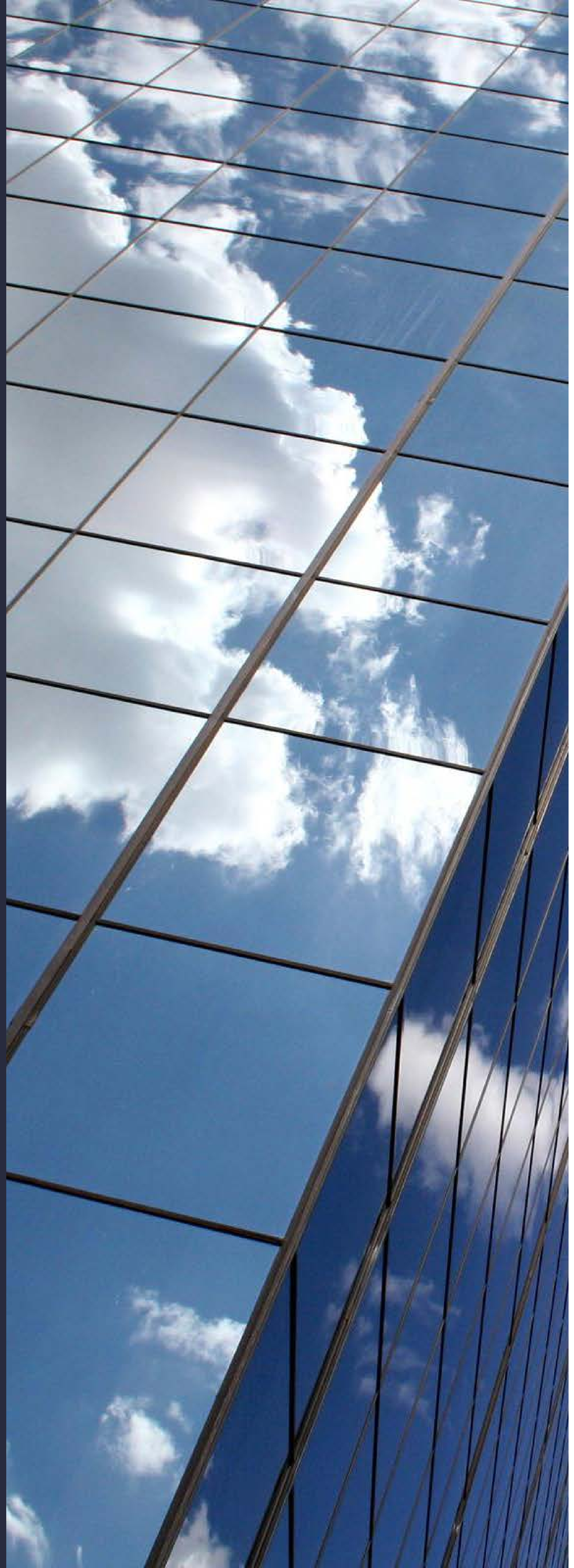

SASB disclosure IF-RE-450a.1: properties located in 100-year flood zones

Asset type	Count	Area (sf)
Office	19	3,902,586
Residential	3	1,072,384
Retail	2	481,191
Industrial	2	878,023

Transition risk: We measure scope 1 and scope 2 GHG emissions across our global portfolio. We also measure scope 3 emissions for tenant energy consumption and waste management practices. Our emissions are verified annually by an external third party and compared to previous years to track progress toward our reduction targets.

2020–2017 GHG emissions[1]

	2020[2]	2019	2018	2017
Scope 1 emissions (tCO_2e)	28,721	33,558	31,403	28,492
Scope 2 emissions (tCO_2e)	98,483	117,263	148,519	146,904
Total GHG emissions (tCO_2e)	127,204	150,821	179,922	175,396
GHG intensity ($kgCO_2e/sf$)	4.0	4.7	5.0	5.1

Scope 1 includes emissions from natural gas, diesel, and refrigerants. Refrigerant and diesel emissions are only included for 2019 and 2020. Scope 2 includes emissions from purchased electricity and steam.

1 Location-based emissions. 2019–2017 values are restated as a result of data and property area updates. Scope 3 emissions are indirect emissions in the value chain. At Manulife Investment Management, we define our organizational boundary using the operational control approach for scope 1 and scope 2 emissions, per the GHG protocol. Under the operational control approach, a company accounts for 100% of the GHG emissions from operations over which it has operational control, regardless of financial ownership of the entity. It doesn't account for GHG emissions from operations in which the company owns an interest but has no operational control. **2** As detailed in the 2021 real estate sustainability report, our 2020 emissions went down in part due to less energy use with more people working from home, as well as energy efficiency project improvements.

Looking forward

At Manulife Investment Management, we believe that developing a comprehensive approach to addressing climate change risk across the organization is key. While we have processes in place, our goal is to further integrate considerations to strengthen climate-related risk management. This includes property resilience improvement plans, incorporating resilience into preventive maintenance, budgeting and capital planning, continuing to develop and refine the long-term GHG management strategy, monitoring and tracking GHG reductions, and supporting new initiatives to achieve energy, GHG, and cost savings.

Our focus on awareness, evaluation, and integration will support us to further protect our assets as we look to transition toward a low-carbon economy and help the fight against climate change to sustain a greener planet.

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A widespread health crisis such as a global pandemic could cause substantial market volatility, exchange-trading suspensions and closures, and affect portfolio performance. For example, the novel coronavirus disease (COVID-19) has resulted in significant disruptions to global business activity. The impact of a health crisis and other epidemics and pandemics that may arise in the future, could affect the global economy in ways that cannot necessarily be foreseen at the present time. A health crisis may exacerbate other pre-existing political, social and economic risks. Any such impact could adversely affect the portfolio's performance, resulting in losses to your investment

Investing involves risks, including the potential loss of principal. Financial markets are volatile and can fluctuate significantly in response to company, industry, political, regulatory, market, or economic developments. These risks are magnified for investments made in emerging markets. Currency risk is the risk that fluctuations in exchange rates may adversely affect the value of a portfolio's investments.

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Manulife Investment Management

Manulife Investment Management is the global wealth and asset management segment of Manulife Financial Corporation. We draw on more than a century of financial stewardship to partner with clients across our institutional, retail, and retirement businesses globally. Our specialist approach to money management includes the highly differentiated strategies of our fixed-income, specialized equity, multi-asset solutions, and private markets teams—along with access to specialized, unaffiliated asset managers from around the world through our multimanager model.

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