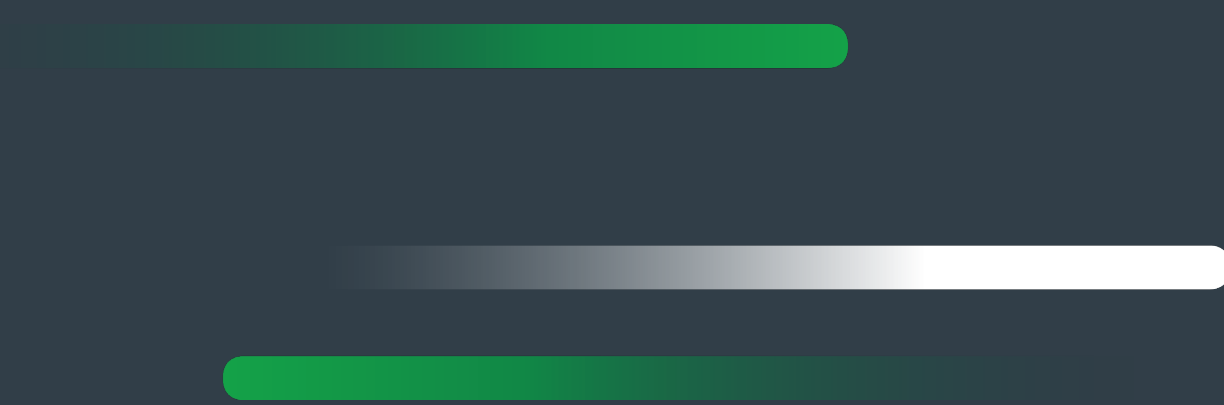


Transurban GHG Basis of Preparation

This document describes the key activity boundaries, methodologies, and references used in the preparation of Transurban's reported greenhouse gas (GHG) emissions and associated climate disclosures.

Three horizontal bars are located at the bottom of the page. The top bar is a solid green line. The middle bar is a white line with a grey-to-white gradient. The bottom bar is a solid green line.

Version tracking

Date	Version	Nature of change(s)
08/08/24	1	First version, generally applicable for all preceding years FY19-FY24

Disclaimer

This document is intended to assist investors in understanding Transurban's reported GHG emissions and associated climate change disclosures. Information in this document does not purport to be complete and is of a general nature. It has not been prepared with regard to the unique investment and financial circumstances of any reader and is not intended as investment or financial advice and must not be relied upon as such. Any person intending to deal in Transurban securities is recommended to obtain professional advice.

This document may contain information derived from publicly available sources that have not been independently verified. To the maximum extent permitted by law, Transurban does not make any representation or warranty (express or implied) as to the currency, accuracy, reliability, or completeness of the information in this document or that this document contains all material relevant information about Transurban.

Information in this document around Transurban's GHG activities and methodology details reflect Transurban's intention as at the date of this document, and Transurban does not make any guarantee as to the accuracy of the information in the future.

Similarly, information in this document and information derived from the key calculation boundaries, methodologies, assumptions, and references described in this document are not intended to provide guidance in relation to the future performance of Transurban. The words "continue", "expect", "estimated" and other similar expressions are intended to identify forward-looking statements which discuss future expectations concerning climate change, sustainability and energy transition scenarios and outcomes. Any forward-looking statements are based on the information available as at the date of this document and are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors that may cause actual outcomes to differ materially.

Due to the inherent uncertainties and limitations associated with measuring GHG data, Transurban's references to GHG emissions and operational energy consumption data are estimates and Transurban does not guarantee the accuracy of the information provided (including GHG data in our Corporate Report). Please see page 6 at 'Data accuracy and estimates' for more information.

General

Transurban's GHG emissions and climate disclosures are calculated using methodologies in accordance with the Greenhouse Gas (GHG) Protocol: A Corporate Accounting and Reporting Standard and associated suite of standards and guidance documents published by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), the Australian Government National Greenhouse and Energy Reporting (NGER) Scheme, and the recommendations of the Financial Stability Board's Task Force on Climate-Related Financial Disclosures (TCFD) including its Guidance on Metrics, Targets and Transition Plans.

Our disclosures are assured annually in accordance with relevant assurance standards for non-financial reporting with assurance statements for each year published with the annual reporting suite of documents available on our website.

To support this, Transurban maintains mature data capture, management, storage and review processes to support reliable and robust data management and disclosure.

Related documents and references

Transurban's GHG emissions and associated climate disclosures are produced in accordance with this document and other related Transurban documents and legislation, standards and guidance, including but not limited to:

Transurban documents

Annual Corporate Report (public)

Annual Sustainability Data Pack (public)

Transurban sustainability policy (public)

Transurban climate change framework

Transurban sustainability data procedure

Transurban contractor activity environmental data collection guide

External references

WRI Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard

Australian Government National Greenhouse and Energy Reporting Scheme

Task Force on Climate-Related Financial Disclosures

Assurance

Assurance of GHG data and material climate disclosures is provided on an annual basis through third party assurance providers. Reasonable or limited assurance is provided for a range of reported ESG metrics each reporting period, with the associated assurance statement, scope, and outcomes included within the relevant year-end annual reporting suite of documents.

Assurance is provided in accordance with Australian Standard on Assurance Engagements ASAE 3000 Assurance Engagements Other than Audits or Reviews of Historical Financial Information (ASAE 3000).

Reasonable assurance	Reasonable assurance is a high, but not absolute, level of assurance. It involves a thorough assessment, including testing of a significant proportion of the transactions, balances, or processes under review. The aim is to reduce the risk of a material misstatement to a low level. However, due to the inherent limitations of an audit, there is always a risk that some material misstatement may not be detected, even though the audit is properly planned and performed.
Limited assurance	Limited assurance is a lower level of assurance than reasonable assurance. It involves less detailed testing and is therefore less extensive in nature. The procedures for a limited assurance engagement are primarily analytical procedures and inquiries. The aim is to provide a level of assurance that is meaningful to the user, but less than that provided by reasonable assurance.

In both cases, the assurance provider collects and evaluates evidence in order to form a conclusion about the information or process under review.

Consolidation and boundary approach

Transurban applies the WRI GHG Protocol, and associated concepts of equity share and control, in combination with facility level reporting requirements outlined in the Australian NGER scheme to set organisational and operational boundaries for GHG disclosures.

Where a Transurban GHG inventory is presented, the associated consolidation approach and reporting boundary is noted based on the following definitions. Control determination for the associated reporting period is included in the annual report suite of documents each year.

Equity share approach	GHG emissions from operations are accounted for relative to Transurban share of equity in the operation(s).
Control approach	100% of GHG emissions are accounted for from operations over which Transurban has control. No GHG emissions are accounted for from operations in which Transurban owns an interest but has no control. Financial Control Transurban uses the Australian Accounting Standards when determining financial control for the purposes of GHG consolidation. Where joint financial control exists, and no other party is deemed to have control, Transurban accounts for the proportionate interest of GHG emissions from joint operations. Operational Control Transurban uses the Australian NGER scheme when determining operational control for the purposes of GHG consolidation. Generally, Transurban is deemed to have operational control over an operation/facility if Transurban (or one of its subsidiaries) has the full authority to introduce and implement its operating policies at the operation.

Aligned with Australian NGERs legislation, unless otherwise stated Transurban reports GHG inventories on a Facility basis.

Corporate	As per GHG Protocol, emissions reported on a Corporate basis are limited to activities directly controlled by Transurban.
Facility	Where emissions are reported on an Operational Control - Facility Basis, all emissions associated with facility operations are reported as being controlled by Transurban.

Australian regulatory reporting

In addition to corporate disclosures, Transurban reports GHG emissions under the Australian NGER Scheme. NGER reporting is limited to Transurban's Australian operations and reported on an Operational Control basis at a Facility level as per NGER requirements. As such, NGER disclosures may vary from the Transurban corporate inventory.

Scope of reporting

Transurban reports all material scope 1, scope 2, and scope 3 GHG emissions for corporate and operational activities. Where an asset or entity has less than 6 months of operations, these may be excluded from the reporting period due to limited data availability or reliability.

Transurban uses the GHG Protocol to define our scope 1, 2 and 3 emissions sources, with a summary of related activities provided in Table 1 below. See Appendix 1 for detailed materiality, inclusions, exclusions and calculation methodology related to each scope.

Table 1: Material Transurban activities

GHG category	Transurban sources/activities
Scope 1	Fuels and gas used in Transurban controlled activities/facilities, including contractors, for road operations, maintenance, and incident response. Fuels and gas used in Transurban owned or operated plant and equipment.
Scope 2	Electricity used in road operations, including but not limited to tunnel ventilation systems, roadside lighting and equipment, heating ventilation and cooling, control centres and corporate offices.
Scope 3.1. Purchased goods and services	All corporate expenditure, and operations and maintenance activities not included in scope 1 and 2 or other scope 3 categories.
Scope 3.2. Capital goods	Fuel, electricity, and materials used in the new construction, or major widening/upgrade, of Transurban toll roads.
Scope 3.3. Fuel and energy related activities	Upstream emissions/losses of purchased fuel and electricity.
Scope 3.4. Upstream transportation and distribution	Material upstream transportation and distribution emissions associated with the delivery of construction materials is included within 3.2 Capital Goods.
Scope 3.5. Waste generated in operations	Waste from road operations and maintenance, and corporate offices.
Scope 3.6. Business travel	Employee air travel. (Note: taxis and other travel captured in scope 3.1).
Scope 3.7. Employee commuting	Employee travel between home and Transurban offices (deemed immaterial).
Scope 3.8. Upstream leased assets	Fuel and electricity from the operation of leased assets included within scope 1 and 2 where applicable.
Scope 3.9. Downstream transportation and distribution	No transport or distribution of products not paid for by Transurban.
Scope 3.10. Processing of sold products	Transurban does not sell any products that undergo further manufacturing.
Scope 3.11. Use of sold products	Transurban does not sell any products that have direct use phase emissions. (Note: see Appendix 1 and Appendix 2 for treatment and measurement of indirect-use phase emissions).
Scope 3.11a. Downstream emissions from fossil fuels distributed but not sold by the company	Transurban does not distribute fossil fuels.
Scope 3.12. End-of-life treatment of sold products	Disposal of in-vehicle tolling transponders (deemed immaterial).
Scope 3.13. Downstream leased assets	Transurban does not have any downstream leased assets.
Scope 3.14. Franchises	Transurban does not have any franchises.
Scope 3.15. Investments	Proportionate interest of scope 1 and 2 emissions from asset operations where Transurban does not have control.

GHG emissions reduction targets

Transurban has set both near-term and long-term GHG reduction targets to guide company decarbonisation efforts. These targets inform our GHG management approach and priorities and may be reviewed and updated in response to significant changes in company structure and activities, and/or GHG measurement and target setting methodology and standards.

Any forward-looking statements are based on the information available as at the date of this document and are not guarantees of future performance and involve known and unknown risks, uncertainties and other factors that may cause actual outcomes to differ materially.

Transurban uses the market-based scope 2 method for the purposes of GHG reduction targets, and unless otherwise stated, Transurban GHG reduction targets and materiality statements are relative to a FY19 base year (July 2018 – June 2019). Due to the timing and nature of public disclosures, published baseline GHG inventories may vary slightly from source to source. Where material discrepancies exist, the below numbers should be referenced.

Near-term target(s)	Baseline
Reduce absolute scope 1 and 2 GHG emissions by 50% by FY30 from a FY19 baseline	122,346 tCO₂e
Reduce scope 3 GHG emissions from purchased goods and services (associated with road infrastructure maintenance and operation) 22% per vehicle kilometre travelled by customers by FY30 from a FY19 baseline	29.2 tCO₂e/MVKT
Reduce scope 3 emissions from capital goods by 55% per \$M capital expenditure by FY30 from a FY19 baseline	181.4 tCO₂e/\$M Capex

Transurban's near-term targets are validated by SBTi and as such cover all material scope 1 and 2 emissions, and relevant scope 3 emissions as per SBTi methodology (more than two-thirds of scope 3 emissions coverage where scope 3 emissions are more than 40% of total scope 1, 2 and 3 emissions). These targets will be updated over time in accordance with SBTi commitments.

Long-term target(s)	Baseline
Transurban is targeting net-zero GHG emissions across the value chain by 2050, reducing absolute scope 1, 2, and 3 GHG emissions 90% by FY50 from a FY19 base year.	526,160 tCO₂e

While not currently validated by SBTi (as of 30 June 2024), Transurban's 2050 net zero target has been prepared generally in accordance with SBTi net-zero methodology (v1.0) and includes all relevant scope 1, 2 and 3 GHG emissions as per Transurban's published GHG inventory.

Achieving our 2050 net zero target is dependent on innovation and GHG reduction across hard to abate sectors in our value chain (e.g. cement, steel, and asphalt). While Transurban is committed to working with value chain partners and Government on new and emerging technologies to reduce GHG emissions, our ability to meet our targets may be limited to what is possible in the Australian and North American context, such as compliance with engineering specifications.

For company performance against GHG reduction targets, see the most recent annual reporting suite of documents, available on our website.

Data accuracy and estimates

Transurban provides detailed and transparent GHG data in our Corporate Report to accompany financial statements. Due to invoicing cycles and supply chain reporting, some GHG data requires a longer period to collect and verify compared to financial data. Where required, estimation of incomplete GHG datasets is used to provide a full year dataset indicative of Transurban's GHG inventory for the reported period. Estimated figures are included in the assured data scope and it is not expected that these estimates will materially affect GHG data totals.

Where possible, estimates are reduced as far as practicable in reported data sets with consideration to data governance, quality, and assurance processes. Typically this results in less than 2 months of estimates for scope 1 and 2 data sets and less than 3 months of estimates for scope 3 data sets.

Where estimation may have been used in relation to a key performance metric, written commentary about Transurban performance trend will address any material estimation.

While Transurban takes all effort to reduce errors in estimates, we do not guarantee the accuracy of the information provided and investors should not be place undue reliance on these estimates or forward-looking statements. See 'Disclaimer' for further details.

Inventory discrepancies	Due to rounding and data presentation, there may be minor discrepancies in reported totals compared to the sum of individual asset data.
GHG change management	<p>Due to invoicing cycles and supply chain reporting, it can take up to 3 months following the end of the financial year for full GHG data to become available.</p> <ul style="list-style-type: none"> • If final figures for the period vary materially from those published in the Corporate Report (containing estimates), or if corrections are required to ensure past year data remains consistent with future reporting scope, GHG inventories will be considered for re-publishing with revision context provided. Depending on the materiality of the variance, this may occur on an ad hoc basis, or it may occur as part of the following year's Report. • Where final figures are considered consistent with published Corporate Report data, the GHG inventory will be updated in the following year's Report to reflect actual figures.
GHG disclosures	GHG inventories disclosed to other parties such as ESG benchmarks will typically reflect published datasets except for regulatory reporting such as NGERs where an updated actual data set will be provided to the extent practicable. As such, reported figures for Transurban may vary depending on the context.

Appendix 1: Transurban GHG activities and methodology details

Transurban uses the GHG Protocol and Australian NGER Scheme to define our scope 1, 2 and 3 emissions. This section provides an overview of the application of GHG Protocol and NGERs applied to Transurban activities and determination of related GHG emissions.

Scope 1, Direct GHG emissions

Definition	Direct emissions from operations that are owned or controlled by Transurban.
Transurban's relevant activities	<ul style="list-style-type: none"> Fuels and gas used in Transurban owned or operated plant and equipment Fuels and gas used for road operations, maintenance and incident response in facilities controlled by Transurban.
Activity boundary	All direct emissions occurring at offices and facilities owned or operated by Transurban. Under NGER operational control, this includes the direct emissions of contractors operating within Transurban controlled office and facility physical boundaries.
Exclusions	Fugitive emissions from air conditioning units.
Calculation methodology	<p>Calculated by multiplying the quantity of fuel type by the applicable energy and/or fuel emission factor, sourced from appropriate regional or global references.</p> <p>Unless region-specific factors are available, the National Greenhouse and Energy Reporting (Measurement) Determination 2008 (Cth) (Australian NGER (Measurement) Determination) has been used as the source for scope 1 factors and methodologies.</p> <p>Region specific factors used:</p> <ul style="list-style-type: none"> North America: Environmental Protection Agency eGRID.
Additional notes	

Scope 2, Indirect GHG emissions

Definition	Indirect emissions from the generation of purchased or acquired electricity consumed by Transurban.
Transurban's relevant activities	Electricity used in road operations, including but not limited to tunnel ventilation systems, roadside lighting and equipment, heating ventilation and cooling, control centres and corporate offices.
Activity boundary	All electricity consumption at offices and facilities owned or operated by Transurban. Under NGER operational control, this includes electricity used by contractors operating within Transurban controlled offices and facility physical boundaries.
Exclusions	Nil material exclusions.
Calculation methodology	<p>Calculated by multiplying the quantity of electricity by the relevant energy and/or emissions factor for the reporting method. Consistent with the GHG Protocol, two reporting methods are used for the calculation of indirect electricity emissions:</p> <ul style="list-style-type: none"> Market-based reporting: electricity emissions accounting for consumption of onsite renewable generation, network and voluntary renewable electricity purchases, and the surrender/retirement of renewable energy certificates Location-based reporting: grid-average electricity generation emission for defined geographic locations (i.e. grid factors) where the electricity is consumed (after accounting for onsite generation). <p>Unless otherwise specified, Transurban's GHG inventory, GHG target basis, and renewable electricity claims use the Market-based method.</p> <p>Geographic factors are sourced from the relevant legislation guidance or agency e.g. the Australian NGER (Measurement) Determination for AU grid emissions factors, and eGrid for North America.</p>
Additional notes	

Scope 3, Category 1, Purchased goods and services

Definition	Extraction, production, and transportation of goods and services purchased or acquired by Transurban, not otherwise included in Categories 2 - 8.
GHG Protocol Boundaries	All upstream (cradle-to-gate) emissions of purchased goods and services.
Transurban's relevant activities	All corporate expenditure associated with business and asset operations and maintenance activities not included in scope 1 and scope 2, or other scope 3 categories.
Activity boundary	All relevant expenditure by Transurban entities.
Exclusions	Exclusions include non-carbon related activities/expenses such as wages, employee benefits, general fees and taxes. These exclusions generally account for less than 5% of total purchased goods and services emissions.
Calculation methodology	<p>Estimated by multiplying procurement spend activity by relevant Environmentally Extended Input-Output (EEIO) GHG emissions factors based on spend categorisation. This method provides an estimate of purchased goods and services lifecycle emissions based on industry level data (spend-based average data method).</p> <p>Transurban uses EEIO factors developed by the Integrated Sustainability Analysis (ISA) research group at the University of Sydney mapped to Transurban spend categories on a best-fit basis. This data should be used as an estimate only and informs Transurban decarbonisation impacts, opportunities, and strategy. As data collection improves over time, Transurban is reviewing Scope 3, Category 1 methodology with an aim to move to supplier and/or activity specific measurement and reporting and enhanced transition planning and disclosure.</p>
Additional notes	

Scope 3, Category 2, Capital goods

Definition	Extraction, production, and transportation of capital goods purchased or acquired by Transurban.
GHG Protocol Boundaries	All upstream (cradle-to-gate) emissions of purchased capital goods.
Transurban's relevant activities	Fuel, electricity, and materials used in the new construction, or major widening/upgrade, of Transurban toll roads (Major Projects).
Activity boundary	Construction phase embodied carbon of Major Projects, including emissions associated with materials manufacturing and transport, and construction scope 1 and scope 2 emissions.
Exclusions	Excludes capital goods and operating asset 'projects' which are currently captured under Scope 3, Category 1. E.g. asphalt re-sheeting.
Calculation methodology	<p>Emissions from Transurban Major Projects are estimated based on major project spend multiplied by project-specific emissions factors. Project-specific emissions factors are obtained where available from GHG inventories provided by construction partners in Australia as part of Infrastructure Sustainability Council (IS) Rating Tool requirements (which Transurban requires to be completed on all Major Projects in Australia).</p> <p>The IS Rating Tool calculator for GHG emissions includes fuel and electricity consumed during major project construction and the embodied emissions of construction materials (e.g. concrete, asphalt, steel, etc.) based on product specific or industry LCA factors approved by the IS technical working group. The associated GHG emissions for each project are updated at 'base case', 'design', and 'as-built' phases to provide forecast and actual total GHG emissions at various project stages.</p> <p>To provide an estimate of relevant emissions in the reporting period, Transurban uses the most recent GHG estimate available for each project to create project specific emissions factors (relative to total project spend) and multiplies this factor by the relevant project specific spend in the reporting period.</p> <p>Where a project-specific emissions factor is unavailable (e.g. North America projects), the Transurban FY19 Major Project emissions intensity average is used as an estimate GHG factor.</p>
Additional notes	

Scope 3, Category 3, Fuel and energy related activities (not included in scope 1 or scope 2)

Definition	Extraction, production, and transportation of fuels and energy purchased or acquired by Transurban, not already accounted for in scope 1 or scope 2.
GHG Protocol Boundaries	For upstream emissions of purchased fuels: a. All upstream (cradle-to-gate) emissions of purchased fuels (from raw material extraction up to the point of, but excluding combustion) b. For upstream emissions of purchased electricity: All upstream (cradle-to-gate) emissions of purchased fuels (from raw material extraction up to the point of, but excluding, combustion by a power generator) c. For Transmission and Distribution (T&D) losses: All upstream (cradle-to-gate) emissions of energy consumed in a T&D system, including emissions from combustion d. For generation of purchased electricity that is sold to end users: Emissions from the generation of purchased energy.
Transurban's relevant activities	Upstream emissions from Transurban purchased fuels and electricity transmission and distribution losses.
Activity boundary	Upstream emissions from Transurban purchased fuels and electricity transmission and distribution losses.
Exclusions	Nil material exclusions.
Calculation methodology	Emissions from fuel and electricity supply networks are calculated by multiplying fuel and electricity quantities by the relevant energy and/or scope 3 emissions factors primarily sourced from the Australian Government National Greenhouse Accounts (NGA) Factors or other jurisdictional/regional factors where relevant (Environmental Protection Agency eGRID and Canada National Inventory Report).
Additional notes	Where Transurban market-based scope 2 method uses combined scope 2 + scope 3 factors, no further scope 3 electricity emissions are reported in scope 3, category 3.

Scope 3, Category 4, Upstream transportation and distribution

Definition	Transportation and distribution of products purchased by Transurban between a company's tier 1 suppliers and its own operations (in vehicles and facilities not owned or controlled by Transurban). Transportation and distribution services purchased by Transurban, including inbound logistics, outbound logistics (e.g., of sold products), and transportation and distribution between a company's own facilities (in vehicles and facilities not owned or controlled by Transurban).
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of transportation and distribution providers that occur during use of vehicles and facilities (e.g., from energy use). Optional: The life cycle emissions associated with manufacturing vehicles, facilities, or infrastructure.
Transurban's relevant activities	Upstream transportation and distribution emissions associated with the delivery of construction materials for Major Projects.
Activity boundary	Material upstream transportation and distribution GHG emissions associated with the delivery of construction materials for Major Projects as reported by construction partners through the IS Rating process. These emissions are reported within Scope 3, Category 2, Capital Goods. GHG emissions associated with the transport of materials for operating asset projects considered included in EEIO estimate methodology under Scope 3, Category 1, Purchased Goods and Services.
Exclusions	Nil material exclusions. The relevant emissions are reported in other scope 3 categories.
Calculation methodology	See Scope 3, Category 1, Purchased goods and services for associated methodology. See Scope 3, Category 2, Capital goods for associated methodology.
Additional notes	Transurban does not report against the optional Scope 3, Category 4 boundary.

Scope 3, Category 5, Waste generated in operations

Definition	Disposal and treatment of waste generated in Transurban's operations (in facilities not owned or controlled by Transurban).
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of waste management suppliers that occur during waste disposal or treatment. Optional: Emissions from transportation of waste.
Transurban's relevant activities	Waste from road operations and maintenance, and corporate offices.
Activity boundary	Waste services engaged by Transurban or reported by contractors operating within Transurban controlled office/facility boundaries.
Exclusions	Liquid/hazardous waste.
Calculation methodology	Activity data is taken from waste contractor invoices or subcontractor reports, including recycling or disposal outcome, and multiplied by relevant waste disposal emissions factors. Waste factors are derived from the Australian NGER (Measurement) Determination.
Additional notes	Transurban does not report against the optional Scope 3, Category 5 boundary.

Scope 3, Category 6, Business travel

Definition	Transportation of employees for business-related activities (in vehicles not owned or operated by Transurban).
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of transportation carriers that occur during use of vehicles (e.g., from energy use). Optional: The life cycle emissions associated with manufacturing vehicles or infrastructure.
Transurban's relevant activities	Employee air travel for business-related activities.
Activity boundary	All domestic and international air travel booked through Transurban employee booking services.
Exclusions	Taxis and other road travel captured in Scope 3, Category 1, Purchased Goods and Services.
Calculation methodology	Activity data provided by Transurban's business travel partner/s is multiplied by relevant emissions factors for domestic and international air travel, e.g. factors from UK DEFRA guidelines as recommended by the GHG Protocol.
Additional notes	Transurban does not report against the optional Scope 3, Category 6 boundary.

Scope 3, Category 7, Employee commuting

Definition	Transportation of employees between their homes and their worksites (in vehicles not owned or operated by Transurban).
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of employees and transportation providers that occur during use of vehicles (e.g., from energy use). Optional: Emissions from employee teleworking.
Transurban's relevant activities	Employee commuting to offices and assets.
Activity boundary	Deemed immaterial due to Transurban corporate office proximity to public transport links.
Exclusions	Excluded. Deemed negligible, estimated at ~2,200 tCO ₂ e per annum (<0.5% of base year scope 3).
Calculation methodology	Estimated based on Australian employee base and Australian 'commuting to work' 2016 census information. This assessment will be periodically reviewed.
Additional notes	Transurban does not report against the optional Scope 3, Category 7 boundary.

Scope 3, Category 8, Upstream leased assets

Definition	Operation of assets leased by Transurban (lessee) and not included in scope 1 and scope 2 – reported by lessee.
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of lessors that occur during Transurban's operation of leased assets (e.g., from energy use). Optional: The life cycle emissions associated with manufacturing or constructing leased assets.
Transurban's relevant activities	All fuel and electricity emissions from leased asset operations included within scope 1 and scope 2.
Activity boundary	All Transurban assets are effectively 'leased assets' being under concession arrangement with Government partners. Given the length of these concession arrangements, Transurban treats these assets as 'owned' for the purposes of GHG reporting and as such all fuel and electricity from the operation of leased assets is included within scope 1 and scope 2 where applicable.
Exclusions	Nil material exclusions, The relevant emissions are reported in scope 1 and scope 2.
Calculation methodology	As per scope 1 and scope 2 methodology.
Additional notes	Transurban does not report against the optional Scope 3, Category 8 boundary.

Scope 3, Category 9, Downstream transportation and distribution

Definition	Transportation and distribution of products sold by Transurban between Transurban's operations and the end consumer (if not paid for by Transurban), including retail and storage (in vehicles and facilities not owned or controlled by Transurban).
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of transportation providers, distributors, and retailers that occur during use of vehicles and facilities (e.g., from energy use). Optional: The life cycle emissions associated with manufacturing vehicles, facilities, or infrastructure.
Transurban's relevant activities	No transport or distribution of products not paid for by Transurban.
Activity boundary	Nil material activities.
Exclusions	Nil material exclusions.
Calculation methodology	Not applicable.
Additional notes	Transurban does not report against the optional Scope 3, Category 9 boundary.

Scope 3, Category 10, Processing of sold products

Definition	Processing of intermediate products sold by downstream companies (e.g., manufacturers).
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of downstream companies that occur during processing (e.g., from energy use).
Transurban's relevant activities	Transurban does not sell any products that undergo further processing or manufacturing.
Activity boundary	Nil material activities.
Exclusions	Nil material exclusions.
Calculation methodology	Not applicable.
Additional notes	

Scope 3, Category 11, Use of sold products

Definition	End use of goods and services sold by Transurban.
GHG Protocol Boundaries	The direct use-phase emissions of sold products over their expected lifetime (i.e., the scope 1 and scope 2 emissions of end users that occur from the use of: products that directly consume energy (fuels or electricity) during use; fuels and feedstocks; and GHGs and products that contain or form GHGs that are emitted during use) Optional: The indirect use-phase emissions of sold products over their expected lifetime (i.e., emissions from the use of products that indirectly consume energy (fuels or electricity) during use).
Transurban's relevant activities	Transurban does not sell any products that directly consume material energy during use, nor have direct use-phase emissions. Customer travel on Transurban roads results in indirect use-phase emissions dependent on the type of customer and vehicle used. While Transurban designs and operates roads in a manner that generally reduces individual customer emissions compared to alternative routes (through improved free flowing traffic conditions and smoother gradients), Transurban has a very limited ability to influence customer vehicle selection, the primary driver of indirect-use phase emissions, and as such does not report against the optional indirect use-phase boundary. Transurban acknowledges the significance of road transport-related emissions and reports an estimate of these emissions separate to the Transurban GHG inventory (see Appendix 2). This assessment will be periodically reviewed.
Activity boundary	Nil material activities.
Exclusions	Nil material exclusions.
Calculation methodology	See Appendix 2 for further detail on the estimation of customer emissions reported separate to the Transurban GHG inventory.
Additional notes	Transurban does not report against the optional Scope 3, Category 11 boundary.

Scope 3, Category 12, End-of-life treatment of sold products

Definition	Waste disposal and treatment of products sold by the reporting company at the end of their life.
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of waste management companies that occur during disposal or treatment of sold products.
Transurban's relevant activities	Disposal of in-vehicle tolling transponders (tags).
Activity boundary	Tags returned to Transurban or partners for disposal or replacement.
Exclusions	Excluded. Deemed negligible, estimated at ~40 tCO ₂ e per annum (0.01% of base year scope 3).
Calculation methodology	Measured quantity of returned tags multiplied by relevant Australian non-putrescible waste factor. This assessment will be periodically reviewed.
Additional notes	

Scope 3, Category 13, Downstream leased assets

Definition	Operation of assets owned by Transurban and leased to other entities, not included in scope 1 and scope 2 – reported by Transurban.
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of lessees that occur during operation of leased assets (e.g., from energy use). Optional: The life cycle emissions associated with manufacturing or constructing leased assets.
Transurban's relevant activities	Use of office or asset facilities leased to maintenance and incident response partners.
Activity boundary	Emissions associated with leased spaces in Transurban owned or operated offices or facilities are generally included within Transurban scope 1 and scope 2 categories.
Exclusions	Nil material exclusions. The relevant emissions reported in other scope 1 and scope 2.
Calculation methodology	Not applicable, see scope 1 and scope 2 methodology.
Additional notes	Transurban does not report against the optional Scope 3, Category 13 boundary.

Scope 3, Category 14, Franchises

Definition	Operation of franchises, not included in scope 1 and scope 2 – reported by Transurban.
GHG Protocol Boundaries	The scope 1 and scope 2 emissions of franchisees that occur during operation of franchises (e.g. from energy use). Optional: The life cycle emissions associated with manufacturing or constructing franchises.
Transurban's relevant activities	Transurban does not have any franchises.
Activity boundary	Nil material activities.
Exclusions	Nil material exclusions.
Calculation methodology	Not applicable.
Additional notes	Transurban does not report against the optional Scope 3, Category 14 boundary.

Scope 3, Category 15, Investments

Definition	Operation of investments (including equity and debt investments, and project finance) not included in scope 1 or scope 2.
GHG Protocol Boundaries	Equity investments made by the reporting company using the company's own capital and balance sheet.
Transurban's relevant activities	Direct fuel and electricity use associated with the operation of non-controlled road assets by Transurban equity partner/s.
Activity boundary	Scope 1 and Scope 2 emissions associated with asset operations where Transurban does not have operational or financial control (adjusted for the share of equity that Transurban holds).
Exclusions	Nil material exclusions.
Calculation methodology	Scope 1 and 2 operational emissions are obtained directly from equity partners for asset operations where Transurban does not have operational or financial control, or otherwise calculated by Transurban using the relevant scope 1 and 2 measurement methodologies described elsewhere in this document (based on equity-partner reported fuel and electricity quantities). These emissions are then apportioned based on Transurban's equity interest.
Additional notes	

Appendix 2: Customer emissions

Customer travel on Transurban roads results in indirect use-phase emissions dependent on the type of customer and vehicle used. While Transurban designs and operates roads in a manner that aims to reduce individual customer emissions compared to alternative routes (through improved free flowing traffic conditions and smoother gradients), Transurban has a very limited ability to influence customer vehicle selection, the primary driver of indirect use-phase emissions, and as such does not report customer emissions under the optional indirect use-phase boundary (scope 3, category 11).

Transurban acknowledges the significance of road transport-related emissions, and playing a role in reducing these emissions is an important part of Transurban's climate response. To promote visibility, Transurban estimates and reports customer travel emissions in our disclosures separate to the Transurban GHG inventory.

Customer travel and emissions data methodology

GHG emissions from customer vehicles on our assets are estimated using total distances travelled, vehicle type, average speed, and fuel efficiency models from the software program COPERT Australia.

Transurban's traffic and tolling systems record information such as vehicle class and entry and exit points of vehicles, as well as vehicle type. Supplementary information on some assets includes vehicle origin-destination studies, independent travel time studies, and assumptions based on the physical dimensions of assets. This data is used to calculate the total Vehicle Kilometres Travelled (VKT) for each asset. Travel speeds are based on GPS data from external provider TomTom to determine average travel speeds on Transurban assets.

Transurban calculates resulting emissions using vehicle GHG emission factors that are sensitive to vehicle type, fuel and travel speed, sourced from COPERT Australia, and based on vehicle emissions testing research for a range of vehicle types and conditions. Vehicle fuel efficiency is based on assuming average vehicle types travelling on Transurban roads. Conservative emissions estimates are made by using fuel efficiency data for vehicle manufacturing standards that have been in place for over 10 years. Actual GHG emissions may vary due to actual vehicle type, age, driving style and other factors that are impractical to estimate.

When not available in actual data, some assumptions regarding vehicle and fuel type are estimated based on Australian Bureau of Statistics (ABS) Motor Vehicle Census data or Bureau of Infrastructure and Transport Research Economic reports.

Customer travel savings

Customer time, fuel and GHG savings in using Transurban toll roads compared to alternative routes are based on travel conditions on the

tolled and toll free routes (distance, time, speed, fuel efficiency) throughout the year.

Estimates are based on the actual trips taken on each Transurban toll road, compared with a scenario in which the same number of trips were taken on an alternative toll free route.

The comparison is made based on a typical reference trip with the same start and end point, either using the toll road or the next available toll free route, see Table 2 for more information on route start and end details.

Table 2: Reference trip start and end locations

State	Asset	Direction	Start*		End*	
			Lat	Long	Lat	Long
NSW	CCT	EB / WB	-33.870	151.190	-33.877	151.232
NSW	ED	NB / SB	-33.938	151.194	-33.856	151.208
NSW	LCT	EB / WB	-33.780	151.134	-33.829	151.214
NSW	M2	EB / WB	-33.752	150.952	-33.801	151.145
NSW	M5 SW	EB / WB	-33.954	150.878	-33.942	151.080
NSW	M5E	EB	-33.942	151.077	-33.946	151.169
NSW	M5E	WB	-33.946	151.171	-33.941	151.076
NSW	M7	NB	-33.962	150.875	-33.739	150.946
NSW	M7	SB	-33.738	150.946	-33.972	150.873
NSW	M8	EB	-33.944	151.077	-33.915	151.184
NSW	M8	WB	-33.915	151.184	-33.944	151.072
NSW	NCX	NB / SB	-33.759	151.044	-33.710	151.117
NSW	WCX M4M8L+RI	NB / SB	-33.921	151.192	-33.861	151.164
NSW	WCX M4**	EB / WB	-33.828	150.997	-33.868	151.181
QC	A25	NB	45.497	-73.558	45.730	-73.604
QC	A25	SB	45.730	-73.605	45.509	-73.557
QLD	AirportLink	NB / SB	-27.451	153.029	-27.412	153.068
QLD	Clem7	NB / SB	-27.501	153.037	-27.430	153.042
QLD	Gateway	NB / SB	-27.638	153.138	-27.396	153.106
QLD	Gateway Extension	NB	-27.658	153.053	-27.562	153.079
QLD	Gateway Extension	SB	-27.562	153.079	-27.661	153.067
QLD	GBB	EB / WB	-27.484	152.993	-27.478	153.019
QLD	Legacy Way	EB / WB	-27.507	152.940	-27.446	153.029
QLD	Logan	EB	-27.562	152.924	-27.714	153.203
QLD	Logan	WB	-27.715	153.202	-27.562	152.922
VIC	CityLink - Southern Link	NB	-37.828	144.953	-37.726	144.852
VIC	CityLink - Southern Link	SB	-37.726	144.854	-37.827	144.952
VIC	CityLink - Western Link	EB / WB	-37.827	144.961	-37.845	145.040
VIC	CityLink - Batman Ave	EB	-37.816	144.973	-37.830	145.012

*start/end coordinates are approximate

**updated Dec 2023

Appendix 3: Climate-related metrics

To assist in the management of identified climate threats and opportunities, we use climate-related metrics and targets to provide transparency on what we monitor and the progress we are making towards mitigating climate-related risks.

We continue to review and enhance our current set of performance metrics in line with TCFD guidance, the forthcoming Australian Sustainability Reporting Standards (ASRS)

Exposure Draft SR1 and SR2, other emerging disclosure frameworks (e.g. IFRS S1, TNFD), and our own ongoing climate risk assessment practices and governance processes. See climate disclosure in the annual Corporate Report for more details.

Table 3 summarises current metrics aligned to strategic climate-related threats and opportunities identified by Transurban.

Table 3: Climate-related metrics

Metric	Unit of measure	Method / Definition
Threat 1: Unexpected changes to stakeholder expectations, government policies and regulation in relation to climate change create an unfavourable operating environment, impacting our reputation and financial performance		
T 1.1 Degree of alignment with government partner climate policies	Weak / Moderate / Strong	Transurban monitors alignment with State and Federal government climate policies within each operating market, including GHG reduction targets and climate change risk and adaptation plans.
Threat 2: Increase in incidence of severe weather events and average temperature affects lifecycle planning, disrupts operations, and increases operating costs		
T 2.1 Number of recordable heat-related injuries that have occurred (Transurban employees and contractors)	Number	Heat-related injuries are captured via Transurban's HSE reporting system.
T 2.2 Traffic incidents on operational assets that occurred on wet or very hot days	Number	Incident numbers based on reported traffic incidents (including incidents logged as crash, incident, secondary incident, broken down vehicle) on our assets in Australia where this data is available. Correlation has occurred with BOM weather data to include 10mm of rain within 1 hour from the nearest metro weather station (<=5km), or days where temperature has reached over 40 degrees Celsius. Note: North American assets excluded from reporting as not available in our system data at this time.
T 2.3 Operational assets with current high-level climate change risk assessments	%	Based on risk assessment workshops undertaken to identify relevant climate drivers and hazards and assess associated risks under different climate scenarios.
T 2.4 Operational assets with a CCAP in place	%	Transurban is committed to developing Climate Change Adaptation Plans (CCAP) for every operational asset, following a standardised approach outlined in our Climate Change Risk and Adaptation Guideline. CCAPs identify relevant climate-related hazards and exposures, assess business risks in line with Transurban's ERM Framework, and define adaptation pathways in response to physical climate risks. CCAPs utilise publicly accessible RCP 8.5 climate projections to assess physical risks under a high-emissions scenario. Climate variables considered include: temperature and heatwaves; rainfall and flooding; bushfire weather; sea level rise; droughts; and relative humidity, over the short- (2030), medium- (2050), and long-term (2090).
T 2.5 Major projects under construction with finalised climate change risk assessments	%	For new assets, Transurban endeavours to include contractual requirements to undertake a climate change risk assessment. Transurban is committed to achieving (at a minimum) 'Excellent' IS ratings from the Infrastructure Sustainability Council for the design and construction phases for all major Australian projects. For North American major projects, Transurban is committed to achieving (at a minimum) 'Silver' Envision ratings from the Institute for Sustainable Infrastructure.
Opportunity 1: Showcase our leadership in climate-risk management to open new market opportunities, strengthen relationships with existing government partners, and capitalise on innovation opportunities		
O 1.1 CDP score	Rating	Transurban participates in CDP voluntary corporate climate and emissions reporting. More information on scoring methodology can be found on the CDP website.
O 1.2 Cumulative weighted average Infrastructure Sustainability rating score	Points	Transurban is committed to achieving (at a minimum) 'Excellent' IS ratings from the Infrastructure Sustainability Council for the design and construction phases for all major Australian projects. For North American major projects, Transurban is committed to achieving (at a minimum) 'Silver' Envision ratings from the Institute for Sustainable Infrastructure.

Opportunity 2: Take proactive steps to reduce Scope 1, 2 and 3 GHG emissions and customer emissions, and transition to net zero

O 2.1 Scope 1 emissions	tCO ₂ e	See Table 1: Material Transurban Activities and Appendix 1 definitions above.
O 2.2 Scope 2 emissions (market-based)	tCO ₂ e	See Table 1: Material Transurban Activities and Appendix 1 definitions above.
O 2.3 Scope 1 and 2 emissions intensity	tCO ₂ e/\$M toll revenue	To determine Scope 1 and 2 emissions intensity, statutory toll revenue has been extracted from the profit and loss statement in corresponding years.
O 2.4 Scope 3 emissions	tCO ₂ e	See Table 1: Material Transurban Activities above for corresponding Scope 3 categories.
O 2.5 Cumulative embodied GHG emission savings from major projects	tCO ₂ e	GHG savings and materials savings are from efficiencies in design and construction activity and the use of lower-embodied emission materials. Figures are based on Australian major project IS ratings, which measure reductions achieved from a 'Base Case' (initial design) through to 'Actual Case' (final project with sustainability initiatives implemented). Figures reported in each year are cumulative totals of all projects with completed ratings. Each project completes a 'Design' rating followed by an 'As Built' rating. Cumulative figures are updated to reflect the latest available rating for each project."
O 2.6 Cumulative materials savings from major projects	Tonnes of concrete	
	Tonnes of asphalt	
	Tonnes of aggregate	

