



TE MANATŪ WAKA
MINISTRY OF TRANSPORT

Domestic Transport Costs and Charges

Information session – Social, health and environmental costs

25 August 2022

Disclaimer

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Results included in this file may be subject to revision as the project team finalises the estimates for the DTCC Final Report.

Acknowledgement

Study team – led by Ian Wallis Associates

Ian Wallis Associates

- Ian Wallis & Adam Lawrence

Altissimo Consulting

- Stephen Chiles & Michael Smith

Boffa Miskell

- Stephen Fuller

David Lupton & Associates

- David Lupton

Emission Impossible

- Gerda Kuschel

King & Small Consultancy

- Murray King

Richard Paling Consulting

- Richard Paling

Rockpoint Corporate Finance

- Chris Stone

TDB Advisory

- Phil Barry

University of Otago (WGN)

- Anja Misdrak & Ed Randal

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- Stuart Donovan

ViaStrada

- Glen Koorey

*Peer review panel
Institute of Transport Study
University of Leeds*

Richard Batley	Peter Mackie	Stephane Hess
Gerard de Jong	Mark Wardman	Andrew Smith
Thijs Dekker	John Nellthorp	Phill Wheat
Manuel Ojeda Cabral	Chris Nash	Dan Johnson

Project Steering Group



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Introduction

Study rationale and scope



Broadening the evidence base for answering a number of policy questions

Are the current levels of charges sufficient to pay for transport subsidies?

Are the current levels of charges sufficient to ensure assets can be maintained, renewed, upgraded and/or expanded?

What are the long-term financial implications regarding network or system expansions?

What are the social costs of transport emissions, noise and accidents by mode?

What is the size of the policy problems being addressed?

What are the potential economic, social and environmental benefits from transport policies, strategies and interventions?

Understanding what the costs are and who pays

Costs



**Direct cost of
the network**



**Direct cost to
users**



Social cost



**Environmental
cost**



Payments



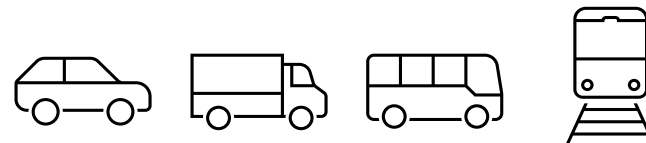
Direct charges



Taxes

STCC

- Published in 2005
- Based on 2001/02 data
- Costs and charges
 - *User costs and charges*
 - *Provider and operator costs*
 - *Social and environmental costs*
 - *Taxes, levies and fees*
- Transport modes
 - *Road and rail freight*
 - *Person travel by rail, bus, private car*



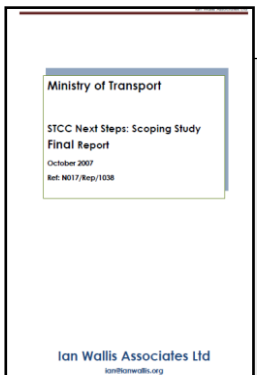
Ministry of Transport

Surface Transport Costs and Charges: Main Report

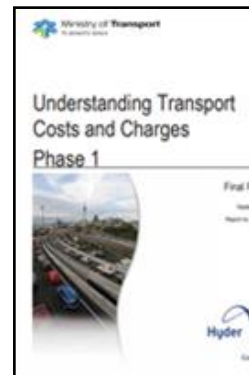
March 2005

Booz Allen Hamilton with Institute
for Transport Studies, University of
Leeds and associated consultants

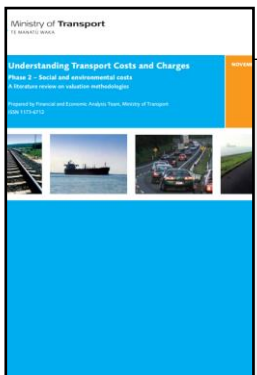
Understanding Transport Costs and Charges



STCC Next Steps: Scoping study (2007)



UTCC Stocktake and gap analysis (2008)



Social and environmental costs related reports (2009-2010)

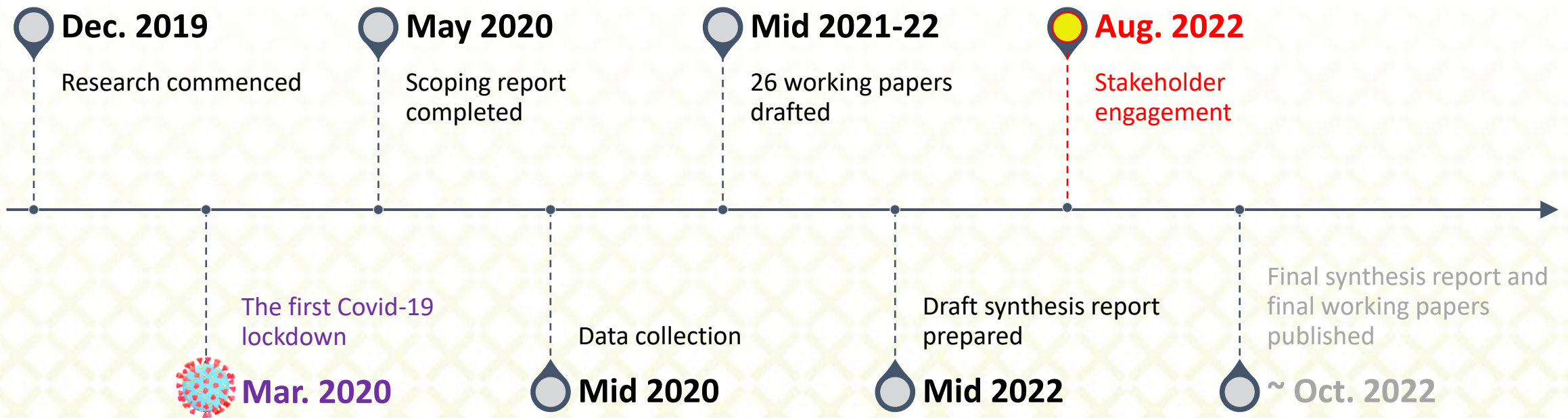
- Valuation methodologies
- Internal and external components
- Value of statistical life – a meta analysis
- Costs and benefits of road vehicle technology



Freight related reports (2010-2011)

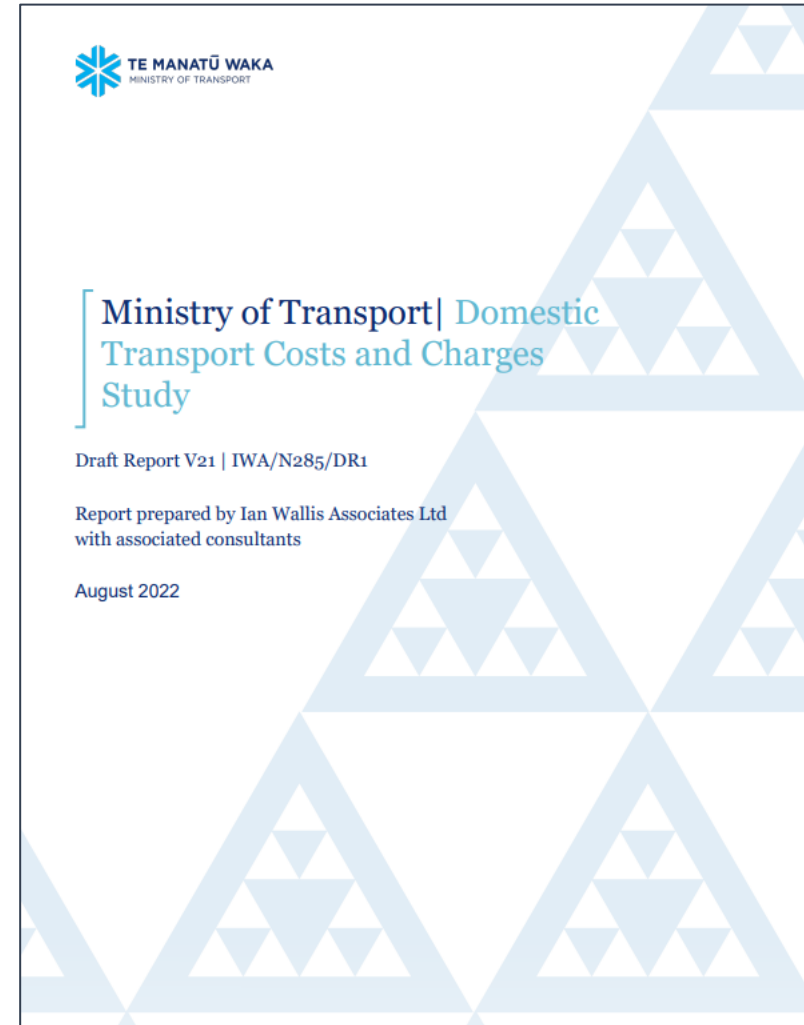
- Transport costs in freight logistics
- Costs of freight transport: Legislation and freight transport
- 2011 Freight charge comparisons

The DTCC journey



DTCC 2019 - 2022

- Based on **2018/19** data
- Costs and charges
 - *User costs and charges*
 - *Provider and operator costs*
 - *Social and environmental costs*
 - *Taxes, levies and fees*
- Transport modes
 - *Road, rail and **coastal freight***
 - *Person travel by rail, bus, private car **and ferry***
 - ***Taxi, ride-hail, micro-mobility, walking & cycling***



[Study scope



Facts and figures



Estimation
methodologies

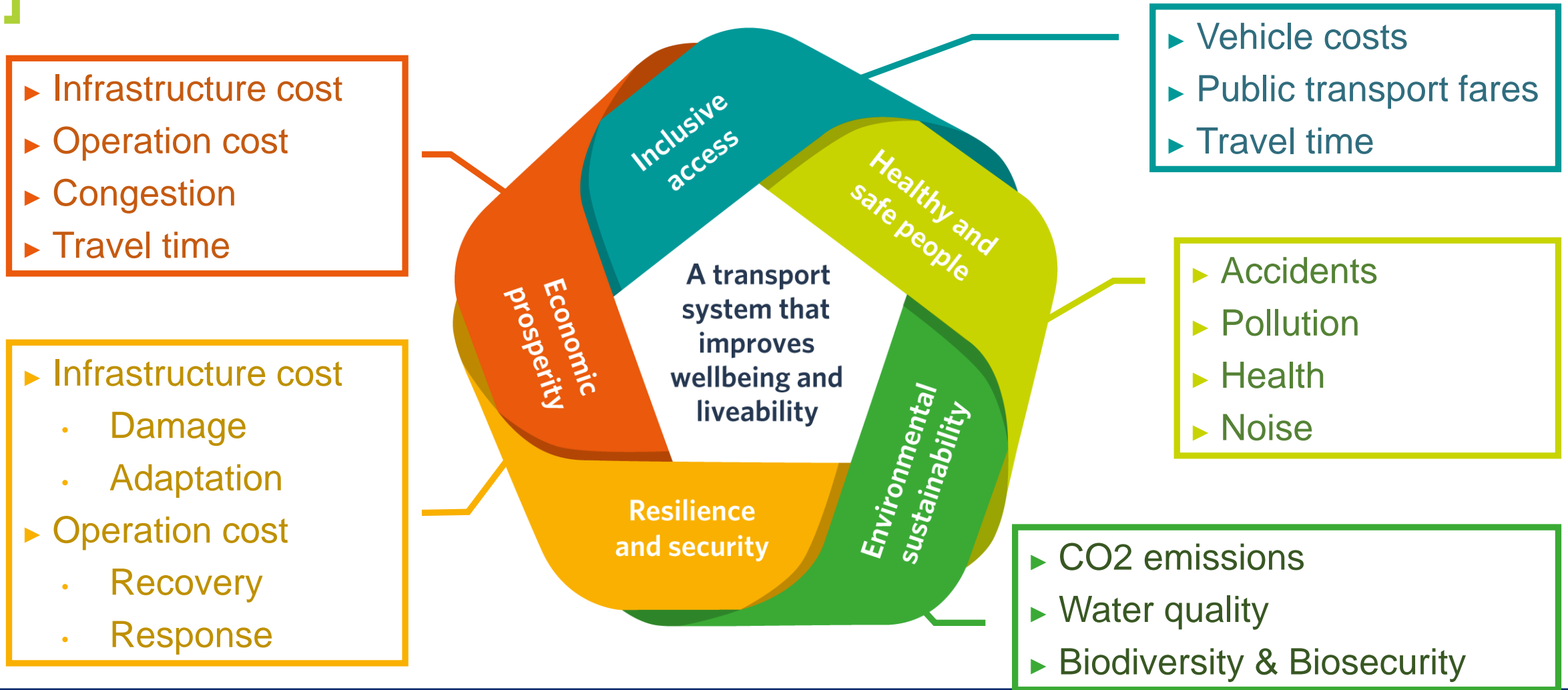


Benefits



Policy assessments

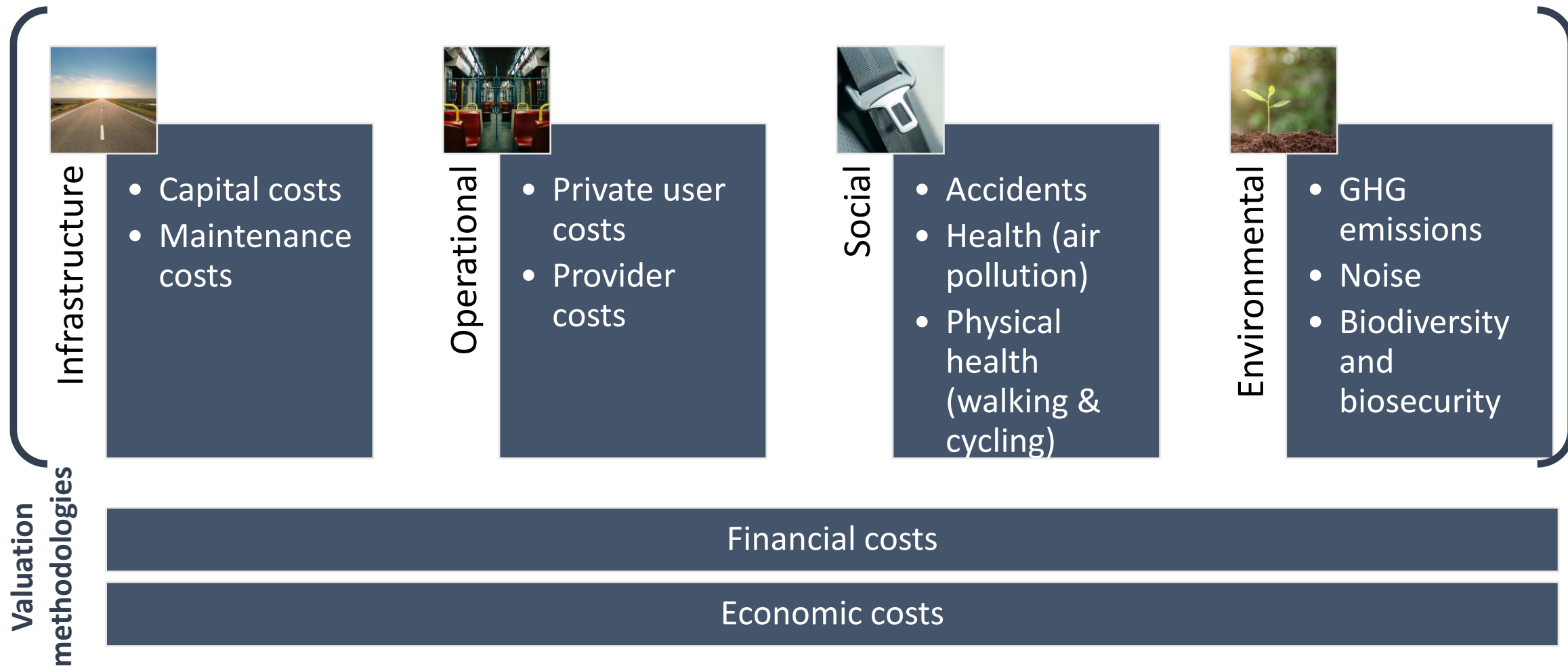
Cost and charges and Transport Outcomes Framework



Methodology overview

Total cost of existing road transport system

Σ



Total cost of existing road transport system

Σ



Infrastructure

- Capital costs
- Maintenance costs



Operational

- Private user costs
- Provider costs



Social

- Accidents
- Health (air pollution)
- Physical health (walking & cycling)



Environmental

- GHG emissions
- Noise
- Biodiversity and biosecurity

Economic cost methodologies

Infrastructure cost

- Opportunity cost – capital charge (WACC 4%) of asset valued at ODRC
- Wear and tear – depreciation

Vehicle operating costs

Value of travel time

- Marginal Product of Labour
- Willingness to pay (WTP)

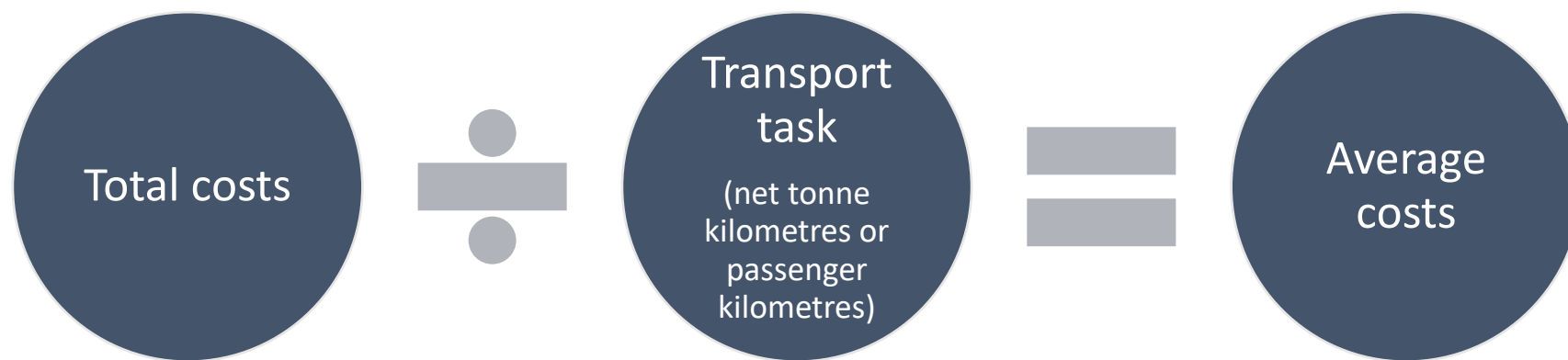
Mortality & morbidity

- VOSL, DALY and QALY – WTP

Various impacts

- Shadow prices
- VOSL, DALY and QALY - WTP
- Cost to treat
- Damage costs approach

Total and average costs of transport



Marginal cost of road transport system

Costs increase in response to demand changes

Short run marginal costs (SRMC)

additional costs with incremental demand and no major CAPEX

e.g. (i) congestion costs during peak periods

e.g. (ii) road wear (maintenance) costs from additional heavy vehicles

Long run marginal costs (LRMC)

additional costs with incremental demand and **major CAPEX**

optimised (size, type and timing) capital investment

e.g. incremental costs of road widening and new road links

Key estimates

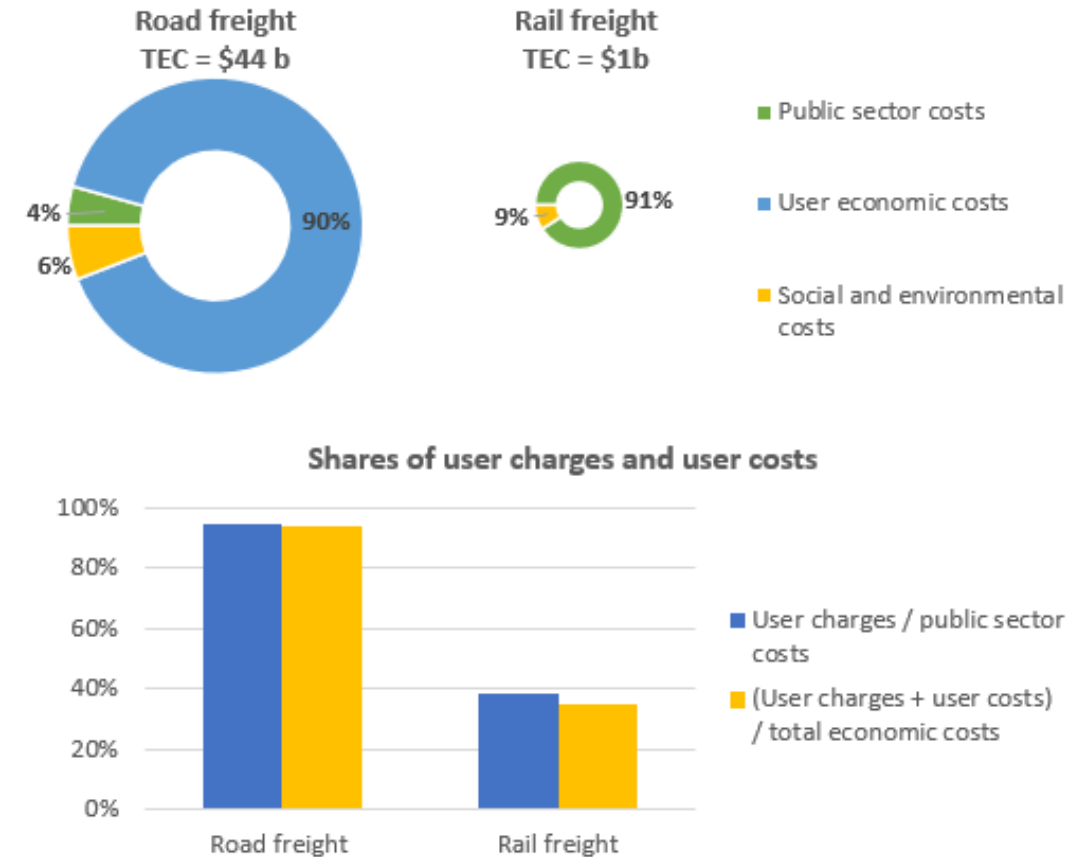


Estimated total cost of transport 2018/19 – road and rail freight

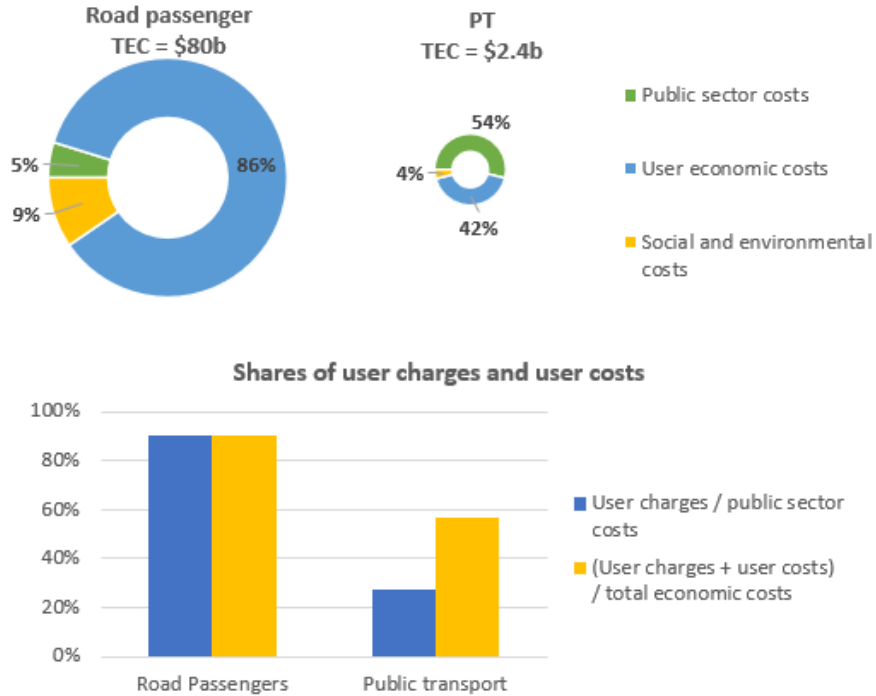
Transport task 2018/19		Units	ROAD	RAIL
			Freight	Freight
Transport task	Net tonne km (ntk)	mill	30,600	4,407

ECONOMIC ANALYSES				
Public sector costs	Total	\$mill	1,905	1,045
User economic costs	Total	\$mill	39,777	-
Social and environment costs	Social costs of accidents	\$mill	1,211	15
	Environmental costs	\$mill	1,397	90
	Total	\$mill	2,607	105
Total economic costs	All	\$mill	44,289	1,150
Average economic costs	Economic cost / ntk	cents	145	26

FINANCIAL ANALYSES				
User charges	Taxes & duties	RUC, FED etc(roads)	\$mill	1,797
	Direct user charges	KR freight rates	\$mill	-
	Total		\$mill	1,797
Public sector costs less user charges [financial subsidy/(surplus)]			\$mill	108
User charges / public sector costs			%	94%
(User charges + User economic costs) / Total economic costs			%	94%



Estimated total cost of transport 2018/19 – road passenger vs public transport



Note: PT includes bus, rail and ferry

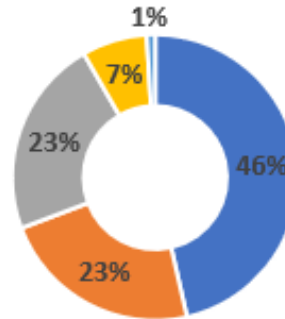
Transport task 2018/19		Units	ROAD	PT
			Persons	Persons
Transport task	Person km (pkm)	mill	61,530	1,588

ECONOMIC ANALYSES				
Public sector costs	Total	\$mill	3,813	1306
User economic costs	Total	\$mill	68,404	1,018
Social and environment costs	Social costs of accidents	\$mill	5,484	
	Environmental costs	\$mill	2,136	102
	Total	\$mill	7,620	102
Total economic costs	All	\$mill	79,837	2,426
Average economic costs	Economic cost / pkm	cents	130	153

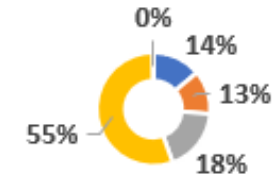
FINANCIAL ANALYSES					
User charges	Taxes & duties	RUC, FED etc(roads)	\$mill	3,441	0.0
	Direct user charges	PT fares	\$mill	-	360
	Total		\$mill	3,441	360
Public sector costs less user charges [financial subsidy/(surplus)]			\$mill	372	946
User charges / public sector costs			%	90%	28%
(User charges + User economic costs) / Total economic costs			%	90%	57%

Social, health and environmental costs 2018/19\$

Road Freight
SEC = \$2.6b

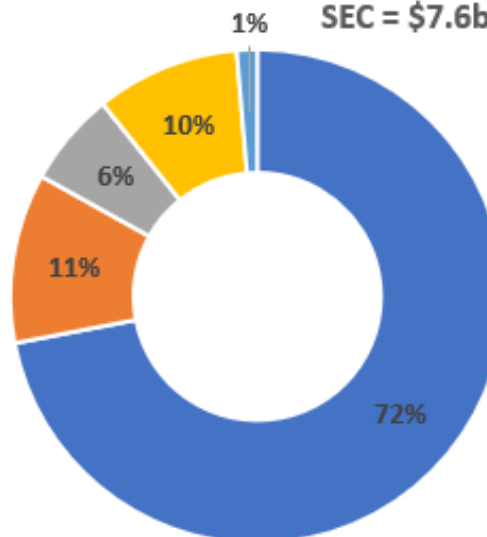


Rail Freight
SEC = \$0.1b

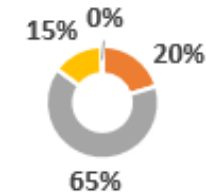


- Social costs of accidents
- GHG emissions
- Air quality emissions
- Noise
- Ecology/biodiversity

Road Persons
SEC = \$7.6b



PT Persons
SEC = \$0.1b



- Social costs of accidents
- GHG emissions
- Air quality emissions
- Noise
- Ecology/biodiversity

Notes:

- AQ estimates are based on 2018 MBCM valuations
- PT includes bus, rail and ferry

Questions?