

REFERENCES AND SOURCES:

ASSESSMENT OF PROGRESS IN MEETING VICTORIA'S INFRASTRUCTURE NEEDS

October 2017



1. Purpose

This document accompanies Infrastructure Victoria’s *Assessment of progress in meeting Victoria’s infrastructure needs* incorporated in our 2016-2017 Annual Report.

In that assessment, we produced metrics and data to serve as indicators of progress in meeting the infrastructure needs identified in *Victoria’s 30-year Infrastructure Strategy*.

The references and sources for those metrics and data are set out in the following pages across 19 infrastructure needs.

2. References and sources

Table 1: References and sources

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
Need 1 Address infrastructure demands in areas with high population growth							
1. Ability to improve access to services or increase service capacity for high growth areas	LGAs with high forecast growth	Victoria in the Future	Department of Environment, Land, Water and Planning	1996	2016	Annual	Link Link
Need 2 Address infrastructure challenges in areas with low or negative growth							
1. Ability to optimise infrastructure delivery while maintaining or improving service delivery within low growth areas	LGAs with low forecast growth	Victoria in the Future	Department of Environment, Land, Water and Planning	1996	2016	Annual	Link Link
Need 3 Respond to increasing pressures on health infrastructure, particularly due to ageing							
1. Increase in efficiency of health services	Average health expenditure per person (2014-15)	Health Expenditure Australia 2014-15	Australian Institute of Health and Welfare	2004-05	2014-15	Annual	Link
Need 4 Enable physical activity and participation							
1. Increase in access to infrastructure to encourage physical activity	Percentage of children living in neighbourhoods with good parks, playgrounds and play-spaces	Victorian Child and Adolescent Monitoring System (VCAMS)	Department of Education and Training	2006	2013	Ad hoc	Link

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
Need 5 Provide spaces where communities can come together							
1. Improvements in perceived access to and quality of open and community spaces	Percentage of Victorians who feel that their neighbourhood 'Is a pleasant environment' (taking into consideration features such as nice streets and open spaces)	Victorian Population Health Survey, Social Capital Report	Department of Health and Human Services	2011-12	2011-12	Unknown	Link
	Percentage of Victorians with access to community services and resources (such as libraries, maternal and child health centres and neighbourhood centres)	Victorian Population Health Survey, Social Capital Report	Department of Health and Human Services	2011-12	2011-12	Unknown	Link
Need 6 Improve accessibility for people with mobility challenges							
1. Improvement in user experience of mobility challenged people accessing transport and social services infrastructure	Percentage of Victorians with a disability who have difficulty using public transport	Disability, Ageing and Carers, Australia: Victoria, 2015	Australian Bureau of Statistics	1998	2015	Periodic	Link
2. Proportion of infrastructure that is accessible for mobility challenged people	Percentage of public transport services that are DDA compliant	Accessible Public Transport in Victoria Plan 2013-17	Department of Economic Development, Jobs, Transport and Resources	2013	2013	Unknown	Link
Need 7 Provide better access to housing for the most vulnerable Victorians							
1. Reduction in housing stress for lower income households in the rental market	Rental Affordability Index (RAI) for households in the bottom 40 per cent of income distribution in Greater Melbourne	Rental Affordability Index	SGS Economics and Planning	2015	2016	Periodic	Link
	RAI for Greater Melbourne and rest of Victoria	Rental Affordability Index	SGS Economics and Planning	2015	2016	Periodic	Link
2. Reduction in average waiting time of people on the social housing register waitlist	Number of social housing dwellings in Victoria	Annual Report	Department of Health and Human Services	2014-15	2016-17	Annual	Link

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
3. Ability to provide homeless people a pathway into housing	Unmet demand for accommodation services	Specialist Homeless Services - Supplementary Tables Victoria	Australian Institute of Health and Welfare	2014-15	2015-16	Annual	Link
	Gross increase in the number of public and community housing dwellings	Report on Government Services	Productivity Commission	1995	2017	Annual	Link
	Proportion of public housing households with at least four working facilities and no more than two major structural problems	Report on Government Services	Productivity Commission	1995	2017	Annual	Link
Need 8 Address expanded demand on the justice system							
1. Reduction in demand for justice services	Number of prisoners in Victoria's prison system	Monthly prisoner and offender statistics	Department of Justice and Regulation	2016	2016	Annual	Link
	Number of unsentenced prisoners in Victoria's prison system	Monthly prisoner and offender statistics	Department of Justice and Regulation	2016	2016	Annual	Link
Need 9 Provide access to high-quality education infrastructure to support lifelong learning							
1. Increase in overall education asset utilisation	Estimated excess enrolment capacity in Victorian Government Schools	Infrastructure Capability Assessment: Education and Training	Deloitte/Aurecon	2016	2016	N/A	Link
Need 10 Meet growing demand for access to economic activity in central Melbourne							
1. Increase in supply or management of demand for transport system capacity to accommodate journeys to and from the central city 2. Improvements in transport performance across the network to access central Melbourne	Metropolitan trains:						
	Annual train patronage, inner city stations, City loop + Richmond + North Melbourne + South Yarra	Train Station Patronage Data	Public Transport Victoria	2008	Jan-17	Annual	Link
	Number of AM Peak train services above benchmark levels of load standard/congestion, network wide	Metropolitan Train Load Standards Survey Report	Public Transport Victoria	May-15	May-16	Annual	Link
	Proportion of metropolitan services delivered and on time	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
	Average daily off-peak station entries – inner city stations	Patronage Data	Public Transport Victoria	2008	Jan-17	Annual	Link
	Capacity of trains arriving at Flinders Street before 9am and departing Flinders Street between 4pm - 6pm (average weekday)	PTV timetable data	Public Transport Victoria	Aug-17		Daily	Link
Metropolitan trams:							
	Average daily tram arrival load at CBD cordons	Metropolitan Tram Load Standards Survey Report	Public Transport Victoria	May-15	May-16	Annual	Link
	Number of AM Peak rolling hour average tram loads above desired standards, network wide	Metropolitan Tram Load Standards Survey Report	Public Transport Victoria	May-15	May-16	Annual	Link
	Proportion of Yarra Tram services delivered and on time	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
Metropolitan bus:							
	Number of bus services operating within the central city on an average weekday	PTV Timetable Data	Public Transport Victoria	2014	Aug-2016	Daily	Link
	Bus service punctuality and reliability	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
Metropolitan bike:							
	Bicycle volumes at selected inner city locations (average weekday volume per site)	Bicycle counter volumes	VicRoads	2010	2015	Annual	Link
	Length of bicycle routes in the Melbourne CBD	Bicycle Plan 2016-20	City of Melbourne	2012	2016	Periodic	Link
	Length of Principal Bicycle network	Principal Bicycle Network	VicRoads	Aug-15	Jul-17	Ad hoc	Link

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
	Length of Strategic Cycling Corridor network	Strategic Cycling Corridor	VicRoads	Oct-16	May-17	Ad hoc	Link
	Metropolitan roads:						
	AM peak travel time variability from average for road transport	Traffic Monitor	VicRoads	2014	2015	Annual	Link Link
Need 11 Improve access to middle and outer metropolitan major employment centres							
<p>1. Increase in supply or management of demand for transport system capacity to accommodate journeys to and from middle and outer major employment centres</p> <p>2. Improvements in transport performance across the network to access middle and outer major employment centres</p>	Metropolitan trains:						
	Annual train patronage, non-inner city stations	Patronage Data	Public Transport Victoria	2008	May-15	Annual	Link
	Proportion of MTM services delivered and on time	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
	Metropolitan activity centre average weekday PM peak station entries	Patronage Data	Public Transport Victoria	2008	Jan-17	Annual	Link
	Metropolitan trams:						
	Proportion of Yarra Tram services delivered and on time	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
	Metropolitan bus:						
	Annual bus patronage	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
	Bus service punctuality and reliability	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
	Metropolitan bike:						
Length of Principal Bicycle network	Principal Bicycle Network	VicRoads	Aug-15	Jul-17	Ad hoc	Link	
Length of Strategic Cycling Corridor network	Strategic Cycling Corridor	VicRoads	Oct-16	May-17	Ad hoc	Link	

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
	Metropolitan roads:						
	AM peak travel time variability from average for road transport	Traffic Monitor	VicRoads	2014	2015	Annual	Link Link
Need 12 Improve access to jobs and services for people in regional and rural areas							
<p>1. Increase in supply or management of demand for transport system capacity to accommodate journeys to and from major employment centres and service centres in rural and regional areas</p> <p>2. Improvements in transport performance across the network to access jobs and services in rural and regional areas</p>	Regional trains:						
	Number of seats on trains arriving in Melbourne before 9am and departing Melbourne between 4pm - 6pm (average weekday)	V/Line performance report	V/Line	Dec-15	Jul-17	Ad hoc	Link
	Average utilisation of train service capacity arriving in Melbourne before 9am and departing Melbourne between 4pm - 6pm (average weekday)	V/Line performance report	V/Line	Dec-15	Jul-17	Ad hoc	Link
	Regional rail service punctuality and reliability	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
	Total annual boardings	V/Line Annual Report	V/Line	2012	Oct-2017	Annual	Link
	Regional coach:						
	Total annual boardings	V/Line Annual Report	V/Line	2012	Oct-2017	Annual	Link
	Regional bus:						
	Bus service punctuality and reliability	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
	Regional roads:						
	Length of road outside of Greater Melbourne in "Poor" or "Very Poor" condition	VicRoads pavement condition data (International Roughness Index)	VicRoads	2015	No update	Unknown	Link

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
3. Improvements in ICT connectivity in rural and regional areas	Regional ICT:						
	Percentage of households outside Greater Melbourne with internet connection	Census of Population and Housing	Australian Bureau of Statistics	2001	2016	4 years	Link
	Number of mobile blackspots in Victoria	Mobile black spot program	Department of Communications and the Arts	Feb-16	Feb-16	Unknown	Link
	NBN rollout statistics	NBN - Rollout Information	NBN Co Limited	Jun-11	Aug-17	Weekly	Link
Need 13 Improve the efficiency of freight supply chains							
1. Reduction in cost of the total freight task (origin to destination)	Average interstate freight train speed, Melbourne - Brisbane corridor	Trainline	Bureau of Infrastructure, Transport and Regional Economics	2011	2016	Annual	Link
	Average intermodal freight train dwell time as a proportion of scheduled travel times, Melbourne - Brisbane corridor	Trainline	Bureau of Infrastructure, Transport and Regional Economics	2011	2016	Annual	Link
	Port of Melbourne Average TEUs per ship hour at berth	Waterline	Bureau of Infrastructure, Transport and Regional Economics	1994	2017	Quarterly	Link
	Port of Melbourne Total TEUs exchanged	Waterline	Bureau of Infrastructure, Transport and Regional Economics	1994	2017	Quarterly	Link

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
	Melbourne airport scheduled international air freight tonnage	International Airline Activity Annual Publications	Bureau of Infrastructure, Transport and Regional Economics	1999-2000	2015-16	Annual	Link
Need 14 Manage threats to water security, particularly in regional and rural areas							
1. Reduction in vulnerability of water supply systems to water shortages, that is, supply is sufficient to meet minimum levels of service agreed with water users 2. Increase in the efficiency of irrigation delivery systems 3. Increase in total water available for non-urban water users	Percentage of available water taken for consumptive purposes	Victorian Water Accounts	Department of Environment, Land, Water and Planning	2003-04	2014-15	Annual	Link
	Number of Victorian towns on restrictions	Victorian Water Accounts	Department of Environment, Land, Water and Planning	2003-04	2014-15	Annual	Link
	Total volume of water in Victorian dams	Water information	Bureau of Meteorology	2016	2017	Daily	Link
Need 15 Manage pressures on landfill and waste recovery facilities							
1. Improvements in waste generation and/or reuse/ recycling per capita	Tonnes of waste per capita in Victoria	Australian National Waste Report	Department of the Environment and Energy	2010	2016	3 yearly	Link
	Victorian resource recovery rate	Australian National Waste Report	Department of the Environment and Energy	2010	2016	3 yearly	Link
2. Ability to addresses forecast future demand for waste infrastructure	Total projected waste generation to 2043-44	Victorian Waste and Resource Recovery Model	Sustainability Victoria	2013	2013	Unknown	Link
Need 16 Help preserve natural environments and minimise biodiversity loss							
1. Increase in the volume and quality of Victoria's preserved natural habitat 2. Reduction in indigenous biodiversity	Number of threatened species in Victoria	Threatened species advisory lists	Department of Environment, Land, Water and Planning	2009	2017	Unknown	Link

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
losses	Total area of protected land	Collaborative Australian Protected Area Database	Department of the Environment and Energy	1997	2016	2 yearly	Link
Need 17 Improve the health of waterways and coastal areas							
1. Increase of waterways in good or excellent condition	Proportion of river length in good/excellent condition	Index of Stream Condition Report	Department of Environment, Land, Water and Planning	1999	2010	6 yearly	Link
	Proportion of weekly quality samples suitable for swimming	Annual Report	Environmental Protection Agency	-	Oct-16	Annual	Link
2. Improvements in coastal water quality	Proportion of beaches in Port Philip bay meeting State Environment Protection Policy Waters of Victoria objectives for swimming	State of the Bays Report	Commissioner for Environmental Sustainability Victoria	2016	2016	Unknown	Link
	Proportion of Port Philip Bay and surrounding catchments in Very Good or Good condition	Report Card	Yarra and Bay	2012-13	2015-16	Annual	Link
Need 18 Transition to low carbon energy supply and use							
1. Reduction in Victoria's greenhouse gas emissions	Level of Victoria's electricity generated by emission intensity of technology	Australian Energy Statistics	Department of Industry, Innovation and Science	2011	2016	Annual	Link
	Percentage of Victoria's electricity generated by emission intensity of technology	Australian Energy Statistics	Department of Industry, Innovation and Science	2011	2016	Annual	Link
Need 19 Improve the resilience of critical infrastructure							
1. Increase in the resilience of critical infrastructure to disruptions	Level of annual energy consumption produced by sources not vulnerable to weather fluctuations	Australian Energy Statistics	Department of Industry, Innovation and Science	2011	2016	Annual	Link
2. Increase in the resilience of critical							

Metric	Data indicator	Publication name	Department / Organisation	Earliest publication	Most recent publication	Refresh period	Links
infrastructure to climate change	Proportion of annual energy consumption produced by sources not vulnerable to weather fluctuations	Victorian Annual Planning Report	AEMO	2015	2017	Annual	Link
	Interconnector capability	Victorian Annual Planning Report	AEMO	2015	2017	Annual	Link
	Victorian electricity generation as a proportion of total capacity at time of peak demand	Victorian Annual Planning Report	AEMO	2015	2017	Annual	Link
	Proportion of electricity generated from renewable sources at time of peak demand	Victorian Annual Planning Report	AEMO	2015	2017	Annual	Link
	Number of Statewide notable incidents (incidents which resulted in system security violation or loss of customer load or generation)	Victorian Annual Planning Report	AEMO	2015	2017	Annual	Link
	State-wide weekly household water consumption	Annual Performance Report	Essential Services Commission	2009-10	2015-16	Annual	Link
	Estimated number of weeks' water consumption held in dams - Melbourne	Water storage data	Melbourne Data	-	2016-17	Daily	Link
	Water supply interruptions per 100km of water main	Annual Performance Report	Essential Services Commission	2009-10	2015-16	Annual	Link
	Length of State water grid	Annual Performance Report	Essential Services Commission	2009-10	2015-16	Annual	Link
	Metropolitan train service reliability (proportion of scheduled services delivered)	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
	Metropolitan tram service reliability (proportion of scheduled services delivered)	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link
	Metropolitan bus service reliability (proportion of scheduled services delivered)	PTV Annual Report	Public Transport Victoria	Sep-11	Sep-16	Annual	Link