



Chair's Foreword

Dear Minister,

It is with pleasure that I present the *State Infrastructure Strategy 2022-2042: Staying Ahead* (2022 SIS) to the NSW Government on behalf of Infrastructure NSW, in accordance with the *Infrastructure NSW Act 2011*.

The 2022 SIS sets out Infrastructure NSW's advice on the infrastructure needs and priorities of the State for the next 20 years, and beyond.

For the past decade, NSW has progressed an infrastructure investment program unmatched for generations within the State or elsewhere in Australia in its scale and transformational impact.

Many major metropolitan and regional projects have been delivered, with more due to be completed over coming years. These projects will contribute to greater economic efficiency, support future jobs growth and improve amenity, convenience and security for communities across the State over coming decades.

This 2022 SIS reports that while much has been delivered, the pace of investment is likely to continue over the next 20 years. Moreover, we believe that the State can afford to maintain the high level of investment seen in recent years, provided this continued investment is well targeted at high value, high return projects and provided the Government pursues effective policies to attract private sector infrastructure investment.

For the reasons set out in this Strategy, Infrastructure NSW recommends that the Government be prepared to sustain high levels of infrastructure funding. This will allow NSW to continue to stay ahead by supporting robust economic growth of the State's existing and emerging industries, and by providing quality services for a strongly growing NSW population. The precise year-on-year level and mix of investment will be determined by medium-term land use and sector-specific plans. Opportunities to reduce investment levels will be limited by the need to maintain a much larger asset base, to optimise the benefits of in-place infrastructure networks and to harden the resilience of critical community services.

Infrastructure NSW's view is that NSW is destined to enjoy robust population and economic growth over the next 20 years and beyond. Government should plan to stay ahead of this growth, looking through the flat-lining of the past two COVID-affected years towards renewed annual population growth, driven by both natural increase and the resumption of net inbound migration. Population growth at pre-pandemic levels should be the Government's base case planning assumption for the long term. The risks of under-investment are greater than the risks of providing infrastructure a few years before population catches up and can be minimised by establishing sound, long-term priorities based on rigorously tested business cases, with the timing of investments adjusted as future trends dictate.

However, renewed population growth does not mean demand for infrastructure and services as traditionally delivered. Government should retain and expand many of the more efficient, proven ways to deliver services pioneered during the pandemic such as telehealth, video court hearings and digital education.

NSW is now a seasoned deliverer of major infrastructure projects, but the shape of the infrastructure task over the next 20 years will be different from the past decade. While selected megaprojects will continue to be the backbone of transformational investments, such as improved rail services and motorways within and between metropolitan centres, a more diverse set of smaller projects will provide high paybacks over the period ahead. Smaller-scale improvement in local amenities should continue – such as fixing road pinch points, replacing old bridges, creating more open green space and active transport corridors. Programs such as these will be essential to enliven the State's vision of efficient 30-minute cities and liveable 15-minute neighbourhoods. The State's infrastructure must also meet higher community expectations by contributing to environmental sustainability through projects that protect and enhance the natural environment, make more efficient use of natural resources and reduce pollution and waste.

Importantly, many future investments will require longer, multi-stage program delivery and therefore require multi-year, whole-of-project funding commitments by Government. For example, a staged approach over extended timeframes will be needed to realise the full economic potential of the State's precincts, including Greater Sydney precincts such as Tech Central and the Bradfield City Centre, and the six regional Special Activation Precincts.

A further theme of this Strategy is the importance of maintaining the quality, resilience and contemporary standard of existing State infrastructure assets through a sharper focus on and increased commitment to essential maintenance programs. A systematic approach is recommended to address vulnerabilities arising from increasing natural hazards and emerging technology risks.

Many of the recommendations in this Strategy are for policy settings that will facilitate private infrastructure investment and develop community support for essential resilience in key economic services. Two examples are electricity and water. In electricity, the Government's commitment to the clean energy transition will require multi-decade policy settings in a sector that has not been budget-dependent in recent decades. Policy settings must facilitate private sector investment and avoid the risk of excessive government intervention that would diminish the appetite for private investment and increase calls upon scarce taxpayer funds. In water, the Government must secure community support for additional water security projects, including augmented water storage and increased use of safe, recycled potable water as is widely accepted in many less rainfall-challenged cities around the world. Community support will be essential to enhance water security cost-effectively and to reduce demand for major new capital infrastructure.

Finally, city and regional planning policies must now focus on optimising the amenity value created by the major transport investments of the past decade by facilitating higher and better use of land around new transport hubs. For example, planning policies should facilitate well-designed apartment and medium density homes around the new Sydney Metro stations. Without such planning, the 30-minute city vision will prove elusive and housing growth will demand much higher infrastructure capital and operating costs. As with the 2018 SIS, this Strategy emphasises again the importance of ‘joined-up’ planning between the Greater Sydney Region Plan and the State’s transport strategies.

This Strategy recognises that maintaining infrastructure spending will be an ongoing challenge in the post-COVID recovery period. To meet this challenge, we recommend continuing successful policies, such as asset recycling, appropriate user contributions, securing more whole-of-project funding support from the Australian Government and adopting innovative ways to leverage private sector co-investments. Doing so successfully is essential if NSW is to stay ahead of future changes and challenges, realise the exciting infrastructure-led growth opportunities in new and existing industries and continue to improve the quality of life for all NSW citizens.

In closing, I thank my colleagues at Infrastructure NSW – ably led by CEO, Simon Draper – for their preparation of this Strategy and I thank the many expert advisors who have contributed to it.

I commend the 2022 SIS to the Government.

Yours faithfully,



Graham Bradley AM, Chair

Overview

Over the past decade the NSW Government has delivered a suite of transformational infrastructure projects across both metropolitan and regional areas. Major rail and road networks are already unrecognisable and many transport projects are currently in delivery. The State's hospitals, schools, correctional facilities, sporting complexes and cultural assets have all benefitted from strong levels of investment.

Many of these projects have been identified and recommended in previous State Infrastructure Strategies and all have been regularly scrutinised by Infrastructure NSW as part of its role in advising the NSW Government on effective delivery of its investment program.

While many hallmark infrastructure projects are now in operation or under construction, there remains plenty to do. Ongoing investment is required to keep pace with population growth, strengthen the competitiveness of NSW industries, capitalise on new economic opportunities and achieve the Government's social and environmental policy goals. The nature, orientation and year-on-year profile of the investment is subject to ongoing consideration, and that is to be expected. However, the gains of the past decade will only be secured

if investment continues. Also, the scope to reduce investment levels will be limited by the need to maintain a larger asset portfolio, embed resilience into new and existing assets, manage major transitions in energy and water, and realise new economic opportunities.

NSW can best fund and implement a sizable ongoing program by selecting high-value programs that can be delivered in manageable stages – an important theme of the *State Infrastructure Strategy 2022-2042: Staying Ahead (2022 SIS)*. Infrastructure NSW recommends that the State's priorities over the next 20 years involve a different mix of projects than the past decade, as the focus on megaprojects should give way to a combination of smaller and medium-sized projects, in many cases delivered in stages as multi-year programs.

In this vein, the 2022 SIS calls for more attention to technology upgrades, augmentation and hardening of existing assets and networks and structured maintenance.

The durability of the State's future investment program will be enhanced by working effectively with partners – private sector participants who co-invest and can make the most of new opportunities, construction industry partners who have worked so closely with us to date, local government and the Australian Government which is often a co-sponsor of significant programs and projects. That has been the State's approach to date, and so it should continue, with the addition of some improvements recommended in this Strategy.

An enduring program requires diversified investment and orderly delivery

As momentum and confidence have grown, the number of large, complex projects in NSW has increased markedly. While these megaprojects can offer long-term benefits, they are challenging to plan and deliver, and benefits flow only when all elements are complete. They are by nature expensive, disruptive across many communities, contractually complex, and demanding on industry and government agencies. Despite best endeavours, they are often a voyage of discovery on in-ground conditions.

Against this backdrop, NSW is now a veteran deliverer of major projects and should apply its experience and capability to deliver future large, complex projects in a sensibly prioritised and sequenced manner.

This 2022 SIS recommends that the NSW Government continue with a formidable program of investment, but one that achieves a balance between megaprojects and medium-sized and smaller investments that can be delivered in staged programs. This approach is commended by the high payoffs of well selected smaller projects, more manageable project cost risks as well as limited capacity of government and the construction industry to deliver more megaprojects in the near term.

At present, NSW and other jurisdictions have several megaprojects on foot creating high levels of demand. At the same time, construction industry capacity, supply chains and skills have all been stretched by COVID-19 and other world events. It would be especially challenging to deliver additional megaprojects in a cost-efficient manner in coming years.

Faced with these realities, Infrastructure NSW recommends reconsidering the timing and sequence of a number of large, complex projects that are not yet in procurement. These include – Beaches Link, Parramatta Light Rail Stage 2, the M6 Motorway Stage 2, the central tunnel for the Great Western Highway Katoomba to Lithgow upgrade, any further major Sydney Metro or rail projects (Sydney CBD to Zetland, Western

Sydney International Airport to Leppington or Campbelltown), and major regional dam projects (New Dungowan and Wyangala).

These projects should be re-sequenced to ensure that they commence only when existing large, complex projects are in stable and advanced delivery. Resequencing will require reassessing business cases prior to investment decisions in order to re-test the relative benefits of each project. In a constrained construction market, it is even more important that investments and delivery resources are directed at the major projects that will deliver the greatest benefits.

The Australian Government also plays an important role in funding infrastructure projects, but those funding decisions should not cause the NSW Government to divert from a measured approach to large, complex projects. This 2022 SIS observes that funding announcements are often made on the basis of limited analysis and recommends a more considered approach to investment decisions, project budgets, cost-sharing and delivery timelines.

That does not mean that the State should down-tools on major projects that will be delivered in the future. Major project options should be explored to a level that allows corridors and critical sites to be identified, protected and considered for purchase, in order to preserve future options. In the foreseeable future, the rate at which large, complex projects can be delivered will be influenced by the effective delivery of existing projects as well as how successfully government

and industry implement procurement practices that de-risk projects, reduce the cost of bidding, draw on capacity of tier 2 and tier 3 contractors and increase the size and skills of the workforce.

In previous strategies, Infrastructure NSW has recommended that the Warragamba Dam Wall Raising should proceed in order to address a severe exposure to flood risk. That recommendation stands in this 2022 SIS, albeit that the Warragamba Dam Wall Raising is a large, complex project. This recommendation reflects the rigour of work done to date and the importance of the project in providing flood mitigation to a large and vulnerable area of Sydney.

Future investment requires multi-year programs

A more balanced and programmatic approach to investment is well suited to NSW's current environment. Some of the highest benefit investments in coming decades will be in the form of staged improvement programs. These changes are expected at several scales, from the Greater Cities Commission's Six Cities vision to precincts and regional hubs, and in local communities.

Greater integration of the State's metropolitan centres will be realised over decades and requires relentless focus and extensive engagement with many communities. It will demand steady and well-considered infrastructure investment programs

to increase the ease and speed of connections between cities, both physical and virtual. While the program of integration is long-term, many of the investments can begin over coming years to address the highest pay-off improvements.

Infrastructure NSW recommends annual recurring investment programs in improved rail services between cities, better public transport within each city and a focus on better digital connectivity in targeted precincts. Further priorities will emerge and be incorporated as the Greater Cities Commission works with community leaders in the Lower Hunter, Central Coast and Illawarra-Shoalhaven.

Similarly, the growth of new economic precincts is a long-term enterprise. In some cases, such as the Western Parkland City and Bradfield, and the Special Activation Precincts (SAPs) in regional NSW, precincts will be defined by major new infrastructure, such as Western Sydney International (Nancy-Bird Walton) Airport and Inland Rail. However, local public infrastructure in those places is of equal importance, and most of the facilities, buildings and operations required to realise the goals of the new precincts will come from private sector participants. These investments will be delivered incrementally over an extended timeframe.

Finally, programs of investments are required in local infrastructure. Some of the greatest benefits of new infrastructure investment are experienced

in local communities. Over the past decade, local constraints have been a focus: road congestion pinch points, station upgrades, expansions to schools, local hospitals and community support services. Those programs must continue, but this Strategy recommends a wider focus. It is increasingly accepted that green open space and quality civic places should be part of the core plan for all precincts and neighbourhoods and that successful communities require local access to services, within 15 minutes, ideally by walking or cycling. A much greater focus is also needed on creating or supporting local museums, galleries, performance spaces and sporting facilities in more communities.

Long-term programs require recurring funding commitments across many years, and in some cases decades. The benefits of these programs will only be realised if Government is resolute in seeing them through. Similarly, delivery agencies require disciplines, routines and capability to determine priorities and phasing for a large number of smaller projects. This task deserves keen attention after a long period delivering very large, complex projects. In shifting focus to a broader portfolio of programs, the State will need prioritised plans for asset and network improvements, drawing on strong asset management disciplines and processes. Prioritised plans for smaller and medium-sized projects will be articulated in sectoral infrastructure and service plans and in asset management programs required of each agency.

Service reliability comes to the fore

The job of matching infrastructure capacity to growing demand will never be complete – it requires ongoing attention. However, strides have been made over the past decade to address a long-standing backlog of investments, targeted at capacity constraints. With a much larger asset base and citizens who have grown accustomed to high standards, maintaining service reliability will become ever more important. This task is underscored by direct threats to service reliability, including more frequent and severe weather events and changing climate conditions, public health crises, and cyber-security threats.

In this context, the State's infrastructure program must turn to more routine forms of investment. The threshold task is a comprehensive understanding of which assets and services are most vulnerable to failure or hazards, including a statewide hazard assessment. Ensuring service reliability then requires a resolute, structured and systematic approach to maintaining and modernising existing assets through technology upgrades, asset hardening to eliminate points of vulnerability, augmentation of networks to create duplication and redundancy and, in some cases, relocation of assets. It also involves building some assets that may incur infrequent use but reduce risks to communities and assets, such as levees and flood mitigation capacity in dams.

Investments in service reliability are rarely one-off. As with other parts of the future program, they are ongoing packages of small works, requiring reliable annual funding and delivery plans, targeted at improvements with the highest payoff, over extended periods.

In short, Infrastructure NSW recommends a thorough understanding of asset vulnerability, a sharp focus on asset maintenance programs, application of technology to the State's asset base as well as a systematic approach to assets that are vulnerable to hazards and risks.

Infrastructure is critical in addressing housing affordability

New housing supply can only be delivered where infrastructure keeps pace with land use planning. Community acceptance of new development relies on good local amenity – transport connections, schools and health services, public civic and green spaces, protection of local character and access to services close to home. Achieving those outcomes requires timely planning, funding and delivery of local infrastructure in tandem with rezonings and subdivisions, based on well-developed master plans. Processes for local infrastructure funding and delivery approval must be efficient and reliable for those investing in new housing supply, and for home buyers. Feedback from stakeholders suggests that this has not always been the case and improving the reliability and efficiency of infrastructure delivery should be as much a focus as land use planning and rezoning.

There are opportunities to improve the supply of housing in greenfield areas as well as in established areas where major transport investments have been made. In greenfield areas, infrastructure is most immediately needed in North West Sydney, South West Sydney, Greater Newcastle and the Hunter, and in regional centres where Special Activation Precincts and Regional Job Precincts will create demand for homes. Each will require enabling infrastructure to be funded and delivered in a timely manner.

Established metropolitan areas around new Sydney Metro stations and light rail stops offer opportunities for more homes in convenient locations, generally apartment style along with medium density housing. Those opportunities are well known and are often the rationale for new infrastructure, but the full potential is not always realised. Plans for additional homes require consensus in the community that can only come from early engagement and by funding local infrastructure to support well planned and high amenity neighbourhoods. It also requires early consensus across Government that the opportunities created by new transport infrastructure will be viable, jointly protected, pursued and, where necessary, funded. With more rail and Metro lines in delivery, it is critical to ensure that promises of great neighbourhoods and home affordability are realised.

Wherever new housing supply is established, this Strategy supports the notion that the quality of local amenity will be upheld by a ‘15-minute neighbourhood’ approach, ensuring residents can access most services and facilities by walking or cycling 15 minutes. This approach will require programs focused on local high streets, open spaces, and safe and enjoyable walking and cycling infrastructure.

There are also parts of the housing market where government is a direct investor and housing itself is part of the infrastructure portfolio. State governments have long been the primary provider of social housing for households on persistently low incomes. The supply of social housing in NSW lags demand and there are often misalignments in terms of housing type and size, as well as location. Those persistent problems are compounded by a heavy load in maintaining existing social housing. When supply lags demand, it is tempting to devote available funds to create new supply rather than maintenance. This was highlighted in the 2018 SIS and remains unfinished business. Infrastructure NSW is again recommending that social housing supply and maintenance should form a part of the committed future investment program, and for this to be done in partnership with non-governmental organisations.

There are also opportunities to work with Aboriginal communities to improve housing supply and quality, including recommitting to the Roads to Home investment program delivered by the Aboriginal Housing Office, as well as ensuring that Aboriginal people get the full benefits of lands and resources secured under NSW Land Rights Act. These programs need to focus not only on housing, but also on meeting essential health and infrastructure needs, such as potable water, energy and digital connections.

Leverage the State’s extensive asset base to support growth

Over the timeframes we consider in this Strategy, both the economy and the NSW community will grow, most likely at levels that reflect historical trends. To accommodate this growth, NSW should capitalise as far as possible on the infrastructure legacy. This means integrating land use plans with available capacity and exploiting the ability of existing assets and networks to be augmented for higher use.

As set out above, demand for new housing supply utilising existing infrastructure will require attention to community support for more homes. In established areas, increasing utilisation of infrastructure assets requires a keen eye on quality of design and on shared open space. Release of new residential areas should target utilisation of existing networks and assets, and timely delivery of additional local services, drawing on accrued funds for regional infrastructure.

Industry deserves similar attention. Much of the infrastructure and land that is critical to supporting the State’s industries is capable of higher utilisation but requires social licence to increase activity. Technological improvements over time should allow vehicles and equipment to become more automated, electrified and quieter. Infrastructure NSW recommends working with the Department of Planning and Environment to identify cases where planning controls impose disproportionate restrictions on utilisation of existing infrastructure and could be reconsidered in a manner consistent with enjoyment by local communities.

Successfully transitioning the energy and water sectors

For some time, the energy and water sectors have not required significant government infrastructure spending. They have been mature, stable sectors and not budget dependent. This can no longer be guaranteed.

The current clean electricity transition is inevitable, but profound and demanding. In achieving the NSW Government policy of Net Zero emissions by 2050 and a 50% cut in emissions by 2030, the wellbeing of NSW communities requires that the transition be efficient, orderly and affordable. NSW now has a Roadmap for the electricity sector that should be implemented in a manner that stays true to its initial goals and approach, which uses existing electricity market financial instruments and is technologically neutral. As the program is over several decades,

this will take diligence and resolve on the part of the NSW Government to stay the course. Arrangements for generation investment are clear and tenders are commencing in 2022, but delivery of a very large uptick in transmission infrastructure will require more State guidance and scrutiny than would be the case without the transition. Transmission developments will need effective community engagement and social licence, and the NSW Government will have to show the way in that process.

Water security has a less certain path. The transition underway in electricity has an equivalent in water, but it is less advanced. NSW towns and cities rely heavily on rainfall-dependent supply, often from a single source, and discharge used water as waste. That approach cannot endure in a climate that experiences large cyclical variations, accompanied by long-term trends in rainfall that are likely to exacerbate extremes.

Diversification of rainfall-dependent water supply through pipelines has been successful in some places, but when rain has failed in one region, it often fails in many regions. Increasing storage capacity is an option in some catchments, but there are environmental and safety limits, and it can lead to a zero-sum outcome, with retention and use by one group coming at the expense of other valuable uses. This inevitably leads to further consideration of efficiency in water storage, delivery and use, demand management, desalination capacity and reconsidering Government's approach to wastewater and stormwater, including potential for potable recycled water.

Changes to how water is managed will require high levels of community and business confidence. Infrastructure NSW recommends commencing work to engage citizens, who are increasingly informed on public health matters, on the options that must be pursued. This must include drinking water quality in regional towns where local government has a major role.

Capitalising on co-investment

The infrastructure task in NSW is not the job of State Government alone. The Australian Government has a well-established role in funding investment of national significance, and the scope of that co-investment has broadened in recent years. However, the Australian Government's approach to project risks and budgets remains difficult. State Government and industry are clear that budgets for major projects are uncertain until the project is well scoped, designed, has received planning consent, the market has been formally engaged and, in some cases, delivery is underway. The Australian Government continues a practice of committing funding early, but often well short of a mature assessment of cost. NSW should endeavour to work with the Australian Government to ensure best budgeting practices are incorporated into funding arrangements.

Private investors also remain essential to the success of the State infrastructure program. In many cases, opportunities for private investment in infrastructure can be expanded by engaging earlier with the market, incorporating market input and expertise, and clarifying regulatory and policy positions. This will be particularly important in new precincts. Similarly, State investment often relies heavily on complementary investment by private businesses to capitalise on the infrastructure for housing, services or industry. Infrastructure NSW recommends steps to keep private sector investment on the table for new programs, and front of mind when planning and developing new precincts.

Service delivery has changed – so must infrastructure

Even prior to the COVID pandemic, new digital methods of service delivery were making some headway. The pandemic has forced even the most reticent to participate in video calls for important functions in education, health, justice and even Parliament. Few people want to dispense entirely with in-person contact, but there should be no turning back on digital delivery of more routine services.

Infrastructure should follow and there are two implications. First, the NSW Government can have confidence about building more targeted physical infrastructure, knowing that some capacity can be provided by appropriately designed and secure digital services. Second, the State's physical infrastructure must be modern and

capable of supporting reliable digital services. Many legacy buildings are not well suited to modern service delivery, let alone modern digital service delivery, and some should be turned over to better uses while services are provided from more contemporary facilities. Government and the community will also benefit from co-locating services and new facilities in one place, regardless of which agency is delivering the service.


Making it stick


The State's infrastructure investment program has come a long way. It is large, diverse and well managed. It has experienced enormous successes and the State is battle-hardened in delivery. There is nothing to prove, but an enormous amount to do. The NSW Government's focus should now be to sustain the work and create an enduring investment program that will underpin the prosperity and wellbeing of NSW.


Meeting future challenges and seizing opportunities


Following an extensive research program, and consultation with Government agencies and industry, Infrastructure NSW presents the *State Infrastructure Strategy 2022-2042: Staying Ahead*. The Strategy is framed around nine long-term objectives and Infrastructure NSW's call to Government, focused on meeting future challenges and seizing opportunities.


2022 State Infrastructure Strategy objectives, strategic directions and recommendations summary



	2022 SIS objectives and strategic directions	Recommendations summary (see Chapters 3-11 for full recommendations)
	<p>Boost economy-wide productivity and competitiveness</p> <p>The State’s population will likely resume its strong pre-COVID growth trends. Infrastructure investment will be required to continue at high levels to meet the needs of a growing population and economy, to attract the jobs of the future, and to enhance the liveability of cities and regions.</p> <p>The NSW Government should pursue policies to better utilise the State’s existing and new assets. Alongside new investment, this will boost the performance of industries where NSW is already strong, and those where NSW can achieve competitive leadership.</p> <p>The State has an ambitious program of industry-themed precincts in metropolitan and regional NSW that require a focused and staged infrastructure program to support long-term delivery, investment and talent attraction.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Deliver efficient transport networks to support thriving cities, businesses and communities. ▶ Improve freight efficiency, security and capacity to support NSW’s industries and supply chains. ▶ Support existing, and emerging knowledge and manufacturing industries in dedicated precincts with high-quality infrastructure. ▶ Address gaps in cultural and sporting infrastructure that can help attract visitors and skilled workers to the State. 	<ol style="list-style-type: none"> 1. Invest in public transport networks to support growth of Greater Sydney 2. Produce detailed prioritised lists of smaller improvement and optimisation works to the transport network 3. Progressively deliver the Western Parkland City Transport Program 4. Progressively fund and deliver the Fast Rail Strategy based on a prioritised and staged program of network enhancements 5. Deliver next stages of the 16 Regional Cities Services Improvement Program to enhance regional NSW connectivity 6. Plan and deliver projects to increase the efficiency and reliability of freight networks in regional NSW 7. Support the growing Greater Sydney freight task through investments and initiatives that leverage existing and emerging international gateways 8. Undertake strategic land use planning and corridor protection to enable efficient movement of both container and bulk freight 9. Review progress of cultural and sporting infrastructure strategies and investigate new investment opportunities to support the visitor economy

	2022 SIS objectives and strategic directions	Recommendations summary (see Chapters 3-11 for full recommendations)
	<p>Service growing communities</p> <p>NSW must deliver quality infrastructure to match population growth and the evolving needs of citizens. This includes better access to essential services for vulnerable and disadvantaged communities, and delivering secure, affordable and diverse housing across NSW.</p> <p>Plans for additional homes in convenient locations require early engagement with local communities to ensure well-planned and high amenity neighbourhoods. This in turn will help attract and retain skilled people, and encourage private investment from around the world.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Deliver housing in great neighbourhoods for all parts of the community. ▶ Improve access to efficient, quality services through better use of assets and a better mix of physical infrastructure and technology-enabled solutions. ▶ Continue NSW’s investment program in sectors that require renewal, with a focus on TAFE and Justice. 	<ol style="list-style-type: none"> 10. Fund and deliver enabling infrastructure to support approved or pending housing supply 11. Fund and deliver a prioritised active transport infrastructure program to support liveability and 15-minute neighbourhoods 12. Establish a financially sustainable social housing and related infrastructure program 13. Deliver Aboriginal housing and enabling infrastructure programs in partnership with local communities 14. Improve efficiency and service quality in the social infrastructure sectors through co-location and divestment of legacy assets 15. Establish a prioritised program of investments for Justice and TAFE infrastructure services, and identify options to complement initiatives outlined in the 20-year health and education sector infrastructure strategies


	2022 SIS objectives and strategic directions	Recommendations summary (see Chapters 3-11 for full recommendations)
	<p>Embed reliability and resilience</p> <p>Infrastructure assets often have long lives and need to be resilient to withstand shocks that compromise performance.</p> <p>Recent experiences have illustrated the broad range of pressures that can be placed on infrastructure systems, including natural hazards, public health crises and cyber security threats.</p> <p>Policy changes are needed to proactively assess and reduce the risk and impact of shocks on communities and the economy, and build back to a more resilient standard.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Apply a structured and systematic approach to resilience across multiple asset types, multiple risks and the infrastructure asset lifecycle. ▶ Establish a rigorous and funded program to identify and remedy assets most likely to cause service failure. ▶ Deliver assets that reduce the risk and impact of major natural hazards and shocks. 	<ol style="list-style-type: none"> 16. Adopt a whole-of-system approach to enhance risk identification and assessment 17. Develop place-based resilience and infrastructure adaptation strategies that assess local risk and incorporate infrastructure and non-infrastructure solutions for vulnerable locations across NSW 18. Fund and deliver an investment program designed to improve the resilience of the State’s most vulnerable and critical assets 19. Establish a program of prioritised resilience infrastructure and accelerate project delivery 20. Improve transport network response and recovery performance 21. Propose new funding models for ongoing and reliable investment in resilience infrastructure and asset hardening

	2022 SIS objectives and strategic directions	Recommendations summary (see Chapters 3-11 for full recommendations)
	<p>Achieve an orderly and efficient transition to Net Zero</p> <p>The NSW Government has adopted a goal of Net Zero emissions by 2050 and a 50% cut in emissions by 2030. The 2020 Electricity Infrastructure Roadmap has set a pathway for the electricity sector transition. Implementation requires policies over the coming decades that will secure a new wave of investment in electricity reliability and affordability, predominantly by the private sector and through market mechanisms.</p> <p>The transport sector is the second highest emitting sector after electricity and will also need an affordable and comprehensive transition plan. The NSW Government’s Electric Vehicle Strategy is an early step towards such a plan.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Ensure that the clean energy transition is orderly and cost effective. ▶ Preserve a market-based approach to investment in electricity generation, transmission and retail to minimise the need for government subsidies. ▶ Support a new wave in transmission infrastructure in a manner consistent with community expectations. ▶ Pursue cost-effective initiatives to reduce emissions from State assets and infrastructure. 	<p>22. Steadfast implementation of the NSW Electricity Infrastructure Roadmap in support of reliability and affordability</p> <p>23. De-risk the planned delivery of a large program of new transmission infrastructure</p> <p>24. Uplift capability and capacity across government and industry partners to secure delivery of the infrastructure needed in the NSW Electricity Infrastructure Roadmap</p> <p>25. Share the benefits of the Electricity Infrastructure Roadmap with the regions hosting infrastructure and with communities in transition</p> <p>26. Finalise a roadmap to meet emissions reduction targets in transport, beyond forecast fleet transition</p> <p>27. Develop a roadmap for the NSW public infrastructure to achieve Net Zero</p>

	2022 SIS objectives and strategic directions	Recommendations summary (see Chapters 3-11 for full recommendations)
	<p>Enhance long-term water security</p> <p>Water security is a major long-term challenge for NSW. The State’s water supply is largely rainfall dependent and vulnerable to cyclical and climatic trends. At the same time, any material augmentation and diversification of water supply will require high levels of investment in new assets and will also require community support for increased storage and water recycling.</p> <p>Community engagement on regional water policies should be undertaken before the State again finds itself in drought.</p> <p>In regional areas, there are also imperatives to support local investment that ensures water quality for all communities. This requires a programmatic approach, steady funding and highly effective working relationships with and among local authorities.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Increase water security through demand management, water and wastewater recycling, and rainfall-independent supply. ▶ Improve management of water in regional communities in partnership with local authorities. ▶ Embed integrated water cycle management approaches, including storm water harvesting and recycled water projects, as standard practice in land use planning, precinct development and major projects. 	<p>28. Increase the resilience of Greater Sydney’s water supply through a full range of options, including better conservation and more diverse sources</p> <p>29. Develop a roadmap for the adoption of purified recycled drinking water, including measures to build community support and demonstrate the efficacy of the technology</p> <p>30. Improve water security and quality in regional NSW</p> <p>31. Investigate and propose alternatives to the delivery of major dam projects in the Peel, Lachlan and Border Rivers catchments</p> <p>32. Bolster long-term funding and capability to support financial sustainability of local water utilities and ensure minimum service levels are achieved</p>

	2022 SIS objectives and strategic directions	Recommendations summary (see Chapters 3-11 for full recommendations)
	<p>Protect our natural endowments</p> <p>Protecting the State’s natural environment requires attention to all assets across the infrastructure lifecycle, from construction through to operations. Government needs affordable policies to mitigate the impact of infrastructure delivery and operations on biodiversity and natural heritage.</p> <p>The State can use infrastructure to improve the natural environment and ensure the sustainable use of natural resources and materials through reuse and recycling.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Foster sustainable use of natural resources and construction materials through reuse and recycling. ▶ Implement a strategic and practical approach to managing biodiversity. ▶ Capitalise on blue-green infrastructure opportunities. 	<p>33. Improve sustainability throughout the infrastructure lifecycle</p> <p>34. Expedite development of an NSW Biodiversity Strategy and Biodiversity Holding Fund</p> <p>35. Promote the development of a blue-green infrastructure network across NSW</p> <p>36. Identify and plan for future waste infrastructure needs as part of the Greater Sydney Region Plan and Regional Plans</p>
	<p>Harness the power of data and digital technology</p> <p>The benefits of combining digital technology with physical infrastructure are increasingly compelling. The right application can increase the productivity, efficiency, and safety of physical infrastructure assets and networks. It is also an essential enabler of good infrastructure planning, delivery, maintenance and operation.</p> <p>Taking full advantage of rapidly emerging digital technologies will require internationally competitive and secure high-speed digital connectivity across NSW, and the right policies and standards to embed the use and application of digital and smart technology in infrastructure.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Ensure secure high-speed digital connectivity in key precincts. ▶ Prioritise the application and use of data and digital technology across all aspects of service delivery and throughout the infrastructure asset lifecycle. ▶ Modernise legacy infrastructure and government systems, while retaining agility to avoid asset redundancy. 	<p>37. Accelerate investment in digital connectivity in State sponsored precincts</p> <p>38. Adopt the use of digital technology in infrastructure planning, delivery and operation</p> <p>39. Prioritise and invest in technology upgrades to improve efficiency of passenger and freight transport networks</p> <p>40. Prioritise digital service delivery over building new physical infrastructure, where the goals of the initiative can be feasibly achieved in that manner</p> <p>41. Deliver an investment program to digitise government services and infrastructure</p> <p>42. Uplift cyber security capabilities and practices in infrastructure planning, delivery and operation</p>

	2022 SIS objectives and strategic directions	Recommendations summary (see Chapters 3-11 for full recommendations)
	<p>Integrate infrastructure, land use and service planning</p> <p>Joined-up planning is imperative for efficient investment across all government assets, but especially important to support the State’s investment in new economic precincts.</p> <p>Designated economic precincts should meet expected market demand, and investment should be co-ordinated and staged accordingly. The private sector needs to be involved earlier in these plans to allow Government to understand their needs and to leverage their expertise and innovative proposals, noting that investors and developers will ultimately bear most of the commercial and technical risks.</p> <p>In all land use planning, NSW should leverage the spare capacity created in existing and planned infrastructure, such as in major transport corridors.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Coordinate infrastructure, land use and service planning to meet housing, employment, industry and community needs. ▶ Increase private sector participation in the delivery of government-led precincts. ▶ Regularly update planning regulation and land use controls to reflect current circumstances. 	<p>43. Optimise the use of industrial and urban services lands through integrated strategic land use planning with infrastructure investment</p> <p>44. Deliver more housing, jobs, amenities and services in locations where there is spare capacity in existing and planned infrastructure</p> <p>45. Preserve and strategically manage protected corridors for future use</p> <p>46. Increase private sector participation, co-design and co-investment in State-sponsored precinct delivery</p> <p>47. Actively reflect history, culture and heritage in places and infrastructure</p>

	2022 SIS objectives and strategic directions	Recommendations summary (see Chapters 3-11 for full recommendations)
	<p>Design the investment program to endure</p> <p>Infrastructure demands on the NSW Government budget will continue to be significant. While the type and mix of infrastructure projects will change, investments in the maintenance of infrastructure are set to increase.</p> <p>Infrastructure NSW recommends that the balance of spending should tip towards technology upgrades, augmentation of existing assets and networks, and structured maintenance as the asset base in NSW matures in line with international peers.</p> <p>The Government should continue with successful policies such as asset recycling, user charges and value capture to sustain its infrastructure investment pipeline. It should also seek more private sector co-investment and more long-term programmatic funding support from the Commonwealth.</p> <p>The working relationship between Government and the construction industry is beyond transactional, and there is a public interest in embedding good procurement practice and in supporting a sustainable, innovative and competitive construction industry.</p> <p>Strategic directions:</p> <ul style="list-style-type: none"> ▶ Reconsider megaprojects and invest in existing infrastructure through augmentation, digitisation and maintenance. ▶ Diversify funding sources to deliver future investments. ▶ Ensure the construction market has the capacity, capability and productivity to meet increasing demands. ▶ Consolidate a robust process for investment prioritisation, project sequencing and investment appraisal. 	<p>48. Reconsider the timing and sequence of future megaprojects to diversify the State's investment program and mitigate delivery risks</p> <p>49. Make asset maintenance and augmentation a high priority for the future infrastructure program</p> <p>50. Adopt data-enabled asset management and investment decision making across the NSW Government</p> <p>51. Publish a pipeline of major asset maintenance, upgrade and renewal opportunities</p> <p>52. Partner with the Australian Government to achieve sustainable co-funding arrangements</p> <p>53. Develop a 'roadmap' for a long-term reform of user contributions across the road and public transport networks</p> <p>54. Utilise all viable commercial models and approaches to enable additional opportunities for private sector investment in infrastructure</p> <p>55. Update investment planning and decision-making frameworks to improve options identification and development practices, scenario analysis and test deliverability of projects</p> <p>56. Support innovation in construction through productivity initiatives jointly sponsored with industry</p> <p>57. Develop new skills and capabilities required for infrastructure projects, and widen opportunities for communities to participate through targeted actions in training and employment initiatives</p>