Submission No 41

INQUIRY INTO DATA CENTRES

Organisation: City of Ryde Council

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City of Ryde

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Submission

NSW Legislative Council Public Accountability and Works Committee

Inquiry into data centres

City of Ryde
March 2026

Executive Summary

This submission has been prepared by the City of Ryde in response to the Legislative Council Public Accountability and Works Committee Inquiry into data centres.

Council is deeply concerned that the rapid concentration of data centres in the City of Ryde, particularly within the Macquarie Park Innovation District, has far outpaced the delivery of essential infrastructure and the development of appropriate planning controls. Ryde already hosts five data centres, with an additional seven State Significant Development proposals in the Macquarie Park precinct. This brings the total to 12 existing and proposed facilities, creating an increasingly dense cluster of this land use within a strategically important area.

Compared with other Sydney LGAs, Ryde is unique in the intensity of data centre clustering within a single precinct. Macquarie Park alone contains 12 existing and proposed data centres within one strategic centre. By contrast, CDC's Eastern Creek campus in Blacktown comprises six data centres (four operational and two under construction), and Blacktown's separate Marsden Park campus includes another six approved buildings.

It is therefore critical to recognise that the most relevant comparison for the City of Ryde is not the total number of data centres across an LGA, but the degree of concentration within a single precinct.

The growing concentration of data centres is placing significant pressure on electricity and water supplies for all users. Data centres are widely recognised as highly resource-intensive yet low-employment land uses, occupying strategically important employment and residential land while generating relatively few permanent jobs.

This submission outlines Council's key concerns regarding the opportunity cost of permitting further data centre development in a geographically limited area, land that could otherwise support housing, innovation-driven employment, and transit-oriented development.

Council has provided detailed responses to most of the Inquiry's terms of reference, as outlined below. A clear recommendation is also included to indicate the outcomes Council seeks from the Committee.

Responses to the Terms of Reference

a) The scale and trajectory of data centre development in New South Wales, including:

i. The current and proposed scale of data centre development in NSW, including geographic clustering

The Ryde LGA is experiencing an unusually high concentration of data centres within the Macquarie Park Innovation Precinct (MPID). These facilities are being approved by the Minister for Planning or their Delegate as State Significant Development (SSD), resulting in a pattern of intense clustering. To date, five data centres have been built or approved, with a further seven proposals awaiting determination.

This concentration is placing substantial pressure on local utilities, particularly electricity and water, as well as on the supply of strategically important employment land. This is a significant concern given the very low level of operational employment generated by data centres, compared with the higher-value, innovation-focused jobs envisioned in Council's strategic planning for the precinct.

These pressures are further compounded by the significant population growth underway in Ryde, including growth associated with the National Housing Accord, which aims to deliver a large number of new homes in the LGA. The cumulative effect is direct competition for finite infrastructure capacity between large, continuous-load data centres and urgently needed housing development.

As a result, some approved housing projects have been delayed because Sydney Water has been unable to meet the required water supply capacity. It appears that much of the available capacity has already been allocated to the substantial water demands of data centres. A 1-megawatt facility can consume up to 25.5 million litres of water annually. Ten average-sized 100-megawatt data centres would require approximately 250 million litres of water each year, with typical flow rates of around 56 litres per second

For comparison

- The expansion of the data centre at 17 Talavera Road, Macquarie Park, will increase total water consumption to 790,000 kL per year, or approximately 2,164 kL per day. With the average Australian using around 200 litres per day, this single data centre would consume the equivalent daily water use of approximately 10,820 people.

- An Olympic-sized swimming pool holds roughly 2,500 kL. The proposed data centre at 269 Lane Cove Road, Macquarie Park, operating at full capacity, is estimated to use 3,732 kL of water per day—equivalent to 1.5 Olympic-sized pools. This represents the daily water use of approximately 18,000 people.

Sydney Water has advised that the proposed developments in Macquarie Park fall within the Marsfield water supply zone, which is currently operating at full capacity. Sydney Water is constructing new infrastructure to address these constraints, with completion expected by late 2026. However, given the accelerated pace of housing development and the six data centre proposals still awaiting approval, any additional capacity is likely to be exhausted quickly.

None of the existing or proposed data centres incorporate co-generation or trigeneration technologies. More recently, one data centre proposal within the MPID has included sewer harvesting to supply treated cooling water. While this may reduce demand for potable water, it introduces additional environmental management requirements for the operator.

ii. The extent to which NSW 's planning, infrastructure and resources are prepared for projected growth

The geographic clustering of proposed data centres in Macquarie Park is directly competing with opportunities for residential development in locations that offer strong public transport access. These areas are among the most suitable in the LGA for accommodating new housing, particularly where walkable connections to high-frequency public transport already exist.

One example is the proposed data centre at 269 Lane Cove Road. If this site were instead used for residential purposes, it could deliver a significant number of new homes within walking distance of the Macquarie Park Metro Station. This would support transit-oriented development principles and alleviate housing demand in a well-serviced, strategically located precinct.

There is a need for Consent Authorities to give greater consideration to the opportunity costs of locating data centres in areas that are highly suitable for residential development, especially in transit-oriented development precincts. Allocating these sites to low-employment, high-resource-use data centres limits the potential for housing supply, reduces the ability to support sustainable growth, and constrains the long-term productivity of the precinct.

iii. The interaction between data centre development and other state economic, digital and industrial strategies

The current infrastructure in the Ryde LGA has not been designed or sequenced to accommodate the high, continuous load profiles of large data centres. Council understands this is placing strain on both electrical and water networks and their providers. The rate of SSD approvals for data centres has outpaced infrastructure providers ability to plan, fund, and deliver augmentation, indicating a misalignment between state-level facilitation of data centre approvals and local capacity constraints.

Macquarie Park is a designated strategic employment centre. However, the rapid expansion of data centres in the precinct is effectively sterilising high-value, high-employment land, as data centres provide very low levels of operational employment. It is evident in which strong consideration should be given to whether continued data centre growth is consistent with the Ryde's LGA's broader economic objectives.

The concentration of data centres in the MPID not only reduces the availability of land for housing and businesses but also alters the character of the MPID, making it less attractive to residents and non-data-centric businesses.

Recommendation (a):

The State Government:

1. Prepare a planning strategy for the location of data centres in Metropolitan Syndney and regional NSW that is based on the availability of suitable land with necessary infrastructure to support them in the long term.

b) The planning framework enabling data centre developments, including:

i. The classification of data centres as State Significant Development (SSD) and the use of power-consumption thresholds as a trigger for SSD assessment

Currently, data centres with a total power consumption of more than 10 megawatts (or 15 megawatts from 1 June 2023) are assessed through the SSD pathway. SSD applications are lodged with the Department of Planning, Housing and Infrastructure and determined by either the Independent Planning Commission or the Minister.

Data centres that do not meet this power-consumption threshold but have a capital investment value (CIV) greater than $30 million are classified as Regionally Significant Development and are determined by the Local Planning Panel.

Data centres that do not meet the criteria for either SSD or RSD are treated as local development and are determined by the council.

The trigger for a data centre to proceed through the SSD pathway is based on total power consumption. This reflects the substantial electricity demand of these facilities, which often exceeds 100 megawatts. A single data centre can use as much energy as 50,000 homes, placing considerable pressure on existing energy infrastructure, sustainability targets and emissions reduction goals. Approximately 56% of the electricity used by data centres is derived from fossil fuels, meaning their high consumption presents a significant challenge to statewide carbon-reduction commitments.

The SSD pathway therefore provides a centralised assessment process that can more effectively align statewide energy infrastructure capacity, sustainability targets and emissions considerations with the proposed scale, location and impacts of data centres.

However, the current SSD threshold criteria are too narrow. Additional criteria that reflect broader State objectives should be incorporated into the SSD declaration process. Data centres compete directly with other land uses for both land and the infrastructure that services it. Their substantial water and electricity requirements place them in direct competition with housing, particularly at a time of acute housing need. The opportunity cost of allocating strategically located land to data centres during a housing crisis should be explicitly considered when determining whether a proposal qualifies as SSD.

ii. The role of fast-track and facilitation mechanisms, including the Investment Delivery Authority and other whole-of-government coordination processes

As applications for data centres are typically proposed via the SSD pathway, application processing is regulated by the Department of Planning, Housing and Infrastructure.

Modelled on the Housing Delivery Authority, the Investment Delivery Authority (IDA) was launched in September 2025 to provide accelerated approval support for projects >$1 billion, reducing red tape and expediting data centre and technology investments.

Council's role in the processing of SSD applications is to provide a referral comment in response to the public exhibition of such applications.

The fast-tracking and facilitation of data centres benefit the developer more than the community. Council and the community need reasonable time to assess the available information and research similar proposals elsewhere to form a view on the proposal's suitability for a particular location. The developer has a year or more to prepare their proposal; in contrast, the Council and the community have only weeks to respond.

iii. Whether current planning arrangements adequately address cumulative and precinct-level impacts

Currently, the State Environmental Planning Policy (Transport and Infrastructure) 2021 permits data centres in the following prescribed zones within the Ryde Local Government Area:

- E3 Productivity Support.
- E4 General Industrial.

The E3 Productivity Support zone is primarily situated within various locations in the Macquarie Park Corridor, while three E4 General Industrial zones are in West Ryde, Gladesville, and in the north-eastern corner of Macquarie Park.

Ryde has experienced a sudden surge in DPHI-approved data centres. Council is concerned that Ryde is experiencing an unplanned cluster of data centres that was not contemplated in Council's strategic planning work. There has not been an adequate assessment of cumulative impacts arising from this clustering, including heat load, noise, energy demand, water demand, land sterilisation, and transport and construction impacts.

The introduction of other State planning initiatives, including Transport Oriented Development and the Housing Delivery Authority, has accelerated residential development in locations not envisaged by Council's strategic planning. Under the current framework, there is a real possibility that data centres and new residential development will be in close proximity, exposing residents to potential amenity impacts and generating land-use conflict that has not been resolved at the precinct scale.

Data centres are among the most energy-intensive facilities in operation today. Council's view is that strong consideration should be given to the appropriateness of data centres being permissible in current zones within the LGA. Given the significant water and energy requirements of data centres, and their minimal operational employment, data centres should be treated as a distinct development type and heavily restricted in where they are permissible, based on infrastructure capacity and strategic fit. A model like the Renewable Energy Zones in NSW illustrates an approach that could ensure data centres are located in appropriate areas with adequate utility capacity and reduced land use conflict.

If there is no change to permissibility, the SSD triggers themselves should be reviewed. Ryde's experience with an effective data centre cluster has undermined the strategic intent for higher-intensity employment lands with strong connections to nearby residential

areas and the overarching vision of a liveable LGA. Modifying SSD triggers to enable local assessment and determination for certain data centre proposals would help ensure that Council's strategic vision, local infrastructure capacity, and cumulative impacts are properly considered and not jeopardised.

Cumulative precinct-level impact is difficult to predict, as it depends on the number of data centres operating in a particular precinct. There are approximately 109 data centres currently operating in NSW, with five located in the City of Ryde, representing 4.6% of the state total. If the seven additional proposed data centres in Macquarie Park are approved and constructed, the number in Ryde would rise from 5 to 12, a 140% increase and Ryde's share of NSW data centres would increase to about 10.3%. This level of clustering would intensify pressure on electricity and water infrastructure, increase competition with housing delivery and further reduce strategic employment land in a precinct intended to support high-value jobs and transit-oriented growth.

There are seven proposed SSD data centre projects clustered in the Macquarie Park area:

- 11-17 Khartoum Road
- 11-23 Talavera Road
- Waterloo Road
- 269 Lane Cove Road
- 1-5 Khartoum Road Data Centre
- 4-10 Talavera Road
- Road 1 Data Centre

The effect of this clustering will result in pressure on electricity and water networks, competition with housing delivery, and further loss of strategic employment land in a precinct intended to support higher-value jobs and transit-oriented growth. No other part of the State has this number of data centres in one location. For example, the Sydney/CDC Data Centres operates highly secure and large scale data centres in Sydney across two primary campus locations: Eastern Creek and Marsden Park. The Eastern Creek campus currently features four operational data centres and an additional two under construction, resulting in six total facilities comprised in this site. This cluster is half of what is currently expected in Macquarie Park.

In November 2024, the NSW government introduced a prohibition on new data centres in the E2 Employment Centre zones of Macquarie Park as part of a housing reform package to increase residential density and employment opportunities.

Data centres are currently permissible in the E3 Productivity Support zone which will need to be amended to manage the proliferation of data centres applications in Macquarie Park.

Data centres are exceptionally resource-intensive, with a single large facility often consuming as much electricity as 50,000 to 100,000 homes. In terms of water, a 1-megawatt (MW) data centre can use around 26 million litres per year, which is enough for more than 150 average Australian homes, with larger, AI-focused facilities using much more.

In terms of energy consumption, data centres comparatively consume the following equivalent to dwellings:

- Small Data Centre (1 MW): Consumes roughly the same amount of electricity as 1,000 to 3,000 houses, annually.

- Hyperscale Data Centre (100+ MW): Consumes as much electricity as 50,000 to 100,000+ homes. annually.
- Total Grid Impact: In Australia, data centres currently account for about 5% of the total electricity grid usage annually, a figure projected to rise to 8 to 15% by 2030.

In terms of water consumption, data centres comparatively consume the following equivalent to dwellings:

- Direct Cooling (1 MW): A small 1-megawatt data centre using traditional cooling methods can consume ~26 million litres of water per year, equivalent to the water use of 150-200 homes.
- Large/AI Data Centre: Large facilities can use up to 5 million gallons (approx. 19 million litres) per day, which is equivalent to the daily water usage of a small city of 30,000 to 50,000 people.
- Local Impact: Data centres in Sydney are expected to account for a quarter of the city's total water demand within a decade.

Data centres, by nature, are subject to technological advancements that may improve aspects of their development, including size, efficiency, and energy management. Technological advancements may also lead to staff reductions due to automation. However, they are also exposed to limitations in the supply chain for developing and delivering such technology and, in this sense, become vulnerable to technological lag or stagnation, rendering centres either difficult to retrofit or costly to upgrade.

Further to the above, data centres pose a significant security risk to their surrounding neighbourhoods, which would be particularly problematic if located near a residential zone or accommodate residential development. Clustering of data centres focusses on this risk.

Without knowing the detailed assessment parameters used by the Department of Planning, Housing and Infrastructure in making their recommendation to the Independent Planning Commission or the minister, it is difficult to state whether current planning arrangements adequately address cumulative and precinct-level impacts. From Council's perspective it would be desirable if the State assessed the following infrastructure capacity and cumulative network load impacts:

- The combined electricity demand of existing, approved and proposed data centres within the precinct, including continuous baseload profiles.
- Impacts on local and trunk electricity infrastructure, including whether augmentations are available, funded and deliverable within the required timeframe.
- Cumulative water demand, including potable supply, recycled water availability and drought contingency capacity.

A public data storage strategy needs to be prepared by the State that identifies the locations of data centres and ensures they are adequately supported by critical infrastructure, without displacing other State development priorities, such as housing. In addition, a public design guideline, with criteria against which SSD data centres may be assessed, is required. The strategy and guideline will give the community some certainty that the State is assessing Data Centre SSD against reasonable, objective criteria that result in planning outcomes that are in the community's best interest, not only the developers.

Cumulative social impacts

- A Social Impact Assessment (SIA) is required for data centre proposals progressing through the SSD process, typically as a SEARs requirement, and must be prepared in accordance with the *Social Impact Assessment Guideline and Technical Supplement (DPHI, 2025)*. This process requires a rigorous assessment and rating of social impacts. However, although proponents must identify cumulative impacts, the current Guideline places greater emphasis on assessing and rating the impacts of individual proposals in isolation. As a result, the cumulative social impacts arising from multiple data centres, particularly where concentrated within an urban precinct, are being substantially overlooked.
- The cumulative social impacts of multiple or clustered data centres in urban centres, such as Macquarie Park, are a significant issue. When several data centres are located together, they negatively impact urban vibrancy and activation and, in turn, limit opportunities for passive surveillance, reduce safety, and weaken the overall local character and identity of an area.
- Greater focus and consideration of cumulative social impacts from multiple and clustered data centres by Consent Authorities.
- There is a cluster of data centres in E3 zones in Macquarie Park (e.g., on Talavera Road near Khartoum Road). This has impacted the ability to realise the vision for this area as a vibrant commercial centre described in the Macquarie Park Place Strategy.

Categorisation of Data Centres

- Data centres are considered state-significant developments, which is the same classification as schools, hospitals, commercial buildings and residential developments. This is at odds with the primary purpose of a data centre, which is delivering critical infrastructure.
- Consider Data centres as critical infrastructure, like electricity and water infrastructure, and plan for these appropriately. Data centres are necessary, but not in town centres.
- Within Macquarie Park, there are data centres adjacent to office and residential proposals, such as the one at 11-17 Khartoum Road.

Recommendation (b):

The State Government:

1. Amend its SSD approval pathway to reflect the need for projects to meet other State objectives (e.g. housing and employment) and avoid competition with other uses for land.

2. Assess the cumulative impacts arising from clustering, of data centres such as heat load, noise, energy demand, water demand, land sterilisation, transport and construction impacts to inform a planning strategy for their long-term location.

3. Prepare prescriptive and transparent planning guidelines for assessing the cumulative impact of data centres that are in the same precinct.

c) Electricity demand, grid impacts and implications on emissions reduction targets, including:

i. Impacts on electricity networks, generation planning, transmission and distribution investment and cost recovery

Council understands there are plans underway for a new sub-transmission substation in Macquarie Park; however, there remains concern that this will not alleviate the current electricity supply shortage. If the projected rates of data centre electricity demand (average growth of 6% per year) materialise, there is an increased risk of blackouts and a greater need for and reliance on carbon-heavy backup generation. Council is unclear about how frequently on-site backup generation is used or estimates of its likelihood of use to meet electricity supply shortage. Additionally, where this reporting exists, there is limited communication between state and local governments to understand the additional emissions load and local impacts.

ii. The role of on-site backup generation, including diesel and gas, and associated emissions and health impacts

Large data centres typically rely on uninterruptible power supply (UPS) systems to mitigate data transmission risks from power outages, protecting sensitive equipment from data loss and damage. Typically, the UPS bridges the gap prior to the on-site backup generators sustaining operations for longer periods. The UPS is a battery storage system that immediately kicks in when the main power supply fails. According to the *Data Centre Energy Demand Final Report by Oxford Economics Australia*, back-up generation is most commonly provided by diesel generators. While these generators are primarily used for emergency use and routine testing, they still degrade local air-quality and pose greater health risks for workers and residents.

The NSW Environment Protect Authority has identified diesel exhaust gases contain fine particles that can be inhaled deep into the lungs. Additionally, the *World Health Organization's Cancer Agency* has classified diesel exhaust as carcinogenic.

Site-specific NSW planning assessments further show that emergency full-load operation of diesel generators can materially worsen local air-quality outcomes. These risks support tighter conditions of consent requiring limits on:

- Non-emergency generator use.
- Annual public reporting of generator runtime and fuel consumption.
- Stronger consideration of battery reliance on backup.

iii. Alignment of data centre development with New South Wales emissions reduction targets and climate commitments

The *NSW Climate and Energy Action plan* aims for a 70% reduction in emissions by 2025 compared to 2005 levels. Furthermore, the goal is to achieve net zero emissions by 2050 to prevent pollution from the rapid expansion of data centres which are a large and growing source of continuous electricity demand.

The Australian Energy Market Operator states that the National Electricity Market for data centre's power use could reach approximately 21.4 TWh by 2025. This is around 9% of total grid-supplied electricity and growing. Unless greenfield data centre demand is matched by renewable generation, storage, efficiency improvements and credible emissions mitigation measures, the continued clustering of data centres will make it harder to achieve both State and local emissions-reduction objectives.

iv. The electricity demand profile of data centres, including continuous load, peak demand and firming requirements

Data centres are characterised by a high and relatively continuous electricity load profile. In *The Oxford Economics Australia final report*, on demand flexibility, it stated that between 2022 and 2025 data centre electricity loads are relatively stable throughout the day, with load factors averaging between 70% and 85% across all data centre types including Hyperscalers, Co-locator, Edge and Telecom. Many data centre operators can shift electricity demand particularly for flexible computing tasks. Importantly, there are practical limits to shifting demand over longer periods as many workloads must run continuously. This means data centres significantly contribute to baseload electricity demand. This in turn increases the need for reliable electricity network capacity, dispatchable power generation, storage, and backup systems.

v. The extent to which strategic colocation of data centres within Renewable Energy Zones may assist the renewables roadmap

Impacts on emission reduction targets

The clustering of data centres in the Macquarie Park area is counterproductive to the Council's Net Zero targets. Council has adopted a community emission reduction target of Net Zero Emissions by no later than 2040, or as soon as possible, with an interim target of a 76% reduction in 2018/19 emissions by 2029/30. Council has limited control over community-based emissions from sources such as data centres and is reliant upon State/ Federal supported interventions to achieve targets. Greenhouse gas emissions from Macquarie Park alone were responsible for 38% of all Ryde emissions in 2023-24. It is imperative that, going forward, data centres are powered only by renewable sources and are approved only at the rate renewable energy generation can expand.

Identifying and utilising any opportunities for on-site renewable energy generation and storage should be a priority for all new data centre development. Where further power supply is required, data centres should be required to secure long term power purchase agreements with renewable energy providers. Planning assessments should consider the operational impacts (at both a project scale and cumulative scale) of data centres on local and state emission reduction targets.

Sustainable data centre

Data centres have the potential to help meet various sustainability goals. Cloud Carrier is an example of a data centre provider of purpose-built facilities focussed on energy efficiency and water conservation. Through advanced cooling technologies, intelligent power management, on-site water harvesting, and optimised resource allocation, their data centres minimise energy use, reduce carbon footprint, and maximise compute performance. This is a data centre model that should be explained for improving new data centre environmental performance.

Recommendation (c):

The State Government:

1. Prepare a study on energy usage of data centres and practical measures to reduce consumption and greenhouse gas emissions.

2. Prepare planning guidelines for assessing energy demand and mitigating emissions that meet local and State greenhouse reduction targets and climate commitments.

d) Water usage and cooling, including:

i. Current and projected water use by data centres in New South Wales, including reliance on potable water

As AI systems increase server heat, a growing proportion of data centres utilise water to provide cooling. According to an ABC News report titled *"Data Centres are vital for future and AI, but their environmental footprint can be a problem",* Sydney Water has stated that Sydney's data centres currently use about 3.5 billion litres of water per year. Although, this is less than 1% of Sydney's current drinking water demand, by 2035 data centres are expected to consume 25% of Sydney's current annual drinking water supply. Additionally, Sydney Water has mentioned existing Sydney based data centres draw from public drinking water systems. This raises concerns regarding the growth of data centres in Macquarie Park competing directly with residential and other urban water needs unless alternative supply arrangements are put in place.

ii. Risks to water security under drought and climate change scenarios

Reliance on potable water for data centre cooling poses a clear water-security risk during droughts and climate change. A *2025 report from Water Services Association of Australia (WSAA), titled Data Centres and Water in Australia,* highlights water restrictions may, in future, apply to business customers during drought and scenarios where prioritised community needs are enacted. As businesses are responsible for their continuity planning, it would be prudent to consider on-site water storage from rainwater or synchronise water consumption when the water mains when supply is at high levels.

Furthermore, data centres that consume large amounts of potable water may face increasing operational and planning risks during dry periods, especially in growth areas where households, hospitals, schools, and other essential services must take priority.

iii. The availability, feasibility and uptake of non-potable water, recycled water, or alternative cooling systems

According to *WSAA,* there is a global shift toward more water-efficient cooling and increased use of recycled water. Sydney Water is actively investigating and conducting recycled wastewater projects for high-water-use industries, such as data centres. These projects include the Quakers Hill Water Resource Recovery Facility and Upper South Creek Advanced Water Recycling Centre. These initiatives are an example of how larger volumes of treated water can be made available for data centres particularly in Western Sydney. Consideration should be given to investigating similar projects for Macquarie Park.

The *WSAA* also notes that recycled or other non-potable water sources can reduce reliance on drinking water. In practice, recycled water may be more expensive than potable water, particularly where additional treatment is needed to achieve the high water quality required for data centre cooling systems. In some cases, new treatment plants, storage, or distribution pipelines may also be required. This will, however, add additional costs and prolonged approval and delivery times.

The WSAA believes that data centres using recycled water may still require a potable water connection for staff amenities and hygiene purposes and would also need a potable top-up to maintain reliability or meet service standards. For these reasons, non-potable supply should be preferred for data centres wherever it is generally available and practical, but it should not be assumed to be automatically lower cost and readily accessible.

iv. Water pricing, cost recovery and the allocation of water-related infrastructure costs

Water pricing and infrastructure funding frameworks need to ensure that the costs of servicing large data centres are not passed on to the wider community. The *WSAA* report highlights that utilities may require direct contracts, developer contributions, and arrangements where large customers apply for service provision ahead of planned infrastructure sequencing. Furthermore, water prices should reflect both scarcity and the investment needed to provide additional capacity.

v. Oversight, monitoring and transparency of water use commitments

Lack of innovative solutions for more efficient use of resources:

- There is currently limited transparency regarding the actual water consumption of data centres once they become operational, including the extent to which they rely on potable water, meet water-efficiency commitments, or implement alternative water sources and cooling systems. This makes it difficult for councils, infrastructure providers and the community to assess cumulative impacts on local water systems, particularly in areas already facing capacity constraints. A more robust framework is needed to ensure that water-use commitments made during assessment are measurable, monitored, and enforceable over the life of the development.

Recommendation (d):

The State Government:

1. Require data centres to prepare water management plans and be subject to ongoing monitoring, independent auditing and annual public reporting of actual water use, source of supply, peak demand and compliance with approved water efficiency measures and commitments.

2. Proponents of large data centres should bear the full cost of any water infrastructure upgrades or special servicing arrangements required to support their developments.

e) local environmental and community impacts, including:

i. Impacts on surrounding communities, including noise, air quality and heat, traffic and construction impacts, land-use conflicts and amenity

Macquarie Park has seen an influx of new data centre developments over the past decade. There are currently 5 data centres operating in Macquarie Park and seven known SSD applications under assessment.
In Council's experience, the assessment of data centres should consider the following matters as a minimum to ensure fully informed determinations are made that minimise or mitigate surrounding off-site impacts:

Local amenity and environmental impacts

3. Combined noise output (including low-frequency noise) from multiple facilities operating concurrently.
4. Heat load and thermal impacts, including the cumulative heat-island effect from adjacent or closely spaced facilities.
5. Air quality impacts from backup generation fleets are assessed collectively rather than individually.
6. Construction impacts where several projects overlap, including heavy vehicle movements, staging, and the combined effect on surrounding neighbourhoods.

Precinct-level sustainability and emissions outcomes

- Aggregate electricity consumption and its implications for emissions-reduction targets at the precinct scale.
- The cumulative impact of diesel backup generators on air quality, greenhouse gas emissions and local health.
- Opportunities for precinct-based energy or water solutions that are only identifiable upon cumulative demand assessment.

Water use and cooling systems

- Total water consumption from all data centres in the vicinity, including peak period demands and sensitivity to drought restrictions.
- Combined cooling impacts, including heat rejection, reliance on potable water and potential pressure on local water supply systems.
- The feasibility of precinct-wide recycled water schemes or alternative cooling technologies.

Transport and construction impacts

- The cumulative impact of overlapping construction periods, including truck movements, workforce parking demand and local road capacity.
- Combined freight and servicing requirements once multiple facilities become operational.

Urban design, built form and cumulative visual impact

- The combined effect of multiple large-scale, windowless buildings on the visual character, permeability and street activation of the precinct.
- Cumulative impacts on pedestrian amenity, public domain quality and the ability to deliver a liveable and well-connected precinct.

Risk and resilience

- Combined risk of co-located backup generation, battery storage and large-scale mechanical plant.
- Precinct level redundancy and emergency response requirements where multiple high intensity facilities are present.

Is experiencing ongoing maintenance issues for its public domain infrastructure are a result of data centre construction and operation. These matters need to be considered, as they pose significant risks to the community that lives and works among these facilities. Additional costs to Council associated with monitoring and managing the repair of this infrastructure are being shifted to Council without any compensation. These matters are described below:

Underground Communications Infrastructure

The installation of underground communications infrastructure, associated with new data centres constructed in Macquarie Park, has had a major impact on public domain infrastructure owned and maintained by the Council. The construction and operation of data centres require the installation of large volumes of subsurface infrastructure, which generally consists of a network of conduits and cables containing optical fibre and electrical wires that transmit communications signals. These installations are particularly problematic because of the large number of different providers or utility authorities that maintain independent infrastructure and the lack of synchronisation of installations. In most development projects, the installation of utilities supporting operation is completed prior to the commencement of occupation; however, this is not the case with data centres.

A case study conducted by City of Ryde staff found that most communications infrastructure installations occur as upgrades in the years following the commencement of operations, in a largely irregular and intermittent manner. New data centres also often result in the need for upgrades to a particular utility authority's network in the surrounding areas, so installations often extend well beyond the immediate vicinity of the data centre.

Accelerated dilapidation of infrastructure due to repeated trenching

New public-domain infrastructure installed in the Macquarie Park precinct, such as new or upgraded roads, footpaths, and light poles, is of premium quality. A lifespan consistent with the use of adjoining private developments, of 40-50 years or more, is needed.

Regular re-trenching of Council roads and footways has an extensive impact on the rate of dilapidation of these assets. This affects the level of ongoing maintenance required by Council, shortens the timeframe to replacement and ultimately increases costs to Council. Various utility authorities provide temporary and subsequent "permanent" restoration to these assets at their expense, but ultimately Council must bear the cost of any emergency or intermediate failure of repairs by the utility authorities.

Trenching associated with installation, upgrade and maintenance of sub-surface communications assets, as well as subsequent temporary and "permanent" restoration, is often undertaken by sub-contractors engaged by utility asset owners. Oversight of works completed by these subcontractors by the utility authorities is often insufficient, and there is little accountability for non-compliant utility installations, repairs, or the restoration of damaged Council infrastructure.

Disruption to the community's use of infrastructure

The increasing volume of sub-surface utility assets being installed within the Macquarie Park precinct's public domain areas has led to regular disturbance of footways and other infrastructure to carry out activities such as maintenance, upgrades and new installations. Closure of sections of footways, road pavement and parking facilities is required to undertake works that adversely impact the community, particularly when installations and associated closures of footways, roads, and on-street parking recur.

Public Safety Hazards

High volumes of trenching create public safety hazards both during works and while footways and road pavements are in temporary repair. The repeated disturbance to the surfaces of footways and other infrastructure to carry out activities such as maintenance, upgrades and new installations introduces exposure to hazards associated with machinery operation, construction processes and traffic management during the works. Uneven surfaces and trip hazards, sometimes created by temporary restoration, pose a high risk of personal injury or property damage.

Impacts on surrounding communities

Permissible on E3 land and generally delivered as single-use developments, data centres often see developers seek to maximise building size and site coverage. As a result, they are occupying high-value urban land that could otherwise support a broader mix of uses, including local employment opportunities, community facilities, or local services. The maximisation of building footprint, combined with secure site designs, including fencing, barriers, blank façades, and extensive CCTV, significantly reduces opportunities for through-site links, landscaping, and other public realm improvements. The resulting building bulk and limited planting and canopy cover contribute to increased urban heat. Data centres provide minimal direct benefit to local communities. They generate very low levels of ongoing employment relative to their scale and have limited operational links with local businesses or industries. As a result, their contribution to the social and economic life of surrounding areas is considerably lower than that of other land uses. Data centre developments can also constrain the potential for development at neighbouring sites, particularly for future residential uses. Potential air quality impacts, along with operational noise, may limit the suitability of adjacent land for sensitive uses and impact the quality of life of surrounding communities. In addition, the scale and character of data centre buildings can detract from the local area's character and neighbourhood appeal.

Data centres should be removed from the list of permissible uses in E3 zones. Requirements for data centre developers to explore opportunities for integrating mixed-use and developing more sophisticated and innovative security designs and arrangements to accommodate this. Requirements for data centre sites to include greater setbacks, increased deep soil planting areas and tree canopy to maximise green

area and minimise urban heat. The aggregation of data centres in E3 zones in Macquarie Park (e.g. on Talavera Road near Khartoum Road) has impacted the ability to realise the vision for this area as a vibrant commercial centre described in the Macquarie Park Place Strategy.

Cumulative construction impacts

Each proposed site will generate significant heavy-vehicle traffic during construction. These will negatively impact the road network and generate noise and pollution throughout the construction works.

It is important that these impacts are considered cumulatively during the SSD assessment, as the negative externalities generated to neighbouring residents and businesses can be significant and amplified with multiple ongoing working sites. Greater focus and consideration of the cumulative traffic, noise, and pollution impact from multiple, clustered data centres are required.

ii. The distribution of impacts across regions, in particular Western Sydney and other growth corridors

It is evident that Sydney data centres are generally not evenly distributed across the metropolitan area. In particular, for Ryde, Macquarie Park is carrying a disproportionate share of this land use, both through the concentration of existing facilities and the volume of current proposals. The suburb currently has 5 operating data centres and 7 known SSD applications, giving a total of 12 existing/proposed facilities in the one precinct. Data centres in Sydney are not evenly dispersed across the metropolitan area; they are clustered in a small number of locations, including the Western Sydney growth corridors, the inner south, the lower north shore, and Macquarie Park. According to the *City of Ryde Staff Submission: Macquarie Park Innovation District Stage 2 Rezoning Proposal*, Macquarie Park already stands out as an established and rapidly intensifying cluster of data centres, despite also being identified to accommodate significant housing, such as proposals on key mixed-use developments, employment, transport integration and public domain improvements.

The effect is that Ryde's residents and existing businesses are being required to accommodate the impacts of a state-significant industry without any clear assurance of full and proportionate compensation for the burden on supporting infrastructure. These impacts include increased demand for electricity, water, and drainage; road and access upgrades; and, notably, the closing of land that could otherwise support more employment-intensive and mixed-use outcomes. It is evident that this is unsustainable for Ryde to continue absorbing an expanding concentration of data centres in Macquarie Park without a coordinated State-led framework that both directs future growth to the most suitable locations and guarantees that all necessary local and regional infrastructure costs are fully funded by proponents rather than subsidised by the community.

Recommendation (e):

The State Government:

1. Prepare design guidelines to improve the siting and appearance of data centres and better integrate them into the public domain.

2. Include performance measures in design guidelines for an environmental impact generated by the operation of data centres.

3. Allow Council to charge for capital works upgrade rectifications when necessary.

f) Land use and housing, including:

i. The opportunity cost of allocating industrial and services land to data centres, interactions with housing supply, employment-intensive industries and other strategic land uses

The proliferation of data centres in Macquarie Park carries a substantial opportunity cost in terms of alternative uses of that land, whether for employment-intensive businesses or housing supply. Data centres consume substantial amounts of electricity and water; however, they typically generate minimal jobs. According to *"The Mystery Impact of Data Centres on Local Economies Revealed" in Area Development,* a typical data centre facility might create only 20 to 50 permanent jobs, far fewer than other commercial or industrial developments on the same site. For example, ISPT's planned 170 MW data centre at North Ryde is replacing an earlier vision for three office buildings and is estimated to provide employment space for 50-100 full-time workers. At 6-8 Julius Avenue, those offices would have housed hundreds or thousands of workers, whereas the data centre will employ only security and engineering staff to assist with the facility's operations. Generally, data centres are highly capital-intensive, heavily automated infrastructure, so once constructed, these facilities require a relatively small on-site operational workforce, mainly consisting of engineering/technician and maintenance roles. This can be compared to conventional office developments, which support much higher day-to-day worker numbers. For 6-8 Julius Avenue, North Ryde, the proponent's SEARs request notes that the total number of jobs, including construction and operation, remains to be confirmed; a data centre of this kind usually has a much lower ongoing employment density than a large commercial setting on the same site.

As an example, the Macquarie Technology Group's new site on Talavera Road was originally proposed to include 1,400 apartments before being diverted to a data centre. Other commentators have noted that its removal from the housing pipeline "will put pressure on the area's capacity to contribute to housing targets.
As such, each data centre occupies industrial/business-zoned land in Macquarie Park, effectively displacing other potential uses, such as innovative business campuses, light industrial workshops, or residential projects, that would deliver greater employment or social benefits. Local stakeholders warn that, if unchecked, Macquarie Park risks becoming "a residential dormitory and data centre wasteland" rather than a vibrant innovation hub. In Council's view, allocating secure urban employment lands to large-footprint, low-employment data centres carries a high opportunity cost that is too great for a city that needs job-rich, commercial enterprises as well as an affordable housing supply.

ii. Interactions with housing supply, employment-intensive industries and other strategic land uses

The rapid growth of data centres in Macquarie Park directly interacts and often conflicts with goals for housing supply, job creation, and strategic land use. From a housing lens, the violation of data centres has explicitly reduced the land available for new dwellings. According to the *City of Ryde Staff Submission: Macquarie Park Innovation District – Stage 2 Rezoning Proposal*, several Macquarie Park sites suitable for high-density housing, especially for transit-oriented development (TOD), are instead being consumed by data centre projects. For example, the proposal at 269 Lane Cove Road sits atop a metro station where "housing is most desired" by strategic plans, and that one site alone could have accommodated over 1,000 apartments under existing controls. Beyond housing, there is also competition from employment-intensive industries and the area's identity as an innovation district. Macquarie Park's Innovation District (MPID) is Sydney's premier science/tech business park, home to major corporate headquarters. Furthermore, data centres generate very few jobs and require very few on-site operators to operate them, compared to other retail businesses. Council's submission on the Macquarie Park rezoning warns that the trend, if unchecked, would "reduce the availability of land for housing and businesses" and diminish Macquarie Park's vibrancy.

Data centres often run heavy industrial equipment, including generators and cooling plants, which can generate noise and heat. Placing them adjacent to future apartment towers or parks can create compatibility issues. Moreover, at Macquarie Park, one proposed data centre would entail clearing some remnant bushland near Lane Cove National Park, sparking environmental concerns among residents. These examples illustrate that data centre development, housing supply, employment land use, and environmental/amenity goals are interconnected, and in Macquarie Park, finding the right land-use balance has become a difficult challenge.

iii. Whether current planning frameworks appropriately balance data centres against competing social, environmental and economic needs

In NSW, recent planning reforms have widened the circumstances in which large warehouses and data centres can be assessed as SSD. This is due to data centres that exceed specified power-consumption thresholds being classified as SSD, meaning they are assessed by the NSW major projects system and determined by the Minister or the Independent Planning Commission. Additionally, the Investment Delivery Authority to open for business | NSW Government has also established new 'fast-track' investment programs, including the Investment Delivery Authority, intended to accelerate the approvals and coordinate delivery for major investment projects, explicitly including data centres and digital infrastructure.

Regarding Ryde, the planning system SEPP states that data centres become SSD when total power consumption exceeds 15MW. Specifically for the Macquarie Park TOD, the 2024 SEPP amendment inserted data centres into the Ryde LEP land-use table as prohibited in Zone E2 Commercial Centre and applied a saving provision for DAs logged pre-commencement. It is therefore the case that data centres remain feasible in other employment zones, including E3 Productivity Support, because a data centre is defined and treated as a high-technology industry under the LEP definitions.

iv. The extent to which the resource demands of data centres impinge on the development of new housing supply

Data centres are significantly impacting Sydney's housing development by consuming vast amounts of energy and water and occupying or competing for land intended for residential growth. A report from the NSW Parliamentary Committee to Scrutinise Data Centre Boom in Nation-First Inquiry indicates data centres could use up to 25% of Sydney's drinking water by 2035 and consume 11% of all energy produced, creating substantial competition for essential resources. Additionally, data centres are multiplying and are increasing in size, with hyperscale facilities becoming more common. According to the *International Energy Agency*, A hyperscale, AI-focused data centre can have a capacity of 100MW or more, consuming as much electricity annually as 100,000 households. Datacentres demand huge amounts of electricity. Could they derail Australia's net-zero ambitions?.

In the context of the Ryde LGA, particularly Macquarie Park, an excellent example is the two SSD-scale projects: the Talavera Road data centre expansion of 38MW and the Julius Avenue proposal of up to 170MW. Furthermore, an analysis commissioned by the Australian Energy Market Operator reported that a typical data centre utilisation uses around 70-85%. Taking this percentage to 38MW and 170MW, this implies roughly 0.25 Terawatt-hour per year (TWh/year) and 1.1 TWh/year of annual electricity consumption, Data Centre Energy Demand. In Macquarie Park, data centres and new housing rely on the same core infrastructure, especially electricity and water. This means supply delays or capacity limits in utilities can slow housing delivery. This is confirmed by a report from Ausgrid, which was on Addressing increased customer demand requirements in the Macquarie Park area, directly described Macquarie Park as both:

- A major data centre precinct.
- A priority area for new residential development.

Recommendation (f):

The State Government Prepares a study that:

1. Quantifies the opportunity cost of establishing data centres on high cost fully serviced industrial land such as Macquarie Park with high quality transport infrastructure.

2. Assesses the impact on the availability of land for housing, commercial and industrial uses.

g) Economic and distributional outcomes of data centre developments, including:

i. The economic benefits of data centre development, including employment, investment and local economic activity

Low employment intensity compared to land consumption:

- Prime employment land yielding limited ongoing jobs - while data centres offer significant capital expenditure investment and employment opportunities in the construction phase, it creates relatively few permanent ongoing jobs when you assess it per square metre compared to other industries, e.g. advanced manufacturing facilities, commercial offices or health and innovation precinct uses.
- Data centres reduce long-term employment density in strategic town centres, precincts and districts.
- Adversely impacts the agglomeration of economic spillovers compared to knowledge-intensive industries.

ii. The distribution of costs and benefits

Distribution should be considered through integrating a technology hub, innovation space and additional mixed-use into the design of data centres. This will greatly foster collaboration between industries and the community and generate greater long-term employment outcomes.

The ABS says the *Information, Media and Telecommunications capex* series suggests it uses as an early indicator of data-centre activity. It shows an expected spending of $19.2 billion 2025-26 and $20.1 billion in 2026-27. In regards, to benefits, data centres bring major investment, support cloud and AI services, and can lift productivity across the wider economy. Locally, their main benefits are construction activity, ongoing skilled jobs and strong tax revenue for that can fund services to reduce pressure on other taxpayers.

iii. The extent of public subsidies, concessions or state directed facilitation provided to the sector

Volatility in data centre concentration:

The current data centre demand in NSW is driven by global cloud service providers, Artificial Intelligence, sovereign cyber security capabilities and redirection of international capital investments. If global investment/demand for data centres slows or hyperscale providers consolidate, NSW, and particularly Ryde, could be left with underutilised infrastructure, stranded grid capacity and commercial vacancy in prime locations. All of which creates cyclical vulnerability, unlike investment in traditional or diversified industrial ecosystems. This may require the State to introduce subsidies or concessions to support a transition to new land uses to maintain the local economy.

Recommendation (h):

The State Government:

1. Prepare a planning strategy for the location of data centres in Metropolitan Sydney and regional NSW that encourage a model of diversified employment opportunities with co-location of knowledge industries and reduces the risk of employment loss if technology changes rapidly. See Recommendation (a).

h) Governance, transparency and accountability

i. The adequacy of public reporting on data centre resource use, emissions and environmental performance

Since data centres have been absorbed into the SSD assessment regime, undertaken by the Department of Planning, Housing and Infrastructure, and subsequent determination by the Independent Planning Commission or the minister, the question of governance, transparency and accountability is now beyond the scope of local government.

Beyond the initial stages of engagement, Ryde Council has observed a less-than-transparent process undertaken by the Department in conducting its assessment of SSD applications generally and data centres specifically.

As a local government authority responsible for its community, it would be beneficial to remove obscurity from the Department's assessment processes for such applications and adopt a more open and engaging suite of processes aimed at ensuring transparency and accountability with the community it serves.

Council has limited access to environmental performance reporting from data centres within our LGA. Given that data centres are typically assessed as state-significant development, reporting is made to the NSW Government. Environmental reporting obligations for approved SSD data centres are generally vague and do not explicitly require operators to disclose rates and the composition of resource use.

It is suggested that the State Government require data centres to report publicly on their environmental performance. The approach to reporting should be structured around local environmental accountability, rather than corporate carbon accounting.

In turn, the State Government should be responsible for preparing regular cumulative impact reports to enable the public to understand the environmental performance of these companies, especially the risks to local water and electricity resources.

ii. The transparency of approval processes, conditions and negotiated outcomes

Ryde Council is invited by the Department to engage with the formulation of conditions of consent. This requires a complete assessment of the proposal, conducted in parallel with the Department's assessment, and demands significant Council resources. The conditions

of consent proposed by the Council are generally accepted by the Department except for conditions that require design changes to the proposal.

The council has never been invited to negotiate specific outcomes with the Department or the proponent.

iii. Potential conflicts of interest or governance risks arising from accelerated approval frameworks like the Investment Delivery Authority

The NSW Government has established the Investment Delivery Authority (IDA) to identify and remove barriers to major private investment projects. Additionally, the Authority can recommend projects for fast-track planning assessment and other forms of government support. The *IDA NSW framework* also provides endorsed projects with practical support, including a single point of contact, whole-of-government problem-solving, and assistance from a dedicated planning assessment team.

It is worth noting that the NSW Government states IDA endorsement does not guarantee approval and that normal statutory planning processes still apply. Accelerated pathways for data centres should therefore be accompanied by published selection criteria, clear reasons for endorsement, conflict-of-interest declarations, power and water utilisation modelling, construction costs and relevant community consultation.

iv. The impact of lobbying and donations on government policy settings surrounding data centre developments

Local Government advocates multiple levels of governance, however, is not in a position to conclude whether lobbying or political donations have influenced government policy settings for data centre development. The *NSW Electoral Commission* oversees political donation disclosures and maintains a public register of third-party lobbyists, their clients, and publishes ministerial disclosures.

Recommendation (h):

The State Government:

1. Require as a condition of consent that data centre operators to report annually on resource use, emissions and environmental performance.

2. Prepare regular cumulative environmental reports on data centre performance.

3. Public confidence would be strengthened if decisions to prioritise or fast-track major data centre proposals were accompanied by proactive publication of meetings with proponents or lobbyists.

I) Workforce considerations, including

i. Employment conditions across construction, operations and contracted services

Employment impacts in the data centre sector change considerably when comparing construction and operations. For instance, a recent SSD application for the Julius Avenue data centre proposal notes 3,424 construction jobs but only 50 ongoing operational jobs such as security guards, data analysts, and patching technicians, indicating that employment benefits are primarily focused on the construction delivery phase rather than on the facility's long-term operation.

Construction of data centres are primarily executed by contractors, subcontractors and labour-hire arrangements. It is paramount that employers constructing and operating these data centres adhere to robust workplace compliance frameworks, including work health and safety duties and are bound by lawful contracting practices.

ii. Workforce development, skills and training pathway

Data centre growth also impacts workforce needs for both construction and specialised technical roles. A report titled *Current Skills Shortages* compiled by *Jobs and Skills Australia* notes that skills shortages are especially severe in construction trades. In fact, all occupations in the Construction Trades Workers group were classified as being in national shortage. Moreover, the 2025 *Jobs and Skills Australia report* highlighted cyber-related roles, such as analysts, systems administrators and other cyber security specialists, employed just over 70,000 people in August 2025, with an expected growth of 14.2% by 2029. This suggests that any long-term approach to the data centre sector should include coordinated training pathways across electrical, plumbing and HVAC trades, digital infrastructure operations, and cyber security.

These can include leveraging existing federal government incentives such as the Fee-Free TAFE skills agreement for technology and digital offering 100,000 free TAFE placements per annum recognising these fields of study are in high demand and of national and state priority.

iii. The role of labour standards, procurement and compliance in large-scale data centre projects

Fair Work Australia clarifies that businesses should ensure that contractors and subcontractors in their supply chains adhere to workplace laws. In the context of large-scale data centre projects, any state-led facilitation should be accompanied by clear expectations for contractor management, compliance reporting, and demonstrable adherence to workplace and safety obligations.

There are a multitude of Australian Standards available ranging from data centre supply, engaging with third parties, design and construct procurement and supply of equipment processes that should be followed. For example, AS ISO 20400:2018 is for integrating sustainability into procurement decisions and processes.

Recommendation (i):

The State Government:

1. Invest in the development of skills, training and pathways which addresses the construction and operational needs of data centres.

j) Lessons from other jurisdictions:

i. Approaches adopted internationally and interstate to managing data centre growth

Council does not have any information or suggestions on these matters.

ii. Applicability of alternative models to New South Wales

Council does not have any information or suggestions on these matters.