SPATIAL ORGANISATION, ADAPTIVE RE-USE AND ARCHITECTURAL FUTURE PROOFING

Proposal

The master plan approach has included a systematic review of all existing spaces within the school in relation to their current use, their potential future uses and the appropriateness of the space for those uses. While some existing spaces may not be ideal, a critical approach has been taken to understand how these existing spaces can be refurbished or upgraded to make them appropriate for current and future needs.

The consequences of adaptive reuse versus new build have been considered. Considering the impact and whole-of-life of the built fabric of the site, the adaptive reuse of existing fabric has generally taken precedence wherever possible. As such, the functional reprogramming of existing buildings has reduced the need for new buildings required to accommodate future expansion.

Where new buildings are required, these parts of the master plan have been allocated and designed to consider the flexibility or multi-purpose potential for each space to ensure it can adapt to meet future needs.

CONTEXTUAL AND FUNCTIONALLY APPROPRIATE DESIGN

Proposal

The master plan proposes envelopes that do not rigidly impose only one possible design solution. Flexible envelopes allow for a variety of possible forms to be considered on the site. The master plan fitting diagrams set a baseline response to the proposed use and arrangement on the site which will guide future design.

The school is currently made up of buildings of a very broad stylistic and aesthetic palette, all of high quality. One particular material or aesthetic palette would not be an appropriate constraint for the master plan. However, aesthetic choices have been indicated in the report which are sympathetic and complementary to existing features within the site and neighbouring context. This precedent imagery included in the master plan will act as a guide for future development and represents the recommended formal, stylistic and aesthetic approach for future projects. This has been determined in conversation with the school.

03 DESIGN PRINCIPLES + CONCEPTS

DESIGN PRINCIPLES

The SEPP (Educational Establishments) sets out principles for design quality. These principles have been considered throughout every phase of design and underpin the final master plan proposed for Loreto Normanhurst.

The design concepts which follow this section further demonstrate how these principles have been considered and implemented in the proposed master plan.

A report describing how this master plan responds to each of the design principles set out by the Education SEPP is appended to this document.

SEPP (EDUCATIONAL ESTABLISHMENTS) DESIGN QUALITY PRINCIPLES

1 CONTEXT, BUILT FORM + LANDSCAPE

Schools should be designed to respond to and enhance the positive qualities of their setting, landscape and heritage, including Aboriginal cultural heritage. The design and spatial organisation of buildings and the spaces between them should be informed by site conditions such as topography, orientation and climate.

Landscape should be integrated into the design of school developments to enhance on-site amenity, contribute to the streetscape and mitigate negative impacts on neighbouring sites.

School buildings and their grounds on land that is identified in or under a local environmental plan as a scenic protection area should be designed to recognise and protect the special visual qualities and natural environment of the area, and located and designed to minimise the development's visual impact on those qualities and that natural environment.

This preservation and enhancement of the history of Loreto Normanhurst, its buildings and grounds, is fundamental to the future development of the school.

The master plan will:

+ enhance the natural and built landscape features of the school
+ improve landscape amenity for students and other users
+ restore buildings of heritage significance to improve the legibility of the historic fabric of the school
+ improve understanding of the natural features of the site including its topography and upper/lower levels of the grounds and the relationship between the buildings and the bush
+ respond to natural features of the site by way of building orientation, landscape spaces with an amenity for students during different times of the year and weather conditions
+ consider landscape solutions to improve the visual amenity of the site for users and neighbours

2 SUSTAINABLE, EFFICIENT + DURABLE

Good design combines positive environmental, social and economic outcomes. Schools and school buildings should be designed to minimise the consumption of energy, water and natural resources and reduce waste and encourage recycling.

Schools should be designed to be durable, resilient and adaptable, enabling them to evolve over time to meet future requirements.

Loreto Normanhurst is committed to sustainability. It is a strategic driver for the school, a significant part of their curriculum and underpins their vision for the development of this master plan.

Considerations include:

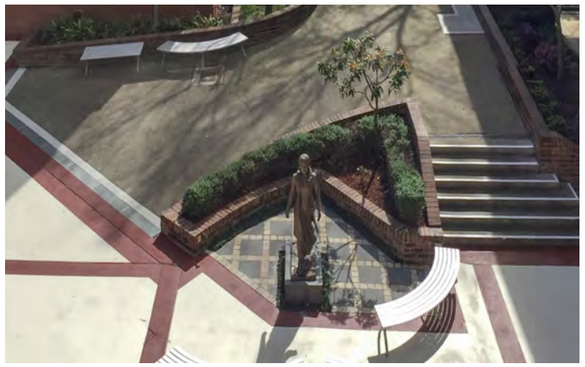
+ reuse and improvement of existing built fabric to ensure its use into the future
+ progressive upgrade of sustainable infrastructure
+ establish new teaching facilities specifically dedicated to the education of students in sustainability

3 ACCESSIBLE + INCLUSIVE

School buildings and their grounds should provide good wayfinding and be welcoming, accessible and inclusive to people with differing needs and capabilities.

Note: Wayfinding refers to information systems that guide people through a physical environment and enhance their understanding and experience of the space.

Schools should actively seek opportunities for their facilities to be shared with the community and cater for activities outside of school hours.



The progressive development of the school over several decades has resulted in some difficult level changes and connections between various teaching spaces.

The master plan circulation strategy will:

+ identify issues of connection within the school and
+ propose a solution to access through the development of connection strategies and inclusive design throughout the campus

4 HEALTH + SAFETY

Good school development optimises health, safety and security within its boundaries and the surrounding public domain, and balances this with the need to create a welcoming and accessible environment.

Security and safety of students within Loreto Normanhurst is paramount.

The master plan will:

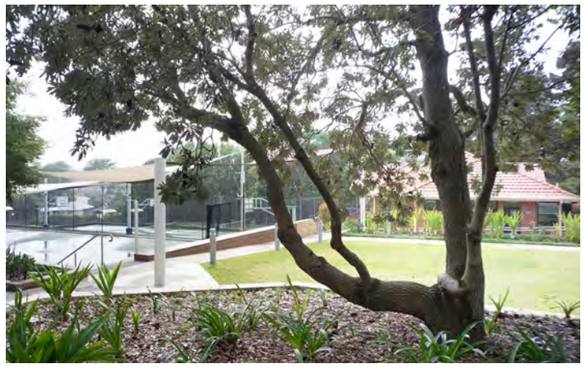
+ identify potential areas that may represent a threat to student safety including; traffic and pedestrian conflicts, control and reception of visitors to the campus
+ propose a strategy for improved security throughout the campus

5 AMENITY

Schools should provide pleasant and engaging spaces that are accessible for a wide range of educational, informal and community activities, while also considering the amenity of adjacent development and the local neighbourhood.

Schools located near busy roads or near rail corridors should incorporate appropriate noise mitigation measures to ensure a high level of amenity for occupants.

Schools should include appropriate, efficient, stage and age appropriate indoor and outdoor learning and play spaces, access to sunlight, natural ventilation, outlook, visual and acoustic privacy, storage and service areas.



Loreto Normanhurst is located on Pennant Hills Road, a major and busy route connecting the M1 motorway with the M2 motorway.

The master plan will:

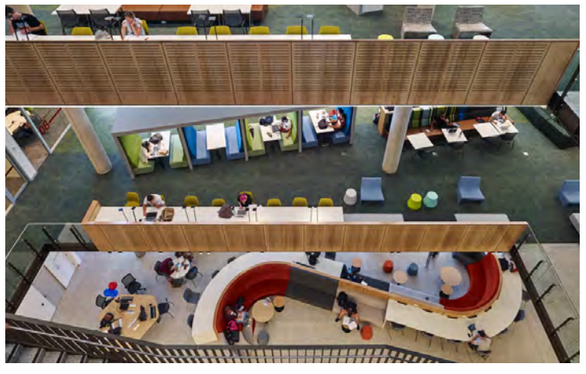
+ identify noise sensitive facilities, such as boarding residences and
+ propose solutions to best locate facilities in relation to major noise sources

The school currently benefits from a variety of teaching spaces, however with the proposed relocation and upgrade of facilities the master plan will:

+ provide a variety of indoor, outdoor and stage appropriate learning and play spaces throughout the campus

6 WHOLE OF LIFE, FLEXIBLE + ADAPTIVE

School design should consider future needs and take a whole-of-life-cycle approach underpinned by site wide strategic and spatial planning. Good design for schools should deliver high environmental performance, ease of adaptation and maximise multi-use facilities.



Enduring and appropriate use of the variety of teaching spaces and buildings into the future is intricately linked to the pedagogical approach of the school. Flexibility and visible learning facilitates the long-term adaptability of educational spaces and underpins the approach to the development of the campus.

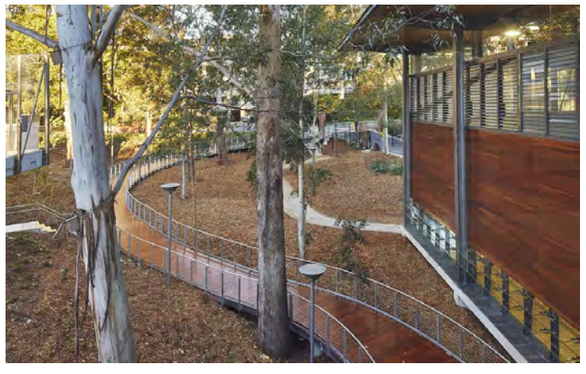
The master plan will:

+ identify and propose solutions that enable the campus to grow and adapt in the future
+ propose adaptable spaces that can be multi-use and flexible while nevertheless appropriate for their intended purpose

7 AESTHETICS

School buildings and their landscape setting should be aesthetically pleasing by achieving a built form that has good proportions and a balanced composition of elements. Schools should respond to positive elements from the site and surrounding neighbourhood and have a positive impact on the quality and character of a neighbourhood.

The built form should respond to the existing or desired future context, particularly, positive elements from the site and surrounding neighbourhood, and have a positive impact on the quality and sense of identity of the neighbourhood.



Loreto Normanhurst has a legacy of high quality architectural design and outdoor spaces. The image of the campus is not only important for prospective students but contributes to the health and well-being of existing students and staff

The master plan will:

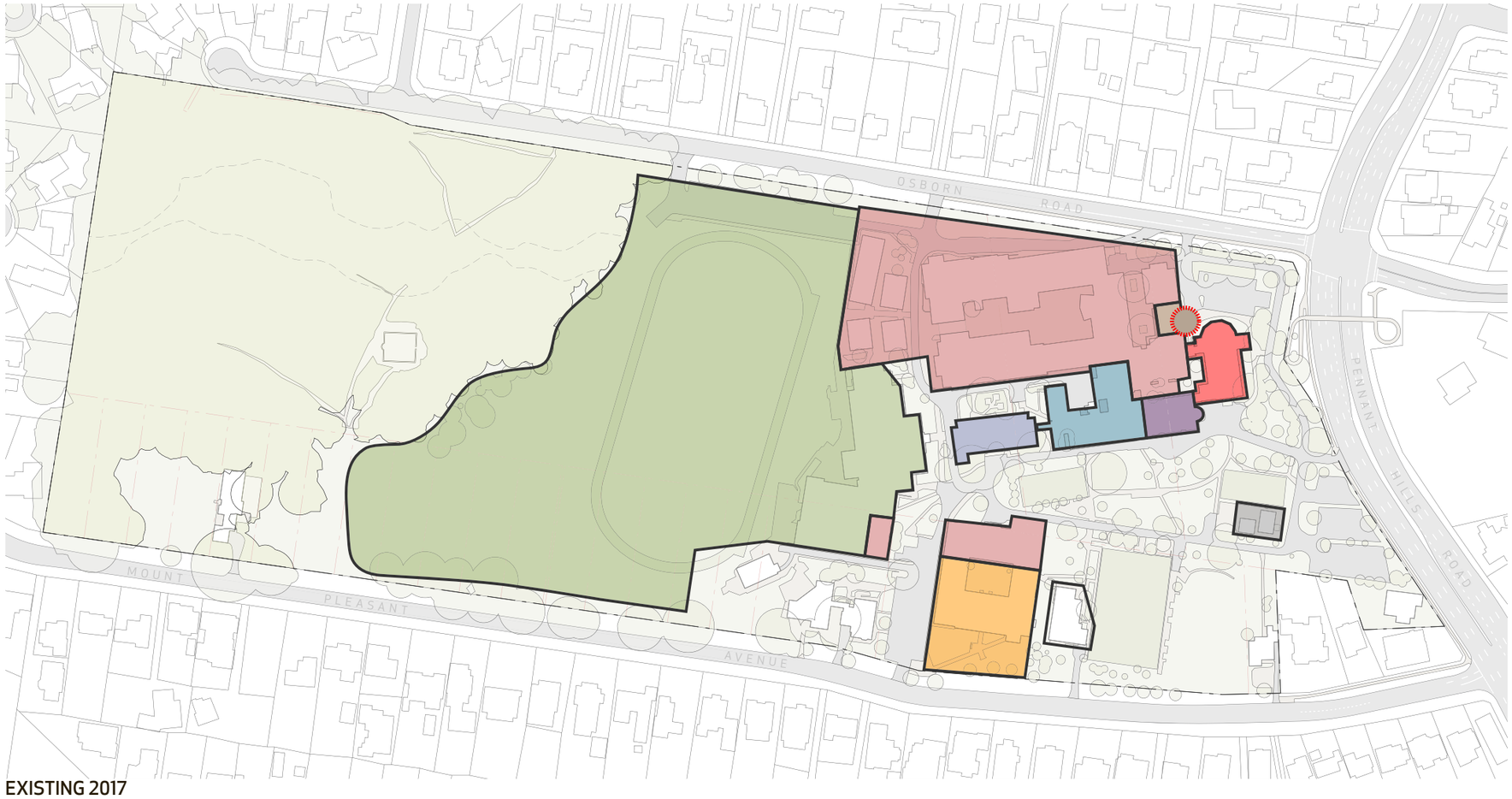
+ upgrade disused spaces once the functions are relocated (eg the loading dock)
+ set the parameters and inspiration for future development within the campus

DESIGN CONCEPTS

EXISTING PRECINCTS

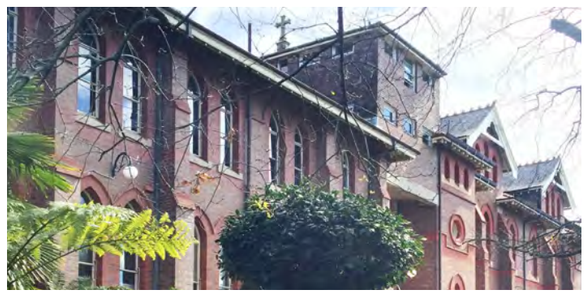
A number of functions within the school overlap. This overlapping of functions constrains the growth of the school. The master plan will separate overlapping functions. The separation of functions will free up space for teaching and learning and an increase in student population in key sectors. This will enable the existing campus facilities to operate adaptively and flexibly considering whole-of-life operation of the buildings.

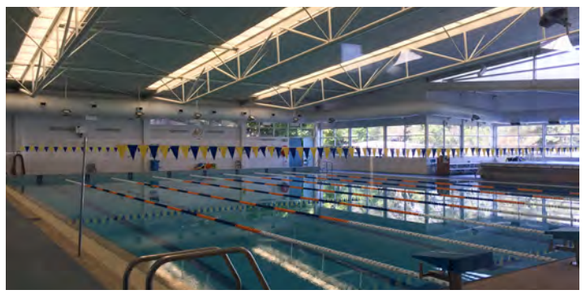
The unravelling of overlapping functions will also enable a more appropriate distribution of spaces. For example, boarding, a noise sensitive operation can be relocated to a quieter part of the campus and enable the growth of the secondary school campus, reuniting currently separated classes and in turn, enabling the growth of the primary school.

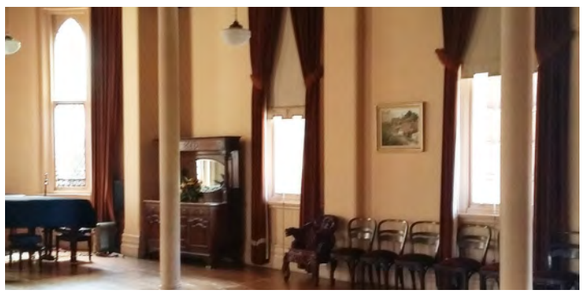


EXISTING 2017

- BOARDING
- ADMINISTRATION + TEACHING
- MAIN SCHOOL RECEPTION
- SPECIALFUNCTIONS + HERITAGE
- SECONDARY SCHOOL
- HERITAGE + BOARDING OVERLAP
- PRIMARY SCHOOL
- EARLY LEARNING CENTRE
- SEC. SCHOOL + BOARDING OVERLAP
- MAINTENANCE
- SPORTS PRECINCT
- HEALTH CENTRE







PROPOSED MASTER PLAN 2047

BOARDING
ADMINISTRATION + TEACHING
MAIN SCHOOL RECEPTION
SPECIALFUNCTIONS + HERITAGE
SECONDARY SCHOOL
HERITAGE + BOARDING OVERLAP
PRIMARY SCHOOL
EARLY LEARNING CENTRE
SEC. SCHOOL + BOARDING OVERLAP
MAINTENANCE
SPORTS PRECINCT
HEALTH CENTRE

PROPOSED PRECINCTS

The master plan will

+ separate boarding from teaching and administrative facilities
+ clarify and enhance administration and staff areas
+ distinguish primary and secondary schools to give them their own precinct
+ consolidate sports precinct
+ enhance heritage features





DESIGN CONCEPTS

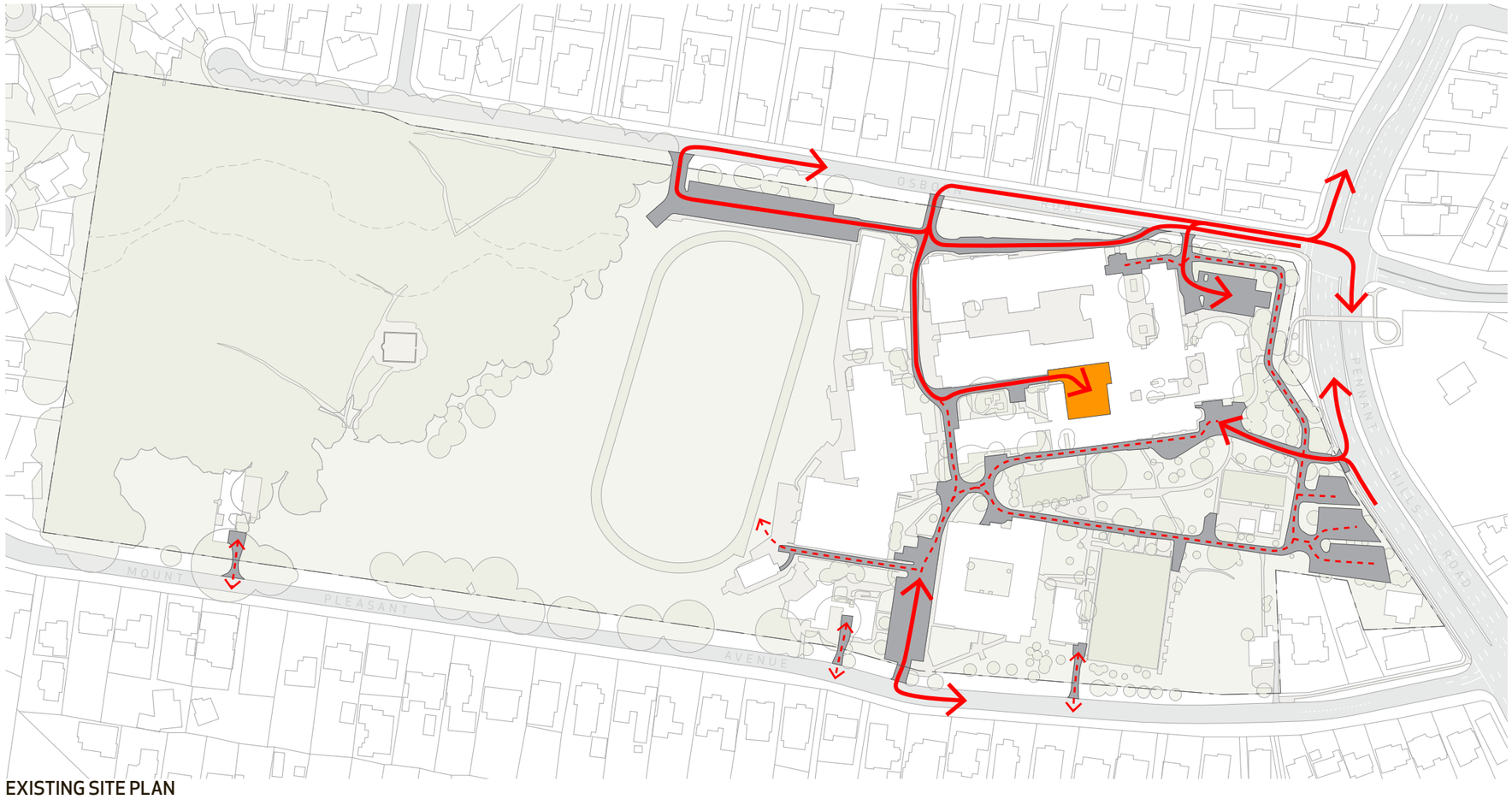
EXISTING ROADS + ACCESS

Vehicular Movement and Entries

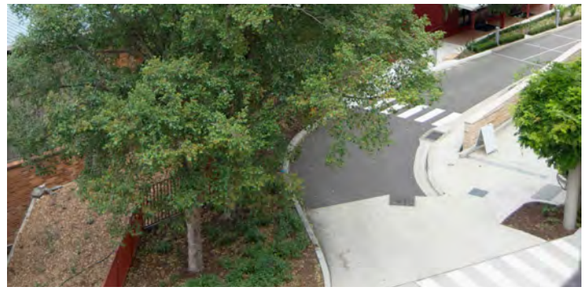
+ Several vehicle entries
+ Restriction on vehicular movement within the site is limited.

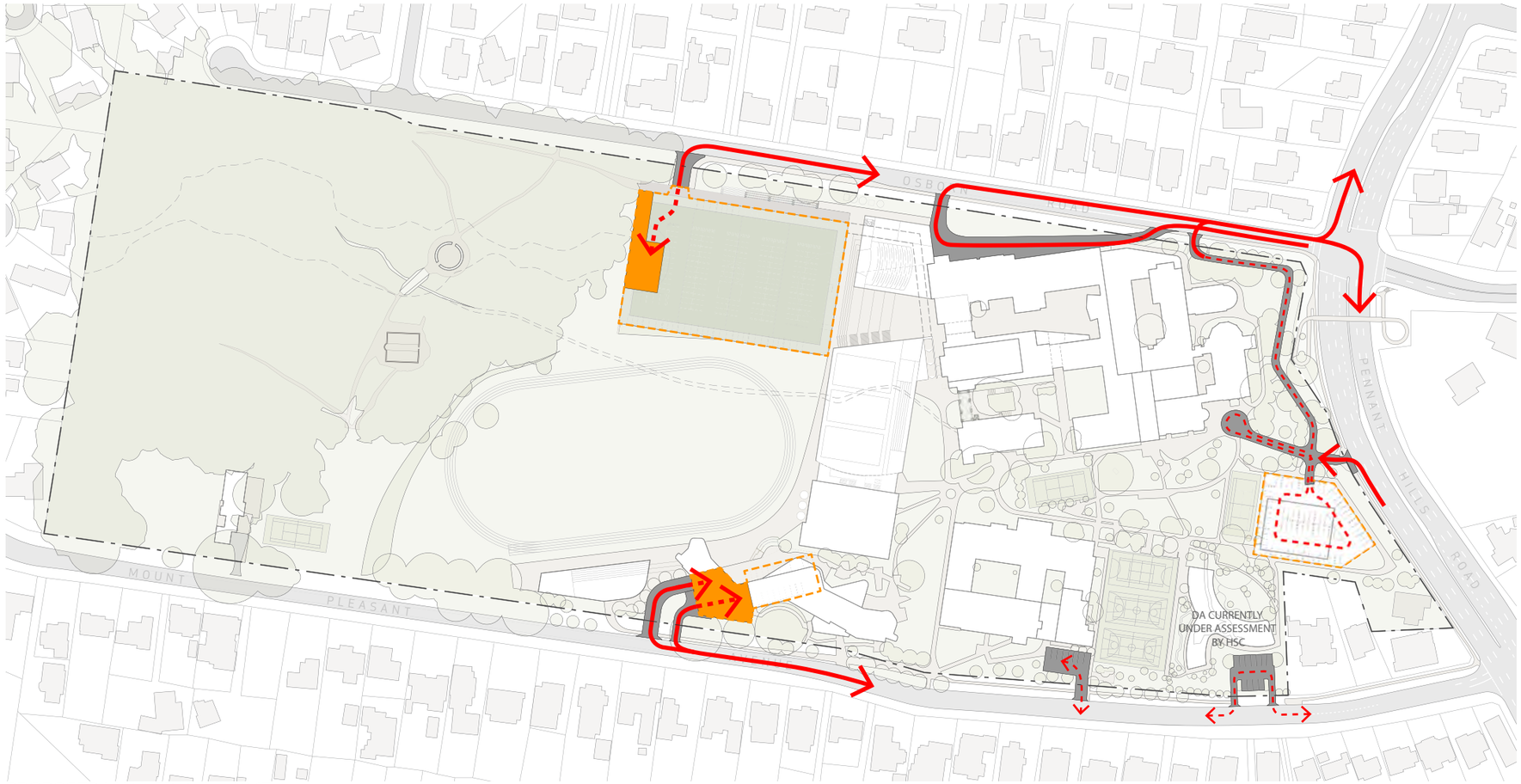
Deliveries and Docks

+ Centralised loading dock
+ Vehicles have to move to the centre of the site to access the dock, increasing the possibility of pedestrian/vehicle conflicts



EXISTING SITE PLAN





PROPOSED MASTER PLAN 2047

PROPOSED ROADS + ACCESS

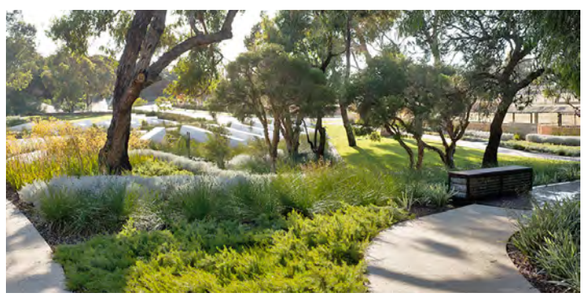
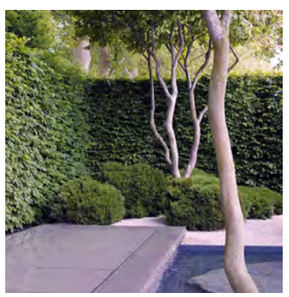
Vehicular Movement and Entries

+ Limit vehicles to the edge of the site
+ Secure entries with after hours access limited to the sports precinct
+ Internal pathways to be pedestrian only with provision for vehicle access in exceptional circumstances
+ Reduce conflict between cars and pedestrians/students

Deliveries and Docks

+ Loading docks located to the edge of the site
+ Boarding facility contains dock for boarding school deliveries
+ Other school deliveries to be made to dock beneath all-weather field




03 DESIGN PRINCIPLES + CONCEPTS

DESIGN CONCEPTS

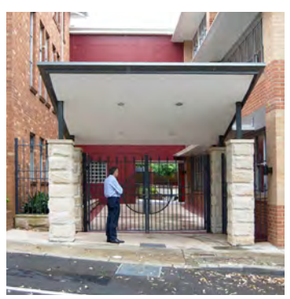
EXISTING OPEN SPACE

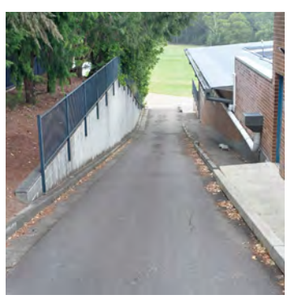
Disconnected Site
+ Limited and constrained connections from the upper part of the site to the lower

Roads
+ Roads wind their way through the site dissecting open space and restricting freedom of pedestrian movement

Car Parks and Docks
+ Potential open spaces and courtyards are currently occupied by car parking of delivery and dock uses

EXISTING SITE PLAN





PROPOSED MASTER PLAN 2047

PROPOSED OPEN SPACE

Connected Site

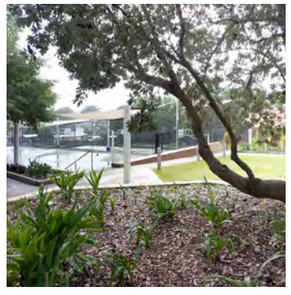
+ Open spaces along the embankment are enlarged to create a flow between the lower and upper portions of the site

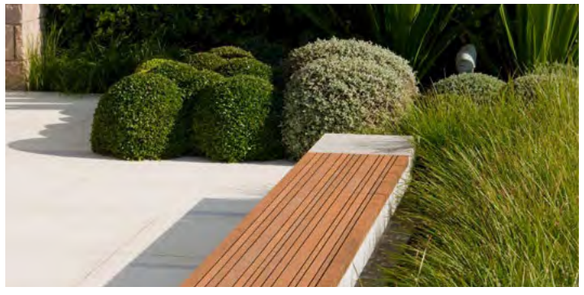
Paths

+ Former roads are paved and become pedestrian pathways throughout the site

Plazas and Courtyards

+ The former Mount Pleasant car park becomes a large garden plaza
+ The old dock is converted into a courtyard connecting through the science wing into the existing Secondary School



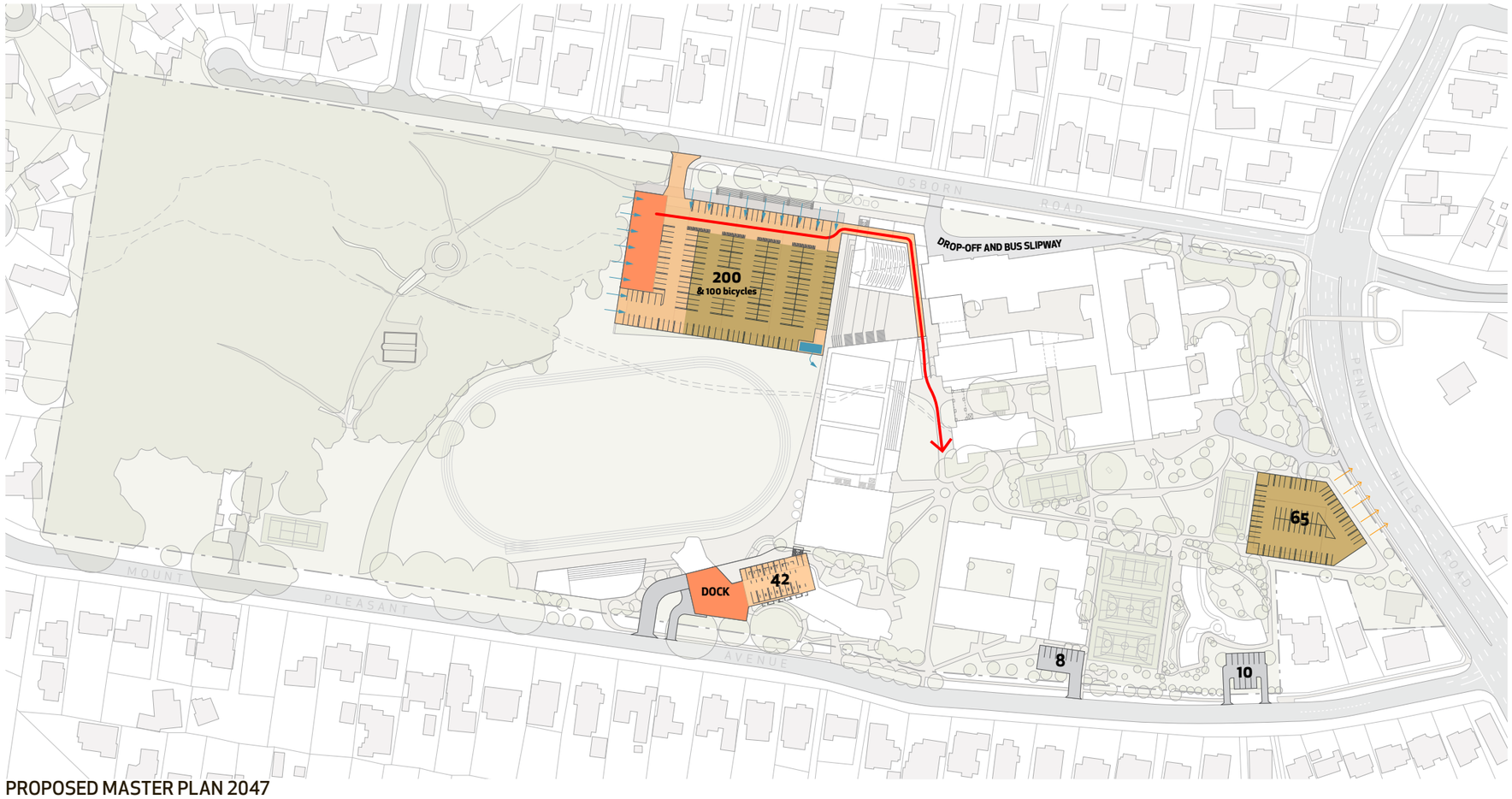




DESIGN CONCEPTS

FACILITIES MANAGEMENT, DOCKS + PARKING

The master plan will improve the management of school facilities, deliveries and parking in the following ways:

+ The principle concept of the master plan is to remove parking and roads from within the campus to flanking portions of the site
+ New underground car parking facilities to be integrated into major works
+ Greater number of spaces can be achieved by providing additional underground basement levels of parking
+ Future efforts to reduce vehicle usage may result in a reduction of parking on site. Subsequently, all underground car park areas to be designed to accommodate future re-purposing
+ Facilities management buggies to be used to access spaces within the campus. All other vehicles prohibited. An underground tunnel is provided from the facilities centre to the centre of the campus
+ Facilities management located adjacent to forest bush-fire source and will require drenching and shuttering
+ Primary School parking is indicative only. Replacement with a pick-up/drop-off slip-way would be preferable. Subject to future design.



PROPOSED MASTER PLAN 2047

BOARDING DOCK
MAINTENANCE, GENERAL DOCK + BUSES
NEW UNDERGROUND CARPARK - 307 TOTAL
TEMPORARY DROP-OFF
ALTERNATIVE MAINTENANCE LOCATION
CARPARK FOR FUTURE REPURPOSING - 2700 FCL MIN
BUGGY TUNNEL
NATURAL VENTILATION
VIEWS FROM UNDER GROUND CARPARK





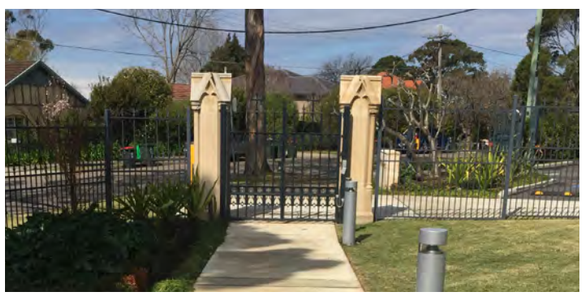
SECURITY

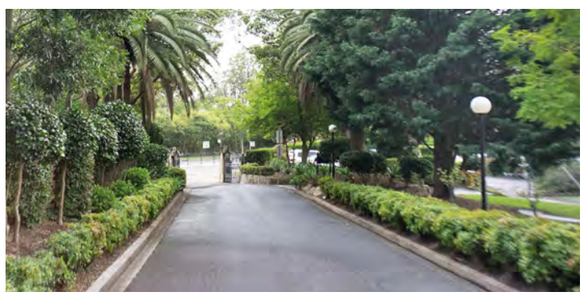
The master plan will improve site security through both passive and active measures. The intent is to have a secure site with limited access for sports activities. The extent of solutions will be determined in consultation at a later stage.

A more detailed description of security and fencing for the Stage 1 development is available in the documents associated with the stage.

PROPOSED MASTER PLAN 2047

- SPORT PRECINCT - LOCAL + AFTER HOURS ACCESS
- VEHICLE GATE
- VEHICLE GATE - LIMITED LOCAL AND AFTER HOURS ACCESS
- SCHOOL + ELC PRECINCT S SEPARATE KEYED ACCESS
- PEDESTRIAN GATE
- PEDESTRIAN GATE - LIMITED LOCAL AND AFTER HOURS ACCESS





DESIGN CONCEPTS

TOPOGRAPHY

Embankments

The site is currently divided into two main zones; the proposed master plan will provide an improved connection between these two zones. This will be provided through

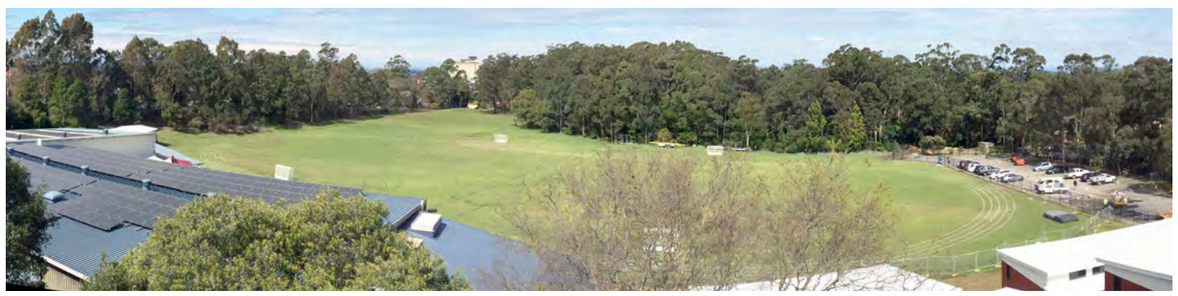
+ landscaped amphitheatres,
+ circulation core adjacent to new gymnasium development will extend the school's central axis to provide a direct connection to the oval and bush cemetery

Creek

The current issues with flooding of the oval and overland flow throughout the site will be improved

+ Hydrology of playing fields to be improved to reduce saturation following rainfall.
+ Creek to be reinstated within 1943 glade zone
+ Water Sensitive Urban Design solutions to be implemented in landscape strategy to ameliorate impacts of contamination from development. Refer landscape documents for detailed information regarding strategy.

PROPOSED MASTER PLAN 2047



PROPOSED MASTER PLAN 2047

LIFT - EXISTING

LIFT - PROPOSED

CIRCULATION PATH

CIRCULATION OUT OF UNDERGROUND CARPARK

VERTICAL CIRCULATION

+ Provide new lifts as part of major building projects to generally improve circulation and accessibility

DESIGN CONCEPTS

SUSTAINABILITY

Loreto Normanhurst will be a model for environmental sustainability, inspiring and empowering our school community to apply sustainable practices and promote social equity and diversity.

Loreto Normanhurst Sustainability Workshop - Vision Statement

The master plan will strive to create an ecologically sustainable campus that educates students, staff and visitors. The new and improved campus and facilities will aim to set a benchmark for sustainability in the local community and to lead the way in sustainability for the education sector.

Sustainable initiatives will be prioritised wherever possible as fundamental to the design approach for all buildings. The initiatives will include improved insulation, recycling and water treatment, energy collection and reduced consumption of resources with the use of efficient fittings and fixtures and increased natural/passive systems with limited active cooling and heating. The school will also endeavour to actively pursue research projects, aiming to incorporate a greater understanding of sustainability and ecological responsibility in their curriculum aiming to become a leader in their sector.

Loreto Normanhurst 2016-2020 Strategic Plan:

The plan describes three strategic pathways for futures growth and development of the school: a faith-centred school, a person-centred school and an ecology-centred school.

" The development of ecological sensitivity in all members of the community so that all actions reflect a care for creation.

A school that assumes ethical responsibility for decisions which promote sustainability across all areas of the community, within and outside Loreto Normanhurst.

The development of a growth strategy and Master Plan that imagine and deliver a state of the art school with modern facilities ensuring robust stewardship of resources."

Source: Loreto Normanhurst Strategic Plan, https://www.loretonh.nsw.edu.au/about-us/strategic-plan-2016-2020/

Key target areas for sustainable design and management commitments:

+ Energy + carbon efficiency
+ Well-being + fitness
+ Water
+ Indoor environment
+ Materials + waste
+ Community + education

Refer specialist ESD report prepared as part of this submission for details and commitments.

INDICATIVE ESD INITIATIVES - MASTER PLAN 2047

ECO-CENTRE + BIO-LAB | 1 BUSH CHAPEL | 2 BUSH RESEARCH CENTRE | 3 ECOLOGY OBSERVATION

PHOTO-VOLTAIC UNITS | WIND TURBINE | WATER TREATMENT | GREEN ROOF | CROP RESEARCH

SUSTAINABILITY

Active
+ Rainwater collection
+ Water treatment
+ Photo-voltaic units
+ Containment of natural watercourse under oval to reduce flooding issues on playing field

Passive
+ Building upgrades to improve insulation/ reduce heat loss
+ Upgrades to improve shading/reduce solar gain
+ Building design to take advantage of natural ventilation opportunities and passive cooling opportunities
+ WSUD

Teaching and Learning
+ Eco-centre and biology lab
+ Ecology teaching and chapel space in the bush
+ Bush research centre
+ Ecology observation learning space

NOTE: CONCEPTS ONLY
REFER TO ESD SSDA REPORT
PREPARED BY ARUP