

Longhurst

**The Edgecliff Centre
Redevelopment**

Rail Impact Assessment Report

Edgecliff - Rail Impact Assessment - Issue 02

Issue 02 | 15 June 2020

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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1 Introduction

1.1 Purpose of this report

This Rail Impact Assessment Report has been prepared on behalf of Longhurst Investments No. 1 Pty Ltd in support of a planning proposal for the Edgecliff Centre (the site). The planning proposal will support amendments to the Woollahra Local Environmental Plan 2014 in order to facilitate the future redevelopment of the site for a mixed-use development comprising retail/commercial/medical uses podium and residential tower.

Specifically, in order to facilitate the future redevelopment of the site for the intended purpose, the planning proposal seeks to:

- Increase the maximum Height of Buildings development standard and
- Increase the maximum Floor Space Ratio development standard.

The planning proposal is supported by an indicative development concept. The concept is indicative only and has been prepared for the sole purpose of demonstrating that the planning proposal can deliver a viable scheme within the amended controls being proposed.

The indicative development scheme includes:

- Commercial, retail, medical/wellness facilities and residential.
- Provision for a Publicly Accessible Open Green Space at podium level.
- Introduction of public community space.
- Revitalisation and enhancement of the existing intermodal and transport interchange within the site.
- Public domain improvements at ground level including a new plaza and permeable transit interchange entry way; and
- Improvements to existing vehicular access and loading dock arrangement

This report, the Rail Impact Assessment, is prepared to identify the areas of impact of the development on the rail corridor and to present the next steps in terms of engineering principles to enable the development within the corridor. This report discusses the areas of impact for the following disciplines:

- Pedestrian flow
- Fire engineering
- Acoustics

Please note that the likely impacts for consideration for excavation/structure is provided within the Aurecon Geotechnical//Structural report.



Figure 2 – Site Location



Figure 3 – Site Location

1.2.2 Development Context

This Site was one of 24 opportunity sites identified by Council in 2010. It is subject to ongoing Strategic Review and is in line with other OSD opportunities.

It forms the gateway precinct to the Eastern suburbs and is a substantial land holding within the Edgecliff corridor and the Woollahra Local Government Area (LGA) overall. The corridor serves as a fundamental hub for all mixed-uses including commercial, retail and residential. These are well serviced with proximity to the major transport node of the Woollahra LGA, being the Edgecliff train station and bus terminal located within the adjoining East Point Development.



Figure 4 - Site forms the gateway precinct to the Eastern Suburbs

The Edgecliff Centre site area is approximately 4,900m² and accommodates a 7-storey retail/commercial building with a further 2-storey cut-in car park. It has a total of 11,217m² of Net Lettable Area (NLA) with 254 car spaces.

1.2.3 Current Condition

The following Figures provide the current condition of the various areas with Edgecliff Centre:



Figure 5 – Current Condition – Entry



Figure 6 - Current Condition – Entry



Figure 7 - Current Condition – Street Level

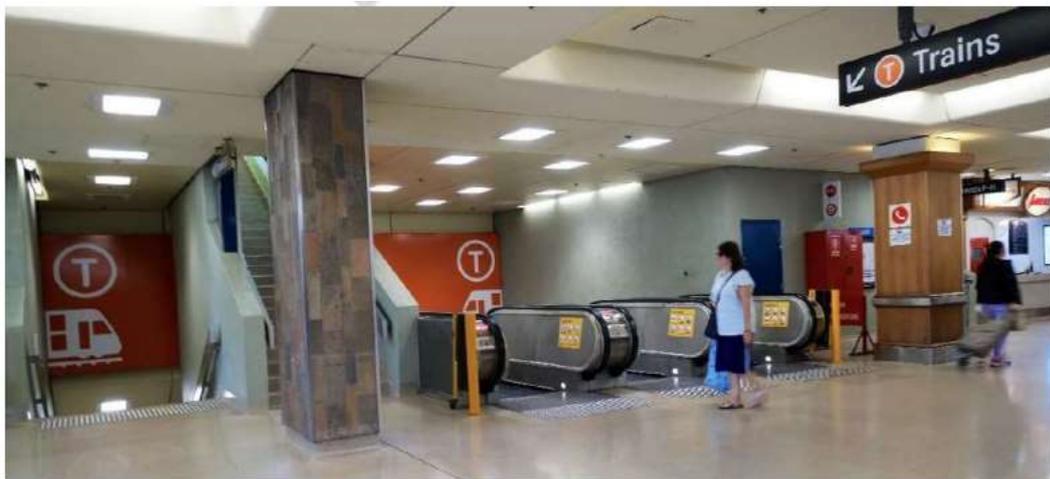


Figure 8 - Current Condition – L01 Retail

1.2.4 Current Access

1.2.4.1 Transport Access Program

TfNSW has recently made upgrades to the East Point interfaces and access. The changes are listed below as well as shown in Figure 10:

- Two new lifts to train platforms and bus interchange
- Refurbished escalators to the train platforms
- Relocated ticket gates to improve customer circulation
- CCTV upgrades
- New crossings and ramps in the bus interchange area to provide access to the lift
- Interchange facilities such as a kiss and ride zone, additional seating and shelter
- Provide DDA Access Only

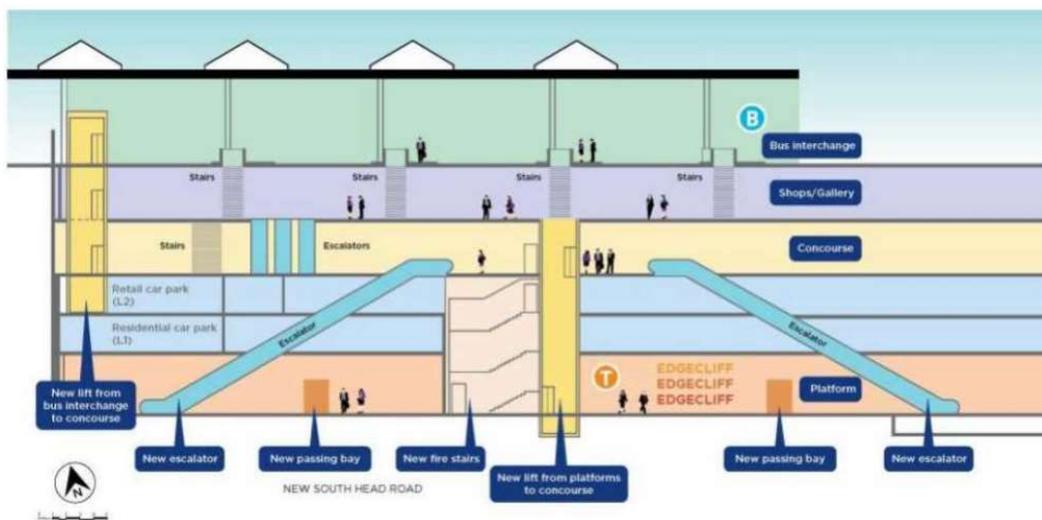


Figure 9 - Transport Access Program

(<https://www.transport.nsw.gov.au/projects/currentprojects/edgecliff-station-upgrade>)



Figure 10 – Recent Upgrades

The current access to buses from L01Retail is shown in the figures below:



Figure 11 – Current Access to Buses

1.2.5 Current Interface

The current interface between Edgecliff Centre and East Point is shown in the Figure below:



Figure 12 - The current interface between Edgecliff Centre and East point

The current condition of entry is provided in Section 1.2.3.

In the following sections, the impact of the development on rail will be discussed.

2 Areas of Impact

The following sections discuss the areas of impact for the following disciplines:

- Pedestrian flow
- Fire Engineering
- Acoustics

2.1 Pedestrian Flow

Located on the Eastern Suburbs Line between Kings Cross and Bondi Junction, Edgecliff Station primarily serves commuters who use train and bus services to travel between the local area and their workplaces. The current station configuration, shown in Figure 9, is typical of other stations on the Eastern Suburbs Line. Access to the platforms from street/concourse level is provided by two sets of escalators and a lift. Above the station street/concourse level is retail level which is linked to the unpaid station area through a set of escalators and stairs. The bus interchange sits above the retail level and is connected by a lift and an individual stair for each of the island bus platforms.

As part of the redevelopment of the Site, Longhurst propose to make several enhancements to the station entrance and interchange which will improve the station, help to revitalise the area and enhance pedestrian access and amenity to the interchange. The key improvements to pedestrian flow because of these enhancements are summarised below.

2.1.1 Enhanced Entry Experience

The current Station entrance, located on New South Head Road and shown in Figure 5, is non-descript and hidden among the other buildings located on the vehicle dominated New South Head Road. Only the small Sydney Trains “T” identification sign and “Edgecliff” sign above the entrance mark it as being the entry point to the transport interchange serving the local area. As such, the entry experience appears less like a main bus and train station interchange and more like a back-door access point. Access to the bus stop is not well signed at the current entrance, meaning that those unfamiliar with the area would not know that the bus interchange can also be accessed through this entrance. Through the banal architecture, the limited street presence and basic level of signage, the current Station entrance perhaps does not reach its potential in being a focal point and key transport interchange for the local area.

Longhurst propose to provide a new station entrance, as per the image in Figure 13, which will open access and sightlines to the Station by providing circa 38m of entry width through the creation of a new pedestrian plaza onto New South Head Road. The new entrance provides a clear and intuitive opening to the station location and bus interchange, which will help guide those unfamiliar with the area. The creation of an open space adjacent to the station entrances also helps to create a sense of grandeur and an enhanced entry experience as expected of a transport interchange. Such an entry experience will help to create a sense of place

by encouraging pedestrian activation on a road that is currently dominated by traffic.



Figure 13 - Proposed Entrance to Transport Interchange

2.1.2 Improved Access to the Bus Interchange

The redevelopment of the site also introduces a new access to the bus interchange through the addition of an escalator connection as shown by the red arrows in Figure 14.

The new connection improves pedestrian flow through the interchange as it:

- provides a new access to the bus interchange;
- connects the new development directly to the bus interchange;
- reduces the reliance on stairs to access the bus platforms; and
- provides better integration between the bus interchange and train station
- provides visual access from the street to the bus interchange

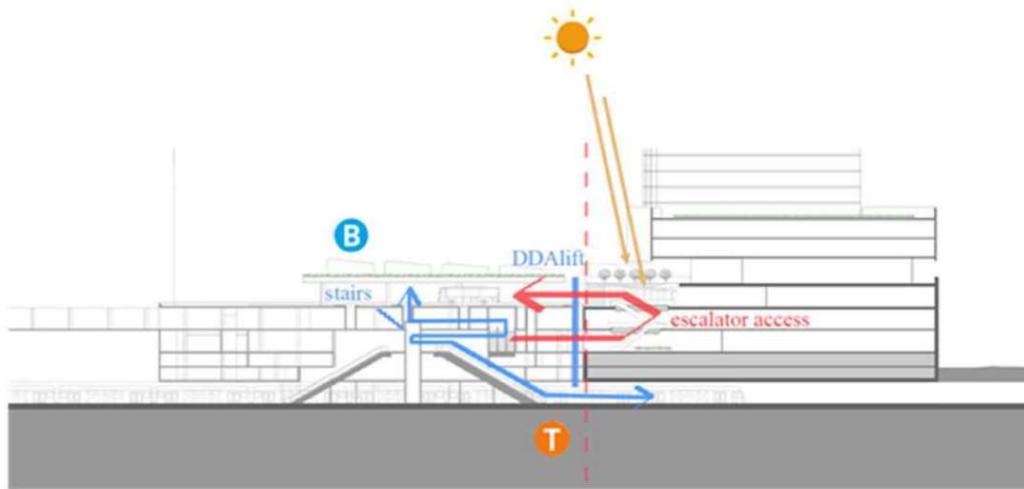


Figure 14 - New Escalator Connection to Bus Interchange

2.1.3 Improved Pedestrian Access Through the Ground Plane

Part of the redevelopment proposal is to make the Ground Plane publicly accessible through removal of breakthrough sections of the wall that separate the Edgecliff Centre from the adjacent Station while also connecting with the through-site-link. Improved ground plane access at New South Head Road supports stronger movement via the through-site, connecting the transport interchange and residential areas in the north with green spaces such as Trumper Park to the south. Given that the station and bus interchange are surrounded by major roads such as New South Head Road and Ocean Street, an improved through-site link will help to improve walkability through the precinct and improve access to the Station.

2.1.4 Placemaking

The entrance to the station and bus interchange is located on New South Head Road, a busy six-lane road that connects east-west across the city. As such, the area around the station and bus interchange is characterised by heavy vehicular movement, with an emphasis on vehicle movement rather than an emphasis on people movement and placemaking. The creation of a new pedestrian plaza at the station entrance would help to improve the place function of New South Head Road and will help to re-establish the transport interchange as the heart of the precinct. A prominent and high quality station entrance, linked with elevated public green space, retail and other amenities helps to elevate the importance of the public transport interchange and can help reduce reliance on the automobile.

2.2 Fire Engineering

Risk and Performance based design facilitates efficient and cost-effective remodelling and re-activation of existing rail assets.

- Key drivers with regard to any Fire and Life Safety design:

- Maintaining Fire Brigade access
- Limiting impact on and from other buildings in close proximity
- Segregated and shared systems – facilitating integration while minimizing operational continuity risks
- Shared and Integrated Egress routes and evacuation strategies
- Performance based smoke control designed to address specific hazards
- Effective compartmentation to limit risk of fire spread while facilitating large open areas

The existing Edgecliff station utilises the escalators from platform, up to concourse and then through the gateline, as the primary and only escape route from the station platforms.

The entry from New South Head Road also forms the access route for the attending fire service in the event of an incident.

Maintaining the availability of the access and egress routes in the event of a fire incident is therefore key when considering the fire and life safety performance of the station.

The proposed entry enhancements provide a number of benefits, not only in terms of the entry experience but also with regard to fire and life safety. For example, in the event of a fire at platform level the greater degree of openness at the concourse level provides a greater escape width to the street. Notwithstanding this, there are a number of potential impacts and FLS challenges which require consideration.

These impacts are noted in the following sections along with commentary as to how these can potentially be mitigated as the design is progressed.

With regard the development above the station, fire engineering design aspects can be adopted to mitigate any potential impact on the station below, such as the provision of fire resisting separation (either active or passive) to separate those areas in the event of fire, and where possible arrange egress routes such they are independent of any of the station. Careful consideration will also need to be given to interface and integration of fire alarm systems such that an appropriate life safety performance can be achieved, while also minimising potential operational continuity impacts between the different demises.

Any proposals associated with altering/impacting the fire and life safety design of the station will need to be discussed and agreed with Sydney Trains, specifically that there is agreement that the risk associated with the greater connectivity to the retail space is adequately mitigated.

2.2.1 Means of Escape

When considering means of escape it is important to consider the impacts based on a scenario basis, i.e. in the event of a fire in the station and then in the event of a fire in the retail area. The impacts and mitigation for each scenario are different as noted below:

2.2.1.1 Fire in the station

In the event of a fire incident within the station demise, the proposed changes at entry level are unlikely to have any significant impact. There are no fundamental changes to the existing station egress routes and occupants may in fact have more egress routes available to them once at concourse due to the greater extent of openings to street level.

Possible impact mitigations:

- Connections between fire alarm and detection systems to allow notification of incidents between demises.

2.2.1.2 Fire in the new retail area

In the event of a fire incident within the concourse retail areas, or in any area with an open connection to the concourse (such as retail above and car park below), there is potential for the access and egress route from the station to be impacted, given the access route through the concourse is the only escape route from platform level.

There are technical fire engineering solutions to overcome and mitigate this hazard, which will likely include a combination of active and passive measures as described below.

Possible impact mitigations:

- Connections between fire alarm and detection systems to allow notification of incidents between demises. This may include evacuation of the station platform in the event of a confirmed fire in the retail space above.
- Separation of the retail concourse from the station egress routes using smoke barriers (downstands), sprinklers and smoke control within the retail space. The objective of these measures would be to prevent smoke from a fire on the retail side from compromising the station escape routes.
- Increased physical fire separation between retail space and the station concourse escape routes, this could include solid fire resisting construction, sliding fire doors and / or fire curtains. The objective of these measures would be to physically separate the station escape routes from the retail spaces in the event of fire.

2.2.2 Smoke Hazard Management

We understand there is no dedicated smoke hazard management in terms of active smoke extract currently provided to either the platform or the concourse for the existing station demise.

The proposed changes to the entry will therefore unlikely have any significant impact on the performance of the station in the event of a fire within the station itself.

The proposed interconnectivity with the retail areas at concourse level does introduce an increased risk of fire and smoke impacting on the station escape routes in the event of a fire in the retail. The provision of dedicated smoke extract to the retail, in combination with smoke and fire barriers could be adopted in order to mitigate the risk to an acceptable level, such that it can be demonstrated that a fire in the retail space will not compromise the station egress routes.

Possible impact mitigations:

- Connections between fire alarm and detection systems to allow notification of incidents between demises. This may include evacuation of the station platform in the event of a confirmed fire in the retail space above.
- Provision of dedicated smoke extract to the retail areas to remove or reduce the risk of smoke spread from the retail space.

2.2.3 Compartmentation

The proposals for the entry area include a greater degree of openness between the station entry and the adjoining retail area. Without having physical fire separation between the station entry and the retail, there is a greater hazard that a fire in the retail space could directly impact on the station entry and egress routes in the event of fire.

The objective of any compartmentation strategy would be to maintain separation between the demises in the event of fire, for both life safety and property protection/business continuity purposes.

Possible impact mitigations:

- Provide effective fire and smoke separation via active means – this could include smoke resisting downstands, dedicated smoke extract to the retail zone and the provision of sprinklers. The combination of these systems could be used to show that the risk of fire and smoke spread to the station is reduced to an acceptable level, therefore maintaining the appropriate FLS performance and still achieving a large degree of openness and connectivity between the two demises.
- Provide targeted physical fire separation to separate the two demises. This could include the provision of solid fire resisting construction or active separation such as sliding fire doors and curtains (or a combination of all three).

2.2.4 Access and Facilities for the Fire Service

The proposed entry changes don't fundamentally change the access routes for the attending fire service with regard to entry to the station. Changes to the frontage of the building may result in alterations to the fire brigade booster assemblies which will need to be discussed and agreed with the fire service as part of the statutory consultation process.

The proposed works may present an opportunity to enhance the provisions for the fire service where the fire service are given the opportunity to input into changes to their provisions such as booster locations, protection of the boosters or access to fire control rooms etc which could provide a benefit over and above the existing provisions.

Possible impact mitigations:

- Early consultation with the fire service to identify measures which could enhance their operations and subsequently incorporate those measures into the developing design.

2.3 Acoustics

2.3.1 Impact from the Rail Infrastructure

Regarding impact from the rail infrastructure, while a detailed assessment is warranted with regard to ground borne noise and vibration, the sensitive residential development is offset from the rail tunnel and residential apartments commence from Level 3, providing some distance attenuation. Further, being at a station location, trains are travelling at a lower speed and thus generate lower vibration levels. Nevertheless, options for vibration isolation of the building can be incorporated if deemed required and should not necessitate modification of the rail infrastructure. Should however an opportunity present to modify the trackform, reducing vibration generation at the source would provide benefit to the whole precinct and adjacent land uses.

While works do not extend into the station proper, the project also provides opportunity to enhance the aural experience for commuters through improvements to the architectural design of the station entry and connected spaces. At the station interface, it is expected that consideration will need to be given to TfNSW requirements regarding acoustic treatment and public address systems.

2.3.2 Noise and Vibration during the Construction Phase

Noise and vibration during the construction phase will also warrant further detailed assessment during the planning and design phases. As the works do not propose alteration to the rail tunnels or station proper, impact to the either structures or operations are not expected. Planning of construction works will however need to consider appropriate methodologies to minimise the effects of vibration, however similar works have been successfully undertaken in proximity to other operating rail lines. Temporary provisions will also be required to address potential impacts to commuter amenity, through appropriate acoustic separation of pedestrian access paths, concourse areas and platforms. Similarly, major construction projects have taken place at other stations sites, that have successfully mitigated and managed the impacts of construction noise on staff and commuters.

3 Conclusion and Summary

The proposed development at Edgecliff Centre warrants several enhancement and positive impacts to the Station and Bus Interchange. The key improvements are summarised below:

- Enhanced entry experience
- Greater degree of openness of the entrance at the concourse level which provides a better escape width to the street (in case of fire)
- Improved access to the bus interchange
- Improved pedestrian access through the ground plane
- Improved Place Making function of New South Head

The positive outcomes are various and significantly outweigh the minor inconvenience. The minor impacts on rail as a result of the proposed development are assessed to be minor and can be managed throughout the design development process.