MCA Architects

1703 Channel Hwy, Margate
Margate Medical Centre
Traffic Impact Assessment

September 2020
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1. Introduction

1.1 Background
Midson Traffic were engaged by MCA Architects to prepare a traffic impact assessment for a proposed medical centre at 1703 Channel Highway, Margate.

1.2 Traffic Impact Assessment (TIA)
A traffic impact assessment (TIA) is a process of compiling and analysing information on the impacts that a specific development proposal is likely to have on the operation of roads and transport networks. A TIA should not only include general impacts relating to traffic management, but should also consider specific impacts on all road users, including on-road public transport, pedestrians, cyclists and heavy vehicles.

This TIA has been prepared in accordance with the Department of State Growth (DSG) publication, *A Framework for Undertaking Traffic Impact Assessments*, September 2007. This TIA has also been prepared with reference to the Austroads publication, *Guide to Traffic Management, Part 12: Traffic Impacts of Developments*, 2019.

Land use developments generate traffic movements as people move to, from and within a development. Without a clear understanding of the type of traffic movements (including cars, pedestrians, trucks, etc), the scale of their movements, timing, duration and location, there is a risk that this traffic movement may contribute to safety issues, unforeseen congestion or other problems where the development connects to the road system or elsewhere on the road network. A TIA attempts to forecast these movements and their impact on the surrounding transport network.

A TIA is not a promotional exercise undertaken on behalf of a developer; a TIA must provide an impartial and objective description of the impacts and traffic effects of a proposed development. A full and detailed assessment of how vehicle and person movements to and from a development site might affect existing road and pedestrian networks is required. An objective consideration of the traffic impact of a proposal is vital to enable planning decisions to be based upon the principles of sustainable development.

This TIA also addresses E5.0 *Road and Railway Assets Code*, and E6.0 *Parking and Access Code*, of the Kingborough Interim Planning Scheme.

1.3 Statement of Qualification and Experience
This TIA has been prepared by an experienced and qualified traffic engineer in accordance with the requirements of Council’s Planning Scheme and The Department of State Growth’s, *A Framework for Undertaking Traffic Impact Assessments*, September 2007, as well as Council’s requirements.

The TIA was prepared by Keith Midson. Keith’s experience and qualifications are briefly outlined as follows:

- 24 years professional experience in traffic engineering and transport planning.
1.4 **Project Scope**

The project scope of this TIA is outlined as follows:

- Review of the existing road environment in the vicinity of the site and the traffic conditions on the road network.
- Provision of information on the proposed development with regards to traffic movements and activity.
- Identification of the traffic generation potential of the proposal with respect to the surrounding road network in terms of road network capacity.
- Review of the parking requirements of the proposed development. Assessment of this parking supply with Planning Scheme requirements.
- Traffic implications of the proposal with respect to the external road network in terms of traffic efficiency and road safety.

1.5 **Subject Site**

The subject site is located at 1703 Channel Highway, Margate. The site was previously a childcare centre. The subject site and surrounding road network is shown in Figure 1.
1.6 Reference Resources

The following references were used in the preparation of this TIA:

- Kingborough Interim Planning Scheme, 2015 (Planning Scheme)
2. Existing Conditions

2.1 Transport Network

The transport network relevant to this TIA consists of Channel Highway, Sandfly Road and Beach Road.

Channel Highway is classified as a Category 3, 'Regional Access Road', under the Department of State Growth publication, *Tasmanian Road Hierarchy*, 2007. Regional Access Roads are defined as follows:

> Category 3 roads are of strategic importance to regional and local economies. While heavy freight vehicles use them, the level of use is less than that of Regional Freight Roads. Together with Regional Freight Roads, they provide safe and efficient access to Tasmania’s regions. The traffic profile for 'Regional Access Roads' is described as roads that carry up to 300 trucks per day and annually carry between $30m and $70m of goods. Also, while the total traffic volume may vary, most have sections carrying a daily average of between 1,500 and 5,000 vehicles.

Traffic data obtained from the Department of State Growth, indicates that Channel Highway carries approximately 12,000 vehicles per day (2019 data). The traffic data indicated that heavy vehicles make up approximately 6.3% of the traffic volume.

Channel Highway has a posted speed limit of 50-km/h through the Margate shopping precinct. The road width is approximately 12.6 metres, with footpaths on both sides of the road. On-street car parking is clearly defined through the Margate Shopping Precinct with line marking.

Channel Highway near the subject site is shown in Figure 2.

**Figure 2 Channel Highway**

View to north – towards Beach Rd roundabout  
View to south – towards Sandfly Rd junction
2.2 Public Transport

Metro Tasmania operates a regular bus service through Margate. Routes 412, 413, 415, 416, 417 and 418 travel past the subject site. A route map of Metro’s Margate services is shown in Figure 3.

Figure 3 Metro Tasmania Margate Bus Services
2.3 Road Safety Performance

Crash data can provide valuable information on the road safety performance of a road network. Existing road safety deficiencies can be highlighted through the examination of crash data, which can assist in determining whether traffic generation from the proposed development may exacerbate any identified issues.

Crash data was obtained from the Department of State Growth for a five year period between 1st January 2015 and 31st December 2019 for Channel Highway between Sandfly Road and Beach Road.

The findings of the crash data is summarised as follows:

- A total of 21 crashes were reported during this time.
- **Severity.** 1 x serious injury; 4 x minor injury; 3 x first aid at scene; 13 x property damage only.
- **Day of week.** No clear crash trends were noted by day of week. 5 crashes were reported on Sundays and Tuesdays; 3 crashes on Mondays and Wednesdays; 2 crashes on Fridays and Saturdays; and 1 crash on a Thursday.
- **Time of day.** 20 crashes were reported between 7:00am and 7:00pm. 1 crash was reported at 5:10am.
- **Crash types.** 3 crashes were reported that involved 'other-curve'. 3 crashes were reported involving rear-end collisions (1 x 'rear-end'; 1 x 'right-rear'; 1 x 'left-rear'). Various other crash types were noted with no clear crash trend.
- **Crash locations.** Crashes were relatively well disbursed along the Channel Highway as shown in Figure 4.

The crash history is consistent with a busy arterial road through a small shopping precinct. It does not indicate that there are any specific road safety deficiencies associated with the network that may be exacerbated by traffic generated by the proposed development.
Figure 4  Crash Locations
3. Proposed Development

3.1 Development Proposal

The proposed development involves the conversion of the site to a medical centre with four consulting rooms, two waiting rooms and a treatment room.

Parking is proposed for 10 spaces, including one accessible parking space. The proposed development is shown in Figure 5 and Figure 6.

Figure 5 Overall Layout & Car Parking Plans
Figure 6  Proposed Development – Internal Building
4. Traffic Impacts

4.1 Traffic Generation

4.1.1 Previous Use Traffic Generation
Vehicle arrivals at the previous use of the site when it was a childcare centre were assessed over the period of one week in 2017. The results are summarised in Appendix A.

The maximum traffic generation associated with child drop-off and pick-up was 26 vehicles per hour (Wednesday, 5:00pm to 6:00pm). This equates to a maximum generation of 52 vehicle movements per hour (two-way movements).

The average weekday traffic generation was 59 vehicle arrivals per day. The average daily traffic generation is therefore likely to be 118 two-way vehicle movements per day.

The maximum recorded daily generation was 78 vehicle arrivals per day on Wednesday. This equates to a peak of 156 two-way vehicle movements per day associated with children drop-off and collection.

Staff movements at the existing childcare centre were typically one arrival at 7:00am, one at 7:30am, one at 8:00am, one at 8:30am, one at 9:00am and one at 9:30am. Then 2 after school care staff at 2:30pm. Leaving will be one at each of 3:30pm, 4:00pm, 4:30pm, 5:00pm, 5:30pm, 2 at 6:00pm, and 1 at 6:30pm. This equates to 16 trips per day (assumed to equate to 16 vehicles per day, with one car per staff).

The average daily traffic generation of the previous use of the site as a childcare centre was likely to be 134 vehicles per day, with a maximum traffic generation of 172 vehicles per day (two-way movements).

4.1.2 Proposed Use Traffic Generation
The RMS Guide was referenced to determine the likely traffic generation of the proposed development. The RMS Guide acknowledges that traffic generation rates for Extended Hours Medical Centres varies depending on their type and location. Typical peak vehicle generation rates were noted between 3.1 to 19.4 vehicles per hour per 100 m$^2$. The mean peak traffic generation rate was 8.8 vehicles per hour per 100 m$^2$.

For the proposed development, a rate of 10 vehicles per hour per 100m$^2$ was adopted in acknowledgement of the location of the medical centre within an existing shopping precinct (where many trips will be shared with nearby land uses such as pharmacy, shops, etc).

The medical practice as a whole is likely to generate approximately 19 vehicles per hour (based on a total floor area of approximately 190 m$^2$). The split between inward and outward trips is considered to be even throughout the peak hour (9.5 trips per hour inward and 9.5 trips outward). The daily traffic generation is likely to be in the order of 200 vehicles per day.

Note that the trips relate to mode of travel as follows:

- car arrivals within the existing on-site car park
- on-street car parking in the surrounding network
- nearby public car parking
- bus travel
- pedestrian trips

4.2 Trip Distribution

The medical centre will predominantly service the local area. As such, it is likely that there will be a relatively even distribution of arrivals and departures from/to the north and south of the site on Channel Highway.

4.3 Access Impacts

4.3.1 Traffic Generation

Acceptable Solution A3 of E5.5.1 of the Planning Scheme states that "The annual average daily traffic (AADT) of vehicle movements, to and from a site, using an existing access or junction, in an area subject to a speed limit of 60km/h or less, must not increase by more than 20% or 40 vehicle movements per day, whichever is the greater".

In this case, the proposed development generates approximately 200 vehicles per day. The previous use of the site was a childcare facility that generated between 134 and 172 vehicles per day. It is possible that the development may not meet the requirements of Acceptable Solution A1 of Clause E5.5.1 of the Planning Scheme. The Performance Criteria P1 of Clause E5.5.1 of the Planning Scheme states:

"Any increase in vehicle traffic at an existing access or junction in an area subject to a speed limit of 60km/h or less, must be safe and not unreasonably impact on the efficiency of the road, having regard to:

(a) the increase in traffic caused by the use;
(b) the nature of the traffic generated by the use;
(c) the nature and efficiency of the access or the junction;
(d) the nature and category of the road;
(e) the speed limit and traffic flow of the road;
(f) any alternative access to a road;
(g) the need for the use;
(h) any traffic impact assessment; and
(i) any written advice received from the road authority"
The following points are relevant with respect to the proposed development:

a. **Increase in traffic.** The traffic generation of the proposed development has been estimated to be in the order of 200 vehicles per day (with peak generation 19 vehicles per hour). The previous use of the site was a childcare centre that generated up to 178 vehicles per day.

b. **Nature of traffic.** The traffic generated by the proposed development will be predominantly private motor vehicles (patients and staff). This traffic is consistent with the traffic currently utilising the transport network.

c. **Nature and efficiency of access.** The peak hour generation of the development is estimated to be 19 vehicles per hour. Access to the site will be via separate entry and exit driveways. The separation of entry and exit flow will ensure safe and efficient access for the site. The driveway has sufficient spare capacity to cater for the peak forecast traffic flow generated by the development. It is noted that the peak generation of the development is lower than the previous use peak generation.

d. **Nature and category of road.** Channel Highway is a Category 3 State Growth Road. It has been carefully designed to cater for high volumes of traffic, whilst also catering for on-street parking (with defined parking spaces and edge line) and pedestrian movements. The road is suitable and appropriate to cater for the traffic generated by the proposed development.

e. **Speed limit and traffic flow.** The speed limit of Channel Highway near the subject site is 50-km/h. Channel Highway traffic volumes are approximately 12,000 vehicles per day. The traffic speed is appropriate for the ‘shopping precinct’ nature of the surrounding land use.

f. **Alternative access.** No alternative access to the site is possible.

g. **Need for use.** The proposed medical centre requires on-site car parking to reduce the burden of on-street parking.

h. **Traffic impact assessment.** This report documents the findings of a traffic impact assessment.

i. **Road authority advice.** No written advice has been received by the Department of State Growth, however this TIA will be reviewed by the department through the assessment of the development application.

Based on the above assessment, the proposed development complies with the requirements of Performance Criteria, P3, of E5.5.1 of the Planning Scheme.

### 4.3.2 Number of Accesses

Acceptable Solution A2 of E5.6.2 of the Planning Scheme states that "No more than one access providing both entry and exit, or two accesses providing separate entry and exit, to roads in an area subject to a speed limit of 60km/h or less".

The proposed development provides a single entry and exit driveway accessing the car park, fronting onto Channel Highway. The proposed development therefore complies with the requirements of Acceptable Solution A2 of E5.6.2 of the Planning Scheme.
4.4 Pedestrian Impacts
The existing pedestrian infrastructure, including the footpaths and crossing facilities in Channel Highway, provide good connectivity for pedestrians accessing the site from nearby residential catchment areas.

4.5 Road Safety Impacts
No significant adverse road safety impacts are foreseen for the proposed development. This is based on the following:

- There is sufficient spare capacity in the surrounding road network to absorb the relatively small peak hour traffic generated from the proposed development (peak generation is estimated to be 19 vehicles per hour and noting specifically that the site is located with very good connectivity to the arterial road network with high capacity intersections including the roundabout at the Beach Road intersection).
- The access is located in a residential and commercial environment, and as such traffic movements into and out of the site will not be an ‘unusual’ event for other motorists.
- The road speed environment is very low (posted speed limit of 50-km/h).
- The existing road safety performance of the road network near the subject site does not indicate that there are any specific road safety deficiencies that might be exaggerated by the small increase in traffic volume.
5. Parking Assessment

5.1 Parking Provision

The proposed development provides a total of 10 on-site car parking spaces located at the rear of the site. This includes provision of 1 space for persons with a disability.

Access to the car parking is via separate entry and exit driveways located either side of the building structure. The car parking and access plans are shown in Figure 5.

5.2 Empirical Parking Assessment

The RMS Guide states that, as a guide, three spaces per surgery has been found to be adequate in typical local government areas. If it can be shown that not all surgeries will be in concurrent operation, it is acceptable to reduce the parking provision suggested above.

Consideration could be given to reducing the parking required, if convenient on-street parking is available, providing that the use of such parking does not adversely affect the amenity of the adjacent area.

In this case, the development proposes four consulting rooms, which is a requirement for 12 parking spaces. The development provides a total of 10 spaces and therefore does not meet this requirement. It is noted that the site is located in a commercial shopping precinct, and therefore on-street parking is readily available in the surrounding network. Much of this time restricted parking is available for customers of shops and services within the nearby area.

5.3 Planning Scheme Requirements

The parking requirements of the proposed development were assessed against the requirements of Parking and Access Code (E6) of the Planning Scheme.

The Acceptable Solution, A1, or E6.6.1 of the Planning Scheme states that “the number of on-site car parking spaces must be no less than the number specified in Table E6.1”. Table E6.1 of the Planning Scheme requires 5 spaces for each person providing health services. This is a requirement for 20 spaces (four consulting rooms). The provision of 10 spaces does not meet the requirements of Acceptable Solution A1 of Clause E6.6.1 of the Planning Scheme.

The Performance Criteria P1 of Clause E6.6.1 states:

“the number of on-site car parking spaces must be sufficient to meet the reasonable needs of users, having regard to all of the following:

(a) car parking demand;
(b) the availability of on-street and public car parking in the locality;
(c) the availability and frequency of public transport within a 400m walking distance of the site;
(d) the availability and likely use of other modes of transport;
(e) the availability and suitability of alternative arrangements for car parking provision;

(f) any reduction in car parking demand due to the sharing of car parking spaces by multiple uses, either because of variation of car parking demand over time or because of efficiencies gained from the consolidation of shared car parking spaces;

(g) any car parking deficiency or surplus associated with the existing use of the land;

(h) any credit which should be allowed for a car parking demand deemed to have been provided in association with a use which existed before the change of parking requirement, except in the case of substantial redevelopment of a site;

(i) the appropriateness of a financial contribution in lieu of parking towards the cost of parking facilities or other transport facilities, where such facilities exist or are planned in the vicinity;

(j) any verified prior payment of a financial contribution in lieu of parking for the land;

(k) any relevant parking plan for the area adopted by Council;

(l) the impact on the historic cultural heritage significance of the site if subject to the Local Heritage Code;

(m) whether the provision of the parking would result in the loss, directly or indirectly, of one or more significant trees listed in the Significant Trees Schedule”.

The following is relevant with respect to the development proposal:

a. **Car parking demand.** The car parking demand was assessed as 12 spaces, 10 spaces of which are available on-site.

b. **On-street and public car parking.** There is a relatively large pool of available on-street parking in the surrounding road network. Channel Highway adjacent to the site has short-term parking that is utilised by existing businesses in the area (including the existing childcare centre). General observations indicate that there is available on-street parking the majority of the time.

c. **Public transport.** Metro Tasmania operate a regular bus service immediately past the subject site.

d. **Other modes of transport.** The proposed development is likely to generate a moderate amount of localised pedestrian movements, particularly between the site and nearby residential dwellings (existing and future).

e. **Alternative parking arrangements.** No alternative parking is considered possible due to the physical constraints of the site.

f. **Shared parking.** The site is located within a shopping precinct. The proposed development is therefore likely to generate ‘shared trips’ in the surrounding road network. Typical examples include a doctors appointment and a shopping trip (such as post office, corner store, etc) from a single parking space.
g. **Parking deficiency or surplus.** The previous use of the site was a childcare centre that provided no on-site car parking. The site therefore has an existing deficiency of parking that will be rectified through the provision of on-site car parking associated with the development proposal.

h. **Car parking credit.** Not applicable.

i. **Cash in lieu.** Not applicable.

j. **Financial contribution of cash in lieu.** Not known.

k. **Parking plan.** Not applicable.

l. **Historic cultural heritage.** Not applicable.

m. **Significant trees.** Not applicable.

Based on the above assessment, the proposed development complies with Performance Criteria, P1, of E6.6.1 of the Planning Scheme. In particular, the proposed development provides the majority of parking demands associated with the proposed medical centre (provision of 10 out of forecast demand of 12 spaces) and the previous use of the site did not provide on-site car parking. The relatively small shortfall can be met on-street in the surrounding road network.

### 5.4 Accessible Car Parking

The Acceptable Solution A1 of Clause E6.6.2 of the Planning Scheme states:

"Car parking spaces provided for people with a disability must:

(a) satisfy the relevant provisions of the Building Code of Australia;

(b) be incorporated into the overall car park design;

(c) be located as close as practicable to the building entrance”.

The development is classified as a ‘Class 5’ building under the BCA. This requires 1 space for every 100 spaces or part thereof to be accessible. This is a requirement for 1 accessible parking space.

One accessible parking space is proposed within the car park. This is located as close as practicable to the building entrance within the car park. The design of the Accessible parking meets the dimensional requirements of Australian Standards AS2890.6.

The requirements of the BCA and therefore Acceptable Solution A1 of Clause E6.6.2 of the Planning Scheme are met.

### 5.5 Bicycle Parking

The Acceptable Solution A1 of Clause E6.6.4 of the Planning Scheme states: “The number of on-site bicycle parking spaces provided must be no less than the number specified in Table E6.2”.

Table E6.2 requires the following:
- 1 employee bicycle space for each 8 practitioners
- 1 customer/ visitor bicycle space for each 4 practitioners.

This is a requirement for 2 bicycle spaces (1 staff and one visitor). Whilst not shown on the plans, one bicycle hoop can be provided on the site (near the access ramp or within the car park to comply with the requirements of Acceptable Solution A1 of Clause E6.6.4 of the Planning Scheme.

5.6 Car Parking Layout

5.6.1 Vehicular Access Design

The Acceptable Solution A1 of Clause E6.7.2 of the Planning Scheme states:

"Design of vehicle access points must comply with all of the following:

(a) in the case of non-commercial vehicle access; the location, sight distance, width and gradient of an access must be designed and constructed to comply with section 3 – "Access Facilities to Off-street Parking Areas and Queuing Areas" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking;

(b) in the case of commercial vehicle access; the location, sight distance, geometry and gradient of an access must be designed and constructed to comply with all access driveway provisions in section 3 "Access Driveways and Circulation Roadways" of AS2890.2 - 2002 Parking facilities Part 2: Off-street commercial vehicle facilities".

The vehicular access is for use by non-commercial vehicles. The design of the accesses was therefore assessed under the requirements of AS2890.1.

AS2890.1 requires the following access driveway dimensions:

- Combined entry/ exit width of 6.0 to 9.0 metres.
- Where entry and exit are separated, the minimum width should be 3.0m.

In this case the driveway widths at the junction with Channel Highway are 3.825m (entry) and 3.300m (exit), thus satisfying the entry width requirements.

The minimum width of the exit driveway reduces to 2.780m at the southeast corner of the building. This is due to the physical constraint of the building and the fence structures. The width at this point is less than the minimum 3.0 metres.

The development was therefore assessed against the requirements of Performance Criteria P1 of Clause E6.7.2 of the Planning Scheme, which states:
"The layout of car parking spaces, access aisles, circulation roadways and ramps must be safe and must ensure ease of access, egress and manoeuvring on-site".

Noting that the car parking layout complies with the requirements of AS2890.1 and that the only non-conformance is the narrow width at a point location, the following is relevant:

- The narrow width is confined to a point only – the width progressively increases to 3.3m at its termination at Channel Highway.
- The width enables the passage of a normal car. The width of AS2890.1 B85 and B99 cars are 1.875m and 1.940mm respectively.
- The access has been previously used for a long period of time when the site was a childcare centre (the accesses were previously used the perimeter of the site for vehicular access).
- There are many examples of driveway accesses with similar width constraints in the Greater Hobart area.

To reduce the risk of vehicles colliding with the building structure it is recommended that a bollard be placed near the ramp structure adjacent to the building.

Based on the above assessment, the development complies with the requirements of Performance Criteria P1 of Clause E6.7.2 of the Planning Scheme.

5.6.2 On-Site Turning

The Acceptable Solution A1 of Clause E6.7.4 of the Planning Scheme states “On-site turning must be provided to enable vehicles to exit a site in a forward direction”. In this case all vehicles entering the site have the ability to exit the site in a forward motion. The requirements of Acceptable Solution A1 of Clause E6.7.4 of the Planning Scheme is therefore met.

The swept paths of car park access manoeuvres is shown in Figure 7.
Figure 7  Car Park Access Manoeuvring
5.6.3 Car Park Design

The design and layout of the car park was assessed against the requirements of Acceptable Solution A1 of Clause E6.7.5 of the Planning Scheme, which states: "The layout of car parking spaces, access aisles, circulation roadways and ramps must be designed and constructed to comply with section 2 "Design of Parking Modules, Circulation Roadways and Ramps" of AS/NZS 2890.1:2004 Parking Facilities Part 1: Off-street car parking and must have sufficient headroom to comply with clause 5.3 "Headroom” of the same Standard".

The design of the car parking areas of the proposed development have been designed in accordance the requirements of AS2890.1 as follows:

- User Class 3 (short-term city and town centre parking, parking stations, hospital and medical centres)
  - Space width 2.6m
  - Space length 5.4m
  - Aisle width 5.8m

The 90-degree parking spaces comply with these dimensions (noting that the aisle width exceeds the minimum requirements). Sufficient area is provided at the eastern end of the car park to facilitate vehicle turning.

The parking layout therefore meets the requirements of Acceptable Solution A1 of Clause E6.7.5 of the Planning Scheme.
6. Conclusions

This traffic impact assessment (TIA) investigated the traffic and parking impacts of a proposed medical centre development at 1703 Channel Highway, Margate.

The key findings of the TIA are summarised as follows:

- The traffic generation of the development is likely to be approximately 200 vehicles per day, with a peak of 19 vehicles per hour. This is comparable to the previous use of the site as a childcare centre.

- The site will provide a total of 10 on-site car parking spaces, including 1 accessible parking space. This parking provision complies with the requirements of Performance Criteria P1 of Clause E6.6.1 of the Planning Scheme.

- A bicycle hoop should be provided to satisfy the requirements of Acceptable Solution A1 of Clause E6.6.4 of the Planning Scheme.

- The layout of the car parking spaces complies with the requirements of AS2890.1. The access width of the exit driveway has a minimum width of 2.78m, which is less than the minimum requirement of 3.0m. The width is constrained by the existing building and fence structure and is considered acceptable as it is only for a short distance and it physically enables vehicles to access the driveway (noting that the driveway has been in continuous use for many years).

- It is recommended to provide a bollard near the narrow exit driveway to highlight the narrow width and protect the building structure.

Based on the findings of this report and subject to the recommendations above, the proposed development is supported on traffic grounds.
## Appendix A

### Existing Childcare Centre Arrival & Departure Data

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