



**Brightside Hospital Private
Plan Change**

Transport Assessment

December 2018

flow


TRANSPORTATION SPECIALISTS



TRANSPORTATION SPECIALISTS

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Prepared by: Sophia Chen
Project Manager: Bronwyn Coomer-Smit
Reviewed by: Bronwyn Coomer-Smit

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EXECUTIVE SUMMARY

Southern Cross Hospitals own the properties on 3 Brightside Road and 149, 151, and 153 Gillies Avenue (referred to as the “subject site”), which are currently zoned as Mixed Housing Suburban Zone and Single House Zone respectively under the Auckland Unitary Plan – Operative in Part (“AUP-OIP”). The proposed Brightside Hospital Private Plan Change proposes to rezone these land holdings as Special Purpose – Healthcare Facilities and Hospital Zone. (“Proposed Plan Change”).

This Transport Assessment addresses the transport planning and traffic engineering matters associated with the Proposed Plan Change, including:

- ◆ A description of the existing transport environment as it relates to the subject site, including site location, the trip generation and parking demand profiles generated by the existing Brightside Hospital, surrounding land use activities, and existing road network
- ◆ A description of the existing and future transportation accessibility in relation to the subject site, including private vehicles, public transport, and walking and cycling
- ◆ A description of the transport elements of the Proposed Plan Change and the description of a development proposal that could be enabled under the Proposed Plan Change (“Plan Change Proposal”)
- ◆ A traffic assessment of the Plan Change Proposal, including the amount of vehicle trips the development, is likely to generate during peak hours, and the impact it may have on the surrounding road network during the peak traffic hours
- ◆ A safety assessment of the surrounding road network including an analysis of historic crash records, and an assessment as to the effect the additional traffic predicted to be generated by the Plan Change Proposal may have on the safety of the surrounding network
- ◆ A parking assessment relating to the Proposed Plan Change including a review of the appropriateness of the existing AUP-OIP parking standards for medical facility landuse activities as it relates to the Proposed Plan Change
- ◆ An assessment of the Proposed Plan Change against various regional and local transport planning policy documents and strategies
- ◆ An AUP-OIP assessment to review the transport provisions that apply to the Proposed Plan Change and their appropriateness.

These and other transportation matters will be addressed in the following details of this report. By way of summary, it is concluded:

- ◆ The location of the subject site provides good accessibility to various transport modes including walking, cycling, bus and private vehicles
- ◆ The effects of the proposed increase in vehicle trips resulting from a permitted development that can be enabled by the Proposed Plan Change are expected to be acceptable with the existing roads and intersections being capable of accommodating the additional traffic without resulting in adverse traffic effects

- ◆ A minimum car parking provision standard of 1 parking space per 64 m² GFA for any additional medical facility development permitted under the Proposed Plan Change is recommended to be established as part of the proposed Plan Change.
- ◆ The controls given in Chapter E27 of the AUP-OIP relating to trip generation, the provision of appropriate loading facilities, bicycle parking and accessible parking spaces, as well as the design of these transport elements, are adequate to ensure that these matters can be appropriately addressed at the time when consent will be sought to implement a new building under the Proposed Plan Change
- ◆ The proposed Plan Change is consistent with and encourages key regional and local transport policies and plans.

It is anticipated that potential traffic effects of any future development under the Special Purpose – Healthcare Facilities and Hospitals Zone, can be managed appropriately with the identified planning controls in the AUP-OIP and mitigation measures that can be imposed as conditions of consent. In summary, these measures could include a Staff Travel Plan to encourage hospital staff to travel by more sustainable transport modes and/or; changes to existing available sight distance from intersections and any potential vehicle access provisions by removing on-street car parking near the intersections.

In conclusion, the traffic effects of the development of hospital activities that could be achieved under the Special Purpose – Healthcare Facilities and Hospitals Zone, with the implementation of the above-mentioned planning instruments and possible mitigation measures, are no more than minor and considered acceptable. Therefore, from a transport planning and traffic engineering perspective, there is no reason to preclude approval of the Proposed Plan Change.

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APPENDIX A SIDRA RESULTS

1 INTRODUCTION

Flow Transportation Specialists Ltd (“Flow”) has been commissioned by Southern Cross Hospitals to identify and assess the transport planning and traffic engineering matters relating to the proposed Brightside Hospital Private Plan Change.

Southern Cross Hospitals own the properties on 3 Brightside Road and 149, 151, and 153 Gillies Avenue (referred to as the “subject site”), which are currently zoned as Mixed Housing Suburban Zone and Single House Zone respectively under the Auckland Unitary Plan – Operative in Part (“AUP-OIP”). The proposed Brightside Hospital Private Plan Change proposes to rezone these land holdings as Special Purpose – Healthcare Facilities and Hospital Zone. (“Proposed Plan Change”).

This Transport Assessment addresses the transport planning and traffic engineering matters associated with the Proposed Plan Change, including:

- ◆ A description of the existing transport environment as it relates to the subject site, including site location, the trip generation and parking demand profiles generated by the existing Brightside Hospital, surrounding land use activities, and existing road network
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- ◆ An AUP-OIP assessment to review the transport provisions that apply to the Proposed Plan Change and their appropriateness.

These and other transportation matters will be addressed in the following details of this report. By way of summary, this Transport Assessment concludes that from a land use and transportation perspective, the Proposed Plan Change will result in effects to the safety and efficiency of the surrounding transport network that are considered to be no more than minor and acceptable. Accordingly, there are no transport related matters that would preclude the acceptance of this Proposed Plan Change.

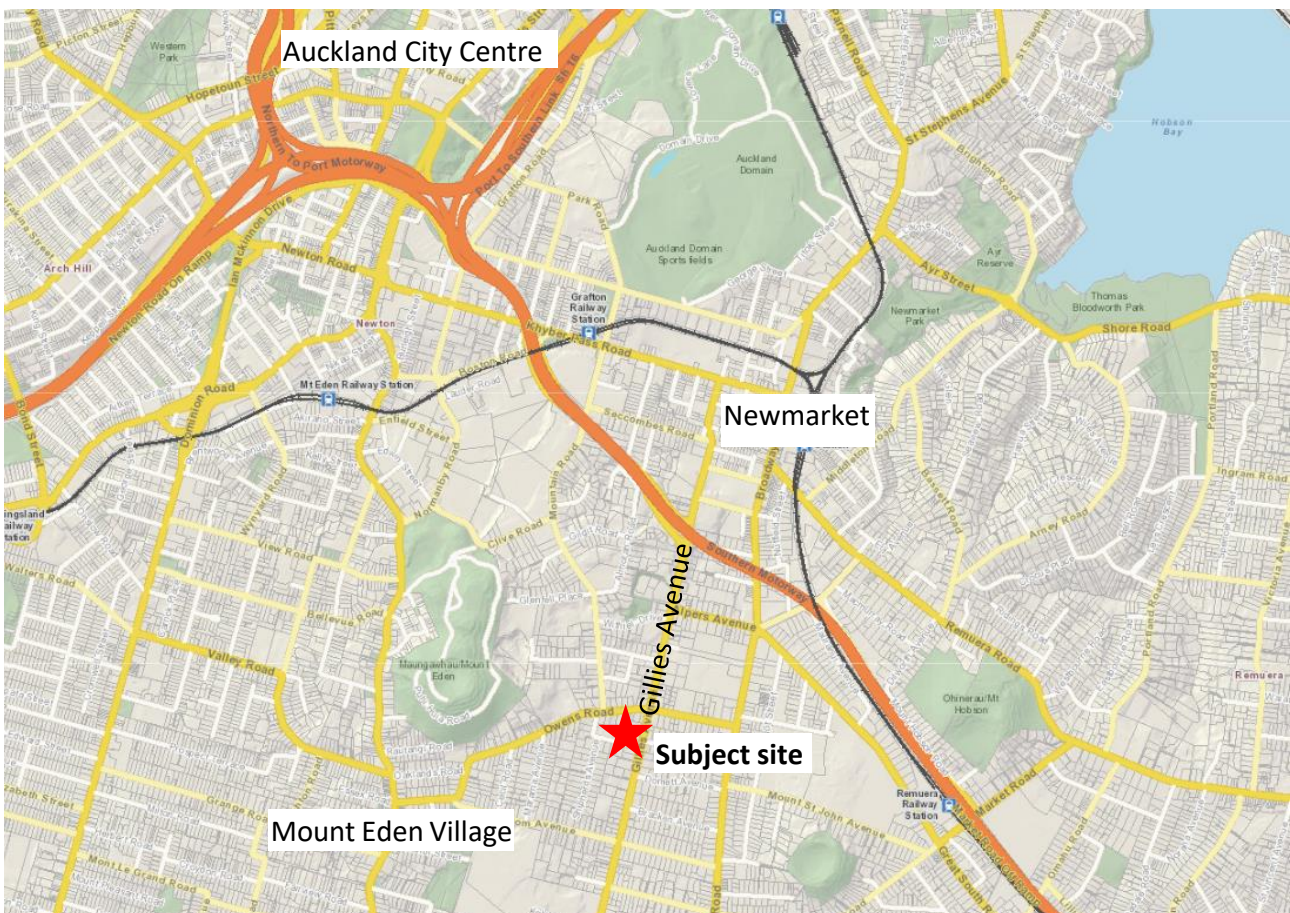
2 THE EXISTING ENVIRONMENT

2.1 The Subject Site

2.1.1 Site Location

The location of the subject site is shown in Figure 1 below. The subject site is located approximately 1 km east of Mount Eden Village, 1 km south of the Newmarket Metropolitan Centre, and approximately 4 km south of the Auckland City Centre.

Figure 1: Location of Proposed Development¹



2.1.2 Existing Land Use Activities

The existing Brightside Hospital, located at 3 Brightside Road, is a three-storey building, comprising 40 patient beds with a gross floor area (“GFA”) of 5,196 m². 149 Gillies Avenue is currently occupied by the Everdell Guest House and the properties at 151 and 153 Gillies Avenue are currently occupied by single residential dwellings. The subject site is shown in Figure 2, with the existing vehicle access points indicated by arrows.

The subject site currently has a total of five vehicle access points. Brightside Road serves three vehicle access points, two providing access to the Brightside Hospital’s porte-cochere and visitor/staff parking,

¹ <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html> Accessed 21/11/2018.

and one serving 153 Gillies Avenue. Vehicle accesses to 149 and 151 Gillies Avenue are provided via Gillies Avenue.

Figure 2: Existing Site Land Use ²



2.1.3 Peak Period Traffic Generation of the Existing Brightside Hospital

A survey of the traffic generation of the existing Brightside Hospital was undertaken on Tuesday 4 April 2017, from 6:00 to 9:00 am and from 2:00 to 6:00 pm.

The number of vehicles entering and exiting the existing hospital site during the surrounding road network peak hours was recorded as shown in Table 1. Noting that Epsom Girls Grammar is located just north of the site, a school peak hour has also been calculated from the survey results. This was recorded as being 2:45 to 3:45 pm.

In addition to the number of vehicles entering and exiting the existing hospital site, an on-site and on-street car parking survey was also undertaken of Brightside Road and Shipherds Avenue on the same day as the vehicle access count. These streets have unrestricted parking and are therefore available for use by hospital staff and visitors. As outlined below, it has been conservatively assumed that all cars parked on Brightside Road and Shipherds Avenue for between 8 and 12 hours are hospital staff.

The survey of the on-site hospital car parking showed that there were always some vacant spaces through the day, and as such, it is assumed that all short-term visitors to the hospital were able to park within the site. Further, the arrivals and departures of cars parked on Brightside Road and Shipherds Avenue for between 8 and 12 hours have been included in the estimation of the existing hospital trip generation rate. These arrivals and departures that occurred during the peak hours are shown in Table 1.

² <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html> - Accessed 21/11/2018

Table 1: Existing Brightside Hospital Peak Hour Trip Generation

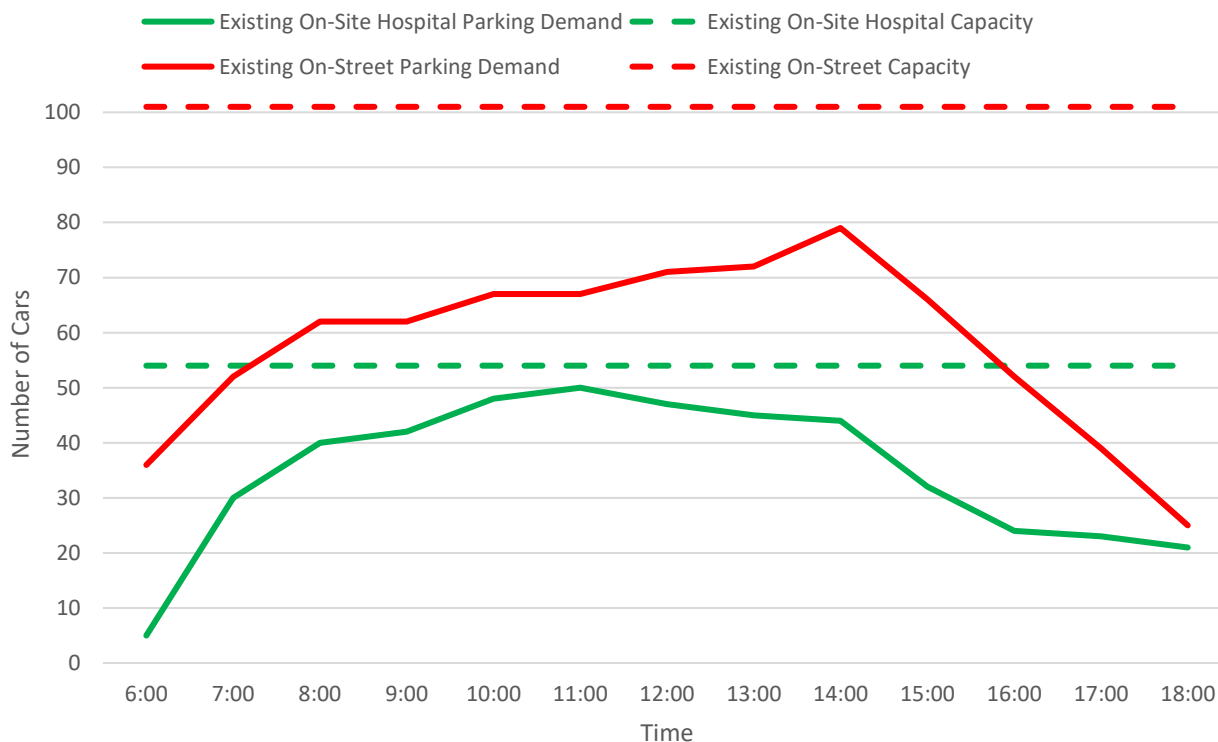
	Trips into the Hospital Access	Hospital on Street Parking Arrivals	Trips Out of the Hospital Access	Hospital on Street Parking Departures	Total Trips	GFA (m ²)	Trips per 100 m ² GFA
Morning Peak Hour (8:00 am to 9:00 am)	9	3	10	0	32	5,196	0.62
School Peak Hour (2:45pm to 3:45pm)	9	9	26	6	41	5,196	0.79
Evening Peak Hour (4:30 pm to 5:30 pm)	10	10	9	10	29	5,196	0.56

2.1.4 Parking Demand of the Existing Brightside Hospital

As mentioned above, a survey of the parking demand generated by the existing Brightside Hospital was also undertaken on Tuesday 4 April 2017, between 6 am to 6 pm. This survey included recording the demand for parking in all the existing parking areas on the hospital site, as well as on-street parking on the adjacent streets of Brightside Road and Shipherds Avenue.

A summary of the parking demand throughout the survey period is shown in Figure 3. At the time of the survey, 54 car parking spaces were recorded to be available on the existing hospital site, with an additional four parking spaces temporarily occupied by storage.

Figure 3: Existing Brightside Hospital and On-street Parking Demand



As can be seen in Figure 3, the peak parking demand on the existing hospital site occurred at 11:00 am when 92% of the onsite parking was recorded to be occupied (50 parking spaces), with four unoccupied parking spaces. Flow was informed by hospital management that on the day of the survey, there were 20 admissions, which is considered to be a busy day for the hospital.

On-street parking occupancy peaked at 2:00 pm when 78% of the parking spaces available were recorded to be occupied. This indicates that currently there is spare parking capacity on the streets surrounding the hospital site. Based on the 10 m carriageway width, low traffic volumes, and lack of any crashes reported on Brightside Road, it is also considered that Brightside Road and Shiphers Avenue can safely accommodate this level of on-street parking.

In regards to the origin of on-street parking demand, it is difficult to determine which of the parked cars on these streets were associated with the hospital. However, for the purpose of estimating the total hospital parking demand, it was conservatively assumed that all of the cars parked on these streets for between eight and twelve hours were associated with the hospital. As such the overall peak parking demand generated by the hospital was estimated as the sum of the cars parked within the site, as well as the cars that were parked on-street for between eight and twelve hours.

The peak demand within the existing hospital site was 50 cars, and a total of 31 cars were parked on Brightside Road and Shiphers Avenue for between eight and twelve hours. The peak parking demand is therefore estimated to be 81 cars. Accordingly, the peak parking demand rate for Brightside Hospital is therefore 1 parking space per 64 m² GFA, based on the existing GFA of 5,196 m².

It is noted that this rate 1 parking space per 64 m² GFA is well below the minimum onsite parking requirement for Hospital landuse activity given in the AUP-OIP of 1 parking space per 50 m² GFA. This result shows the difference in peak parking demands associated with larger public hospitals, on which the AUP-OIP parking requirements are based, due to the large number of administrative staff at larger public hospitals, when compared to smaller private hospitals such as Brightside Hospital.

2.2 Existing Surrounding Land Use

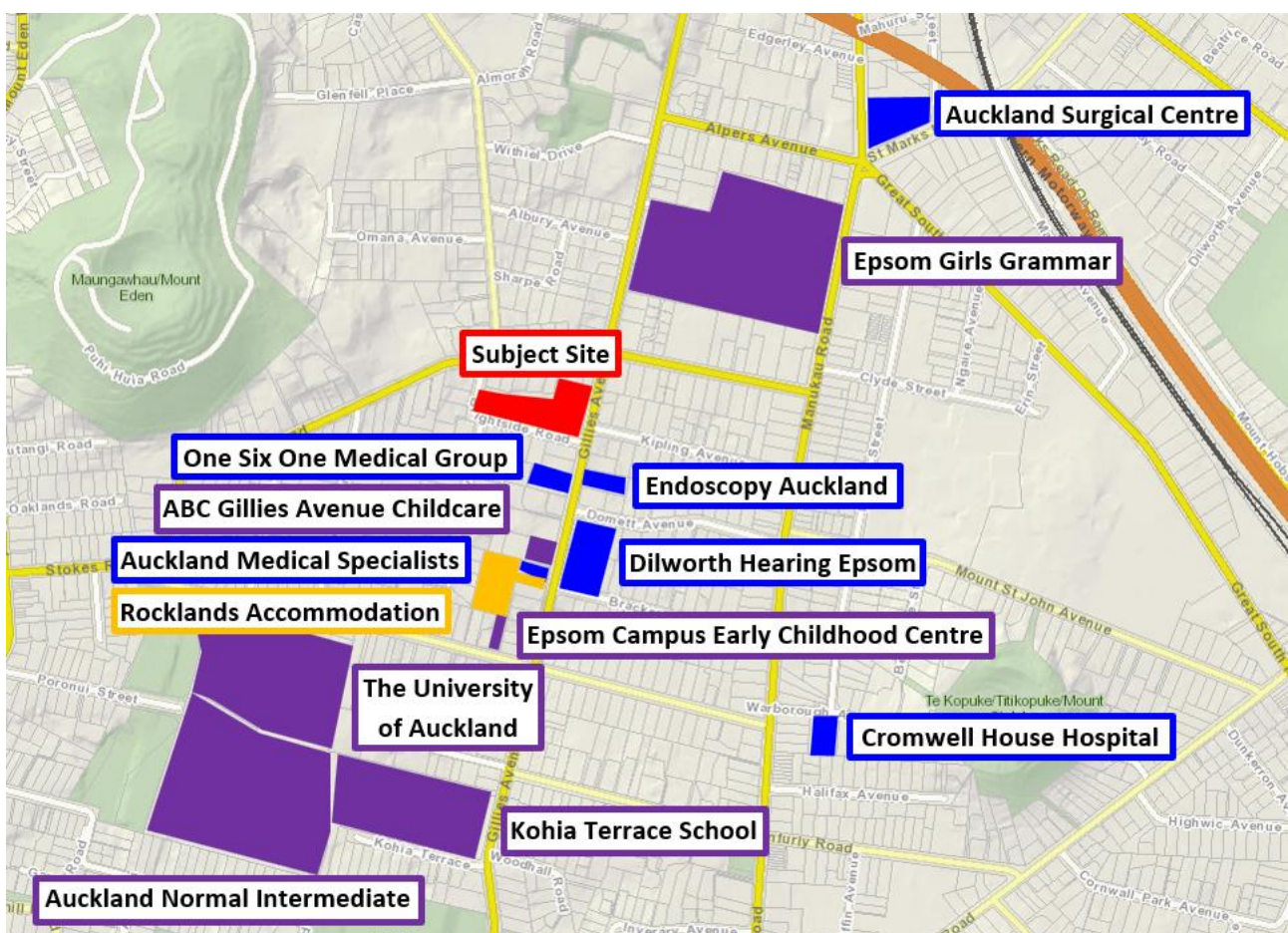
Surrounding the subject site, the land use is predominantly low density residential, with some medium density residential developments on the eastern side of Gillies Avenue. The following land uses which include educational, commercial and healthcare activities are also located in the vicinity of the subject site:

- ◆ Epsom Girls Grammar School located to the north of the site on Gillies Avenue
- ◆ The University of Auckland, Faculty of Education at 74 Epsom Avenue
- ◆ Auckland Normal Intermediate at Poronui Street
- ◆ Kohia Terrace School at 3 Kohia Terrace
- ◆ Auckland Surgical Centre at 9 Saint Marks Road
- ◆ Endoscopy Auckland at 148 Gillies Avenue
- ◆ Dilworth Hearing Epsom at 160 Gillies Avenue
- ◆ One Six One Medical Group at 161 Gillies Avenue

- ◆ ABC Gillies Avenue Childcare at 181 Gillies Avenue
- ◆ Auckland Medical Specialists at 183 Gillies Avenue
- ◆ Rocklands Accommodation at 187 Gillies Avenue
- ◆ Cromwell House Hospital at 3 Warborough Avenue.

The locations of these land uses are shown in Figure 4, demonstrating a significant presence of non-residential activities in this area. Other activities such as motels, schools, childcare centres, surgical centres, and other minor medical/healthcare facilities such as dentists are also located within the vicinity. The land surrounding Manukau Road to the east includes retail and commercial activities as well.

Figure 4: Key Surrounding Land Use³



2.3 Existing Surrounding Transport Network

The existing Brightside Hospital has frontage to Brightside Road, 149 and 151 Gillies Avenue has frontage to Gillies Avenue, and 153 Gillies Avenue has frontages to both Brightside Road and Gillies Avenue. Owens Road runs east-west to the north of the subject site. The location of these roads relative to the subject site is shown in Figure 2 previously.

³ <https://geomapspublic.aucklandcouncil.govt.nz/viewer/index.html> - Accessed 21/11/2018

2.3.1 Brightside Road

Brightside Road is a short, local road that runs between Gillies Avenue and Owens Road, providing access to residential properties and the existing Brightside Hospital. The typical cross section of Brightside Road is shown in Photograph 1 and Photograph 2. The carriageway is approximately 10 m wide along the entire length of the road, with parking generally permitted on both sides of the road. Parking is restricted around the 90-degree corner and the intersections, and there is also some bus parking. The intersection of Brightside Road with Owens Road is Stop controlled, and the intersection of Brightside Road with Gillies Avenue is Give Way controlled. Footpaths are provided on both sides of the road, varying between approximately 1.5 m and 1.8 m in width.

Traffic surveys were undertaken at the Brightside Road/Gillies Avenue Intersection on Tuesday 20th March 2018. The results of these surveys indicated that Brightside Road carries a morning peak hour traffic flow of 270 vehicles per hour, an evening peak hour traffic flow of 230 vehicles per hour, and an Average Daily Traffic (“ADT”) of around 2,500 vehicles per day.

Photograph 1: Brightside Road (Looking East Towards Gillies Avenue)



Photograph 2: Brightside Road (Looking North Towards Owens Road)



2.3.2 Gillies Avenue

Gillies Avenue is classified as an Arterial Road in the AUP-OIP, and forms one of the main north-south transport routes in the Auckland central isthmus area, connecting Epsom to Newmarket and the Auckland City Centre. North of the subject site, Gillies Avenue connects with State Highway One (Southern Motorway) with north facing on/off ramps, making Gillies Avenue a key route for access into the area from the strategic network. Prior to the Waterview Tunnel opening, the northern section of Gillies Avenue formed part of the main route between the Auckland North Shore and Auckland City Centre, and the Auckland International Airport.

The cross-section of Gillies Avenue in the vicinity of the subject site is shown in Photograph 3. The carriageway is approximately 12 m wide with two traffic lanes in each direction. The outside lanes operate as clearways 7 am to 9 am and 4 pm to 6 pm Monday to Friday. Parking is permitted in these lanes outside of these hours. The intersection of Owens Road and Gillies Avenue is signalised. Footpaths are provided on both sides of the road, varying between approximately 1.5 m and 2.5 m in width. There are signalised pedestrian crossings at the Gillies Avenue/Owens Road intersection.

A traffic volume tube count was undertaken on Gillies Avenue in the vicinity of the subject site between Owens Road and Kipling Avenue over the week starting Monday 19th March 2018. This showed the five-day ADT of Gillies Avenue to be 15,120 vehicles per day. The morning peak hour volume was recorded to be 980 vehicles per hour (8:00 to 9:00 am), and the evening peak hour volume 1,150 vehicles per hour (4:30 to 5:30 pm).

Photograph 3: Gillies Avenue in The Vicinity of The Subject Site (Looking North Towards Owens Road)⁴



2.3.3 Owens Road

Owens Road is a short Arterial Road that runs between the arterial routes Manukau Road and Mount Eden Road. It also connects with the arterial route of Mountain Road which provides a connection to Grafton and the Auckland City Centre.

⁴ Google Street View – Accessed 10/04/2018

The cross-section of Owens Road in the vicinity of the subject site is shown in Photograph 4. The carriageway is approximately 10 m wide with one traffic lane in each direction. Parking is generally permitted on both sides of the road, with some restrictions around intersections. As stated previously, the intersection of Owens Road and Gillies Avenue is signalised. Footpaths are provided on both sides of the road, varying between approximately 1.5 m and 1.8 m in width. There are signalised pedestrian crossings at the Gillies Avenue/Owens Road intersection.

Traffic surveys were undertaken at the Owens Road/Gillies Avenue Intersection on Tuesday 20th March 2018. These results of the surveys indicated that on Owens Road, between Gillies Avenue and Mountain Road, there is a morning peak hour flow of 730 vehicles per hour, an evening peak flow of 790 vehicles per hour, and an ADT of around 7,600 vehicles.

Photograph 4: Owens Road in the vicinity of the Subject site (looking east towards Gillies Avenue)⁵



3 TRANSPORT ACCESSIBILITY

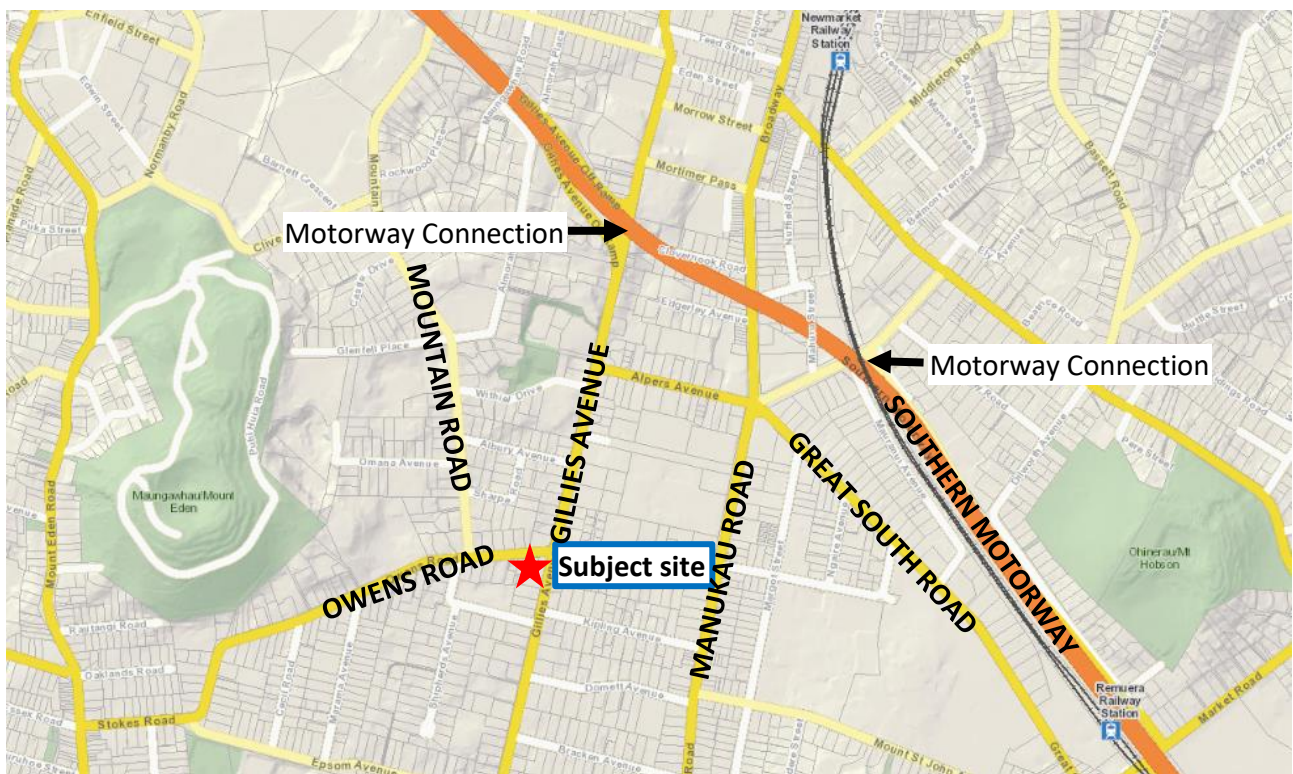
3.1 Private Vehicle Accessibility

As shown in Figure 5, the subject site is well located in terms of private vehicle accessibility to the regional road network of Auckland. In particular, the subject site has frontage to Gillies Avenue, which is a key north-south arterial route through the Auckland central isthmus area. The Southern Motorway northbound is accessible via Gillies Avenue less than 1 km north of the site, and the Southern Motorway southbound is accessible 1 km northeast of the site via St Marks Road. The nearest off-ramp for northbound traffic on the Southern Motorway is at Market Road, 1.5 km east of the subject site.

The subject site is also located in close proximity to Owens Road which provides access to the west, Mountain Road which provides access to the north, and Manukau Road and Great South Road which provide access to the south.

⁵ Google Street View – Accessed 10/04/2018

Figure 5: Site Location in the Strategic Transport Network



3.2 Public Transport Accessibility

The new bus network for Auckland’s central suburbs was implemented on 8th July 2018 and is shown in Figure 6.

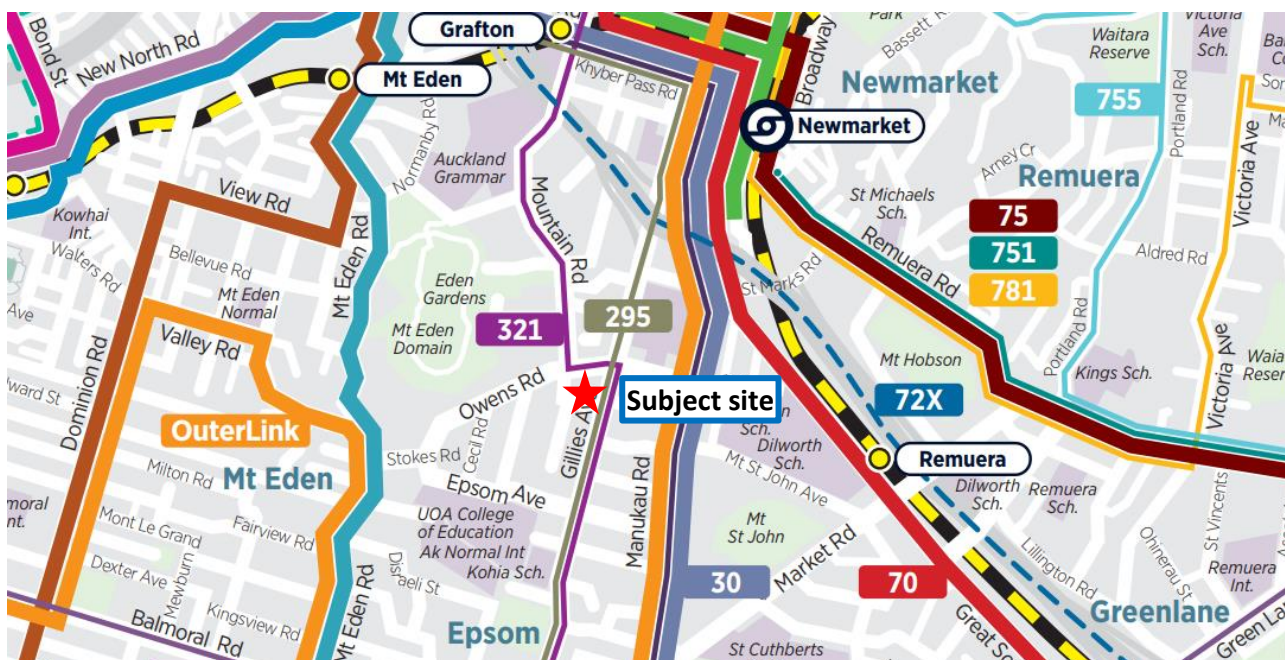
On Gillies Avenue, there are bus stops within 100 m of the subject site (a two-minute walk), serviced by the following bus routes:

- ◆ 321 – Auckland City Centre to Middlemore Hospital, running every half hour between 5:30 am and 8 pm, Monday to Friday
- ◆ 295 – Auckland City Centre to Ellerslie via Royal Oak and Oranga, running at least every half hour 7 am to 7 pm seven days per week.

On Manukau Road, there are bus stops within 500 m (seven-minute walk) served by the following bus routes:

- ◆ Outer Link – Loop through the Auckland City Centre, Parnell, Newmarket, Mount Eden, Saint Lukes, Point Chevalier, Ponsonby, running every 15 minutes in each direction 7 am to 7 pm seven days per week
- ◆ 30 – Auckland City Centre to Onehunga, running every 15 minutes in each direction 7 am to 7 pm seven days per week
- ◆ 309 - Auckland City Centre to Mangere via Onehunga, running at least every half hour 7 am to 7 pm seven days per week.

Figure 6: Bus Network⁶



The Newmarket Train Station and Remuera Train Station are in proximity to the subject site and are both served by the Southern Line and Onehunga Line, as shown in Figure 7 below. The Southern Line operates between Pukekohe and the city centre and the Onehunga Line operates between Onehunga and the city centre.

Figure 7: Train Network⁷



⁶ Auckland Transport. <https://at.govt.nz/media/1977158/nnc-map-and-legend-050618.pdf> Accessed 29/11/2018.

⁷ Auckland Transport. <https://at.govt.nz/media/1972900/southern-line-train-route-map-march-2017.pdf> Accessed 29/11/2018.

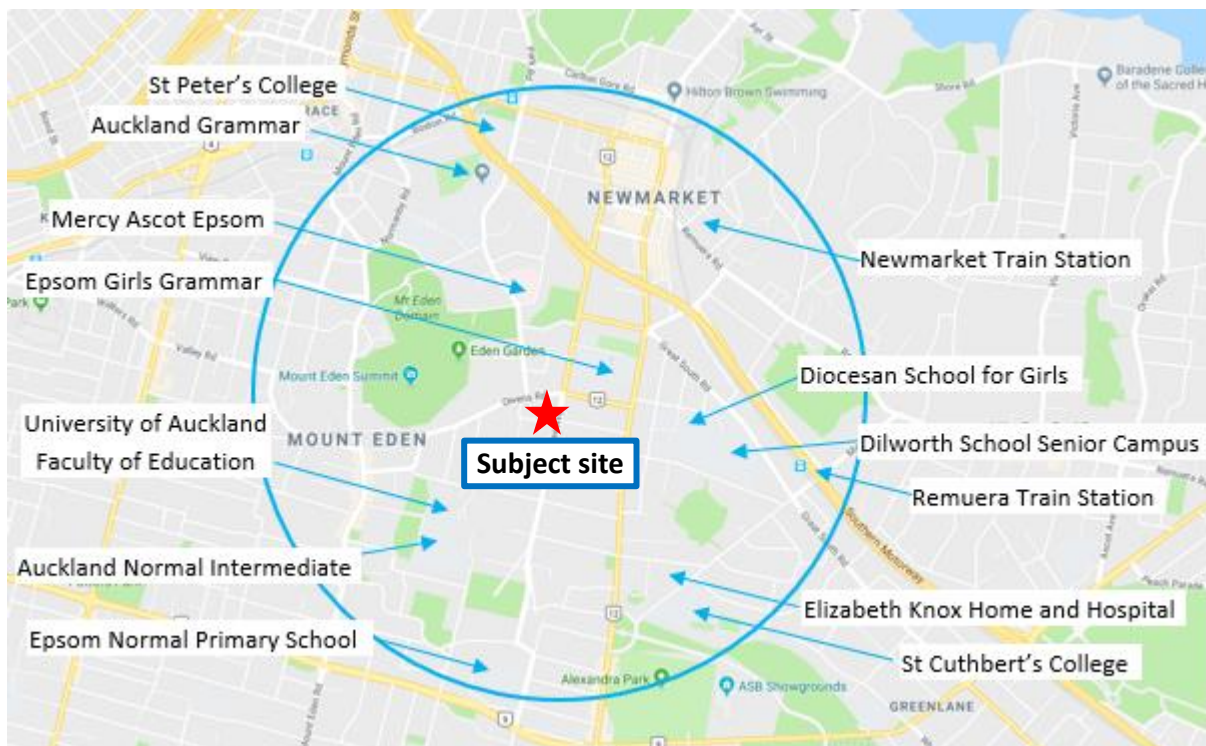
Overall, it is considered that the subject site has reasonably good public transport access, with frequent public transport routes within short walking distance providing access to the Auckland city centre and southern areas of the city. These routes provide connections to cross city frequent bus services, as well as the rail network nearby.

3.3 Walking Accessibility

Footpaths are provided on both sides of the road on all the streets within the vicinity of the subject site. Signalised pedestrian crossings at the Owens Road/Gillies Avenue intersection allows for safe passage across Gillies Avenue, providing easy access to the east, and southbound bus stops.

The Austroads Guide to Traffic Engineering Practice Part 13 – Pedestrians indicates that the practical walking distance for non-recreational walking trips is in the order of 1.5 km. Using the practical walking distance of 1.5 km and the 15th percentile walking speed of a typical fit, healthy adult of 1.3m/s, gives a journey time of some 20 minutes. This is in line with New Zealand data in the New Zealand Transport Agency (“NZTA”) Pedestrian Planning and Design Guide, which states that for walking trips, half are more than 10 minutes and 18% are more than 20 minutes. The primary catchment area for pedestrians has therefore been based on a 1.5 km radius of the centre of the subject site as shown in Figure 8.

Figure 8: Walking Catchment

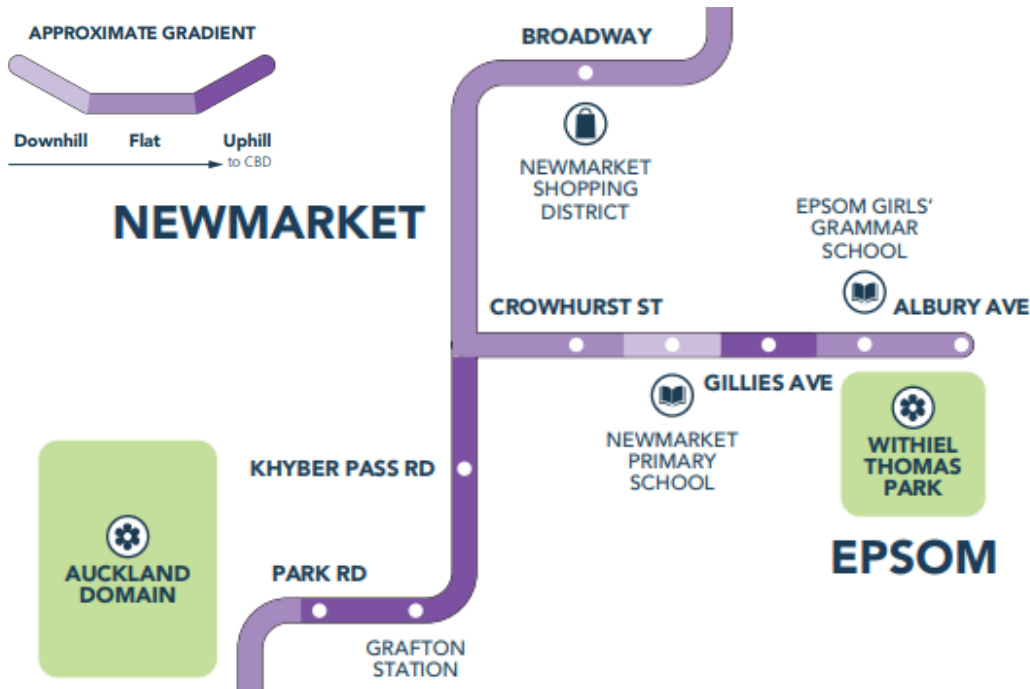


As shown above, the Newmarket Train Station, Remuera Train Station, Elizabeth Knox Home and Hospital, and a number of education destinations are located within walking distance of the subject site. Overall the site is considered to have good walking accessibility.

In addition, the gradient map on the Auckland Transport website shows the slope of the ground pedestrians walking on from Epsom through to the City. A light colour means a downhill or level slope while a dark colour shows uphill. Albury Avenue, the starting point of the map, is parallel to Brightside

Road and intersects Manukau Road approximately 270 m to the north of the subject site. As can be seen in Figure 9, the way to Newmarket along Gillies Avenue is generally flat which is easy for pedestrians to walk on.

Figure 9: Walking Gradients from Epsom through to the City⁸



3.4 Cycling Accessibility

There are currently no existing cycle facilities on the roads surrounding the site. It is noted that Auckland Transport has identified improvement opportunities for Owens Road and Mountain Road in 2016, however, they are still under proposals and currently unfunded.

The Auckland Cycle Network Plan shows the nearest cycle facility is the shared path provided on Valley Road, as shown in Figure 10, which is 1.2 km (six-minute cycle distance) from the subject site. Possible cycling opportunities are identified on both sides of the shared path on Valley Road, and on Manukau Road which is approximately 1.3 km (seven-minute cycle distance) from the subject site. However, no existing cycle infrastructure is provided on the busy arterial route Manukau Road. It is therefore considered that the subject site is not very well serviced by existing and proposed cycle infrastructure.

⁸ Auckland Transport. <https://at.govt.nz/media/1814667/remuera-newmarket-to-cbd-gradient-map.pdf> Accessed 29/11/2018.

Figure 10: Central Auckland Cycling Network⁹



4 THE PROPOSED PLAN CHANGE

As described above, the Proposed Plan Change includes the rezoning of the subject site to Special Purpose – Healthcare Facility and Hospital Zone, and the removal of the Special Character Area Overlay from the three sites at 149, 151 and 153 Gillies Avenue.

With regards to Section H25 Special Purpose – Healthcare Facilities and Hospital Zone, as listed in H25.4.1 the activity table (A20), development of new buildings or additions to existing buildings that increase the building footprint by 20%, that are visible from and located within 10 m of a public road or an open space zone, is a restricted discretionary activity where a consent will be required.

With regard to transport matters, any development enabled by the Proposed Plan Change will need to be assessed against the standards of Chapter E27 of the AUP-OIP.

In regard to the provision of onsite parking under standard E27.6.2 (5), the Proposed Plan Change includes the introduction of a Parking Variation Control on the AUP-OIP planning maps for the subject site, with the inclusion of the parking provision rates in Table E27.6.2.4 of the AUP-OIP as shown in Table 2 overleaf.

⁹ Auckland Transport. Cycle Network Map Central Auckland. <https://at.govt.nz/media/1977770/cycle-network-map-c1-central-auckland.pdf>

Table 2: Proposed Plan Change addition to Table E27.6.2.4

Activity			Applies to zones and locations specified in Standard E27.6.2 (5)	
			Minimum Rate	Maximum rate
T(71A)	Medical facilities	Additional medical facilities at the Brightside Hospital 3 Brightside Road and 149, 151, and 153 Gillies Avenue	1 per 64 m ² GFA	No maximum

5 TRAFFIC ASSESSMENT OF THE PROPOSED PLAN CHANGE

5.1 Development Proposition under the Proposed Plan Change

In assessing the traffic effects of the Proposed Plan Change, a realistic development, that could be enabled by the Proposed Plan Change, has been developed by Archimedia architects and forms part of the Proposed Plan Change application documentation.

This development proposition includes the retention of the existing Brightside Hospital and the implementation of a new extension to the hospital, including basement level car parking. This development, which can be enabled by the Proposed Plan Change, is predicted to include a total of 10,700 m² GFA (about an additional 5,500 m² GFA) of permitted landuse activities as listed in Table H25.4.1 of the Special Purpose – Healthcare Facilities and Hospital Zone, of the AUP-OIP (“Plan Change Proposal”).

It is considered that the amount of additional traffic that an additional 5,500m² GFA to give a total GFA of 10,700m² is an appropriate level of a permitted development that could be enabled by the Proposed Plan Change for the traffic assessment. It is noted that this level of GFA may generate up to 84 vehicles per hour (“vph”) and therefore is close to the trip generation rate of 100 vph, the trigger for a trip generation assessment for restricted discretionary land use activities under E27.6.1 of the AUP.

5.2 Traffic Generation

Based on the peak hour traffic generation rates surveyed at the existing Brightside Hospital, Table 3 summarises the predicted traffic generation of the above described Plan Change Proposal. In addition, Table 3 shows the additional trips estimated to be generated by the Plan Change Proposal, over the existing level of traffic being generated by the existing Brightside Hospital. It is noted that the additional vehicle trips estimated do not take into account the existing trips generated by the two residential dwellings and the guest house located on Gillies Avenue that will be removed from the network as a result of the Proposed Plan Change. The number of additional vehicle trips anticipated to be generated is therefore conservative.

Table 3: Estimated Peak Hour Trips

Peak Periods	Surveyed Trip Rate per 100 m ² GFA	Proposed Plan Change Development GFA	Total Trips	Additional Trips
Morning Commuter Peak Hour	0.62	10,700 m ²	66	34
School Peak Hour	0.79	10,700 m ²	84	43
Evening Commuter Peak Hour	0.56	10,700 m ²	60	31

5.3 Assessment of Traffic Effects

5.3.1 Assessment Methodology

For the purpose of assessing the traffic effects of the Plan Change Proposal, the operation of the following intersections has been assessed using the traffic modelling software SIDRA 7.0 Plus (SIDRA).

- ◆ Brightside Road/Owens Road intersection
- ◆ Mountain Road/Owens Road intersections
- ◆ Brightside Road/Gillies Avenue intersection
- ◆ Kipling Avenue/Gillies Avenue intersection
- ◆ Gillies Avenue/Owens Road intersection.

For each of the intersections above, six scenarios have been assessed including the existing and proposed traffic volumes under the Plan Change Proposal for the three peak hours, including the morning and evening commuter peak hours and the afternoon peak hour associated with the school activity in the surrounding area.

5.3.2 The Existing Scenario

The traffic demands used in the SIDRA assessment of the existing scenarios are based on traffic data that was collected in April 2017, with additional traffic surveys of the Brightside Road/Gillies Avenue and Gillies Avenue/Owens Road intersections being completed on 20 March 2018. The reason that these March 2018 surveys were completed was to understand the effects that the opening of the Waterview Tunnel may have had on traffic volumes on Gilles Avenue.

The Waterview Tunnel opened on State Highway 20 in June 2017, which was predicted to result in a redistribution of traffic through the central Auckland isthmus area. Traffic counts undertaken by Auckland Transport on Gillies Avenue between King George Avenue and Kimberley Road in March 2015 showed a five-day ADT volume of 20,640 vehicles, whereas the same count undertaken in December 2017 showed a five-day ADT of 17,200 vehicles. Similarly, Gillies Avenue north of the subject site between the Southern Motorway and Alpers Avenue showed a five-day ADT of 36,610 vehicles in November 2016, and a five-day ADT of 29,080 in September 2017.

When comparing the Gillies Avenue/Owens Road intersection April 2017 and March 2018 results, the total traffic travelling through the intersection during the morning peak hour was shown to be approximately 1% less in 2018. During the evening peak, total traffic travelling through the intersection was recorded to be approximately 5% less in 2018. Conversely, turning volumes at the Brightside Road/Gillies Avenue intersection increased between the 2017 and 2018 surveys. As such while the Waterview Tunnel may have had some effect on the daily traffic volumes on the road network in the vicinity of the subject site, it does not appear to have had a significant effect on peak hour volumes.

In the development of the existing SIDRA models, 2018 survey data has been used where available, and for movements where 2018 data was not collected, 2017 data was used, factored up or down to match corresponding 2018 counts. The existing SIDRA models were calibrated with collected queue data to ensure that the predicted queues from the models corresponded to the observed queue data.

5.3.3 The Future with Proposed Plan Change Scenario

The future models of each intersection include the additional traffic predicted to be generated by the Proposed Plan Change. The distribution of these additional trips on the surrounding road network is based on the direction of the trips entering and exiting the existing hospital, and the distribution of existing trips at each of the surrounding intersections.

5.3.4 SIDRA Modelling Results

The SIDRA results are presented by the Level of Service (“LOS”), which is a generalised function of average delay. LOS A and B are very good and indicative of free-flow conditions; C is good; D is acceptable, and E and F are indicative of congestion and longer average traffic delays. The detailed SIDRA modelling results are provided in Appendix A, with the following sections summarising the operation of the various assessed intersections.

Brightside Road/Owens Road and Mountain Road/Owens Road Intersections

Taking into account the proximity of, and interaction between the Brightside Road and Mountain Road intersections on Owens Road, the two intersections have been modelled using the network function in SIDRA. The morning, school, and evening peak hours have been modelled using both existing and with the Proposed Plan Change traffic demands, with a summary of the results shown in Table 4 and Table 5.

Table 4: Brightside Road/Owens Road Intersection Summary SIDRA Results

Period	Brightside Road		Owens Road	
	Left Turn LOS (ave. delay)	Right Turn LOS (ave. delay)	Left Turn LOS (ave. delay)	Right Turn LOS (ave. delay)
Existing AM Peak	A (8.7s)	F (88.2s)	A (2.2s)	A (6.8s)
Proposed PC AM Peak	A (8.7s)	F (111.7s)	A (2.2s)	A (6.8s)
Existing School Peak	A (9.0s)	B (12.3s)	A (2.2s)	A (6.5s)
Proposed PC School Peak	A (9.4s)	B (13.2s)	A (2.2s)	A (6.8s)
Existing PM Peak	B (10.9s)	C (19.9s)	A (2.2s)	A (8.9s)
Proposed PC PM Peak	B (10.9s)	C (20.3s)	A (2.2s)	A (8.9s)

Table 5: Mountain Road/Owens Road Intersection Summary SIDRA Results

Period	Mountain Road		Owens Road	
	Left Turn LOS (ave. delay)	Right Turn LOS (ave. delay)	Left Turn LOS (ave. delay)	Right Turn LOS (ave. delay)
Existing AM Peak	A (5.5s)	B (11.8s)	A (2.2s)	D (28.8s)
Proposed PC AM Peak	A (5.5s)	B (11.8s)	A (2.2s)	D (28.9s)
Existing School Peak	A (5.1s)	A (7.9s)	A (2.2s)	B (11.0s)
Proposed PC School Peak	A (5.1s)	A (8.0s)	A (2.2s)	B (11.3s)
Existing PM Peak	A (5.2s)	B (10.6s)	A (2.2s)	B (14.3s)
Proposed PC PM Peak	A (5.2s)	B (11.1s)	A (2.2s)	B (14.4s)

The SIDRA results indicate that currently, the right turn from Brightside Road onto Owens Road during the morning peak operates at a LOS F. In particular, the traffic data collected indicates that Brightside Road is used as a ‘rat run’ in the morning, with drivers bypassing the Gillies Avenue/Owens Road signalised intersection to get to Mountain Road. With the additional development traffic, delay for this right turn is indicated as increasing by around 23 seconds. However, noting that most of these turning movements appear to be rat running, it is very likely that if delay at this intersection increases, traffic will divert back to the Gillies Avenue/Owens Road signalised intersection which operates at a better LOS. It is therefore anticipated that the additional traffic will not affect the operating of the intersection as much as indicated by the SIDRA results.

The remaining movements at both intersections appear to operate at an acceptable LOS, with the additional traffic causing insignificant additional delay.

Brightside Road/Gillies Avenue and Kipling Road/Gillies Avenue Intersections

Taking into account the proximity of, and interaction between the Brightside Road and Kipling Avenue intersections on Gillies Avenue, the two intersections have been modelled using the network function in SIDRA. The morning, school, and evening peak hours have been modelled using both existing and with the Proposed Plan Change traffic demands, with a summary of the results shown in Table 6 and Table 7.

The results for two proposed scenarios are shown in Table 6 and Table 7. The first scenario assumes no Gillies Avenue site vehicle access, with all traffic bound for Gillies Avenue using the Brightside Road intersection. The second scenario assumes a left in/left out access on Gillies Avenue so that all traffic originating from the south on Gillies Avenue, and all traffic leaving the site to head north on Gillies Avenue will use the new Gillies Avenue access as opposed to Brightside Road. In reality, it is likely to be a mix, but this tests the worst-case scenario.

Table 6: Brightside Road/Gillies Avenue Intersection Summary SIDRA Results

Period	Brightside Road		Gillies Avenue	
	Left Turn LOS (ave. delay)	Right Turn LOS (ave. delay)	Left Turn LOS (ave. delay)	Right Turn LOS (ave. delay)
Existing AM Peak	A (5.8s)	F (67.4s)	A (4.6s)	B (12.4s)
Proposed PC AM Peak (no Gillies Ave access)	A (5.8s)	F (71.7s)	A (4.6s)	B (12.5s)
Proposed PC AM Peak (with Gillies Ave access)	A (5.8s)	F (72.3s)	A (4.6s)	B (12.5s)
Existing School Peak	A (7.1s)	D (25.8s)	A (4.6s)	A (6.6s)
Proposed PC School Peak (no Gillies Ave access)	A (7.2s)	D (27.1s)	A (4.6s)	A (6.7s)
Proposed PC School peak (with Gillies Ave access)	A (7.2s)	D (27.3s)	A (4.6s)	A (6.7s)
Existing PM Peak	A (5.3s)	E (42.0s)	A (4.6s)	A (6.2s)
Proposed PC PM Peak (no Gillies Ave access)	A (5.3s)	E (45.1s)	A (4.6s)	A (6.3s)
Proposed PCPM Peak (with Gillies Ave access)	A (5.4s)	E (45.7s)	A (4.6s)	A (6.3s)

Table 7: Kipling Avenue/Gillies Avenue Intersection Summary SIDRA Results

Period	Kipling Avenue		Gillies Avenue	
	Left Turn LOS (ave. delay)	Right Turn LOS (ave. delay)	Left Turn LOS (ave. delay)	Right Turn LOS (ave. delay)
Existing AM Peak	A (5.3s)	E (48.7s)	A (4.6s)	A (4.4s)
Proposed PC AM Peak (no Gillies Ave access)	A (5.3s)	F (50.7s)	A (4.6s)	A (4.4s)
Proposed PC AM Peak (with Gillies Ave access)	A (5.3s)	F (50.7s)	A (4.6s)	A (4.4s)
Existing School Peak	A (4.7s)	E (38.1s)	A (4.6s)	A (6.7s)
Proposed PC School Peak (no Gillies Ave access)	A (4.7s)	E (39.5s)	A (4.6s)	A (6.7s)
Proposed PC School peak (with Gillies Ave access)	A (4.7s)	E (38.1s)	A (4.6s)	A (6.7s)
Existing PM Peak	A (6.0s)	F (52.1s)	A (4.6s)	A (6.8s)
Proposed PC PM Peak (no Gillies Ave access)	A (6.0s)	F (53.2s)	A (4.6s)	A (6.8s)
Proposed PC PM Peak (with Gillies Ave access)	A (6.0s)	F (55.7s)	A (4.6s)	A (6.9s)

The SIDRA results indicate that the right turns onto Gillies Avenue from both Brightside Road and Kipling Avenue currently operate at a LOS of E/F during peak periods. This is considered typical for priority controlled local roads that join busy arterial routes. The other turns at the intersections operate with minimal delay.

The additional traffic generated by the Proposed Plan Change is shown as generally having an insignificant effect on the operation of the intersections, only increasing the average delay by a few seconds. The introduction of a possible left in/left out access on Gillies Avenue does not appear to generate any traffic effects significantly different from the scenario assuming all access only from Brightside Road.

Gillies Avenue/Owens Road Intersection

The morning, school, and evening peak hours for the Gillies Avenue/Owens Road signalised intersection have been modelled using both existing and with the Proposed Plan Change traffic demands, with a summary of the results shown in Table 8. The SIDRA results indicate that the additional traffic generated by the Plan Change Proposal has negligible impact on the operation of the intersection.

Table 8: Gillies Avenue/Owens Road Intersection Summary SIDRA Results

Period	Gillies Avenue South LOS (ave. delay)	Gillies Avenue North LOS (ave. delay)	Owens Road West LOS (ave. delay)
Existing AM Peak	E (61.0s)	C (25.8s)	D (47.3s)
Proposed PC AM Peak	E (62.2s)	C (25.8s)	D (47.3s)
Existing School Peak	D (46.3s)	C (24.1s)	E (58.1s)
Proposed PC School Peak	D (47.0s)	C (24.2s)	E (58.1s)
Existing PM Peak	E (55.1s)	C (20.6s)	D (48.3s)
Proposed PC PM Peak	E (55.3s)	C (20.7s)	D (48.3s)

5.3.5 Gillies Avenue Vehicle Access Scenario

The left in/left out movements at the Brightside Road intersection operate at a LOS A during all peak traffic periods, and the through movement northbound operates at a LOS A with no delay. It is therefore anticipated that a proposed left in/left out Gillies Ave vehicle access to serve a development enabled by the Proposed Plan Change, will operate with negligible effect on the operation of Gillies Avenue.

5.3.6 Traffic Effects Summary

Overall it is considered that the additional traffic predicted to be generated by a permitted development under the Proposed Plan Change can be easily accommodated by the surrounding road network. The effects on the surrounding arterial roads will be no more than minor, and the increase in delay on the turning movements on the surrounding local roads insignificant. Further, as mentioned above, this traffic effects assessment can be regarded as conservative, as it is based on a development proposition which includes a basement level of parking. If the parking is rather provided on the site at ground level, or other levels of the building, the extent of healthcare and hospital development enabled under the

Proposed Plan Change, and hence the level of traffic generation and effects, assessed above, will decrease.

It is also considered that should a left in/left out access on Gillies Avenue be included as part of a development proposal that could be enabled by the Plan Change, that the operation of this access will have a negligible effect on the operation of Gillies Avenue. Notwithstanding this, it is noted that the vehicle access propositions of any permitted development proposal enabled by the Proposed Plan Change will be subject to the standards given in Chapter E27 of the AUP-OIP. As such any vehicle access that is proposed from Gillies Avenue will need a restricted discretionary consent, as, under Standards E27.6.4.1 (2) and E27.6.4.1 (3), a Vehicle Access Restriction will apply to Gillies Avenue as Gillies Avenue is classified as an Arterial Road in the AUP-OIP.

It is also noted that should a controlled or restricted discretionary development be proposed that is bigger than the development proposition that has been assessed above, it is likely that under Standard E27.6.1 (1)(b) Trip Generation of the AUP-OIP, the 100 vehicles per hour trip generation threshold will be met, and resource consent for a restricted discretionary activity will be required. Under the assessment criteria¹⁰ relating to this standard, *“the effects on the function and the safe and efficient operation of the transport network including pedestrian’s movement, particularly at peak times”* will need to be assessed and any adverse effects appropriately mitigated.

5.4 Assessment of Safety Effects

A historical search of the New Zealand Transport Agency’s (“NZTA”) Crash Analysis System (“CAS”) has been completed for the five-year period from 2013 to 2017 (inclusive), to identify the details of all reported crashes on the roads surrounding the subject site. The results of this CAS search are summarised in Table 9.

Table 9: Crash History 2013 to 2017 (Inclusive)

Location	Crashes	Description
Gillies Avenue/Owens Road Intersection	5 minor injury crashes 23 non-injury crashes 28 total crashes	50% of the crashes were crossing turning manoeuvres, 25% rear end/obstruction, and 21% overtaking (changing lanes). Of the five injury crashes, one was loss of control, and four involved right turns
Brightside Road/Gillies Avenue and Kipling Avenue/Gillies Avenue Intersections	2 minor injury crashes 8 non-injury crashes 10 total crashes	Four of the crashes involved vehicles turning right out of Brightside Road, all non-injury. Three of the crashes involved vehicles turning right out of Kipling Avenue, including one minor injury. One crash was a rear end on Gillies Avenue, one crash a result of overtaking/merging, and one crash a loss of control on Gillies Avenue (minor injury)

¹⁰ Section E27.8.2 (3) of the AUP-OIP

Table 9: Crash History 2013 to 2017 (Inclusive)

Location	Crashes	Description
		No crashes were reported involved pedestrians or cyclists. No crashes were reported that resulted from conflict between turning movements at the Kipling Avenue and Gillies Avenue Intersection.
Brightside Road/Owens Road and Mountain Road/Owens Road Intersections	2 minor injury crashes 6 non-injury crashes 8 total crashes	Two of the crashes involved vehicles turning right out of Mountain Road, both non-injury. Two of the crashes involved vehicles turning right out of Brightside Road, both non-injury. One crash was a rear end on Mountain Road (non-injury), and one crash a collision with a parked car (minor injury). One crash involved a pedestrian crossing mountain Road (non-injury) No crashes reported involved cyclists. No crashes were reported that resulted from conflict between turning movements at the Mountain Road and Brightside Road Intersections.
Brightside Road Midblock	No Crashes	

So far in 2018, two crashes have been reported on the roads in the vicinity of the subject site. One crash involved a drunk driver failing to stop for the red signal at the Owens Road/Gillies Avenue intersection (non-injury), and one crash involved a loss of control at the Owens Road/Gillies Avenue intersection (minor injury).

5.4.1 Owens Road/Gillies Avenue Intersection

The number of minor injury crashes at the Owens Road/Gillies Avenue intersection involving right turns indicate that this may be a safety concern. It is assumed that this is a result of the filter right turn. However, it is noted that since November 2016, the filter right turn has been removed from the signal phasing. All of the right turn crashes involving injury crashes were reported prior to November 2016. It, therefore, appears that this safety concern has been addressed. The remaining non-injury crashes appear typical of a high-volume signalised intersection.

The low volume of additional traffic predicted to be generated through this intersection as a result of the Proposed Plan Change is not anticipated to exacerbate any existing safety issues.

5.4.2 Brightside Road Intersections

The crashes reported at the Brightside Road intersections with Gilles Avenue and Owens Road are all non-injury crashes. However, all of the four crashes reported to have occurred at the Brightside Road/Gillies Road intersection involved vehicles turning right of Brightside Road being hit by northbound vehicles on Gillies Avenue. This indicates that there could be a visibility issue to the south.

Safe Intersection Sight Distance (“SISD”) at a design speed of 50 km/hr, assuming a reaction time of two seconds, is 97 m¹¹. Assuming vehicles are parked where they are permitted to on Gillies Avenue, the existing sight distance from Brightside Road to oncoming northbound vehicles is approximately 40 m. Two of the right turn crashes occurred outside the clearway hours when there could be vehicles parked on Gillies Avenue. The other two crashes occurred just within the clearway hours when it is possible vehicles may still be parked on Gillies Avenue. To ensure adequate sight distance south along Gillies Avenue from Brightside Road, Auckland Transport should consider providing an additional 20 m of No Stopping At All Time (“NSAAT”) markings linking the two existing sections of NSAAT.

The crash data does not indicate that there are any safety concerns at the Brightside Road intersection with Owens Road, with the only injury crash reported being a result of a collision with a parked car. The crash data also does not indicate any safety issues resulting from the conflict between turning movements at the Brightside Road/Kipling Avenue or Brightside Road/Mountain Road intersections.

Overall, additional turning movements at these intersections, resulting from the Proposed Plan Change are not anticipated to exacerbate any existing or create any new safety issues.

5.4.3 Midblock

No crashes have been reported midblock on Brightside Road, and none involving vehicle accesses on Gillies Avenue in the vicinity of the subject site. It is therefore anticipated that the additional traffic using Brightside Road and any new vehicle crossing on Gillies Avenue to access the subject site will not exacerbate or create any new safety concerns.

In this regard and as previously mentioned, any vehicle access propositions of a permitted development proposal enabled by the Proposed Plan Change will be subject to the standards given in Chapter E27 of the AUP-OIP. As such any vehicle access that is proposed from Gillies Avenue will need a restricted discretionary consent as under Standards E27.6.4.1 (2) and E27.6.4.1 (3), a Vehicle Access Restriction will apply to Gillies Avenue as Gilles Avenue is classified as an Arterial Road in the AUP-OIP. It is considered that the relevant assessment criteria in the AUP-OIP are sufficient to ensure that the safety effects resulting from the operation of any new vehicle access onto Gillies Avenue can be assessed and required measures can be identified to ensure any adverse safety effects are adequately mitigated.

¹¹ Austroads guide to Road Design Part 4A: Unsignalised and Signalised Intersections, 2017

6 PARKING ASSESSMENT OF THE PROPOSED PLAN CHANGE

6.1 Existing AUP-OIP Requirements

As noted, the subject site is proposed to be rezoned as Special Purpose – Healthcare Facility and Hospital Zone for hospital activities. As such any permitted development enabled under the Proposed Plan Change will be required to provide onsite car parking provision based on the following rates stated in Table E27.6.2.4 of the AUP-OIP:

- ◆ Hospitals not shown on the parking variation control planning maps:
 - Minimum one per 50 m² GFA
 - No maximum.

6.2 Proposed Car Parking Requirement for the Proposed Plan Change

As described previously, the actual peak car parking demand generated by the existing Brightside Hospital was measured to be 1 parking space per 64 m² GFA. Accordingly, if the above AUP-OIP standard of 1 parking space per 50 m² GFA is applied to a permitted development that can be enabled by the Proposed Plan Change, it likely that too much parking will be provided on the subject site, which can result in adverse amenity effects, (as areas that will be paved for unused car parking provision could instead be used for landscaping).

As such it is proposed that as part of the Proposed Plan Change, a Parking Variation Control on the AUP-OIP planning maps be included for the subject site, with the inclusion in Table E27.6.2.4 of the AUP-OIP, that any additional permitted landuse activity will need to be supported by a minimum on-site parking provision at a rate of 1 per 64 m² GFA. Considering that this rate is based on the measured actual peak parking demand being generated by the existing Brightside Hospital, it is concluded that the rate is appropriate to ensure that all reasonable parking demand generated under the Proposed Plan Change can be accommodated on the site and will result in similar on-street parking demands as being generated on the surrounding streets by the existing Brightside Hospital

Under the above described Plan Change Proposal of 10,700 m² GFA, a total of 136 onsite parking spaces will be required to be provided.

6.3 Provision of Cycle Parking, Accessible Parking, Loading Facilities and Design of Parking and Access

It is considered that the controls given in Chapter E27 of the AUP-OIP relating to the provision of appropriate loading facilities, bicycle parking and accessible parking spaces, as well as the design of these transport elements, are adequate to ensure that these matters can be appropriately addressed at the time when consent will be sought to implement a new building under the Proposed Plan Change.

7 STRATEGIC INTEGRATION ASSESSMENT OF THE PROPOSED PLAN CHANGE

7.1 General

The following section provides a review of established policy and plans in relation to the Proposed Plan Change, to assess the strategic integration of the Plan Change with future transport network planning. The documents reviewed comprise of:

- ◆ Auckland Plan 2050
- ◆ Auckland Regional Land Transport Plan 2018 – 2028
- ◆ Auckland Regional Public Transport Plan 2015
- ◆ Auckland Unitary Plan – Operative in Part
- ◆ Auckland Transport Code of Practice.

7.2 Auckland Plan 2050

The Auckland Plan 2050 is the long-term spatial plan which sets the strategic direction for Auckland to ensure Auckland grows in a way that will meet the opportunities and challenges during the next 30 years. The Auckland Plan comprises six main areas, with a specific area for Transport and Access. One of the three strategic directions identified in the Transport and Access area of the Auckland Plan 2050 is to *“better connect people, places, good and services”*¹².

It further recognises that *“it is vital that people can easily, safely and sustainably reach the things that matter most to them, such as work, school, friends, recreation and healthcare”*. The expansion of hospital services within the community such as the proposed hospital activity on the subject site gives effect to the strategic direction mentioned above, specifically increasing the capacity of hospital activity to meet future demand, in a location in close proximity to surgeons, employees and patients, and served by existing public transport networks.

7.3 Auckland Regional Land Transport Plan 2018 – 2028

The Auckland Regional Land Transport Plan 2018 – 2028 (RLTP) forms part of the National Land Transport Programme and represents the combined intentions of the NZTA, Auckland Transport, and KiwiRail to respond to growth and other challenges facing Auckland in the next 10 years.

The Auckland-wide Development Strategy Map identifies nearby Newmarket as “Metropolitan centre”¹³. As such, a number of projects have been proposed in this suburb, notably the New Network bus services for central suburbs and the City Rail Link (“CRL”) which will reduce the travel time from the nearby Newmarket to Aotea Station by 17 minutes. The Proposed Plan Change is considered to be

¹² Auckland Council. 2018. Auckland Plan 2050. <https://www.aucklandcouncil.govt.nz/plans-projects-policies-reports-bylaws/our-plans-strategies/auckland-plan/about-the-auckland-plan/docsprintdocuments/section-5-transport.pdf>

¹³ Auckland Transport. 2018. Auckland Regional Land Transport Plan. <https://at.govt.nz/media/1977374/rltp-consultation-single-pages-small.pdf>

compatible with the surrounding transport environment. While additional GFA resulted from the expansion will see an increase in traffic generation, the CRL is expected to significantly reduce pressure on the roads. More people using public transport to, from and through the surrounding area will free up parking and traffic space.

7.4 Auckland Regional Public Transport Plan 2015

The Auckland Regional Public Transport Plan 2015 (“RPTP”) seeks to deliver an improved and more integrated public transport network in Auckland to offer a wider range of trips and services that align with future land use patterns and meet customer needs. The RPTP sets out the statutory obligations to consider the needs to travel to basic community activities and services including work, education, healthcare, welfare, and shopping¹⁴. Of note, health services have been identified as critical access needs for people with disabilities and the elderly.

The RPTP further suggests that public transport services that focus on meeting access needs to these facilities and services should try to connect people with their nearest town centre. Considering the close proximity to the nearest Metropolitan Centre of Newmarket, the Proposed Plan Change will assist in providing access to healthcare facilities near the town centre, meeting more people’s needs, encouraging people to use public transport, and increasing passenger numbers. The Proposed Plan Change is therefore considered to be supportive of the vision of the RPTP.

7.5 Auckland Unitary Plan

The AUP-OIP has the following objectives with regard to the Auckland region’s transport infrastructure:

- ◆ *“Land use and all modes of transport are integrated in a manner that enables:*
 - (a) the benefits of an integrated transport network to be realised; and*
 - (b) the adverse effects of traffic generation on the transport network to be managed*
- ◆ *An integrated transport network including public transport, walking, cycling, private vehicles and freight, is provided for*
- ◆ *Parking and loading support urban growth and the quality compact urban form*
- ◆ *The provision of safe and efficient parking, loading and access is commensurate with the character, scale and intensity of the zone*
- ◆ *Pedestrian safety and amenity along public footpaths is prioritised*
- ◆ *Road/rail crossings operate safely with neighbouring land use and development.”*

Further discussion on the relationship between the AUP-OIP provisions and the Proposed Plan Change is outlined in Section 8 below. Overall, the development of hospital activity on the subject site is considered to align well with the transport objectives of the AUP-OIP and the proposed zoning aligns well with neighbouring zones.

¹⁴ Auckland Transport. 2015. <https://at.govt.nz/media/1220235/regional-public-transport-plan-update-july-2015.pdf>

7.6 Auckland Transport Code of Practice

Should the Proposed Plan Change be approved, any transport improvements will follow approved standards namely the Auckland Transport Code of Practice (ATCOP), Austroads and NZS 4404. It is also noted that Auckland Transport currently has a new Transport Design Manual, currently in draft, which can inform any road designs including the proposed NSAAT as part of future resource consent applications.

8 AUP-OIP TRANSPORT PROVISIONS ASSESSMENT

This section of the report summaries whether the transport provisions in Chapters E27 and H25 are appropriate to manage the transport effects of the Plan Change Proposal on the network and whether the Proposed Plan Change aligns with the relevant transport objectives and policies in the AUP-OIP.

8.1 Section E27 Transport

Overall, it is considered that the AUP-OIP provisions set out in the transportation chapter will form an appropriate basis for the assessment of a resource consent under the proposed Special Purpose – Healthcare Facilities and Hospital Purpose zone. It is clearly stated in E27.8 that all activities listed in the activity table must comply with the standards in relation to trip generation, parking and loading spaces, access, and pedestrian and cycling facilities. Where a development proposal exceeds the thresholds and rules, a resource consent for a restricted discretionary activity will be required. For instance, if future hospital development under the Proposed Plan Change requires resource consent and exceeds the threshold of 100 vehicle trips per hour stated in the AUP-OIP, an assessment must be provided and any appropriate mitigation measures shall be considered. For example, a Staff Travel Plan, subject to change depending on the scale of development, could be proposed as an additional supportive planning instrument at the resource consent stage to mitigate adverse traffic effects, should they be identified. As such, any potential adverse transport effects can be appropriately managed through this assessment progress.

The only E27 standard that is proposed to be modified by this Proposed Plan Change, is the car parking rate for any additional permitted development on the subject site. As stated in Section 6.2, the actual peak car parking rate for Brightside Hospital is 1 parking space per 64 m² GFA, which is well below the AUP-OIP minimum car parking requirement for hospitals of 1 parking space per 50 m² GFA. This result shows the difference in peak parking demands associated with larger public hospitals on which the AUP-OIP parking requirements are based, due to the large number of administrative staff when compared to smaller private hospitals such as Brightside Hospital. In this case, a lower parking rate at 1 parking space per 64 m² GFA is considered more appropriate to manage the parking provision and associated traffic effects appropriately.

The objectives and policies in Chapter E27 aim to create an integrated multi-modal transport network that is safe, efficient, accessible, and integrated with land use. The subject site provides an appropriate level of connection with existing road infrastructure, taking advantage of the location of the subject site adjacent to the Newmarket Metropolitan Centre and on the arterial route of Gillies Avenue.

Within the current AUP-OIP planning framework, it is considered that other than the proposed changes to the car parking requirement, no other alterations to any of the standard in Chapter E27 of the AUP-OIP are required under this Proposed Plan Change.

8.2 Section H25 Special Purpose Zone

The objectives and policies in Section H25 that related to transport are as below:

Objective (3)

“(3) The adverse effects of hospital and healthcare activities, buildings and infrastructure, and accessory buildings and activities on adjacent areas are avoided, remedied or mitigated.”

Policies (2)(b) and (7)

“(2) Enable for a range of non-healthcare activities provided they:

(b) avoid, remedy or mitigate significant adverse effects, including traffic effects.

(7) Encourage new buildings to be designed to provide a high standard of amenity and safety”.

This zone seeks to enable developments such as hospitals while ensuring that the proposed activities can be managed in a sustainable manner. In this regard, the Proposed Plan Change is aligned with the primary purpose of the zone.

The Proposal seeks to manage the potential effects via a number of planning controls and mitigation measures. This could include measures such as the introduction of a Staff Travel Plan to encourage hospital staff to travel by more sustainable travel modes, and/or changes to existing available sight distance from intersections to improve visibility and safety, as well as to the vehicle access provision by removing on-street parking near the intersections to provide a safe transport environment.

9 SUMMARY AND CONCLUSIONS

Based on the assessments undertaken in this report, it is concluded:

- ◆ The location of the subject site provides good accessibility to various transport modes including walking, cycling, bus and private vehicles
- ◆ The effects of the proposed increase in vehicle trips resulting from a permitted development that can be enabled by the Proposed Plan Change are considered to be acceptable, with the existing roads and intersections being capable of accommodating the additional traffic without resulting in adverse traffic effects
- ◆ A minimum car parking provision standard of 1 parking space per 64 m² GFA for any additional medical facility development permitted under the Proposed Plan Change is recommended to be established as part of the Proposed Plan Change
- ◆ The controls given in Chapter E27 of the AUP-OIP relating to trip generation and the provision of appropriate loading facilities, bicycle parking and accessible parking spaces, as well as the design of these transport elements, are adequate to ensure that these matters can be appropriately addressed at the time when consent will be sought to implement a new building under the Proposed Plan Change

- ◆ The Proposed Plan Change is consistent with and encourages key regional and local transport policies and plans.

It is anticipated that potential traffic effects of any future development under the Special Purpose – Healthcare Facilities and Hospitals Zone, can be managed appropriately with the identified planning controls in the AUP-OIP and mitigation measures that can be imposed as conditions of consent. In summary, these measures could include a Staff Travel Plan to encourage hospital staff to travel by more sustainable transport modes and/or; changes to existing available sight distance from intersections and any potential vehicle access provisions by removing on-street parking near the intersections.

In conclusion, the traffic effects of the development of hospital activities that could be achieved under the Special Purpose – Healthcare Facilities and Hospitals Zone, with the implementation of the above-mentioned planning instruments and possible mitigation measures, are no more than minor and considered acceptable. Therefore, from a transport planning and traffic engineering perspective, there is no reason to preclude approval of the Proposed Plan Change.

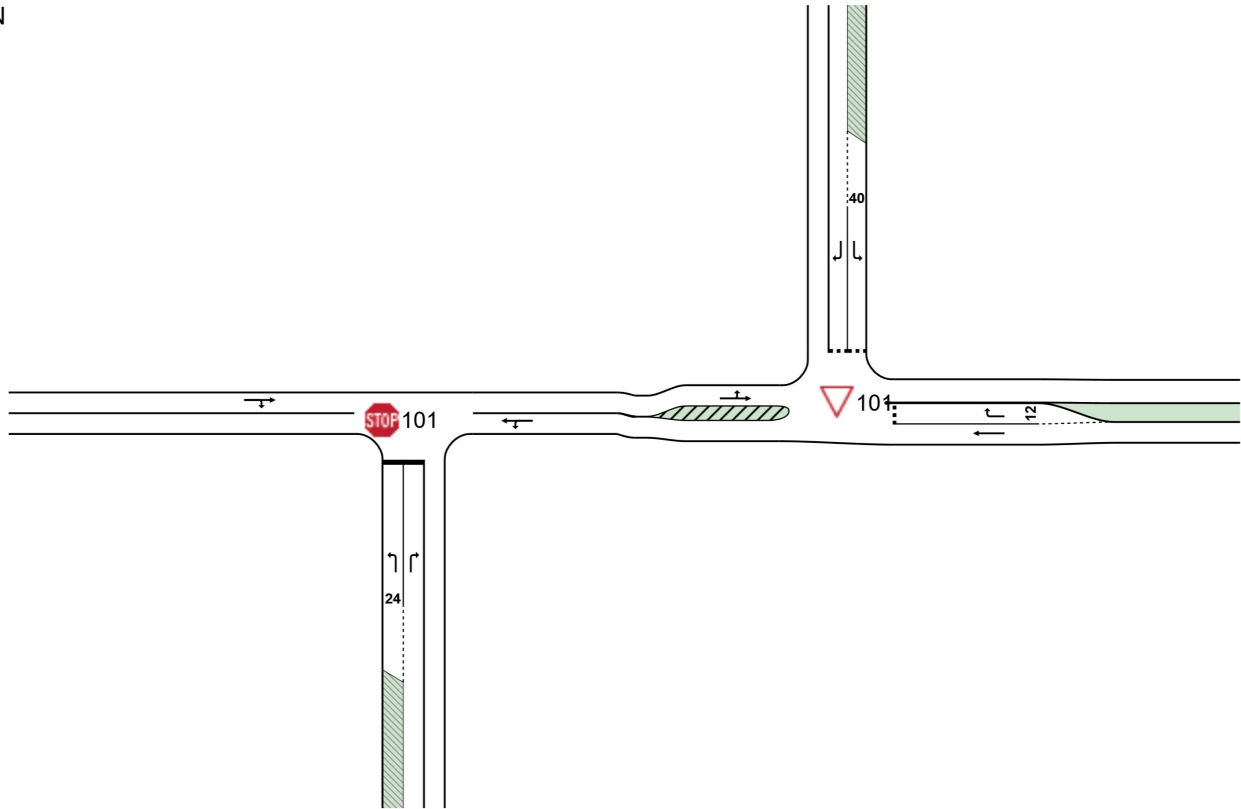
APPENDIX A

SIDRA Results

NETWORK LAYOUT

Network: N101 [EX_BrightsideRd_OwensRd_MountainRd_AM PEAK_08:00-09:00]

New Network



SITES IN NETWORK		
Site ID	CCG ID	Site Name
STOP 101	NA	Ex_Owens Road/Brightside Road_AM Road PEAK_08:00 - 09:00
▽ 101	NA	Ex_Mountain Road/Owens Road_AM Road Peak 08:00 - 09:00

MOVEMENT SUMMARY

 Site: 101 [Ex_Owens Road/Brightside Road_AM Road
PEAK_08:00 - 09:00]

Network: N101
[EX_BrightsideRd_OwensRd_MountainRd_AM
PEAK_08:00-09:00]

Existing
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Brightside Road													
1	L2	40	0.0	40	0.0	0.038	8.7	LOS A	0.1	1.0	0.37	0.86	44.7
3	R2	247	0.0	247	0.0	0.993	88.2	LOS F	13.0	90.9	1.00	2.12	14.9
Approach		287	0.0	287	0.0	0.993	77.2	LOS F	13.0	90.9	0.91	1.95	17.8
East: Owens Road East													
4	L2	22	0.0	22	0.0	0.164	2.2	LOS A	0.0	0.0	0.00	0.04	48.9
5	T1	296	0.0	296	0.0	0.164	0.0	LOS A	0.0	0.0	0.00	0.04	49.8
Approach		318	0.0	318	0.0	0.164	0.2	NA	0.0	0.0	0.00	0.04	49.7
West: Owens Road West													
11	T1	845	0.0	845	0.0	0.447	0.1	LOS A	0.3	1.8	0.03	0.01	49.7
12	R2	16	6.7	16	6.7	0.447	6.8	LOS A	0.3	1.8	0.03	0.01	49.0
Approach		861	0.1	861	0.1	0.447	0.2	NA	0.3	1.8	0.03	0.01	49.7
All Vehicles		1466	0.1	1466	0.1	0.993	15.3	NA	13.0	90.9	0.20	0.40	36.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

 Site: 101 [Prop_Owens Road/Brightside Road_AM Road
PEAK_08:00 - 09:00]

 Network: N101
[Prop_BrightsideRd_OwensRd
_MountainRd_AM
PEAK_08:00-09:00]

Existing
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Brightside Road													
1	L2	41	0.0	41	0.0	0.039	8.7	LOS A	0.1	1.0	0.37	0.86	44.7
3	R2	256	0.0	256	0.0	1.038	111.7	LOS F	17.3	120.9	1.00	2.44	12.5
Approach		297	0.0	297	0.0	1.038	97.5	LOS F	17.3	120.9	0.91	2.22	15.1
East: Owens Road East													
4	L2	26	0.0	26	0.0	0.166	2.2	LOS A	0.0	0.0	0.00	0.04	48.8
5	T1	296	0.0	296	0.0	0.166	0.0	LOS A	0.0	0.0	0.00	0.04	49.7
Approach		322	0.0	322	0.0	0.166	0.2	NA	0.0	0.0	0.00	0.04	49.7
West: Owens Road West													
11	T1	845	0.0	845	0.0	0.449	0.1	LOS A	0.3	2.2	0.03	0.01	49.7
12	R2	19	5.6	19	5.6	0.449	6.8	LOS A	0.3	2.2	0.03	0.01	49.0
Approach		864	0.1	864	0.1	0.449	0.2	NA	0.3	2.2	0.03	0.01	49.6
All Vehicles		1483	0.1	1483	0.1	1.038	19.7	NA	17.3	120.9	0.20	0.46	33.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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MOVEMENT SUMMARY

 Site: 101 [Ex_Owens Road/Brightside Road_PM Hospital
PEAK_14:45 - 15:45]

Network: N101
[EX_BrightsideRd_OwensRd_MountainRd_MID
PEAK_14:45-15:45]

Existing
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Brightside Road													
1	L2	51	0.0	51	0.0	0.051	9.0	LOS A	0.2	1.4	0.42	0.88	44.6
3	R2	85	0.0	85	0.0	0.151	12.3	LOS B	0.6	4.1	0.63	1.00	38.4
Approach		136	0.0	136	0.0	0.151	11.1	LOS B	0.6	4.1	0.55	0.95	41.5
East: Owens Road East													
4	L2	60	0.0	60	0.0	0.215	2.2	LOS A	0.0	0.0	0.00	0.07	48.6
5	T1	356	0.0	356	0.0	0.215	0.0	LOS A	0.0	0.0	0.00	0.07	49.6
Approach		416	0.0	416	0.0	0.215	0.3	NA	0.0	0.0	0.00	0.07	49.4
West: Owens Road West													
11	T1	349	0.9	349	0.9	0.197	0.2	LOS A	0.2	1.5	0.07	0.03	49.2
12	R2	20	0.0	20	0.0	0.197	6.5	LOS A	0.2	1.5	0.07	0.03	48.9
Approach		369	0.9	369	0.9	0.197	0.5	NA	0.2	1.5	0.07	0.03	49.2
All Vehicles		921	0.3	921	0.3	0.215	2.0	NA	0.6	4.1	0.11	0.19	47.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

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MOVEMENT SUMMARY

 Site: 101 [Prop_Owens Road/Brightside Road_PM Hospital
PEAK_14:45 - 15:45]

 Network: N101
[Prop_BrightsideRd_OwensRd
_MountainRd_MID
PEAK_14:45-15:45]

Existing
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Brightside Road													
1	L2	57	0.0	57	0.0	0.061	9.4	LOS A	0.2	1.6	0.45	0.89	44.4
3	R2	95	0.0	95	0.0	0.184	13.2	LOS B	0.7	4.9	0.68	1.00	37.7
Approach		152	0.0	152	0.0	0.184	11.8	LOS B	0.7	4.9	0.59	0.96	41.1
East: Owens Road East													
4	L2	66	0.0	66	0.0	0.245	2.2	LOS A	0.0	0.0	0.00	0.07	48.7
5	T1	408	0.0	408	0.0	0.245	0.0	LOS A	0.0	0.0	0.00	0.07	49.6
Approach		475	0.0	475	0.0	0.245	0.3	NA	0.0	0.0	0.00	0.07	49.4
West: Owens Road West													
11	T1	349	0.9	349	0.9	0.201	0.2	LOS A	0.2	1.8	0.09	0.03	49.1
12	R2	22	0.0	22	0.0	0.201	6.8	LOS A	0.2	1.8	0.09	0.03	48.9
Approach		372	0.8	372	0.8	0.201	0.6	NA	0.2	1.8	0.09	0.03	49.1
All Vehicles		998	0.3	998	0.3	0.245	2.2	NA	0.7	4.9	0.12	0.19	47.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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MOVEMENT SUMMARY

 Site: 101 [Ex_Owens Road/Brightside Road_AM Road
PEAK_16:30 - 17:30]

Network: N101
[EX_BrightsideRd_OwensRd_MountainRd_PM
PEAK_16:30-17:30]

Existing
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Brightside Road													
1	L2	72	0.0	72	0.0	0.100	10.9	LOS B	0.4	2.6	0.55	0.96	43.7
3	R2	136	1.6	136	1.6	0.386	19.9	LOS C	1.7	11.9	0.83	1.08	33.3
Approach		207	1.0	207	1.0	0.386	16.8	LOS C	1.7	11.9	0.73	1.04	37.9
East: Owens Road East													
4	L2	79	0.0	79	0.0	0.349	2.2	LOS A	0.0	0.0	0.00	0.06	48.7
5	T1	597	0.0	597	0.0	0.349	0.0	LOS A	0.0	0.0	0.00	0.06	49.6
Approach		676	0.0	676	0.0	0.349	0.3	NA	0.0	0.0	0.00	0.06	49.5
West: Owens Road West													
11	T1	362	0.0	362	0.0	0.207	0.4	LOS A	0.3	2.0	0.09	0.03	49.0
12	R2	17	6.3	17	6.3	0.207	8.9	LOS A	0.3	2.0	0.09	0.03	48.7
Approach		379	0.3	379	0.3	0.207	0.8	NA	0.3	2.0	0.09	0.03	49.0
All Vehicles		1262	0.3	1262	0.3	0.386	3.1	NA	1.7	11.9	0.15	0.21	46.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

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MOVEMENT SUMMARY

 Site: 101 [Prop_Owens Road/Brightside Road_AM Road
PEAK_16:30 - 17:30]

 Network: N101
[Prop_BrightsideRd_OwensRd
_MountainRd_PM
PEAK_16:30-17:30]

Existing
Stop (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Brightside Road													
1	L2	74	0.0	74	0.0	0.103	10.9	LOS B	0.4	2.7	0.56	0.96	43.7
3	R2	140	1.5	140	1.5	0.402	20.3	LOS C	1.8	12.5	0.83	1.09	33.1
Approach		214	1.0	214	1.0	0.402	17.1	LOS C	1.8	12.5	0.74	1.04	37.8
East: Owens Road East													
4	L2	83	0.0	83	0.0	0.351	2.2	LOS A	0.0	0.0	0.00	0.06	48.7
5	T1	597	0.0	597	0.0	0.351	0.0	LOS A	0.0	0.0	0.00	0.06	49.6
Approach		680	0.0	680	0.0	0.351	0.3	NA	0.0	0.0	0.00	0.06	49.5
West: Owens Road West													
11	T1	362	0.0	362	0.0	0.211	0.5	LOS A	0.3	2.4	0.11	0.03	48.8
12	R2	20	5.3	20	5.3	0.211	8.9	LOS A	0.3	2.4	0.11	0.03	48.6
Approach		382	0.3	382	0.3	0.211	0.9	NA	0.3	2.4	0.11	0.03	48.8
All Vehicles		1276	0.2	1276	0.2	0.402	3.3	NA	1.8	12.5	0.15	0.22	46.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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MOVEMENT SUMMARY

Site: 101 [Ex_Mountain Road/Owens Road_AM Road Peak
08:00 - 09:00]

Network: N101
[EX_BrightsideRd_OwensRd_MountainRd_AM
PEAK_08:00-09:00]

Mountain Road/Owens Road
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Owens Road (East)													
5	T1	149	0.0	149	0.0	0.077	3.4	LOS A	0.0	0.0	0.00	0.45	38.8
6	R2	74	0.0	74	0.0	0.414	28.8	LOS D	1.4	9.6	0.91	1.02	30.8
Approach		223	0.0	223	0.0	0.414	11.8	LOS B	1.4	9.6	0.30	0.64	33.1
North: Mountain Road													
7	L2	312	1.0	312	1.0	0.235	5.5	LOS A	1.1	7.6	0.36	0.58	43.8
9	R2	166	0.6	166	0.6	0.343	11.8	LOS B	1.4	9.5	0.70	0.93	37.9
Approach		478	0.9	478	0.9	0.343	7.7	LOS A	1.4	9.5	0.48	0.70	41.9
West: Owens Road (West)													
10	L2	860	0.0	860	0.0	0.582	2.2	LOS A	0.0	0.0	0.00	0.38	46.8
11	T1	233	0.0	233	0.0	0.582	0.0	LOS A	0.0	0.0	0.00	0.38	43.9
Approach		1093	0.0	1093	0.0	0.582	1.7	NA	0.0	0.0	0.00	0.38	46.6
All Vehicles		1794	0.2	1794	0.2	0.582	4.6	NA	1.4	9.6	0.17	0.50	43.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 101 [Prop_Mountain Road/Owens Road_AM Road
Peak 08:00 - 09:00]

Network: N101
[Prop_BrightsideRd_OwensRd
_MountainRd_AM
PEAK_08:00-09:00]

Mountain Road/Owens Road
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate	Average Speed
		veh/h	%	veh/h	%	v/c	sec		veh	m		per veh	km/h
East: Mountain Road													
5	T1	149	0.0	149	0.0	0.077	3.4	LOS A	0.0	0.0	0.00	0.45	38.8
6	R2	74	0.0	74	0.0	0.416	28.9	LOS D	1.4	9.7	0.91	1.02	30.7
Approach		223	0.0	223	0.0	0.416	11.8	LOS B	1.4	9.7	0.30	0.64	33.0
North: Owens Road (East)													
7	L2	312	1.0	312	1.0	0.235	5.5	LOS A	1.1	7.6	0.36	0.57	43.8
9	R2	171	0.6	171	0.6	0.351	11.8	LOS B	1.4	9.9	0.70	0.93	37.8
Approach		482	0.9	482	0.9	0.351	7.7	LOS A	1.4	9.9	0.48	0.70	41.8
West: Owens Road (West)													
10	L2	868	0.0	861	0.0	0.582	2.2	LOS A	0.0	0.0	0.00	0.38	46.8
11	T1	233	0.0	231	0.0	0.582	0.0	LOS A	0.0	0.0	0.00	0.38	43.9
Approach		1101	0.0	1092 ^{N1}	0.0	0.582	1.7	NA	0.0	0.0	0.00	0.38	46.6
All Vehicles		1806	0.2	1797 ^{N1}	0.2	0.582	4.6	NA	1.4	9.9	0.17	0.50	43.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

^{N1} Arrival Flow value is reduced due to capacity constraint at oversaturated upstream lanes.

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Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 101 [Ex_Mountain Road/Owens Road_AM Road Peak
14:45 - 15:45]

Network: N101
[EX_BrightsideRd_OwensRd_MountainRd_MID
PEAK_14:45-15:45]

Mountain Road/Owens Road
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Owens Road (East)													
5	T1	149	0.0	149	0.0	0.077	3.4	LOS A	0.0	0.0	0.00	0.45	38.8
6	R2	96	4.4	96	4.4	0.207	11.0	LOS B	0.7	5.1	0.67	0.86	39.8
Approach		245	1.7	245	1.7	0.207	6.4	LOS A	0.7	5.1	0.26	0.61	39.6
North: Mountain Road													
7	L2	265	2.8	265	2.8	0.186	5.1	LOS A	0.8	6.0	0.26	0.53	43.9
9	R2	312	1.4	312	1.4	0.390	7.9	LOS A	1.9	13.6	0.53	0.83	41.2
Approach		577	2.0	577	2.0	0.390	6.6	LOS A	1.9	13.6	0.41	0.69	42.6
West: Owens Road (West)													
10	L2	300	0.7	300	0.7	0.235	2.2	LOS A	0.0	0.0	0.00	0.33	47.2
11	T1	141	0.7	141	0.7	0.235	0.0	LOS A	0.0	0.0	0.00	0.33	44.7
Approach		441	0.7	441	0.7	0.235	1.5	NA	0.0	0.0	0.00	0.33	46.8
All Vehicles		1263	1.5	1263	1.5	0.390	4.8	NA	1.9	13.6	0.24	0.55	43.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

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Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 101 [Prop_Mountain Road/Owens Road_AM Road
Peak 14:45 - 15:45]

Network: N101
[Prop_BrightsideRd_OwensRd
_MountainRd_MID
PEAK_14:45-15:45]

Mountain Road/Owens Road
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Owens Road (East)													
5	T1	149	0.0	149	0.0	0.077	3.4	LOS A	0.0	0.0	0.00	0.45	38.8
6	R2	96	4.4	96	4.4	0.211	11.3	LOS B	0.7	5.2	0.68	0.86	39.7
Approach		245	1.7	245	1.7	0.211	6.5	LOS A	0.7	5.2	0.27	0.61	39.4
North: Mountain Road													
7	L2	265	2.8	265	2.8	0.186	5.1	LOS A	0.8	6.0	0.26	0.53	43.9
9	R2	318	1.3	318	1.3	0.400	8.0	LOS A	2.0	14.2	0.53	0.84	41.1
Approach		583	2.0	583	2.0	0.400	6.7	LOS A	2.0	14.2	0.41	0.70	42.5
West: Owens Road (West)													
10	L2	309	0.7	309	0.7	0.240	2.2	LOS A	0.0	0.0	0.00	0.33	47.2
11	T1	141	0.7	141	0.7	0.240	0.0	LOS A	0.0	0.0	0.00	0.33	44.7
Approach		451	0.7	451	0.7	0.240	1.5	NA	0.0	0.0	0.00	0.33	46.8
All Vehicles		1279	1.5	1279	1.5	0.400	4.8	NA	2.0	14.2	0.24	0.55	43.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 101 [Ex_Mountain Road/Owens Road_AM Road Peak
16:30 -17:30]

Network: N101
[EX_BrightsideRd_OwensRd_M
ountainRd_PM
PEAK_16:30-17:30]

Mountain Road/Owens Road
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Owens Road (East)													
5	T1	213	0.0	213	0.0	0.109	3.4	LOS A	0.0	0.0	0.00	0.45	38.8
6	R2	79	0.0	79	0.0	0.227	14.3	LOS B	0.8	5.3	0.77	0.91	37.8
Approach		292	0.0	292	0.0	0.227	6.3	LOS A	0.8	5.3	0.21	0.58	38.2
North: Mountain Road													
7	L2	391	1.6	391	1.6	0.275	5.2	LOS A	1.3	9.5	0.30	0.54	43.9
9	R2	448	1.2	448	1.2	0.609	10.6	LOS B	4.4	30.9	0.66	1.03	38.9
Approach		839	1.4	839	1.4	0.609	8.1	LOS A	4.4	30.9	0.49	0.80	41.4
West: Owens Road (West)													
10	L2	343	0.0	343	0.0	0.185	2.2	LOS A	0.0	0.0	0.00	0.47	46.4
11	T1	155	0.0	155	0.0	0.079	0.0	LOS A	0.0	0.0	0.00	0.00	50.0
Approach		498	0.0	498	0.0	0.185	1.5	NA	0.0	0.0	0.00	0.33	46.9
All Vehicles		1628	0.7	1628	0.7	0.609	5.8	NA	4.4	30.9	0.29	0.62	42.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 101 [Prop_Mountain Road/Owens Road_AM Road
Peak 16:30 -17:30]

Network: N101
[Prop_BrightsideRd_OwensRd
_MountainRd_PM
PEAK_16:30-17:30]

Mountain Road/Owens Road_
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
East: Owens Road (East)													
5	T1	213	0.0	213	0.0	0.109	3.4	LOS A	0.0	0.0	0.00	0.45	38.8
6	R2	79	0.0	79	0.0	0.229	14.4	LOS B	0.8	5.3	0.77	0.92	37.8
Approach		292	0.0	292	0.0	0.229	6.4	LOS A	0.8	5.3	0.21	0.58	38.2
North: Mountain Road													
7	L2	391	1.6	391	1.6	0.275	5.2	LOS A	1.3	9.5	0.30	0.54	43.9
9	R2	453	1.2	453	1.2	0.633	11.1	LOS B	4.6	32.6	0.68	1.07	38.4
Approach		843	1.4	843	1.4	0.633	8.4	LOS A	4.6	32.6	0.50	0.82	41.1
West: Owens Road (West)													
10	L2	347	0.0	347	0.0	0.266	2.2	LOS A	0.0	0.0	0.00	0.34	47.2
11	T1	155	0.0	155	0.0	0.266	0.0	LOS A	0.0	0.0	0.00	0.34	44.6
Approach		502	0.0	502	0.0	0.266	1.5	NA	0.0	0.0	0.00	0.34	46.8
All Vehicles		1637	0.7	1637	0.7	0.633	5.9	NA	4.6	32.6	0.30	0.63	42.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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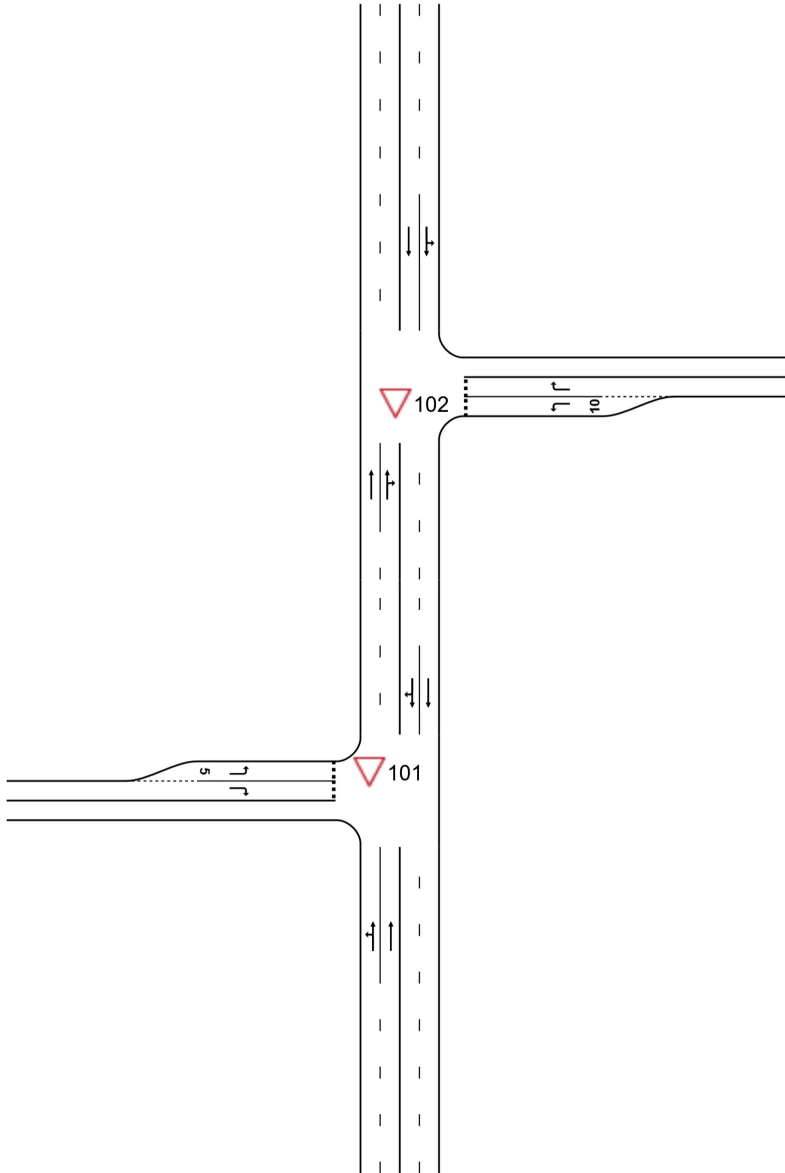
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NETWORK LAYOUT

Network: N101 [Ex_Gillies_Brightside_Kipling_AM Road PEAK_08:00 - 09:00]

New Network



SITES IN NETWORK		
Site ID	CCG ID	Site Name
▽101	NA	Ex_Gillies Avenue/Brightside Road_AM Road PEAK_08:00 - 09:00
▽102	NA	Ex_Gillies Avenue/Kipling Avenue_AM Road PEAK_08:00 - 09:00

MOVEMENT SUMMARY

Site: 101 [Ex_Gillies Avenue/Brightside Road_AM Road
PEAK_08:00 - 09:00]

Network: N101
[Ex_Gillies_Brightside_Kipling_
AM Road PEAK_08:00 - 09:00]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
1	L2	167	0.6	167	0.6	0.248	4.6	LOS A	0.0	0.0	0.00	0.19	48.4
2	T1	785	0.9	785	0.9	0.248	0.0	LOS A	0.0	0.0	0.00	0.07	49.1
Approach		953	0.9	953	0.9	0.248	0.8	NA	0.0	0.0	0.00	0.10	48.9
North: Gillies Avenue North													
8	T1	434	2.2	434	2.2	0.205	0.7	LOS A	1.0	7.5	0.07	0.05	48.9
9	R2	83	5.1	83	5.1	0.205	12.4	LOS B	1.0	7.5	0.73	0.59	39.6
Approach		517	2.6	517	2.6	0.205	2.6	NA	1.0	7.5	0.18	0.14	47.1
West: Brightside Road													
10	L2	15	0.0	15	0.0	0.015	5.8	LOS A	0.1	0.4	0.36	0.55	43.0
12	R2	18	5.9	18	5.9	0.287	67.4	LOS F	0.8	6.1	0.94	1.00	25.8
Approach		33	3.2	33	3.2	0.287	39.6	LOS E	0.8	6.1	0.68	0.80	29.2
All Vehicles		1502	1.5	1502	1.5	0.287	2.3	NA	1.0	7.5	0.08	0.13	47.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 101 [Prop_Gillies Avenue/Brightside Road_AM Road
PEAK_08:00 - 09:00 (100% Brightside)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_AM Road PEAK_08:00 - 09:00
(100% Brightside)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Gillies Avenue South													
1	L2	174	0.6	174	0.6	0.250	4.6	LOS A	0.0	0.0	0.00	0.20	48.4
2	T1	785	0.9	785	0.9	0.250	0.0	LOS A	0.0	0.0	0.00	0.08	49.1
Approach		959	0.9	959	0.9	0.250	0.9	NA	0.0	0.0	0.00	0.10	48.9
North: Gillies Avenue North													
8	T1	434	2.2	434	2.2	0.209	0.6	LOS A	1.0	7.3	0.06	0.05	49.1
9	R2	86	4.9	86	4.9	0.209	12.5	LOS B	1.0	7.3	0.74	0.64	39.3
Approach		520	2.6	520	2.6	0.209	2.6	NA	1.0	7.3	0.17	0.15	47.1
West: Brightside Road													
10	L2	19	0.0	19	0.0	0.019	5.8	LOS A	0.1	0.5	0.36	0.56	43.0
12	R2	23	4.5	23	4.5	0.368	71.7	LOS F	1.1	8.0	0.95	1.02	25.0
Approach		42	2.5	42	2.5	0.368	42.0	LOS E	1.1	8.0	0.68	0.81	28.5
All Vehicles		1521	1.5	1521	1.5	0.368	2.6	NA	1.1	8.0	0.08	0.13	47.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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MOVEMENT SUMMARY

Site: 101 [Prop_Gillies Avenue/Brightside Road_AM Road
PEAK_08:00 - 09:00 (100% New Access)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_AM Road PEAK_08:00 - 09:00
(100% New Access)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
1	L2	164	0.6	164	0.6	0.249	4.6	LOS A	0.0	0.0	0.00	0.19	48.4
2	T1	795	0.9	795	0.9	0.249	0.0	LOS A	0.0	0.0	0.00	0.07	49.1
Approach		959	0.9	959	0.9	0.249	0.8	NA	0.0	0.0	0.00	0.09	48.9
North: Gillies Avenue North													
8	T1	434	2.2	434	2.2	0.207	0.6	LOS A	1.0	7.3	0.06	0.05	49.0
9	R2	85	4.9	85	4.9	0.207	12.5	LOS B	1.0	7.3	0.74	0.63	39.4
Approach		519	2.6	519	2.6	0.207	2.6	NA	1.0	7.3	0.17	0.15	47.1
West: Brightside Road													
10	L2	13	0.0	13	0.0	0.013	5.8	LOS A	0.0	0.3	0.36	0.55	43.0
12	R2	23	4.5	23	4.5	0.371	72.3	LOS F	1.1	8.0	0.95	1.02	24.9
Approach		36	2.9	36	2.9	0.371	48.8	LOS E	1.1	8.0	0.74	0.85	27.4
All Vehicles		1514	1.5	1514	1.5	0.371	2.6	NA	1.1	8.0	0.08	0.13	47.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 3:00:51 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 101 [Ex_Gillies Avenue/Brightside Road_PM School
PEAK_14:45 - 15:45]

Network: N101
[Ex_Gillies_Brightside_Kipling_
MID Road PEAK_14:45-15:45]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
1	L2	71	0.0	71	0.0	0.342	4.6	LOS A	0.0	0.0	0.00	0.06	49.1
2	T1	586	1.6	586	1.6	0.342	0.0	LOS A	0.0	0.0	0.00	0.06	49.3
Approach		657	1.4	657	1.4	0.342	0.5	NA	0.0	0.0	0.00	0.06	49.3
North: Gillies Avenue North													
8	T1	568	0.9	568	0.9	0.323	0.4	LOS A	0.5	3.5	0.09	0.02	49.1
9	R2	25	0.0	25	0.0	0.323	6.6	LOS A	0.5	3.5	0.09	0.02	47.8
Approach		594	0.9	594	0.9	0.323	0.7	NA	0.5	3.5	0.09	0.02	49.1
West: Brightside Road													
10	L2	49	2.1	49	2.1	0.057	7.1	LOS A	0.2	1.5	0.52	0.69	42.0
12	R2	46	0.0	46	0.0	0.277	25.8	LOS D	0.8	5.8	0.87	0.97	36.4
Approach		96	1.1	96	1.1	0.277	16.2	LOS C	0.8	5.8	0.69	0.83	38.2
All Vehicles		1346	1.2	1346	1.2	0.342	1.7	NA	0.8	5.8	0.09	0.10	47.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 101 [Prop_Gillies Avenue/Brightside Road_PM School
PEAK_14:45 - 15:45 (100% Brightside)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_MID Road PEAK_14:45-15:45
(100% Brightside)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Gillies Avenue South													
1	L2	74	0.0	74	0.0	0.344	4.6	LOS A	0.0	0.0	0.00	0.06	49.1
2	T1	586	1.6	586	1.6	0.344	0.0	LOS A	0.0	0.0	0.00	0.06	49.3
Approach		660	1.4	660	1.4	0.344	0.6	NA	0.0	0.0	0.00	0.06	49.2
North: Gillies Avenue North													
8	T1	568	0.9	568	0.9	0.324	0.4	LOS A	0.5	3.7	0.10	0.02	49.1
9	R2	26	0.0	26	0.0	0.324	6.7	LOS A	0.5	3.7	0.10	0.02	47.8
Approach		595	0.9	595	0.9	0.324	0.7	NA	0.5	3.7	0.10	0.02	49.0
West: Brightside Road													
10	L2	59	1.8	59	1.8	0.067	7.2	LOS A	0.2	1.8	0.52	0.70	41.9
12	R2	56	0.0	56	0.0	0.336	27.1	LOS D	1.0	7.2	0.88	0.99	35.9
Approach		115	0.9	115	0.9	0.336	16.9	LOS C	1.0	7.2	0.69	0.84	37.8
All Vehicles		1369	1.2	1369	1.2	0.344	2.0	NA	1.0	7.2	0.10	0.11	47.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 3:02:45 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 101 [Prop_Gillies Avenue/Brightside Road_PM School
PEAK_14:45 - 15:45 (100% New Access)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_MID Road PEAK_14:45-15:45
(100% New Access)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Gillies Avenue South													
1	L2	68	0.0	68	0.0	0.343	4.6	LOS A	0.0	0.0	0.00	0.06	49.1
2	T1	592	1.6	592	1.6	0.343	0.0	LOS A	0.0	0.0	0.00	0.06	49.3
Approach		660	1.4	660	1.4	0.343	0.5	NA	0.0	0.0	0.00	0.06	49.3
North: Gillies Avenue North													
8	T1	568	0.9	568	0.9	0.324	0.4	LOS A	0.5	3.7	0.10	0.02	49.1
9	R2	26	0.0	26	0.0	0.324	6.7	LOS A	0.5	3.7	0.10	0.02	47.8
Approach		595	0.9	595	0.9	0.324	0.7	NA	0.5	3.7	0.10	0.02	49.0
West: Brightside Road													
10	L2	42	2.5	42	2.5	0.049	7.2	LOS A	0.2	1.3	0.52	0.69	41.9
12	R2	56	0.0	56	0.0	0.338	27.3	LOS D	1.0	7.3	0.88	0.99	35.8
Approach		98	1.1	98	1.1	0.338	18.6	LOS C	1.0	7.3	0.72	0.86	37.3
All Vehicles		1353	1.2	1353	1.2	0.343	1.9	NA	1.0	7.3	0.09	0.10	47.6

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 3:02:58 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 101 [Ex_Gillies Avenue/Brightside Road_PM Road
PEAK_16:30 - 17:30]

Network: N101
[Ex_Gillies_Brightside_Kipling_
PM Road PEAK_16:30-17:30]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
1	L2	96	0.0	96	0.0	0.158	4.6	LOS A	0.0	0.0	0.00	0.17	48.5
2	T1	508	1.7	508	1.7	0.158	0.0	LOS A	0.0	0.0	0.00	0.07	49.2
Approach		604	1.4	604	1.4	0.158	0.7	NA	0.0	0.0	0.00	0.09	49.0
North: Gillies Avenue North													
8	T1	758	0.6	758	0.6	0.237	0.6	LOS A	1.0	7.0	0.11	0.04	48.9
9	R2	62	1.7	62	1.7	0.237	6.2	LOS A	1.0	7.0	0.29	0.11	46.3
Approach		820	0.6	820	0.6	0.237	1.0	NA	1.0	7.0	0.13	0.05	48.7
West: Brightside Road													
10	L2	21	0.0	21	0.0	0.019	5.3	LOS A	0.1	0.5	0.29	0.53	43.3
12	R2	54	0.0	54	0.0	0.421	42.0	LOS E	1.5	10.5	0.93	1.03	31.4
Approach		75	0.0	75	0.0	0.421	31.7	LOS D	1.5	10.5	0.75	0.89	32.9
All Vehicles		1499	0.9	1499	0.9	0.421	2.4	NA	1.5	10.5	0.11	0.11	47.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 101 [Prop_Gillies Avenue/Brightside Road_PM Road
PEAK_16:30 - 17:30 (100% Brightside)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_PM Road PEAK_16:30-17:30
(100% Brightside)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
1	L2	103	0.0	103	0.0	0.160	4.6	LOS A	0.0	0.0	0.00	0.18	48.5
2	T1	508	1.7	508	1.7	0.160	0.0	LOS A	0.0	0.0	0.00	0.07	49.2
Approach		612	1.4	612	1.4	0.160	0.8	NA	0.0	0.0	0.00	0.09	49.0
North: Gillies Avenue North													
8	T1	758	0.6	758	0.6	0.241	0.6	LOS A	1.1	7.5	0.12	0.05	48.8
9	R2	66	1.6	66	1.6	0.241	6.3	LOS A	1.1	7.5	0.31	0.12	46.1
Approach		824	0.6	824	0.6	0.241	1.1	NA	1.1	7.5	0.13	0.05	48.6
West: Brightside Road													
10	L2	23	0.0	23	0.0	0.021	5.3	LOS A	0.1	0.5	0.28	0.53	43.3
12	R2	60	0.0	60	0.0	0.479	45.1	LOS E	1.7	12.2	0.94	1.05	30.6
Approach		83	0.0	83	0.0	0.479	34.0	LOS D	1.7	12.2	0.75	0.91	32.2
All Vehicles		1519	0.9	1519	0.9	0.479	2.8	NA	1.7	12.2	0.11	0.11	46.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 3:05:57 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 101 [Prop_Gillies Avenue/Brightside Road_PM Road
PEAK_16:30 - 17:30 (100% New Access)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_PM Road PEAK_16:30-17:30
(100% New Access)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
1	L2	92	0.0	92	0.0	0.159	4.6	LOS A	0.0	0.0	0.00	0.16	48.6
2	T1	520	1.6	520	1.6	0.159	0.0	LOS A	0.0	0.0	0.00	0.07	49.2
Approach		612	1.4	612	1.4	0.159	0.7	NA	0.0	0.0	0.00	0.08	49.1
North: Gillies Avenue North													
8	T1	758	0.6	758	0.6	0.240	0.6	LOS A	1.0	7.4	0.12	0.05	48.8
9	R2	65	1.6	65	1.6	0.240	6.3	LOS A	1.0	7.4	0.31	0.12	46.1
Approach		823	0.6	823	0.6	0.240	1.0	NA	1.0	7.4	0.13	0.05	48.6
West: Brightside Road													
10	L2	20	0.0	20	0.0	0.018	5.4	LOS A	0.1	0.4	0.29	0.53	43.3
12	R2	60	0.0	60	0.0	0.483	45.7	LOS E	1.8	12.4	0.94	1.05	30.5
Approach		80	0.0	80	0.0	0.483	35.6	LOS E	1.8	12.4	0.78	0.92	31.8
All Vehicles		1515	0.9	1515	0.9	0.483	2.7	NA	1.8	12.4	0.11	0.11	46.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 102 [Ex_Gillies Avenue/Kipling Avenue_AM Road
PEAK_08:00 - 09:00]

Network: N101
[Ex_Gillies_Brightside_Kipling_
AM Road PEAK_08:00 - 09:00]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows		Arrival Flows		Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		Total	HV %	Total	HV %								
South: Gillies Avenue South													
2	T1	780	0.9	780	0.9	0.212	0.1	LOS A	0.3	1.8	0.03	0.01	48.9
3	R2	20	0.0	20	0.0	0.212	4.4	LOS A	0.3	1.8	0.07	0.03	48.5
Approach		800	0.9	800	0.9	0.212	0.2	NA	0.3	1.8	0.03	0.01	48.9
East: Kipling Avenue													
4	L2	148	0.0	148	0.0	0.131	5.3	LOS A	0.5	3.5	0.28	0.55	43.3
6	R2	49	0.0	49	0.0	0.468	48.7	LOS E	1.6	11.2	0.93	1.04	23.5
Approach		198	0.0	198	0.0	0.468	16.2	LOS C	1.6	11.2	0.44	0.67	35.0
North: Gillies Avenue North													
7	L2	25	0.0	25	0.0	0.103	4.6	LOS A	0.0	0.0	0.00	0.07	48.5
8	T1	368	2.9	368	2.9	0.103	0.0	LOS A	0.0	0.0	0.00	0.03	48.4
Approach		394	2.7	394	2.7	0.103	0.3	NA	0.0	0.0	0.00	0.04	48.4
All Vehicles		1392	1.3	1392	1.3	0.468	2.5	NA	1.6	11.2	0.08	0.11	42.2

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 102 [Prop_Gillies Avenue/Kipling Avenue_AM Road
PEAK_08:00 - 09:00 (100% New Access)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_AM Road PEAK_08:00 - 09:00
(100% Brightside)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
2	T1	787	0.9	787	0.9	0.214	0.1	LOS A	0.3	1.8	0.03	0.01	48.9
3	R2	20	0.0	20	0.0	0.214	4.4	LOS A	0.3	1.8	0.07	0.03	48.5
Approach		807	0.9	807	0.9	0.214	0.2	NA	0.3	1.8	0.03	0.01	48.9
East: Kipling Avenue													
4	L2	148	0.0	148	0.0	0.131	5.3	LOS A	0.5	3.5	0.28	0.55	43.3
6	R2	51	0.0	51	0.0	0.489	50.7	LOS F	1.7	11.8	0.93	1.05	23.1
Approach		199	0.0	199	0.0	0.489	16.8	LOS C	1.7	11.8	0.45	0.67	34.6
North: Gillies Avenue North													
7	L2	25	0.0	25	0.0	0.104	4.6	LOS A	0.0	0.0	0.00	0.07	48.5
8	T1	371	2.8	371	2.8	0.104	0.0	LOS A	0.0	0.0	0.00	0.03	48.4
Approach		396	2.7	396	2.7	0.104	0.3	NA	0.0	0.0	0.00	0.03	48.4
All Vehicles		1402	1.3	1402	1.3	0.489	2.6	NA	1.7	11.8	0.08	0.11	42.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 2:58:54 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 102 [Prop_Gillies Avenue/Kipling Avenue_AM Road
PEAK_08:00 - 09:00 (100% New Access)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_AM Road PEAK_08:00 - 09:00
(100% New Access)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
2	T1	787	0.9	787	0.9	0.214	0.1	LOS A	0.3	1.8	0.03	0.01	48.9
3	R2	20	0.0	20	0.0	0.214	4.4	LOS A	0.3	1.8	0.07	0.03	48.5
Approach		807	0.9	807	0.9	0.214	0.2	NA	0.3	1.8	0.03	0.01	48.9
East: Kipling Avenue													
4	L2	148	0.0	148	0.0	0.131	5.3	LOS A	0.5	3.5	0.28	0.55	43.3
6	R2	51	0.0	51	0.0	0.489	50.7	LOS F	1.7	11.8	0.93	1.05	23.1
Approach		199	0.0	199	0.0	0.489	16.8	LOS C	1.7	11.8	0.45	0.67	34.6
North: Gillies Avenue North													
7	L2	25	0.0	25	0.0	0.104	4.6	LOS A	0.0	0.0	0.00	0.07	48.5
8	T1	371	2.8	371	2.8	0.104	0.0	LOS A	0.0	0.0	0.00	0.03	48.4
Approach		396	2.7	396	2.7	0.104	0.3	NA	0.0	0.0	0.00	0.03	48.4
All Vehicles		1402	1.3	1402	1.3	0.489	2.6	NA	1.7	11.8	0.08	0.11	42.0

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 3:00:51 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 102 [Ex_Gillies Avenue/Kipling Avenue_PM School
PEAK_14:45 - 15:45]

Network: N101
[Ex_Gillies_Brightside_Kipling_
MID Road PEAK_14:45-15:45]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
2	T1	599	0.0	599	0.0	0.356	0.6	LOS A	0.8	5.8	0.12	0.03	45.3
3	R2	37	2.9	37	2.9	0.356	6.7	LOS A	0.8	5.8	0.12	0.03	47.8
Approach		636	0.2	636	0.2	0.356	0.9	NA	0.8	5.8	0.12	0.03	45.8
East: Kipling Avenue													
4	L2	81	1.3	81	1.3	0.052	4.7	LOS A	0.2	1.5	0.14	0.50	43.9
6	R2	49	0.0	49	0.0	0.388	38.1	LOS E	1.3	9.1	0.91	1.02	26.5
Approach		131	0.8	131	0.8	0.388	17.4	LOS C	1.3	9.1	0.43	0.69	34.4
North: Gillies Avenue North													
7	L2	31	0.0	31	0.0	0.047	4.6	LOS A	0.0	0.0	0.00	0.19	47.6
8	T1	513	0.0	513	0.0	0.233	0.0	LOS A	0.0	0.0	0.00	0.02	48.9
Approach		543	0.0	543	0.0	0.233	0.3	NA	0.0	0.0	0.00	0.03	48.6
All Vehicles		1309	0.2	1309	0.2	0.388	2.3	NA	1.3	9.1	0.10	0.10	42.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 102 [Prop_Gillies Avenue/Kipling Avenue_PM Scool
PEAK_14:45 - 15:45 (100% Brightside)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_MID Road PEAK_14:45-15:45
(100% Brightside)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles	Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South													
2	T1	608	0.0	608	0.0	0.362	0.6	LOS A	0.9	6.0	0.12	0.03	45.2
3	R2	38	2.8	38	2.8	0.362	6.7	LOS A	0.9	6.0	0.12	0.03	47.8
Approach		646	0.2	646	0.2	0.362	1.0	NA	0.9	6.0	0.12	0.03	45.7
East: Kipling Avenue													
4	L2	81	1.3	81	1.3	0.052	4.7	LOS A	0.2	1.5	0.14	0.50	43.9
6	R2	49	0.0	49	0.0	0.400	39.5	LOS E	1.3	9.3	0.91	1.02	26.1
Approach		131	0.8	131	0.8	0.400	17.9	LOS C	1.3	9.3	0.43	0.70	34.1
North: Gillies Avenue North													
7	L2	31	0.0	31	0.0	0.047	4.6	LOS A	0.0	0.0	0.00	0.19	47.6
8	T1	514	0.0	514	0.0	0.233	0.0	LOS A	0.0	0.0	0.00	0.02	48.9
Approach		544	0.0	544	0.0	0.233	0.3	NA	0.0	0.0	0.00	0.03	48.6
All Vehicles		1321	0.2	1321	0.2	0.400	2.4	NA	1.3	9.3	0.10	0.10	42.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 102 [Prop_Gillies Avenue/Kipling Avenue_PM School
PEAK_14:45 - 15:45 (100% New Access)]

Network: N101
[Prop_Gillies_Brightside_Kipling_MID Road PEAK_14:45-15:45
(100% New Access)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Gillies Avenue South													
2	T1	597	0.0	597	0.0	0.356	0.6	LOS A	0.8	5.9	0.12	0.03	45.2
3	R2	38	2.8	38	2.8	0.356	6.7	LOS A	0.8	5.9	0.12	0.03	47.7
Approach		635	0.2	635	0.2	0.356	1.0	NA	0.8	5.9	0.12	0.03	45.7
East: Kipling Avenue													
4	L2	81	1.3	81	1.3	0.052	4.7	LOS A	0.2	1.5	0.14	0.50	43.9
6	R2	49	0.0	49	0.0	0.388	38.1	LOS E	1.3	9.1	0.91	1.02	26.5
Approach		131	0.8	131	0.8	0.388	17.4	LOS C	1.3	9.1	0.43	0.69	34.4
North: Gillies Avenue North													
7	L2	31	0.0	31	0.0	0.047	4.6	LOS A	0.0	0.0	0.00	0.19	47.6
8	T1	514	0.0	514	0.0	0.233	0.0	LOS A	0.0	0.0	0.00	0.02	48.9
Approach		544	0.0	544	0.0	0.233	0.3	NA	0.0	0.0	0.00	0.03	48.6
All Vehicles		1309	0.2	1309	0.2	0.388	2.3	NA	1.3	9.1	0.10	0.10	42.4

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 3:02:58 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 102 [Ex_Gillies Avenue/Kipling Avenue_PM Road
PEAK_16:30 - 17:30]

Network: N101
[Ex_Gillies_Brightside_Kipling_
PM Road PEAK_16:30-17:30]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Gillies Avenue South													
2	T1	509	1.7	509	1.7	0.147	0.4	LOS A	0.4	2.7	0.07	0.02	46.9
3	R2	20	0.0	20	0.0	0.147	6.8	LOS A	0.4	2.7	0.16	0.05	47.4
Approach		529	1.6	529	1.6	0.147	0.6	NA	0.4	2.7	0.07	0.02	47.0
East: Kipling Avenue													
4	L2	163	0.0	163	0.0	0.164	6.0	LOS A	0.6	4.4	0.39	0.62	42.9
6	R2	53	0.0	53	0.0	0.512	52.1	LOS F	1.8	12.5	0.94	1.06	22.7
Approach		216	0.0	216	0.0	0.512	17.2	LOS C	1.8	12.5	0.52	0.72	34.4
North: Gillies Avenue North													
7	L2	61	0.0	61	0.0	0.185	4.6	LOS A	0.0	0.0	0.00	0.09	48.3
8	T1	657	0.5	657	0.5	0.185	0.0	LOS A	0.0	0.0	0.00	0.04	47.9
Approach		718	0.4	718	0.4	0.185	0.4	NA	0.0	0.0	0.00	0.05	48.1
All Vehicles		1463	0.8	1463	0.8	0.512	3.0	NA	1.8	12.5	0.10	0.14	41.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 3 (maximum specified: 10)

MOVEMENT SUMMARY

Site: 102 [Prop_Gillies Avenue/Kipling Avenue_PM Road
PEAK_16:30 - 17:30 (100% Brightside)]

Network: N101
[Prop_Gillies_Brightside_Kiplin
g_PM Road PEAK_16:30-17:30
(100% Brightside)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Gillies Avenue South													
2	T1	512	1.6	512	1.6	0.148	0.4	LOS A	0.4	2.7	0.07	0.02	46.9
3	R2	20	0.0	20	0.0	0.148	6.8	LOS A	0.4	2.7	0.16	0.05	47.4
Approach		532	1.6	532	1.6	0.148	0.6	NA	0.4	2.7	0.07	0.02	47.0
East: Kipling Avenue													
4	L2	164	0.0	164	0.0	0.165	6.0	LOS A	0.6	4.4	0.39	0.62	42.9
6	R2	53	0.0	53	0.0	0.520	53.2	LOS F	1.8	12.7	0.94	1.06	22.5
Approach		217	0.0	217	0.0	0.520	17.5	LOS C	1.8	12.7	0.52	0.72	34.3
North: Gillies Avenue North													
7	L2	61	0.0	61	0.0	0.186	4.6	LOS A	0.0	0.0	0.00	0.09	48.3
8	T1	661	0.5	661	0.5	0.186	0.0	LOS A	0.0	0.0	0.00	0.04	47.9
Approach		722	0.4	722	0.4	0.186	0.4	NA	0.0	0.0	0.00	0.05	48.1
All Vehicles		1471	0.8	1471	0.8	0.520	3.0	NA	1.8	12.7	0.10	0.14	41.5

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 3:05:57 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

MOVEMENT SUMMARY

Site: 102 [Prop_Gillies Avenue/Kipling Avenue_PM Road
PEAK_16:30 - 17:30 (100% New Access)]

Network: N101
[Prop_Gillies_Brightside_Kipling_PM Road PEAK_16:30-17:30
(100% New Access)]

New Site
Giveaway / Yield (Two-Way)

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total	Flows HV %	Arrival Flows Total	Flows HV %	Deg. Satn	Average Delay	Level of Service	95% Back of Queue Vehicles	Queue Distance	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
		veh/h	%	veh/h	%	v/c	sec		veh	m			
South: Gillies Avenue South													
2	T1	520	1.6	520	1.6	0.150	0.4	LOS A	0.4	2.7	0.07	0.02	47.0
3	R2	20	0.0	20	0.0	0.150	6.9	LOS A	0.4	2.7	0.15	0.05	47.4
Approach		540	1.6	540	1.6	0.150	0.6	NA	0.4	2.7	0.07	0.02	47.0
East: Kipling Avenue													
4	L2	162	0.0	162	0.0	0.163	6.0	LOS A	0.6	4.4	0.39	0.62	42.9
6	R2	55	0.0	55	0.0	0.549	55.7	LOS F	1.9	13.6	0.94	1.07	21.9
Approach		217	0.0	217	0.0	0.549	18.5	LOS C	1.9	13.6	0.53	0.73	33.6
North: Gillies Avenue North													
7	L2	61	0.0	61	0.0	0.186	4.6	LOS A	0.0	0.0	0.00	0.09	48.3
8	T1	661	0.5	661	0.5	0.186	0.0	LOS A	0.0	0.0	0.00	0.04	47.9
Approach		722	0.4	722	0.4	0.186	0.4	NA	0.0	0.0	0.00	0.05	48.1
All Vehicles		1479	0.8	1479	0.8	0.549	3.1	NA	1.9	13.6	0.10	0.14	41.1

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Network Data dialog (Network tab).

Vehicle movement LOS values are based on average delay per movement.

Minor Road Approach LOS values are based on average delay for all vehicle movements.

NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Largest change in Average Back of Queue or Degree of Saturation for any lane during the last three iterations: 0.0 %

Number of Iterations: 5 (maximum specified: 10)

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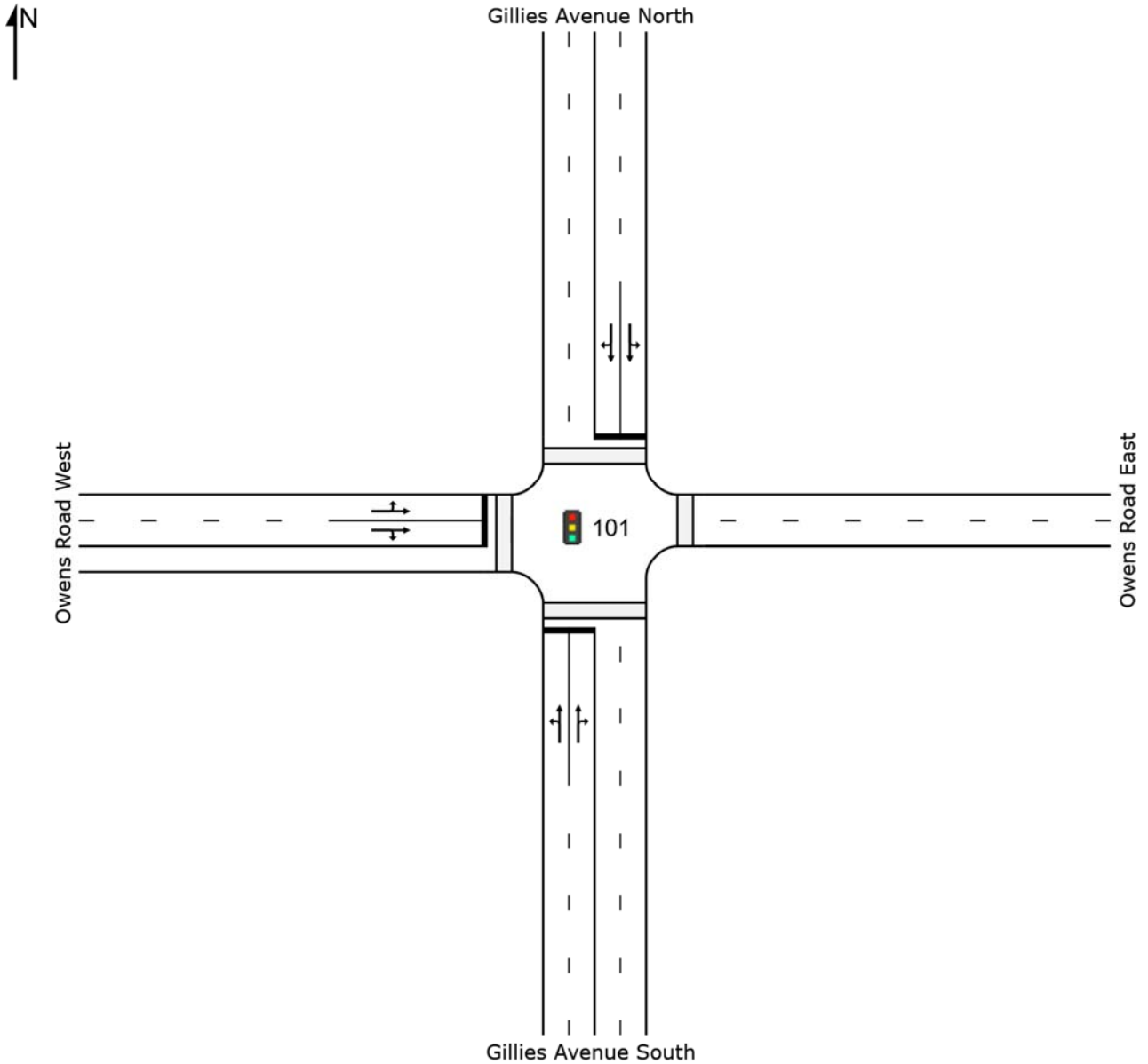
Organisation: FLOW TRANSPORTATION SPECIALISTS LIMITED | Processed: Friday, 30 November 2018 3:05:43 PM

Project: P:\souX\003 Brightside Hospital Plan Change\181129_Brightside Hospital Modelling - Revised Trip Rates.sip7

SITE LAYOUT

 Site: 101 [Ex_Gillies Avenue/Owens Road_AM Road PEAK_08:00 - 09:00]

Existing
Signals - Fixed Time Coordinated



MOVEMENT SUMMARY

 Site: 101 [Ex_Gillies Avenue/Owens Road_AM Road PEAK_08:00 - 09:00]

Existing

Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Phase Times)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Average Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South											
1	L2	96	0.0	0.919	64.0	LOS E	27.6	194.5	1.00	1.12	27.2
2	T1	632	1.0	0.919	59.9	LOS E	27.6	194.5	1.00	1.10	27.2
3	R2	102	1.0	0.919	65.1	LOS E	23.4	165.6	1.00	1.08	26.8
Approach		829	0.9	0.919	61.0	LOS E	27.6	194.5	1.00	1.10	27.2
North: Gillies Avenue North											
7	L2	380	1.4	0.678	22.8	LOS C	16.0	113.7	0.70	0.75	38.2
8	T1	292	3.6	0.678	26.0	LOS C	16.0	113.7	0.81	0.76	36.0
9	R2	128	4.1	0.678	34.1	LOS C	14.0	101.0	0.85	0.76	34.7
Approach		800	2.6	0.678	25.8	LOS C	16.0	113.7	0.76	0.75	36.8
West: Owens Road West											
10	L2	79	4.0	0.669	51.1	LOS D	10.8	76.6	0.99	0.84	29.9
11	T1	363	0.6	0.669	45.7	LOS D	16.3	114.8	0.99	0.83	30.4
12	R2	102	0.0	0.669	49.8	LOS D	16.3	114.8	0.99	0.83	30.3
Approach		544	1.0	0.669	47.3	LOS D	16.3	114.8	0.99	0.83	30.3
All Vehicles		2174	1.5	0.919	44.6	LOS D	27.6	194.5	0.91	0.90	30.9

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	351	46.5	LOS E	1.0	1.0	0.94	0.94	
P2	East Full Crossing	109	41.5	LOS E	0.3	0.3	0.88	0.88	
P3	North Full Crossing	120	46.0	LOS E	0.3	0.3	0.93	0.93	
P4	West Full Crossing	20	43.1	LOS E	0.1	0.1	0.90	0.90	
All Pedestrians		600	45.4	LOS E			0.93	0.93	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 Site: 101 [Prop_Gillies Avenue/Owens Road_AM Road PEAK_08:00 - 09:00]

Existing

Signals - Fixed Time Coordinated Cycle Time = 107 seconds (User-Given Phase Times)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Average Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South											
1	L2	96	0.0	0.925	65.3	LOS E	28.1	198.1	1.00	1.13	26.9
2	T1	635	1.0	0.925	61.1	LOS E	28.1	198.1	1.00	1.11	27.0
3	R2	103	1.0	0.925	66.0	LOS E	23.8	167.8	1.00	1.09	26.6
Approach		834	0.9	0.925	62.2	LOS E	28.1	198.1	1.00	1.11	26.9
North: Gillies Avenue North											
7	L2	380	1.4	0.680	22.8	LOS C	16.1	114.2	0.70	0.75	38.2
8	T1	294	3.6	0.680	26.0	LOS C	16.1	114.2	0.81	0.76	36.0
9	R2	128	4.1	0.680	34.1	LOS C	14.0	101.4	0.85	0.76	34.7
Approach		802	2.6	0.680	25.8	LOS C	16.1	114.2	0.76	0.75	36.8
West: Owens Road West											
10	L2	79	4.0	0.670	51.2	LOS D	10.8	76.8	0.99	0.84	29.9
11	T1	364	0.6	0.670	45.7	LOS D	16.4	115.0	0.99	0.83	30.4
12	R2	102	0.0	0.670	49.8	LOS D	16.4	115.0	0.99	0.83	30.3
Approach		545	1.0	0.670	47.3	LOS D	16.4	115.0	0.99	0.83	30.3
All Vehicles		2181	1.5	0.925	45.1	LOS D	28.1	198.1	0.91	0.91	30.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	351	46.5	LOS E	1.0	1.0	0.94	0.94	
P2	East Full Crossing	109	41.5	LOS E	0.3	0.3	0.88	0.88	
P3	North Full Crossing	120	46.0	LOS E	0.3	0.3	0.93	0.93	
P4	West Full Crossing	20	43.1	LOS E	0.1	0.1	0.90	0.90	
All Pedestrians		600	45.4	LOS E			0.93	0.93	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 Site: 101 [Ex_Gillies Avenue/Owens Road_PM School PEAK_14:45 - 15:45]

Existing

Signals - Fixed Time Coordinated Cycle Time = 138 seconds (User-Given Phase Times)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Average Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South											
1	L2	86	2.4	0.789	44.8	LOS D	28.2	199.5	0.90	0.83	31.8
2	T1	492	1.1	0.789	43.9	LOS D	28.2	199.5	0.91	0.83	30.9
3	R2	71	1.5	0.789	65.2	LOS E	10.1	71.6	0.94	0.86	26.6
Approach		648	1.3	0.789	46.3	LOS D	28.2	199.5	0.91	0.84	30.5
North: Gillies Avenue North											
7	L2	369	1.7	0.718	17.2	LOS B	20.7	147.2	0.53	0.63	41.0
8	T1	451	1.9	0.718	23.2	LOS C	20.7	147.2	0.67	0.69	37.0
9	R2	159	1.3	0.718	42.8	LOS D	19.2	136.1	0.88	0.79	32.0
Approach		979	1.7	0.718	24.1	LOS C	20.7	147.2	0.65	0.68	37.4
West: Owens Road West											
10	L2	53	0.0	0.503	61.5	LOS E	9.9	69.9	0.96	0.79	27.6
11	T1	261	0.8	0.503	56.4	LOS E	15.0	105.5	0.96	0.80	27.9
12	R2	93	0.0	0.503	60.6	LOS E	15.0	105.5	0.96	0.80	27.7
Approach		406	0.5	0.503	58.1	LOS E	15.0	105.5	0.96	0.80	27.8
All Vehicles		2034	1.3	0.789	38.0	LOS D	28.2	199.5	0.80	0.76	32.8

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	351	64.1	LOS F	1.3	1.3	0.97	0.97	
P2	East Full Crossing	109	62.5	LOS F	0.4	0.4	0.95	0.95	
P3	North Full Crossing	120	63.4	LOS F	0.5	0.5	0.96	0.96	
P4	West Full Crossing	20	63.2	LOS F	0.1	0.1	0.96	0.96	
All Pedestrians		600	63.6	LOS F			0.97	0.97	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 Site: 101 [Prop_Gillies Avenue/Owens Road_PM School PEAK_14:45 - 15:45]

Existing

Signals - Fixed Time Coordinated Cycle Time = 138 seconds (User-Given Phase Times)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Average Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South											
1	L2	86	3.7	0.797	45.5	LOS D	28.9	204.9	0.91	0.84	31.6
2	T1	499	1.3	0.797	44.6	LOS D	28.9	204.9	0.91	0.84	30.8
3	R2	72	1.5	0.797	65.7	LOS E	10.3	73.2	0.94	0.87	26.5
Approach		657	1.6	0.797	47.0	LOS D	28.9	204.9	0.92	0.85	30.4
North: Gillies Avenue North											
7	L2	369	2.0	0.720	17.2	LOS B	20.8	148.1	0.53	0.63	41.0
8	T1	452	2.1	0.720	23.3	LOS C	20.8	148.1	0.68	0.70	37.0
9	R2	159	1.3	0.720	42.9	LOS D	19.2	136.8	0.88	0.79	32.0
Approach		980	1.9	0.720	24.2	LOS C	20.8	148.1	0.66	0.69	37.4
West: Owens Road West											
10	L2	53	0.0	0.503	61.5	LOS E	9.9	69.9	0.96	0.79	27.6
11	T1	261	0.8	0.503	56.4	LOS E	15.0	105.5	0.96	0.80	27.9
12	R2	93	0.0	0.503	60.6	LOS E	15.0	105.5	0.96	0.80	27.7
Approach		406	0.5	0.503	58.1	LOS E	15.0	105.5	0.96	0.80	27.8
All Vehicles		2043	1.5	0.797	38.2	LOS D	28.9	204.9	0.80	0.76	32.7

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	351	64.1	LOS F	1.3	1.3	0.97	0.97	
P2	East Full Crossing	109	62.5	LOS F	0.4	0.4	0.95	0.95	
P3	North Full Crossing	120	63.4	LOS F	0.5	0.5	0.96	0.96	
P4	West Full Crossing	20	63.2	LOS F	0.1	0.1	0.96	0.96	
All Pedestrians		600	63.6	LOS F			0.97	0.97	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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MOVEMENT SUMMARY

 Site: 101 [Ex_Gillies Avenue/Owens Road_PM Road PEAK_16:30 - 17:30]

Existing

Signals - Fixed Time Coordinated Cycle Time = 108 seconds (User-Given Phase Times)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South											
1	L2	99	0.0	0.834	57.4	LOS E	15.9	111.8	1.00	0.99	28.5
2	T1	428	1.2	0.834	54.2	LOS D	15.9	111.8	1.00	0.97	28.5
3	R2	35	0.0	0.834	59.9	LOS E	15.6	110.4	1.00	0.95	28.0
Approach		562	0.9	0.834	55.1	LOS E	15.9	111.8	1.00	0.97	28.4
North: Gillies Avenue North											
7	L2	339	1.2	0.756	18.8	LOS B	19.9	140.7	0.67	0.70	40.3
8	T1	552	0.6	0.756	19.1	LOS B	19.9	140.7	0.75	0.74	38.7
9	R2	193	0.0	0.756	28.2	LOS C	19.5	137.2	0.82	0.77	36.8
Approach		1083	0.7	0.756	20.6	LOS C	19.9	140.7	0.74	0.73	38.9
West: Owens Road West											
10	L2	67	0.0	0.675	51.7	LOS D	11.0	77.5	0.99	0.84	29.9
11	T1	311	0.3	0.675	46.5	LOS D	16.4	114.8	0.99	0.84	30.1
12	R2	166	0.0	0.675	50.4	LOS D	16.4	114.8	0.99	0.83	29.9
Approach		544	0.2	0.675	48.3	LOS D	16.4	114.8	0.99	0.84	30.0
All Vehicles		2189	0.6	0.834	36.4	LOS D	19.9	140.7	0.87	0.82	33.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Average Back of Queue Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	351	46.0	LOS E	1.0	1.0	0.93	0.93	
P2	East Full Crossing	109	41.1	LOS E	0.3	0.3	0.87	0.87	
P3	North Full Crossing	120	45.6	LOS E	0.3	0.3	0.92	0.92	
P4	West Full Crossing	20	42.7	LOS E	0.1	0.1	0.89	0.89	
All Pedestrians		600	44.9	LOS E			0.92	0.92	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

MOVEMENT SUMMARY

 **Site: 101 [Prop_Gillies Avenue/Owens Road_PM Road PEAK_16:30 - 17:30]**

Existing

Signals - Fixed Time Coordinated Cycle Time = 108 seconds (User-Given Phase Times)

Movement Performance - Vehicles											
Mov ID	OD Mov	Demand Total veh/h	Flows HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Gillies Avenue South											
1	L2	99	0.0	0.837	57.5	LOS E	16.0	112.4	1.00	0.99	28.4
2	T1	431	1.2	0.837	54.4	LOS D	16.0	112.4	1.00	0.97	28.4
3	R2	35	0.0	0.837	60.0	LOS E	15.7	111.1	1.00	0.96	28.0
Approach		564	0.9	0.837	55.3	LOS E	16.0	112.4	1.00	0.97	28.4
North: Gillies Avenue North											
7	L2	339	1.2	0.758	18.9	LOS B	20.1	142.0	0.68	0.70	40.3
8	T1	556	0.6	0.758	19.1	LOS B	20.1	142.0	0.75	0.74	38.7
9	R2	193	0.0	0.758	28.3	LOS C	19.7	138.2	0.82	0.77	36.8
Approach		1087	0.7	0.758	20.7	LOS C	20.1	142.0	0.74	0.73	38.8
West: Owens Road West											
10	L2	67	0.0	0.676	51.8	LOS D	11.1	77.7	0.99	0.84	29.9
11	T1	312	0.3	0.676	46.5	LOS D	16.4	115.1	0.99	0.84	30.1
12	R2	166	0.0	0.676	50.4	LOS D	16.4	115.1	0.99	0.83	29.9
Approach		545	0.2	0.676	48.3	LOS D	16.4	115.1	0.99	0.84	30.0
All Vehicles		2197	0.6	0.837	36.4	LOS D	20.1	142.0	0.87	0.82	33.3

Site Level of Service (LOS) Method: Delay (SIDRA). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Vehicle movement LOS values are based on average delay per movement.

Intersection and Approach LOS values are based on average delay for all vehicle movements.

SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.

Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).

HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

Movement Performance - Pedestrians									
Mov ID	Description	Demand Flow ped/h	Average Delay sec	Level of Service	Average Back of Queue Pedestrian ped	Distance m	Prop. Queued	Effective Stop Rate per ped	
P1	South Full Crossing	351	46.0	LOS E	1.0	1.0	0.93	0.93	
P2	East Full Crossing	109	41.1	LOS E	0.3	0.3	0.87	0.87	
P3	North Full Crossing	120	45.6	LOS E	0.3	0.3	0.92	0.92	
P4	West Full Crossing	20	42.7	LOS E	0.1	0.1	0.89	0.89	
All Pedestrians		600	44.9	LOS E			0.92	0.92	

Level of Service (LOS) Method: SIDRA Pedestrian LOS Method (Based on Average Delay)

Pedestrian movement LOS values are based on average delay per pedestrian movement.

Intersection LOS value for Pedestrians is based on average delay for all pedestrian movements.

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