


**Community Oral Health Service: Glenfield
Intermediate School**

Transport Assessment

April 2010

Project: **Community Oral Health Service: Glenfield Intermediate School**
Title: **Transport Assessment**
Document Reference: \\FLOWNZSBS1\shared\wdhb\029\R2A100412 - Glenfield Intermediate.doc
Prepared by: Michelle Seymour
Reviewed by: Angie Crafer
Revisions:

Date	Status	Reference	Approved by	Initials
13 April 2010	Final	R2A100412	Angie Crafer	

EXECUTIVE SUMMARY

Flow Transportation Specialists has been commissioned to assess the transport planning and traffic engineering implications associated with the provision of a four chair dental facility on site at Glenfield Intermediate School, Glenfield, Auckland. The dental facility will be provided as part of the Community Oral Health Service (COHS) that is facilitated by Waitemata District Health Board (WDHB). The lease of the school site for the purpose of the community oral health service defines the service as publicly funded oral health promotion and oral health clinical services for children, adolescents and (if agreed by the parties) adults. Accordingly, for the case of this assessment it has been assumed that the dental facility will service students of Glenfield Intermediate School in addition to students from other surrounding schools as this will be the majority, if not all, of the patients.

The four chair facility will be staffed with four dental therapists and two dental assistants, and as stated will have four operational dental chairs.

Access to the facility will be via footpaths internal to the school and from a dedicated access for pedestrians from Chivalry Road adjacent to the bus shelter on Chivalry Road. Those travelling by bus to the facility could alight directly adjacent to the school on Chivalry Road or at several other stops approximately 600 m from the site depending on the route.

Parking on site will be provided for 13 cars, including one accessible space. This amount of parking is considered appropriate for the facility. In the case that there is an over supply of parking it is recommended that the parking be available for visitors to the school.

Based on six staff members and four chairs operating with seven appointments per day this results in

- ♦ 12 trips daily by staff members
- ♦ 56 trips daily by patients

This is a total trip measure and includes internal trips from students within the school and those that travel to the school via public transport, walking, cycling or drop off and pick up.

The 56 patient/visitor trips (39 car trips) will be distributed evenly throughout the day according to appointment times. These trips will be readily accommodated into the existing footpaths, bus provisions and surrounding road network.

By way of summary, the proposed two chair dental facility will be supported with pedestrian links from Chivalry Road, bus provisions on Chivalry Road and surrounding roads, appropriate parking provisions and the vehicle trips generated will be able to be accommodated within the surrounding road network.

CONTENTS

1	INTRODUCTION	1
2	EXISTING CONDITIONS	1
2.1	Site Location and Surrounding Road Network.....	1
2.2	Existing Traffic Conditions	2
2.3	Road Safety.....	2
2.4	Existing Active Mode Provisions	4
2.5	Existing Passenger Transport Provisions	4
3	PROPOSED DEVELOPMENT	6
4	ACCESS	7
4.1	Pedestrian Access	7
4.2	Cycle Access.....	7
4.3	Vehicle Access.....	7
4.4	Sight Distances	8
5	PARKING.....	9
5.1	Parking Requirement.....	9
5.2	Parking Demand	9
5.3	Parking Supply	10
5.4	Parking Layout and Loading.....	10
6	TRIP GENERATION AND IMPACT ON SURROUNDING ROAD NETWORK.....	10
6.1	Trip Generation	10
6.2	Mode Split	11
6.3	Impact on the Surrounding Road Network.....	11
7	CONSTRUCTION TRAFFIC.....	11
8	CONCLUSION.....	12

APPENDICES

APPENDIX A TRACKING

1 INTRODUCTION

Flow Transportation Specialists has been commissioned to assess the transport planning and traffic engineering implications associated with the provision of four chair dental facility on site at Glenfield Intermediate School, Glenfield, Auckland. The dental facility will be provided as part of the Community Oral Health Service (COHS) that is facilitated by Waitemata District Health Board (WDHB). The lease of the school site for the purpose of the community oral health service defines the service as publicly funded oral health promotion and oral health clinical services for children, adolescents and (if agreed by the parties) adults. Accordingly, for the case of this assessment it has been assumed that the dental facility will service students of Glenfield Intermediate School in addition to students from other surrounding schools as this will be the majority, if not all, of the patients. .

The following transport assessment considers the facilities and services provided to support the facility, and assess the proposal from a transport planning and traffic engineering perspective.

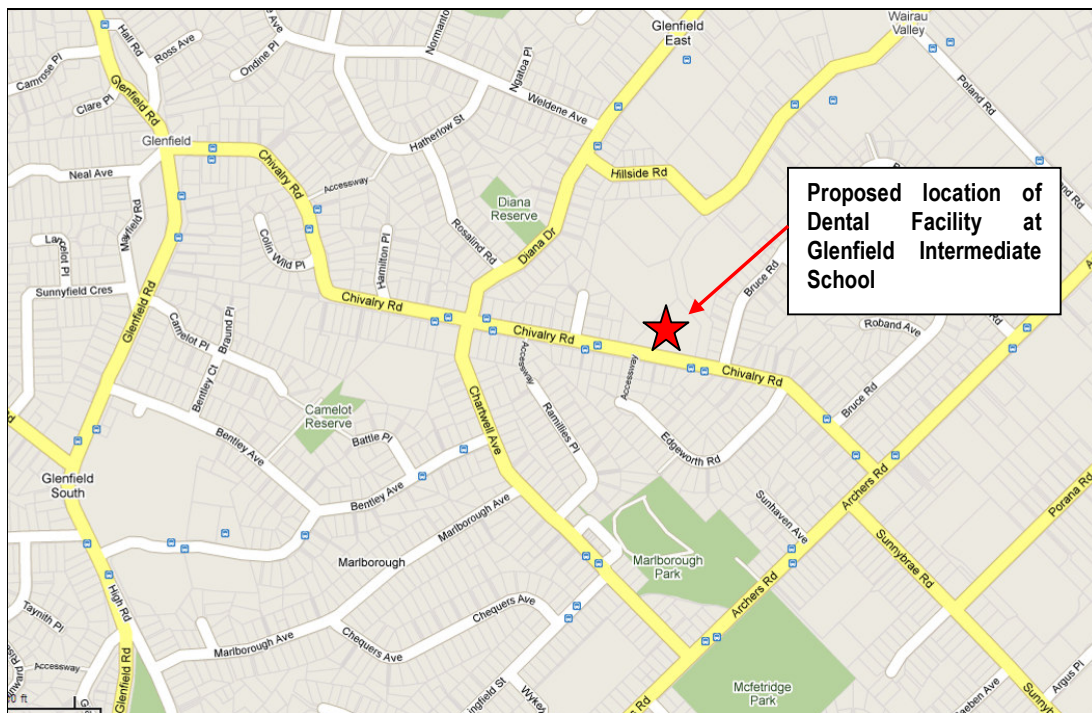
2 EXISTING CONDITIONS

The site of the dental facility is proposed to be located some 15 m from the eastern boundary of the site. This area was occupied by classrooms (as shown in Figure 2) that have since been removed.

2.1 Site Location and Surrounding Road Network

Glenfield Intermediate School is located at 138 Chivalry Road, in North Shore City, Auckland. The location of the school within the surrounding network is shown below in Figure 1.

Figure 1: Location of Edmonton Primary School¹



¹ www.wises.co.nz

Glenfield Intermediate School is in North Shore City in a predominately residential area. The surrounding area is shown below in Figure 2.

Figure 2: Location of Glenfield Intermediate School²



2.2 Existing Traffic Conditions

Chivalry Road is classified as a Collector Road in the North Shore City District Plan. The District plan defines collector roads as:

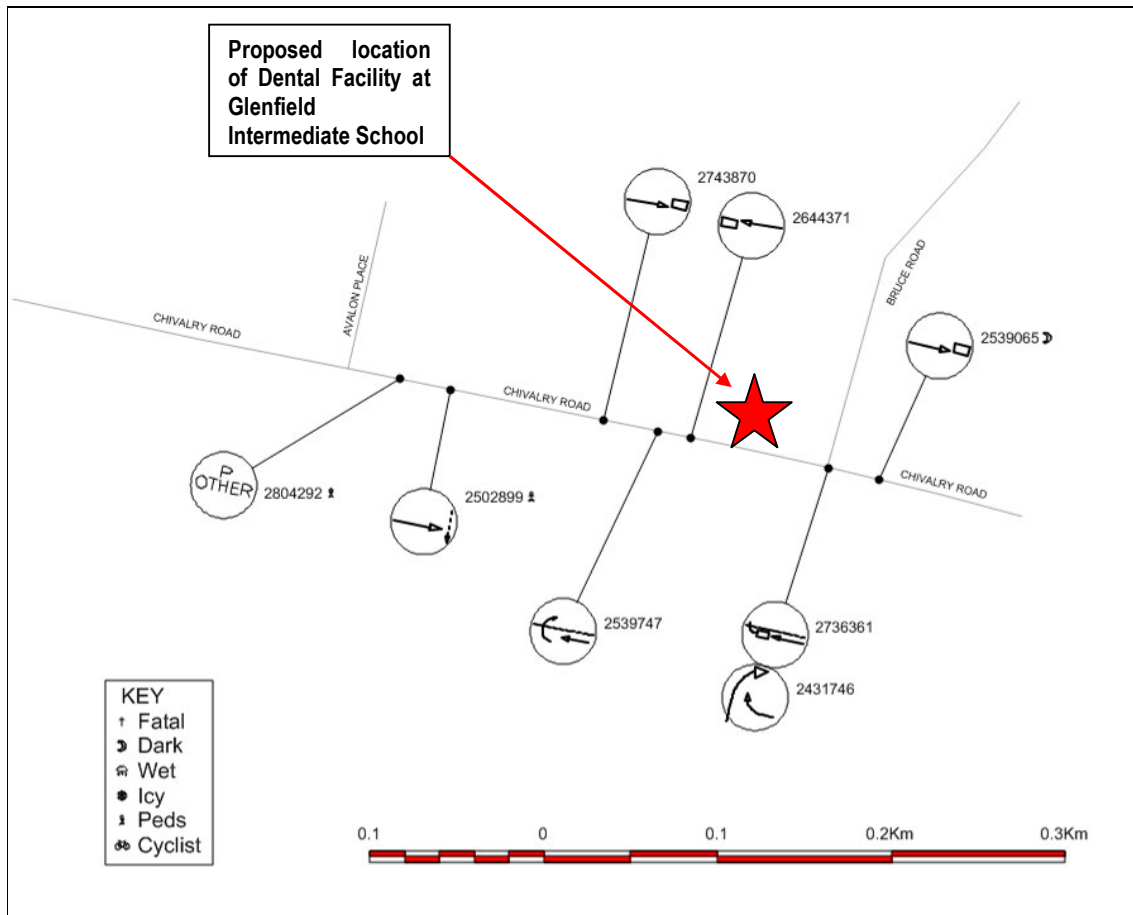
"...locally preferred routes between or within areas of population or activities, and they complement arterial routes. Their primary purposes are to provide for local traffic movement, for access to abutting property and movement between local roads and roads of higher classification".

2.3 Road Safety

A search of the New Zealand Transport Agency's (formerly Land Transport Safety Authority) Crash Analysis System (CAS) for the five year period from 2004 to 2008 was undertaken in the vicinity of the site. Figure 3 below shows the crash history in the immediate vicinity of the site.

² Image sourced from "Google Earth"

Figure 3: Collision Diagram Chivalry Road 2004 – 2008 inclusive



By way of summary, there were eight crashes recorded for the five year period searched for the area adjacent to Glenfield Intermediate School on Chivalry Road. Details of these crashes are as follows

- ♦ two collisions with pedestrians, one due to a pedestrian “playing” on the road and one due to a pedestrian crossing road heedless of traffic, both of which resulted in minor injuries
- ♦ three collisions with parked vehicles, no injuries
- ♦ one collision due to a vehicle colliding with a vehicle u-turning from same direction, no injuries
- ♦ one collision due to a vehicle failing to give way at the intersection of Chivalry Road and Bruce Road, no injuries
- ♦ one collision due to vehicle colliding with rear of car waiting at centre line to turn into Bruce Road, no injuries

This crash history seems typical of the kinds of crashes that occur near to schools. Of the total eight accidents, two involved pedestrians. It is essential that visitors to and from the dental facilities are encouraged to use the pedestrian crossing and the pedestrian paths. In addition to this the design maintains the pedestrian demands from passenger transport and the road network to the dental facility via a dedicated pedestrian access.

2.4 Existing Active Mode Provisions

Chivalry Road has footpaths provided on both sides of the road in proximity to the school. A pedestrian crossing is located approximately 80 m from the proposed access to the dental facilities. There is a pedestrian access located adjacent to the pedestrian crossing into the school grounds and a second pedestrian access 15 m from the proposed dental facility access at the bus stop. This is shown below in Photograph 1 from within the school grounds.

Photograph 1: Pedestrian access from Chivalry Road Bus Stop

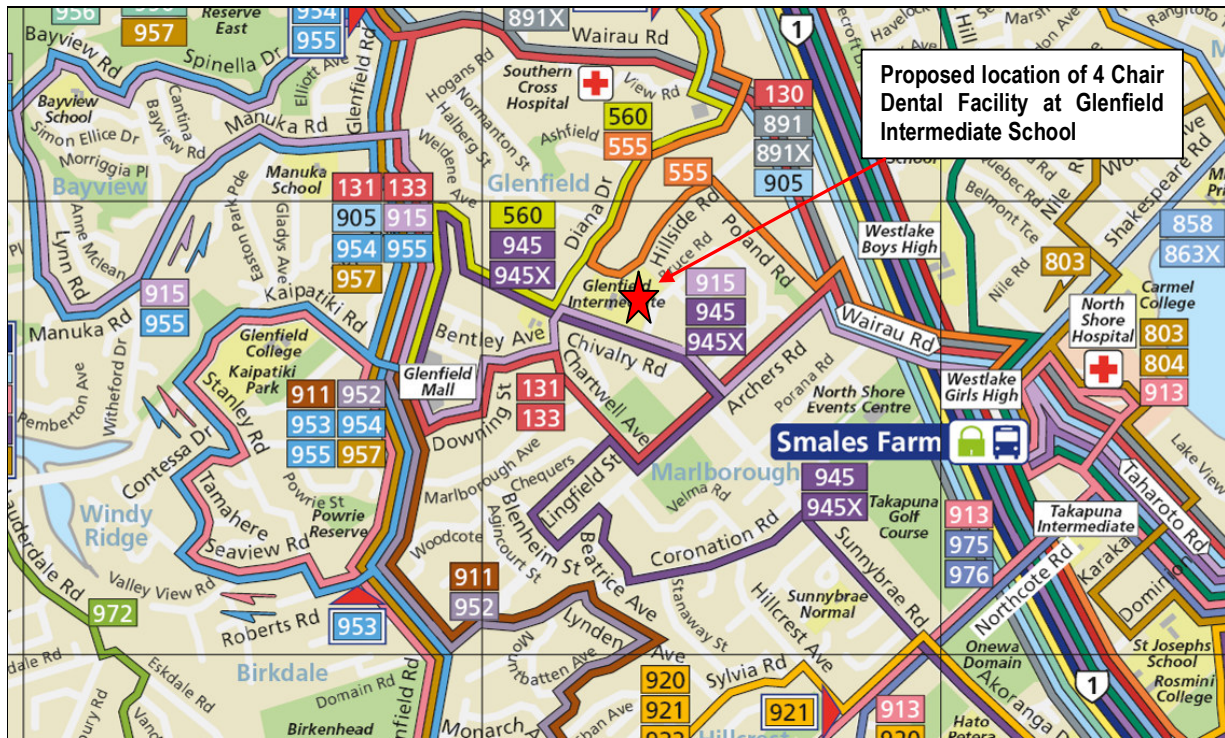


2.5 Existing Passenger Transport Provisions

There are currently several public bus routes that operate in proximity to Glenfield Intermediate School. The students are also serviced with buses supplied by the Ministry of Education, which pick up and drop off students within the school grounds. Figure 4 and Table 1 below provide further detail regarding current bus services.

Routes 915 and 945 operate along Chivalry Road and stop immediately adjacent to Glenfield Intermediate School while the remaining routes travel along surrounding roads including Diana Drive, Hillside Road, Chartwell Road and Bentley Avenue, with bus stops being within a 600 m walk from the dental facilities.

Figure 4: Bus Routes within the vicinity of Glenfield Intermediate School



The table below provides a summary of the frequency of bus services in the vicinity of the dental facility. These services all connect with Smales Farm bus station and Northern Busway services.

Table 1: Bus Availability in proximity to proposed dental facilities

Route Number	Description	Frequency (Monday to Friday)	Distance from nearest bus stop to dental facility
915	Bayview to Takapuna	Arrives every half hour from 6:45 am to 3:45 pm, then every half hour from 4:00 pm to 6:35 pm, 7:20 pm, 8:05 pm, 8:50 pm, 9:35 pm, 10:20 pm. Departs 7:55am, 8:25 am, 8:45 am, then every half hour from 9:40 am to 3:40 pm, thereafter every half hour from 4:15 pm to 6:45 pm, then 7:20 pm, 8:05 pm, 8:50 pm, 9:35 pm, 10:20 pm, 11:05 pm	0 m: Bus stop adjacent to school property
945	Glenfield/Takapuna to Midtown	Arrives 6:55am, 7:25am, 7:55am, every half hour from 8:25am to 6:25pm, hourly thereafter till 10:45pm Departs every half hour from 7:20am to 6:50pm, 7:10pm, then hourly from 7:20pm to 11:20pm.	0 m: Bus stop adjacent to school property
945x	Glenfield to Midtown (Express)	Arrives 6:30am, then every 15 minutes from 7:00am to 8:15am Departs every 15 minutes from 5:10pm, to 7:10pm	0 m: Bus stop adjacent to school property
560	Glenfield to Massey University	Arrives every half hour from 6:45am to 6:15pm Departs every half hour from 7:10am to 7:10pm	600 m
555	Highbury to Albany	Arrives every half hour from 6:12am to 6:42pm Departs every half hour from 6:38am to 7:06pm	600 m

Table 1: Bus Availability in proximity to proposed dental facilities

Route Number	Description	Frequency (Monday to Friday)	Distance from nearest bus stop to dental facility
131/133	Henderson to Takapuna via Westgate and Glenfield	Arrives at Glenfield at 7:10am, and hourly thereafter from 9:05am to 4:05pm, then 4:35pm, 5:05pm, 5:35pm, 6:10pm Departs Glenfield every half hour from 6:35am to 8:35am, hourly from 8:35am to 3:35pm, then 5:50pm, 6:20pm, 6:43pm	600 m

Overall, the site is well serviced with bus connectivity and accessibility to a bus shelter is excellent. Two bus routes arrive at the bus stop adjacent to the school approximately every 30 minutes, and another three routes arrive every 30 minutes within 600 m of the site.

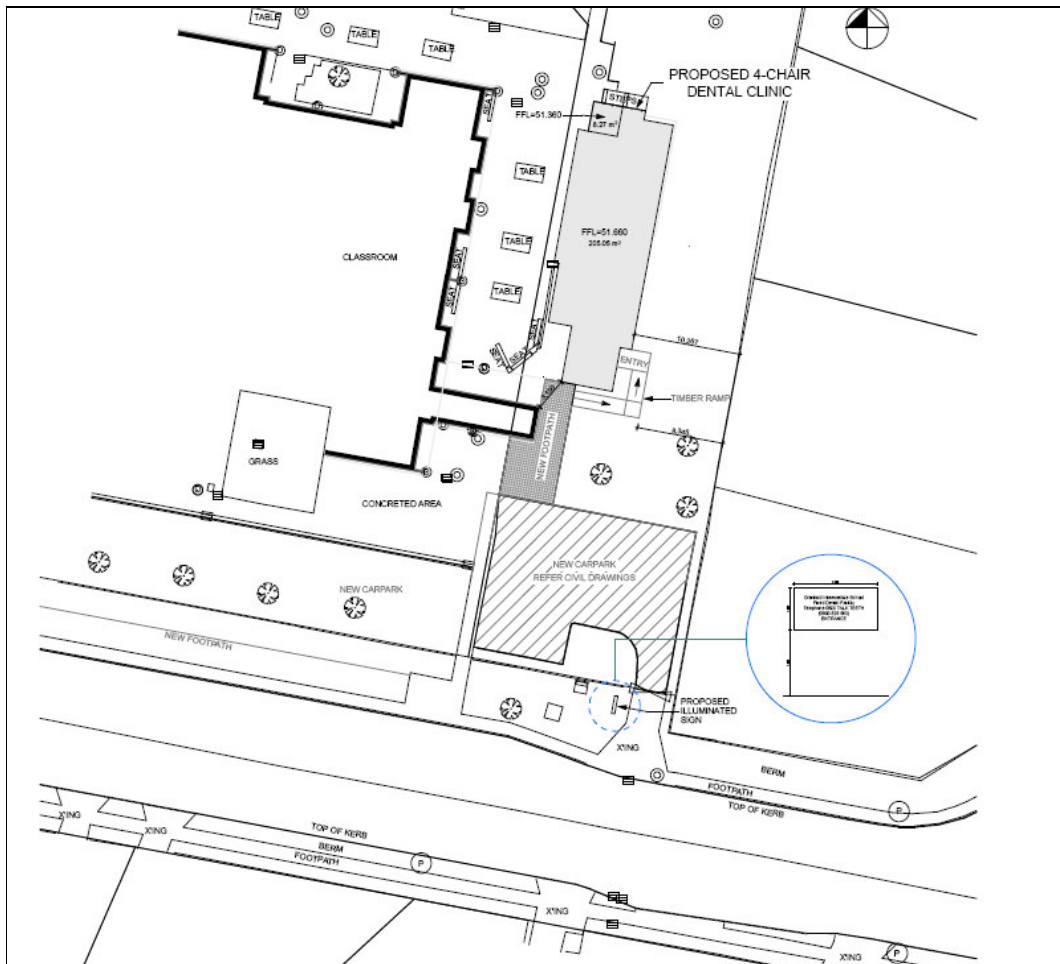
3 PROPOSED DEVELOPMENT

The proposal is for a four chair dental facility that will be located on site at Glenfield Intermediate School. The dental facility will provide oral health services to students of Glenfield Intermediate School and additional schools in the area. It is anticipated that patients that are not students of Glenfield intermediate will travel to the school with their guardians or parents for a specific appointment time.

As stated earlier in this report, the lease of the school site for the purpose of the community oral health service defines the service as publicly funded oral health promotion and oral health clinical services for children, adolescents and (if agreed by the parties) adults. Accordingly, for the case of this assessment it has been assumed that the dental facility will service students of Glenfield Intermediate School in addition to students from other surrounding schools as this will be the majority, if not all, of the patients. .

The four chair facility will be staffed with four dental therapists and two dental assistants, and as stated will have four operational dental chairs.

Figure 5: Proposed Dental Facilities at Glenfield Intermediate



4 ACCESS

4.1 Pedestrian Access

Currently there are two pedestrian only accesses from Chivalry Road to the school property. There will continue to be two pedestrian access points, however the pedestrian access adjacent to the bus shelter at the east of the site will be relocated slightly west to better link with the internal pedestrian footpath, also providing pedestrian access to the dental facility.

4.2 Cycle Access

Cycle access to the site will be via Chivalry Road via either the vehicle access or the dedicated pedestrian access. Bicycles can be parked outside the building and we recommend that provisions be made so that they can be securely locked.

4.3 Vehicle Access

The proposed access for the dental clinic currently provides access to a small parking area with ten parking spaces, of which two are marked as accessible spaces. The access is some 300 m away from the main vehicle access to the school (not the dental facility), which comprises a one way system with

ingress from Avalon Place, a small cul de sac accessed from Chivalry Road and egress on Chivalry Road approximately 80 m west of the pedestrian crossing on Chivalry Road. The main access on Avalon Place is used by staff, visitors and school buses. School buses utilise on site pick up and drop off points within the internal road network accessed from Avalon Place.

The access to the dental facility will be located in the same position as the current driveway, as shown below in Figure 6, and will lead to a car park area that will be solely for the use of staff and visitors of the dental facility. The car park will not be accessible by vehicles from any other area within the school. This car park area is discussed further in Section 5.

Figure 6: Access to Proposed Dental Facilities



The access is currently 7 m wide adjacent to the carriageway and is 3.2 m wide at the entrance to the parking area. This will be increased to be 5 m wide at the car park to allow for two way traffic.

4.4 Sight Distances

The Guidelines for Visibility at Driveways³ recommends appropriate sight distances to provide safe and efficient manoeuvring for vehicles entering and exiting access points.

Chivalry Road as stated earlier is defined as Collector Road, has a posted speed limit of 50 km per hour. To measure sight distances the 85th percentile speed on the frontage road is utilised as the operating speed of the road, or alternatively the speed limit plus 15% can be utilised. Accordingly, the operating speed for Chivalry Road has been taken to be 60 km per hour. This results in a required sight distance of 65m, both to and from the access.

³ NZTA, Guidelines for Visibility at Driveways, RT6, July 2001

Photograph 2: Sight Distance to the East of the proposed dental facility access



Photograph 3: Sight Distance to the West of the proposed dental facility access



Photograph 2 and Photograph 3 above demonstrate the sight distances in both the east and west direction from the access exceeds 65 m. In addition, the view towards the access exceeds 65 m and therefore the driveway location meets the recommended distance for safe operation of an access.

5 PARKING

5.1 Parking Requirement

Given the unique nature of the dental facilities there is limited availability of guidelines in order to predict parking demand.

The North Shore City District Plan specifies parking requirements for Medical Service Premises and Health Care Providers as one per every 20m² gross floor area. Dental Units are included in the definition of Health Care providers as per Section 12 of the District Plan. Utilising this rate, the parking required, as per the District Plan, is 10 spaces. The District Plan also requires one additional accessible parking space for groups of less than 20 parking spaces.

The Ministry of Health's guidelines for dental facilities also recommends that an accessible space is provided in all parking areas associated with dental care facilities.

5.2 Parking Demand

Parking demand has been assumed based on the following:

- ♦ Two spaces per three staff – ie 4 spaces
- ♦ 70% of visitors/patients will travel to the facility by car
- ♦ A cross over of 50% with regards to those waiting for their appointment whilst the previous appointee has not yet left.

The assumption regarding the staff parking is based on providing less than one space per staff as this is generally accepted as an over provision.

With regards to the visitors/patients, many of these will be school students, who will walk from the school to the facility. Others will come from outside the school and will travel to the facility by foot, cycle, bus, motorbike, taxi or car. It has been assumed that the percentage travelling by car will be about 70%⁴.

In addition, the parking demand will be influenced by the different start and finish time of appointments, with sometimes there being a crossover of parking demand. It has been assumed that this could amount to half at any one time.

Accordingly it is considered that the parking demand will typically comprise a total of 8 parking spaces.

5.3 Parking Supply

The car parking provided in conjunction with the dental facility will be marked for use by staff and visitors/patients of the dental facility. The reformed parking area has 13 parking spaces including one accessible space. This meets the requirement under the District Plan and will provide sufficient parking to ensure that there is minimal impact with regards to on street parking on the surrounding road network. It is noted that there may be parking supplied in excess of demand and as such it is recommended that this parking be available for other visitors to the school.

5.4 Parking Layout and Loading

The parking layout will be confirmed against the North Shore District Plan parking dimension requirements so that the layout complies with all required dimensions. In addition to this the car park layout will be assessed with 90 percentile car tracking requirements using CAD. This tracking will be found in Appendix A.

6 TRIP GENERATION AND IMPACT ON SURROUNDING ROAD NETWORK

6.1 Trip Generation

The dental facility at Glenfield Intermediate will have four chairs operating on a daily basis. It is anticipated that each chair will have approximately seven appointments across the day. This is an averaged figure based on currently operating dental facilities nationally.

Based on six staff members and four chairs operating with seven appointments per day this results in

- ♦ 12 trips daily by staff members
- ♦ 56 trips daily by patients

The above trips assume that all patients to the dental facility are arriving at the site from other schools in the area. This is also a total trip measure and will include those that travel to the school via public transport, walking, cycling or drop off and pick up.

⁴ Whilst the Census data implies that 95% of Waitakere residents have access to a car, the New Zealand Transport Strategy states that vehicle ownership for New Zealand, is some 700 vehicles per 1000 people

6.2 Mode Split

Based on the assumptions detailed in the parking assessment, it has been assumed that two out of three staff members would drive, with the others being dropped off, sharing a ride, walking, cycling or travelling by public transport. 70% of patients/visitors are assumed to travel by car with the others walking from the school and some travelling by means other than car to the facility. Accordingly, the vehicle trips associated with the facility would be:

- ♦ Some 8 vehicle trips daily by staff members
- ♦ Some 39 vehicle trips daily by patients

6.3 Impact on the Surrounding Road Network

The staff related trips to and from work (whether by bus, walking, cycling or private vehicle) are expected to generally occur prior to 9 am and between 3:30 pm and 5:00 pm (as staff will work glide time). Accordingly, there will be 12 total additional trips, generally occurring during the morning and evening commuter periods (with 8 being by car)

The 56 patient/visitor trips (39 car trips) will be distributed evenly throughout the day according to appointment times.

These trips will be readily accommodated into the existing footpaths, bus provisions and surrounding road network.

7 CONSTRUCTION TRAFFIC

The effects of construction traffic on the environment will need to be managed in the best way possible to ensure that from a transport point of view the surrounding road network operates safely for all modes of travel, in particular students entering and exiting the school. A detailed construction traffic management plan (CTMP) will be prepared closer to the commencement of the construction and will be in accordance with Council's requirements for such CTMP's and Transit New Zealand's code of practice for temporary traffic management (COTTM).

A typical CTMP for this proposal would address such matters as:

- ♦ a description of the construction site and a programme and scope of the works
- ♦ routes to be used by construction traffic to access and egress the site and the adoption of any measures on these routes to ensure a safe environment for other road users, as well as to ensure that the surrounding road network will continue to operate in an efficient manner. This could include restrictions on movements during key pedestrian times ie school start and finish times
- ♦ access for construction vehicles onto the road network from the site and measures to be adopted at these access points to ensure a safe traffic environment for other road users, especially pedestrians and
- ♦ parking for contractor vehicles to minimise any on-street parking effects as a result of the construction activity

8 CONCLUSION

This report addresses the proposal to locate a four chair dental facility at Glenfield Intermediate School to provide oral health care to the students of Glenfield Intermediate School and other schools in the area. The four chair facility will have four dental therapists, and two dental assistants with approximately seven patients per day per chair being accommodated.

Pedestrian access will be provided to the facility by internal footpaths and a dedicated pedestrian path linking Chivalry Road with the facility. This pedestrian access is located adjacent to the bus shelter outside of Glenfield Intermediate School on Chivalry Road. In terms of vehicle access this will be provided via an existing access that will be widened to 5m to allow for two way traffic. The access will lead to a parking area that provides parking facilities for the dental facility.

In the parking area there will be 13 spaces provided including one accessible space. This will meet the predicted parking demand and also meets the required parking supply as per the North Shore City District Plan.

Based on six staff members and four chairs operating with seven appointments per day the predicted trip generation is some

- ♦ 12 trips daily by staff members (of which 8 would be by car)
- ♦ 56 trips daily by patients (of which 39 would be by car).

These trips will be readily accommodated into the existing footpaths, bus provisions and surrounding road network.

Overall, it is concluded that the design and operation of the dental facilities is such that there are no inherent concerns regarding this proposal from a transport planning and traffic engineering perspective.



APPENDIX A

Tracking

