

Memorandum

To	Belinda Petersen	Page	1
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CC			
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Subject	Lyon Ave Access Options Assessment		
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From	Peter Roan, Central Interceptor Team		
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File/Ref No.		Date	14-Jun-2013
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1.0 Background

As you are aware, associated with the construction of the Central Interceptor main project works, a construction site is required at the Lyon Avenue spillway to connect the Edendale Branch Sewer to the Central Interceptor tunnel. This site is termed the Lyon Avenue construction site (AS2).

The AEE lodged in support of the Notice of Requirement and Resource Consent applications for the Project identifies construction access and permanent access to the Lyon Avenue construction site via Morning Star Place.

Following a number of submitters raising concerns about access to the site, we have completed a comparison of the Morning Star Place proposed access option to 6 alternative options as follows:

- Option 1 – Access via Morning Star Place (proposed)
- Option 2 – Access via Lyon Avenue
- Option 3 – Access via 2 Wagener Place
- Option 4 – Access via 1 and 2 Wagener Place
- Option 5 – Access via 1 Wagener Place
- Option 6 - Access via Fergusson Reserve and Mt Albert Grammar School (MAGS) playing fields from Fergusson Ave or Haverstock Rd
- Option 7 - Access via Alberton Ave via 'Gate 1' and MAGS playing fields

The options are identified on the attached drawing, "Lyon Ave Construction Site – Construction Access Options" LYON_1002 (Attachment 1). A comparative assessment of the options is presented in the attached table, "Access options to proposed Lyon Ave construction site" (Attachment 2).

2.0 Site options assessment process

The evaluation of site access options has addressed the following environmental considerations:

- *Construction traffic safety* – an assessment of the options has been completed by Traffic Design Group and their assessment is attached (Attachment 3);
- *Noise effects* – consideration of noise generated by construction traffic;
- *Arboriculture effect* – consideration of tree removals required to form the access alignment;
- *Land use effects* – considerations of potential landscape, neighbourhood amenity and recreational effects.

3.0 Conclusions

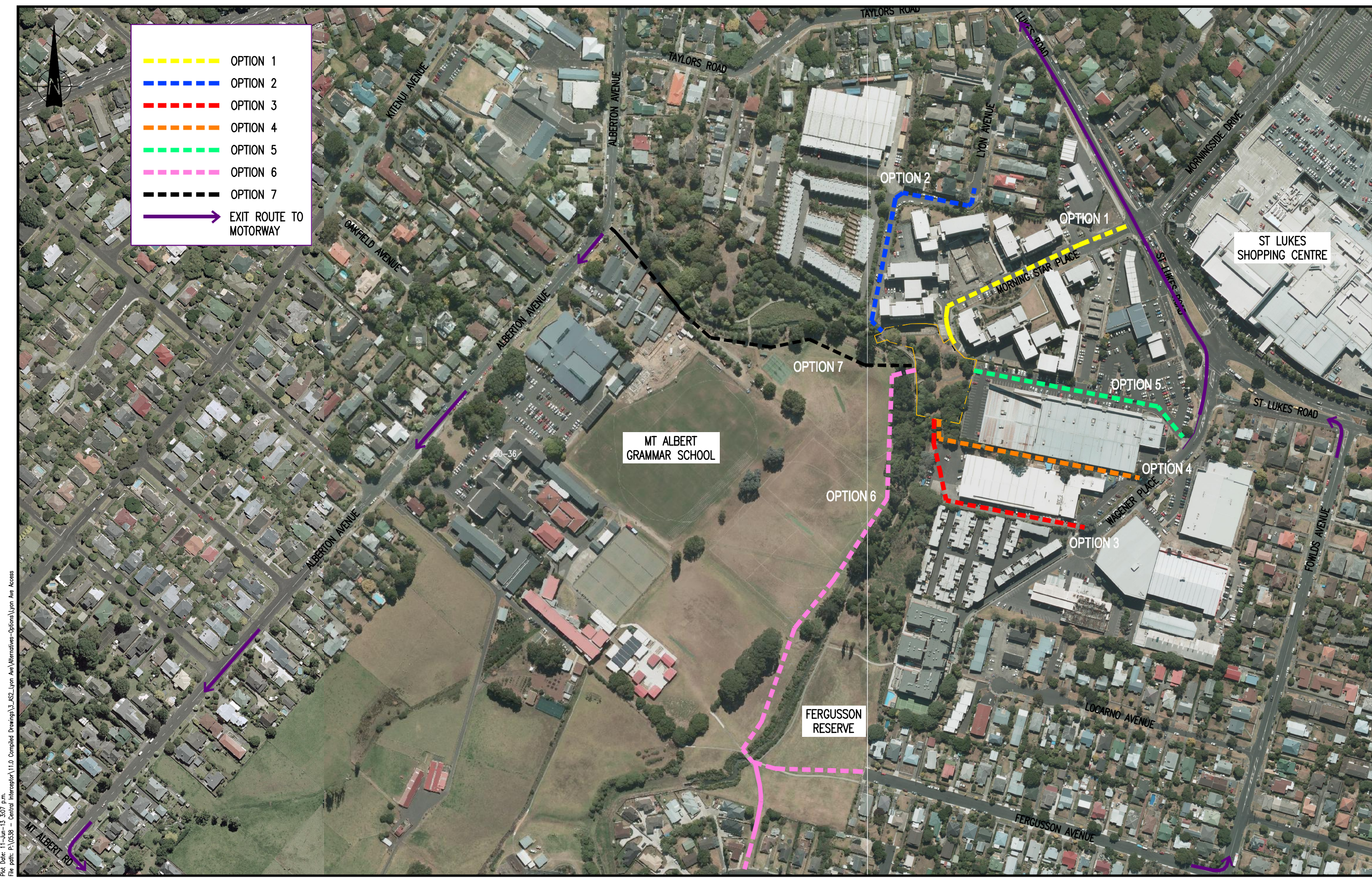
In summary, all options will involve some level of effect, over the period of construction activity at the site.

Option 5, which involves construction traffic accessing the site via the parking area of the 1 Wagener Place retail complex, is considered to be the least suitable. This option would be disruptive to the retail complex and require measures to separate pedestrians and shopper traffic from the construction traffic. Option 4, which would involve the formation of an access way between the buildings on 1 and 2 Wagener Place to reach the rear of the site, would require substantial works and even then would only enable one way traffic.

Options 2, off the end of Lyon Avenue, and Option 3 via the service lane on 2 Wagener Place, would both require substantial loss of private parking to provide two way access, and additional vegetation removal in Roy Clements Treeway.

Of the options considered, Options 1 (Proposed Morning Star Place option) and 6 (Fergusson Reserve and MAGS playing fields) are the most suitable from a traffic safety perspective. However, in terms of the other potential effects, Option 1 will likely result in some loss of amenity to adjacent residents in the St Lukes Gardens Apartments due to construction traffic on Morning Star Place, while Option 6 will result in some reduction in amenity to users of Fergusson Reserve and will reduce the value of and usability of the MAGS playing fields. Option 6 will also have additional effects on vegetation and ecological and landscape values in Roy Clements Treeway and would require the construction of two vehicle bridges over Meola Creek.

On balance, none of the options considered present themselves as being preferable to Option 1.



- OPTION 1
- OPTION 2
- OPTION 3
- OPTION 4
- OPTION 5
- OPTION 6
- OPTION 7
- EXIT ROUTE TO MOTORWAY

Plot Date: 11-Jun-13 3:07 p.m.
 File path: P:\0538 - Central Interceptor\11.0 Compiled Drawings\3_S2_Lyon Ave\Alternatives-Options\Lyon Ave Access

DESIGNED	-	-	-	-	-
DES. CHECKED	-	-	-	-	-
DRAWN	AP	-	-	-	-
DWG. CHECKED	-	-	-	-	-
REV'D P.MGR	-	-	-	-	-
APP'D P.DIR	CC	-	-	-	-
ISSUE	DATE	AMENDMENT	BY	APPD.	BY
A		DRAFT	AP	JC	

OPERATIONS

ASSET MANAGER

SITE LAYOUT AND DESIGNS INDICATIVE ONLY AND SUBJECT TO CHANGE DURING DETAILED DESIGN DEVELOPMENT

FOR INFORMATION



CENTRAL INTERCEPTOR
GENERAL
LYON AVENUE CONSTRUCTION SITE - CONSTRUCTION ACCESS OPTIONS

DRAFT

CAD FILE Lyon Ave_New-	DATE 11-Jun-13
ORIGINAL SCALE A1	CONTRACT No. 0538
1:3000 A3	
DRAWING No. LYON_1002	ISSUE A

Access options to proposed Lyon Ave construction site¹

Access via Morning Star Place (Option 1) – Proposed Route in AEE	Access via Lyon Ave (Option 2)
<p>Property ownership: Morning Star Place is a private road (St Lukes Gardens Apartments). Access via Morning Star Place is provided for in an existing agreement with St Lukes Gardens Apartments.</p>	<p>Property ownership: St Lukes Gardens Apartments, multiple private owners of access lane from Lyon Ave, Crown. Access agreement would need to be established with St Lukes Gardens Apartments, multiple private owners and Ministry of Education.</p>
<p>Physical works²: No physical works are required to establish construction access via Morning Star Place. Works required to construct level access road once it enters the proposed construction site. Permanent access via Morning Star Place.</p>	<p>Physical works: Construction to form access road and site entrance within Roy Clements Treeway (outside proposed designation), including bridged access over existing spillway. Permanent access would need to be retained via Roy Clements Treeway; or via Morning Star Place using existing formed road.</p>
<p>Traffic: Construction Traffic:</p> <ul style="list-style-type: none"> • Good access to / from St Lukes Rd via signalised intersection. • Good pedestrian safety on Morning Star Place due to separation by pedestrian footpaths. • Good vehicle safety on Morning Star Place due to two way separation, good sight distances, existing speed controls and carriageway width. • Traffic management measures required at vehicle crossing from Morning Star Place into construction site (fencing / barriers) to separate site vehicles and pedestrians at this point along with speed restrictions on Morning Star Place (10 km/hr) • Good access to motorway via St Lukes Rd to North Western Motorway <p>Parking:</p> <ul style="list-style-type: none"> • No private or on-street carparks affected by construction access road. 	<p>Traffic: Construction Traffic:</p> <ul style="list-style-type: none"> • Access to / from St Lukes Rd via controlled (stop sign) rather than signalised intersection, requiring left turn in and out only. • Pedestrian safety on Lyon Ave is acceptable due to separation by existing pedestrian footpaths, but at southern end would require temporary barriers or kerbing would be required to ensure separation from pedestrians where no footpaths are present. • Vehicle safety on Lyon Ave acceptable but carriageway is narrow and would require traffic controls to provide required safety (e.g. convex mirrors on tight corners, signage, and traffic signals to control movement on section south of cul-de-sac). • Good access to motorway via St Lukes Rd to North Western Motorway. <p>Parking:</p> <ul style="list-style-type: none"> • Additional parking restrictions on Lyon Ave may be necessary (or at least enforcement of existing restrictions). • To enable two-way traffic on section south of cul-de-sac, existing private parking would need to be removed / restricted and alternative parking provided (limited alternative parking is available).
<p>Noise:</p> <ul style="list-style-type: none"> • Proposed access road passes through relatively high density residential area. Noise from construction traffic represents change to low ambient background noise levels on Morning Star Place, but relatively low construction traffic volumes would minimise significance of any effect. 	<p>Noise:</p> <ul style="list-style-type: none"> • Noise from construction traffic on Lyon Ave represents only minor change to background noise levels given existing use to service commercial complex at end of Lyon Ave.
<p>Arboriculture & ecology:</p> <ul style="list-style-type: none"> • No additional effects beyond works within proposed construction site. 	<p>Arboriculture & ecology:</p> <ul style="list-style-type: none"> • Removal of several established trees from Roy Clements Treeway required to bring access onto site.
<p>Land use effects</p> <ul style="list-style-type: none"> • Landscape – No additional effects beyond works within construction site. • Neighbours & amenity – Limited separation from residential neighbours in St Lukes Gardens Apartments (access road would be approx. 10m from adjacent apartment blocks); perceived loss of amenity of Morning Star Place common open space area due to construction traffic and associated noise. • Recreation – Construction access would conflict with use of walkway from Roy Clements Treeway into Morning Star Place and would require local pedestrian diversion. 	<p>Land use effects</p> <ul style="list-style-type: none"> • Landscape – Additional temporary effect on Roy Clements Treeway with vegetation removal and construction of access road from end of Lyon Ave. • Neighbours & amenity – Limited separation from residential neighbours on Lyon Ave (access road would be approx. 10m from adjacent houses and from apartment blocks on southern cul-de-sac section); little change to existing amenity due to existing commercial use of road to access business at end of Lyon Ave. • Recreation – Construction access road would conflict with use of Roy Clements Treeway and would require local pedestrian diversion.
<p>Key Conclusions</p> <ul style="list-style-type: none"> • Good option for traffic and pedestrian safety • Access through relatively high density residential development therefore some loss of amenity to residents due to construction traffic on Morning Star Place 	<p>Key Conclusions</p> <ul style="list-style-type: none"> • Reasonable option for traffic and pedestrian safety • Loss of parking on section south of cul-de-sac to enable two way vehicle movements to construction site • Additional vegetation removal on Roy Clements Treeway and associated effect on landscape and ecological value • Access agreements required with numerous property owners of section south of cul-de-sac.

¹ The assessment is of the potential effects arising from the construction and use of access to the proposed Lyon Ave site, to enable a comparison of the options. Effects within the proposed construction site boundary are not assessed in this summary table.

² Physical works required beyond the proposed construction site boundary for the Lyon Ave site

Access options to proposed Lyon Ave construction site¹

Access via 2 Wagener Place (Option 3)	Access via 1 and 2 Wagener Place (Option 4)
<p>Property ownership: 2 Wagener Place commercial property (multiple tenants), Crown. Access agreement would need to be established with one private owner and Ministry of Education.</p>	<p>Property ownership: Two commercial properties (1 and 2 Wagener Place) (multiple tenants), Crown. Access agreement would need to be established with two private owners and Ministry of Education.</p>
<p>Physical works: Construction to form access road and site entrance within Roy Clements Treeway (outside proposed designation) Permanent access would need to be retained via commercial property; or via Morning Star Place.</p>	<p>Physical works: Construction to form access road from Wagener Place between buildings (currently doesn't exist), including tree removal, and then across Roy Clements Treeway to construction site (outside proposed designation) Permanent access would need to be retained between the commercial buildings; or via Morning Star Place.</p>
<p>Traffic: Construction Traffic:</p> <ul style="list-style-type: none"> • Good access to / from St Lukes Rd via signalised intersection. Access onto Wagener Place neither controlled nor signalised. • Pedestrian safety on Wagener Place is acceptable due to separation by pedestrian footpaths, but at southern end would require fencing or temporary barriers at the vehicle crossing onto Wagener Place to separate pedestrians from vehicles • Vehicle safety on Wagener Place is good but access via 2 Wagener Place is narrow with one-way traffic only possible unless existing angle parking is removed. Wagener Place has moderate traffic volumes, including trucks. • Good access to motorway via St Lukes Rd to North Western Motorway. <p>Parking:</p> <ul style="list-style-type: none"> • To enable two-way traffic on 2 Wagner Place access, existing private parking would need to be removed / restricted and alternative parking provided (possibly on the rear yard of 2 Wagener Place, but limited alternative parking is available elsewhere). 	<p>Traffic: Construction Traffic:</p> <ul style="list-style-type: none"> • Good access to / from St Lukes Rd via signalised intersection. • Pedestrian safety on Wagener Place is acceptable due to separation by pedestrian footpaths, but would require fencing or temporary barriers at the vehicle crossing onto Wagener Place to separate pedestrians from vehicles. Wagener Place has moderate traffic volumes, including trucks. • Vehicle safety on Wagener Place is good but existing service lane between 1 and 2 Wagener Place is narrow and will require substantial works to form new access road between existing buildings. • Good access to motorway via St Lukes Rd to North Western Motorway. <p>Parking:</p> <ul style="list-style-type: none"> • Possible loss of parking at rear of 1 Wagener Place
<p>Noise:</p> <ul style="list-style-type: none"> • Noise from construction traffic on Wagener Place represents only minor change to background noise levels and not significant in context of existing land use, but noting adjacent residential apartment development at 3 Wagener Place. 	<p>Noise:</p> <ul style="list-style-type: none"> • Noise from construction traffic on Wagener Place represents only minor change to background noise levels and not significant in context of existing land use. Good separation from residential neighbours at St Lukes Gardens Apartments to the north and 3 Wagener Place to the south (access road would be approx. 100m from apartment blocks and with building between). The day-care centre at 2 Wagener Place might require a noise fence on the boundary to reduce noise levels.
<p>Arboriculture & ecology:</p> <p>Removal of several established trees from Roy Clements Treeway required to bring access road onto site</p>	<p>Arboriculture & ecology:</p> <p>Removal of trees along service lane and several established trees from Roy Clements Treeway required to bring access road onto site</p>
<p>Land use effects</p> <ul style="list-style-type: none"> • Landscape – Additional temporary effect on Roy Clements Treeway with vegetation removal and construction access road from rear of 2 Wagener Place. • Neighbours & amenity – Limited separation from adjacent residential neighbours at 3 Wagener Place (access road would be approx. 10m from apartment blocks); little change to existing amenity given current commercial use. • Recreation – Construction access would be via part of Roy Clements Treeway but does not cross pedestrian walkway. 	<p>Land use effects</p> <ul style="list-style-type: none"> • Landscape – Additional temporary effect on Roy Clements Treeway with vegetation removal and construction of access road from rear of 1 and 2 Wagener Place • Neighbours & amenity – Good separation from residential neighbours at St Lukes Gardens Apartments to the north and 3 Wagener Place to the south (access road would be approx. 100m from apartment blocks and with building between). Note presence of day-care centre at 2 Wagener Place, which might require acoustic screening. Little change to existing amenity given commercial use. • Recreation – Construction access would be via part of Roy Clements Treeway but does not cross pedestrian walkway.
<p>Key Conclusions</p> <ul style="list-style-type: none"> • Reasonable option for traffic and pedestrian safety, but would require removal of parking on service lane to create two-way access. • Additional traffic management measures required to ensure safety and manage potential conflict with retail activities at 2 Wagener Place and pedestrians. • Additional vegetation removal on Roy Clements Treeway and associated effect on landscape and ecological value. 	<p>Key Conclusions</p> <ul style="list-style-type: none"> • Reasonable option for traffic and pedestrian safety, but existing service lane between 1 and 2 Wagener Place is narrow and will require substantial works to form new access road between existing buildings. • Traffic management measures required to ensure safety and manage potential conflict with pedestrians at vehicle crossing on Wagener Place. • Additional vegetation removal on Roy Clements Treeway and associated effect on landscape and ecological value.

Access options to proposed Lyon Ave construction site¹

Access via Retail Parking area at 1 Wagener Place (Option 5)	Access via Fergusson Reserve and MAGS playing fields from Fergusson Ave or Haverstock Rd (Option 6)
<p>Property ownership: One commercial property (1 Wagener Place) (multiple tenants). Access agreement would need to be established with private owner.</p>	<p>Property ownership: Crown, Auckland Council. Access agreement would need to be established with Ministry of Education, MAGS, Auckland Council.</p>
<p>Physical works: No physical works required to establish construction access road via retail parking area. Works required to construct level access road once it enters the proposed construction site. Permanent access would need to be retained via retail area; or via Morning Star Place.</p>	<p>Physical works: Construction of formed access road across existing grassed surface for a distance of approximately 450 metres. Includes construction of two vehicle bridges across Meola Creek. Permanent access would need to be retained via all-weather access road across Fergusson Reserve, the playing fields and Meola Creek; or via Morning Star Place.</p>
<p>Traffic: Construction Traffic:</p> <ul style="list-style-type: none"> • Good access to / from St Lukes Rd via signalised intersection. Access onto Wagener Place neither controlled nor signalised. • High disturbance to both shoppers and retail businesses at 1 Wagener Place where high pedestrian use occurs. The proposed access serves as the main access point for the public to the retail complex and would require speed controls and signage or fencing to separate pedestrians from site vehicles in the retail parking area. • Pedestrian safety would require careful management by temporary fencing or barriers and signage to separate users of the Roy Clements Treeway walkway from vehicles at the crossing from retail area. • Vehicle safety on Wagener Place is good but safety on access way once into shopping complex would require careful management. Wagener Place has moderate traffic volumes, including trucks. • Good access to motorway via St Lukes Rd to North Western Motorway. <p>Parking:</p> <ul style="list-style-type: none"> • Possible loss of some parking at rear of shopping complex to provide access onto site. 	<p>Traffic: Construction Traffic:</p> <ul style="list-style-type: none"> • Access is possible from end of Fergusson Ave or from Haverstock Rd, then across reserve and Meola Creek via new vehicle bridge onto MAGS playing field and then back across Meola Creek via another new vehicle bridge onto site. • Access to / from St Lukes Rd or Sandringham Rd via controlled intersection, requiring left turn only. • Option conflicts with main pedestrian access point to / from MAGS. Pedestrian safety on Fergusson Ave or Haverstock Rd is acceptable due to separation by pedestrian footpaths. In Fergusson Reserve signage would be needed to alert pedestrians to traffic and barriers provided to separate pedestrians from vehicles at walkway crossings. In MAGS playing fields new fencing would be required on school side of access way to separate school users from vehicles. • Vehicle safety on either Fergusson Ave or Haverstock Rd is good • Slightly longer route to motorway via residential streets to St Lukes Rd to North Western Motorway. <p>Parking:</p> <ul style="list-style-type: none"> • No effect
<p>Noise:</p> <ul style="list-style-type: none"> • Noise from construction traffic on Wagener Place represents only minor change to background noise levels and not significant in context of existing land use. Close to residential apartment blocks on eastern corner of St Lukes Gardens Apartments. 	<p>Noise:</p> <ul style="list-style-type: none"> • Noise from construction traffic represents minor change to background noise levels on Fergusson Ave or Haverstock Rd, but of no appreciable significance. Noise generated by trucks on MAGS fields of no appreciable significance for teaching activities given separation distance.
<p>Arboriculture & ecology:</p> <ul style="list-style-type: none"> • No additional effects beyond works within proposed construction site. 	<p>Arboriculture & ecology:</p> <ul style="list-style-type: none"> • Removal of pine trees and adjacent riparian plantings from left bank of stream to form vehicle bridge and bring access road across Meola Creek on to construction site.
<p>Land use effects</p> <ul style="list-style-type: none"> • Landscape – No real change to existing retail carpark setting • Neighbours & amenity – Limited separation from retail facilities and from residential neighbours in apartments at rear east of St Lukes Gardens Apartments (access road would be approx. 10m from apartment blocks). Little change to existing amenity given commercial use, but would conflict with retail facilities. • Recreation - Construction access would conflict with use of Roy Clements Treeway and would require careful traffic management to ensure pedestrian safety. 	<p>Land use effects</p> <ul style="list-style-type: none"> • Landscape – Construction access would temporarily alter local character and context of Fergusson Reserve and MAGS playing fields • Neighbours & amenity – Reduced amenity value of Fergusson Reserve and utility value of fields to MAGS. • Recreation – Access road would occupy part of, and conflict with use of MAGS fields, and would require separation via new fencing. Construction access would conflict with the use of Roy Clements Treeway where access would cross Meola Creek (in two locations) and would require local pedestrian diversions.
<p>Key Conclusions</p> <ul style="list-style-type: none"> • Construction access via highly trafficked retail area • Poor option for traffic and pedestrian safety • Conflict with retail facilities 	<p>Key Conclusions</p> <ul style="list-style-type: none"> • Good option for traffic and pedestrian safety, but would require separation from public in reserve and on playing fields • Significant physical works required to form access road including two vehicle bridges across Meola Creek • Additional vegetation removal on Roy Clements Treeway and associated effect on landscape and ecological value • Reduction in amenity and recreation values of Fergusson Reserve and value of MAGS playing fields

Access options to proposed Lyon Ave construction site¹

<p>Access from Alberton Ave via 'Gate 1' and MAGS playing fields (Option 7)</p>
<p>Property ownership: Crown. Access agreement would need to be established with Ministry of Education and MAGS.</p>
<p>Physical works: Construction of formed access road across existing grassed surface for a distance of approximately 400 metres. Includes construction of a vehicle bridge across Meola Creek. Permanent access would need to be retained in school grounds and along edge of playing fields via all-weather access road; or via Morning Star Place using existing formed road.</p>
<p>Traffic: Construction Traffic:</p> <ul style="list-style-type: none"> • Access off Alberton Ave onto existing access track adjacent northern boundary of MAGS, near to boarding hostel, then across MAGS playing field and onto site via new vehicle bridge over Meola Creek. Access to site via Alberton Ave requires left turn only in and out, and exit from Alberton Ave via left turn only at controlled intersection on Mt Albert Rd. • High pedestrian volumes on Alberton Ave due to school and pools, requiring careful management at access to and from Alberton Ave. In school grounds, fencing would be required to separate school users from site vehicles. Restrictions on truck traffic required to avoid peak school traffic movement hours (8:00am to 9:00am, and 2:30pm to 3:30pm). • Vehicle safety on Alberton Ave is good with left turn only policy and restrictions on traffic movement hours as noted above to avoid peak school traffic movements. • Longer route to motorway via Alberton Ave, Mt Albert Rd, Sandringham Rd to North Western Motorway (as right turning from site to Alberton Ave or from Alberton Ave to Mt Albert Rd would not be permitted). <p>Parking:</p> <ul style="list-style-type: none"> • No effect
<p>Noise:</p> <ul style="list-style-type: none"> • Noise from construction traffic represents minor change to background noise levels on Alberton Ave, but of no appreciable significance. Possible acoustic barrier required in order to mitigate noise generated by trucks on MAGS access track adjacent to boarding hostel
<p>Arboriculture:</p> <ul style="list-style-type: none"> • Removal of pine trees and adjacent riparian planting from left bank of stream to form vehicle bridge and bring access road across Meola Creek.
<p>Land use effects</p> <ul style="list-style-type: none"> • Landscape – Construction access would temporarily alter local character and context of MAGS playing fields. • Neighbours & amenity – Close proximity (approx. 10 m) from MAGS boarding hostel. Reduced utility value of playing fields to MAGS. • Recreation – Access road would occupy part of, and would conflict with use of MAGS fields, and would require separation via new fencing. Construction access would conflict with the pedestrian access along the Roy Clements Treeway where a temporary vehicle access bridge would cross Meola Creek. A local diversion of the existing walkway would be required.
<p>Key Conclusions</p> <ul style="list-style-type: none"> • Reasonable option for traffic and pedestrian safety, but would require separation from school users, and possible restrictions on movements during peak school hours (8:00am to 9:00am, and 2:30pm to 3:30pm) • Additional vegetation removal on Roy Clements Treeway and associated effect on landscape and ecological value • Significant physical works required to form access road, including a vehicle bridge across Meola Creek • Reduction in amenity and recreation values of Roy Clements Treeway and playing fields • Impact on MAGS



Mr Peter Roan
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TDG Ref: 11117-6
11 June 2013

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Dear Peter

Lyon Avenue Site: Access Options

TDG has been commissioned by Watercare Services Limited (Watercare) to investigate the traffic engineering and safety implications of seven site access options considered and raised by AECOM as possible construction access options to the shaft site at Lyon Avenue (AS2).

This letter report will discuss only the traffic related issues for the seven site accesses. Previous traffic assessment report on the Lyon Avenue site is contained as Technical Report E within Part D of the Central Interceptor Main Project Works AEE 2012.

1. Introduction

The proposed Lyon Avenue (AS2) site is located within Roy Clements Treeway on the southern end of Morning Star Place, Mount Albert. Morning Star Place mainly serves residential apartment buildings. To the east and south of the construction site are car parking areas for the retail complex accessed from Wagener Place. To the east of the site are Mt Albert Grammar School sport fields. Pedestrian access into Roy Clements Treeway is currently provided from Morning Star Place, Lyon Avenue, Alberton Avenue, and Haverstock Road and Fergusson Avenue via Fergusson Reserve.

The Lyon Avenue site is a secondary site of the Central Interceptor Project. It is estimated that the proposed development at Lyon Avenue will generate a peak of no more than 68 vehicle movements per day, with nine vehicle movements during the peak hour (five of which being heavy vehicles). A turn around area will be required within the site, to enable trucks/cars to travel in a forwards direction.

As the proposed Lyon Avenue site is located within the Roy Clements Treeway, pedestrian access into the treeway will be affected and each of the access options considered in this letter would have some form of conflict with the walkway in the reserve. A pedestrian diversion plan and traffic management plan will be required to outline redirections or temporary closures of sections of the treeway during construction.

The works at the Lyon Avenue construction site will also require temporary removal of the 22 visitor car park spaces south of a residential complex at 27 Morning Star Place. These spaces are to be partly or fully removed during the majority of the construction period.



2. Access Options

2.1 Option One – Morning Star Place

The Morning Star Place access option is the original access design proposed for the Lyon Avenue construction site and was assessed as part of the traffic assessment previously carried out by TDG.

2.1.1 Access Description

This option involves a site access to be formed off Morning Star Place, adjoining the site and opposite the residential complex at 27 Morning Star Place. Site vehicles would travel to and from the site along Morning Star Place via the St Lukes Road / Morningside Drive / Morning Star Place signalised intersection.

Morning Star Place is a private road servicing a number of residential apartment buildings. It runs in a southwest – northeast direction, connecting with St. Lukes Road in the northeast and is a cul-de-sac in the southwest. The road is a two-lane, two way street with perpendicular parking spaces on both sides of the road along the majority of its length. There are also two speed humps and a small roundabout situated along the length of Morning Star Place.

2.1.2 Traffic Effects

Earthworks would be required to construct a level access road once it enters the proposed construction site. Pedestrian access into the Roy Clements Treeway from Morning Star Place would need to be redirected or temporarily closed during construction.

Given the low speed nature of Morning Star Place, due to the presence of speed humps and the geometry of the street, it is considered that there is adequate sight distance in both directions, at the proposed access.

It is considered that access at this location would provide excellent access to local road network (via traffic signals).

Based on the estimated trip generation of the site, the effects of additional traffic for both passenger vehicles and heavy vehicles onto Morning Star Place would be minimal (maximum of four passenger cars and five truck movements per hour).

Morning Star Place is already served by rubbish trucks on a regular basis and the largest designed vehicle proposed to access the site would be of similar sizes to the trucks already using Morning Star Place (single unit dump trucks). Furthermore, only five heavy vehicles are expected to travel to or from the site per hour. The probability of two trucks requiring to pass each other would be low, however, Morning Star Place is of sufficient width for two trucks to pass each other.

Negligible effects at the St Lukes Road / Morning Star Place signalised intersection (with or without expansion works at Westfield St Lukes) are likely to be caused by the site traffic with approximately nine site vehicles traveling into or out of Morning Star Place during peak hours. The performance of the Morning Star Place leg of the intersection could be further improved by slightly increasing the phase length of this leg of the intersection, particularly in the morning commuter peak period.



2.1.3 Mitigation Measures

The residential nature of Morning Star Place means construction traffic would need to travel past residential housing and moderate levels of pedestrians. Construction traffic management would be required. This is likely to include additional traffic calming devices at the vehicle crossing point to the construction site as well as truck speed restrictions along Morning Star Place to reinforce the existing internal speed limit of 10kph and to thus make sure trucks travel at appropriate speeds. Fencing or barriers will also be required to separate footpaths from the subject site around the vehicle crossing point into the construction site.

2.1.4 Comment

The visitor car park at 27 Morning Star Place of 22 spaces would be removed for all options during construction as it will be part of the overall works area. The Resource Consent for the Morning Star Apartments development was approved with acknowledgments of the potential loss of these parking spaces during the construction of the Central Interceptor Project. Subsequently, Watercare is also not obligated to provide replacement of these spaces. The private car parking spaces east of the visitor car park on Morning Star Place would not be affected by the works.

It is considered that Option One is a good option from a traffic engineering point of view. The access enables excellent access onto the road network by means of a signalised intersection and is considered satisfactory with respect to traffic safety.

2.2 **Option Two – Lyon Avenue**

2.2.1 Access Description

This option involves a site access to be formed from the southern end of Lyon Avenue into Roy Clements Treeway. Site vehicles would travel to and from the site along Lyon Avenue and beyond its cul-de-sac onto a narrower section of private road that serves a commercial property and a number of residential complexes. Vehicles would access the road network via a stop controlled intersection with St Lukes Road.

Lyon Avenue is a Local Road for the first 150m section from St Lukes Road to a cul-de-sac. Lyon Avenue becomes a private road beyond the cul-de-sac, providing access to a commercial property currently occupied by Image Centre Ltd and several residential complexes. Lyon Avenue is an unmarked two-lane, two-way street with parallel kerbside parking spaces generally permitted on both sides of the road along the majority of its length. The section of private road approximately 75m long before reaching the construction site is approximately 7.5m wide, with irregular angled kerbside parking provided on the western side.

2.2.2 Traffic Effects

The available carriageway width on Lyon Avenue is narrow, providing only one lane when vehicles are parked on both sides of the street. The current arrangement on the southern section of Lyon Avenue before the construction site is currently only wide enough for vehicles to travel in one direction at a time. Alternatively all angled on-street parking on this section of Lyon Avenue would need to be removed to enable safe two-way access. This would have noticeable impact on the surrounding residents.

Lyon Avenue is a private road beyond the cul-de-sac head, which suggests that only residents, employees of Image Centre and occasional visitors will access this section of Lyon Avenue thus creating minimal effects on surrounding streets. Lyon Avenue is also already used by heavy vehicles as shown in Photograph 1 below:



Photograph 1: Lyon Avenue extension

Footpaths are not provided along the private road section of Lyon Avenue (although there is a painted no stopping area on part of the southern-side of the private road which is used as a pedestrian area). Construction traffic management would therefore be required on the private road extension at Lyon Avenue to provide better/more defined separation between pedestrians and site traffic by means of temporary fencing / barriers/temporary kerbing.

The alignment of Lyon Avenue consists of two corners at approximately 90 degrees along its length. Mitigation measures such as convex mirrors would need to be installed to minimise conflict of opposing vehicles and pedestrians.

The St Lukes Road / Lyon Avenue intersection is a priority controlled intersection with Lyon Avenue controlled by a stop sign. Site traffic would therefore be required to turn left onto St Lukes Road only for safety reasons.

2.2.3 Mitigation Measures

Traffic management would be required to enable a single lane two-way access on the southern section of Lyon Avenue (angled parking section) to the site such as the installation of temporary traffic signals. If a two-lane two-way access is required, the on-street angled spaces would need to be removed to enable this, and alternative temporary car parking would need to be sought in nearby private properties or on Taylor Road. Only limited alternative parking appears to be available.

Temporary barriers / kerbing would need to be provided on the private road section to separate pedestrians from the site and site traffic. Device such as convex mirrors should be installed on Lyon Avenue on blind corners to minimise conflict of heavy vehicles with oncoming vehicles or pedestrians.



2.2.4 Comment

It is considered that Option Two is not as safe as Option One given the narrow road width, and the potential on-street parking removal along the private section of Lyon Avenue and subsequently the need to seek alternative parking arrangements. Pedestrian / vehicle conflict is also higher due to the directional changes on the private street and lack of footpath on the private section of the street. Site vehicles would also need to access the wider road network through a stop sign of a priority intersection, as oppose to a signalised intersection in Option One which is considered much safer option, particularly for heavy vehicles.

2.3 **Option Three – 2 Wagener Place**

2.3.1 Access Description

This option involves a two-way site access to be established by means of an existing driveway at 2 Wagener Place. Access to the site would be gained from the south via this driveway and across the rear car park.

Wagener Place is an unmarked two-lane, two-way street with parallel on-street parking generally permitted along its length. It connects with St. Lukes Road in the north and is a cul-de-sac in the south.

The access is a private driveway at 2 Wagener Place (along its southern boundary). Angled parking spaces are currently provided on the northern side of the driveway only. The existing vehicle crossing at 2 Wagener Place appears to be of sufficient width to allow for truck access.

Existing vehicle crossing appears to be wide enough to allow for truck access, tracking can confirm.

2.3.2 Traffic Effects

The driveway is located near the end of the cul-de-sac indicating that this access will have less traffic at this location and only affect the adjacent sites.

Truck access could be provided by the driveway in one direction at a time only as the width of the driveway is restricted by the angled parking spaces. Based on the estimated trip generation of the site, the effects of additional traffic for both passenger vehicles and heavy vehicles onto Wagener Place and the subject driveway would be minimal (four passenger cars and five truck movements per hour).

The western side of the rear car park is owned by the Crown (Ministry of Education). Subject to vehicle tracking, only the western side of the car park is likely to be required for site access. The resulting effects can be determined by means of a parking survey of this area to see whether this car park is normally fully utilized. Subject to this normal parking demand of the rear car park, this access option would require minimal changes on the surrounding road network to be implemented and would therefore have minimal effects on surrounding road network.

Wagener Place is relatively busy with accesses to commercial properties and shopping complexes. This indicates that Wagener Place is already used by heavy vehicles (currently used by site vehicles for the construction of 4 Wagener Place). Nonetheless, Wagener Place is of sufficient width for two trucks to pass each other.



It is considered that access at this location would provide excellent access to the local road network. Left turn slip lanes are provided for vehicles wishing to turn onto Wagener Place from St Lukes Road and vice versa. Vehicles wishing to turn right onto St Lukes would be signal controlled at the St Lukes Road / Wagener Place / Westfield Shopping Centre intersection.

Negligible effects at the St Lukes Road / Wagener Place signalised intersection with or without expansion works at Westfield St Lukes are likely to be caused by the site traffic with approximately nine site vehicles traveling into or out of Wagener Place.

2.3.3 Mitigation Measures

Traffic management would be required to enable a single lane access / egress adjacent to the angled carparks. Traffic signals to control construction traffic would be difficult to implement due to the angled car parks within the single lane area. Should a two-lane two-way access be required, the existing angled parking on the driveway would need to be removed and alternate temporary car parking would be required to supplement these parking losses.

Wagener Place attracts moderate levels of pedestrians by its retail / commercial activities. Construction traffic management would be required to make sure trucks travel at appropriate speeds as well as barriers / fencing are installed to separate footpaths and the site at the construction site entrance.

2.3.4 Comment

This option is more viable as a single lane access or egress for construction vehicles, retaining the existing angled car parks along the access. If two-lane two-way access is to be provided then alternate temporary parking would be required. Subject to the current capacity of the rear car park, some parking spaces could be provided at the rear of the site, otherwise they would need to be found on another private site as there is limited spare on-street parking in the area.

2.4 **Option Four – 1 & 2 Wagener Place**

2.4.1 Access Description

Option Four involves the formation of a service road for the site at the rear of 1 Wagener Place, south of the JB Hi-Fi building. Access to the proposed service road would be via the existing southern vehicle crossing at 1 Wagener Place.

The subject access currently forms part of the car parking spaces for 1 Wagener Place along its southern boundary. Landscaping is located on the eastern side of the access. The width of the access would be restricted to existing fencing located on the boundary between 1 and 2 Wagener Place, and the canopy and its supporting posts of the building at 1 Wagener Place.

The existing vehicle crossing is only wide enough to allow for one truck at a time.

2.4.2 Traffic Effects

The driveway is located within 1 Wagener Place thus this proposed site access would only affect the immediate parties.



The current access is of sufficient width to only allow access in one direction at a time. As such, traffic management would be required to enable a single lane two-way access. This could include the installation of temporary traffic signals/warning device. Substantial works would be required to enable an access road through 1 Wagener Place to the construction site as it is currently not a formed through road.

Removal or rearrangement of the existing car parking below the building canopy would also be required to allow for a site access. This would have an impact to the existing building / occupants.

2.4.3 Mitigation Measures

Careful traffic management would be required (near the driveway at Wagener Place) to ensure safe access for trucks and to minimise conflict between vehicles / pedestrians and particularly, Fencing / barriers would be installed to fully isolate the site access from the adjacent child care facility (located at 2 Wagener Place).

Provision of alternative parking arrangement would be required or temporary car parking area created for the removal of parking should the affected spaces be removed to enable access.

This option is likely only suitable for one-way directional flow (ie: entry or exit only).

2.4.4 Comment

This option is not considered to be viable from a traffic engineering point of view. Substantial works would be required to form an access road through the rear of 1 Wagener Place to the construction site.

2.5 **Option Five – Retail Parking Area at 1 Wagener Place**

2.5.1 Access Description

Option Five considers a site access via the existing northern vehicle crossing at 1 Wagener Place approximately 65m from the St Lukes Road / Wagener Place signalised intersection. This option proposes an access to the site through the main car park along the northern side of the building at 1 Wagener Place and access the site from the eastern site boundary.



Photograph 2: rear Noel Leeming carpark

2.5.2 Traffic Effects

This access option would have a high disturbance to both the shoppers and the retail unit holders of 1 Wagener Place. The proposed access onto Wagener Place currently serves as the main access point for the public to the retail complex and attracts high pedestrian activities.



Photograph 3: Carpark access

This access option would require site vehicles to travel through the centre aisle of the main retail car parking area at 1 Wagener Place. It will be difficult to mitigate conflict between site vehicles and the public.

Approximately two parking spaces would need to be removed at the western end of the car park to enable access.

The existing vehicle crossing on Wagener Place maybe difficult for heavy vehicles to perform entry / exit manoeuvres due to the formed island separating the entry and exit lanes. However, this vehicle crossing and car park is already used by servicing vehicles similar to the largest designed vehicle for the existing commercial and retail activities on-site (although in smaller numbers). Furthermore, only five heavy vehicles are expected to travel to or from the site during peak hour. Nevertheless the access path considered is of sufficient width for two trucks to pass each other and it is considered that there is adequate sight distance.

2.5.3 Mitigation Measures

Careful traffic management and temporary signage would be required to warn shoppers and unit holders of the construction site through this highly pedestrianized commercial car park with limited footpaths. This would include temporary fencing installed to separate the site from the car park at the western end of the car park and speed controls to ensure trucks travel at appropriate speeds and to minimise conflict between vehicles / pedestrians.

2.5.4 Comment

This option is not considered to be a preferable option in terms of traffic as major disturbance would be caused to the public especially pedestrians in the public carpark thus the chance of vehicle / pedestrian conflict is high.



2.6 Option Six – Fergusson Reserve and MAGS playing fields from Fergusson Ave or Haverstock Rd

2.6.1 Access Description

This option involves a site access from Haverstock Road or Fergusson Avenue, through Fergusson Reserve and along the eastern edge of the sport fields of Mt Albert Grammar School (“MSG”).

The access route would be formed over the green fields of the reserve and the school and would require agreement with Auckland Parks and the Crown and the school. Two new vehicle bridges across Meola Creek would be required.

Both Haverstock Road and Fergusson Avenue are unmarked two-way two-lane roads with on-street parking permitted on both side of the road. Both roads mainly provide access to residential properties and Fergusson Avenue is a cul-de-sac with connection to Fergusson Reserve at its western end. Currently a pedestrian access into Fergusson Reserve from Haverstock Road is provided and a gated vehicular access is provided at the end of Fergusson Avenue onto the Reserve.

2.6.2 Traffic Effects

This option would require a long and indirect access route and there would be potential for pedestrian / vehicle conflict given the high number of users at the Fergusson Reserve and large number of students users associated with MAGS.

There is sufficient sight distance and space on the green fields to form a two-way access way.

Haverstock Road and Fergusson Avenue are both residential streets. However, based on the estimated trip generation of the site, the effects of additional traffic for both passenger vehicles and heavy vehicles onto these streets would be minimal (four passenger cars and five truck movements per hour).

Site vehicles would need to cross Meola Creek at two points in Fergusson Reserve and Roy Clements Treeway to gain access to the site. An existing wooden bridge is provided in Fergusson Reserve for pedestrian access only, but is unlikely to be sufficient for heavy vehicles. Two new vehicle bridges over the creek would be required to provide access for site traffic.

2.6.3 Mitigation Measures

Both Haverstock Road and Fergusson Avenue eventually link to St Lukes Road and Sandringham Road at priority controlled intersections. As such restrictions of movements at these intersections would be required for construction vehicles (e.g. left turns only).

Careful traffic management would be required such as to provide fencing between the site traffic and school students / park users. New fencing within the school field would be required to enable site access as well as enforcing isolation between pedestrians and site traffic. Pedestrian movement within Fergusson Reserve would need to be maintained and separated from construction traffic. Some temporary signage would also be provided to alert the public of the works and potential site traffic.

2.6.4 Comment

This option is considered feasible from a traffic engineering point of view providing appropriate separation can be provided between construction traffic and users of the school/park.

2.7 **Option Seven – Alberton Avenue via ‘Gate 1’ and MAGS playing fields**

2.7.1 Access Description

This option involves a site access from the existing access to the Mt Albert Grammar School (“MAGS”) House on Alberton Avenue, and along the northern edge of the sport fields to the construction site.

The access route would be formed over the green fields of the school and a new vehicle bridge across Meola Creek would be required.



Photograph 4: likely access location

Alberton Avenue is a two-way two-lane road with on-street parking permitted on both side of the road. It mainly provides access to residential properties and also provides vehicular access to MAGS and Mt Albert Aquatic Centre. Alberton Avenue forms a give-way priority intersection with Mt Albert Road in the south and a stop priority intersection with New North Road in the north. Speed humps are situated along the length of Alberton Avenue.

2.7.2 Traffic Effects

This option would require a long access route through the school, raising moderate potential for pedestrian / vehicle conflict near the School Hostel and high numbers of students using the school fields.

There is sufficient space on the green fields to form a two-way access way. However, this would be subjected to agreement with the Crown and MAGS.

Alberton Avenue mainly provides local access to residential properties but also provides main vehicular access to MAGS.

Both vehicular and foot traffic generated by the school would be high during the school peak periods thus creating potential conflict with site traffic. However, based on the estimated trip generation of the site, the effects of additional traffic for both passenger



vehicles and heavy vehicles onto these streets would be minimal (four passenger cars and five truck movements per hour). Alberton Avenue has a low speed nature due to the presence of speed humps and the geometry of the street. Adequate sight distances are available in both directions from the proposed access.

Site vehicles would need to cross Meola Creek to gain access to the site. A new bridge would be required to provide access for site vehicles to the construction site.

2.7.3 Mitigation Measures

Restrictions on truck access would likely be needed during the school peak between 8:00am and 9:00am, and 2:30pm to 3:30pm to make this option feasible.

Within the school grounds, careful traffic management would be required including fencing between site traffic and school users. New fencing within the school field would be required to enforce isolation between pedestrians and site traffic.

Construction of a new bridge over Meola Creek within Roy Clements Treeway would be required to enable site access.

Given both ends of Alberton Avenue are priority controlled, only left turns would be permitted for construction vehicles at these locations. It is considered that the best use of this option would be entry only (utilising another exit option such as Option 1). The likely route would be from New North Road, left turn into Alberton Avenue and then left turn into the access road via the school gate.

2.7.4 Comment

This option is considered feasible from a traffic engineering point of view subject to the above construction mitigation measures.

3. Summary

The following table summarises the results of our analysis:

Option	Traffic Issues			
	Link to major road network	Pedestrian safety	Vehicle safety / capacity	Parking effects
1. Morning Star Place	Excellent , via signalised intersection	Good , a number of resident pedestrians but separate footpaths provided. Site needs to be adequately fenced/ separated from site. Management of trucks speeds would be required.	Excellent . Two-way road, good sight distance.	No additional loss above the 22 visitor spaces which are lost for all options due to work area.
2. Lyon Avenue	Poor , one option via priority controlled intersection	Acceptable , no footpaths on private road section of Lyon Ave. Traffic management required on private road to separate pedestrians and construction vehicles.	Acceptable providing installation of convex mirrors.	Potential loss of all angled spaces for two-way. No loss for one-way.



Traffic Issues				
Option	Link to major road network	Pedestrian safety	Vehicle safety / capacity	Parking effects
3. 2 Wagener Place	Excellent , via signalised intersection.	Acceptable , little provision but little pedestrian activity.	Good providing construction vehicles one-way.	Potential loss of angled spaces if two-way required. No loss for one-way.
4. 1 and 2 Wagener Place	Excellent , via signalised intersection.	Acceptable , little provision but little pedestrian activity.	Acceptable providing construction vehicles one-way and re-design of entrance.	Small loss of existing undercover parks depending on detailed design.
5. Retail Parking area at 1 Wagener Place	Excellent , via signalised intersection.	Poor , significant pedestrian volumes, little provision for protection.	Poor . Construction traffic likely to be in conflict with retail cars parking / manoeuvring into carparks.	Loss of two spaces. Negligible effect to carpark.
6. Fergusson Reserve and MAGS playing fields from Fergusson Ave or Haverstock Rd	Good , many options available but all via priority intersections.	Good , providing fencing is provided through the park to separate the site from pedestrians. Pedestrian connections including those on the Fergusson Reserve bridge to be retained and separated from construction traffic.	Excellent Majority of access via two-way local road or dedicated access	No loss.
7. Alberton Ave via 'Gate 1' and MAGS playing fields	Acceptable , only if restricted to left turns.	Good , providing fencing is provided to separate the site from pedestrians especially near MAGS boarding house.	Good . Separation of site traffic from school traffic required, eg: signage/fencing.	No loss.

If you require any further clarification please do not hesitate in contacting us.

Yours sincerely
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