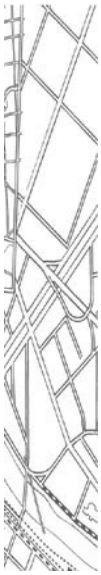

Traffic Report

Fraser's Broadway - Masterplan Traffic and Transport Assessment Report

4 July 2008

Prepared for

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1. Introduction

This report has been prepared on behalf of Frasers Broadway Pty Ltd to summarise a transport assessment of the amended Concept Plan proposal for the Carlton and United Brewery development site now known as 'Frasers Broadway'.

In particular, this report has focused on the items which have changed in the new Masterplan proposal. This report reviews access arrangements, traffic generation and impacts and pedestrian connectivity.

The remainder of the report is set out as follows:

- Chapter 2 – provides an overview of the project to date including the strategic context;
- Chapter 3 – describes the key changes of the current Masterplan proposal;
- Chapter 4 – assess transport implications of the changes; and
- Chapter 5 presents a summary and conclusions.

2. Project to Date

The Carlton and United Brewery site was approved for redevelopment in February 2007 under the Part 3A process. The proposed redevelopment of the site included high density residential housing and commercial and retail uses.

A plan showing the development as approved in February 2007 is shown in **Figure 1** of this report.

Masson Wilson Twiney Pty Limited prepared a traffic and transport assessment report[1] for the original concept scheme. The findings and recommendations of this report were taken into account in the concept plan approval.

The concept plan assumed a floor space ratio of 4.4:1 for the site which equated for the following potential development yield:

- 92,773m^2 FSA of commercial areas
- 12,191m^2 FSA of retail areas
- 1,689 residential apartments with 15% studio, 30% one bedroom, 40% two bedroom and 15% three bedroom

Traffic implications of the original concept plan were examined in detail by the NSW Roads and Traffic Authority (RTA) using a Microsimulation traffic model known as Paramics. The RTA found the traffic impacts of the development were within acceptable limits and granted its agreement to the concept plan transport elements including all proposed road connections to the surrounding road network.

The site was purchased in July 2007 by Frasers Broadway Pty Ltd and is now known as 'Frasers Broadway'.

[1] Carlton and United Brewery Site – Stage 1 Masterplan Traffic Report, Masson Wilson Twiney Pty Limited October 2006

Frasers Greencliff, through the involvement of a number of architectural and planning firms from Australia and around the world, has developed an amended scheme for the site. This scheme will be subject to a further Section 3A consideration by the NSW Minister of Planning.

The amended Concept Plan includes the same grid like building configuration as the original concept scheme. However it proposes a much larger internal public open space component and the removal of some internal streets to create a low speed traffic environment surrounding the expanded public open space. This outcome will be enhanced through the provisions of a series of combined underground car parks which will significantly reduce the need for travel by surface traffic within the site.

A plan showing the current proposal is shown in **Figure 2**.

3. Current Proposal

The key changes of the current proposal compared with the original submitted and approved concept plan pertaining to yield, traffic, parking, and access arrangements are summarised below:

Yield

A summary of the proposed yield compared original concept scheme submitted and that which was approved are provided in Table 3.1 and Table 3.2 below

Table 3.1 - Proposed Scheme Yields versus Submitted Original Concept Plan Yields

Use	Proposed Area / Number	Original Submitted Concept Scheme	Difference
Residential	117,884m² GFA	156,393m² GFA	-38,509m² GFA
Commercial	109,178m² GFA	100 840 m² GFA	+ 8,338m² GFA
Retail	16,722m² GFA	12,833m² GFA	+ 3,889 m² GFA

Table 3.2 - Proposed Scheme Yields versus Approved Original Concept Plan Yields

Use	Proposed Area / Number	Original Approved Concept Scheme	Difference
Residential	117,884m² GFA	142,702m² GFA	-24,818m² GFA
Commercial	109,178m² GFA	88,809m² GFA	+ 20,369m² GFA
Retail	16,722m² GFA	12,093m² GFA	+ 4,629 m² GFA

From Table 3.1 and Table 3.2 it can be seen that amended concept scheme proposes a small increase in commercial / retail floorspace compared with the approved scheme. However, the area of residential development has decreased by some 17%.

The development also proposes a boutique hotel (3,708m² GFA) near Kensington Street and 72 hotel suites within Block 2.

Traffic

The following changes are proposed.

- Closure of Tooth Lane (formally know as Tooth Avenue) to vehicular traffic between Carlton Street and Abercrombie Street.
- Removal of Irving Street between Carlton Lane and Chippin Lane

- Amalgamated and integrated basement car park areas between blocks to reduce surface street traffic volumes in parts of the site.
- Closure of Kensington Street between Outram Street and Dwyer Street to all but authorised vehicles.
- Extension of Outram Street to Kent Road in a one-way westbound arrangement.

Parking

The scheme proposes to reduce the total amount of parking on the site and to implement an improved, more efficient parking management scheme as follows:

- Overall site parking provision for 1,996 spaces compared with 2,440 spaces as proposed in the original Masterplan. This lower parking provision includes some 55 utility spaces for use by service personnel which would otherwise have relied on Council on-street parking. This would include tradesmen (TV repairers, plumbers, shop fitters, maintenance personal, doctors, car share vehicles etc)
- Leasing instead of ownership of the majority of off street parking spaces.
- Dual use of a proportion of office parking spaces to provide parking for out of peak uses.

Access

- Relocation of the traffic signals proposed for Abercrombie Street / Blackfriars Street / Irving Street to Abercrombie Street / O'Connor Street.
- Reduction in the number of driveways throughout the site.
- Basement car park connections located around the periphery of the site to allow vehicles to enter and leave the site close to the surrounding road network.
- Raised pedestrian threshold across O'Connor Street linking Balfour Park with the central open space.

Pedestrians / Cyclists

- Removal of Irving Street between Carlton Lane and Chippen Lane to create an uninterrupted pedestrian / cycle pathway between O'Connor Street and Tooth Lane.
- Off road pedestrian / cycle pathway along the eastern side of Abercrombie Street between O'Connor Street and Broadway.

4. Review of Proposed Changes

4.1 Traffic Generation

The traffic report for the original concept scheme estimated a peak hour traffic generation of 395 trips two way.

During the review of the concept plan, the traffic generation estimates for the site were refined in consultation with the Department of Planning. This review resulted in a revised net increase in traffic generation of **495** trips two –way.

It is noted the RTA approved the submitted concept plan in its original form and the associated traffic generation impacts prior to the small yield reductions included in the Department of Planning final approval.

For consistency with the original traffic report and the post submission traffic generation evaluation, the following traffic generation rates for residential and commercial uses have been adopted.

Residential

- 0.20 peak hour trips for studio and one bedroom units
- 0.24 peak hour trips for two and three bedroom units
- Average unit size = 100m^2
- Adopted unit mix
    - 15% studio units
    - 30% one bedroom units
    - 40% two bedroom units
    - 15% three bedroom units

Commercial

- 0.32 peak hour trips per commercial parking space

The traffic generation for the retail component and uses which may operate within existing heritage buildings has been excluded. This is also consistent with the original traffic report.

The estimated peak hour traffic generation of the current proposal is summarised in Table 4.1 below.

Table 4.1 – Amended Concept Scheme Traffic Generation

Block / Type	Residential GFA	No. Units	Residential Traffic Generation	Commercial GFA	No. Comm Parking Spaces	Commercial Traffic Generation	Total Traffic Generation
Block 1	0	0	0	22,928	102	33	**33**
Block 2	40,000	432	96	16,838	75	24	**120**
Block 3, 6, 7, 10	3,100	33	7	9,155	41	13	**20**
Block 4	0	0	0	58,757	262	84	**84**
Block 5	24,000	259	**58**	0	0	0	**58**
Block 8	13,000	140	31	500	2	`	**33**
Block 9	27,000	292	65	0	0	0	**65**
Block 11	24,000	240	53	1,000	4	2	**55**
Utility spaces							**5***
						Total	**473**

*It has been assumed 10% of the 'utility spaces' would involve vehicles travelling during peak periods.

From Table 4.1 it can be seen that the traffic generation of the amended Concept Plan is less than the refined traffic generation estimated for the scheme approved by the RTA. Therefore external traffic impacts would be less than those assessed by the RTA in respect of the submitted scheme. Accordingly external traffic implications of the changed Masterplan would be positive.

4.2 Traffic Arrangements

4.2.1 Closure of Tooth Lane (formally know as Tooth Avenue) to vehicular traffic between Carlton Street and Abercrombie Street.

For the approved scheme, Tooth Avenue was forecast to carry about 60 vehicles per hour between Carlton Street and Abercrombie Street. With Tooth Avenue closed this traffic would spread instead to Irving Street and Balfour Street. These will have the capacity to easily accommodate this traffic. There would be some operational benefits in doing this as the proximity of the Tooth Avenue / Abercrombie Street intersection to the Broadway / Abercrombie Street intersection would result in some interference with the operation of Tooth Avenue intersection by queuing back from Broadway.

4.2.2 Removal of Irving Street between Carlton Lane and Chippin Lane

The removal of this section of Irving Street would yield a larger area of public space and in turn allows pedestrians to walk between O'Connor Street and Tooth Lane without the need to cross a street. This would reinforce the north – south pedestrian link through the site linking UTS / TAFE with Chippendale south.

4.2.3 Closure of Kensington Street between Outram Street and Dwyer Street

This road closure would allow a pedestrian friendly shared zone through an evolving artist / cultural precinct. Access would be limited to emergency and Council waste vehicles as well as essential property access.

The traffic volumes in this street are currently low and consist mainly of residents travelling to their properties or students parking when attending night courses at UTS or the TAFE. A residential parking scheme controls parking on street during business hours.

The displacement of this small volume of traffic onto the surrounding road network would have minimal impact. The expectation is that the residential properties in Kensington Street would change to artist / cultural uses. As this occurred on-street residential parking could be removed. It is proposed that parking for the new uses would be located within the basement car park under Blocks 2 and 5.

4.2.4 Extension of Outram Street to Kent Road in a one-way westbound arrangement.

In tandem with the closure of Kensington Street, Outram Street would be extended to Kent Road. This connection would provide an exit route for traffic from Goold Street and Outram Street in place of Kensington Street.

As with Kensington Street, traffic volumes in Goold Street and Outram Street are currently low and rerouting this traffic to Kent Road would not have any significant traffic impacts.

4.2.5 Integrated basement car park arrangements

The proposed integrated basement car park areas for the site are shown in **Figure 3**.

The original concept scheme provided individual basement car parks only beneath each buildings. The small footprint of these basements would result in very inefficient parking layouts such that up to eight levels would be needed to provide the required parking. The proposed integrated basement car park arrangement results in much better parking efficiencies. This would reduce excavation volumes significantly across the site in turn, reducing the duration of excavation and the number of truck movements needed to remove excavation material from the site.

In addition, as mentioned above the integrated basement car park arrangement would allow vehicles to traverse much of the site without the need to use the surface street network. This would have a positive benefit to the amenity of the site.

4.3 Parking

4.3.1 Reduction in site parking provision

It is proposed that parking provision for all different uses in the development comply with Sydney City Council's LEP 2005.

4.3.2 Ownership of Basement Car Parks

It is proposed that most or all car park be retained in common ownership. This would allow dual and complimentary use of parking spaces such that fewer spaces would be needed in total. As indicated above, a reduction in the total number of spaces to be provided would be reduce excavation requirements and hence the amount of construction traffic generation.

By having a common pool of parking, the rental or purchase of an apartment would not be influenced by whether the individual apartment did or did not have available and included in the price a parking space on the title. This would avoid the common problem in large inner city apartment developments of parking spaces being provided on title but not necessarily used.

The pooling of non-residential parking spaces would promote the viability of after hours active uses such as restaurants as these would have available to them parking that would be used by commercial tenants during the day.

The proposed utility spaces would be made available to service providers or other essential visitors by special arrangements or in an emergency. Outside of business hours, some of this parking may be made available to general visitors to the complex. This would depend on the need to preserve some parking for essential service providers.

The management plan is proposed to allow the minimum provision of on-site parking without imposing overflow parking pressure on the surrounding area.

4.4 Pedestrian Access

4.4.1 Traffic Signals at Abercrombie Street and O'Connor Street

The deletion of Irving Street between Carlton Lane and Chippen Lane would make O'Connor Street the primary east-west pedestrian link between Abercrombie Street and Kent Road. This route would be more direct for pedestrians moving between Chippendale west and Railway Square.

The proposed provision of traffic signals at the O'Connor Street / Abercrombie Street intersection instead of at the Irving Street intersection as per the approved concept plan would reinforce this key pedestrian route.

4.4.2 Reduction of the number of access driveways

The integrated basement car park arrangement would enable the number of car park and service driveways throughout the site to be reduced. This in turn would reduce the number of potential conflict points for pedestrians.

4.4.3 Location of car park access driveways around site periphery

Car park driveways are proposed to be located in positions close to the external access road system. As indicated above, this would concentrate vehicle movements on the periphery roads of the site and improves the ease of pedestrian movement across and within the central core.

5. Summary and Conclusions

The following are the key findings of this investigation into the transport implications of the proposed Frasers Broadway amended Masterplan for the former Carlton and United Breweries site at Broadway.

Proposed Amended Concept Plan

- The proposed concept plan provides for a large central open space surrounding by a ring of commercial and residential buildings on the periphery.
- This contrasts with the approved concept plan for the site which provides a significantly smaller area of open space and buildings spread throughout the site.
- The overall scale of development will be similar but more commercial / retail development and less residential development is proposed.
- From a transport perspective the main changes proposed relate to:
    - the reduction in the amount of car parking from 2,400 spaces to 1,997 spaces
    - consolidation of parking into a series of large car parks such that greater efficiencies would be achieved resulting in a reduction in the number of parking levels and in the number of car park access points
    - a rationalisation of the internal road system with trafficable roads and lanes being able to be provided by virtue of the consolidation of underground car parking
    - it is proposed to maintain central control of car parking rather than fragment ownership through strata titling. This will allow efficient dual and complimentary use and avoid underutilisation of individually held parking spaces for which individual access or tenants may not require.

Transport Implications

- The amended Concept Plan will result in a lower peak hour traffic generation when compared with the scheme original approved by the RTA.
- Reduced parking provision will reduce the amount of excavation required, the number of truck movements required to remove excavation material and the duration during which the activity takes place.
- The proposed external vehicular access arrangements are similar to the approved scheme and are considered satisfactory.

- Pedestrian amenity throughout the site would be improved through the amalgamation of basement parking areas, the reduction of car park access driveways throughout the site and the removal of some internal streets.
- The relocation of the proposed traffic signals from Abercrombie Street / Irving Street to Abercrombie Street / O'Connor Street will reinforce a better pedestrian route through the site to that offered by the approved scheme between Chippendale west and Railway Square.

Overall the amended Concept Plan is considered an improvement on traffic, parking and access arrangements to that of the original approved concept scheme.

APPROVED CONCEPT PLAN ARRANGEMENTS

FRASER'S BROADWAY

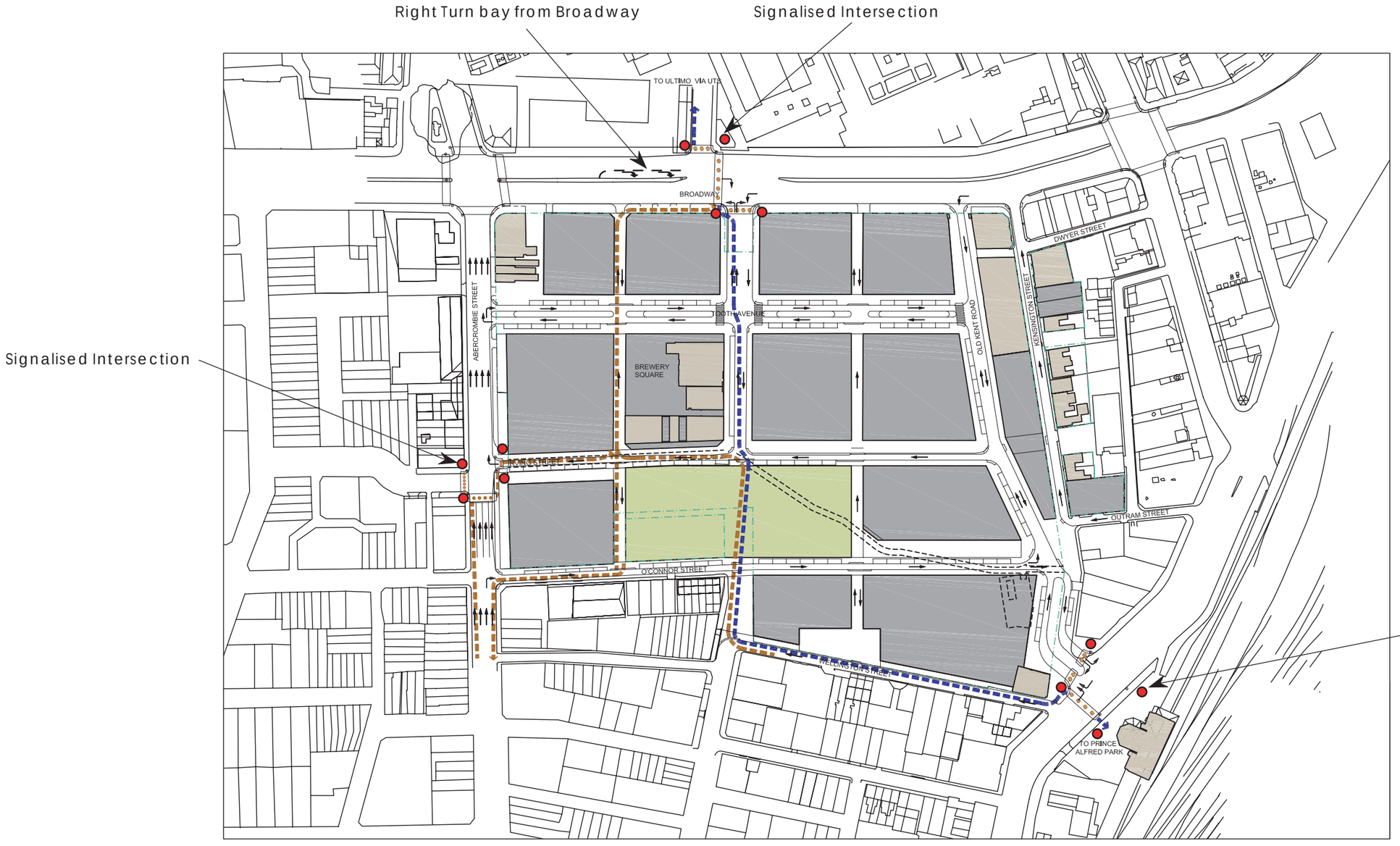

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Figure 1

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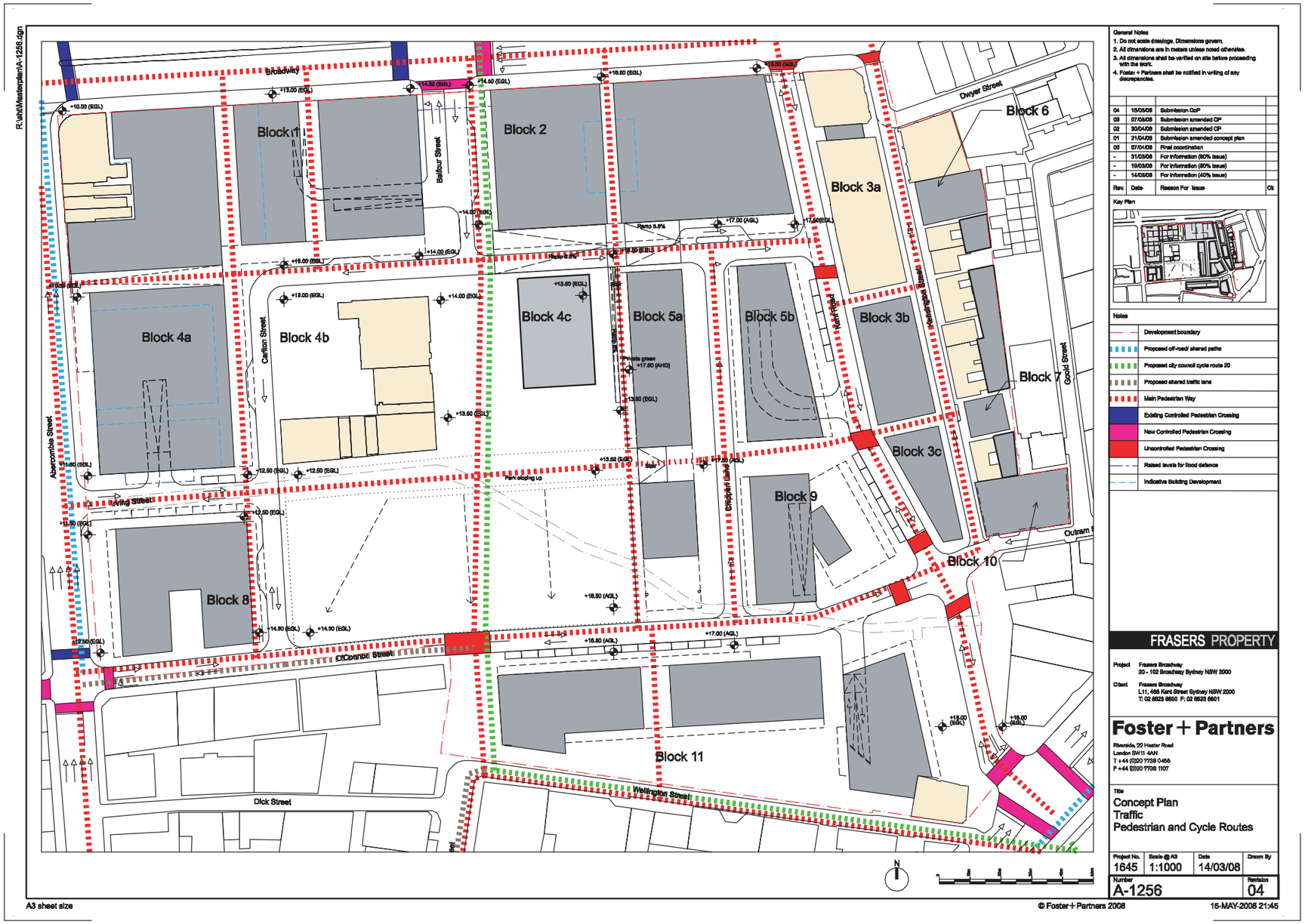
Date: 04 April 2008

AMENDED CONCEPT PLAN

FRASER'S BROADWAY



General Notes
1. Do not scale drawings. Dimensions govern.
2. All dimensions are in metres unless noted otherwise.
3. All dimensions shall be verified on site before proceeding with the work.
4. Foster + Partners shall be notified in writing of any discrepancies.

Rev.	Date	Reason For Issue	Ck
04	15/05/08	Submission DoP	
03	07/05/08	Submission amended CP	
02	30/04/08	Submission amended CP	
01	21/04/08	Submission amended concept plan	
00	07/04/08	Final coordination	
-	31/03/08	For information (80% issue)	
-	19/03/08	For information (60% issue)	
-	14/03/08	For information (40% issue)	

Key Plan

Notes
- Development boundary
- Proposed off-road/ shared paths
- Proposed city council cycle route 20
- Proposed shared traffic lane
- Main Pedestrian Way
- Existing Controlled Pedestrian Crossing
- New Controlled Pedestrian Crossing
- Uncontrolled Pedestrian Crossing
- Raised levels for flood defence
- Indicative Building Development

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Title
Concept Plan
Traffic
Pedestrian and Cycle Routes

Project No.	Scale @ A3	Date	Drawn By
1645	1:1000	14/03/08	

Number: A-1256
Revision: 04

A3 sheet size

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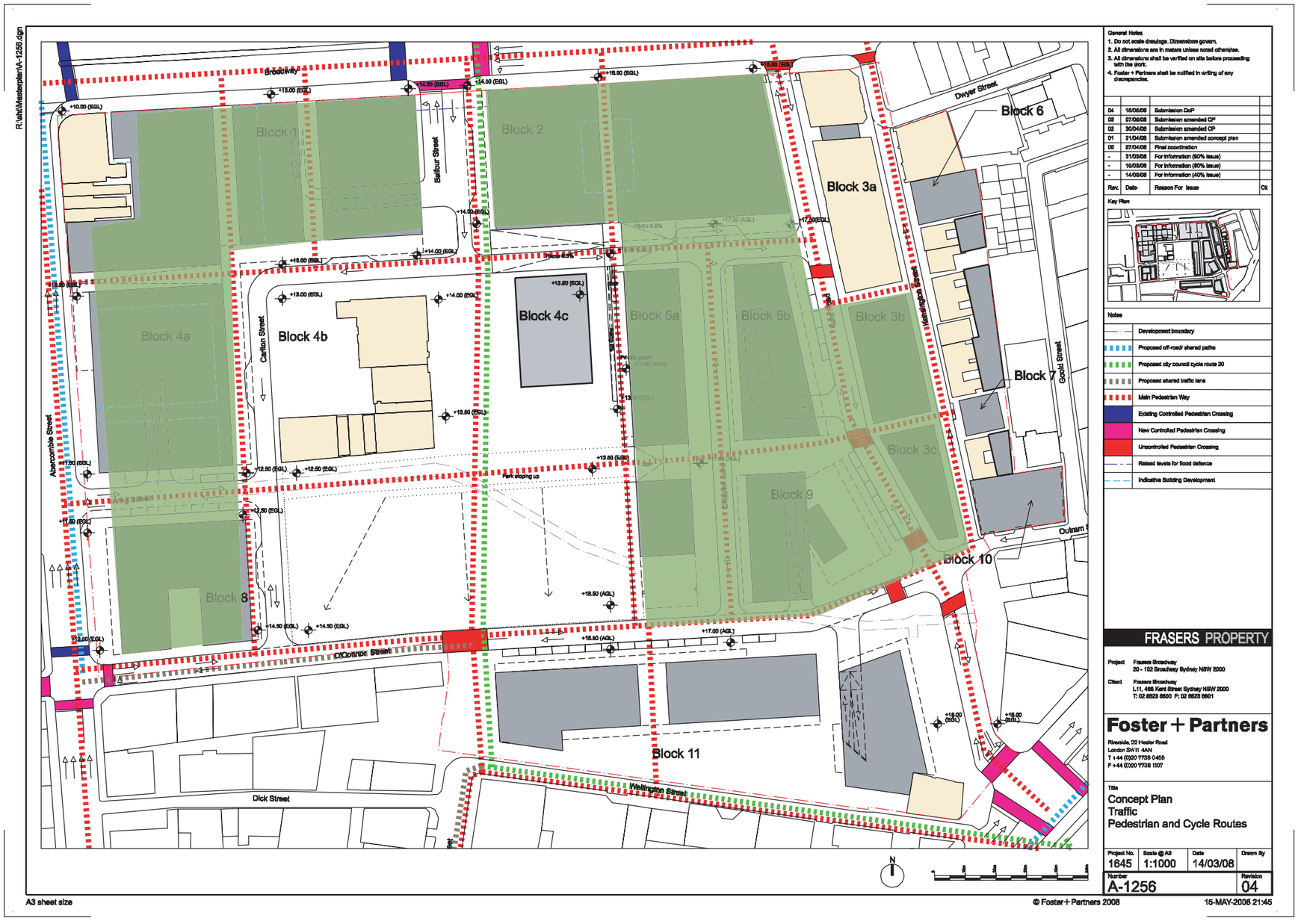
Figure 2

Filename: 073511di10.ai

Date: 04 April 2008

AMALGAMATED BASEMENT CAR PARKING AREAS

FRASER'S BROADWAY



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1645	1:1000	14/03/08	

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Key

Amalgamated Basement Car Parking Areas

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Figure 3

Filename: 073511di09.ai

Date: 04 April 2008