

NATIONAL CAPITAL AUTHORITY

GUNGAHLIN DRIVE EXTENSION

ASSESSMENT OF OPTIONS AT ARANDA PRECINCT

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1.0 EXECUTIVE SUMMARY

The National Capital Authority (NCA) commissioned Young Consulting Engineers Pty Ltd to carry out an assessment of the options for the alignment of Gungahlin Drive Extension (GDE) at Aranda to determine the optimum solution for the road at this location considering the impacts on Black Mountain Reserve and the comments made by Aranda residents on the ACT Government's Preliminary Assessment (PA).

Three options were assessed, namely:

- Option 1: The June 2000 Roads ACT Feasibility Study. This Option contained GDE within present road boundaries but relocated Caswell Drive, which continued to serve as access to Aranda but also formed the northbound off-ramp from GDE to Belconnen Way, closer to Aranda residences.
- Option 2: The PA alignment (30 November 2002). This Option moved GDE into Black Mountain Reserve and maintained Caswell Drive in its present form as the access to Aranda and both the northbound and southbound ramp connections between Belconnen Way and GDE; and
- Option 3: An alternative concept developed by Young Consulting Engineers. This Option downgraded the function and scale of Caswell Drive into a local collector street with its own junction with Caswell Drive by moving GDE further into Black Mountain Reserve and providing dedicated northbound and southbound ramp connections between GDE and Belconnen Way.

While it is considered that Option 3 provides the best outcome for Aranda residents, in terms of improved amenity, the need to provide coordinated, linked signals at Belconnen Way for the new Caswell Drive intersection and ramp intersections does impact on the capacity of the junction. Delays and congestion will occur at peak times by the year 2031.

However, notwithstanding this disadvantage the concept is considered achievable as it achieves the best outcome for Aranda residents. Hence it is recommended for further design analysis.

2.0 BACKGROUND

2.1 The Brief

The National Capital Authority (NCA) commissioned Young Consulting Engineers Pty Ltd to undertake a comprehensive analysis of the Gungahlin Drive Extension between the Barton Highway and the Glenloch Interchange.

The Gungahlin Drive Extension is a proposed arterial road, as defined in the National Capital Plan, that the ACT Government is currently proposing to construct as part of the Canberra metropolitan road network. This road is to meet the needs of road transport movements between the northern part of Canberra, primarily from the Gungahlin District, and the southern and central districts of Canberra.

The proposed arterial road is shown in the General Policy Plan – Metropolitan Canberra (Figure 1) of the National Capital Plan.

Part of the Gungahlin Drive Extension is proposed as an upgrade of Caswell Drive from Belconnen Way to the Glenloch Interchange. The current ACT Government proposal is to align the new road partly within Black Mountain Reserve and provide continued local access to Caswell Drive and Belconnen Way for residents of Aranda. The main reason for the solution proposed by the ACT Government for this section of the road is the result of representation from the Aranda community to reduce potential noise and other impacts of new roads.

There is a need to test the assumptions for the scale and location of the road proposals on this section of GDE so as to avoid or minimise the impact of the road from intruding into Black Mountain Reserve while recognizing and ameliorating the potential impacts on the Aranda residents.

2.2 Historical Context

The Gungahlin Drive Extension has appeared on the 'Y-Plan' since 1970 as a western peripheral parkway linking the satellite towns of Canberra.

The Parkway requirement has been reaffirmed by several studies since including:

- 1984 Metropolitan Canberra Policy Plan and Development Plan. Proponent: NCDC
- 1988 – 89: Gungahlin External Traffic Study (GETS). Proponent: NCDC/NCPA

- 1991: Parliamentary Joint Committee (PJC) recommending two routes be assessed, one east and other west of the AIS.
- 1997: Preliminary Assessment (PA) by ACT Government/Maunsell Pty Ltd which considered at a strategic level several options for linking Gungahlin to the City, but favoured the road east of the AIS and linking to Barry Drive, but also indicated an option to link the road to Caswell Drive at Aranda.
- 2000: The ACT Government's decision to abandon the connection to Barry Drive and adopt the route east of the AIS and connect the road to an upgraded Caswell Drive following an inquiry by the Legislative Assembly's Standing Committee on Planning and Urban Services.
- 2001: The present Government reversed the decision of the previous Government by proposing that the road be built on the western alignment at the AIS.
- 2002: A PA was produced by Roads ACT on behalf of the ACT Government for the total road link from the Barton Highway to Glenloch Interchange with the route being the western alignment at the AIS.

3.0 ASSESSMENT OF OPTIONS

3.1 Introduction

The assessment of engineering options at Aranda considers the following background information.

- i) Engineering Feasibility Study by Roads ACT, dated June 2002
- ii) Preliminary Assessment by Roads ACT, dated 30 November 2002
- iii) Comments received from Aranda Residents on GDE

3.2 Options

For the purpose of this assessment, three options were considered and their benefits and disbenefits were analysed and compared.

These were:

- i) Option 1: Engineering Feasibility Study Recommendation, June 2002
- ii) Option 2: Preliminary Assessment Recommendation, 30 November 2002
- iii) Option 3: Alternative Concept Design, December 2002

Figure 1 illustrates the layout of the 3 options.

3.3 Option 1: Engineering Feasibility Study 2002

This Option developed in the Engineering Study by Roads ACT in June 2002 sought to retain the new GDE within the existing road reserve boundaries, ie there was no intrusion into Black Mountain Reserve.

However, by preserving the Black Mountain Reserve GDE is moved closer to Aranda residences, requiring the northbound off-ramp which replaces Caswell Drive to be built about 20m to the west of Caswell Drive.

The features of this Option are:

- i) Full diamond Interchange at Belconnen Way.
- ii) Northbound carriageway consumes existing Caswell Drive
- iii) Access to Aranda
 - Bandjalong Crescent intersects both ramps with an underpass connecting both ramps. The northbound off-ramp is signalized at the junction while the southbound on-ramp is a right turn in and left turn out manoeuvre.
 - Wangara Street intersects the northbound off-ramp as a left-in, left-out intersection.
- iv) No intrusion into Black Mountain Reserve.
- v) Underpass provides access between Aranda and Black Mountain Reserve.
- vi) Caswell Drive realigned closer to residences and services as the access to Aranda as well as the northbound off-ramp to Belconnen Way.
- vii) Unmitigated noise levels the highest of the 3 Options. Refer Figure 1 which shows the 58dB(A) noise contour well inside the rear residences of Aranda.
- viii) Main carriageway of GDE is about 50m from back fences of Aranda.
- ix) Cutting into Black Mountain Reserve minimised in this Option as it is closest to all 3 options to Aranda residential area.

3.3 Option 2: Preliminary Assessment, November 2002

This Option moves the GDE to a minimum of 100m from the rear fences of Aranda residences. Generally the roadway encroaches between 50m and 60m into the Black Mountain Reserve.

Caswell Drive is maintained as the northbound off-ramp to Belconnen Way, the southbound on-ramp from Belconnen Way to GDE as well as continuing to provide access to Aranda.

The features of this option are:

- i) Main carriageway is 100m from back fences of Aranda.
- ii) Existing Caswell Drive continues to carry large volumes of traffic as it serves as the northbound off-ramp and southbound on-ramp of GDE
- iii) Intersection with Belconnen Way is a half diamond interchange with the existing Caswell Drive continuing its present role. Refer previous Item ii).
- iv) Access to Black Mountain Reserve via an overpass from Aranda.
- v) Traffic overpass required to link southbound traffic from Caswell Drive on-ramp to GDE.
- vi) Changes at the existing Caswell Drive intersection with Belconnen Way are the minimum with this option compared to the other two.
- vii) Up to 60m intrusion into Black Mountain Reserve
- viii) The 58dB(A) noise contour on this option extends into the rear of residential blocks in Aranda. Refer Figure 1.
- ix) The role proposed for Caswell Drive will ensure continued high traffic volumes and noise levels within 70m of Aranda residential rear fences.

3.3 Option 3: Alternative Concept, December 2002

This Option responds to the comments received from Aranda residents in that Caswell Drive is downgraded to a local collector road, reduced in scale and provided with a separate connection to Belconnen Way.

The alignment of GDE is maintained as in Option 2 but a new southbound on-ramp is provided from Belconnen Way, which increases the overall encroachment of the road into Black Mountain Reserve.

The features of this option are:

- i) Alignment of main GDE carriageway remains as Option 2.
- ii) Full diamond interchange at Belconnen Way introduced.
- iii) Caswell Drive reduced to a suburban collector road, 7m wide in lieu of present 14m width with a new intersection (signalised at Belconnen Way and linked to the signalized diamond junction). Redundant pavement on Caswell Drive can be utilized as a 90° angle carpark for recreational users of Black Mountain Reserve.

This road deviates closer to Aranda residence rear fences between Bandjalong Crescent and Belconnen Way (similar offset to section between Wangara Street and Belconnen Way)

- iv) All traffic from Aranda needs to travel north to Belconnen Way prior to either continuing north or heading south via the interchange.
- v) This arrangement will discourage, if not completely eliminate, through traffic travelling through Aranda from adjoining suburbs to access GDE.
- vi) Present Caswell Drive intersection with Belconnen Way will be rebuilt to form the new full diamond interchange.
- vii) A minimum of 100m separation is provided between the Aranda rear fences and both the main GDE carriageway and the northbound off-ramp.
- viii) All three intersections on Belconnen Way will be controlled via linked traffic signals.
- ix) Up to 100m intrusion into the Black Mountain Reserve at Belconnen Way results. This is balanced by the removal of the need to intrude

into the reserve with southbound on-loading ramp as required for Option 2.

- x) Earthworks (cuttings) will be greater, particularly along the southbound on-ramp, south of Belconnen Way.
- xi) Noise levels on this Option have the lowest impact on Aranda residences of the 3 Options due to the downgrading of the role of Caswell Drive. Refer Figure 1.
- xii) Traffic modeling at the intersection of the roads at Belconnen indicates that all three intersections will need to operate under linked signals and that it will have a relatively low level of service (D) by the year 2031. Significant delays may be expected at peak times.
- xiii) Responds best to the comments received from the Aranda residents after discounting those who did not want the road near Aranda.(Refer Table 1). However, there are traffic capacity issues at Belconnen Way as alluded to in xii).

4.0 CONCLUSION

Option 3 provides the optimum response to the majority of Aranda residents who recognised that if the road had to be built it should be as far as possible from the residences and that the function of Caswell Drive be downgraded.

However, there are implications at the Belconnen Way intersections where the level of service will reduce as congestion increases. By 2031 significant delays may be expected at peak times.

Intrusions into Black Mountain Reserve are minimised while responding to the concerns of Aranda residents with respect to the downgrading of the role of Caswell Drive and improving the amenity of the suburb.

Hence Option 3 is recommended as a concept to be developed further in the detailed design phase.

TABLE 1: SUMMARY OF RECENT COMMENTS RECEIVED ON GUNGAHLIN DRIVE EXTENSION

Concerns Raised	Recommendations
<p>GDE impacts on Aranda Residents Noise impacts – increased traffic volumes on Caswell Dr Visual impacts – from engineered structures/concrete walls Impact on quality of life/amenity Air Pollution Safe access to and from the suburb Meeting the high standards of planning for which Canberra is renowned Impacts from construction GDE planning process – “interstate highway” scale of road adjacent to Aranda, different from original route in 1970’s /1980s plans where route was several hundred metres to east of Caswell Dr. Plus more future traffic on Caswell Dr as consequence of not completing entire transport system – eg. Monash Dr. Do not support ACT Government’s original proposal (June 02) where GDE was within 40m of houses. Concerned revised western route (Oct 02) – use of Caswell Dr as GDE access road from Belconnen Way – inconsistent with Territory Plan (separation of intertown and local traffic), and safety and noise problems Lack of rigorous economic and policy justification for a new 2-lane road adjacent to Aranda Impact on Black Mountain Reserve – noise impacts/tree removal</p>	<p>Supports realignment of route to eastern side of Caswell Dr- intruding into Black Mountain Reserve. Relocate GDE 200m into Black Mountain Reserve – given Link Road deleted from plans. Oppose realignment west of Caswell Dr. Do not support GDE in bushland between houses in East Aranda and Caswell Drive. Amend alignment: provide direct access to and from Belconnen Way onto the GDE. Avoids Caswell Dr used as access road to GDE – local access road only. Reduces impacts on Black Mountain Reserve and eliminates southbound overpass opposite Noala Street. Replace pedestrian overpass with a system of landscaped walking tracks to Black Mountain under the existing Caswell Drive. Support engineering solutions to maintain amenity – including a bush outlook, no noise or visual impact, and easy access from east Aranda to Woden, Civic and Belconnen. Noise abatement measures required – use planted landscapes as noise barriers rather than engineered products. Construct a noise wall on western side of Caswell Dr prior to construction. Provide landscaping between Aranda and Black Mountain. Noise targets for Aranda Residents to be same as the AIS (40bd) – achieve this by placing GDE lower road in Aranda locality, particularly south-east of Wangara Street. Use a low-noise road surface in Aranda vicinity. Lower speed on Caswell Drive – 50km/hr Use signage to direct GDE traffic via Ginninderra Dr to Bruce and to Belconnen Town Centre. Access for Bruce traffic onto GDE – no confined at Aranda. Restrict heavy vehicle use. Restrict parking along the verge of Caswell Drive. No GDE – public transport solution – light rail. Reduce road scale with intersections at grade and controlled by traffic lights/roundabouts. Closed south of Wangara St to GDE and replace road surface with bushland. Eliminate proposed 4m high noise abatement embankment on western side of Caswell Drive. Requested Authority disclose options it has considered and reasons for accepting/rejecting these.</p>