



PROPOSED SOUTHERN CEMETERY IN THE ACT

Community Discussion Paper

19 January 2010



Have Your Say

The ACT Public Cemeteries Authority encourages the Canberra community to submit comments in relation to the proposed cemetery development in southern Canberra which is the subject of this Discussion Paper.

All comments can be submitted in writing to:

Re: Proposed Southern Cemetery Consultation Report
Community Engagement and Communications
Department of Territory and Municipal Services
GPO Box 158
CANBERRA ACT 2601

Inquiries can be made by calling Canberra Connect on 13 22 81.

All comments received by close of business on **Tuesday, 16 March 2010** will be incorporated into the Authority's subsequent report to the ACT Government.

For more information on ACT Cemeteries please visit
www.canberracemeteries.com.au.

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Executive Summary

The ACT Public Cemeteries Authority has started planning for a new cemetery to cater for the future needs of the ACT. The outcome of community consultations conducted in 2009 showed that the community understands why a new cemetery in a southern location is under consideration and confirmed that there is broad community support for such a development.

Planning for cemetery locations is a long term issue. Cemeteries are a feature of all communities and the location, design and accessibility are matters which the Authority and the Government take very seriously.

The Authority has identified a site in south Canberra that is well suited to be developed as a cemetery. It is acknowledged that there may be other sites which also may be suitable. However, at this time the site proposed best meets all of the published requirements for a new southern cemetery. The site is suitable for the range of uses envisaged, including providing natural burial options.

The site identified by the Authority as its preferred location for a southern cemetery is in Blocks 1676 and 1677 Tuggeranong District, off Long Gully Lane and is approximately 50 hectares. A cemetery of this scale would provide security for this fundamental civic function for future generations.

This Discussion Paper has been prepared to address the issues raised during community consultations conducted in 2009. As it is practice in the ACT that the Authority manages cemeteries in perpetuity it is important that all cemeteries are administered on a sustainable basis, not least to minimise the cost to Government and the community. Managing the cemeteries responsibly with regard to water use, heritage issues and cultural expectations are also central to the work of the Cemeteries Authority. This Discussion Paper provides an outline of independent research conducted to assess site suitability against an extensive range of planning considerations.

Preliminary planning assessment has found the site to be suitable for development as a cemetery. If the Government agrees to proceed, further studies will be undertaken to establish specific site conditions and advise necessary design parameters and construction recommendations. The extra work will include:

- Classification under the National Capital Plan, the Territory Plan, the Canberra Spatial Plan and other Commonwealth legislation, development and planning codes
- Aboriginal heritage issues
- Topography and drainage
- Soil, groundwater and geotechnical conditions
- Traffic, transport and access

- Ecological assessment

In any new development, the Authority intends providing the services that cemeteries in the ACT have traditionally offered. As a result of community consultations, the Authority will recommend to Government that natural burial is offered in the ACT and is moving to provide this service in existing cemeteries.

Issues around the requirements and appropriate allocations for different denominations are acknowledged. During the planning process, specific areas for different denominations will be assessed against a range of factors, including the size of the areas currently set aside in existing cemeteries, the size of the community, cultural needs, projections about future needs, consideration of maintenance required and how requirements fit with the whole development.

Most large urban cemeteries include crematorium facilities. The development of a crematorium is an important component of a comprehensive cemetery capability and is one which will allow the Authority to meet community needs into the future. However, the inclusion of a crematorium in a new development was an issue identified during the consultations.

The Authority commissioned an air quality impact assessment of a proposed crematorium located on the proposed site to ensure that all surrounding sensitive receptors will not be adversely affected by emissions to air from the crematorium. Dispersion model predictions indicated that all modelled pollutant concentrations will meet current air quality criteria at all modelled sensitive receptor locations surrounding the proposed site and at all locations across the 5 kilometre by 5 kilometre modelling domain. Predicted pollutant concentrations are between 2 and 15 orders of magnitude below the relevant assessment criteria. It is considered that the proposed operational activity at the crematorium will have insignificant impacts upon the surrounding environment. Preliminary financial modelling supports a positive business case and sustainability of this service.

It is important to remember that no decisions have been made regarding a proposed new southern cemetery development in south Canberra.

The ACT Public Cemeteries Authority encourages the Canberra community to submit comments in relation to the proposed cemetery development in southern Canberra and this Discussion Paper. All comments received by close of business on **Tuesday, 16 March 2010** will be incorporated into the Authority's subsequent report to the ACT Government.

1. Introduction

1.1. Background

The ACT Public Cemeteries Authority (the Authority) is an independent statutory authority established under the Cemeteries and Crematoria Act 2003. It is responsible to the Minister for Territory and Municipal Services for the management and operation of public cemeteries at Gungahlin, Woden and Hall. An important aim of the Authority is to manage all cemeteries on an environmentally sustainable basis and to minimise the cost to Government and the community.

The Authority has identified the need for a new cemetery to cater for the future needs of the ACT. On 6 February 2009, the ACT Government agreed to a proposal from the Authority to explore the options in determining a site for a new cemetery in the ACT. The Authority and project consultants undertook an extensive community consultation program to gauge public opinion on the development of a new cemetery, possible locations and the services the community would expect.

Broadly, the outcome of the consultations demonstrated that the community understands why a new cemetery in a southern location is under consideration and that there is support for such a development. Only a small proportion of those consulted indicated that they did not support the development of a new cemetery.

This Discussion Paper has been prepared to address the issues raised during the consultation period.

1.2. The Consultation Program

Based on the information collected throughout the consultations, key outcomes were:

- The community understands that planning for cemeteries is a long term issue, and that the needs of future generations are an important consideration.
- The majority of people consulted were supportive of the need for a cemetery in south Canberra – a community survey conducted in May 2009 found that over 80 percent of respondents expressed support for the development of the cemetery and only 1 percent of respondents indicated that they did not support the development of a new southern cemetery. However, there is a need to confirm the demand for a new development.
- The types of burial services that would be offered at a new cemetery raised considerable interest, especially from particular community groups.
- An increasing interest in natural burials, as is evident in other parts of Australia and internationally.
- The community expressed a preference for a comprehensive service to be offered at a new cemetery. There was general support for another

crematorium in Canberra. However, issues to do with environmental impact will need to be further explored and communicated. The co-location of a crematorium on the same site as a new cemetery development was an issue for some community groups. Further, the demand for cremation services in this region requires further examination.

- There was a variety of views expressed about the site which has been identified as the preferred location. In particular, people living close to the identified site have requested more detailed information on the impact of the development on residents, the environment and the existing natural wildlife corridor. An important consideration is the impact of reserving a substantial parcel of land which is currently used for horses under agistment. The close proximity to the Mugga Lane Resource Management Centre was also an issue raised through consultations.
- The preferred site will be subjected to detailed assessment to identify items of Aboriginal cultural significance or Aboriginal connections to the proposed site.

The Consultation Report and Community Survey reports are available online at www.tams.gov.au.

2. Issues Raised During the Consultations

The planning for a new cemetery in southern Canberra has been preceded by substantial community consultation involving the range of engagement processes including public presentations, telephone surveys, mail drops and individual briefings. Through this process many issues were raised, many of which required further examination and are the subject of ongoing community engagement. The key issues raised can be grouped around five key themes:

1. Location and site criteria
2. The proposed site
3. Aboriginal heritage issues pertinent to the site
4. The actual services to be offered at a new cemetery
5. Whether or not crematorium services are included

The following is a summary of the main issues raised during the consultation. A detailed report of issues raised is available at Appendix A.

Location and site criteria

- More detailed information was requested on the site selection process.
- Confirmation that any new development would be subject to the full planning provisions (i.e. a Development Application and an independent Environmental Impact Statement).
- Access to public transport and accessibility for disabled people was a priority for the site selected.

The Proposed Site

- Several concerns were raised in relation to the site that has been identified as the preferred location for a new southern cemetery. These issues include:
 - the visual impacts, particularly for neighbouring suburbs
 - the impact of traffic, transport and access options to ensure accessibility and usability to the site
 - clarification was sought over the amount of land that is required, and that adequate buffer zones have been factored in to cater for future needs.
 - confirmation was sought that a full examination would be conducted of the suitability and sustainability of the proposed site, particularly with regards to heritage and conservation, treatment and protection of the natural wildlife corridor, flooding, wind direction, plume, soil quality, the impact of being located adjacent to the Mugga Way Resource Management Centre and the impact on current users of the land.
- clarification sought over timeframes if development proceeds.

Aboriginal Heritage Issues

- The preferred site will have to be subjected to detailed assessment of Aboriginal sites.

Services to be offered

- Increasing interest in natural burials – based on the level of interest more awareness and education is needed about natural burial as an option and the Authority will need to set a timeframe for when this service would become available.
- The community expects to be able to choose from a variety of burial services and areas, as is the case at the Gungahlin cemetery.
- A new development is expected to be well maintained with a natural look. However, concerns regarding water use were expressed.
- While the intergenerational nature of planning for a cemetery was understood, the community is interested in accessing detailed data to confirm the demand for another cemetery in Canberra, which would also service the region.
- Thoughtful consideration of the requirements of the local Muslim community is expected. The specific requirements for this growing population includes: a segregated burial area, provision of preparation/wash room facilities, a sheltered area to perform the funeral prayer and adequate accessibility.
- Generally, the question of identifiable areas for specific groups was an issue to be settled during the planning phase.

Crematorium services

- The community expressed a preference for a comprehensive service to be offered at a new cemetery. In this context, there was general support for the establishment of another crematorium in Canberra. However, issues to do with environmental impact of the facility being located close to residential suburbs will need to be further explored and communicated.
- The co-location of a crematorium on the same site as a new cemetery development was an issue for some community groups. Further, the demand for cremation services in this region requires further examination.
- The development of a crematorium as part of a comprehensive offer generated a number of understandable concerns:
 - confirmation that appropriate environmental studies will be done to satisfy concerns and ensure informed decisions are made as to the level of cremation pollution (atmospheric and ground), the cumulative effect and dispersion of emissions presented comparative to other emitters, the smell and visual impact
 - confirmation of the demand for another crematorium in the current market and that other options were considered to address need
- The co-location of a crematorium on the cemetery site is of concern to the Muslim community – there is a strong preference to develop two distinct areas.

3. Findings

This section aims to address some of the questions and issues raised during the consultation period.

3.1. Location and site criteria

Site Assessment Process

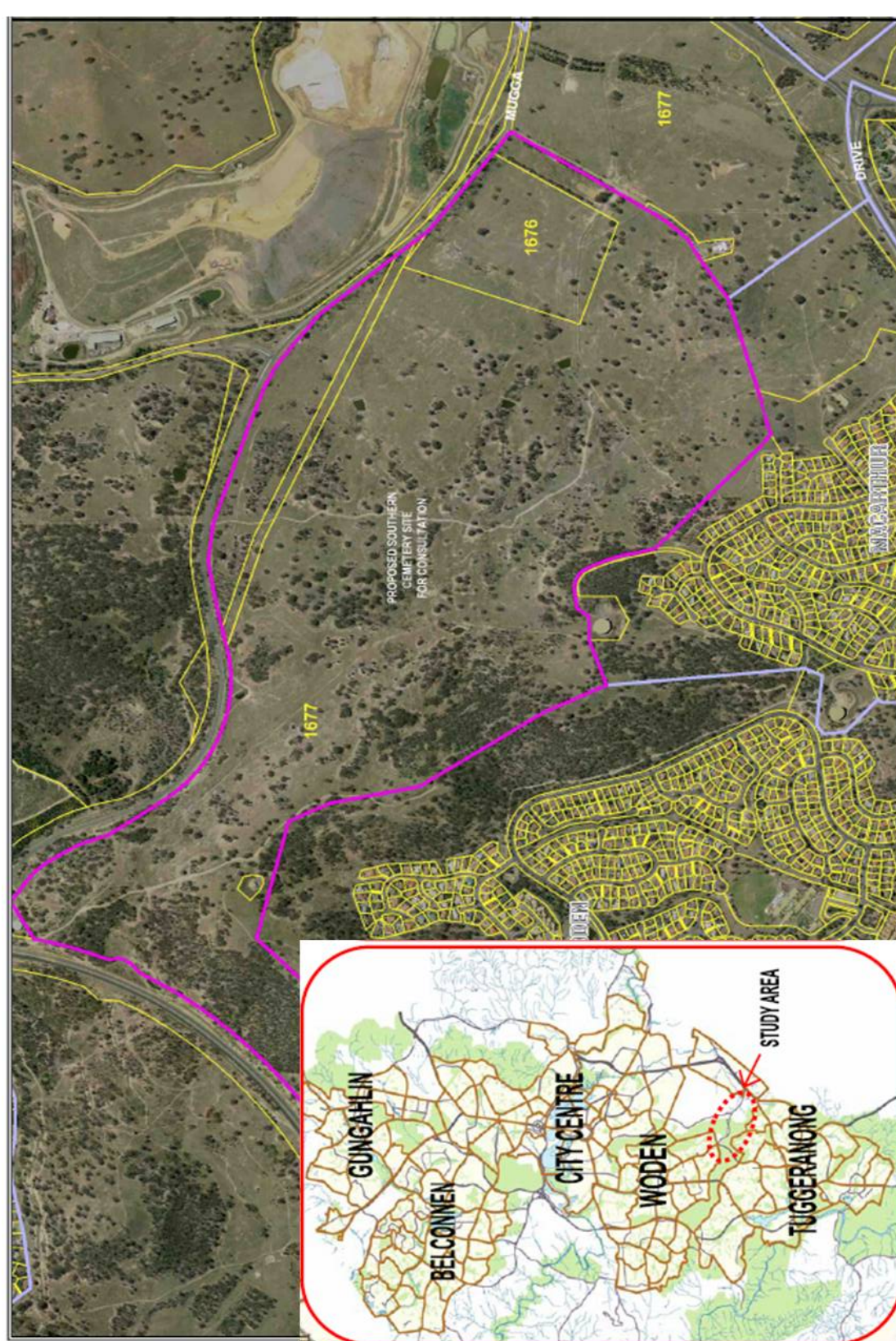
There are several key assessment criteria relevant to designating a suitable site for a potential new cemetery for the ACT. These criteria include:

- Suitable land classification under the Territory Plan (Broad acre)
- Proximity to main roads
- Able to accommodate separate or large exit/entrance
- Minimum site of 40 hectares
- Topography (predominately flat)
- Buffer zone (minimum 20 metre buffer around burial areas)
- Large traffic capacity/access to accommodate large cortege
- Consistent subsoil not containing large areas of rock
- Able to withstand rigorous mass soil movement
- Outside 100 year flood zone
- Low water tables desirable (ideally minimum three metres)
- Access to services (water, electricity and gas)
- Access to public transport
- Access to water and potential for capturing runoff in dams
- No contamination
- No heritage and/or cultural adverse implications
- No ecological adverse implications

The Authority and the ACT Government have considered a number of potential sites for a southern cemetery. Block 1676 and parts of Block 1677 Tuggeranong District (southern side of the intersection of Mugga Lane and Long Gully Road) has been identified by the Authority as suitable to proceed with further evaluation.

Map 1 shows an overlay to identify where the proposed site is situated in southern Canberra, as well as the boundaries of the proposed site (Block 1676 and parts of Block 1677 Tuggeranong District).

Map 1: Location of proposed site in Canberra and site boundaries



Water and environmental planning considerations

As with all new facilities built by the ACT Government consideration will be given to incorporating the latest concepts in sustainability and providing for upgrade as new concepts and technologies become available. To the greatest extent possible, a new cemetery development would implement best practice demonstrated in Australia and around the world.

In aiming towards a greener future and reduced carbon footprint planning would take into consideration:

- use of natural vegetation in all plantings, which would offset on-site energy requirements
- minimal road infrastructure
- onsite harvesting of water for use in irrigation and toilet facilities (dams and bores)
- on site recycling of waste water
- exploration of alternate power sources
- burial and memorial sites to be encouraged within a natural vegetation landscape
- where feasible, built structures will be constructed and maintained with full regard to the Government's environmental sustainability principles.

3.2. The proposed site

Treatment of the Site

Planning for the new cemetery is based on a multi-stage development of about 50 to 60 hectares. The site in which the cemetery may be located is contained within a large parcel of land of about 220 hectares. A thorough preliminary assessment has been conducted by experienced planners of the entire 220 hectare block. The overall study area considered in the assessment is marked on Map 2. The site was assessed against a range of indicators, which are outlined below:

- Classification under the National Capital Plan, the Territory Plan, the Canberra Spatial Plan and other Commonwealth legislation, development and planning codes.
- Topography and drainage – the study area is mostly gently undulating topography with surface slopes between 1 and 2 degrees. A small hill is present at the western side of the site, with slopes to a maximum of 5 degrees. Refer to Map 3 for Topography, Drainage and Land Use.
- The site is at an elevation above the 1 in 100 year flood level event. It is noted that localised flooding on Block 1676 Tuggeranong occurred in 2006 as a result of a large hail storm event which blocked drainage lines and caused water to flood the low points of the site.
- Soil, groundwater and geotechnical conditions – subject to further detailed geotechnical investigation to establish specific site conditions and

determine the necessary final design parameters and construction recommendations.

Map 2: Overall Study Area



Map 3: Topography, Drainage and Land Use



- Aboriginal heritage issues.
- Traffic, transport and access – preliminary assessments show that there will inevitably be some increase in traffic but the surrounding road network is currently under no stress and it is not anticipated a cemetery use will have an adverse impact on existing or future traffic conditions of the area. A detailed traffic report would be conducted in future stages.
- Ecological assessment – the development of the proposed cemetery is feasible with little adverse impact on ecological values, provided that development is generally limited to the low-lying areas located within the eastern part of the study area. Potential offsets and ecological enhancement is possible and should be integrated with the design of the overall project. Some plans may require approval from the ACT Conservator for Flora and Fauna.
- Minimising disruption for the horse user group, both by way of preserving some land and in the manner in which the cemetery development is staged.

The planning report reviewed a range of recent assessments done on the site, and while it did not find any adverse impacts, it recommended that detailed assessments be conducted at detailed design stage with respect to waste management, contamination, noise, bushfire risk, visual assessment, and environmental impact of the existing Mugga Lane operations (i.e. the spread of odours and windblown particles).

Other Users

The horse agistments are managed by the Department of Territory and Municipal Services (TaMS) and are held under a licence agreement by Territory Agistment. There are no structures on the site apart from a high voltage electricity line traversing the block in an east-west direction and some horse-holding yards and dressage ring located near the main driveway off Mugga Lane.

A cemetery would be developed in stages over a number of years. The Authority will take all possible steps to reduce the impact on current users.

Planning processes for a cemetery

All proposed developments are assessed by the ACT Planning and Land Authority (ACTPLA) in accordance with the *Planning and Development Act 2007* and the Territory Plan.

The preliminary planning assessment has explored the requirements of these processes and no insurmountable issues have been identified. The main issues to be addressed for a cemetery development will be covered by an Assessment of Environmental Effects that addresses a range of issues including traffic generation, impact on the amenity of the surrounding area, visual impact on the hills and buffer areas, impact on the existing rural character, impact on water supply and impact of earthworks and/or rehabilitation works on soil stability and quality. ACTPLA could

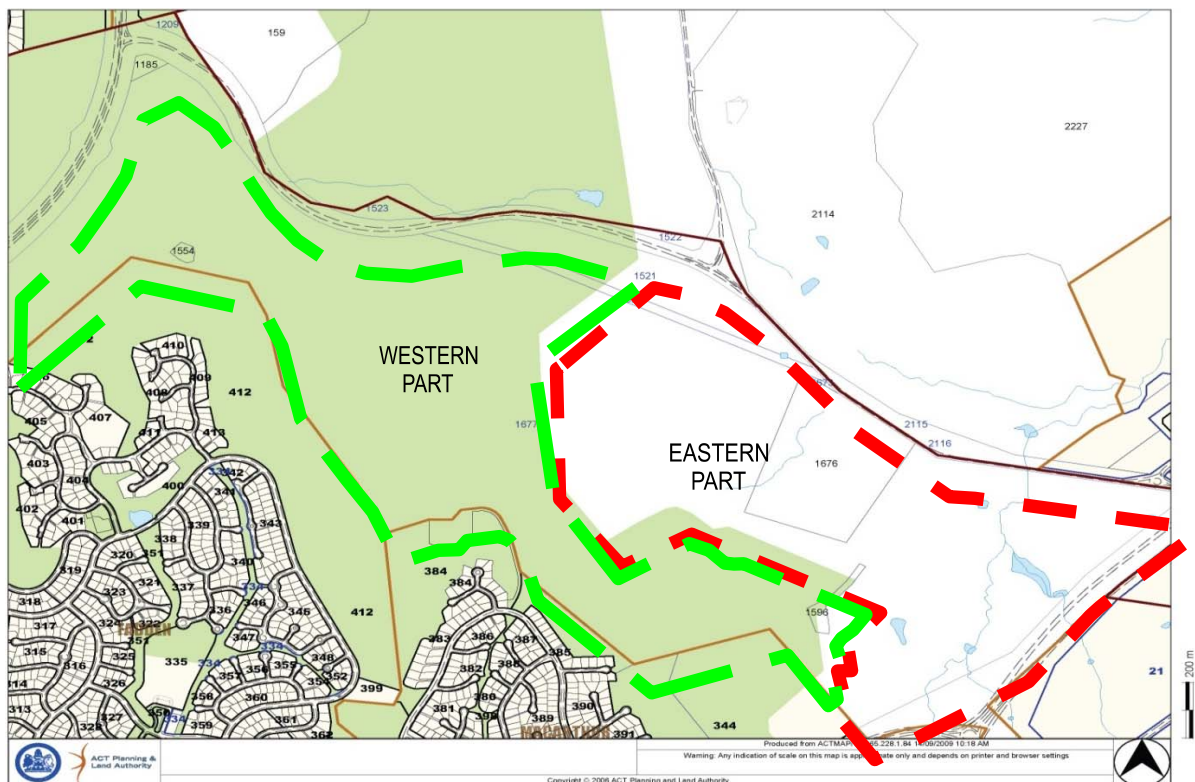
specify additional matters, for example bushfire risk. The requirements of the Environment Protection Authority will be complied with in any planning for a crematorium.

General Siting Options

The study area is divided into two distinct areas: the western part of the site located within reserves (including Nature Reserves) and Designated Land under the National Capital Plan; and the Eastern part which is unleased Territory Land within the Broadacre zone. These areas are shown below in Map 4.

The constraints to carrying out development within the western part of the study area were considered insurmountable and, as such the assessment for site selection was contained to the eastern part of the study area.

Map 4: Study Area – General Site Options



Source: ACTMAP

Proposed Site

The preliminary site assessment was conducted on the entire eastern part of the block. Map 5 provides an aerial view of the portion of this parcel of land identified by the Authority as most suitable for a cemetery development.

The study assessed the opportunities and constraints of this part of the site. It was identified as having the capacity to accommodate a new southern cemetery for the ACT. The summary of the assessment is outlined below.

- Variety of elevation

- Includes remnant vegetation on higher ground
- Contains water course and existing dams that could be maintained as a feature
- The site is not within the 1 in 100 flood level
- Large area for burials
- Potential disturbance to existing horse paddocks and trails (however, these could be relocated)
- May require new site access from Mugga Lane
- Subject to potential future alternative land uses on adjacent sites to east and west (could be managed by inclusion of restrictive planning controls to ensure compatible uses)
- Access to site past recycling centre and methane gas plant (some of these elements could be screened by landscape in medium term but are outside the control of the Authority)
- No Development Control Plan (DCP) required

Figures 1-4 provide various views from the proposed site.

Based on this preliminary assessment, the Authority is satisfied that the site is suitable for the proposed cemetery development, however, the final decision would be determined by government based on land availability and opportunity cost.

Map 5: Aerial View of Proposed Site within Study Area



Figure 1: Views towards Queanbeyan from the central part of the study area



Figure 2: Views from higher parts of the site to Queanbeyan across Hume



Figures 3 and 4: Views of the landfill embankment adjacent to the site



Development Timeframes

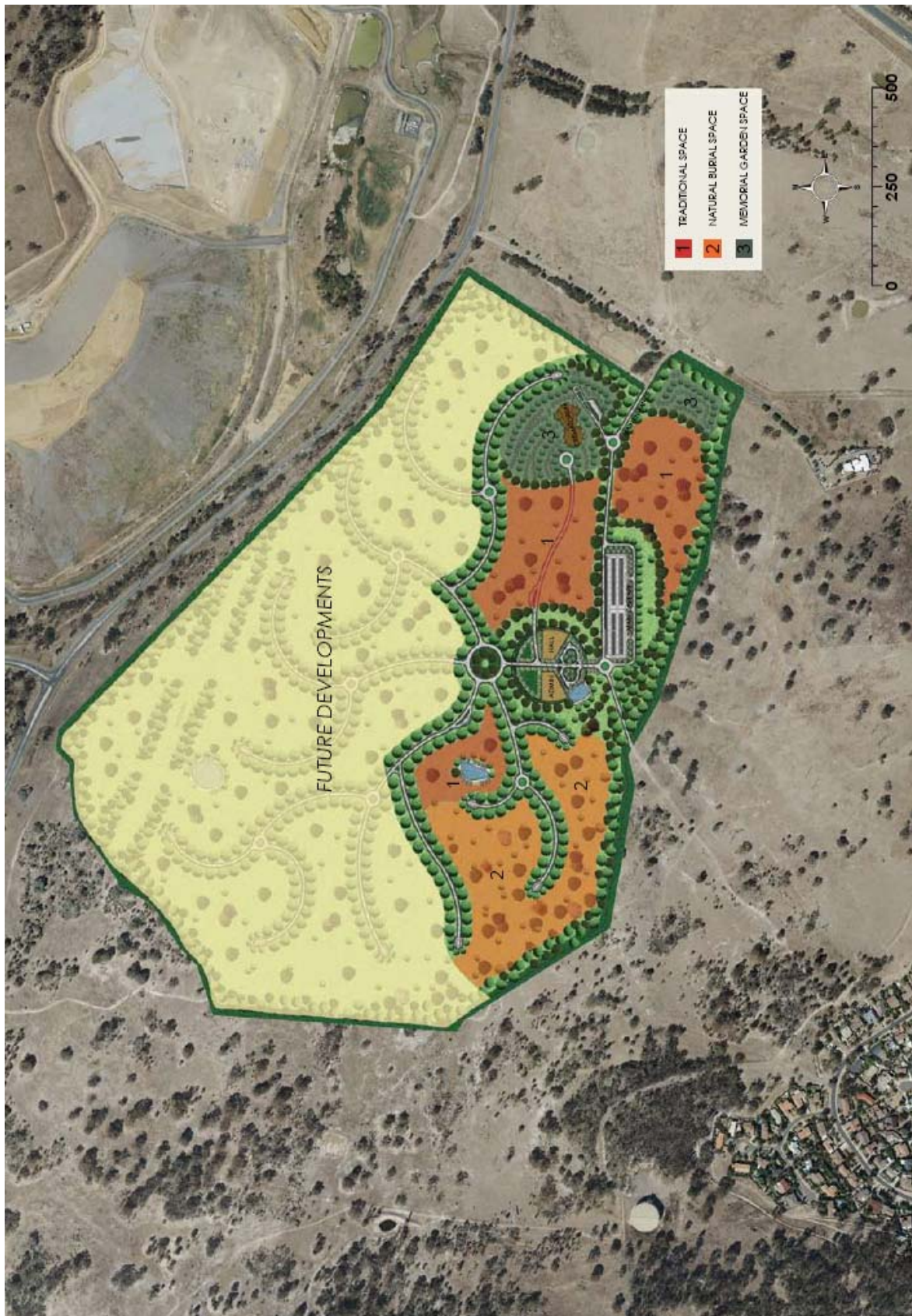
Based on case studies around the world, we know that a new cemetery takes a significant amount of time to plan and construct. We also know that the cemetery would be developed in stages over many decades to ensure sustainability for future generations. Figure 5 gives an indication of the staged development.

The Table 1 below gives an indication of the broad stages that need to be achieved in developing a cemetery. It is anticipated that stage 1 of any new development would be operational in 2013 at the earliest.

Table 1: Indicative timeframe for the Stage 1 development of a new cemetery

Stage 1	Timing
Community consultations to determine need and preferences for a new cemetery	2009/10
Engage professional planning advice	2009/10
Conduct further business planning and feasibility studies	2009/10
Prepare a Master Plan and consult with community	2010/11
Conduct Environmental Impact Statement	2010/11
Prepare and lodge Development Application to Government (includes public notification period)	2010/11
Government approval of a cemetery development on a specific site	2010/11
Forward planting on the site perimeters and Stage 1 area	2010/11
Engage contractors required for project management, planning and design	2011/12
Site preparation	2011/12
Installation of services and roadwork	2011-2013
Construction	2011-2013
Landscaping	2012/13
Selection and training of staff	2013/14
Stage 1 Operational	2013/14

Figure 5: Indicative Layout and Staging of Southern Cemetery development



3.3. Aboriginal Heritage

The Authority has engaged with all relevant Aboriginal groups in the region to determine the best way to identify sites and items of Aboriginal cultural significance or Aboriginal connections to the proposed site.

The Authority maintains the utmost respect for the Aboriginal culture and will take guidance from the nominated representatives at each stage of the development process. Consultation is ongoing with the appropriate agencies and organisations.

At all stages of planning, development and operations, the Authority will adhere to the Heritage Act 2004 guidelines pertaining to the recognition, registration and conservation of Aboriginal places and objects, and for the involvement of Aboriginal people in decisions made about those places and objects.

3.4. Services to be offered at a new cemetery

Market demand for a new cemetery in the ACT

There are currently three cemeteries in the ACT – Gungahlin Cemetery, Woden Cemetery and a smaller cemetery in Hall. The Woden Cemetery, located in the south of Canberra, is filling up. There are approximately 1500 burial allotments remaining and the average number of allotments occupied each year is 200. This means all available allotments are likely to be filled within eight years.

Once the Woden Cemetery is at capacity, a new cemetery will be needed to service southern Canberra. The population of Canberra will continue to grow and proper planning will ensure that the community will have access to the appropriate facilities.

Official population projections, used by the government as a basis for planning and development, project that the Territory's population will reach 350,000 persons by 2010; 400,000 persons by 2022; and 500,000 persons by 2050.¹ The ACT is expected to experience significant population ageing, with those aged 85 years and over to increase by 509 per cent, reaching 22,500 in 2056.

Burial Services

Cemeteries in the ACT currently offer the community a range of options. These include:

- Conventional headstone burials – a traditional option featuring granite, marble or concrete headstones and bases
- Lawn burials – feature bronze plaques on granite or concrete bases on the grave at ground level and raised headstones
- Garden burials (family estates) – allotments sold in pairs - up to four around a central garden

¹ *ACT Population Projections: 2007 to 2056*, presents the ACT Government's official 50 year ACT population projections, by age and by sex.

- Mausoleum (above ground crypts) – Mausoleums are buildings with spaces or burial chambers for coffins, usually above ground
- Memorials for cremated remains – Ashes can be placed in family graves, specially designed walls, under and around trees or in specially designated garden beds.

In any new development, the Authority intends providing the services that cemeteries in the ACT have traditionally offered. As a result of community consultations, the Authority will recommend to government that natural burial is offered in the ACT and is moving to provide this service in existing cemeteries.

Issues around the requirements and appropriate allocations for different denominations are acknowledged. During the planning process, specific areas for different denominations will be assessed against a range of factors, including the size of the areas currently set aside in existing cemeteries, the size of the community, cultural needs, projections about future needs, consideration of maintenance required and how requirements fit with the whole development.

Figure 6: Artist's Impression of Memorial Hall



Additional Facilities

Consultation has highlighted the need to provide additional facilities at a new development in order to offer a complete and convenient service to the local community.

A high priority for the community and the funeral industry was for a non-denominational building with sufficient capacity for a wide range of uses. Modern designs have wider eaves and retracting doors to allow overflow guests to be

accommodated with the service being broadcast by video to outside protected areas. For after funeral functions, a reception area and full commercial kitchen would be ideal.

Some faith groups have also requested additional specific facilities be incorporated into the development.

Preliminary planning work has been done for the purposes of initial discussions and to progress site development concepts. Figure 5 provides a graphical representation of how some of these elements might be incorporated in the designated area. The Master Planning stage would explore the full range of options to be incorporated and design considerations for each element. Further feasibility studies and consultation with relevant stakeholders would help to determine the final layout of the site.

3.5. Crematorium services

The development of a crematorium is an important initiative which will allow the Authority to meet community needs into the future. However, the inclusion of a crematorium in a new development was a contentious issue for some people and as such, will continue to receive additional attention. The main concerns surrounded: environmental impacts; demand for another crematorium in the ACT; facilities and operations; and religious concerns and requirements.

Independent consultants have been engaged to provide assessments on the environmental impact of a crematorium built on the proposed site. Further, a detailed assessment confirming demand and financial viability of a new crematorium) has been undertaken.

Environmental Assessment

The Authority commissioned an air quality impact assessment of the proposed crematorium located in the approximate area indicated on Figure 5 to ensure that surrounding residents will not be adversely affected by emissions to the air from the crematorium. In addition, the study aimed to identify the optimal stack height to be installed on the crematorium furnace to minimise impacts upon the environment.

The assessment was based on the following information:

- An estimation that approximately 400 to 600 cremations would be carried out at the new facility each year.
- An Austeng 'Joule' cremator was selected as the standard of cremator that might be installed onsite, fuelled by natural gas and with a stack height of one metre above the roof ridge line (4 metres above ground level in total).
- Air quality data from both the Monash and Civic air quality monitoring sites. The modeling utilised the CALPUFF Dispersion Model and The Air Pollution Model (TAPM).

- The residents and operations that surround the site (see Figure 7 for the locations of the sensitive receptors, and Table 2 for the details of the land use and coordinates).
- The topography of the area surrounding the proposed crematorium. The Project Site is located on land which increases in height from the southwest to northeast. Further afield, the area is marked by hills to the east, south and west. Appendix B provides a representation of the surrounding topography.
- Measurements of the major emissions from cremators, including nitrogen oxides, carbon monoxide, sulphur dioxide, particulate matter (TSP, PM₁₀ and PM_{2.5}²), mercury, hydrogen fluoride (HF), hydrogen chloride (HCl), non-methane volatile organic compounds (NMVOCs), other heavy metals, and some Persistent Organic Pollutants (POPs).

Conclusions

Dispersion model predictions indicate that all modelled pollutant concentrations will meet current air quality criteria at all modelled sensitive receptor locations surrounding the proposed site and at all locations across the 5 kilometre by 5 kilometre modelling domain. For criteria air pollutants, the maximum predicted concentrations are at least 2 orders of magnitude lower than the relevant criterion with some pollutants, such as Nitrogen Dioxide, having predicted concentrations 15 orders of magnitude lower than the relevant criterion. A conservative assessment has been undertaken which suggests that actual concentrations will be lower than those predicted under actual operation.

The maximum predicted incremental concentrations of individual toxic air pollutants were also measured. For these pollutants, the maximum predicted concentrations are between 1 and 7 orders of magnitude lower than the relevant criteria indicating that emissions of toxic air pollutants will have negligible impact upon the surrounding environment. Concentrations of pollutants have also been predicted at each of the receptors identified earlier in Table 2 and found similar results.

Due to the unknown stack height to be installed on the cremator, the Authority requested that an appropriate stack height be determined through the dispersion modelling exercise, with a lower stack height desirable for aesthetic reasons. A stack 1 metre above the roof ridge line (4 metres above ground level in total) was modelled with predictions showing negligible ground level impacts.

It is considered that the proposed operational activity at the crematorium will have insignificant impacts upon the surrounding environment. See Appendix B for further details. The full report will be available at www.tams.act.gov.au

² TSP (Total Suspended Particulate) describes particulate matter with an aerodynamic diameter of 50 microns or less. PM₁₀ and PM_{2.5} are used to describe particulate less than 10 microns and 2.5 microns (µm) in diameter, respectively.

Figure 7: Sensitive Receptor Locations surrounding the Proposed Crematorium

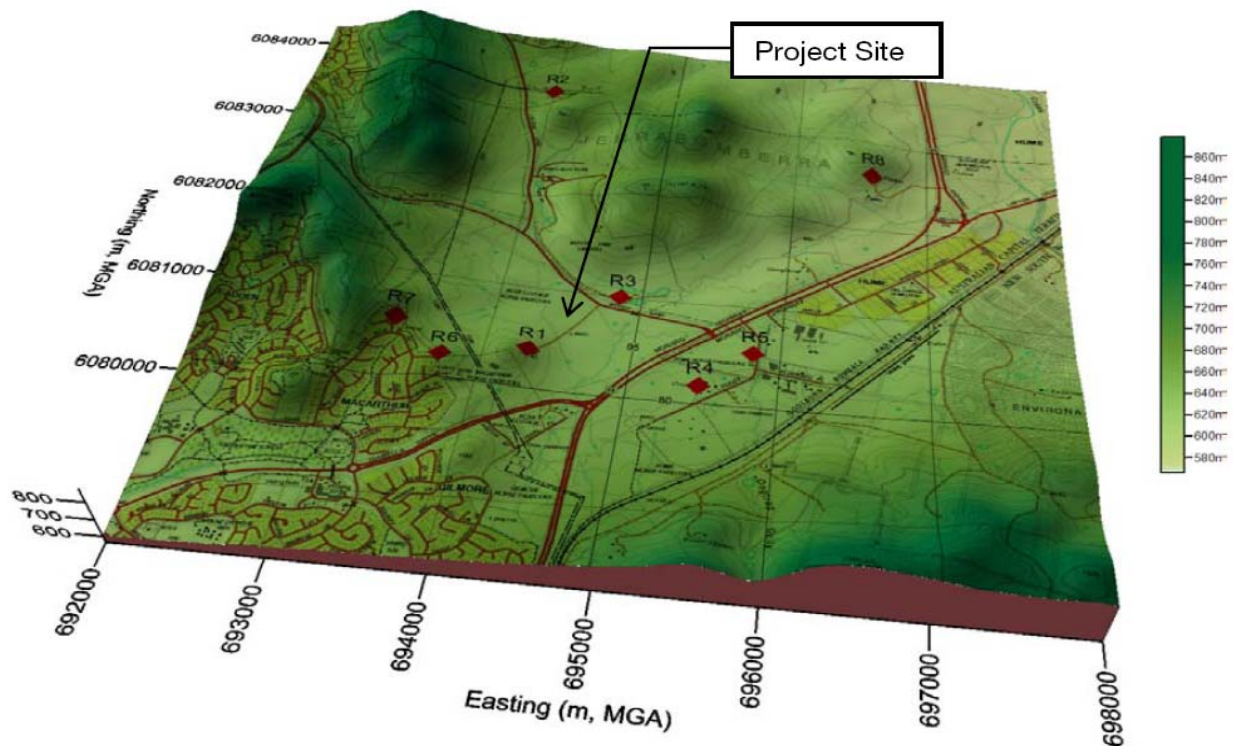


Table 2: Details of Sensitive Receptors surrounding the Proposed Crematorium

Receptor	Description	Coordinates (MGA 55)		Distance/Direction from Project Site
		Easting	Northing	
R1	ACT Health Facility	694304	6080344	500 m / S
R2	Residence	694005	6083259	2500 m / N
R3	Mugga Landfill – Administration Buildings	694840	6080995	600 m / NE
R4	Commercial	695472	6080165	1200 m / SE
R5	Hume Industrial Estate	695813	6080522	1400 m / E
R6	Macarthur High Density Residential 1	693726	6080201	900 m / SW
R7	Macarthur High Density Residential 2	693360	6080503	900 m / WSW
R8	Residence	696584	6082587	1800 m / NE

Market Demand

The main market for any new crematorium will in the first instance be the growing Canberra population. However, there will be some demand from surrounding areas where cremation facilities do not exist. The next closest cremators are located in Nowra, Broulee, Bega and Wagga Wagga. The following table outlines the population figures for the places in the region most likely to access cremation facilities in Canberra:

Area	Population
Australian Capital Territory	322,036
Queanbeyan	39,603
Palerang	13,852
Yass Valley	14,395
Cooma Monaro	10,202
Goulburn Mulwaree	27,706
TOTAL	427,794

The number of deaths will increase broadly in line with population growth and a standardised death rate of 5.6 per thousand would lead to an expected number of deaths in the ACT of around 1,800. The actual number of deaths has been a little lower than this reflecting possibly better health care but primarily the age structure of the Territory which has a median age of 34.7 years compared to a median age of 36.9 years for Australia.

The number of deaths in the ACT over recent years has been increasing slowly and there are a fairly constant proportion of cremations to total deaths of around 70 percent. This is broadly in line with the situation in NSW where the cremation rate varies from about 60 to 80 percent across regions based on differential access to cremation facilities in different areas. However another significant factor in the demand for cremation services is the religious affiliation of the population with some groups requiring cremation while other faith groups require burial.

The main components of religious affiliation of the ACT population in the 2006 census were as follows:

Religion	2006	% of Population
Christian	195,164	60.2
No Religion	75,000	23.4
Other	41,700	11.7
Buddhism	7,137	2.2
Islam	4,372	1.3
Hinduism	3,281	1.0
Judaism	574	0.2

Based on these statistics a significant factor in forward planning will be the changing attitude of the Catholic Church towards cremation. Until recent years cremation was actively discouraged for Catholics but this attitude has changed and the Catholic Church has recently constructed their own cremator at Rookwood Cemetery in Sydney. As this changed attitude flows through the community it can be expected that cremation as a proportion of total deaths will increase from the current level to be closer to 80 percent.

If this change took place it would lead to a total cremation demand of up to 1,400 a year for the ACT alone and there could be a further 200 to 300 from the surrounding region. It is also important to note that some faith groups believe the census data is substantially lower than the actual size of these communities in the ACT and this will be taken into consideration during planning.

Preliminary financial modelling supports a positive business case and indicates that this demand would sustain two operators in the ACT. Consultations have occurred with the proprietors of the Norwood Park Crematorium and there appears to be no fundamental disagreement about the proposed development.

The financial modelling has taken into account development of roads and footpaths, foundations, function centre, cremation building, cremator, ancillary, fit out, possible viewing rooms, funeral service area, after funeral function area, sales and administration, staffing, maintenance, utilities and other services. It is important to note that a crematorium would be considered a commercial operation and as such would be funded by the Authority and would not draw funds for its operation from Government.

Figure 8: Artist's Impression of Crematorium



Facilities and Operation

In progressing a new cemetery or crematorium development the Authority would understand and respect changing market conditions and consumer preferences.

Clarification has been sought over the operating hours of a new crematorium. The actual cremation process would take place during business hours on weekdays. Based on current practices and demand in the region, it is anticipated that a new facility would conduct a maximum of 8 cremations each week day during the hours of 7:00am and 7:00pm.

The Authority will offer public awareness and education sessions to help people better understand burial options, and in particular seek to explain the cremation process. A number of new cremation facilities, notably Macquarie Park at North Ryde, have held open days with visits to the grounds and function rooms and tours of the receiving and cremation rooms in an effort to better inform the public.

Religious Concerns

It is acknowledged that the Islamic faith forbids cremation and that the preference of that community is for the crematorium to be located well away from the cemetery. These concerns regarding proximity of a designated burial space and the crematorium can be addressed with further consultation during the planning and design phase. Based on preliminary designs (as displayed in Figure 5), it is feasible the crematorium could be located up to 1,000 metres from the burial facilities.

4. Next Steps

Planning for cemetery locations is a long term issue. Cemeteries are a feature of all communities and the location, design and accessibility are matters which the Authority and the Government take very seriously.

It is important to remember that no decisions have been made regarding a proposed new southern cemetery development in south Canberra.

The ACT Public Cemeteries Authority encourages the Canberra community to submit comments in relation to the proposed cemetery development in southern Canberra and this Discussion Paper. The Authority will also consult directly with key stakeholder groups.

All comments can be submitted in writing to:

Re: Proposed Southern Cemetery Consultation Report
Community Engagement and Communications
Department of Territory and Municipal Services
GPO Box 158
CANBERRA ACT 2601

Inquiries can be made by telephoning Canberra Connect on 13 22 81.

All comments received by close of business on **Tuesday, 16 March 2010** will be incorporated into the Authority's subsequent report to the ACT Government.

Thank you for your consideration of this issue and we welcome your comments.

For more information on ACT Cemeteries please visit
www.canberracemeteries.com.au.

Appendix

Appendix A – Issues Raised During Consultations

Services to be offered

- The community would like an indicative timeframe for when natural burial would become an option
- Awareness and education is needed about natural burial as a burial option
- Some faith groups have specific needs, such as the provision of preparation/wash room facilities in any new development
- The provision of a non denominational chapel and after service reception area was a high priority for many people, as was an outdoor service area
- Maintaining a variety of choices of burial services and areas, as is the case at the existing cemetery, was another high priority for many people
- A new development is expected to be a well maintained and manicured environment with a natural look. However, issues concerning water requirements were expressed
- More detailed data is required to confirm the demand and need for another cemetery in Canberra. Other options were raised to address demand (such as introducing limited tenure and investigating any new methods or technologies that are being used around the world). The viability of a new cemetery and confirmation of who would manage the facilities was also raised.
- Thorough consideration of the requirements of the local Muslim community is requested. These requirements include:
 - A segregated area made available for the burial of Muslims, similar to what is provided at the Gungahlin cemetery
 - Provision of additional facilities to facilitate a smoother and less stressful burial process, such as a place to wash and shroud the deceased, office/counselling areas and a sheltered area to perform the funeral prayer
 - Investigations made on how to improve arrangements for making burials available during weekends and public holidays

Crematorium services

- Several concerns have been raised concerning the development of a new crematorium, and particularly if developed on a site close to residential areas. The main issues raised were:
 - confirmation that appropriate environmental studies will be done to satisfy concerns and ensure informed decisions are made as to the level of cremation pollution (atmospheric and ground), the cumulative effect and dispersion of emissions presented comparative to other emitters, the smell and visual impact
 - clarification of the operating hours – i.e. confirmation that it would not operate 24 hours a day and over weekends
 - confirmation of the demand for another crematorium in the current market and that other options were considered to address need
- The co-location of a crematorium on the cemetery site is of concern to the

Muslim community and consideration was requested to locate the cemetery and crematorium in two distinct areas
Location and site criteria
<ul style="list-style-type: none"> • More detailed information was requested on the four sites considered and the assessment process that was undertaken. • Confirmation that any new development would be subject to the full planning provisions (i.e. a Development Application and an independent Environmental Impact Statement)? • Access to public transport and accessibility for disabled people was a priority for the site selected • Clarification sought over whether other sites could be considered as natural burial grounds • Concern was expressed about the water levels that would be required to maintain a new development and if that was sustainable in the future
The Proposed Site
<ul style="list-style-type: none"> • Several concerns were raised in relation to the site that has been identified as the preferred location for a new southern cemetery. These issues include: <ul style="list-style-type: none"> ◦ the visual impacts, particularly for neighbouring suburbs ◦ the impact of transport options to ensure accessibility and usability to the site ◦ clarification was sought over the amount of land that is required, and that adequate buffer zones have been factored in to cater for future needs. The impact of future industrial build-up in the area on both a new cemetery and residents was also of concern ◦ the appropriate treatment and protection of the natural wildlife corridor was a priority for the community ◦ the proposed site will result in the potential loss of 21 hectares of horse agistment paddocks and horse riding trails ◦ clarification was sought over the number of roads that will be needed to service users and the impact to the land ◦ confirmation was sought that a full examination would be conducted of the suitability and sustainability of the proposed site, particularly with regards to heritage and conservation, flooding, wind direction, plume, soil quality and the impact of being located adjacent to the Mugga Way Resource Management Centre ◦ clarification sought over timeframes if development proceeds ◦ clarification was sought of the process of consultation (linked into the Government's published engagement policy) ◦ further consultation has been requested on the potential impact of the proposed cemetery development on the existing Symonston Respite Facility
Aboriginal community
<ul style="list-style-type: none"> • The preferred site will have to be subjected to detailed assessment of Aboriginal sites • Consultation with Aboriginal organisations is continuing

Appendix B – Air Quality Impact Assessment of Proposed Crematorium

Conducted by Heggies Pty Ltd

Full report available at www.tams.act.gov.au

Figure 1: Dimensional Local Topography Surrounding Project Site

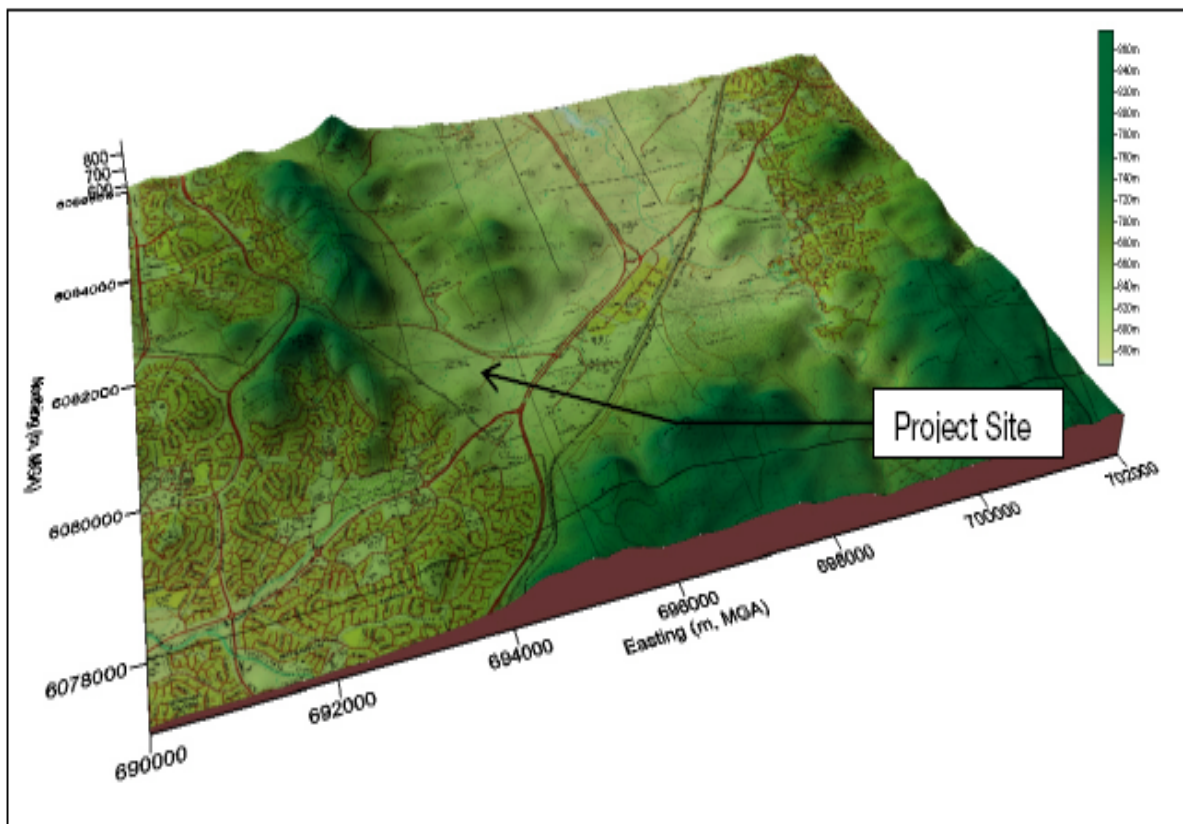


Table 1: Predicted Grid Maxima for Criteria Air Pollutants

Pollutant	Averaging Period	Grid Maximum (mg/m ³)	Criteria (mg/m ³)		Orders of Magnitude below Criterion
Sulphur Dioxide	10 minutes	3.65E-07	7.12E-01	0.712	6
	1 hour	2.55E-07	5.70E-01	0.57	6
	24 hours	4.20E-08	2.28E-01	0.228	7
	Annual	6.33E-09	6.00E-02	0.06	7
Nitrogen Dioxide	1 hour	1.00E-15	2.46E-01	0.246	14
	Annual	2.48E-17	6.20E-02	0.062	15
Carbon Monoxide	15 minutes	2.70E-09	1.00E+02	100	11
	1 hour	1.89E-09	3.00E+01	30	10
	8 hours	7.16E-10	1.00E+01	10	11
PM ₁₀ / PM _{2.5}	24 hours	4.90E-04	5.00E-02 / 2.50E-02	0.05 / 0.025	2
	Annual	7.37E-05	3.00E-02 / 8.00E-03	0.03 / 0.008	3
Lead	Annual	5.74E-08	5.00E-04	0.0005	4
Hydrogen Fluoride	90 days	6.28E-12	5.00E-04	0.0005	8
	30 days	7.70E-12	8.40E-04	0.00084	8
	7 days	1.26E-11	1.70E-03	0.0017	8
	24 hours	3.26E-11	2.90E-03	0.0029	8

Table 2: Predicted Grid Maxima for Individual Toxic Air Pollutants

Pollutant	Averaging Period	Grid Maxima (mg/m ³)	Criteria (mg/m ³)		Orders of Magnitude below Criterion
Arsenic and compounds	1 hr	1.05E-06	9.00E-05	0.00009	1
Cadmium and compounds	1 hr	3.88E-07	1.80E-05	0.000018	2
Chromium VI compounds	1 hr	4.71E-07	9.00E-05	0.00009	2
Dioxins and Furans (TEQ)	1 hr	2.12E-10	2.00E-03	0.002	7
Antimony and compounds	1 hr	1.05E-06	9.00E-03	0.009	3
Barium	1 hr	8.38E-07	9.00E-03	0.009	4
Copper fumes	1 hr	9.57E-07	3.70E-03	0.0037	4
Hydrogen Chloride	1 hr	1.46E-08	1.40E-01	0.14	7
Mercury	1 hr	1.15E-04	1.80E-03	0.0018	1
Polycyclic Aromatic Hydrocarbons (as benzo[a]pyrene)	1 hr	1.31E-07	4.00E-03	0.0004	4