Hospital heliport flight path protection

Guidance note for Design and Development Overlays
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Guidance note for Design and Development Overlays
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Introduction

This guidance note has been prepared by the Department of Health and Human Services (the department) to assist councils, planning permit applicants, interested parties and the general public with the interpretation and implementation of Design and Development Overlay (overlay) planning controls protecting the flight paths of emergency medical services helicopter landing sites at public hospitals in Victoria.

The guidance note provides information on:

- protecting emergency medical services helicopter landing site flight paths
- how overlays and the associated incorporated document are applied to hospital heliports
- determining when a development will trigger the need for approval under the overlay
- applying for a planning permit where a proposed development triggers this overlay, and assessing a planning permit application for an affected property
- sources of further information.

This guidance note has been prepared specifically for the overlays that have been implemented by the department in November 2017 (see Table 1).

Table 1: Hospital heliport design and development overlays (November 2017)

<table>
<thead>
<tr>
<th>Hospital heliport</th>
<th>Planning scheme</th>
<th>Overlays</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alfred Hospital</td>
<td>Melbourne</td>
<td>DDO65, DDO66</td>
</tr>
<tr>
<td>Alfred Hospital</td>
<td>Port Philip</td>
<td>DDO28, DDO29</td>
</tr>
<tr>
<td>Alfred Hospital</td>
<td>Stonnington</td>
<td>DDO17, DDO18</td>
</tr>
<tr>
<td>Ararat Hospital</td>
<td>Ararat</td>
<td>DDO4, DDO5</td>
</tr>
<tr>
<td>Bacchus Marsh Hospital</td>
<td>Moorabool</td>
<td>DDO14, DDO15</td>
</tr>
<tr>
<td>Bairnsdale Hospital</td>
<td>East Gippsland</td>
<td>DDO15, DDO16</td>
</tr>
<tr>
<td>Bendigo Hospital</td>
<td>Greater Bendigo</td>
<td>DDO15, DDO26</td>
</tr>
<tr>
<td>Charlton Hospital</td>
<td>Buloke</td>
<td>DDO1, DDO2</td>
</tr>
<tr>
<td>Cohuna Hospital</td>
<td>Buloke</td>
<td>DDO1, DDO2</td>
</tr>
<tr>
<td>Donald Hospital</td>
<td>Buloke</td>
<td>DDO1, DDO2</td>
</tr>
<tr>
<td>Frankston Hospital</td>
<td>Frankston</td>
<td>DDO10, DDO11</td>
</tr>
<tr>
<td>Heathcote Hospital</td>
<td>Greater Bendigo</td>
<td>DDO25, DDO26</td>
</tr>
<tr>
<td>Kerang Hospital</td>
<td>Gannawarra</td>
<td>DDO3, DDO4</td>
</tr>
<tr>
<td>Kyneton Hospital</td>
<td>Macedon Ranges</td>
<td>DDO14, DDO15</td>
</tr>
<tr>
<td>Monash Medical Centre Clayton</td>
<td>Monash</td>
<td>DDO14, DDO15</td>
</tr>
<tr>
<td>Royal Children's Hospital</td>
<td>Melbourne</td>
<td>DDO65, DDO66</td>
</tr>
<tr>
<td>Royal Melbourne Hospital</td>
<td>Melbourne</td>
<td>DDO65, DDO66</td>
</tr>
<tr>
<td>St Arnaud Hospital</td>
<td>Northern Grampians</td>
<td>DDO5, DDO6</td>
</tr>
<tr>
<td>Stawell Hospital</td>
<td>Northern Grampians</td>
<td>DDO5, DDO6</td>
</tr>
<tr>
<td>Warragul Hospital</td>
<td>Baw Baw</td>
<td>DDO8, DDO9</td>
</tr>
<tr>
<td>Wycheproof Hospital</td>
<td>Buloke</td>
<td>DDO1, DDO2</td>
</tr>
</tbody>
</table>
Overlays protecting hospital heliport flight paths that were introduced to municipal planning schemes prior to 2017 should have regard to the principles contained in this guidance note. Some of the planning controls differ to those implemented since November 2017.

Table 2: Hospital heliport design and development overlays (before December 2015)

<table>
<thead>
<tr>
<th>Hospital heliport</th>
<th>Planning scheme</th>
<th>Overlays</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ballarat Base Hospital</td>
<td>Ballarat</td>
<td>DDO19, DDO20</td>
<td>17 October 2013</td>
</tr>
<tr>
<td>Cowes Reserve</td>
<td>Bass Coast</td>
<td>DDO5, DDO6</td>
<td>18 December 2012</td>
</tr>
<tr>
<td>Dandenong Hospital</td>
<td>Greater Dandenong</td>
<td>DDO3, DDO4</td>
<td>18 December 2012</td>
</tr>
<tr>
<td>Kilmore Hospital</td>
<td>Mitchell</td>
<td>DDO7, DDO9</td>
<td>18 December 2012</td>
</tr>
<tr>
<td>Latrobe Regional Hospital</td>
<td>Latrobe</td>
<td>DDO5, DDO6</td>
<td>12 September 2013</td>
</tr>
<tr>
<td>Leongatha Hospital</td>
<td>South Gippsland</td>
<td>DDO8, DDO9</td>
<td>05 December 2013</td>
</tr>
<tr>
<td>Seymour Hospital</td>
<td>Mitchell</td>
<td>DDO7, DDO9</td>
<td>18 December 2012</td>
</tr>
<tr>
<td>University Hospital Geelong</td>
<td>Greater Geelong</td>
<td>DDO35, DDO36</td>
<td>20 August 2015</td>
</tr>
<tr>
<td>Wonthaggi Hospital</td>
<td>Bass Coast</td>
<td>DDO7, DDO8</td>
<td>18 December 2012</td>
</tr>
<tr>
<td>Yarram Reserve</td>
<td>Wellington</td>
<td>DDO10, DDO11</td>
<td>18 December 2012</td>
</tr>
</tbody>
</table>

The lists of heliports with flight path protection in Tables 1 and 2 are provided for information only and may not reflect all heliports with flight path protection in respective planning schemes.

Readers should review the relevant planning scheme to determine if proposals are affected by hospital heliport flight path protection. All Victorian Planning Schemes are available online at <www.planningschemes.dpcd.vic.gov.au/schemes>.
Part 1: Protecting hospital heliport flight paths

Why heliport flight paths need to be protected

Helicopter-based emergency medical services play a key role in providing medical and trauma care to patients who are critically ill or who may have been involved in serious accidents.

Hospital heliports typically have more than one flight path to ensure that the helipad is available for use in a range of weather conditions and in the event that one of the flight paths is temporarily unavailable for helicopter movements.

The protection of hospital heliport flight paths is required to ensure the efficient and effective transfer of critically ill patients to designated landing sites at public hospitals. Time is critical to the survival of a trauma patient, and helicopter transport is frequently the quickest way to deliver trauma patients to a major trauma service. Safeguarding flight paths protects an integral part of the Victorian health system and ensure ongoing service for future generations.

Purpose of applying an overlay

The purpose of applying an overlay is to protect helicopter flight paths from the encroachment of obstacles by requiring a planning permit for development that may affect emergency medical services helicopter operations.

An overlay is a common tool used in planning schemes to identify areas affected by specific requirements relating to the design and built form of new development. It is a planning control designed to achieve desired or specified built form outcomes. A schedule accompanies the overlay, containing a statement of the design objectives to be achieved for the area affected and outlining the requirements of the control.

The main advantages of using an overlay are that it provides an accepted and transparent planning mechanism for the protection of heliport operations, and for these flight paths to be considered in the decision-making process when assessing planning permits for a proposed development.

The overlays do not introduce a mandatory height limit. Instead, they trigger a requirement for a planning permit for certain buildings and works to be obtained from the responsible authority, usually the local council.

In the case of the overlays implemented in November 2017 there is reference to an incorporated document for specific buildings and works which cannot be protected solely through an overlay. This is explained further below.

All planning permit applications will be referred to the department, which will assess each referral on its merit. Where the proposed development will not affect heliport operations, the development is likely to be supported, or supported with conditions. Where it would affect heliport operations, the proposal may be rejected.

How overlays are applied to hospital heliports

The protection of hospital heliport flight paths is based on the department’s *Planning and development guidelines: guidelines for helicopter medical transport landing sites*.¹ These guidelines are based on the current and proposed regulatory framework for helicopter medical transport flights as well as relevant international standards and recommended practices.

The flight paths ensure that helicopters can operate in Performance Class 1 at existing hospital heliports. Performance Class 1 is a flight condition with one engine inoperative on the approach and departure up to 1,130 metres from the hospital helipad.

In accordance with the department’s guidelines, the area protected by the overlay is the obstacle limitation surface for the flight path of a Performance Class 1 flight. The obstacle limitation surface defines the desirable limits to which objects may project into airspace so that aircraft operations may be conducted safely.

The obstacle limitation surface commences at the edge of the helipad (called the safety area) and extends horizontally along a flat plane equivalent to the height of the helipad for 240 metres. From this point, the obstacle limitation surface gradually rises at an angle of 4.5 per cent. By protecting the helipad’s obstacle limitation surface, helicopter operations can be safely maintained in accordance with applicable guidelines and international standards.

The overlays apply to the first 1,130 metres of the flight path. At this point, the helicopter would be approximately 40 metres above the elevation of the helipad. The obstacle limitation surface for a helicopter flight path continues until the helicopter is 150 metres above the hospital helipad, which is a lateral distance of 3,386 metres from the helipad.

Protection of the flight path between 1,130 metres and 3,386 metres is not required at this point in time. If the Civil Aviation Safety Authority adopts the Notice of proposed rulemaking (NPRM 1304OS): regulation of aeroplane and helicopter ‘ambulance function’ flights as AIR Transport operations, then the department will reconsider the need to apply an overlay to protect flight paths beyond 1,130 metres.

Figure 1 below provides a simplified depiction of the obstacle limitation surface and overlays relative to the helipad.

**Figure 1: Heights of obstacle limitation surface and Overlay relative to helipad (simplified)**

As shown above, an inner and an outer overlay is applied to each hospital heliport. This approach minimises the overall number of developments that may trigger a planning permit.

The inner overlay ensures that any structures plumes that are of the same height or higher than the hospital helipad and within 240 metres of the helipad or 460 metres along the flight path are referred to the department for an assessment of the impacts to the flight path.

The outer overlay ensures that any structures that are more than 10 metres above the hospital helipad and between 460 metres and 1,130 metres laterally from the helipad along the flight path are referred to the department for an assessment of the impacts to the flight path.
The overlays have two different shapes. The first shape is a ‘corridor’ containing a 150-metre wide flight path to allow for crosswinds where there is a defined flight path. Flight paths are usually defined for helipads which are either elevated and/or those which are used regularly. Where appropriate, a 70-metre wide buffer area either side of the flight path is included, which represents the potential reach of a construction crane.

The second shape is a ‘sector’ of varying widths where a hospital does not have a defined flight path. The sector has been mapped based on site conditions and discussions with Air Ambulance Victoria, Victoria Police Air Wing and chief pilots from the operator of Air Ambulance helicopters in Victoria.

**Figure 2: Widths of obstacle limitation surface and overlay relative to helipad (simplified)**

In-situ cranes can affect the flight path of helicopters and temporarily close a flight path. Where there is no notification of a planned development that penetrates a hospital helipad flight path, the department and the relevant hospital and Air Ambulance Victoria are unable to facilitate flight path alternatives. In the event that a helicopter approaches a hospital helipad and discovers an uncharted obstacle in the flight path, then it is at the discretion of the pilot in command to use the hospital helipad. This could mean that critical patients are either sent to another hospital, or to an alternative location for transfer to the hospital by road ambulance. This could potentially affect the timing and hence capacity to save lives and/or achieve the optimal recovery of patients.

In regional Victoria, the 70-metre buffer for cranes is only applied in rural cities, such as Bendigo, where there is a higher likelihood that future developments may use construction cranes that could interfere with flight paths.

The protection of the flight path of helicopters from cranes is managed through an incorporated document.
**Incorporated documents**

The *Planning and Environment Act 1987* allows certain documents to be incorporated in a planning scheme by reference, rather than by including them in the scheme itself. Incorporated documents are included in the list in the Schedule to Clause 81.01 (local) of the planning scheme.

Generally, where reference to a document is specifically required because the document affects the operation of the planning scheme, the document, or relevant part of the document, is incorporated and read as part of the scheme.

Each of the planning schemes with an overlay for Hospital Emergency Medical Services - Helicopter Flight Path Protection Areas implemented in November 2017 has an incorporated document for managing the impact of certain buildings and works within the protected areas. For ease of reference the incorporated document as of November 2017 is included in Appendix 1 and covers the construction, or carrying out, of buildings and works for:

- a temporary structure for construction purposes, including a crane or other construction equipment that is fixed to the ground
- a stack, vent, chimney, cooling tower or the like that produces an exhaust plume which has an upward vertical velocity of 4.3 metres or more per second at the point of emission/exit
- a telecommunications facility, including radio masts and antenna
- a flagpole.

The incorporated document is provided in this guideline for information only and may not reflect the actual incorporated document in respective planning schemes.

**Types and impact of cranes**

The most common temporary structure for construction purposes likely to affect helicopter operations are cranes. There are two main forms of cranes used for construction purposes: in-situ (fixed) and mobile.

An in-situ or tower crane is a fixed structure generally used in the construction of skyscrapers and similar large-scale developments. They are usually in place from a number of months to a year, and are mainly used in metropolitan Melbourne and large regional cities.

Mobile, telescope or truck-mounted cranes are fixed to a mobile platform. They are usually mounted to the back of a truck and are used during short-term construction projects. These include the construction of pre-fabricated and concrete panel buildings, and lifting plant equipment to the roof of commercial and residential buildings. They may be on site for short periods, or for multiple days at a time. Whereas mobile cranes are exempt from the incorporated document, they can still affect helicopter operations and proactive engagement with hospitals can avoid any adverse impact on helicopter operations.

The potential impacts of cranes and mitigation measures are outlined in Table 3.

**Exhaust plumes**

An exhaust plume is gas, steam, water or similar that rises into the air in a tall, thin shape, usually emanating from a stack, vent, chimney, cooling tower or the like.

An exhaust plume which has an upward vertical velocity of 4.3 metres or more per second at the point of emission/exit can affect the operations of helicopters. Further guidance on plumes is provided in Appendix 2.

**Other structures**

Other structures such as a telecommunications facility, including radio masts and antenna, and flagpoles that penetrate the obstacle limitation surface can affect the operations of helicopters.
### Table 3: Management of cranes in hospital heliport flight paths

<table>
<thead>
<tr>
<th>Type of crane</th>
<th>Potential impact</th>
<th>Mitigation measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tower crane (main body of crane and jib in flight path)</td>
<td>Closure of helipad</td>
<td>Advance notice of crane operations (three business days)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Obstruction lighting on highest point of crane and full extent of jib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Relocation of crane</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Consider modular building so crane in-situ for shorter period</td>
</tr>
<tr>
<td>Tower crane (jib in flight path)</td>
<td>Heliport operations continue under restrictions when crane is manned</td>
<td>Advance notice of crane operations (three business days)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Obstruction lighting on highest point of crane and full extent of jib</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication between crane and heliport operator so jib can be moved out of flight path during heliport operations</td>
</tr>
<tr>
<td>Tower crane (jib in flight path)</td>
<td>Closure of helipad when crane is unmanned (for example, out of business hours, weekends, public holidays)</td>
<td>None</td>
</tr>
<tr>
<td>Mobile crane</td>
<td>Heliport operations continue under restrictions</td>
<td>Advance notice of crane operations (three business days)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication between crane and heliport operator so crane can be lowered out of flight path during heliport operations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Crane fully lowered when unmanned</td>
</tr>
</tbody>
</table>

*Figure 2: Example of tower cranes at Royal Melbourne Hospital*

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2 The impacts and mitigation measures are general in nature and will depend on the type of crane and its location within the flight path.
Part 2: Planning permission and exemptions

When planning controls apply
Where a proposed structure, or building works exceeds the height specified in the relevant overlay schedule and/or incorporated document then a planning permit application is required.

Where a stack, vent, chimney, cooling tower or the like that produces an exhaust plume which has an upward vertical velocity of 4.3 metres or more per second at the point of emission/exit that exceeds the height specified in the relevant overlay schedule and/or incorporated document then a planning permit application is required.

If the proposal does not exceed the height specified in the overlay schedule, then a planning permit application is not required.

That is, a planning permit will be triggered for specified buildings, works or plumes that exceed the specified heights in either:

- the inner overlay, and/or
- the outer overlay, and/or
- the incorporated document.

The control applies to:

- permanent structures within the protected flight path, including radio masts, antennae, telecommunications towers and flagpoles
- temporary structures within the protected flight path, including cranes and construction equipment associated with buildings and works
- a stack, vent, chimney, cooling tower or the like, of any height, that may produce an exhaust plume which has an upward vertical velocity of 4.3 metres or more per second at the point of emission/exit.

Some buildings and works are unlikely to affect helicopter operations. To reduce the requirement for a planning permit, the overlay includes a number of exemptions. These are explained further below.

Exemptions
Permit applicants should contact their local council to discuss their proposed development. Council will be able to confirm whether a development is exempt from needing a planning permit under the overlay and/or incorporated document.

A planning permit will not be required under the overlay and/or incorporated document for:

- additions and alterations to an existing dwelling or outbuildings that exceed the overlay height, provided:
  - the additions and alterations do not exceed the existing height of the building (measured at the apex of the roofline – see Figure 4), and
  - the lot does not immediately adjoin the hospital land
- constructing a fence, pergola, and ancillary structures for an existing dwelling, provided:
  - the structure does not exceed the height of the existing dwelling (measured at the apex of the roofline), and
  - the lot does not immediately adjoin the hospital land
- subdividing land.
The overlay and/or incorporated document does not apply to:

- existing vegetation
- use and development of land consistent with the purpose of a Public Use Zone 3 (health and community). However it is strongly recommended that consultation still occur with the department in this circumstance.

**Figure 4: Determining the apex of the roofline**

![Diagram of Determining the apex of the roofline]

**Determining whether a development triggers the planning control and therefore whether a planning permit is required**

A flow diagram in Appendix 3 has been provided to assist in determining whether a planning permit is required.
Part 3: Making and assessing applications

Documentation to support a planning permit application

A planning permit application must include the following information:

- the location and topography of the subject land in relation to the helicopter landing site
- the location and height of the main features on the subject land, including existing buildings, structures, trees or any other tall features
- the proposed buildings and works on the land including details of the maximum height of the proposed buildings, works and construction equipment measured relative to the height of the helipad.

All heights shown on plans and elevations and referred to in text must be in Australian Height Datum and all drawings must be to scale.

Check with your local council to confirm any other documentation you need to submit to the council and other referral authorities.

Depending on the context of the application, you should also include information about the surrounding area, in particular any existing uses and buildings between the helipad and the proposed development on the subject land, and the heights of those structures.

In all cases the department will be a determining authority for planning permit applications triggered by an overlay that protects hospital heliport flight paths. This is a requirement of s. 55 of the Planning and Environment Act 1987. In summary, this means that the department will direct the council’s decision, determining whether the proposal can be supported and under what conditions, or whether it must be refused.

Pre-application meetings

For complex planning permit applications, councils may consider inviting the department to participate in pre-application meetings with a permit applicant. The department will consider the merit of meeting with an applicant to discuss their finalised plans on a case-by-case basis.

Notification

A planning permit application triggered by an overlay for the protection of a hospital helipad is exempt from the notice requirements of ss. 52(1) (a), (b) and (d) of the Planning and Environment Act 1987. Please note other notice requirements may still apply.

Referral of the application

The relevant local council will refer the application to the department for assessment. The department may:

- request further information if the application material lacks appropriate information
- consent to the application with or without conditions
- direct that an application be refused.

The department has 21 days from receiving the application from council to request further information, and must respond to a referral within 28 days of receiving the application, or within 28 days of receiving any further information submitted.
Assessment of the application

When considering an application the department and responsible authority (the local council) will have regard to:

- the objectives of planning in Victoria
- the planning scheme, in particular the provisions that relate to the referral.

The department will assess the impact of the proposed development on the ongoing use of the helipad and will take into account:

- whether the proposal will impact on the ongoing availability and viability of the heliport
- the physical requirements for heliports and associated airspace for Performance Class 1
- the department’s Planning and development guidelines for helicopter medical transport landing sites (January 2015)
- the Civil Aviation Advisory Publication (CAAP) 92-2(2) Guidelines for the establishment and operation of onshore helicopter landing sites (February 2014)
- the Civil Aviation Advisory Circular AC 139-5(1) Plume rise assessments (November 2012)
- the respective hospital helipad operations manual (where available).

Permit conditions

Conditions may be placed on a planning permit application. These may address:

- the maximum allowable height of the proposed structure(s)
- modifications to the proposed structure(s) to make them more visible to helicopter pilots, such as obstruction lights
- relocation of the proposed structure(s) to avoid an obstruction along a flight path
- modification to an exhaust vent to redirect an exhaust plume.

Cranes are generally managed through a condition on the permit requiring the department to be an approver of a flight path construction management plan.

Example conditions the department may impose are contained in Appendix 4.

Application costs

The applicant will be subject to the usual statutory costs associated with making a planning application to council or seeking to modify an existing approval. More information on these costs can be obtained from your local council.

Once the department receives a referral, it will cover its costs to assess the implications of the proposed development on the hospital heliport flight path.

Review rights

An applicant can seek a review of the decision of council to approve (with or without conditions), or refuse an application under the overlay at the Victorian Civil and Administrative Tribunal following conventional planning processes.

As an application under the overlay is exempt from the third party review rights of s. 82(1) of the Planning and Environment Act 1987, an objector does not have this right of review.
Part 4: Further information

For more information see:

- **general information regarding the Victorian planning system** <www.delwp.vic.gov.au/planning>, including information regarding the operation of planning controls and referral provisions
- **detailed information regarding hospital heliport flight path protection**<www.capital.health.vic.gov.au/Asset_property_management_and_operations/Flight_path_protection/>, including technical reports and shape files for each of the protected heliports.

Alternatively, please contact your local Council Statutory Planning Department or the Department of Health and Human Services at:

Manager Property
Victorian Health and Human Services Building Authority
Department of Health and Human Services
GPO Box 4541
MELBOURNE VIC 3001
(03) 9096 2119
capital@dhhs.vic.gov.au

Formal referrals from Council to the Department are to be e-mailed to capital@dhhs.vic.gov.au.
Appendix 1: Incorporated document

Hospital Emergency Medical Services - Helicopter Flight Path Protection Areas Incorporated Document, June 2017

1. Introduction

This document is an incorporated document in the Ararat, Baw Baw, Buloke, East Gippsland, Frankston, Gannawarra, Greater Bendigo, Macedon Ranges, Melbourne, Monash, Moorabool, Northern Grampians, Port Phillip and Stonnington Planning Schemes (the Planning Schemes) pursuant to section 6(2)(j) of the Planning and Environment Act 1987 (the Act).

2. Purpose

The purpose of this control is to protect Helicopter Emergency Medical Services flight paths from encroachment by development that could prejudice the safety or efficiency of the helipad at the relevant public hospitals.

3. Land

The control in clause 4 applies to land affected by:

- Schedules 4 and 5 to Clause 43.02 (Design and Development Overlay) of the Ararat Planning Scheme
- Schedules 8 and 9 to Clause 43.02 (Design and Development Overlay) of the Baw Baw Planning Scheme
- Schedules 1 and 2 to Clause 43.02 (Design and Development Overlay) of the Buloke Planning Scheme
- Schedules 15 and 16 to Clause 43.02 (Design and Development Overlay) of the East Gippsland Planning Scheme
- Schedules 10 and 11 to Clause 43.02 (Design and Development Overlay) of the Frankston Planning Scheme
- Schedules 3 and 4 to Clause 43.02 (Design and Development Overlay) of the Gannawarra Planning Scheme
- Schedules 25 and 26 to Clause 43.02 (Design and Development Overlay) of the Greater Bendigo Planning Scheme
- Schedules 14 and 15 to Clause 43.02 (Design and Development Overlay) of the Macedon Ranges Planning Scheme
- Schedules 65 and 66 to Clause 43.02 (Design and Development Overlay) of the Melbourne Planning Scheme
- Schedules 14 and 15 to Clause 43.02 (Design and Development Overlay) of the Monash Planning Scheme
- Schedules 14 and 15 to Clause 43.02 (Design and Development Overlay) of the Moorabool Planning Scheme
- Schedules 5 and 6 to Clause 43.02 (Design and Development Overlay) of the Northern Grampians Planning Scheme
- Schedules 28 and 29 to Clause 43.02 (Design and Development Overlay) of the Port Phillip Planning Scheme
- Schedules 17 and 18 to Clause 43.02 (Design and Development Overlay) of the Stonnington Planning Scheme.
4. **Control**

4.1 **Design objectives**

- To ensure that the height of development and associated construction-related structures does not encroach on the flight path areas associated with the hospital helicopter landing sites.
- To ensure that the height of development and associated construction-related structures avoids creating a hazard to aircraft using the hospital helicopter landing sites.

4.2 **Permit requirement**

Despite the exemptions from permit requirements in clause 62.02-1 and 62.02-2 of the Planning Schemes, a permit is required:

- To construct a new building or to construct or carry out works with a height greater than the referral height specified in clause 2 of the Schedules to the Design and Development Overlays listed in clause 3 of this Incorporated Document.
- Construct or carry out buildings and works for a temporary structure for construction purposes, including a crane or other construction equipment that is fixed to the ground, with a height greater than the referral height specified in clause 2 of the Schedules to the Design and Development Overlays listed in clause 3 of this Incorporated Document.
- Construct or carry out buildings and works for a stack, vent, chimney, cooling tower or the like that produces an exhaust plume which has an upward vertical velocity of 4.3 metres or more per second at the point of emission/exit.
- Construct or carry out buildings and works for a telecommunications facility, including radio masts and antenna, with a height greater than the referral height specified in clause 2 of the Schedules to the Design and Development Overlays listed in clause 3 of this Incorporated Document.
- Construct or carry out buildings and works for a flagpole with a height greater than the referral height specified in clause 2 of the Schedules to the Design and Development Overlays listed in clause 3 of this Incorporated Document.

4.3 **Application requirements**

An application must be accompanied by the following information (prepared by a suitably qualified person):

- The location and topography of the subject land in relation to the helicopter landing site.
- The location and height of the main features on the subject land, including existing buildings, structures, trees or any other tall features.
- The proposed buildings and works on the land including details of the maximum height of the proposed buildings, works and construction equipment measured relative to the height of the helipad (AHD).

Note: AHD means Australian Height Datum.

4.4 **Referral of applications**

An application must be referred under section 55 of the Act to the person or body specified as the referral authority in the Schedule to Clause 66.04 to the Planning Schemes.

4.5 **Exemption from notice and review**

An application is exempt from the notice requirements of section 52(1)(a), (b) and (d), the decision requirements of section 64(1), (2) and (3) and the review rights of section 82(1) of the Act.
4.6 Decision guidelines

Before deciding on an application, the responsible authority must consider, as appropriate:

- Whether the height and design of any proposed buildings or works will have an impact on the flight paths associated with the relevant helicopter landing site.
- The views of the relevant referral authority.
- Any technical guidelines prepared by the relevant referral authority.
- The design objectives at clause 4.1.
Appendix 2: Plumes

Background
The guidance below identifies the common sources of plumes and provides an explanation of the plume assessment process and measures that can be taken to mitigate the potential impact of plumes on safe helicopter operations.

In the event that a proposed plume triggers the need for a permit through an overlay, the impact of the plume on safe helicopter operations requires formal assessment by the department. There are a number of variables and considerations that are taken into account in performing this assessment and the assessment process can be complex.

The majority of this guidance is sourced from the Civil Aviation Advisory Circular 139-5(1) Plume rise assessments (November 2012).

Definition
A plume is a long cloud of smoke or vapour resembling a feather as it spreads from its point of origin. In the context of this document, likely sources could be an exhaust plume of gas, steam, water or similar that rises into the air in a tall, thin shape, usually emanating from a stack, vent, chimney, cooling tower or the like.

Sources of plumes
Exhaust plumes can originate from any number of sources including:

- industrial facilities release process emissions through stacks or vents
- industrial flares create an instantaneous release of hot gases during the depressurisation of gas systems
- cooling towers produce large volumes of buoyant gases that can rise a significant distance into the atmosphere
- exhaust gases from power generation facilities can produce plumes of varying velocities during different operating scenarios.

How plumes affect aircraft operations
Aircraft operations in various stages of flight may be affected by an exhaust plume of significant vertical velocity (that is, a plume rise). A light aircraft in approach configuration is more likely to be affected by a plume rise than a heavy aircraft cruising at altitude. In addition, helicopters and light recreational aircraft may be severely affected by a high temperature plume and the altered air mixture above an exhaust plume, and should therefore avoid low flight over such facilities.

Factors that influence the impact of a plume on aircraft operations
The following factors will influence the impact of a plume assessment:

- critical plume velocity (CPV) – the height up to which the plume of critical velocity may impact the handling characteristics of an aircraft in flight such that there may be a momentary loss of control
- critical plume height (CPH) – the velocity at which the vertical plume rise may affect the handling characteristics of an aircraft in flight such that there may be a momentary loss of control
- location of the plume relative to the aircraft flight path(s) – as a general rule, the area covered by the overlay is greater than that of the designated flight path to and from the helipad. Any proposed

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development that triggers the overlay will require formal assessment of the plume location relative to the actual helicopter flight paths.

Assessing critical plume velocity

Typically assessment of a critical plume velocity will need to include the following considerations:

- phase of flight affected
- size of aircraft affected
- geographical factors such as high terrain
- proximity to designated flight paths (including proximity to the landing site)
- navigation method in use (visual versus instrument)
- human factors considerations.

Mitigating the impact of a plume on helicopter operations

There are a number of measures that can be taken to mitigate the impact of plumes on helicopter operations. In approximate order of preference these might include:

- restricting the development – this may include removing or relocating the plume such that it is clear of the affected helicopter flight path(s) or further away from the helicopter landing site
- reducing the plume upward velocity – a high-velocity plume inside a helicopter flight path can affect aircraft performance as well as patient safety and comfort. Decreasing the vertical velocity can be achieved by:
  - reducing the output
  - increasing the discharge orifice diameter
  - re-directing the plume sideways.
- restricting plume operating times – limiting plume operating times to times when the heliport is less likely to be used may be an acceptable mitigation method depending on the location and usage of the heliport. Alternatively, if the plume discharge can be suspended upon notification of a pending helicopter arrival, this may also be an acceptable method of mitigation. Implementation of any such mitigation measures requires prior approval from the department.

Responsibility for costs associated with plume assessment

All costs associated with the assessment process and associated mitigation measure implementation are the responsibility of the applicant for the proposed development.

Controlling plumes in hospital heliport flight paths

Where the department considers that a proposed activity within the overlay may result in a plume having a critical plume velocity of 4.3 metres per second (or greater), it will require a condition on the permit (see Appendix 3).

More information

The following documents provide further information of plumes:

- Civil Aviation Advisory Circular 139-5(1) Plume rise assessments (November 2012)
- United States Department of Transport, Federal Aviation Regulation Part 139.
Appendix 3: Flow diagram to determine if a planning permit is required

1. Is all or part of the land subject to an Overlay that protects a flight path to/from a hospital heliport? If yes, proceed to step 2.
   (Note: If the portion of the subject land to be developed is wholly outside of the Overlay then the Overlay does not apply.)

2. Is the land subject to the Inner Overlay or the Outer Overlay?
   - If the land is subject to the Inner Overlay then refer to the Inner Overlay height trigger (AHD metres).
   - If the land is subject to the Outer Overlay then refer to the Outer Overlay height trigger (AHD metres).
   (Note: Where municipalities have multiple hospital heliports, the Overlay will list the trigger heights for all hospitals in a table - care needs to be taken to refer to the relevant hospital and trigger height.)

3. Check the permit exemptions to see if they apply to the proposed buildings or works? If not, proceed to step 4.

4. Determine the height of the development site (in AHD) and identify the height of the proposed development(s) and any temporary structures such as construction cranes or plumes (in AHD).
   (Note: Heights of buildings and structures are commonly shown on plans in RL (Relative Level) and not an AHD. In these cases, the RL must be converted into an AHD. Professional advice (e.g., from a licensed land surveyor) should be obtained to determine the AHD height of the proposed development.)

5. If the height of the proposed development (AHD) is higher than the relevant trigger height in the overlay, then a planning permit is required.
Appendix 4: Example referral responses

No comment
1. The Department of Health and Human Services has no comment on the proposed development.

Objection to development
2. The Department of Health and Human Services objects to the proposed development for the following reasons [project specific].

Building or structure height
2(a) The maximum height of the proposed development at [x metres] Australian Height Datum would encroach on a flight path area associated with the [hospital name] helicopter landing site and create an unacceptable risk of hazard to aircraft using the landing site.

Exhaust plume
2(b) The proposed development includes the construction of [a stack / vent / chimney / cooling tower] that could produce an exhaust plume with an upward vertical velocity of 4.3 metres or more per second at the point of emission or exit. This would encroach on a flight path area associated with the [hospital name] helicopter landing site and create an unacceptable risk of hazard to aircraft using the landing site.

Development supported with conditions
3. The Department of Health and Human Services does not object to the proposed development provided the permit is subject to the following conditions [choose as relevant].

Reduction in building or structure height
3(a) The overall height of the building be reduced so that no part of the building (including but not limited to roof top plant, antennae, flagpoles, telecommunications equipment or structures erected on the building) is greater than [x metres] Australian Height Datum.

Lighting on highest point of building or structure
3(b) Before the development starts or by such time as agreed by the Responsible Authority and Department of Health and Human Services in writing, an obstacle lighting plan in accordance with Chapter 9.4 of the Civil Aviation Safety Authority Manual of Standards Part 139 must be submitted to the Responsible Authority and be approved in writing by the Department of Health and Human Services.

3(c) Obstacle lighting must be installed and operated on the highest point of any building or structure on the site in accordance with the approved obstacle lighting plan to ensure the satisfaction of the Department of Health and Human Services.
Flight path construction management plan

3(d) Prior to the commencement of any development (including any demolition or excavation) or by such time as agreed by the Responsible Authority and Department of Health and Human Services in writing, a flight path construction management plan must be prepared to the satisfaction of the Department of Health and Human Services and be approved by the responsible authority. The flight path construction management plan must include measures to minimise the impact of the construction of the building on the safe and unfettered operation of the Hospital helipad. The management measures incorporated within the plan must be implemented during the construction of the building to the satisfaction of the Department of Health and Human Services and the responsible authority.

The flight path construction management plan must identify the location and height of any construction equipment, including cranes.

Location and height of cranes

3(e) The location and height of any cranes and associated construction equipment must not exceed a height of [x metres] Australian Height Datum, unless otherwise agreed in writing by the Department of Health and Human Services.

3(f) Before the development starts, a communication protocol must be prepared to the satisfaction of the Responsible Authority and the Department of Health and Human Services and implemented between the crane operator(s) and Air Ambulance Victoria and/or helicopter pilots.

Lighting on cranes

3(g) Cranes and other associated construction equipment must be fitted with continuously operated low intensity steady red obstruction lighting in accordance with Chapter 9.4 of the Civil Aviation Safety Authority Manual of Standards Part 139 at their highest point(s) to ensure that they can be seen within the helicopter flight paths.

Limitation on vegetation height

3(h) The height of any vegetation must be no greater than [x metres] Australian Height Datum when planted and the vegetation must be managed so as to remain at or below that height.

Location and velocity of exhaust plumes

3(i) The location and velocity of any exhaust plumes must be notated on the plans to be endorsed and which will then form part of this permit. Before the plans are endorsed, the location and velocity of the plumes must be approved in writing by the Department of Health and Human Services.

3(j) Any exhaust plumes from the permitted development must not exceed an upward velocity of 4.3 metres per second.