

Lake Macquarie

Development Control Guidelines

Subdivision Design for Efficient
Waste Management



7 Subdivision Design for Efficient Waste Management

This section addresses the waste management-specific aspects of subdivision development found within DCP Part 8. This content is highlighted with grey text throughout the section for easy identification amongst all of the other subdivision objectives and controls.

The subsection numbering and headings used in Section 7.2 are the same as those found in DCP Part 8 to simplify cross-referencing between the WMG and sections of DCP Part 8 that have waste management content.

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7.1 Waste Management Plan for Subdivisions

Applicants must complete and submit a Subdivision Waste Management Plan (WMP) with their Development Application that confirms the development's compliance with the controls and guidance relevant to each Zone and land use described in the DCP and WMG.

The WMP identifies subdivision design considerations for delivering effective operational waste management outcomes following construction and occupation of dwellings in the subdivision.

7.1.1 What needs to be included in the subdivision waste management plan

The following documentation forms the WMP that Council will review to assess basic waste management infrastructure of a proposed subdivision:

1. completed subdivision waste management summary and checklist (section 7.2.2, the form can be modified to include additional information if necessary); and
2. drawing showing the site layout design.

7.1.2 SUBDIVISION WASTE MANAGEMENT PLAN

Subdivision Waste Management Plan	
Summary	
Applicant Information	
Site Address(es) and Lot/Plan(s):	
Applicant's Name:	
Applicant's Address:	
Applicant's Phone / Mobile:	
Applicant's Email:	
Number and range of sizes of lots/dwellings/businesses to be created:	
___ number of lot(s) that will be created	Range of lot sizes (m ²) will be ___ to ___
___ number of dwellings to be created	_____ types of dwellings to be created
___ number of businesses to be created	_____ types of businesses to be created
___ Other:	
Brief Description of how proposed subdivision street layout will deliver optimal waste collection outcomes:	
Applicant's Authorisation:	
The details provided on this form represent the applicant's genuine intentions for managing wastes related specifically to this project.	
The checklist has been completed accurately and in full.	
Signature of Applicant or Authorised Agent:	Date:

Subdivision Checklist	YES	NOT YET	NO	N/A
The subdivision layout will achieve a more sustainable design for waste management.				
For staged development, interim stage street layouts will achieve a more sustainable design for waste management.				
This application addresses and incorporates the <i>Lake Macquarie City Council Waste Management Guidelines</i> Section 7.3 Optimal Route Collection Design guidance.				
The layout design minimises the need for waste collection vehicles to stop and collect bins in an uphill direction and maximise collection stop points where a waste collection vehicle is traversing downhill.				
The layout design minimises the waste collection vehicle having to traverse the street more than once (or once in each direction).				
The layout design enables collection routes with as few right hand turns across intersections as possible.				
The layout design minimises the need for bin collection on heavily trafficked streets and turning off from heavily trafficked streets into properties to service bins.				
The layout design minimises dead end streets, tight turning spaces, height-restricting overpasses and any other situations requiring reversing, three-point turns and U-turns by waste collection vehicles.				
The layout design avoids the need to place bins for collection on the kerbside around a cul-de-sac that would interfere with a waste collection vehicle swept path.				
In areas where safe waste collection space is limited, the layout design provides for waste collection vehicle pull-in bays and shared bin collection points.				
Any shared collection points are not be more than 75m from all waste storage areas that they service.				
Comments on any deviation from the above criteria:				

7.2 Waste Aspects of the Development Control Plan Requirements for Subdivisions

The source of the information applicable to this section is highlighted in the chart below:

Document	Objectives By Zone	Controls By Zone	Subdivisions	Specific Land Uses	Events
DCP	DCP Parts 2 - 7	Controls by zone – see DCP Parts 2-7	Controls - see DCP Part 8	Detailed objectives and controls for specific land uses (additional to controls by zone) - see DCP Parts 9.1-9.19	
WMG		Guidance by zones – see WMG (all Sections 2-7)	Guidance - see WMG Section 7	Objectives and controls for specific land uses, such as Aged Care, not covered in DCP Part 9	Detailed objectives and controls WMG Section 6

To make cross-referencing easier between this section of the WMG and the DCP, the subsection numbering and headings used in WMG Section 7.2 are the same as those found in DCP Part 8.

7.2.1 Aims for subdivision development

The aims of LM DCP 2014 for subdivision development relevant to waste management planning are:

2. *To ensure that all subdivisions and the potential impacts of such subdivisions and subsequent development take account of the principles of environmental sustainable development.*
3. *To ensure that the subdivision of land balances environmental, social and economic issues and achieves good urban structure outcomes through increased connectivity, legibility and permeability.*
6. *To ensure that the road network is efficient and legible through providing a grid or modified grid subdivision pattern. Subdivisions must also integrate closely with surrounding existing and planned future development.*
7. *To ensure that all proposed lots are provided with an appropriate level of amenity and are physically capable of development. They must also have access to infrastructure and utility services.*

7.2.2 Submission requirements

Different scale subdivision proposals require different levels of detail to be submitted to Council. The three scales of subdivision development discussed in this part of LM DCP 2014 include:

- Minor – subdivision creating less than 10 lots.
- Medium – subdivision creating between 10 and 50 lots.
- Major – subdivision creating more than 50 lots.

Schedule 1 of the *Environmental Planning and Assessment Regulation 2000* sets out the minimum submission requirements. This part of Lake Macquarie DCP 2014 outlines Council's requirements for subdivision applications. The following documents may be required to be submitted to Council with an application for subdivision. The detail in these documents will depend on the scale and complexity of the subdivision proposal.

- Site analysis plan and report;
- Structure plan;
- Water Cycle Strategy; and
- Subdivision Plan and report.

Please refer to the *Subdivision Guidelines* for further information on the requirements of these documents. Studies, reports or assessments conducted by suitably qualified consultants must be submitted with subdivision applications where required by relevant controls contained in this part of LM DCP 2014, LM LEP 2014, or when requested by Council. These may include, but are not limited to:

- *Subdivision Waste Management Plan*

(Note: the above does not include others from the DCP as they are not relevant to waste.)

The stage at which these documents are prepared will depend on the scale and complexity of the proposal. Early consultation with Council staff is strongly recommended to help determine what studies and/or reports are required and their detail.

7.2.3 Subdivision in existing development

Where subdivision is proposed on a lot that includes an existing development, the following provisions apply.

Objectives (only those from the DCP relevant to waste)

- To ensure that the amenity and function of existing development on the parent lot is maintained.

Controls (only those from the DCP relevant to waste)

- Relevant controls within other parts of this DCP must be considered where subdivision is proposed on a lot containing existing development.
- Subdivision must not result in the existing development being inconsistent with relevant controls contained in other parts of this DCP.
- Subdivision must not result in the existing development being left with inadequate waste storage or waste collection location options.

7.2.4 Subdivision design

Objectives (only those from the DCP relevant to waste)

- To require adequate street frontages and dimensions for standard, battle-axe and irregular shaped lots, including consideration of where bin collection from the property can occur.

7.2.5 Subdivision layout

Objectives (only those from the DCP relevant to waste)

- To ensure that development occurs in an ecologically sustainable manner and is energy efficient in terms of design and layout, consumption and materials.
- To ensure waste management systems, including servicing, are an integral component of the development.
- To ensure layout and roads are designed with consideration to maximising sustainable waste collection by optimising waste collection routes and collection points.

Controls (only those from the DCP relevant to waste)

- A Site Analysis Plan, Structure Plan, Water Cycle Strategy and Subdivision Site Plan must be prepared and submitted with an application for subdivision. These plans must demonstrate how the subdivision responds to the site's characteristics and integrates with the surrounding settlement pattern.
- To achieve a more sustainable design, street layouts (and in staged development, interim stage street layouts) should, as described in the Lake Macquarie City Council Waste Management Guideline:
 - minimise the need for waste collection vehicles to stop and collect bins in an uphill direction and maximise collection stop points where a waste collection vehicle is traversing downhill;
 - minimise the waste collection vehicle having to traverse the street more than once (or once in each direction);

- iii. have collection routes with as few right hand turns across intersections as possible;
- iv. minimise need for bin collection on heavily trafficked streets and turning off from heavily trafficked streets into properties to service bins;
- v. minimise dead end streets, tight turning spaces, height-restricting overpasses and any other situations requiring reversing, three-point turns and U-turns by waste collection vehicles;
- vi. avoid the need to place bins for collection on the kerbside around a tight curve or cul-de-sac that would interfere with a waste collection vehicle swept path; and
- vii. in areas where safe waste collection space is limited, plan and design for waste collection vehicle pull-in bays and locate shared bin collection points there. However, these collection points should not be more than 75m from all waste storage areas that they service.

7.2.6 Movement system

Objectives (only those from the DCP relevant to waste)

- a. The movement system is safe, efficient and facilitates connectivity, permeability and legibility for all road users (motor vehicles, cyclists and pedestrians).

Controls (only those from the DCP relevant to waste)

- 4. Cul-de-sacs or dead end streets should be avoided. Where residential dead ends street are unavoidable, they must provide access to no more than 10 lots. The head of the cul-de-sac must be visible from the cross street. Cul-de-sacs must be designed to provide for on street parking and movement of a medium-rigid vehicle. See DCP for the minimum dimensions for cul-de-sacs. If waste is to be collected within the cul-de-sac then the road must be designed for Council and contractors' waste collection vehicle fleet to be able to access the street, collect bins, turn and exit the street in a forward direction. Alternatively, a suitable waste collection point must be provided on the cross street and be less than 75 metres from the furthest house in the cul-de-sac.

7.2.7 Demolition and construction waste management

Objectives (only those from the DCP relevant to waste)

- a. To reduce demolition waste by maximising beneficial reuse of infrastructure, buildings and materials on site.
- b. To avoid creating construction waste wherever possible.
- c. To enable maximum diversion of demolition and construction waste to reuse, recycling or composting.
- d. To ensure that waste management is planned across all demolition and construction stages so that reusable resources and waste can be appropriately and effectively stored and removed safely from site without adverse impacts on local amenity.

Controls (only those from the DCP relevant to waste)

- 1. For all demolition works, a Demolition Waste Management Plan (WMP) must be prepared and submitted. For all construction works, a Construction WMP must be prepared and submitted. Both plans must be prepared in accordance with Lake Macquarie City Council Waste Management Guidelines, must describe how the proposal avoids creating waste and how they maximise the reuse and recycling of demolition and construction materials.
- 2. Waste should be contained within the construction site in a suitably screened area of at least 3.5m² and 1.2 metres high for removal during, or at the completion of, the construction stage. All demolition and construction stage waste storage areas must be shown on a demolition and construction waste site plan.
- 3. No waste should be left on site unless it:
 - i. can genuinely be reused on site, in which case the materials to be reused must be included in the design;
 - ii. will be used as replacement or spare parts for future maintenance; or
 - iii. can be reused on another authorised part of the property.

4. *In order to manage noise levels, collection of waste from the demolition and construction site must only occur during hours approved for construction and demolition work.*
5. *For staged constructions, a waste management plan must be prepared showing:*
 - i. *the waste storage locations relating to construction sequencing of the dwellings; and*
 - ii *the waste collection locations relating to each construction and occupation stage for both occupants' wastes and separately collected construction wastes, including evidence that waste collection vehicle access and turning space is available at every stage and will not be compromised by parking or unloading of construction-related vehicles or other consequences of construction staging.*

7.3 Optimal Collection Route Design

7.3.1 Room to turn, pass other vehicles and collect bins

If bins are to be collected from streets within a subdivision, the streets must not be too narrow, and corners must allow for the standard waste vehicle turn circles (see Appendix 2). Locations where cars will park must also be planned, as waste collection vehicles may not be able to turn or pass on curves or narrow straights.



Figure 18 - Difficulties for turning trucks into narrow streets, especially with parked cars

Figure 18 shows waste collection vehicles with near misses on parked cars, fences and buildings.



Figure 19 - Impossible to service narrow access roads with standard size waste collection vehicles

In Figure 19, you can see in this narrow street development that the standard waste collection vehicles (9.7m) do not have sufficient room to turn without crossing kerbs into landscaped areas or even colliding with awnings, trees and building corners. There is also insufficient room to pass cars on the straights.

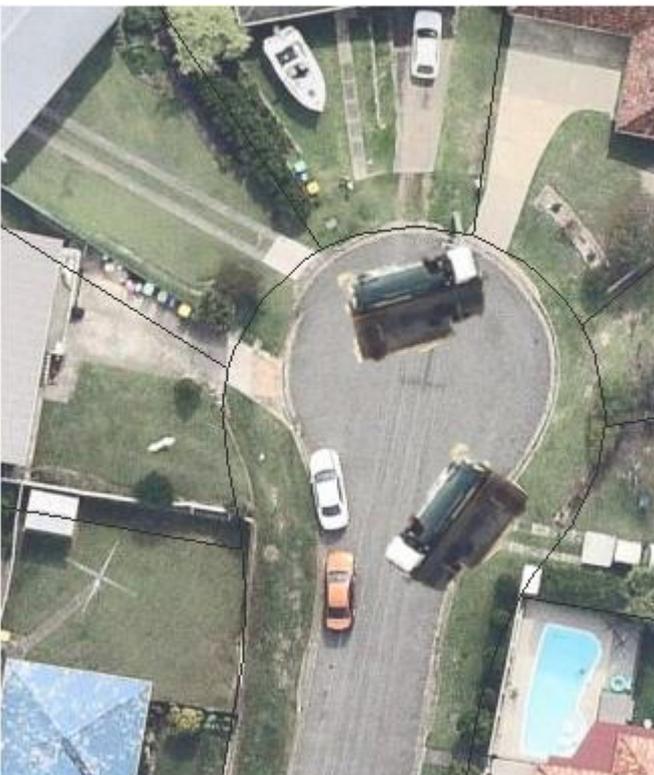


Figure 20 - Waste collection vehicles in cul-de-sacs and tight turns

Tight turns such as cul-de-sacs can leave the lift arm far from the kerb; also parked cars can limit access.



Figure 21 - Creating bin collection areas along the road side

Source: © State of New South Wales and the NSW Environment Protection Authority 2019

Figure 21 shows concrete pads on the kerbside and bin collection area markings in bin collection areas.

7.3.2 Optimal Collection Route Design

When considering the street layout design for a subdivision, many benefits accrue from optimising the design to allow for the most efficient possible bin collection route. In USA, the courier delivery service UPS instituted a policy of planning delivery routes to avoid turning across traffic (no left hand turns in USA, the equivalent of no right hand turns in Australia). This saved the company millions of dollars in fuel savings, reduced risk of accidents and time savings (not queuing to turn). It also accrued environmental benefits.

To achieve the most efficient, sustainable waste collection routes, the considerations are:

- fuel efficiencies and reduced truck wear leading to lower costs for waste collection;
- lower risk of collisions between waste collection vehicle and other vehicles or pedestrians;
- quicker collection time (with reduced noise duration in the area);
- least wear and tear on the road surface (e.g. from turning vehicles), reducing the frequency of road repairs; and
- reduced vehicle emissions, improving air quality in the development.

The design outcomes to consider are:

- if possible, the entrance to the subdivision (the start of the collection route) should be at the top of the hill and collection should be made on the left in a downhill direction. Each time a waste collection vehicle has to stop and start when going in an uphill direction uses more fuel, emits more fumes, causes more wear on the vehicle and makes more noise that impacts on residents. If there are dwellings on the right hand side of the road (in a downhill direction), then locations should be established on the left hand side of the road to place their bins out, as side lift waste collection vehicles collect on the left side of the vehicle;
- design streets to minimise the waste collection vehicle having to traverse the street more than once (or once in each direction). As kerbside collection is on the left (with left side lifting waste collection vehicles), the route is best covered by covering each block in an anti-clockwise with mostly left hand turns (which are also safer than right hand turns). However, for multiple blocks, long runs down the length of each street are better as these are quicker and minimise turns, noise and wear and tear. Some examples are shown in Figures 22 and 23 below:
 - Figure 22 shows scenarios where bins are collected on both sides of the street (apart from along the outer streets in the first two examples), so the waste collection vehicle (which can only collect from the kerbside on the left) must go down and come back up the street; and

