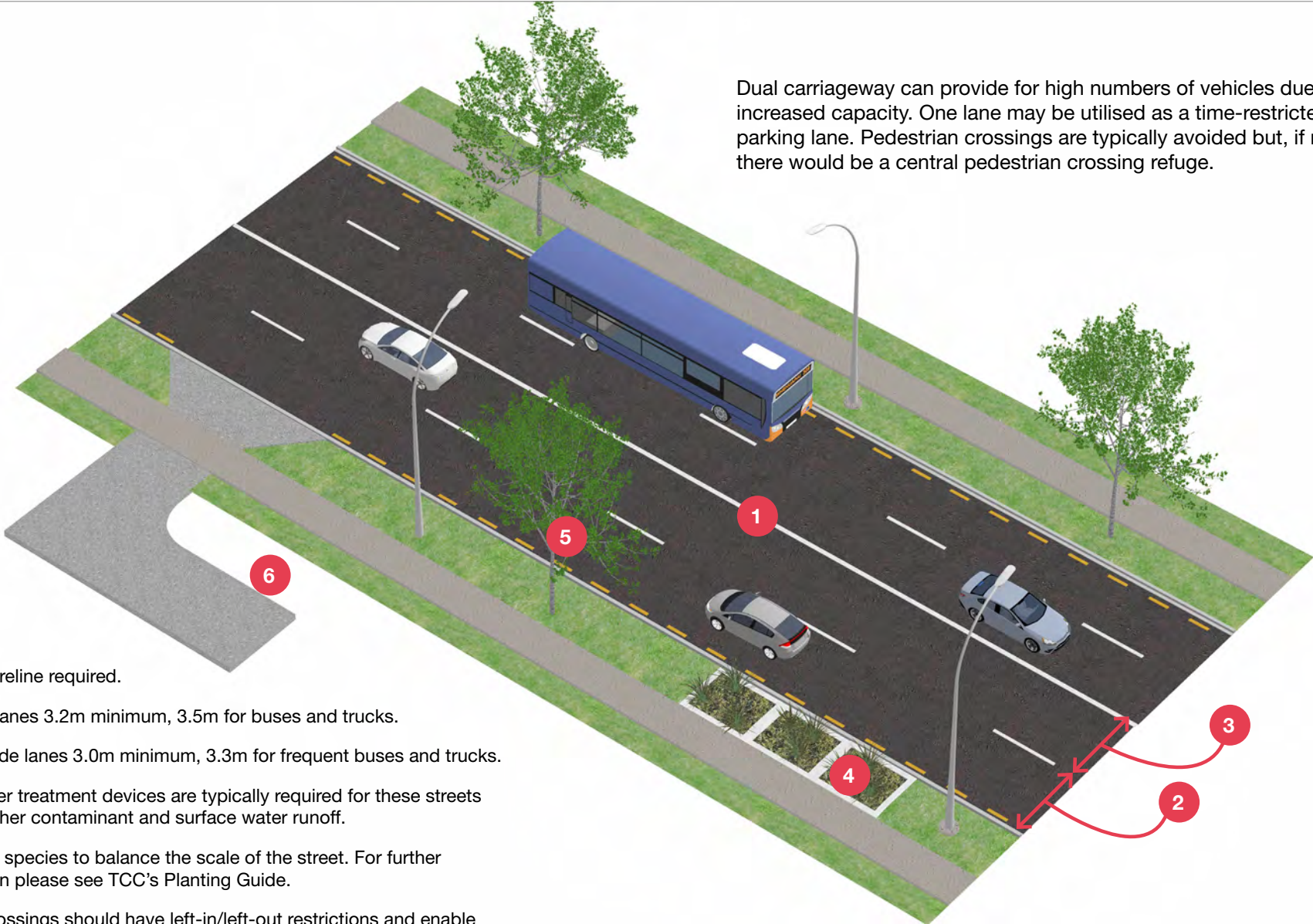


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Dual carriageway can provide for high numbers of vehicles due to increased capacity. One lane may be utilised as a time-restricted car parking lane. Pedestrian crossings are typically avoided but, if required, there would be a central pedestrian crossing refuge.



- 1 Solid centreline required.
- 2 Kerbside lanes 3.2m minimum, 3.5m for buses and trucks.
- 3 Median-side lanes 3.0m minimum, 3.3m for frequent buses and trucks.
- 4 Stormwater treatment devices are typically required for these streets due to higher contaminant and surface water runoff.
- 5 Large tree species to balance the scale of the street. For further information please see TCC's Planting Guide.
- 6 Vehicle crossings should have left-in/left-out restrictions and enable reverse manoeuvre to be undertaken within private property. Note that private vehicle crossings are unlikely to be accepted on arterial routes.

Movement lane elements
Dual carriageway (two lanes in each direction)

Infrastructure Development Code
 Street Design Diagrams

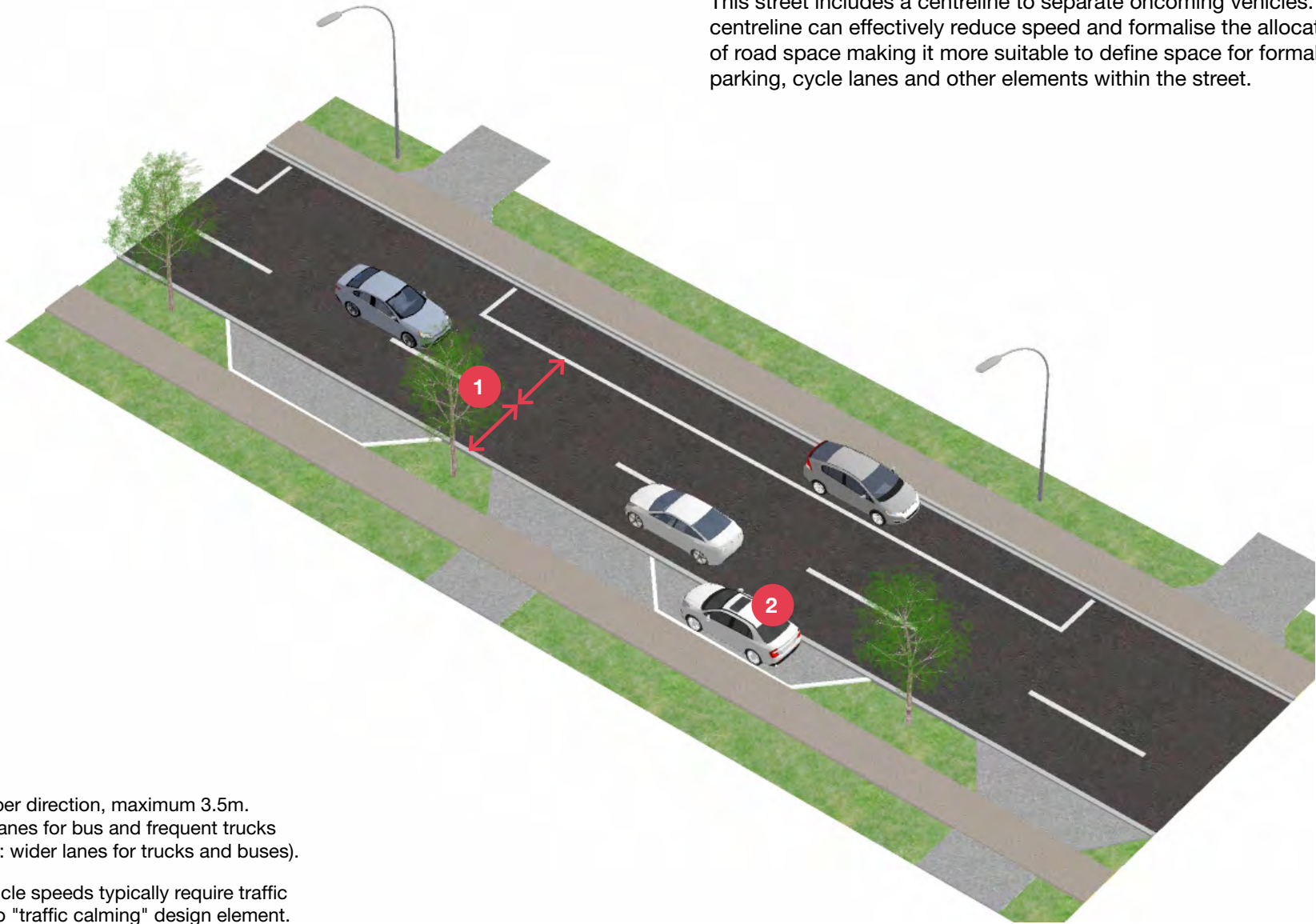
D101

June 2021

Version 1



This street includes a centreline to separate oncoming vehicles. The centreline can effectively reduce speed and formalise the allocation of road space making it more suitable to define space for formal car parking, cycle lanes and other elements within the street.



- 1** Minimum 3.0m per direction, maximum 3.5m. Minimum 3.3m lanes for bus and frequent trucks (refer to element: wider lanes for trucks and buses).
- 2** Appropriate vehicle speeds typically require traffic calming. Refer to "traffic calming" design element.

Movement lane elements
One lane in each direction with centreline

Infrastructure Development Code
Street Design Diagrams

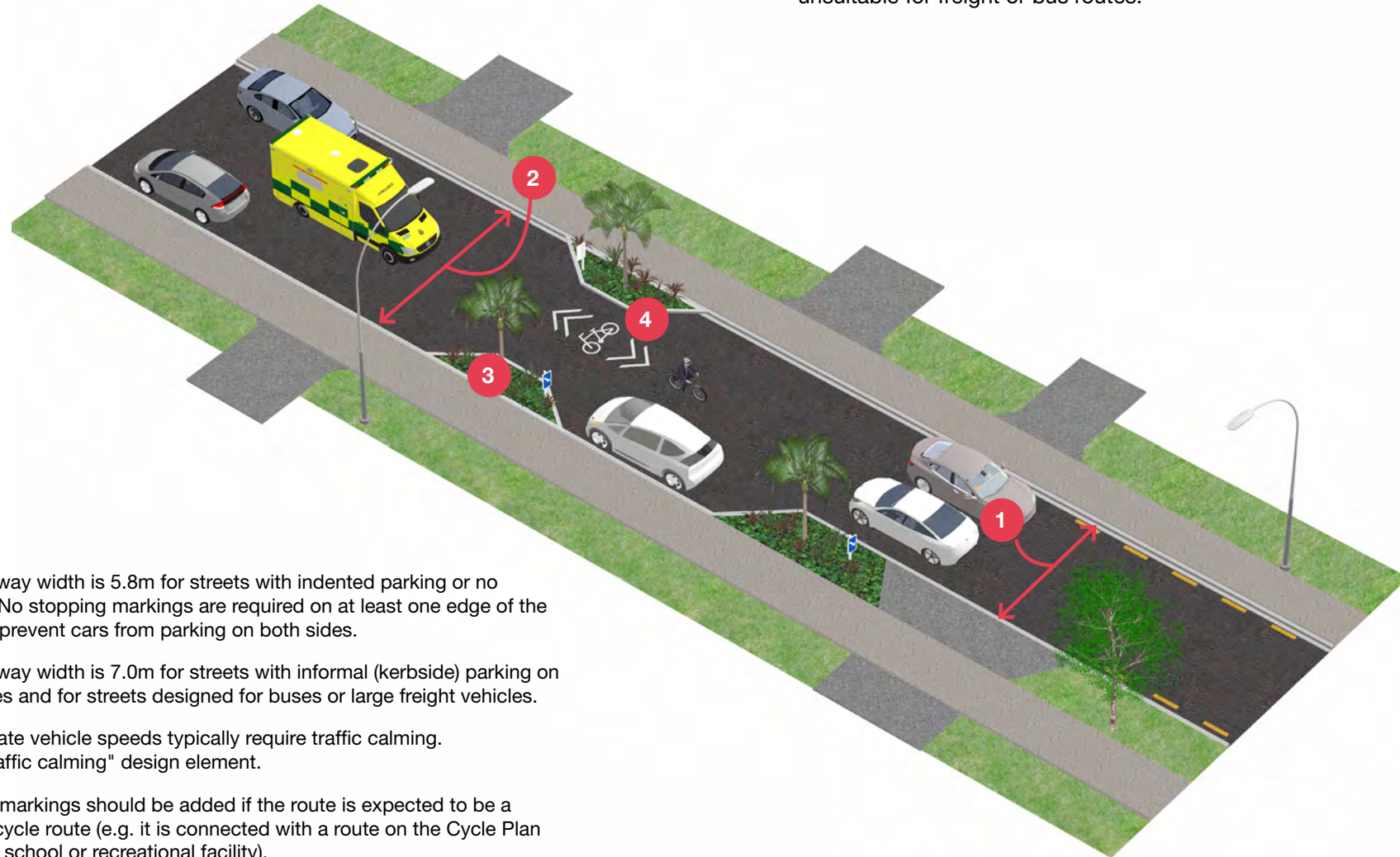
D102

June 2021

Version 1



This is a traditional type of informal lane design, suitable for low vehicle speeds and volumes. Vehicles may need to yield to oncoming vehicles. Cyclists commonly share this carriageway with vehicles. It is generally unsuitable for freight or bus routes.



- 1 Carriageway width is 5.8m for streets with indented parking or no parking. No stopping markings are required on at least one edge of the street to prevent cars from parking on both sides.
- 2 Carriageway width is 7.0m for streets with informal (kerbside) parking on both sides and for streets designed for buses or large freight vehicles.
- 3 Appropriate vehicle speeds typically require traffic calming. Refer "traffic calming" design element.
- 4 Sharrow markings should be added if the route is expected to be a popular cycle route (e.g. it is connected with a route on the Cycle Plan or near a school or recreational facility).

Movement lane elements
Two-way street with no centreline marking

Infrastructure Development Code
 Street Design Diagrams

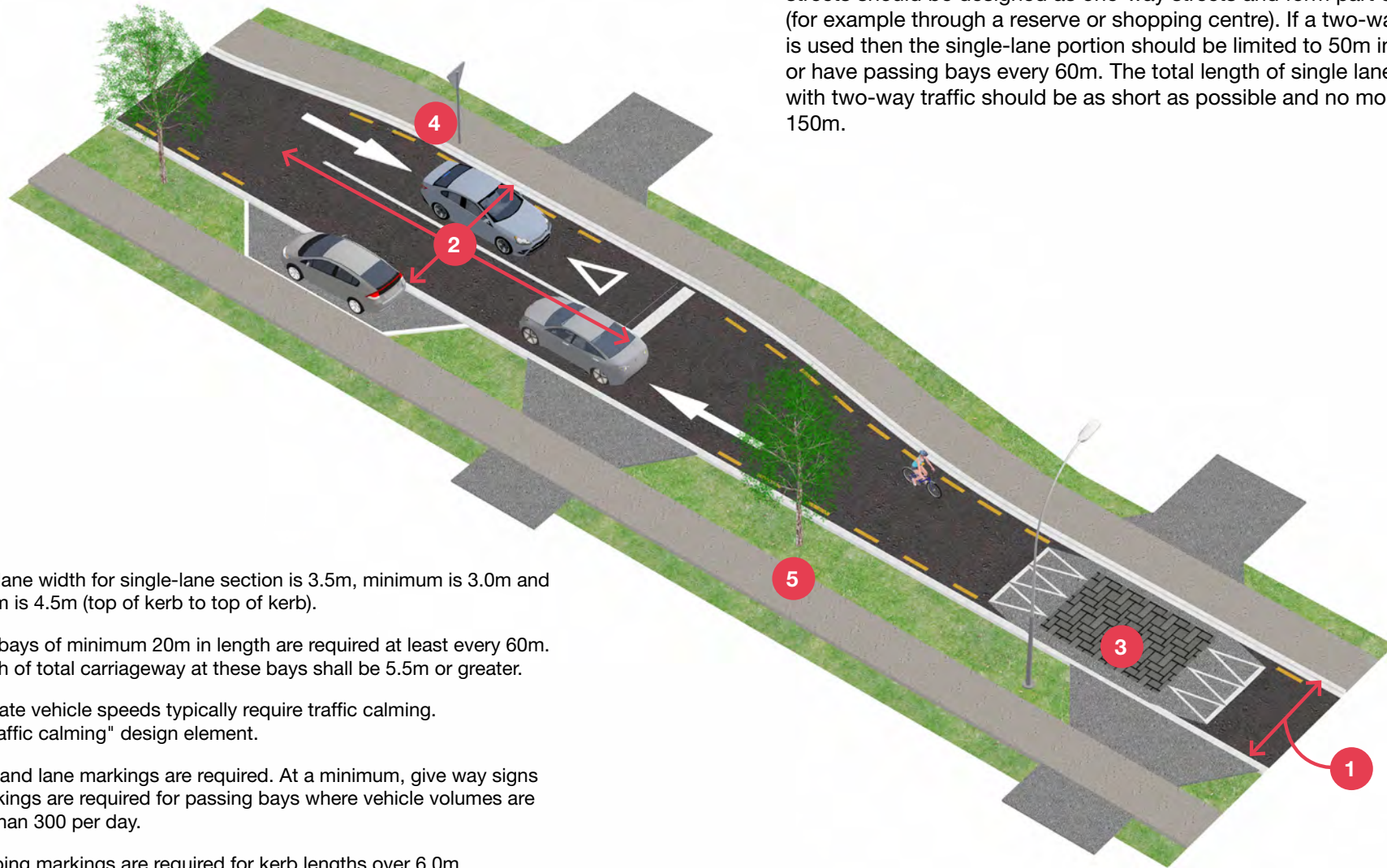
D103

June 2021

Version 1



A single lane configuration is not a first preference for the design of a public street but is sometimes necessary due to constraints. Single lane streets should be designed as one-way streets and form part of a 'loop' (for example through a reserve or shopping centre). If a two-way design is used then the single-lane portion should be limited to 50m in length or have passing bays every 60m. The total length of single lane streets with two-way traffic should be as short as possible and no more than 150m.



- 1 Optimal lane width for single-lane section is 3.5m, minimum is 3.0m and maximum is 4.5m (top of kerb to top of kerb).
- 2 Passing bays of minimum 20m in length are required at least every 60m. The width of total carriageway at these bays shall be 5.5m or greater.
- 3 Appropriate vehicle speeds typically require traffic calming. Refer "traffic calming" design element.
- 4 Signage and lane markings are required. At a minimum, give way signs and markings are required for passing bays where vehicle volumes are greater than 300 per day.
- 5 No stopping markings are required for kerb lengths over 6.0m.

Movement lane elements
Single lane street, two-way with passing bay

Infrastructure Development Code
 Street Design Diagrams

D104

June 2021

Version 1



A single lane configuration is not a first preference for the design of a public street but is sometimes necessary due to constraints in the wider road network (in proximity to an expressway). Single lane streets should be designed as one-way streets and form part of a 'loop' (for example through a reserve or shopping centre). The length of single lane streets should be as short as possible and no more than 150m.



- 1 Optimal carriageway width is 3.5m, minimum is 3.0m and maximum is 4.5m (top of kerb to top of kerb).
- 2 Safe vehicle speeds require traffic calming (refer to design element "traffic calming").
- 3 One way signage and lane markings are required.
- 4 Parking cars are expected to block the street when manoeuvring. Parking bays require clear sightlines.
- 5 No stopping markings are required for all kerb lengths over 6.0m.

Movement lane elements
Single lane street, one way traffic

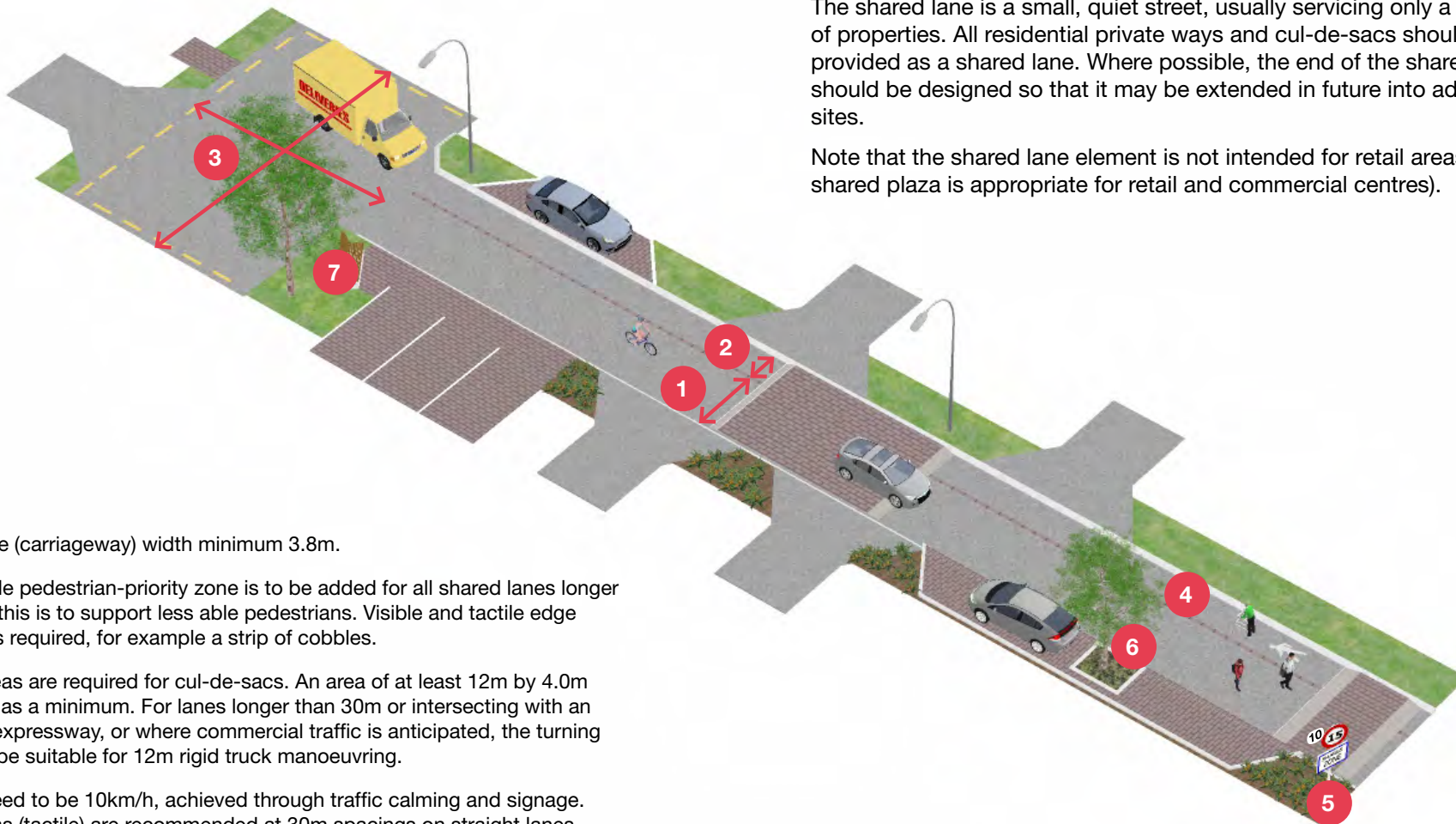
Infrastructure Development Code
 Street Design Diagrams

D105

June 2021

Version 1





The shared lane is a small, quiet street, usually servicing only a handful of properties. All residential private ways and cul-de-sacs should be provided as a shared lane. Where possible, the end of the shared lane should be designed so that it may be extended in future into adjacent sites.

Note that the shared lane element is not intended for retail areas (a shared plaza is appropriate for retail and commercial centres).

- 1 Shared lane (carriageway) width minimum 3.8m.
- 2 A 1.2m wide pedestrian-priority zone is to be added for all shared lanes longer than 30m; this is to support less able pedestrians. Visible and tactile edge definition is required, for example a strip of cobbles.
- 3 Turning areas are required for cul-de-sacs. An area of at least 12m by 4.0m is required as a minimum. For lanes longer than 30m or intersecting with an arterial or expressway, or where commercial traffic is anticipated, the turning area must be suitable for 12m rigid truck manoeuvring.
- 4 Design speed to be 10km/h, achieved through traffic calming and signage. Paved areas (tactile) are recommended at 30m spacings on straight lanes.
- 5 Signage showing shared zone and speed limit information.
- 6 Refer to "Soft landscape elements" and "Utilities location selection" in the Street design tool for preferred options and limitations for trees and planted berms.
- 7 Seating and other amenities should also be considered.

Movement lane elements

Shared lane

Infrastructure Development Code
Street Design Diagrams

D106

June 2021

Version 1



This is a street type with low access requirements to properties and can itself be a destination for pedestrians. The design of the shared plaza must encourage very low vehicle speeds and should provide a good mix of amenities and activities. It is particularly useful in retail areas and town centres. Access to properties and parking is possible but only if very necessary, such as for occasional deliveries or taxi pickups.



- 1 Obvious signage is required at the entrance of a shared plaza to inform all users that this is a slow (10km/h) and shared environment. This must be reinforced by threshold treatments such as cobbled surfaces or landscape details.
- 2 A clear route for vehicles is required at a minimum width of 3.5m (not necessarily straight, but should be legible).
- 3 A pedestrian-priority route with a minimum clear width of 2.0m is required on each side of the street that is clear of street furniture and separate to the vehicle space.
- 4 Where verandas and other structures overhang the shared plaza, a line or barrier on the ground surface will let taller vehicles know to keep their distance. Where overhead power is present, all above structures must comply with NZECP34.
- 5 Vehicle crossings are not desirable. If necessary, they should be used for very low frequency of vehicles, typically service vehicles operating outside of popular times.

Movement lane elements
Shared plaza

Infrastructure Development Code
 Street Design Diagrams

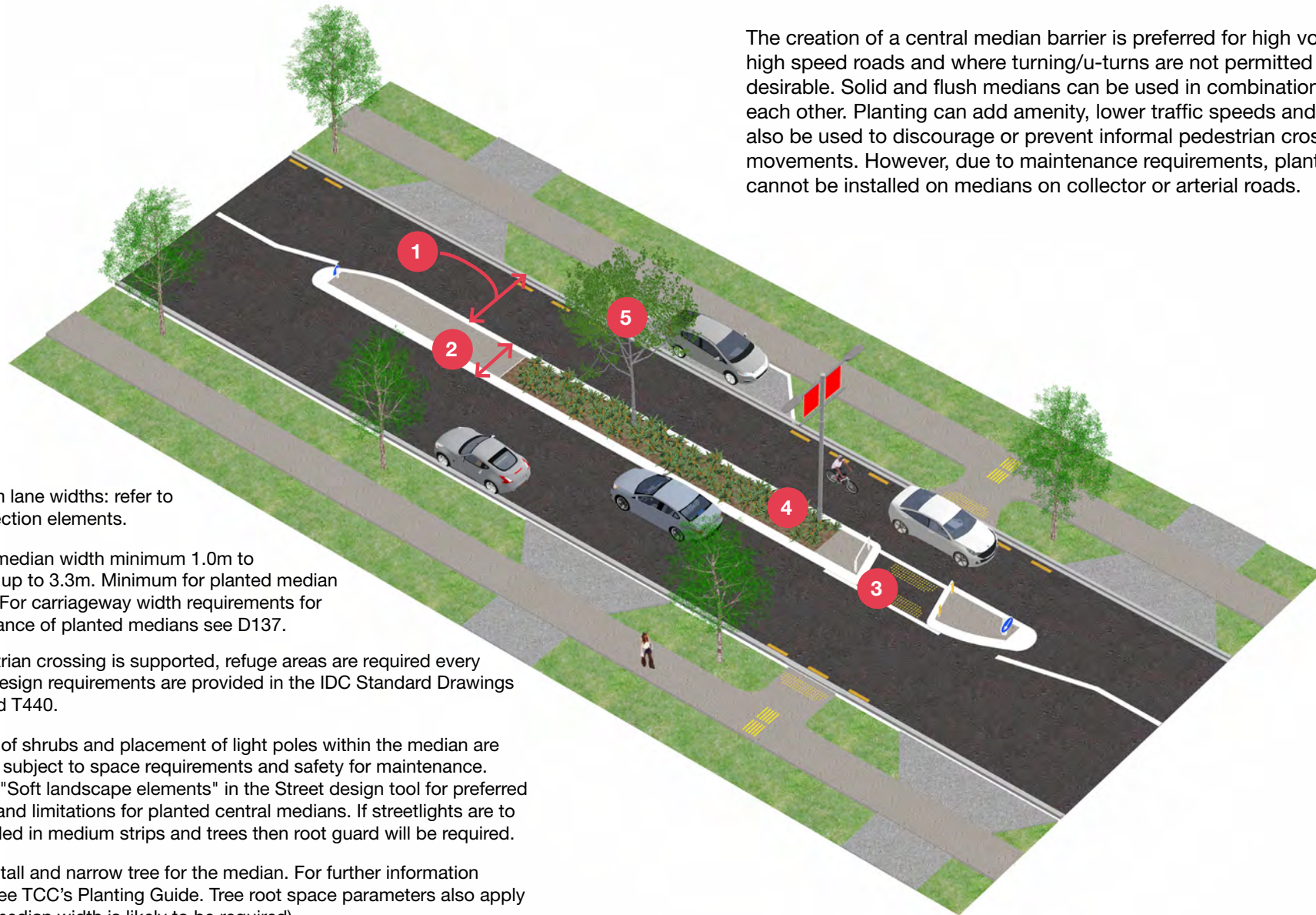
D107

June 2021

Version 1

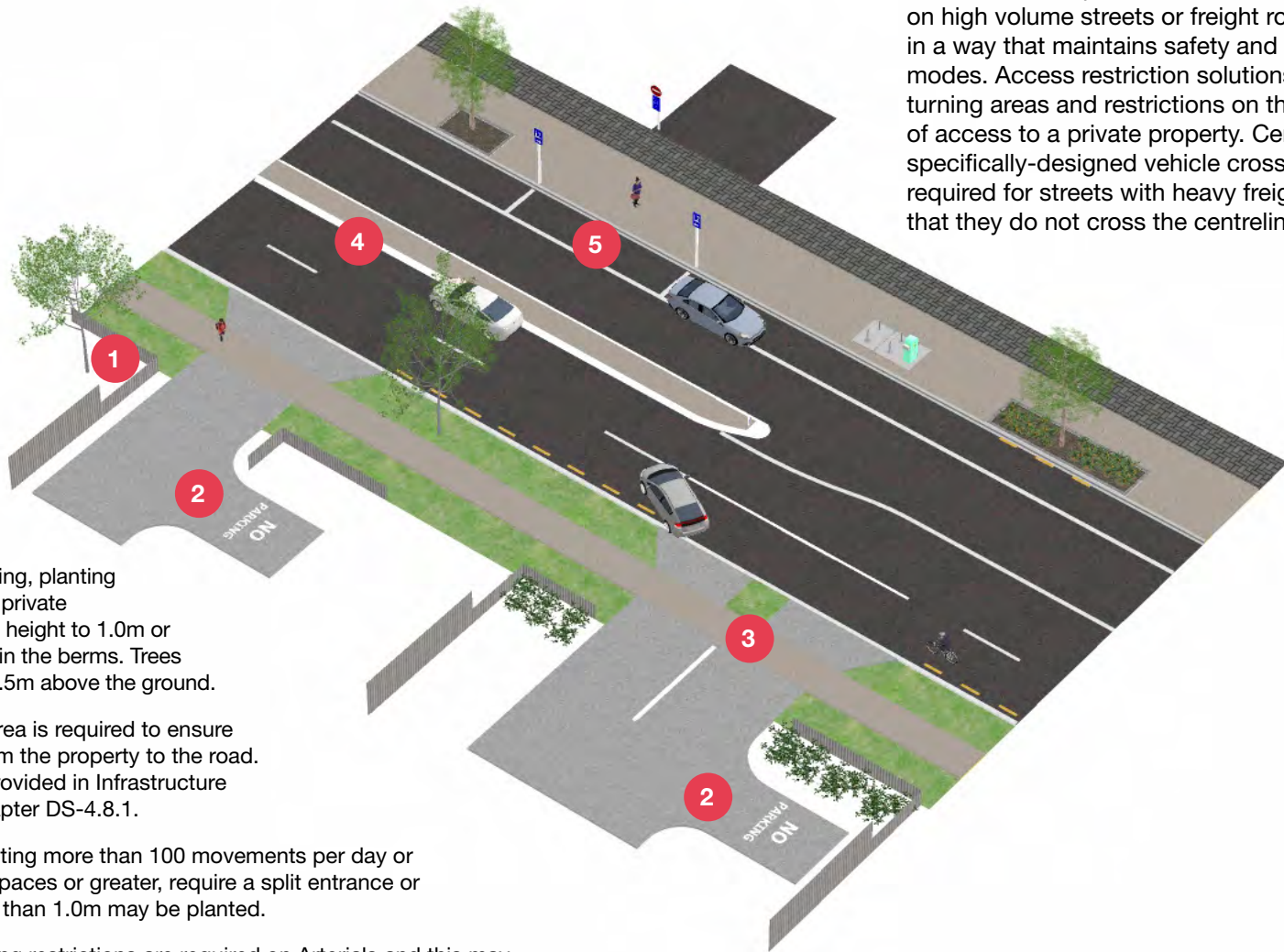


The creation of a central median barrier is preferred for high volume/ high speed roads and where turning/u-turns are not permitted or desirable. Solid and flush medians can be used in combination with each other. Planting can add amenity, lower traffic speeds and can also be used to discourage or prevent informal pedestrian crossing movements. However, due to maintenance requirements, planting cannot be installed on medians on collector or arterial roads.



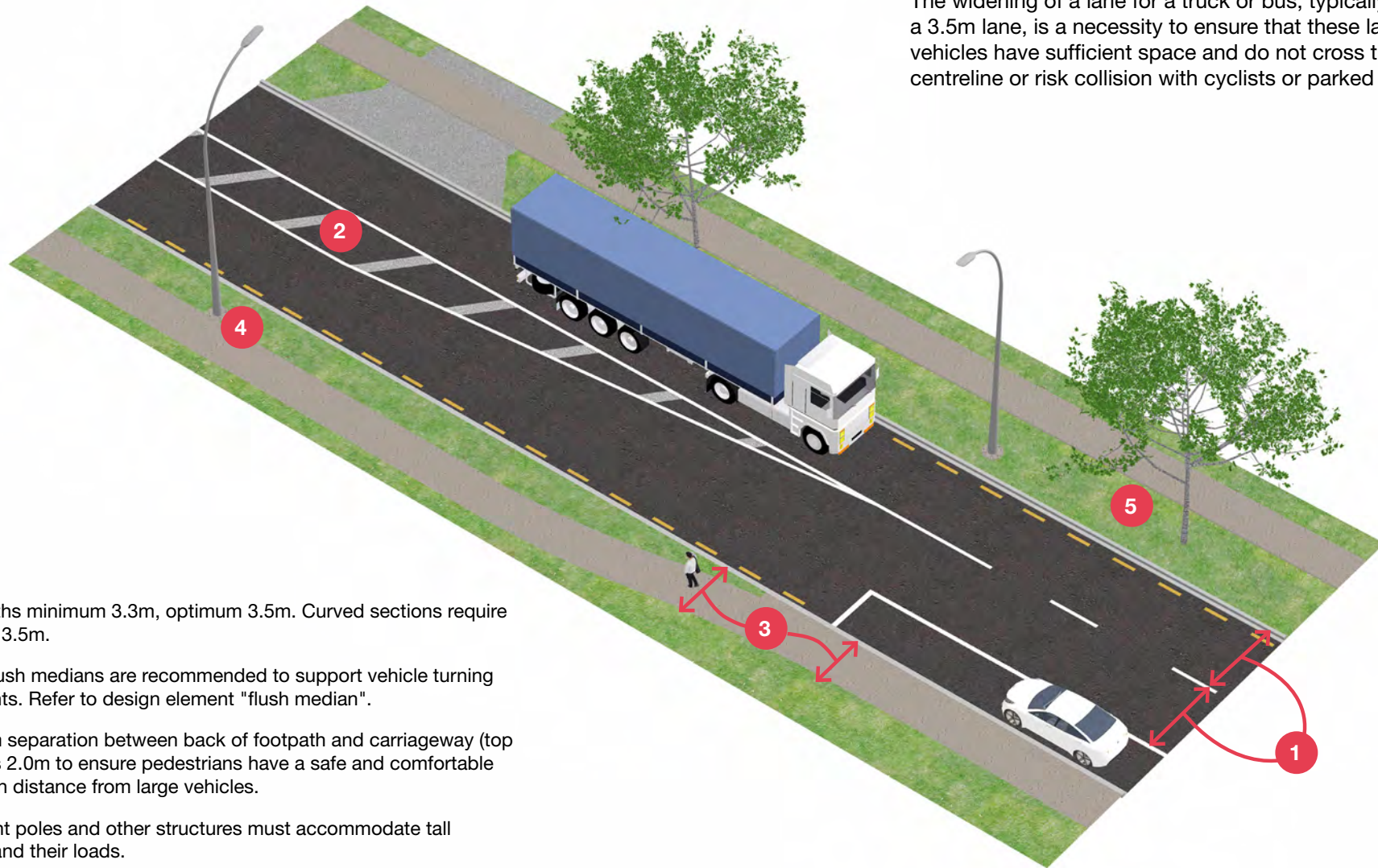
- 1** Minimum lane widths: refer to lane selection elements.
- 2** Central median width minimum 1.0m to typically up to 3.3m. Minimum for planted median is 2.5m. For carriageway width requirements for maintenance of planted medians see D137.
- 3** If pedestrian crossing is supported, refuge areas are required every 120m. Design requirements are provided in the IDC Standard Drawings T423 and T440.
- 4** Planting of shrubs and placement of light poles within the median are possible subject to space requirements and safety for maintenance. Refer to "Soft landscape elements" in the Street design tool for preferred options and limitations for planted central medians. If streetlights are to be installed in medium strips and trees then root guard will be required.
- 5** Select a tall and narrow tree for the median. For further information please see TCC's Planting Guide. Tree root space parameters also apply (>2.0m median width is likely to be required).

This element requires vehicle crossings to be restricted on high volume streets or freight routes and managed in a way that maintains safety and efficiency for all modes. Access restriction solutions can include on-site turning areas and restrictions on the hours and direction of access to a private property. Central medians and specifically-designed vehicle crossings are likely required for streets with heavy freight vehicles, to ensure that they do not cross the centreline when turning.



- 1** Within 5.0m of the crossing, planting and other objects within private property are restricted in height to 1.0m or less and 600mm or less in the berms. Trees require a clear trunk of 2.5m above the ground.
- 2** Reverse manoeuvring area is required to ensure forward-movements from the property to the road. Further information is provided in Infrastructure Development Code Chapter DS-4.8.1.
- 3** Vehicle crossings expecting more than 100 movements per day or accessing 30 car park spaces or greater, require a split entrance or slip lane. A gap of more than 1.0m may be planted.
- 4** Left-in and left-out turning restrictions are required on Arterials and this may be enforced through a solid central median.
- 5** Entrances to existing service lanes should be time-restricted to hours outside of busy periods. Car parks and loading zones should also be time-restricted on busy routes.

The widening of a lane for a truck or bus; typically to a 3.5m lane, is a necessity to ensure that these larger vehicles have sufficient space and do not cross the centreline or risk collision with cyclists or parked vehicles.



- 1 Lane widths minimum 3.3m, optimum 3.5m. Curved sections require minimum 3.5m.
- 2 Central flush medians are recommended to support vehicle turning movements. Refer to design element "flush median".
- 3 Minimum separation between back of footpath and carriageway (top of kerb) is 2.0m to ensure pedestrians have a safe and comfortable separation distance from large vehicles.
- 4 Street light poles and other structures must accommodate tall vehicles and their loads.
- 5 Street trees species selected to avoid overhanging limbs, and provide a tall height. For further information please see TCC's Planting Guide.

Driving elements

Wider lane for truck or bus (overwidth lane)

Infrastructure Development Code
Street Design Diagrams

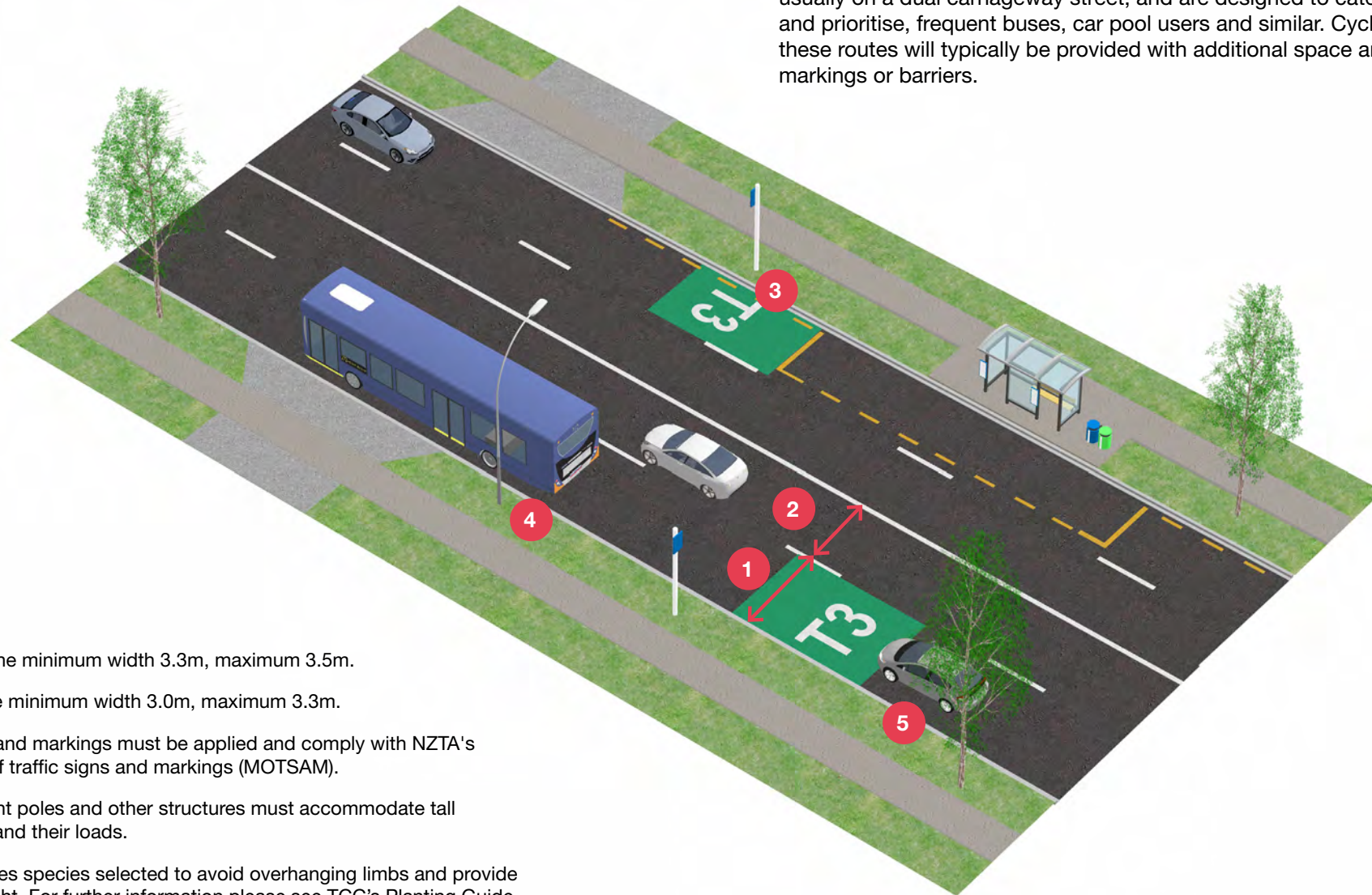
D110

June 2021

Version 1



High-occupancy vehicle lanes are either permanent or temporary lanes, usually on a dual carriageway street, and are designed to cater for, and prioritise, frequent buses, car pool users and similar. Cyclists on these routes will typically be provided with additional space and lane markings or barriers.



- 1 Transit lane minimum width 3.3m, maximum 3.5m.
- 2 Inner lane minimum width 3.0m, maximum 3.3m.
- 3 Signage and markings must be applied and comply with NZTA's Manual of traffic signs and markings (MOTSAM).
- 4 Street light poles and other structures must accommodate tall vehicles and their loads.
- 5 Street trees species selected to avoid overhanging limbs and provide a tall height. For further information please see TCC's Planting Guide.

Driving elements
Bus/high occupancy vehicle (HOV) lane

Infrastructure Development Code
 Street Design Diagrams

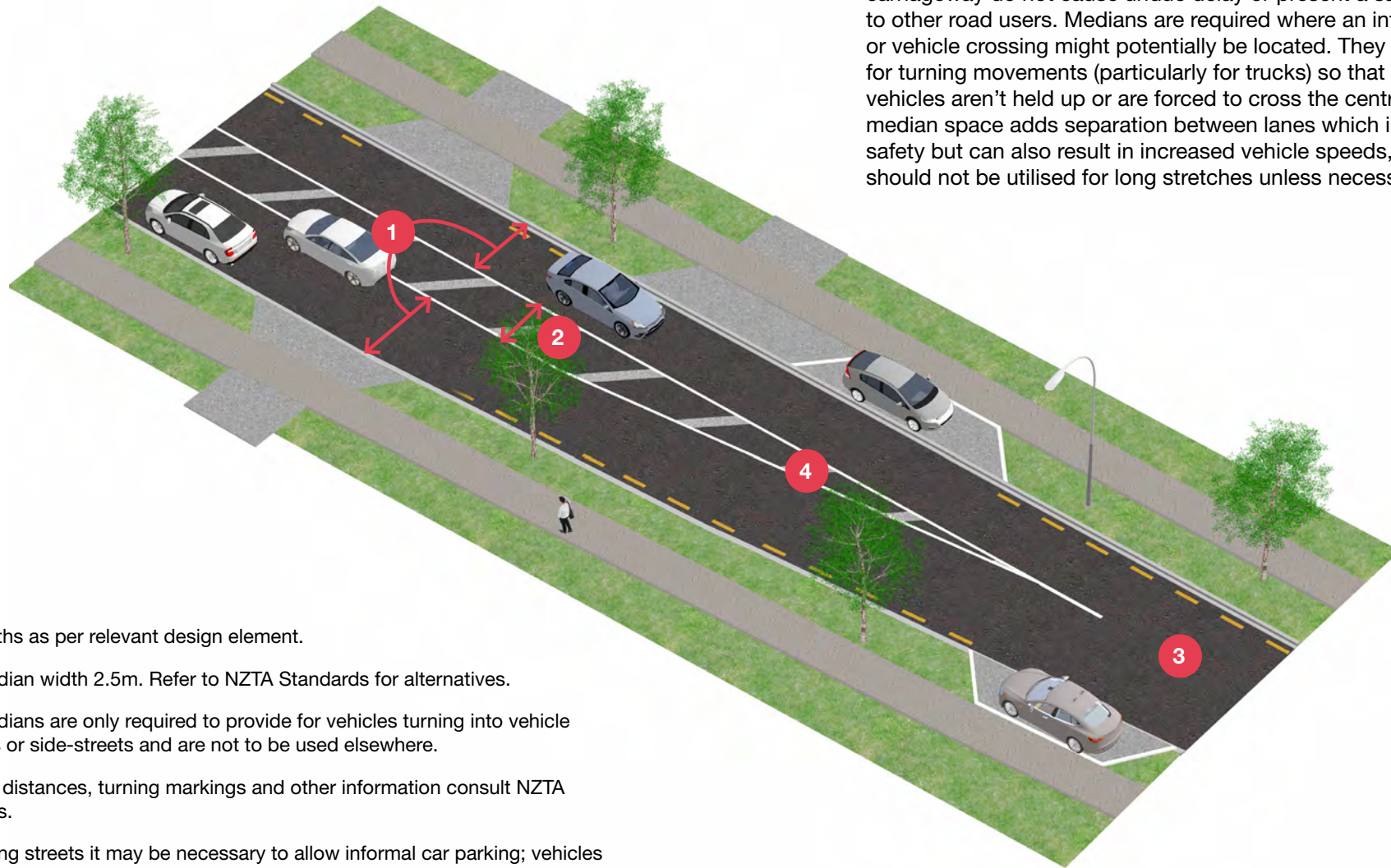
D111

June 2021

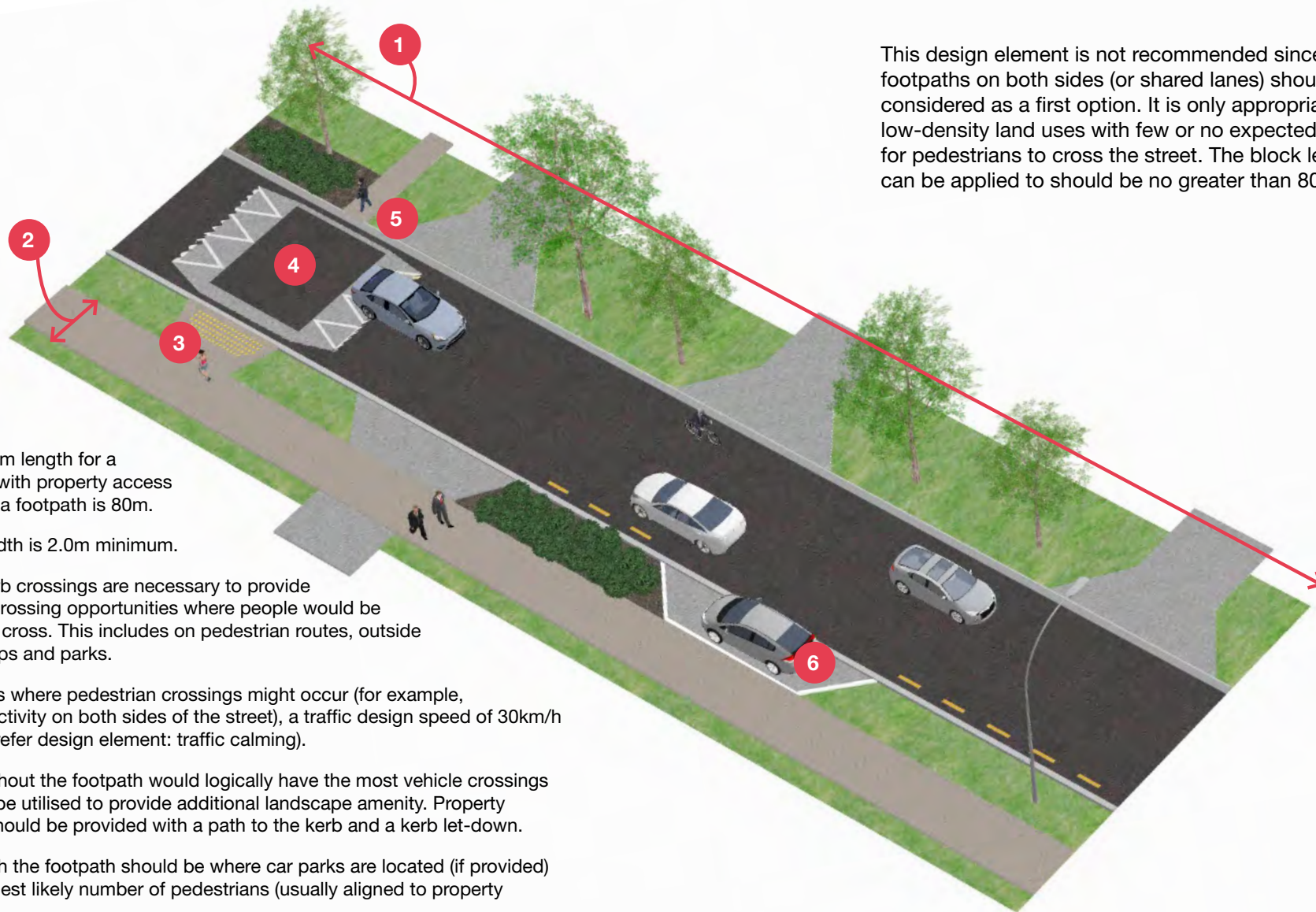
Version 1



Flush medians ensure that vehicles turning right from the carriageway do not cause undue delay or present a safety risk to other road users. Medians are required where an intersection or vehicle crossing might potentially be located. They add space for turning movements (particularly for trucks) so that other vehicles aren't held up or are forced to cross the centreline. The median space adds separation between lanes which improves safety but can also result in increased vehicle speeds, therefore should not be utilised for long stretches unless necessary.



- 1 Lane widths as per relevant design element.
- 2 Flush median width 2.5m. Refer to NZTA Standards for alternatives.
- 3 Flush medians are only required to provide for vehicles turning into vehicle crossings or side-streets and are not to be used elsewhere.
- 4 For taper distances, turning markings and other information consult NZTA Standards.
- 4 For existing streets it may be necessary to allow informal car parking; vehicles passing parked vehicles may drive onto the flush median. This outcome is not recommended since it can increase the likelihood of head-on collisions.



This design element is not recommended since footpaths on both sides (or shared lanes) should be considered as a first option. It is only appropriate for low-density land uses with few or no expected demand for pedestrians to cross the street. The block length this can be applied to should be no greater than 80m.

- 1 The maximum length for a street edge with property access and without a footpath is 80m.
- 2 Footpath width is 2.0m minimum.
- 3 Pathway kerb crossings are necessary to provide pedestrian crossing opportunities where people would be expected to cross. This includes on pedestrian routes, outside schools shops and parks.
- 4 For locations where pedestrian crossings might occur (for example, residential activity on both sides of the street), a traffic design speed of 30km/h is required (refer design element: traffic calming).
- 5 The side without the footpath would logically have the most vehicle crossings and should be utilised to provide additional landscape amenity. Property entrances should be provided with a path to the kerb and a kerb let-down.
- 6 The side with the footpath should be where car parks are located (if provided) and the highest likely number of pedestrians (usually aligned to property entrances).

Note: Footpath width refers to a clear, unobstructed path width.

Walking elements

Footpath on one side of the street

Infrastructure Development Code
Street Design Diagrams

D113

June 2021

Version 1



Footpaths cater to pedestrians and people with mobility issues (including the very young and very old) and provide access to properties for visitors. All streets (other than shared lanes and plazas) should have a footpath along each side.



- 1 Footpath width 1.8m minimum if separated from kerb by a berm. Parts of streets that are fronted by retail or civic activities require 2.4m footpath widths (or a combination of 1.8m footpath plus a 0.6m paved utilities space).
- 2 Footpaths located adjacent to the kerb should be 2.0m minimum width.
- 3 Footpaths with kerb let-downs require a flat width of 1.5m to be maintained behind the sloped area of the cut.
- 4 Pathway kerb crossings or vehicle crossings are required at all intersections and opposite footpaths to enable people to transition onto a footpath when crossing the road or accessing vehicles.

Note: Footpath width refers to a clear, unobstructed path width.

Walking elements

Footpaths on both sides of the street

Infrastructure Development Code
Street Design Diagrams

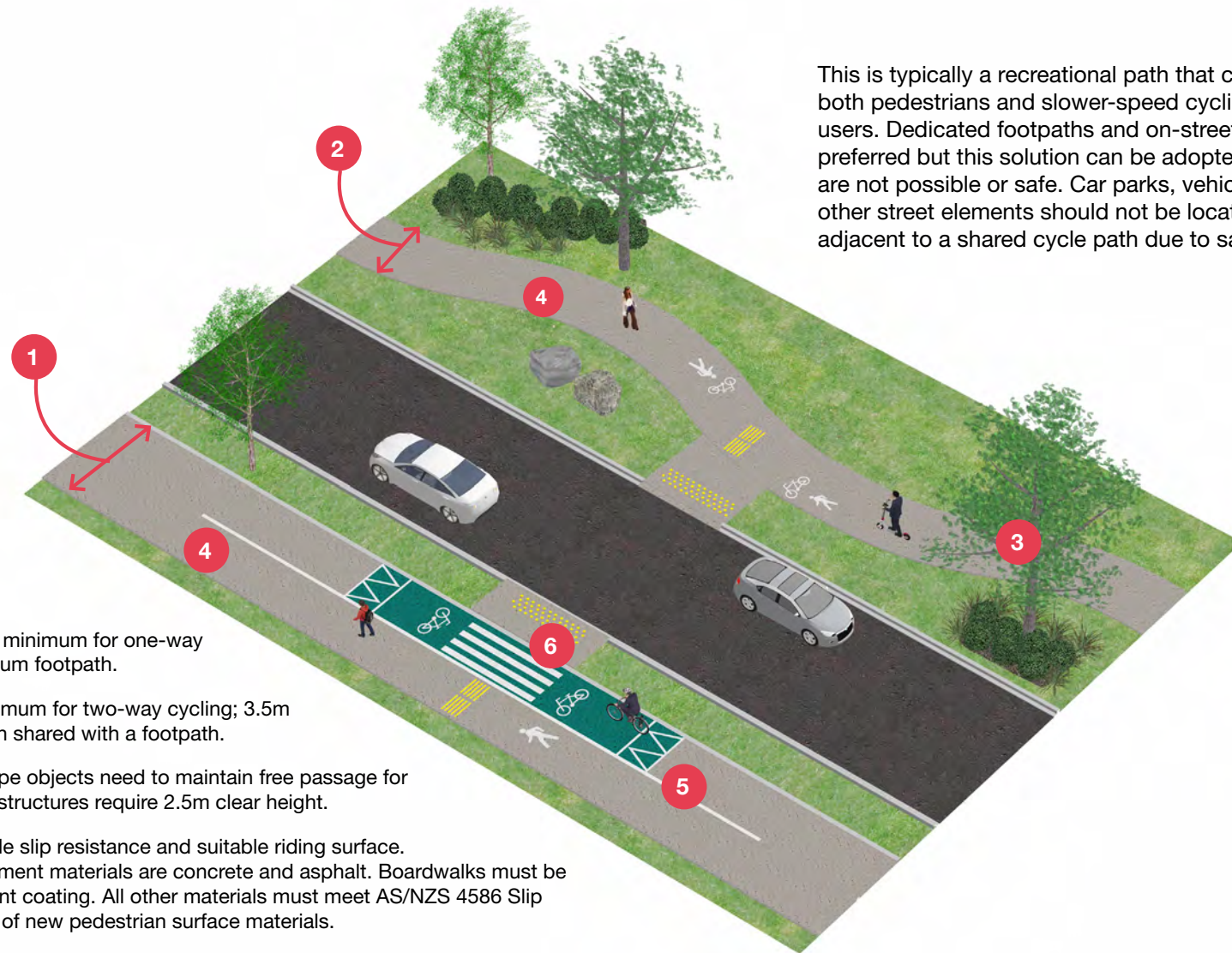
D114

June 2021

Version 1



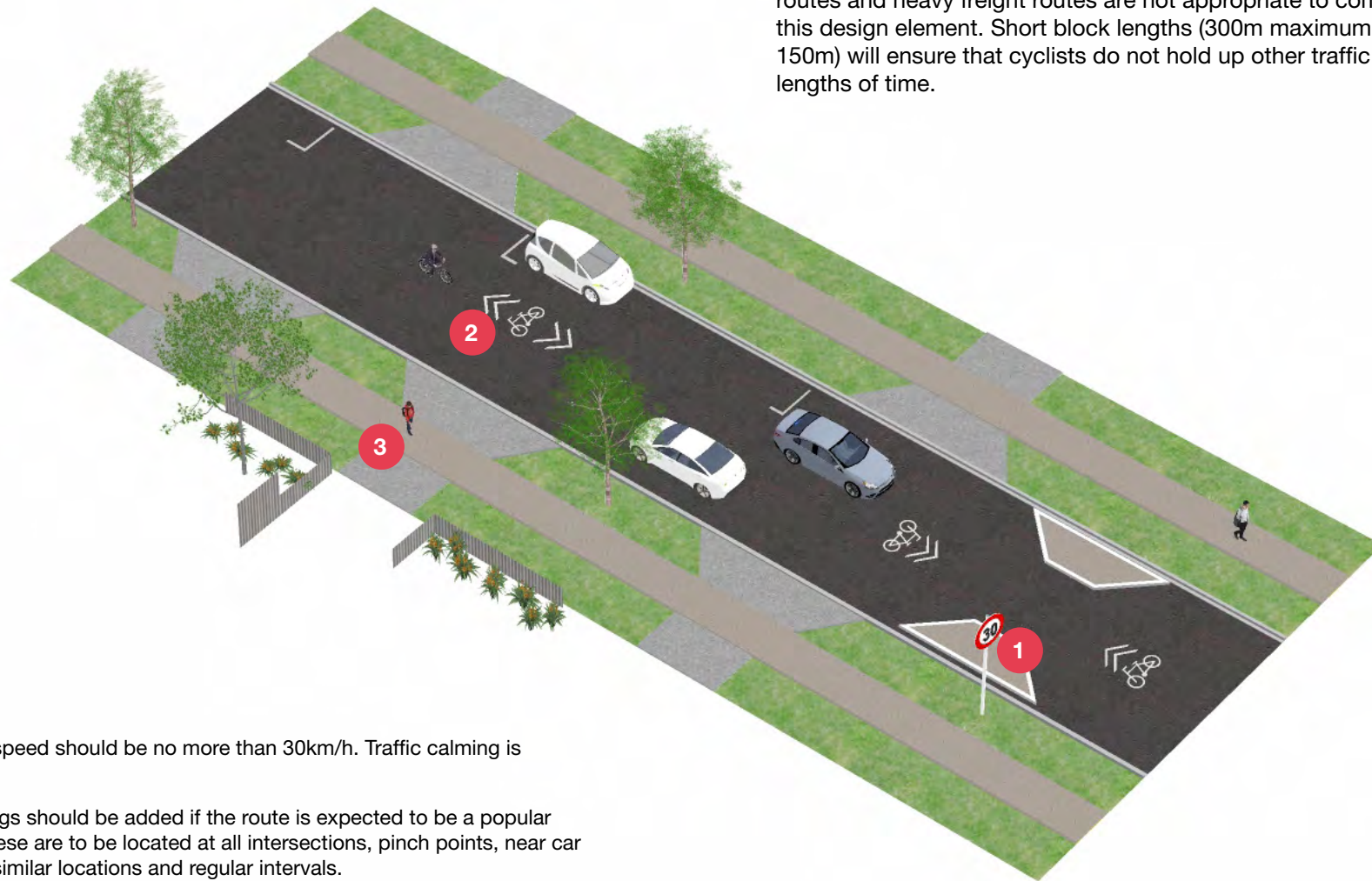
This is typically a recreational path that can cater to both pedestrians and slower-speed cyclists and other users. Dedicated footpaths and on-street cycle lanes are preferred but this solution can be adopted if on-street lanes are not possible or safe. Car parks, vehicle crossings and other street elements should not be located immediately adjacent to a shared cycle path due to safety issues.



- 1** When segregated; 1.5m minimum for one-way cycling plus 1.5m minimum footpath.
- 2** When shared; 2.5m minimum for two-way cycling; 3.5m for busier routes or when shared with a footpath.
- 3** Trees and other landscape objects need to maintain free passage for cyclists. Tree limbs and structures require 2.5m clear height.
- 4** Pavement type to provide slip resistance and suitable riding surface. Councils preferred pavement materials are concrete and asphalt. Boardwalks must be covered with slip resistant coating. All other materials must meet AS/NZS 4586 Slip resistance classification of new pedestrian surface materials.
- 5** Clear markings and signage is to be provided at intersections and at vehicle crossings.
- 6** Drop kerb or pram crossings are required every 100m.

Note: Foot, cycle and combined path width refer to a clear, unobstructed path width.

In this element, cyclists share the vehicular roadspace with other traffic. A slow and quiet street is required for this to be a safe option. Bus routes and heavy freight routes are not appropriate to combine with this design element. Short block lengths (300m maximum, but optimum 150m) will ensure that cyclists do not hold up other traffic for significant lengths of time.



- 1 Vehicle design speed should be no more than 30km/h. Traffic calming is required.
- 2 Sharrow markings should be added if the route is expected to be a popular cycle route. These are to be located at all intersections, pinch points, near car parking and at similar locations and regular intervals.
- 3 Vehicle crossings require fencing and vegetation within 5.0m of the kerb to be restricted to 1.0m or less in height or visually-open.

Cycling elements

Cyclists sharing the carriageway

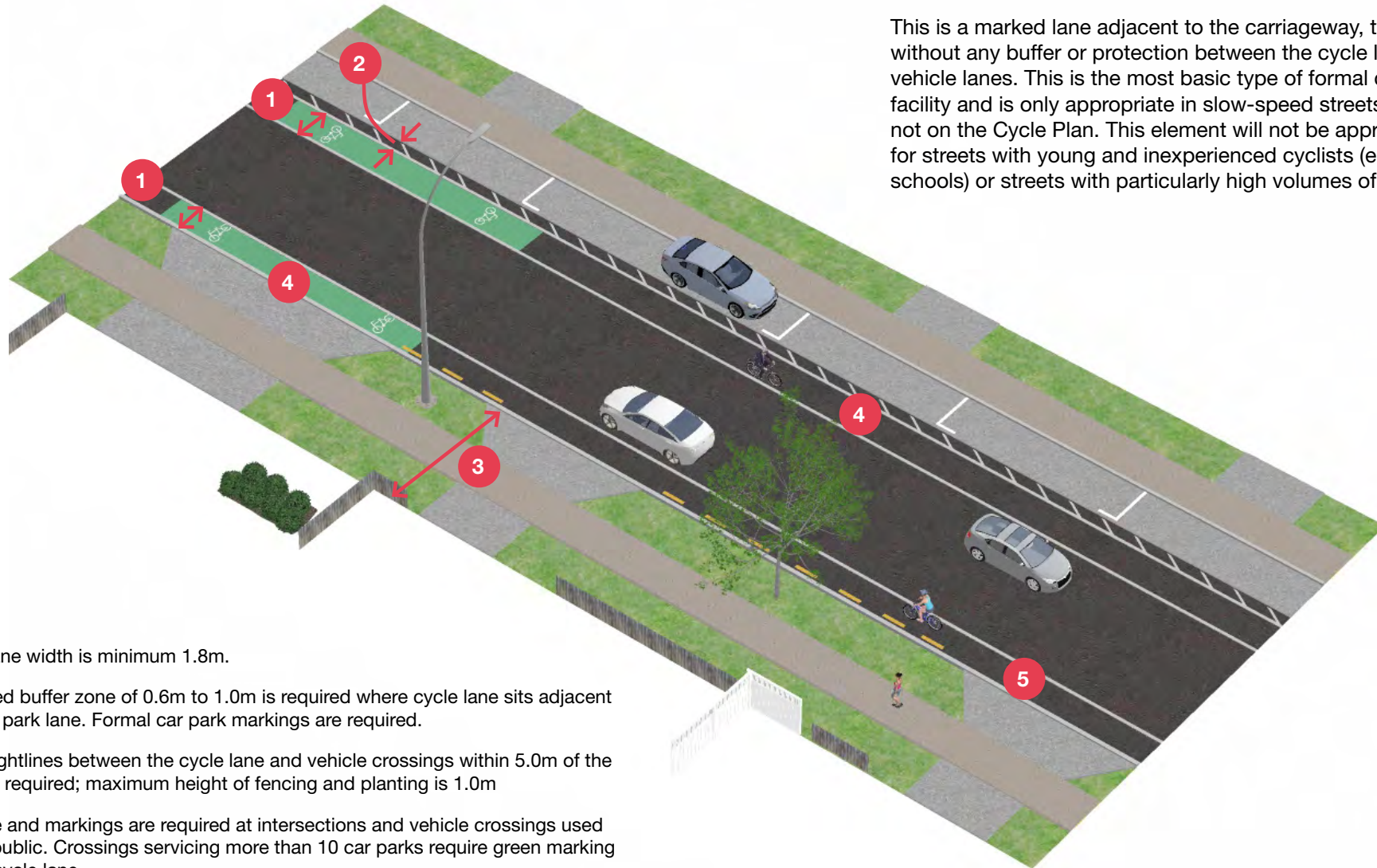
Infrastructure Development Code
Street Design Diagrams

D116

June 2021

Version 1





This is a marked lane adjacent to the carriageway, typically without any buffer or protection between the cycle lane and vehicle lanes. This is the most basic type of formal cycling facility and is only appropriate in slow-speed streets that are not on the Cycle Plan. This element will not be appropriate for streets with young and inexperienced cyclists (e.g. near schools) or streets with particularly high volumes of cyclists.

- 1 Cycle lane width is minimum 1.8m.
- 2 A marked buffer zone of 0.6m to 1.0m is required where cycle lane sits adjacent to a car park lane. Formal car park markings are required.
- 3 Clear sightlines between the cycle lane and vehicle crossings within 5.0m of the lane are required; maximum height of fencing and planting is 1.0m
- 4 Signage and markings are required at intersections and vehicle crossings used by the public. Crossings servicing more than 10 car parks require green marking for the cycle lane.
- 5 Trees within 3.0m of the lane (trunk to edge) should be "cycle-compatible" from the TCC Tree Species Selection List.

Cycling elements
Marked cycle lane

Infrastructure Development Code
 Street Design Diagrams

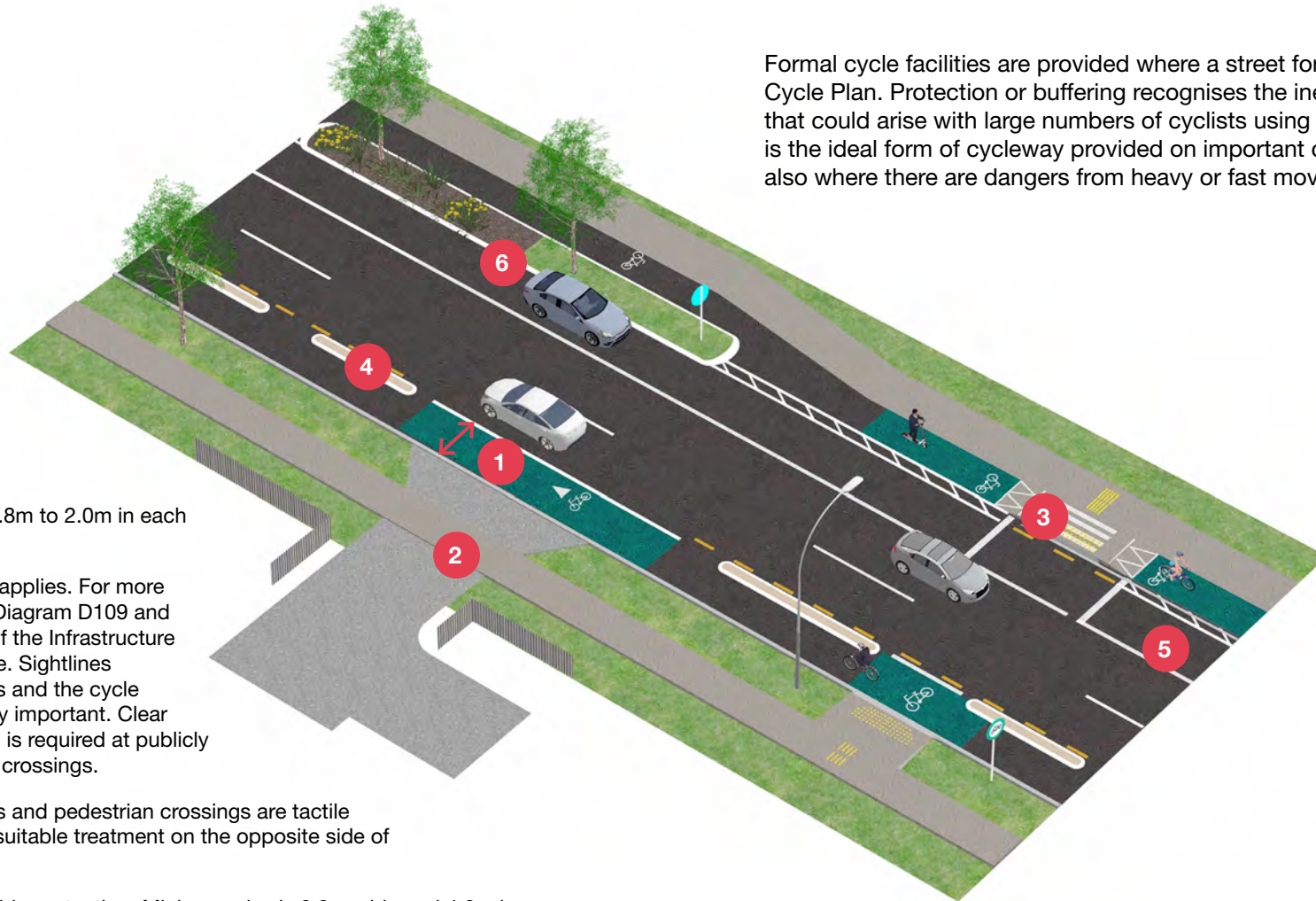
D117

June 2021

Version 1



Formal cycle facilities are provided where a street forms part of the Cycle Plan. Protection or buffering recognises the inevitable conflict that could arise with large numbers of cyclists using a busy street. This is the ideal form of cycleway provided on important cycling routes and also where there are dangers from heavy or fast moving vehicles.



1 Cycle lane width 1.8m to 2.0m in each direction.

Access restriction applies. For more detail see Design Diagram D109 and section DS-4.8.1 of the Infrastructure Development Code. Sightlines between driveways and the cycle lane are particularly important. Clear cycle lane marking is required at publicly accessible vehicle crossings.

2 Footpath crossings and pedestrian crossings are tactile and marked, with suitable treatment on the opposite side of the street.

3 Concrete can provide protection. Minimum size is 0.3m wide and 4.0m long.

4 Formal car parking spaces can provide protection. A car park buffer strip of at least 0.6m wide is required.

5 Grass or vegetation can provide protection. Trees and other structures within 3.0m of the cycle lane require clear space of 2.5m height. Minimum width for vegetated buffer island is 2.5m. Tree species to be selected from the cycle-friendly list (e.g. no falling fruit or similar objects; refer TCC Species Guide).

Cycling elements

Protected or buffered cycle lane

Infrastructure Development Code
Street Design Diagrams

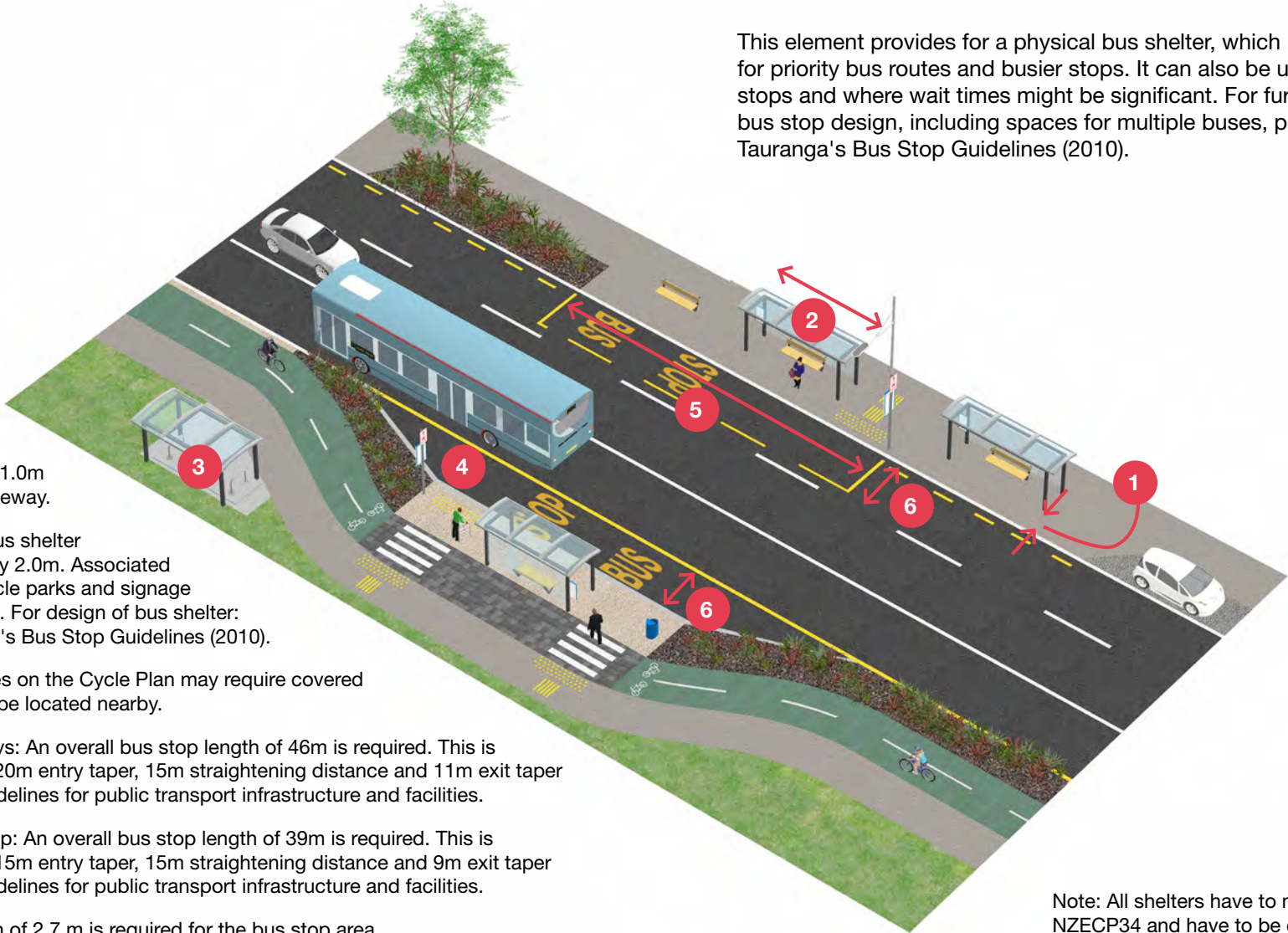
D118

June 2021

Version 1



This element provides for a physical bus shelter, which is appropriate for priority bus routes and busier stops. It can also be used for exposed stops and where wait times might be significant. For further details on bus stop design, including spaces for multiple buses, please consult Tauranga's Bus Stop Guidelines (2010).



1 Shelter set back 1.0m from kerb or cycleway.

Dimensions of bus shelter minimum 4.5m by 2.0m. Associated bins, seating, cycle parks and signage to be considered. For design of bus shelter: refer to Tauranga's Bus Stop Guidelines (2010).

3 Shelters on routes on the Cycle Plan may require covered cycle parking to be located nearby.

4 Indented bus bays: An overall bus stop length of 46m is required. This is segmented into 20m entry taper, 15m straightening distance and 11m exit taper as per NZTA Guidelines for public transport infrastructure and facilities.

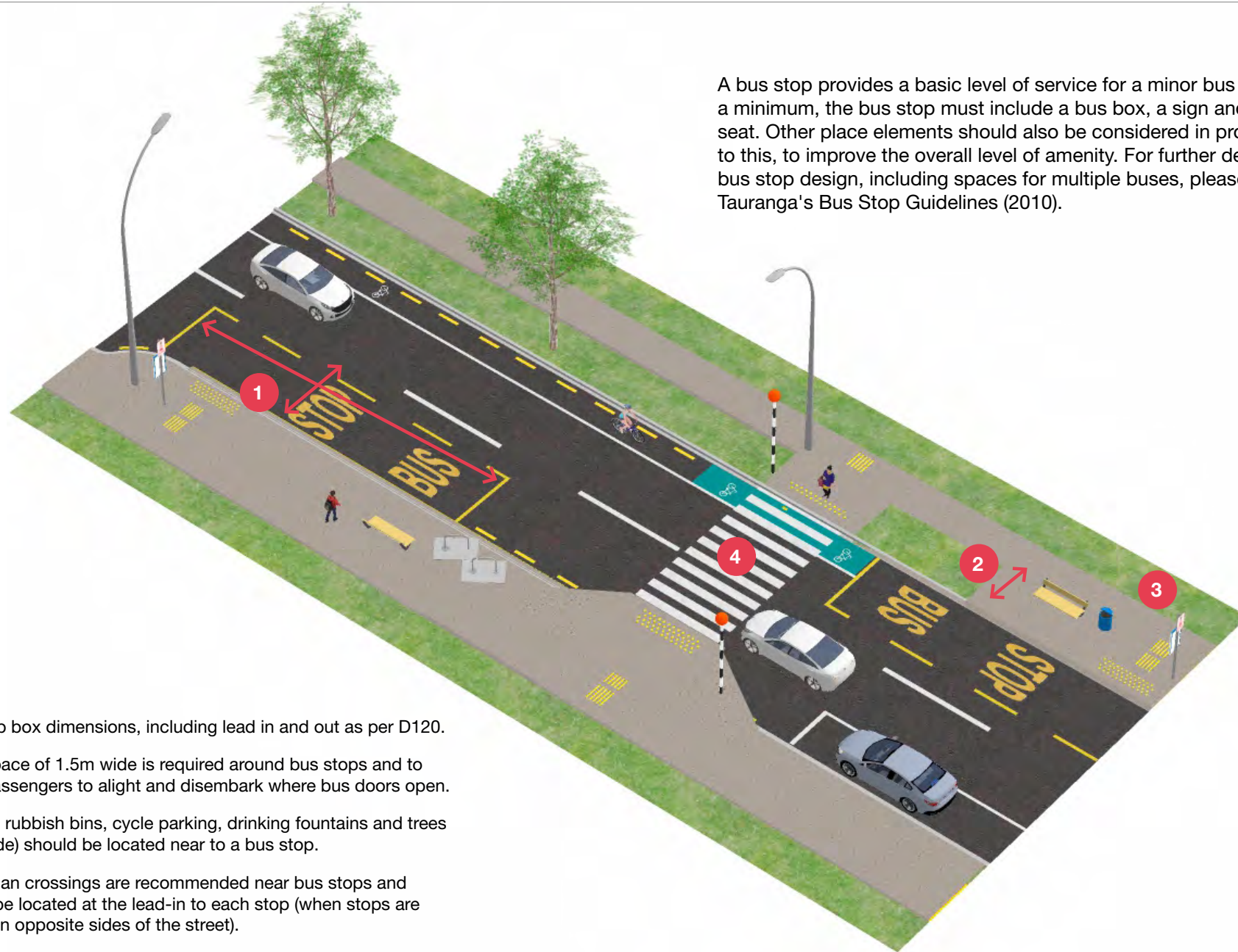
5 Kerbside bus stop: An overall bus stop length of 39m is required. This is segmented into 15m entry taper, 15m straightening distance and 9m exit taper as per NZTA Guidelines for public transport infrastructure and facilities.

6 A minimum width of 2.7 m is required for the bus stop area.

7 Pedestrian crossings are recommended near bus stops and should be located upstream of the entry taper to each bus stop.

Note: All shelters have to meet NZECP34 and have to be clear of HV equipment (transformers 11kV switch gear) to allow safe operation and egress if fault occurs.

A bus stop provides a basic level of service for a minor bus route. At a minimum, the bus stop must include a bus box, a sign and a bench seat. Other place elements should also be considered in proximity to this, to improve the overall level of amenity. For further details on bus stop design, including spaces for multiple buses, please consult Tauranga's Bus Stop Guidelines (2010).



- 1 Bus stop box dimensions, including lead in and out as per D120.
- 2 Clear space of 1.5m wide is required around bus stops and to allow passengers to alight and disembark where bus doors open.
- 3 Seating, rubbish bins, cycle parking, drinking fountains and trees (for shade) should be located near to a bus stop.
- 4 Pedestrian crossings are recommended near bus stops and should be located at the lead-in to each stop (when stops are paired on opposite sides of the street).

Bus elements
Simple bus stop

Infrastructure Development Code
 Street Design Diagrams

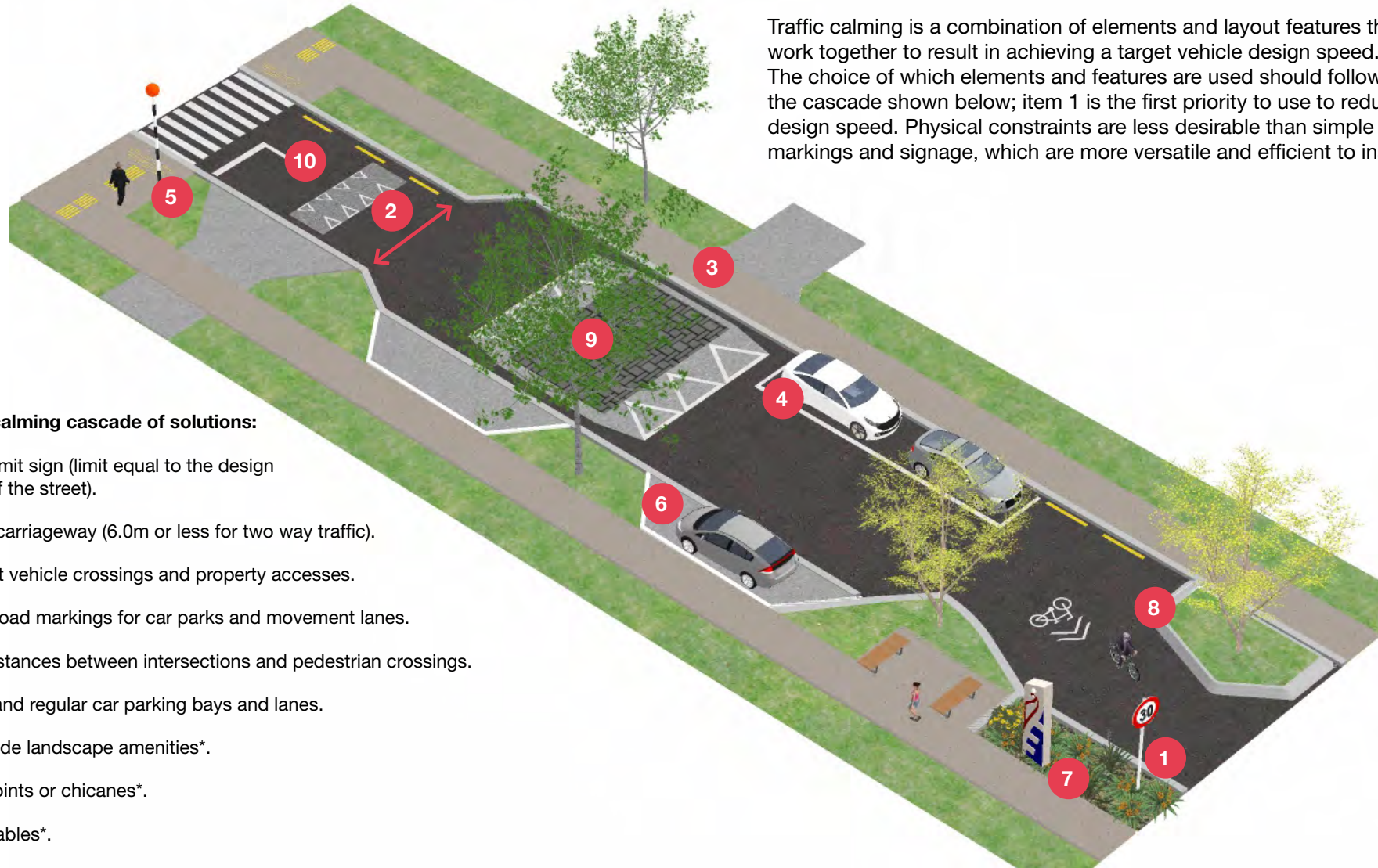
D120

June 2021

Version 1



Traffic calming is a combination of elements and layout features that work together to result in achieving a target vehicle design speed. The choice of which elements and features are used should follow the cascade shown below; item 1 is the first priority to use to reduce design speed. Physical constraints are less desirable than simple markings and signage, which are more versatile and efficient to install.



Traffic calming cascade of solutions:

- 1 Speed limit sign (limit equal to the design speed of the street).
- 2 Narrow carriageway (6.0m or less for two way traffic).
- 3 Frequent vehicle crossings and property accesses.
- 4 Formal road markings for car parks and movement lanes.
- 5 Short distances between intersections and pedestrian crossings.
- 6 Formal and regular car parking bays and lanes.
- 7 Street-side landscape amenities*.
- 8 Pinch points or chicanes*.
- 9 Speed tables*.
- 10 Speed bumps*.

*Street lighting is to be co-located with these elements.

Further information can be found in chapter seven of the Street Design Guide:

www.tauranga.govt.nz/Portals/0/data/future/strategic_planning/idc/files/street-design-guide.pdf

Speed Limit Bylaw 2009

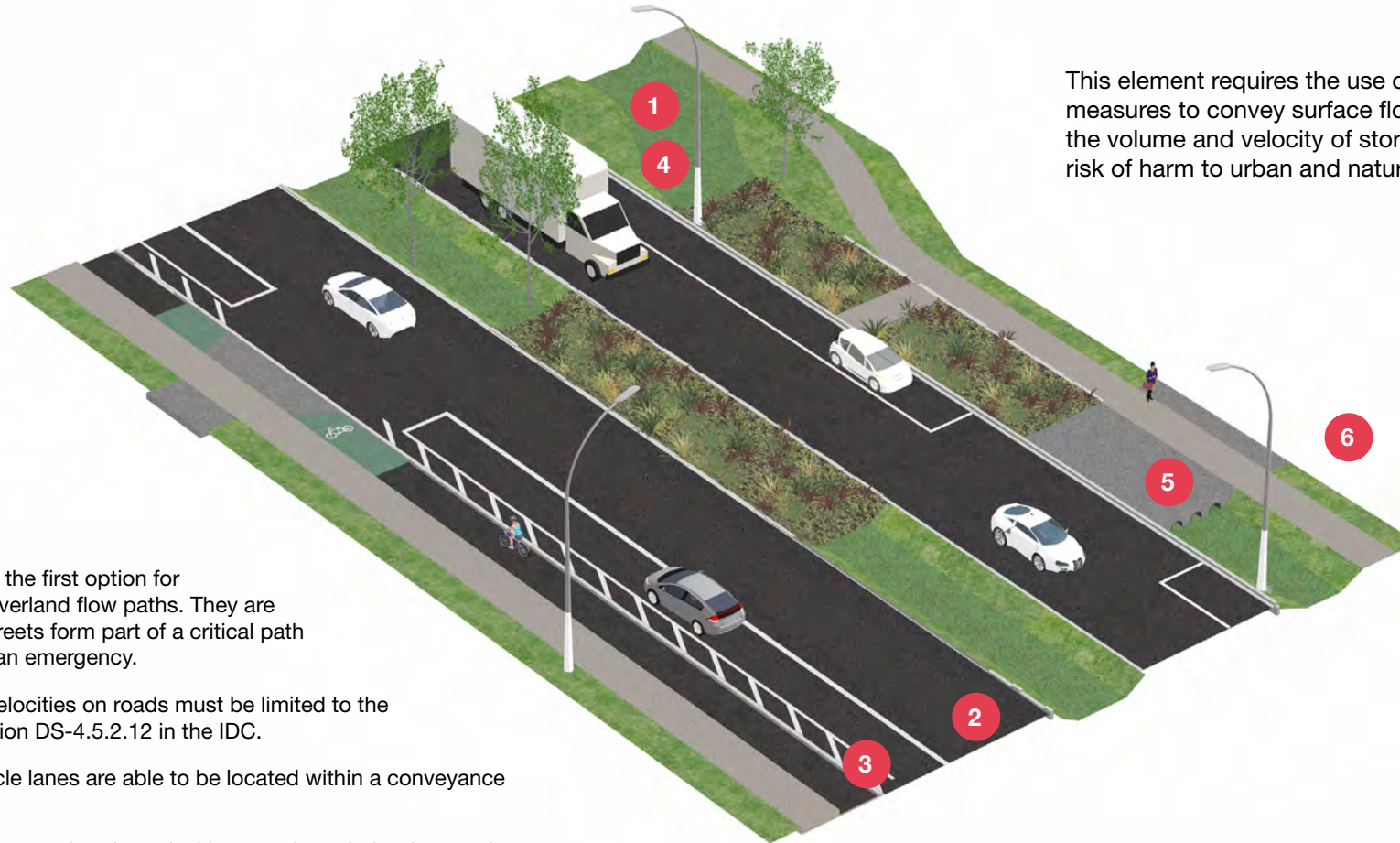
This bylaw sets speed limits and allows Council to set speed limits on roads under the ownership and/or control of Tauranga City Council. This bylaw is continually amended.

www.tauranga.govt.nz/council/council-documents/bylaws

Speed Management Plan

As part of Waka Kotahi/NZ Transport Agency's Speed Management Framework, local authorities are required to develop a Speed Management Plan. This will comprise a comprehensive review of all of our speed limits, in order to manage speeds on Tauranga roads and achieve increased road safety and pedestrian amenity.

Development of the Speed Management Plan will require significant community engagement. It is planned that the community engagement process will occur in the first half of 2021.

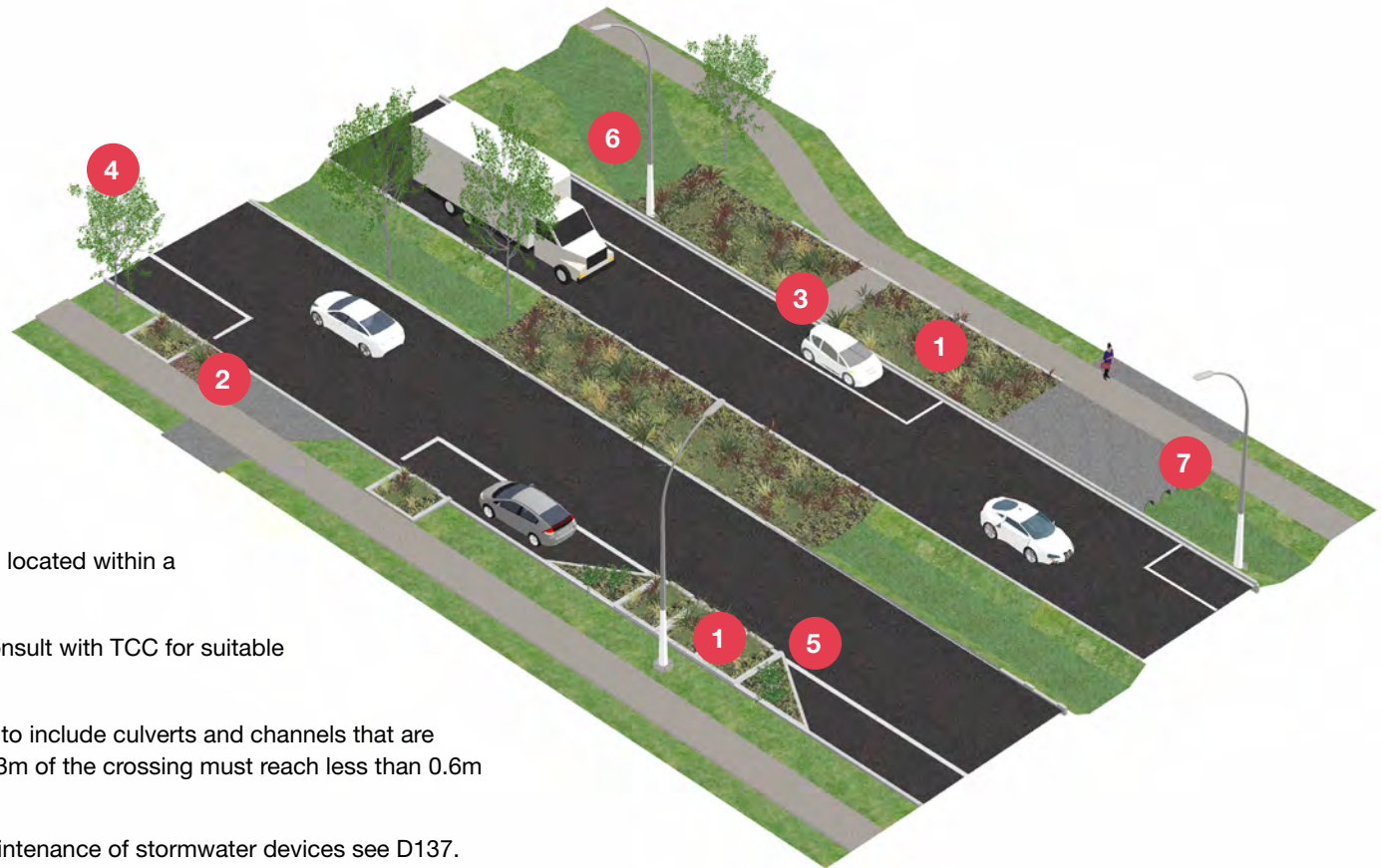


This element requires the use of appropriate measures to convey surface flows according to the volume and velocity of stormwater and the risk of harm to urban and natural environments.

- 1** Swales should be the first option for conveying large overland flow paths. They are required where streets form part of a critical path for evacuation in an emergency.
- 2** Flow depth and velocities on roads must be limited to the thresholds in section DS-4.5.2.12 in the IDC.
- 3** Car parks and cycle lanes are able to be located within a conveyance channel.
- 4** Conveyance swales can be planted with trees along their edges and groundcover species within the channel.
- 5** Vehicle crossings over a swale or significant overland flow path will require suitable culverts, fords or similar, to maintain surface flows and avoid localised flooding and are subject to hydraulic design.
- 6** Where overland flow paths cross private property, an easement is required and the area must be kept free of all structures and dense vegetation.

Note: For carriageway width requirements for maintenance of stormwater devices see D137

Typically includes porous paving, swale and/or raingarden for detention and retention to provide soakage into the ground. This is required to protect and enhance natural streams, water tables and aquifers. Stormwater must be permitted to soak away beneath the level of the pavement sub-grade. All roads with high traffic volumes and those with heavy freight, require some form of stormwater treatment so that pollutants (such as heavy metals) do not flow into our beaches, harbour and streams.



1 Raingarden can be used as an individual unit or stacked. See TCC's IDC Stormwater Chapter DS-5.

2 Where adjacent to driveways, the space between the vehicle crossing and the raingarden should be planted.

3 Raingardens and swales are not ideal to place alongside car parks. Where this occurs, suitable footpaths and pram crossings are required for pedestrian access.

4 Trees can be located next to raingardens subject to root space requirements. Consult with TCC for suitable tree species.

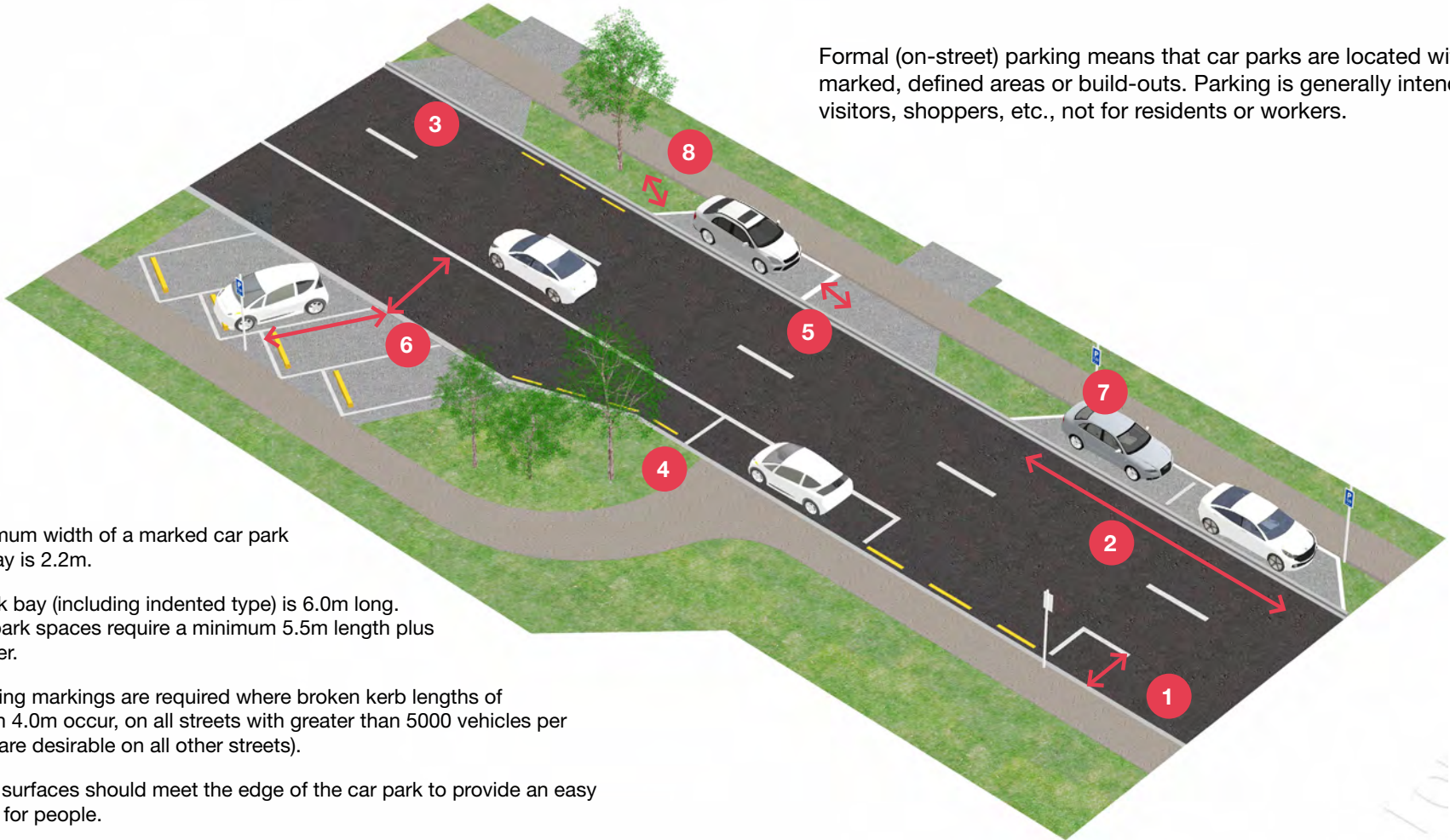
5 Planted build-outs can be used if raingardens are located within a car park lane.

6 Trees can be located within infiltration swales. Consult with TCC for suitable tree species.

7 Vehicle crossings and pedestrian crossings need to include culverts and channels that are subject to hydraulic design. Plant species within 3m of the crossing must reach less than 0.6m maximum height at maturity.

Note: For carriageway width requirements for maintenance of stormwater devices see D137.

Formal (on-street) parking means that car parks are located within marked, defined areas or build-outs. Parking is generally intended for visitors, shoppers, etc., not for residents or workers.



- 1 The minimum width of a marked car park lane or bay is 2.2m.
- 2 A car park bay (including indented type) is 6.0m long. End car park spaces require a minimum 5.5m length plus a 45° taper.
- 3 No stopping markings are required where broken kerb lengths of more than 4.0m occur, on all streets with greater than 5000 vehicles per day (and are desirable on all other streets).
- 4 Footpath surfaces should meet the edge of the car park to provide an easy transition for people.
- 5 Surfaces of car park with vehicle crossings can be merged (avoid small triangles of lawn). A 1.0m space between vehicle crossing and car park bay is required.
- 6 Angle parking bays should be 60-deg and a minimum of 2.5m wide and 5.7m long, with a clear aisle of 4.0m (in addition to any cycle lanes). These are only for use on streets with retail, recreation and civic activities and vehicle speeds less than 40km/h.

- 7 Parking information signs located at the beginning and end of parking zones or, if car parks are paired, then located between the two spaces.
- 8 Trees and other above-ground structures must be at least 0.75m distance from the edge of a car park (1.0m is preferred).

Parking and loading elements
Formal car parks

Infrastructure Development Code
 Street Design Diagrams

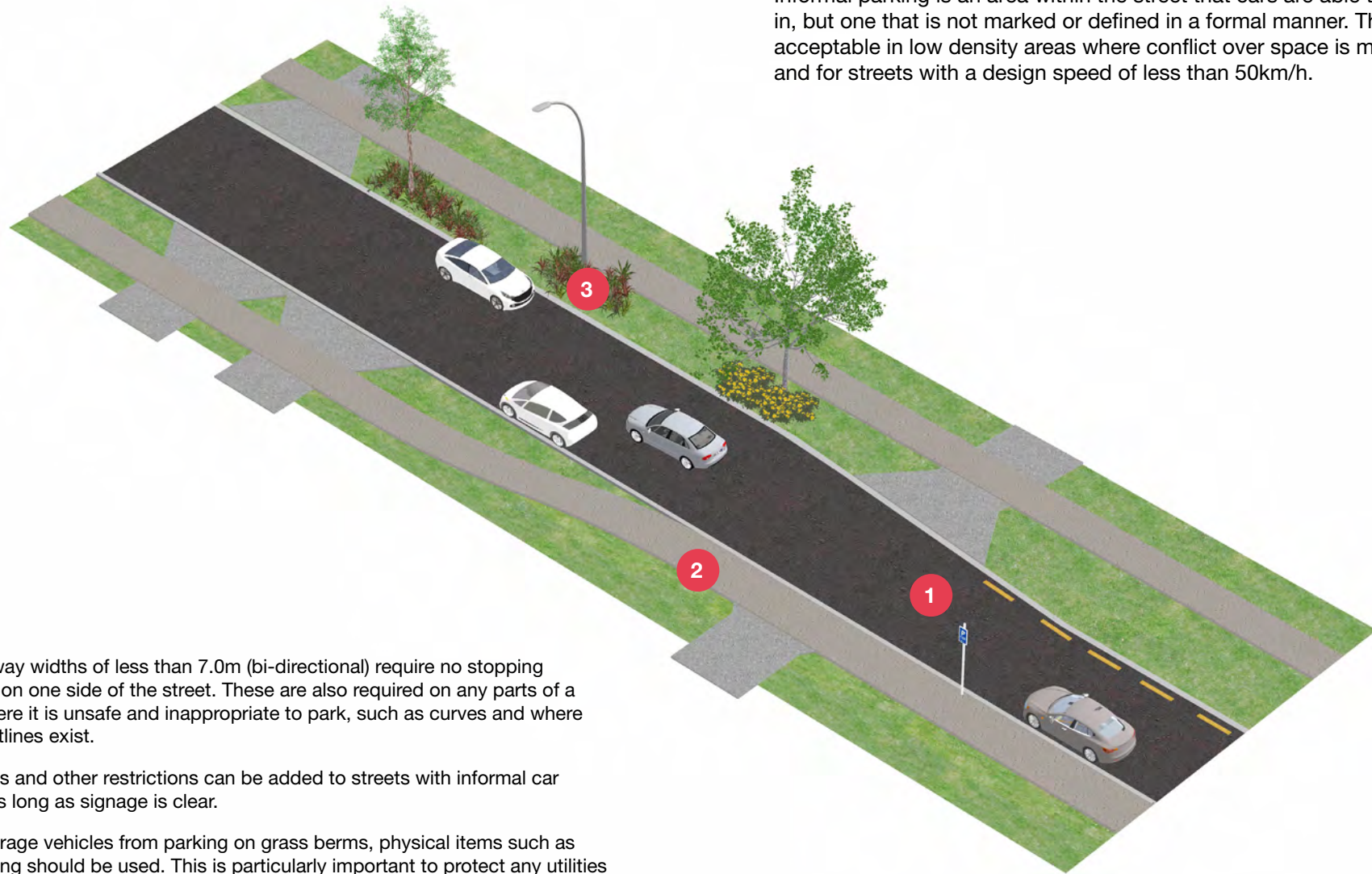
D125

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Informal parking is an area within the street that cars are able to park in, but one that is not marked or defined in a formal manner. This is acceptable in low density areas where conflict over space is minimal and for streets with a design speed of less than 50km/h.



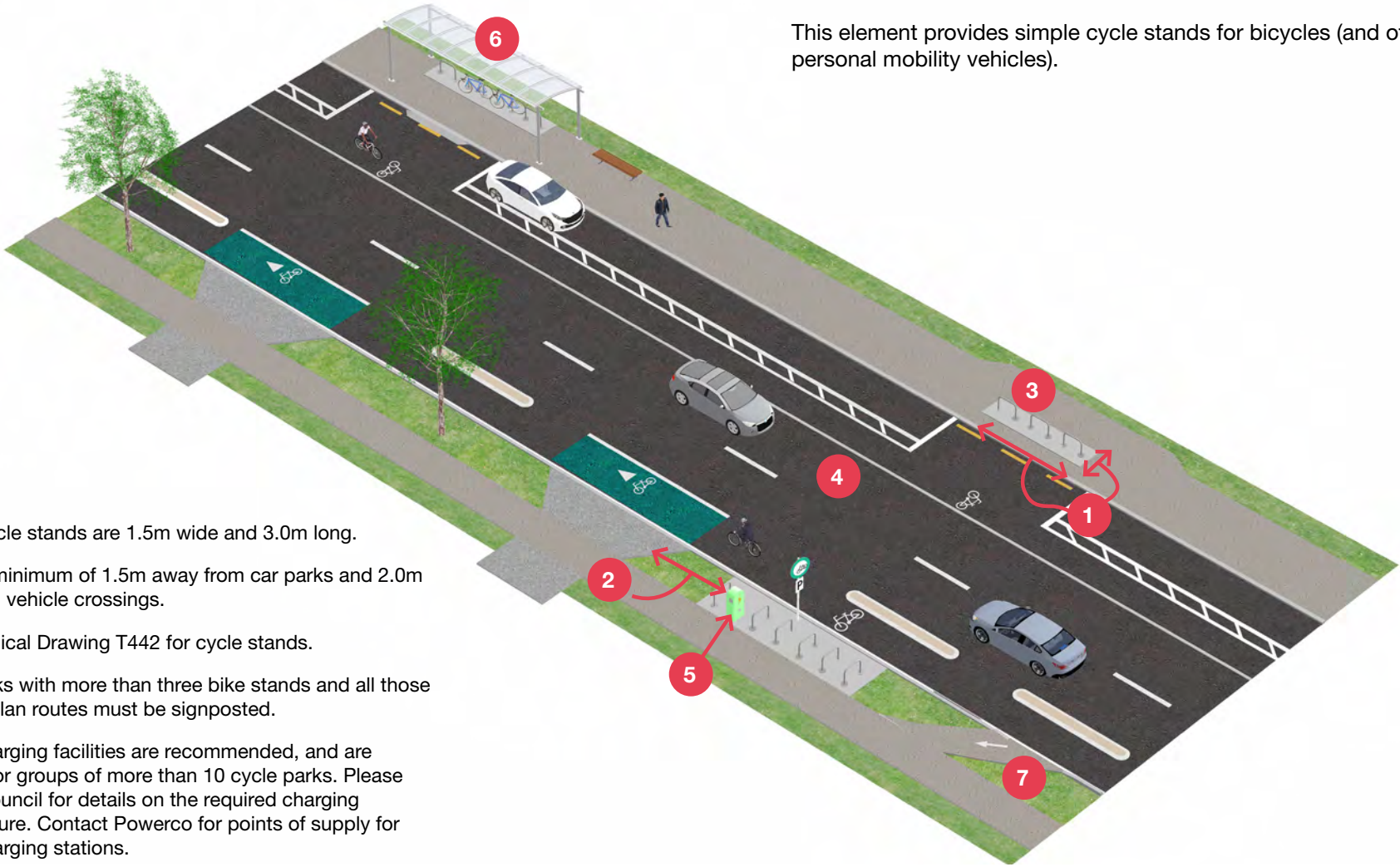
- 1 Carriageway widths of less than 7.0m (bi-directional) require no stopping markings on one side of the street. These are also required on any parts of a street where it is unsafe and inappropriate to park, such as curves and where poor sightlines exist.
- 2 Time limits and other restrictions can be added to streets with informal car parking as long as signage is clear.
- 3 To discourage vehicles from parking on grass berms, physical items such as landscaping should be used. This is particularly important to protect any utilities that may be located within this space. Gaps between vegetation will allow people to alight from vehicles.

Accessible car parks are critical to enable access for the growing number of people with mobility issues in Tauranga. At least one accessible car park space is encouraged to be provided on all streets, and is mandatory for streets with retail or civic activities fronting them.



- 1 The minimum dimensions of an accessible space are 3.0m wide and 8.0m long.
- 2 Accessible car parks must be located in convenient places; a maximum distance of 30m from any pedestrian crossing or pathway kerb crossing.
- 3 Footpaths must join the parking space and provide a smooth transition, suitable for wheelchairs.
- 4 Accessible car park space and pedestrian crossings (informal or formal) should be located near to each other.

This element provides simple cycle stands for bicycles (and other personal mobility vehicles).



- 1 Typical cycle stands are 1.5m wide and 3.0m long.
- 2 Locate a minimum of 1.5m away from car parks and 2.0m away from vehicle crossings.
- 3 See Technical Drawing T442 for cycle stands.
- 4 Cycle parks with more than three bike stands and all those on cycle plan routes must be signposted.
- 5 E-bike charging facilities are recommended, and are required for groups of more than 10 cycle parks. Please consult council for details on the required charging infrastructure. Contact Powerco for points of supply for E-bike charging stations.
- 6 Shelters for cycle parks should be utilised for *Places for people* street types, where footpath space is adequate.
- 7 Ensure cycle parks are well-connected and safely-accessible (via kerb let-downs) from any cycle lanes or routes.

Parking and loading elements
Bicycle parking facility

Infrastructure Development Code
 Street Design Diagrams

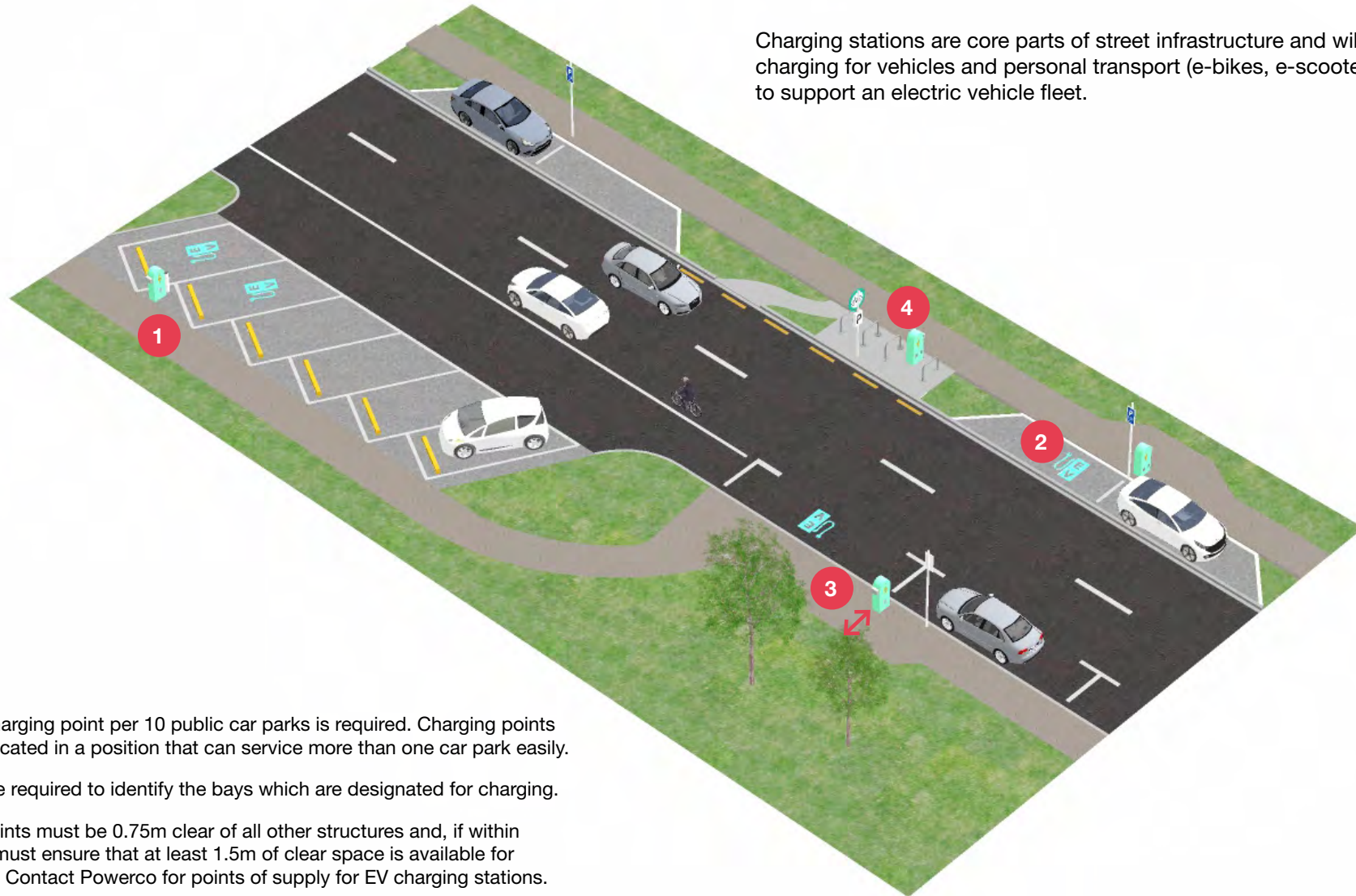
D128

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Charging stations are core parts of street infrastructure and will provide charging for vehicles and personal transport (e-bikes, e-scooters, etc.) to support an electric vehicle fleet.



- 1** At least 1 charging point per 10 public car parks is required. Charging points should be located in a position that can service more than one car park easily.
- 2** Markings are required to identify the bays which are designated for charging.
- 3** Charging points must be 0.75m clear of all other structures and, if within a footpath, must ensure that at least 1.5m of clear space is available for pedestrians. Contact Powerco for points of supply for EV charging stations.
- 4** Cycle parking requires its own charging points; provided for all bays of more than 10 cycle parks. Please consult council for details on the required charging infrastructure.

Parking and loading elements

Charging for electric vehicles

Infrastructure Development Code
Street Design Diagrams

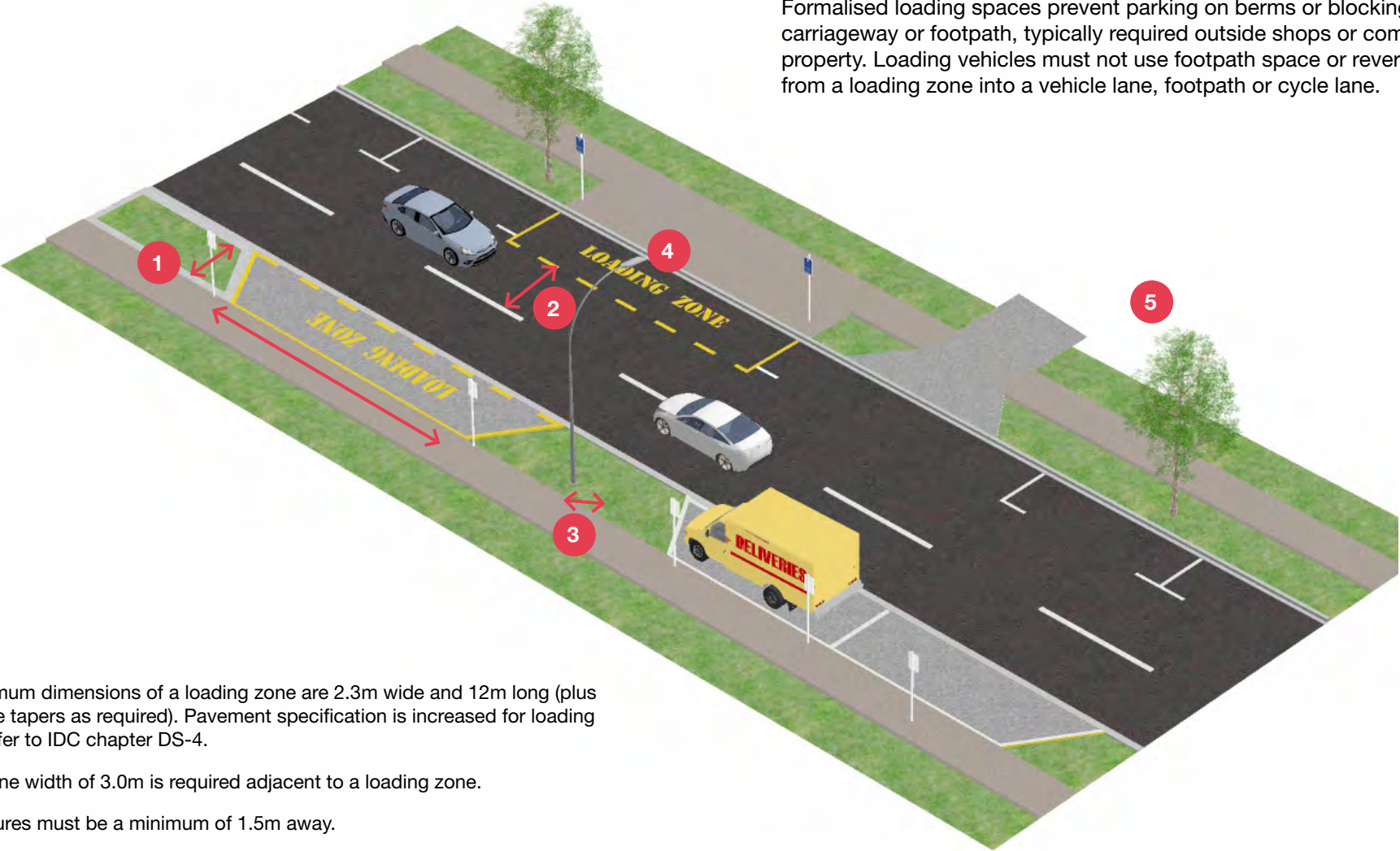
D129

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Formalised loading spaces prevent parking on berms or blocking a carriageway or footpath, typically required outside shops or commercial property. Loading vehicles must not use footpath space or reverse out from a loading zone into a vehicle lane, footpath or cycle lane.



- 1** The minimum dimensions of a loading zone are 2.3m wide and 12m long (plus 45 degree tapers as required). Pavement specification is increased for loading zones: refer to IDC chapter DS-4.
- 2** A clear lane width of 3.0m is required adjacent to a loading zone.
- 3** All structures must be a minimum of 1.5m away.
- 4** A loading zone within car parking area needs to be clearly marked and signposted (it can be temporary/time-restricted loading zone).
- 5** Loading zones may be provided within private property if suitably designed.

Parking and loading elements
Formal loading space

Infrastructure Development Code
Street Design Diagrams

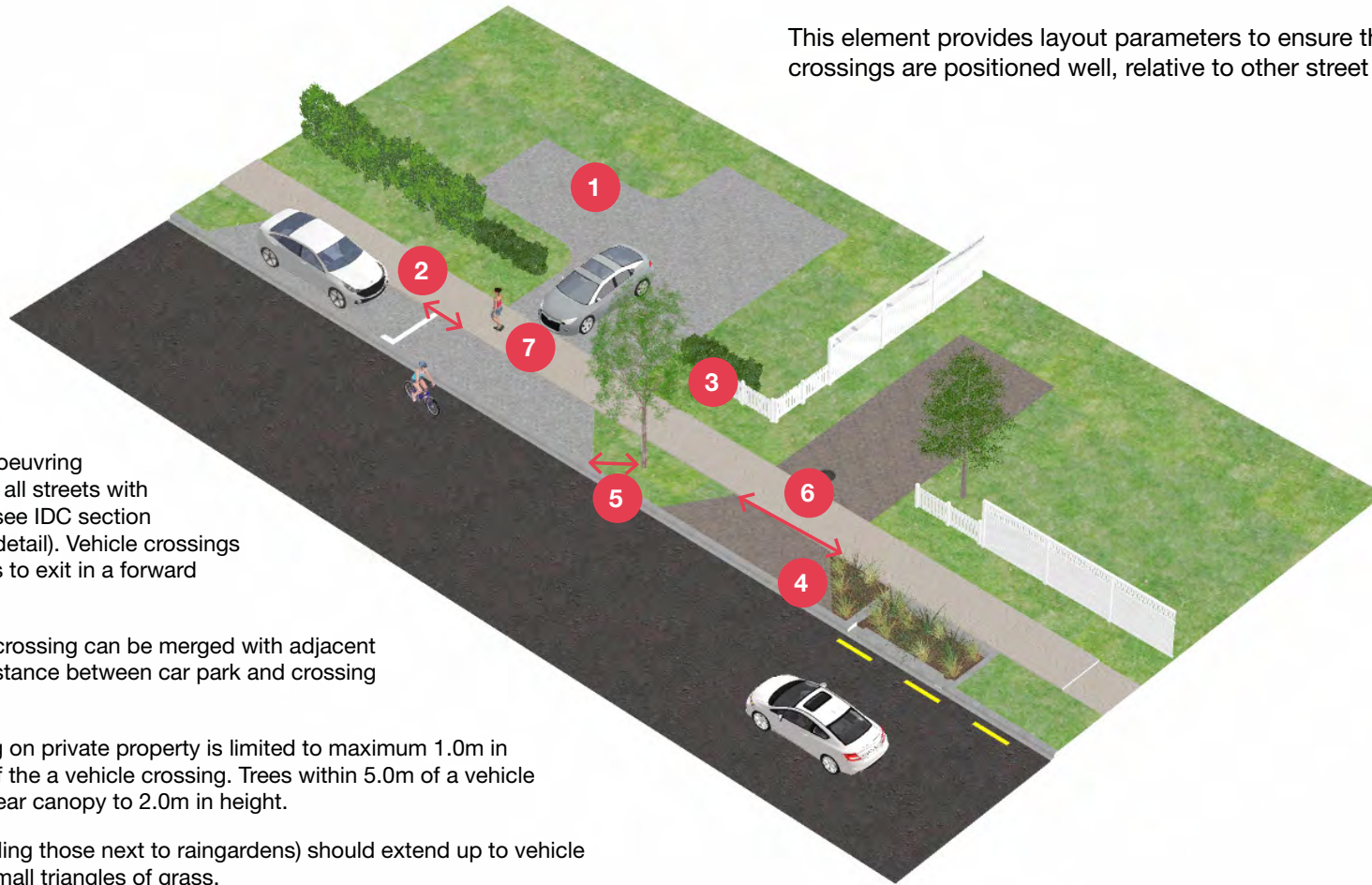
D130

June 2021

Version 1

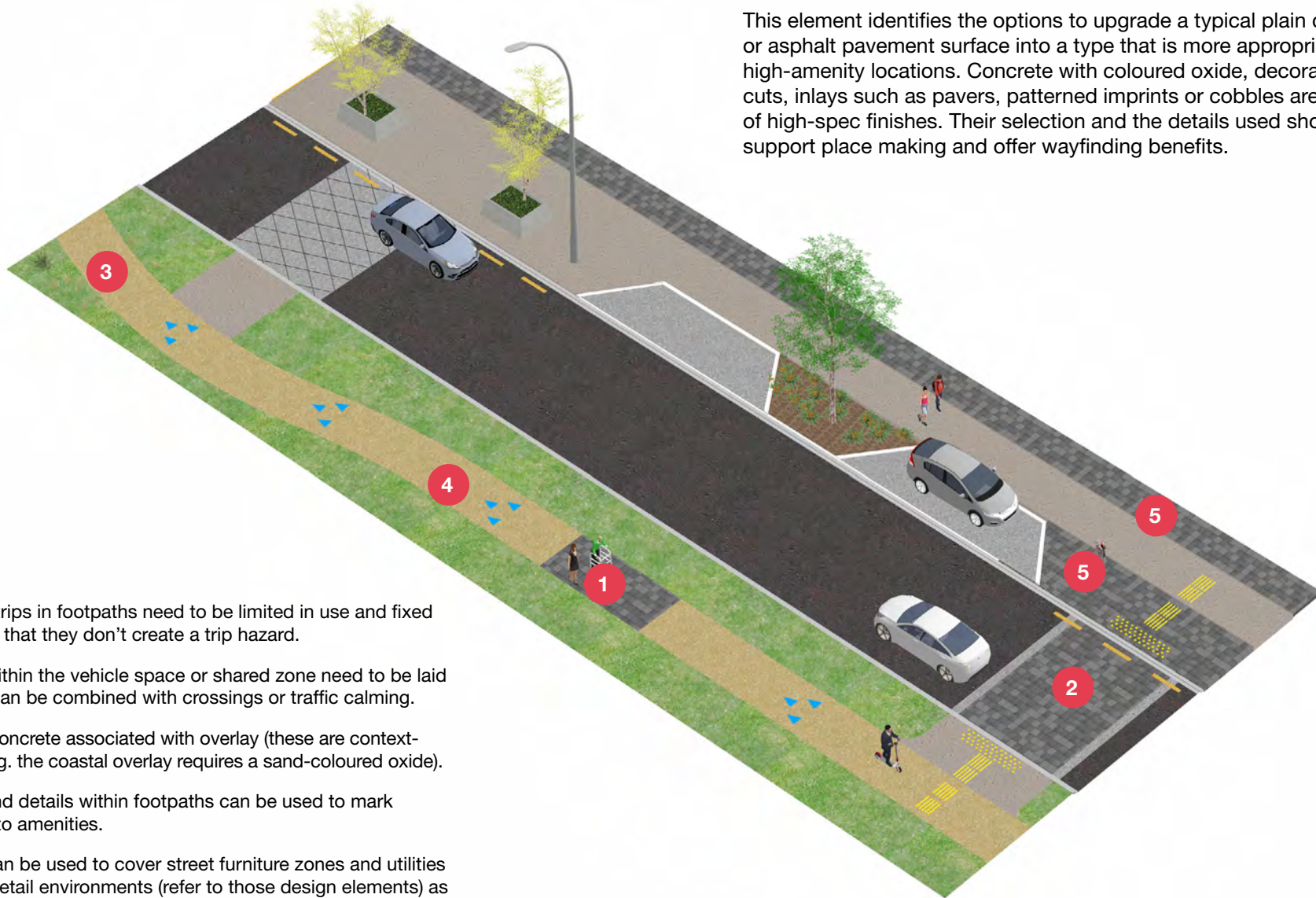


This element provides layout parameters to ensure that vehicle crossings are positioned well, relative to other street elements.



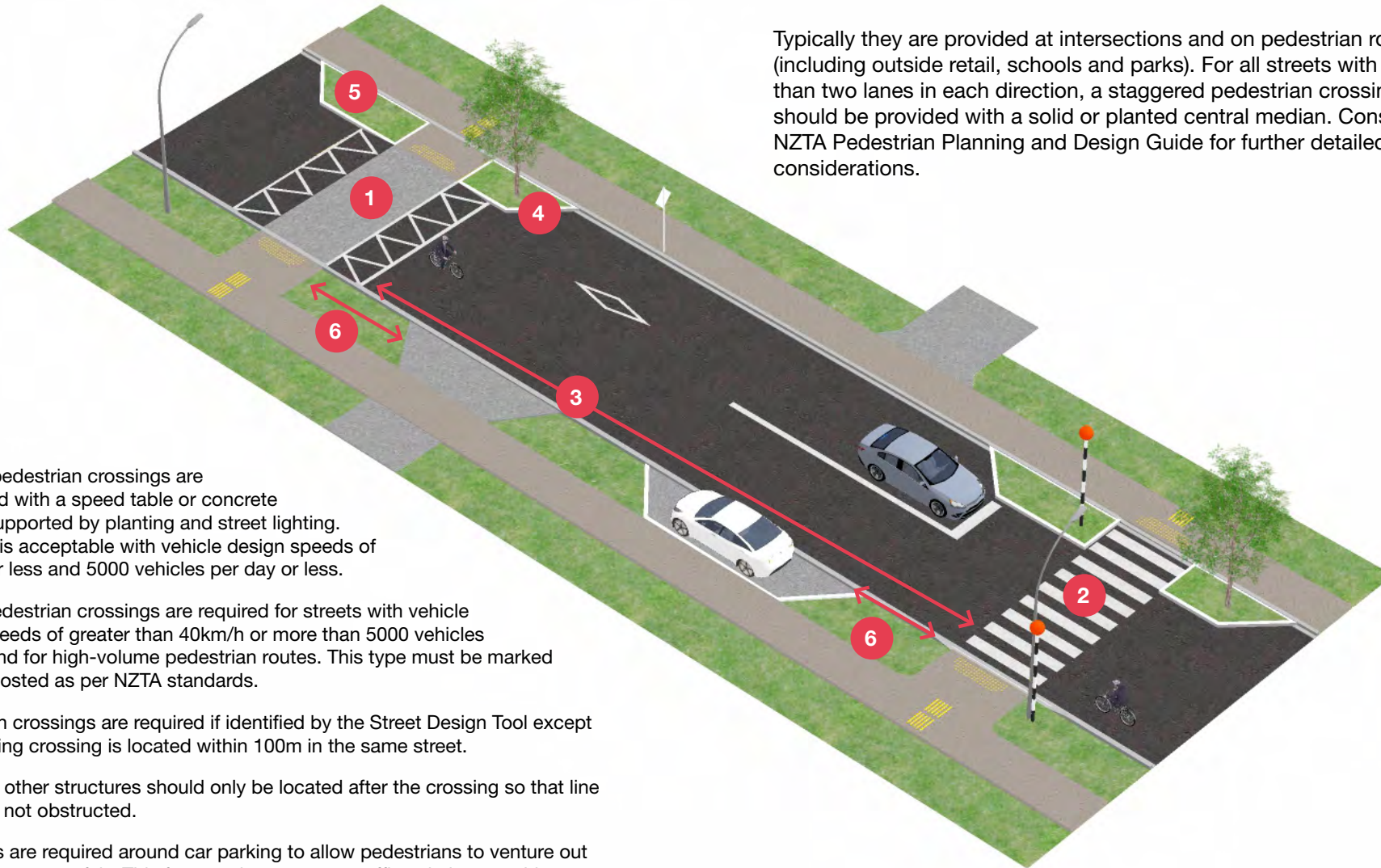
- 1 On-site reverse manoeuvring space is required for all streets with access restrictions (see IDC section DS-4.8.1 for further detail). Vehicle crossings must enable vehicles to exit in a forward direction.
- 2 Concrete of vehicle crossing can be merged with adjacent car parking (1.0m distance between car park and crossing applies).
- 3 Fencing and planting on private property is limited to maximum 1.0m in height within 5.0m of the a vehicle crossing. Trees within 5.0m of a vehicle crossing require a clear canopy to 2.0m in height.
- 4 Planted areas (including those next to raingardens) should extend up to vehicle crossings to avoid small triangles of grass.
- 5 Raingardens must be at least 0.5m away from a vehicle crossing. Tree trunks must be 1.0m away from the crossing.
- 6 Maximum width of residential vehicle crossings is 3.5m for single and 6.0m for double (residential) and 8.0m for commercial/industrial.
- 7 Footpath surface type must continue across vehicle crossing (unless footpath is asphalt). Refer to footpath design elements.

This element identifies the options to upgrade a typical plain concrete or asphalt pavement surface into a type that is more appropriate to high-amenity locations. Concrete with coloured oxide, decorative saw-cuts, inlays such as pavers, patterned imprints or cobbles are examples of high-spec finishes. Their selection and the details used should support place making and offer wayfinding benefits.



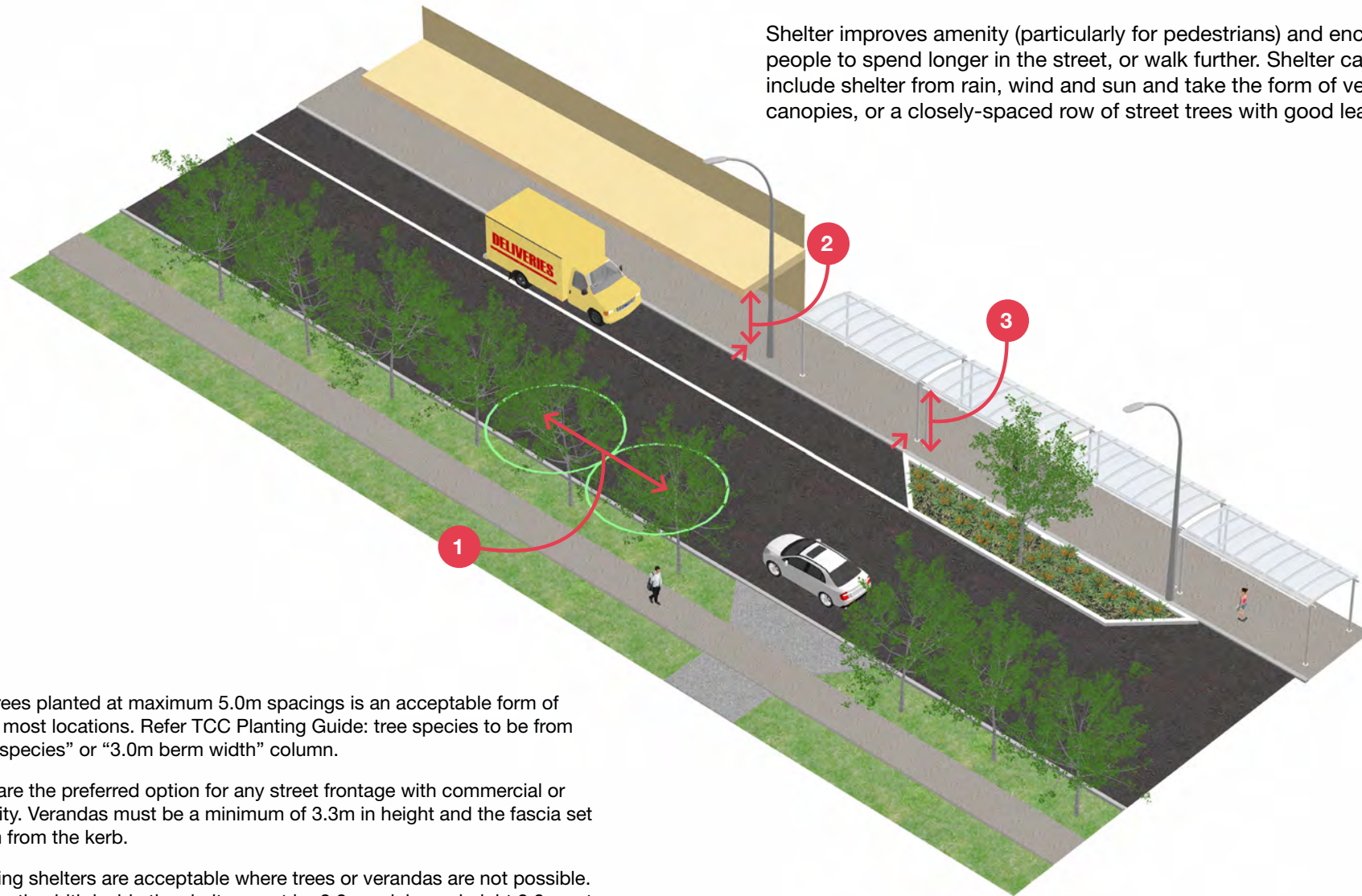
- 1 Cobbled strips in footpaths need to be limited in use and fixed in place so that they don't create a trip hazard.
- 2 Cobbles within the vehicle space or shared zone need to be laid flat. They can be combined with crossings or traffic calming.
- 3 Coloured concrete associated with overlay (these are context-specific; e.g. the coastal overlay requires a sand-coloured oxide).
- 4 Imprints and details within footpaths can be used to mark directions to amenities.
- 5 Cobbles can be used to cover street furniture zones and utilities spaces in retail environments (refer to those design elements) as well as adding amenity.

Typically they are provided at intersections and on pedestrian routes (including outside retail, schools and parks). For all streets with more than two lanes in each direction, a staggered pedestrian crossing refuge should be provided with a solid or planted central median. Consult NZTA Pedestrian Planning and Design Guide for further detailed design considerations.

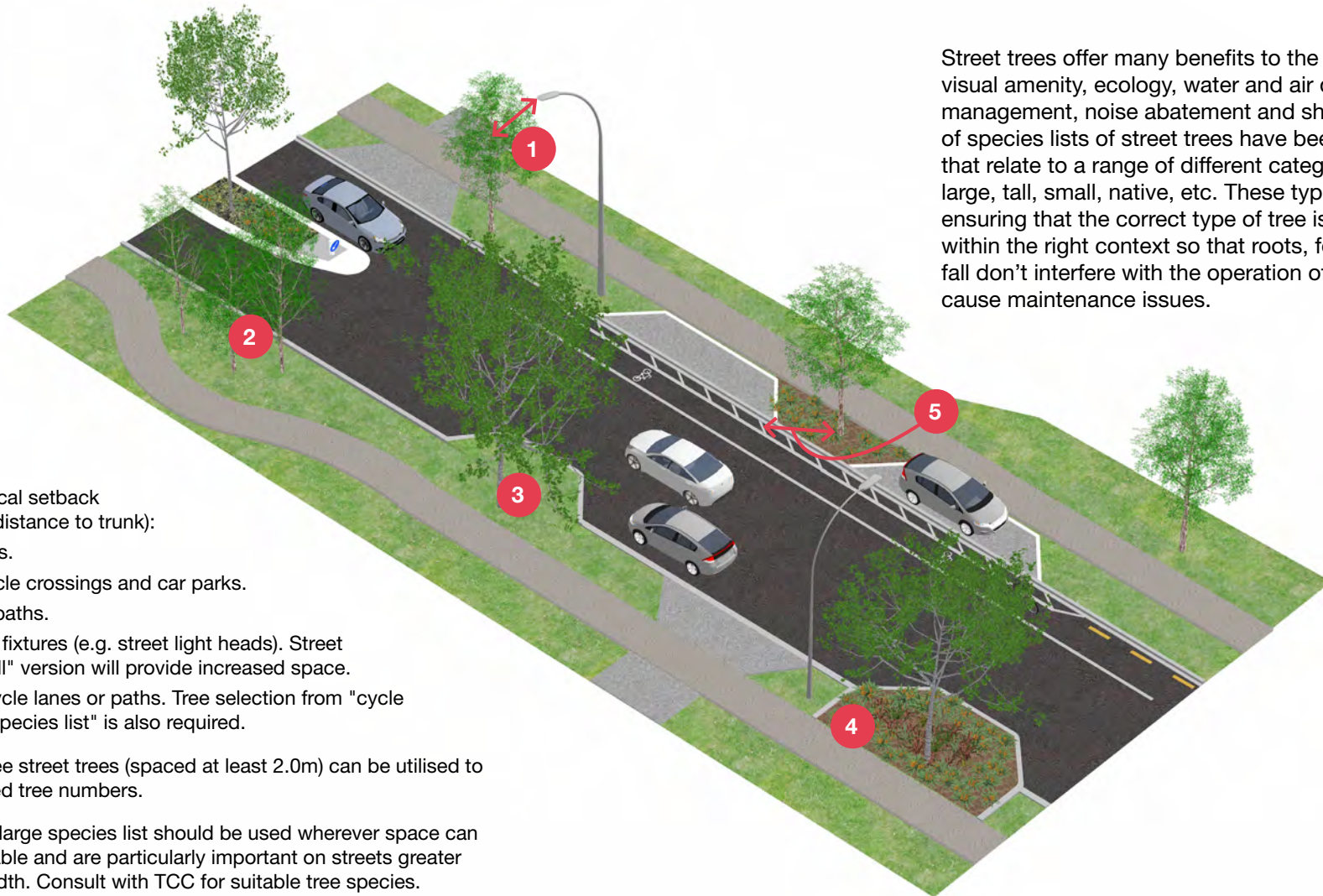


- 1 Informal pedestrian crossings are associated with a speed table or concrete surface supported by planting and street lighting. This type is acceptable with vehicle design speeds of 40km/h or less and 5000 vehicles per day or less.
- 2 Formal pedestrian crossings are required for streets with vehicle design speeds of greater than 40km/h or more than 5000 vehicles per day and for high-volume pedestrian routes. This type must be marked and signposted as per NZTA standards.
- 3 Pedestrian crossings are required if identified by the Street Design Tool except if an existing crossing is located within 100m in the same street.
- 4 Trees and other structures should only be located after the crossing so that line of sight is not obstructed.
- 5 Build-outs are required around car parking to allow pedestrians to venture out into carriageway safely. This feature also supports traffic calming to achieve a lower design speed.
- 6 Minimum separation between a formal pedestrian crossing and a vehicle crossing or a car park is 2.0m.

Shelter improves amenity (particularly for pedestrians) and encourages people to spend longer in the street, or walk further. Shelter can include shelter from rain, wind and sun and take the form of verandas, canopies, or a closely-spaced row of street trees with good leaf cover.



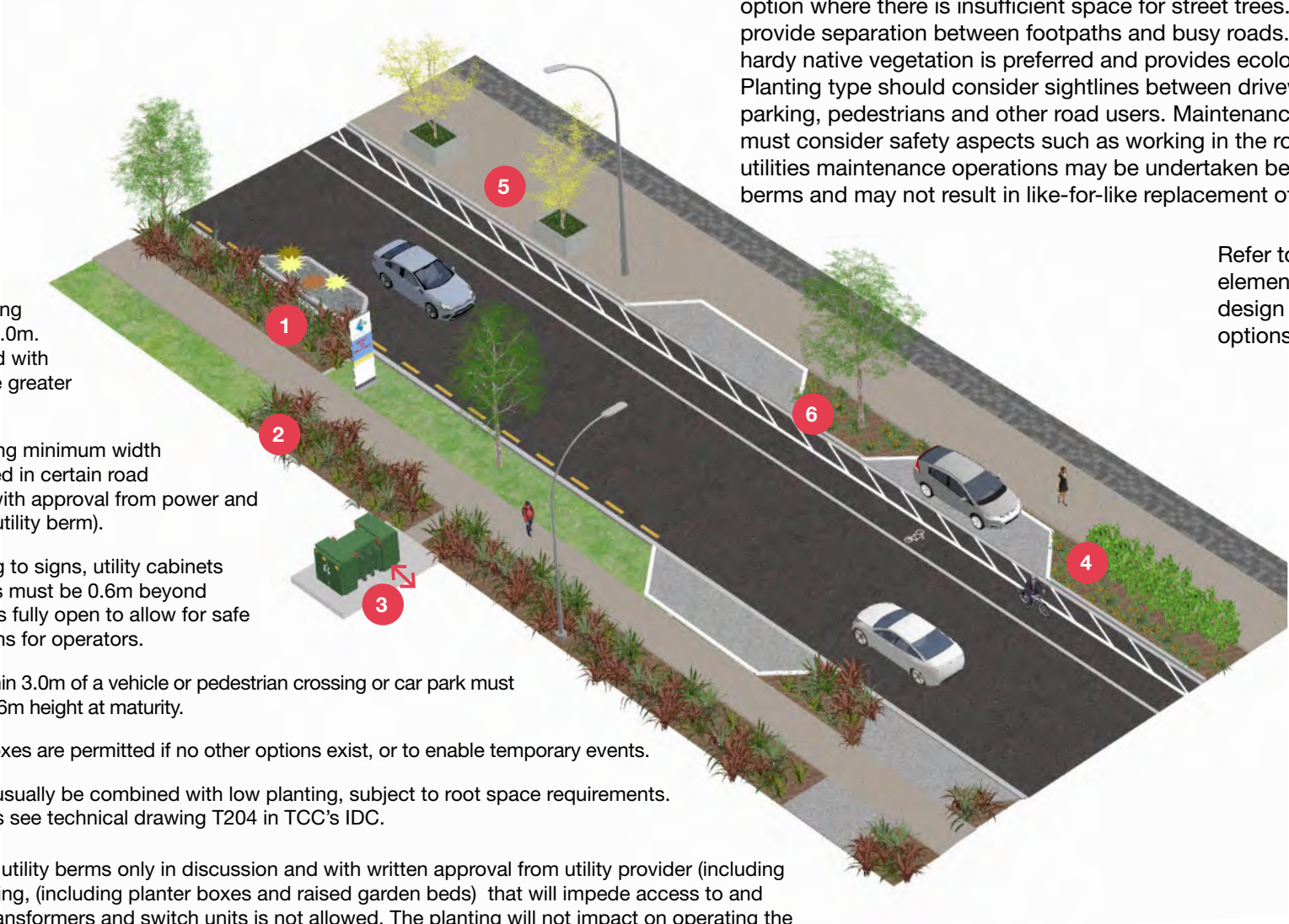
- 1** A row of trees planted at maximum 5.0m spacings is an acceptable form of shelter for most locations. Refer TCC Planting Guide: tree species to be from the “large species” or “3.0m berm width” column.
- 2** Verandas are the preferred option for any street frontage with commercial or retail activity. Verandas must be a minimum of 3.3m in height and the fascia set back 0.6m from the kerb.
- 3** Freestanding shelters are acceptable where trees or verandas are not possible. Clear footpath width inside the shelter must be 2.0m, minimum height 3.0m set back 0.6m from the kerb. Shelter structure should be removable if installed over top of any utilities.



Street trees offer many benefits to the city, including visual amenity, ecology, water and air quality management, noise abatement and shelter. A number of species lists of street trees have been developed that relate to a range of different categories, e.g. large, tall, small, native, etc. These types assist in ensuring that the correct type of tree is provided within the right context so that roots, foliage and leaf fall don't interfere with the operation of the street or cause maintenance issues.

- 1 Street tree typical setback requirements (distance to trunk):
 - 0.8m to kerbs.
 - 1.5m to vehicle crossings and car parks.
 - 0.8m to footpaths.
 - 3.0m to pole fixtures (e.g. street light heads). Street light pole "tall" version will provide increased space.
 - 1.0m from cycle lanes or paths. Tree selection from "cycle compatible species list" is also required.
- 2 Clusters of three street trees (spaced at least 2.0m) can be utilised to achieve required tree numbers.
- 3 Trees from the large species list should be used wherever space can be made available and are particularly important on streets greater than 25m in width. Consult with TCC for suitable tree species.
- 4 Trees benefit from being under-planted with ground cover plants. Consult with TCC for suitable tree species.
- 5 Trees within 5.0m of a vehicle crossing or car park require a clear trunk to canopy space of 2.5m (for sight lines).

Note: Street tree location must consider clearance distances to underground services and accessibility to service infrastructure



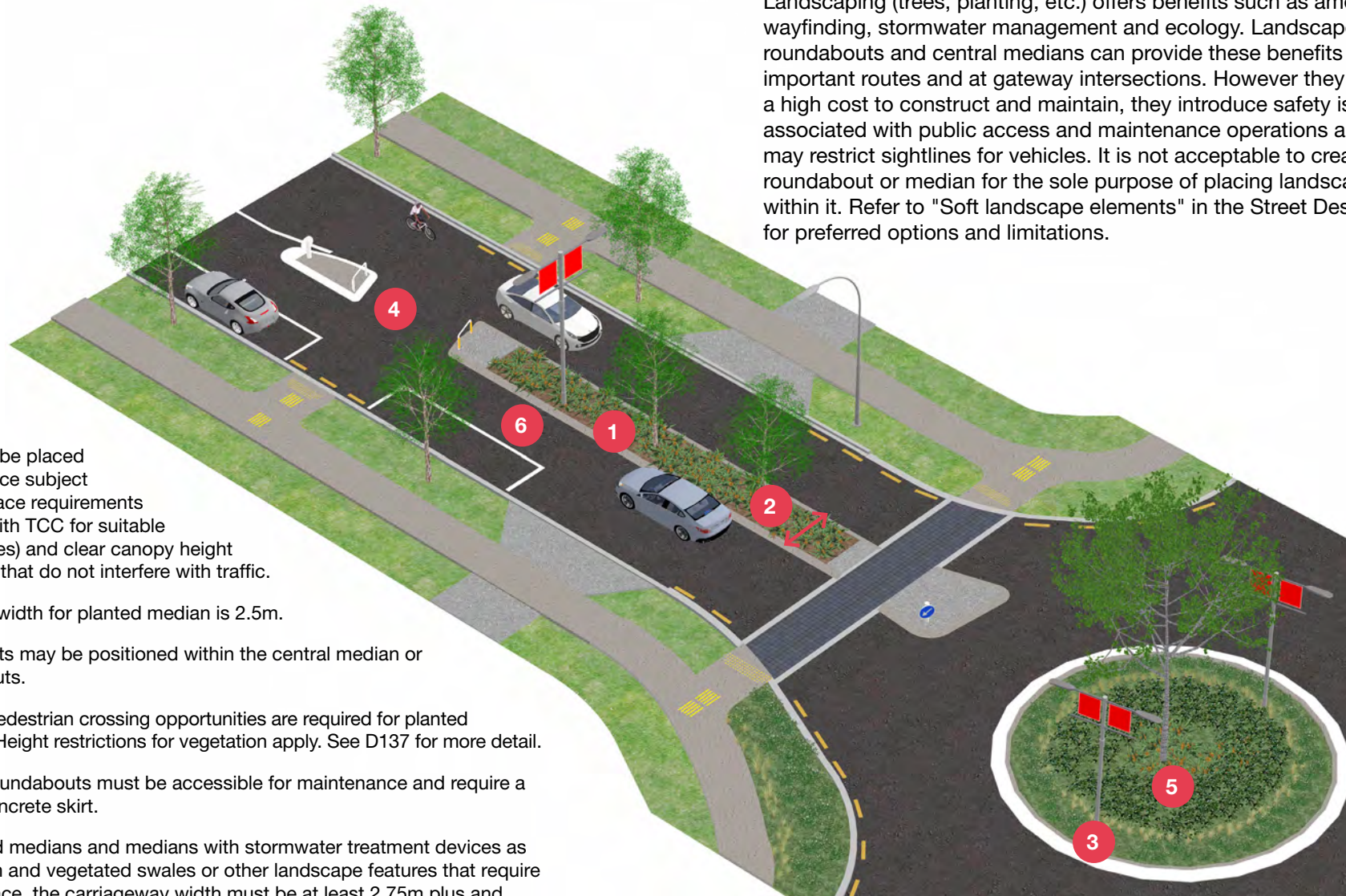
Landscaping within berms improves public amenity and is a good option where there is insufficient space for street trees. Planting can provide separation between footpaths and busy roads. Compact and hardy native vegetation is preferred and provides ecological benefits. Planting type should consider sightlines between driveways, car parking, pedestrians and other road users. Maintenance of planting must consider safety aspects such as working in the road. Note that utilities maintenance operations may be undertaken beneath planted berms and may not result in like-for-like replacement of planting.

Refer to "Soft landscape elements" in the Street design tool for preferred options and limitations.

- 1** Front berm planting minimum width 1.0m. Can be combined with build-outs to give greater amenity.
- 2** Rear berm planting minimum width 0.6m (only allowed in certain road hierarchies and with approval from power and gas if located in utility berm).
- 3** Minimum spacing to signs, utility cabinets and other objects must be 0.6m beyond any cabinet doors fully open to allow for safe working conditions for operators.
- 4** Plant species within 3.0m of a vehicle or pedestrian crossing or car park must reach less than 0.6m height at maturity.
- 5** Raised planter boxes are permitted if no other options exist, or to enable temporary events.
- 6** Street trees can usually be combined with low planting, subject to root space requirements. For further details see technical drawing T204 in TCC's IDC.

Note: Planting of utility berms only in discussion and with written approval from utility provider (including plant type). Planting, (including planter boxes and raised garden beds) that will impede access to and opening of the transformers and switch units is not allowed. The planting will not impact on operating the equipment and will allow for safe egress in a fault situation e.g. switch failure/flashover.

Landscaping (trees, planting, etc.) offers benefits such as amenity, wayfinding, stormwater management and ecology. Landscaped roundabouts and central medians can provide these benefits for important routes and at gateway intersections. However they carry a high cost to construct and maintain, they introduce safety issues associated with public access and maintenance operations and they may restrict sightlines for vehicles. It is not acceptable to create a roundabout or median for the sole purpose of placing landscaping within it. Refer to "Soft landscape elements" in the Street Design Tool for preferred options and limitations.



Trees can be placed in this space subject to root space requirements (consult with TCC for suitable tree species) and clear canopy height and limbs that do not interfere with traffic.

- 1
 - 2
 - 3
 - 4
 - 5
 - 6
- 1 Minimum width for planted median is 2.5m.
- 2 Street lights may be positioned within the central median or roundabouts.
- 3 Suitable pedestrian crossing opportunities are required for planted medians. Height restrictions for vegetation apply. See D137 for more detail.
- 4 Planted roundabouts must be accessible for maintenance and require a sizable concrete skirt.
- 5 For planted medians and medians with stormwater treatment devices as raingarden and vegetated swales or other landscape features that require maintenance, the carriageway width must be at least 2.75m plus and additional 1m for a safety cordon (being 3.75m per direction).

Soft landscape elements
Planting within central medians and roundabouts

Infrastructure Development Code
 Street Design Diagrams

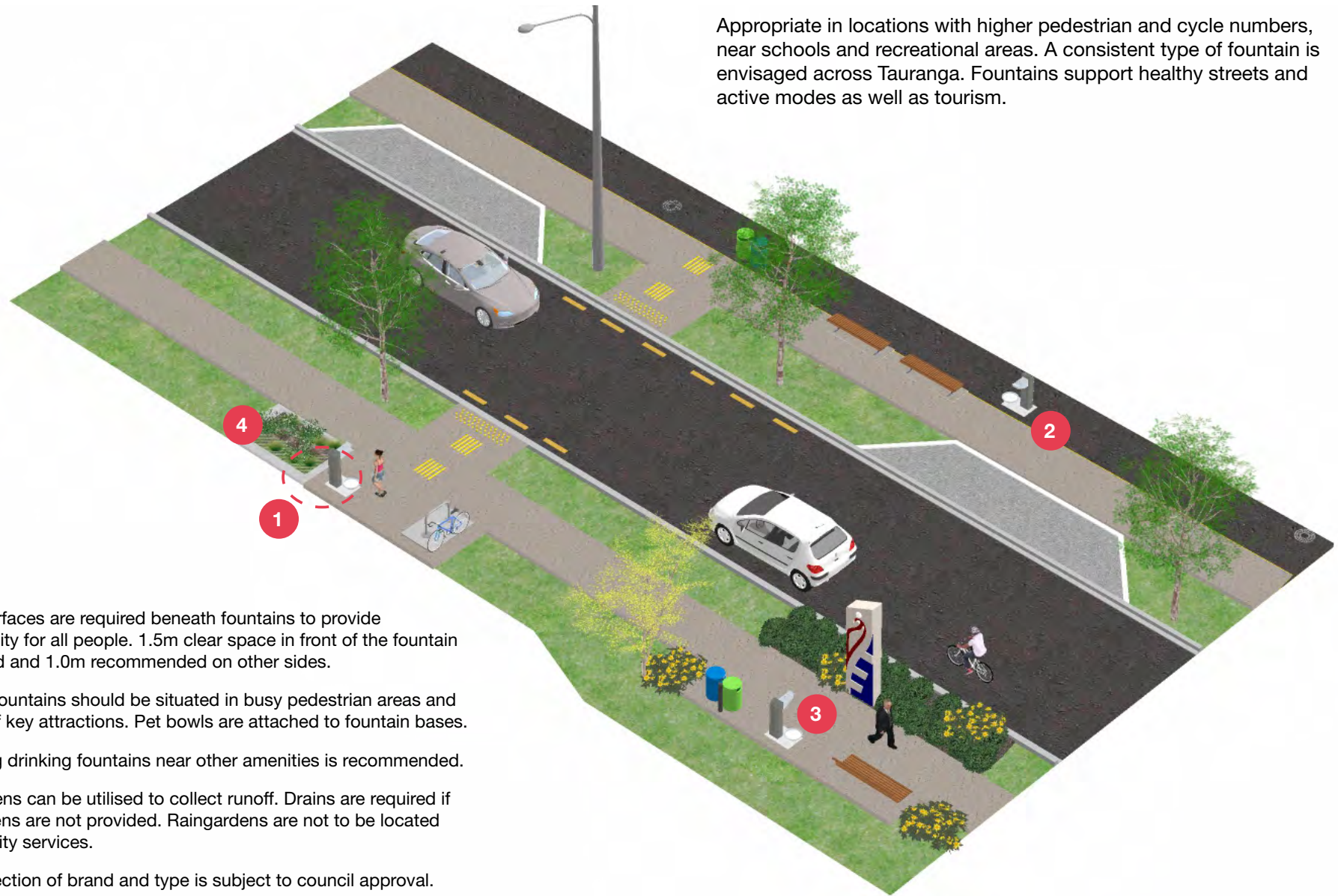
D137

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Appropriate in locations with higher pedestrian and cycle numbers, near schools and recreational areas. A consistent type of fountain is envisaged across Tauranga. Fountains support healthy streets and active modes as well as tourism.



- 1** Paved surfaces are required beneath fountains to provide accessibility for all people. 1.5m clear space in front of the fountain is required and 1.0m recommended on other sides.
- 2** Drinking fountains should be situated in busy pedestrian areas and outside of key attractions. Pet bowls are attached to fountain bases.
- 3** Clustering drinking fountains near other amenities is recommended.
- 4** Raingardens can be utilised to collect runoff. Drains are required if rain gardens are not provided. Raingardens are not to be located above utility services.

Note: selection of brand and type is subject to council approval.

Hard landscape elements

Drinking fountains

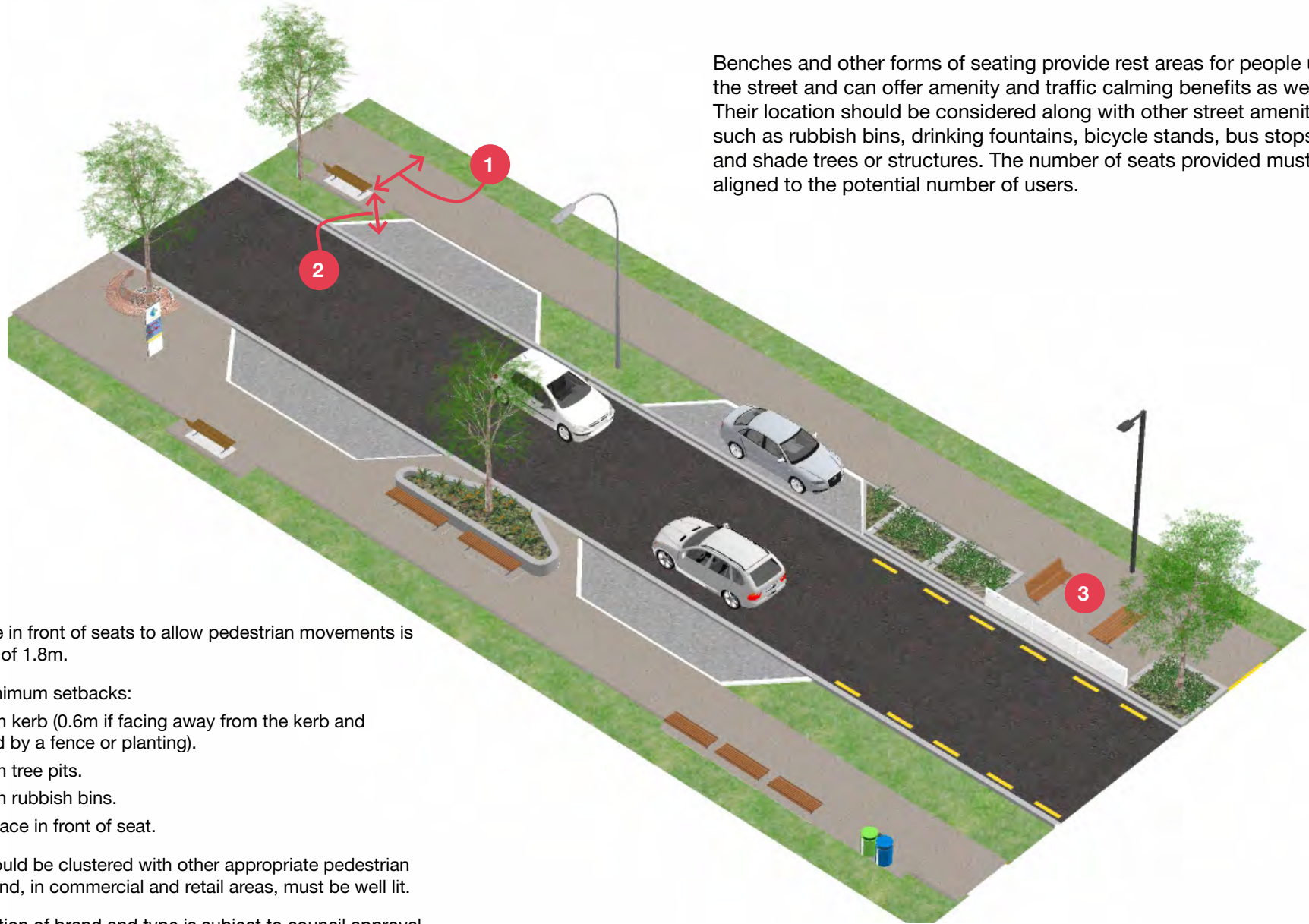
Infrastructure Development Code
Street Design Diagrams

D138

June 2021

Version 1



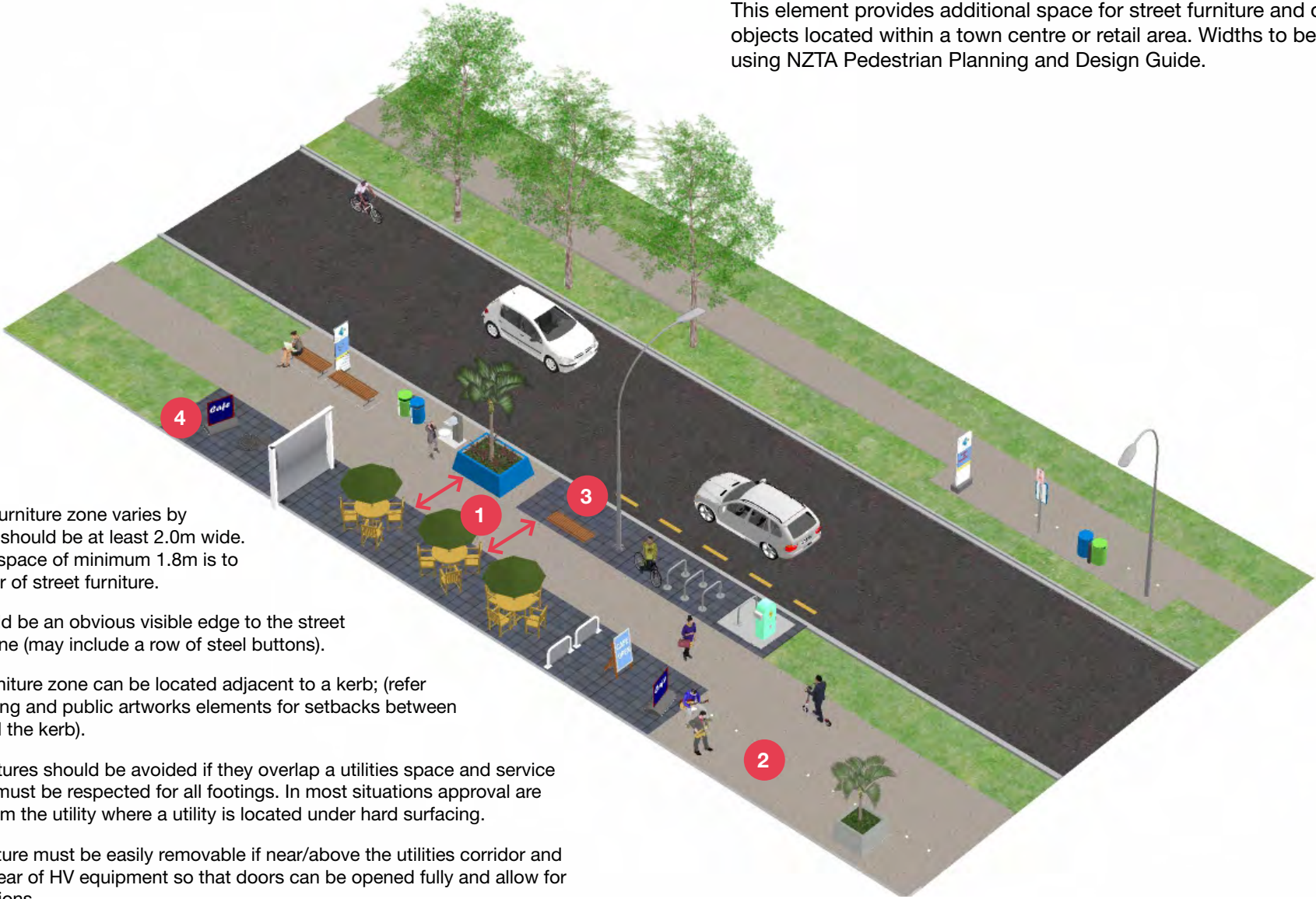


Benches and other forms of seating provide rest areas for people using the street and can offer amenity and traffic calming benefits as well. Their location should be considered along with other street amenities such as rubbish bins, drinking fountains, bicycle stands, bus stops, and shade trees or structures. The number of seats provided must be aligned to the potential number of users.

- 1** Clear space in front of seats to allow pedestrian movements is a minimum of 1.8m.
- 2** Seating minimum setbacks:
 - 0.9m from kerb (0.6m if facing away from the kerb and separated by a fence or planting).
 - 0.6m from tree pits.
 - 1.5m from rubbish bins.
 - 0.75m space in front of seat.
- 3** Seating should be clustered with other appropriate pedestrian amenities and, in commercial and retail areas, must be well lit.

Note: selection of brand and type is subject to council approval.

This element provides additional space for street furniture and other objects located within a town centre or retail area. Widths to be defined using NZTA Pedestrian Planning and Design Guide.



1

The street furniture zone varies by activity but should be at least 2.0m wide. A footpath space of minimum 1.8m is to remain clear of street furniture.

2

There should be an obvious visible edge to the street furniture zone (may include a row of steel buttons).

3

A street furniture zone can be located adjacent to a kerb; (refer public seating and public artworks elements for setbacks between objects and the kerb).

4

Fixed structures should be avoided if they overlap a utilities space and service envelopes must be respected for all footings. In most situations approval are required from the utility where a utility is located under hard surfacing.

Street furniture must be easily removable if near/above the utilities corridor and must be clear of HV equipment so that doors can be opened fully and allow for safe operations.

Hard landscape elements
Street furniture zone

Infrastructure Development Code
Street Design Diagrams

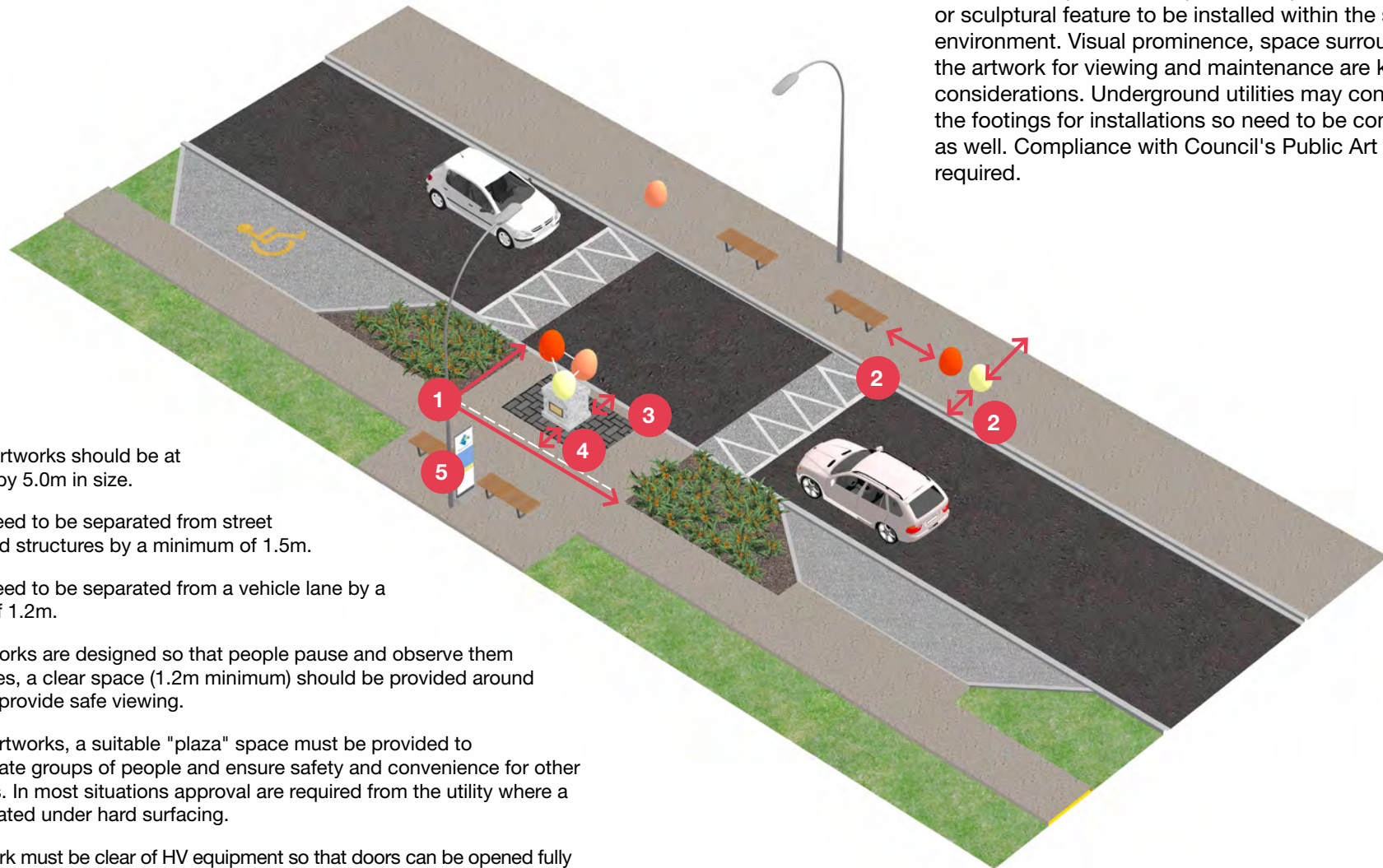
D140

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This element provides a space for a public artwork or sculptural feature to be installed within the street environment. Visual prominence, space surrounding the artwork for viewing and maintenance are key considerations. Underground utilities may conflict with the footings for installations so need to be considered as well. Compliance with Council's Public Art Policy is required.



- 1** Space for artworks should be at least 3.0m by 5.0m in size.
- 2** Artworks need to be separated from street furniture and structures by a minimum of 1.5m.
- 3** Artworks need to be separated from a vehicle lane by a minimum of 1.2m.
- 4** Where artworks are designed so that people pause and observe them from all sides, a clear space (1.2m minimum) should be provided around all sides to provide safe viewing.
- 5** For larger artworks, a suitable "plaza" space must be provided to accommodate groups of people and ensure safety and convenience for other street users. In most situations approval are required from the utility where a utility is located under hard surfacing.

Note: Artwork must be clear of HV equipment so that doors can be opened fully and allow for safe operations and 1.0 to 1.5mtrs clear of the any underground services depending of the art work. This is to allow for sufficient room to excavate and avoid the risk of trenches collapsing due to the weight of the art work.

Hard landscape elements
Public artworks or sculptures

Infrastructure Development Code
 Street Design Diagrams

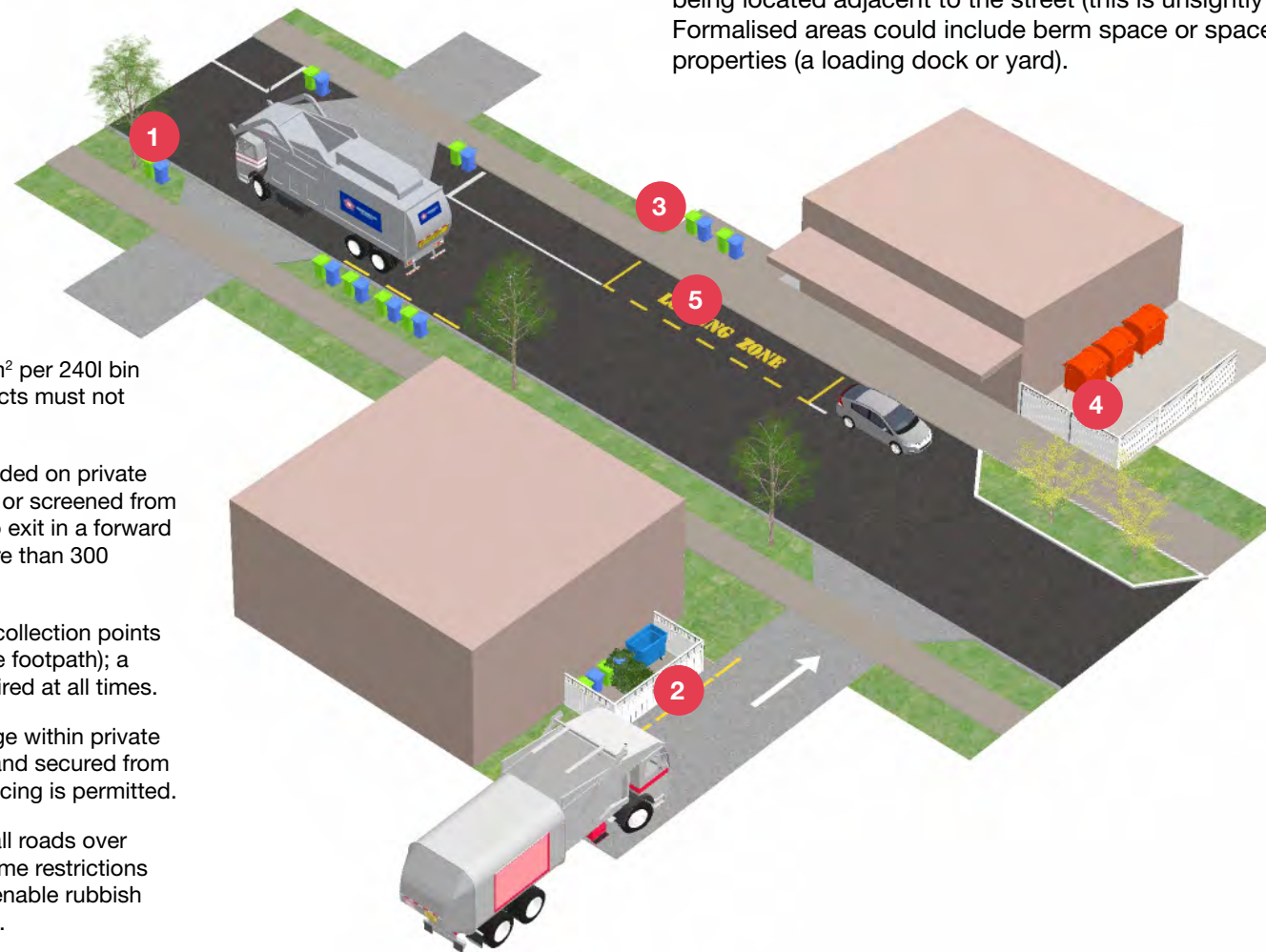
D141

June 2021

Version 1



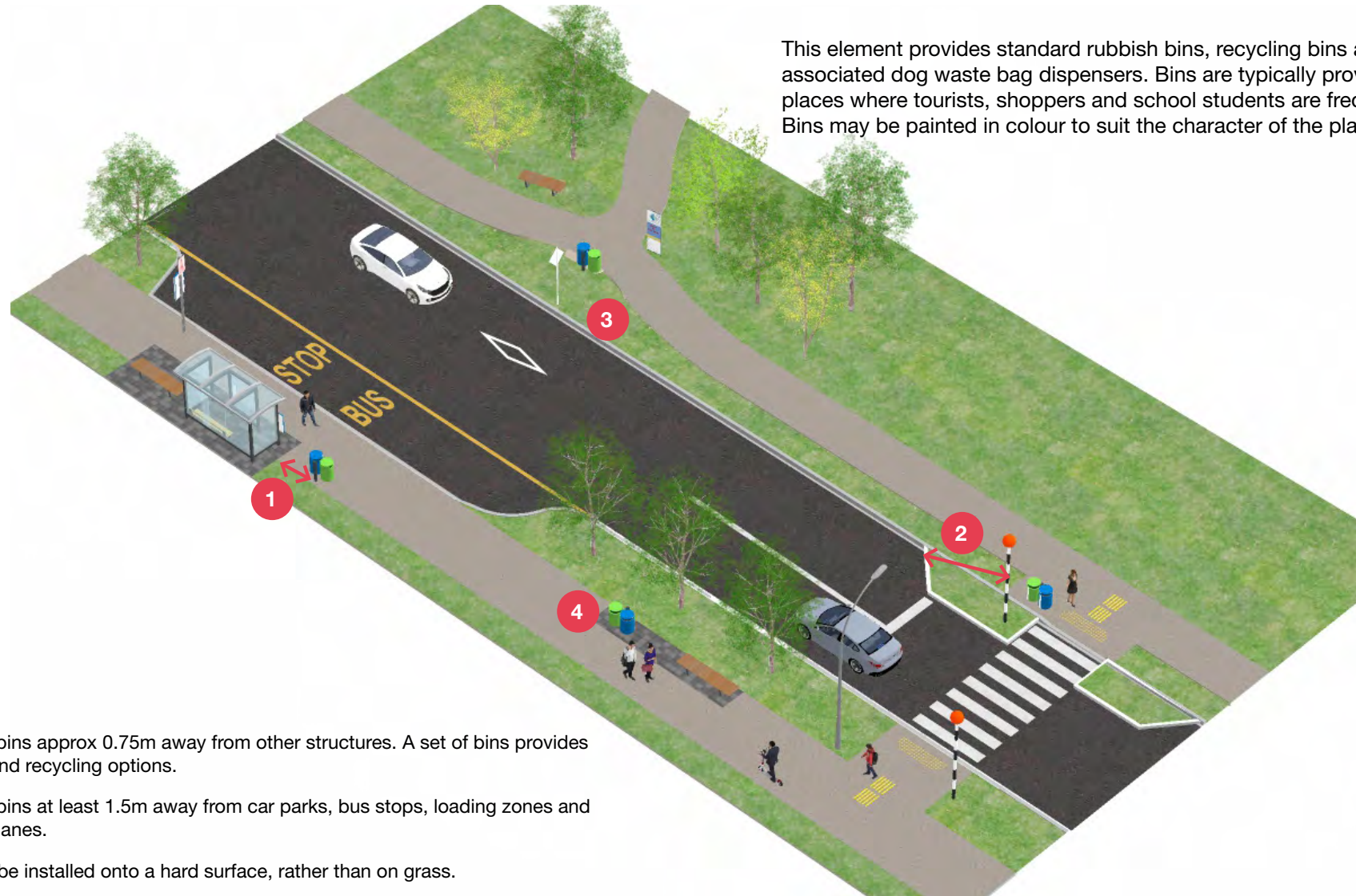
Medium and higher density areas, and commercial areas, require formalised bin pickups to avoid large numbers of bins or skip bins from being located adjacent to the street (this is unsightly and unsanitary). Formalised areas could include berm space or space within private properties (a loading dock or yard).



- 1 Kerbside space requirement 0.7m² per 240l bin or bag. Tree limbs and other objects must not overhang this space.
- 2 Waste loading areas can be provided on private land as long as they are set back or screened from the street. Trucks must be able to exit in a forward direction onto all streets with more than 300 vehicles per day.
- 3 Commercial premises may have collection points within a utilities space (behind the footpath); a 1.5m clear footpath width is required at all times.
- 4 Permanent areas for waste storage within private property must be fully screened and secured from public places; no barbed wire fencing is permitted.
- 5 For areas with car parks and on all roads over 4000 vehicles per day, car park time restrictions or loading zones are required to enable rubbish trucks to collect and replace bins.

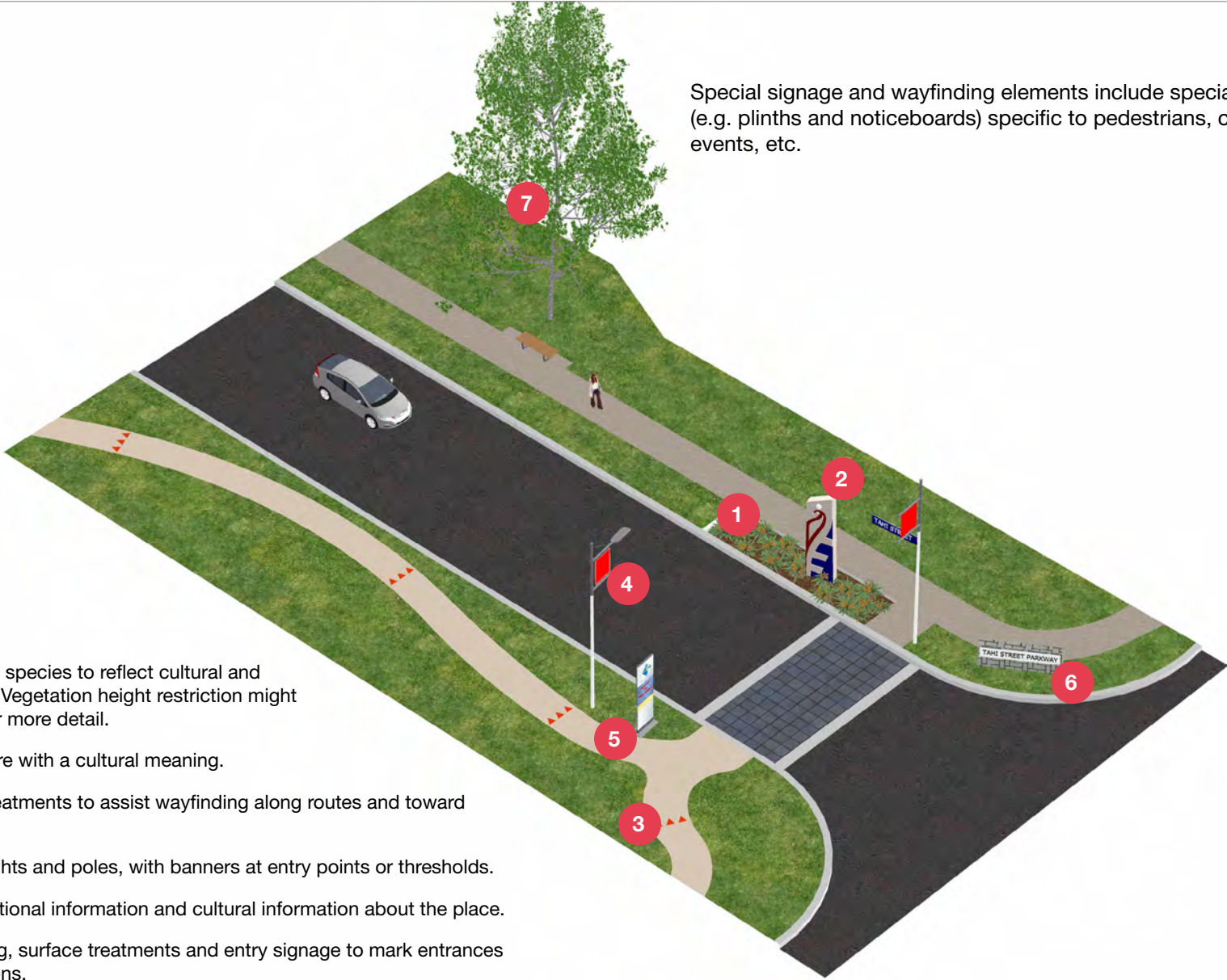
Note: For portable waste bins above the utilities corridor: Skip bins that are not portable are not permitted.

This element provides standard rubbish bins, recycling bins and associated dog waste bag dispensers. Bins are typically provided in places where tourists, shoppers and school students are frequenting. Bins may be painted in colour to suit the character of the place.



- 1 Locate bins approx 0.75m away from other structures. A set of bins provides waste and recycling options.
- 2 Locate bins at least 1.5m away from car parks, bus stops, loading zones and vehicle lanes.
- 3 Bins to be installed onto a hard surface, rather than on grass.
- 4 Place bins in convenient locations such as intersections, retail areas, bus stops and entrances to reserves, where they are most visible and can be easily emptied by waste collection contractors.

Special signage and wayfinding elements include special signage types (e.g. plinths and noticeboards) specific to pedestrians, cyclists, tourists, events, etc.



- 1 Street gardens with species to reflect cultural and ecological context. Vegetation height restriction might apply. See D137 for more detail.
- 2 Wayfinding sculpture with a cultural meaning.
- 3 Special footpath treatments to assist wayfinding along routes and toward key destinations.
- 4 High-spec street lights and poles, with banners at entry points or thresholds.
- 5 Plinth sign for directional information and cultural information about the place.
- 6 Feature landscaping, surface treatments and entry signage to mark entrances to important locations.
- 7 Very large tree species provide a valuable role as landmarks and waypoints.

Legibility elements
Special signage and wayfinding elements

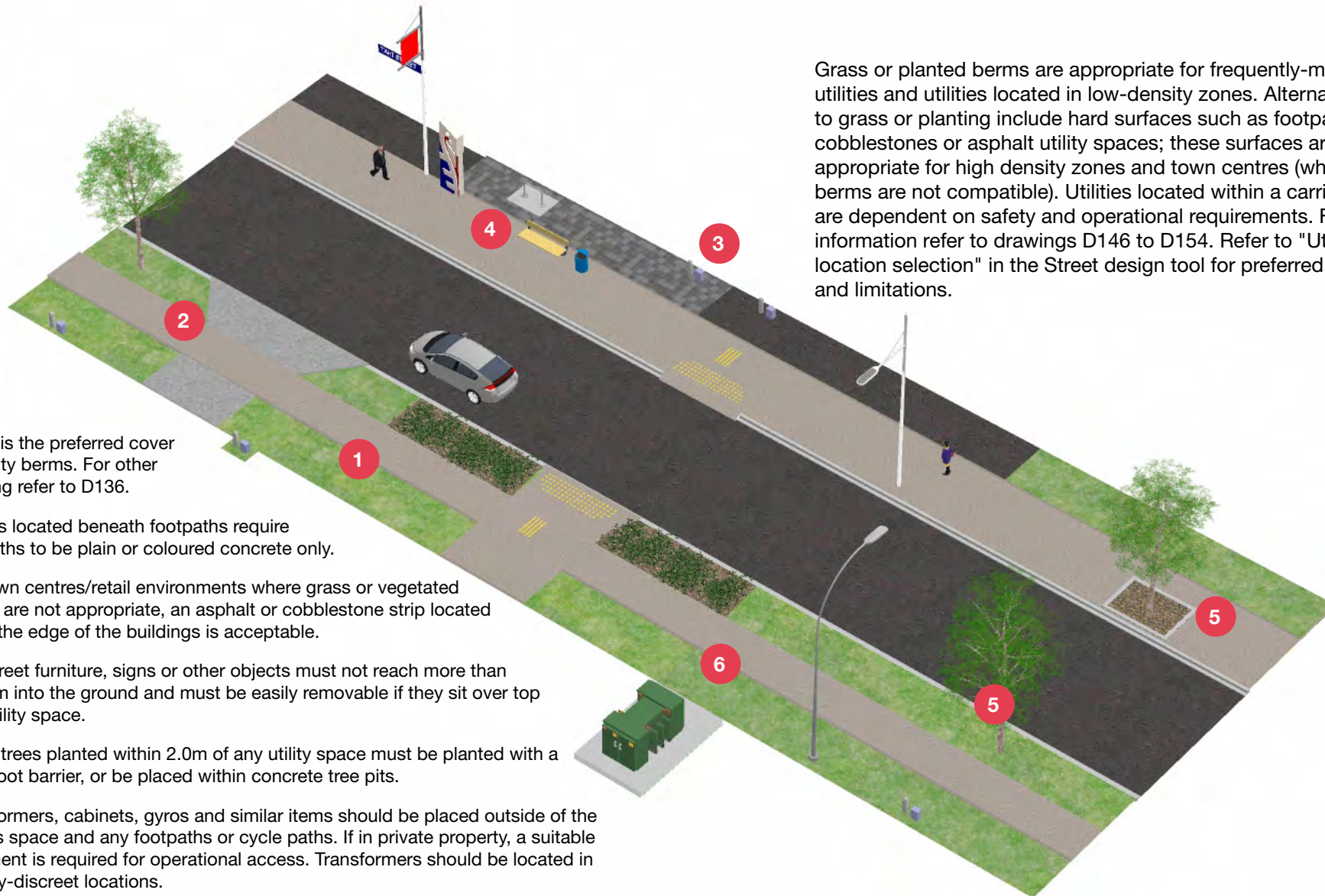
Infrastructure Development Code
 Street Design Diagrams

D144

June 2021

Version 1

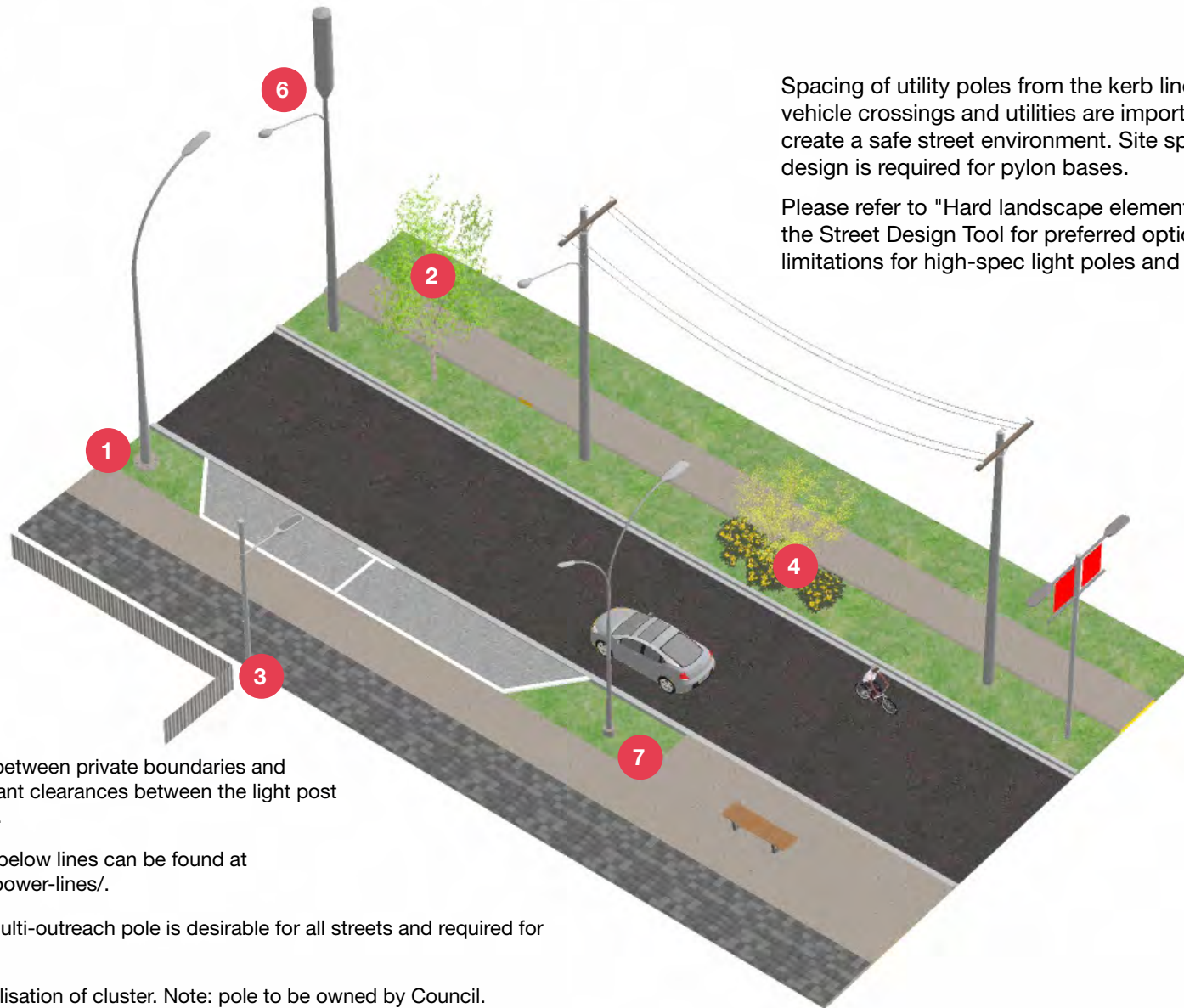




Grass or planted berms are appropriate for frequently-maintained utilities and utilities located in low-density zones. Alternatives to grass or planting include hard surfaces such as footpaths, cobblestones or asphalt utility spaces; these surfaces are only appropriate for high density zones and town centres (where grass berms are not compatible). Utilities located within a carriageway are dependent on safety and operational requirements. For further information refer to drawings D146 to D154. Refer to "Utilities location selection" in the Street design tool for preferred options and limitations.

- 1 Grass is the preferred cover on utility berms. For other planting refer to D136.
- 2 Utilities located beneath footpaths require footpaths to be plain or coloured concrete only.
- 3 For town centres/retail environments where grass or vegetated berms are not appropriate, an asphalt or cobblestone strip located along the edge of the buildings is acceptable.
- 4 Any street furniture, signs or other objects must not reach more than 150mm into the ground and must be easily removable if they sit over top of a utility space.
- 5 Street trees planted within 2.0m of any utility space must be planted with a solid root barrier, or be placed within concrete tree pits.
- 6 Transformers, cabinets, gyros and similar items should be placed outside of the utilities space and any footpaths or cycle paths. If in private property, a suitable easement is required for operational access. Transformers should be located in visually-discreet locations.

Note: Road crossings of services should be avoided in locations with formal parking, loading spaces and vehicle crossings



Spacing of utility poles from the kerb line, vehicle crossings and utilities are important to create a safe street environment. Site specific design is required for pylon bases.

Please refer to "Hard landscape elements" in the Street Design Tool for preferred options and limitations for high-spec light poles and banners.

- 1 1.5m separation between poles and car parks of vehicle crossings and where service trenches allow, 1.0m separation from kerb line.
- 2 Min 3.0m between any part of a pole or fixture and a tree trunk.
- 3 Light posts in back berms are located between private boundaries and clear of underground services. All relevant clearances between the light post and all services in the back berm apply.
- 4 Clearance requirements for vegetation below lines can be found at www.powerco.co.nz/safety/trees-and-power-lines/.
- 5 Combining multiple functions on one multi-outreach pole is desirable for all streets and required for Places for people.
- 6 Light pole and telco infrastructure – realisation of cluster. Note: pole to be owned by Council.
- 7 Double outreach pole; backlight to provide for footpath if not achievable from the front road light.

Utility type	Typical outside diameter (mm) per duct. Specific design will be required	Min. cover ¹ (mm)	Max. depth ² (mm)	Minimum horizontal clearance from parallel utilities ³ , structures or trees (mm)	Minimum vertical clearance when crossing other utility services ⁴									
					Power ¹⁴			Communications	Gas	Water Supply ⁵	Wastewater	Stormwater	Bulk Water ⁶	Bulk Wastewater Rising Main
					Low Volt (LV)	11kV	33kV							
Power ¹⁴ – Low Voltage (LV)	100 (multiple typically required)	600	800	300 (500 from boundary ⁷)	150	150	150	300	300	300	300	300	300	300
Power ¹⁴ –11kV	100 to 150	900	1100	300 (500 from boundary ⁷)	150	150	150	450	300	300	300	300	300	300
Power ¹⁴ – 33kV		1100	1400	500 (500 from boundary ⁷)	150	150	150	500	500	500	500	500	500	500
Communications	44 (1 to 12 ducts)/ 100 for road crossing	600/1000 ⁸ berm/road	800/1200 berm/road	300, 450 ⁹ from 11kV and 500 from 33kV. Beyond the dripline of trees ¹²	300	450	500	150	300	150	150	150	150	300
Gas distribution lines	42.1, 60.2, 114.1	800	1200	300	300	300	500	300	300	300	300	300	300	300
Water supply	125 / 63 (Ridermain)	800/1200 berm/road	1200/1400 berm/road	1000 from Wastewater, 500 from power and kerbs ¹⁰ , 300 all other utilities. Beyond the dripline of trees	300	300	500	150	n/a ¹¹	500	500	300	500	500
Wastewater		600 non trafficable areas on private property/900 berm or road	3000 ¹²	1000 from Water supply, 5000 from trees ¹²	300	300	500	150	300	n/a ¹¹	150	150	n/a ¹¹	300
Stormwater			3000 ¹²	5000 from trees ¹²	300	300	500	150	300	n/a ¹¹	150	150	n/a ¹¹	300
Bulk water		Specific design	Specific design	Specific design	300	300	500	150	n/a ¹¹	500	500	300	500	500
Bulk wastewater rising main		900/1200 (berm/road)	3000	500, 1000 from structures	300	300	500	150	300	500	300	150	500	n/a
Structures such as pits and small structures ¹³		n/a	n/a	150 ¹³ (for up to 2m), 1000 from bulk wastewater rising main	100	100	150	150	150	150	150	150	150	1000
Power ¹⁴ – Low Voltage (LV)	100 (multiple typically required)	600	800	300 (500 from boundary ⁷)	150	150	150	300	300	300	300	300	300	300

Note: Please see T148 for information on the notes.

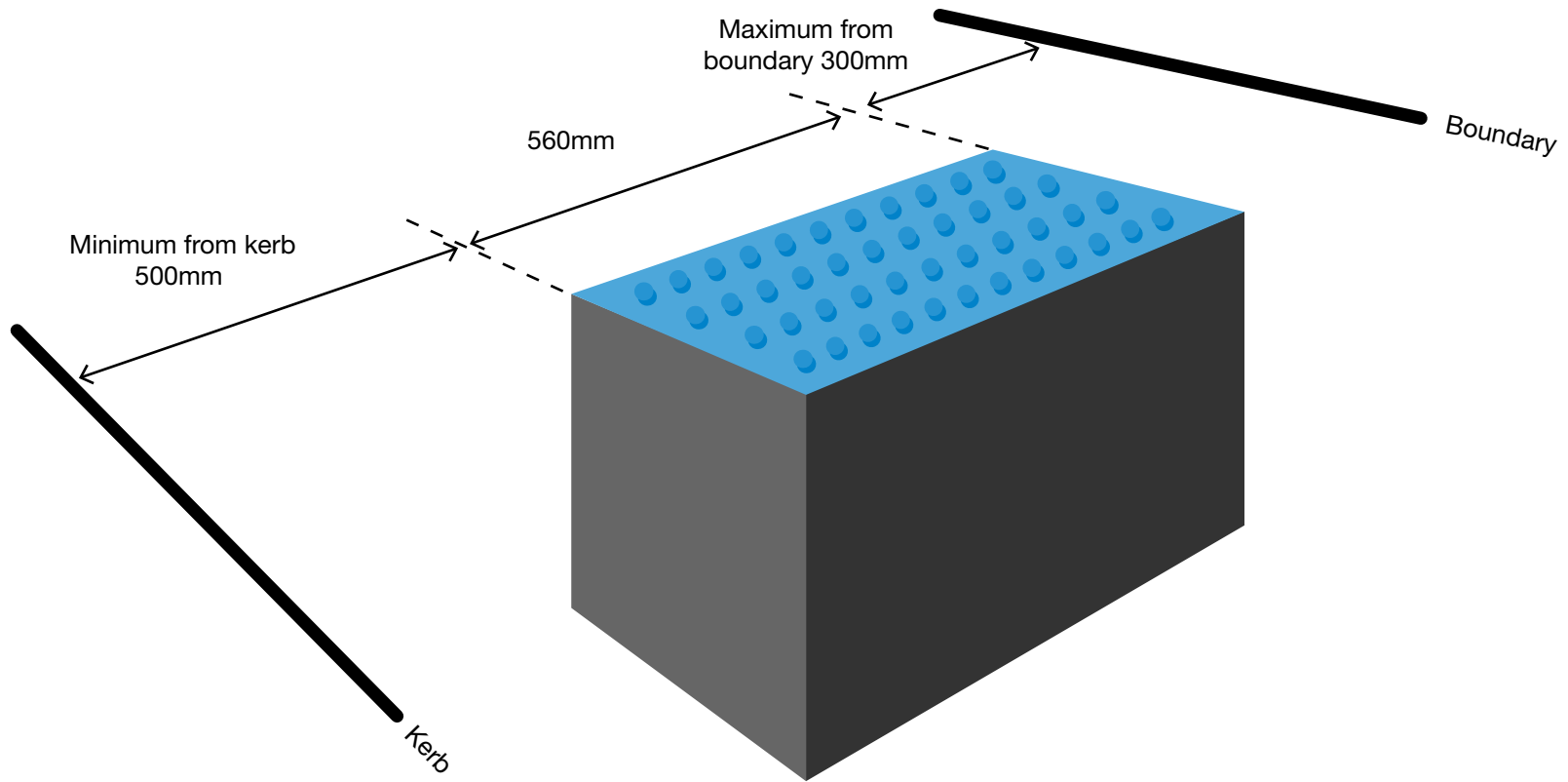
Standard utility arrangement for service trenches is shown in diagram T154.

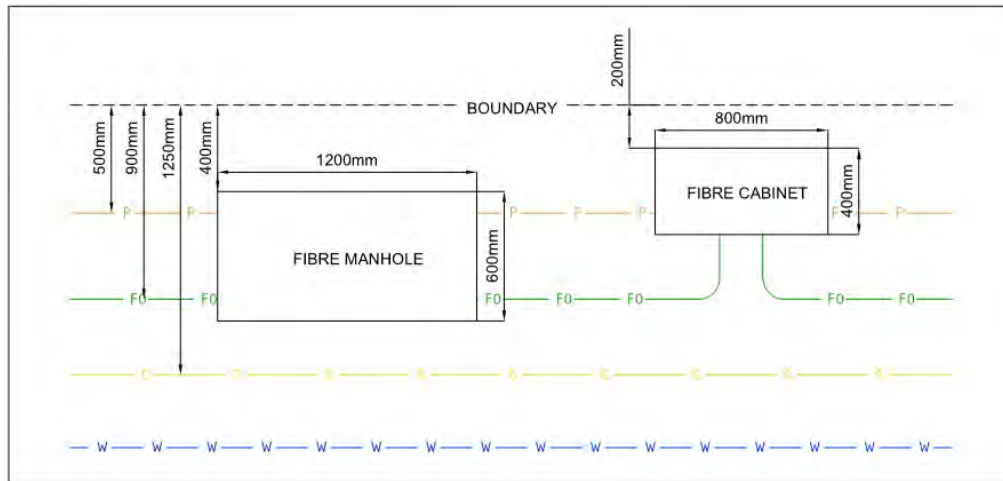
For utility crossings the designer is responsible that the separation distances are met.

Explanatory notes:

- ¹ Minimum cover is measured from ground level to the top of the pipe/duct/cable. During design, consider the minimum depth requirements under the road to keep watermains at the same grade.
- ² Maximum depth is measured from ground level to bottom of the pipe/duct/cable.
- ³ This is the minimum horizontal clearance from other utilities (measured from pipe collars and external walls).
- ⁴ Read across for service crossing over and read down for service crossing under. Vertical clearances apply when one utility cross another, except in the case of water supply and wastewater when a vertical separation shall always be maintained (water above), even when the water supply and wastewater pipe are parallel (to minimize the possibility of backflow contamination in the event of a main break). Crosses at an angle as near as possible to 90°.
- ⁵ Apply to watermains with DN≤375.
- ⁶ Apply to watermains with DN>375.
- ⁷ Minimum of 500mm from boundary applies to all utilities to prevent damage from fencing contractors.
- ⁸ Can be reduced to 500mm/600mm in agreement with the utility

- ⁹ This can be reduced to 300mm as long as the vertical separation provides a diagonal separation for safe working of >450mm from 11kV cables and >500mm from 33kV.
- ¹⁰ From the nearest edge of the concrete. Note that at smaller distances (e.g. 500mm) from the back of the kerb, the location of gate and sluice valves at road crossing are problematic. Specific design required.
- ¹¹ Water supply should always cross over wastewater and stormwater and under gas.
- ¹² Specific design (e.g. root guard barrier) and approval required if not achievable. For communications the network may be ducted beneath if the trees are installed sparse enough and positioned where access (i.e. for customer connections) is not required.
- ¹³ For retaining walls refer to Standard Drawing T1012. For poles, specific design and agreement with utility provider required.
- ¹⁴ For distances up to 2m provided the structure is not likely to be destabilized by maintenance excavation on the utility. Minimum distances from cables still apply.
- ¹⁵ Note additional requirements in New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34).



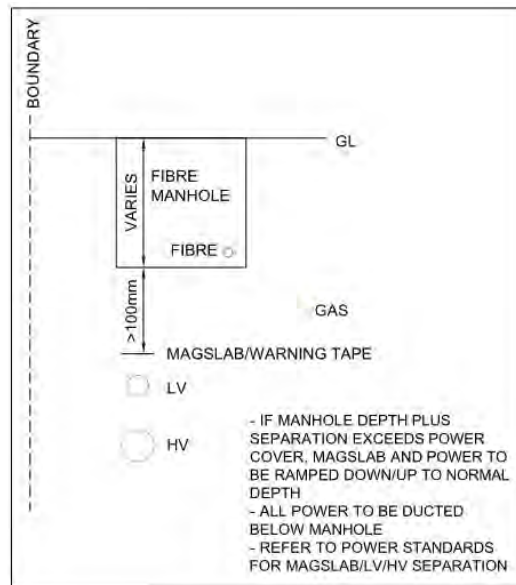


Position pit on an alignment that allows the most practical location for access so that opening has the least impact on pedestrian (or vehicle) traffic.

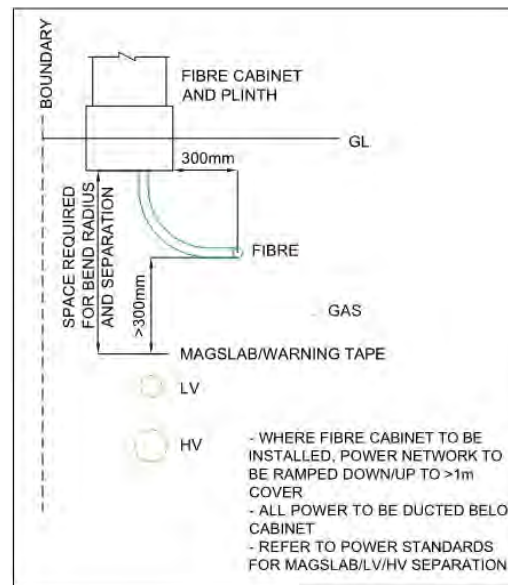
LEGEND:

- PROPOSED FIBRE
- PROPOSED POWER
- PROPOSED GAS
- PROPOSED WATER

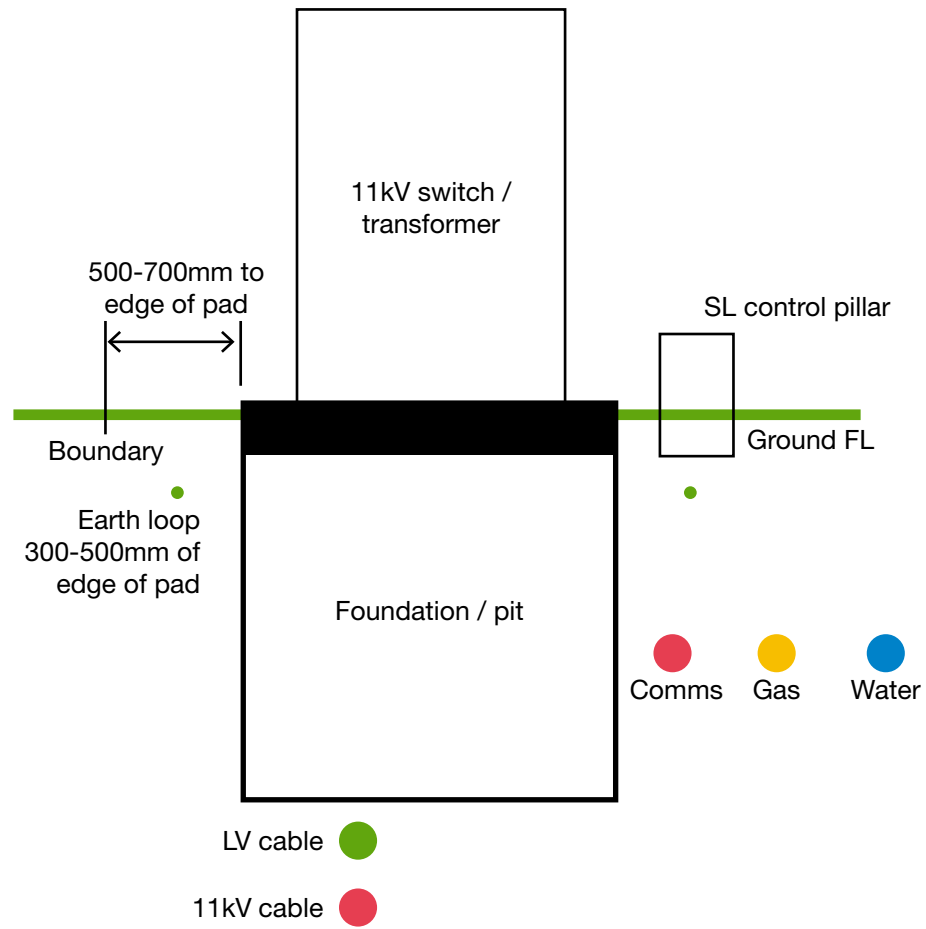
Typical fibre manhole detail. Not to scale

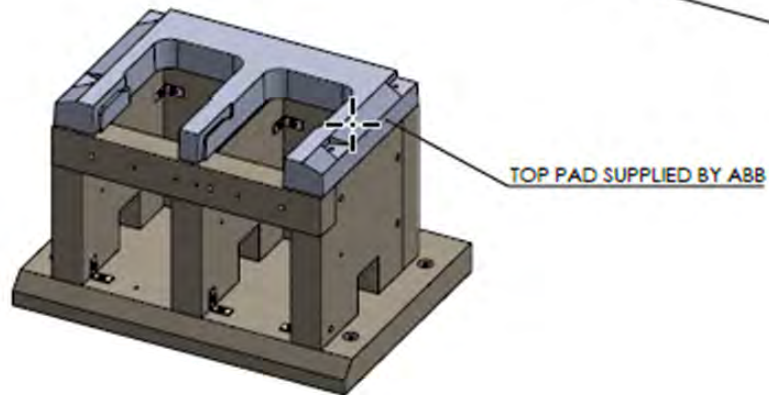
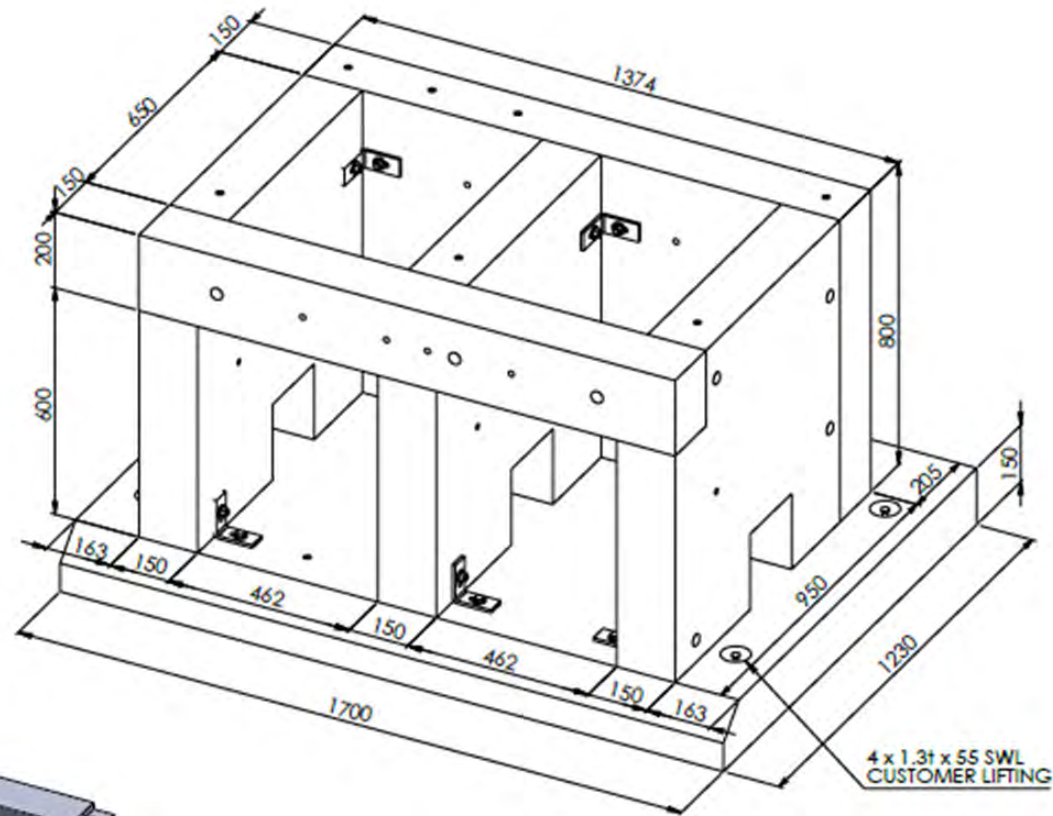


Typical fibre manhole elevation. Not to scale



Typical fibre cabinet detail. Not to scale





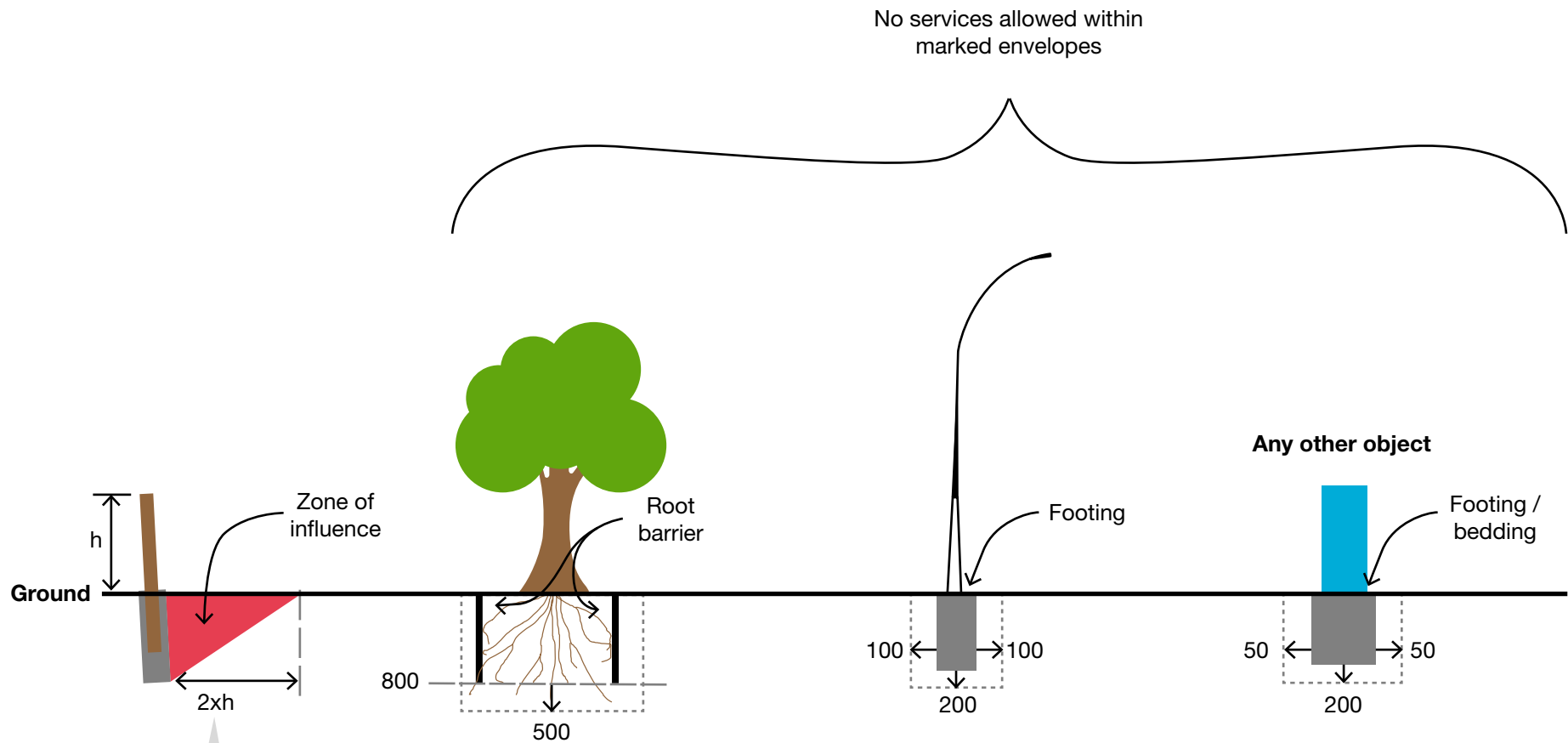
Pit details in design but will be the same footprint as the transformer pad.

Etel 500-1000 KVA

2400x1300

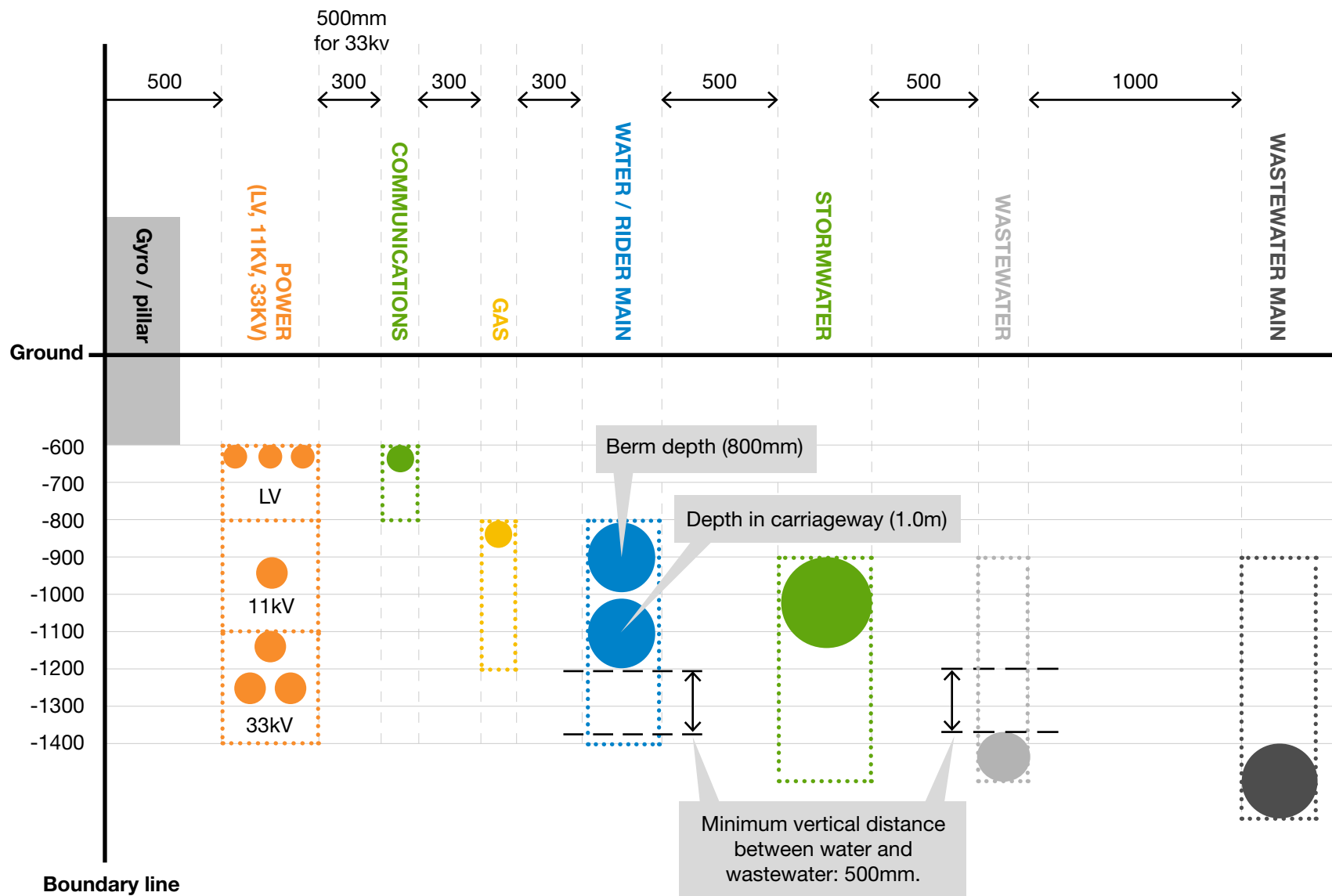
BET 5-1

Busck



Irrespective of the wall type if buried services are present or are to be installed where $X \leq 2H$, the wall design must take account for future excavations required to install services or to repair services. This must be summarised in the retaining wall design and certification documents.

Dimensions are in mm



Surrounding box for WW and SW should be minimum 900mm cover in road zones and 600mm in private property.

Max cover for WW and SW 3.0m unless approved by TCC.