09 Vehicle crossings

DEFINITION

Vehicle crossings provide a way for motor vehicles to enter and exit land next to the road boundary. They are located between the edge of the roadway and the road corridor boundary, across footpaths or berms. Vehicle crossings must not compromise the design criteria for existing or future bus facilities, footpaths or cycleways.

UNITARY PLAN

Any vehicle crossing must comply with controls in The Auckland Unitary Plan or hold a Resource Consent.

CROSSING TYPES

Residential crossings for one to four dwellings shall be constructed to Plan GD017 (unreinforced).

Residential crossings for five to ten dwellings shall be constructed to Plan GD017 (reinforced).

Residential crossings to more than ten dwellings shall be constructed to Plan GD019 (Residential dimensions).

Commercial crossings shall be constructed to Plan GD019 (Commercial dimensions).

Rural crossings shall be constructed to Plan GD020.

WIDTHS

A driveway crossing must be no wider at the boundary than it needs to be, e.g.

- A two-way driveway in a residential zone that is 5.5m wide will require the crossing to be 5.5m at the boundary or may be narrowed to 2.75m if there are passing places with clear sight lines.
- One way access in a centres/mixed use zone may only need to be 3m wide.
- Access to a car park or petrol station that also provides truck delivery access should restrict the width available for car access by means such as over-run paving, to manage turning speed, vehicle path and safety of footpath users.

GEOMETRY

Crossing flare should be optimized to produce the minimum turning speeds and swept paths for the road environment.

PRIORITIES

The pedestrian path through route should be continuous in grade, cross-fall, colour and texture across the driveway, with no tactile warning indicators; the vehicle crossing and driveway must be considered subservient to the pedestrian through route.

Only at exceptional high-use vehicle accesses approved by the AT Traffic Operations Manager and holding Resource Consent may vehicle priority be allowed. Tactile warning indicators must be provided across the footpath, and kerbs with pram ramps may be approved.

PATH THROUGH-ROUTE

The levels and width of the pedestrian through route should not be altered, except that the width may be reduced to not less than 0.9 m where necessary to provide the vehicle ramp down to the channel line.

Path crossfall should be 1-2% where possible, or within ± 3% where constrained.

For steep driveways requiring a change in the level of the footpath through the crossing, footpath ramps either side of the crossing should not exceed a grade of 8%. If this is not possible, the grade should not exceed 12% and the level difference at this grade should not exceed 75 mm. Check surface water flow depth to avoid flood nuisance.

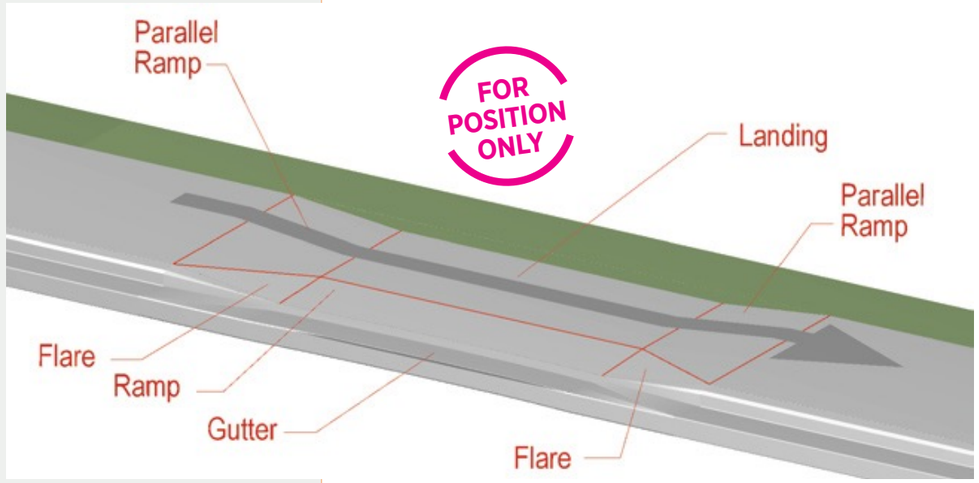


Figure 1 Dropped footpath for steep driveway

LOCATION

Vehicle crossings should be located so that drivers entering and leaving have adequate sight distances along the adjacent footpath, cycleway and road.

ROAD CHANNEL

Where adjoining kerbline has a drainage channel, the channel profile shall be continued across the vehicle crossing.

If existing precast concrete kerbing can be removed without disturbing the existing channel, the channel may be retained for residential crossings to Plan GD017.

In all other cases, existing channel must be removed and the adjoining road edge reinstated as shown on Plan GD 014.

EXISTING INFRASTRUCTURE

Avoid affecting infrastructure if possible.

Any infrastructure that cannot be avoided will require mitigation measures.

RETAINING STRUCTURES

Driveway designs should take all reasonable measures to reduce the need for retaining structures or level adjustments. However, should this be considered too onerous, any proposed structure will be subject to an encroachment notice. In this case, all future maintenance, renewal, removal costs, etc. must be borne by the property owner and placed as an encumbrance on the property file.

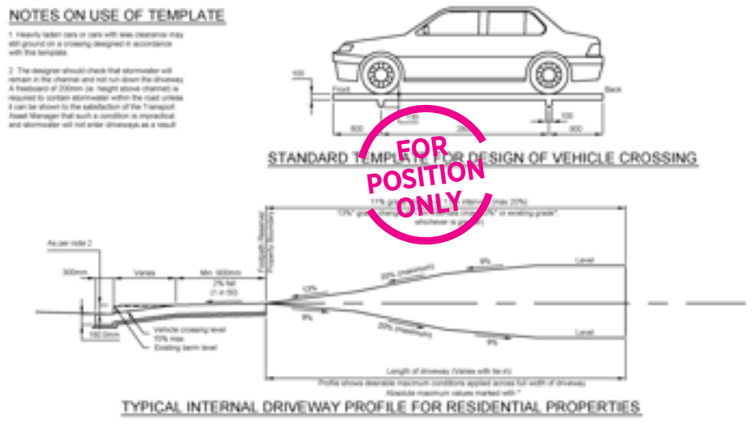
GRADE

Consideration shall also be given to the grade of the driveway to help prevent vehicles scraping and storm water entering the driveway.

If existing road crossfall exceeds 3%, the grade of the 900 mm ramp from the channel shall be reduced from 15 % so that the grade change at the channel does not exceed 18%.

SEE PLANS

Plan GD021 gives a template that might be used to ensure most, but not necessarily all, vehicles will be able to use a crossing safely.



STORM WATER CONTROL

Vehicle crossings over roadside drains must be designed and constructed in accordance with Road Drainage chapter

SURFACE WATER FLOW

The driveway should ramp down from the footpath across the kerb line to the channel invert with a freeboard of 200mm (i.e. height above the channel) to contain storm water within the road. Development or redevelopment of a vehicle crossing must not result in changing the flow of surface water in the roadway, unless alternative drainage is provided. Care should be taken to avoid flow from the roadway discharging onto property if it does not currently do so, or from adjoining land into the roadway. Where surface water discharges from the roadway onto adjoining land as overland flow, this must not be reduced or redirected to another property without Resource Consent.

CATCHPITS

Catchpits should not be located within the width of a vehicle crossing. Where a proposed crossing affects an existing catchpit, the catchpit shall be relocated to the side of the crossing. In any event the catchpit must be installed in a bus and cycle friendly manner.

SCOUR AND EROSION

Where the vehicle crossing is in a rural environment, no silt, gravel or debris of any kind may run from the property onto the roadway or into drains.

PRIVATE DRIVEWAYS

Any private driveways must be designed following the appropriate grades for private driveways in The Auckland Unitary Plan.

REDUNDANT CROSSINGS

If a vehicle crossing is made redundant by the alteration to land next to the road boundary, the property owner must be required to give up the licence or permit associated with that crossover. The crossing should then be replaced to match the existing footpaths and kerbs.

10 Intersection design & types

10.1 General principles

USRDG
INTERSECTION PRINCIPLES

Good intersection design is based on sound geometric design and user criteria where safety is a primary consideration.

Intersections principles are:

- As compact as possible
- Part of a multi-modal network
- Integrate time and space
- Intersections are shared spaces
- Design for context

See the USRDG for more detail on these.

DESIGN APPROVAL

The designer must provide evidence that the design will meet capacity, safety and turning movements of intended vehicles and all other road users.

TRAFFIC MODELLING

Traffic modelling must show that the design can mitigate the effects of existing traffic and that generated by new development. Where applicable, consideration should be given for future network traffic change, with an appropriate design year to be approved by Auckland Transport. The assessment could include intersection modelling, using appropriate software.

INTERSECTION CAPACITY

Where AT set target capacities for a route, or intersections on a route, new intersection design should provide capacity appropriate for the network locally. Generally, capacity should be consistent with that of adjoining intersections except where improvements to these are planned through a network plan, structure plan or project.

CORNER KERBLINES

While catering for appropriate design and check vehicles, urban corner kerblines should be kept compact to minimise vehicle speeds and pedestrian crossing distances.

Kerblines should be designed to suit the effective swept path of design and check vehicles, tracking in accord with the Design Control section above.

Standard Drawings DC001 and DC002 show compound corner kerblines suited to most design cases for urban local streets, and collector and commercial streets. Urban Arterial streets may require specific design using the same principles: