

CHECKLIST 6: EXISTING ROADS: ROAD SAFETY AUDIT

Issue	Yes	No	Comment
6.1 Road alignment and cross-section			
6.1.1 Visibility; sight distance			
Is sight distance adequate for the speed of traffic using the route?			
Is adequate sight distance provided for intersections and crossings? (for example, pedestrian, cyclist, cattle, railway)			
Is adequate sight distance provided at all private driveways and property entrances?			
6.1.2 Design speed			
Is the horizontal and vertical alignment suitable for the (85th percentile) traffic speed?			
If not: <ul style="list-style-type: none"> ▪ are warning signs installed? ▪ are advisory speed signs installed? 			
Are the posted advisory speeds for curves appropriate?			
6.1.3 Speed limit/speed zoning			
Is the speed limit compatible with the function, road geometry, land use and sight distance?			
6.1.4 Overtaking			
Are safe overtaking opportunities provided?			
6.1.5 Readability by drivers			
Is the road free of elements that may cause confusion? For example: <ul style="list-style-type: none"> ▪ is alignment of the roadway clearly defined? ▪ has disused pavement (if any) been removed or treated? ▪ have old pavement markings been removed properly? ▪ do tree lines follow the road alignment? ▪ does the line of street lights or the poles follow the road alignment? 			
Is the road free of misleading curves or combinations of curves?			
6.1.6 Widths			

Issue	Yes	No	Comment
Are medians and islands of adequate width for the likely users?			
Are traffic lane and carriageway widths adequate for the traffic volume and mix?			
Are bridge widths adequate?			
6.1.7 Shoulders			
Are shoulders wide enough to allow drivers to regain control of errant vehicles?			
Are shoulders wide enough for broken-down or emergency vehicles to stop safely?			
Are shoulders sealed?			
Are shoulders traffickable for all vehicles and road users? (i.e. are shoulders in good condition)			
Is the transition from road to shoulder safe? (no drop-offs)			
6.1.8 Crossfalls			
Is appropriate superelevation provided on curves?			
Is any adverse crossfall safely managed (for cars, trucks, etc.)?			
Do crossfalls (carriageway and shoulder) provide adequate drainage?			
6.1.9 Batter slopes			
Are batter slopes traversable by cars and trucks that run off the road?			
6.1.10 Drains			
Are roadside drains and culvert end walls traversable?			
6.2 Auxiliary lanes			
6.2.1 Tapers			
Are starting and finishing tapers located and aligned correctly?			
Is there sufficient sight distance to the end of the auxiliary lane?			
6.2.2 Shoulders			
Are appropriate shoulder widths provided at merges?			
Have shoulder widths been maintained beside the auxiliary lane?			

Issue	Yes	No	Comment
6.2.3 Signs and markings			
Have all signs been installed in accordance with the appropriate guidelines?			
Are all signs conspicuous and clear?			
Does all linemarking conform with these guidelines?			
Is there advance warning of approaching auxiliary lanes?			
6.2.4 Turning traffic			
Have right turns from the through lane been avoided?			
Is there advance warning of turn lanes?			
6.3 Intersections			
6.3.1 Location			
Are all intersections located safely with respect to the horizontal and vertical alignment?			
Where intersections occur at the end of high-speed environments (for example, at approaches to towns), are there traffic control devices to alert drivers?			
6.3.2 Visibility; sight distance			
Is the presence of each intersection obvious to all road users?			
Is the sight distance appropriate for all movements and all road users?			
Is there stopping sight distance to the rear of any queue or slow-moving turning vehicles?			
Has the appropriate sight distance been provided for entering and leaving vehicles?			
6.3.3 Controls and delineation			
Are pavement markings and intersection control signs satisfactory?			
Are vehicle paths through intersections delineated satisfactorily?			
Are all lanes properly marked (including any arrows)?			
6.3.4 Layout			
Are all conflict points between vehicles safely managed?			
Is the intersection layout obvious to all road users?			

Issue	Yes	No	Comment
Is the alignment of kerbs obvious and appropriate?			
Is the alignment of traffic islands obvious and appropriate?			
Is the alignment of medians obvious and appropriate?			
Can all likely vehicle types be accommodated?			
Are merge tapers long enough?			
Is the intersection free of capacity problems that may produce safety problems?			
6.3.5 Miscellaneous			
Particularly at rural sites, are all intersections free of loose gravel?			
6.4 Signs and lighting			
6.4.1 Lighting			
Has lighting been adequately provided where required?			
Is the road free of features that interrupt illumination? (for example, trees or overbridges)			
Is the road free of lighting poles that are a fixed roadside hazard?			
Are frangible or slip-base poles provided?			
Ambient lighting: if it creates special lighting needs, have these been satisfied?			
Is the lighting scheme free of confusing or misleading effects on signals or signs?			
Is the scheme free of any lighting black patches?			
6.4.2 General signs issues			
Are all necessary regulatory, warning and direction signs in place? Are they conspicuous and clear?			
Are the correct signs used for each situation, and is each sign necessary?			
Are all signs effective for all likely conditions? (for example, day, night, rain, fog, rising or setting sun, oncoming headlights, poor lighting)			
If restrictions apply for any class of vehicle, are drivers adequately advised?			
If restrictions apply for any class of vehicle, are drivers advised of alternative routes?			

Issue	Yes	No	Comment
6.4.3 Sign legibility			
In daylight and darkness, are signs satisfactory regarding visibility and: <ul style="list-style-type: none"> ▪ clarity of message? ▪ readability/legibility at the required distance? 			
Is sign retroreflectivity or illumination satisfactory?			
Are signs able to be seen without being hidden by their background or adjacent distractions?			
Is driver confusion due to too many signs avoided?			
6.4.4 Sign supports			
Are sign supports out of the clear zone?			
If not, are they: <ul style="list-style-type: none"> ▪ frangible? ▪ shielded by barriers (for example, guard fence, crash cushions)? 			
6.5 Markings and delineation			
6.5.1 General issues			
Is the line marking and delineation: <ul style="list-style-type: none"> ▪ appropriate for the function of the road? ▪ consistent along the route? ▪ likely to be effective under all expected conditions? (day, night, wet, dry, fog, rising and setting sun position, oncoming headlights, etc.) 			
Is the pavement free of excessive markings? (for example, unnecessary turn arrows, unnecessary barrier lines, etc.)			
6.5.2 Centrelines, edgelines, lane lines			
Are centrelines, edgelines, lane lines provided? If not, do drivers have adequate guidance?			
Have RRPMs been installed where required?			
If RRPMs are installed, are they correctly placed, correct colours, in good condition?			
Are profiled (audible) edgelines provided where required?			
Is the linemarking in good condition?			
Is there sufficient contrast between linemarking and pavement colour?			

Issue	Yes	No	Comment
6.5.3 Guideposts and reflectors			
Are guideposts appropriately installed?			
Are delineators clearly visible?			
Are the correct colours used for the delineators?			
Are the delineators on guard fences, crash barriers and bridge railings consistent with those on guideposts?			
6.5.4 Curve warning and delineation			
Are curve warning signs and advisory speed signs installed where required?			
Are advisory speed signs consistent along the route?			
Are the signs correctly located in relation to the curve? (i.e. not too far in advance)			
Are the signs large enough?			
Are chevron alignment markers (CAMs) installed where required?			
Is the positioning of CAMs satisfactory to provide guidance around the curve?			
Are the CAMs the correct size?			
Are CAMs confined to curves? (not used to delineate islands, etc)			
6.6 Crash barriers and clear zones			
6.6.1 Clear zones			
Is the clear zone width traversable? (i.e. drivable)			
Is the clear zone width free of rigid fixtures? (if not, can all of these rigid fixtures be removed or shielded?)			
Are all power poles, trees, etc., at a safe distance from the traffic paths?			
Is the appropriate treatment or protection provided for any objects within the clear zone?			
6.6.2 Crash barriers			
Are crash barriers installed where necessary?			
Are crash barriers installed at all necessary locations in accordance with the relevant guidelines?			
Are the barrier systems suitable for the purpose?			
Are the crash barriers correctly installed?			
Is the length of crash barrier at each installation adequate?			

Issue	Yes	No	Comment
Is the guard fence attached correctly to bridge railings?			
Is there sufficient width between the barrier and the edge line to contain a broken-down vehicle?			
6.6.3 End treatments			
Are end treatments constructed correctly?			
Is there a safe run-off area behind breakaway terminals?			
6.6.4 Fences			
Are pedestrian fences frangible?			
Are vehicles safe from being speared by horizontal fence railings located within the clear zone?			
6.6.5 Visibility of barriers and fences			
Is there adequate delineation and visibility of crash barriers and fences at night?			
6.7 Traffic signals			
6.7.1 Operations			
Are traffic signals operating correctly?			
Are the number, location and type of signal displays appropriate for the traffic mix and traffic environment?			
Where necessary, are there provisions for visually impaired pedestrians? (for example, audio-tactile push buttons, tactile markings)			
Where necessary, are there provisions for elderly or disabled pedestrians? (for example, extended green or clearance phase)			
Is the controller located in a safe position? (i.e. where it is unlikely to be hit, but maintenance access is safe)			
Is the condition (especially skid resistance) of the road surface on the approaches satisfactory?			
6.7.2 Visibility			
Are traffic signals clearly visible to approaching motorists?			
Is there adequate stopping sight distance to the ends of possible vehicle queues?			
Have any visibility problems that could be caused by the rising or setting sun been addressed?			
Are signal displays shielded so that they can be seen only by the motorists for whom they are intended?			

Issue	Yes	No	Comment
Where signal displays are not visible from an adequate distance, are signal warning signs and/or flashing lights installed?			
Where signals are mounted high for visibility over crests, is there adequate stopping sight distance to the ends of traffic queues?			
Is the primary signal free from obstructions on the nearside footway to approaching drivers? (trees, light poles, signs, bus stops, etc.)			
6.8 Pedestrians and cyclists			
6.8.1 General issues			
Are there appropriate travel paths and crossing points for pedestrians and cyclists?			
Is a safety fence installed where necessary to guide pedestrians and cyclists to crossings or overpasses?			
Is a safety barrier installed where necessary to separate vehicle, pedestrian and cyclist flows?			
Are pedestrian and bicycle facilities suitable for night use?			
6.8.2 Pedestrians			
Is there adequate separation distance between vehicular traffic and pedestrians on footways?			
Is there an adequate number of pedestrian crossings along the route?			
At crossing points is fencing oriented so pedestrians face oncoming traffic?			
Is there adequate provision for the elderly, the disabled, children, wheelchairs and baby carriages? (for example, holding rails, kerb and median crossings, ramps)			
Are adequate hand rails provided where necessary? (for example, on bridges, ramps)			
Is signing about pedestrians near schools adequate and effective?			
Is signing about pedestrians near any hospital adequate and effective?			
Is the distance from the stop line to a cross walk sufficient for truck drivers to see pedestrians?			

Issue	Yes	No	Comment
6.8.3 Cyclists			
Is the pavement width adequate for the number of cyclists using the route?			
Is the bicycle route continuous? (i.e. free of squeeze points or gaps)			
Are drainage pit grates bicycle safe?			
6.8.4 Public transport			
Are bus stops safely located with adequate visibility and clearance to the traffic lane?			
Are bus stops in rural areas signposted in advance?			
Are shelters and seats located safely to ensure that sight lines are not impeded? Is clearance to the road adequate?			
Is the height and shape of the kerb at bus stops suitable for pedestrians and bus drivers?			
6.9 Bridges and culverts			
6.9.1 Design features			
Are bridges and culverts the full formation width?			
Are bridge and culvert carriageway widths consistent with approach conditions?			
Is the approach alignment compatible with the 85th percentile travel speed?			
Have warning signs been erected if either of the above two conditions (i.e. width and speed) are not met?			
6.9.2 Crash barriers			
Are there suitable traffic barriers on bridges and culverts and their approaches to protect errant vehicles?			
Is the connection between barrier and bridge safe?			
Is the bridge free of kerbing that would reduce the effectiveness of barriers or rails?			
6.9.3 Miscellaneous			
Are pedestrian facilities on the bridge appropriate and safe?			
Is fishing from the bridge prohibited? If not, has provision been made for safe fishing?			
Does delineation continue over the bridge?			

Issue	Yes	No	Comment
6.10 Pavement			
6.10.1 Pavement defects			
Is the condition of the pavement edges satisfactory?			
Is the transition from pavement to shoulder free of dangerous edge drop offs?			
Is the pavement free of defects (for example, excessive roughness or rutting, potholes, loose material, etc.) that could result in safety problems (for example, loss of steering control)?			
6.10.2 Skid resistance			
Does the pavement appear to have adequate skid resistance, particularly on curves, steep grades and approaches to intersections?			
Has skid resistance testing been carried out where necessary?			
6.10.3 Ponding			
Is the pavement free of areas where ponding or sheet flow of water could contribute to safety problems?			
6.10.4 Loose stones/material			
Is the pavement free of loose stones and other material?			
6.11 Parking			
6.11.1 General issues			
Are the provisions for, or restrictions on, parking satisfactory in relation to traffic safety?			
Is the frequency of parking turnover compatible with the safety of the route?			
Is there sufficient parking for delivery vehicles so that safety problems due to double parking do not occur?			
Are parking manoeuvres along the route possible without causing safety problems? (for example, angle parking)			
Is the sight distance at intersections and along the route, unaffected by parked vehicles?			
6.12 Provision for heavy vehicles			
6.12.1 Design issues			
Are overtaking opportunities available for heavy vehicles where volumes are high?			

Issue	Yes	No	Comment
Does the route generally cater for the size of vehicle likely to use it?			
Is there adequate manoeuvring room for large vehicles along the route, at intersections, roundabouts, etc.?			
Is access to rest areas and truck parking areas adequate for the size of vehicle expected? (consider acceleration, deceleration, shoulder widths, etc.)			
6.12.2 Pavement/shoulder quality			
Are shoulders sealed at bends to provide additional pavement for long vehicles?			
Is the pavement width adequate for heavy vehicles?			
In general, is the pavement quality sufficient for the safe travel of heavy and oversized vehicles?			
On truck routes, are reflective devices appropriate for truck drivers' eye heights?			
6.13 Floodways and causeways			
6.13.1 Ponding, flooding			
Are all sections of the route free from ponding or flow across the road during wet weather?			
If there is ponding or flow across the road during wet weather, is there appropriate signposting?			
Are floodways and causeways correctly signposted?			
6.13.2 Safety of devices			
Are all culverts or drainage structures located outside the clear roadside recovery area?			
If not, are they shielded from the possibility of vehicle collision?			
6.14 Miscellaneous			
6.14.1 Landscaping			
Is landscaping in accordance with guidelines? (for example, clearances, sight distance)			
Will existing clearances and sight distances be maintained following future plant growth?			
Does the landscaping at roundabouts avoid visibility problems?			

Issue	Yes	No	Comment
6.14.2 Temporary works			
Are all locations free of construction or maintenance equipment that is no longer required?			
Are all locations free of signs or temporary traffic control devices that are no longer required?			
6.14.3 Headlight glare			
Have any problems that could be caused by headlight glare been addressed? (for example, a two-way service road close to main traffic lanes, the use of glare fencing or screening)			
6.14.4 Roadside activities			
Are the road boundaries free of any activities that are likely to distract drivers?			
Are all advertising signs installed so that they do not constitute a hazard?			
6.14.5 Errant vehicles			
Is the roadside furniture on the verges and footways free of damage from errant vehicles that could indicate a possible problem, hazard or conflict at the site?			
6.14.6 Other safety issues			
Is the embankment stability safe?			
Is the route free of unsafe overhanging branches?			
Is the route free of visibility obstructions caused by long grass?			
Are any high-wind areas safely dealt with?			
If back-to-back median kerbing is used is it: <ul style="list-style-type: none"> ▪ adequately delineated? ▪ obvious where it starts? ▪ obvious at intersections? ▪ unlikely to be a hazard to pedestrians? 			
6.14.7 Rest areas			
Is the location of rest areas and truck parking areas along the route appropriate?			
Is there adequate sight distance to the exit and entry points from rest areas and truck parking areas at all times of the day?			

Issue	Yes	No	Comment
6.14.8 Animals			
Is the route free from large numbers of animals? (for example, cattle, sheep, kangaroos, koalas, wombats, etc.)			
If not, is it protected by animal-proof fencing?			
6.14.9 Safety aspects for heavy vehicles not already covered			
Have all other matters which may have a bearing on safety for heavy vehicles been addressed?			