



Support for implementing measures for the South East Europe Core
Regional Transport Network Multi Annual Plan 2008-2012
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WYG International part of the WYG group
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CHECKLISTS FOR AUDIT STAGE 1 AND 2

Annex 1 to Road Safety Audit Manual

(REVISED FINAL)

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Annex 1– Checklist Audit Stage 1 and 2

Structure of the Checklists				
		Road Categories		
Audit stages		Motorways	Interurban Highways	Urban Main Roads
1	Preliminary Design	Annex 1.1.1	Annex 1.2.1	Annex 1.3.1
2	Detailed Design	Annex 1.1.2	Annex 1.2.2	Annex 1.3.2
3 and 4	Pre Traffic Opening and Post Traffic Opening	Annex 2.1	Annex 2.2	Annex 2.3

Notes:

- **The Audit stages 1 and 2 are done with the project documentation on the paper. The Audit stages 3 and 4 are related to the road site. Therefore is there a strong relationship with the Road Safety Inspection method for existing roads. Because the checklists are in fact the same they are collected in a separate way in the annex 2.**
- **The Checklists for the Interurban Highways are also including questions about the typical situation regarding the through road section in small villages etc.**

Annex 1.1.1 Checklists for Motorways – Preliminary design

Stage 1 Checklists - Preliminary design				
Motorway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Previous stage	0	Have the section been evaluated with a Road Safety Impact Assessment, and have the findings been considered?		
1.Function of the road, (Design and operating elements)	1	Have the effects of the project on the surrounding road network been considered?		
	2	Is the project • a long distance Motorway, • A regional Motorway or • an Urban Motorway?		
	3	Have previous findings/documents on the accident situation been taken into consideration during the planning phase?		
	4	Have specific traffic composition characteristics been taken into consideration?		
	5	Is the design speed suitable for the category of the motorway (for the section and interchanges?		
	6	Are there anywhere accumulations of events such as curves + hilltops + intersections etc?		
	7	Has the transition area been adapted to the adjacent road sections? (in the case of interim solutions for the end of a motorway)		
	8	Is stopping sight distance guaranteed along the entire section? (for 120km/h= 250 m, 100 km/h =170 m, 80 km/h=110 m, long fall = 0%)		
	9	Is orientation sight distance guaranteed along the entire section? for 120 km/h ►500 m ahead for 100 km/h ►300 m ahead for 80 km/h ►200 m ahead		
	10	Are all fixed or planted obstacles that can be dangerous placed outside the safety zone? (120km/h> 12 m 100 km/h >9 m 80 km/h > 6 m away from the carriage way)		
	11	In case fixed obstacles are not placed outside the safety zone are they avoidable, or safeguarded?		
2. Cross section	1	Has the safest average cross section been selected from the ones that come into question?		
	2	Are the cross section dimensions (width, height, and spacing) suitable for the category of the motorway?		

Annex 1.1.1 Checklists for Motorways – Preliminary design

Stage 1 Checklists - Preliminary design				
Motorway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
cross section continued	3	Have sufficient measures been taken on cutting slopes to prevent falling material (e.g. falling rocks)?		
	4	Is there sufficient drainage for the motorway (ditches, gutters etc.)?		
	5	Is there sufficient cross, diagonal fall and superelevation?		
	6	Are there stable shoulders foreseen foreseen (like hard shoulders or gravel shoulders)?		
3. Alignment	1	Is the alignment consistent or full of surprises?		
	2	Have suitable allowances been made for drainage requirements when planning horizontal and vertical alignment (requirement in the case of turning of the cross fall direction)?		
	3	Are horizontal and vertical alignments harmonized?		
	4	Have the design elements been selected to effectively prevent "hidden-dips"?		
	5	Have continuity principles been taken into consideration to avoid high speed differentials?		
	6	Have steps been taken to prevent minimum design values for horizontal and vertical alignment elements occurring together?		
	7	Is sight obstructed, for example by safety barriers, plants, fences, traffic signs, landscaping and bridge abutments?		
	8	In the case of step gradients: Are there climbing lanes foreseen, are they properly designed?		
	9	In the case of step gradients: Are there arrester beds necessary, if so are they properly designed?		
4. Interchanges (for inter-section of the interchange ramps with the adjacent network pls. use the highway checklist)	1	Are all interchanges necessary and has the number, spacing and form of the intersections been selected appropriately?		
	2	Are the interchanges and interchange elements designed in such a way that they can be clearly recognized in time?		
	3	Is the sequence of the interchange elements easily understood?		
	4	Is the type and design of the selected interchange suitable for the category of the motorway?		
	5	Are auxiliary lanes for deceleration, acceleration appropriately and safely designed?		
	6	Can the interchange be recognized in time advance from all approaches?		
	7	Is good visibility ensured at the interchange (sight conditions)?		

Annex 1.1.1 Checklists for Motorways – Preliminary design

Stage 1 Checklists – Preliminary design				
Motorway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
interchanges continued	8	Are lanes and carriageway in curves wide enough?		
	9	Are the movements guided clearly and easy to understand?		
5. Traffic signals, ITS measures	1	Will ITS measures for communication about the traffic conditions such as accidents, congestions, weather conditions etc be necessary?		
6. Service and rest areas, toll stations	1	Are there service and rest areas such as petrol stations, restaurants, parking places, etc , is their number in the network sufficient?		
	2	Is good visibility guaranteed, are the sight conditions sufficient?		
	3	Are there sufficient parking slots to prevent parking on the entrances and exits and/or carriageways?		
	4	Are the dimensions of the parking areas sufficient for parking for passenger vehicles, trucks and buses?		
	5	Is the layout of the service or rest area appropriate for the different kind of vehicles?		
	6	Are pedestrian facilities of a safe design (connecting footpaths to restaurants, crossing facilities)?		
	7	Are entrances and exits for rest and service areas planned at points with good overall visibility?		
	8	Have measures been taken to ensure safe access for rescue vehicles/maintenance vehicles/fire service?		
	9	Are there toll stations foreseen? If so, is the design suitable for the road safety?		
	10	Are sufficient parking areas provided to minimize illegal parking on footpaths and on the carriageway with the corresponding hazards or have corresponding preventative measures been taken?		
	11	Are there safe parking areas for tourist busses and for handicapped people designed?		

Annex 1.1.1 Checklists for Motorways – Preliminary design

Stage 1 Checklists – Preliminary design				
Motorway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
7. Public transport	1	Will public transport use the motorway?		
	2	Are public transport stops clear of the Motorway		
8. Vulnerable road users		<i>please see "rest areas" and "public transport"</i>		
9. Signing, Marking, Lighting	1	Are the road markings clear, recognizable and appropriate?		
	2	Is illumination necessary for the category of motorway?		
	3	Is the lighting of special situations (transition zones, changes in the cross section) required and, if so, suitably designed?		
	4	Is stationary lighting required at intersections/, service and rest areas and, if required, of an appropriate design?		
10. Road side features and passive safety installations	1	Is sight obstructed, for example by game/screens/snow fences?		
10.1 Other road equipment	2	Are the emergency telephones in appropriate and safe positions with regard to traffic?		
	3	Are antidazzle screens required?		
	4	Are game fences required? If so, is the design suitable?		
	5	Is suitable road equipment (fog warning signs, automatic sprinklers for de-icing agents, snow fences etc.) required and/or planned based on particular weather requirements?		
10.2 Planting	1	Are existing and planted trees a sufficient distance away from the road or out of reach of skidding cars?		
	2	Is good visibility ensured at the intersections? or Is sight obstructed by the planting?		
	3	Will growth of greenery lead to future safety problems, (e.g. as a result of obstructed sight, expected trunk diameter greater than 8 cm, hidden road signs, light and shadow effects, leaves falling on the road)?		
	4	Does the greenery and type of planting preclude irritations to the road users (e.g. alignment)?		
	5	Is there a danger of monotony and should it be avoided by landscaping?		

Annex 1.1.1 Checklists for Motorways – Preliminary design

Stage 1 Checklists – Preliminary design				
Motorway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
10.3 Civil engineering structures	1	Is reconcilability guaranteed? Is a "breach" in the continuity of the alignment avoided?		
	2	Are passive safety devices regarding such structures planned at the required locations and are they suitably designed?		
	3	Will bridge guardrails and adjacent passive safety installation be sufficient connected? Are in the bridge design documents relevant details foreseen?		
	4	Have pedestrian and cyclist requirements been considered (e.g. layout of pedestrian and cycle paths)?		
	5	Are parapets and overpasses at a safe distance from the road?		
	6	Are there tunnels in the road section?		
	7	Are the tunnels safe, are there emergency ways, sufficient illumination etc. (the use the demands of EU – Tunnel directive 2004/54/EC is recommended)?		
10.4 Passive safety installations	1	Are fixed obstacles avoidable, set up at sufficient distances or safeguarded?		
	2	Are passive safety installations set up at the required facilities/locations such as steep slopes higher than 3m, deep ditches, fixed obstacles and in the median stripe?		

Annex 1.1.2 Checklists for Motorways – Detailed design

Stage 2 Checklists – Detailed design				
Motorway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
1. Function Design and operating elements	0	Have the audit results from the previous audit phase been taken into consideration?		
	1	Have previous findings/documents on the accident situation been taken into consideration during the planning phase?		
	2	Is the project • a long distance Motorway, • A regional Motorway or • an Urban Motorway?		
	3	Have the design speed been selected correctly for the section and interchanges according to motorways category?		
	4	Is stopping sight distance guaranteed along the entire section? (for 120km/h= 250 m, 100 km/h =170 m, 80 km/h=110 m, long fall = 0%)		
	6	Is orientation sight distance guaranteed along the entire section? (for 120 km/h ►500 m ahead, for 100 km/h ►300 m ahead, for 80 km/h ►200 m ahead)		
	7	Are there anywhere accumulations of events such as curves + hilltops + intersections etc?		
	8	Is there any additional landscaping plan to be checked?		
	9	Are all fixed or planted obstacles that can be dangerous placed outside the safety zone? 120km/h > 12 m 100 km/h >9 m 80 km/h > 6 m		
	10	In case fixed obstacles are not placed outside the safety zone are they avoidable, or safeguarded?		
	11	Is the end of the construction area away from critical points, e.g. summits, downgrades, curves, areas with restricted sight distance or distractions?		
	12	Has the transition area been adapted to the adjacent road sections? (in cases of interim solutions for the end of a motorway)		
	2. Cross section	1	Has the safest average cross section been selected from the ones that come into question?	
2		Are the cross section dimensions (width, height, and spacing) suitable for the category of the motorway?		
3		Have sufficient measures been taken on cutting slopes to prevent falling material (e.g. falling rocks)?		
4		Are passive safety devices planned at the required locations and are they suitably designed (see also passive safety installations)?		
5		Is there sufficient drainage for the motorway (ditches, gutters etc.)?		
6		Are the installations for drainage like gutters error forgiving designed (smooth curbstones no sharp edges) ?		
7		Is there sufficient cross, diagonal fall and superelevation?		

Annex 1.1.2 Checklists for Motorways – Detailed design

Stage 2 Checklists – Detailed design				
Motorway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
	8	Are there stable shoulders foreseen foreseen (like hard shoulders or gravel shoulders)?		
3. Alignment	1	Is the alignment consistent or full of surprises?		
	2	Have suitable allowances been made for drainage requirements when planning horizontal and vertical alignment (requirement in the case of turning of the cross fall direction)?		
	3	Are horizontal and vertical alignments harmonized (turning points)?		
	4	Have the design elements been selected to effectively prevent "hidden-dips"?		
	5	Have continuity principles been taken into consideration to avoid high speed differentials?		
	6	Have steps been taken to prevent minimum design values for horizontal and vertical alignment elements occurring together?		
	7	Is sight obstructed, for example by safety barriers, plants, fences, traffic signs, landscaping and bridge abutments?		
	8	In the case of step gradients: Are there climbing lanes foreseen, are they properly designed?		
	9	In the case of step gradients: Are there arrester beds necessary, if so are they properly designed?		
4. Interchanges for intersection of the interchange ramps with the adjacent network pls. use the highway checklist)	1	Are all interchanges necessary and has the number, spacing and form of the intersections been selected appropriately?		
	2	Are the interchanges and interchange elements designed in such a way that they can be clearly recognized in time?		
	3	Is the sequence of the interchange elements easily understood?		
	4	Is the type and design of the interchange suitable for the category of the motorway?		
	5	Are auxiliary lanes for deceleration, acceleration appropriately and safely designed?		
	6	Can the interchange be recognized in time advance from all approaches?		
	7	Is good visibility ensured at the interchange (sight conditions)?		
	8	Are lanes and carriageway in curves wide enough?		
	9	Are the movements guided clearly and easy to understand?		
5. Traffic signals and ITS measures	1	Are ITS measures for communication and driver assistance are installed?		
	2	Are the information clearly recognisable and understandable?		

Annex 1.1.2 Checklists for Motorways – Detailed design

Stage 2 Checklists – Detailed design				
Motorway Number from km ...,... to km ...,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
	3	Is the solution following the international practise (used icons, is information also understandable for foreign drivers) to make it easier understandable?		
6. Service and rest areas, toll stations	1	Are there service and rest areas such as petrol stations, restaurants, parking places, etc , is their number in the network sufficient?		
	2	Is good visibility guaranteed, are the sight conditions sufficient?		
	3	Are there sufficient parking slots to prevent parking on the entrances and exits and/or carriageways?		
	4	Are the dimensions of the parking areas sufficient for parking for passenger vehicles, trucks and buses?		
	5	Is the layout of the service or rest area appropriate for the different kind of vehicles?		
	6	Are pedestrian facilities of a safe design (connecting footpaths to restaurants, crossing facilities)?		
	7	Are entrances and exits for rest and service areas planned at points with good overall visibility?		
	8	Have measures been taken to ensure safe access for rescue vehicles/maintenance vehicles/fire service?		
	9	Are sufficient parking areas provided to minimize illegal parking on footpaths and on the carriageway with the corresponding hazards or have corresponding preventative measures been taken?		
	10	Are there special parking spaces for handicapped people? Have adjacent footpaths sections dropped curbedstones?		
	11	Are there special parking spaces for tourist busses reserved (passengers should have safe areas for rest)?		
	12	Are there toll stations foreseen? If so, is the design suitable for the road safety? Are there announced in a sufficient way?		
7. Public transport stops	1	Will public transport use the motorway?		
	2	Are public transport stops clear of the Motorway		
8. Needs of vulnerable Road users		<i>please see " rest areas" and "public transport"</i>		
9. Traffic Signing, Marking, Lighting 9.1 Signing	1	Have appropriate speed limits been planned (start, end, height, location)?		
	2	Is prohibition of overtaking for trucks, buses etc. required and, if so, is it set up at suitable locations?		
	3	Is sight obstructed by traffic and direction signing?		

Stage 2 Checklists – Detailed design				
Motorway Number from km to km Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
traffic signing continued	4	Could greenery lead to safety problems if the vegetation grows (e.g. as a result of covered road signs)?		
	6	Can the signs be clearly recognized and read (size of signs)?		
	7	Are additional warning signs or chevrons in curves necessary?		
	7	Is signing logical and consistent?		
	8	Is signing for service and rest areas clear?		
9.2 Markings	1	Are the road markings clear and recognizable?		
	2	Do all signs and markings correspond without any contradictions?		
	3	What kind of material will be used? Are there circumstances for which e.g. profiled plastic marking is recommended?		
9.3 Lighting	1	Is stationary lighting of the sections, intersections, service and rest areas foreseen, in relation to the ambient lighting?		
	2	Does the ambient lighting present any special requirements?		
10. Road side features and passive safety installations	1	Is sight obstructed, for example by game/screens/snow fences?		
10.1 Other road equipment	2	Are the emergency telephones in appropriate and safe positions with regard to traffic?		
	3	Are antidazzle screens required?		
	4	Are game fences required? If so, is the design suitable?		
	5	Is suitable road equipment (fog warning signs, automatic sprinklers for de-icing agents, snow fences etc.) required and/or planned based on particular weather requirements?		
	6	Will there be a mileage system and will it be properly signposted?		
	10.2 Planting	1	Are all existing and planted trees without the safety zone? 120km/h > 12 m 100 km/h > 9 m 80 km/h > 6 m (Compare with landscaping plan)	
2		Will growth of greenery lead to future safety problems, (e.g. as a result of obstructed sight, expected trunk diameter greater than 8 cm, hidden road signs, light and shadow effects, leaves falling on the road)?		
3		Does the greenery and type of planting preclude irritations to the road users (e.g. alignment)?		
4		Is sight obstructed by the planting?		
5		Is good visibility ensured at the intersections or could be obstructed by foreseen landscaping?		

Annex 1.1.2 Checklists for Motorways – Detailed design

Stage 2 Checklists – Detailed design				
Motorway Number from km, to km, Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
planting continued	6	Does the landscaping plan assist the communication with the users about the road course and does it tackle the impressions of monotony?		
	7	Is the vertical clearance of under overpasses guaranteed?		
10.3 Civil engineering structures	1	Is reconcilability guaranteed? Is a "breach" in the continuity of the alignment avoided?		
	2	Are parapets and overpasses, masts, abutments, supporting walls, bridge railings etc. been set up at sufficient distances or safeguarded or at a safe distance from the road?		
	3	Are passive safety devices regarding such structures planned at the required locations and appropriately designed?		
	4	Is the design of bridge guardrail systems adjusted with any guardrails along the motorway (approved joint construction etc.)?		
	5	Are there deep ditches (e.g. made from prefab concrete parts) of the drainage system within the safety zone?		
	6	Are there headwalls on culverts planned?		
10.4 other obstacles	1	Are there any other obstacles within the safety zone?		
10.5 Passive safety installations	1	Are fixed obstacles avoidable, set up at sufficient distances or safeguarded?		
	2	Are passive safety devices planned at the required locations and appropriately designed (beginning and end of the barriers, barrier posts, distance between stanchions, stability, depth of stanchions, combination with guard rails)?		
	3	Are there "open windows" or gaps in the system (avoid also gaps shorter than 50 m)?		
	4	Are foreseen passive safety installations approved for the indented use (the usage of the EN 1317 is strictly recommended)?		

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Previous stage	0	Have the section been evaluated with a Road Safety Impact Assessment, and have the findings been considered?		
1.Function of the road, (Design and operating elements)	1	Have the effects of the project on the surrounding road network been considered?		
	2	Do the function of the road and the desired use of the road correspond?		
	3	Have previous findings/documents on the accident situation been taken into consideration during the planning phase?		
	4	Have specific traffic composition characteristics been taken into consideration?		
	5	Is the design speed suitable for the road category?		
	6	Is restricted use by certain user groups foreseen or appropriate?		
	7	Is access from abutting properties avoided or of an appropriate design for road safety?		
	8	Have the design speeds been selected correctly for the section and intersections?		
	9	Have suitable measures been taken to ensure that speed limits are obeyed, e.g traffic calming in through road sections?		
	10	Has the transition area been adapted to the adjacent road sections (if there are changes in characteristics or interim solutions/end of construction area)?		
	11	Is stopping sight distance guaranteed along the entire section? (for 100km/h= 170 m, 80 km/h= 110 m, 60 km/h= 65 m, long fall = 0%)		
	12	Is orientation sight distance guaranteed along the entire section (for 100 km/h ► 300 m ahead, for 80 km/h ► 200 m ahead, for 60 km/h ► 120 m ahead)?		
	13	Is overtaking sight distance in an acceptable percentage (about at least 20%) of the road section ensured (for 100 km/h ► 300 m ahead, for 80 km/h ► 200 m ahead, for 60 km/h ► 120 m ahead)?		
	14	Are all fixed or planted obstacles that can be dangerous placed outside the safety zone? 100 km/h >9m, 80 km/h > 6m, 60 km/h > 3m (away from skidding cars?)		
	15	In case fixed obstacles are not placed outside the safety zone are they avoidable, or safeguarded?		
	16	Are there anywhere accumulations of events such as curves + hilltops + intersections etc?		

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design					
Highway Number from km,... to km,... Date:					
Characteristic	No.	Question	Yes (✓) No (X)	Comments	
2. Cross section	1	Has the safest average cross section been selected from the ones that come into question?			
	2	Are the cross section dimensions (width, height, and spacing) suitable for the function of the road?			
	3	Have sufficient measures been taken on cutting slopes to prevent falling material (e.g. falling rocks)?			
	4	Is narrowing of the carriageway required (bottlenecks) and, if so, designed in such a way to ensure traffic safety?			
	6	Are parking areas required (in built up road sections) and, if so, are they large enough to prevent parking on the road?			
	7	Have the needs of public transport and its users been taken into consideration (e.g. lay bys)?			
	8	Are there refuge islands planned in built up areas, are waiting areas on the refuges large enough for waiting pedestrians (and bicyclists)?			
	10	In built up areas: Have pedestrian and bicyclist requirements been considered (shared foot path and cycle path, separate cycle facilities)?			
	11	Is there a sufficient division (separation planned) between the traffic lane for motor vehicle traffic and the path for cyclists and pedestrians?			
	12	Is there sufficient drainage for the new road?			
	13	Is there sufficient cross, diagonal fall superelevation?			
	14	In the case of a four lane road: Is there a median stripe or barrier for separation of the direction foreseen?			
	15	Are there stable shoulders foreseen foreseen (like hard shoulders or gravel shoulders)?			
	3. Alignment	1	Is the alignment consistent or full of surprises?		
		2	Have suitable allowances been made for drainage requirements when planning horizontal and vertical alignment? (requirement in the case of turning of the cross fall direction)?		
3		Are horizontal and vertical alignments harmonized?			

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
alignment continued	4	Have the design elements been selected to effectively prevent "hidden-dips"?		
	5	Have continuity principles been taken into consideration to avoid high speed differentials?		
	6	Have steps been taken to prevent minimum design values for horizontal and vertical alignment elements occurring together?		
	7	Are lanes and carriageway in curves wide enough?		
	8	Is sight obstructed, for example by safety barriers, plants, fences, parking areas, traffic signs, landscaping, bridge abutments, and buildings?		
	9	Is access from abutting properties required and are they safe designed?		
	10	Are lane shifts by use of islands or carriageway narrowing required (e.g. when entering towns or villages)?		
	11	Are there enough possibilities to overtake safely (overtaking sight distances/overtaking lanes)?		
	12	Have the critical changes been located correctly for roads of the operational type 2+1 and climbing lanes?		
	13	Are lane reductions correctly designed?		
	14	In the case of step gradients: Are there climbing lanes foreseen, are they properly designed?		
	15	In the case of step gradients: Are there arrester beds necessary, if so are they properly designed?		
4. Intersections	1	Is the intersection necessary and has the number, spacing and form of the intersections been selected appropriately?		
	2	Are the intersections and intersection elements designed in such a way that they can be clearly recognized in time?		
	3	Is the sequence of the intersection elements easily understood?		
	4	Is the type and design of the selected intersection suitable for the function and safety, and use of the road and the intersecting roads (cross roads, T-intersection, roundabout, traffic signals, etc)?		
	5	Are auxiliary lanes for deceleration, acceleration, and weaving required and, if so, are they appropriately and safely designed?		
	6	Can intersections be recognized in time advance from all approaches and is the orientation sight distance guaranteed?		

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km ...,... to km ...,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
intersections continued	7	Is good visibility ensured at the intersections and, are the required "sight triangles" clear for all road users?		
	8	Are the dimensions of the intersection sufficient for all necessary vehicle movements (minimum turning radius of design vehicles)?		
	9	Are there approaches and accesses that are superfluous or that are located at critical points that can be combined or could be connected with the secondary network/service roads?		
	10	Are sight lines obstructed/sometimes restricted, for example by safety barriers, fences, road equipment, parking areas, traffic signs, landscaping/greenery, bridge abutments, buildings, traffic jams?		
	11	Are the traffic islands clearly visible and of a suitable design (canalized junctions)?		
	12	Have some turning movements been excluded from signal control or from the roundabout? If so, is traffic operation safe (bypass)?		
	13	Built-up areas: Have the requirements of the pedestrians and bicyclists been considered?		
	14	Built-up areas: Is pedestrian/bicyclist routing at intersections adapted to the actual conditions and clearly marked and signposted?		
	15	Are special measures required for particular groups or facilities (including hospitals) e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
	16	Are public transport stops planned at intersections? If so, are they suitable located?		
	17	Are traffic signals/ temporary speed monitoring required?		
	18	Are the movements guided clearly and easy to understand?		
	19	Are additional areas for cross-turning movements required and is storage length sufficient?		
	20	Can turning motorists see past oncoming vehicles (e.g. because of adjacent crest curves)?		

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Roundabouts	21	Is the size of the roundabout careful selected according to the expected traffic (results of traffic studies)?		
	22	Is the roundabout fully visible and recognizable from all approaches and are the required markings and signs clear and unambiguous?		
	23	Small roundabouts: Have all approaches been aligned radial to the centre of the circle? Is the design suitable to ensure a low speed level and support the right of way?		
	24	Small roundabouts: Has it been ensured that the circulatory carriageway can be driven on in single lane only?		
	25	Multilane roundabouts: Are approaches located in a way to ensure sufficient space for weaving and to avoid speeding?		
	26	Multilane roundabouts: Are the circle lanes marked?		
	27	Multilane roundabouts: Are exits designed as a single lane exit?		
	28	Are fixed obstacles placed in a safe way in the centre island of the roundabout?		
	29	Is through visibility effectively stopped by the roundabout?		
	30	Do compensatory measures provide a sufficient degree of safety when deviating from guidelines?		
5. Traffic signals	1	Are the traffic signals clearly recognizable and are there repeating/double signals? Have the locations for the signals been selected correctly (additional signals, overhead signals, etc.)?		
	2	Are protected phases provided for turning movements or are the fast driven approaches signalized separately?		
	3	Have some turning movements been excluded from signal control? If so, is traffic operation safe?		
	4	Is the perception from a sufficient distance guaranteed?		
	5	In areas with bicyclists: Have cyclist and pedestrian requirements been considered (e.g. route through intersection)?		
	6	In areas with bicyclists: Are there plans to set to stop lines for motorists further back for the benefit of cyclists?		
	7	Are special phases for a separated left (or right turn) considered?		

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km, to km, Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
traffic signals continued	8	Are the type and spacing of different crossing installations coordinated (e.g. railway crossings, traffic signals, zebra crossings)?		
6. Railway crossings	1	Is the type of railway crossing according with traffic volume? Is a railway crossing at-grade avoidable?		
	2	Are traffic control devices required and optimally set up with regard to future traffic developments?		
	3	Are the road widths before and after the railway crossing as well as the width of the railway crossing sufficient for all necessary vehicle movements (vehicles meeting each other, minimum turning radius of design vehicles)?		
	4	Are the clearance areas behind the railway crossing long enough?		
	5	Are the railway crossings clearly recognizable?		
	6	Is lighting required and, if so, appropriately designed?		
	7	Are prohibition of overtaking and speed limits planned?		
	8	Are passive safety installation at required locations planned?		
7. Service and rest areas	1	Are there service and rest areas such as petrol stations, restaurants, parking places, etc?		
	2	Is good visibility guaranteed, are sight conditions sufficient?		
	3	Are there service and rest areas on both sides of the road in cases of two lane roads to avoid turning manoeuvres?		
	4	Are there sufficient parking slots to prevent parking on the entrances and exits and/or carriageways?		
	5	Are the dimensions of the parking areas sufficient for the different kind of vehicles?		
	6	Are pedestrian facilities of a safe design (connecting footpaths to restaurants, crossing facilities)?		
	7	Are entrances and exits for rest and service areas planned at points with good overall visibility?		
	8	Are rest areas easily accessible and do they provide sufficient manoeuvring space?		
	9	Have measures been taken to ensure safe access for rescue vehicles/maintenance vehicles/fire service?		

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km to km Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
service and rest areas continued	10	Are sufficient parking areas provided to minimize illegal parking on footpaths, cycle facilities, and on the carriageway with the corresponding hazards or have corresponding preventative measures been taken?		
	11	Are there special parking spaces for handicapped people? Have adjacent footpaths sections dropped curbstones?		
	12	Are there special parking spaces for tourist busses reserved (passengers should have safe areas for rest)?		
8. Needs of vulnerable road users 8.1 at Public Transport stops	1	Are stops easily and safe accessible to pedestrians (combination with pedestrian crossings, crossing help, footpath connection etc.)?		
(esp. regarding through road sections)	2	Are public transport stops planned at (behind!) intersections?		
	3	Are the bus stops situated outside of the carriageway where appropriate?		
	4	Are the bus stops signposted and detectable by the drivers? Is recognition from a longer distance guaranteed?		
	5	In the case of bicycle paths: Is cyclist routing safely designed in the area near public transport stops?		
	6	Is lighting required? And if so, is it appropriately designed?		
	7	Are special measures required for particular groups, e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
8.2 other needs of pedestrians	1	Are vulnerable road users separated from motorized traffic or will they use the carriageway?		
	2	Have pedestrian crossings been appointed in such a way that collective use is guaranteed and the road will not be crossed at other points?		
	3	Are crossings plausible and safe? Are the pedestrian crossings located where most required by pedestrian traffic?		
	4	Is there a risk of pedestrian underpasses and bridges being bypassed? Are suitable measures (e.g. fences) planned?		
	5	Are crossings over special railway structures of a safe design?		
	6	Is two-way visual contact ensured between pedestrians and motorists?		
	7	Is the transition safely designed if footpaths and bicycle paths end on a road or are directed across the road?		
	8	Are further crossing aids required?		

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km to km Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
pedestrians continued	9	Are areas for waiting pedestrians and bicyclists sufficient? / Are refuges large and wide enough for crossing pedestrians and bicyclists to stand and wait?		
	10	Is sight obstructed/ partially obstructed, for example by safety fences, safety barriers, road equipment, parking areas, traffic signs, plants, buildings, by vehicles in lay-bys, or by queuing traffic?		
	11	Is the transition safely designed if footpaths and bicycle paths end on a road or are directed across the road?		
	12	Are the islands clearly visible and of a suitable design?		
	13	Is lighting required and, if so, appropriately designed?		
	14	Are special measures required for particular groups or facilities (including hospitals), e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
8.3 Bicyclists	1	Are there separate bicycle facilities?		
(only in the case of existing)	2	Are dimensions and pavement suitable?		
	3	Have cyclists' requirements been considered (e.g. route across central refuges, bottlenecks)?		
	4	Is a separating strip required between cycle path and parking strip?		
	5	Has right of way been specified and clarified at cycle crossings, in particular for cycle paths that are set back?		
	6	Is right of way clearly defined at points where cyclists come into contact with each other or with motorized traffic?		
	7	Are refuges large and wide enough for crossing pedestrians and cyclists to stand and wait?		
	8	Is the transition safely designed if cycle paths end on a road or are directed across the road?		
9. Signing, Marking, Lighting	1	Are the road markings clear, recognizable and appropriate?		
	2	Is the road sufficiently illuminated?		
	3	Is the lighting of special situations (transition zones, changes in the cross section) required and, if so, suitably designed?		
	4	Is stationary lighting required at intersections/, service and rest areas and, if required, of an appropriate design?		

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design					
Highway Number from km to km Date:					
Characteristic	No.	Question	Yes (√) No (X)	Comments	
10. Road side features and passive safety installations	1	Is sight obstructed, for example by game/screens/snow fences?			
	10.1 Other road equipment	2	Are the emergency telephones in appropriate and safe positions with regard to traffic?		
		3	Are antidazzle screens required?		
	4	Are game fences required? If so, is the design suitable?			
	5	Is suitable road equipment (fog warning signs, automatic sprinklers for de-icing agents, snow fences etc.) required and/or planned based on particular weather requirements?			
10.2 Planting	1	Are all existing and planted trees without the safety zone? 120km/h > 12 m 100 km/h >9 m 80 km/h > 6 m		Compare with landscaping plan!	
	2	Will growth of greenery lead to future safety problems, (e.g. as a result of obstructed sight, expected trunk diameter greater than 8 cm, hidden road signs, light and shadow effects, leaves falling on the road)?			
	3	Does the greenery and type of planting preclude irritations to the road users (e.g. alignment)?			
	4	Is sight obstructed by the planting?			
	Planting continued	5	Is good visibility ensured at the intersections or could be obstructed by foreseen landscaping?		
	6	Does the landscaping plan assist the communication with the users about the road course and does it tackle the impressions of monotony?			
10.3 Civil engineering structures	1	Is reconcilability guaranteed? Is a "breach" in the continuity of the alignment avoided?			
	2	Are passive safety devices regarding such structures planned at the required locations and are they suitably designed?			
	3	Will bridge guardrails and adjacent passive safety installation be sufficient connected? Are in the bridge design documents relevant details foreseen?			
	4	Have pedestrian and cyclist requirements been considered (e.g. layout of pedestrian and cycle paths)?			

Annex 1.2.1 Checklists for Interurban Highways – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
civil engineering continued	5	Are parapets and overpasses at a safe distance from the road?		
	6	Are there tunnels in the road section?		
	7	Are the tunnels safe, are there emergency ways, sufficient illumination etc. (the use the demands of EU – Tunnel directive 2004/54/EC is recommended)?		
10.4 Passive safety installations	1	Are fixed obstacles avoidable, set up at sufficient distances or safeguarded?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
1. Function Design and operating elements	0	Have the and the audit results from the previous audit phase been taken into consideration?		
	1	Have previous findings/documents on the accident situation been taken into consideration during the planning phase?		
	2	Have specific traffic composition characteristics been taken into consideration?		
	3	Is access from abutting properties avoided or of appropriate design for road safety?		
	4	Have the design speeds been selected correctly for the section and intersections?		
	5	Have suitable measures been taken to ensure that speed limits are obeyed, e.g. traffic calming in through road sections?		
	6	Has the transition area been adapted to the adjacent road sections (if there are changes in characteristics or interim solutions/end of construction area)?		
	7	Is stopping sight distance guaranteed along the entire section? (for 100km/h= 170 m, 80 km/h= 110 m, 60 km/h= 65 m, long fall = 0%)		
	8	Is orientation sight distance guaranteed along the entire section (for 100 km/h ►300 m ahead, for 80 km/h ►200 m ahead, for 60 km/h ►120 m ahead)?		
	9	Is overtaking sight distance in an acceptable percentage (about at least 20%) of the road section ensured (for 100 km/h ►300 m ahead, for 80 km/h ►200 m ahead, for 60 km/h ►120 m ahead)?		
	10	Are there anywhere accumulations of events such as curves + hilltops + intersections etc?		
	11	Are all fixed or planted obstacles that can be dangerous placed outside the safety zone? 100 km/h >9m, 80 km/h > 6m 60 km/h > 3m (away from skidding cars?)		
	12	In case fixed obstacles are not placed outside the safety zone are they avoidable, or safeguarded?		
	13	Is the transition from a built-up to a rural road or from an illuminated to a not illuminated road appropriately designed (village/town outskirts)?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km to km Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
2. Cross section	1	Has the safest average cross section been selected from the ones that come into question?		
	2	Have sufficient measures been taken on cutting slopes to prevent falling material (e.g. falling rocks)?		
	3	Is narrowing of the carriageway required (bottlenecks) and, if so, designed in such a way to ensure traffic safety?		
	4	Are parking areas required (in built up road sections) and, if so, are they large enough to prevent parking on the road?		
	5	Have the needs of public transport and its users been taken into consideration (e.g. lay bys)?		
	6	Are there refuge islands planned in built up areas, are waiting areas on the refuges large enough for waiting pedestrians (and bicyclists)?		
	7	In built up areas: Have pedestrian and bicyclist requirements been considered (shared foot path and cycle path, separate cycle facilities)?		
	8	In built up areas: Are speed bumps, lane shifts by use of islands or carriageway narrowing required?		
	9	In built up areas: Have the dimensions for speed-damping measures been observed?		
	10	Is there a sufficient division (separation planned) between the traffic lane for motor vehicle traffic and the path for cyclists and pedestrians?		
	11	Is there sufficient drainage for the new road?		
	12	Are the installations for drainage like gutters error forgiving designed (smooth curbstones, no sharp edges)?		
	13	Is there sufficient cross, diagonal fall superelevation?		
	14	In the case of a four lane road: Is there a median stripe or barrier for separation of the direction foreseen? Is the design suitable for the road safety?		
	15	Are there stable shoulders foreseen foreseen (like hard shoulders or gravel shoulders)?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km, to km, Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
3. Alignment	1	Is the alignment consistent or full of surprises?		
	2	Have suitable allowances been made for drainage requirements when planning horizontal and vertical alignment? (requirement in the case of turning of the cross fall direction)?		
	3	Are horizontal and vertical alignments harmonized?		
	4	Have the design elements been selected to effectively prevent "hidden-dips"?		
	5	Have continuity principles been taken into consideration to avoid high speed differentials?		
	6	Have steps been taken to prevent minimum design values for horizontal and vertical alignment elements occurring together?		
	7	Are lanes and carriageway in curves wide enough?		
	8	Is sight obstructed, for example by safety barriers, plants, fences, parking areas, traffic signs, landscaping, bridge abutments, and buildings?		
	9	Is access from abutting properties required and are they safe designed?		
	10	Are lane shifts by use of islands or carriageway narrowing required (e.g. when entering towns or villages)?		
	11	Are there enough possibilities to overtake safely (overtaking sight distances/overtaking lanes)?		
	12	Have the critical changes been located correctly for roads of the operational type 2+1 and climbing lanes?		
	13	Are lane reductions correctly designed?		
	14	In the case of step gradients: Are there climbing lanes foreseen, are they properly designed?		
	15	In the case of step gradients: Are there arrester beds necessary, if so are they properly designed?		
4. Intersections	1	Can intersections be recognized in time? (Orientation sight distance)		
	2	Are the movements guided clearly and easily to understand?		
	3	Are lanes and carriageway in intersections wide enough?		
	4	Are the intersections and intersection elements designed in such a way that they can be clearly recognized in time?		
	5	Is the sequence of the intersection elements easily understood?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km to km Date				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Intersections continued	6	Is the type and design of the selected intersection suitable for the function and safety, and use of the road and the intersecting roads (cross roads, T-intersection, roundabout, traffic signals, etc)?		
	7	Are auxiliary lanes for deceleration, acceleration, and weaving required and, if so, are they appropriately and safely designed?		
	8	Can intersections be recognized in time advance from all approaches and is the orientation sight distance guaranteed?		
	9	Is good visibility ensured at the intersections and, are the required "sight triangles" clear for all road users?		
	10	Are the dimensions of the intersection sufficient for all necessary vehicle movements (minimum turning radius of design vehicles)?		
	11	Are there approaches and accesses that are superfluous or that are located at critical points that can be combined or could be connected with the secondary network/service roads?		
	12	Are sight lines obstructed/sometimes restricted, for example by safety barriers, fences, road equipment, parking areas, traffic signs, landscaping/greenery, bridge abutments, buildings, traffic jams?		
	13	Are the traffic islands clearly visible and of a suitable design (canalized junctions)?		
	14	Have some turning movements been excluded from signal control or from the roundabout? If so, is traffic operation safe (bypass)?		
	15	Built-up areas: Have the requirements of the pedestrians and bicyclists been considered?		
	16	Built-up areas: Is pedestrian/bicyclist routing at intersections adapted to the actual conditions and clearly marked and signposted?		
	17	Are special measures required for particular groups or facilities (including hospitals) e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
	18	Are public transport stops planned at intersections? If so, are they suitable located?		
	19	Are traffic signals/ temporary speed monitoring required?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km to km Date				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Intersections continued	20	Are the movements guided clearly and easy to understand?		
	21	Are additional areas for cross-turning movements required and is storage length sufficient?		
	22	Can turning motorists see past oncoming vehicles (e.g. because of adjacent crest curves)?		
roundabouts	21	Is the size of the roundabout carefully selected according to the expected traffic (results of traffic study)?		
	22	Is the roundabout fully visible and recognizable from all approaches and are the required markings and signs clear and unambiguous?		
	23	Small roundabouts: Have all approaches been aligned radial to the centre of the circle? Is the design suitable to ensure a low speed level and support the right of way?		
	24	Small roundabouts: Has it been ensured that the circulatory carriageway can be driven on in single lane only?		
	25	Multilane roundabouts: Are approaches located in a way to ensure sufficient space for weaving and to avoid speeding?		
	26	Multilane roundabouts: Are the circle lanes marked?		
	27	Multilane roundabouts: Are exits designed as a single lane exit?		
	28	Are fixed obstacles placed in a safe way in the centre island of the roundabout?		
	29	Is through visibility effectively stopped by the roundabout?		
	30	Do compensatory measures provide a sufficient degree of safety when deviating from guidelines?		
5. Traffic signals	1	Are the traffic signals clearly recognizable and are there repeating/double signals? Have the locations for the signals been selected correctly (additional signals, overhead signals, etc.)?		
	2	Are protected phases provided for turning movements or are the fast driven approaches signalized separately?		
	3	Have some turning movements been excluded from signal control? If so, is traffic operation safe?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km, to km, Date				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Traffic signals continued	4	Have some turning movements been excluded from signal control? If so, is traffic operation safe?		
	5	Is the perception from a sufficient distance guaranteed?		
	6	In areas with bicyclists: Have cyclist and pedestrian requirements been considered (e.g. route through intersection)?		
	7	In areas with bicyclists: Are there plans to set to stop lines for motorists further back for the benefit of cyclists?		
	8	Are special phases for a separated left (or right turn) considered?		
	9	Are the type and spacing of different crossing installations coordinated (e.g. railway crossings, traffic signals, zebra crossings)?		
	10	Are advanced warnings planned for traffic signals that cannot be seen in time?		
	11	Is traffic signals / stationary speed monitoring required?		
	12	Does the existing road lighting lead to conflicts in recognising the yellow indication (sodium discharge lamps)?		
	13	Are cross turning movement included in signal control?		
	14	Is access from abutting properties affected and, if necessary, included in signal control?		
	21	Should specific turns be prohibited (block diversion)?		
	22	Is it necessary to take into account special groups of pedestrians (e.g. handicapped people)? Do we need special equipment (e.g. acoustical signals)?		
6. Railway crossings	1	Is the type of railway crossing according with traffic volume? Is a railway crossing at-grade avoidable?		
	2	Are traffic control devices required and optimally set up with regard to future traffic developments?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design					
Highway Number from km ...,... to km ...,... Date					
Characteristic	No.	Question	Yes (✓) No (X)	Comments	
Railway crossings continued	3	Are the road widths before and after the railway crossing as well as the width of the railway crossing sufficient for all necessary vehicle movements (vehicles meeting each other, minimum turning radius of design vehicles)?			
	4	Are the clearance areas behind the railway crossing long enough?			
	5	Are the railway crossings clearly recognizable?			
	6	Is lighting required and, if so, appropriately designed?			
	7	Are prohibition of overtaking and speed limits planned?			
	8	Are passive safety installation at required locations planned?			
	7. Service and rest areas	1	Are there service and rest areas such as petrol stations, restaurants, parking places, etc?		
		2	Is good visibility guaranteed, are sight conditions sufficient?		
3		Are there service and rest areas on both sides of the road in cases of two lane roads to avoid turning manoeuvres?			
4		Are there sufficient parking slots to prevent parking on the entrances and exits and/or carriageways?			
5		Are the dimensions of the parking areas sufficient for the different kind of vehicles?			
6		Are pedestrian facilities of a safe design (connecting footpaths to restaurants, crossing facilities)?			
7		Are entrances and exits for rest and service areas planned at points with good overall visibility?			
8		Are rest areas easily accessible and do they provide sufficient manoeuvring space?			
9		Have measures been taken to ensure safe access for rescue vehicles/maintenance vehicles/fire service?			
10		Are sufficient parking areas provided to minimize illegal parking on footpaths, cycle facilities, and on the carriageway with the corresponding hazards or have corresponding preventative measures been taken?			
11		Are there special parking spaces for handicapped people? Have adjacent footpaths sections dropped curbedstones?			
12		Are there special parking spaces for tourist busses reserved (passengers should have safe areas for rest)?			

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km, to km, Date				
Characteristic	No.	Question	Yes (√) No (X)	Comments
8. Needs of vulnerable road users 8.1 at Public Transport stops (esp. regarding through road sections)	1	Are stops easily and safe accessible to pedestrians (combination with pedestrian crossings, crossing help, footpath connection etc.)?		
	2	Are public transport stops planned at (behind!) intersections?		
	3	Are the bus stops situated outside of the carriageway where appropriate?		
	4	Are the bus stops signposted and detectable by the drivers? Is recognition from a longer distance guaranteed?		
	5	In the case of bicycle paths: Is cyclist routing safely designed in the area near public transport stops?		
	6	Is lighting required? And if so, is it appropriately designed?		
	7	Are special measures required for particular groups, e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
8.2 other needs of Pedestrian	1	Are vulnerable road users separated with a suitable footpaths (dimension and pavement) from motorized traffic or will they use the carriageway?		
	2	Have pedestrian crossings been appointed in such a way that collective use is guaranteed and the road will not be crossed at other points?		
	3	Are crossings plausible and safe? Are the pedestrian crossings located where most required by pedestrian traffic?		
	4	Is there a risk of pedestrian underpasses and bridges being bypassed? Are suitable measures (e.g. fences) planned?		
	5	Are crossings over special railway structures of a safe design?		
	6	Is two-way visual contact ensured between pedestrians and motorists?		
	7	Is the transition safely designed if footpaths and bicycle paths end on a road or are directed across the road?		
	8	Are further crossing aids required?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km,... to km,... Date				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
needs of pedestrian continued	9	Are areas for waiting pedestrians and bicyclists sufficient? / Are refuges large and wide enough for crossing pedestrians and bicyclists to stand and wait?		
	10	Is sight obstructed/ partially obstructed, for example by safety fences, safety barriers, road equipment, parking areas, traffic signs, plants, buildings, by vehicles in lay-bys, or by queuing traffic?		
	11	Is the transition safely designed if footpaths and bicycle paths end on a road or are directed across the road?		
	12	Are the islands clearly visible and of a suitable design?		
	13	Are at the crossing with islands and in adjacent footpaths dropped curbstones foreseen?		
	14	Is lighting required and, if so, appropriately designed?		
	15	Are there pedestrian fences against jaywalking required?		
	16	Are there footpath extensions at pedestrian crossings where there is parking allowed along the road?		
	17	Are special measures required for particular groups or facilities (including hospitals), e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
8.3 Bicyclists (only in the case of existing)	1	Are there separate bicycle facilities?		
	2	Are dimensions and pavement suitable?		
	3	Have cyclists' requirements been considered (e.g. route across central refuges, bottlenecks)?		
	4	Is a separating strip required between cycle path and parking strip?		
	5	Has right of way been specified and clarified at cycle crossings, in particular for cycle paths that are set back?		
	6	Is right of way clearly defined at points where cyclists come into contact with each other or with motorized traffic?		
	7	Are refuges large and wide enough for crossing pedestrians and cyclists to stand and wait?		
	8	Is the transition safely designed if cycle paths end on a road or are directed across the road?		
	9	Have cyclists' requirements been considered (e.g. route across central refuges, bottlenecks)?		
	10	Is it clear to the motorist whether he is crossing a one-way or two-way cycle path?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km ...,... to km ...,... Date				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
bicyclists continued	11	Are the crossings for bicyclists provided with dropped curbs?		
	12	Does lighting need to be changed so that crossing bicyclists are clearly visible?		
9. Traffic Signing, Marking, Lighting 9.1 Signing	1	Have appropriate speed limits been planned (start, end, height, location)?		
	2	Is prohibition of overtaking for trucks, buses etc. required and, if so, is it set up at suitable locations?		
	3	Is sight obstructed by traffic and direction signing?		
	4	Could greenery lead to safety problems if the vegetation grows (e.g. as a result of covered road signs)?		
	5	Can the signs be clearly recognized and read (size of signs)?		
	6	Are additional warning signs or chevrons in curves necessary?		
	7	Is the right of way at intersections sufficient signed?		
	8	Does the obligation to yield right of way need to be reinforced (e.g. using repetition)?		
	9	Is pedestrian/cyclist routing at intersections adapted to the actual conditions and clearly signposted?		
	10	Are advanced warnings planned for traffic signals that cannot be seen in time?		
	11	Are signs located in such a way as to avoid restricting sight from approaches or intersecting roads?		
	12	Is the directional signing sufficient and supports the information about the shape of the intersection and the right of way?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km, to km, Date				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
9.2 Markings	1	Are the road markings clear and recognizable?		
	2	Do all signs and markings correspond without any contradictions?		
	3	What kind of material will be used? Are there circumstances for which e.g. profiled plastic marking is recommended?		
	4	Is the transition safely marked if cycle paths end on a road or are directed across the road?		
	5	Is the intersection fully visible and recognizable from all approaches and are the required markings and signs clear and unambiguous?		
9.3 Lighting	1	Especially in built up areas: Is the road sufficiently illuminated?		
	2	Is stationary lighting required at intersections/ service and rest areas and, if required, of an appropriate design?		
	3	Is stationary lighting of the sections, intersections, service and rest areas foreseen, in relation to the ambient lighting?		
	4	Does stationary lighting need to be changed so that crossing pedestrians are clearly visible?		
	5	Is contrast lighting required at the intersection?		
	6	Is the transition from a built-up to a rural road or from an illuminated to a not illuminated road appropriately designed?		
	7	Is the lighting of special situations (transition zones, changes in cross section) required and, if so, suitably designed?		
	8	Does the existing road lighting lead to conflicts in recognizing the yellow indication (sodium discharge lamps)?		
	9	Does the ambient lighting present any special requirements		
	10	Can perspectives that appear to be continuous ("see through" effect) be prevented/interrupted by highlighting the nearest signals?		

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design					
Highway Number from km ...,... to km ...,... Date					
Characteristic	No.	Question	Yes (✓) No (X)	Comments	
10. Road side features and Passive Safety installations	1	Is sight obstructed, for example by game/screens/snow fences?			
	10.1 Other road equipment	2	Are the emergency telephones in appropriate and safe positions with regard to traffic?		
		3	Are antidazzle screens required?		
		4	Are game fences required? If so, is the design suitable?		
		5	Is suitable road equipment (fog warning signs, automatic sprinklers for de-icing agents, snow fences etc.) required and/or planned based on particular weather requirements?		
		6	Will there be a mileage system and will it be proper signposted?		
10.2 Planting	1	Are all existing and planted trees without the safety zone? 120km/h > 12 m, 100 km/h >9 m, 80 km/h > 6 m (Compare with any landscaping plan)			
	2	Will growth of greenery lead to future safety problems, (e.g. as a result of obstructed sight, expected trunk diameter greater than 8 cm, hidden road signs, light and shadow effects, leaves falling on the road)?			
	3	Does the greenery and type of planting preclude irritations to the road users (e.g. alignment)?			
	4	Is sight obstructed by the planting?			
	5	Is good visibility ensured at the intersections or could be obstructed by foreseen landscaping?			
	6	Does the landscaping plan assist the communication with the users about the road course and does it tackle the impressions of monotony?			
	7	Is visual contact motorist-pedestrian-bicyclist restricted by greenery?			

Annex 1.2.2 Checklists for Interurban Highways – Detailed design

Stage 2 Checklists – Detailed design				
Highway Number from km ...,... to km ...,... Date				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
10.3 Civil engineering structures	1	Is reconcilability guaranteed? Is a "breach" in the continuity of the alignment avoided?		
	2	Are parapets and overpasses, masts, abutments, supporting walls, bridge railings etc. been set up at sufficient distances or safeguarded or at a safe distance from the road?		
	3	Are passive safety devices regarding such structures planned at the required locations and appropriately designed?		
	4	Is the design of bridge guardrail systems adjusted with any guardrails along the motorway (approved joint construction etc.)?		
	5	Are there deep ditches (e.g. made from prefab concrete parts) of the drainage system within the safety zone?		
	6	Are there headwalls on culverts planned?		
	7	Is the vertical clearance of under overpasses guaranteed?		
10.4 other obstacles	1	Are there any other obstacles within the safety zone?		
10.5 Passive safety installations	1	Are fixed obstacles avoidable, set up at sufficient distances or safeguarded?		
	2	Are passive safety devices planned at the required locations and appropriately designed (beginning and end of the barriers, barrier posts, distance between stanchions, stability, depth of stanchions, combination with guard rails)?		
	3	Are there "open windows" or gaps in the system (avoid also gaps shorter than 50 m)?		
	4	Are foreseen passive safety installations approved for the indented use (the usage of the EN 1317 is strictly recommended)?		

Annex 1.3.1 Checklists for Urban Main Roads – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km to km Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Previous stage	0	Have the section been evaluated with a Road Safety Impact Assessment, and have the findings been considered?		
1.Function of the road, (Design and operating elements)	1	Have the effects of the project on the surrounding road network been considered?		
	2	Do the function of the road and the desired use of the road correspond?		
	3	Have previous findings/documents on the accident situation been taken into consideration during the planning phase?		
	4	Have specific traffic composition characteristics been taken into consideration?		
	5	Is access from abutting properties avoided or of an appropriate design for road safety?		
	6	Have suitable measures been taken to ensure that speed limits are obeyed, e.g by traffic calming?		
	7	Has the transition area been adapted to the adjacent road sections?		
	8	Is stopping sight distance guaranteed along the entire section (at least 50 m for a legal speed of 50km/h)?		
2. Cross section	1	Has the safest average cross section been selected from the ones that come into question?		
	2	Are the cross section dimensions (width, height, and spacing) suitable for the function of the road?		
	3	Have measures been taken to ensure safe access for rescue vehicles/maintenance vehicles/fire service?		
	4	Are parking areas required and, if so, are they large enough to prevent parking on the road?		
	5	Are parking areas designed in such a way to allow vehicles to enter and exit parking areas safely?		
	6	Have the needs of public transport and its users been taken into consideration (e.g. lay-bys, separate lanes etc.)?		
	7	Are waiting areas, in particular on the refuges, large enough for waiting pedestrians and cyclists?		
	8	Have pedestrian and bicyclist requirements been considered (shared facilities, separate bicycle facilities) ?		

Annex 1.3.1 Checklists for Urban Main Roads – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km to km Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Cross section continued	9	In the case of bicycle paths: Is a separating strip required between cycle path and parking strip?		
	10	Are unavoidable bottlenecks of a safer design?		
	11	Is there sufficient drainage for the new road?		
	12	Is there sufficient cross / diagonal fall?		
	13	In the case of a four lane road: Is there a median stripe for separation of the direction and as crossing aid foreseen? Is the design suitable for the road safety?		
3. Alignment	1	Is the alignment consistent and suitable for the function?		
	2	Are lanes and carriageway in curves wide enough?		
	3	Is access from abutting properties required and are they safed designed?		
	4	Are lane shifts by use of islands or carriageway narrowing required (e.g. when entering the town)?		
4. Intersections	1	Is the intersection necessary and has the number, spacing and form of the intersections been selected appropriately?		
	2	Are the intersections and intersection elements designed in such a way that they can be clearly recognized in time?		
	3	Is the sequence of the intersection elements easily understood?		
	4	Is the type and design of the selected intersection suitable for the function and safety, and use of the road and the intersecting roads (cross roads, T-intersection, roundabout, traffic signals, etc)?		
	5	Is the number of lanes in front of the intersection sufficient for the traffic volume and all necessary vehicle movements?		
	6	But are the total dimensions of the intersections as narrow as possible?		

Annex 1.3.1 Checklists for Urban Main Roads – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km ... to km ... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
Intersections continued	7	Can intersections be recognized in time advance from all approaches and is the orientation sight distance guaranteed?		
	8	Is good visibility ensured at the intersections and, are the required sight triangles clear for all road users?		
	9	Are the dimensions of the intersection sufficient for all necessary vehicle movements (minimum turning radius of design vehicles)?		
	10	Are the auxiliary lanes or tapers for turning movements necessary and, if so, is storage length sufficient?		
	11	Are there approaches and accesses that are superfluous or that are located at critical points that can be combined?		
	12	Are sight lines obstructed/sometimes restricted, for example by safety barriers, fences, road equipment, parking areas, traffic signs, landscaping/greenery, bridge abutments, buildings, traffic jams?		
	13	Have some turning movements been excluded from signal control or from the roundabout? If so, is traffic operation safe (bypass)?		
	14	Have the requirements of the pedestrians and cyclists been considered? (see 9. needs of vulnerable road users)		
	15	Is pedestrian/cyclist routing at intersections adapted to the actual conditions and clearly marked and signposted?		
	16	Are all approaches equipped with pedestrian and bicycle crossings?		
	17	Are special measures required for particular groups or facilities (including hospitals) e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
	18	Are public transport stops planned at intersections?		
Roundabouts	21	Is the size of the roundabout carefully selected according to the expected traffic (results of traffic studies)?		
	22	Is the roundabout fully visible and recognizable from all approaches and are the required markings and signs clear and unambiguous?		
	23	Small roundabouts: Have all approaches been aligned radial to the centre of the circle? Is the design suitable to ensure a low speed level and support the right of way?		

Annex 1.3.1 Checklists for Urban Main Roads – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
roundabouts continued	24	Small roundabouts: Has it been ensured that the circulatory carriageway can be driven on in single lane only?		
	25	Multilane roundabouts: Are approaches located in a way to ensure sufficient space for weaving and to avoid speeding?		
	26	Multilane roundabouts: Are the circle lanes marked?		
	27	Multilane roundabouts: Are exits designed as a single lane exit?		
	28	Are fixed obstacles placed in a safe way in the centre island of the roundabout?		
	29	Is through visibility effectively stopped by the roundabout?		
	30	Are additional speed damping measures foreseen like separated inner ring with cobble stones etc,?		
	31	Do compensatory measures provide a sufficient degree of safety when deviating from guidelines?		
5. Traffic signals	1	Are the traffic signals clearly recognizable and are there repeating/double signals? Have the locations for the signals been selected correctly (additional signals, overhead signals, etc.)?		
	2	Are protected phases provided for turning movements or are the fast driven approaches signalized separately?		
	3	Have some turning movements been excluded from signal control? If so, is traffic operation safe?		
	4	Is the perception from a sufficient distance guaranteed?		
	5	Have cyclist and pedestrian requirements been considered (e.g. route through intersection)?		
	6	Are there plans to set to stop lines for motorists further back for the benefit of cyclists?		
	7	Are special phases for left (or right turn) considered?		
	8	Are the type and spacing of different crossing installations coordinated (e.g. railway crossings, traffic signals, zebra crossings)?		

Annex 1.3.1 Checklists for Urban Main Roads – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
6. Railway crossings	1	Is the type of railway crossing according with traffic volume? Is a railway crossing at-grade avoidable?		
	2	Are traffic control devices required and optimally set up with regard to future traffic developments?		
	3	Are the road widths before and after the railway crossing as well as the width of the railway crossing sufficient for all necessary vehicle movements (vehicles meeting each other, minimum turning radius of design vehicles)?		
	4	Are the clearance areas behind the railway crossing long enough?		
	5	Are the railway crossings clearly recognizable?		
	6	Is lighting required and, if so, appropriately designed?		
	7	Are prohibition of overtaking and speed limits planned?		
	8	Are passive safety installation at required locations planned?		
7. Public and private services, Access control	1	Have been major traffic generators such as city hall, churches and cemeteries, hospitals, housing or shopping centres, petrol stations and tourist attractions taking into account?		
	2	Is good visibility of accesses along the road guaranteed?		
	3	Has the safe access of a larger amount of traffic been calculated?		
	4	Are there sufficient parking areas to prevent parking on the entrances and exits and/or carriageways?		
	5	Are the dimensions of the parking areas sufficient for parking for passenger vehicles, trucks and buses?		
	6	Is the layout of the accesses to the service or tourist areas appropriate for the different traffic movements?		
	7	Have measures been taken to ensure safe access for rescue vehicles/maintenance vehicles/fire service?		
	8	Are loading for shops and restaurants provided next to the road?		

Annex 1.3.1 Checklists for Urban Main Roads – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km, to km, Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
8. Needs of vulnerable road users	1	Are stops easily and safe accessible to pedestrians (combination with pedestrian crossings, crossing help, footpath connection etc.)?		
	8.1 at Public transport stops	2	Are public transport stops planned at (behind!) intersections?	
	4	Are stops easily accessible to pedestrians?		
	5	Are further crossing aids required to reach the public transport stops?		
	6	Are areas for waiting pedestrians and cyclists sufficient?		
	7	Are the bus stops signposted and detectable by the drivers? Is recognition from a longer distance guaranteed?		
	8	Are special measures required for particular groups, e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
	8	Is lighting required and, if so, appropriately designed?		
	9	Are the bus stops situated outside of the carriageway where appropriate (lay-bys)?		
	10	In the case of bicycle paths: Is cyclist routing safely designed in the area near public transport stops?		
	11	Are the pedestrian crossings at the rear of the bus stop?		
8.2 other needs of pedestrian	1	Are vulnerable road users separated from motorized traffic or will they use the carriageway?		
	2	Have pedestrian crossings been appointed in such a way that collective use is guaranteed and the road will not be crossed at other points?		
	3	Are crossings plausible and safe? Are the pedestrian crossings located where most required by pedestrian traffic?		
	4	Is there a risk of pedestrian underpasses and bridges being bypassed? Are suitable measures (e.g. fences) planned?		
	5	Are crossings over special railway structures of a safe design?		
	6	Is two-way visual contact ensured between pedestrians and motorists?		
	7	Is the transition safely designed if footpaths and bicycle paths end on a road or are directed across the road?		
	8	Are further crossing aids required?		
	9	Are areas for waiting pedestrians and bicyclists sufficient? / Are refuges large and wide enough for crossing pedestrians and bicyclists to stand and wait?		

Annex 1.3.1 Checklists for Urban Main Roads – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
needs of vulnerable road users continued	10	Is sight obstructed/ partially obstructed, for example by safety fences, safety barriers, road equipment, parking areas, traffic signs, plants, buildings, by vehicles in lay-bys, or by queuing traffic?		
	11	Is the transition safely designed if footpaths and bicycle paths end on a road or are directed across the road?		
	12	Are the islands clearly visible and of a suitable design?		
	13	Is lighting required and, if so, appropriately designed?		
	14	Are special measures required for particular groups or facilities (including hospitals), e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
9. Signing, Marking, Lighting				
9.1 Markings	1	Are the road markings clear, recognizable and appropriate?		
9.2 Lighting	1	Is the road sufficiently illuminated?		
	2	Is the lighting of special situations (transition zones, changes in the cross section) required and, if so, suitably designed?		
	4	Is stationary lighting required at intersections/, service and rest areas and, if required, of an appropriate design?		
10. Road side features				
10.1 Road equipment	1	Is road equipment such as signalization boxes, lighting poles etc located in the safety zone?		
	2	Are these obstacles protected by passive safety measures (e.g. by curbstones or bollards)?		
10.2 Planting	1	Is visual contact motorist-pedestrian-cyclist restricted by greenery?		
	2	Is good visibility ensured at the intersections? or Is sight obstructed by the planting?		
	3	Will growth of greenery lead to future safety problems, (e.g. as a result of obstructed sight, expected trunk diameter greater than 8 cm, hidden road signs, light and shadow effects, leaves falling on the road)?		
	4	Does the greenery and type of planting preclude irritations to the road users (e.g. alignment)?		

Annex 1.3.1 Checklists for Urban Main Roads – Preliminary design

Stage 1 Checklists – Preliminary design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
10.3 Civil engineering structures	1	Have pedestrian and cyclist requirements been considered (e.g. layout of pedestrian and cycle paths)?		
	2	Are passive safety devices planned at the required locations and are they suitably designed?		
10.4 Passive safety installations	1	Are fixed obstacles avoidable, set up at sufficient distances or safeguarded?		
	2	Are passive safety installations set up at the required facilities/locations such as steep slopes higher than 3m, deep ditches, fixed obstacles?		
	3	Are handrails necessary to reduce risks for pedestrians and bicyclists?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km ...,... to km ...,... Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
1. Function Design and operating elements	0	Have the audit results from the previous audit phase been taken into consideration?		
	1	Have the effects of the project on the surrounding road network been considered?		
	2	Have previous findings/documents on the accident situation been taken into consideration during the planning phase?		
	3	Have specific traffic composition characteristics been taken into consideration?		
	4	Is access from abutting properties avoided or of appropriate design for road safety?		
	5	Have suitable measures been taken to ensure that speed limits are obeyed e.g by traffic calming?		
	6	Has the transition area been adapted to the adjacent road sections?		
	7	Can road maintenance service and rescue vehicles be parked safely?		
	8	Is stopping sight distance guaranteed along the entire section? (at least 50 m for a legal speed of 50 km/h)		
2. Cross section	1	Has the safest average cross section been selected from the ones that come into question?		
	2	Are the cross section dimensions (width, height, and spacing) suitable for the function of the road?		
	3	Have measures been taken to ensure safe access for rescue vehicles/maintenance vehicles/fire service?		
	4	Are parking areas required and, if so, are they large enough to prevent parking on the road?		
	5	Are parking areas designed in such a way to allow vehicles to enter and exit parking areas safely?		
	6	Have the needs of public transport and its users been taken into consideration (e.g. lay-bys, separate lanes etc.)?		
	7	Are waiting areas, in particular on the refuges, large enough for waiting pedestrians and cyclists?		
	8	Have pedestrian and bicyclist requirements been considered (shared facilities, separate bicycle facilities) ?		
	9	In the case of bicycle paths: Is a separating strip required between cycle path and parking strip?		
	10	Are unavoidable bottlenecks of a safer design?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
cross section continued	11	Have the dimensions for speed-damping measures been observed?		
	12	Are no-stopping zones planned/ required?		
	11	Is there sufficient drainage for the new road?		
	12	Is there sufficient cross / diagonal fall?		
	13	Are the installations for drainage like gutters error forgiving designed (smooth curbstones, no sharp edges)?		
	14	In the case of a four lane road: Is there a median stripe for separation of the direction and as crossing aid foreseen? Is the design suitable for the road safety?		
3. Alignment	1	Is the alignment consistent and suitable for the function?		
	2	Are lanes and carriageway in curves wide enough?		
	3	Are lane shifts by use of islands or carriageway narrowing required?		
	4	Is access from abutting properties required and are they safed designed?		
4. Intersections	1	Is the intersection necessary and has the number, spacing and form of the intersections been selected appropriately?		
	2	Are the intersections and intersection elements designed in such a way that they can be clearly recognized in time?		
	3	Is the sequence of the intersection elements easily understood?		
	4	Is the type and design of the selected intersection suitable for the function and safety, and use of the road and the intersecting roads (cross roads, T-intersection, roundabout, traffic signals, etc)?		
	5	Is the number of lanes in front of the intersection sufficient for the traffic volume and all necessary vehicle movements?		
	6	But are the total dimensions of the intersections as narrow as possible?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
intersection continued	6	Can intersections be recognized in time advance from all approaches and is the orientation sight distance guaranteed?		
	7	Is good visibility ensured at the intersections and, are the required sight triangles clear for all road users?		
	8	Are the dimensions of the intersection sufficient for all necessary vehicle movements (minimum turning radius of design vehicles)?		
	9	Are the auxiliary lanes or tapers for turning movements necessary and, if so, is storage length sufficient?		
	10	Are there approaches and accesses that are superfluous or that are located at critical points that can be combined?		
	11	Are sight lines obstructed/sometimes restricted, for example by safety barriers, fences, road equipment, parking areas, traffic signs, landscaping/greenery, bridge abutments, buildings, traffic jams?		
	12	Have some turning movements been excluded from signal control or from the roundabout? If so, is traffic operation safe (bypass)?		
	13	Have the requirements of the pedestrians and cyclists been considered? (see 9. needs of vulnerable road users)		
	14	Is pedestrian/cyclist routing at intersections adapted to the actual conditions and clearly marked and signposted?		
	15	Are all approaches equipped with pedestrian and bicycle crossings?		
	16	Are special measures required for particular groups or facilities (including hospitals) e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
	17	Are public transport stops planned at intersections?		
	18	Are no-stopping zones required?		
	19	Are pedestrian crossings clearly designed?		
	20	Does the obligation to yield right of way repetition?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
Roundabouts	21	Is the size of the roundabout carefully selected according to the expected traffic (results of traffic studies)?		
	22	Is the roundabout fully visible and recognizable from all approaches and are the required markings and signs clear and unambiguous?		
	23	Small roundabouts: Have all approaches been aligned radial to the centre of the circle? Is the design suitable to ensure a low speed level and support the right of way?		
	24	Small roundabouts: Has it been ensured that the circulatory carriageway can be driven on in single lane only?		
	25	Multilane roundabouts: Are approaches located in a way to ensure sufficient space for weaving and to avoid speeding?		
	26	Multilane roundabouts: Are the circle lanes marked?		
	27	Multilane roundabouts: Are exits designed as a single lane exit?		
	28	Are fixed obstacles placed in a safe way in the centre island of the roundabout?		
	29	Is through visibility effectively stopped by the roundabout?		
	30	Are additional speed damping measures foreseen like separated inner ring with cobble stones etc,?		
	31	Do compensatory measures provide a sufficient degree of safety when deviating from guidelines?		
5. Traffic signals	1	Are the traffic signals clearly recognizable and are there repeating/double signals? Have the locations for the signals been selected correctly (additional signals, overhead signals, etc.)?		
	2	Are protected phases provided for turning movements or are the fast driven approaches signalized separately?		
	3	Have some turning movements been excluded from signal control? If so, is traffic operation safe?		
	4	Can perspectives that appear to be continuous ("see through" effect) be prevented/interrupted by highlighting the nearest signals?		
	5	Are exclusive green phases required for pedestrians and cyclists?		
	6	Can pedestrians cross the road without stops at median etc.? Is the green time sufficient?		
	7	Are longer and/or additional green times planned for road users with restricted mobility?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
traffic signals continued	8	If there is no exclusive pedestrian phase, is a leading pedestrian interval provided?		
	9	For the protection of pedestrians, is it possible to set up an all-way red phase for vehicle traffic?		
	10	Are separate signals provided for cyclists? (Are the signal aspects correctly located for the cyclists? Estimate clearance times for cyclists? Avoid protected right-turn phases/ risk of cyclists crossing on red.)		
	11	Is the maximum delay reasonable for cyclists? Can cyclists be partially or totally removed from signal control?		
	12	Are the type and spacing of different crossing installations co-ordinated (e.g. railway crossings, traffic signals, zebra crossings)?		
	13	Are high intensity signals and/or contrast louvers required if the signals are affected at dawn/dusk by direct sunlight?		
	14	Are advanced warnings planned for traffic signals that cannot be seen in time?		
	15	Are secondary signals required in the vicinity?		
	16	Is traffic signals / stationary speed monitoring required?		
	17	Does the existing road lighting lead to conflicts in recognising the yellow indication (sodium discharge lamps)?		
	18	Are cross turning movement included in signal control?		
	19	Is access from abutting properties affected and, if necessary, included in signal control?		
	20	Should specific turns be prohibited (block diversion)?		
	21	Have some turning movements been excluded from signal control? If so, is traffic operation safe?		
	22	Is the perception from a sufficient distance guaranteed?		
	23	In areas with bicyclists: Have cyclist and pedestrian requirements been considered (e.g. route through intersection)?		
	24	In areas with bicyclists: Are there plans to set to stop lines for motorists further back for the benefit of cyclists?		
6. Railway crossings	1	Is the type of railway crossing according with traffic volume? Is a railway crossing at-grade avoidable?		
	2	Are traffic control devices required and optimally set up with regard to future traffic developments?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km, to km, Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
railway crossings continued	3	Are the road widths before and after the railway crossing as well as the width of the railway crossing sufficient for all necessary vehicle movements (vehicles meeting each other, minimum turning radius of design vehicles)?		
	4	Are the clearance areas behind the railway crossing long enough?		
	5	Are the railway crossings clearly recognizable?		
	6	Is lighting required and, if so, appropriately designed?		
	7	Are prohibition of overtaking and speed limits planned?		
	8	Are passive safety installation at required locations planned?		
7. Public and private services, Access control	1	Have been major traffic generators such as city hall, churches and cemeteries, hospitals, housing or shopping centres, petrol stations and tourist attractions taking into account?		
	2	Are the dimensions of the parking areas sufficient for parking for passenger vehicles, trucks and buses?		
	3	Are the accesses and exits of a safe design? Is a good visibility guaranteed?		
	4	Are no-stopping zones to be planned?		
	5	Has the safe access of a larger amount of traffic been calculated?		
	6	Are there sufficient parking areas to prevent parking on the entrances and exits and/or carriageways?		
	7	Are the dimensions of the parking areas sufficient for parking for passenger vehicles, trucks and buses?		
	8	Is the layout of the accesses to the service or tourist areas appropriate for the different traffic movements?		
	9	Have measures been taken to ensure safe access for rescue vehicles/maintenance vehicles/fire service?		
	10	Are loading for shops and restaurants provided next to the road?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
8. Needs of vulnerable road users 8.1 at Public transport stops	1	Are stops easily and safe accessible to pedestrians (combination with pedestrian crossings, crossing help, footpath connection etc.)?		
	2	Are areas for waiting pedestrians and cyclists sufficient?		
	3	Are public transport stops planned and designed in such a way that they are easily accessible to passengers?		
	4	Are the pedestrian crossings at the rear of the bus stop?		
	5	Are special measures required for particular groups e.g. for young people, older people, sick people, physically handicapped, hearing-impaired or blind people?		
	6	If bus stops are located at intersections are they behind the crossing roads?		
	7	Are the bus stops situated outside of the carriageway where appropriate (lay-bys)?		
	8	Are the bus stops signposted and detectable by the drivers? Is recognition from a longer distance guaranteed?		
	9	Is cyclist routing safely designed in the area near public transport stops?		
	10	Is lighting required? And if so, is it appropriately designed?		
8.2 Other needs of pedestrian	1	Are vulnerable road users separated from motorized traffic or will they use the carriageway?		
	2	Have pedestrian crossings been appointed in such a way that collective use is guaranteed and the road will not be crossed at other points?		
	3	Are crossings plausible and safe? Are the pedestrian crossings located where most required by pedestrian traffic?		
	4	Is there a risk of pedestrian underpasses and bridges being bypassed? Are suitable measures (e.g. fences) planned?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km,... to km,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
needs of vulnerable road users continued	5	Are crossings over special railway structures of a safe design?		
	6	Is two-way visual contact ensured between pedestrians and motorists?		
	7	Is the transition safely designed if footpaths and bicycle paths end on a road or are directed across the road?		
	8	Are further crossing aids required?		
	9	Are areas for waiting pedestrians and bicyclists sufficient? / Are refuges large and wide enough for crossing pedestrians and bicyclists to stand and wait?		
	10	Is sight obstructed/ partially obstructed, for example by safety fences, safety barriers, road equipment, parking areas, traffic signs, plants, buildings, by vehicles in lay-bys, or by queuing traffic?		
	11	Is the transition safely designed if footpaths and bicycle paths end on a road or are directed across the road?		
	12	Are the islands clearly visible and of a suitable design?		
	13	Is lighting required and, if so, appropriately designed?		
	14	Are the islands clearly visible and of a suitable design (error forgiving, clear visible)?		
	15	Are at the crossing with islands and in adjacent footpaths dropped curbstones foreseen?		
	16	Is lighting required and, if so, appropriately designed?		
	17	Are there pedestrian fences against jaywalking required?		
	18	Are there footpath extensions at pedestrian crossings where there is parking allowed along the road?		
8.3 Bicyclists	1	Are there separate bicycle facilities?		
(only in the case of existing)	2	Are dimensions and pavement suitable?		
	3	Have cyclists' requirements been considered (e.g. route across central refuges, bottlenecks)?		
	4	Is a separating strip required between cycle path and parking strip?		
	5	Has right of way been specified and clarified at cycle crossings, in particular for cycle paths that are set back?		
	6	Is right of way clearly defined at points where cyclists come into contact with each other or with motorized traffic?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km ...,... to km ...,... Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
bicyclists continued	7	Are refuges large and wide enough for crossing pedestrians and cyclists to stand and wait?		
	8	Is the transition safely designed if cycle paths end on a road or are directed across the road?		
	9	Have cyclists' requirements been considered (e.g. route across central refuges, bottlenecks)?		
	10	Is it clear to the motorist whether he is crossing a one-way or two-way cycle path?		
	11	Are the crossings for bicyclists provided with dropped curbs?		
	12	Does lighting need to be changed so that crossing bicyclists are clearly visible?		
9. Traffic Signing, Marking, Lighting 9.1 Signing	1	Have appropriate speed limits been planned (start, end, height, location)?		
	2	Is prohibition of overtaking for trucks, buses etc. required and, if so, is it set up at suitable locations?		
	3	Are no-stopping zones to be planned (service and rest areas)?		
	4	Is sight obstructed by traffic and direction signing?		
	5	Could greenery lead to safety problems if the vegetation grows (e.g. as a result of covered road signs)?		
	6	Can the signs be clearly recognized and read (size of signs)?		
	7	Have old signs or posts been completely removed?		
	8	Is signing logical and consistent and are all traffic signs necessary?		
	9	Is signing for service and rest areas clear?		
	10	Have variable direction signing or traffic control systems been taken into consideration?		
	11	Is pedestrian/cyclist routing at intersections adapted to the actual conditions and clearly signposted?		
	12	Are the installations shared by pedestrians and cyclists, including underpasses and bridges, properly signposted?		
	13	Is right of way clearly defined at points where cyclists come into contact with each other or with motorized traffic?		
	14	Is it clear to the motorist whether he is crossing a one-way or two-way cycle path?		
	15	Does the obligation to yield right of way need to be reinforced (e.g. using repetition)?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km, to km, Date:				
Characteristic	No.	Question	Yes (√) No (X)	Comments
	16	Are advanced warnings planned for traffic signals that cannot be seen in time?		
	17	Are signs located in such a way as to avoid restricting sight from approaches or intersecting roads?		
	18	Is the intersection fully visible and recognizable from all approaches and are the required markings and signs clear and unambiguous?		
9.2 Markings	1	Are the road markings clear and recognizable?		
	2	Do all signs and markings correspond without any contradictions?		
	3	Is pedestrian/cyclist routing at intersections adapted to the actual conditions and clearly marked and sign posted?		
	4	Is the transition safely marked if cycle paths end on a road or are directed across the road?		
	5	Is the intersection fully visible and recognizable from all approaches and are the required markings and signs clear and unambiguous?		
	6	If turning movements have been excluded from signal control, are markings clear for turning motorists?		
	7	Is right of way clearly marked at points where cyclists come into contact with each other or with motorized traffic?		
	8	Are stop lines for motorist further back for the benefit of cyclists?		
9.3 Lighting	1	Is the road sufficiently illuminated?		
	2	Is stationary lighting required at intersections/ service and rest areas and, if required, of an appropriate design?		
	3	Is stationary lighting of the sections, intersections, service and rest areas foreseen, in relation to the ambient lighting?		
	4	Does stationary lighting need to be changed so that crossing pedestrians are clearly visible?		
	5	Is contrast lighting required at the intersection?		
	6	Is the transition from a built-up to a rural road or from an illuminated to an unilluminated road appropriately designed?		
	7	Is the lighting of special situations (transition zones, changes in cross section) required and, if so, suitably designed?		

Annex 1.3.2 Checklists for Urban Main Roads – Detailed design

Stage 1 Checklists – Detailed design				
Highway Number from km, to km, Date:				
Characteristic	No.	Question	Yes (✓) No (X)	Comments
	8	Does the existing road lighting lead to conflicts in recognizing the yellow light of traffic signal?		
10. Road side features				
10.1 Road equipment	1	Are road equipments such as signalization boxes, masts for overhead traffic signing and lighting etc placed without the safety zone.		
	2	Are they protected by passive safety installations?		
10.2 Planting	1	Is sight obstructed by planting?		
	2	Does the greenery and type of planting preclude irritations to the road users?		
	3	Is visual contact motorist-pedestrian-cyclist restricted by greenery?		
	4	Is good visibility ensured at the intersections? or Is sight obstructed by the planting?		
	5	Will growth of greenery lead to future safety problems, (e.g. as a result of obstructed sight, expected trunk diameter greater than 8 cm, hidden road signs, light and shadow effects, leaves falling on the road)?		
10.3 Civil engineering structures	1	Is reconcilability guaranteed?		
	2	Have pedestrian and cyclist requirements been considered (e.g. layout of pedestrian and cycle paths)?		
	3	Are parapets and overpasses at a safe distance from the road?		
	4	Is the vertical clearance under overpasses guaranteed?		
10.4 Passive safety installations	1	Are fixed obstacles avoidable, set up at sufficient distances or safeguarded?		
	2	Are passive safety devices planned at the required locations and are they suitably designed?		