MTO Design Supplement 2023 for TAC Geometric Design Guide for Canadian Roads 2017

Comment	Response
ID: 346; Mr. Wilf Roy	
1. Chapter 2, under Guidance page 8 of 30: - No mention of right shoulders. Suggest it say something, i.e., fully pave, partial pave or in accordance with policy.	Right shoulder added.
2. Section 4.4.2, under Fully Paved Shoulder page 24 of 48 **a**: No mention of driving lane/right side having fully paved shoulder on 4 lane divided highways. I see the policy memo was cancelled in 2020. So, does this mean only partially paved? Or is fully paved still required and I could not find the spot where it says so? Suggest the policy, whatever it is, be stated. If it is to be paved, then Chapter 2 guidance for right shoulder also needs to be revised. **b**: Is this statement in the narrative, correct? "On 2-lane highway, shoulder paving should be applied on both sides of the highway." It is in conflict with the partially paved shoulder statement on page 25.	a: Left and right shoulders added on 4-lane divided highways b: The guidance is deleted as it conflicts with the partially paved shoulder guidance.
3. Section 4.1.6, Design Domain Controls, page 3 of 48 - Suggest there be discussion of making sure vegetation (i.e. trees) and rock do not cause excessive shadowing on the south and west side of highways as they can block the sun in the afternoon and cause additional maintenance work due to potential ice and snow accumulation. (This is not the suggested narrative, it is only the problem when trees and rock block afternoon sun in the winter).	This guidance is being deleted from the MTO DS as it pertains to the roadside design and will be included in the future Roadside Design Manual updates.
4. Chapter 10, Sight distance to bull nose **a:** Change list refers to Exhibit 10-D. Should it be Exhibit 10-E? **b:** Change list refers to Exhibit 10-G. Should it be Exhibit 10-F?	a & b: The references to the Exhibits are correct and no need to change.
5. Appendix B. - The last table for GSD for Freeways and Divided Highways, has the Minimum Stopping Sight Distance numbers that are greater than for other tables with the same design speed. A note explaining why the numbers are bigger would be helpful to the reader so they understand why	The SSD values in Appendix B for freeways and divided highways are similar to Exhibit -2E (Decision Sight Distance) and based on 3.0s perception/reaction time for stopping. A footnote in the table of Appendix B is added. Also, note added for Table 2.5.2.
ID: 347; MTO Highway Design Office	
1.Can there be more emphasis provided that Exhibits 10-I to 10-X in Appendix 10 are intended to be examples and not design standards?	These Exhibits are examples only and must not be used as “Standards”. A note is inserted in each one of the Exhibit.
ID: 350; RHassall	
1. Ch 2, pg 6/30, change ‘reduce’ to ‘reduced’	Fixed

2. Ch 2, pg 7/30, change ‘guiderail’ to ‘guide rail’	Fixed
3. Ch 2, pg 9/30, shouldn't we acknowledge the existence of the LCV?	LCV mentioned and discussed in Appendix 9- Intersections
4. Ch 2, pg 11/30, I would think that in this section, MTO should identify the types of vehicles to be used in developing intersection designs. This would include the use of HSU and WB20.5 vehicles turning simultaneously at ramp left-turn intersections with multi-lane ramps (as an example). Also discuss where to use LCV's.	This is discussed in Appendix 9- Intersections
5. Ch 2, pg 16/30 What classification would apply to the following roadways: Truck Inspection Station scale/bypass lanes; Service Centre bypass lanes; Rest Areas; etc.? Would different standards apply?	Same functional classification of the roadway applies where these facilities exist, no different functional classification.
6. Ch 2, pg 19/30 “oversleeps”?	Fixed
7. Ch 3, pg 22/36 Awkward phrasing	Fixed
8. Ch 3, pg 23/36 There are continuing debates with Regional representatives about the need to exceed the minimum vertical clearances by 0.1 to 0.2 m in order to provide MORE of a buffer. If this is valid, then such additional buffer requirements should be addressed directly in the MTO-DS here. Or, at least, acknowledge the possibility of Regional practices in this regard.	The specified vertical clearances are “MINIMUM”. If Regions are providing in excess of minimum, then it is okay and no need to add here or acknowledged.
9. Ch 3, pg 23/36 Missing punctuation	Fixed
10. Ch 3, pg 28/36 ...and what should be done for shoulders WITH curbs or concrete barriers? I have long argued that the standard cross-fall for shoulders should be modified if / where curb and gutter or concrete barrier is provided along the edge, to allow for a reasonable final crossfall when resurfacing is undertaken. At the very least, we should identify what the tolerance in shoulder crossfalls should be on resurfacing projects before replacement of the curb or barrier is warranted.	This is also discussed, and guidance is provided in Section 4.4.4. of TAC GDG and MTO DS and should be sufficient for designers.
11. Ch 3, pg 28/36 Missing paragraph spacing	Fixed
12. Ch 3, pg 29/36 Should this table be updated to reflect the 130km/h design speed?	Table will be considered for update in a future release for the design speed of 130 km/h.
13. Ch 3, pg 31/36 Consideration should be given to providing more guidance regarding Section 3.6.2.2 discussion of lane balance downstream of diverges to reflect "staged expansion" of freeway construction; that is, in determining how or if to eliminate thru-lanes at interchange exits. Central Region has guidance that suggests NOT to make two-lanes "must exit", but to drop the thru-lane a few hundred meters past the freeway exit. Wording this differently - there is little clear direction on how to "drop a thru-lane on a freeway".	Guidance is in TAC and should be followed.

14. Ch 3, pg 31/36 exhibit 3-T should be moved in advance of section 3.6.2.1	Fixed Sometimes it is necessary to provide the Exhibits a little earlier or later for space limitation in the page and continuity of the document.
15. Ch 3, pg 32/36 TAC indicates that transfer lanes may be 1 or 2 lanes...does MTO endorse single-lane transfers? Additional discussion/ guidance may be warranted in this regard.	Further guidance for Transfer lanes for core-collector system is provided in Appendix 10 for Interchanges.
16. Ch 3, pg 33/36 Ideally, a reference to weaving analysis should be added to ensure that Express-to-Collector transfer lanes are located sufficiently far upstream of an interchange exit; there are too many examples of this problem on Hwy 401 thru Toronto	Fixed Text for weaving analysis added
17. Ch 3, pg 34/36 these exhibits should be moved forward in the document	Fixed Sometimes it is necessary to provide the Exhibits a little earlier or later for space limitation in the page and continuity of the document.
18. Ch 3, pg 35/36 should we not add guidance for diverging taper lengths, merging taper lengths and minimum length of climbing lane? There is also concern with visibility at diverging tapers...often not satisfactorily provided.	Applicable guidance is provided in Section 3.8.4 of TAC
19. Ch 4, pg 4/48 ...is...	Fixed
20. Ch 4, pg 4/48 Change title to "Bikeways Design Manual". Should also reference "Guidelines for Geometric Design of Cycling Facilities within Constrained Right-of-Ways Memo".	Fixed
21. Ch 4, pg 4/48 first sentence doesn't read correctly...something is missing	Fixed
22. Ch 4, pg 5/48 "is" not "if"	Fixed
23. Ch 4, pg 6/48 "clumsy" sentence	Fixed
24. Ch 4, pg 6/48 "of" not "off"	Fixed
25. Ch 4, pg 9/48 Consider combining the first and third bullet points. The first bullet say "shall be considered" while the third bullet says "shall be installed"...these statements seem to be partially contradictory.	Fixed Merged the two bullet points in one and also tweaked the language to make it clearer.
26. Ch 4, pg 13/48 missing space between words	Word document checked and it is fine. It sometimes happens when using Calibri fonts and converting Word to pdf.

27. Ch 4, pg 14/48 Consider rewording...whether there is a gutter or not, would you not still want the edge of the lane to be at a 500 mm offset from the face of the curb?	Fixed “Gutter should not be considered part of the width of lane”.
28. Ch 4, pg 15/48 Bikeways Design Manual suggests parking width could be as low as 2.0 m	Fixed Reference to the BDM is added.
29. Ch 4, pg 15/48 Missing space between words	Word document checked and it is fine. It sometimes happens when using Calibri fonts and converting Word to pdf.
30. Ch 4, pg 16/48 presumably, angled parking would be incompatible with bike lanes? should this be identified as a consideration?	Fixed Reference to the BDM is added.
31. Ch 4, pg 18/48 should guidance be provided here as to the location of the parking spaces to bus stops? or the location of the parking spaces adjacent to raised sidewalks / boulevards and how to treat access to sidewalks?	Bus stops are not typically a concern on MTO designs. O. Reg 191/11 80.36 (3) addresses access from off-street parking.
32. Ch 4, pg 18/48 Missing space between words	Word document checked and it is fine. It sometimes happens when using Calibri fonts and converting Word to pdf.
33. Ch 4, pg 19/48 Presuming this is synonymous with two-way left-turn lanes - Central Region had previously provided direction (Hwy 9 east of Hwy 10) regarding the width of two-way left-turn lanes on undivided highways with four or more lanes in areas where signalized intersections are present or may be added in the future; they indicated that the width should be increased to 5.0 m to better accommodate the standard width for a left-turn lane adjacent to a raised median island. Keeping the width of the 2WLTL at 5.0 m throughout provided a continuous median width for future signalized intersections and avoided lane realignments.	Fixed Guidance for a 5.0m wide 2WCLTL at signalized corridor is added.
34. Ch 4, pg 19/48 ...and intersections...	Fixed
35. Ch 4, pg 19/48 BUT the width of a LTL in one direction must be 3.25 m minimum...it seems odd that a continuous 2WLTL would warrant a lesser width	Fixed Changed it to 3.25 m minimum
36. Ch 4, pg 20/48 Should say "...Applicable except for second and third bullet...". Second bullet replaced and third bullet deleted.	Fixed.
37. Ch 4, pg 20/48 shouldn't we add "4.3.3.7 Bike Facilities - This section is not applicable and is replaced with the following guidance: Refer to the Bikeways Design Guide"?	Section 4.3.3.7 refer to Chapter 5 which is superseded by the BDM.

38. Ch 4, pg 21/48 "...and/or horizontally..."	It may be separated horizontally but for sure interchange is grade separated.
39. Ch 4, pg 21/48 since you are including definitions, I would think that you should add the definition for "turning roadways" to put it into MTO parlance.	Fixed Definition of Turning roadways is added.
40. Ch 4, pg 21/48 does this also apply to the ramp widths at channelized right-turns?	The width is for ramps and transfer lane. For channelized right-turn, see Chapter and Appendix for Intersections.
41. Ch 4, pg 21/48 for ramps 50 m in radius or smaller, build the inside shoulder with full-depth asphalt...this is not a widening of the ramp lane but achieves the same end result	Fixed Full depth asphalt shoulder added. For more guidance see Ch 9, 10 and App 9, 10.
42. Ch 4, pg 22/48 presumably both widths are based on a 0.5 m rounding?	For rounding see Roadside Design Manual (RDM)
43. Ch 4, pg 22/48 based on the average car width of 1.8 - 2.0 m	This is for safety
44. Ch 4, pg 22/48 "...usable..."	Not necessary to add usable
45. Ch 4, pg 22/48 Replace “are” with “shall be”	Fixed
46. Ch 4, pg 22/48 "Standard shoulder widths..."	Fixed
47. Ch 4, pg 23/48 shall be, not is. Check verb tense throughout.	Fixed “shall be” added wherever necessary.
48. Ch 4, pg 23/48 may be varied between what limits and why? Can you reference where this is discussed? Can it not vary also on the basis of design speed?	Variation of shoulder width is depended upon the type of barrier used. For details, please see RDM
49. Ch 4, pg 23/48 “…fully…”	Fixed
50. Ch 4, pg 23/48 where is the guidance on the permitted variability?	Variation of shoulder width is depended upon the type of barrier used. For details, please see RDM
51. Ch 4, pg 23/48 what are the guidelines in this regard?	This is the practice and sentence is fixed.
52. Ch 4, pg 23/48 Paragraph space	Word document checked and it is fine. It sometimes happens when using Calibri fonts and converting Word to pdf.

53. Ch 4, pg 23/48 is the left-shoulder width of a collector supposed to be 3.35 m, same as express lanes?	Yes, the width of shoulder of collector and express may not be same. Desirably the shoulder width is in multiples of 0.5m. However, this may not be the case at every instance because of 7.5m median with a 0.8m barrier width leaving only 6.7m which provides 3.35m shoulder widths.
54. Ch 4, pg 23/48 the width of shoulders in the express is not defined here...what are they? According to RDM Fig. 2-11, the MINIMUM median width is 7.5 m and, with 0.8 m barrier, the median/left shoulder widths would be 3.35 m. Is THIS the "standard" express median/left shoulder width? Is this the "minimum" or "desirable" median/left shoulder width? as there are different median widths potentially available, perhaps different median widths or ranges of widths should be discussed. What is the minimum and desirable RIGHT express shoulder width? We would need to know the minimum and desirable outer separator widths to be able to assess this.	Desirably the shoulder width is in the multiples of 0.5m. However, this may not be the case at every instance because of 7.5m minimum median width available with a 0.8m barrier width leaving only 6.7m which provides 3.35m shoulder widths. Also, refer to RDM. The right express shoulder width is per regular guidance
55. Ch 4, pg 24/48 which shoulder? both?	Fixed Yes, both directions.
56. Ch 4, pg 24/48 **this statement is a bullet under "full shoulder paving is warranted", therefore as written it means that we are to pave shoulders on ANY freeway contract; this contradicts the first bullet which indicates that it is only warranted for freeways having 3 or more lanes per direction. This should be a standalone sentence outside of the bulleted list. **a:** Please clarify this applies to currently planned AND theoretical future detours...one Region claims this is only for known, currently-planned future detours. **b:** Should you provide direction as to what width the shoulder should be strengthened? **c:** What about paved median shoulders - shouldn't they accommodate future detouring, too?	**No, this is under full shoulder paving. It may be a freeway or multilane divided highways. a: Yes, this is for known future detour. b: Yes, full width strengthening added in the guidance c: No
57. Ch 4, pg 24/48 Are you referring to a boulevard here? If so, this should be discussed under a heading for "Boulevards".	No, its shoulder between lane and sidewalk
58. Ch 4, pg 24/48 it seems as though these two bullets are related to the above three bullets about urban areas / multiple entrances. One way or the other, please clarify	This is under fully paved shoulder and bullet points are aligned

59. Ch 4, pg 24/48 in Northern Ontario, snowbanks can block springtime melts and flooding can occur...sometimes the flooding breaks thru the snowbank and erodes the foreslope. In such areas (vertical sag curves and shoulders on low side of superelevation), the shoulders are sometimes paved to better deal with additional winter maintenance. Should additional guidance in such a vein be considered?	That's why "treatment should be based on local consideration" which is already in the guidance.
60. Ch 4, pg 25/48 are design speeds of 120 - 130 km/h applicable to Kings Highways and Secondary Highways? Delete?	It may be worth having 130 in the table in case a two-lane road is being built as a staged freeway to be twinned later with 130 km/h design speed.
61. Ch 4, pg 25/48 Actually, on such low-volume, low-speed roads, the lane widths can be 2.75 - 3.0 m, so the reference to the shoulder width beside steel beam guide rail (should you say roadside barrier instead?) should indicate that it may need to be increased beyond 1.0 m so that the distance from CL of road is at least 4.25 m for snowplowing purposes.	Fixed "steel beam guide rail is replaced with "roadside barrier". Guidance for shoulder width is appropriate.
62. Ch 4, pg 25/48 "...King's..."	Fixed
63. Ch 4, pg 25/48 "...and all rural freeways"? The use of PPS on freeways isn't mentioned anywhere else.	'freeway' isn't mentioned. PPS is for two-lane highways.
64. Ch 4, pg 26/48 The last sentence should be a SEPARATE sentence as it would apply to both preceding statements. Also, should this partially paved shoulder be full-depth or partial-depth and should this consideration be mentioned?	It is a separate sentence that is applicable to the statements just mentioned above. Full and partial depth should be decided by pavement analysis/design.
65. Ch 4, pg 26/48 An earlier sentence about min. shoulder width for pavement stability referenced 1.0 m gravel...be consistent.	This should not be confused with gravel shoulder width for stability versus PPS.
66. Ch 4, pg 26/48 Should you provide direction on the depth? 80mm minimum so as to accommodate possible rumble strips and not break up too easily?	MTO DS does not provide guidance for pavement depth/design.
67. Ch 4, pg 26/48 For retrofit situations, width of 1.0 m minimum may be appropriate considering constructability concerns with compacting narrow slivers of pavement.	"consideration of constructability" added in the DS.
68. Ch 4, pg 26/48 "...except where shoulder width is 1.0 m (in which case it would be fully paved)."	This is already covered.
69. Ch 4, pg 26/48 Since you provide direction about terminating PARTIALLY paved shoulders, should you not also provide guidance on how to terminate FULLY paved shoulders (in the preceding section)?	The guidance for beginning and termination of FPS is provided under the heading of Fully Paved Shoulder.

70. Ch 4, pg 29/48 "...and 10m from start/end of taper..."	Fixed Guidance provided in the DS is correct. However, “10 m” added in the text.
71. Ch 4, pg 29/48 These two bullets should be indented, as they apply to the bullet point above. Also, the distances are the same, so why have two separate bullets? Also, at some density of entrances / km, the SRS should be discontinued entirely...otherwise, what minimum installation length of SRS would be acceptable?	Fixed Minimum density of driveways/km is site specific and no guidance is being provided.
72. Ch 4, pg 33/48 Should you consider providing guidance on crossfall of gore areas? I am not aware of any formal guidance and this is left to a designer's experience/judgment. If not here, then guidance should be provided in the interchange section.	See Appendix 10
73. Ch 4, pg 33/48 I encourage you to consider reducing the standard shoulder crossfall adjacent to curb and gutter or concrete barrier to 4% SO AS TO ACCOMMODATE future resurfacings / grade raises without resulting in very steep crossfalls or the need to replace or "bury" either. OTHERWISE, provide guidance on the maximum shoulder crossfall that can be tolerated in such resurfacing/grade raise scenarios or how to bury gutter or reduce barrier wall effective heights.	See, cross fall guidance provided for resurfacing projects
74. Ch 4, pg 33/48 Should you consider providing guidance for retrofit situations and/or acceptable tolerances?	See page 8/30 of App 2 under “Guidance” and Section 3.5.3.1 of TAC GDG.
75. Ch 4, pg 33/48 Exhibit 4Q	Fixed.
76. Ch 4, pg 34/48 Exhibit 4Q	Fixed.
77. Ch 4, pg 34/48 Exhibit 4Q	Fixed.
78. Ch 4, pg 35/48 Should you not state that Section 4.5.1 and 4.5.2 are applicable? Are they fully applicable, particularly bullets 3 and 4 of 4.5.2? Should cross-reference RDM 2.3.6	By default, all Sections, Figures and Tables of TAC GDG are applicable unless it is mentioned in the DS. No need to mention for a cross reference as Chapter 7 is replaced with the ministry’s RDM.
79. Ch 4, pg 35/48 "north-west"? Say "upper left".	Fixed.
80. Ch 4, pg 35/48 Is Section 4.5.4 applicable? Do we agree with the 7.5 m width for outer separators for express-collector freeways?	By default, all Sections, Figures and Tables of TAC GDG are applicable unless it is mentioned in the supplement. 7.5m is typical width provided meeting CZ offset.

81. Ch 4, pg 35/48 Should you not state that Section 4.6 is applicable, but to refer to OPSD's for boulevard/sidewalk standards? Guidance on maximum boulevard slopes would be appreciated, particularly in retrofit situations; sometimes, the elevation difference between roadway and sidewalk can warrant retaining walls and/or pedestrian railings.	By default, all Sections, Figures and Tables of TAC GDG are applicable unless it is mentioned in the DS.
82. Ch 4, pg 35/48 Should state that Section 4.7 is applicable. However: a: Barrier curbs SHALL NOT BE used on high-speed roadways/freeways (except in combination with SBGR transition treatment to bridges); b: curb is not flared away on approach / leaving ends, but a 3.8 m long dropdown section is applied.	By default, all Sections, Figures and Tables of TAC GDG are applicable unless it is mentioned in the DS. a & b: Fixed References provided.
83. Ch 4, pg 37/48 Should we state that Section 4.8.1 applies? Except, revise guidance about minimum grades to be consistent with what was discussed earlier.	By default, all Sections, Figures and Tables of TAC GDG are applicable unless it is mentioned in the DS.
84. Ch 4, pg 37/48 word spacing	Word document checked and it is fine. It sometimes happens when using Calibri fonts and converting Word to pdf.
85. Ch 4, pg 38/48 ...and RDM and OPSD's	Fixed References provided.
86. Ch 4, pg 38/48 Should you not also reference the Drainage Management Manual, Gravity Pipe Design Guidelines and Highway Drainage Design Standards?	Fixed Drainage references added.
87. Ch 4, pg 38/48 Does Table 4.8.1 apply to MTO projects?	Table 4.8.1 is Not Applicable and reference to ministry's Highway Drainage Design Standards provided instead.
88. Ch 4, pg 41/48 Is Section 4.9 applicable?	By default, all Sections, Figures and Tables of TAC GDG are applicable unless it is mentioned in the DS.
89. Ch 4, pg 41/48 Disagree. Clear guidance should be provided HERE related to desirable/minimum clearances for underpass structures. As an example, this would include the typical guidance of permitting a 7.0 m offset to an abutment from the edge of a ramp lane on a freeway on-ramp (without the need for barrier protection). Also, in urban areas, more guidance would be appreciated re: permitted clearances to abutments/piers without barrier protection.	Fixed References of RDM and Structural Manual provided.

90. Ch 4, pg 42/48 This guidance doesn't make sense. You start talking about two-way traffic (presumably two-lane, two-way) and then talk about minimum widths of structures, including freeways. PLUS in Table 4-T note, you indicate that the entire table is for new construction of mainline freeway bridges, while including information on OTHER TYPES of roadways. This entire section should be rewritten and expanded. You should provide guidance for: a. two-lane, two-way roadways (rehab with single lane of bi-directional traffic controlled by signals/flagging/yield). b. two-lane, two-way roadways where both lanes must be kept open due to traffic volumes. c. two-lane bridges (divided highways and freeways). d. multi-lane bridges (non-freeway); 5. multi-lane bridges (freeway).	The guidance is for Bridge Deck Width and Traffic Lanes. Table 4-T is very clear about the dimensions of clearance, overlap, and width for various types of highway bridges. Footnote is fixed to reflect the new bridge width requirement for future rehabs. The guidance for two-way, two-lane operations is provided by the Traffic office in a memo and no need to repeat it here, see Tech Pub site for the Traffic office memo.
91. Ch 4, pg 42/48 Barrier overlap will vary significantly based on the TCB type / category. At the very least, you should define what you are assuming re: TCB type/category in identifying these overlap distances.	The footnote for barrier overlap is sufficient for explanation and guidance. Also, barrier overlap allows for the use of Category III non-restrained TCB (Type X) which may be treated as Category IV with a single, reversable lane for low-speed two lane bridge rehabs. There is no need to define this in the Design Supplement.
92. Ch 4, pg 42/48 "Roadway" includes shoulders, but this only references "lane widths"; clarify. The total travelled width ("roadway width") of a single-lane bridge should be sufficient to permit vehicles to bypass a disabled vehicle...therefore, 6.0 m minimum.	Fixed.
93. Ch 4, pg 43/48 Presumably you are referring to flush or raised medians here. For a raised median, however, there would be no gutter on the bridge, so clarification should be provided.	Since gutter is not part of the width, matching the approach roadway median width is obvious.
94. Ch 4, pg 43/48 Typically, side clearances are limited to 3.0 m maximum (from a benefit-cost perspective) and would often not accommodate sight distance requirements. THIS requirement for sight distance on bridges should be added to the horizontal alignment requirements.	It is recommended to meet the sight distances. However, “desirably” is added. If SD is not meeting, then designer need to provide mitigation measures which may be site specific.

95. Ch 4, pg 44/48 Please add a section for sidewalk on bridge with separator barrier	The guidance for sidewalk on bridges with separation barrier is being considered and may be provided in the new edition of ministry's Bikeway Design Manual.
96. Ch 4, pg 45/48 More clarity required. If there is a sidewalk across the bridge, there will almost certainly be curb provided on the approach to the bridge. The point to be made here is that if you have a curb and 1.5 m sidewalk on the approach, you should have a 1.7 m sidewalk on the bridge. To avoid a 1.7 m sidewalk on the bridge, you would need a special curb/sidewalk transition detail ensuring that the minimum width of SIDEWALK is always 1.5 m.	Standard detail not required. 1500 mm is a minimum. Transitions would be designed on a site-specific basis.
97. Ch 4, pg 45/48 say "in front of" instead of "in conjunction with", since curb is typically used on the approach to all bridges and then transitioned to match into the end of the barrier wall.	Fixed
98. Ch 4, pg 45/48 should also clearly discuss "separator" barriers and how to handle sidewalks and curbs leading to those.	The guidance for sidewalk on bridges with separation barrier is being considered and may be provided in the new edition of ministry's Bikeway Design Manual.
99. Ch 4, pg 46/48 These four figures are presented in a logical order and it COULD be misinterpreted that this represents a "standard transition" for sidewalks approaching and crossing bridges; it is most certainly NOT, however. You would NOT push out the parapet wall location on the approach slab in relation to the parapet wall location on the bridge; plus, you cannot transition directly between the "On Bridge" and "In Proximity to Guide Rail" sections since the 1500mm width on the bridge INCLUDES the theoretical curb width. This detail should be clarified and additional notes added.	Standard detail not required. 1500 mm is a minimum. Transitions would be designed on a site-specific basis. Each approach and transition would be designed on a site-specific basis to ensure AODA compliance.
100. Ch 4, pg 46/48 should also include a section showing "separator" barriers.	The guidance for sidewalk on bridges with separator barrier is being considered and may be provided in the new edition of ministry's Bikeway Design Manual.
101. Ch 4, pg 47/48 Is Section 4.11 applicable?	By default, all Sections, Figures and Tables of TAC GDG are applicable unless it is mentioned in the DS.

102. Ch 4, pg 47/48 Shouldn't the accommodation of future rehabilitation and maintenance be a topic that should be discussed in Design Criteria? The selected design is effectively "painting the future designer into a corner", so this should be clearly documented, in my opinion.	See Section 4.12 Also, this will be considered for a future update to DC Preparation Guidelines.
103. Ch 4, pg 47/48 when the addition of another lane is anticipated in the future, consideration should be given to constructing a portion of the paved or partially paved shoulder FULL-DEPTH to make it easier to accommodate traffic during the subsequent widening project	See Section 4.12 of TAC GDG.
104. Ch 10, pg 4/48 should we reference the Bikeways Design Manual here? Also, should we acknowledge DCSO #2018-07 here?	Fixed References provided.
105. Ch 10, pg 5/48 10.1.4.11 is applicable with the correction of replacing MUTCD with OTM Books.	Fixed Reference changed.
106. Ch 10, pg 6/48 Although not a "desirable" interchange type, shouldn't the Design Supplement at least acknowledge the existence of interchanges featuring "buttonhook" ramps?	It is not necessary to specifically identify buttonhooks. Existing guidance for various ramp components can guide designers for these types of ramps if required.
107. Ch 10, pg 11/48 Would this guidance not better be suited under Section 10.6.3.2?	No, this Section discusses about SCL in general but nothing about the conceptual background for two-lane exit terminals. This guidance 'may' be in Section 10.6.3.2 but no harm if it is provided here.
108. Ch 10, pg 12/48 You only provide lengths for a two-lane exit terminal; does this mean that you are instructing us to use Table 10.6.2 for the deceleration lane lengths for SINGLE-lane freeway exits and crossing road exits?	Yes, that's right.
109. Ch 10, pg 12/48 This guidance is specific to EXIT terminals and should be addressed in Section 10.6.3.4, not here.	In this Section, the concept of speed change lane is being discussed, so no harm in providing it here.
110. Ch 10, pg 13/48 I disagree; interchange ramps are not to be designed in this manner. Single-lane ramps are 4.75 m in width and two-lane ramps are 3.75 m each.	This has been the design guidance/practice in the ministry. The reference to the Exhibit in Section 10.6.2.5 is not correct; it should be Exhibit -9O instead 9E, correction DONE

111. Ch 10, pg 15/48 Here or in Section 10.6.2.3 - Guidance on managing the crossfall / superelevation on gore areas would be appreciated; where freeways have curvilinear alignments, gore areas are difficult to design.	Guidance for cross slope/fall along with illustrations is available in this Section.
112. Ch 10, pg 22/48 In all cases, you should carry the typical 1.0 m paved left shoulder thru the bullnose...otherwise, how are we supposed to introduce the 1.0 m ramp shoulder past the bullnose?	Fixed Replaced the Exhibit with the correction.
113. Ch 10, pg 22/48 Section 10.6.3.2 talks about exit terminal length and how to adjust it...and it references Table 10.6.2 that shows a whole range possible deceleration lane lengths. However, you had previously revised the two-lane ramp deceleration lane lengths and the Typical Interchange exhibits at the end of this section show standard/defined lengths for the deceleration terminals. The guidance for deceleration lane lengths is confusing.	Table 10.6.2 is only for a single lane exit. Therefore, exit length of SCL is provided in an Exhibit. The typical interchange Exhibits are examples and should not be considered standard/guidance.
114. Ch 10, pg 26/48 In all cases, the 1.0 m left shoulder should be accommodated thru the bullnose...otherwise, how are we supposed to terminate the left shoulder?	Fixed Replaced the Exhibit with the correction.
115. Ch 10, pg 26/48 Section 10.6.4.2 provides a wide range of acceleration lane lengths that can be used, but the Exhibits at the end of this section identify precise acceleration lane lengths. Which is correct?	These Exhibits are typical examples and should not be treated as standard/guidance. The following note has been added to each Exhibit. “Example Only, Not to be Used as a Standard”
116. Ch 10, pg 28/48 All of these titles being at the top of the exhibit but not "kept" with the exhibit caused confusion	Word document checked and it is fine. It sometimes happens when using Calibri fonts and converting Word to pdf.
117. Ch 10, pg 29/48 Does this table supersede Section 10.6.3.2?	This Exhibit and table are typical examples and should not be treated as standard/guidance. The following note has been added to each Exhibit. “Example Only, Not to be Used as a Standard”
118. Ch 10, pg 29/48 Why 5.0 m?	
119. Ch 10, pg 29/48 The 1.0 m left shoulder on the ramp should extend thru the bullnose	
120. Ch 10, pg 30/48 The 1.0 m paved left shoulder on the ramp should extend thru the bullnose...otherwise, include a detail that shows how to introduce the shoulder	
121. Ch 10, pg 30/48 Does this table supersede Section 10.6.3.2?	
122. Ch 10, pg 31/48 The 1.0 m left shoulder on the ramp DOES extend thru the bullnose in this design...this is proper	
123. Ch 10, pg 31/48 this does not illustrate the 1.0m left shoulder	

124. Ch 10, pg 31/48 Should you not provide an exhibit for a 130 km/h design speed or at least modify this exhibit to show both speeds?	
125. Ch 10, pg 32/48 this does not illustrate the 1.0m left shoulder	
126. Ch 10, pg 32/48 The 1.0 m left shoulder on the ramp DOES extend thru the bullnose in this design...this is proper	
127. Ch 10, pg 33/48 Do these tables supersede Section 10.6.4.2?	
128. Ch 10, pg 33/48 1.0 m left shoulder should be carried through the bullnose	
129. Ch 10, pg 34/48 Do these tables supersede Section 10.6.4.2?	
130. Ch 10, pg 34/48 1.0 m left shoulder should be carried through the bullnose	
131. Ch 10, pg 35/48 The 1.0m paved left shoulder on the ramp should be carried thru the bullnose	
132. Ch 10, pg 35/48 Does this table supersede the lengths in Section 10.6.4.2?	
133. Ch 10, pg 36/48 This is drawn as if were representing barrier curb and gutter, which is not appropriate for use on high-speed roadways. We are also encouraged to design bullnoses without curbs, so shouldn't there be a non-curbed detail? Where this occurs on urban freeways, CIAS is often used to protect the downstream barrier provided along each roadway...the CIAS is more than 3.0 m in width. Shouldn't this detail be updated and refined to show the expected width of the typical energy attenuator treatment?	
134. Ch 10, pg 37/48 Per RDM, this is to be 10 m MINIMUM	
135. Ch 10, pg 37/48 Why do we not provide for the minimum 1.0 m paved left shoulder in these exhibits?	
136. Ch 10, pg 38/48 Shouldn't this just refer back to Section 9.16 for channelized or turning roadways and not specify exact widths?	
137. Ch 10, pg 38/48 1.0 m paved left shoulder on ramps should be accommodated everywhere	
138. Ch 10, pg 38/48 10m MINIMUM	

ID: 351

All comments received under ID 351 were similar and seem were copied from the ID 350. So, no need to repeat it again.

ID (Email): ACEC- Ontario	
Additional guidance/clarification for the design of Parclo B loop ramps with a highway design speed of 130 km/h in Section 10.6.2.1 and Table 10.6.1.	Currently, there is no such research and guidance available for Parclo B loop ramps for highway design speed of 130 km/h. The Parclo B and Button Hook types of ramps are not recommended for design speed ≥ 110 km/h. If it is absolutely required, then designer must consider all site-specific constraints including road safety, traffic operations and seek additional guidance from the Highway Design Office. Similar note added in Section 10.6.2.1.