Comments received Through TCP			
Number	**Organization**	**Comment**	**Response**
467		MTOD 912.138 identifies the “side view” of the post as the side that the rail attaches to and the “front view” as the side of the post at right angles to the rail. This is backwards in terms of how other guide rail posts are identified (such as OPSD 912.136). The definition of a posts “side” and “front” should be consistent between the various systems to avoid confusion.	Drawing revised to correct view labels
467		MTOD 912.138 side, front and isometric views of the entire post are drawn with breaks at the ground level and dimensions from the breaks to the top of the system are provided. It is not obvious that these breaks occur at ground level and should be labelled as such for clarity.	Removed 820mm dimension on side view as it is duplicated on MTOD 912.171 and 790 and 770 dimensions on isometric view as they are not relevant.
467		MTOD 912.171 should have the location of the edge of shoulder identified in Section A-A, as well as the minimum distance to the rounding breakpoint.	Edge of shoulder is noted on the plan view, coincident with face of guiderail and is the controlling reference for installation. As such, no offset to rounding breakpoint is required.
467		MTOD 912.440 references a height of 800 mm for the parapet wall, but SSD’s for parapet walls show the	Drawing updated to show variable parapet height.

		height varies between 800 and 825 mm.	
467		Is MTOD 912.440 or MTOD 912.490 intended to be applied to parapet walls for MUP separation barriers? If so, is there any shielding for the rear (pedestrian / cyclist facing) side of the installation?	Both MTODs may be used to shield separation parapets. No crash tested shielding is currently available on the non-traffic side of the transition.
467		Perhaps a note should be added to MTOD 912.494 to state that the dual tapers on the concrete buttress / parapet wall are not shown for clarity. Furthermore, since the ends of parapet walls may be tapering in height (and may have a minimum height of either 800 or 825 mm), shouldn't these variations be noted and mounting dimensions included?	Note added to drawing. Height of embedded plate is governed by the height of top of guiderail which is noted on MTOD 912.440 and 912.490.
467		Regarding OPSS 721, there are several instances of the use of "guiderail" as a single word; for consistency, this should be two words.	OPSS updated to correct discrepancy
473		MTOD 988.101 - Note 4 and Note A should be combined, otherwise Note A contradicts Note 4.	Note A removed as it refers to an impossible sign combination given the sign board area limitation.
473		MTOD 994.110 - It seems as though additional labelling should be provided (such as leaders pointing to the post in both the Elevation and Profile views to identify the post). Also, rebars are identified in the Plan view but there is no indication as to the length of the rebar or where within the length of the	The EcoPoste is a proprietary product that consists of reinforcing bars pre-assembled within the hardware; therefore, labelling is not required.

		post the rebar is located. Is the Ecoposte a proprietary product?	
473		MTOD 912.138 side, front and isometric views of the entire post are drawn with breaks at the ground level and dimensions from the breaks to the top of the system are provided. It is not obvious that these breaks occur at ground level and should be labelled as such for clarity.	Breaks are shown to better fit the details within the drawing space, independent of ground level. Dimensions have been removed to remove confusion.
472		994.110 – EcoPoste Does this post come with the steel rebar already installed in it, or is that something that a contractor has to choose and install – is there guidance to what size rebar? As a crash tested system I assume that there is specific detail on this. Are there directions on how this rebar is attached to the inside of the post? Pre-assembled?	The hardware consists of four reinforcing bars, pre-assembled inside the post.
472		Are concrete collars required for certain soil conditions as noted on their website?	No concrete collars are required, the system was tested on compacted granulars which will reflect installation conditions on MTO highways
472		Note 2: ‘Post must be AASHTO MASH certified’. Can you please provide clarity on an AASHTO MASH ‘certified’ post? Is this drawing not specific to the EcoPoste? Can other posts be used for this potential MTOD?	Drawing updated. Note 2 is now Note 1 and it has been revised - It reads “The post is certified to AASHTO MASH 2016 standards”.
472		Has this system been crash tested with a sign substrate that has the same weight and potential for crash	Sign was crash tested with an aluminum composite sign board. Drawing updated to limit Ecoposte to use with aluminum composite sign boards.

		test vulnerability that has been seen in plywood and metal signs? The website and videos of the EcoPoste depicting their MASH tests only display sign boards that look to be made of plastic, paper or perhaps coroplast –The signs shown in testing simply buckle on the hood, windshield, and roof of the car & truck in tests 3-50, 61, and 62 which result in no deformation at all. MASH has specific roof crush and windshield deformation criteria. We would like to know if plywood or metal signs have been used in full scale testing and if the roof crush and windshield deformation meet the tolerances laid out in MASH when tested with sign boards that reflect the majority of installations in the province.	
472		Was there a 3-61 or 3-62 CIA 90 degree full scale offset test conducted with the EcoPoste? And, if the test was conducted, what sign substrate was used that would reflect our typical sign board installations in Ontario?	The tests conducted for this project were MASH Tests 3-60, 3-61 and 3-62, each test was performed at two critical impact angles (CIAs) of 0° and 90°. The sign board material tested was aluminum composite which will be the only sign board material permitted with this sign support.
468		MTOD 988.101 Telespar - In MTOD Note 2 it states that the sign boards shall not exceed 1.44m squared. Based on the manufacturers crash testing noted in FHWA ss185, the system was tested with a sign	Correct, maximum sign board area revised to 0.35 square metres. No larger sign board size was crash tested.

		board that was 0.3m (12 inches) x 0.45m (18 inches) which would equal 0.35 meters squared. Was there additional testing with a larger sign board that reflects the average or common provincial regulatory signs on Ontario highways similar to a regulatory speed sign at 0.6m (24 inches) x 0.75m (30 inches)? Would like to know if there is Roof Crush or Windshield Deformation data that would support a sign board of that size under MASH full scale crash testing.	
470		721.07.03.04: Should paragraph #2 stipulate that for “older style” rail systems (as described in the first paragraph) are we allowing the contractor to simply drill additional holes in the rails for the offset installations or should they simply be disposed of as well? Because, in the end, trying to salvage old rails for newer type M installations could be self defeating in trying to gain the desired improvements. By doing this then paragraph #4 would make more sense.	When converting legacy or “older style” guide rail, rails are to be replaced. Drilling holes in rail panels on site is not desirable.
470		721.07.03.04 Paragraph 3: The above-mentioned about disposing or salvaging of appropriate existing rails could be clarified here instead, then	Added requirement that rail may be retained for adjustment of Type M SBGR.

		again paragraph #4 would make more sense.	
470		721.07.03.04 Paragraph 4: The previous paragraph lists “mounting height ranges as specified in the Installation clause”, is it assumed that the posts are set based on the corresponding OPS/MTOD spec’s and the rail mounting heights desired? Otherwise it is not expected for any designer to stipulate this correct?	Correct, installation heights are based on the heights specified in OPSS and standard drawings.
471		Shouldn’t the Table in MTOD 994.110 have associated weights for the different height dimensions that is supplied on other standard drawing sheets? What are the different post sizes to be selected?	No, because there is only one weight. Note 1, 2 &4 to be revised Note 1 deleted since there is only one weight.
471		The drawing itself does not appear to indicate if holes need to be drilled to fasten the hex bolts or these are already available?	The tube has four drilled holes and the hardware consists of four reinforcing bars
471		What exactly is the reference of “Note 2” in the table with the actual Note 2 text about fasteninig?	Drawing updated, note references in the table removed
471		Is the Rebar separate from the sleeve? It seems interesting to label it as such if the post comes as one unit.	Rebar is pre-assembled inside the sign post. Rebar is labelled to assist in confirming that the sign post has been assembled and supplied as required