

То:	All Bidders	
Subject:	Project – Design-Build of Flashing Warning Lights System at Road-Rail Intersections of the Metro Express Project	
Procurement Ref No:	MEL/OIB/FLASH/16/2021	
Date:	19 August 2021	

Queries and Replies – No 1

Please find hereunder the queries received from prospective bidders and the replies thereto to the particular queries:

SN.	Query	Reply
1	How many tram types are used on line?	The trains used on the Light Railway System are not trams but LRV (Light Rail Vehicle). And there is only one type of LRV used for operations. However a RRV (Road Rail Vehicle) is also used for maintenance purposes and other track vehicles could also be used on the line.
2	Can you specify tram types/designations?	CAF URBOS 100 – 3 rd Generation Road Rail Vehicle - Unimog U423 - With Lifting Capabilities - 02 units
3	What is (are) user rail types?	50E6 for Plinth and ballasted track and 41GPU for embedded track.
4	Track is ballast type, concrete type or?	There are three types of tracks; Embedded, Plinth and Ballasted.
5	Ground level – can trackside boxes be used? Can trackside boxes be installed at higher level than ground level?	Yes, trackside boxes can be used. Trackside boxes are not advised to be installed higher than ground level. Trackside boxes shall be installed below rail level. In case the trackside boxes have to be installed higher than ground level, they should preferably bear dimensions ≤500mm. It is also required to install the trackside boxes > 550mm away

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		from the Dynamic Kinetic Envelope (DKE - moving dimensions of the LRV).
6	Cars/tracks/other road traffic vehicles are crossing tram track (driving over	Road traffic vehicles are not driving over railway loops/sensors at intersections.
	sensors)? Please, confirm.	Road traffic sensors are installed at stop-line markings for junction signalling, over which road traffic does cross.
7	What is tram wheel diameter?	LRV wheel diameter: 590-510 mm range.
8	What is tram wheel flange height/thickness?	Flange height = 25.5 to 30 mm, Flange thickness = 19 to 22.9 mm
9	What is tram max. speed on the line?	The LRV's maximum operational speed on the line is 70 km/h while the LRV speed across intersections is less than 30 km/h. (Currently the operational speed at intersections is 10 km/h but can vary).
10	Which kind of tram traction is used?	750 VDC Over-Head traction is used. A 3-phase AC electric motor (Make: VEM) is used.
		The existing railway signals at intersections are managed by the existing Transit Signal Priority System (TSPS).
	What is the operation principle of signals?	Typically, there are three loops/sensors per track at any intersection, with their statuses being fed into the TSPS cabinet located near the intersection. Two loops/sensors are present prior to an intersection (one to indicate a train's approach to an intersection, and one to indicate a train's presence at the intersection).
		The LRV has priority over road vehicles and pedestrians.
		For the Flashing Warning Lights System, the successful bidder will need to design and build an independent system from the existing TSPS with its own sensors.
12	How should the LCD Display work?	As mentioned in the bidding document, a LED board is preferred. The LED board shall be designed and agreed along with the Employer and authorities. The one provided is one possible example. The sign shall have a flashing pattern which shall be visible during night and day conditions. The sign will be triggered when train is approaching and will continue to be flashing for the time the train is crossing.
13	Could you please inform us how the road signal should operate during activation of LC?	Recommendation has already been given within the bidding document.
	Also, how it should work if the LC is deactivated?	Please refer to the reply for Query No. 22 for information about the frequency.
	What is frequency of flashing red road light?	
14	Is it LED or bulb unit on road signal? In case of incandescent bulbs are they single or double filament bulbs? What is the voltage and current?	For the Road Traffic Lights of the existing TSPS, the lights are LED and signals work on 230 Vac Supply through the TSPS Controller.

15	Do you plan to install the house/container for indoor equipment on the level crossing (LX)? If yes, who will deliver it?	The employer will not supply, deliver or install any house/container. The Flashing Warning Lights System shall be an outdoor system that shall be sheltered and properly installed as per employer's requirements and specifications.
16	What AC power supply voltage will be present in the level crossing house/cabinet? Single phase 230V 50Hz, or three- phase 3×400V, 50Hz, or some other voltage?	The successful bidder will have to perform a survey and feasibility study to assess the best way and compliant measures to provide electrical supply to the Flashing Warning Lights System.
17	Does every LX need to have remote control to the operator of the nearest station or to OCC (Operations Control Centre)?	For the Flashing Warning Lights System, a monitoring system shall be provided as explained in the scope of works.
18	If yes, will the LX status indications (e.g. LEDs) and commands (e.g. pushbuttons, switches) be a part of the relay interlocking command table, or we need to make some separate panel for remote monitoring of LX status in station or in control centre?	The bidder shall propose the best monitoring system possible and compliant with employer's requirements so that the end user/operation and maintenance team shall be informed from the OCC about the status and any malfunctioning of the system in real time.
19	What kind of interlocking (Relay or electronic? What type?) is installed? Should we have dependency with interlocking or as you called to TSPS (Transit Signal Priority System)?	The Flashing Warning Lights System shall be an independent system from existing TSPS but shall work in synergy with the TSPS as mentioned in terms of reference.
20	What is minimum period (h=?) of battery autonomy on LC in case of power failure/cut?	As stated in the bidding document, the system should be able to function for a minimum of 1 hour in case of power failure from grid.
21	Will be used barriers on LC?	No barriers will be installed on Level Crossings.
22	How many cross the Level crossing per day (is a regular number per cross) ?	The design headway for LRVs is 6 minutes per direction but it varies according to operational timetable.
23	How many RailCars are in the TRAIN (max length) ?	Our LRVs have 07 modules each. RRV and other track vehicles are also using the tracks in some specific occasions.
24	Whats the minimum size of TRAIN crossing (minimum length) ?	Total length of the LRV is 45.4 metres. RRV and other track vehicles are also using the tracks in some specific occasions.
25	According to maps all level crossing has two RAIL	All level crossings have 2 tracks and normal operation is uni- directional on each track, but can be bi-directional in case of

	tracks (is this for all level crossing) ? Are they both one direction each or both can be dibirecional ?	extreme conditions, in degraded mode. The system shall also be able to function in degraded mode in case the wrong direction movement is used in degraded mode.
26	how the system of level crossing must communicate with ROAD signalling	At the level crossings, the existing TSPS and Flashing Warning Lights System shall be independent but shall be set up in such a way they work in harmony as mentioned in terms of reference.
27	Is there any signaling in the Tracks before level crossing for the Train driver? Is just plaques or light signaling?	The existing TSPS provides signals to proceed to the train captains on the track side.
28	In the pictures appears one man beside the road signaling (look like an operator). Does it means it is a manual signaling today?	In normal conditions, all signals (LRV and road) are managed by the existing TSPS. In unusual conditions, operators might be required.
29	Regarding 2.4: Should we really stick to EN 50126? This means the full RAMS program with responsibilities for manufacturer and operator; i.e. not only tasks for supplier. This means, among other things, that the operator has to make a "risk analysis" for each specific level crossing; and not the supplier.	The risk analysis shall be carried out by the contractor with regards to the Flashing Warning Lights System and specific to the system proposed and to be implemented by the contractor.
30	There should be no barriers, right?	There are no barriers at the intersections.
31	Regarding 3.4: Should the "monitoring system" only be informative or should it intervene in the system in a technically controlling way?	The monitoring system shall be informative. Also refer to the reply to Query No. 18.