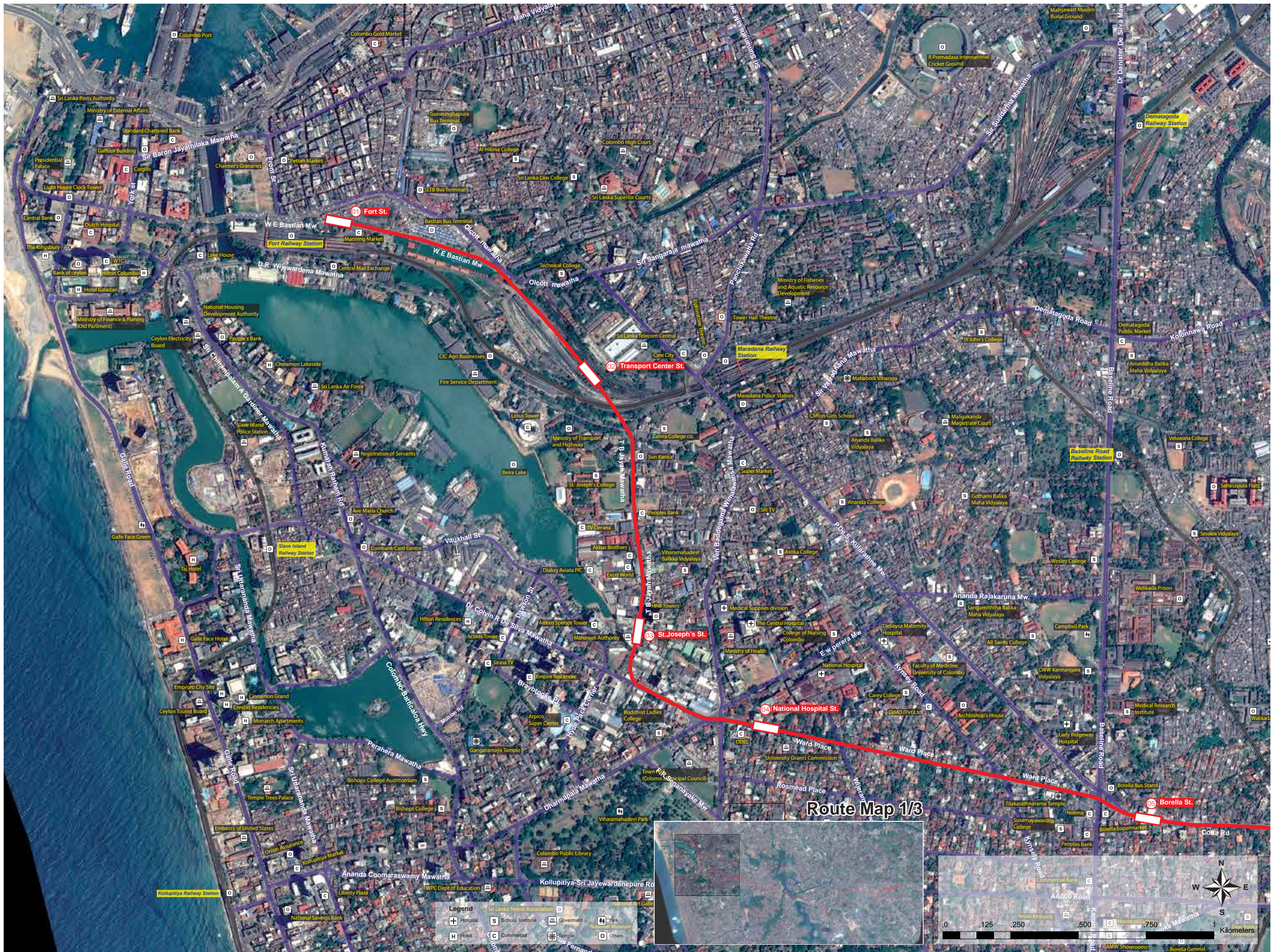
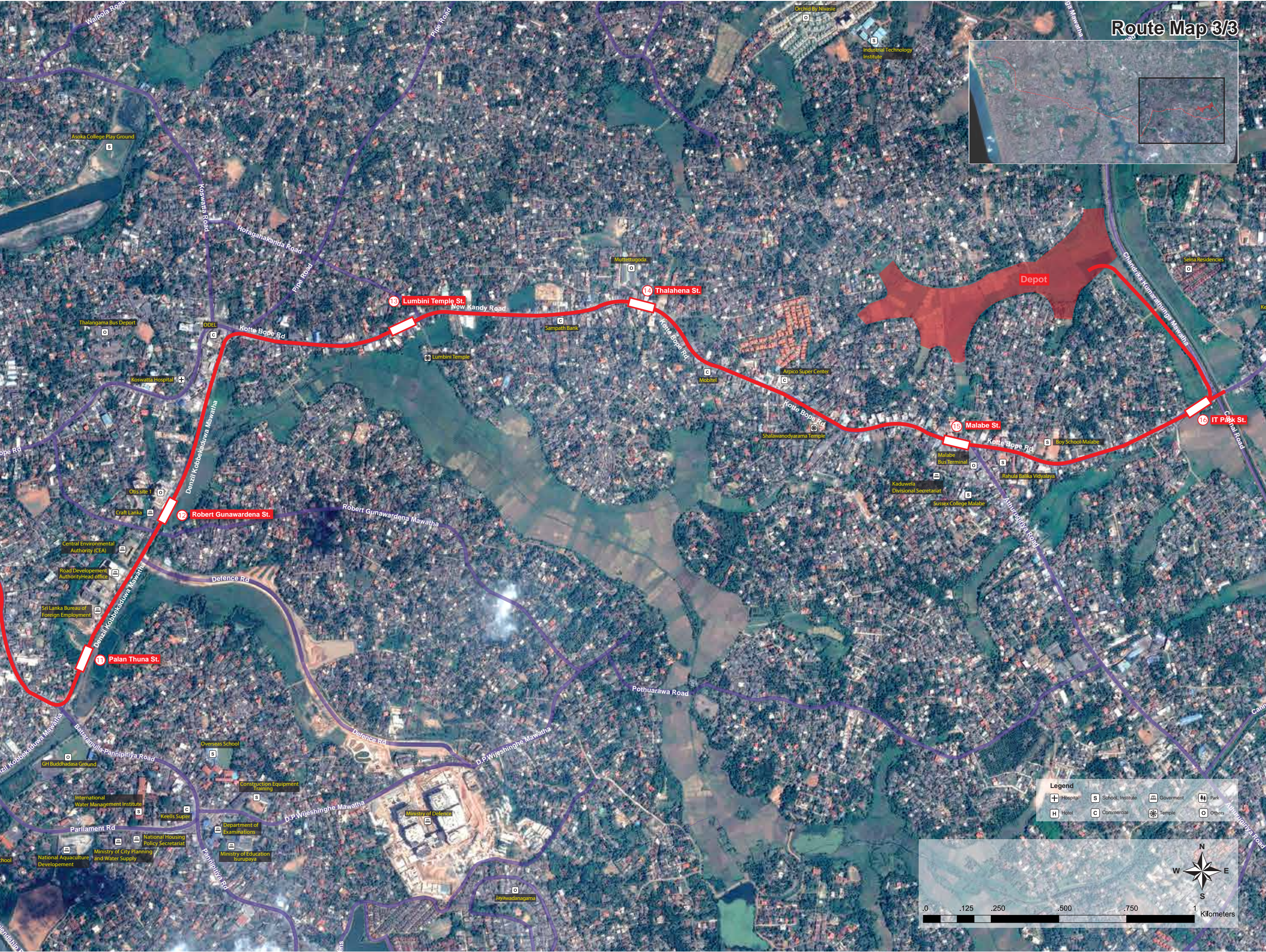


Appendix 14 JICA-LRT Route Map







Appendix 15 Procedures of Mobile Mapping and UAV Mapping

Appendix 15 Procedures of Mobile Mapping and UAV Mapping

1. Introduction

At the beginning of the first stage of the Feasibility Study, the Survey Team has conducted the filed survey and processing into the 3D measurable images using Mobile Mapping System (MMS) which was developed by IMS¹ in Japan with authorized accuracy of 1/500. This survey was conducted in 2 days along entire JICA-LRT route with the method of video shooting for all-around by equipped 360 degree video cameras on the vehicle with GPS as well as ground control point, then processed into 3D measurable image linked to GIS software. In addition, topographic map was captured by UAV for 100m are from centre of JICA-LRT alignment for both sides. Since this processed UAV map is new in Sri Lanka, so that it was verified by MMS maps for its georeferenced accuracies.

This kind of georeferenced data will be invaluable at detail design stage as well as implementation stage for the purpose of accuracy in alignment plan, structural designs and determination of affected houses from the edge of Right of Way (ROW) of JICA-LRT, as well as underground/overhead utilities which will be treated for civil works.

2. Procedure for Creation of IMS Movie by Mobile Mapping (IWANE Laboratories, Ltd.)

(1) Outline and Methodology of MMS Survey

The outline of MMS survey is summarized in table below.

Table 1 Outline of MMS Survey

Video shooting dates	11 th and 12 nd March in 2017: The first day was required for installation of all equipment and trial running. The entire second day was for shooting along target area.
Route length	About 20 km of JICA-LRT route
Equipment	<ul style="list-style-type: none">• IMS-3 which was installed on the vehicle with composition of:<ul style="list-style-type: none">• Two 360 degree cameras (resolution: 5,400 x 2,700 pixel)• Accelerometer• Simple GPS as synchronize• High accuracy GNSS for absolute coordinate obtain• Mounter for above equipment• PC with 2TB HDDs (1 for each camera) for data storing• Processing software: IWANE CVImageCreator• Vehicle: TOYOTA Hi-ACE which IMS-3 was set on• Ground Control Point (GCP) at 1 location

IMS technology has four technical features:

- Clear 360-degree (immersive) video linked to geo-referenced information

¹ IMS: Iwane Mobile Mapping System, which was developed by IWANE Laboratories Ltd. patented by Japan and USA for this system.

- Video images that can make measurements at any points in three dimensions with georeferenced information (longitude, latitude and height) and be shared through website
- Simple and flexible equipment without any lasers and IMU/Gyros.
- Original technology developed in Japan and therefore fully customizable

Figure 1 shows the detail of MMS survey section and the screen short images for final products which shows the trace of camera with sky-blue line and camera positions.



Source: Survey Team

Figure 1 MMS Survey Section (Blue line) and Product Image of 360-degrees

Figure 2 shows the setting of MMS equipment to the car and control-computer screen for capturing the 360-degree cameras.



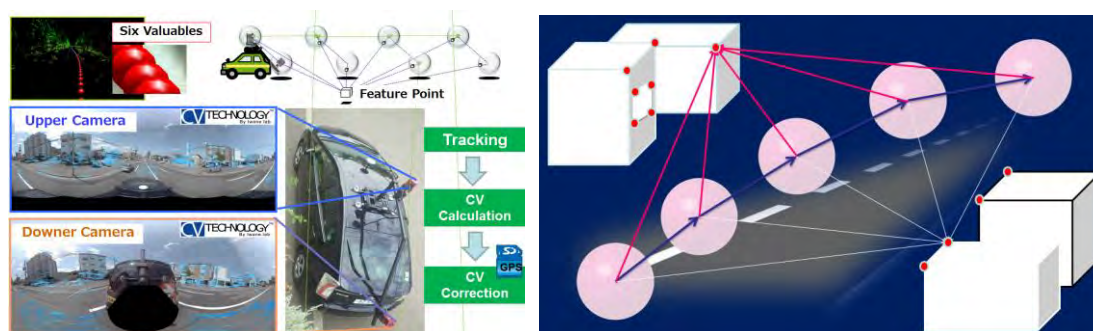
Source: Survey Team

Figure 2 Mobile Mapping Survey Equipment

(2) Processing Method of Geo-referenced All-round Video

Two camera system has used for calculating Camera Vector (CV) in IMS which synchronized and shooting are performed simultaneously. As distance between two cameras is unchanged and determined the exact distance between each frame of camera, using the fixed unmovable objects in captured image, georeferenced information at any points can be obtained in the system with enough accuracy for its location. The illustration of this technology's concept is presented as in

Figure 3.



Source: IWANE Laboratories, Ltd.

Figure 3 Camera Vector Calculation Methodology in IMS System

The IMS-3 system was mounted on the top of the car along with Leica RTK GPS and the “indirect geo referencing” method was used to calibrate with Camera Vector (CV) data to produce the final Geo referenced Images Data. Two technologies: CV and GNSS receiver established a geospatial position. GCP was used to geo-reference sequence of terrestrial imageries.

To increase the accuracy of MMS data, additional GCPs (85 points) were obtained after video shooting. These additional GCPs data was imputed in the processing of 360 degree image to ensure more accuracy of the map, which was controlled by ALV application.

(3) Data Accuracy

Although there are many buildings, huge trees, overhead structure which obstruct GNSS during shooting time, with GCP method, all collected data has accuracy of 1/500. This is the same of authorized by the Geospatial Information Authority of Japan.

(4) Application of MMS data on JICA-LRT Project

Once the ALV application links with GIS (ESRI) software, the locations such as utilities, affected houses and building lines can be digitized from the computer screen into GIS file. In addition, ALVs can put the 3-D model (i.e. LRT structure) into the screen and show the animation image with running vehicles as shown in Figure 4. This function could provide better image for discussion or working group. It will be a powerful tool for both detailed design stage and implementation stage as georeferenced video database.



Source: Survey Team

Figure 4 Animation with 3D-model (Cantilever LRT Viaduct) in the Screen



Figure 5 3-D Measurement Screen

Furthermore, with the data taken from MMS, it can measure and identify the location of the underground and overhead utilities such as manholes, electricity lines. This will be benefit for the detail design stage in considering relocate/diversion of any utility facilities.

3. Procedure for Creation of UAV Map

(1) Equipment and Survey Area

In the latter stage of the Feasibility Study, the topographic survey was conducted by UAV for 200m corridor over 21km, 100m to each side from the centre of alignment of JICA-LRT. Equipment used in UAV Mapping Survey is listed as below:

- Drones: Sense FlyBee Drone and Phantom 4 Quadcopter
- GNSS Equipment: TOPCON GR5 and SOKKIA GRX2 GNSS receivers
- Flying & Data acquisition software: SenseFly eMotion
- Data processing software suites: Pix4D Mapper Pro UAS Photogrammetry software, Agisoft Phototscan UAS Photogrammetry software, AutoDesk AutoCAD, ESRI ArcGIS, AutoDesk Civil3D
- 2D orthomosaic image accuracy: Resolution: 8-10 cm per pixel
- Positioning accuracy: 10-20 cm (Ground Control Point geo-reference)

Images of equipment are presented in Table 2.

Table 2 Equipment Used in UAV Mapping

 <p>SenseFly eBee Plus Fixed Wing Drone</p>
 <p>DJI Phantom 4 Pro Multi Rotor Drone (4 Unit)</p>
 <p>a: TOPCON GR5 GNSS RTK System; b: SOKKIA GRX2 GNSS RTK system</p>

The data capture and process method to create 2D ortho-mosaic map are described as following:

- High Accuracy GNSS RTK systems were used to establish GCPs using RTK survey technology by using Survey Department Primary Bench Mark Points as reference. The same was visually marked on the ground to be visible from the drone camera.
- Over 100 GCPs were captured for the purposes of geo-referencing and quality checking in terms of accuracy.
- Once the flight planning was completed, the UAS operation was initiated for data capturing phase.
- Given the ground sampling distance requirement of 2.5 cm/px, the drone had to be flown with an “Above Terrain Altitude” of about 100-150 m depending on the RGB Sensor (Camera) used and its resolution.
- Also since high quality 3D data was required, the image overlaps has to be 80% or more on both longitudinal and lateral directions.
- Given the characteristics of aerial photogrammetry technique, 2D Orthomosaic maps and 3D surface/terrain models require the aerial photos to have significant overlap as mentioned above.
- This would lead to a total aerial survey area of approx. 200 m x 15 km in order to have enough data to produce deliverables with required quality and acceptance.

- The 200m survey buffer was maintained throughout for the entire stretch of JICA-LRT line.



Figure 6 UAV Photo Data and Single Still Image

(2) Processing Method of Ortho-mosaic Map by Using UAV Images

The processing method of mapping by using UAV photos is described as following:

- Once the captured data verification and quality check are done on the site, special data check features of specialised drone operation software (eMotion 3 Site Software) was used, the same data was post processed using Pix4D Mapper Pro.
- The software then uses image recognition technology to identify thousands of “tie points” shared across photos. The software uses those points to stitch the photos together and extract elevation data due to the slightly different angles of each photo.
- The drone image stitching software first creates a point cloud, then processes it into an orthophoto and DEM. The DEM is the elevation information that the orthophoto is draped over, creating a 3D digital surface model.
- After incorporating the ground control points, any point on this digital surface matches (within accuracy tolerances) the northing, easting and elevation of that point in the real world.
- Upon successful processing using drone data and GCP data (64 points), the required deliverables are achieved by automated processing except for the GIS data layers.
- The GCPs which were not used in geo-referencing were used as quality check points for accuracy to identify whether the full data is within the 10-15cm tolerance mark in both planimetric and height accuracy.

(3) Data Accessories (Authorization by Survey Department of Sri Lanka)

The initial step to implement the survey was to get necessary security clearance for drone operations in survey area from the Ministry of Defence (MoD) and Civil Aviation Authority (CAA). Both the MoD and CCA were well informed about UAV operations and capabilities. For high security zone in heart of Colombo, UAV map could not get approval and survey in that

area was skipped.

Pix 4D Mapper, which was utilized in this UAV survey, is the industry standard method for UAV photogrammetry. The procedures of processing of the orthomosaic had been verified with the Survey Department of Sri Lanka.

4. Verification Results for Accuracy of UAV Map with compared by MMS map

(1) Verification Method

Pix 4D Mapper was used for verify the accuracy of UAV map. It follows the standard mathematical algorithms used on Photogrammetry work flows. The planimetric accuracy of the data was verified with the Survey Department Authority official.

In addition for Pix 4D Mapper, IMS3 was used to verify the accuracy of UAV photos. An add-on (ALV for ArcGIS) for ArcGIS (ESRI) was used to visualize UAV MMS data and UAV photos. All data was put together on ArcGIS (ESRI), with the same coordinate of WGS1984 could enable the layer feature and verify accuracy of UAV photos without any error of coordinate system. There are 4 steps for using IMS3 to verify the accuracy of UAV photos:

Step 1: Open IMS3 data and UAV photo by ArcGIS

Step 2: Identify same point for both IMS3 and UAV photos (It is necessary to exclude points with blind spots from UAV photos such as under tree, flyover, or under vehicle point; as there is no “Z” coordinate value in UAV photo, comparison was done only for “X” and “Y” values.)

Step 3: Finalize point from UAV photo and designate same point from IMS3

Step 4: Calculate the difference between pair points.

Due to the requirement of absolute positioning of IMS3, distance between 2 points should be not more than 100 m. Therefore about 154 points were selected for comparison purpose.

(2) Result

Details of the verification result for accuracy of UAV map by Pix 4D Mapper can be found in the Annex A attached together with this Appendix.

For the result of accuracy verification by using IMS3, 9 points out of 154 points were detected as non-standard with difference over 50cm. The Figure 7 shows the results of accuracy verification, green colour points are considered as standard with difference less than or equal 50 cm, red colour point is non-standard point.

Therefore, UAV ortho-mosaic map has enough accuracy with 1/500 scale and it can be linked with MMS maps under WGS84 datum system.

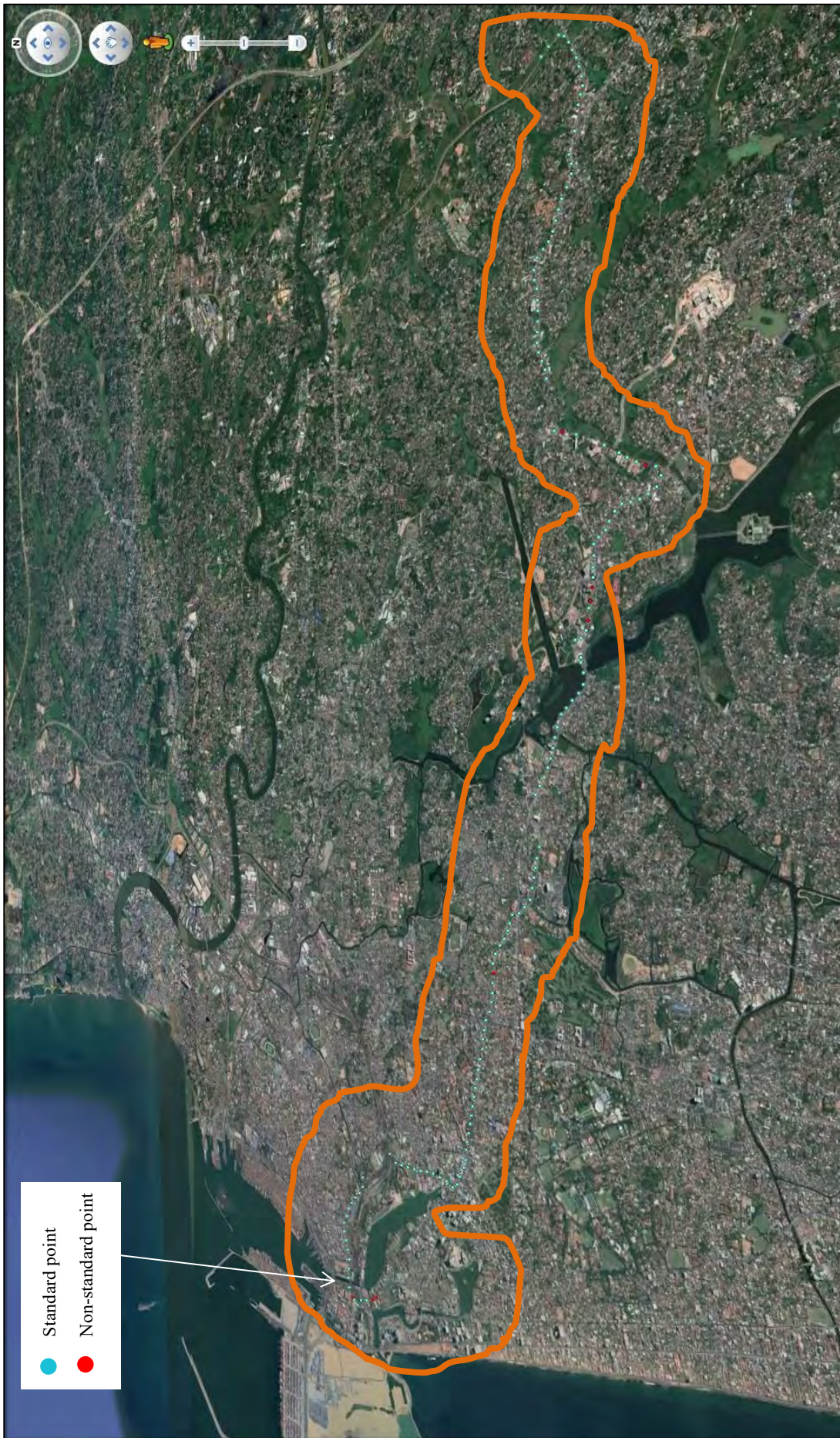


Figure 7 UAV Ortho-mosaic Map Accuracy Verification Results by IMS3

5. Findings and Recommendation

According the result of accuracy verification, it can be said that the collected data from both MMS and UAV survey have high accuracy of 1/500. Those data would be powerful tool in future for both detail design and implementation stage of JICA-LRT project.

Since MMS can measure 3 georeferenced data at any points with linkage to GIS for digitizing, however, it cannot be measured at invisible location such as behind buildings. On the other hand, UAV data can widely identify the 200m areas for JICA-LRT alignment. Therefore, it is recommended that both MMS and UAV ortho-mosaic map will be selected for use of the specific purpose at design stage.

In addition, MMS can be widely used for the asset management tool to store the facility information as georeferenced tag at each asset, so that it is recommended that before operation of JICA-LRT, if all the view for viaduct from the train are captured, it can be easily manage the various kinds of assets and facilities, such as rail track, 3rd rail, any devices for signal and telecommunication system.



Important: Click on the different icons for:



Help to analyze the results in the QualityReport



Additional information about the sections



Click [here](#) for additional tips to analyze the QualityReport

Summary



Project	ltr
Processed	2018-01-25 12:06:37
Camera Model Name(s)	FC330_3.6_4000x3000 (RGB)
Average Ground Sampling Distance (GSD)	4.76 cm / 1.87 in
Area Covered	9.0389 km ² / 903.887 ha / 3.4917 sq. mi. / 2234.71 acres
Time for Initial Processing (without report)	18h:28m:12s

Quality Check



Images	median of 3503 keypoints per image	
Dataset	9645 out of 9701 images calibrated (99%), 2 images disabled	
Camera Optimization	2.08% relative difference between initial and optimized internal camera parameters	
Matching	median of 777.287 matches per calibrated image	
Georeferencing	yes, 64 GCPs (64 3D), mean RMS error = 0.020 m	

Preview



Figure 1: Orthomosaic and the corresponding sparse Digital Surface Model (DSM) before densification.

Calibration Details



Number of Calibrated Images	9645 out of 9703
Number of Geolocated Images	9703 out of 9703

Initial Image Positions



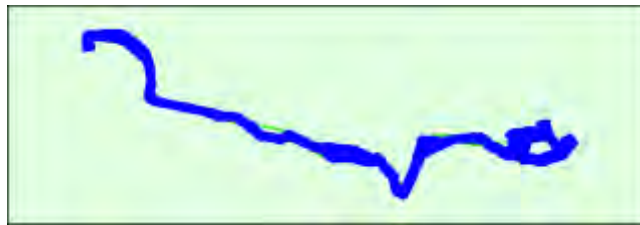


Figure 2: Top view of the initial image position. The green line follows the position of the images in time starting from the large blue dot.

Computed Image/GCPs/Manual Tie Points Positions

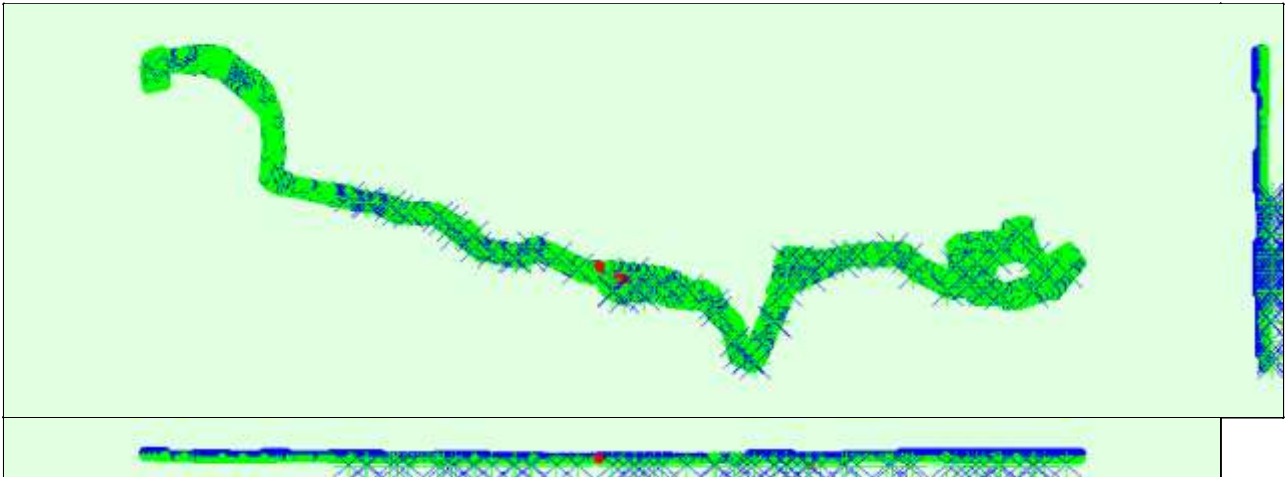


Figure 3: Offset between initial (blue dots) and computed (green dots) image positions as well as the offset between the GCPs initial positions (blue crosses) and their computed positions (green crosses) in the top-view (XY plane), front-view (XZ plane), and side-view (YZ plane). Red dots indicate disabled or uncalibrated images.

Overlap

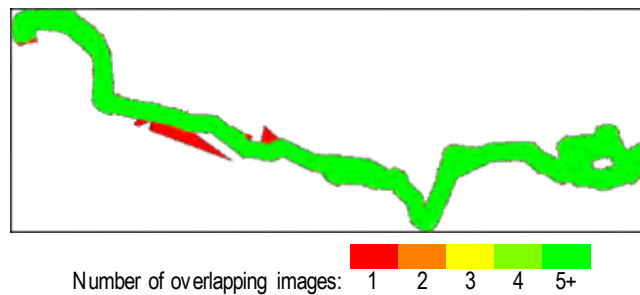


Figure 4: Number of overlapping images computed for each pixel of the orthomosaic. Red and yellow areas indicate low overlap for which poor results may be generated. Green areas indicate an overlap of over 5 images for every pixel. Good quality results will be generated as long as the number of keypoint matches is also sufficient for these areas (see Figure 5 for keypoint matches).

Bundle Block Adjustment Details

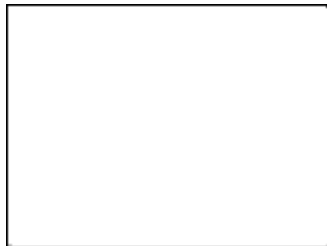
Number of 2D Keypoint Observations for Bundle Block Adjustment	7523157
Number of 3D Points for Bundle Block Adjustment	2537762
Mean Reprojection Error [pixels]	0.113

Internal Camera Parameters

FC330_3.6_4000x3000 (RGB). Sensor Dimensions: 6.317 [mm] x 4.738 [mm]

EXIF ID: FC330_3.6_4000x3000

	Focal Length	Principal Point x	Principal Point y	R1	R2	R3	T1	T2
Initial Values	2285.722 [pixel] 3.610 [mm]	2000.006 [pixel] 3.159 [mm]	1500.003 [pixel] 2.369 [mm]	-0.001	-0.002	0.000	-0.001	-0.001
Optimized Values	2447.770 [pixel] 3.866 [mm]	1988.150 [pixel] 3.140 [mm]	1516.735 [pixel] 2.395 [mm]	-0.007	0.003	-0.003	0.000	-0.000



The number of Automatic Tie Points (ATPs) per pixel, averaged over all images of the camera model, is color coded between black and white. White indicates that, on average, more than 16 ATPs have been extracted at the pixel location. Black indicates that, on average, 0 ATPs have been extracted at the pixel location. Click on the image to see the average direction and magnitude of the re-projection error for each pixel. Note that the vectors are scaled for better visualization.

? 2D Keypoints Table



	Number of 2D Keypoints per Image	Number of Matched 2D Keypoints per Image
Median	3503	777
Min	978	22
Max	4941	1652
Mean	3407	780

? 3D Points from 2D Keypoint Matches



	Number of 3D Points Observed
In 2 Images	1634488
In 3 Images	449606
In 4 Images	183842
In 5 Images	92501
In 6 Images	53794
In 7 Images	32573
In 8 Images	21306
In 9 Images	14721
In 10 Images	10757
In 11 Images	8003
In 12 Images	6308
In 13 Images	4850
In 14 Images	3746
In 15 Images	3040
In 16 Images	2556
In 17 Images	2112
In 18 Images	1828
In 19 Images	1463
In 20 Images	1320
In 21 Images	1099
In 22 Images	917
In 23 Images	798
In 24 Images	715
In 25 Images	630
In 26 Images	523
In 27 Images	478
In 28 Images	441
In 29 Images	357
In 30 Images	351
In 31 Images	282
In 32 Images	241
In 33 Images	223
In 34 Images	225

In 35 Images	185
In 36 Images	177
In 37 Images	158
In 38 Images	141
In 39 Images	115
In 40 Images	105
In 41 Images	85
In 42 Images	87
In 43 Images	62
In 44 Images	48
In 45 Images	56
In 46 Images	46
In 47 Images	41
In 48 Images	38
In 49 Images	35
In 50 Images	31
In 51 Images	24
In 52 Images	28
In 53 Images	21
In 54 Images	19
In 55 Images	18
In 56 Images	14
In 57 Images	11
In 58 Images	12
In 59 Images	14
In 60 Images	8
In 61 Images	6
In 62 Images	5
In 63 Images	9
In 64 Images	3
In 65 Images	9
In 66 Images	9
In 67 Images	6
In 68 Images	3
In 69 Images	6
In 70 Images	3
In 71 Images	3
In 72 Images	3
In 73 Images	1
In 74 Images	2
In 76 Images	1
In 77 Images	4
In 78 Images	2
In 79 Images	1
In 81 Images	2
In 82 Images	3
In 83 Images	2
In 85 Images	1
In 87 Images	1
In 91 Images	1
In 95 Images	1
In 96 Images	1
In 101 Images	1

2D Keypoint Matches



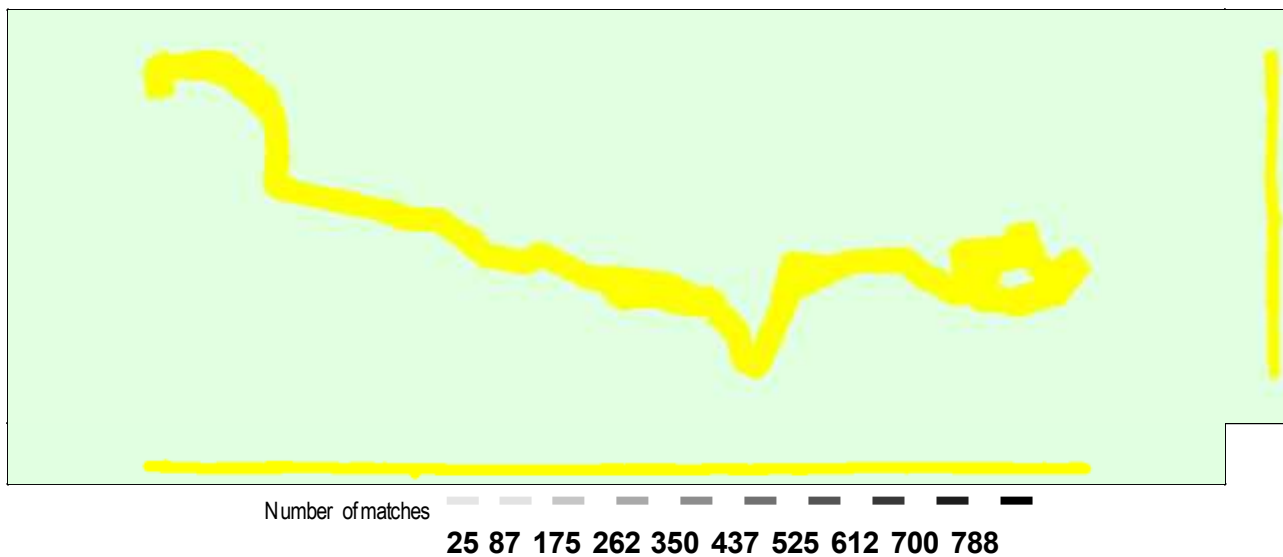


Figure 5: Computed image positions with links between matched images. The darkness of the links indicates the number of matched 2D keypoints between the images. Bright links indicate weak links and require manual tie points or more images.

Geolocation Details

Ground Control Points

GCP Name	AccuracyXY/Z [m]	Error X[m]	Error Y[m]	Error Z [m]	Projection Error [pixel]	Verified/Marked
GCP1 (3D)	0.020/ 0.020	-0.003	0.006	-0.023	0.110	4 / 4
GCP2 (3D)	0.020/ 0.020	-0.014	-0.020	-0.024	0.151	4 / 4
GCP3 (3D)	0.020/ 0.020	0.006	0.016	-0.007	0.128	4 / 4
GCP5 (3D)	0.020/ 0.020	-0.001	-0.010	-0.033	0.087	4 / 4
GCP9 (3D)	0.020/ 0.020	-0.009	-0.018	-0.022	0.227	4 / 4
GCP8 (3D)	0.020/ 0.020	0.008	0.015	0.007	0.074	4 / 4
GCP10 (3D)	0.020/ 0.020	0.022	0.010	-0.026	0.454	4 / 4
GCP11 (3D)	0.020/ 0.020	-0.004	0.021	-0.025	0.119	4 / 4
GCP6 (3D)	0.020/ 0.020	0.005	-0.003	-0.003	0.038	4 / 4
GCP7 (3D)	0.020/ 0.020	-0.007	0.010	0.006	0.145	4 / 4
GCP13 (3D)	0.020/ 0.020	-0.018	-0.020	0.026	0.149	4 / 4
GCP14 (3D)	0.020/ 0.020	0.012	-0.011	-0.021	0.151	4 / 4
GCP20 (3D)	0.020/ 0.020	-0.001	-0.005	-0.025	0.210	4 / 4
GCP19 (3D)	0.020/ 0.020	-0.003	-0.009	-0.014	0.163	4 / 4
GCP15 (3D)	0.020/ 0.020	0.003	-0.006	-0.024	0.393	4 / 4
21 (3D)	0.020/ 0.020	0.000	0.019	-0.020	0.082	4 / 4
22 (3D)	0.020/ 0.020	0.004	-0.020	0.016	0.128	4 / 4
24 (3D)	0.020/ 0.020	0.005	0.003	-0.004	0.086	4 / 4
25 (3D)	0.020/ 0.020	-0.001	0.008	0.023	0.440	4 / 4
26 (3D)	0.020/ 0.020	0.004	-0.006	-0.002	0.093	4 / 4
27 (3D)	0.020/ 0.020	-0.014	-0.007	-0.020	0.085	4 / 4
28 (3D)	0.020/ 0.020	-0.021	0.014	0.005	0.173	4 / 4
29 (3D)	0.020/ 0.020	0.016	0.021	0.012	0.081	4 / 4
30 (3D)	0.020/ 0.020	-0.021	0.012	0.003	0.475	4 / 4
31 (3D)	0.020/ 0.020	0.022	0.008	-0.001	0.026	4 / 4
32 (3D)	0.020/ 0.020	0.020	-0.022	0.023	0.085	4 / 4
33 (3D)	0.020/ 0.020	0.004	-0.019	-0.019	0.134	4 / 4
35 (3D)	0.020/ 0.020	-0.000	-0.008	-0.007	0.088	4 / 4
36 (3D)	0.020/ 0.020	0.005	0.009	-0.018	0.149	4 / 4
39 (3D)	0.020/ 0.020	-0.015	0.013	0.021	0.133	4 / 4
40 (3D)	0.020/ 0.020	0.010	-0.005	-0.012	0.162	7 / 7

41 (3D)	0.020/ 0.020	0.006	0.001	0.009	0.420	4 / 4
42 (3D)	0.020/ 0.020	-0.005	0.001	-0.003	0.101	4 / 4
43 (3D)	0.020/ 0.020	0.002	-0.002	0.023	0.152	4 / 4
46 (3D)	0.020/ 0.020	-0.007	-0.003	0.016	0.069	4 / 4
48 (3D)	0.020/ 0.020	0.011	0.011	0.022	0.107	4 / 4
49 (3D)	0.020/ 0.020	-0.002	-0.006	0.020	0.212	4 / 4
51 (3D)	0.020/ 0.020	-0.003	0.020	0.026	0.162	4 / 4
52 (3D)	0.020/ 0.020	-0.020	0.000	0.019	0.145	4 / 4
53 (3D)	0.020/ 0.020	-0.002	-0.021	0.001	0.111	4 / 4
54 (3D)	0.020/ 0.020	0.003	0.012	0.012	0.044	4 / 4
55 (3D)	0.020/ 0.020	0.016	0.013	0.015	0.096	4 / 4
56 (3D)	0.020/ 0.020	-0.000	-0.010	0.002	0.158	4 / 4
57 (3D)	0.020/ 0.020	0.010	-0.004	0.020	0.190	4 / 4
58 (3D)	0.020/ 0.020	-0.008	0.008	-0.023	0.139	4 / 4
60 (3D)	0.020/ 0.020	-0.000	-0.002	0.020	0.107	4 / 4
61 (3D)	0.020/ 0.020	-0.003	0.005	0.020	0.158	4 / 4
62 (3D)	0.020/ 0.020	-0.022	-0.020	-0.016	0.152	4 / 4
63 (3D)	0.020/ 0.020	0.012	0.022	0.010	0.189	4 / 4
64 (3D)	0.020/ 0.020	-0.004	0.002	0.023	0.102	4 / 4
65 (3D)	0.020/ 0.020	0.018	-0.010	-0.014	0.077	4 / 4
66 (3D)	0.020/ 0.020	0.002	0.006	0.008	0.089	4 / 4
67 (3D)	0.020/ 0.020	-0.016	-0.004	-0.023	0.150	4 / 4
68 (3D)	0.020/ 0.020	0.020	0.021	-0.022	0.081	4 / 4
69 (3D)	0.020/ 0.020	-0.021	-0.016	-0.017	0.093	4 / 4
70 (3D)	0.020/ 0.020	0.016	0.006	-0.021	0.107	4 / 4
72 (3D)	0.020/ 0.020	0.003	-0.004	-0.005	0.184	4 / 4
73 (3D)	0.020/ 0.020	-0.003	0.002	0.015	0.532	4 / 4
74 (3D)	0.020/ 0.020	-0.003	-0.000	0.020	0.163	4 / 4
75 (3D)	0.020/ 0.020	0.001	-0.004	-0.007	0.182	4 / 4
76 (3D)	0.020/ 0.020	0.001	0.006	0.010	0.145	4 / 4
77 (3D)	0.020/ 0.020	-0.001	0.008	-0.020	0.147	4 / 4
78 (3D)	0.020/ 0.020	-0.003	-0.010	-0.006	0.265	4 / 4
79 (3D)	0.020/ 0.020	0.001	0.000	0.022	0.039	5 / 5
Mean [m]		0.000078	0.000257	-0.001706		

Localisation accuracy per GCP and mean errors in the three coordinate directions. The last column counts the number of calibrated images where the GCP has been automatically verified vs. manually marked.

Initial Processing Details



System Information



Hardware	CPU: Intel(R) Core(TM) i7-7700 CPU @3.60GHz RAM: 32GB GPU: NVIDIA GeForce GT 730 (Driver: 23.21.13.8813), Intel(R) HD Graphics 630 (Driver: 22.20.16.4836)
Operating System	Windows 10 Pro, 64-bit

Coordinate Systems



Image Coordinate System	WGS84 (egm96)
Ground Control Point (GCP) Coordinate System	WGS84 (egm96)
Output Coordinate System	WGS84 / UTMzone 44N (egm96)

Processing Options



Detected Template	No Template Available
Keypoints Image Scale	Custom, Image Scale: 0.25
Advanced: Matching Image Pairs	Aerial Grid or Corridor
Advanced: Matching Strategy	Geometrically Verified
Advanced: Keypoint Extraction	Targeted Number of Keypoints: Automatic
Advanced: Calibration	Calibration Method: Standard Internal Parameters Optimization: All External Parameters Optimization: All Rematch: Auto, no Bundle Adjustment: Classic

Point Cloud Densification details



Processing Options



Image Scale	Multiscale, 1/8 (Eighth image size, Tolerant)
Point Density	Optimal
Minimum Number of Matches	3
3D Textured Mesh Generation	yes
3D Textured Mesh Settings:	Resolution: Optimal Resolution Color Balancing: Yes
Advanced: 3D Textured Mesh Settings	Sample DensityDivider: 1
Advanced: Matching Window Size	7x7 pixels
Advanced: Image Groups	group1
Advanced: Use Processing Area	yes
Advanced: Use Annotations	yes
Advanced: Limit Camera Depth Automatically	no
Time for Point Cloud Densification	03h:10m:44s
Time for 3D Textured Mesh Generation	01h:06m:

Results



Number of Generated Tiles	1
Number of 3D Densified Points	30588453
Average Density(per m ³)	3.54

Appendix 16 RAP Report



Government of the Democratic Socialist Republic of Sri Lanka
Ministry of Megapolis and Western Development (MMWD)



COLOMBO LIGHT RAIL TRANSIT (LRT) PROJECT

RESETTLEMENT ACTION PLAN (DRAFT)

MAY 2018

Colombo Light Rail Transit (LRT) Project

Resettlement Action Plan

May 2018

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Definitions

The definitions used in this RAP are:

1. “Affected Person (AP)” and “Project Affected Person (PAP)” includes any person, households, firms or private institutions who, on account of changes that result from the project will have their (i) standard of living adversely affected; (ii) right, title, or interest in any house, land (including residential, commercial, agricultural, forest, and/or grazing land), water resources, or any other moveable or fixed assets acquired, possessed, restricted, or otherwise adversely affected, in full or in part, permanently or temporarily; and/or (iii) business, occupation, place of work or residence, or habitat adversely affected, with or without displacement.
2. “Compensation” means cash or payment-in-kind to which the affected persons are entitled, in order to replace the cost of the assets, resources or income, at the time of Cut-off date (e.g. replacement of land at replacement value, either with land-for-land of equivalent size or productivity, or payment of cash equivalent to the full replacement value). If land is not available or the PAPs choose cash, compensation includes the replacement value of lands, buildings, plants and/or other assets connected with the land impacted by land acquisition activities of the Project.
3. “Cut-off date” (COD) means the date after which eligibility for compensation or resettlement assistance will not be considered.
4. “Economic displacement” means loss of income streams or means of livelihood resulting from land acquisition or obstructed access to resources (e.g. land, water or forest due to construction or operation of a project or its associated facilities).
5. “Eligibility” means the criteria for qualification to receive benefits under the Resettlement Action Plan.
6. “Entitlement” means the range of measures comprising compensation, assistance, including income restoration programme, transfer assistance, resettlement assistance and assistance to the vulnerable groups, etc., in order to achieve the objectives of the Resettlement Action Plan.
7. “Income Restoration Programme” means an effort/activity to improve the economic and social skills of PAPs so that they can improve their standards of living or at least achieve equal standards of living to their previous situation, as measured before Project implementation. The assistance includes efforts to handle difficulties during the transition period.
8. “Involuntary Resettlement” means the unavoidable displacement of people arising from the project that creates the need for rebuilding their livelihood, income and asset bases in another location. It includes impacts on people whose livelihood and assets may be affected without displacement.
9. “Land acquisition” means an activity by any level of Government to obtain land for the Project by means of compensation to parties who release land, buildings, tree crops and/or other assets related to the land.
10. “Resettlement” means an effort or activity to relocate the Project Affected Persons and their movable assets to a new location that meets their requirements for settlement and that enables PAPs to develop a better or equal standard of living compared to their previous one.

11. "Replacement cost" is an estimated compensation cost based on the method of valuation of assets that helps determine the amount sufficient to replace lost assets and cover transaction costs. In applying this method of valuation, depreciation of structures and assets should not be taken into account. (the World Bank OP 4.12 Annex A, footnote 1)
12. "Replacement Cost Survey" (RCS) means the survey for determining the replacement cost of land, houses and other affected assets by independent evaluators.
13. "Resettlement Action Plan" (RAP) is a time bound plan with budget in which the project proponent or other responsible entity specifies the procedures that it will follow and the actions (resettlement strategy, objectives, options, entitlements, actions approvals, responsibilities, monitoring and evaluation) that it will take to mitigate adverse effects, compensate losses, and provide development benefits to persons and communities affected by the implementation of the project.
14. "Resettlement Assistance" means support provided to people who are physically displaced by the project. Assistance may include transportation, food, shelter and social services that are provided to affect persons during their relocation. It may also include cash allowance that compensate affected persons for the inconvenience associated with resettlement and defray the expense of a transition to a new location, such as moving expenses and lost work days.
15. "Socioeconomic Survey" (SES) means a survey to be conducted in the early stages of project preparation and with the involvement of potentially displaced people. This includes (i) the results of a census survey covering current occupants of the affected area, standard characteristics of displaced households, the magnitude of the expected loss of assets, information on vulnerable groups/persons, and information on the displaced livelihoods and standards of living; and (ii) other studies describing land tenure and transfer systems, the patterns of social interaction in the affected communities, affected public infrastructure and social services, social and cultural characteristics of displaced communities. (The World Bank OP 4.12 Annex A, para 6.)
16. "Stakeholders" means all individuals, groups, organizations and institutions interested in and potentially affected by the project or a specific issue, in other words, all parties who have a stake in a particular issue or initiative.
17. "Vulnerable groups" means distinct groups of people who might suffer disproportionately from the impacts of the project, such as the old, the disabled or the handicapped, isolated groups, single head of households, women headed families, those below the poverty line, the landless, indigenous peoples, ethnic minorities.

CHAPTER 1 Introduction

1.1 Background of the Project

The introduction of the Light Rail Transit (LRT) system is a proposed project to be implemented by the Ministry of Megapolis and Western Development (MMWD). The LRT Project (otherwise referred to as “the Project”) is an elevated railway system that connects strategic locations and transport hubs from Fort to Malabe (e.g. Borella, Battaramulla). The proposed Project consists of an electrically operated train which runs on an elevated platform made of concrete pillars and concrete/steel beam. The center pillars of LRT mostly follow the centerlines of the existing roads. Besides the LRT route and 16 train stations, a depot area will be built in West Malabe for the maintenance and storage of trains (rolling stocks).

1.1.1 Background of the Project

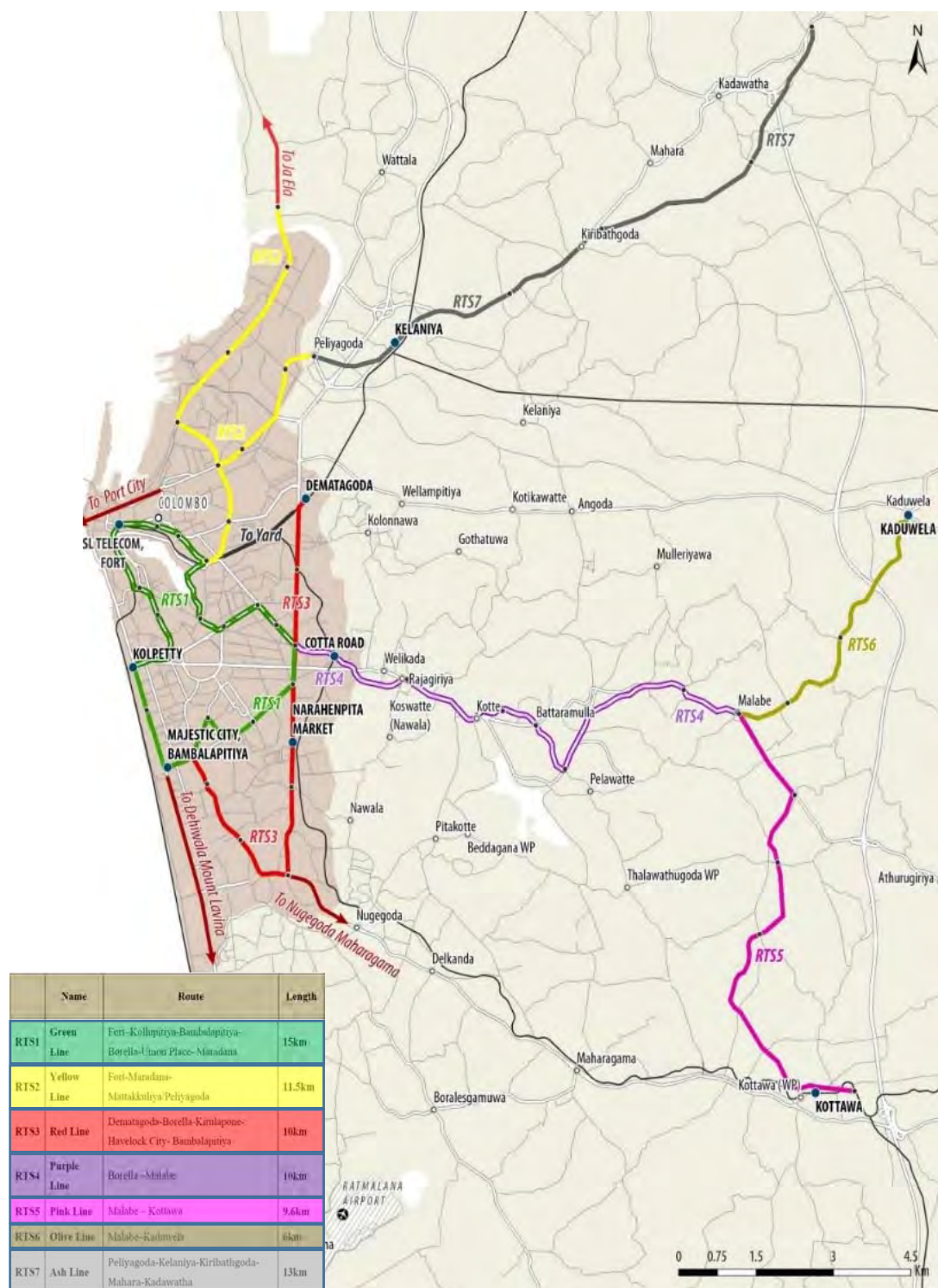
Since the establishment of the new government of Sri Lanka (GoSL) in January 2015, the Ministry of Megapolis and Western Development (hereinafter referred to as “MMWD”) which is responsible for planning the urban development in the Colombo Metropolitan Area¹ has set out the “Western Region Master Plan - 2030”. A priority concern of this master plan is to solve traffic congestion in Colombo Metropolitan Area by introducing an alternative public transport system.

According to the Urban Transport System Development Project for Colombo Metropolitan Region and Suburbs (CoMTrans), among seven major corridors towards the city center, Malabe Corridor is observed to have the highest density of private cars and the lowest travel speed at peak hours. Based on the results of CoMTrans and the Megapolis Transport Master Plan, the Rapid Transit System (RTS) has been identified as an option to improve public transportation.

The Megapolis Transport Master Plan lays out an RTS network, composed of seven lines, that stretches out to Colombo’s suburban areas (see Figure 1.1). This network was formulated based on several factors such as the country’s economic development, population growth, and projected transport conditions (e.g. traffic volume in major corridors, modal share, and connectivity with other public transport mode).

Within the RTS network, the GoSL made an official request for an ODA loan to the government of Japan to fund the section covering the Northern part of the circular line of RTS-1 and RTS-4, which run along Malabe Corridor. The proposed Colombo Light Rail Transit (LRT) system which constitutes part of RTS-1 and RTS-4, will be under the Special Term for Economic Partnership (STEP) between the two governments.

¹ Colombo Metropolitan Area is defined as area covered by the following Municipal Councils: Colombo, Thimbirigasyaya, Sri Jayawardenapura Kotte, Kaduwela, Dehiwala-Mount Lavinia and Moratuwa, and surrounding suburbs.



Source: Transport Master Plan (MMWD)

Figure 1.1 Proposed RTS Network

1.2 Project Justification

In Sri Lanka, over 90% of people and cargo transport depends on road networks. Around 42% of GDP and 29% of the population are concentrated in the capital Colombo, especially in the Western provinces which has achieved solid economic growth since the end of civil war.

The number of traffic modes utilizing road networks such as automobiles, buses and motorcycles has been rapidly increasing. About 1 million people are entering into the center of Colombo every day, resulting in severe traffic congestion in Colombo and its surroundings. During morning and evening time, travel speed is observed less than 20 km/h, which is defined as traffic congestion. There are roads with less than 10 km/h travel speed which means that that current urban transport network may be reaching its limits. Malabe corridor is one of the most congested corridors in Colombo.

Moreover, based on the results of CoMTrans, travel time between Fort Lake House Junction and Battaramulla Junction can reach up to 40-50 minutes during peak hours, when it would only take about 15 minutes to travel the same distance during off peak hours. It means travel time increase by about 2-3 times. Such decline in traffic mobility will adversely affect the economic activity of the Colombo Metropolitan Area and it would create negative impact on the national economy.

The approach to develop roads cannot solve the traffic issue alone. Based on the current dense traffic condition at major roads in Colombo City, and from the efficiency of public transportation over private vehicles (in terms of transporting more people in a period of time), introduction of a new mode of public transportation system is urgently necessary. In particular, a railway based public transportation system is desired.

1.3 Objectives of the proposed Project

The main objective of the Project is to improve traffic conditions in Colombo metropolitan area by providing a comfortable, safe and reliable mode of public transportation. The proposed LRT route particularly targets to connect strategic locations and transportation hubs such as Fort, Town Hall/National Hospital, Borella, Sethsiripaya/Battaramulla, and Malabe. Access to business centers, schools, hospitals and government offices (e.g. NIC, passport office) will be easier and transfer to other modes of transportation (e.g. provincial buses and railway) will also be convenient.

With the LRT project, travel time from Malabe to Fort will be cut to approximately 30 minutes. The reliability of travel time (not affected by road traffic) and ease of commute can enable commuters to travel comfortably. The proposed LRT system will serve the transport needs of people, particularly those who travel to and from Colombo via Malabe Corridor.

In addition, with the adoption of the LRT Project, traffic condition along the route will be reduced. Private vehicle users may be converted into using this alternative public transportation. This can lead to improved air quality and reduce economic losses due to traffic (e.g. gasoline consumption, maintenance of vehicles).

In a nutshell, the Project is aimed at:

- Easing traffic congestion in Colombo and its surrounding areas;

- Reducing travel time of passengers and commuters;
- Improving connectivity of strategic locations and transport hubs;
- Increasing accessibility of places along the route;
- Providing a comfortable, reliable and safe alternative mode of public transportation; and
- Enhancing air quality by reducing greenhouse gas emissions from the transport sector

1.4 Objectives of the RAP

This Resettlement Action Plan (RAP) primarily presents impacts of land and/or property acquisition that will be needed by the proposed LRT system, and at the same time provides a framework that would address and mitigate those impacts. The RAP is aimed at improving or at least restoring the standard of living of the project affected persons (PAPs), whose properties, assets and livelihoods, may be affected by the Project. In order to compensate for those impacts, this RAP lays out proposed entitlements (including opportunities for livelihood restoration), implementation plan, engagement methods, and grievance mechanism. It also sums up compensation costs that need to be included in the total project cost.

The process undertaken to develop this RAP has been consultative. It is a product of several consultations with various parties, taking into account their views and concerns. This RAP is a strong reconfirmation of the established agreements and understanding on the compensation entitlements (e.g. eligibility, compensation package, methodologies of compensation calculation and participatory approaches). Also, it is an expression of commitment by the project executing agency towards the affected persons of the Project.

1.5 Revision, Approval and Implementation of the RAP

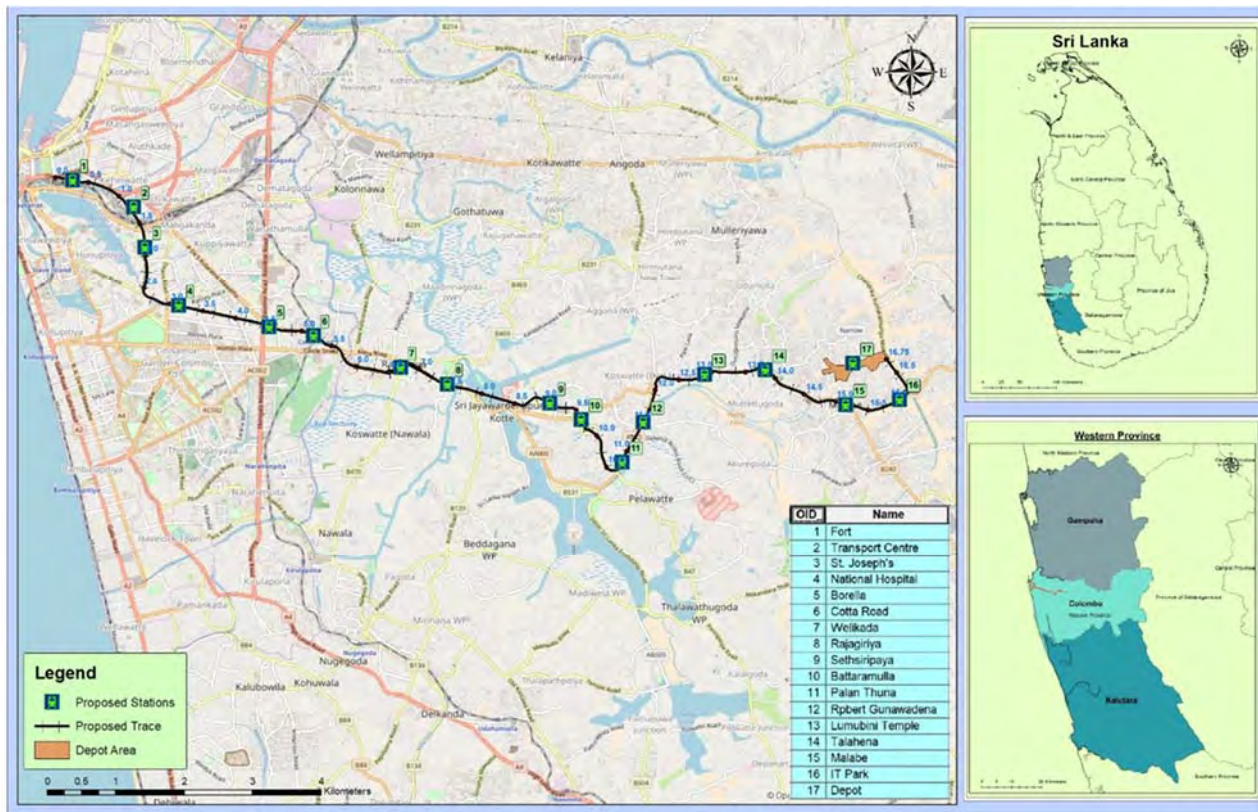
It is important to note that Project-related impacts and the extent of required land/asset acquisition will depend on the Project's detailed design. Thus, provisions stated here is not limited to the impact identified at this point. It should be recognized that this RAP is an evolving document. It will be updated and revised to incorporate impacts that may arise from unforeseen events and significant changes in the Project details. It can also be changed to take into account opinions and perceptions from PAPs and other relevant stakeholders. However, the framework of approach for compensation, such as entitlement matrix, will be kept

Upon revision, the RAP will be reviewed and approved by authorities of the project executing agency (MMWD) as well as the financing agency(ies), including JICA. Land acquisition and resettlement for the Project shall be implemented based on the latest version of the RAP.

CHAPTER 2 Project Description

2.1 Location of the Project

The LRT System will connect strategic locations and transport hubs in Colombo Metropolitan Area, such as Malabe, Battaramulla, Borella and Fort/ Pettah. The location of the proposed LRT route is shown in Figure 2.1 below. The route covers four Divisional Secretariat Divisions – Colombo, Thimbirigasyaya, Sri Jayawardenapura Kotte, and Kaduwela. The detailed LRT route is shown in Annex A.



Source: JICA Study Team

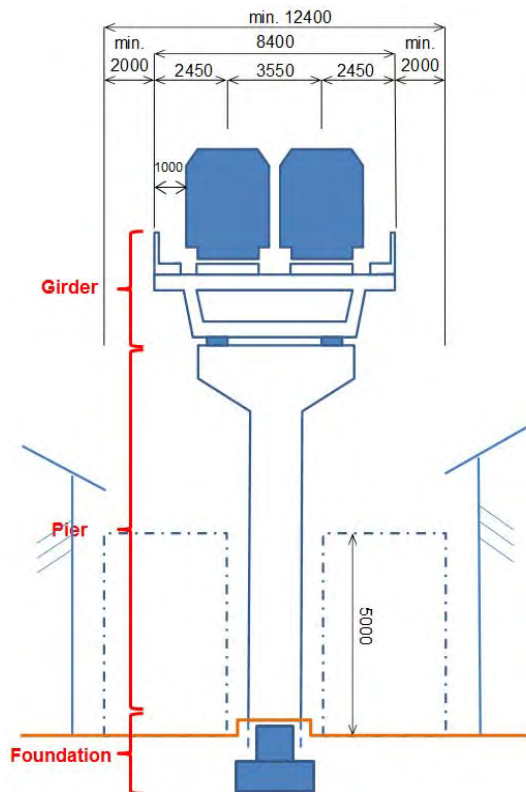
Figure 2.1 Proposed LRT Route

2.2 Project Components

2.2.1 LRT Structure and Rolling Stock

The 16km elevated LRT structure will be built primarily on existing roads, specified in the proposed route (Figure 2.1). The cross-section of the railway track is shown in **Figure 2.2**. The LRT structure consist the foundation, the pillar/pier, and the super structure that supports the railway track (girder). The width of LRT structure is 8.4m and additional 2m will be secured at both sides as Right of Way (ROW), therefore total 12.4m is taken as ROW for the LRT structure.

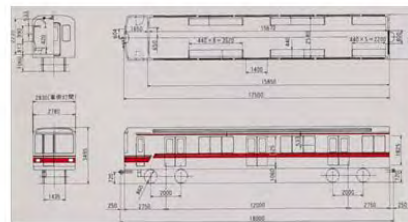
Approximately 25 trains will be used. Each train is composed of 4 up to 6 cars (rolling stock), depending on the operation stage. Images of the proposed LRT train (rolling stock) are also shown in **Figure 2.2**.



Note: Dimensions in mm
 Source: JICA Study Team



*Conceptual images of the proposed LRT in Colombo



*Proposed LRT train (rolling stock)

Figure 2.2 Components of the LRT Structure

spaces for trains (stabling tracks), sheds for heavy and light maintenance, wastewater treatment system, power station, and administrative building.



(a) Top View of Depot Area



(b) Side View of Depot Area

Figure 2.4 Conceptual Images of the Depot Area



Source: JICA Study Team

Figure 2.5 Proposed Layout for the Depot Area

CHAPTER 3 Legal and Policy Framework on Land Acquisition and Resettlement

3.1 Land Acquisition Laws and Regulations in Sri Lanka

3.1.1 Land Acquisition Act (LAA) of 1950 and its subsequent amendments

The Land Acquisition Act of 1950 stipulates general provisions for land acquisition procedures in Sri Lanka. It has been amended through time. It only provides compensation for lost assets such as land, structures and crops. It does not require project executing agencies to address key resettlement issues such as:

- (a) exploring alternative project options that avoid or minimize impacts on people;
- (b) compensating those who do not have title of land;
- (c) consulting affected persons on resettlement options;
- (d) providing for successful social and economic integration of the project affected persons and the host communities of the relocation site;
- (e) full social and economic rehabilitation of the affected persons.

Land Acquisition Regulations 2008 provides for the payment of compensation at market rates for lands and built structures. The Regulations consider development potential of lands and also take into account compensation for tenants. It also stipulates compensation for disturbances and other expenses such as transaction costs and displacement.

3.1.2 Land Acquisition Resettlement Committee (LARC) System

Land Acquisition and Resettlement Committee (LARC) system was used by several government projects in the past, like the Southern Transport Development Project. In this system, additional allowance was provided, in addition to statutory compensation decided by Chief Valuer during the land acquisition process under LAA. This additional allowance is determined through a consultative process with the participation of project affected persons (PAPs). One of main role of LARC system is to make compensation cost as replacement cost. However, with the introduction of 2008 regulation revision by Gazette Notification No.1585/7 on 20th January 2009 to LAA, the LARC review system was abolished.

Although the 2008 Regulation stipulates the approach for compensation (e.g. ex gratia), the capacity of the CV (Chief Valuer), who assesses compensation in each DS is insufficient. Also, there have been issues related with the compensation evaluated by the CV. Due to some practical issues raised regarding the compensation payment process under the 2008 Regulation, the LARC system has been reintroduced under the Land Acquisition Regulation 2013, No.1864/54-2014, but only for specified projects approved by the Cabinet.

Under the LARC system, compensation is evaluated by the member of relevant parties (CV, DS etc). The PAPs will be called by the respective DS after section 17 of LAA process, to participate in the LARC meeting.

Based on the discussion above, the LARC system was deemed better compared to the 2008 Regulations in providing space for PAPs to present their grievances. MMWD applied for the implementation of the LARC System to the project. The cabinet approval through cabinet paper no. 17/1654/724/064 and a memorandum dated 2017.07.19, have been obtained for this project (refer **Annex B**).

(1) Land Acquisition Resettlement Committee (LARC, Divisional Level)

The LARC committees are appointed at the respective Divisional Secretary's division in which land will be acquired. The committee consists of the following officers:

- Divisional secretary or Assistant Divisional Secretary of the relevant Divisional secretary's Division
- Surveyor General or his nominee
- Chief Valuer or his nominee
- Officer from the Project Office

PAPs will be provided an opportunity to make their representation at the proceedings of the LARC.

(2) Super LARC (Ministerial Compensation Appeal Board)

If the Project affected person is not satisfied with the decision made by the LARC, he/she can file an appeal to the Land Acquisition and Resettlement Special Committee ("Super LARC"). The Super LARC has the power to amend the assessment made by LARC, while reconsidering the claims of the PAP. The committee consists of following officers:

- Secretary of Ministry of Megapolis
- Secretary of Land and Land Development
- Secretary of Ministry of Finance or his representative
- Chief Valuer or his representative
- Survey General or his representative
- Chairman or chief executive officer of the Project

3.1.3 National Environmental Act of No 47 of 1980 (NEA)

The National Environment Act (NEA) No.47 of 1980, amended by Act No 56 of 1988 has some provisions relevant to involuntary resettlement. The Minister has by gazette notification No. 859/14 of 23.03.1995 determined the projects and undertakings for which the Central Environment Authority (CEA) approval is needed in terms of Part IV C of the NEA. The schedule includes Item 12 which refers to “involuntary resettlement exceeding 100 families” that will require preparation of an Environmental Impact Assessment.

3.1.4 National Involuntary Resettlement Policy (NIRP) 2001

As described in above, people without titles to the land and other dependents on land cannot be assisted under the LAA. In order to make sure that people affected by development projects are treated in a fair and equitable manner, as well as to address the gaps to international best practice, the Government of Sri Lanka (through the Cabinet of Ministers) adopted the National Policy on Involuntary Resettlement (NIRP) on 24th May 2001, and thereby established a framework for involuntary resettlement in the project planning and implementation stage. NIRP is also aligned with JICA’s safeguard policy, and it also highlights the need for consultation of Project Affected Persons (PAPs) and their participation in the resettlement process actively.

The basic principles of the NIRP include the following:

- Involuntary resettlement should be avoided or reduced as much as possible by reviewing alternatives to the project as well as alternatives within the project.
- Where involuntary resettlement is unavoidable, affected people should be assisted to re-establish themselves and improve their quality of life.
- Gender equality and equity should be ensured and adhered to throughout the policy.
- Affected persons should be fully involved in the selection of relocation sites, livelihood compensation and development options at the earliest opportunity.
- Replacement land should be an option for compensation in the case of loss of land; in the absence of replacement land cash compensation should be an option for all affected persons
- Compensation for loss of land, structures, other assets and income should be based on full replacement cost and should be paid promptly. This should include transaction costs.
- Resettlement should be planned and implemented with full participation of the provincial and local authorities.
- To assist those affected to be economically and socially integrated into the host communities; participatory measures should be designed and implemented.
- Common property resources and community and public services should be provided to affected people.
- Resettlement should be planned as a development activity for the affected people.

- Affected persons who do not have documented title to land should receive fair and just treatment.
- Vulnerable groups should be identified and given appropriate assistance to substantially improve their living standards.
- Project Executing Agencies should bear the full costs of compensation and resettlement.

NIRP requires that a comprehensive Resettlement Action Plan (RAP) be prepared where 20 or more families are displaced. In case where less than 20 families are displaced, the NIRP still requires a RAP with less level of detail.

3.1.5 Agrarian Development Act No 46 of 2000

Agrarian Development Act No 46 of 2000 provides for matters relating to land owners and tenant cultivators of paddy lands, for the utilization of agricultural lands in accordance with agricultural policies; for the establishment of agrarian development councils, for the establishment of a land bank; for the establishment of agrarian tribunals, for the repeal of the Agrarian Services Act No 58 of 1979, and for matters connected therewith or incidental there to. The Act describes:

- The rights of persons who cultivate paddy lands.
- Utilizing agricultural lands in accordance with agricultural policies
- Appointment and powers and duties of the Commissioner General, other commissioners and agrarian development officers.
- Establishment of Agrarian Tribunals
- Institutional structure of farmers organizations
- Agrarian Development Councils
- Irrigation work and the management of irrigation water

3.1.6 Colombo District (Low Lying Areas) Reclamation & Development Board Act No. 15 of 1968

The Land Reclamation and Development Corporation (SLLRDC) established under this Act has the power to declare low lying areas within the Colombo district as flood protection areas. The Act was amended by Law No. 27 of 1976, Act No. 52 of 1982 and Act No. 35 of 2006.

3.1.7 Land Acquisition Procedure in Sri Lanka

The LAA (1950) stipulates the process for the land acquisition, as shown in Table 3.1 below. Project

execution/implementation agency (Applicant Ministry) prepares the land acquisition application and then submits the application to the Ministry of Lands and Parliamentary Reforms (MLPR) together with the RAP. MLPR is responsible for the overall implementation of land acquisition under the LAA. MLPR/project proponent shall coordinate with each related Divisional Secretary regarding the involvement of affected people, including notification, inquiries on compensation and payment of compensation.

The Department of Survey is the responsible agency for conducting a survey of affected land as per the RAP and prepares survey plans which are given with tenement list (list of persons claiming ownership for land/structures). As per valuation of land, the Department of Valuation plays a role in the valuation of land to be acquired for the proposed project. After compensation is paid by the Divisional Secretary, the land is taken over by Divisional Secretary/Applicant Ministry.

The operational procedures of the LAA are as follows and the LRT project will follow the process step by step without initial enforcement of section 38.a (emergency acquisition).

Table 3.1 Land acquisition process and relevant agencies

Step	Agency in Charge	Activity
Acquisition Application	Applicant Institution	Forward the application through the respective Ministry
Section 2 Direction	MLPR	Grant authority to enter the land and the decision of Hon. Minister that the particular land is needed for a public purpose.
Section 2 Notice	Divisional Secretary	Publish the notice in the surrounding area.
Advance Tracing	Superintendent of Surveys	
Section 4 Direction	MLPR	Inviting objections from the land owners and decision of the Hon. Minister for investigation
Section 4 Notice	Divisional Secretary	Publish the notice inviting objections
Objection Inquiry	Applicant Ministry	Forward recommendations after conducting investigations on objections
Section 5 Declaration	MLPR	Decision of the Hon. Minister of Lands that the land is to be acquired
Section 5 Notice	Divisional Secretary/Government Printer	Publish a gazette notice that Hon. Minister of Land decided that the land is to be acquired
Final plan	Superintendent of Survey	
Section 7 Gazette Notice	Divisional Secretary/Government Printer	Invitation notice to investigate the title of the land.
Section 9- Inquiry into Title	Divisional Secretary	Investigating title

Section 15 Notice	Divisional Secretary	Publish the notice in the surrounding area.
Section 10- Decision on Title	Divisional Secretary	Determine the title
Valuation	Valuation Department	
Section 17 – Awarding Compensation	Divisional Secretary	
Payment of Compensation	Divisional Secretary	Allocate financial provisions from the MLPR or the relevant Institution and make payments to the land owner
Gazetting 38 Order	MLPR	Take over the land's possession to the Government
Taking undisturbed possession	Divisional Secretary	Take over the procession and hand it over to the applicant institution
Section 44 Vesting Certificate/Registration of State Ownership	Divisional Secretary/Registrar General	Issue vesting certificate to the Institution concerned, after payment of compensations to the land owners

Source: Ministry of Lands and Parliamentary Reforms

3.2 JICA Policies on Involuntary Resettlement

The JICA Guidelines states the policies on involuntary resettlement. Key principles of JICA policies on involuntary resettlement are summarized below.

- Involuntary resettlement and loss of livelihood are to be avoided whenever feasible by exploring all viable alternatives.
- When population displacement is unavoidable, effective measures to minimize the impact and to compensate for losses should be taken.
- People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities and production levels to pre-project levels.
- Compensation must be based on the full replacement cost² as much as possible.

² Description of “replacement cost” is as follows.

Land	Agricultural Land	The pre-project or pre-displacement, whichever is higher, market value of land of equal productive potential or use located in the vicinity of the affected land, plus the cost of preparing the land to levels similar to those of the affected land, plus the cost of any registration and transfer taxes.
	Land in Urban Areas	The pre-displacement market value of land of equal size and use, with similar or improved public infrastructure facilities and services and located in the vicinity of the affected land, plus the cost of any registration and transfer taxes.
Structure	Houses and Other Structures	The market cost of the materials to build a replacement structure with an area and quality similar or better than those of the affected structure, or to repair a partially affected structure, plus the cost of transporting building materials to the construction site, plus the cost of any labor and contractors' fees, plus the cost of any registration and transfer taxes.

- Compensation and other kinds of assistance must be provided prior to displacement.
- For projects that entail large-scale involuntary resettlement, resettlement action plans must be prepared and made available to the public. It is desirable that the resettlement action plan include elements laid out in the World Bank Safeguard Policy, OP 4.12, Annex A.
- In preparing a resettlement action plan, consultations must be held with the affected people and their communities based on sufficient information made available to them in advance. When consultations are held, explanations must be given in a form, manner, and language that are understandable to the affected people.
- Appropriate participation of affected people must be promoted in planning, implementation, and monitoring of resettlement action plans.
- Appropriate and accessible grievance mechanisms must be established for the affected people and their communities.

3.3 Operational Policy of World Bank on Involuntary Resettlement (OP.4.12)

Above principles are complemented by the World Bank OP 4.12, since it is stated in the JICA Guideline that “JICA confirms that projects do not deviate significantly from the World Bank’s Safeguard Policies.” Additional key principles based on the World Bank OP 4.12 are as follows.

- Affected people are to be identified and recorded as early as possible in order to establish their eligibility through an initial baseline survey (including population census that serves as an eligibility cut-off date, asset inventory, and socioeconomic survey), preferably at the project identification stage, to prevent a subsequent influx of encroachers or others who wish to take advance of such benefits.
- Eligibility of Benefits include, the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who don't have formal legal rights to land at the time of census but have a claim to such land or assets and the PAPs who have no recognizable legal right to the land they are occupying.
- Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based.
- Provide support for the transition period (between displacement and livelihood restoration).
- Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, landless, elderly, women and children, ethnic minorities etc.
- For projects that entail land acquisition or involuntary resettlement of fewer than 200 people, abbreviated resettlement plan is to be prepared.

(Source: World Bank OP 4.12 Annex A footnote1)

In addition to the above core principles of the JICA policy, emphasis is given to the development of a detailed resettlement policy inclusive of all the above points; project specific resettlement plan; institutional framework for implementation; monitoring and evaluation mechanism; time schedule for implementation; and, detailed Financial Plan etc.

3.4 Gap Analysis of Sri Lankan Laws and JICA Policies (WB.OP.4.12)

There are differences between JICA policies and the national law in Sri Lanka in relation to the approach to land acquisition and payment of compensation. However, the NIRP, which was designed to bridge the gap with international best practice, is more or less aligned with JICA policies. It is used in most projects financed by international agencies involving resettlement issues. The results of the gap analysis between JICA Policies and Sri Lankan Law/Policies is shown in the Table below.

Table 3.2 Gap Analysis of Sri Lankan Laws/Policies and JICA Policies (WB.OP.4.12)

No.	JICA guideline/ WB OP 4.12	GOSL Laws/Policies	Gap	Measures to Bridge the GAP
1	Involuntary resettlement and loss of means of livelihood are to be avoided when feasible by exploring all viable alternatives. (JICA GL)	No requirement under the LAA. NIRP requires avoiding involuntary resettlement by reviewing alternatives.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
2	When population displacement is unavoidable, effective measures to minimize impacts and to compensate for losses should be taken. (JICA GL)	NIRP requires assisting affected persons to re-establish themselves and improve their quality of life.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
3	People who must be resettled involuntarily and people whose means of livelihood will be hindered or lost must be sufficiently compensated and supported, so that they can improve or at least restore their standard of living, income opportunities and production levels to pre-project levels. (JICA GL)	NIRP requires that affected persons should be assisted to re-establish themselves and improve their quality of life.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy

No.	JICA guideline/ WB OP 4.12	GOSL Laws/Policies	Gap	Measures to Bridge the GAP
4	Compensation must be based on the full replacement cost as much as possible. (JICA GL)	LAA mainly covers only the cost for land and structure, but not cover allowance such as exgratia component. NIRP requires that compensation for loss of land, structures, other assets and income should be based on full replacement cost and should be paid promptly.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
5	Compensation and other kinds of assistance must be provided prior to displacement. (JICA GL)	NIRP requires prompt payment of compensation.	NIRP does not mention that compensation and entitlements are to be paid or provided prior to physical or economic displacement.	The following two options which are guided in NIRP should be considered. <ul style="list-style-type: none"> - Not to award project contract until compensation is paid - To allow APs to stay on their land until compensation is paid
6	For projects that entail large-scale involuntary resettlement, resettlement action plans must be prepared and made available to the public. (JICA GL)	NIRP requires a comprehensive RAP for projects exceeding displacement of more than 20 families.	JICA policy requires preparation of an RAP when the project causes displacement of more than 200 people, whereas NIRP requires this in case of exceeding displacement of more than 20 families.	To follow NIRP.
7	In preparing a resettlement action plan, consultations must be held with the affected people and their communities based on	NIRP requires that affected persons should be fully involved in the	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy

No.	JICA guideline/ WB OP 4.12	GOSL Laws/Policies	Gap	Measures to Bridge the GAP
	sufficient information made available to them in advance. (JICA GL)	selection of relocation sites, livelihood compensation and development options at the earliest opportunity.		
8	When consultations are held, explanations must be given in a form, manner, and language that are understandable to the affected people. (JICA GL)	LAA specifies that all notifications shall be prepared in all three languages (English, Sinhala and Tamil)	LAA/NIRP does not clearly mention this principle.	To make proper arrangements (interviewers or translator) for Sinhala and Tamil people.
9	Appropriate participation of affected people must be promoted in planning, implementation, and monitoring of resettlement action plans. (JICA GL)	NIRP requires that resettlement should be planned and implemented with full participation of the provincial and local authorities.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
10	Appropriate and accessible grievance mechanisms must be established for the affected people and their communities. (JICA GL)	The LAA provides a limited grievance redress mechanism. One of the key objectives of NIRP is that all affected persons are made aware of processes available for the redress of grievances and that the redress process is easily accessible and immediately responsive.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
11	Affected people are to be identified and recorded as early as possible in order to establish their eligibility through an initial baseline survey (including population census that serves as an eligibility cut-off date, asset inventory, and socioeconomic survey), preferably at the project identification stage, to prevent a subsequent influx of encroachers or others who wish	NIRP states the importance for identification of APs at an initial stage and describes risks related to the set-up of the cut-off date.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy

No.	JICA guideline/ WB OP 4.12	GOSL Laws/Policies	Gap	Measures to Bridge the GAP
	to take advance of such benefits. (WB OP4.12 Para.6)			
12	Eligibility of benefits includes the PAPs who have formal legal rights to land (including customary and traditional land rights recognized under law), the PAPs who don't have formal legal rights to land at the time of census but have a claim to such land or assets and the PAPs who have no recognizable legal right to the land they are occupying. (WB OP4.12 Para.15)	NIRP requests that affected people who do not have title deeds to land should receive fair and just treatment.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
13	Preference should be given to land-based resettlement strategies for displaced persons whose livelihoods are land-based. (WB OP4.12 Para.11)	Replacement land should be an option for compensation in the case of loss of land; in the absence of replacement land, cash compensation should be an option for all affected persons.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
14	Provide support for the transition period (between displacement and livelihood restoration). (WB OP4.12 Para.6)	NIRP requires that compensation for loss of land, structures, other assets and income should be based on full replacement cost and should be paid promptly. This should include transaction costs.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
15	Particular attention must be paid to the needs of the vulnerable groups among those displaced, especially those below the poverty line, landless, elderly, women and children, ethnic minorities etc. (WB OP4.12 Para.8)	NIRP requires that vulnerable groups should be identified and given appropriate assistance to improve their living standards.	No difference between JICA Policy and NIRP on this principle	To follow the NIRP and JICA Policy
16	For projects that entail land acquisition or involuntary resettlement of fewer than 200 people, an abbreviated	NIRP requires that RAP is prepared for projects where 20 or more families are	NIRP's requirement is more stringent than WB.	To follow NIRP

No.	JICA guideline/ WB OP 4.12	GOSL Laws/Policies	Gap	Measures to Bridge the GAP
	resettlement plan is to be prepared. (WB OP4.12 Para.25)	affected and if affected families are less than 20, a RAP with a lesser level of detail needs to be prepared.		

Source: RAP Study Team

3.5 Involuntary Resettlement and Land Acquisition Safeguard Principles for the Project

Based on a review of the laws and regulations on land acquisition in Sri Lanka and the NIRP and JICA Guidelines, the following resettlement principles shall be adopted for this project. Where any gaps besides the analysis shown above will be found between the Sri Lankan legal framework for resettlement and JICA's Policy on Involuntary Resettlement, practicable mutually agreeable approaches will be designed consistent with the Government practices and JICA's Policy.

- a. Land acquisition and involuntary resettlement will be avoided where feasible, or minimized, by identifying possible alternative project designs that have the least adverse impact on the communities in the project area.
- b. Screen the project as early as possible to identify involuntary resettlement impacts and risks. Set up the scope of resettlement planning through a social economic survey and census survey of PAPs.
- c. Where displacement of households is unavoidable, all PAPs (including communities) losing assets, livelihoods or resources will be fully compensated and assisted so that they can improve, or at least restore, their former economic and social conditions.
- d. Compensation and rehabilitation support will be provided to all PAPs, that is, any person or household or business which on account of project implementation would have his, her or their:
 - Standard of living adversely affected;
 - Right, title or interest in any house, interest in, or right to use, any land including premises, agricultural and grazing land, commercial properties, tenancy, or right in annual or perennial crops and trees or any other fixed or moveable assets, acquired or possessed, temporarily or permanently;
 - Income earning opportunities, business, occupation, work or place of residence or habitat adversely affected temporarily or permanently; or
 - Social and cultural activities and relationships affected or any other losses that may be identified during the process of resettlement planning.
- e. PAPs that lose only part of their physical assets will not be left with a portion that will be

inadequate to sustain their current standard of living. Reasonable options for compensation shall be provided.

- f. The resettlement plans will be designed in accordance with Sri Lanka's National Involuntary Resettlement Policy and JICA's Policy on Involuntary Resettlement.
- g. The Resettlement Plan will be translated into Sinhala and Tamil languages and disclosed for the reference of PAPs as well as other interested groups.
- h. Payment for land and/or non-land assets will be based on the principle of replacement cost.
- i. Resettlement assistance will be provided not only for immediate loss, but also for a transition period needed to restore livelihood and standards of living of PAPs. Such support could take the form of short-term jobs, subsistence support, salary maintenance, or similar arrangements.
- j. The resettlement plan must consider the needs of those most vulnerable to the adverse impacts of resettlement (including the poor, those without legal title to land, ethnic minorities, women, children, elderly and disabled) and ensure they are considered in resettlement planning and mitigation measures identified. Assistance should be provided to help them improve their socio-economic status.
- k. PAPs will be involved in the process of implementing the resettlement plan.
- l. PAPs and their communities will be consulted about the project, the rights and options available to them, and proposed mitigation measures for adverse effects, and to the extent possible, be involved in the decisions that are made concerning their resettlement.
- m. Adequate budgetary support will be fully committed and made available to cover the costs of land acquisition (including compensation and income restoration measures) within the agreed implementation period. The funds for all resettlement activities will come from the Government of Sri Lanka.
- n. Displacement should not occur before provision of compensation and of other assistance required for relocation. Acquisition of assets, payment of compensation, and the resettlement and start of the livelihood rehabilitation activities of PAPs, will be completed prior to any construction activities, except when a court of law orders so in expropriation cases. (Livelihood restoration measures must also be in place but not necessarily completed prior to construction activities, as these may be ongoing activities.)
- o. Organization and administrative arrangements for the effective implementation of the resettlement plan will be identified and in place prior to the commencement of the process; this will include the provision of adequate human resources for supervision, consultation, and monitoring of land acquisition and rehabilitation activities.
- p. Appropriate reporting (including auditing and redress functions), monitoring and evaluation mechanisms, will be identified and set in place as part of the resettlement management system. An external monitoring group will be hired by the project and will evaluate the resettlement process and final outcome. Such groups may include qualified NGOs, research institutions or universities.

3.6 Land Acquisition Process for the Project

Based on the land acquisition procedure in Sri Lanka, the land acquisition process and responsible entities for the LRT Project are presented in Table 3.3.

Table 3.3 Land Acquisition Process for the LRT Project & Responsible Entities

No	Activity	Responsible Institution/s
1	Consultation with affected people	PMU-LRT/ MMWD
2	Preparation of Entitlement Metrix	PMU-LRT/ MMWD
3	Obtain the Cabinet Approval for Entitlement Metrix and IRP budget	PMU-LRT/ MMWD
4	Distribution of information leaflets to APs on LA and Resettlement process	PMU-LRT
5	Submission of Acquisition proposal to MOL&PA	PMU-LRT/ MMWD
6	Issuing of Section 02 order	MOL&PA
7	Publishing of Sec. 02 notice	Relevant Divisional secretary(DS)
8	Initiation of the project Income Restoration Programme	PMU-LRT
9	Preparation of advance tracing	Superintend of Survey
10	Issuing of Section 04 order	MOL&PA (GRCs will be established in the project area)
11	Publishing of Sec. 04 notice	Relevant Divisional secretary
12	Inquiry on disagreements/ objections	PMU-LRT/ MMWD
13	Issuing of Sec.05 Gazette notice	DS, Government Printer, MOL&PA
14	Preparation of Preliminary plan	Superintend of Survey
15	Issuing of Sec. 07 Gazette notice	DS, Government Printer
16	Awareness of LARC & S-LARC committees on Entitlement Metrix and Ex-gratia package	PMU-LRT
17	Inquiries under Sec. 09	DS (Also inform the IRP the concept, process & how to use the compensation effectively)
18	Ownership determination under Sec. 10	DS
19	Valuation of property	Department of Valuation
20	Notification under Sec. 17 & invite for the LARC	DS/ PMU-LRT
21	Incorporation LARC system & Entitlement Metrix to the compensation process	PMU-LRT, RAs will facilitate for all PAPs
22	Inform the LARC award (with Sec.17 payment)	DS (As the chairman of LARC); PMU to be facilitate
23	Call for S- LARC hearing, if the PAPs been unsatisfied with LARC award	Sec. MMWD (As the chairman of S- LARC), and PMU to be facilitate
24	Payment of compensation and other allowances	DS/ PMU (PAP will incorporate in to the project IRP process)
25	Issuing of Section 38 (Gazette)	MOL&PA and Government Printer
26	Take possession of the property	DS/PMU

CHAPTER 4 Potential Project Impacts and Alternative Analysis

4.1 Potential Impact

As mentioned in the previous section, the LRT System will primarily use existing roads in order to minimize land acquisition and resettlement. The railway will be built on an elevated structure to reduce impact on the use of existing roads. However, there are situations that require acquisition of properties and assets in order to give way to the Project. The detail of affected properties with LRT route map is available in **Annex C**. These are described below.

4.1.1 Train Stations

The proposed train station design in the Figure 2.3 (refer to Section 2.2.2) shows that the train station would require a minimum of approximately 21.4m ROW. Existing roads in Colombo and Thimbirigasyaya DS divisions are sufficient to accommodate the proposed train station design. However, existing roads in Kaduwela, particularly in Malabe area, are comparatively narrower. It has been noted that almost all train stations in Battaramulla-Malabe area, namely: Battaramulla Stn, Lumbini Stn, Palan Thuna Stn, Malabe Stn and IT Park Stn. These stations would require land acquisition to have enough space for construction of the train station. To illustrate this, affected structures in the proposed Lumbini Station is shown in Figure 4.1.

Areas that need to be acquired to give space for train stations are currently occupied by several built structures along the existing road. These structures are mostly commercial business premises. As shown in **Figure 4.1**, many of these business premises may be partially be affected by the project. Thus, acquisition of only a portion of these premises is required. The extent of impact will be determined during the detailed design phase.



Figure 4.1 Potentially Affected Structures in the Proposed Lumbini Station

4.1.2 Sharp curves

The proposed LRT route has three sharp curves located at Ibbanwela Junction, Palan Thuna Junction and Koswatta Junction. Due to the limitations of engineering design and also taking into account implications on train speed and noise impacts, structures at the corner or these curves may need to be acquired. Affected structures in the three junctions are shown in Figure 4.2. Businesses such as Ishara Traders and HNB bank housed in multiple storey buildings will be affected.

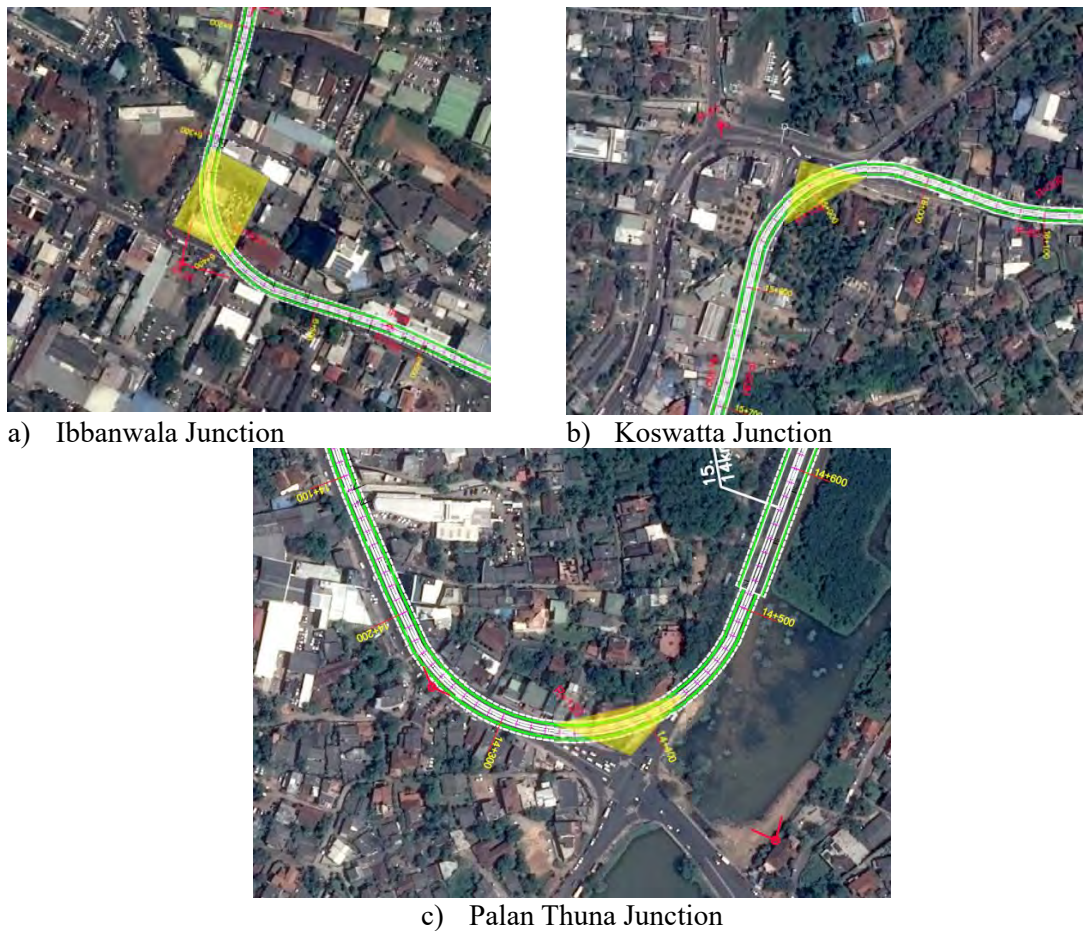


Figure 4.2 Potentially Affected Structures in sharp curves

4.1.3 Depot Area

For the construction of the Depot and the IT Park Station at Malabe (IT Park Junction), partially abandoned and partially cultivated paddy lands in Kaduwela DS Division need to be acquired. These paddy land areas have an approximate total area of about 200,000m² (in Thalahena North, Thalahena North B, Malabe North & Malabe West GN Divisions in Kaduwela DSD). This accounts for the bulk of land that needs to be acquired for the Project. The extent of area that will be used for the depot and related facilities are shown in **Figure 4.3**.



Figure 4.3 Land that need to be acquired for the depot area

4.2 Alternative analysis

4.2.1 No Project Option

In Sri Lanka, under its stable economic growth, the number of traffic modes on the road network such as private car, buses, and motorbikes is projected to increase rapidly. Currently, about 1 million people are entering to the center of Colombo every day and this causes severe traffic congestion in the city center and surrounding road networks. It is predicted that existing road networks may not be able to handle future traffic demand.

Without having a rail-based public transport, especially, the LRT project on Malabe corridor, the following negative impacts are predicted in future.

- Declining efficiency of economics activities due to large travel time loss by traffic congestion
- Increasing air pollution due to heavy vehicle transports
- Increasing noise pollution due to road transport
- Increasing road traffic accidents

Therefore, for both environmental and social aspects, it is undesirable not to implement the LRT.

4.2.2 Alternatives of Structural Options

In the official request for the LRT project, the elevated structure (viaduct) is applied in the entire route. In order to compare with other structural options, namely underground and on street (existing road), 3 options were compared from the points of views described in the **Table 4.1**. Based on the results, elevated option was considered as the most desirable option in terms of cost, land acquisition, resettlement, and safety.

Table 4.1 Alternative of structural option

Items	Underground	On Street (Existing Roads)	Elevated (Viaduc)
Distance for Construction	Less than Elevated option	Almost same as elevated structure	As original
Construction cost	Highest of Civil Cost (approx. 3times or more than elevated option)	Civil structure itself is not expensive. However civil costs for intersections at SLR railway crossing and land acquisition costs will be higher than other options	As for civil cost: it is middle among the option As for total cost: it will be most economical option
Structural characteristics	With expensive “shield machine”, construction period can be reduced on ground, however, it is difficult for installation of its machine into underground and of construction of underground stations.	Structure can be simple; however, many flyover sections are required as complicated structures at SLR crossings and road intersections.	Numbers of piers on route is required.
Workability	Proper underground soil conditions and underground information for building is highly required. Highest difficulties exist in construction.	Easiest for construction on street but enough road space is required. It is not seen anywhere for applicable section in the route.	Construction of piers is installed at road median. It is necessary to grasp utility pipes at the installation point of piers. Traffic management during the construction is required.
Traffic Problem	Occur at the underground station area with large space.	Reduce existing road space and accelerate traffic congestion by car	Need traffic management (lane configuration, parking space) due to
Natural condition	High risk of effect on groundwater and ground settlement	Noise and vibration affect residents living near roadside.	Noise and vibration are generated from the top of viaduct during operation
Land Acquisition, Resettlement	Need to confirm the rights of land in underground	Many land acquisitions are required.	Land acquisition is the limited among three options.

Items	Underground	On Street (Existing Roads)	Elevated (Viaduc)
Landscape	Large structure happens at the entering of underground station, from/to underground near depot	New scenery by tram on street	Consideration of landscape impact of elevated structure is required.
Safety	Consideration for evacuation at the time of flood or emergency stop	Consideration when crossing residents and cars at intersections	No crossing to residents and cars, relatively safe to operate
Noise and vibration	Although it is less than other options, vibration is transmitted to buildings depends on underground	The largest noise and vibration affect residents living roadside compared to other options.	There are some noise and vibration to buildings with same height near the viaduct.
Total evaluation	Not recommended due to construction cost and technical familiarity	Not recommended since not enough space on ground and large land acquisition required	Most desirable option in this project

4.2.3 LRT Alternative Routes

For LRT Alternative Routes analysis, following 3 sections has been studied.

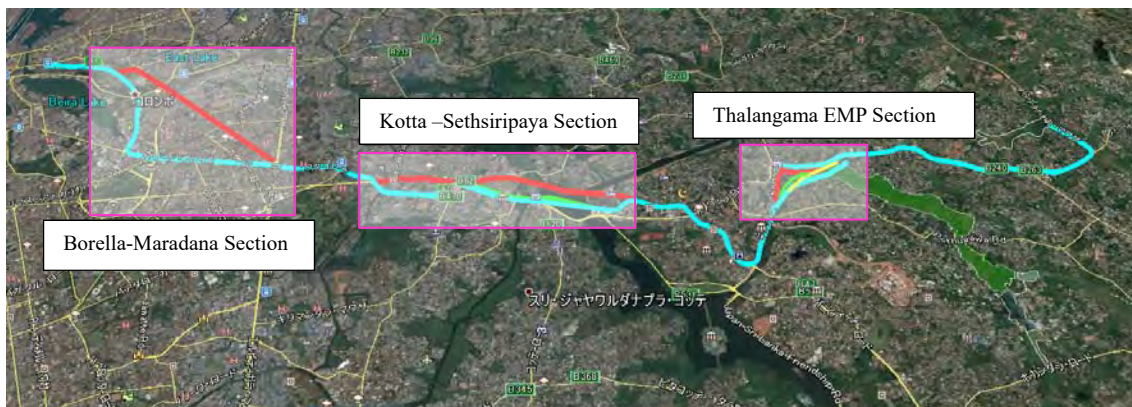


Figure 4.4 Sections of Alternative Route Analysis

(1) Borella – Maradana Route

For the section between Borella and Maradana, the following two alternative routes were studied. The result of alternative analysis is shown in **Table 4.2**.

- **Alternative 1:** The route via National Hospital area. It serves the high employment area of the CBD, provides connection to commercial and city centre, and enables direct access to the

National Hospital.

- **Alternative 2:** The route along P De S Kularatne Mawatha. It connects Residential and educational area.

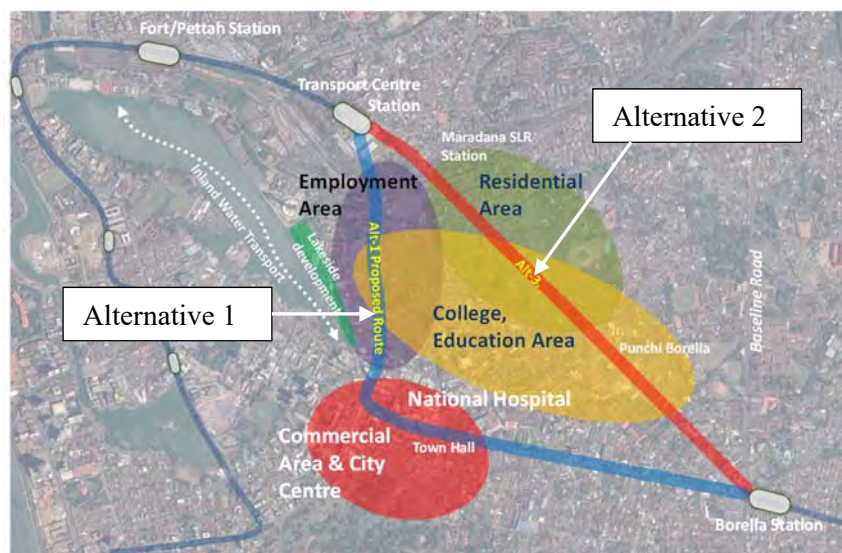
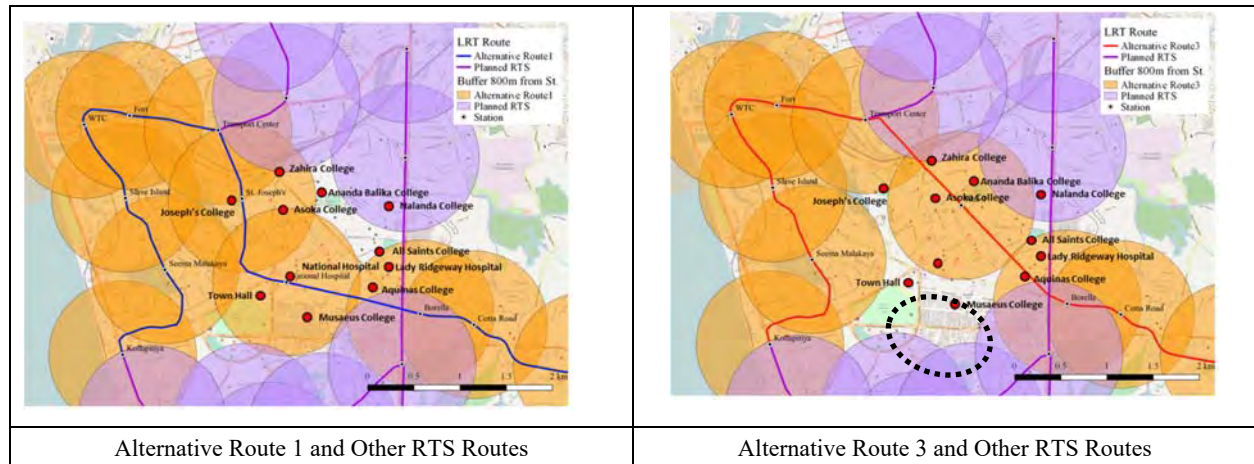


Figure 4.5 Two alternative routes between Borella and Maradana

Table 4.2 Alternatives analysis in Maradana-Borella Section

Item	Alternative 1 (Blue Route)	Alternative 2 (Red Route)
Description	The route via National Hospital area. It serves the high employment area of the central business district (CBD), provides connection to commercial and city centre, and enables direct access to the National Hospital	The route along P De S Kularatne Mawatha. It connects Residential and educational area
Length	• 400m longer than Alt 3.	• 400 m shorter than Alt 1.
Technical aspect	<ul style="list-style-type: none"> • More integrations are required with the future rehabilitation of Maradana road bridge due to electrification of SLR • More curve section required 	<ul style="list-style-type: none"> • The line can be integrated with Maradana station. • Longer flyover is required to cross Sri Lanka Railway. • Straight line route
Transport catchment	• The route will cover public transport catchment widely including the center of the city (e.g. Town Hall area) (Figure 4.6)	• Public transport catchment is relatively small compared with Alt 1. (Figure 4.6)
Social aspect	• Several commercial shops are required to be acquired	• No significant issue
Aesthetic	<ul style="list-style-type: none"> • Adverse impact on Ward place road which is quiet residential zone with large street trees. • There are several heritage buildings. 	• No significant issue
Hydrology	Not applicable	Not applicable

Ecological Environment	Greenery will be affected	No significant issue
Overall	Alternative 1 was recommended due to the overriding advantage of transport network	Alternative 2 was not recommended



Source: JICA Study Team, the base map from OpenStreetMap

Figure 4.6 Catchment area of LRT Stations of Alternative Route and Other RTS Lines

(2) Kotte - Sethsiripaya

For the section between Kotte and Sethsiripaya, following 2 alternative routes were studied. The result of alternative analysis is shown in **Table 4.3**.

- **Alternative 1:** The route via Sri Jayawardana Mawatha through Diyawanna lake. The proposed route is considered to be a Ceremonial approach into the Capital City of Sri Lanka under special urban planning prepared by UDA in early 1980. Even with developments in the area (e.g. Rajagiriya Flyover, new tall condominiums), UDA is now in the process of enhancing the character of the Ceremonial Road through various means.
- **Alternative 2:** The route via Old Kotte Road and go behind Diyawanna Lake.
- **Alternative 3:** The route goes side road of Sri Jayawardana Mawatha to avoid LRT at centre of road.

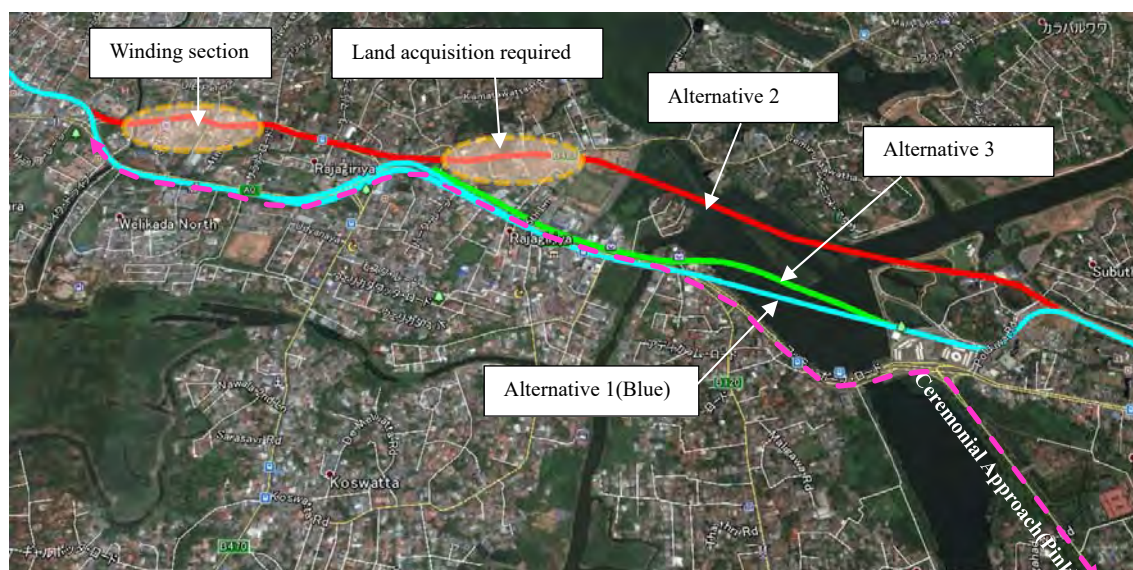


Figure 4.7 Sections for Alternative Analysis (Cotta and Sethsiripaya)

Table 4.3 Alternatives analysis in Kotte-Sethsiripaya Section

Item	Alternative 1 (Blue Route)	Alternative 2 (Red Route)	Alternative 3 (Green Route)
Description	The route via Sri Jayawardana Mawatha through Diyawanna lake See Figure 4.8 .	The route via Old Kotte Road and go behind Diyawanna Lake	The route goes side road of Sri Jayawardana Mawatha to avoid LRT at centre of road. See Figure 4.8 in detail.
Length	<ul style="list-style-type: none"> Base 	<ul style="list-style-type: none"> 100m shorter than alternative 1 	<ul style="list-style-type: none"> Almost same as alternative 1
Technical aspect	<ul style="list-style-type: none"> Although it is technical feasible to go along the sides of Rajagiriya fly over section, the cost is high. Less sharp curve 	<ul style="list-style-type: none"> Going along Rajagiriya fly over is not required Old Kotte road has more sharp curves, requiring more land acquisition. 	<ul style="list-style-type: none"> Although it is technically feasible to go along the sides of Rajagiriya fly over section, the cost is high. Less sharp curve
Social aspect	<ul style="list-style-type: none"> Can be mostly managed with no land acquisition. 	<ul style="list-style-type: none"> Approximately 20 houses to be relocated 	<ul style="list-style-type: none"> 2~3 buildings and commercial property need to be acquired.
Aesthetic	<ul style="list-style-type: none"> Disturb the concept of Ceremonial approach. However, area is already impacted with high raised buildings 	<ul style="list-style-type: none"> No significant impact 	<ul style="list-style-type: none"> Possible to mitigate the landscape impact on the concept of Ceremonial approach by having LRT route on the side of road
Hydrology	<ul style="list-style-type: none"> Shortest Diyawanna Lake section 	<ul style="list-style-type: none"> Longest Diyawanna Lake section 	<ul style="list-style-type: none"> Second shortest Diyawanna Lake section
Ecological Environment	<ul style="list-style-type: none"> No significant issue 	<ul style="list-style-type: none"> Island with mangrove in Diyawanna lake which is habitat of birds will be affected 	<ul style="list-style-type: none"> No significant issue

Item	Alternative 1 (Blue Route)	Alternative 2 (Red Route)	Alternative 3 (Green Route)
Overall	Alternative 1 is selected due to less land acquisition involved.	Alternative 2 is not preferred option due to the land acquisition issue, which can be studied further.	Alternative 3 can still be examined further during the detail design stage considering land availability along the road.



Figure 4.8 Two alternative routes on Ceremonial approach section

(3) Thalangama EPA Route

For the section between Denzil Kobbekaduwa Mawatha and B240 (Malabe road), 4 alternative alignment was studied. The best alignment in terms of technical and practical point of the view (less curve, no obstruction (houses), short) was considered to be the alignment which passes through Thalangama Environmental Protection Area (EPA) shown as blue route in **Figure 4.9**. Thalangama EPA was designated as EPA by CEA and only limited activities are allowed in EPA. Therefore, following alternative alignments were studied further and the comparison of potential impact is summarized in **Table 4.4**.

- **Alternative 1:** Passing through Thalangama EPA (400m) and shortest route:
- **Alternative 2:** Passing through Thalangama EPA with minimum distance (200m)
- **Alternative 3:** Passing outside of EPA boundary (buildings will be affected)
- **Alternative 4:** Passing on existing route

Considering the importance of Thalangama EPA as well as the social impact (land acquisition), the

Red route (passing on existing road was considered to be preferred route.



Source: Study Team

Figure 4.9 Alternative analysis in Thalangama EPA

Table 4.4 Alternatives analysis in Thalangama Area

Item	Alternative 1 (Blue Route)	Alternative 2 (Yellow Route)	Alternative 3 (Green Route)	Alternative 4 (Red Route)
Description	<ul style="list-style-type: none"> The shortest route passing through Thalangama EPA 	<ul style="list-style-type: none"> The shortest and less curve route crossing a portion of Thalangama EPA 	<ul style="list-style-type: none"> The route that goes outside of Thalangama EPA boundary. 	<ul style="list-style-type: none"> The route goes on existing road.
Length	<ul style="list-style-type: none"> Shortest 	<ul style="list-style-type: none"> Second shortest 	<ul style="list-style-type: none"> Second longest 	<ul style="list-style-type: none"> longest
Technical aspect	<ul style="list-style-type: none"> No significant issue 	<ul style="list-style-type: none"> No significant issue 	<ul style="list-style-type: none"> No significant issue 	<ul style="list-style-type: none"> Sharp curve at the corner Increase in travel
Transport catchment	Approximately same for all routes			
Social aspect	<ul style="list-style-type: none"> Less impact 	<ul style="list-style-type: none"> Less impact 	<ul style="list-style-type: none"> Approximately 20 houses to be relocated 	<ul style="list-style-type: none"> One commercial building and 3-4 houses might be relocated.





Item	Alternative 1 (Blue Route)	Alternative 2 (Yellow Route)	Alternative 3 (Green Route)	Alternative 4 (Red Route)
Aesthetic	<ul style="list-style-type: none"> Most significant due to the disturbance of EPA 	<ul style="list-style-type: none"> Less significant compared with Alt.1 	<ul style="list-style-type: none"> Less significant compared with Alt1 and 2. 	<ul style="list-style-type: none"> Not significant issue
Hydrology	<ul style="list-style-type: none"> Minor impact due to disturbance of flooding plain 	<ul style="list-style-type: none"> Minor impact due to disturbance of flooding plain 	<ul style="list-style-type: none"> Minor impact due to disturbance of flooding plain 	<ul style="list-style-type: none"> No significant issue
Ecological Environment	<ul style="list-style-type: none"> The route runs through the northern edge of Thalangama EPA. 	<ul style="list-style-type: none"> The route runs through the northern edge of Thalangama EPA. 	<ul style="list-style-type: none"> No significant issue 	<ul style="list-style-type: none"> No significant issue
Overall	Not recommended due to legal restriction of EPA	Not recommended due to legal restriction of EPA	Not recommended due to land acquisition issue	Selected as recommended route since there is no legal restriction and significant land acquisition issue

(4) Depot site

Alternative analysis for the depot site has been conducted as shown in below

Table 4.5. The required area for depot is approximately 15ha. Three potential sites have been identified, which include: 1) Dematagoda Railway Station site, 2) Malabe South-East and 3) Malabe North-West. Based on the alternative analysis, Dematagoda Railway Station site and Malabe South-East site are not considered as feasible options.

Table 4.5 Alternative analysis for Depot

	
	<p>1) Dematagoda Railway Station site</p> <p>This site is an existing railway depot with an area of approximately 7ha. The site needs to be leased from the Railway Department. Since the site is located 1.5km away from proposed LRT route, it is difficult to make a connection.</p>
	<p>2) Malabe South-East</p> <p>There is an agricultural land available near the proposed LRT route. However unoccupied land is only about 3.5ha. The land can be used as part of the depot, but resettlement is required in order to secure sufficient area for Depot.</p>
	<p>3) Malabe North-West</p> <p>There is agricultural land available near the proposed LRT route with an area of approximately 15ha. Although sufficient land can be secured for Depot, agricultural land needs to be acquired. It is to be noted that the site is considered as a flood retention area.</p>

CHAPTER 5 Potentially Affected Population and Properties (Socio Economic Survey)

5.1 Data Collection

The proposed Project will directly and/or indirectly impact properties and people along the LRT route, around the train stations, and within the depot area. The extent of impact on properties and population was analysed. In order to identify the characteristics of the people and businesses who/which may be affected by the Project, Census Survey and Socio-economic Survey (SES) were conducted. Both surveys adopted the use of structured questionnaires in order to obtain information that will be fed into the resettlement measures and compensation package.

In addition to the census and SES, the RAP employs several approaches to triangulate information for resettlement planning. Additional methods include stakeholder engagement activities (e.g. awareness meetings, focus group discussions, and interviews), site surveys/visits, CAD analysis, and collection of secondary data from various sources.

5.1.1 Preparatory Arrangements for the Survey

At the early stage of the project, PMU conducted awareness meetings not only for DS and GN officers but also for PAPs. In order to reach paddy land owners and tenant farmers who own land and/or cultivate at the proposed depot area, support from the Kaduwela DS Agrarian Service was sought. Potentially affected business owners were identified by using CAD drawings with satellite images and verified through site visits. Separate awareness meetings were conducted for paddy land owners and tenant farmers, and for business owners.

Survey enumerators play an important role not only in communicating project information, but more importantly obtaining necessary information for the surveys. Thus, prior to the conduct of the surveys, training was provided to enumerators when conducting the survey.

5.1.2 Questionnaire Form for the Survey

The questionnaire was designed in order to obtain necessary information regarding the PAPs. It is composed of three parts: Census and Socio-Economic Survey, AP's knowledge of the project and preferences for compensation/relocation, and Inventory of Losses survey.

The census and SES are both aimed at identifying characteristics of the PAPs and property ownership. Preference for compensation is important in obtaining PAPs' opinion regarding the desired compensation. Inventory of losses will determine the type of structure, approximate area and location of the property. All these information are necessary in developing the Entitlement Matrix and Replacement Cost.

5.1.3 Survey Team

The survey was conducted by a team of trained enumerators under close supervision of field supervisors. The structured survey questionnaire was filled through an in-depth interview with affected people, including farmers, land owners and business community. The composition of the survey team is shown in below.

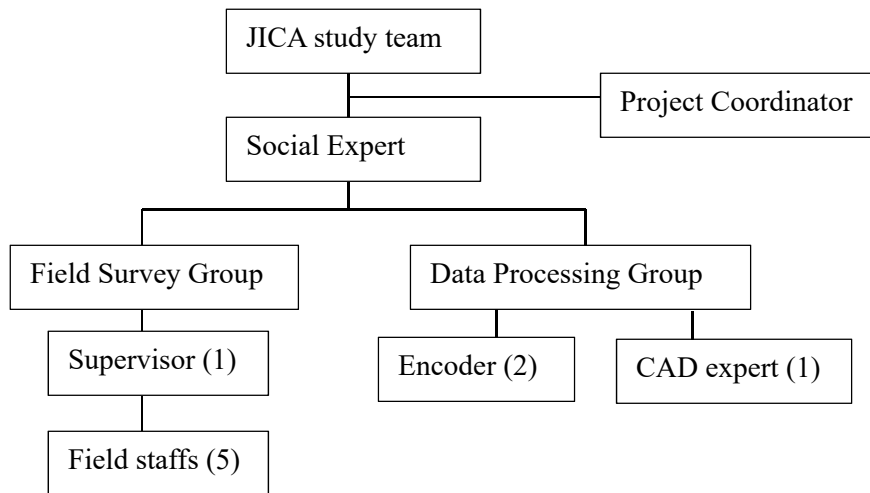


Figure 5.1 Composition of the Survey Team

5.2 Results of the Census Survey

Properties, including both land and built structures, that may be affected by the project have been identified and the extent of impact has been assessed. Aside from properties, business owners, employees and residents who are using the properties have also been identified and surveyed in order to determine how the project may impact their living and livelihood.

This RAP is focused on private properties that may be affected by the project in order to ensure that impacts on private individuals and groups are taken into account in the compensation and resettlement measures.

Census survey was conducted by the survey team to cover all potentially affected people by visiting to each affected property, including paddy land and residential/commercial/government properties. Census survey covered 1 resident, 100 business premises, 41 farmers and 5 tenant farmers. Among the PAPs, a total of 85 business owners and/or their representatives were interviewed.

5.2.1 Affected People

(1) Affected resident, business owners, renters and workers

Since structures along the LRT route are mostly commercial in nature, the Project will primarily impact business premises, along the route and areas near proposed LRT stations. A breakdown of affected business owners, workers and residents according to the degree of impact (total or partial)

is shown in **Table 5.1**. The list of affected population is attached in Annex D.

It is estimated that approximately 100 business premises, 37 property owners, 73 renters and approximately 455 employees will be affected by the project. The clusters of businesses which will be fully affected are located in Fort, Battaramulla, Palan Thuna Junction, Koswatta Junction, and West Malabe. The biggest cluster of small businesses is the government-owned commercial area with a lane of hotels, canteens and fruits stands, located near Fort Station.

There is 1 residential house which may fully be affected in West Malabe to give way to the proposed IT Park Station.

Table 5.1 Affected Residents, Business Owners and Workers

DS Division	GN Division	Residences		Property Owners(private)		Business Owners		Renters		Workers	
		Total	Partial	Total	Partial	Total	Partial	Total	Partial	Total	Partial
Colombo Kaduwela	Fort Ibbanwala	0	0	0	0	20	3	19	0	42	0
		0	0	1	2	2	3	0	0	21	183
	Kotuwegoda Subuthipura Battaramulla Udumulla Malabe North Malabe West										
		0	0	0	0	0	10	0	10	0	17
		0	0	1	5	3	10	2	7	34	23
		0	0	1	0	5	1	5	1	9	0
		0	0	2	0	6	0	6	0	23	0
		0	0	1	14	1	18	1	8	1	86
		1	0	4	6	10	8	8	6	8	8
		1	0	10	27	47	53	41	32	138	317
		1		37		100		73		455	

Source: Socio-economic Survey (2017)

(2) Affected paddy land owners and Ande farmers

The biggest area of land that needs to be acquired is the paddy land area for the proposed depot area. According to the list of farmers received from the Kaduwela Agrarian Services Office, there are 41 paddy landowners identified at the time of the RAP survey and 5 Ande farmers.

According to the SES, around 60% of paddy landowners are male within the age range of 41-70 years old. Around 55% of the paddy landowners have obtained General Certificate of Education both for ordinary and advanced levels.

On the other hand, identified Ande farmers are all household heads, aged 51 and above. The tenant farmers have obtained different levels of education – primary level, GCE ordinary level and advanced level.

Based on the respondents, around 30% of paddy land owners earn 60,000LKR or more per month, while tenant farmers earn an approximate amount of 20,000-40,000LKR per month. According to the Survey, around 25% of business owners earn more than 100,000LKR per month and about 23% earns 20,000 up to 60,000 LKR per month. On the other hand, a little over 40% did not want to

disclose their income.

Table 5.2 Affected Farmers and their Families

DS Division	Total No of farmers	No of affected paddy land owners		No of affected Renters ("Ande" Farmers)	
		Land Owner	Family members	HHHs	Family members
Kaduwela	46	41 (37*)	88	5 (4*)	11

* No. of Persons Interviewed

Note: Based on preliminary design drawings.

Source: Socio-economic Survey (2017)

5.2.2 Inventory of Losses

(1) Affected Land

The total area of land that needs to be acquired by the Project is presented in **Table 5.3** below. The Project will have to acquire a total of 208,148 m² of private land, a big bulk of which is the paddy area in Malabe, where the depot area is planned to be built. It should also be noted that government land, a significant portion of which is owned by Sri Lanka Railway (near Fort and Maradana area) and the Urban Development Authority (e.g. Diyanna Lake, Sethsiripaya), also need to be acquired.

Table 5.3 Summary of Affected Land

DS	Area	Government Land			Private			Notes
		CAD Code	Area (m2)	Area (perch)	CAD Code	Area (m2)	Area (perch)	
Colombo	Fort Stn	G1	10,708					
		G2	3,427	135.51				
	SLR Property	G3	8,837	349.44				
	Ibbanwala				L1A	1,602.86	63.38	Ishara Traders, Lal & Nihal
					L1B	187.10	7.40	Carmart
Thimbiriga syaya	National Hospital	G4	482	19.04				sidewalk in front of dental center
Sri Jayawardenapura-Kotte	Welikada				L2	102.88	4.07	open space at the corner of Rajagiriya flyover
	Before Diyawanna Lake				L3	60.28	2.38	parking lot
	Diyawanna Lake	G5	5,697	225.28				
Kaduwela	Diyatha Uyana	G6	3,512	138.87				
	Sethsiripaya	G7	8,242	325.89				
	Battaramulla	G8	3,089	122.13	L4	542.03	21.43	

				L5	285.41	11.29	
Palan Thuna Junction	G9	944	37.33	L6	178.84	7.07	
				L7	180.32	7.13	small business stands beside Lakviru Sevena
Koswatta Junction				L8	580.37	22.95	
				L9	10.16	0.40	residential area (wall of the house)
Lumbini Stn				L10	236.95	9.37	
				L11	239.03	9.45	
Talahena Stn				L12	973.12	38.48	
				L13	109.61	4.33	
Malabe				L14	481.32	19.03	
				L15	118.90	4.70	
				L16	98.04	3.88	
IT Park Stn				L17	224.73	8.89	
				L18	355.90	14.07	commercial area
				L19	2,054.52	81.24	paddy land near IT Park Stn
				L20	1,440.41	56.96	residential area (1 residential house & backyard)
				L21	198,085.55	7,832.56	paddy land for depot area and connecting road
Total		44,937	1,353		208,148	8,230	

**Measurements are based on preliminary design drawings

Note: At this stage, it is difficult to confirm boundaries of land plots. This can only be confirmed once the land acquisition process starts.

Source: Socio-economic Survey (2017)

(2) Affected Built Structures

There are approximately 66 structures which will be affected by the project. The distribution of partially and fully affected structures is presented in the Table below. It should be noted that only one residential house will be affected and around 80% of the affected structures are commercial business premises.

Table 5.4 Summary of Affected Residential and Commercial Structures

DS Division	GN Division	Residential Structures		Commercial Structures		Total	
		Totally	Partially	Totally	Partially	Totally	Partially
Colombo	Fort Ibbanwala	0	0	24	3	24	3
		0	0	1	3	1	3
Kaduwela	Kotuwegoda Subuthipura Battaramulla S Udumulla Malabe North Malabe West						
		0	0	0	1	0	1
		0	0	2	6	2	6
		0	0	3	1	3	1
		0	0	2	0	2	0
		0	0	1	13	1	13
		1	0	2	3	3	3
Total		1	0	35	30		
						66	

NOTE: Out of 27 buildings 15 has been rented by SLR & UDA to private parties and other 12 buildings are being used by SLR. Three partially affected buildings are also under SLR.
Source: Socio-economic Survey (2017)

For partially affect structures, most of the structures (90%) are made with asbestos, tiled or concrete roof and brick or concrete wall. Two buildings of car trading businesses were constructed with reinforced concrete.

Among fully affected structures, about half of the structures are made with asbestos, tiled roof, tin or brick wall and 30% of structure are made with asbestos, tiled or concrete roof and brick or concrete wall. Two buildings (one owned by a car trader business and the other is Bank building) were constructed with reinforced concrete.

(3) Affected Secondary Structures

At this stage, there is only one secondary structure that may be affected by the project. This is a wall of a residential property at the corner Koswatta Junction (beside HNB).

(4) Trees

There are no trees of agricultural or timber value (eg. Mango trees,) identified within private properties that will be affected by the project with the current project design. Further investigation will be conducted during the Project's detailed design phase to confirm existence of such trees because these are subject for compensation.

(5) Government-owned and common properties

Majority of the government owned properties that will be affected by the project are properties owned by SLR, located near Fort and Maradana. Two properties are owned by UDA – Diyatha Uyana and Lakviru Sevena.

Government-owned companies or semi-government institutions that may be affected by the Project include Lake House Advertising, Rural Bank (Battaramulla), Co-op City, HNB, and Sanasa.

5.3 Socio-economic Characteristics of the Affected Population

5.3.1 Population Distribution by Age and Gender

The total surveyed population is 85 of which 70 are male and 15 are female. The majority of population(82%) is below 60 years old (refer to Table below).

Table 5.5 Population Distribution by age and gender

Age Grp	Colombo DS				Kaduvela DS												Total	
	Fort		Ibbanwala		Kotuwegoda		Subuthipura		Battaramulla South		Udumulla		Malabe North		Malabe West			
SEX	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
21-30	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	3	0
31-40	6	0	0	0	3	1	3	1	1	0	0	1	5	3	8	1	26	7
41-50	7	0	0	0	2	2	1	0	0	0	0	2	2	0	3	0	15	4
51-60	2	0	0	0	1	0	4	0	2	0	1	0	2	0	1	2	13	2
61-70	0	1	2	0	1	0	1	0	0	0	0	0	4	0	1	0	9	1
71-80	0	0	2	0	0	0	0	0	0	0	0	0	2	1	0	0	4	1
81<	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Sub Total	16	1	4	0	7	3	10	1	3	0	1	3	15	4	14	3	70	15
Total	17		4		10		11		3		4		19		17		85	

Source: Socio-economic Survey (2017)

5.3.2 Ethnicity

The population distribution by ethnicity is presented in **Table 5.6**. The majority of PAPs (85%) is Sinhalese, followed by Tamil (7%) and Muslim (7%).

Table 5.6 Surveyed population by ethnicity in GDs

D.S Division	G.N Division	Sinhala	Tamil	Muslim	Other	Total
Colombo	Pettaha	5	7	6		18
	Ibbanwala	4				4
Kaduwela	Kotuwegoda	10				10
	Subuthipura	13				13
	Battaramulla South	5		1		6
	Udumulla	6				6
	Malabe North	20				20
	Malabe West	18				18
Total		81	7	7	0	95

Source: Socio-economic Survey (2017)

5.3.3 Religion

The population distribution by religious is presented in **Table 5.7**. Majority of affected people (80%) is Buddhist, followed by Hindu, Muslim and Christian.

Table 5.7 Surveyed population by religious in GDs

DS Division	GN Division	Buddhist	Christian	Muslim	Hindu	Total
Colombo	Fort	3	1	5	8	17
	Ibbanwala	4	0	0	0	4
Kaduwela	Kotuwegoda	9	1	0	0	10
	Subuthipura	11	0	0	0	11
	Battaramulla	2	0	1	0	3
	Udumulla	4	0	0	0	4
	Malabe North	19	0	0	0	19
	Malabe West	16	1	0	0	17
Total		68	3	6	8	85

Source: Socio-economic Survey (2017)

5.3.4 Educational Level

The population distribution by educational level is presented in **Table 5.8**. Majority of affected people (96%) has secondary and higher level of education.

Table 5.8 Surveyed population by educational level in GDs

Educ Level	S E X	Colombo DS		Kaduwela DS						Sub Total	Total
		Fort	Ibbanwala	Kotuwegoda	Subuthipura	Battaramulla	Udumulla	Malabe North	Malabe West		
Illiterate	M	0	0	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0	0	
Can sign	M	0	0	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0	0	
Pre-school	M	0	0	0	0	0	0	0	0	0	0
	F	0	0	0	0	0	0	0	0	0	
Grade 1-5	M	1	0	0	0	0	0	1	0	2	3
	F	0	0	0	0	0	0	1	0	1	
Grade 6- GCE O/L	M	6	0	0	2	0	0	0	2	10	11
	F	0	0	0	0	0	0	0	1	1	
Pass GCE O/L	M	7	0	2	2	1	1	2	4	19	23
	F	1	0	0	0	0	1	1	1	4	
GCE A/L	M	1	0	5	5	1	0	4	5	21	26
	F	0	0	1	1	0	1	2	0	5	
Pass GCE A/L	M	1	0	0	0	0	0	4	1	6	9
	F	0	0	2	0	0	1	0	0	3	
Graduate/ University	M	0	2	0	1	1	0	1	1	6	7
	F	0	0	0	0	0	0	0	1	1	
Diploma	M	0	1	0	0	0	0	3	1	5	5
	F	0	0	0	0	0	0	0	0	0	
Post-Grad Degree/ Diploma	M	0	1	0	0	0	0	0	0	1	1
	F	0	0	0	0	0	0	0	0	0	
Total	M	17	4	10	11	3	4	19	17	85	85

Source: Socio-economic Survey (2017)

5.3.5 Income

The income status of business owners is shown in **Table 5.9**. Generally it is difficult to obtain genuine answers for the income status during the survey period. Around 56% of the business community did not declare that their monthly income.

According to the responses received from business community (38 respondents), all respondents have an income greater than Rs. 20,000 per month. Half of these respondents/business owners earn more than Rs. 100,001/-per month.

Table 5.9 Distribution of monthly income (Rs) for business owners

Income Distribution	Colombo DS		Kaduwela DS						Total
	Fort	Ibbanwala	Kotuwegoda	Subuthipura	Battaramulla South	Udumulla	Malabe North	Malabe West	
10001-20000	0	0	0	0	0	0	0	0	0
20001-40000	1	0	1	0	0	0	0	1	3
40001-60000	2	0	1	0	0	1	3	1	8
60001-100000	0	0	0	0	0	0	3	5	8
>100001	2	0	3	5	0	2	2	5	19
Not Responded	16	5	5	8	6	3	12	5	60
Total	21	5	10	13	6	6	20	17	98

Source: Socio-economic Survey (2017)

The income distribution of paddy land owners and farmers are presented in the Table below. Based on the respondents, around 30% of paddy land owners earn 60,000LKR or more per month, while tenant farmers earn an approximate amount of 20,000-40,000LKR per month.

Table 5.10 Distribution of monthly income (Rs) for paddy land owners and farmers

Income Level(LKR)	Kaduwela	
	Owners	Tenants
10001-20000	2	
20001-40000	6	2
40001-60000	3	1
60001-100000	5	
100001<=	4	
Not Responded	17	1
Not interviewed	4	1
Total	41	5

Source: Socio-economic Survey (2017)

5.3.6 Vulnerable Households

The vulnerable people include people over 60 years old, households headed by woman, disable person, chronically ill persons, widows/widowers and poor people. 15 people out of surveyed population is age of over 60 years old. There are 3 households headed by woman and widow/widower respectively. There are no poor people (households below the poverty line) who will be affected by the project.

Table 5.11 Status of vulnerability

Vulnerability	Colombo DS		Kaduwela DS						Total
	Fort	Ibbanwala	Kotuwegoda	Subuthipura	Battaramulla South	Udumulla	Malabe North	Malabe West	
Age > 60yo	1	4	1	1	0	0	7	1	15
HH with woman head	0	0	0	0	0	0	0	3	3
Disabled	0	0	0	0	0	0	0	0	0
Chronically ill	0	0	0	0	0	0	0	0	0
Widow/widower	0	0	0	0	0	0	0	3	3
Poor*	0	0	0	0	0	0	0	0	0
Total	1	4	1	1	0	0	7	1	21

Source: Socio-economic Survey (2017)

*Note: In Colombo district, minimum expenditure per person per month to fulfill the basic needs is 4,475 Rs/month according with official poverty line by district for August 2017.

5.4 Land and Property Ownership

The total area of land that needs to be acquired by the Project is described as follows. The Project will have to acquire a total of 208,148 m² of private land, a big bulk of which is the paddy land area in Malabe, where the depot area is planned to be built. It should also be noted that a significant portion of government land is owned by Sri Lanka Railway (near Fort and Maradana area) and the Urban Development Authority (e.g. Land surrounding Diyawanna Lake Diyatha Uyana and Surrounding Bataramulla Junction.)

5.4.1 Residential Property

With the proposed LRT route, there is only one residential property that will be affected by the project. This property is located in Kaduwela Divisional Secretariat Division. According to the interview with the household head, he is both the property and landowner (Title Holder). The survey team observed that a portion of the house is still under construction.

5.4.2 Private Land with Built Structures

Most of the private lands (high lands) with structures are in Colombo DS division. These are located around Ibbanwala Junction. All the lands with structures in Kaduwela DS division are located along the existing main road from Battaramula to IT Park Junction.

According to the statements made by business owners and the property owners, there are no encroachers. All of them have their own titles for their properties.

Most of them stated that a considerable portion of their lands has already been acquired by the government for the road widening in the past. However, it is difficult to check their actual ownership as well as the titles and the extent of the affected area at this stage.

5.4.3 Private Land without Built Structures

Based on the LRT conceptual design, private land without built structures that may be affected by the project are located in 3 DS divisions (refer to **Table 5.3**). The areas that may be affected include 2 land areas at Ibbanwala Junction, 2 land areas at Rajagiriya and high lands located at either sides of the existing main road from Battaramulla to IT Park Junction (areas that may be affected by the train stations). According to the socio-economic survey, these private lands are owned by legal property owners

5.4.4 Paddy lands

According to the list of names received from Agrarian Services Department – Malabe, affected lands along the Chandrika Kumaranatunga Mawatha is owned by 41 farmers/families. However, the ownership of the some paddy lands are not clear. After the death of legal titleholders, ownership of paddy lands have been fragmented.

According to the interviews with the farmers, all of them have land titles of the paddy lands.

CHAPTER 6 Compensation Package

6.1 Eligibility and Cut-off Date

The cut-off-date eligibility refers to the date prior to which the occupation or use of the project area makes residents/users of the same eligible to be categorized as PAP and be eligible for Project entitlements. The cut-off-date is the date stipulated in section 2 notice under LAA.

As per Land Acquisition (Payment of Compensation) Regulations 2013 (Regulations 2013), non-title holders in occupation as at Section 2 notice are also eligible for compensation. Therefore, the Section 2 notice would act as the cut-off-date for the non-title holders also if Regulations 2013 is followed. The current census survey data will be updated by the time of Section 2 notice.

6.2 Replacement Cost Survey

Replacement cost is a method of asset valuation, which helps determine the amount sufficient to replace lost assets and cover transaction costs. In applying this method of valuation, depreciation of structures and assets will not be taken into account. The replacement cost survey (RCS) was carried out in parallel with Socio-Economic Survey (SES) and Inventory of Loss (IOL) surveys. Based on consultation with Chief Valuer, it was revealed that at this stage of the project (feasibility study), actual valuation figures cannot be taken from the Department of Valuation without an official request made under LAA. However, the land price for each region was obtained from Provincial Income Department, Grama Niladaries and real estate as shown below.

Table 6.1 Land value provided by Provincial Income Department

Area		Residential (Rs per perch)	Commercial (Rs per perch)
Colombo	Ibbunwela Junction	6.0~7.0 million	12.0~15.0 million
Thimbirigasyaya	Borella Junction	6.0~8.0 million	7.0~9.0 million
Sri Jayawardanapu	Diyatha Uyana	4.5~5.0 million	5.0~5.5 million
Kadwela	Battaramulla	4.0~5.0 million	5.0~6.0 million
	Palan thuna	4.0~4.5 million	4.0~4.5 million
	Koswatha	3.5~4.0 million	3.5~4.0 million
	Thalahena	2.5~3.5 million	2.5~3.5 million
	Malabe	3.0~3.5 million	3.0~3.5 million
	Chandrika Kumarathunga	1.0~1.5 million	1.5~2.0 million

Table 6.2 Land value provided by Grama Niladaries

Area		Residential (Rs per perch)	Commercial (Rs per perch)
Colombo	Ibbunwela Junction	Not available	Not available
Thimbirigasyaya	Borella Junction	5.6~6.0 million	Not available
Sri Jayawardanapu	Diyatha Uyana	Not available	6.0~8.0million
Kadwela	Battaramulla	2.5~3.2 million	4.5~5.2 million
	Palan thuna	3.0~3.8 million	4.0~5.5 million
	Koswatha	2.0~3.2 million	3.8~4.8 million
	Thalahena	2.8~3.2 million	2.8 ~3.5 million
	Malabe	2.6~3.2 million	3.0~3.5 million
	Chandrika Kumarathunga	0.8~1.2 million	1.0~1.6 million

Table 6.3 Land value obtained from real estate

Area		Residential (Rs per perch)	Commercial (Rs per perch)
Colombo	Ibbunwela Junction	Not available	-
Thimbirigasyaya	Borella Junction	5.8~6.2 million	Not available
Sri Jayawardanapu	Diyatha Uyana	Not available	8.0~10.0million
Kadwela	Battaramulla	3.8~5.0 million	5.5~6.2 million
	Palan thuna	3.8~4.2 million	4.0~5.0 million
	Koswatha	3.8~4.2 million	3.8~4.5 million
	Thalahena	3.0~3.5 million	3.0~4.0 million
	Malabe	2.8~3.5 million	3.2~3.8 million
	Chandrika Kumarathunga	1.1~1.8 million	1.5~2.2 million

6.3 Replacement Cost for Paddy Land

The price of the paddy land in Sri Lanka is generally low, about 7500 Rs/perch. Therefore, ex-gratia payment will be made for paddy lands based on the difference between the statutory compensation and the amount equivalent to 10 % of the market value of the land as computed by the Chief Valuer according to LARC system.

6.4 Replacement Cost for Structure

The types of buildings are broadly categorized into 3 types based on the construction materials used and the quality of construction. Replacement cost for each structure was calculated using the Building Schedule of Rates (BSR) of the Engineering Organization of the Western Provincial Council as well as the design team of the Feasibility study for the proposed project. The summary of replacement costs is shown in Table 6.4.

Table 6.4 Rates to be used for calculating approximate replacement costs of structure.

Structure type	Material	Unit	Amount (Rs)
Type 1	Asbestos, tiled or concrete roof and brick or concrete wall.	Square meter	40,000
Type 2	Tin sheet roof, Tin or brick wall	Square meter	25,000
Type 3	Reinforced Concrete building	Square meter	130,000

The replacement cost of the affected structure will be evaluated by the Chief Valuer based on the current market value of the structure (Section 17 of LAA). Since the LARC system will be applied to the project, additional compensation summing up to the current market value of materials used for the building/structure may be provided depending on the approval of the LARC and SLARC. In this case, LARC and Super LARC will refer to similar rates provided in shown in Table 6.4.

6.5 Entitlement Matrix

The project entitlements were developed and presented in the Entitlement Matrix, corresponding to the potential impacts that were identified during the census, Socio-Economic Survey (SES) and Inventory of Loss (IOL) survey. In order to provide benefits to affected people, a Project-specific compensation package was prepared by MMWD, based on compensations stipulated in the LARC Gazette. The Entitlement Matrix is presented in Table 6.5.

Table 6.5 Entitlement Matrix

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
A. AGRICULTURAL LAND					
A1	Loss of Agricultural land (Paddy)	Owner with title deed or similar ownership document	<p>1. All (cash) payments for land will be assessed at market value by the Chief Valuer with additional ex gratia payments by LARC.</p> <p>2. An ex gratia payment shall be made based on the difference between the statutory compensation and the amount equivalent to 10% of the market value of the land as computed by the Chief Valuer.</p> <p>3. If the remaining portion of land after acquisition is economically not viable for continued use as determined by LARC, these options will be available: -</p> <p>A) If opted by AP, the remainder land will be acquired or injury will be paid at market value.</p> <p>B) Reasonable time will be given to harvest crops if not payment will be made at market value.</p> <p>4. Compensation for crops: F1</p> <p>5. Livelihood Restoration: H2</p> <p>6. Special Assistance: I1 and I3</p>	<p>1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments</p> <p>2. Land Acquisition Officer (DS) manages the acquisition process</p> <p>3. PMU provides funds & implement IRP</p> <p>4. DS makes compensation payments under LAA and LARC</p>	
A2	Loss of Agricultural land	Owner with title deed or similar ownership document	<p>1. All (cash) payments for land will be assessed at market value by the Chief Valuer with additional ex gratia payments by LARC.</p> <p>2. If the remaining portion of land after acquisition is economically not viable for continued use as determined by LARC, these options will be available: -</p>	<p>1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia</p>	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
A3	Loss of agricultural land	Tenant, user with lease, Sharecropper, Ande farmer	<p>A) If opted by AP, the remaining land will be acquired or injury will be paid at market value.</p> <p>B) Reasonable time will be given to harvest perennial crops if not payment will be made at market value.</p> <p>3. Compensation for crops: F1</p> <p>4. Livelihood Restoration: H2</p> <p>5. Special Assistance: I1 and I3</p>	<p>payments</p> <p>2. Land Acquisition Officer (DS) manages the acquisition process</p> <p>3. PMU provides funds & implement IRP</p> <p>4. DS makes compensation payments under LAA and LARC</p>	<p>RDA, CV, DS, LARC.</p>
			<p>1. No payment for land.</p> <p>2. Compensation for crops: F1</p> <p>3. Livelihood Restoration: H2</p>	<p>1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments</p> <p>2. Land Acquisition Officer (DS) manages the acquisition process</p> <p>3. PMU provides funds & implement IRP</p> <p>4. DS makes compensation payments under LAA and LARC</p>	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
A4	Loss of agricultural land	Non-titled user or squatter on private land or state land	1. No payment for land. 2. Compensation for crops: F1 3. Livelihood Restoration: H2	1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments 2. Land Acquisition Officer (DS) manages the acquisition process 3. PMU provides funds & implement IRP 4. DS makes compensation payments under LAA and LARC	RDA, CV, DS, LARC.
B. RESIDENTIAL LAND AND STRUCTURES					
B1	Loss of Residential land and structure	Owner with title deed or similar ownership document	1. All (cash) payments for land will be made at market value as assessed by Chief Valuer with additional ex gratia payments by LARC. 2. All (cash) payments for structure will be made at replacement cost considering A) For parts of structure: the floor area to be considered for payment up to the structural points considering structural stability. B) If the remaining portion of the structure is not suitable for further usage LARC will consider to pay the	1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments 2. Land Acquisition Officer (DS) manages the acquisition process	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
			<p>compensation for that part as well.</p> <p>3. All demolished material of the structure can be owned by the AP.</p> <p>For structures not having sufficient land to rebuild upon will be entitled to the following:</p> <p>1. All (cash) payments for land at market value assessed by the Chief Valuer with additional ex gratia payments by LARC.</p> <p>2. All (cash) payments for structure will be made at replacement cost considering</p> <p>A) For parts of structure: the floor area to be considered for payment up to the structural points considering structural stability.</p> <p>B) If the remaining portion of the structure is not suitable for further usage LARC will consider to pay the compensation for that part as well.</p> <p>3. All demolished material of the structure can be owned by the AP.</p> <p>4. Assistance from PMU to locate alternative plot for relocation; OR relocation to a resettlement site if developed by the project and decided by AP (undeveloped value of the land plot will be recovered by PMU from the AP).</p> <p>5. Payment of "Self relocation allowance" within the range of Rs. 500,000 to Rs. 1,000,000 depending on the area (Municipality, Urban Council & Pradeshiya sabah) if the AP decides for self-relocation.</p> <p>6. Payment for trees – F1</p>	<p>3. PMU provides funds & implement IRP</p> <p>4. DS makes compensation payments under LAA and LARC</p>	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks																	
			7. Rehabilitation Assistance – G1, G2 8. Special Assistance – II, I2, I3 as required																			
B2	Loss of rental accommodation	Person renting in a residential structure	<div>1. No payment for land and structure. 2. If there is partial loss of rental accommodation, AP has the option to stay with the owners agreement OR if there is a complete loss and AP chooses to move out, ex gratia payment for the building shall be the difference between replacement cost and statutory payment to be divided between the owner and the occupant on the following basis.</div> <table><thead><tr><th rowspan="2">Period of occupation</th><th colspan="2">% of payment</th></tr><tr><th>occupant</th><th>owner</th></tr></thead><tbody><tr><td>Over 20 years</td><td>75</td><td>25</td></tr><tr><td>10-20 years</td><td>50</td><td>50</td></tr><tr><td>05-10 years</td><td>25</td><td>75</td></tr><tr><td>Less than 05 years</td><td>10</td><td>90</td></tr></tbody></table> <div>3. Rehabilitation Assistance – H1, H2</div>	Period of occupation	% of payment		occupant	owner	Over 20 years	75	25	10-20 years	50	50	05-10 years	25	75	Less than 05 years	10	90	1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments 2. Land Acquisition Officer (DS) manages the acquisition process 3. PMU provides funds & implement IRP 4. DS makes compensation payments under LAA and LARC	
Period of occupation	% of payment																					
	occupant	owner																				
Over 20 years	75	25																				
10-20 years	50	50																				
05-10 years	25	75																				
Less than 05 years	10	90																				

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
B3	Loss of Residential land and structure	Non owner Titled	<p>1. No payment for land.</p> <p>2. All (cash) payments for structure will be made at replacement cost considering.</p> <p>A) For parts of structure: the floor area to be considered for payment up to the structural points considering structural stability.</p> <p>B) If the remaining portion of the structure is not suitable for further usage LARC will consider to pay the compensation for that part as well.</p> <p>3. All demolished material of the structure can be owned by the AP.</p> <p>For structures not having sufficient land to rebuild upon will be entitled to the following:</p> <p>1. All (cash) payments for land at market value assessed by Chief Valuer with additional ex gratia payments by LARC.</p> <p>2. All (cash) payments for structure will be made at replacement cost considering</p> <p>A) For parts of structure: the floor area to be considered for payment up to the structural points considering structural stability.</p> <p>B) If the remaining portion of the structure is not suitable for further usage LARC will consider to pay the compensation for that part as well.</p> <p>3. All demolished material of the structure can be owned by the AP.</p> <p>4. Assistance from PMU to locate alternative plot for</p>	<p>1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments</p> <p>2. Land Acquisition Officer (DS) manages the acquisition process</p> <p>3. PMU provides funds & implement IRP</p> <p>4. DS makes compensation payments under LAA and LARC</p>	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
			<p>relocation; OR relocation to a resettlement site if developed by the project and decided by AP (undeveloped value of the land plot will be recovered by PMU from the AP).</p> <p>5. Payment of "Self relocation allowance" within the range of Rs. 500,000 to Rs. 1,000,000 depending on the area (Municipality, Urban Council & Pradeshiya sabah) if the AP decides for self-relocation.</p> <p>6. Payment for trees – F1</p> <p>7. Rehabilitation Assistance – G1, G2</p> <p>8. Special Assistance – II, I2, I3 as required</p>		
C. COMMERCIAL LAND AND STRUCTURE					
C1	Loss of commercial land and structure	Owner / operator of business	<p>1. All (cash) payments for land will be made at market value as assessed by Chief Valuer with additional ex gratia payments by LARC.</p> <p>2. All (cash) payments for structure will be made at replacement cost considering</p> <p>A) For parts of structure: the floor area to be considered for payment up to the structural points considering structural stability.</p> <p>B) If the remaining portion of the structure is not suitable for further usage LARC will consider to pay the compensation for that part as well.</p> <p>3. All demolished material of the structure can be owned by the AP.</p> <p>4. The temporary loss of income will be determined by the</p>	<p>1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments</p> <p>2. Land Acquisition Officer (DS) manages the acquisition process</p> <p>3. PMU provides funds & implement IRP</p> <p>4. DS makes compensation payments under LAA and</p>	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
			<p>LARC.</p> <p>For structures not having sufficient land to rebuild upon will be entitled to the following:</p> <ol style="list-style-type: none"> 1. All (cash) payments for land at market value assessed by Chief Valuer with additional ex gratia payments by LARC. 2. All (cash) payments for structure will be made at replacement cost considering <ol style="list-style-type: none"> A) For parts of structure: the floor area to be considered for payment up to the structural points considering structural stability. B) If the remaining portion of the structure is not suitable for further usage LARC will consider to pay the compensation for that part as well. 3. All demolished material of the structure can be owned by the AP. 4. Payment of "Self relocation allowance" within the range of Rs. 500,000 to Rs. 1,000,000 depending on the area (Municipality, Urban Council & Pradeshiya sabah). 5. Payment for loss of income will be based on the following guidelines; <ol style="list-style-type: none"> (A) Payment for formal businesses, if the business is completely loss, 3 years net average adjusted profit of the years immediately preceding the publication of section 2 of the Act on production of the tax declaration documents. 	LARC	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks																		
C2	Loss of rental accommodation	Tenant operator business	<p>(B) For businesses who do not maintain books of accounts cash payment equivalent to 3 months income OR Livelihood assistance grant, whichever is the higher.</p> <p>6. Payment for trees – F1</p> <p>7. Rehabilitation Assistance – G1</p> <p>8. Livelihood Restoration – H1</p>	<p>1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments</p> <p>2. Land Acquisition Officer (DS) manages the acquisition process</p> <p>3. PMU provides funds & implement IRP</p> <p>4. DS makes compensation payments under LAA and LARC</p>																			
		/ of	<p>1. No payment for land and structure.</p> <p>2. If there is partial loss of rental accommodation, AP has the option to stay with the owners agreement OR if there is a complete loss and AP chooses to move out, ex gratia payment for the building shall be the difference between replacement cost and statutory payment to be divided between the owner and the occupant on the following basis.</p> <table><tr><th>Period of occupation</th><th colspan="2">% of payment</th></tr><tr><td></td><th>occupant</th><th>owner</th></tr><tr><td>Over 20 years</td><td>75</td><td>25</td></tr><tr><td>10-20 years</td><td>50</td><td>50</td></tr><tr><td>05-10 years</td><td>25</td><td>75</td></tr><tr><td>Less than 05 years</td><td>10</td><td>90</td></tr></table>	Period of occupation	% of payment			occupant	owner	Over 20 years	75	25	10-20 years	50	50	05-10 years	25	75	Less than 05 years	10	90		
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Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
			<p>4. Payment for loss of income will be based on the following guidelines; (A) Payment for formal businesses, if the business is completely lost, 3 years net average adjusted profit of the years immediately preceding the publication of section 2 of the Act on production of the tax declaration documents.</p> <p>(B) For businesses who do not maintain books of accounts cash payment equivalent to 3 months income OR Livelihood assistance grant, whichever is the higher.</p> <p>(iii) The temporary loss of income will be determined by the LARC.</p> <p>5. Rehabilitation Assistance – G1</p> <p>6. Livelihood Restoration – H1</p>		
C3	Loss of commercial land and structure	Non-titled user, non-permitted user or squatter	<p>1. No payment for land.</p> <p>2. All (cash) payments for structure will be made at replacement cost considering</p> <p>A) For parts of structure: the floor area to be considered for payment up to the structural points considering structural stability.</p> <p>B) If the remaining portion of the structure is not suitable for further usage LARC will consider to pay the compensation for that part as well.</p> <p>3. All demolished material of the structure can be owned by the AP.</p> <p>4. The temporary loss of income will be determined by the</p>	<p>1. Chief Valuer (CV) assesses all valuations as per LAA and LARC decides ex gratia payments</p> <p>2. Land Acquisition Officer (DS) manages the acquisition process</p> <p>3. PMU provides funds & implement IRP</p> <p>4. DS makes compensation</p>	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
			<p>LARC.</p> <p>For structures not having sufficient land to rebuild upon will be entitled to the following:</p> <ol style="list-style-type: none"> 1. All (cash) payments for land at market value assessed by the Chief Valuer with additional ex gratia payments by LARC. 2. All (cash) payments for structure will be made at replacement cost considering <ol style="list-style-type: none"> A) For parts of structure: the floor area to be considered for payment up to the structural points considering structural stability. B) If the remaining portion of the structure is not suitable for further usage LARC will consider to pay the compensation for that part as well. 3. All demolished material of the structure can be owned by the AP. 4. Payment of "Self relocation allowance" within the range of Rs. 500,000 to Rs. 1,000,000 depending on the area (Municipality, Urban Council & Pradeshiya sabah). 5. Payment for loss of income will be based on the following guidelines; <p>(A) Payment for formal businesses, if the business is completely loss, 3 years net average adjusted profit of the years immediately preceding the publication of section 2 of the Act on production of the tax declaration documents.</p> 	<p>payments under LAA and LARC</p>	

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
			(B) For businesses who do not maintain books of accounts cash payment equivalent to 3 months income OR Livelihood assistance grant, whichever is the higher. 6. Payment for trees – F1 7. Rehabilitation Assistance – G1 8. Livelihood Restoration – H1		
D. OTHER PRIVATE PROPERTIES OR SECONDARY STRUCTURES					
D1	Partial or complete loss of other property or secondary structure (i.e. shed, outdoor latrine, rice store, animal pen etc)	Owners of structures (regardless if the land is owned or not)	All (cash) payments for affected structure at replacement cost; OR Cost of repair of structure to original or better condition; OR Cash assistance for relocation of structure.	LARC decides the payment	
E. LOSS OF INCOME OF EMPLOYEES OR HIRED LABORERS					
Temporarily Affected					
E1	Loss of livelihood (i.e. businesses)	All affected employees,	1. An allowance of Rs. 15,000 = or 3 months basic salary whichever is higher. 2. Livelihood Restoration – H1	LARC decides the payment	Businesses will be encouraged to

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
	while businesses are reorganizing on remaining land or relocating in the same area)	wage or daily laborers' in private or government businesses			retain existing employees Payment for lost income during business re-establishment
E2	Loss of livelihood	All affected Self employees	1. An allowance of Rs. 15,000 = or 3 months basic salary whichever is higher. 2. Livelihood Restoration – H1	LARC decides the payment	Payment for lost income during employment re-establishment
Permanently Affected					
E3	Job loss due to relocation of business to another area or business operator decides not to re-establish	All affected employees, wage or daily laborers in private or government businesses	1. An allowance of Rs. 15,000 = or 3 months basic salary whichever is higher. 2. Livelihood Restoration – H1	LARC decides the payment	Payment for lost income, rehabilitation package to provide support and income restoration
F. TREES & STANDING CROPS					

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
F1	Loss of crops and trees	Person who cultivates crops and/or trees owns by private /state; if the trees in private the timber given to owner and if trees in state land the timber given to timber cooperation; (regardless if the land is owned or not)	For owner, payment for crops and trees at market prices; For tenant, payment for crops shall be paid to tenant; For sharecropper, payment for crops shall be shared between owner and sharecropper according to the sharecropping agreement; For all - advance notice to harvest crop; AND Payment for net value of crops where harvesting is not possible; AND Cash payment for loss of trees and standing crops at market prices; AND Rights to resources from privately owned trees (i.e. timber or firewood) All felled trees will be given back to the owners.	LARC decides the payment for the loss of the crop.	Payment for losses. Payment for trees calculated on market value on the basis of land productivity, type, age, and productive value of affected trees
G. REHABILITATION ASSISTANCE					
Shifting Allowance					
G1	Loss of residential/commercial structures	Relocating APs/APs reorganizing or rebuilding on	A shifting allowance shall be paid to the APs based on the floor area of the structure in which they were resident prior to the acquisition. Payments will be as follows.	LARC decides the payment	Payment for disturbance and to assist in rebuilding

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks																				
		same plot	<table><tr><th>House category (on floor area) (Sq.ft)</th><th>Payment (Rs)</th></tr><tr><td>Less than 500</td><td>50,000</td></tr><tr><td>500 - 750</td><td>75,000</td></tr><tr><td>750 – 1000</td><td>100,000</td></tr><tr><td>More than 1000</td><td>175,000</td></tr></table>	House category (on floor area) (Sq.ft)	Payment (Rs)	Less than 500	50,000	500 - 750	75,000	750 – 1000	100,000	More than 1000	175,000												
House category (on floor area) (Sq.ft)	Payment (Rs)																								
Less than 500	50,000																								
500 - 750	75,000																								
750 – 1000	100,000																								
More than 1000	175,000																								
Temporary Accommodation																									
G2	Loss of residential structures	Relocating APs/ APs reorganizing or rebuilding on same plot	<p>Rent allowance shall be paid to the APs based on the floor area of the house in which they were resident prior to the acquisition. Payments will be as follows.</p> <table><tr><th>House category (on floor area) (Sq.ft)</th><th>Municipal Council Area (Rs)</th><th>Urban Council Area (Rs)</th><th>Pradeshia Sabah Area (Rs)</th></tr><tr><td>Less than 500</td><td>50,000</td><td>40,000</td><td>20,000</td></tr><tr><td>500 - 750</td><td>60,000</td><td>50,000</td><td>30,000</td></tr><tr><td>750 - 1000</td><td>75,000</td><td>60,000</td><td>40,000</td></tr><tr><td>More than 1000</td><td>100,000</td><td>75,000</td><td>50,000</td></tr></table>	House category (on floor area) (Sq.ft)	Municipal Council Area (Rs)	Urban Council Area (Rs)	Pradeshia Sabah Area (Rs)	Less than 500	50,000	40,000	20,000	500 - 750	60,000	50,000	30,000	750 - 1000	75,000	60,000	40,000	More than 1000	100,000	75,000	50,000	LARC decides the payment	Payment for disturbance and to assist in rebuilding
House category (on floor area) (Sq.ft)	Municipal Council Area (Rs)	Urban Council Area (Rs)	Pradeshia Sabah Area (Rs)																						
Less than 500	50,000	40,000	20,000																						
500 - 750	60,000	50,000	30,000																						
750 - 1000	75,000	60,000	40,000																						
More than 1000	100,000	75,000	50,000																						

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
H. LIVELIHOOD RESTORATION (ASSISTANCE & TRAINING)					
H1	Permanent effects on livelihood	All affected commercial owners/operators of businesses/workers of businesses	<ol style="list-style-type: none"> 1. Livelihood restoration allowance to reestablish a business 2. Professional assistance and advice to reestablish and develop the business 3. Vocational or skilled training for affected business owners or their family members 4. Vocational or skilled training for workers/daily labours 5. Access to credit facilities (public and private) and invest opportunities to set up a business at a commercially viable location. 6. Allowance and intervention to vulnerable families 	<ol style="list-style-type: none"> 1. PMU will secure the funds for the IRP. 2. PMU will recruit an IRP Specialist/NGO to implement the IRP. 3/4 The IRP Specialist will conduct a needs assessment survey to assist APs individually. 5. PMU and IRP Specialist will coordinate with other government and non government organizations to assist APs. 	PMU will start the IRP prior to the relocation of APs
H2	Permanent effects on livelihood	All affected owners and farmers of agricultural	<ol style="list-style-type: none"> 1. For farmers who have remaining land or farmers who cultivate on new lands will be assisted to increase productivity (i.e. increasing cropping intensity, use of high yielding seeds, diversification and introduction of new seeds or crops etc) and 	<ol style="list-style-type: none"> 1. PMU will secure the funds for the IRP. 2. PMU will recruit an IRP Specialist/NGO to 	PMU will start the IRP prior to the relocation of APs

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
		lands	<p>assistance to access existing subsidies.</p> <p>2. Introducing new livelihood opportunities for farmers or their family members.</p> <p>3. Priority for APs for project related employment opportunities during construction period.</p> <p>4. Vocational or skilled training for farmers or their family members</p>	<p>implement the IRP.</p> <p>3. The IRP Specialist will conduct a needs assessment survey to assist APs individually.</p> <p>4. PMU and IRP Specialist will coordinate with other government and non government organizations to assist APs.</p>	
I. SPECIAL ASSISTANCE					
I1	Loss of Residential Building/ Agricultural land	Owner of residential structure or Agricultural land.	Ex-gratia payment will be paid if the AP handed over the possession of a cultivated land or a residential building before the date specified by the Acquisition Officer. The payment will be determined by the LARC.	LARC decides the payment	To encourage APs to handover the acquired properties on a timely basis.
I2	Effects on sub families	Sub families living in the same house	Assistance from LARC to locate alternative plot for relocation; OR relocation to a resettlement site if developed by the project and decided by AP; OR 50% of the self-relocation allowance.	LARC decides the payment	Assistance for re establishment.

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
I3	Effects on vulnerable PAPs	Vulnerable APs including the female - headed households, elderly people and differently able.	A maximum of 15,000 Rs of special grant for AP household to improve living standards of vulnerable APs (such as linking to national poverty reduction programs conducted by various government institutions) and assistance to in finding suitable land for relocation and shifting.	LARC decides the payment	Assistance, over and above payment for lost assets, to reduce impacts of resettlement which can disproportionately affect the already vulnerable and to ensure that the project does re-establish the levels of vulnerability or marginalization
J. COMMUNITY ASSETS					
J1	Loss of buildings and other structures (schools, temples, clinics,	Divisional Secretary of the division, local community or local authority	Restoration in existing location of affected community buildings, structures, infrastructure and common property resources to original or better condition; OR Replacement in alternative location identified in consultation with affected communities and relevant authorities; OR (Cash) Payment at	PMU is responsible for restoring community resources	Full restoration of buildings, structures, infrastructure, services or other

Item	Type of loss	Entitled Persons	Entitlements	Responsibility	Remarks
	common wells etc), infrastructure (local roads, footpaths, bridges, irrigation, water points etc), common resources (Bo trees and shrines...etc.)	owning or benefiting from community property, infrastructure or resources	full replacement cost; AND restoration of buildings, structures, infrastructure, services or other community resources.		community resources (costs to be borne by project) or payment for such if agreement for local authority or community to undertake the restoration works.
K. Unanticipated Resettlement					
K1	Any unanticipated adverse impact due to project intervention	Any unanticipated consequence of the project will be documented and mitigated based on the spirit of the principles agreed upon in this policy framework.			

CHAPTER 7 Compensation Strategy

7.1 Project Impact

It is necessary for PMU to take adequate measures to help PAPs to relocate their business and houses in a manner that would not disrupt their standard of living and socioeconomic standards. In this regard, PMU has to work closely with respective Divisional Secretaries, Local Councils and other government agencies and the public to promote necessary collaboration. In the area covered by the LRT, the partially affected houses and business establishments could be retained in the same premises, if sufficient land is available to do so. It would be the most desirable option for the PAPs. However, the decision completely depends on the PAPs. PMU will have the facilitating role in implementing PAPs' decisions. Prior to this PMU has to be certain that PAPs have sufficient information to make their decisions.

For this Project, the following project impacts are expected.

- 1) There will be 66 built structures, which will be partially and fully affected by the Project. Only one residence at the proposed IT Park Station will be fully affected and the residents may have to be resettled.
- 2) Livelihood of about 455 employees hired by around 100 businesses will be partially and fully affected by the Project. Among these, 108 employees belong to Carmart (Peugeot and Mazda) and 75 employees belong to Lal and Nihal. Together with Ishara Traders, these businesses are located in Ibbanwala Junction.
- 3) Forty one (41) paddy land owners and 5 tenant farmers at the depot site will be affected.

In order to ensure that PAPs would not be impoverished or worse off as a result of land acquisition and relocation, there are several allowances included in the Entitlement Matrix. The shifting allowance and temporary accommodation allowance, under rehabilitation assistance is to provide assistance for changing locations due to the project. The self-relocation allowance, which is provided considering the location of the affected property, is also important for businesses establishing in a new location. The allowances under special assistance category look in to the household level special needs like allowances for sub families and vulnerable people. Although the project entitlement matrix provide these assistance, it is also essential to implement an income restoration program to restore the affected livelihoods of PAPs.

7.2 Attitudes of Affected People

During the socio-economic survey, the willingness of affected people or attitudes for alternative options was questioned. The response of affected people are summarized below.

7.2.1 Assistance to find an alternative place.

The table shows that more than 90% of affected people is willing to receive assistance to find an alternative place.

Table 7.1 Willingness to get assistance to find an alternative place

AP Category	DS Division	GN Division	Need assistance to find an alternative place		
			Yes	No	Total
Residential	Kaduwela	Malabe west	-	-	-
Commercial	Colombo	Fort	13	2	15
		Ibbanwala	1	0	1
	Kaduwela	Kotuwegoda	10	0	10
		Sri Subhoothipura	12	1	13
		Battaramulla South	3	0	3
		Udumulla	5	1	6
		Malabe North	18	0	18
		Malabe West	15	1	16
Total			77	5	82

Source: JICA study team

7.2.2 Willingness for relocation

Approximately 80% of affected people responded that they are not sure if they are willing to relocate, while 15% responded with willingness for the relocation.

Table 7.2 Willingness for relocation

AP Category	DS Division	GN Division	Willingness to relocate			
			Yes	No	Not sure	Total
Residential	Kaduwela	Malabe west	-	-	-	-
Commercial	Colombo	Fort	5	0	12	17
		Ibbanwala	0	0	5	5
	Kaduwela	Kotuwegoda	2	0	8	10
		Sri Subhoothipura	1	1	11	13
		Battaramulla South	0	0	3	3
		Udumulla	1	0	5	6
		Malabe North	2	2	15	19
		Malabe West	4	0	13	17
Total			15	3	72	90

Source: JICA study team

7.2.3 Method of Compensation

Approximately 20% of respondents answered that they prefer to have a new place to be provided as compensation, while only 3% prefers cash compensation. Majority of affected people (72%) did not have an idea of their preferred compensation method.

Table 7.3 Method of compensation

AP Category	DS Division	GN Division	Method of compensation					
			Land for land	Cash	Not sure	New place	Other	Total
Residential	Kaduwela	Malabe west	-	-	-	-	-	-
Commercial	Colombo	Fort	0	0	12	5	0	17
		Ibbanwala	0	0	5	0	0	5
	Kaduwela	Kotuwegoda	0	0	8	2	0	10
		Sri Subhoothipura	0	0	11	1	1	13
		Battaramulla South	0	0	3	0	0	3
		Udumulla	0	1	5	0	0	6
		Malabe North	1	2	14	2	0	19
		Malabe West	0	0	7	10	0	17
Total			1	3	65	20	1	90

Source: JICA study team

7.2.4 Availability of alternative place

The majority of affected people (92%) does not have alternative place to rent.

Table 7.4 Availability of alternative place

AP Category	DS Division	GN Division	Do you have a alternative place to rent		
			Yes	No	Total
Residential	Kaduwela	Malabe west	-	-	-
Commercial	Colombo	Fort	0	16	16
		Ibbanwala	4	1	5
	Kaduwela	Kotuwegoda	1	9	10
		Sri Subhoothipura	1	12	13
		Battaramulla South	0	3	3
		Udumulla	0	6	6
		Malabe North	0	18	18

	Malabe West	1	16	17
Total		7	81	88

Source: JICA study team

7.3 Income Restoration Program

7.3.1 Livelihood and Income Restoration Strategies

The National Involuntary Resettlement Policy (NIRP), World Bank OP.4.12 and JICA guidelines on resettlement recognizes the need for re-establishing livelihoods of affected persons and improving their standard of living; avoiding impoverishment of people as a result of compulsory land acquisition for development purposes; and providing livelihood compensation and development options at the earliest opportunity to PAPs.

Internationally recognized best practices propose a set of principles that guide the planning and implementation processes of income restoration programmes. In terms of these guiding principles, livelihood and income restoration should be integrated into on-going community development processes. The NIRP recognizes and acknowledges this approach by stating that resettlement should be planned as a development activity for the affected people based on the principle that PAPs should be engaged in planning and implementation of income restoration programmes.

There are different types of livelihood and income restoration strategies. Such a strategy could take the form of a short-term or a long-term strategy; or it could be a land-based or non-land based or enterprise-based strategy. International best practices recognize the following types of key income restoration strategies.

- **Cash-based assistance:** Cash-based assistance is primarily a short-term strategy. It could take different forms according to the context within which it is applied. For example, people who lose their livelihoods and incomes can be offered temporary paid work (e.g. cash-for-work) by the project until they re-establish their livelihoods or initiate new livelihoods. APDs can also be given a cash grant to restore their livelihood and income sources as per the Cabinet approval.
- **Other forms of assistance:** A variety of assistance can be provided to PAPs under non cash based income restoration strategy which is usually a long-term strategy. It could provide linkages to Agrarian Services Department, technical and vocational skills development training; access to micro-finance; business development support services such as assistance for product development and quality improvement, business planning, financial management and accounting; support for accessing markets; and linking PAPs with existing government services that provide assistance to businesses.

Based on the results of the socio-economic survey, four main strategies have been identified as IRP options for PAPs. These include:

- **Capacity building of PAPs through institutional development**

An important support for PAPs is to improve their capacities in order to adopt alternative forms of livelihood. One method of capacity building is to strengthen social institutions in the affected area, particularly in the proposed depot. The PMU can facilitate the formation

of an association of Ande farmers and vulnerable households so that they can consult amongst each other regarding maximizing livelihood restoration opportunities.

- Advise on Financial Management

This will include providing financial management training to PAPs, particularly vulnerable population. This is necessary in ensuring that PAPs are able to manage their financial resources efficiently.

PMU would assist the households to access micro credit facilities and/or investment opportunities in order to obtain production assets. PMU will recruit a Micro Finance Specialist and this support program will be implemented with the participation of local and national level institutions such as Samurdhi authority, Central Bank of Sri Lanka and various commercial banks.

- Business development program

Vocational training and small business development trainings shall be provided to the PAPs, if they request. There are several government and non-government institutions, which conduct various types of vocational training, such as NAITA (National Apprentice and Industrial Training Authority), IDB (Industrial Development Board) and Ministry of Education and Ministry of High Education. PMU will coordinate for the arrangement of vocational training through the discussion with the PAPs.

- Employment opportunities

PAPs can be given a cash grant to restore their livelihood and income sources as per a Cabinet approval. While facilitating cash-based compensation, PAPs shall be provided with a variety of assistance under non cash based income restoration strategies, which is usually a long-term strategy. For example, employment opportunities during construction, select qualified family members shall be given priority when recruiting staff for the O&M company.

In order to ensure the feasibility of the livelihood and restoration strategies, the actual experience of the Kelani Bridge Project will be used as reference particularly in terms of providing micro finance and business development support. The Kelani Project experience demonstrates that it is advisable to engage the PAPs in the Program as early as possible. It is recognized that there is no blanket solution in coming up with the most appropriate strategy. It is important to incorporate the characteristics of the LRT Project's PAPs.

7.3.2 Business Owners and Workers

The LRT Project will likely affect 100 businesses, including the owners and workers engaged in those business activities in the project area. There are 455 employees hired by these 100 businesses. Among these (455 employees), 108 employees belong to Carmart (Peugeot and Mazda) and 75 employees belong to Lal and Nihal. Together with Ishara Traders, these businesses are located in Ibbanwala Junction

Income restoration for the affected business owners is a straightforward activity looked after by LAA. The LAA and LARC stipulate provision of compensation for business losses, including losses to land and structure. This is included in the resettlement budget. In addition to the compensation stipulated in the LARC/S-LARC. The following support are considered to restore and improve the

livelihood of business owners:

- Provide government-owned spaces/facilities for small business owners temporarily so they can continue their businesses during the construction. These areas will be selected in coordination with PAPs, UDA, and local authorities
- Provide comparative advantage in terms of business opportunities within the proposed train stations and its surrounding area
- Support in finding available spaces/facilities in surrounding areas that can be alternative locations for affected businesses in coordination with local authorities and real estate agents
- Support in redesigning the restoration/renovation of affected buildings

PMU will work out operational plans to make necessary compensation for personnel who lose their jobs. Regarding employees attached to these business ventures in different grades, they will be compensated for their loss of salaries and wages caused by the Project. Besides, if there will be permanent impacts on the PAPs' livelihood, the PAPs are entitled to obtain professional assistance and advice, to invest funds or to set up a businesses at a commercially viable location on request basis.

7.3.3 Farmers and Ande Farmers

There are 41 paddy land owners and 5 Ande farmers affected by the Project in Kaduwella DS area. As per the LAA and LARC, these affected groups will get compensation for their loss of land and crops. Furthermore, the entitlement matrix for the project has included additional income restoration measures for the owners and farmers losing agricultural land.

If there will be permanent impacts on the PAPs' livelihood, the PAPs are entitled to obtain professional assistance and advice, to invest funds or to set up a small business at a commercially viable location, on request basis. PMU will also assist the households to access micro credit facilities in order to obtain production assets. Vocational training shall be provided to the PAPs, if they request.

For many paddy landowners/farmers, paddy cultivation is not the main source of their livelihood. During consultation, some expressed preference for cash compensation. Aside from cash, the following measures are considered to improve the livelihood of paddy landowners/farmers (depending on the amount of land remaining with them):

- Home garden development.
- Providing training and support to increase the yield and productivity of available land (e.g. use of variety of crops, plant nurseries) with the help of the Department of Agrarian Services
- Encourage contractors to purchase seedlings and other necessary items to be used for the green belt development from affected farmers
- Providing training and support to adopt off-farm activities (e.g. milling)

Based on the consultation with PAPs, since most of Ande farmers are old with limited income sources, some of them requested for employment opportunities for their children and/or grandchildren. PMU will give priority to qualified family members of the Ande farmers when recruiting staff for the O&M company. Another option is the provision of vocational livelihood training to the PAPs and/or their children in order to secure other sources of income. For the senior Ande farmers, upon their request, they may be taught to make hand-made domestic consumable

items (e.g. brooms, kitchen tools) that can be made at home. Financial management training will also be provided so that the farmers will be able to manage their financial compensation well.

7.3.4 Vulnerable Population

During the survey, 21 people have been identified as vulnerable, which people over 60 years old, women household heads, and widows/widowers. Their households shall receive a special restoration allowance in addition to other entitlements. Similar to Ande farmers, qualified family members shall be given priority when recruiting staff for the O&M company.

In addition to this, PMU will support them to prepare for land acquisition inquiries and other assistance they need for smooth transition. PMU will maintain close contact with the vulnerable population throughout the project implementation.

7.3.5 Other special consideration

In the case of affected government structures that house small shops like in Diyatha Uyana and Floating Market, these will be rebuilt after construction. Thus, affected small shops may continue their businesses after rebuilding of these structures. On the other hand, affected small shops in Fort area which will be converted into a multi-modal transportation hub, will be supported in coordination with CMC and UDA.

7.3.6 Organization to Implement IRP

PMU will act as facilitator and coordinator for the PAPs to obtain the services and inputs available from the respective state and private institutions in the area of entrepreneur development. PMU together with supervision consultant will recruit Micro finance and credit specialist and business development specialist during the land acquisition process to develop and implement IRP.

The IRP will need to be prepared well before the physical land acquisition starts. If required, PMU considers in recruiting a suitable NGO to assist the implementation of IRP. PMU will provide logistic support and initial funds required to implement the programme.

Whenever required, expertise services for specific areas will be drawn from outside sources to assist PAPs. In accordance with the proposed IRP measures, the IRP will have linkages with the following institutions:

- Banks and other financial institutions
- Vocational Training Authority
- Agrarian Services Department
- Department of Agriculture, Department of Export Agriculture
- Department of Forestry
- Department of Inland Fisheries
- National apprentice and Industrial Training Authority
- Assistance of the NGO

- All income restoration programs will be undertaken in consultation with individual PAPs and their associations

Categories of PAPs entitled to Income Restoration Benefits in the Project area are as follows:

- PAPs losing businesses
- Owners of paddy lands
- Ande farmers
- PAPs categorised as Vulnerable
- Others losing income due to the Project

It is important to note that around 90% of the PAPs are small and medium scale business owners. Most of the paddy landowners are unemployed aged people. Some of these people are living with their children and are not staying in the affected area. Vulnerable people include people over 60 years old, women household heads, and widows/widowers.

7.3.7 Schedule of IRP Implementation

The implementation of the IRP will start in July 2018 and will continue until December 2024. The IRP will start prior to the physical displacement of PAPs. Awareness raising and stakeholder engagement activities have been conducted from the early phase of the project. In particular, IRP consultations are aimed at presenting IRP (e.g. its objectives, eligibility, IRP options) and obtaining feedback from the PAPs. These engagements will continue throughout the IRP implementation. The IRP survey will start during the third and fourth quarters of 2018. Based on the results and findings of the IRP survey, and IRP planning workshop will be organized to identify appropriate IRP measures for PAPs and other stakeholders.

The indicative implementation schedule of proposed IRP measures is shown in the Table below. It can be seen that capacity building (institutional development) will be implemented during the RAP implementation. Support to accessing micro-finance is envisioned to start in mid-2019. Business development support and employment opportunities will start in mid-2020.

Table 7.5 Indicative Schedule of IRP Implementation

Description	2018				2019				2020				2021				2022				2023				2024			
	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th	1st	2nd	3rd	4th
Institutional development																												
Microfinance																												
Business development																												
Increase the employability of farmers, Ande Farmers Business employees and Vulnerable PAPs																												

CHAPTER 8 Stakeholder Engagement

8.1 Introduction

It is important to promote public understanding and fruitful solutions to address the local needs of the communities and issues pertaining to resettlement, through information dissemination, consultation and participation processes involved with PAPs and other stakeholders. The consultation method needed for this project will employ a range of formal and informal consultative methods, including stakeholder meeting, awareness program, focus group discussions (FGD), key informant interviews and individual interviews. The chapter summarises the different consultation carried out by the Project and the key concerns raised. Detailed minutes of meetings of each stakeholder engagement are attached in Annex E.

8.1.1 Information Dissemination and Notification

Information dissemination and notification regarding the stakeholder engagement events vary depending on the type of engagement required. Awareness and consultation meetings for government offices have been coursed through official invitations released by MMWD to relevant offices. Public engagement meetings have been publicly announced through newspaper announcements, leaflets and posters at DS/GN offices in all three official languages – Sinhala, Tamil and English (see Photos below). For PAPs like paddy land owners, tenant farmers and business owners, they were contacted individually and were invited to meetings.

- ✓ Malabe
- ✓ Battaramulla
- ✓ Borella
- ✓ Fort / Pettah
- ✓ Kollupitiya

RELIABLE

Thimbirigasyaya Divisional Secretariat Area

- ✓ Learn more about the proposed LRT Project in Colombo Metropolitan Area.
- ✓ Voice out your opinions and concerns.



WHERE? DS Auditorium

For more information, contact:
Project Director, Light Rail Transit Project
Ministry of Megapolis & Western Development
Tel. No.: +94-11-2870589 ext. 252
Email: lrtiica@gmail.com



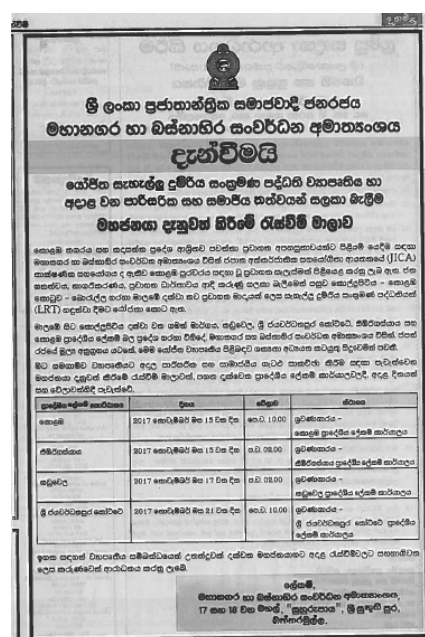
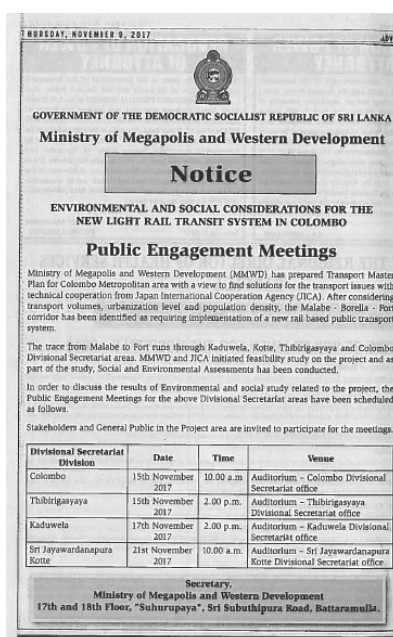
Public Engagement Meeting Posters in local languages posted at the DS/GN office in Kotte



Design of leaflets distributed to the public. Sinhalese and Tamil version are also available. Copies were also provided in the DS/GNs offices.



Newspaper announcements (Sinhala and Tamil versions) for the Public Engagement Meeting (EIA Scoping)



Newspaper announcements (English and Sinhala versions) for the Public Engagement Meeting
(EIA Disclosure)

8.1.2 Stakeholder Engagement Strategy

Several stakeholder engagement activities were conducted by the PMU to ensure an open, inclusive, and consultative engagement process. The approach employed takes into account dynamics across the horizontal and vertical spectrum of the government in order to gather support from relevant government agencies and local governments before reaching out to the PAPs. Thus, awareness meetings were separately conducted for relevant government agencies (including Municipal Councils), Agrarian Services Department (Kaduwela), DS and GNs. The Kaduwela Agrarian Services provided the list of farmers who utilize the area of the proposed depot.

Targeted awareness meetings were held to be able to better communicate and obtain specific needs of different groups of PAPs. Separate awareness meetings were held for paddy landowners, tenant farmers, property owners, and business owners. Also, focus groups discussions were held targeting specific groups, whose activities may be affected by the project (e.g. 3-wheeler drivers, small business owners, pedestrians).

Besides the public engagement meetings held as part of the EIA process (meetings at each affected DS during the scoping phase and EIA Report disclosure), the PMU also conducted consultation meetings with project-affected persons, particularly to discuss about the RAP and gather their feedback.

8.2 Initial Stakeholder Meeting

In line with the above approach, PMU launched a series of public awareness and stakeholder consultation meetings at national and divisional levels, targeting appropriate audiences. This series of meetings commenced first with the Initial Stakeholder Meeting, inviting different government agencies and local councils. This meeting was held on 16th of May 2017 at the Auditorium of Sethsiripaya Stage II, Battaramulla.

This meeting was attended by senior officers of Ministry of Megapolis and Western Development, representatives from JICA Sri Lanka office, representatives from Colombo Municipal Council, representatives of Municipal/ Urban Councils, officers from Ministry of Higher Education and Highways and Road Development Authority (RDA), Ceylon Electricity Board (CEB), Sri Lanka Land Reclamation & Development Corporation (SLLRDC), Urban Development Authority (UDA), Department of National Physical Planning, Department of Railway, representatives from respective Divisional Secretary (DS) Divisions etc. A total of around 50 representatives and officials attended the event.

In the meeting, the Project Director presented about the LRT project. Afterwards, the forum was opened for discussion. The points discussed can be classified in to three areas as Environment, social and technical. These points are presented in **Table 8.1** below. The minutes of the event and the list of participants are provided in Annex E.

Table 8.1 Summary of Initial Stakeholder Meeting

Environment	Social	Technical	Other
<ul style="list-style-type: none"> Visual barrier by elevated structure. 	<ul style="list-style-type: none"> Integrated development around Malabe area? 	<ul style="list-style-type: none"> Improvement of roads. (Discussion with RDA) (Alternative routes) 	<ul style="list-style-type: none"> Why is it not connect to Kaduwela instead of Malabe?
<ul style="list-style-type: none"> Functions at the depot. (The Malabe end cleaning maintenance etc.) 	<ul style="list-style-type: none"> Park and ride facilities. 	<ul style="list-style-type: none"> Intersection with Kv line. (From Colombo to Narahenpita. 	<ul style="list-style-type: none"> Law enforcement on safety. (No entrance to the tracks)
<ul style="list-style-type: none"> Thalangama Environmental sensitive area. (Discussion with CEA) 	<ul style="list-style-type: none"> Cotta road station (Proposed project by Dept. of Irrigation for a housing 	<ul style="list-style-type: none"> Utility line maintenance. (Discussion with Utility State holders and provisions) 	

	development)		
• Broken part disposal.	• Over supply of local bus service.	• Power supply for LRT.	
• Flood associated with LRT development. (During and after construction)	• Identification of new bus route from the project.	• Transient load calculation.	
	• Port city connection.	• Using precast techniques during construction.	

8.3 Awareness Programs

8.3.1 Awareness Programs for Local Government Officials (DS and GN Level)

Prior to the socio-economic survey, awareness programs for the four affected Divisional Secretaries (DSs), Grama Niladhari (GN) and officers of Department of Agrarian Services (Kaduwela) were held in between May to June 2017. During these meetings, the need for a rail-based public transportation system like the LRT to reduce traffic congestion was highlighted. The envisioned transport network in Colombo Megapolis Region and the proposed LRT system were discussed. The project officials presented the project rationale, reasons for selecting Malabe corridor, and how the project will be financed. Being the first of its kind in Sri Lanka, attention was given to describing the components of the LRT system, its design (space requirement), its potential impacts and the measures to be taken by the PMU to mitigate and manage those impacts. The presentation included visual images and videos of LRT.

The summary of the local level awareness programs is shown in **Table 8.2**. All the questions raised were noted and addressed by the project officials. The minutes of these meetings are attached in Annex E.

Table 8.2 Summary of Awareness Program for DS and GNs

Date	Venue	Target group	No. of Participants
24.05.2017	DS Office - Colombo	Grama Niladaries and Development Officers attached to DS Division.	45
26.05.2017	DS Office - Thibirigasyaya	Grama Niladaries and Development Officers attached to DS Division.	31
31.05.2017	DS Office – Sri Jayawardanapura Kotte	Grama Niladaries and Development Officers attached to DS Division.	35
07.06.2017	Agrarian Services Centre, Kaduwela	Officers of Agrarian Services Centre, Kaduwela	30
14.06.2017	DS Office - Kaduwela	Grama Niladaries and Development Officers attached to DS Division.	58

(Source: RAP study team)

8.3.2 Awareness Meetings for PAPs

During the early stage of the project, PAPs were identified. Recognizing the need to involve them as early as possible, awareness programs for PAPs were organized. One of the meetings was organized for paddy landowners and tenant farmers in the proposed depot area. Another meeting was conducted for potentially affected business owners. The details of these meetings are shown in the Table below. The meeting minutes and list of participants are attached in Annex E.

Table 8.3 Summary of Awareness Program for PAPs

Date	Venue	Target group	No. of Participants
01.07.2017	Sanasa Building Malabe	Paddy land owners and the tenant farmers of the lands in the proposed depot area	23
31.08.2017	Suhurupaya, Battaramulla	Officials/owners of affected businesses	17

(Source: RAP study team)

8.3.3 Public Engagement Meetings

The public awareness meetings were held for each affected Divisional Secretariat. Four public engagement meetings were primarily aimed at presenting the LRT Project and its corresponding environmental and social impacts and at obtaining the views, suggestions and support from the public.

In addition to the points mentioned in meetings organised for local officials, special attention was given in explaining land acquisition, the opportunities available for public through LRT and issues that might arise during construction period and mitigation measures. All the questions raised were noted and addressed by the project officials.

The summary of public engagement meetings are shown in Table 8.4. Detailed minutes of meetings and list of participants are attached in Annex E.

Table 8.4 Summary of Public Engagement Meeting

Date	Venue	Target group	No. of Participants
11.07.2017	DS Office – Sri Jayawardanapura Kotte	GNs and public of Sri Jayawardanapura Kotte DS Division	14
12.07.2017	DS Office - Colombo	GNs and public of Colombo DS Division	34
12.07.2017	DS Office - Thibirigasyaya	GNs and public of Thibirigasyaya DS Division	29
18.07.2017	DS Office - Kaduwela	GNs and public of Kaduwela DS Division	69

(Source: RAP study team)

8.4 Focus Group Discussions

There are certain groups, whose livelihood and activities may also be affected by the project. These would include Focus group discussions with different segments of the community when carrying out the Social Impact Assessment. The key points discussed were summarised in Table 8.5 and details are annexed in Annex E.

Table 8.5 Summary of Focus Group Discussions

Date	Venue	Target group	No. of Participants
September 2017	Borella	Three wheeler drivers	7
	Malabe	Parents and students of Ananda Vidyalaya - Malabe	7
	Town Hall	Pedestrians	6
	Maradana	School van drivers	6
	Borella	Borella Bo tree devotees	5
December 2017	Battaramulla	Small business owners	5
	Pettah	3-wheeler drivers	11
		Pedestrians/ commuters	4
		Bus drivers	6

(Source: RAP study team)

8.5 Consultation of PAPs

The PMU conducted a series of consultation meetings for potentially affected people in order to explain the proposed land acquisition and resettlement approach for the project. The consultation meetings were conducted in following groups. The key points discussed were summarised in Table 8.6 and details are annexed in Annex E.

- Affected farmers in proposed Depot area
- Affected people in Kaduwela DS area
- Affected people in Colombo DS area

Table 8.6 Summary of Consultation with PAPs

Date	Venue	Target group	No. of Participants
04.01.2018	Kaduwela Divisional Secretariat Office	Paddy land owners & tenant farmers in the proposed depot area	29
05.01.2018	Sethsiripaya stage II	Affected business owners in Kaduwela DS	38
05.01.2018	Colombo DS Auditorium	Affected business owners in Colombo DS	15

(Source: RAP study team)

In addition, PMU also conducted four individual consultation sessions (ICS) held on March 26-27, 2018. Details of the meetings are shown in the Table below. The key points discussed were summarised in Table 8.6.

A total of 16 paddy landowners, farmers, and Ander farmers participated. These sessions were aimed at obtaining PAPs views regarding the LRT project, compensation, IRP, and grievance mechanism. Since these sessions are in smaller groups compared to earlier consultation meetings, PAPs had an opportunity to be more open and to freely express their opinions and concerns.

Table 8.7 Summary of Consultation with PAPs

Date	Venue	Target group	No. of Participants
26.05.2018	Suhurupaya	Farmers and landowners	7
27.05.2018 (AM)	Suhurupaya	Farmers and landowners	3
27.05.2018 (PM)	Suhurupaya	Farmers and landowners	6

(Source: PMU)

8.6 Consideration of Stakeholders' Feedback

Several awareness and consultation meetings have been conducted not only to inform about the LRT Project, but, more importantly to gather stakeholder comments and concerns that will be considered and incorporated in the project development. A summary of how comments and issues raised have been considered in the LRT project is presented in the Table below.

Table 8.8 Consideration of Stakeholder Feedback

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			Concerns	
1	May 16, 2017 10:00-13:00 MMWD Office	Initial Stakeholder Consultation Meeting	<ul style="list-style-type: none"> RDA: Traffic during construction period (need for traffic management plan); Impact on existing roads (need for road widening) 	<ul style="list-style-type: none"> Inclusion of traffic management plan development in the EMMP Design of the elevated structure that would minimize impact on existing roads; Consider the use of precast structures to reduce impacts and speed up construction Close coordination with RDA in terms of road widening at Malabe area
			<ul style="list-style-type: none"> UDA: hydrological impacts of the JICA-LRT (proposed trace is on flood inundation area) 	<ul style="list-style-type: none"> Hydrological impacts of the LRT have been included in the Impact Assessment; Mitigation and management measures have been provided; Coordination with SLLRDC regarding flood modelling in depot area and Diyawanna Lake
			<ul style="list-style-type: none"> Lanka Electricity Co. (LECO): Impacts on power distribution lines along existing roads 	<ul style="list-style-type: none"> Close coordination with utility agencies
			<ul style="list-style-type: none"> National Transport Council: Adverse impact on private bus owners 	<ul style="list-style-type: none"> Provisions to make new bus routes and shuttle services to connect stations to main towns
			<ul style="list-style-type: none"> Department of Irrigation: Potential impact on a planned housing development near Cotta Road 	<ul style="list-style-type: none"> The proposed route is along the other side of Cotta Road. The planned development will not be affected.

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			<p>Questions</p> <ul style="list-style-type: none"> • RDA: Affordability (budget); Potential positive impacts • UDA: Extension of the JICA-LRT to Kaduwela instead of stopping at Malabe; visual impact of elevated structure; facilities for maintenance and repairs at the end point; potential connection with the Port City Development 	<ul style="list-style-type: none"> • Pricing of the JICA-LRT tickets are set at competitive rates with existing modes of transportation • Extension to Kaduwela is included in the design of the LRT (IT Park Station) • Visual impacts of the JICA-LRT have been included in the Impact Assessment; Mitigation and management measures have been provided • Construction of depot area at the end of the JICA-LRT line (West Malabe area) • Coordination with the officials of the Port City Development Project; Consider providing a dedicated line to/from the Port City in the future
			<ul style="list-style-type: none"> • LECO: Possibility of underground construction; Power requirements of the JICA-LRT • JICA Survey Team: Issues regarding the construction of depot on paddy fields; Issues regarding crossing of Thalangama EPA; Department of Irrigation: Impact on paddy fields within the EPA 	<ul style="list-style-type: none"> • Conduct of alternative analysis for type of LRT structure • Avoidance of the Thalangama EPA; Close coordination with CEA; Conduct of Stakeholder Meeting to discuss issues • Design of an elevated depot structure; Open communication with farmers/paddy land owners that may be impacted in the proposed depot area

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
2	May 24, 2017 10:30-12:00 Auditorium, Colombo DS	Awareness Meeting for Colombo DS and GNs	<ul style="list-style-type: none"> JICA Study Team: Issues regarding the potential disturbance on the Perahara festival hosted by Gangaramaya Temple (proposed JICA-LRT route along Perahara Mw). 	<ul style="list-style-type: none"> Shortening of the JICA-LRT route to Fort Station (excluding Slave Island, Kollupitiya, and Perahara Mw)
			<ul style="list-style-type: none"> Sri Lanka Transport Board: Plan for parking facilities near stations (e.g. park and ride) 	<ul style="list-style-type: none"> Consideration of Park and Ride facilities in the future development of the stations;
			Concerns	
			<ul style="list-style-type: none"> GN- Keththarama: Land acquisition in Colombo; Impact on existing buildings 	<ul style="list-style-type: none"> Use of the centreline of the road to minimize land acquisition and impact on existing buildings
			<ul style="list-style-type: none"> GN-Grandpass: Impact on religious places 	<ul style="list-style-type: none"> Shortening of the LRT route to avoid Gangaramaya Temple and Perahara Mw (road in front of Altair)
			Questions	
3	May 26, 2017	Awareness	<ul style="list-style-type: none"> GN-Grandpass: Impact on existing railway tracks 	<ul style="list-style-type: none"> LRT runs through a trace not covered by existing rail tracks.
			<ul style="list-style-type: none"> Development Officer: Direction of tracks; Ticket price; Passenger capacity 	<ul style="list-style-type: none"> Pricing of the LRT tickets are set at competitive rate with existing modes of transportation
			Concerns	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	11:30-13:00 Auditorium Thimbirigasya aya DS Office	Meeting for Thimbirigasya ya DS and GNs	<ul style="list-style-type: none"> Development Officer: Environmental impacts of the project; Risks that similar issues from Uma Oya Project may arise 	<ul style="list-style-type: none"> Conduct of an inclusive EIA process. As much as possible, minimize the potential environmental and social impacts as early as design phase of the project
			<ul style="list-style-type: none"> GN- Wellawatta: Structures (buildings) that may be affected 	<ul style="list-style-type: none"> Development of RAP
			Questions	
			<ul style="list-style-type: none"> Development Officer: Length of proposed JICA-LRT; 	<ul style="list-style-type: none"> Extension of the LRT to Kaduwela is considered in the project design
4	May 31, 2017 10:15-12:00 Auditorium Kotte DS Office	Awareness Meeting for Kotte DS and GNs	<ul style="list-style-type: none"> GN- Wellawatta: Passenger capacity; Ticket price 	<ul style="list-style-type: none"> Pricing of the JICA-LRT tickets are set at competitive rate with existing modes of transportation
			Concerns	
			<ul style="list-style-type: none"> Divisional Secretary: Additional land acquisition in Rajagiriya flyover area 	<ul style="list-style-type: none"> Propose a cantilever design that would fit within the ROW of the flyover so that no additional acquisition will be necessary
			<ul style="list-style-type: none"> Development Officer 1: Road developments around LRT stations; Traffic impact (from Pagoda Road to Nawala Road) and proposed solution 	<ul style="list-style-type: none"> Coordination with RDA to identify alternative roads during construction period
			Questions	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			<ul style="list-style-type: none"> Development Officer 3: Express trains; Ticket purchase mechanism; Technical training program for locals 	<ul style="list-style-type: none"> Operation of express and local trains are incorporated in the O&M Plan
			Supportive Comment <ul style="list-style-type: none"> Development Officer 2: Consideration of comments during Monorail Project consultation (regarding extension of the route to Malabe); Suggest parking facilities at stations, carpooling, and dedicated bus lane 	NA
5	June 14, 2017 10:20-11:40 Auditorium, Kaduwela DS Office	Awareness Meeting for Kaduwela DS and GNs	Concerns <ul style="list-style-type: none"> GN- Muththetugoda: Train engines imported from Japan that had to be disposed. Risks of similar case for the JICA-LRT Development Officer 1: Traffic during construction period (traffic management); Employment of foreign workers during construction and operation 	<ul style="list-style-type: none"> Not aware of that case. JICA-LRT is electricity driven and will not require engines Development of a traffic management plan during construction Employment of local workforce during construction as much as possible. Foreign experts will need to train local staff during first months of operation Conduct of alternative analysis. LRT is more cost effective and more suitable for Sri Lanka
			Questions	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			<ul style="list-style-type: none"> GN-Kalapaluwawa: Ticket cost 	<ul style="list-style-type: none"> Pricing of the JICA-LRT tickets are set at competitive rates with existing modes of transportation
			<ul style="list-style-type: none"> Development Officer 1: Frequency of trains (operation) 	<ul style="list-style-type: none"> Train frequency will be every 4 minutes (during peak hours) and every 10 minutes (during night time)
			<ul style="list-style-type: none"> Development Officer 2: Plan for train stations (elevated or underground); End to end travel time is shorter for Monorail 	<ul style="list-style-type: none"> Conduct of alternative analysis. Elevated train stations are more cost effective Design for Monorail is different
6	June 7, 2017 11:00-12:30 Kaduwela Agrarian Centre	Awareness Meeting for Kaduwela Agrarian Service	<p>Concerns</p> <ul style="list-style-type: none"> Agriculture Research and Production Assessment (ARPA)-Malabe West: Leakage of waste/wastewater to surface water (e.g. Kelani River); ARPA-Malabe West: Impact of depot area on water holding capacity of the swamp (water catchment); Flood mitigation measures ARPA-Thunandahena: Hydrological impacts of the depot area (flood mitigation plan); Grievance redress mechanism of project proponent ARPA-Taladiyawala: Compensation for tenant farmers and land owners (gap between government valuation and market value) 	<ul style="list-style-type: none"> Provision of options for wastewater disposal. Design of the wastewater treatment plant that would be compliant with standards set by CEA for wastewater Inclusion of flood modelling in the EIA Report to know project impact on wetlands and catchment areas; Include flood mitigation measures in the environmental management and monitoring plan Adoption of LARC System for compensation to project affected people

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			Questions	
7	July 1, 2017 15:00-16:30 Auditorium, Sanasa Development Bank	Awareness Meeting for Paddy Land Owners and Tenants	<ul style="list-style-type: none"> ARPA-Thunandahena: Target users 	<ul style="list-style-type: none"> Design of JICA- LRT in such a way it can be used by everyone
			<ul style="list-style-type: none"> ARPA- Ihala Bomiriya: Allow construction of housing project over a wetland/swamp 	<ul style="list-style-type: none"> Not aware of that project
			Concerns	
			<ul style="list-style-type: none"> Land Owner 1: Impact on existing roads Land Owner 3: JICA guidelines regarding compensation for land acquisition (Experienced inadequate compensation for a road widening project near the depot area); Noise impacts in depot area 	<ul style="list-style-type: none"> JICA-LRT design takes into account existing road capacity and minimizing the need for land acquisition Construction will not start until compensation have been provided to people affected by land acquisition and resettlement Inclusion of noise impact in the Environmental Impact Assessment; Provision of mitigation and management measures in the Environmental Management and Monitoring Plan

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			<ul style="list-style-type: none"> Tenant Farmer 1: Filling of paddy lands; Wastewater impact on surrounding paddy lands; Impact of depot elevated structure (light, stagnant water, agricultural activities); Alternative depot area 	<ul style="list-style-type: none"> Adoption of LARC system for compensation to project affected people Close coordination with the Agrarian Service Officers; Care in undertaking project-related pre-construction activities No filling of paddy lands because it is a flood retention area. Instead an elevated structure will be built Construction of a wastewater treatment plan within the depot to treat wastewater prior to discharge. Discharge will be compliant with relevant standards. Alternative analysis has been conducted for the depot area. The paddy land area in West Malabe was chosen due to location and available land (minimum resettlement).
			Questions <ul style="list-style-type: none"> Land Owner 2: Station at Battaramulla Junction; parking/park-and-ride facilities Tenant Farmer 2: Impact of construction of depot (impact on built structures); environmental impact of wastes from the depot area (risks of leakage and contamination) 	<ul style="list-style-type: none"> There will be a station in Battaramulla Junction. Parking facilities are considered in the development of train stations at a later stage Inclusion of grievance mechanism during construction and operation phases of the project Inclusion of waste and sewerage management in the EIA study.
8	July 11, 2017	Public	Questions	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	10:00-11:10 Auditorium Kotte DS Office	Engagement Meeting (Kotte)	<ul style="list-style-type: none"> • Operation details (travel time, frequency of trips; operating hours) 	<ul style="list-style-type: none"> • Operation and maintenance details are decided by the O&M Working Group. Close coordination with the members of the Working Group from several ministries
			<ul style="list-style-type: none"> • Training of staff (drivers) 	<ul style="list-style-type: none"> • Japanese experts will train local staff during the first months of operation
			<ul style="list-style-type: none"> • Details of JICA-LRT structure 	<ul style="list-style-type: none"> • Alternative analysis was conducted for the suitable JICA-LRT structure. Included in the EIA Report
			Concerns	
9	July 12, 2017 10:15-11:20 Auditorium, Colombo DS	Public Engagement Meeting (Colombo)	<ul style="list-style-type: none"> • Land acquisition in Colombo 	<ul style="list-style-type: none"> • Design of the LRT that minimizes land acquisition in Colombo; Majority of land that needs to be acquired in Colombo is government-owned.
			<ul style="list-style-type: none"> • Ticket Cost 	<ul style="list-style-type: none"> • Pricing of the LRT tickets are set at competitive rates with existing modes of transportation
			Questions	
			<ul style="list-style-type: none"> • Connectivity with Maradana; Connectivity of stations 	<ul style="list-style-type: none"> • Connectivity with Maradana through the proposed Transport Station
			<ul style="list-style-type: none"> • Transport system linked to JICA-LRT stations 	<ul style="list-style-type: none"> • Provisions to make new bus routes and shuttle services to connect stations to main towns
10	July 12, 2017	Public	Concerns	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	13:30-15:00 Auditorium Thimbirigasy aya DS Office	Engagement Meeting (Thimbirigasy aya)	<ul style="list-style-type: none"> Impact of JICA-LRT operation on other forms of transportation: Consultation with SLTB, private bus unions, railway department, 3-wheel drivers (alternative income generating program) 	<ul style="list-style-type: none"> Inclusion of 3-wheel drivers in the focus group discussion; Consultation with the SLTB, National Transport Commission, Western Province Road Passenger Transport Authority at the Initial Stakeholder Meeting and representation at the Steering Committee Provisions to make new bus routes and shuttle services to connect stations to main towns
			Questions	
			<ul style="list-style-type: none"> Training for JICA-LRT staff 	<ul style="list-style-type: none"> Japanese experts will train local staff during the first months of operation
			<ul style="list-style-type: none"> Ticket price 	<ul style="list-style-type: none"> Pricing of the LRT tickets are set at competitive rates with existing modes of transportation
			<ul style="list-style-type: none"> Operation (availability of express trains, frequency of trips, emergency exits) 	<ul style="list-style-type: none"> Operation and maintenance details are decided by the O&M Working Group. Close coordination with the members of the Working Group from several ministries
			<ul style="list-style-type: none"> Land acquisition and compensation 	<ul style="list-style-type: none"> Design of the JICA-LRT that minimizes land acquisition Development of RAP and adoption of LARC System for compensation to project affected people
11	July 18, 2017	Public	Concerns	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	10:30-12:00 Auditorium, Kaduwela DS Office	Engagement Meeting (Kaduwela)	<ul style="list-style-type: none"> Traffic impact during construction period; 	<ul style="list-style-type: none"> Development of a traffic management plan Close coordination with RDA in terms of road widening at Malabe area
			<ul style="list-style-type: none"> Compensation for land acquisition and impact on businesses/employment 	<ul style="list-style-type: none"> Development and implementation of a Livelihood Restoration Program for project affected people Development of RAP and adoption of LARC System for compensation to project affected people
			<ul style="list-style-type: none"> Opportunities for people of Kaduwela DS 	<ul style="list-style-type: none"> Employ local workforce during construction and operation phases as much as possible
			<ul style="list-style-type: none"> Impact on Thalangama EPA 	<ul style="list-style-type: none"> Avoidance of the Thalangama EPA; Conduct of EPA Stakeholder Meeting to discuss issues
			Questions	
			<ul style="list-style-type: none"> Operation (ticket price, insurance for train users) 	<ul style="list-style-type: none"> Operation and maintenance details are decided by the O&M Working Group. Close coordination with the members of the Working Group from several ministries
12	August 31,	Awareness	<ul style="list-style-type: none"> Alternative power supply (e.g. solar) 	<ul style="list-style-type: none"> Alternative power supply in case of emergencies have been included in the Feasibility Study
			<ul style="list-style-type: none"> Associated facilities (park-and-ride facility) 	<ul style="list-style-type: none"> Associated facilities will be considered in future development of the stations
			Concerns	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	2017 14:30-16:30 18th floor Suhurupaya	Meeting for Affected Business Owners	<ul style="list-style-type: none"> • P&S Manager, Noritake, Regal Theater, People's Bank, Peugeot & Mazda: Extent of potential damage to our building; Potential impact to our operation; Compensation; Schedule of construction • CMC: Income restoration program for around 250 small businesses in Borella Supermarket; Extent of potential damage to our building 	<ul style="list-style-type: none"> • Development of RAP and Livelihood Restoration Program; Adoption of LARC System for compensation to project affected people and businesses • Design of route alignment with the minimum requirement for land acquisition and resettlement • Avoidance of Borella Supermarket
13	September 6, 2017 14:20-16:30 11th Floor, Sethsiripaya Stage II	EPA Stakeholder Meeting	<p>Concerns</p> <ul style="list-style-type: none"> • Farmers' Organization: Land fillings during construction stage; No considerable impact on the EPA; Demarcations to prevent encroachers; Impact on anicut; • Environmental Foundation Ltd.: Pillars within the EPA boundaries (number and location); Height of the JICA-LRT; JICA-LRT as a physical boundary (prevent encroachment in EPA); Communication with landowners who may be potentially be affected; Frequency of trips <p>Questions</p>	<ul style="list-style-type: none"> • Avoidance of Thalangama EPA and use of existing roads at Koswatta Junction

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			<ul style="list-style-type: none"> Centre for Environmental Justice: Exact JICA-LRT route; land filling in the depot area; Hydrological impacts of the JICA-LRT (risks to flooding along the route and in the depot area); Power supply; Travel time; Maintenance and services 	<ul style="list-style-type: none"> Hydrological modelling at the depot area Operation and maintenance details are decided by the O&M Working Group. Close coordination with the members of the Working Group from several ministries
14	September 2017 Borella	Focus Group Discussion (FGD): Three wheeler drivers	Supportive Comments (Suggestions) <ul style="list-style-type: none"> Better to introduce luxury trains for a comfortable ride The system need to be double tracked Implementation period need to be planned properly with minimal impacts to public 	NA
15	September 2017 Malabe	FGD: Parents and students of Ananda Vidyalaya - Malabe	Concerns <ul style="list-style-type: none"> There need to be equal opportunity for adults, children and differently abled people Alternative routes needs to be proposed or the use during construction period Wetlands need to be protected as those are essential to reduce floods. Supportive Comments	<ul style="list-style-type: none"> Incorporation of barrier free concept in the JICA-LRT design Development of a traffic management plan; coordination with RDA Consideration of hydrological (flooding) impacts during construction period

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			<ul style="list-style-type: none"> JICA-LRT will reduce the travel time and traveling will be comfortable Project will reduce traffic and land prices will increase 	NA
16	September 2017 Town Hall	FGD: Pedestrians	<p>Concerns</p> <ul style="list-style-type: none"> Already, the lands were acquired from the road side of Rajagiriya and Battaramulla areas, therefore, the land acquisition need to be minimal. There need to be equal opportunity for adults, children and differently abled people to use the JICA-LRT <p>Supportive Comments</p> <ul style="list-style-type: none"> The development is good as it will reduce the existing traffic situation. LRT system needs to be efficient and productive better than existing rail system. 	<ul style="list-style-type: none"> Design of the JICA-LRT structure at Rajagiriya ensures that no additional land acquisition will be required in the area. Incorporation of barrier free concept in the JICA-LRT design
17	September 2017 Maradana	FGD: School van drivers	<p>Concerns</p> <ul style="list-style-type: none"> There needs to be a special entrance for elders. <p>Supportive Comments</p>	<ul style="list-style-type: none"> Incorporation of barrier free concept in the JICA-LRT design

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			<ul style="list-style-type: none"> • Railway development is essential for Sri Lanka. • The traffic congestion will be reduced and the travel time of commuters will be reduced. • Travel safety will be increased with the Project. • There will be temporary issues during implementation but the project will ultimately benefit the people. 	NA
18	September 2017 Borella Tree	FGD: Borella Bo tree devotees	Concerns <ul style="list-style-type: none"> • Avoid impact/damage on Bo tree • Trimming and cutting of branches is acceptable only if religious activities are properly performed. 	<ul style="list-style-type: none"> • Design JICA-LRT alignment that avoids Bo trees • Follow religious rituals if trimming of branches is necessary
19	November 11, 2017 10:35-12:00 Auditorium, Colombo DS Office	Public Consultation Meeting: EIA Disclosure (Colombo)	Concerns <ul style="list-style-type: none"> • Impact on shops close to the proposed JICA-LRT route (Olcott Mawatha) • Informing the management of an impacted business enterprise Questions <ul style="list-style-type: none"> • Concrete mitigation measures to reduce environmental impacts 	<ul style="list-style-type: none"> • Conduct of awareness meetings and consultations with the potentially affected persons/businesses; Development of RAP • Development of EIA Report
20	November 11,	Public	Concerns	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	2017 14:45-16:00 Auditorium, Thimbirigasy aya DS Office	Consultation Meeting: EIA Disclosure (Thimbirigasy aya)	<ul style="list-style-type: none"> Route selection; Additional LRT route Impact on Borella supermarket Impact on transfer of business premises, land acquisition and resettlement Compensation to project affected persons and businesses 	<ul style="list-style-type: none"> Avoidance of Borella Supermarket Development of RAP and adoption of LARC System for compensation to project affected people
21	November 17, 2017 14:00-15:30 Auditorium, Kaduvela DS Office	Public Consultation Meeting: EIA Disclosure (Kaduvela)	<p>Concerns</p> <ul style="list-style-type: none"> Extent of land acquisition for the proposed depot area Filling of paddy lands <p>Questions</p> <ul style="list-style-type: none"> Proposed LRT route; additional route (extension to Kaduvela) 	<ul style="list-style-type: none"> Extent of land acquisition will be determined during the detailed design phase No filling of paddy lands; Adoption of an elevated structure for the proposed depot Consideration of route expansion in future development
22	November 21, 2017 10:20-12:00 Auditorium, WP/ Jaya/ Sirihada Vidyalyaya,	Public Consultation Meeting: EIA Disclosure (Kotte)	<p>Concerns</p> <ul style="list-style-type: none"> Plan for the Rajagiriya flyover area Compensation for PAPs and need for political will 	<ul style="list-style-type: none"> Propose a cantilever design that would fit within the ROW of the flyover so that no additional acquisition will be necessary Development of RAP and adoption of LARC System for compensation to project affected people

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	Rajagiriya		<ul style="list-style-type: none"> Construction impacts 	<ul style="list-style-type: none"> Conduct of ELA process to address impacts from the project
23	December 2017 Battaramulla	FGD: Small business owners	<p>Concerns</p> <ul style="list-style-type: none"> There is concern on reduced road width and land acquisition. <p>Supportive Comments</p> <ul style="list-style-type: none"> Businesses will improve after completion of this project JICA-LRT is an important project for the country and future generations. 	<ul style="list-style-type: none"> Recognition of opinions of small business owners and land owners; Invitation of potentially affected small business owners in meetings to discuss about the proposed RAP (including compensation scheme)
24	December 2017 Pettah	FGDs: 3-wheeler drivers	<p>Concerns</p> <ul style="list-style-type: none"> Reduction of traffic due to the JICA-LRT can negatively impact livelihood. <p>Supportive Comments</p> <ul style="list-style-type: none"> JICA-LRT is an important development project of the country. It will be beneficial for everybody. 	<ul style="list-style-type: none"> Recognition of the potential impact of the JICA-LRT on the livelihood of 3-wheeler drivers Provisions to make new shuttle services to connect stations to main towns
25		FGDs:	<p>Concerns</p>	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	December 2017 Pettah	Pedestrians/ commuters	<ul style="list-style-type: none"> Pay more attention to the environmental damages of this project and obtain necessary actions to minimize them. 	<ul style="list-style-type: none"> Development of a comprehensive EIA Report with Environmental Management and Monitoring Plan
			Supportive Comments <ul style="list-style-type: none"> This project will be very useful for people who travel daily to Malabe area to save their travel time. 	NA
26	December 2017 Pettah	FGDs: Bus drivers	Supportive Comments <ul style="list-style-type: none"> JICA-LRT will be very useful to everyone. Currently, buses cannot meet passenger demand during rush hour. JICA-LRT will increase transport facilities and people will be able to travel comfortably in any public transport system they prefer. 	NA
27	January 4, 2018 Kaduvela DS Office	Consultation with PAPs regarding RAP (paddy land owners & tenant farmers)	Concerns <ul style="list-style-type: none"> Amount of compensation for paddy land Impact on livelihood of farmers; Possibility of conducting businesses at the depot premises. Timeframe of land acquisition 	<ul style="list-style-type: none"> Details of land acquisition and resettlement are included in the RAP and Livelihood Restoration Program (e.g. compensation, timeline, eligibility) Adoption of the LARC system; Consider obtaining cabinet approval for compensation items not stipulated in the LARC gazette.

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
			<ul style="list-style-type: none"> Potential impacts on surrounding environment (e.g. waste management and disposal, canal system) Impact of large-scale constructing on surrounding built structures 	<ul style="list-style-type: none"> Development of an EIA Report and Environmental Management and Monitoring Plan Assessment of vibration impacts included in the EIA Report
28	January 5, 2018 Sethsiripaya Stage II	Consultation with PAPs regarding RAP (business owners)	Concerns <ul style="list-style-type: none"> Extent of land acquisition; Timeframe of project implementation Amount of compensation; Compensation for business owners and employees (including business owners who are still paying loan to build their premises) 	<ul style="list-style-type: none"> Details of land acquisition and resettlement are included in the RAP and Livelihood Restoration Program (e.g. compensation, timeline, eligibility) Development of an Entitlement Matrix for project affected persons. Adoption of the LARC system; Consider obtaining cabinet approval for compensation items not stipulated in the LARC gazette
			<ul style="list-style-type: none"> Second land acquisition for a government project (e.g. Malan junction) 	<ul style="list-style-type: none"> Coordination with RDA regarding additional land acquisition in Malabe area
			<ul style="list-style-type: none"> Vibration impacts on surrounding built structures 	<ul style="list-style-type: none"> Assessment of vibration impacts included in the EIA Report
29	January 5,	Consultation	Concerns	

No.	Date & Time/ Venue	Purpose (Target Audience)	Comments Raised	Consideration in the JICA-LRT Project
	2018 Colombo DS Auditorium	with PAPs regarding RAP (business owners)	<ul style="list-style-type: none"> Relocation of businesses that will be affected Provision of documents related to compensation and presented information Type and timeframe of compensation to business owners who pay rent to SLR Compensation for employees of affected businesses 	<ul style="list-style-type: none"> Details of land acquisition and resettlement are included in the RAP and Livelihood Restoration Program (e.g. compensation, timeline, eligibility) Development of an Entitlement Matrix for businesses (including temporary and informal businesses) and employees Adoption of the LARC system; Consider obtaining cabinet approval for compensation items not stipulated in the LARC gazette
30	March 26-27, 2018 Suhurupaya	Individual consultation sessions (farmers & landowners)	<p>Concerns</p> <ul style="list-style-type: none"> Compensation package Conflict between landowners and Ande farmers Losing rights according to the Agrarian Services Act (e.g. normally 75% of crop earnings that goes to the Ande farmers) <p>Supportive Comment</p> <ul style="list-style-type: none"> Appreciate the LRT project Agree to land acquisition 	<ul style="list-style-type: none"> Clarification regarding valuation process and LARC, S-LARC procedure Consideration of this relationship during the land acquisition process (Section 9-1 Inquiry), payment stage, and IRP planning process Incorporate into the IRP planning <p>Supportive Comment</p> <ul style="list-style-type: none"> NA

CHAPTER 9 Grievance Redress Mechanism

9.1 Establishing Grievance Redress Committees

Grievance Redress Mechanism (GRM) is necessary to support genuine claimants to resolve their problems through mutual understanding and consensus reaching process with relevant parties. There are number of channel to which people can put complain, such as to police, GN, mediation boards, DS. All of these will accepts complain from the people. This GRM is in addition to the available legal institutions for resolving problems and issues faced by the APs due to project activities.

The PMU will establish two levels of GRCs to resolve project related social issues during construction and operation phase. These are the Public Complaint Review Mechanism and Grievance Redress Committees.

9.1 Public Complaint Review Mechanism (PRCM)

The best practice for resolving grievances is to settle issues in the first instance at the grassroots level. All public complaints will be directed to the PMU. The project staff can attend to grievances related to resettlement or land acquisition. If the complaint cannot be resolved at PMU level, it will be referred to the GRC.

During construction, the PMU will establish Public Complaint Resolving Meetings to address construction related grievances of public. The chairman of this PCRMs will be the Team Leader of Supervision Consultant and other members are from PMU and construction firm. There will be a Resettlement Assistant from PMU working as a secretary for this PCRMs. These PCRMs will meet once a month or whenever there is a requirement to settle a complaint. If the complaint cannot be resolved at this level, the complaint will be referred to GRC.

9.2 Grievance Redress Committees (GRCs)

The grievances that cannot be addressed at the grassroots level informally have to be taken at a higher level formally for reconciliation. For this purpose, PMU will form Grievance Redress Committees (GRCs) in all four DS Divisions. GRC approach gives an opportunity for public to bring their unsolved grievances caused by the project implementation to the Committee established for the said purpose at divisional level. Any disagreed person can bring his/her case to this committee, free of charge (not even stamp duty), for hearing of his/her case.

GRC is not the only body which public can approach to solve their grievances. There are series of formal bodies; some are with special focus on certain matters, available for persons to take their unsolved grievances, problems and issues. PMU's responsibility is to make all persons in the project area familiar and knowledgeable with these institutional arrangements, and play the role of a facilitator if any person wishes to process their grievances and claims through those institutions for better judgments.

GRC can deal with complaints relating to unaddressed losses or social and environment issues resulting from project implementation. It cannot challenge the statutory entitlements of persons and

should refrain from making decision relating to designs or engineering matters or on any compensation matters that are pending before the Compensation Review Board³ or courts.

9.2.1 GRC Composition

The GRC will be comprised of the following members:

- 1) Divisional Secretary / Assistant Divisional Secretary of the relevant division (Chairman),
- 2) Project Director or his nominated representative (Member),
- 3) President of the local Samatha Mandalaya (Member),
- 4) Representative from NGO/CBO (Member)
- 5) Social member/ outstanding person from the local area (Member).

The representative officer from the PMU will act as the secretary of the GRC and will be responsible for keeping record of all grievances registered and action taken on them. In case of matters that cannot be solved by the above committee, an expert on the specific area can be invited to the committee.

9.2.2 GRC system during operational stage

During the first three years of the operational stage, GRC system mentioned above will continue to operate. PMU will still be operational during that period and . The members of GRC will include DS, Representative of O&M company and Civil Society Representative.

9.2 Operational Aspects of GRC

For Whom: Any person, organization or Civil Society may approach the GRC to seek its assistance in resolving any problem, complaint or dispute concerning environment and social issues that can arise due to the construction.

Types of Grievances: A GRC can deal with complaints relating to unaddressed losses or social and environment issues resulting from project implementation. During pre construction, the issues can be on resettlement aspects. Grievances of being not able to find schools due to resettlement, grievances of disturbances due to land acquisition, issues with host communities are some examples. During construction, the issues can be on dust, noise, siltation of paddy lands, disturbance to nearby lands...etc. The GRC cannot challenge the statutory entitlements of APs and should refrain from making decision relating to designs or engineering matters or on any compensation matters that are pending before the Compensation Review Board or courts.

How to raise: Complaining boxes will be set up at specifically identified locations (e.g office of DS or local center) along the project route to which people can put their claim. The complaining box will be checked by the designated staff daily. Also, contact information (number and email for

³ Compensation Review Board is the national institution which address the issue of the compensation.

GRC) will be displayed at complaining box.

Functions: The function of the GRC is to resolve grievances, settle disputes of all persons regarding environment and social issues. The GRC mandate and procedures will be given wide publicity so that the people in the project area have a better understanding of their entitlements, rights, and responsibilities. Grievances relating to land titles, which is a legal issue, will remain outside the purview of this Committee, and persons with such grievances will be advised to approach appropriate courts of laws to settle such disputes. Persons will be exempted from all administrative and legal fees associated with the grievance settlement procedure, except for cases filed in courts.

Venue of the GRC Meetings: The GRC will meet at the Divisional Secretary office and will visit the project site if needed keeping in view the convenience of the affected persons. But it will be free to hold its meetings at any other locations in the best interest of the convenience of the complainant.

Working System: The GRC will deal promptly with any issue relating to environment and social that is brought before it. The GRC will make all efforts to see that these issues are also resolved within 2-3 weeks. The GRC will take decisions on the basis of a majority vote.

Powers: The GRC has no authority to deal with cases pending in a court of law. It cannot challenge the legal entitlements of PAPs. The GRC will also refrain from making decisions on issues relating to design and related engineering matters, and on pending compensation cases.

Procedure for Resolution of Disputes: Persons will be free to present their grievances without any fear or pressure from government authorities. They can present their grievance verbally. They can also present their grievances in writing, for which assistance will be provided if so required.

The decisions of the GRC will be conveyed to complainant in writing. Three copies of the decisions will be provided: one for the PAP, second copy for the Project office and the third copy for the Divisional Secretary. The decisions of the Grievance Redress Committee will be in conformity with the resettlement policy and the entitlement matrix.

Appeal against GRC Decisions: Affected persons not satisfied with the GRC decisions can appeal to higher authorities in the Project, the Ministry of Megapolis and Western Development or to even Courts of Law. The persons who are aggrieved by the decision of GRC will be free to approach higher authorities for grievance redress.

9.3 Other agencies that the APs could forward their grievances

Land Acquisition Compensation Review Board (LARB)

There is a provision in the LAA itself for any aggrieved party to appeal to the LARB, in respect of the statutory valuation determined by the Valuation Department. Such appeals should be made within 21 days of the award of the compensation under section 17 of LAA.

Samatha Mandalaya – SM (Board of Mediation)

This is a body of distinguished citizens functioning as a conflict resolving committee appointed by the Ministry of Justice for each Judicial District, the decisions of the Samataha Mandalaya is

not binding on the parties to the conflict. It has no mandate to enforce decisions, this is purely a consultative process, and disputes between APs could be referred to SM to persuade the parties to arrive at an amicable solution without resorting to protracted litigation.

Human Rights Commission (HRC)

By the constitution of Sri Lanka, the Commission has been established to entertain and inquire into the violation of human rights by state officials and agencies. This is a built in mechanism provided by the state to safeguard the rights of the citizens against arbitrary and illegal actions of the state officials. An aggrieved party could seek relief from HRC. Chairman and members of the HRC is appointed by the President.

Parliamentary Ombudsman

The Parliamentary Ombudsman is an independent official appointed under the Constitution, to inquire into the grievances brought to his notice by the members of the public.

Parliament Petition Committee (PPC)

An aggrieved member of public could bring to the notice of the Hon. Speaker of Parliament through a member of parliament (people's representative) about his grievance. Hon. Speaker will direct the PPC to inquire into the matter. The committee will direct the offending party to provide relief to the aggrieved, if the committee finds that relief sought is justifiable.

Litigation

An affected person aggrieved by a decision of any public official in the process of implementation of the land acquisition and implementation process could challenge such decisions in an appropriate court of law, if such person is unsuccessful in obtaining a reasonable redress through discussions.

Legal Aid Commission

The Government of Sri Lanka has established an agency to help people who cannot afford legal expenses, when they seek redress from the judiciary. On an application made to the Secretary of the Legal Aid Commission with evidence of his income, the Legal Aid Commission will make arrangements to appear for the aggrieved party in a court of law without fees.

CHAPTER 10 Institutional Arrangement

10.1 General

Involuntary resettlement planning, implementation and monitoring involve various ministries and agencies. The Project Management Unit (PMU) under MMWD for the LRT project will deal with land acquisition and payment of compensation as per the RAP. Therefore, it is essential for the PMU to effectively and efficiently coordinate with all relevant institutions to carry out land acquisition and involuntary resettlement properly and expeditiously.

10.2 Ministry of Megapolis and Western Development (MMWD)

10.2.1 Project Management Unit (PMU) for the Project

The responsibility of implementing the RAP will rest with the MMWD, and its direct responsibility lies with the PMU. The PMU operates as a time-bound project office headed by a project director and staff consisting of engineering, resettlement, land acquisition, environmental and other supporting grades.

A Resettlement Unit (RU) will be established in the PMU under Project Director. This Unit will be supported by the consultants and land acquisition and resettlement officers. The Unit will be entrusted with day-to-day monitoring and implementation of projects' land acquisition and resettlement activities.

Regarding resettlement planning and implementation, the PMU attends to following;

(a) Preparation of RAP

- Assist resettlement consultant/team to develop RAP for the project through
 - facilitating to trace the ROW;
 - identification of APs;
 - assist to conduct social and environmental assessments in the area through surveys and collection of other primary and secondary information;
 - assist and participate in awareness creation meetings at Divisional Secretaries level;
 - support stakeholder meetings and Focus Group Discussions (FGD)s; and
 - review processes of draft RAP.

(b) Land Acquisition

- Preparation of land acquisition application and submit to Ministry of Lands and Parliamentary Reforms (MLPR) with RAP as an attachment
- After accepting the Land Acquisition application by MLPR, with the appointment of DS as the Acquisition Officer, support implementation of land acquisition. This includes preparation of necessary papers for each stage of land acquisition, translation of them in to all three languages, maintain a close support up to the end of the land acquisition process ending with the taking over of the possession of land in to MMWD ownership

- Coordinate with Consultant in hiring the specialists (Micro finance and credit specialist and business development specialist) to obtain assistance for planning and implementation of income restoration program (IRP)
 - Support APs to receive compensation for land, structures and crops as per the RAP by assisting them to prepare for land ownership inquiries (including Section 9 inquiries) with necessary documents and proofs, provide, if needed, transport facilities especially for vulnerable people to attend to inquiries.
 - Make sure that funds are adequately available with PMU/DS/MMWD to pay full compensation to affected people before taking vacant possession in accordance with JICA Guidelines. .
- (c) Resettlement benefits
- Initiate information disclosure on formal approval of RAP (Hard copy of RAP will be placed at each DS office, PMU project office and other public space such as temples)
 - Pay cash resettlement benefits as per Entitlement Matrix
 - Pay special attention when cash benefits are given to vulnerable persons, women and sick persons ensuring that they receive proper amounts and use them properly
 - Maintain highest transparency in cash payments
 - Ensure availability of funds with PMU/MMWD for issuing resettlement benefits. (Resettlement benefits are not paid through DSs).
 - Replace community and religious properties damaged by the project without undue delays.
 - Implement agreed income restoration projects for selected APs
 - Support agriculture owners and business owners to find suitable lands, if required
 - Support relocation APs when they need support
 - Implementation of internal monitoring conducted by PMU with assistance of construction supervision consultant and external monitoring conducted by independent consultant.

10.3 Divisional Secretaries (DS)

This Project spread over four DS divisions, namely, Kaduwella, Thimbirigasyaya, Sri Jayawardanapura-Kotte and Colombo. DSs and their staff have important roles in the implementation of monorail project. In the first instance, their involvement is related to preparation of RAP and the land acquisition. For administrative requirement, application for land acquisition has to accompany an approved RAP from MMWD when it is submitted to MLPR.

The PMU/MMWD will have a responsibility to make DSs aware about the Project, and subsequently have a formal awareness meeting with relevant DS offices including Grama Niladaries, poverty alleviation officers, women development offices, land officers and staff of relevant government agencies operating in the division, NGOs, religious leaders, community leaders, members of local councils etc. In this awareness meeting, resource persons drawn from subject specific agencies can introduce the project, resettlement planning, land acquisition procedures and property valuation etc.

After approving proposed land acquisition by MLPR, DS is appointed as the acquisition officer for the DS division, and he/she initiates land acquisition process as per the RAP until possession of land taken. This includes initial notification and formal surveys by Dept. of Surveys, title inquiries by acquisition officers, valuations by Dept. of Valuation, appeals by prescribed review boards etc.

Land Acquisition is a routine function of DS offices and they are geared to undertake land acquisition with laws, procedures, systems and resources, including manpower. However, at certain times, there may be resource gaps with regard to preparation of statutory documents in three stipulated languages and staff mobility due to limited financial resources. In these occasions, PMU/MMWD can support DS office to increase its capacity where it has shortfalls, because this is an important event for PMU/MMWD.

In case of RAP implementation, DS is an important position as he/she is the coordinator of all development programs in the division. The RAP is prepared on the information collected through resettlement survey and social and economic survey. With completion of these surveys, the information collected for the resettlement plan will be verified, and this information will be incorporated in to the revision of RAP. Information available at DS office could be used to verify AP profiles with regard to their encroacher, tenant or lessee situation, vulnerability, income levels, employment etc. This is useful when PMU is paying cash and other resettlement assistance suggested in the RAP.

In order to input the capacity of DS, PMU will support DS on following, but not limited to;

- Provision of training to the staff of DS and additional clerical hands
- Provision of transportation for project related matter
- Provision of furniture, such as table, chair and photocopy etc.

10.4 Department of Survey

In the land acquisition process, Department of Survey has a statutory role as per the RAP to survey land and prepare survey plans. On the formal request issued to Surveyor General by the acquisition officer (DS), Department of Survey employs its licensed surveyors to survey lands and show them with the names of claimants. In the final survey plans (preliminary plans) prepared by the Department of Surveys, survey plans of all land plots required to be acquired are given with tenement list (list of persons claiming ownership for land/structures) to the acquisition officer following standard survey techniques and procedures. This survey plans and list of names are important reference information for the acquiring officer when he/she holds ownership inquiries.

In certain circumstances, there is a shortage of licensed surveyors in the department and lack of resources for surveyors to mobilize soon, especially when they are occupied with previously arranged assignments. In these circumstances, PMU assists Department of Survey to hire licensed surveyors to work under the direction of Surveyor General with necessary resources for mobilization and other assistance at field level.

10.5 Department of Valuation

The highest official position of the Department of Valuation is titled as “Chief Valuer”. This is similar to the post of Director General or Commissioner General in other Government organizations. As per the RAP, Chief Valuer or any other officer authorized by him/her only can attend to valuation of properties expected to be acquired.

As per LAA, valuation of properties is based on market price approach conventionally. The LAA regulation 2008 will help Department of Valuation to make reasonable assessments close to realistic market prices. On the request of Acquisition Officer, Department of Valuation assigned their staff

to value properties to be acquired and report to acquisition officers through Chief Valuer. The Chief Valuer's endorsement is the expression of statutory commitment of the Department of Valuation for its valuation, and readiness to go to any review board or court of law.

In the case of valuation of properties, officers assigned by Department of Valuation visit the property, individually or jointly and make their assessment based on following;

- field conditions and surrounding environment of the property
- purpose of the use of the property (residential, commercial or agricultural purposes etc.)
- available documentary evidence related to values of properties: deeds, valuation
- certificates, loan documents, income earning evidence etc. if available
- consultation of people
- study secondary information available in DS offices, Provincial and Central Tax offices etc.

10.6 Land Acquisition Resettlement Committee (LARC)

The LARC committees will be appointed for the respective Divisional Secretary's division in which the land is located in order to assess the compensation for land acquisition and resettlement accordance with the Land Acquisition Act (Chapter 460).

The committee consists of the following officers:

- Divisional secretary or Assistant Divisional Secretary of the relevant Divisional secretary's Division
- Surveyor General or his nominee
- Chief Valuer or his nominee
- Officer from the Project Office

Project affected person will be provided an opportunity to make their representation at the proceedings of the LARC. Under the LARC system, affected people will be called by DS after section 17 of LAA process to participate in the LARC meeting.

PMU will provide an assistance (e.g. explanation about entitlement) for affected peoples before the LARC meeting so that PAPs can represent their expression during LARC meeting.

If the PAP is not satisfied by the decision made by the LARC, he/she can apply for the super LARC. It has power to revise the assessment made by LARC reconsidering the claims of the project affected person. The SLARC committee consists of following officers:

- Secretary of Ministry of Megapolis
- Secretary of Land and Land Development
- Secretary of Ministry of Finance or his representative
- Chief Valuer or his representative
- Survey General or his representative
- Chairman or chief executive officer of the Project

10.7 RAP Approval Process

MMWD is the agency responsible for approving RAPs prepared for development projects under MMWD. Although NIRP has assigned Central Environment Authority (CEA) for approval of RAPs in its section on ‘Institutional Responsibilities’, in practical terms this has become a mere policy level broad statement. The Ministry of Lands and Parliamentary Reforms (MLPR) holds the responsibility of implementation of the NIRP and Project Executing Agency has been assigned with the responsibility for ‘compiling with all the requirements for planning and implementing resettlement according to the NIRP’. Thus the MLPR becomes the premier agency responsible for overall implementation of resettlement plans in the country, as they are within the scope of NIRP. As in the case of CEA, MLPR too doesn’t issue formal approval for RAPs and shows its explicit approval by accepting it for initiating land acquisition process. All land acquisition applications submitted by project implementing agencies have to annex a copy of RAP prepared along the guidelines of NIRP. MLPR doesn’t accommodate land acquisition applications without a RAP approved by the project approving authority.

The reason for MLPR and CEA to keep away from granting administrative level of approval to RAPs is understandable. RAPs are prepared by PMUs/PIAs following guidelines of NIRP and other GOSL policies and procedures. In addition, when projects are funded by external agencies, PMUs/PIAs have to consider donor requirements also in RAP planning process.

The institutional responsibilities in resettlement process are shown in the **Table 10.1**

Table 10.1 Institutional Responsibilities in the Resettlement Process

Related Activities	Responsible Agency
Setting up Resettlement Unit and placement of staff	PMU/MMWD
Arrangement of relocation for AHs	PMU/MMWD
Submission of land acquisition application and RAP to MLPR	MMWD
Acceptance of the land acquisition application	MLPR
Appointment of DS as the Acquisition Officer	MLPR
Formal request issued to Survey General	DS, Acquisition Officer
Employment of Specialist for preparation and implementation of Income Restoration Program	PMU/MMWD
Employment of External Monitoring Agency	PMU/MMWD
Establishment of GRC	PMU/MMWD
Formal surveys	Dept. of Surveys
Assist APs in preparation of land ownership inquiries with necessary documents and proofs	PMU/MMWD
Title inquiries DS,	acquisition officers,
Request for valuation to Department of Valuation	DS, Acquisition Officer
Valuations	Dept. of Valuations (Chief Valuer)
Updating RAP and submit it to JICA for JICA’s approval	PMU/MMWD
Pay cash compensation and/or other assistance to APs	PMU/MMWD
Assist displaced APs to find suitable lands if necessary	PMU/MMWD with assistance of DS
Assist displaced APs to get approval for new housing construction from local councils, if necessary	PMU/MMWD with assistance of DS
Support physical relocation of APs when necessary	PMU/MMWD
Support APs in schooling of displaced children in nearby schools if necessary	PMU/MMWD with assistance of DS
Implement income restoration programs	PMU/MMWD with assistance of DS
Implement day to day monitoring of land acquisition and resettlement activities	PMU/MMWD
Implement monitoring of damages caused during construction	PMU/MMWD

Prepare monthly progress/monitoring reports and submit them to MMWD	PMU/MMWD
Prepare quarterly internal resettlement monitoring reports and submit MMWD and JICA	PMU/MMWD

10.8 RAP Implementation Structure

The RAP implementation structure is shown in **Figure 10.1**. It shows that PMU will be the main implementing agency of RAP and IRP activities. It will coordinate closely with PAPs, local authorities, JICA, contractors, and external monitoring agency. PMU will exist until 3 years since the start of the operation phase.

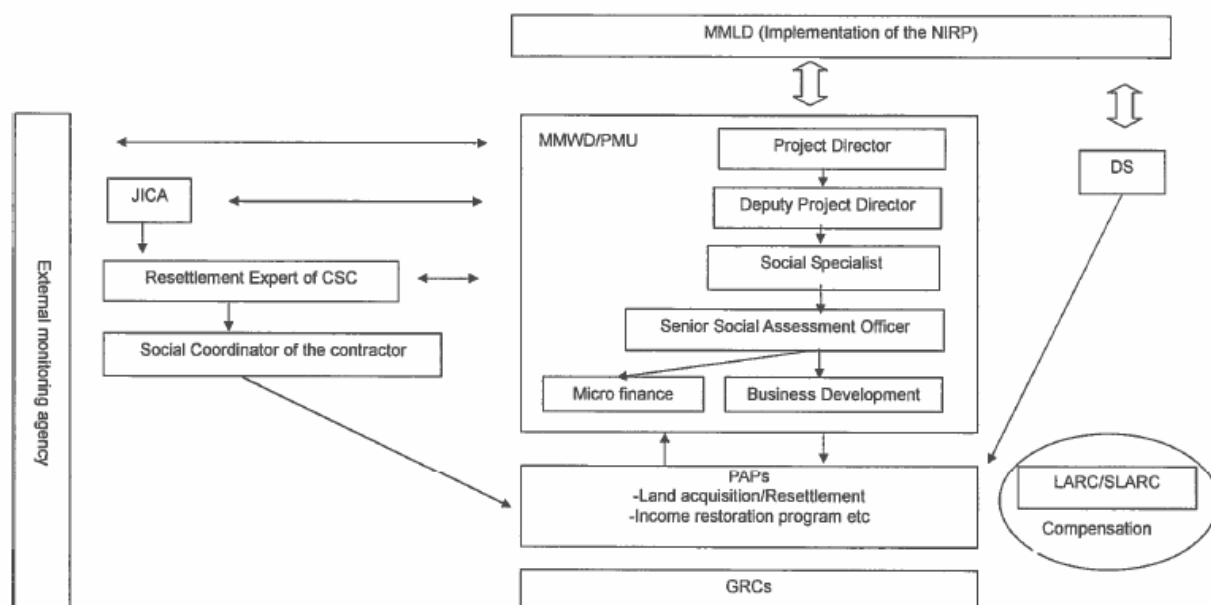


Figure 10.1 RAP Implementation Structure

CHAPTER 11 Cost and Budget

11.1 Cost Estimation for Land Acquisition and Resettlement

Total cost of land acquisition and resettlement is estimated at approximately LKR 4,707 million, equivalent to US\$ 31 million (at an exchange rate of LKR 151.64 for 1US\$: base year of cost estimation is November 2017). This amount includes the cost of compensation for land and structures, compensation for loss of income, and relevant allowances. **Table 11.1** shows the cost estimation for land acquisition and resettlement for the Project.

11.2 Rates and Conditions used in the Cost Estimation

The number of land parcels and structures, and the number of recipients of compensation for income and allowances are based on the result of SES. The unit costs of compensation for land and structures are estimated based on the results of the RCS. Other unit costs for loss of income and allowances are set based on the LAA 2008 and normal practices in Sri Lanka, which are shown in the Entitlement Matrix. It is also assumed that:

- Land within the secured space for the LRT alignment is to be acquired.
- All of the land and structure of an affected building are to be acquired when the affected part of the building exceeds 50% of its original area, and can be assumed that the remaining part of structure/land is no longer viable.
- Compensations for relocation of utilities, and for government land are not included.

11.3 Budget Allocation

The budget for RAP implementation shall be secured by the project executing agency, MMWD. MMWD shall allocate the budget for the compensations to the relevant DSs in a timely manner so as to conduct land acquisition and resettlement without any delay due to hampering flow of funds.

Table 11.1 Cost estimation for land acquisition and resettlement

Table 111 Cost Estimation for land acquisition and Resettlement								
Item No.	Item		No.	Unit	Rs/unit	Total Rs	Total US\$	
Compensati on for Lands	Agricultural Land		7,913.80	Perch	40,000	316,552,106	2,087,524	
	Residential Land	Kumarathunga (Cat 10)	0.40	Perch	4,000,000	1,607,355	10,600	
		Kumarathunga (Cat 10)	56.96	Perch	1,500,000	85,433,814	563,399	
	Commercial Land	Ibbunwela Junction (Cat 1)	70.78	Perch	15,000,000	1,061,664,531	7,001,217	
		Borella Junction(Cat 3)	4.07	Perch	9,000,000	36,610,925	241,433	
		Battaramulla(Cat 5)	35.10	Perch	6,000,000	210,609,798	1,388,880	
		Palan thuna(Cat6)	14.20	Perch	4,500,000	63,906,406	421,435	
		Koswatha(Cat 7)	22.95	Perch	4,000,000	91,794,338	605,344	
		Thalahena(Cat 8)	61.63	Perch	3,500,000	215,716,016	1,422,554	
		Malabe(Cat 9)	27.61	Perch	3,500,000	96,635,429	637,269	
		Chandrika Kumarathunga(Cat 10)	22.96	Perch	2,000,000	45,917,628	302,807	
		Incentive Allowance (5% of Statutory valuation)		5% of total of Agricultural land			332,379,712	2,191,900
	Sub total for Compensation for Lands					2,558,828,058	16,874,361	
	Compensati on for Structure	Type 1 structure	Fully affected	6,617.26	m2	40,000	264,690,368	1,745,518
			Partially affected	2,041.26	m2	40,000	81,650,308	538,448
Type 2 structure		Fully affected	1,043.33	m2	25,000	26,083,183	172,007	
		Partially affected	68.34	m2	25,000	1,708,490	11,267	
Type 3 structure		Fully affected	2,547.58	m2	130,000	331,185,114	2,184,022	
		Partially affected	338.59	m2	130,000	44,017,324	290,275	
Incentive Allowance (25% of Statutory valuation)		25% of total of cost for buildings			936,668,483	6,176,922		
Sub total for Compensation for Structure					1,686,003,270	11,118,460		
Self Relocation	Municipality		28	AHH	1,000,000	28,000,000	184,648	
	Urban council		73	AHH	750,000	54,750,000	361,052	
	Pradeshiya sabah		0	AHH	500,000	0	0	
Loss of Income:	Business Income		100	Person	150,000	15,000,000	98,918	
	Loss of Wage/Salary		455	Person	120,000	54,600,000	360,063	
Allowances	Rental Allowance		73	Person	45,000	3,285,000	21,663	
	Shifting allowance		101	AHH	75,000	7,575,000	49,954	
	Temporary Accommodation		101	AHH	75,000	7,575,000	49,954	
	Special grants for VP		21	AP	15,000	315,000	2,077	
Income Restoration Program			Lump sum		20,000,000	20,000,000	131,891	
Sub total for livelihood loss						191,100,000	1,260,222	
External Monitoring			18.00	Months	100,000	1,800,000	11,870	
Sub Total						4,437,731,327	29,264,912	
Contingency 20%						887,546,265	5,852,982	
TOTAL						5,325,277,593	35,117,895	
Exchange Rate: US\$ 1 = Rs. 151.64 (November 2017)								
1 perch = 25.29285264m2								
Total amounts are rounded off to the thousand and have rounding errors.								

CHAPTER 12 Implementation Schedule

A time bound implementation plan is envisaged to be implemented for each activity of land acquisition and resettlement. This implementation schedule is based on the assumption that project related construction work, by which time all resettlement activities need to be completed, will commence four years after the signing of the Loan Agreement. The RAP implementation schedule is presented in **Table 12.1**.

12-2

[illegible]

CHAPTER 13 Monitoring and Evaluation

13.1 General

The NIRP indicates about monitoring and evaluation as follows,

- A system of internal monitoring should be established by PMU to monitor implementation of Resettlement Action Plan, including budget, schedule, and delivery of entitlements, consultation, grievances and benefits.
- PMU should make adequate resources available for monitoring and evaluation.
- A further system of external monitoring and evaluation by an independent party should be established to assess the overall outcome of resettlement activities.
- Monitoring and evaluation reports should be reviewed by the PMU, CEA and MLPR and action taken to make improvements where indicated.
- Project Affected persons and other stakeholders should be consulted in monitoring and evaluation.
- Lessons thus learned from resettlement experiences should be used to improve resettlement policy and practice.

It is proposed to implement (1) internal monitoring by PMU and (2) external monitoring by an independent party such as local/international consultants, NGO or university hired by PMU.

The RAP implementation will be supervised by the Project Director of PMU. Resettlement Unit (RU) under PMU will conduct the day-to-day activities related to the RAP implementation with assistance of Construction Supervision Consultant (CSC). RU, with assistance of CSC, will prepare and submit reports on monthly basis as a part of the progress report of the whole project.

The objectives of monitoring and evaluation are to:

- Collect, analyse, report and use information about progress of resettlement;
- Ensure that inputs are being provided, procedures are being followed and outputs are monitored and verified;
- Ensure timely management actions if there appears to be any failure in system due to management lapse; and
- Ensure necessary corrective measures at policy level, if it is seen that there is a failure in system due to flaw in the design (i.e. wrong theory, hypothesis or assumption, to ensure necessary corrective action at policy level); and
- Build a benchmark database for the purpose of evaluation; both during course and ex post facto.

13.2 Internal Monitoring

Internal monitoring will be undertaken by the PMU through Resettlement Unit (RU) with the assistance from Resettlement Expert of Construction Supervision Consultant (CSC).

Indicators of the internal monitoring will include but not limited to the followings;

Process Indicators:

- Setting up RU and placement of staff
- Training of RU staff
- Census, IOL, baseline socioeconomic survey
- Placement of funds for land acquisition and resettlement
- Deployment of independent monitoring agency
- Procedure of identification of eligible affected persons
- Procedure of determining loss and entitlements
- Development of livelihood and income restoration program
- Preparation of disclosure instruments
- Disclosure and consultation events
- Formation of GRC
- Grievance redress procedures in-place and functioning
- Level of public awareness on RAP policy and provisions
- Monitoring reports submitted

Output Indicators

- Number of households relocated
- Number of households compensated and assisted
- Number of farmers assisted
- Number of businesses assisted
- Amount of compensation disbursed
- Amount of resettlement benefits disbursed
- Number of eligible persons identified for training
- Number of vulnerable households assisted
- Number and contents of received complaints and status of solution
- Implementation of livelihood restoration assistance
- Number of meetings with PAPs

- Number of grievance received.

Impact Indicators

- Changes in housing
- Changes in occupation
- Changes in income and expenditure
- Changes in vulnerable households and women headed households.

Internal monitoring reports on RAP implementation will be included in the quarterly Project Progress Report (PPR) prepared by RU. The report of RU will contain:

- (i) Accomplishments to-date;
- (ii) Objectives attained and not attained during the period;
- (iii) Challenges encountered; and measures to be taken
- (iv) Targets for the next quarter

The internal monitoring report will then be integrated by the PMU with the overall PPR submitted to JICA and/or other agencies associated with implementation. The CSC will assist PMU in preparing the overall PPR for JICA.

13.3 External Monitoring

External monitoring will be carried out periodically by an independent party such as local/international consultants, NGO or university for review and assessment of resettlement implementation, verification of the results of internal monitoring in the field and recommending adjustment in delivery mechanisms and procedures, as necessary. The external monitoring will be carried out eight times during the implementation period (refer to **Table 12.1**). Further, mid-term and final evaluations will also be undertaken to assess the achievement of the RAP objectives against the performance impact indicators. The terms of Reference for external monitoring will be prepared by the CSC.

Table 13.1 Proposed External Monitoring

Activities to be monitored	Basis for Indicators / Check List	Possible Input and Output Indicators
Basic information on PAP households	<ul style="list-style-type: none">• Location• Composition and structure• Ages• Educational and skill levels• Gender of household head• Ethnic group	

Activities to be monitored	Basis for Indicators / Check List	Possible Input and Output Indicators
	<ul style="list-style-type: none"> • Access to health, education, utilities and other social services • Housing type • Land and other resource owning and using patterns • Occupations and employment patterns • Income sources and levels • Participation in neighbourhood or community groups • Value of all assets forming entitlements and resettlement • entitlements 	
Compensation Payments and entitlements	<ul style="list-style-type: none"> • Was compensation as described in the RAP paid on time? • Were other entitlements distributed on time, relocation grants, loss of income support? • Were there additional costs PAP's had to bear? • Were adequate funds available to meet the costs of resettlement? 	<u>Output Indicators:</u> <ul style="list-style-type: none"> • The difference / delay of resettlement activities compared to the original time frame. • The difference of cost of resettlement activities per PAHs compared to the original budget.
Restoration of living standards	<ul style="list-style-type: none"> • Were income restoration activities appropriate to restore or improve living standards? • Were vulnerable groups adequately assisted to improve living standards? • Are the livelihood schemes as described in the RAP being implemented satisfactorily? 	<u>Input Indicators:</u> <ul style="list-style-type: none"> • Number and type of income and livelihood restoration trainings and other activities being implemented. <u>Outcome Indicator:</u> <ul style="list-style-type: none"> • Number of PAHs who answer that their income have increased after relocation, compared to the total number of PAHs relocated

Activities to be monitored	Basis for Indicators / Check List	Possible Input and Output Indicators
Levels of PAP Satisfaction	<ul style="list-style-type: none"> • How much do PAPs know about resettlement procedures and entitlements? • Do PAPs know their entitlements? • Do they know if these have been met? • How do PAPs assess the extent to which their own living standards and livelihoods have been restored? • How much do PAPs know about grievance procedures and conflict resolution procedures? • How many PAP's/households were impoverished as a consequence of resettlement? 	<p><u>Outcome Indicators:</u></p> <ul style="list-style-type: none"> • Number of the grievance redress procedures filed. • Number of the conflicts resolved, compared to the number of the grievance redress procedures filed

(Source: RAP Study Team)

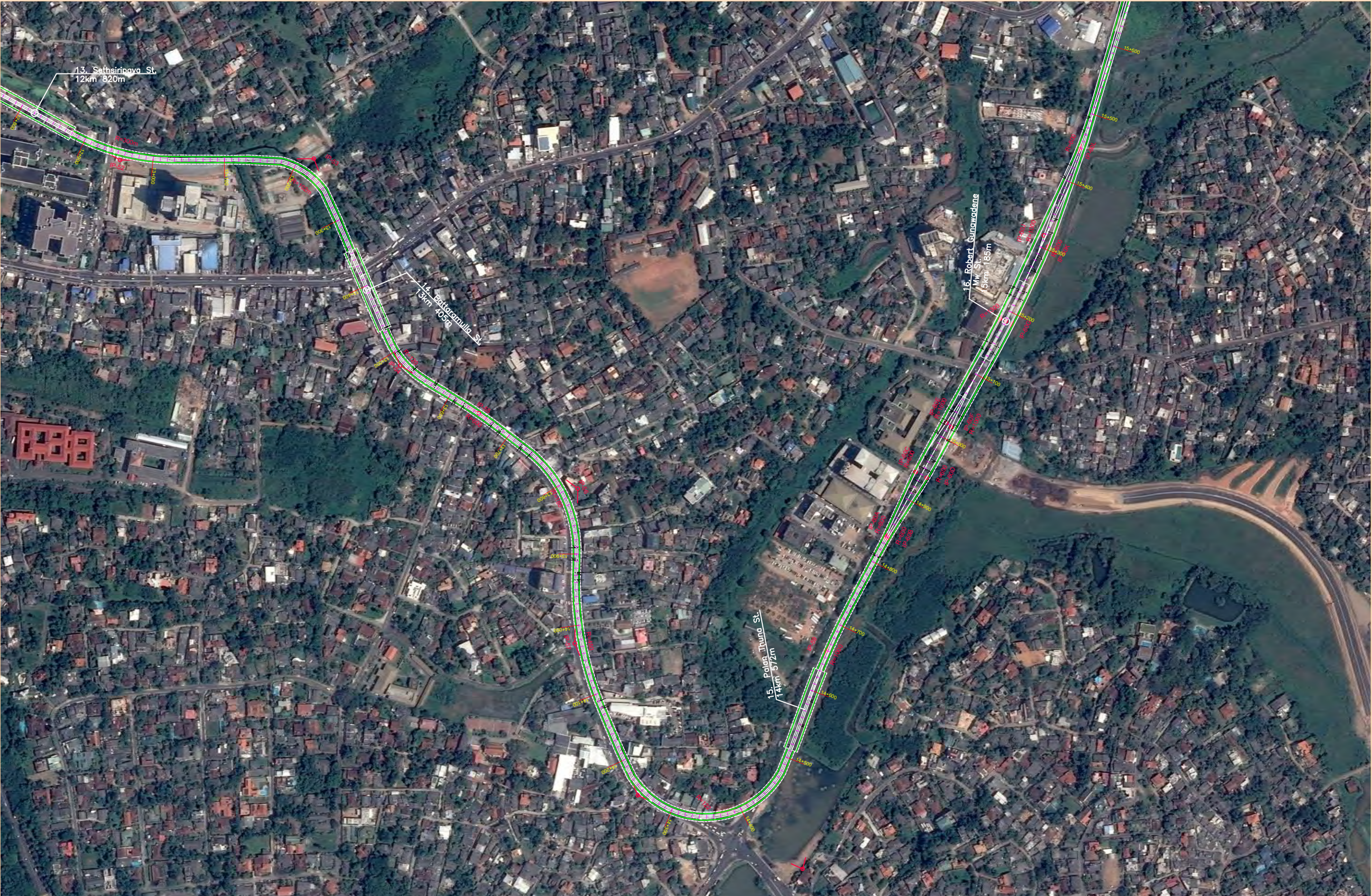
Monitoring of RAP implementation will be based on desk review and field visits, meetings with various ministries and local officials, and surveying project affected households. Separate meetings will be held with women and vulnerable households as needed basis.

At the end of income restoration program or at the end of the Project, the External Monitoring Agency (EMA) will conduct an evaluation study to determine whether or not the objectives of resettlement have been achieved. The methodology for the evaluation study will be based mainly on a comparison of the socioeconomic status of severely affected households prior to and following displacement. If the findings of the study would indicate that the objectives of the RAP have not been achieved, EMA will propose appropriate additional measures to meet the RAP objectives.

Annex A

Proposed LRT Route

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VERSIONS			DATE			DESCRIPTION		

 			 JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)			 ORIENTAL CONSULTANTS GLOBAL CO.,LTD			 JAPAN INTERNATIONAL CONSULTANTS FOR TRANSPORTATION CO.,LTD			 TONICHI ENGINEERING CONSULTANTS INC			 ENVIRONMENTAL RESOURCE MANAGEMENT ERM JAPAN LTD.		

CONSULTANT					
TITLE	NAME	SIGNATURE			
DESIGNER					
CHECK					
TEAM LEADER					
PR. MANAGER					

			FEASIBILITY STUDY		
			TRACK ALIGNMENT		



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VERSIONS	DATE	DESCRIPTION




Ministry of Transport and Western Development




JAPAN INTERNATIONAL COOPERATION AGENCY (JICA)




ORIENTAL CONSULTANTS GLOBAL CO.,LTD



TONICHI ENGINEERING CONSULTANTS INC



JAPAN INTERNATIONAL CONSULTANTS FOR TRANSPORTATION CO.,LTD



ENVIRONMENTAL RESOURCE MANAGEMENT ERM JAPAN LTD.

CONSULTANT		
TITLE	NAME	SIGNATURE
DESIGNER		
CHECK		
TEAM LEADER		
PR. MANAGER		

FEASIBILITY STUDY	
TRACK ALIGNMENT	

Annex B

Cabinet Memorandum on

Compensation for Project-affected Persons



අමාත්‍ය මණ්ඩල කාර්යාලය
அமைச்சரவை அலுவலகம்
OFFICE OF THE CABINET OF MINISTERS

CABINET DECISION

අමාත්‍ය මණ්ඩල තීරණය

அமைச்சரவைத் தீர்மானம்

පිටපත් : ජනාධිපති ලේකම්, අග්‍රාමාත්‍ය ලේකම්, ජාතික ප්‍රතිපත්ති හා ආර්.ක. ලේකම්, මුදල් හා ජනමාධ්‍ය ලේකම්, විගණකාධිපති, මගේ අංකය: අමප/17/1654/724/064 2017 අගෝස්තු මස 09 දින.

ක්‍රියා කළ යුතු : ප්‍රවාහන හා සිවිල් ගුවන්සේවා අමාත්‍යාංශයේ ලේකම්, මහානගර හා බස්නාහිර සංවර්ධන අමාත්‍යාංශයේ ලේකම්, ඉඩම් සහ පාර්ලිමේන්තු ප්‍රතිසංස්කරණ අමාත්‍යාංශයේ ලේකම්.

සැඟැල්ලු දුම්රිය සංක්‍රමණ ව්‍යාපෘතිය නිසා පීඩාවට පත් පාර්ශ්වයන් සඳහා වන්දි ගෙවීමට ඉඩම් අත්පත් කරගැනීමේ හා නැවත පදිංචි කිරීමේ කමිටු (LARC/SUPER LARC) ක්‍රමවේදයන් අදාළ කරගැනීම

(මහානගර හා බස්නාහිර සංවර්ධන ගරු ඇමතිතුමා ඉදිරිපත් කළ 2017-07-19 දිනැති සංදේශය)

2017 අගෝස්තු මස 01 දින පැවැත්වුණු අමාත්‍ය මණ්ඩල රැස්වීමේදී එළඹී තීරණයක් අවශ්‍ය කටයුතු සඳහා මේ සමඟ එවා ඇත.

ඩබ්ලිව්.එම්.ඩී.ජේ.ප්‍රනාන්දු
අතිරේක ලේකම්.

අ.කළේ/එස්.අබේසිංහ
අමාත්‍ය මණ්ඩලයේ ලේකම්.

(ආ) න්‍යාය පත්‍රයේ විෂයයන්:

(II) අමාත්‍ය මණ්ඩල පත්‍රිකා - ප්‍රසම්පාදනයට අදාළ කරුණු :

53. අමාත්‍ය මණ්ඩල පත්‍රිකා අංක 17/1654/724/064 වූ, “සැඟැල්ලු දුම්රිය සංක්‍රමණ ව්‍යාපෘතිය නිසා පීඩාවට පත් පාර්ශ්වයන් සඳහා වන්දි ගෙවීමට ඉඩම් අත්පත් කරගැනීමේ හා නැවත පදිංචි කිරීමේ කමිටු (LARC/SUPER LARC) ක්‍රමවේදයන් අදාළ කරගැනීම” යන මෑයෙන් මහානගර හා බස්නාහිර සංවර්ධන ඇමතිතුමා ඉදිරිපත් කළ 2017-07-19 දිනැති සංදේශය - (අමප අංක 16/1175/724/047 පිළිබඳව වූ 2016-06-28 දිනැති අමාත්‍ය මණ්ඩල තීරණයට අදාළව) ඉහත සඳහන් සංදේශය මුදල් හා ජනමාධ්‍ය ඇමතිතුමාගේ නිරීක්ෂණ සමඟ සලකා බලන ලදී. මේ පිළිබඳව සාකච්ඡා කිරීමෙන් අනතුරුව, සංදේශයේ 4.0 ඡේදයෙහි සඳහන් යෝජනාව සඳහා අනුමැතිය ලබා දීමට තීරණය කරන ලදී.

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ක්‍රියා කළ යුතු: ප්‍රවාහන හා සිවිල් ගුවන්සේවා අමාත්‍යාංශය - සංදේශයේ පිටපතක් හා ඉහත නිරීක්ෂණ යා කොට ඇත.

මහානගර හා බස්නාහිර සංවර්ධන අමාත්‍යාංශය - ඉහත නිරීක්ෂණ යා කොට ඇත.

ඉඩම් සහ පාර්ලිමේන්තු ප්‍රතිසංස්කරණ අමාත්‍යාංශය - සංදේශයේ පිටපතක් හා ඉහත නිරීක්ෂණ යා කොට ඇත.

පිටපත්: ජනාධිපති ලේකම් - සංදේශයේ පිටපතක් හා ඉහත නිරීක්ෂණ යා කොට ඇත.

අග්‍රාමාත්‍ය ලේකම් - සංදේශයේ පිටපතක් හා ඉහත නිරීක්ෂණ යා කොට ඇත.

ජාතික ප්‍රතිපත්ති හා ආර්ථික කටයුතු අමාත්‍යාංශය - සංදේශයේ පිටපතක් හා ඉහත නිරීක්ෂණ යා කොට ඇත.

මුදල් හා ජනමාධ්‍ය අමාත්‍යාංශය

(B) Agenda Items :

(II) Cabinet Papers - Procurement Related Matters

53. Cabinet Paper No.17/1654/724/064, a Memorandum dated 2017-07-19 by the Minister of Megapolis and Western Development on **"Adoption of Land Acquisition and Resettlement Committee (LARC/SUPER LARC) Systems for the affected parties of the Light Rail Transit (LRT) Project"** - (Cabinet decision dated 2016-06-28 on CP No.16/1175/724/047 refers) the above Memorandum was considered along with the observations of the Minister of Finance and Mass Media. After discussion, it was decided to grant approval to the proposal in paragraph 4.0 of the Memorandum.

Action by: **My/Transport and Civil Aviation** - copy of Memorandum and above observations annexed.

My/Megapolis and Western Development - above observations annexed.

My/Lands and Parliamentary Reforms - copy of Memorandum and above observations annexed.

Copied to: **Secretary to the President** - copy of Memorandum and above observations annexed.

Secretary to the Prime Minister - copy of Memorandum and above observations annexed.

My/National Policies and Economic Affairs - copy of Memorandum and above observations annexed.

My/Finance and Mass Media



මහානගර සහ බස්නාහිර සංවර්ධන අමාත්‍යාංශය
අමාත්‍ය මණ්ඩල සංදේශය

අමාත්‍ය මණ්ඩල සංදේශ අංකය: 2017/CP/62

අමාත්‍යාංශ යොමු අංකය: 2017/MPD/CM 25



සැහැල්ලු දුම්රිය සංක්‍රමණ ව්‍යාපෘතිය නිසා පීඩාවට පත් පාර්ශ්වයන් සඳහා වන්දි ගෙවීමට ඉඩම් අත්පත්කර ගැනීමේ හා නැවත පදිංචි කිරීමේ කමිටු (LARC / SUPER LARC) ක්‍රමවේදයක් ඇති කිරීම

1.0 පසුබිම:

- 1.1 කොළඹ නගර සභා බල ප්‍රදේශය තුළ නාගරික සංවර්ධනය සඳහා වගකීම දරන මහා නගර සහ බස්නාහිර සංවර්ධන අමාත්‍යාංශය (MMWD) විසින් “බස්නාහිර කලාපයේ මහානගර ප්‍රධාන සැලැස්ම - 2030” සකස්කර තිබේ.
- 1.2 ශ්‍රී ලංකාවේ කොළඹ නාගරික පොදු ප්‍රවාහන පද්ධතිය ප්‍රතිසංස්කරණය කිරීම උදෙසා නව සිඝ්‍ර සංක්‍රමණ ක්‍රමයක් හඳුන්වාදීම මඟින් රථවාහන තදබදය විසඳීමට මෙම ප්‍රධාන සැලසුමෙහි ප්‍රමුඛ අවධානය යොමු වී තිබේ. එබැවින්, යෝජිත සැහැල්ලු දුම්රිය සංක්‍රමණ (LRT) මාර්ග හතෙන් මාර්ග දෙකක් ආර්ථික සහයෝගීතාව සඳහා විශේෂ කොන්දේසි (STEP) යටතේ ස්ථාපනය කර දෙන මෙන් ශ්‍රී ලංකා රජය විසින් (GoSL) ජපන් රජයෙන් නිල වශයෙන් ඉල්ලා තිබේ.
- 1.3 වර්තමානයේ ක්‍රියාත්මක වෙමින් පවතින ශක්‍යතා අධ්‍යයනයේ අරමුණ වන්නේ තෝරාගත් සැහැල්ලු දුම්රිය සංක්‍රමණ (LRT) මාර්ග දෙක සහ ඒවායේ අවශ්‍යතාවය මූලික පරීක්ෂාව සිදු කිරීමයි. තවද, මෙම ව්‍යාපෘතිය ජපාන නිල සංවර්ධන ආධාර ණය ව්‍යාපෘතියේ (STEP) අපේක්ෂකත්වය සඳහා ඇගයීම පිණිස අවශ්‍ය ලේඛන සකස්කිරීම මෙම අධ්‍යයනයට ඇතුළත් වේ.
- 1.4 කඩුවෙල, කෝට්ටේ සහ කොළඹ මහනගර සභා ප්‍රදේශ ආවරණය කරමින් කඩුවෙල, කෝට්ටේ, තිඹිරිගස්සාය සහ කොළඹ ප්‍රාදේශීය ලේකම් කොට්ඨාශ 4 හරහා කොළඹ දෙසට දිවෙන අධික ජනගහනයක් සහ තදබදයක් සහිත මංකඩ අතුරින් එකක් මෙම ව්‍යාපෘතිය මගින් ආවරණය කෙරේ. යෝජිත ඩිපෝට්ටේ ඉඩම්, යෝජිත දුම්රිය ස්ථානය අසල ඉඩම් සහ යෝජිත ගමන් මාර්ගයේ වක්‍රාකාර ස්ථාන සඳහා ඉඩම් අත්පත් කර ගැනීම අවශ්‍ය වේ.
- 1.5 පහත හේතූන් මත ඉඩම් අත්පත් කර ගැනීමේ ක්‍රියාවලිය සඳහා කලින් සැලසුම් සකස් කිරීම වැදගත් වේ.
 - ඉහළ නේවාසික ඝනත්වය හා වාණිජමය ස්වභාවයක් සහ ඉහළ වටිනාකම
 - අධිවේගී මාර්ග සහ පරිපාලන නගරය ඇතුළු සිඝ්‍ර යටිතල පහසුකම් සංවර්ධනය
 - පහසුකම්වලට පිවිසීම

2.0 වර්තමාන තත්ත්වය:

2.1 ජපාන ජාත්‍යන්තර සහයෝගීතා ආයතනය (JICA) විසින් මූල්‍යයනය කරනු ලබන සැහැල්ලු දුම්රිය සංක්‍රමණ (LRT) මාර්ග පිළිබඳ ශක්‍යතා අධ්‍යයනය මේ වන විටත් ආරම්භකර තිබෙන අතර එය 2018 පෙබරවාරි වන විට සම්පූර්ණ කිරීමට නියමිතය. ශක්‍යතා වාර්තාවේ කෙටුම්පත 2017 දෙසැම්බර් වන විට එළිදැක්විය හැකිය. ඒ අනුව, ව්‍යාපෘතිය ක්‍රියාත්මක කිරීමේ ක්‍රියාවලිය කඩිනම් කිරීම සඳහා ශක්‍යතා අධ්‍යයනයෙන් බලපෑමට ලක්වන ඉඩම් හඳුනාගත් වහාම ඉඩම් අත්පත් කරගැනීම කඩිනම් කළ යුතුය.

2.2 ශ්‍රී ලංකා රජය (GOSL) ඉඩම් අත්පත්කර ගැනීමට අදාළ කරුණු පිළිබඳව මූල්‍යයන ආයතනය වන ජපාන ජාත්‍යන්තර සහයෝගීතා ආයතනය (JICA) සමඟ පොදු එකඟතාවයකට එළඹුණු අතර ජපාන ජාත්‍යන්තර සහයෝගීතා ආයතනයේ (JICA) සමාජයීය ආරක්ෂණ පිළිවෙත් අනුගමනය කරමින් වන්දි ගෙවීමේ කටයුතු සිදු කළ යුතුය.

2.3 ව්‍යාපෘතිය වඩා ඵලදායී අයුරින් ක්‍රියාත්මක කිරීම සඳහා LARC සහ SUPER LARC ස්ථාපනය කිරීමේ අවශ්‍යතාව මතු කිරීමට හේතු වන කරුණු පහත දැක්වේ.

2.3.1 විශේෂයෙන්ම මාලගොඩ-කොටුව-කොල්ලුපිටිය මංකඩෙහි රථවාහන තදබදය අවම කිරීම සඳහා ප්‍රමුඛතා කාර්යය වශයෙන් සැහැල්ලු දුම්රිය සංක්‍රමණ ව්‍යාපෘතිය හඳුනාගෙන තිබේ. ව්‍යාපෘතිය ක්‍රියාත්මක කිරීමේ ප්‍රමාදය රටට සැලකිය යුතු මූල්‍යමය අවාසියක් සිදුකරමින් මහජනතාව අපහසුතාවට ලක් කරන රථවාහන තදබදය උග්‍ර කරයි.

2.3.2 සාමාන්‍ය ක්‍රියාපිළිවෙළ (අංක 1596/12 සහ 2009.04.07 දින දරන ගැසට් පත්‍රයේ පළ කරන ලද නියෝග) අනුව ඉඩම් අත්පත් කර ගැනීමේ දී, දීර්ඝ කාලීනව ඉහළ වටිනාකමක් අපේක්ෂා කරන බලපෑමට ලක්වන ඉඩම්වල අයිතිකරුවන්ට නඩු පැවරීමෙන් වන්දි සඳහා දුක්ගැනවිලි ඉදිරිපත් කළ හැකිය. මෙහිදී දීර්ඝකාලීන ප්‍රමාදවීම් සිදුවිය හැකි අතර පසු කාලයේ දී තවත් ගැටළු පැන නැගී තත්ත්වය තවත් උග්‍ර විය හැකිය.

2.3.3 පීඩාවට පත් පාර්ශ්වයන් වන්දි වටිනාකම් පිළිබඳ එකඟතාවයන් නොවීම සම්බන්ධව ගැටළු අවම කිරීම සඳහා ඇතැම් ව්‍යාපෘති වෙනුවෙන් විශේෂ අනුමැතිය ලබා දී තිබේ. බොහෝ ප්‍රධාන ව්‍යාපෘතිවල බරපතල ඉඩම් අත්පත් කරගැනීමේ ගැටළු සාර්ථකව අවම කර ගැනීම සඳහා ශ්‍රී ලංකා ප්‍රජාතාන්ත්‍රික සමාජවාදී ජනරජයේ අංක 1864/54 සහ 2014.05.30 දිනැති අතිවිශේෂ ගැසට් පත්‍රයේ පළ කරන ලද ඉඩම් අත්පත්කර ගැනීමේ නියෝග 2013 මගින් LARC සහ SUPER LARC හඳුන්වා දෙන ලදී.

2.3.4 මෙම විශේෂ විධිවිධාන මගින් පීඩාවට පත් පාර්ශ්වකරුවන්ට අදාළ කම්පුව ඉදිරියේ පෙනී සිට සිය දුක්ගැනවිලි ඉදිරිපත් කිරීමට සහ ඔවුන්ගේ නිසි හිමිකම් සඳහා අභියාචනා ඉදිරිපත් කිරීමට ඉඩ සලසන බැවින් පීඩාවට පත් පාර්ශ්වයන්ගේ දුක්ගැනවිලි කෙරෙහි සැලකිල්ලක් දක්වන බව ඔවුන්ට හැඟේ.

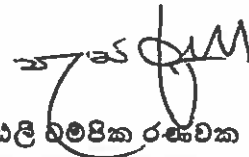
2.3.5 වන්දි ගෙවීමේ දී LARC සහ SUPER LARC ක්‍රියාපටිපාටිය අනුගමනය කිරීමට අනුමැතිය ලැබී තිබෙන වෙනත් ව්‍යාපෘති සලකාබැලීමේ දී, ව්‍යාපෘතියේ අරමුණු වලට බාධා නොවන පරිදි සමාජ බැඳීම් වලට ගරුකරමින් ඉලක්කගත කාලසීමාවන් තුළ මෙවැනි ව්‍යාපෘති සිදු කෙරෙන බව නිරීක්ෂණය වේ.

3.0 නිර්දේශ

ඉහත සඳහන් කරුණු සැලකිල්ලට ගනිමින්, මෙම ව්‍යාපෘතිය මගින් බලපෑමට ලක්වන පාර්ශවකරුවන් වෙත වන්දි ගෙවීමේ දී ඉඩම් අත්පත් කර ගැනීමේ සහ නැවත පදිංචි කිරීමේ කමිටු (LARC) සහ ඉඩම් අත්පත් කර ගැනීමේ සහ නැවත පදිංචි කිරීමේ විශේෂ කමිටු (SUPER LARC) සුදුසු පරිදි යොදා ගැනීමට නිර්දේශ කරමි.

4.0 අවශ්‍ය අනුමැතිය:

ඉහත කරුණු සැලකිල්ලට ගෙන, නියමිත කාලසීමාව තුළ මෙම ව්‍යාපෘතියේ සංවර්ධන කටයුතු සම්පූර්ණ කිරීම කඩිනම් කිරීමේ අරමුණින් සැහැල්ලු දුම්රිය සංක්‍රමණ (LRT) ව්‍යාපෘතියේ සංවර්ධන කටයුතු සඳහා ඉඩම් අත්පත්කර ගැනීම හේතුවෙන් පීඩාවට පත්වන්නන් හට වන්දි ගෙවීම සඳහා ශ්‍රී ලංකා ප්‍රජාතාන්ත්‍රික සමාජවාදී ජනරජයේ අංක 1864/54 හා 2014.05.30 දිනැති අතිවිශේෂ ගැසට් පත්‍රයේ පළ කරන ලද ඉඩම් අත්පත් කර ගැනීමේ (වන්දි ගෙවීම) නියෝග 2013 යෙදා ගැනීම සඳහා අමාත්‍ය මණ්ඩල අනුමැතිය අපේක්ෂා කරමි.



පාඨලී ඩම්පික රණවක (පා. ම.)

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MINISTRY OF MEGAPOLIS AND WESTERN DEVELOPMENT

CABINET MEMORANDUM

Cabinet Memo No: 2017/CP/62

Min Ref:2017/MPD/CM 25

Adoption of Land Acquisition and Resettlement Committee Systems for affected parties of the Light Rail Transit Project

1.0. Background:

- 1.1 The Ministry of Megapolis and Western Development (MMWD) which is responsible for urban development in the Colombo Metropolitan area has set out the "Western region Megapolis Master Plan – 2030".
- 1.2 A priority concern on this Master Plan was echoed to solve traffic congestion by introducing new rapid transit mode towards reshaping the urban public transportation system in Colombo Sri Lanka. Therefore the GoSL officially requested to establish two lines out of seven proposed LRT routes from the Government of Japan under Special Terms for Economic Partnership (STEP).
- 1.3 The feasibility study which is currently in progress aims to conduct the preparatory survey for selected two LRT routes and its necessity. Further, this study includes the preparation of necessary documents for appraisal of the project as a candidate of Japanese ODA Loan Project (STEP).
- 1.4 The project covers one of the highly populated and congested corridor towards Colombo running through 4 Divisional Secretariats namely Kaduwela, Kotte, Thimbirigasyaya and Colombo covering Kaduwela, Kotte and Colombo Municipal Council Areas. Lands at the proposed Depot, lands near the proposed stations and at the curved alignment of the trace needs Land Acquisition.
- 1.5 Early arrangements for land acquisition process is important due to following reasons.
 - Highly residential & Commercial nature and the high value
 - Rapid infrastructure development including expressways and administrative city
 - Accessibility to facilities

2.0 Current Status:

2.1 The feasibility study for the LRT line which is funded by JICA has already been commenced and it is scheduled to be completed by February 2018. The draft report of the feasibility study will be made available by December 2017. Accordingly, in order to expedite the project implementation process land acquisition is needed to be accelerated soon after the identification of affected lands in detail by the feasibility study.

2.2 GOSL has entered in to consensus with the funding agency, Japan International Corporation Agency (JICA), matters pertaining to the land acquisition as well as the payment of compensations have to be handled adhering to the JICA social safeguards.

2.3 Following are the concerns which lead to raise the necessity of establishing LARC and SUPER LARC for more effective project implementation.

2.3.1 Light Rail Transit Project has been identified as the priority concern to ease up the traffic congestion especially in Malabe-Fort-Kolpetty corridor. Delay in implementation of the project would aggravate the traffic situation incurring considerable financial loss to the country and inconvenience to the general public.

2.3.2 In case of acquiring lands through general procedure (Regulations published in the Gazette No. 1596/12 dated 07.04.2009), the owners of the affected lands which have potential long term high value expectations may seek redress grievances through litigation. This may result in long term delays which may further aggravated with more issues later.

2.3.3 Special approval has been granted for some of the projects to mitigate the issues with respect to disagreements of the compensation values with the affected parties, the Land Acquisition Regulation 2013 published in the Extraordinary Gazette No. 1864/54 dated 30.05.2014 of the Democratic Socialist Republic of Sri Lanka has introduced LARC and Super LARC which has been successfully practiced mitigating critical land acquisition issues in many major projects.

2.3.4 As this special provision allows affected parties to appear before the respective committee and forward their grievances and appeals for their rightful entitlements, affected parties feel their grievance been honoured.

2.3.5 When considering the other projects for which the approval has been received to adopt LARC and SUPER LARC procedure in compensation payment, it is observed that such projects have achieved their time targets while honouring the Social obligations towards the affected parties without hampering the project objectives.

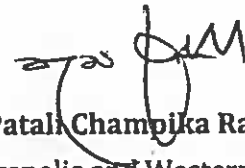
3.0 Recommendation

Considering the matters stipulated above, the adoption of the Land Acquisition and Resettlement Committees (LARC) and Land Acquisition and Resettlement Special Committees (SUPER LARC) in payment of compensations to the parties affected by this project is recommended as appropriate.

4.0 Approval Sought:

In view of above the approval of the Cabinet of Ministers is sought;

For the adoption of Land Acquisition (Payment of Compensation) Regulations 2013, published in the Extraordinary Gazette No. 1864/54 dated 30.05.2014 of the Democratic Socialist Republic of Sri Lanka for the payment of compensation to those who are affected due to land acquisition made for the development activities of the Light Rail Transit Project, with a view to expediting the completion of development activities of this Project on scheduled timeline.



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19th July 2017