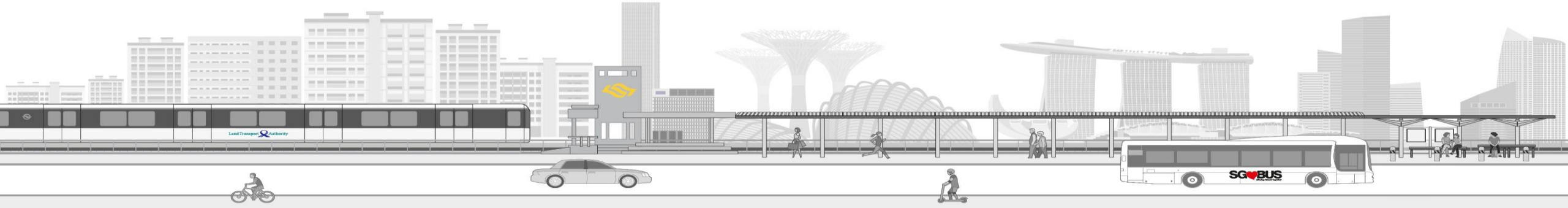
Theme 1: Productivity

Problem Statement 1:

Develop an engineering project management software to identify, recognise & track changes and comments b/w different revisions of traffic control plans with smart search tool plug-in

National Innovation Challenge

Presenter – Lim Pei Xuan (Traffic Analysis & Projects)



THEME 1: PRODUCTIVITY
1. Engineering project management platform with SMART Plug-in

Pain Points

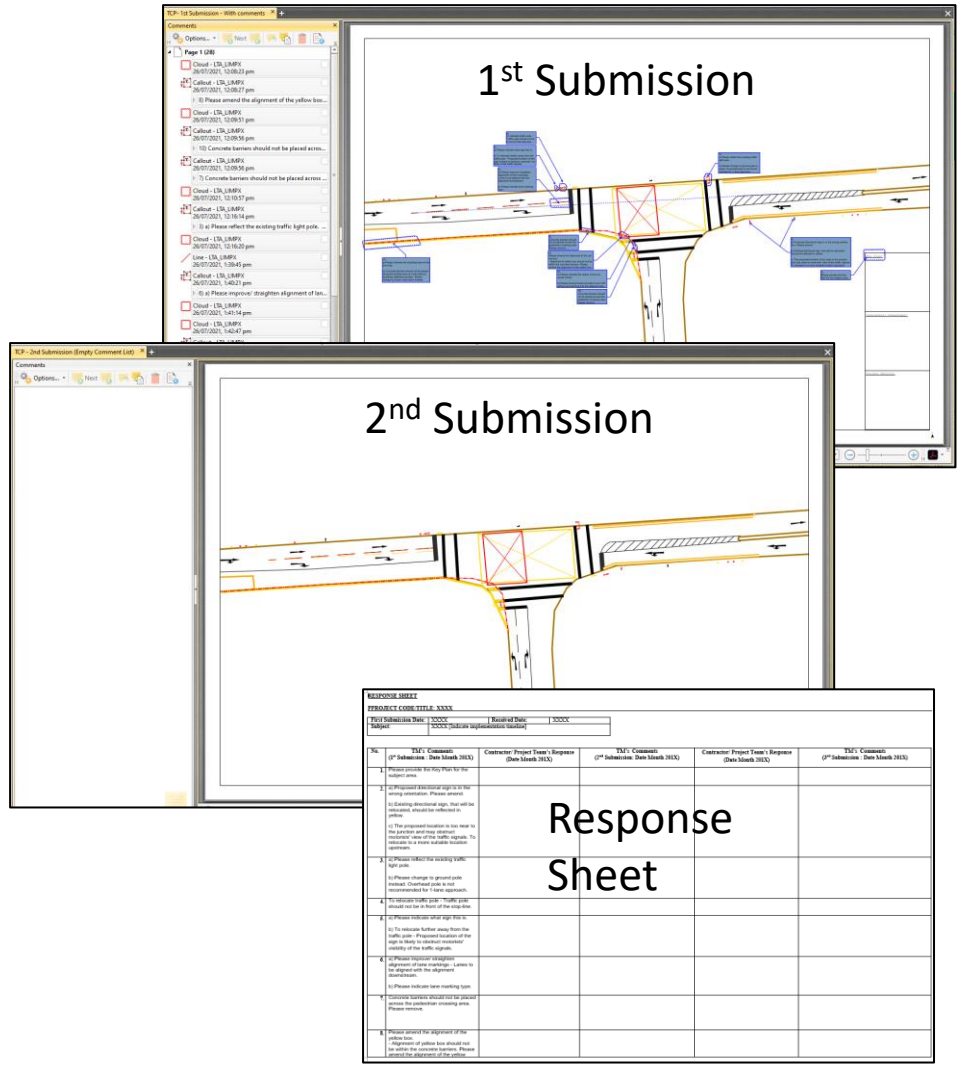
LTA's traffic engineers go through a tedious and repetitive process for the reviewing of traffic control plans (~400 plans /month)

- Comments provided in previous submission not attached in the subsequent submissions
- Separate Response Sheet used to track previous comments

- Need to manually identify changes/ updates from previous revisions

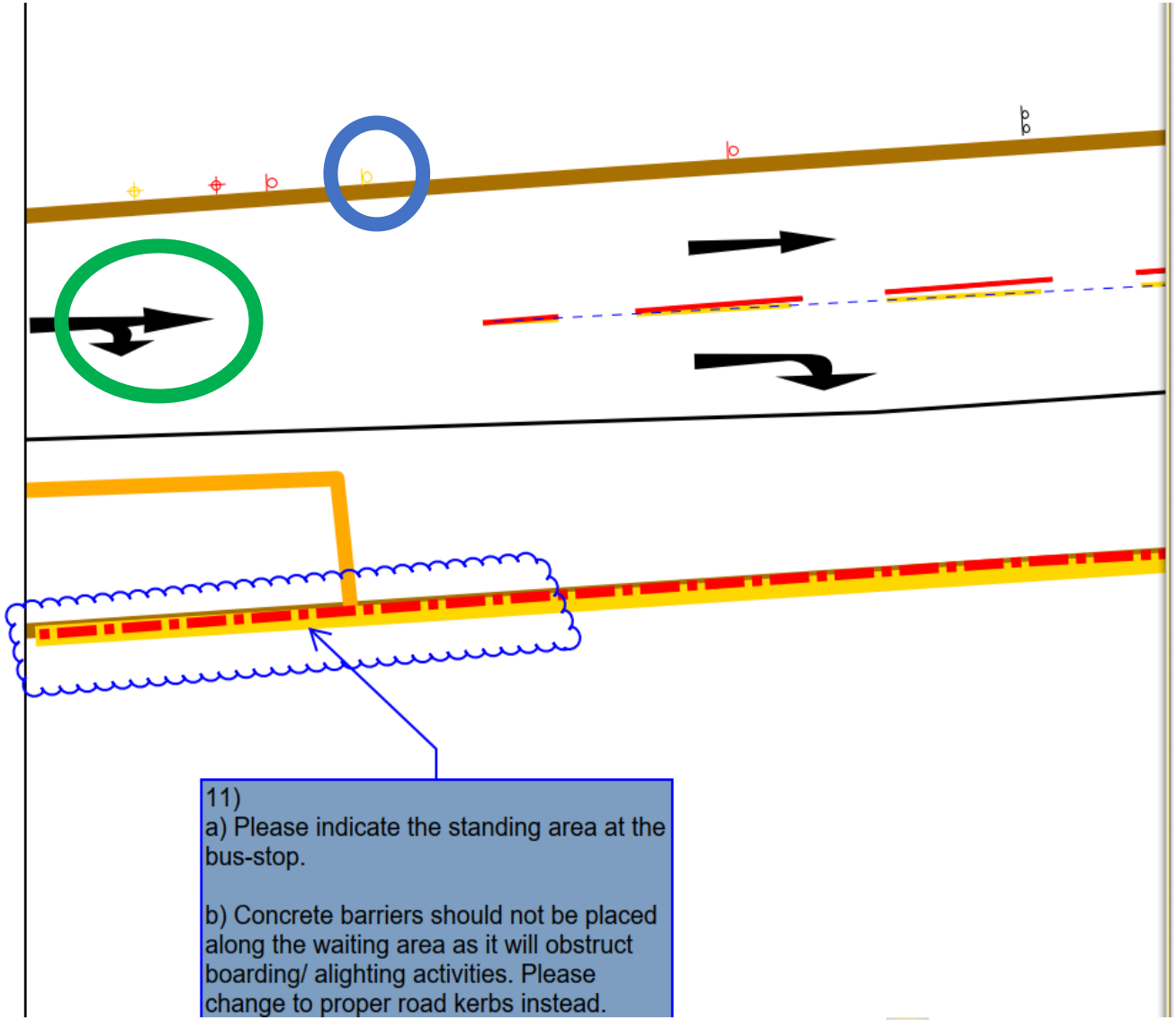
- Need to cross reference with 3 separate documents concurrently to ensure that plans are ready for approval/ endorsement

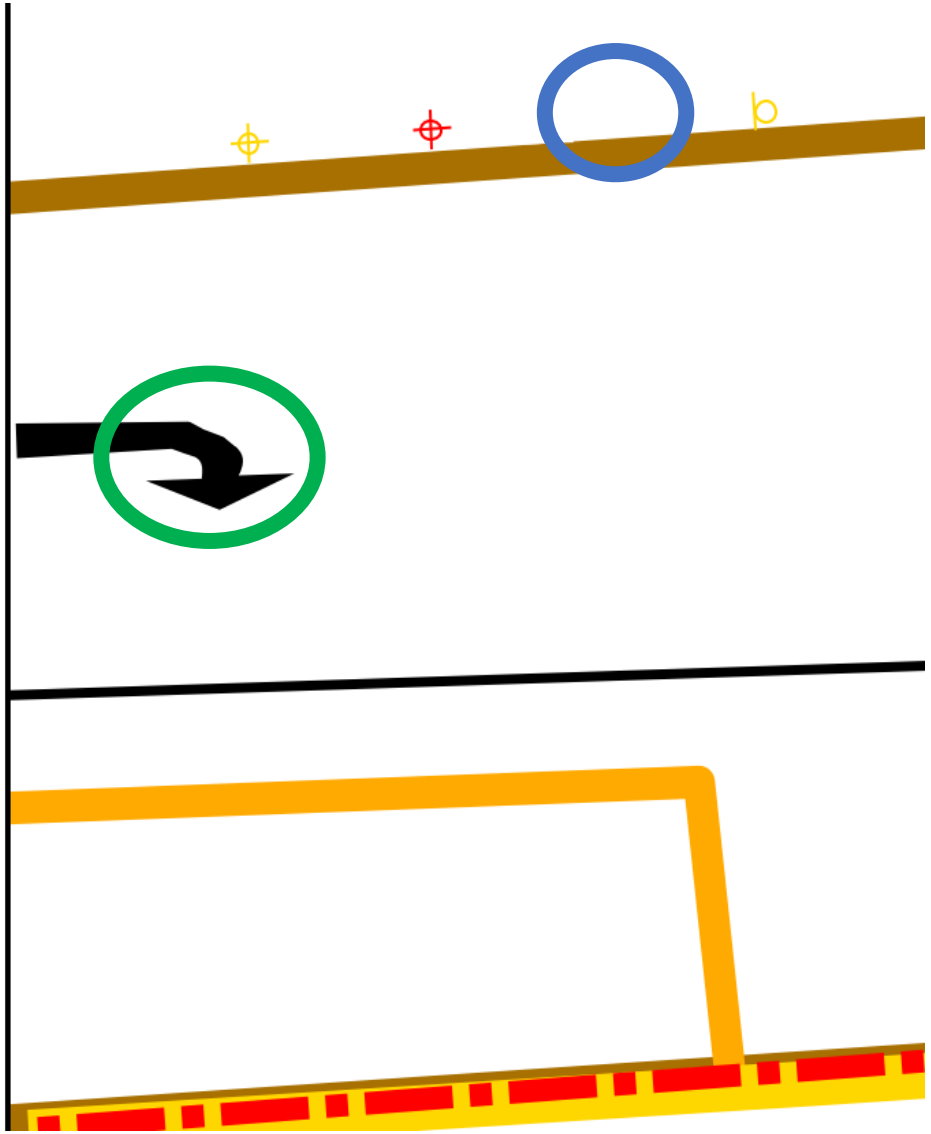
- Prone to human errors
- Time- consuming



THEME 1: PRODUCTIVITY

1. Engineering project management platform with SMART Plug-in





THEME 1: PRODUCTIVITY
1. Engineering project management platform with SMART Plug-in

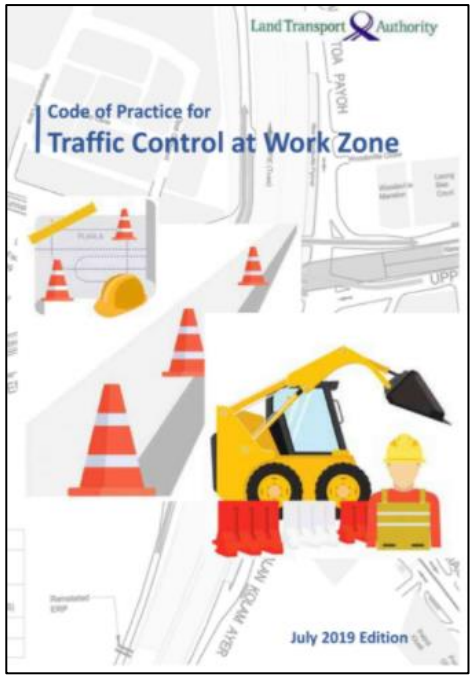
Pain Points

For designing of roads, designers/ consultants would need to cross-reference among at least 3 design manuals

- Tedious to cross-reference among 3 manuals
- Tend to miss out on important design info while planning designing traffic arrangements

- Poor design quality/ errors in design
- Repeated revisions/ submissions

- Unnecessary time spent on multiple iterations

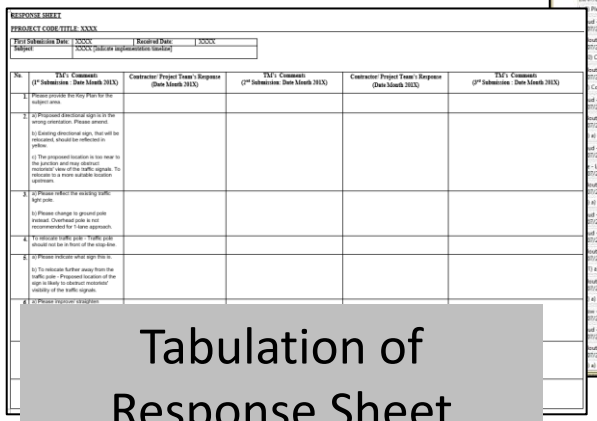


- https://www.lta.gov.sg/content/dam/ltagov/industry_innovations/industry_matters/development_construction_resources/Street_Work_Proposals/codes_of_practice/COP_Traffic_Control_at_Work_Zone_July_2019_Edition.pdf
- https://www.lta.gov.sg/content/dam/ltagov/industry_innovations/industry_matters/development_construction_resources/civil_standards/pdf/EGD09106A2_Overall.pdf
- https://www.lta.gov.sg/content/dam/ltagov/industry_innovations/industry_matters/development_construction_resources/Street_Work_Proposals/Standards_and_Specifications/SDRE/Content_Page_JULY_2020.pdf

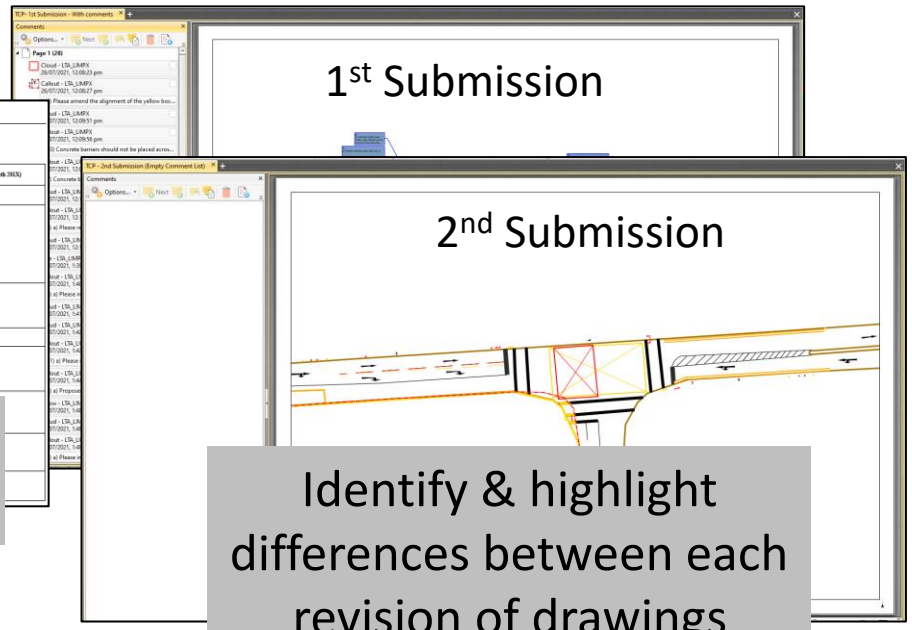
THEME 1: PRODUCTIVITY

1. Engineering project management platform with SMART Plug-in

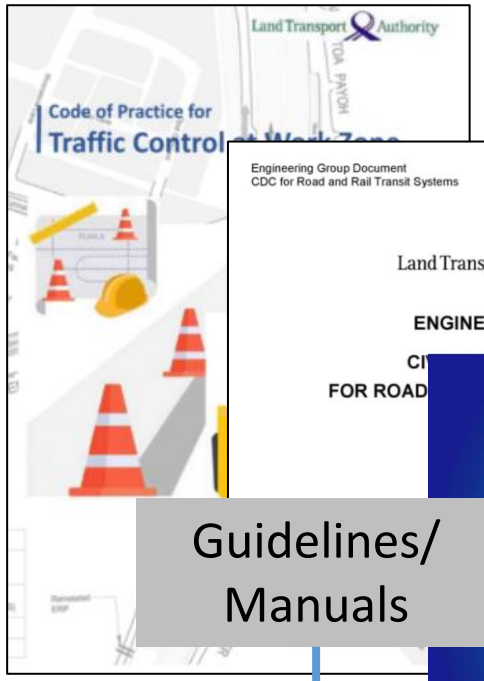
Solution Requirements



Tabulation of Response Sheet



Identify & highlight differences between each revision of drawings



Guidelines/ Manuals

Integrated into one software

Expected Outcome

- Improve process flow for submissions & reviews
- Improve quality of submissions & reviews
- Improve overall efficiency of submission & review

THEME 1: PRODUCTIVITY
1. Engineering project management platform with SMART Plug-in

Questions & Answers

Q1: What format PDF or JPEG is the submission of drawings? What are the tools/software that contractors/ consultants use to make the drawings? Are the project plans of standard dimensions and format? If not how many variants are there typically?

A1: Submission of the drawings are usually in pdf, but sometimes includes dwg format. Contractors/ consultants are generally using drawing tools such as AutoCAD, MicroStation to produce the drawings in dwg/ pdf. The recommended scale for the drawings are 1:500 or 1:1000, on A1 sized drawings. However, the scale may still vary, dependent on the size of the area presented.

Q2: For the smart search tool plugin's purpose is to search information from the 3 documents only?

A2: Yes, for the intent of this initiative, the purpose is to search information from the 3 documents/manuals only. However, there should be flexibility for the scope of the tool to be expanded in the future to more documents/manuals, when the need arises.

THEME 1: PRODUCTIVITY
1. Engineering project management platform with SMART Plug-in

Questions & Answers

Q3: Is the tool online/standalone software? or integrated with other LTA system- how much software infrastructure is required?

A3: The platform of the software should meet the requirements of the respective functions to be included into the software. The smart search tool plug-in should be easily accessible to LTA internal divisions, as well as all external contractors & consultants, similar to the LTA design manuals.

On the other hand, as the information reflected in the traffic drawings are sensitive information that should be kept for internal eyes only, solution provider needs to ensure that the drawings are reviewed in a secured environment. Having said that, solution provider can also value-add in terms of designing a seamless platform through which LTA users can access both.

Q4: Have LTA coded the various requirements from the design manual and provide hierarchy of the requirements?

A4: This would be developed further together with the potential solution provider to better understand how the hierarchy of the requirements should be mapped to accommodate the proposed system, or machine learning model.

THEME 1: PRODUCTIVITY
1. Engineering project management platform with SMART Plug-in

Questions & Answers

Q5: In the website, Solution is able to read digital files in PDF format, therefore avoiding the likelihood of reviewing PDFs without selectable elements, for example, PDFs converted from picture files (e.g. JPEG) Care to explain a bit more on this statement?

A5: Solution must take into consideration that drawings are usually flattened before the submission. There might not be selectable layers in the pdf drawings even though the drawings might have been converted from the various drawing software. Hence, the developed solution needs to be able to make comparison and identify differences between PDF drawings that are flattened/ without selectable layers.

Q6: Is the submission for traffic plans in pdf - in a highly controlled and defined format? e.g. CAD generated PDF files with defined scales and symbols?

A6: In general, the symbols used in the traffic drawings should be with reference to the design manuals used. However, the software should also be able to identify or recognize symbols which are not part of the standard traffic symbols, as a difference between 2 pdf drawings.

With regards to the scale, please refer to A1.

THEME 1: PRODUCTIVITY
1. Engineering project management platform with SMART Plug-in

Questions & Answers

Q7: Does the software just compare 2 PDFs - and not comparing against other source of info like underlying GIS map/data or title boundary?

A7: The title boundaries are usually part of the pdf drawings and the software should be able to identify any changes within the title boundaries. As mentioned above, since the pdf files are likely to be flattened, the solution should take that into consideration, recognizing that it may not be able to differentiate the traffic control plans elements from the underly GIS map elements. Therefore, it is preferred that the tool can identify any changes to the whole pdf.

Q8: Does LTA see integration between statement 1 and 2 as they sometimes are reviewed as part of same process?

A8: In view of differing nature of the problem statements, it is preferred for solution provider to look at the problem statements individually. However, LTA do not exclude the possibility of integrating the solutions thereafter.

Thank You

www.lta.gov.sg
WeKeepYourWorldMoving
LTAsg
LTAsg
LTAsingapore
LTA Singapore

Contact us at:

Xcite@lta.gov.sg