Guidelines for Full Proposals
(Please follow the naming and ordering of the sections and annexes)

1. General Instructions

All full proposals must be submitted through email to LTA at LTA_innovate@lta.gov.sg.

2. Full Proposal

The full proposal should present a comprehensive and concise case for support of no more than 25 pages in font size 12 with single line spacing. Please use the table below as a guide. The full proposal should address the questions (highlighted in blue) for each of the sections. The page limit is not inclusive of the Annexes. The full proposal and Annexes should be sent as separate attachments.

Table 1: Guidelines for Full Proposal

Sections Required	Information to be Provided
Objectives	*What are you trying to achieve? Clearly state the problem to be addressed with neither jargon nor acronyms and explain why it is significant, without overselling. How do you propose the impact of your research could be measured and if successful, how would this generate value for Singapore?* • This section should clearly articulate the importance of the problem to be addressed, the expected outcomes of the project, the benefits relative to the costs of implementing the solution, and how it would contribute towards achieving Singapore's needs encapsulated under the Land Transport Master Plan 2040 (LTMP 2040) goals. • Proposal should also satisfy the following key outcomes of: a) reliability; b) cost-effectiveness; c) manpower productivity; d) environment sustainability; and e) safety • Outcomes should be as quantitative as possible e.g. a 2 times improvement, or a specific achievement, or a new concept etc.
Approach	*How is it done today, who are the leading researchers studying the problem, and what are the limitations of their current approaches? What is your approach and how does it differ from what others are working on? Why do you think your proposal will be successful?*

	- The proposal should highlight in this section the proposed approach and working hypothesis. - The team should perform a competitive scan of the current state of the art and other research carried out globally by other teams and justify how their proposed approach is better. - The proposal should also include pathways to impact, to describe how the technology can be deployed or commercialised if the project is successful. This could include identification of potential testbeds or industry partners.
Data requirements	*What are all the datasets required for the project?* *If any of the datasets are not available, how would it impact the success of the project? Please highlight mitigation measures, including the plans to collect data.* - The proposal should highlight in this section the data that they require from LTA for the project and if the data is not available from LTA, how would it affect the project and is there any other solution/sources to retrieve/ derive the required data for the project.
Project Execution Plan	*What resources are required to accomplish the objectives? What are the technical risks and how would these be mitigated? Outline the schedule and deliverables for all phases of the proposed project.* - This section should provide an overview of the proposed management structure for the project. The role of the Investigators and Collaborators should be listed in this section, highlighting any competitive advantages in terms of unique capabilities and/or experience relevant to the project's focus. Articulate why you have the best team to execute the proposed research. CVs of Investigators should be sent together in a single PDF in an email to LTA at LTA_Innovate@lta.gov.sg together with the proposal. Details that should be included in the CVs are elaborated in section 3 below. Letters of support from Collaborators should be included in Annex B as elaborated in section 4 below. - **The proposal must define the key milestones, deliverables, and measurable key performance indicators (KPIs) for each phase of the project, especially at the mid-term and completion mark. Viability of the project will be measured and assessed throughout the project duration, and KPIs shall be**

reported at every project milestone before the next dependent milestone commences. Funding support will also be based on achievement of milestones in a payment schedule.

Detailed Budget
- A detailed budget should be provided in <u>Annex C</u>, broken down into the following budget categories of,
  a. Expenditure of Manpower (EOM),
  b. Equipment (EQP),
  c. Other Operating Expenses (OOE),
  d. Overseas Travel (OT),
  e. Research Scholarship (RS),
  f. Summary of the cash and in-kind contributions by Host Institutions and Collaborators.

Justification for the proposed budget in each category should be clearly articulated here.

Deliverables are expected to be commensurate with the level of funding requested. Please note that an overly inflated budget may have a negative effect on the evaluation of the proposal. Projects that demonstrate cost-effectiveness in achieving proposed outcomes would be preferred.

Funding support will generally be up to 3 years.

- **The team must declare in the proposal, that the team is not receiving any other funding support locally or internationally for this proposal.**

Key Performance Indicators
- Expected performance for the following key performance indicators over the length of the project must also be included (not required to propose targets for all).

  (i) *Number of Industry Projects -* measures the number of research collaboration agreements, contract research agreements or consultancy agreements signed between public research performers and companies as a result of the grant.

  (ii) *Industry R&D Spending* – refers to cash funding and in-kind contributions (e.g. for manpower, equipment) by industry.

  (iii) *Industry R&D Jobs Created -* measures the number of innovation positions induced in the ecosystem by public R&D investments. This includes all persons

employed for R&D and R&D-related activities, such as researchers, project managers, product designers, technicians, and other supporting staff.

(iv) *Number of technologies Deployed (Including Licenses)* - measures the number of research findings or technologies developed that are deployed (e.g. through a licence or at least at pilot-scale) that will contribute to at least one of the following outcomes:
a) Introduction of new product in the market;
b) Introduction of new service in the market;
c) Product or process improvement.

(v) *% of publications in the top 10% most highly cited journals* - measures the percentage of publications in top 10% citation percentiles (worldwide, field-weighted), excluding self-citations, in year of publications.

(vi) *Number of publications in top 10% journals* - measure the number of publications in the top 10% of S&T journals in the field as tracked in the Thomson Reuters Joint Citation Report.

(vii) *Number of successful start-ups* - Measure the number of successful start-ups as a result of the grant.

(viii) *Number of instances of policy influence* – measures the instance whereby
a) Outputs of the project (e.g. research findings or published technology roadmap) informed policy, regardless of the outcomes of the eventual policy e.g. changes in guidelines, informing of target setting, informing of strategy/ops planning etc, or
b) Expertise developed through funded activities (e.g. technical experts hosted by a core-funded entity) participated in policymaking or were consulted by policymakers in their expert capacity.

(ix) *Number of instances of standard industry practice influence* – measures the instance whereby
a) Outputs of a funded project (e.g. research findings or published technology roadmap) informed industry decision-making or practice beyond the level of single companies, e.g. contributing to setting of industry-managed

	standards, presentation of technology roadmaps to industry bodies (e.g. associations or consortia), or b) Expertise developed through funded activities (e.g. technical experts hosted by a core-funded entity) participated in decision-making by industry bodies or were consulted by industry bodies in their expert capacity. Tracking Indicators • These tracking indicators are required to be reported over the length of the project. (i) *% of Singapore Citizens (SCs) in total no. of industry R&D jobs created* – measures the % of Singaporean researchers (for total and industry). Excludes postgraduate research students. (ii) *% of Permanent Residents (PRs) in total no. of industry R&D jobs created* – measures the % of PR researchers (for total and industry). Excludes postgraduate research students. (iii) *Revenue generated from licenses, royalties, and equity* – total revenue generated from licenses, royalties and equity received. (iv) *Number of enterprises innovating in-house* – enterprises who introduced product or process innovations either themselves or in cooperation with other enterprises or organisations. (v) *Savings generated from R&D investments* – savings generated from cost savings and/or avoided cost due to research outcome. • The proposal should identify the key risks to the project, and elaborate on how these risks can be addressed. • The team should also nominate and include 3 to 5 international peer reviewers in <u>Annex F</u>.

3. Annex A – CVs

The following key information should be included in each CV (please do not include any personal identification numbers such as NRIC or FIN):-
    a. Name
    b. Title

c. Email
d. Office Mailing Address and Contact Number
e. Current Position (Please provide full details, e.g. primary appointment, joint appointments; other academic appointments including those outside of Singapore; percentage of time spent in Singapore every year, if applicable)
f. Employment History
g. Academic Qualifications (indicate institution's name and year degree awarded)
h. Summary of the most relevant research outcomes from all previous grants related to the project (e.g. publications, patents, awards).
i. Professional Awards

4. Annex B – Letters of Support

These must be included from Collaborators, or other individuals or organisations who will be directly involved in supporting the work described in the application. Letters should provide full details of the intended intellectual and financial (if relevant) inputs. Letters which do not demonstrate direct involvement will not be considered as part of the evaluation.

5. Annex C – Detailed Budget

Please refer to the attached template.

6. Annex D – Key Milestones

Please refer to the attached template.

7. Annex E – Offline Application Package

Please refer to the attached template.

8. Annex F – Nomination of International Peer Reviewers

Please nominate 3 to 5 international peer reviewers.

Nominated reviewers should:
a. be experts in the research field you have proposed, such as industry experts or academics;
b. have no direct relation to the research collaborator and any of the team members within the past 24 months; and
c. not have potential conflict of interest with the team.

Please avoid nominating more than one reviewer from the same organisation.

9. Annex G – References

A listing of all references to citations listed (no total page limit).