



DEPARTMENT OF PUBLIC WORKS & HIGHWAYS

## **Consulting Services for the Feasibility Study of Proposed Nassiping-Dummun Diversion Road**

### **TERMS OF REFERENCE**

#### **1.0 INTRODUCTION**

The proposed Nassiping-Dummun Diversion Road will start at Barangay Nassiping and will end at Barangay Dummun, Gattaran. The Diversion Road will shorten the travel distance from 14.2km to 8.27km. It has a second exit (2.57km.) at the ongoing project "Gattaran Diversion Road". The second exit will interconnect the two Diversion/Bypass Road to shorten travel time and travel distance from the Southern Part to the Northern Part of Cagayan. It will also decongest the populated are of Centro, Gattaran.

As part of the initial stage in the project development cycle, feasibility study assessing the technical, economic, environmental, and social impacts of the project is required.

The proposed conduct of feasibility study for this project is envisaged to be carried by local consultant. The Study is expected to determine the extent and nature of improvements/construction required, the economic and technical justifications thereof and in relation to their environmental and social impacts, and the development of a suitable and optimal investment program. The findings of the Study are intended for use by the DPWH for the purpose of implementing the project through local financing or seeking financial assistance from external sources if determined to be feasible.

## 2.0 OBJECTIVES

The objectives of this undertaking are to:

- 2.1 Determine the Annual Average Daily Traffic (AADT) in major and abutting road sections relevant to the project influence area, and assess the existing and future condition of the relevant road network based on capacity and safety measurements such as Level of Service and other network performance parameters or factors;
- 2.2 Establish trip patterns based on *zones*<sup>1</sup> and/or existing and future land use in the study area and identify volume distribution in major and abutting road sections during peak and non-peak hours;
- 2.3 Establish Traffic Growth Rates (TGR) based on ecological factors such as population distribution, average income per family and product consumption per capita;
- 2.4 Develop an updated travel time-based Vehicle Operating Cost (VOC) and running cost based on transportation related expenditures such as productivity cost, fares, vehicle (or any part of) acquisition cost, fuel cost, etc.;

## 3.0 SCOPE OF CONSULTING SERVICES

**Candidate Road Alignment.** Information on the proposed Nassiping-Dummun Diversion Road is presented in Table 1. For purposes of general orientation, Figure 1 shows indicative site. The site, intersections, and at-grade roads should serve as the bases for a comparative alignment study.

Table 1: Proposed Nassiping-Dummun Diversion Road

| Name of Project                 | Estimated Length (Km) |
|---------------------------------|-----------------------|
| Nassiping-Dummun Diversion Road | 10.84                 |
| <b>Total</b>                    | <b>10.84</b>          |

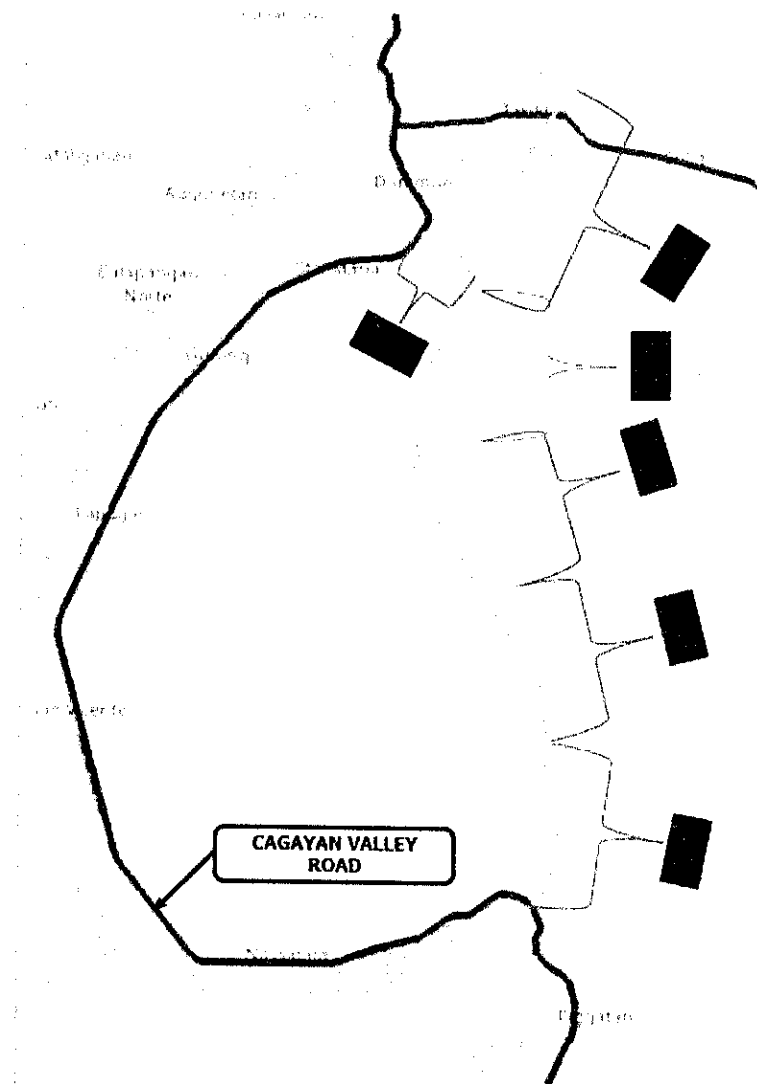


Figure 1. Indicative Site of Proposed Road

The scope of consulting services shall involve data gathering, surveys and investigation with preliminary environmental impact assessment and road strip planning which is the subject of this Terms Of Reference.

The Consultant's scope of work will cover but not necessarily limited to the items listed hereunder.

The Consultant shall conduct:

### **Traffic Survey**

- 3.6 Conduct 12-hour manual classified volume count on the midblock sections and intersections as identified in **Annex A** for two (2) days – one (1) during midweek and one (1) during weekend from 6:00 AM to 6:00 PM (survey form template is provided in **Annex B-1**);
- 3.7 Collect and review previous traffic data on road sections within the study area from the Department of Public Works and Highways Traffic Database and/or other credible sources, and develop traffic daily factors and seasonal factors. The Consultant shall utilize the obtained adjustment factors together with the results of the required surveys in section 3.6 to determine the Annual Average Daily Traffic on major and abutting road sections relevant to the project;
- 3.8 Characterize the future supply of transport facilities in the study area in order to establish the links among the available modes such as mass transit systems, etc.;
- 3.9 Identify major traffic generating sources and subdivide the study area into 'zones' based on the existing land use and future land use and other data in the documents prescribed in section 3.1. The zoning shall conform but not necessarily limited to the existing codes of Department of Interior and Local Government (DILG);
- 3.10 Conduct License Plate (LP) Survey as identified in Annex A for two (2) days – one (1) during midweek and one (1) during weekend from 6:00 AM to 6:00 PM and establish trip patterns based on vehicle type, etc. The Consultant must provide details of the results of the LP Survey in the report together with a concise description of vehicular movement based on the established zones as in item 3.9 which includes but not limited to: (i) relationship between the generation and attraction of traffic and socio-economic indicators by the established zones; (ii) the competitive and complimentary characteristics in relation to the existing and proposed modes of transport such as rail and air transport routes; and (iii) traffic assignment of volume in the network considering the current and future layout of the network;
- 3.11 Conduct travel time survey simultaneously with the Manual Counts and License Plate Survey, during peak and non-peak hours at significant segments in the study area and determine the average travel time required using the existing routes or current road network configuration. The summary of information shall adopt but not necessarily be limited to the minimum information set in **Annex B-3**;

- 3.12 Use any available traffic forecasting/ network analysis models such as the JICA – STRADA, VISSIM, TRANSPORT, CUBE or its equivalent if necessary, in the traffic demand forecasting and network analysis. The Consultant shall prepare the necessary data inputs and comprehensively provide all the information required to run the model and clearly illustrate the output needed to evaluate the project. The Consultant shall provide a detailed form showing all the inputs and assumptions used in the model;
- 3.13 Based on the selected model, compare implementation alternatives and illustrate the resulting volume accumulation and other technical indicators such as vehicle-kilometers, vehicle-hours, congestion level, and transport cost which will serve as basis for the subsequent economic comparison and evaluation;

#### **4.0 EXPECTED MAJOR OUTPUTS OF THE CONSULTING SERVICE**

The following reports shall be well presented in English language, compiled and submitted to Planning and Design Section, Department of Public Works and Highways Cagayan First District Engineering Office:

- 4.1 **INCEPTION REPORT** shall contain the detailed work program for the undertaking, methodologies and schedule of activities proposed to meet the requirements set in this Terms of Reference. A total of six (3) copies of the report shall be submitted to the implementing office one (1) week after the commencement of the consulting service.
- 4.2 Reports in appropriate electronic file format (i.e. Microsoft Office, PDF, AutoCAD, transport/ traffic modelling method input and output files, etc.) of the draft and final report containing inceptions of all reports, technical assessments, drawing, key data, etc., systematically organized in traceable and auditable formats shall be prepared in DVD and/or CD disk.

#### **5.0 STUDY SCHEDULE**

The undertaking shall be carried out for a period of 22 days, commencing from the date of receipt of the Notice to Proceed (NTP) which shall exclude the review process of the Implementing Office on the reports submitted.

## **6.0 HUMAN RESOURCE/ STAFF AND OTHER REQUIREMENTS**

The Consultants shall be composed of qualified staff with experience in data gathering for infrastructure feasibility studies including preliminary design, traffic, social, and environmental impact assessment. The Consultant shall provide the following key staff with the corresponding job description and required qualifications:

Table 2. Key Personnel Required for the Project

| <b>Key Personnel</b> | <b>Job Description</b>  | <b>Person-Months</b> | <b>Required Expertise</b>   |
|----------------------|---|----------------------|---|
| Traffic Engineer     | Responsible for traffic analysis, traffic forecasting, traffic growth analysis, transport route planning, intermodal transport analysis with roads, ports & railways. | 0.75                 | Registered/Licensed Civil Engineer, or equivalent, with specialization in transportation planning/engineering. He/she must have extensive experience with traffic planning, traffic growth analysis and modeling, and optimal route planning. He/she must be equipped with traffic/transport modeling software. |

## **7.0 CONSULTANT'S PROJECT DATA**

### *Turn-over of Project Data to DPWH*

Electronic files containing basic as well as processed data from field surveys and investigations, reports, appendices, annexes, documents and drawings, financial and economic models, related data/information used by the Consultant for these services shall be turned over to DPWH in traceable format, e.g., MS Excel, Strada file, Vissim file, HDM-4 workspace, CAD, etc.

## **8.0 CONSULTANT'S COORDINATION WITH DPWH OFFICES, LGUs, OTHER AGENCIES, AND PRIVATE ENTITIES**

The Consultant shall coordinate with the appropriate DPWH Offices, LGUs, other agencies and private entities as may be necessary to achieve the consulting service objectives.

## **9.0 INSTITUTIONAL ARRANGEMENT**

### **9.1 Implementing Office (Cagayan 1<sup>st</sup> District Engineering Office)**

- 9.1.1 Disburse the fund for the conduct of the F/S once the contract is executed;
- 9.1.2 Implement and manage the contract, including ensuring the quality of output, the monitoring and evaluation of the progress of the study and approval of reports to ensure delivery of outputs as specified in this TOR;
- 9.1.3 Provide assistance in the coordination with other concerned agencies/entities in the conduct of the study, such as securing the required permits(s) from the Protected Area Management Board (PAMB) - Department of Environment and Natural Resources (DENR) for the conduct of activities and entry into the protected area, among others;
- 9.1.4 Provide reasonable technical assistance to personnel of the Consultant with respect to incidents related to the conduct of the study;
- 9.1.5 Provide, upon the request of the Consultant, available information/data and also if available, copies of previous related studies subject to the execution of the Confidentiality and Non-Disclosure Agreement (CNDA), if necessary.
- 9.1.6 Coordinate with the Project Preparation Division – Planning Service of the DPWH regarding all the activities relating to the conduct of the study, included but not limited to the implementation timelines, submission of deliverables, notice of meetings, etc. Should the need arise, consult with the PPD-PS in the implementation of the study.

### **9.2 Planning and Design Division, DPWH Regional Office II**

- 9.2.1 Provide technical assistance to the Implementing Office
- 9.2.2 Ensure quality of output as to the Department's standards on reports for uploading in the DPWH Website for public viewing.

### 9.3 Consultant

- 9.3.1 Conduct the study and deliver ON TIME the results/outputs as indicated in this TOR;
- 9.3.2 Carry out the services in accordance with the accepted theories and practices to ensure that the final works will provide the most economical and feasible development for the study;
- 9.3.3 Accept full responsibility for the consulting services to be performed under this TOR for which the Consultant is liable to DPWH;
- 9.3.4 Perform the work in an efficient and diligent manner and shall adhere to the agreed schedule and deliverables; and

## **10.0 OWNERSHIP OF THE OUTPUTS/REPORTS/DOCUMENTS**

All submitted outputs/reports/documents under this contract, including but not limited to tracings, as-built drawings, estimates, digital information, computer model and data, specifications, investigations and studies completed or partially completed, inspection logs, and photographs, and the use of these data for other purposes shall require written consent from the Department. Copyrights will be governed by existing laws, rules and regulations.

## **11.0 DPWH ACTIVITIES**

### *Supervising Office and Counterpart*

The DPWH Cagayan 1<sup>st</sup> District Engineering Office is the Supervising Office and will designate a counterpart for the services. A Technical Working Group (TWG) shall be created which will be chaired by the Regional Office.

### *Provision of Available Data*

The DPWH shall provide the Consultant with available documents and data on the Project such as reports on previous studies, base maps, inspection reports, traffic, and other relevant data/information.

### *Difference of Opinion*



In case of differences of opinion between the DPWH and the Consultant on any matter involving professional or technical judgment that might affect the design or proper evaluation of the projects, the DPWH shall allow the Consultant to promptly submit a written report on the subject. In urgent situations, the Consultant may request DPWH for an urgent discussion of the subject so as not to affect the quality or delay the schedule of Services under the Contract.

## **12.0 EQUIPMENTS/GADGETS/DEVICES**

### *Turn-over of Equipments/Gadgets/Devices to DPWH*

Equipments/Gadgets/Devices (except for rental) used by the Consultant for field survey, production of reports, and investigations shall be turned over to DPWH in good condition.

Prepared by:



**DELBERT T. PARAGAS**  
Engineer II

Checked and Submitted by:



**FELISA M. SALVADOR**  
Engineer III

**Terms of Reference**

Consulting Services for the Feasibility Study Of  
Nassiping-Dummun Diversion Road, Gattaran, Cagayan

Reviewed (BIDS & AWARDS COMMITTEE):



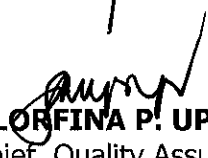
**ROGER O. CABACUNGAN**  
Chief, Maintenance Section  
BAC Member



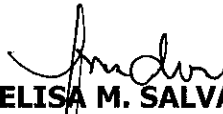
**ROMEO V. VICENTE**  
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BAC Member



**MARIO L. ALLAG**  
Officer-In-Charge  
Office of the Assistant District Engineer  
BAC Member



**FLORFINA P. UPANO**  
Chief, Quality Assurance Section  
BAC Member



**FELISA M. SALVADOR**  
Chief, Planning and Design Section  
BAC Chairman

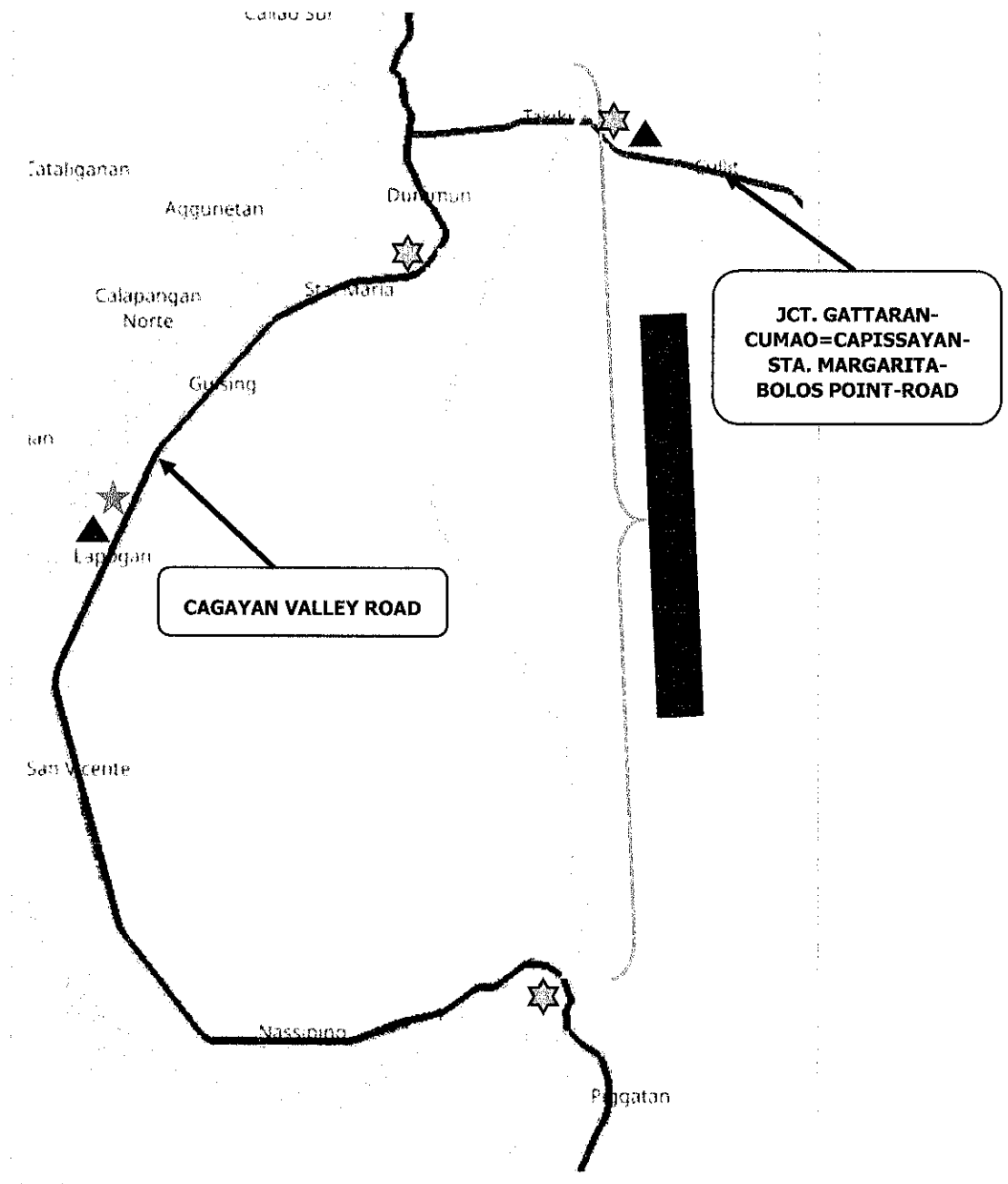


DEPARTMENT OF PUBLIC WORKS & HIGHWAYS

# **ANNEXES**

Consulting Services for the Feasibility Study of  
Proposed Nassiping-Dummun Diversion Road

**xAnnex A:** Locations of traffic survey locations for the Consulting Services for the Feasibility Study of Proposed Nassiping-Dummun Diversion Road, Gattaran, Cagayan



**LEGEND:**

- ▲ MANUAL CLASSIFIED VOLUME COUNT
- ★ TRAVEL TIME SURVEY
- ✳ LICENSE PLATE SURVEY

## Annex B1: Traffic Survey Data Sheet/Form












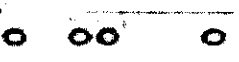

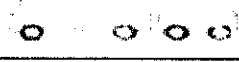
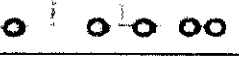
### DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS

PLANNING SERVICE  
 PROJECT PREPARATION DIVISION


#### MANUAL CLASSIFIED TRAFFIC COUNT

(Single Direction and Lane Count Form)

RPD-17-002

| SITE ID   |                       | REGION           |       | DISTRICT |  | WETTER |  |
|---|-----------------------|------------------|-------|----------|--|--------|--|
| ROAD SECTION ID   |                       | ROAD NAME        |       |          |  |        |  |
| KM STATIONS   |                       | SITE DESCRIPTION |       |          |  |        |  |
| DIRECTION   |                       |                  |       |          |  |        |  |
| DAY OF THE WEEK   | DATE (MM / DD / YYYY) | WEATHER          | TIME  |          |  |        |  |
|   |                       |                  | START | END      |  |        |  |
| 1A. MOTOCYCLE - TRICYCLE<br>             |                       |                  |       |          |  |        |  |
| 2B. MOTORCYCLE<br>                       |                       |                  |       |          |  |        |  |
| 3. PASSENGER CAR<br>                     |                       |                  |       |          |  |        |  |
| 3. PASSENGER UTILITY<br>                |                       |                  |       |          |  |        |  |
| 4. GOODS UTILITY<br>                   |                       |                  |       |          |  |        |  |
| 5. SMALL BUS<br>                       |                       |                  |       |          |  |        |  |
| 6. LARGE BUS<br>                       |                       |                  |       |          |  |        |  |
| 7. RIGID TRUCK (2 AXLES)<br>           |                       |                  |       |          |  |        |  |
| 8. RIGID TRUCK (3+ AXLES)<br>          |                       |                  |       |          |  |        |  |
| 9. SEMI-TRAILER TRUCK (3/4 AXLES)<br>  |                       |                  |       |          |  |        |  |
| 10. SEMI-TRAILER TRUCKS (5+ AXLES)<br> |                       |                  |       |          |  |        |  |
| 11. TRAILER TRUCKS (4 AXLES)<br>       |                       |                  |       |          |  |        |  |
| 12. TRAILER TRUCKS (5+ AXLES)<br>      |                       |                  |       |          |  |        |  |

## Annex B2: Traffic Survey Data Sheet/Form



**DEPARTMENT OF PUBLIC WORKS AND HIGHWAYS**  
PLANNING SERVICE  
PROJECT PREPARATION DIVISION

FIG. B2-004

**O/D TRAFFIC SURVEY SHEET**

FIG. B2-004

| STATION NAME              |                           | PROJECT                     |                             | LOCATION (Road, Municipality, Region) |                             | SKETCH                      |                             |
|---------------------------|---------------------------|-----------------------------|-----------------------------|---------------------------------------|-----------------------------|-----------------------------|-----------------------------|
| DIRECTION                 |                           | TIME                        |                             | DATE                                  |                             | INTERVIEWER                 |                             |
| FROM                      | TO                        | FROM                        | TO                          |                                       |                             |                             |                             |
| VEHICLE TYPE              |                           |                             |                             |                                       |                             |                             |                             |
| 1. Motor Vehicle          | 2. Passenger Car          | 3. Passenger Utility        | 4. Goods Utility            | 5. Small Buses (1-3 seats)            | 6. Large Buses (>10 seats)  | 7. Heavy Truck (3 axles)    | 8. Road Truck (2 axles)     |
| 9. Medium Truck (2 axles) | 10. Heavy Truck (3 axles) | 11. Light Truck (1-3 seats) | 12. Light Truck (1-3 seats) | 13. Light Truck (1-3 seats)           | 14. Light Truck (1-3 seats) | 15. Light Truck (1-3 seats) | 16. Light Truck (1-3 seats) |
| TRIP PURPOSE              |                           |                             |                             |                                       |                             |                             |                             |
| 1. Work                   | 2. School                 | 3. Business                 | 4. Private Matter           | 5. Leisure                            | 6. Other                    | CODE                        |                             |
| RECORD NO.                |                           |                             |                             |                                       |                             |                             |                             |

SPR 44-3418

[illegible]

- 1 - Public Utility Vehicle Loading/Unloading
- 2 - Missed Red Signal at Intersection
- 3 - Pedestrian Crossing
- 4 - Motorpooling activities such as parking, left turning or opposite turn
- 5 - Blocked by other vehicles such as heavily traffic signal
- 6 - Road Lane closed or Road closure
- 7 - Others (specify):

## **Annex C: Equipments/Devices**

### **1. 1 UNIT LAPTOP**

- **Specifications:**

Processor: AMD Ryzen 9 8945HS

Graphics: 8GB DDR6 NVIDIA GeForce RTX 4070

Memory: 32 GB LPDDR5X 6400

Storage: 1 TB 4.0 NVMe M.2 SSD

Display: 3K (2880 x 1800) OLED 16:10 aspect ratio

OS: Windows 11 Professional

Microsoft Professional Plus