



# Market Sounding

Rehabilitation / Reconstruction / Improvement, Operation and Maintenance of Kennon Road Project as a PPP

November 2021



# Disclaimer

This Market Sounding is organized by the Department of Public Works and Highways (PPP Service) (hereafter DPWH) and Public-Private Partnership Center of the Philippines (hereafter PPPC), assisted by the Rebel/Systra/PJS Law advisory team, in relation with the ongoing preparation phase for the prospective procurement of a contract for the *Rehabilitation, Reconstruction, Improvement, Operations & Maintenance* (RRIOM) of the Kennon Road in Benguet, a 33km road connecting Baguio and Rosario (La Union). The Market Sounding is performed purely on a voluntary basis to collect feedback and suggestions from private parties (the Industry). Participants in the Market Sounding acknowledge the following:

- The Market Sounding is not part of a formal procurement process. A response to this request is not mandatory for future participation in the upcoming procurement for the Project. Participants also acknowledge that the participation in the Market Sounding does not constitute a guarantee to be prequalified in the prospective procurement nor does it create an obligation for DPWH or PPPC to do so.
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# Content

- Presentation of the RRIOM of Kennon Road
- Technical and Physical characteristics
- Status of Project preparation and next step
- Q&A and comments from Participant



# Objectives of the Market Sounding exercise

In carrying out a Market Sounding, DPWH and PPPC aim at

- Presenting the project to qualified contractors, operators and investors (the Industry) and discuss project features
- Gathering feedback and suggestions from the Industry on technical considerations, contract structuring elements and experience in PPP in Road sector;
- Grading the prospective market interest in initiating a PPP-based procurement.





1.

## **RRIOM of Kennon Road (Solicited PPP Project)**



# RRIOM of Kennon Road

## Brief description of project

- ▶ **Major access road to Benguet Province**
- ▶ **Existing length = 33.7 km**
- ▶ **Project scope = Approximately 30 km** (from Rosario, La Union to Loakan Junction, Baguio)
- ▶ **Shorter alternative to Marcos Highway**
- ▶ **Also serves local communities in Rosario, Pugo, Tuba and Baguio City**
- ▶ **Status of Primary National Road**
- ▶ **Frequently exposed to**
  - ▶ Frequent road closures
  - ▶ Rock slope disasters
  - ▶ Erosion
  - ▶ Flash floods



## Key Objectives of the Project

- Prevent and mitigate slope disasters and maintain the quality and structural integrity of the road to minimize if not totally prevent road closures
- Improve travel time and availability of a reliable alternate road to Baguio City
- Contribute to the growth of business activities in the area



# Main Issues / Challenges

- ▶ Kennon Road's major risk element is its exposure to heavy rainfalls, causing regular damage, safety hazards and road closure
- ▶ About 98% of Kennon Road passes along the valley of Bued River. It intersects several water tributaries which can cause flash floods, siltation and debris flows
- ▶ Road slope disasters such as soil collapse, rock fall, road slip, landslide and river erosion have been regularly occurring. Since 2013-14, Kennon Road has recorded
  - ▶ *31 road closures due to slope disasters brought about by typhoons;*
  - ▶ *16 fatalities were recorded from vehicular accidents (DPWH)*



Damaged vehicle due to landslide triggered by heavy rain in 2015



Example of land slide along Kennon Road



# Critical Role of Kennon Road

Key access to Baguio

- Kennon Road offers the shortest and fastest route going to Baguio City and offers motorists a stunning view of the mountains and its flora and fauna.
- As an alternative to Marcos Highway, it helps alleviate traffic congestion in the area
- It provides increased business opportunities for local goods and services.
- The road contributes to the tourism and other local industries in the area by providing a reliable logistical road network



# Long Term Solutions being Developed

- ▶ **Since 2010, DPWH spent Php 3.2 Billion in maintaining Kennon Road**
- ▶ **Long term structural solution shall be put forward from the RRIOM Project**
- ▶ **Scope shall include**
  - ▶ Improvement of the road / realignment (if required)
  - ▶ Widening (wherever possible) / provision of shoulder
  - ▶ Tunnel and/or viaduct construction
  - ▶ Slope protection measures / engineering interventions at disaster prone sites
  - ▶ Replacement / strengthening of bridges
  - ▶ Establishment of toll system

## Expected Benefits of the Project



**Reduced travel time**



**Better, safer experience for motorists**



**All-weather reliability**



**Boost to tourism & business**

# Why Considering PPP?

Capitalising on private sector's creative solutions and financing capabilities

- DPWH seeks maximum integration of design, construction and O&M, by tapping the private sector's capabilities to design and implement concrete measures to convert the road into an "all- weather" road
- Look for innovative technical solutions to tackle road hazards, drastically reduce accidents and repeated road closure
- Leverage on private sector financing resources
- Implement modern tolling solutions
- Propose commercial initiatives and activities along Kennon Road that would boost its touristic aspect and provide additional revenues to support the operation and maintenance of the highway.



# 2.

## Technical and Physical Characteristics





# General Alignment of Kennon Road



## Barangays traversed by Kennon Road

Region	Province	City/ Municipality	Barangays Covered
Ilocos Region	La Union	Rosario	Camp 1, Bangar
Ilocos Region/CAR Boundary	La Union-Benguet Boundary	Pugo	Saytan
CAR	Benguet	Tuba	Tabaan Sur, Camp 1
			Twin Peaks
			Camp 3
			Camp 4
		Tuba-Baguio Boundary	Camp 7
		Baguio	Loakan Proper
			Poliwes, Camp 8, Military Cut-off, San Vicente

## Total :

Region	Province	City/ Municipality	Barangays Covered
2	2	4	14



# RRIOM Project Description

- ▶ **Long-term solutions** for the reconstruction, rehabilitation, and improvement of Kennon Road
- ▶ **Construction** in areas with dangerous curves and high-risk disaster spots\*
  - ▶ 8 tunnels (1km in total)
  - ▶ 9 viaduct (1km in total, height to be defined)
- ▶ **Reconstruction of existing bridges** to conform with latest standards and design flood level
- ▶ **Installation of slope protection measures** to minimize and/or eliminate geohazards e.g., rockslides and rockfalls along Kennon Road
- ▶ **Improvement of existing pavement** (concrete reblocking, asphalt overlay, etc.)
- ▶ **Controlled blasting / slope trimming**
- ▶ **Improvement of drainage system**

## Geometric Design Standards

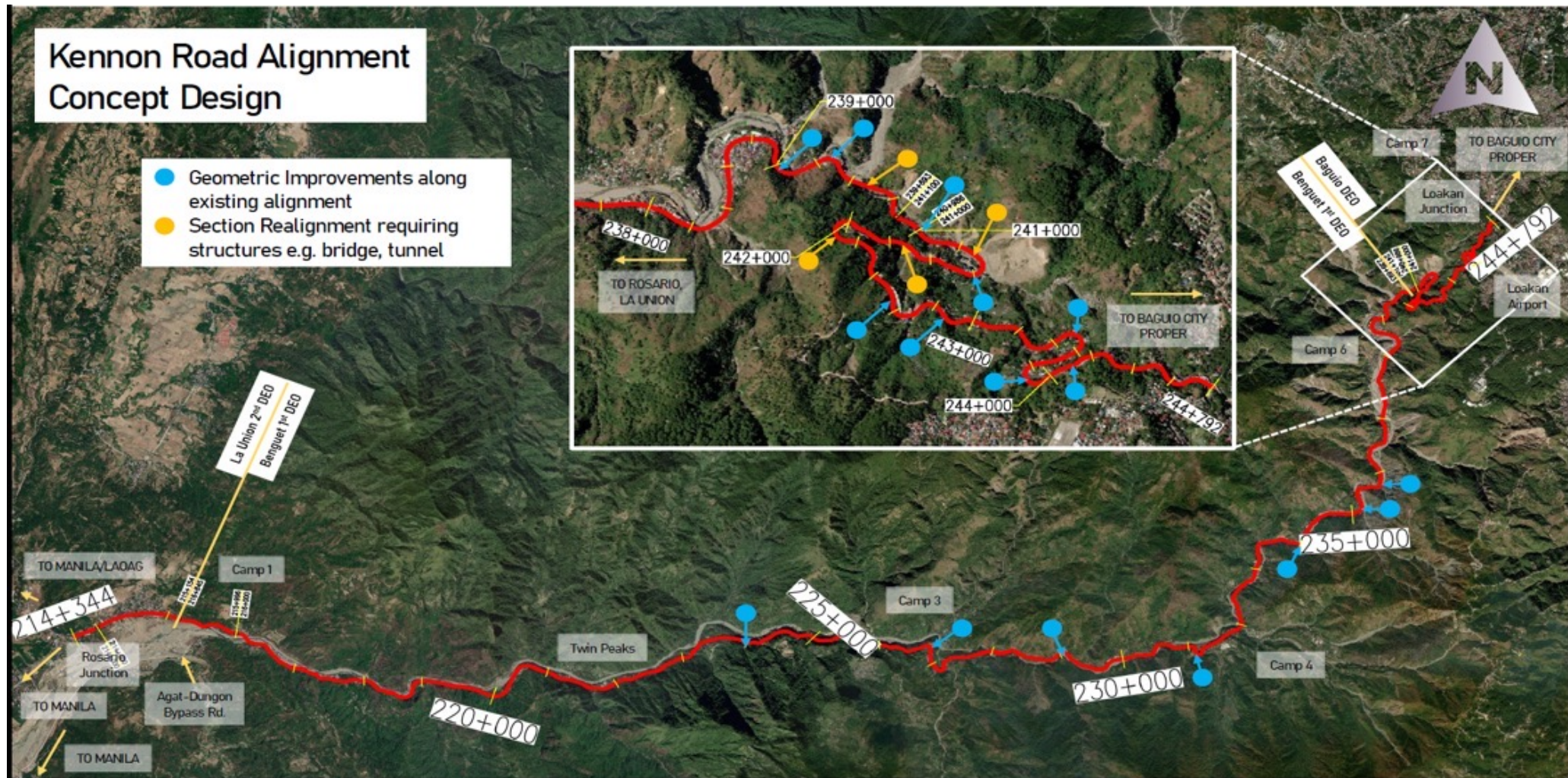
Elements	Characteristics
<b>Design Speed</b>	Up to 50kph (current condition is about 35kph)
<b>No. of Lanes</b>	2
<b>Lane Width</b>	3.50m
<b>Outer Shoulder Strip</b>	1.50m (currently no shoulder available)
<b>Maximum Super Elevation</b>	6%
<b>Minimum Radii</b>	79m (existing horizontal curves consist of <79m)
<b>Maximum Grade</b>	7% (existing vertical curves consist of >7%)
<b>Minimum Vertical Curve Length</b>	60m
<b>Vertical Clearance</b>	5.21m

\* these is only concept design and not intended to be prescriptive





# RRIOM Project Description

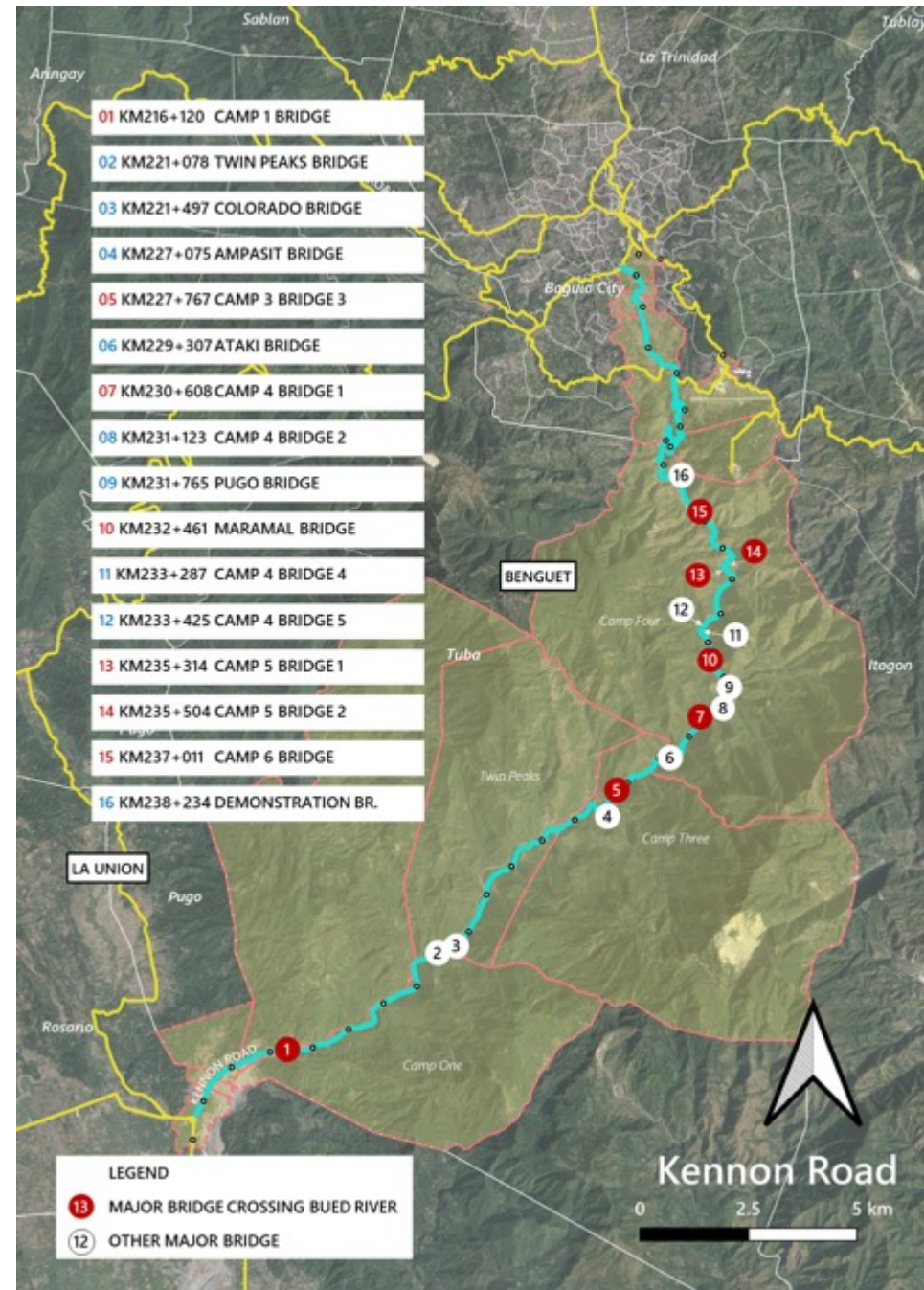




# RRIOM Project Description

## Bridge Inventory

Name of Bridge	Year Constructed	Type	Note
Camp 1 Bridge	1968	RCDG steel truss	last repair 2018
Twin Peaks Bridge	1973	concrete	
Colorado Bridge	1968	no information	last repair 2016
Ampasit Bridge	1968	concrete arch	
Camp 3 Bridge 2	1968	RCDG steel truss	last retrofit 2017
Ataki Bridge	1968	steel I-beam	
Camp 4 Bridge 1	1968	steel truss	
Camp 4 Bridge 2	1999	RCDG	last repair 2018
Pugo Bridge	1950	RCDG steel I-beam	last repair 2020
Maramal Bridge	1968	steel truss	
Camp 4 Bridge 4	1973	RCDG	
Camp 4 Bridge 5	1968	no information	
Camp 5 Bridge 1	1973	steel truss	
Camp 5 Bridge 2	1973	steel I-beam	
Camp 6 Bridge	1968	RCDG steel I-beam	last repair 2021
Demonstration Bridge	Ongoing replacement	RCDG	





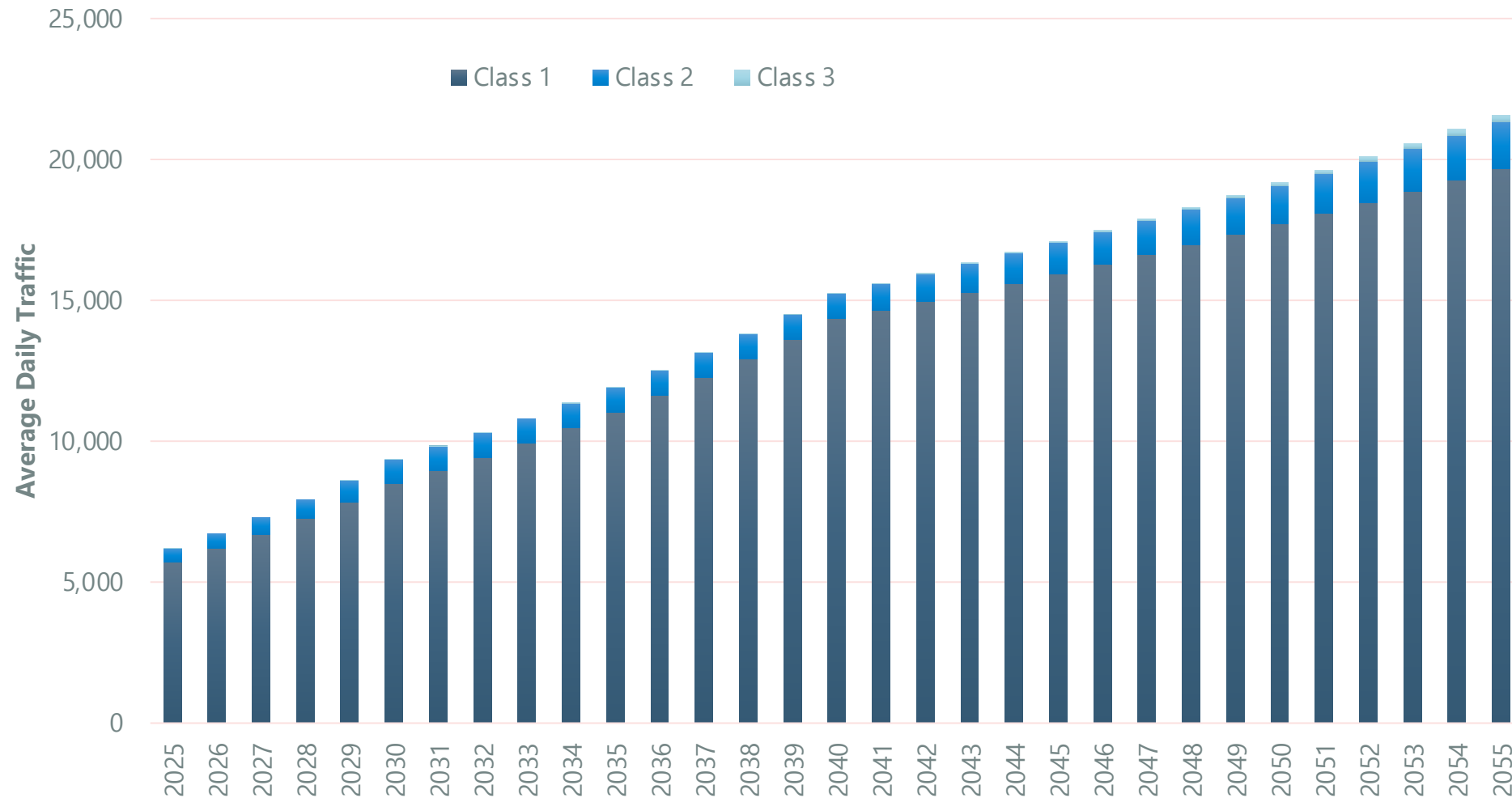
# RRIOM Project Description

## *Slope Protection Measures*

- a) Slope trimming through controlled blasting with pre-splitting and benching
- b) Rock slope scaling
- c) Reinforced shotcrete with rock bolts & weep holes
- d) Rock anchor
- e) RC catchwall with rockfall barrier nets
- f) Rockfall mesh with bolts or dowels
- g) Rockfall catchment area with or without a catch wall
- h) Tied-back retaining structure
- i) Rockshed
- j) Tunnel



# Projected Demand



*Note: Assumes the road co-exist with Marcos Highway*



# Indicative Capital Expenditures

- The estimated investment costs for the project is **Php 11 Billion**
- This already considers all bridge reconstruction requirement as well as new viaducts and tunnels
- A sizable part of the cost is dedicated to two major items:
  - slope protection measures that will mitigate geohazards (i.e., rockfall and rockslides)
  - new elevated road structures in the final portion near Baguio
- Construction Period = approximately **4 years**



# Consideration for Tolling

- An open-toll system will be used where motorists pay the following estimated flat toll rate of **Php 200.00**. This is based on an optimum toll rate derived from the willingness to pay surveys and traffic modelling.
- The legal/regulatory analysis is looking into the possibilities for local residents vs. transit users travelling to Baguio

## *Vehicle Class and Toll Rate Multiplier*

Vehicle Class	Toll Rate Multiplier
<b>Class I:</b> Light Vehicles – Car, Jeep, Passenger Van/Pick-up, Taxi, UV Express, Mini-bus	1.0x
<b>Class II:</b> Medium Weight Vehicles – Bus, Goods Van/Pick-up, 2-axle truck, Dump truck, Tanker, Mixer	2.0x
<b>Class III:</b> Heavy Vehicles – Rigid Truck with two or more Axles, Trailer (Articulated)	3.0x





# 3.

## Status of Project preparation and next step



# Preparation Phase for Planned Procurement

RRIOM is procured with support of the PDMF of NEDA

- The Project Preparation and Transaction Advisory for the RRIOM is undertaken through the PPP Center's PDMF Fund with DPWH as the Implementing Agency
- Under the PDMF, PPC has appointed a Transaction Adviser team to perform in the Preparation Phase and, subject to NEDA-ICC approval, assist in the competitive procurement process. This includes:
  - **Rebel** (Rotterdam, Netherlands) > Lead transaction adviser and financial / contracting specialists;
  - **Systra Philippines** (Manila) > traffic and engineering studies and CBA;
  - **PJS Law** (Manila) > Legal and procurement advisers.
- Technical Studies have started in Feb/Mar 2021.
- In parallel, Social Safeguards studies (EIA, LARAP, Social and Gender Plan, Communication Plan) are carried by Rebel, in coordination with LGUs in Benguet and La Union, with support of DPWH-CAR office



# Status of Preparation Phase

## Activities performed during the Feasibility Stage

- The Preparation Phase is getting to completion, where the following have been executed:
  - Traffic surveys were carried out in Feb/March 2021 (5 locations)
  - all engineering surveys to define the preferred option and prepare costing
  - Value Engineering workshop
  - 8 Focus Group Discussions and Public Scoping meeting with stakeholders, as input for Social & Gender studies
  - Land Acquisition and Resettlement Plan = under completion
  - Social Development Plan, Communication Plan and Free and Prior Informed Consent (FPIC) for indigenous people
  - Environmental Impact Assessment = currently finalising terrestrial surveys (and completed other surveys) leading to preparation of the Environmental assessment
  - Financial, Economic, Value for Money analysis and legal analysis = completion pending the finalisation of costing and technical assessment.



# Tentative Planning for Procurement

RRION is procured with support of the PDMF of NEDA

- Taking the assumption of NEDA-ICC approval being obtained by March 2022, following planning calendar is targeted

Item	Indicative Timing
NEDA Board Approval	March 2022
Instructions to Prospective Bidders	March or April 2022
Prequalification of bidders	May 2022
Issuance of Invitation to Bid	May 2022
Opening of Bids	September 2022
Evaluation of Bids completed Bid Process Report Contract Signing	October 2022
Recommendation for Award	November 2022
Contract Signing	December 2022



**4.**

## **Questions to Participants and Open Forum**



# Topics for Discussion

Participants can choose particular topic of interest for feedback

- What is your general view on this Project? Are you familiar with the safety issues and challenges impacting the Kennon Road's availability?
- What general measures or technical solutions have you encountered or would you favour to address some of the main geophysical issues on the Kennon Road?
- Do you agree with the proposed plan to introduce tolling (for non-residents)? If yes, what challenges or issues do you foresee in planning for introduction of Tolling
- Have you been involved in other toll road PPPs in the Philippines or South East Asia?
- Are you familiar with road projects structured as Availability or using Shadow tolling? Would these be interesting/relevant structures for the Kennon Road?



## Topics for Discussion [2]

Participants can choose particular topic of interest for feedback

- In general, do you agree that PPP procurement for this Project is appropriate? Can you elaborate on the reason?
- What are the perceived challenges for the implementation of such project?
- Risk allocation : what are typical risk categories (O&M, demand) private concessionaire can bear, considering the brownfield aspect of this project? Which risks would you expect to be typically with the Authority?
- What key commercial terms would you expect in a Project agreement of this nature to improve its bankability or attractiveness?
- Do you have a view on the possible sources of financing for this Project?
- What guarantees or Government undertaking would you expect to be secured prior to contract execution?





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