Circular No. 1960.5

NH-11014/52/2026-HA(CN.265454)
Government of India
Ministry of Road Transport & Highways
(Highway Administration Cell)
Transport Bhawan, 1, Parliament Street, New Delhi – 110001
***

Date: 25th May 2026

OFFICE MEMORANDUM

Subject: Standard Operating Procedure (SoP) for the Centralized Web-Based Street Light Monitoring System(CCMS) on National Highways reg.

The undersigned is directed to refer to this Ministry's Office Memorandum No. NH-11014/52/2026-HA dated 06.03.2026 and National Highways Authority of India letter No. NHAI/Misc/Access Permission/2026/13 dated 23.02.2026 regarding installation of Smart Street Lighting Systems on National Highways.

2. In continuation of the above, an Standard Operating Procedure (SoP) has been prepared for the Centralized Web-Based Street Light Monitoring System & Portal (CCMS) and the same has been approved by the competent authority for circulation to all implementing agencies of the Ministry, viz., State PWDs, NHAI and NHIDCL.

3. Accordingly, all Regional Officers of the Ministry, Executive Directors of NHIDCL, and Regional Officers of NHAI are directed to ensure implementation of, and compliance with, the enclosed SoP in their respective jurisdictions for all **existing, under-implementation as well as new National Highway works**.

4. This issues with the approval of the Competent Authority.

Ganesh Bapu Shelar
Digitally signed by Ganesh Bapu Shelar
Date: 2026.05.25 13:29:31 +05'30'

Enclosure: SoP as above.

Ganesh B. Shelar
Executive Engineer (NFSG)

To,
1. All Regional Officers , MoRTH
2. All Executive Directors, NHIDCL
3. All Regional Officers / Project Directors, NHAI

Copy to:
1. The Director General (RD) & SS, MoRTH
2. The Chairman, NHAI, New Delhi – 110 075
3. The Managing Director, NHIDCL, New Delhi – 110 029
4. All ADGs/CEs in the Ministry of Road Transport & Highways
5. The Secretary General, Indian Roads Congress
6. NIC – for uploading on Ministry's website under "Comprehensive Compendium Circular"
7. Technical circular file of S&R (P&B) Section

Copy to: For Kind Information:
1. PSO to Secretary (RT&H)
2. Sr. PPS/PPS to AS&FA / Addl. Secretary (Road Safety)
3. Sr. PPS/PPS to JS(Highway) / PPS to CE(S&R) / PS to SE(Highway)

Government of India

Ministry of Road Transport & Highways

STANDARD OPERATING PROCEDURE (SOP)
Centralized Web-Based Street Light Monitoring Portal (CCMS)

Applicable to: Highway Stretches under MoRTH / NHAI/ NHIDCL

Escalation Matrix:

Level-I Service Provider (Agency)
Email: infoaselectricals@gmail.com
(M) 9650091122 & 7042014182 (Parveen Sharma)

Level -II ITFMS, NHAI HQ
Email- itteamleader@nhai.org
Ext. 1212 & 1028 (M) 9953008277, 9871917200

Level-III- GM IT, NHAI HQ
Email:- pramod@nhai.org
Ext. 1270 & 1500 (PA), (M)9810874066

Document Version: 1.0
Date: May -2026

TABLE OF CONTENTS

1. INTRODUCTION

This Standard Operating Procedure (SOP) defines the operational framework for implementation, integration, monitoring, and maintenance of the Centralized Web-Based Street Light Monitoring Portal (CCMS) for highway stretches under MoRTH, NHAI and NHIDCL.

2. BACKGROUND OF THE WORK

In compliance with the directions issued during the Senior Officers' Meetings (SOM) held at MoRTH, a unified and centralized portal for monitoring street lighting systems across National Highways has been developed.The Centralized Cloud-Based/Web-Based Street Light Monitoring Portal (CCMS) has been successfully implemented with approval of the Competent Authority. The system enables real-time monitoring, control, and analytics of feeder pillars installed across MoRTH, NHAI and NHIDCL highway stretches.

Two pilot implementations have been successfully completed:

- NHAI RO – UP East (Varanasi)
- MoRTH RO – Hyderabad

3. OBJECTIVES

- Ensure real-time monitoring of street light performance
- Monitor energy consumption and electrical parameters
- Enable automatic ON/OFF scheduling
- Improve operational efficiency
- Reduce downtime through early fault detection
- Provide centralized dashboard visibility
- Enable structured reporting and analytics

4. PURPOSE OF CCMS PORTAL

the Centralized Web-Based Street Light Monitoring Portal (CCMS) is established to provide a unified and technology-driven platform for real-time monitoring, control, and management of street lighting systems across all project locations. The portal enables centralized visibility of operational status, energy consumption, fault alerts, and performance parameters through secure data transmission and API integration. It supports data analytics, reporting, SLA monitoring, and energy savings verification, thereby enhancing operational efficiency, transparency, accountability, and informed decision-making among all stakeholders. i.e.

- Centralized Monitoring
- Real-Time Data Visibility
- Improved Operational Efficiency
- Energy Monitoring and Savings Verification
- Transparency and Accountability
- Data Analytics and Reporting
- Integration Capability

5. SCOPE OF WORK

This SOP applies to:

5.1 Software & Platform

- Cloud-hosted/web-based CCMS portal.
- Role-based secure login for MoRTH, NHAI, NHIDCL, RO, and PIU users.
- Centralized dashboards and reporting modules.
- 1-minute interval data logging.

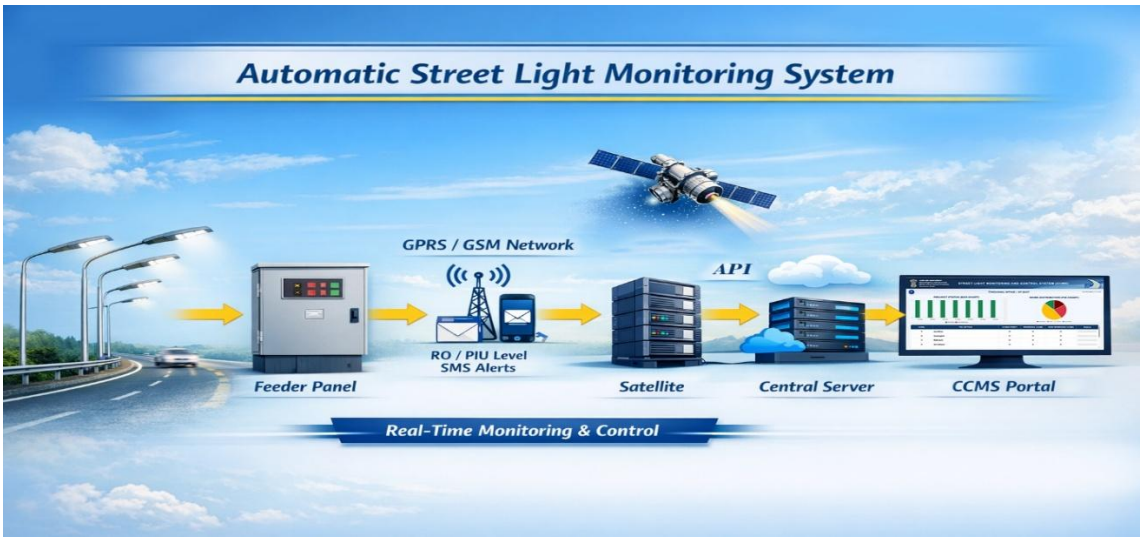
5.2 Integration & Connectivity

- Integration with FIU (Feeder Intelligence Unit) and Power Monitor (PM).
- RS-485 communication between FIU and PM.
- GPRS/GSM-based communication for live reporting.
- API-based integration with Central Control Station at CCMS.

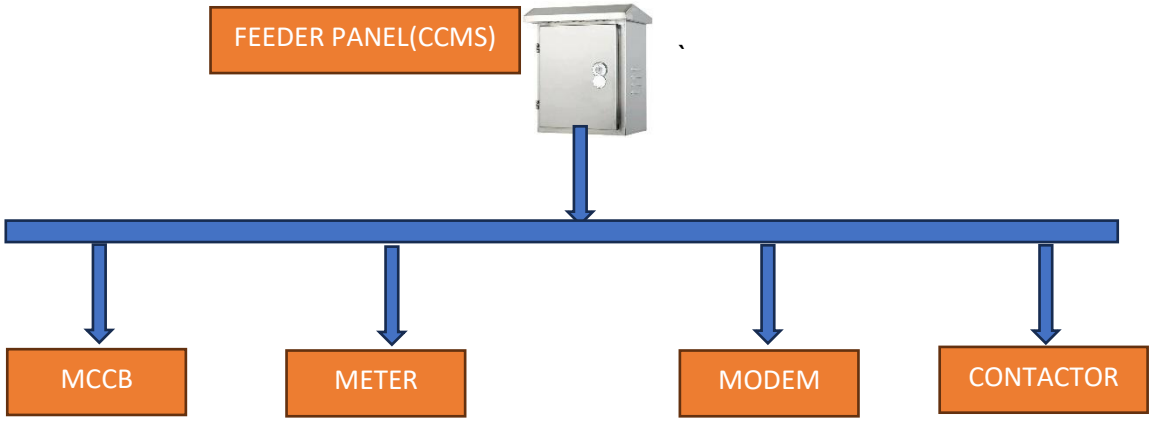
5.3 Functional Capabilities

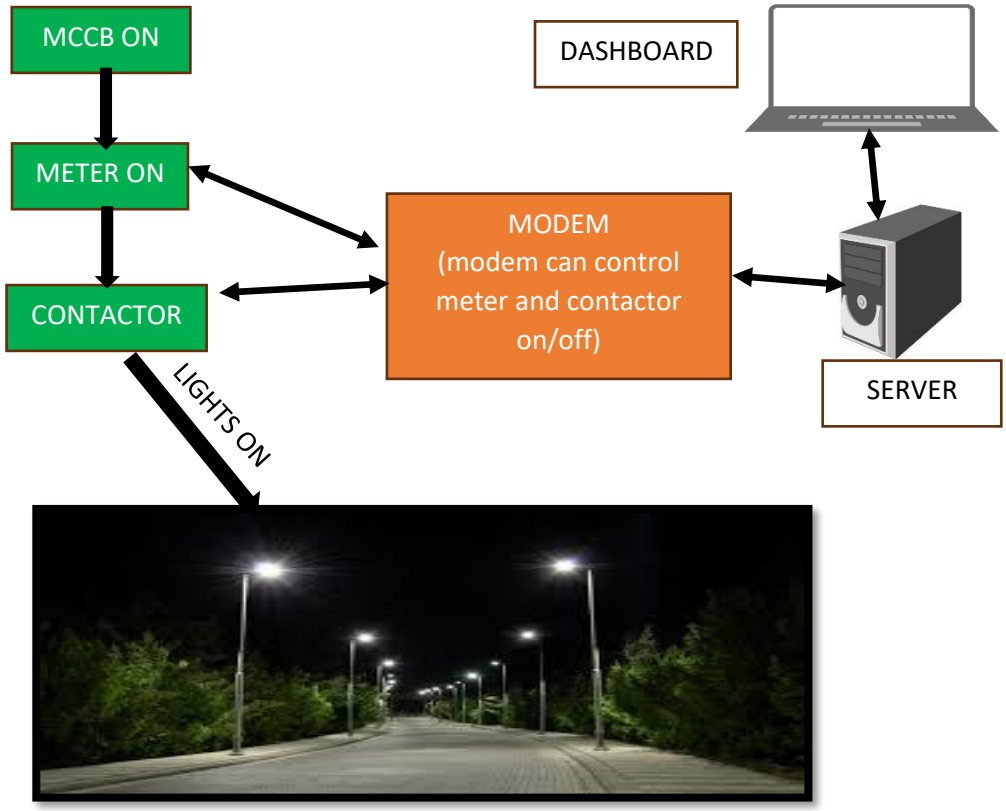
- Live monitoring of working/non-working status.
- Monitoring of voltage, current, power factor, load parameters.
- Monitoring of energy consumption (kWh).
- Automatic ON/OFF scheduling.
- Fault detection and alert generation.
- Performance analytics and burn-hour tracking.

5.4 SYSTEM ARCHITECTURE OVERVIEW



6. FLOW CHART OF STREET LIGHT MONITORING AND CONTROL SYSTEM





- As soon as the MCCB was switched on, power came into the METER, the CONTACTOR switched on and as soon as the CONTACTOR switched on, it sent power to the light pole and the lights started glowing. (For More details refer page 5, point 7)
- The modem will be connected to both the meter and the contractor.
- As soon as the lights are switched on, the meter will start calculating the load and the modem will collect the data from the meter.

- The SIM is installed in the modem, as soon as the data is collected, it will keep sending it to the server through the net and data can be seen on the dashboard.

7. Details of devices that may be integrated/used in CCMS (Optional)

7.1 MCCB: Use Molded Case Circuit Breaker (MCCB) device designed for high-current applications to protect against overloads and short circuits.

7.2 Smart Energy Meter

- DIN rail mounting for easy installation
- High accuracy with Class 1.0/0.5 precision
- Self-powered operation in three-phase systems, eliminating the need for auxiliary power.
- Integrated Functionality

7.3 Functionalities:

- Built-in disconnection circuit with configurable protections.
- Guards against voltage variations, single phasing, phase reversal and current issues like current unbalances.
- Enables load control via communication for optimized use apart from set threshold.
- Offers dynamic communication interfaces: RS485 Modbus RTU or Wi-Fi, MQTT.
- User-selectable reset and retain modes for safe or alarming connections.
- Avoids equipment damage with overload protection.
- Programmable levels display load efficiency and status.
- Monitors individual phase energy consumption for maintenance indication.
- Dynamic communication with configurable addresses.
- Alphanumeric LCD display with LED indicators.
- Displays disconnection reasons and trip details.
- Monitor V, A, F, W, VA, PF, Wh, VAh, Load Hrs. and ON Hrs.
- Offers high Accuracy Class 0.5/1.0.
- Provides real-time information on basic, energy and power parameters. Offers energy tracking via LED pulses as well.
- Supports remote monitoring and control for an easy on-the-go load management.
- 5 slots of scheduling possible, avoid time switch.

7.4 Technical Specifications (it's for suggestion and optional only):

Accuracy	Class 1.0 as per IEC 62053-21 (Class 0.5: IEC 62053-22 - Optional)
Update Rate	1sec
Power System Type	Star (3Phase 4 wire) or 4 wire
Sensing / Measurements	True RMS, 1 Sec update time. 4 Quadrant Power & Energy
Voltage Inputs	4 Voltage inputs (V1, V2, V3, VN)
Rated Input Voltage	100–550 VLL AC
Burden	0.2VA Max. per phase
Frequency	45-65Hz

External fuse rating	2 A
Rated Current	100mA-80A
Permissible overload	120% Max
External fuse rating	200mA
Auxiliary supply	Self-powered
Power Consumption	< 5VA Max
Protection Class	3
Display Type	LCD, 1 Row 7-segment display
Display Dimension	68.4mm x 18mm x 2.85mm
Display Resolution	4 Digits (instantaneous), 7 Digits (integrated parameters)
Device ID & Parity	1 to 247 & Odd, Even, None Parity (Preferred Even)
Protocol & Interface	Modbus RTU & RS485 Baud rate: 4800 bps to 38.4kbps (Preferred 9600) Isolation: 2000 volts AC isolation for 1 minute between

7.5 Contactor:

- An electrical contactor is an electromechanical switch for controlling motors, lighting, and heating systems etc.
- 12 Volt DC operated Contactor.
- It uses a low-voltage electromagnetic coil to energize and close heavy-duty contacts, allowing for remote, safe operation.
- They differ from relays by handling much higher current loads.

7.6 SMPS

- 3phase power supply with 12Volt DC.

7.7 Modem

- It is an electronic device which is use to data transfer and collect the data from meter

7.8 Features

I. Digital Input Feedback:
Digital inputs shall provide real-time status monitoring of critical field parameters, including:

- Auto/Manual Mode: Indicates whether the system is operating automatically (based on schedule/logic) or manually controlled.
- Output MCCB ON/OFF: Displays the status of the Main Circuit Breaker supplying power to the lighting circuit.
- Trip Status: Indicates whether the MCCB or protective device has tripped due to overload, short circuit, or fault condition.
- Door Open/Close: Detects unauthorized or maintenance-related opening of the feeder panel door for security monitoring.
- Contactor ON/OFF: Confirms whether the contactor controlling the lighting circuit is energized or de-energized.

II. Digital Output:
Enables remote switching/control of street lighting circuits from the CCMS portal, allowing authorized users to turn lights ON/OFF or execute control commands centrally.

III. In-Built Real Time Clock (RTC):
Ensures accurate time-based scheduling of street lights and maintains proper time stamping of events and logs, even during communication failure.

IV. RS-485 Communication:
Provides reliable wired communication between energy meters, controllers, and other field devices using standard industrial communication protocol.

V. 4G Network Support:
Enables wireless data transmission from field devices to the CCMS portal through a secure cellular network for real-time monitoring and control.

VI. Control Meter for Communication:
Integrated energy meter measures electrical parameters such as voltage, current, power, and energy consumption and transmits data to the central portal.

VII. Dimming Feature:
Allows adjustment of light intensity as per predefined schedule or remote command to optimize energy consumption and improve efficiency.

VIII. Modem Operation through SMS (Optional):
Provides the capability to control or reset the modem through SMS-based commands in case of internet connectivity issues or emergency situations.

7.9 Data Format

API FLOW DIAGRAM

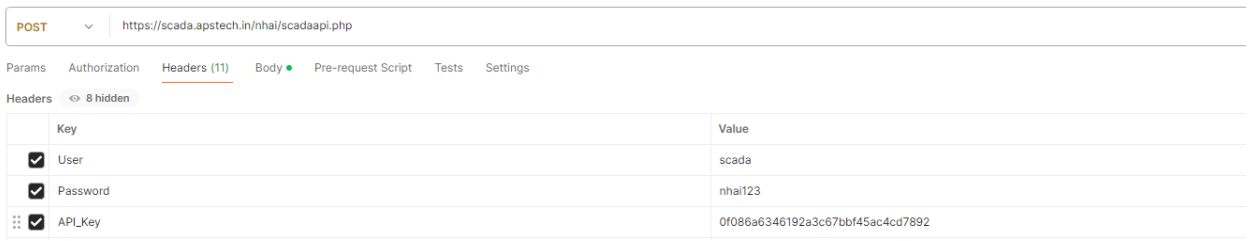
URL	**https://scada.apstech.in/nhai/scadaapi.php**

POST

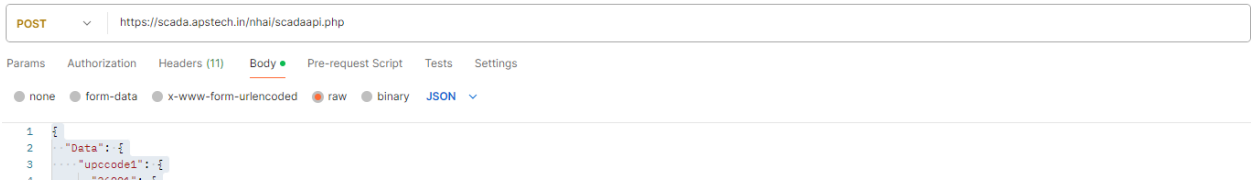
In Headers:

Parameters	**Values**
User	scada
Password	nhai123
API_Key	0f086a6346192a3c67bbf45ac4cd7892

i) Postman: To validate your data



ii) Paste Sample Data as below in JSON Format:



Note: "upccode1": having 4 deviceid 26001, 26002,26003,26004

Json Format


```
{
  "Data": {
    "upccode1": {
      "26001": {
        "DeviceId": "26001",
        "Watts_Total": "10",
        "Watts_R_Phase": "3",
        "Watts_Y_Phase": "3",
        "Watts_B_Phase": "4",
        "Var_Total": "0",
        "PF_Ave": "0.98",
        "Frequency": "50",
        "WH_Received": "1000",
        "DeviceTime": "3/5/2026 09:30:00 AM",
        "RLOUT": "111111",
        "DIGINPUT": "111111",
        "BATT": "1",
        "Location": "Test Location",
        "LightAmp": "5",
        "TotalLight": "20",
        "light_on": "0",
        "light_off": "0",
        "coordinates": "0",
        "schdeular_on": "0",
        "schdeular_off": "0",
        "ccmscapacity_kw": "0",
        "door_status": "0",
        "mccb_status": "0",
        "Var_R_Phase": "0",
            "Var_Y_Phase": "0",
            "Var_B_Phase": "0",
            "PF_R_Phase": "0",
            "PF_Y_Phase": "0",
            "PF_B_Phase": "0",
            "VA_Total": "0",
            "VA_R_Phase": "0",
            "VA_Y_Phase": "0",
            "VA_B_Phase": "0",
            "VLL_Average": "0",
            "VRY_Phase": "0",
            "VYB_Phase": "0",
            "VBR_Phase": "0",
            "VLN_Average": "0",
            "V_R_Phase": "0",
```

```
            "V_Y_Phase": "0",
            "V_B_Phase": "0",
            "Current_Total": "0",
            "Current_R_Phase": "0",
            "Current_Y_Phase": "0",
            "Current_B_Phase": "0"
        },
        "26002": {
         "DeviceId": "26002",
         "Watts_Total": "10",
         "Watts_R_Phase": "3",
         "Watts_Y_Phase": "3",
         "Watts_B_Phase": "4",
         "Var_Total": "0",
         "PF_Ave": "0.98",
         "Frequency": "50",
         "WH_Received": "1000",
         "DeviceTime": "3/5/2026 09:30:00 AM",
         "RLOUT": "111111",
         "DIGINPUT": "111111",
         "BATT": "1",
         "Location": "Test Location",
         "LightAmp": "5",
         "TotalLight": "20",
         "light_on": "0",
         "light_off": "0",
         "coordinates": "0",
         "schdeular_on": "0",
         "schdeular_off": "0",
         "ccmscapacity_kw": "0",
         "door_status": "0",
         "mccb_status": "0",
              "Var_Y_Phase": "0",
              "Var_B_Phase": "0",
              "PF_R_Phase": "0",
              "PF_Y_Phase": "0",
              "PF_B_Phase": "0",
              "VA_Total": "0",
              "VA_R_Phase": "0",
              "VA_Y_Phase": "0",
              "VA_B_Phase": "0",
              "VLL_Average": "0",
              "VRY_Phase": "0",
              "VYB_Phase": "0",
              "VBR_Phase": "0",
              "VLN_Average": "0",
              "V_R_Phase": "0",
              "V_Y_Phase": "0",
              "V_B_Phase": "0",
              "Current_Total": "0",
              "Current_R_Phase": "0",
```

```
            "Current_Y_Phase": "0",
            "Current_B_Phase": "0"

     }
    },
    "upccode2": {
     "26003": {
      "DeviceId": "26003",
      "Watts_Total": "10",
      "Watts_R_Phase": "3",
      "Watts_Y_Phase": "3",
      "Watts_B_Phase": "4",
      "Var_Total": "0",
      "PF_Ave": "0.98",
      "Frequency": "50",
      "WH_Received": "1000",
      "DeviceTime": "3/5/2026 09:30:00 AM",
      "RLOUT": "111111",
      "DIGINPUT": "111111",
      "BATT": "1",
      "Location": "Test Location",
      "LightAmp": "5",
      "TotalLight": "20",
      "light_on": "0",
      "light_off": "0",
      "coordinates": "0",
      "schdeular_on": "0",
      "schdeular_off": "0",
      "ccmscapacity_kw": "0",
      "door_status": "0",
      "mccb_status": "0"
     },
     "26004": {
      "DeviceId": "26004",
      "Watts_Total": "10",
      "Watts_R_Phase": "3",
      "Watts_Y_Phase": "3",
      "Watts_B_Phase": "4",
      "Var_Total": "0",
      "PF_Ave": "0.98",
      "Frequency": "50",
      "WH_Received": "1000",
      "DeviceTime": "3/5/2026 09:30:00 AM",
      "RLOUT": "111111",
      "DIGINPUT": "111111",
      "BATT": "1",
      "Location": "Test Location",
      "LightAmp": "5",
      "TotalLight": "20",
      "light_on": "0",
      "light_off": "0",
```

<table>
<tr>
<td></td>
<td>
<pre>
      "coordinates": "0",
      "schdeular_on": "0",
      "schdeular_off": "0",
      "ccmscapacity_kw": "0",
      "door_status": "0",
      "mccb_status": "0"
    }
  }
 }
}
</pre>

Please note the API response format in JSON for validating errors by passing your data to the API. The API will check whether any required parameters are missing and return the status accordingly.

Error Validation Details: (Yellow colour “errors": below)

Device ID 26001: All parameters are present. No errors found.
Device ID 26002: One parameter is missing – "Var_R_Phase".
Device ID 26003: Multiple parameters are missing.
Device ID 26004: Multiple parameters are missing.

Note:
The vendor will validate the request data and return the appropriate error response if any required parameter is missing.

Kindly review and ensure that all required parameters are included before sending data to the API.
</td>
</tr>
<tr>
<td></td>
<td>
<pre>
{
  "status": "success",
  "saved_devices": 1,
  "response": {
    "upccode1": {
      "26001": {
        "DeviceId": "26001",
        "Watts_Total": "10",
        "Watts_R_Phase": "3",
        "Watts_Y_Phase": "3",
        "Watts_B_Phase": "4",
        "Var_Total": "0",
        "PF_Ave": "0.98",
        "Frequency": "50",
        "WH_Received": "1000",
        "DeviceTime": "3\/5\/2026 09:30:00 AM",
        "RLOUT": "111111",
        "DIGINPUT": "111111",
        "BATT": "1",
        "Location": "Test Location",
        "LightAmp": "5",
        "TotalLight": "20",
        "light_on": "0",
</pre>
</td>
</tr>
</table>

```
    "light_off": "0",
    "coordinates": "0",
    "schdeular_on": "0",
    "schdeular_off": "0",
    "ccmscapacity_kw": "0",
    "door_status": "0",
    "mccb_status": "0",
    "Var_R_Phase": "0",
    "Var_Y_Phase": "0",
    "Var_B_Phase": "0",
    "PF_R_Phase": "0",
    "PF_Y_Phase": "0",
    "PF_B_Phase": "0",
    "VA_Total": "0",
    "VA_R_Phase": "0",
    "VA_Y_Phase": "0",
    "VA_B_Phase": "0",
    "VLL_Average": "0",
    "VRY_Phase": "0",
    "VYB_Phase": "0",
    "VBR_Phase": "0",
    "VLN_Average": "0",
    "V_R_Phase": "0",
    "V_Y_Phase": "0",
    "V_B_Phase": "0",
    "Current_Total": "0",
    "Current_R_Phase": "0",
    "Current_Y_Phase": "0",
    "Current_B_Phase": "0"
  },
  "26002": {
    "DeviceId": "26002",
    "Watts_Total": "10",
    "Watts_R_Phase": "3",
    "Watts_Y_Phase": "3",
    "Watts_B_Phase": "4",
    "Var_Total": "0",
    "PF_Ave": "0.98",
    "Frequency": "50",
    "WH_Received": "1000",
    "DeviceTime": "3\/5\/2026 09:30:00 AM",
    "RLOUT": "111111",
    "DIGINPUT": "111111",
    "BATT": "1",
    "Location": "Test Location",
    "LightAmp": "5",
    "TotalLight": "20",
    "light_on": "0",
    "light_off": "0",
    "coordinates": "0",
    "schdeular_on": "0",
```

```
            "schdeular_off": "0",
            "ccmscapacity_kw": "0",
            "door_status": "0",
            "mccb_status": "0",
            "Var_Y_Phase": "0",
            "Var_B_Phase": "0",
            "PF_R_Phase": "0",
            "PF_Y_Phase": "0",
            "PF_B_Phase": "0",
            "VA_Total": "0",
            "VA_R_Phase": "0",
            "VA_Y_Phase": "0",
            "VA_B_Phase": "0",
            "VLL_Average": "0",
            "VRY_Phase": "0",
            "VYB_Phase": "0",
            "VBR_Phase": "0",
            "VLN_Average": "0",
            "V_R_Phase": "0",
            "V_Y_Phase": "0",
            "V_B_Phase": "0",
            "Current_Total": "0",
            "Current_R_Phase": "0",
            "Current_Y_Phase": "0",
            "Current_B_Phase": "0"
        }
    },
    "upccode2": {
        "26003": {
            "DeviceId": "26003",
            "Watts_Total": "10",
            "Watts_R_Phase": "3",
            "Watts_Y_Phase": "3",
            "Watts_B_Phase": "4",
            "Var_Total": "0",
            "PF_Ave": "0.98",
            "Frequency": "50",
            "WH_Received": "1000",
            "DeviceTime": "3\/5\/2026 09:30:00 AM",
            "RLOUT": "111111",
            "DIGINPUT": "111111",
            "BATT": "1",
            "Location": "Test Location",
            "LightAmp": "5",
            "TotalLight": "20",
            "light_on": "0",
            "light_off": "0",
            "coordinates": "0",
            "schdeular_on": "0",
            "schdeular_off": "0",
            "ccmscapacity_kw": "0",
```

```
            "door_status": "0",
            "mccb_status": "0"
          },
          "26004": {
            "DeviceId": "26004",
            "Watts_Total": "10",
            "Watts_R_Phase": "3",
            "Watts_Y_Phase": "3",
            "Watts_B_Phase": "4",
            "Var_Total": "0",
            "PF_Ave": "0.98",
            "Frequency": "50",
            "WH_Received": "1000",
            "DeviceTime": "3\/5\/2026 09:30:00 AM",
            "RLOUT": "111111",
            "DIGINPUT": "111111",
            "BATT": "1",
            "Location": "Test Location",
            "LightAmp": "5",
            "TotalLight": "20",
            "light_on": "0",
            "light_off": "0",
            "coordinates": "0",
            "schdeular_on": "0",
            "schdeular_off": "0",
            "ccmscapacity_kw": "0",
            "door_status": "0",
            "mccb_status": "0"
          }
        }
      },
      "errors": [
        {
          "device": 26002,
          "missing_fields": [
            "Var_R_Phase"
          ]
        },
        {
          "device": 26003,
          "missing_fields": [
            "Var_R_Phase",
            "Var_Y_Phase",
            "Var_B_Phase",
            "PF_R_Phase",
            "PF_Y_Phase",
            "PF_B_Phase",
            "VA_Total",
            "VA_R_Phase",
            "VA_Y_Phase",
            "VA_B_Phase",
```

```
            "VLL_Average",
            "VRY_Phase",
            "VYB_Phase",
            "VBR_Phase",
            "VLN_Average",
            "V_R_Phase",
            "V_Y_Phase",
            "V_B_Phase",
            "Current_Total",
            "Current_R_Phase",
            "Current_Y_Phase",
            "Current_B_Phase"
          ]
        },
        {
          "device": 26004,
          "missing_fields": [
            "Var_R_Phase",
            "Var_Y_Phase",
            "Var_B_Phase",
            "PF_R_Phase",
            "PF_Y_Phase",
            "PF_B_Phase",
            "VA_Total",
            "VA_R_Phase",
            "VA_Y_Phase",
            "VA_B_Phase",
            "VLL_Average",
            "VRY_Phase",
            "VYB_Phase",
            "VBR_Phase",
            "VLN_Average",
            "V_R_Phase",
            "V_Y_Phase",
            "V_B_Phase",
            "Current_Total",
            "Current_R_Phase",
            "Current_Y_Phase",
            "Current_B_Phase"
          ]
        }
      ]
}
```


8. API SPECIFICATION

Log In API

8.1 Get MoRTH, NHAI, NHIDCL Basic data API

Login

Authenticate the user with the system and obtain the auth_token

Request

Method	URL
GET	NHAI Live: https://datalakeg.nhai.gov.in/nhaiapi/api/MastersAPI/Get?username=guest&password=Guest@2020 MoRTH Live: https://datalakem.nhai.gov.in/morth_api/api/MastersAPI/Get?username=guest&password=Guest@2020 NHIDCL Live: https://datalakem.nhai.gov.in/nhidcl_api/api/MastersAPI/Get?username=guest&password=Guest@2020

TYPE	PARAMS	VALUES
GET	Username	string
GET	password	string

Response

Status	Response

200	{
	"token":
	"eyJhbGciOiJIUzI1NiIsInR5cCI6IkpXVCJ9.eyJ1bmlxdWVfbmFtZSI6Imd1ZXN0IiwibmJmIjoxNzU0NTQ2Njg2LCJleHAiOjE3NTQ1NDc4ODYsImlhdCI6MTc1NDU0NjY4Nn0.CtdUHOutoq3zxx8e8_wwWxA3ddUqzVkieSOa5yrweXc
	"
	}

404	{"error": "Not Found username/ Password."}
401	{"error": "failure."}
500	{"error": "Something went wrong. Please try again later."}

8.2 Get MoRTH, NHAI, NHIDCL Basic data API

Get the new updates

Request

Method	URL
GET	NHAI Live: https://datalakeg.nhai.gov.in/nhaiapi/api/MastersAPI/NHAIBasicDetailsAPIKey

	MoRTH Live: https://datalakem.nhai.gov.in/morth_api/api/MastersAPI/MoRTHBasicDetailsAPIKey NHIDCL Live: https://datalakem.nhai.gov.in/nhidcl_api/api/MastersAPI/NHIDCLBasicDetailsAPIKey

TYPE	PARAMS	VALUES
HEADER	Authorization	string
HEADER	api-key	string
HEADER	api-key	string

Authorization:- In header for all entities (MoRTH, NHAI, NHIDCL) use the Authorization and value will be the token generated from login api
api-key :- 0f086a6346192a3c67bbf45ac4cd7892 (same for all entity)
api-org :- APT(same for all entity)

Request

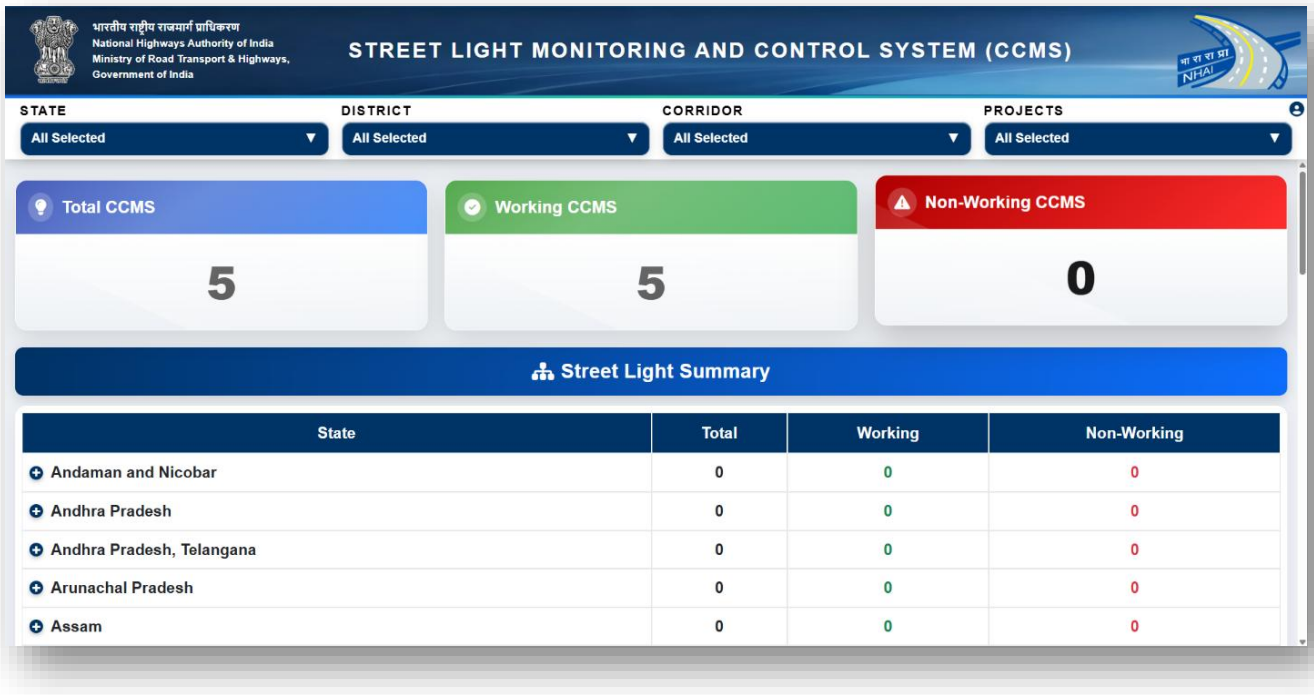
Response

STATUS	RESPONSE
200	[{ "upc": "N/01001/01001/HR", "project_title": "Delhi-Vadodara Greenfield Alignment (NH-148N) (Pkg-01) (Ch. 0+000 to Ch. 18+461) [Sohna-Gurugram Road (NH-248A) near Alipur Village and ending before KMP Expressway]", "length": 18.5, "mode_name": "EPC", "current_project_stage": "CC Issued & O&M by Construction Agency", "implementing_ro": "RO-Delhi", "piu": "Sohna", "division": "Delhi", "state": "Haryana", "district": "Gurugram, Nuh", "name_of_concessionaire": "APCO Infratech Pvt. Ltd.", "name_of_ae": "Frischmann Prabhu India Pvt. Ltd. - K&J Projects Pvt. Ltd. -Indian Enginneering Consultants India Pvt. Ltd. - CT Ltd. (CONSORTIUM)", "project_type": "Regular Civil Works", "created_on": "2020-03-05T00:23:57.928665", "loa_date": "2019-03-08T00:00:00", "agreement_date": "2019-07-11T00:00:00", "appointment_date": "2019-09-13T00:00:00", "scheduled_completiondate": "2021-09-11T00:00:00", "pcod_date": null, "final_completiondate": "2023-02-10T00:00:00", "dlpperiodfrom": "2019-09-13",

<table>
<tr><td></td><td><pre>
"dlpperiodto": "2021-09-11",
"omperiod": null,
"awarded_cost": 1217.22,
"revised_length": 18.5,
"cumlength_completed_tilllastmonth": 17.44,
"cumfinancial_progress_tilllastmonth": 98.95,
"cumphysical_progress_tilllastmonth": 97.64,
"lanes": "8L",
"pm_scheme": "BM-1",
"phase": "EXP",
"ae_loa_date": "2019-08-29",
"ae_agreement_date": "2019-09-18",
"ae_start_appointment_date": "2019-09-23",
"likely_completiondate": "2024-04-15T00:00:00",
"civil_work_cost": 1144.0,
"total_epc_cost": 1361.92,
"estimate_la_cost": 460.0,
"estimate_other_cost": 57.2,
"total_capital_cost": 1879.12,
"iacpatsc_status": "Appraised & Recommended",
"pre_appraised_by": "PATSC",
"approval_status": "Approved",
"efcsfc_status": null,
"awarded_date": "2019-03-05T00:00:00",
"dateof_termination": null,
"iacpatsc_appraisal_date": "30/11/2018",
"efcsfc_appraisal_date": null,
"approval_date": "2018-12-20T00:00:00",
"cgm": "CGM-DL",
"gm": "Delhi",
"member": "Member-Technical",
"overlays": "N/A",
"strengthening": "N/A",
"length_to_be_considered": 18.5,
"nh": "148N",
"corridor": "Delhi - Mumbai EXP"
}

]
</pre></td></tr>
<tr><td>500</td><td>{"error": "Something went wrong. Please try again later."}</td></tr>
<tr><td>401</td><td>{"error": "failure."}</td></tr>
</table>

9. Public/User dashboard



9.1 In this you will find 4 Dropdowns.

- State
- District
- Corridor
- Projects

9.2 By default you will see Total CCMS, Total Working, and Total Not Working in three rectangle boxes respectively.

9.3 If you want to see any particular state ,then first select the state, then its total CCMS, working, not working will be visible.

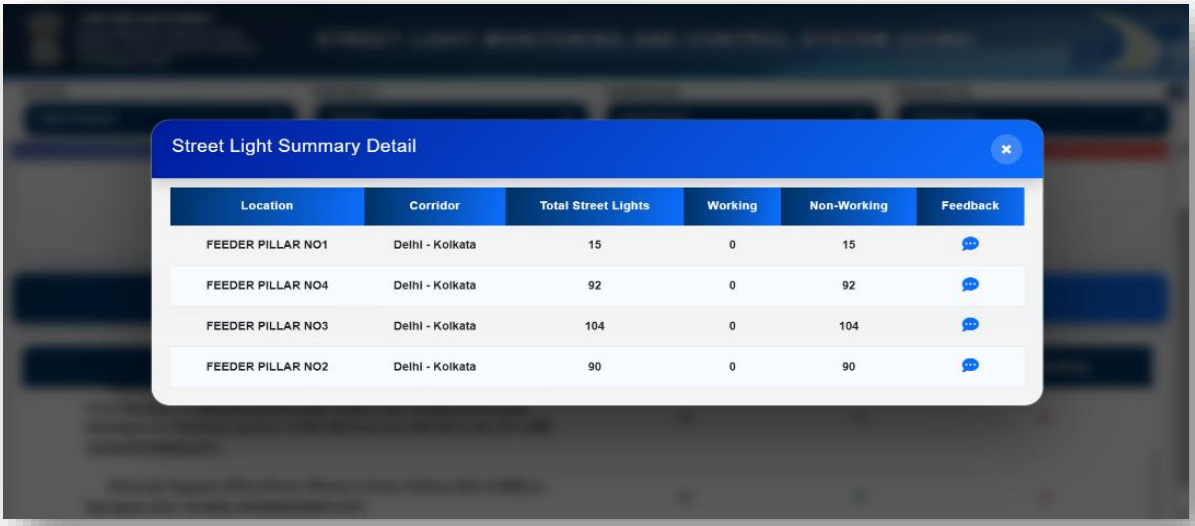
9.4 If you want to see any particular district, then select the district then its total CCMS, working, not working will be visible.

9.5 If you want to see any particular Corridor, then select corridor, then its total CCMS, working, not working will be visible.

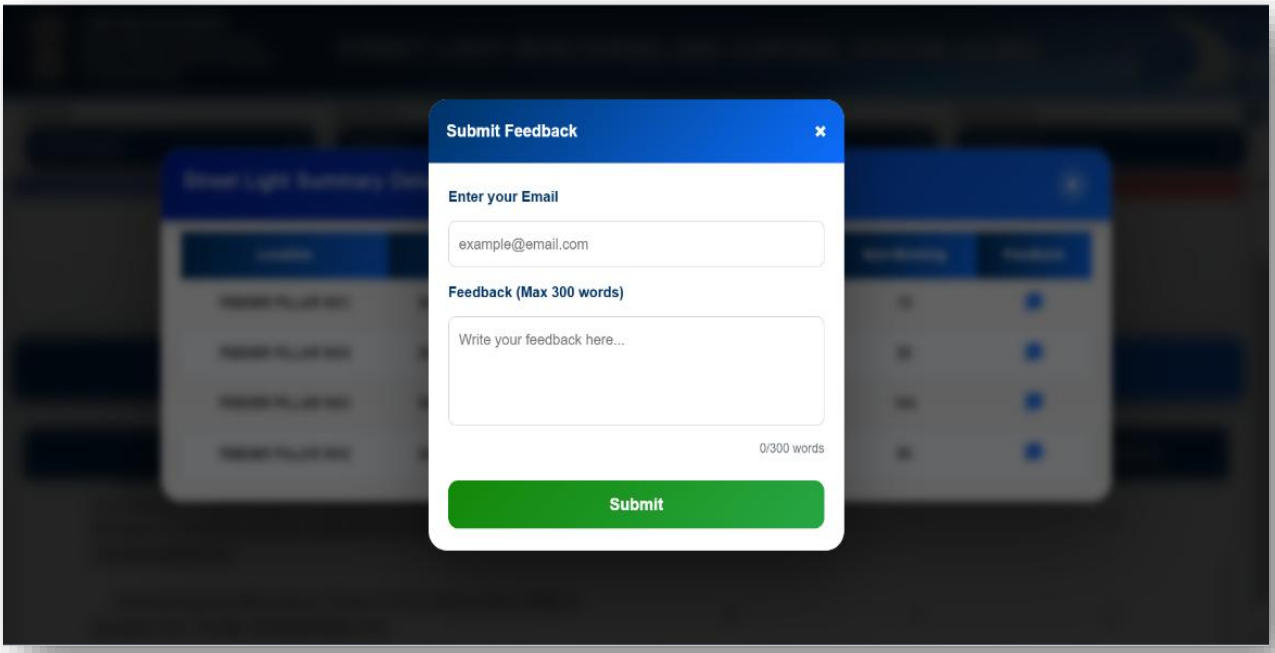
9.6 If you want to see any particular project, then select the project, then its total CCMS, working, not working will be visible.

9.7 A tree structure will be visible below the boxes and it will also reflect along with Dropdown.

9.8 For find how many street lights on in a corridor, select first state then its district, and its corridor and in tree structure open it and click on the project and a popup open



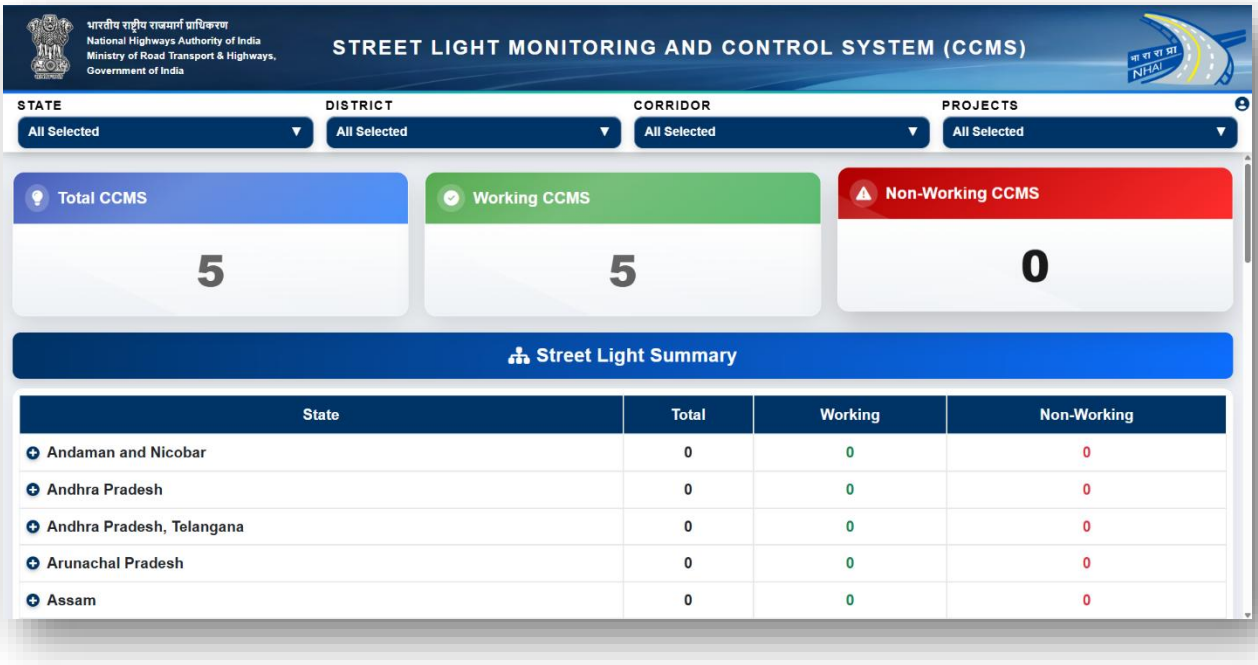
9.9 For any feedback, please click on the **Feedback** icon. A pop-up window will open where valid details may be entered and submitted. The submitted feedback will automatically be sent via email to the concerned **PIU/RO** associated with the respective **Project (UPC)**



10. User Login process

Url:- https://scada.apstech.in/nhai/

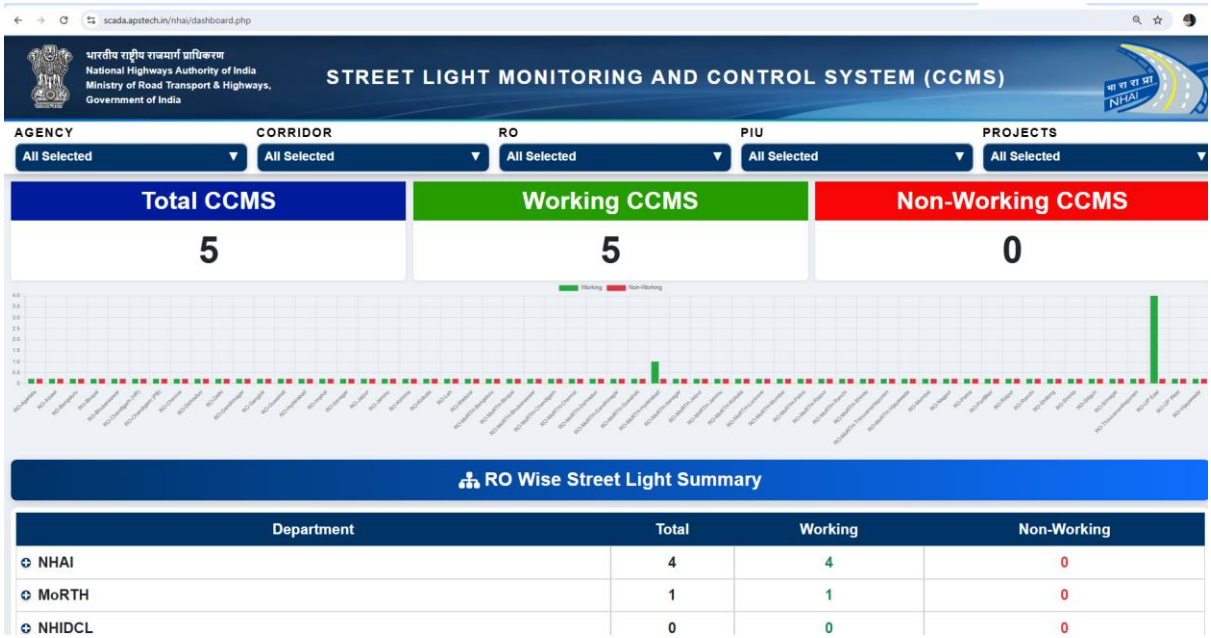
10.1 Public/User dashboard



10.2 Click on the user icon on the right-hand side, select login, the login page will open

10.3 Enter your credentials and login (Minister/Admin/NHAI/MoRTH/ NHIDCL/RO/PIU/ Project).

11. Minister/Admin Level – Agency-wide dashboard (MoRTH/NHAI/NHIDCL)



11.1 In this you will find 5 Dropdowns.

- Agency (MoRTH/NHAI/NHIDCL)
- Corridor
- RO
- PIU
- Projects

11.2 By default, you will see Total CCMS, Total Working, and Total Not Working.

11.3 Below you will see a bar graph in which the x axis will show the RO's name and the y axis will show the CCMS values.

11.4 A tree structure will be visible below the bar graph and it will also reflect along with Dropdown.

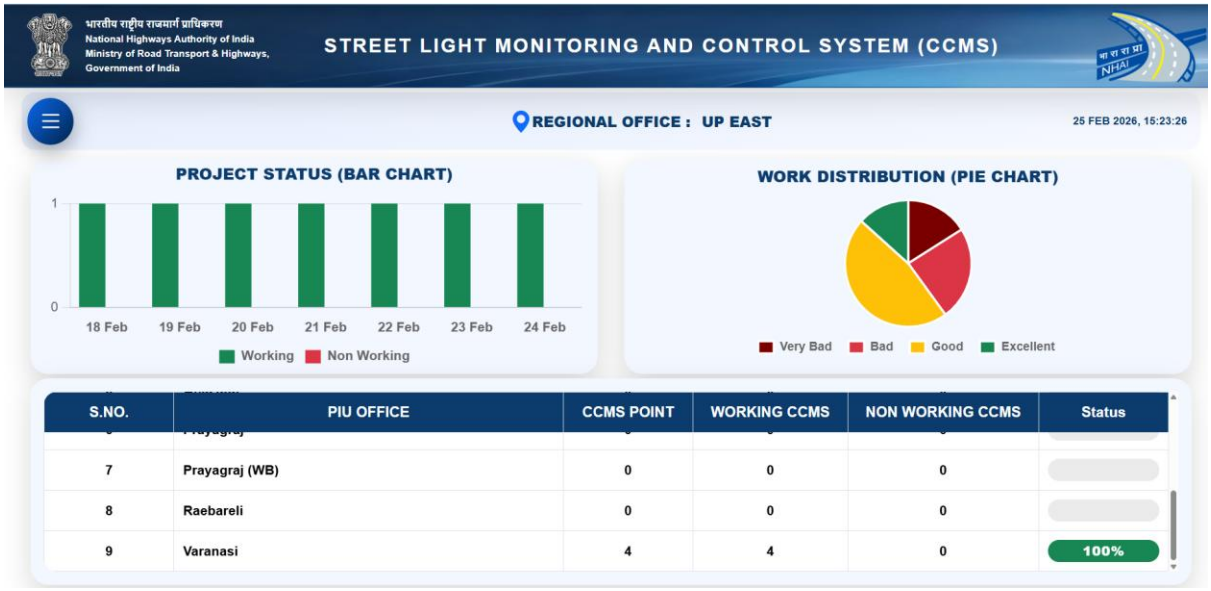
11.5 When you click on the + icon of an agency in the tree structure, corridors will open if present, if not direct RO's will open.

11.6 When you click on the + icon of an RO's in the tree structure, PIU's will open if present, if not direct projects will open.

11.7 When you click on the PIU in the tree structure, PIU's page will open.

11.8 When you click on the + icon of an PIU's in the tree structure, projects will open, and when you click on the project, the page of that particular project will open.

12. RO Level – PIU & Project monitoring



12.1 In this you will see a bar chart on the left side and a pie chart on the right side.

12.2 The bar chart will show the working and non-working CCMS of that project for the last 7 days.

12.3 In the pie chart, those disconnected for more than 6 days will be shown as very bad, those disconnected for 3-6 days will be shown as bad, those disconnected for 1-2 days will be shown as good, those disconnected for 0-1 days will be shown as excellent.

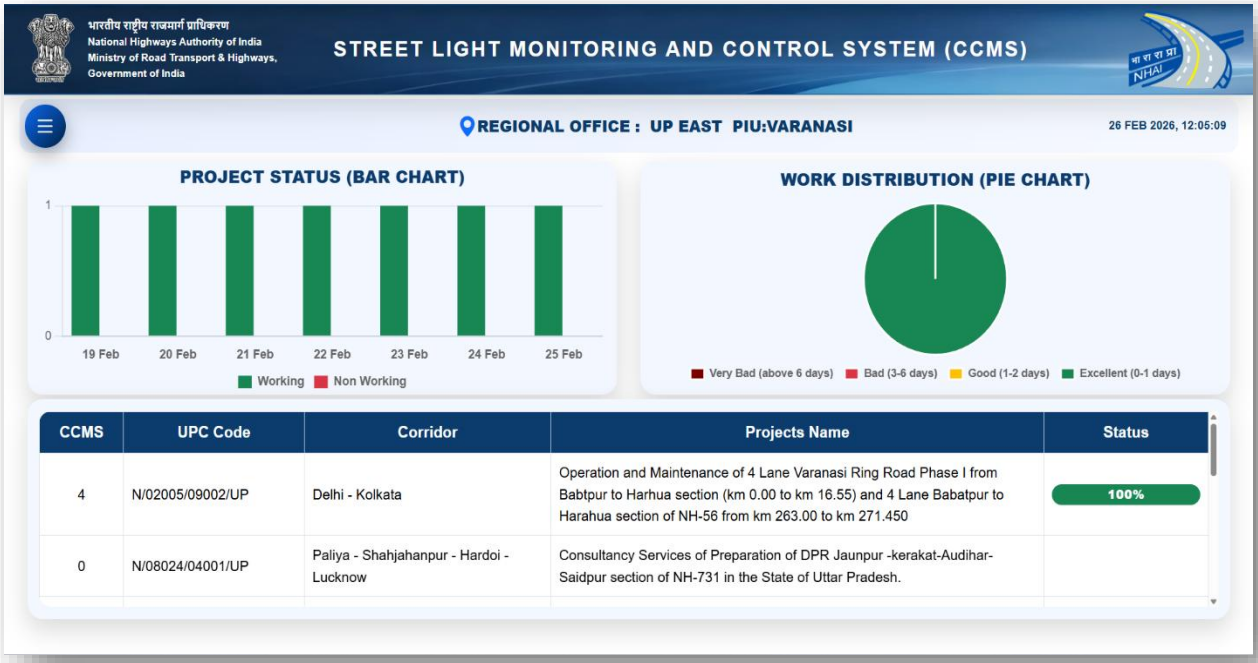
12.4 In the table below you will see the PIU OFFICE, CCMS POINT, WORKING, NON-WORKING, STATUS.

12.5 In the PIU Office column, the PIU of the regional office(RO) user logged in will be displayed.

12.6 When you click on the PIU in the table, PIU's page will open.

12.7 When you click on the + icon of an PIU's in the tree structure, projects will open, and when you click on the project, the page of that particular project will open.

13. PIU Level – Project-level dashboard



13.1 In this you will see a bar chart on the left side and a pie chart on the right side.

13.2 The bar chart will show the working and non-working CCMS of that project for the last 7 days.

13.3 In the pie chart, those disconnected for more than 6 days will be shown as very bad, those disconnected for 3-6 days will be shown as bad, those disconnected for 1-2 days will be shown as good, those disconnected for 0-1 days will be shown as excellent.

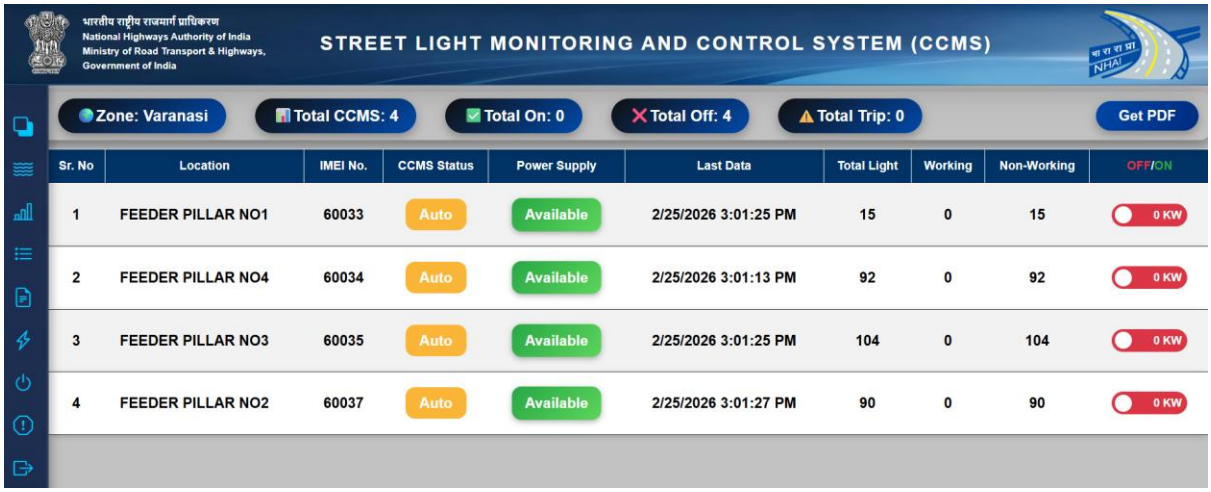
13.4 In the table below you will see the CCMS, UPC code, Corridor, Project Name, Status.

13.5 A particular UPC code for each project.

13.6 Clicking on the UPC code will open the page of that project.

13.7 There is also a menu icon when click on its u see, dashboard button for back to dashboard page and logout button.

14. Project Level – Device-level monitoring



Sr. No	Location	IMEI No.	CCMS Status	Power Supply	Last Data	Total Light	Working	Non-Working	OFF/ON
1	FEEDER PILLAR NO1	60033	Auto	Available	2/25/2026 3:01:25 PM	15	0	15	0 KW
2	FEEDER PILLAR NO4	60034	Auto	Available	2/25/2026 3:01:13 PM	92	0	92	0 KW
3	FEEDER PILLAR NO3	60035	Auto	Available	2/25/2026 3:01:25 PM	104	0	104	0 KW
4	FEEDER PILLAR NO2	60037	Auto	Available	2/25/2026 3:01:27 PM	90	0	90	0 KW

14.1 In this you will see the zone under which that project is located, total CCMS of that project, how many are running, how many are off, how many trips are there.

14.2 You can also download its PDF.

14.3 In the table you can see the

14.4 Location

- IMEI no. of that location (Device id)
- CCMS Status (Auto/ Manual)
- Power supply (Available/Not available/Disconnected)
- Last data (date time when update)
- Total light (how many light links in that location)
- Working
- Non-working
- Status (ON/OFF)

14.5 When click on IMEI No (Device id), a page will open in which u see grid in left

- In grid you see the location, Modem id
- Single phase voltage value
- Current value
- Double phase voltage value
- Average current value
- Average power factor(pf) value
- Value of Kilo watt per hour (KWH)
- Average VLL value
- Trip status
- Power status
- Data stamp
- Power consumption
- Area covered
- Total working
- Total non-working
- Faulty

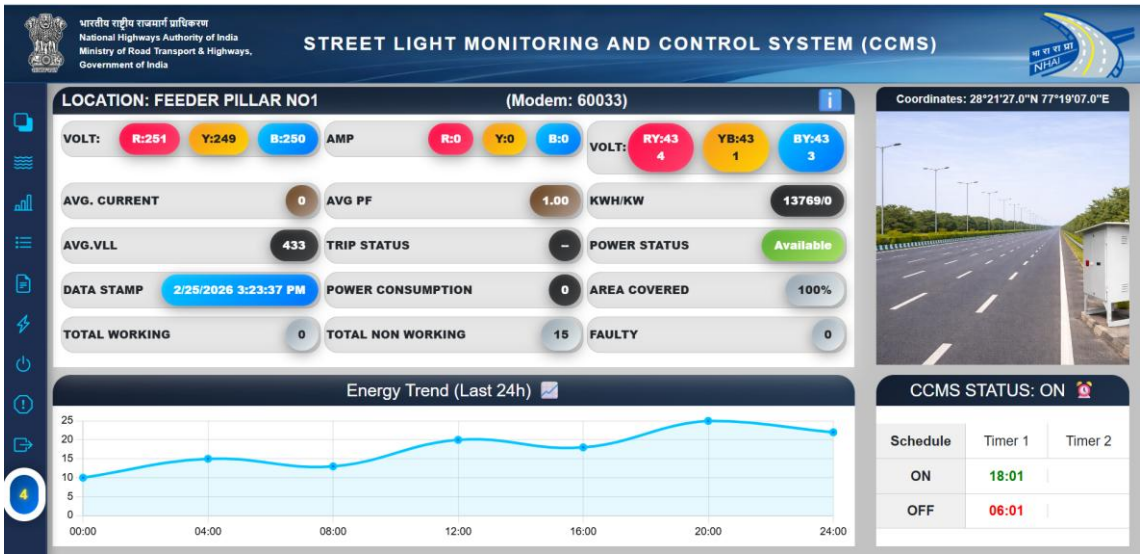
14.6 In right side you see the image of street light on/off with coordinates.

Below in left side you see the line graph which show last 24 hours data.

14.7 Below in right side, you can see a scheduler timer that shows when the timer will turn on and when it will turn off.

14.8 You can also set the timer by click on alarm icon.

14.9 Agency Level



14.10 In this you will find 4 Dropdowns.

- Corridor
- RO
- PIU
- Projects

14.11 By default, you will see Total CCMS, Total Working, and Total Not Working.

14.12 Below you will see a bar graph in which the x axis will show the RO's name and the y axis will show the CCMS values.

14.13 A tree structure will be visible below the bar graph and it will also reflect along with Dropdown.

14.14 When you click on the + icon of an agency (The name of the agency through which you have logged in will be shown) in the tree structure, corridors will open if present, if not direct RO's will open.

14.15 When you click on the + icon of an RO's in the tree structure, PIU's will open if present, if not direct projects will open.

14.16 When you click on the PIU in the tree structure, PIU's page will open.

14.17 When you click on the + icon of an PIU's in the tree structure, projects will open, and when you click on the project, the page of that particular project will open. (for more detailed see page 10-11.)

15. RESPONSIBILITIES OF STAKEHOLDERS (RO/PIU)

15.1 RO / PIU (Regional Office / Project Implementation Unit)

The RO/PIU shall act as the supervisory and monitoring authority to ensure smooth implementation and operation of the street lighting system.
Ensure API Readiness

- Ensure that the required Application Programming Interfaces (APIs) are properly configured and functional for seamless data exchange between field devices and the Central Control & Monitoring System (CCMS).
- Coordinate with IT teams to verify integration between software platforms.
- Conduct periodic testing of API connectivity to avoid data disruption.

15.2 Validate Data Accuracy

- Review data received from the field (energy consumption, burning hours, fault reports, etc.) for correctness and consistency.
- Cross-verify system-generated reports with physical site conditions wherever required.
- Ensure discrepancies are reported and corrected in coordination with the Implementing Agency.

15.3 Coordinate with Concessionaire

- Maintain regular communication with the concessionaire/contractor responsible for execution and maintenance.
- Conduct review meetings to monitor project progress, fault resolution timelines, and performance standards.
- Ensure compliance with contractual obligations and Service Level Agreements (SLAs).

15.4 Ensure Uninterrupted Data Flow

- Monitor continuous data transmission from field controllers and meters to the CCMS portal.
- Identify and escalate issues related to communication network failures.
- Ensure that downtime is minimized and restored within defined timelines.

16. RESPONSIBILITIES OF STAKEHOLDERS Implementing Agency

The Implementing Agency shall be responsible for on-ground execution, operation, and maintenance of the street lighting infrastructure.

16.1 Maintain Field Devices

- Ensure proper installation and maintenance of street light fixtures, controllers, feeder panels, and communication devices.
- Conduct regular inspection and preventive maintenance.
- Replace faulty components promptly to maintain system efficiency.

16.2 Ensure Calibration of Meters

- Conduct periodic calibration of energy meters as per statutory norms to maintain measurement accuracy.
- Maintain calibration records and certificates.
- Immediately address any discrepancies in meter readings.

16.3 Maintain Power Quality

- Ensure stable voltage supply and proper earthing at feeder panels.
- Monitor and address issues such as voltage fluctuations, harmonics, and phase imbalance.
- Coordinate with the electricity distribution company (DISCOM) in case of supply-related issues

17. RESPONSIBILITIES OF STAKEHOLDERS CCMS Admin (Central Control & Monitoring System Administrator)

The CCMS Admin shall be responsible for managing the digital platform used for monitoring and controlling the street lighting system.

17.1 Manage User Access

- Create, modify, and deactivate user accounts as per authorization levels.
- Ensure role-based access control to prevent unauthorized data access.
- Maintain a log of user activities for audit purposes.

17.2 Maintain Portal Uptime

- Ensure the CCMS portal remains operational and accessible with minimal downtime.
- Coordinate with IT support teams for server maintenance and software updates.
- Maintain system backups and disaster recovery mechanisms.

17.3 Data Analytics & Reporting

- Generate periodic reports on energy consumption, fault trends, uptime performance, and savings achieved.
- Analyze data to identify inefficiencies and recommend corrective measures.
- Provide customized dashboards and reports to RO/PIU and other stakeholders as required.

18. ESCALATION MATRIX

18.1 Purpose:

This escalation matrix defines the structured process for reporting and resolving issues related to the Centralized Control & Monitoring System (CCMS) Portal and associated API integrations. It ensures timely resolution, accountability, and proper communication flow among stakeholders.

18.2 Scope

This escalation mechanism shall apply only to IT-related issues, including:

- CCMS portal login/access issues
- Server downtime or portal inaccessibility
- API integration failures
- Data synchronization errors
- Dashboard/report generation errors
- Software bugs or system performance issues

Note: Issues related to field devices, street light faults, feeder panels, power supply, or civil/electrical works shall not be escalated through this IT matrix. Such issues must be addressed to the concerned division or field authority separately.

18.3 Escalation Levels

Level 1 – Service Provider (Hired by NHAI for CCMS Application for One Years)

Responsibility:

- First point of contact for all CCMS and API-related issues.
- Diagnose and resolve application-level and server-level issues.
- Ensure restoration of portal functionality within defined Service Level Agreements (SLAs).
- Provide incident acknowledgment and estimated resolution time.

Escalation Condition:
If the issue is not resolved within the prescribed SLA timeline or requires higher-level intervention.

Contact Details:
Email: infoaselectricals@gmail.com
Mobile: 9650091122 & 7042014182 (Parveen Sharma)

Level 2 – ITFMS Team at NHAI Headquarters

Responsibility:

- Monitor performance of the CCMS service provider.
- Provide technical oversight and coordination.
- Intervene in unresolved or critical issues impacting multiple users or regions.

- Facilitate coordination between internal IT infrastructure and external service provider.

Escalation Condition:
If the issue remains unresolved after Level 1 intervention or involves policy-level, infrastructure-level, or integration-level concerns.

Contact Details:

Email- itteamleader@nhai.org
Ext. 1212 & 1028
Mobile: 9953008277 (Ravi Bhardwaj ITFMS Team Lead) and 9871917200 (Raj Sharma ITFMS Software Developer)

Level 3 – General Manager (GM) – IT at NHAI Headquarters

Responsibility:

- Final authority for critical and high-impact IT-related issues.
- Decision-making in case of prolonged downtime or system failure.
- Escalation to higher administrative or contractual levels if required.
- Ensure compliance with contractual obligations of the service provider.

Escalation Condition:

- Major system outage
- Repeated SLA violations
- Cybersecurity incidents
- Critical API failure affecting reporting and monitoring functions

Contact Details:

Email:- pramod@nhai.org
Ext. 1270 & 1500 (PA)
Mobile: 9810874066

18.4 Escalation Process Flow

- Issue Identification by RO/PIU/CCMS User
- Complaint Logging with Level 1 (Service Provider)
- Acknowledgment and Resolution Attempt
- If unresolved → Escalate to Level 2 (ITFMS Team at NHAI HQ)
- If still unresolved or critical → Escalate to Level 3 (GM-IT at NHAI HQ)

18.5 Important Clarification

- This escalation matrix is strictly limited to IT and CCMS portal-related matters including API integration.
- All non-IT issues (such as street light malfunction, power supply failure, meter faults, physical damage, etc.) shall be addressed to the concerned division/field authority and shall not be escalated under this matrix.