



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

IOCL Coimbatore Terminal to Coco Mettupalayam Adhoc Oxygen Fue

Objective of the JRM Report

This JRM report is designed to ensure compliance with the Central Motor Vehicle Rules, 1989 (CMVR), AIS 140 standards, and the Road Transport Safety Policy (RTSP). It provides a comprehensive risk assessment for the transportation of hazardous materials along specified routes. By integrating these legal frameworks, the report offers a broad strategy for identifying and mitigating route-specific risks.

Regulatory Compliance

The report complies with the Central Motor Vehicles (Eleventh Amendment) Rules, 2022, mandating safe transportation practices for N2 and N3 category vehicles carrying hazardous materials. These rules require detailed route assessments, especially regarding road conditions, speed limits, and risk areas, to ensure safety compliance.

Risk Management Strategy

This report categorizes transportation routes into high-risk and medium-risk areas, with a focus on factors such as sharp turns, accident-prone regions, and elevation changes. The goal is to provide actionable

recommendations to minimize these risks, including speed regulations, driver warnings for hazardous zones, and the option of alternate routes.

Compliance with the Road Transport Safety Policy (RTSP)

The report integrates RTSP provisions, including mandatory driving hours, rest periods, and nighttime driving restrictions. It ensures that drivers follow official guidelines, such as taking prescribed rest breaks and avoiding dangerous road conditions like poor visibility, heavy crowds, or high-traffic areas during peak hours.

Emergency Preparedness and Response

The report highlights the significance of predetermined emergency stops for refueling, rest, and overnight stays. It includes protocols for safe responses to road hazards, alternative routes, and rerouting processes if roads are closed or severe weather arises. This aligns with the RTSP emphasis on driver safety and rapid emergency response.

Environmental Considerations

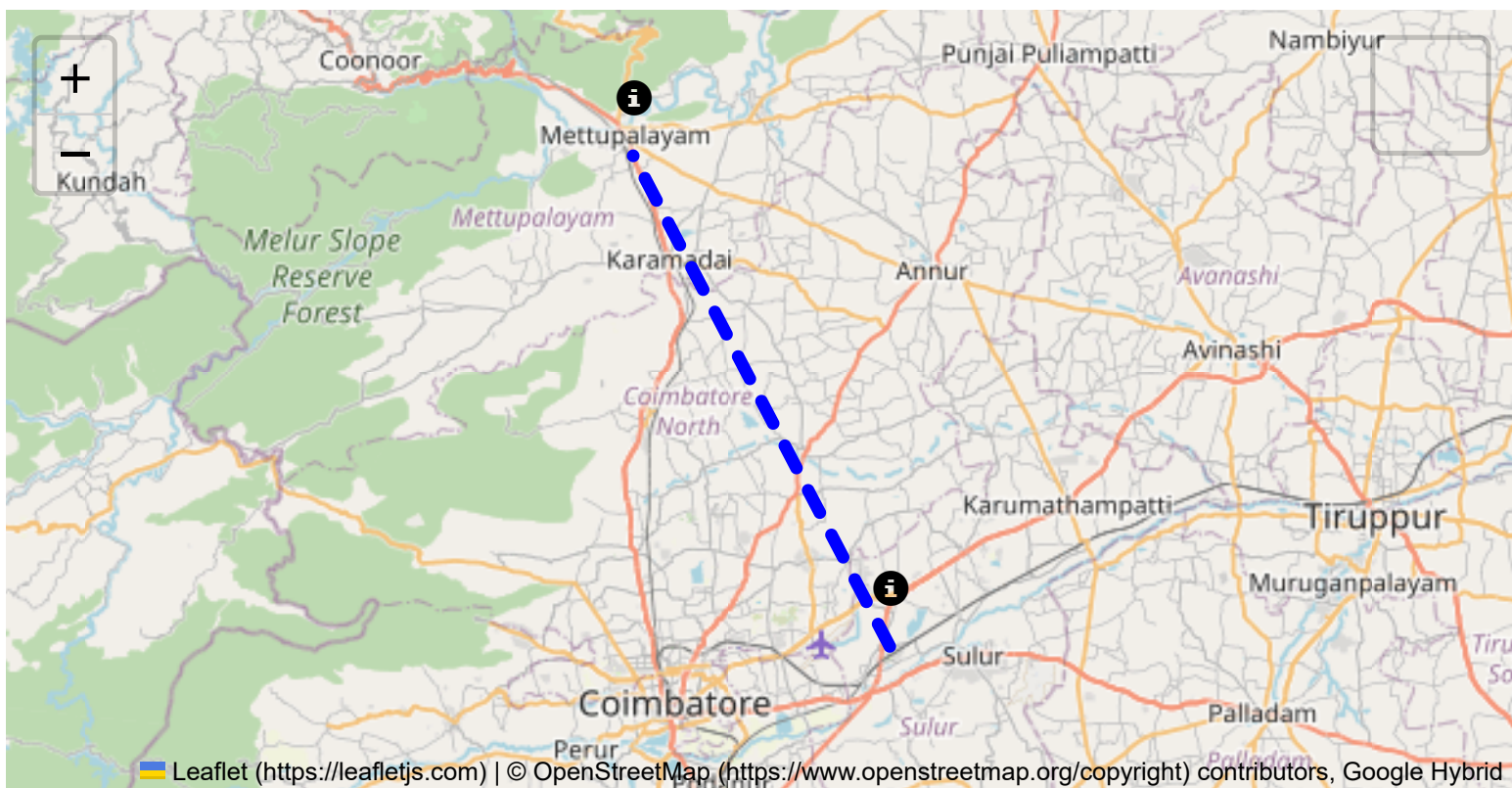
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental impacts during transport.

Journey Risk Mitigation

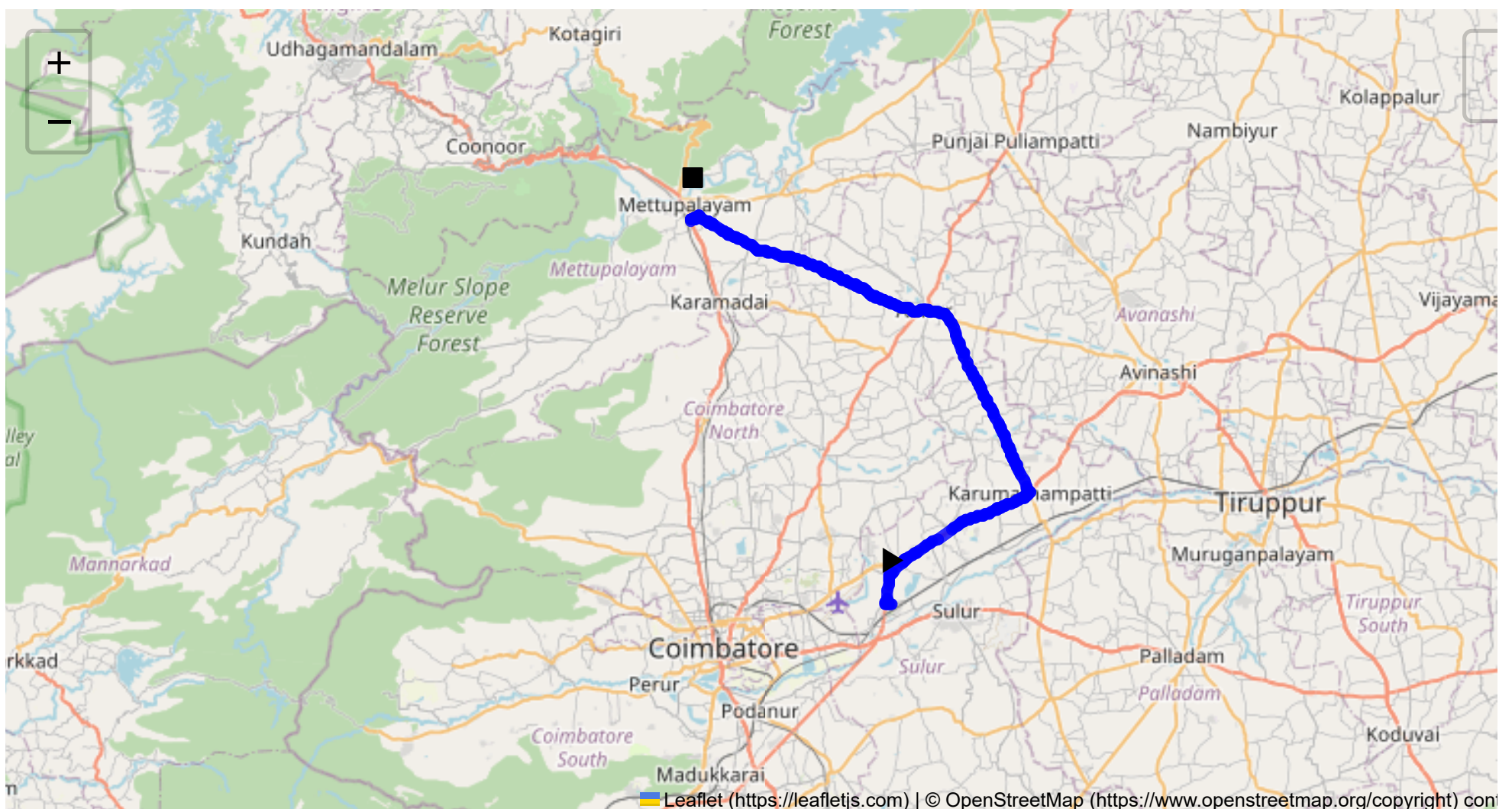
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety norms.

Compliance with Government Directives

This report fully adheres to governmental directives regarding hazardous material transportation, implementing mandatory speed limits, nighttime driving restrictions, and comprehensive driver briefings and real-time alerts about route-related risks.



Route Summary:
Total Distance: 51.75 km
Estimated Duration: 1.1 hours
Adjusted Duration (Heavy Vehicle): 1.4 hours
Start: (11.0315, 77.0797)
End: (11.294671, 76.939599)



Welcome to the Journey Risk Management Study

Route Safety Analysis

1. Overview of the Route Map

The route from Athappagoundenpudur to Mettupalayam spans approximately 51.75 kilometers and typically involves travel along NH181 and smaller local roads. The journey is expected to take around 1.13

hours for heavy vehicles. The route goes through rural and semi-urban areas, with periodic transitions between these settings.

2. Typical Weather Conditions and Hazards

- **Climate:** The area generally experiences a tropical savanna climate, characterized by hot summers, moderate monsoon rains, and relatively cooler winters.
- **Potential Hazards:** During the monsoon season (June to September), heavy rainfall can lead to waterlogging and slippery roads, increasing the risk of accidents. Fog may occur in the early morning during winters, reducing visibility.

3. Traffic Patterns

- **Peak Hours:** Typically, peak traffic hours are around 8:00 AM to 10:00 AM and 5:00 PM to 7:00 PM. Traffic congestion is more probable around major market areas and town centers.
- **Congestion-Prone Areas:** The approach to Mettupalayam can see increased congestion, particularly near marketplaces and entry points into the town.

4. Assessment of Road Quality and Infrastructure

- **Road Conditions:** NH181 is generally well-maintained, but smaller roads may have potholes or be narrow, particularly in rural segments.
- **Infrastructure:** Bridges and culverts should be crossed carefully, especially during rains, to avoid structural weaknesses.

5. Suggestions for Alternative Routes

- **Alternate Route:** In case of emergencies, detours through NH544 or shifting onto local roads that bypass town centers could be considered. However, these routes may be longer and require local navigation knowledge.

6. Local Regulations on Hazardous Materials

- **Regulations:** Transport of hazardous materials is subject to strict regulations, including obtaining necessary permits, adhering to specified timings, and ensuring vehicles are properly marked and equipped for safety.

7. Historical Incidents

- **Incident Occurrences:** While not specifically documented here, it is noted that regional reports have mentioned incidents due to driver error in foggy or rainy conditions. Focus should be on driver readiness and adherence to safety protocols.

8. Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** Areas near reserved forests or water bodies require caution to prevent environmental contamination. Air quality rules should be strictly followed, particularly in residential zones.

9. Communication Coverage

- **Coverage:** Major parts of the route have good mobile network coverage. However, rural areas between major towns may have sporadic coverage leading to potential communication dead zones.

10. Estimated Emergency Response Times

- **Response Time:** Estimated emergency response times vary:
 - **Urban segments:** 20-30 minutes.
 - **Rural segments:** 40-60 minutes due to less accessibility and slower logistic capabilities.

11. Overall Summary of Risk Assessment

This route presents moderate risk levels for trucks carrying hazardous materials, primarily due to occasional poor road conditions, weather variability, and potential communication coverage gaps. Preparedness plans should include alternative routing, clear communication protocols, and adherence to local transport regulations. Ensuring vehicle and driver readiness is critical to minimize risks, especially during adverse weather. Coordination with local authorities for rapid response can significantly mitigate the impact of any incidents.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.03211, 77.07640	15 KM/Hr
1	Turn	Medium	11.10527, 77.17318	30 KM/Hr
2	Turn	High	11.10777, 77.17700	15 KM/Hr
3	Turn	Medium	11.22872, 77.12009	30 KM/Hr
4	Blind Spot	Blind Spot	11.29801, 76.94539	10 KM/Hr
5	Turn	High	11.29723, 76.94534	15 KM/Hr
6	Turn	Medium	11.29715, 76.94526	30 KM/Hr
7	Turn	High	11.29710, 76.94491	15 KM/Hr
8	Turn	Medium	11.29680, 76.94474	30 KM/Hr
9	Turn	High	11.29635, 76.94327	15 KM/Hr
10	Turn	High	11.29572, 76.94330	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
11	Blind Spot	Blind Spot	11.29538, 76.93979	10 KM/Hr
12	Blind Spot	Blind Spot	11.29492, 76.93989	10 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Royal Care Hospital, Coimbatore	11.059106, 77.0893479	30 km/h	Medium
5	hospital	Government Hospital, Annur	11.2325, 77.102249	30 km/h	Medium
6	hospital	NM Hospital	11.23271, 77.10187	30 km/h	Medium
7	hospital	Shanthi Medical Foundation	11.232428, 77.1016701	30 km/h	Medium
8	hospital	R.G. Hospital	11.23188, 77.100705	30 km/h	Medium
9	police	Annur Police Station	11.2315485, 77.1014321	30 km/h	Medium
14	fire_station	Mettupalayam Fire Station	11.293845, 76.9512395	30 km/h	Medium
17	hospital	R A Medical Center and Hospital	11.2976038, 76.940787	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
1	college	PSG Institute of Technology and Applied Research	11.0677118, 77.0945744	30 km/h	Medium
2	school	GRD-CPF Matriculation Higher Secondary School	11.0610217, 77.0933504	30 km/h	Medium
3	school	M. Nanjappa Chettiar Matriculation Hr. Sec. School	11.0715394, 77.1039133	30 km/h	Medium
4	marketplace	Annur saturday market (weekly market)	11.2349165, 77.1028197	30 km/h	Medium
10	school	St. Mary's Convent Matriculation Higher Secondary School	11.2296044, 77.0928116	30 km/h	Medium
11	college	Shri Kumaran College of Arts and Science	11.2740813, 76.982175	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
12	marketplace	New Gandhi Maidhanam	11.2854945, 76.9683759	30 km/h	Medium
13	school	Holy Angels Matric. Hr. Sec. School	11.2926141, 76.9517143	30 km/h	Medium
16	school	Holy Angels Primary School	11.2994396, 76.942179	30 km/h	Medium
18	school	LEF Christain Matriculation School	11.2929024, 76.9433302	30 km/h	Medium
19	school	LEF Christain Matriculation School	11.2928911, 76.943694	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.03211, 77.07640



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10527, 77.17318



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.10777, 77.17700



Risk Type: Turn

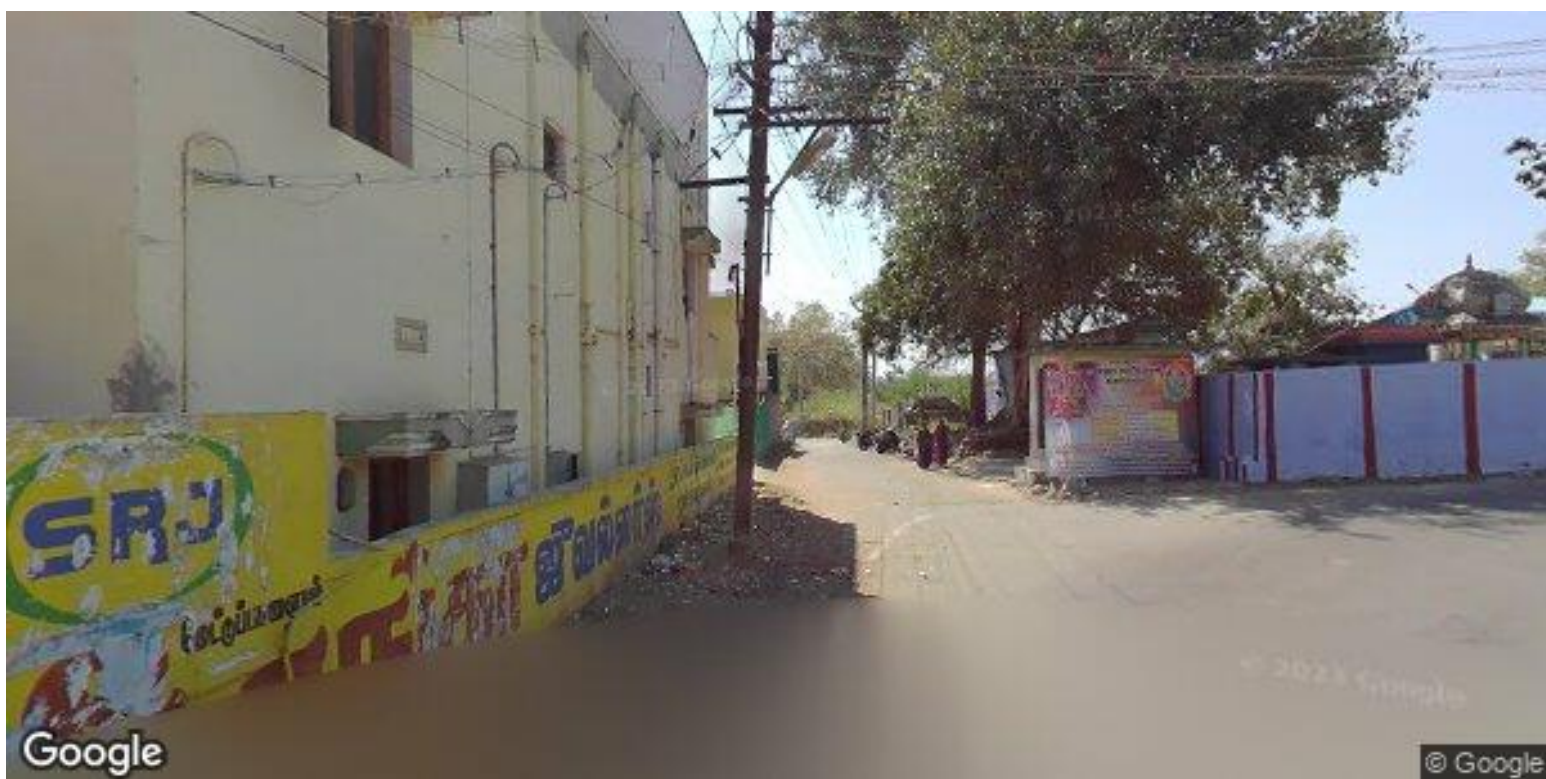
Risk Level: Medium

Speed Limit: 30 KM/Hr

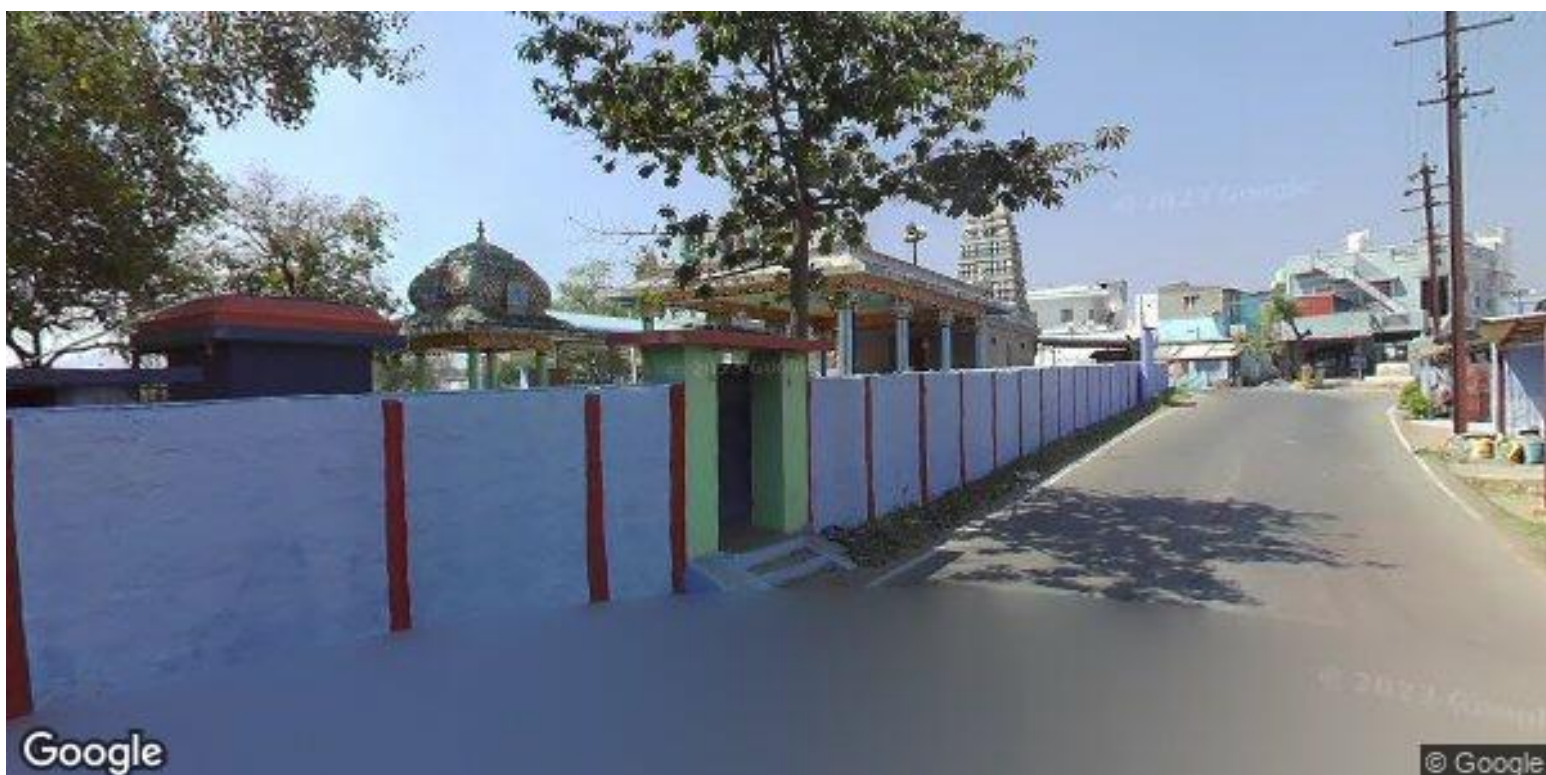
Coordinates: 11.22872, 77.12009



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.29801, 76.94539



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.29723, 76.94534



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29715, 76.94526



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.29710, 76.94491



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29680, 76.94474



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29635, 76.94327



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29572, 76.94330



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.29538, 76.93979



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.29492, 76.93989
