JOURNEY RISK MANAGEMENT (JRM) STUDY

IOCL Coimbatore Terminal to Sri Mookambikai Agencies

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

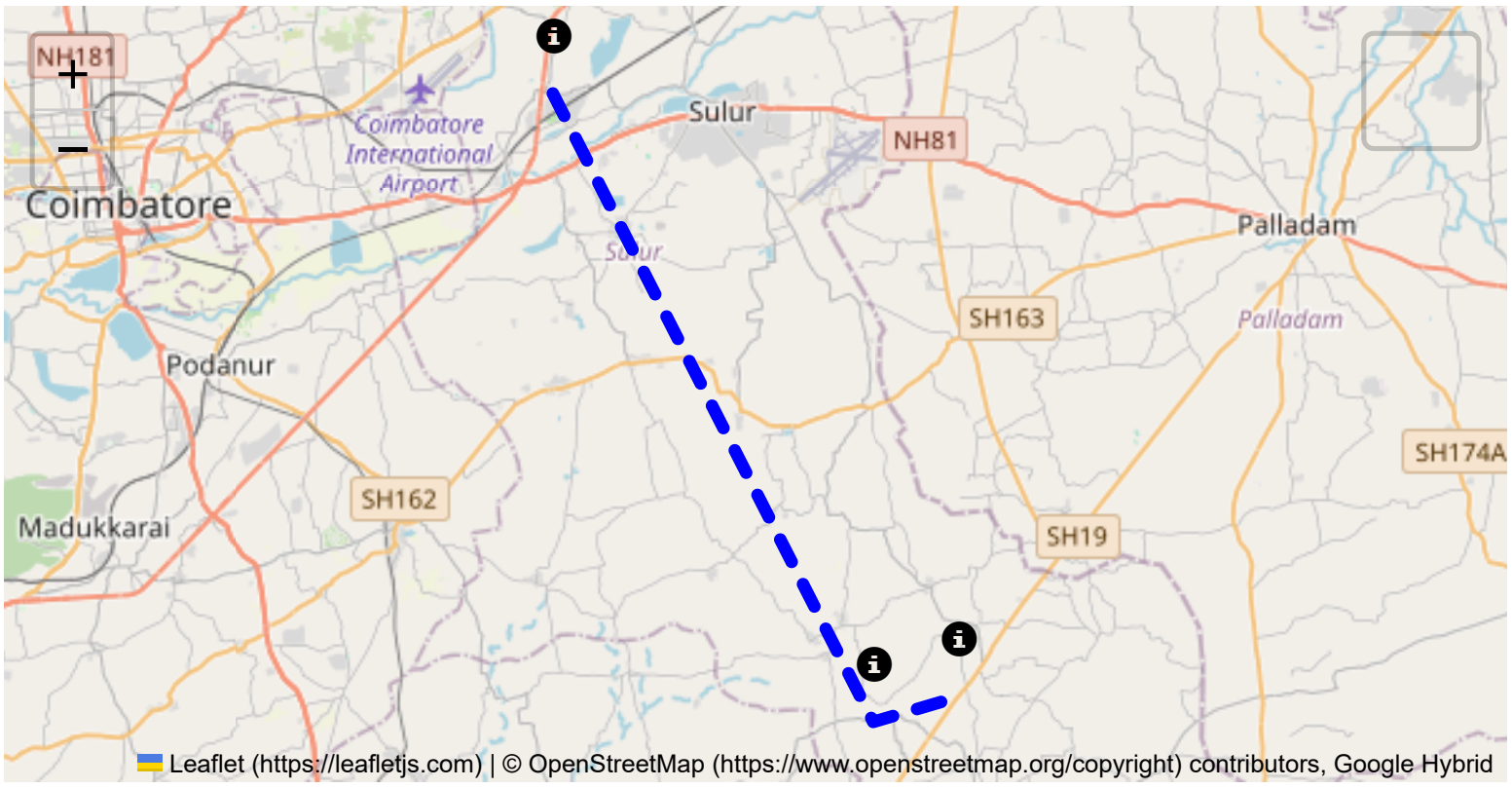
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

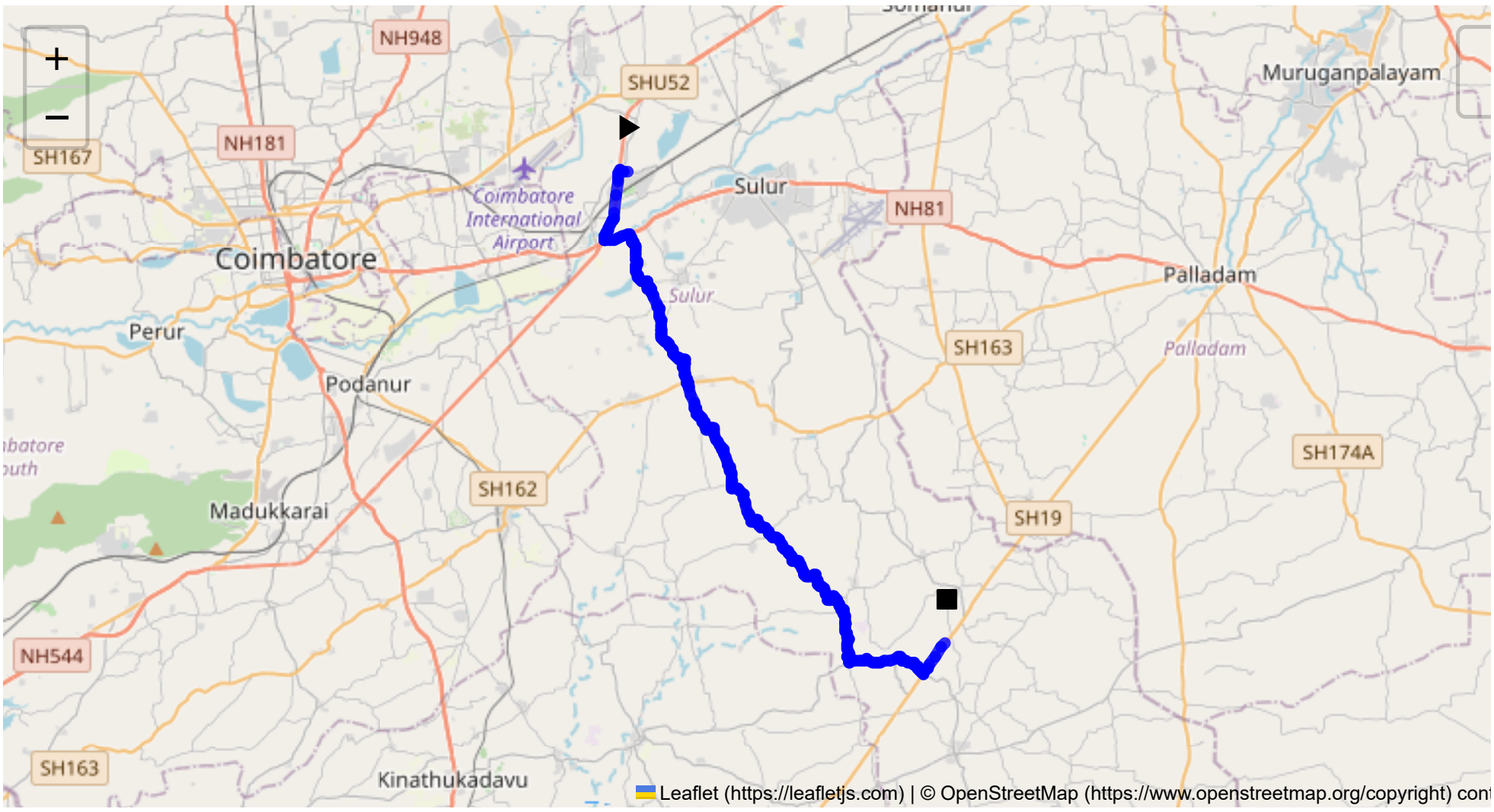
Compliance with Government Directives

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: 29.63 km
Estimated Duration: 0.8 hours
Adjusted Duration (Heavy Vehicle): 1.0 hours
Start: (11.0315, 77.0797)
End: (10.869135, 77.19042)



Welcome to the Journey Risk Management Study

Route Safety Analysis: Athappagoundenpudur to Sultanpet via MDR881, Tamil Nadu

1. Overview of the Route Map

The route from 23JH+HR8, Athappagoundenpudur to V59Q+GX9, Sultanpet spans approximately 29.63 kilometers via MDR881. This path traverses through a mix of rural and semi-urban areas, primarily comprised of two-lane roads with occasional intersections and minimal bypass options.

2. Typical Weather Conditions and Potential Weather-Related Hazards

- **Weather Conditions:** The region experiences a tropical climate with hot, dry summers and moderate monsoon rains from June to September.
- **Weather-Related Hazards:** The monsoon season may lead to slippery roads and potential flooding in low-lying areas. Dust storms can also reduce visibility during summer months.

3. Analysis of Traffic Patterns

- **Peak Hours:** Traffic congestion is likely during morning (7-9 AM) and evening (5-7 PM) rush hours, particularly near small townships.
- **Congestion-Prone Areas:** Watch for potential bottlenecks around small market areas and intersections where rural roads feed into MDR881.

4. Assessment of Road Quality and Infrastructure

- **Road Quality:** The general condition of MDR881 is moderate, with some sections prone to potholes and wear. Signage may be inconsistent in rural stretches.
- **Infrastructure:** There are few dedicated lane markings, limited street lighting in rural stretches, and narrow bridges that require cautious navigation.

5. Suggestions for Alternative Routes for Emergencies

- An alternative route could divert through NH209, reconnecting to MDR881 closer to Sultanpet. This may involve additional kilometers but utilizes more major highways with better maintenance.

6. Summary of Local Regulations Affecting Hazardous Material Transport

- **Regulations:** Trucks carrying hazardous materials must adhere to state guidelines regarding load limits, proper labeling, and designated operational hours. Permits may be required for certain materials.

7. Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials

- **Incidents:** While specific incident data is limited, regional reports suggest occasional accidents involving agricultural vehicles. Accidents often result from poor road conditions or driver error.

8. Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** The route passes through agricultural zones and near small hamlets, requiring adherence to speed limits and noise regulations. Ensure no spillage affects farmland.

9. Analysis of Communication Coverage

- **Dead Zones:** Some rural sections may have weak mobile network coverage, particularly outside major towns. GPS services may experience interruptions, necessitating preloaded maps or offline navigation.

10. Estimated Emergency Response Times

- Emergency services are more readily available near townships (15-30 minutes response). In more remote areas, response times could exceed 45 minutes due to distance and road conditions.

11. Overall Summary of Risk Assessment

- **Risk Levels:** Moderate, primarily due to road conditions and weather-related hazards during the monsoon. Ensure trucks are well-maintained, equipped with safety gear, and drivers are briefed on emergency protocols.
- **Recommendations:** Regular checks on weather forecasts, night travel avoidance, and regular vehicle maintenance can mitigate many of the risks on this route.

This risk assessment highlights key considerations for the safe transport of materials along this route, emphasizing the importance of preparedness in addressing weather, road conditions, and communication challenges.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Blind Spot	Blind Spot	11.03211, 77.07640	10 KM/Hr
1	Turn	Medium	11.00778, 77.07085	30 KM/Hr
2	Turn	Medium	11.00773, 77.07090	30 KM/Hr
3	Blind Spot	Blind Spot	11.01005, 77.08007	10 KM/Hr
4	Turn	High	10.99360, 77.08607	15 KM/Hr
5	Turn	Medium	10.99162, 77.08614	30 KM/Hr
6	Turn	Medium	10.99147, 77.08623	30 KM/Hr
7	Turn	Medium	10.99140, 77.08639	30 KM/Hr
8	Turn	Medium	10.99150, 77.08684	30 KM/Hr
9	Turn	Medium	10.99143, 77.08704	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
10	Turn	Medium	10.97328, 77.09207	30 KM/Hr
11	Turn	Medium	10.96690, 77.09891	30 KM/Hr
12	Turn	Medium	10.96678, 77.09908	30 KM/Hr
13	Turn	High	10.95872, 77.10030	15 KM/Hr
14	Turn	High	10.95871, 77.10037	15 KM/Hr
15	Turn	Medium	10.94760, 77.10404	30 KM/Hr
16	Turn	Medium	10.94726, 77.10468	30 KM/Hr
17	Blind Spot	Blind Spot	10.94262, 77.10723	10 KM/Hr
18	Turn	High	10.94340, 77.10925	15 KM/Hr
19	Turn	Medium	10.92492, 77.11587	30 KM/Hr
20	Turn	Medium	10.92372, 77.11547	30 KM/Hr
21	Turn	Medium	10.92270, 77.11562	30 KM/Hr
22	Turn	Medium	10.91090, 77.12292	30 KM/Hr
23	Turn	Medium	10.91081, 77.12302	30 KM/Hr
24	Turn	Medium	10.91081, 77.12312	30 KM/Hr
25	Turn	Medium	10.91151, 77.12434	30 KM/Hr
26	Turn	Medium	10.91150, 77.12446	30 KM/Hr
27	Turn	Medium	10.91141, 77.12458	30 KM/Hr
28	Turn	Medium	10.90876, 77.12759	30 KM/Hr
29	Turn	Medium	10.90545, 77.13168	30 KM/Hr
30	Turn	Medium	10.89766, 77.13692	30 KM/Hr
31	Turn	High	10.89746, 77.13706	15 KM/Hr
32	Turn	Medium	10.89725, 77.13908	30 KM/Hr
33	Turn	Medium	10.89197, 77.14253	30 KM/Hr
34	Turn	Medium	10.89241, 77.14486	30 KM/Hr
35	Turn	Medium	10.89236, 77.14497	30 KM/Hr
36	Turn	Medium	10.88399, 77.14962	30 KM/Hr
37	Turn	Medium	10.88389, 77.14983	30 KM/Hr
38	Turn	Medium	10.88391, 77.15009	30 KM/Hr
39	Turn	Medium	10.88467, 77.15087	30 KM/Hr
40	Turn	High	10.88510, 77.15153	15 KM/Hr
41	Turn	High	10.88070, 77.15428	15 KM/Hr
42	Turn	High	10.88066, 77.15466	15 KM/Hr
43	Turn	Medium	10.87580, 77.15538	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
44	Turn	Medium	10.86481, 77.15684	30 KM/Hr
45	Turn	High	10.86464, 77.15662	15 KM/Hr
46	Turn	High	10.86243, 77.15711	15 KM/Hr
47	Turn	Medium	10.86425, 77.17486	30 KM/Hr
48	Turn	Medium	10.86418, 77.17498	30 KM/Hr
49	Turn	High	10.86301, 77.17570	15 KM/Hr
50	Turn	High	10.86213, 77.17967	15 KM/Hr
51	Turn	Medium	10.86204, 77.17973	30 KM/Hr
52	Turn	Medium	10.86165, 77.17964	30 KM/Hr
53	Turn	Medium	10.86148, 77.17968	30 KM/Hr
54	Turn	High	10.85856, 77.18315	15 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Saraswathi Hospital	11.0069868, 77.071368	30 km/h	Medium
1	clinic	Dr. V. Ramakrishnan Clinic	11.0086635, 77.081108	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
2	college	Kalaignar Karunanidhi Institute of Technology	10.9992121, 77.0842214	30 km/h	Medium

Route Photos of Risky Spots

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.03211, 77.07640

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.00778, 77.07085

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.00773, 77.07090

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.01005, 77.08007

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.99360, 77.08607

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.99162, 77.08614

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.99147, 77.08623

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.99140, 77.08639

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.99150, 77.08684

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.99143, 77.08704

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.97328, 77.09207

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.96690, 77.09891

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.96678, 77.09908

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.95872, 77.10030

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.95871, 77.10037

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.94760, 77.10404

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.94726, 77.10468

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 10.94262, 77.10723

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.94340, 77.10925

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.92492, 77.11587

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.92372, 77.11547

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.92270, 77.11562

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.91090, 77.12292

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.91081, 77.12302

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.91081, 77.12312

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.91151, 77.12434

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.91150, 77.12446

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.91141, 77.12458

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.90876, 77.12759

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.90545, 77.13168

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.89766, 77.13692

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.89746, 77.13706

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.89725, 77.13908

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.89197, 77.14253

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.89241, 77.14486

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.89236, 77.14497

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.88399, 77.14962

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.88389, 77.14983

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.88391, 77.15009

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.88467, 77.15087

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.88510, 77.15153

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.88070, 77.15428

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.88066, 77.15466

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.87580, 77.15538

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.86481, 77.15684

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.86464, 77.15662

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.86243, 77.15711

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.86425, 77.17486

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.86418, 77.17498

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

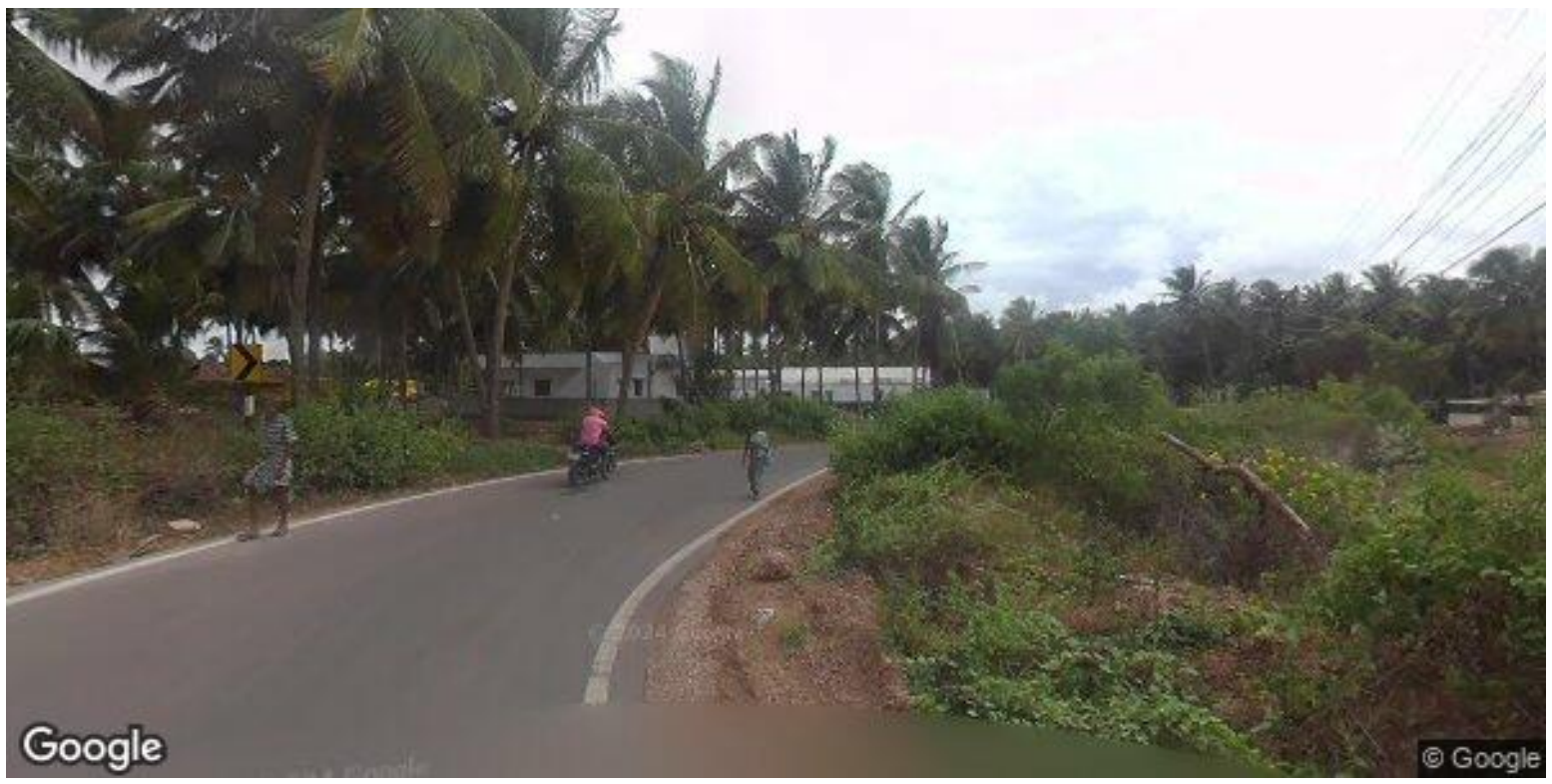
Coordinates: 10.86301, 77.17570

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.86213, 77.17967



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.86204, 77.17973

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.86165, 77.17964

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.86148, 77.17968

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.85856, 77.18315