



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

IOCL Coimbatore Terminal to Kamalm Dheepam

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

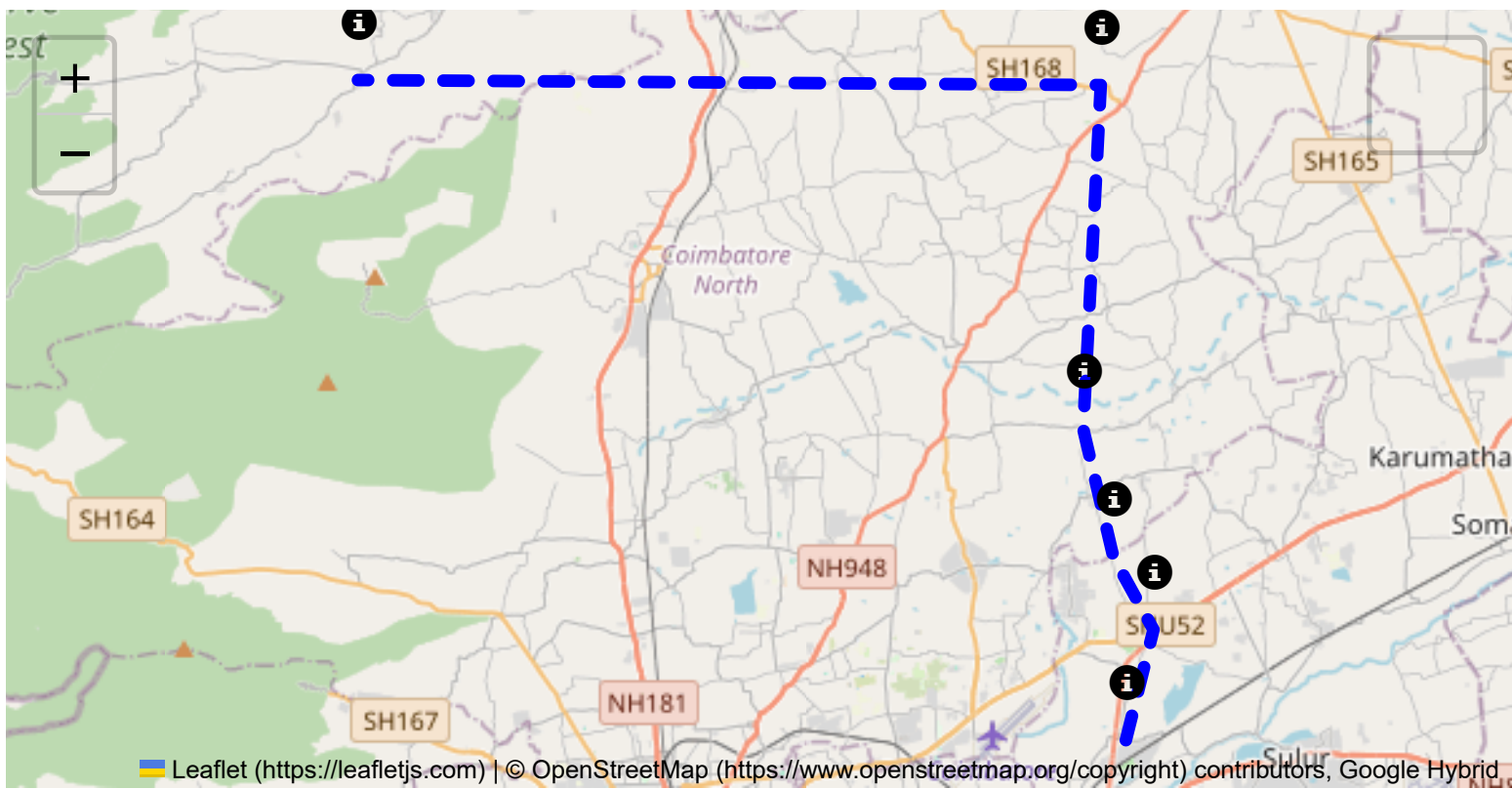
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

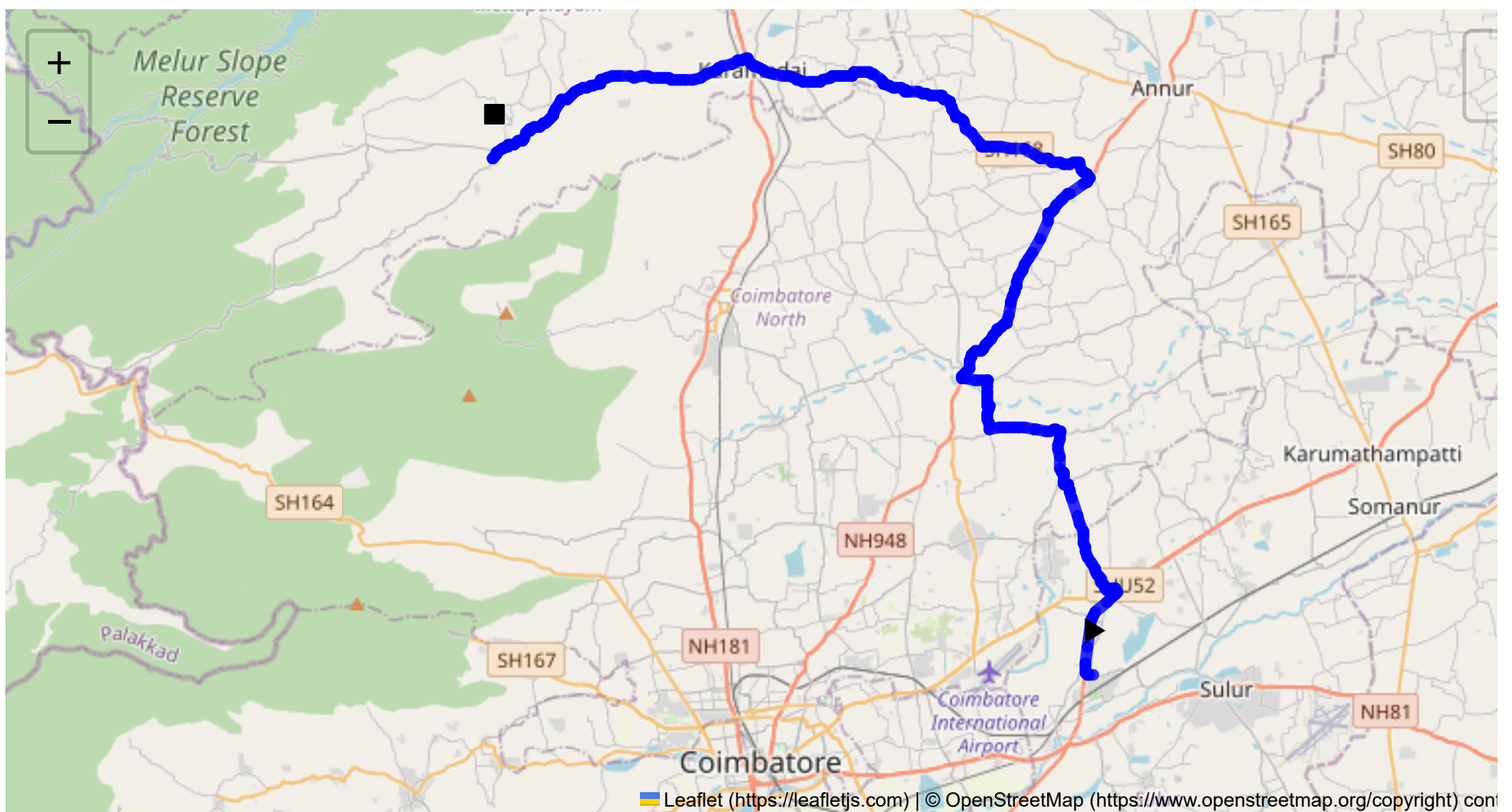
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 52.86 km
Estimated Duration: 1.4 hours
Adjusted Duration (Heavy Vehicle): 1.8 hours
Start: (11.0315, 77.0797)
End: (11.20844, 76.8695)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

This route spans approximately 52.86 kilometers, originating from Athappagoundenpudur and terminating in Dhayanur, Tamil Nadu. The journey typically involves traversing through areas such as Neelambur, Kamalam Nagar in Kallipalayam, and Kempnaickenpalayam. The route incorporates a mix of primary highways and rural roads, potentially affecting travel time and conditions.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu typically has a tropical climate with distinct wet and dry seasons. Monsoon season (June to September and October to November) might result in heavy rainfall, leading to poor visibility and possible flooding. During these times, road surface conditions can deteriorate quickly, increasing the risk of slipping and accidents.

3. Analysis of Traffic Patterns

- **Peak Hours:** Traffic congestion is common during morning (8:00 AM - 10:00 AM) and evening (5:00 PM - 7:00 PM) hours, especially in areas closer to Coimbatore due to commuter traffic.
- **Congestion-Prone Areas:** The By-pass to Avinashi Road and key intersections in Neelambur can experience significant delays.

4. Assessment of Road Quality and Infrastructure

- **Highways (e.g., Avinashi Road):** Generally well-maintained with appropriate signage and lighting, but potholes and abrupt lane changes can occur.
- **Rural Roads:** Narrow with uneven surfaces, limited lighting, and occasional animal crossings. Be wary of unexpected sharp turns and pedestrian traffic.

5. Suggestions for Alternative Routes

In case of emergencies or prohibitive conditions:

- **Alternative Routes:** Consider taking a detour via NH544, which could provide smoother travel but verify current road conditions and traffic.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Transporting hazardous materials typically requires complying with regulations on designated routes and times, especially avoiding peak hours. Proper signage and documentation are mandatory, and specific roads may have restrictions.

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

This region has seen incidents involving heavy vehicles, primarily due to over-speeding, mechanical failure, or weather conditions. Severe incidents involving hazardous materials are rare but require adherence to safety protocols.

8. Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** Agricultural regions and residential zones near Neelambur and Kamalam Nagar require reduced speed and sound due to human and animal presence.
- **Environmental Impact:** Spillage of hazardous materials poses risks to local ecosystems.

9. Analysis of Communication Coverage

Most areas along the route have adequate mobile network coverage; however, rural sections might experience intermittent dead zones. It’s advisable to be prepared for limited connectivity in these areas.

10. Estimated Emergency Response Times

- **Urban Areas (e.g., Neelambur):** Approximately 15-30 minutes due to proximity to emergency services.
- **Rural Sections:** Potentially 30-60 minutes due to distance and road conditions.

11. Overall Summary of Risk Assessment

The overall risk assessment of this route for transporting hazardous materials is moderate. Challenges include varying road conditions, weather impacts, and traffic congestion. Nevertheless, adherence to local regulations, alternative routings, and preparedness for emergencies can mitigate these risks. Special attention should be paid during monsoon seasons and peak traffic hours to ensure safety and compliance.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.03211, 77.07640	15 KM/Hr
1	Turn	High	11.05950, 77.08744	15 KM/Hr
2	Turn	Medium	11.05968, 77.08730	30 KM/Hr
3	Blind Spot	Blind Spot	11.06138, 77.08700	10 KM/Hr
4	Blind Spot	Blind Spot	11.06017, 77.08395	10 KM/Hr
5	Turn	Medium	11.06143, 77.08368	30 KM/Hr
6	Turn	Medium	11.09666, 77.07062	30 KM/Hr
7	Turn	High	11.09692, 77.07032	15 KM/Hr
8	Turn	High	11.09692, 77.06915	15 KM/Hr
9	Turn	Medium	11.10093, 77.06855	30 KM/Hr
10	Turn	High	11.11518, 77.06798	15 KM/Hr
11	Turn	Medium	11.11530, 77.06781	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
12	Turn	Medium	11.11570, 77.06566	30 KM/Hr
13	Turn	Medium	11.11520, 77.06462	30 KM/Hr
14	Turn	Medium	11.11555, 77.05876	30 KM/Hr
15	Blind Spot	Blind Spot	11.11590, 77.04318	10 KM/Hr
16	Turn	Medium	11.12352, 77.04304	30 KM/Hr
17	Turn	High	11.12412, 77.04223	15 KM/Hr
18	Turn	High	11.13276, 77.04239	15 KM/Hr
19	Turn	High	11.13350, 77.03352	15 KM/Hr
20	Turn	Medium	11.14129, 77.03688	30 KM/Hr
21	Turn	Medium	11.14300, 77.04057	30 KM/Hr
22	Turn	Medium	11.14358, 77.04115	30 KM/Hr
23	Turn	Medium	11.14496, 77.04160	30 KM/Hr
24	Turn	Medium	11.15152, 77.04774	30 KM/Hr
25	Turn	High	11.20175, 77.07779	15 KM/Hr
26	Turn	Medium	11.20311, 77.07750	30 KM/Hr
27	Turn	Medium	11.20448, 77.07523	30 KM/Hr
28	Turn	High	11.20713, 77.07450	15 KM/Hr
29	Turn	Medium	11.21198, 77.05503	30 KM/Hr
30	Turn	Medium	11.21306, 77.04025	30 KM/Hr
31	Turn	Medium	11.22203, 77.03364	30 KM/Hr
32	Turn	Medium	11.22255, 77.03183	30 KM/Hr
33	Turn	Medium	11.22810, 77.02928	30 KM/Hr
34	Turn	Medium	11.22920, 77.02742	30 KM/Hr
35	Turn	High	11.22934, 77.02626	15 KM/Hr
36	Turn	High	11.23003, 77.02620	15 KM/Hr
37	Turn	Medium	11.23015, 77.02603	30 KM/Hr
38	Turn	Medium	11.23150, 77.01391	30 KM/Hr
39	Turn	Medium	11.23172, 77.01366	30 KM/Hr
40	Turn	Medium	11.23245, 77.01340	30 KM/Hr
41	Turn	Medium	11.23262, 77.01320	30 KM/Hr
42	Turn	Medium	11.23454, 77.00623	30 KM/Hr
43	Turn	High	11.23791, 76.99529	15 KM/Hr
44	Turn	Medium	11.23681, 76.99506	30 KM/Hr
45	Turn	Medium	11.23668, 76.99489	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
46	Turn	Medium	11.23685, 76.98811	30 KM/Hr
47	Turn	Medium	11.23511, 76.97752	30 KM/Hr
48	Turn	Medium	11.24041, 76.96162	30 KM/Hr
49	Turn	Medium	11.24082, 76.96002	30 KM/Hr
50	Turn	High	11.24280, 76.95869	15 KM/Hr
51	Turn	Medium	11.23532, 76.90715	30 KM/Hr
52	Turn	Medium	11.23472, 76.90716	30 KM/Hr
53	Turn	Medium	11.23450, 76.90706	30 KM/Hr
54	Turn	Medium	11.22869, 76.89355	30 KM/Hr
55	Turn	Medium	11.22018, 76.88621	30 KM/Hr
56	Turn	Medium	11.21975, 76.88588	30 KM/Hr
57	Turn	Medium	11.21903, 76.88284	30 KM/Hr
58	Turn	Medium	11.21523, 76.88027	30 KM/Hr
59	Turn	High	11.21340, 76.87481	15 KM/Hr
60	Turn	Medium	11.21304, 76.87461	30 KM/Hr
61	Turn	Medium	11.21061, 76.87074	30 KM/Hr
62	Turn	High	11.20868, 76.86949	15 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
4	hospital	Aravindan Hospital	11.1334592, 77.0340488	30 km/h	Medium
5	hospital	Sampath Hospital ,S.S.Kulam	11.1339, 77.034088	30 km/h	Medium
6	hospital	Gokulam ortho hospital	11.1340331, 77.0350369	30 km/h	Medium
11	hospital	Sowmiya Hospital	11.2377363, 76.9652218	30 km/h	Medium
12	hospital	Government primary health center	11.2385887, 76.9640887	30 km/h	Medium
13	hospital	KR Hospital, Karamadai	11.23934, 76.962781	30 km/h	Medium
14	hospital	Sowmiya Hospital	11.2400426, 76.9619912	30 km/h	Medium
15	police	Karamadai Police Station	11.2395224, 76.9595897	30 km/h	Medium
16	pharmacy	sri kaveri medicals	11.2428499, 76.960831	30 km/h	Medium
17	hospital	burma doctor hospital	11.2414022, 76.9600962	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
20	pharmacy	Saravana Pharmacy	11.2429694, 76.9584406	30 km/h	Medium
21	hospital	Subbu Hospital	11.2434041, 76.9602041	30 km/h	Medium
23	hospital	government sub health center	11.2376384, 76.9224629	30 km/h	Medium
27	clinic	Anbu clinic	11.2226758, 76.8891078	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
1	college	Info Institute of Engineering	11.1272103, 77.0392923	30 km/h	Medium
2	college	Vivekananda Institute Of Management Studies	11.1343205, 77.044678	30 km/h	Medium
3	school	Star kids pre school	11.1346624, 77.0390481	30 km/h	Medium
7	school	White Eagle Public School	11.2103854, 77.0543955	30 km/h	Medium
8	school	Panchayat Union Primary School	11.2383383, 76.9955329	30 km/h	Medium
9	school	Vidya Vikas Schools	11.2400364, 76.9731001	30 km/h	Medium
10	school	panchayat union primary school	11.2375143, 76.9692497	30 km/h	Medium
18	marketplace	Karamadai Friday Market	11.2406365, 76.9591049	30 km/h	Medium
19	marketplace	Karamadai Market	11.2407774, 76.9594288	30 km/h	Medium
22	school	panchayat union middle school	11.2374895, 76.9224708	30 km/h	Medium
24	school	Nava Bharath Nursery and Primary School	11.2358453, 76.9088527	30 km/h	Medium
25	school	Government Higher Secondary School, Bujanganur	11.2247875, 76.8903099	30 km/h	Medium
26	school	Government Higher Secondary School, Bujanganur	11.2246984, 76.890231	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: High

Speed Limit: 15 KM/Hr

Coordinates: 11.05950, 77.08744



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.05968, 77.08730



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.06138, 77.08700



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.06017, 77.08395



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.06143, 77.08368



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.09666, 77.07062



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.09692, 77.07032



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.09692, 77.06915



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.10093, 77.06855



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.11518, 77.06798



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.11530, 77.06781



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11570, 77.06566



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11520, 77.06462



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11555, 77.05876



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.11590, 77.04318



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12352, 77.04304



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.12412, 77.04223



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.13276, 77.04239



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.13350, 77.03352



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14129, 77.03688



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14300, 77.04057



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14358, 77.04115



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14496, 77.04160



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.15152, 77.04774



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.20175, 77.07779



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.20311, 77.07750



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.20448, 77.07523



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.20713, 77.07450



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.21198, 77.05503



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.21306, 77.04025



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22203, 77.03364



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22255, 77.03183



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22810, 77.02928



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22920, 77.02742



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.22934, 77.02626



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.23003, 77.02620



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23015, 77.02603

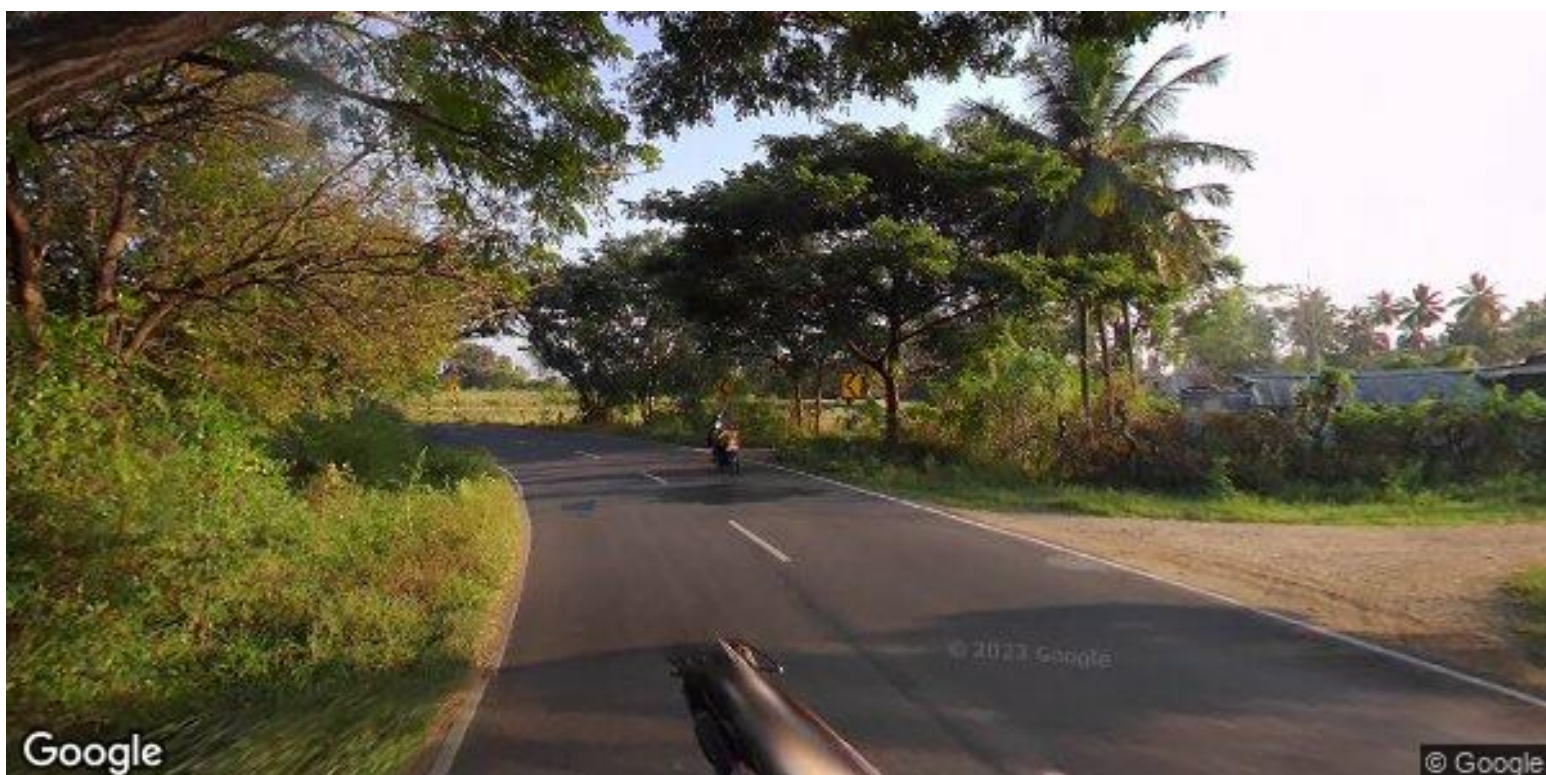


Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23150, 77.01391



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23172, 77.01366



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23245, 77.01340



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23262, 77.01320



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23454, 77.00623



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.23791, 76.99529



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23681, 76.99506



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23668, 76.99489



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23685, 76.98811



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23511, 76.97752



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24041, 76.96162



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24082, 76.96002



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.24280, 76.95869



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22018, 76.88621



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.21975, 76.88588



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.21903, 76.88284



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.21523, 76.88027



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.21340, 76.87481



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.21304, 76.87461



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.21061, 76.87074



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.20868, 76.86949
