



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

IOCL Coimbatore Terminal to Somu Petro Fuels

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

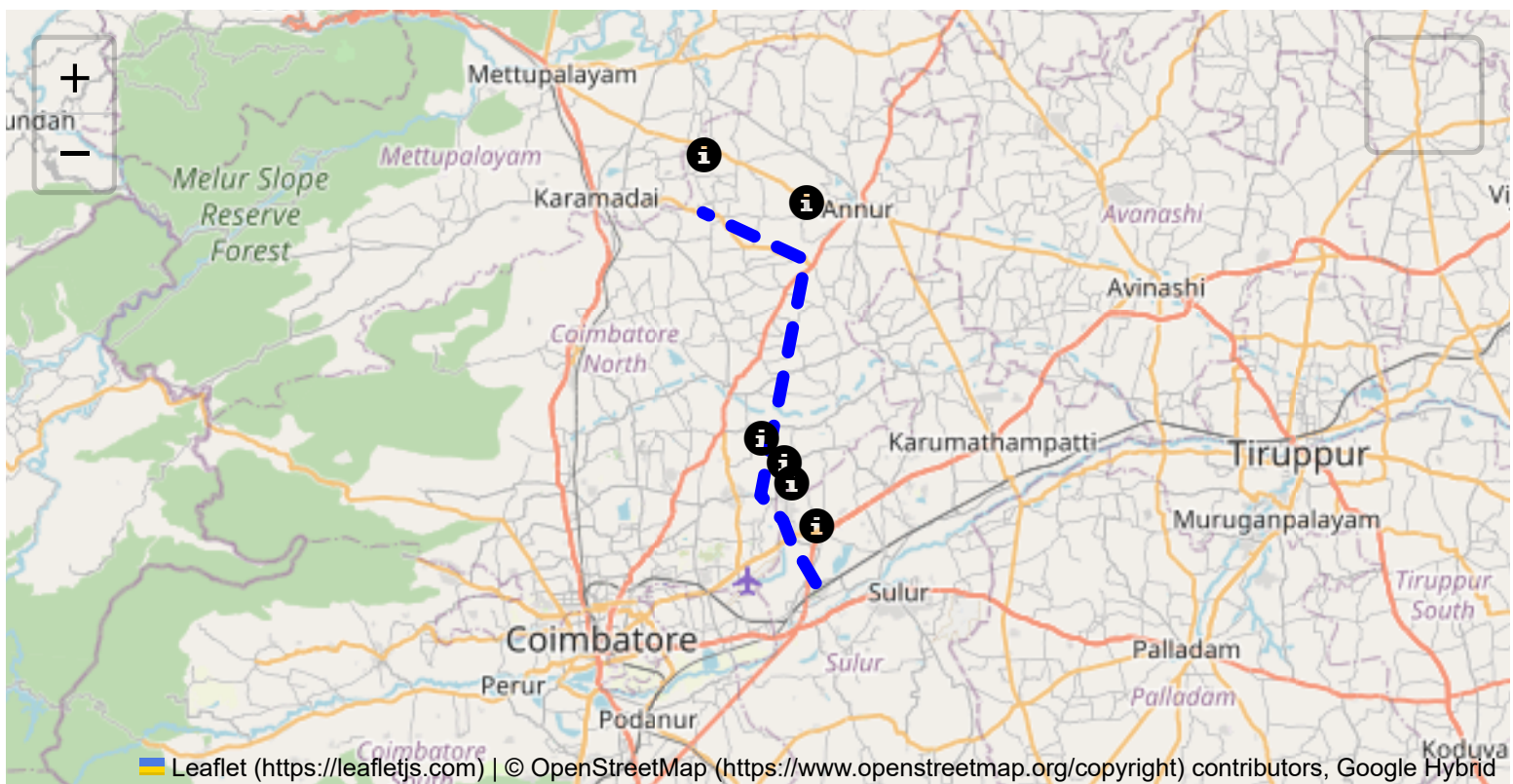
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

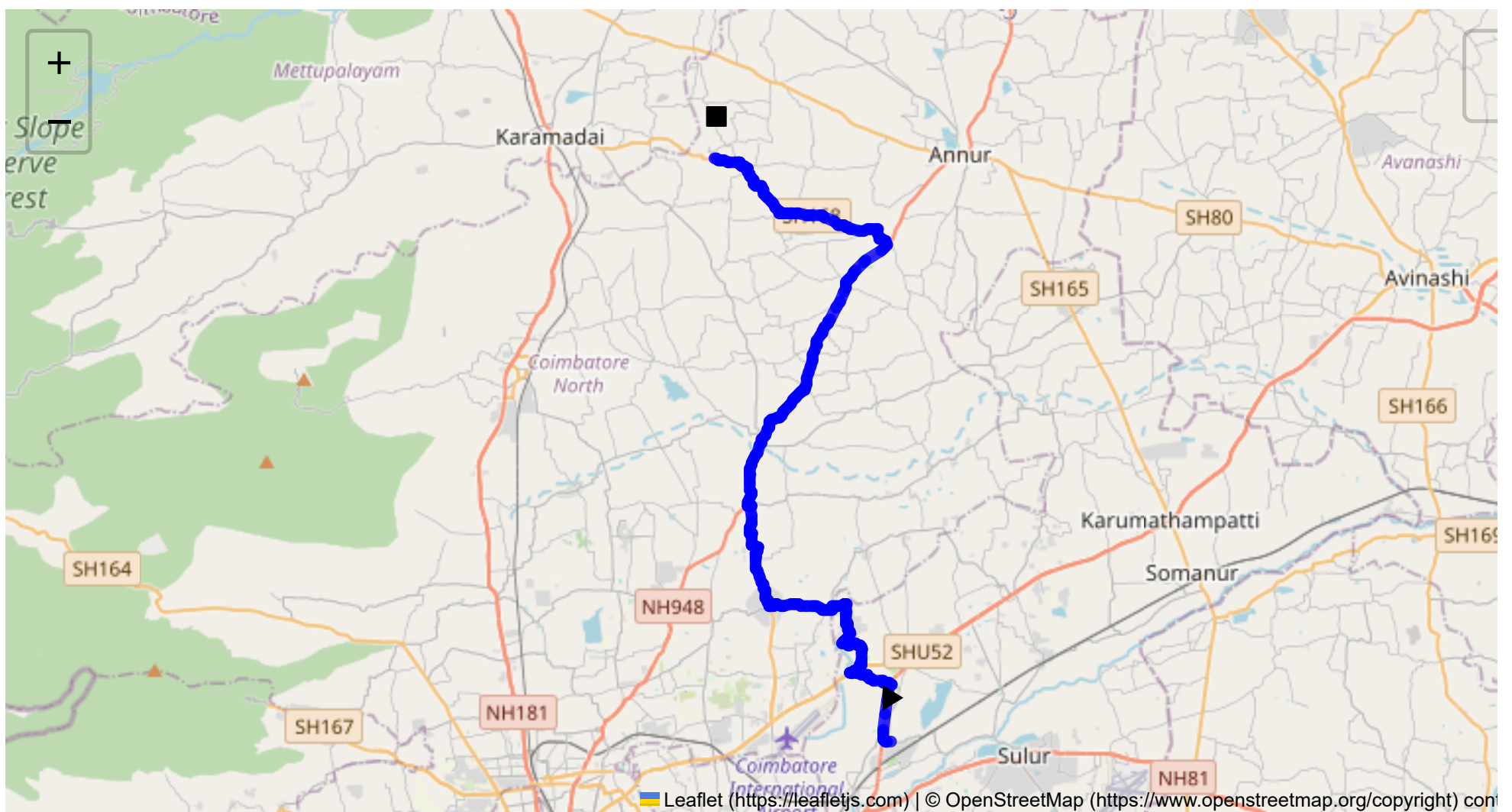
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 35.45 km
Estimated Duration: 1.0 hours
Adjusted Duration (Heavy Vehicle): 1.2 hours
Start: (11.0315, 77.0797)
End: (11.231131, 77.017609)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route spans approximately 35.45 kilometers, traveling from Athappagoundenpudur to Annur, with notable stops at Venkitapuram Rd, GEM Nagar, Kalapatti, and Kariyampalayam. The route covers both urban and semi-urban terrains, with a mix of main roads and smaller, local roads.

2. Typical Weather Conditions and Potential Weather-related Hazards

The Coimbatore region typically experiences a tropical wet and dry climate. Monsoon season, primarily from June to September, might lead to heavy rainfall affecting visibility and road conditions. Dry and hot conditions prevail from March to May, which may lead to roadway glare. Fog is infrequent but can occur during the winter months, occasionally impacting morning travel.

3. Analysis of Traffic Patterns

- **Peak Hours:** Typically, traffic is heaviest between 8-10 AM and 5-7 PM.
- **Congested Areas:** Urban areas such as Kalapatti and segments near major junctions in Coimbatore are prone to congestion. Venkitapuram Rd may also have slow-moving traffic, especially near schools and markets.

4. Assessment of Road Quality and Infrastructure

Roads within urban limits, such as those in Kalapatti and Chinniyampalayam, are generally in good condition with proper signage. However, some stretches, particularly in rural areas, might have uneven surfaces, potholes, and limited lighting. Regular maintenance issues can occur, leading to temporary hazards.

5. Suggestions for Alternative Routes for Emergencies

- **Athappagoundenpudur to Annur Alternate:** Consider using NH 209 for faster access during emergencies, although it bypasses some smaller towns included in the core route.
- **Kalapatti Alternate:** Use Avinashi Road to connect back to NH 544 if congestion or incidents block the primary way.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Transport of hazardous materials follows strict guidelines, including restrictions on travel times and necessary permits. Travel is usually prohibited in dense urban areas during peak hours unless critical. Compliance with the Motor Vehicles Act and relevant environmental regulations is mandatory.

7. Overview of Historical Incidents Involving Heavy Vehicles

There have been occasional incidents involving overturns and spills, particularly on poorly lit or slippery sections during the monsoons. Data suggests minor to moderate severity, with most incidents due to speeding or inadequate vehicle maintenance.

8. Environmental Considerations and Sensitive Areas

Kalapatti is near some ecologically sensitive areas, with patches of preserved green zones. Restrictions could apply for noise and pollutant emissions when transporting hazardous materials. Awareness of

animal crossings in rural sections should be maintained.

9. Analysis of Communication Coverage

The route generally enjoys good mobile network coverage, though rural sections beyond Kalapatti may have brief dead zones. It is advisable to verify network support with major providers beforehand.

10. Estimated Emergency Response Times

- **Urban Sections (Kalapatti, Chinniyampalayam):** Approximately 10-20 minutes.
- **Rural Sections:** Could extend to 30-45 minutes due to lower resource availability.

12. Overall Summary of Risk Assessment

The route from Athappagoundenpudur to Annur is mostly feasible for heavy vehicles transporting hazardous materials, with moderate risk. Major risks include weather-related road conditions, congestion, and suboptimal road infrastructure in some areas. Preparation involves following safety protocols, ensuring vehicle maintenance, and maintaining communication. Considerations for rerouting based on real-time traffic and environmental conditions are advised to optimize safety.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.07800, 77.03707	15 KM/Hr
1	U-Turn	High	11.0549503, 77.0650284	10 KM/Hr
2	Turn	High	11.03211, 77.07640	15 KM/Hr
3	Turn	High	11.05129, 77.07919	15 KM/Hr
4	Turn	High	11.05181, 77.07696	15 KM/Hr
5	Turn	High	11.05218, 77.07692	15 KM/Hr
6	Turn	Medium	11.05281, 77.07261	30 KM/Hr
7	Turn	Medium	11.05343, 77.07106	30 KM/Hr
8	Turn	High	11.05351, 77.07099	15 KM/Hr
9	Turn	High	11.05411, 77.07097	15 KM/Hr
10	Turn	Medium	11.05527, 77.06568	30 KM/Hr
11	Turn	High	11.05495, 77.06503	15 KM/Hr
12	Blind Spot	Blind Spot	11.05507, 77.06496	10 KM/Hr
13	Turn	High	11.05751, 77.06875	15 KM/Hr
14	Turn	High	11.06437, 77.06865	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
15	Blind Spot	Blind Spot	11.06510, 77.06256	10 KM/Hr
16	Turn	High	11.06612, 77.06275	15 KM/Hr
17	Turn	High	11.06608, 77.06386	15 KM/Hr
18	Turn	Medium	11.07198, 77.06365	30 KM/Hr
19	Turn	Medium	11.07207, 77.06368	30 KM/Hr
20	Turn	Medium	11.07228, 77.06399	30 KM/Hr
21	Blind Spot	Blind Spot	11.07865, 77.06377	10 KM/Hr
22	Turn	High	11.07773, 77.05884	15 KM/Hr
23	Turn	Medium	11.07667, 77.05838	30 KM/Hr
24	Turn	Medium	11.07650, 77.05803	30 KM/Hr
25	Turn	Medium	11.09599, 77.03170	30 KM/Hr
26	Turn	Medium	11.09663, 77.03241	30 KM/Hr
27	Turn	High	11.09846, 77.03246	15 KM/Hr
28	Turn	High	11.09879, 77.03095	15 KM/Hr
29	Turn	Medium	11.10295, 77.03049	30 KM/Hr
30	Turn	Medium	11.10306, 77.03040	30 KM/Hr
31	Turn	Medium	11.10315, 77.02995	30 KM/Hr
32	Turn	Medium	11.10326, 77.02986	30 KM/Hr
33	Blind Spot	Blind Spot	11.11250, 77.03030	10 KM/Hr
34	Blind Spot	Blind Spot	11.11256, 77.02901	10 KM/Hr
35	Turn	Medium	11.14340, 77.04107	30 KM/Hr
36	Turn	Medium	11.15207, 77.04890	30 KM/Hr
37	Turn	Medium	11.20175, 77.07779	30 KM/Hr
38	Turn	Medium	11.20302, 77.07758	30 KM/Hr
39	Turn	Medium	11.20708, 77.07457	30 KM/Hr
40	Turn	Medium	11.21292, 77.04042	30 KM/Hr
41	Turn	Medium	11.22243, 77.03203	30 KM/Hr
42	Turn	Medium	11.22802, 77.02934	30 KM/Hr
43	Turn	High	11.22931, 77.02630	15 KM/Hr
44	Turn	Medium	11.22943, 77.02622	30 KM/Hr
45	Turn	Medium	11.22994, 77.02623	30 KM/Hr
46	Turn	High	11.23010, 77.02615	15 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	KGM, Chinniampalayam	11.0570076, 77.067239	30 km/h	Medium
1	hospital	Chinniampalayam Venkateshwara Hospital	11.0545152, 77.0652106	30 km/h	Medium
3	hospital	R V Hospital, Coimbatore	11.0546916, 77.0639178	30 km/h	Medium
4	hospital	Kamalaprakasam, Kalapatti	11.0778, 77.035681	30 km/h	Medium
6	hospital	Aravindan Hospital	11.1334592, 77.0340488	30 km/h	Medium
7	hospital	Sampath Hospital ,S.S.Kulam	11.1339, 77.034088	30 km/h	Medium
8	hospital	Gokulam ortho hospital	11.1340331, 77.0350369	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
2	school	Government school	11.0554435, 77.0653927	30 km/h	Medium
5	college	KV Institute of Management and Information Studies	11.1050789, 77.0276575	30 km/h	Medium
9	school	White Eagle Public School	11.2103854, 77.0543955	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.07800, 77.03707



Risk Type: U-Turn

Risk Level: High

Speed Limit: 10 KM/Hr

Coordinates: 11.0549503, 77.0650284



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: 11.05129, 77.07919



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.05181, 77.07696



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.05218, 77.07692



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.05281, 77.07261



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.05343, 77.07106



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.05351, 77.07099



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.05411, 77.07097



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.05527, 77.06568



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.05495, 77.06503



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.05507, 77.06496



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.05751, 77.06875



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.06437, 77.06865



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.06510, 77.06256



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.06612, 77.06275



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.06608, 77.06386



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.07198, 77.06365



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.07207, 77.06368



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.07228, 77.06399



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.07865, 77.06377



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.07773, 77.05884



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.07667, 77.05838



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.07650, 77.05803



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.09599, 77.03170



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.09663, 77.03241



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.09846, 77.03246



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.09879, 77.03095



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10295, 77.03049



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10306, 77.03040



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10315, 77.02995



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10326, 77.02986



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.11250, 77.03030



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.11256, 77.02901



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14340, 77.04107



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15207, 77.04890



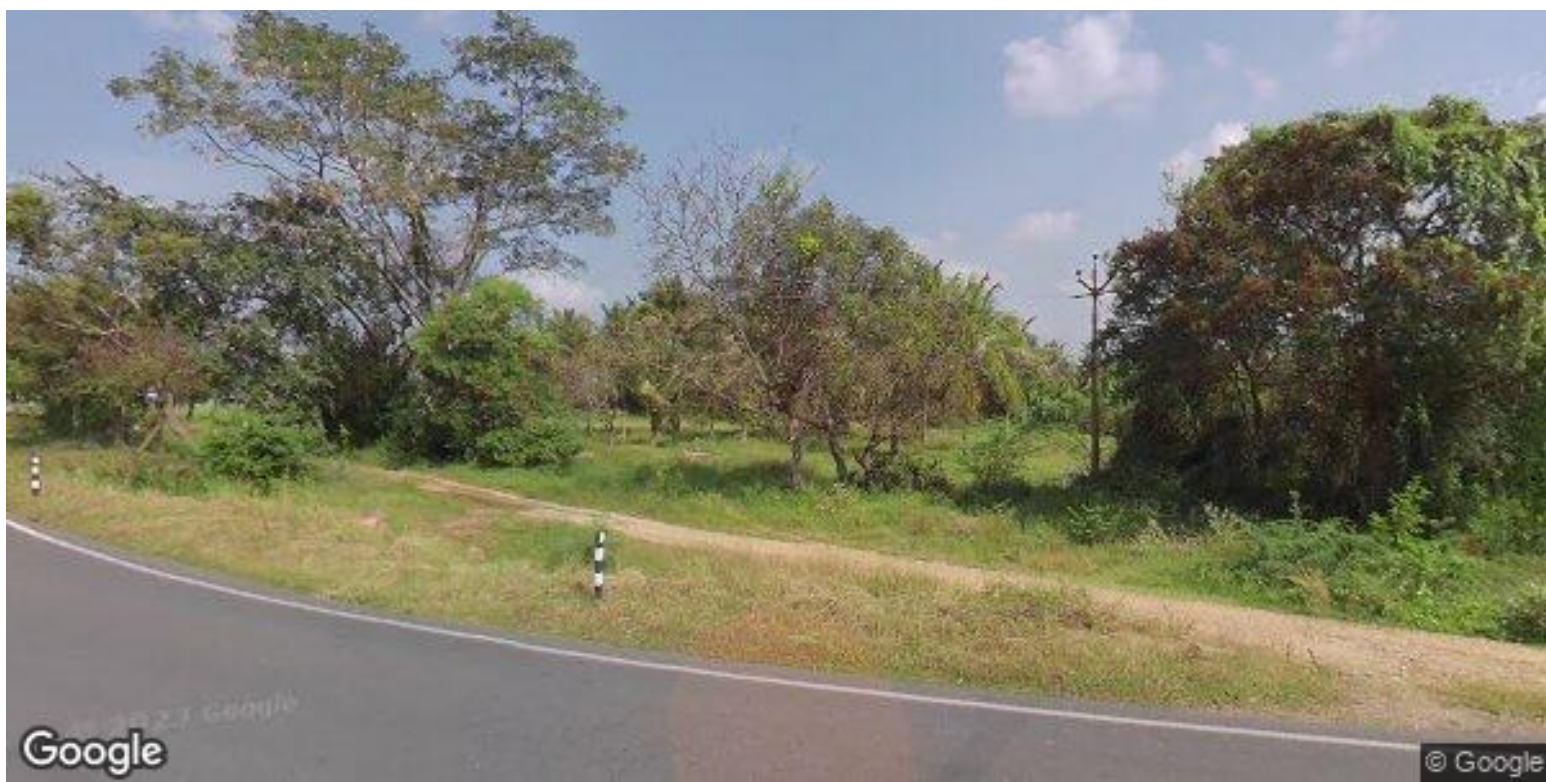
Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.20175, 77.07779



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.20302, 77.07758



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.20708, 77.07457



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.21292, 77.04042



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22243, 77.03203



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22802, 77.02934



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.22931, 77.02630



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22943, 77.02622



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22994, 77.02623



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.23010, 77.02615
