



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO ROHINI 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

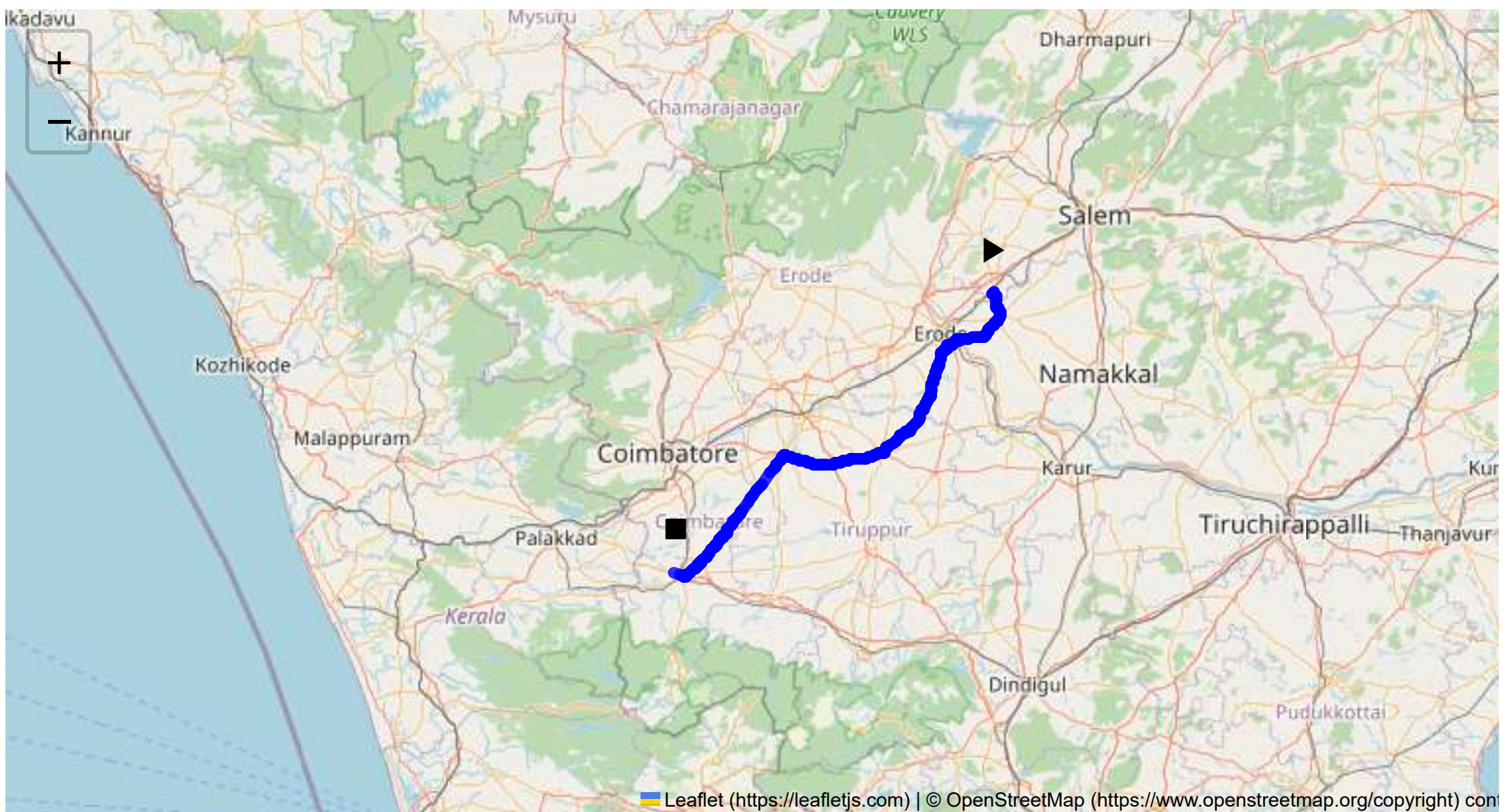
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 154.15 km
Estimated Duration: 3.4 hours
Adjusted Duration (Heavy Vehicle): 4.3 hours
Start: (11.4381, 77.8734)
End: (10.66898, 76.9804225)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route beginning at Sangagiri and ending in Pollachi traverses through medium-sized towns and rural areas in Tamil Nadu, covering approximately 154.15 kilometers. Major waypoints include Puthur, Tiruchengode, Erode, Kangeyam, Palladam, and New Scheme Road in Pollachi. The drive primarily

follows state highways and major roads, which are generally two-lane roads with occasional four-lane stretches in larger towns.

2. Typical Weather Conditions and Potential Weather-Related Hazards

The area experiences a tropical climate with hot summers (March to June), a monsoon season (July to September), and mild winters (December to February). During the monsoon, heavy rains can lead to flooding and slippery roads, particularly in low-lying areas and rural stretches. Fog may also be an issue during early winter mornings, reducing visibility.

3. Analysis of Traffic Patterns

- **Peak Hours:** Traffic is typically higher during morning (8-10 AM) and evening (5-7 PM) rush hours, especially in towns like Erode and Pollachi.
- **Congestion-Prone Areas:** Town centers, especially near schools and markets, can become congested. Erode, being a larger hub, may have slow-moving traffic due to local commuters and commercial activities.

4. Assessment of Road Quality and Infrastructure

The roads from Sangagiri to Pollachi are generally well-maintained state highways. However, certain segments, particularly those passing through rural villages or under construction areas, may have potholes or unmarked speed bumps. Signage and lighting can be inconsistent, so caution is advised during night driving.

5. Suggestions for Alternative Routes for Emergencies

In case of road closure or other emergencies:

- Utilize the National Highway 544 (NH44) from Sangagiri to Coimbatore, then access secondary roads to reach Pollachi.
- Another alternative is diverting via Tiruppur, providing access to larger roads with potentially better emergency services.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Transporting hazardous materials requires compliance with Tamil Nadu's road safety regulations, including proper labeling, documentation, and vehicle safety inspections. Night transport is discouraged unless necessary. Permits might be required for specific materials.

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

Historically, Tamil Nadu has seen incidents involving tanker rollovers and spills, mainly due to speeding and driver fatigue. There have been few significant incidents on the analyzed route, although caution is advised near Erode, which has more industrial traffic.

8. Environmental Considerations and Sensitive Areas

Pollution-sensitive zones include agricultural lands and water bodies along the route. Areas near Erode have industrial zones that need cautious navigation, as traffic may include other large vehicles.

9. Analysis of Communication Coverage

Mobile network coverage is generally strong in towns but may be weak in rural sections, particularly between Kangeyam and Palladam. Areas near Pollachi may also experience coverage gaps. Using GPS should be supplemented with offline maps.

10. Estimated Emergency Response Times

Due to the mix of rural and urban stretches:

- Urban areas like Erode and Pollachi offer quicker emergency response times (~15-30 minutes).
- Rural sections may experience delays, extending response times to over an hour.

11. Overall Summary of Risk Assessment

- Risks:** Weather events, road conditions, congestion, communication issues, and potential for accidents.
- Mitigations:** Plan travel to avoid peak hours, monitor weather forecasts, and ensure documentation for hazardous materials is thorough. Equip trucks with emergency kits and updated communication tools.

Proper planning and adherence to safety protocols significantly mitigate risks on this route. Regular route checks and local authority updates can further enhance safety for drivers handling hazardous materials.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.38395, 77.89480	15 KM/Hr
1	Roundabout	High	10.66179, 77.00820	15 KM/Hr
2	Turn	High	11.43961, 77.87341	15 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr
4	Turn	Medium	11.43111, 77.88170	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
5	Turn	Medium	11.39983, 77.88377	30 KM/Hr
6	Turn	Medium	11.39706, 77.88825	30 KM/Hr
7	Turn	High	11.37868, 77.89498	15 KM/Hr
8	Turn	Medium	11.37812, 77.89444	30 KM/Hr
9	Turn	Medium	11.36602, 77.88875	30 KM/Hr
10	Turn	Medium	11.33882, 77.86218	30 KM/Hr
11	Turn	Medium	11.33713, 77.86222	30 KM/Hr
12	Turn	Medium	11.31747, 77.84240	30 KM/Hr
13	Turn	Medium	11.30951, 77.77608	30 KM/Hr
14	Turn	Medium	11.31096, 77.77049	30 KM/Hr
15	Turn	Medium	11.30938, 77.76674	30 KM/Hr
16	Turn	High	11.29473, 77.74685	15 KM/Hr
17	Turn	High	11.29133, 77.74660	15 KM/Hr
18	Turn	Medium	11.28890, 77.74349	30 KM/Hr
19	Turn	Medium	11.28558, 77.74271	30 KM/Hr
20	Turn	High	11.27314, 77.72962	15 KM/Hr
21	Blind Spot	Blind Spot	11.27330, 77.72711	10 KM/Hr
22	Turn	Medium	11.23090, 77.71808	30 KM/Hr
23	Turn	Medium	11.15943, 77.70068	30 KM/Hr
24	Turn	Medium	11.11943, 77.67799	30 KM/Hr
25	Turn	Medium	11.11783, 77.67283	30 KM/Hr
26	Turn	Medium	11.11680, 77.67167	30 KM/Hr
27	Turn	Medium	11.10471, 77.67058	30 KM/Hr
28	Turn	Medium	11.09508, 77.66612	30 KM/Hr
29	Turn	Medium	11.08722, 77.66431	30 KM/Hr
30	Turn	Medium	11.08274, 77.65832	30 KM/Hr
31	Turn	High	11.06187, 77.63939	15 KM/Hr
32	Turn	Medium	11.06173, 77.63591	30 KM/Hr
33	Turn	Medium	11.00845, 77.56979	30 KM/Hr
34	Blind Spot	Blind Spot	11.00090, 77.56888	10 KM/Hr
35	Turn	High	11.00171, 77.56267	15 KM/Hr
36	Turn	Medium	11.00167, 77.56262	30 KM/Hr
37	Turn	High	10.97029, 77.42728	15 KM/Hr
38	Turn	High	10.96805, 77.42718	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
39	Turn	Medium	10.99497, 77.29079	30 KM/Hr
40	Turn	Medium	10.99424, 77.28932	30 KM/Hr
41	Turn	Medium	10.83693, 77.16717	30 KM/Hr
42	Turn	Medium	10.81683, 77.15309	30 KM/Hr
43	Turn	Medium	10.81226, 77.14705	30 KM/Hr
44	Turn	Medium	10.81089, 77.14710	30 KM/Hr
45	Turn	Medium	10.79203, 77.13175	30 KM/Hr
46	Turn	Medium	10.78307, 77.13018	30 KM/Hr
47	Turn	Medium	10.76885, 77.11731	30 KM/Hr
48	Turn	Medium	10.70292, 77.05615	30 KM/Hr
49	Turn	Medium	10.70075, 77.05536	30 KM/Hr
50	Turn	Medium	10.69533, 77.05063	30 KM/Hr
51	Turn	High	10.69492, 77.04939	15 KM/Hr
52	Turn	High	10.66188, 77.01446	15 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Tiruchengode, Goverment Hospital	11.3903328, 77.8920627	30 km/h	Medium
1	hospital	SPM Medical Centre,Tiruchengode	11.3881331, 77.8931963	30 km/h	Medium
5	clinic	Kongu Nursing Home	11.3783065, 77.8961134	30 km/h	Medium
6	hospital	T.C.A Hospital Tiruchengode	11.3791885, 77.8965774	30 km/h	Medium
7	hospital	Soorya Multispecialty Hospital	11.3786429, 77.8931912	30 km/h	Medium
8	hospital	Tiruchengode Government Hospital	11.37645, 77.89426	30 km/h	Medium
9	hospital	Krishna Hospital, Namakkal	11.3754811, 77.8931817	30 km/h	Medium
12	hospital	Government Hospital	11.2343326, 77.719226	30 km/h	Medium
15	police	Kangeyam Police Station	11.0011411, 77.562688	30 km/h	Medium
16	hospital	J K Hospital	11.0042298, 77.5603345	30 km/h	Medium
19	hospital	Ponni Hospital, Coimbatore	10.9955604, 77.2887151	30 km/h	Medium
20	clinic	Syndhiya Ortho Clinic	10.6663252, 77.0158674	30 km/h	Medium
21	hospital	Shanthi Hospital, Pollachi	10.6631858, 77.0149942	30 km/h	Medium
22	clinic	J M Polyclinic	10.6621816, 77.012638	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
23	hospital	Ar Ortho Hospital	10.6622765, 77.0125401	30 km/h	Medium
24	hospital	Arun Hospital, Pollachi	10.6625657, 77.0129734	30 km/h	Medium
25	clinic	Surya Polyclinic	10.6626982, 77.0122866	30 km/h	Medium
26	hospital	Surya Hospital, Pollachi	10.6627371, 77.0122918	30 km/h	Medium
27	hospital	Siva Meds Multispeciality Hospital	10.6633006, 77.0100774	30 km/h	Medium
28	clinic	Sindhia Ortho Clinic	10.6634521, 77.0105284	30 km/h	Medium
29	clinic	Prabhu Poly Clinic	10.6627285, 77.0096353	30 km/h	Medium
30	hospital	Prabhu Hospital, Pc Pollachi	10.66269, 77.009684	30 km/h	Medium
31	hospital	Kowsalya Medical Centre, Pollachi	10.66299, 77.010025	30 km/h	Medium
32	hospital	Sakthi Hospital, Pollachi	10.6629552, 77.0106019	30 km/h	Medium
33	hospital	Pills Hospital	10.66419, 77.010376	30 km/h	Medium
34	clinic	Ram Poly Clinic	10.6627299, 77.0090626	30 km/h	Medium
35	hospital	Vasan Eye Care Hospital, Pollachi	10.6643938, 77.0057119	30 km/h	Medium
36	clinic	Rc Poly Clinic, Pollachi	10.66442, 77.005669	30 km/h	Medium
37	hospital	JP Hospital, Pollachi	10.66024, 77.0049	30 km/h	Medium
38	hospital	Mcv Memorial Ent Trust Hospital	10.6627918, 76.9995756	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
2	school	அரசு ஆண்கள் மேல்நிலைப் பள்ளி	11.3850439, 77.8948279	30 km/h	Medium
3	school	அரசு பெண்கள் மேல்நிலைப் பள்ளி	11.3844247, 77.8949053	30 km/h	Medium
4	marketplace	திருச்செங்கோடு தினசரி காய்கறி சந்தை	11.3833608, 77.8970145	30 km/h	Medium
10	school	KSR Educational institution	11.3772013, 77.8908807	30 km/h	Medium
11	school	MDV School	11.3719843, 77.8915244	30 km/h	Medium
13	college	Government Arts and Science College, Kangeyam	11.0626738, 77.636227	30 km/h	Medium
14	school	Carmel Girls Higher Secondary School	11.0009019, 77.5710182	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
17	school	PVKN Higher Secondary School	10.9711766, 77.3699335	30 km/h	Medium
18	school	Pongalur Uppathiyar Venkadasamy Naidu Elementry School	10.9703113, 77.3693546	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.38395, 77.89480



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.66179, 77.00820



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44029, 77.87544



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43111, 77.88170



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.39983, 77.88377



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.39706, 77.88825



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.37868, 77.89498



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.37812, 77.89444



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.36602, 77.88875



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.33882, 77.86218



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.33713, 77.86222



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.31747, 77.84240



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.30951, 77.77608



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.31096, 77.77049



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.30938, 77.76674



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29473, 77.74685



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29133, 77.74660



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.28890, 77.74349



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.28558, 77.74271



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.27314, 77.72962



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.27330, 77.72711



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23090, 77.71808



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15943, 77.70068



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11943, 77.67799



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11783, 77.67283



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11680, 77.67167



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10471, 77.67058



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.09508, 77.66612



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.08722, 77.66431



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.08274, 77.65832



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.06187, 77.63939



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.06173, 77.63591



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.00845, 77.56979



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.00090, 77.56888



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.00171, 77.56267



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.00167, 77.56262



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.97029, 77.42728



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.96805, 77.42718



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

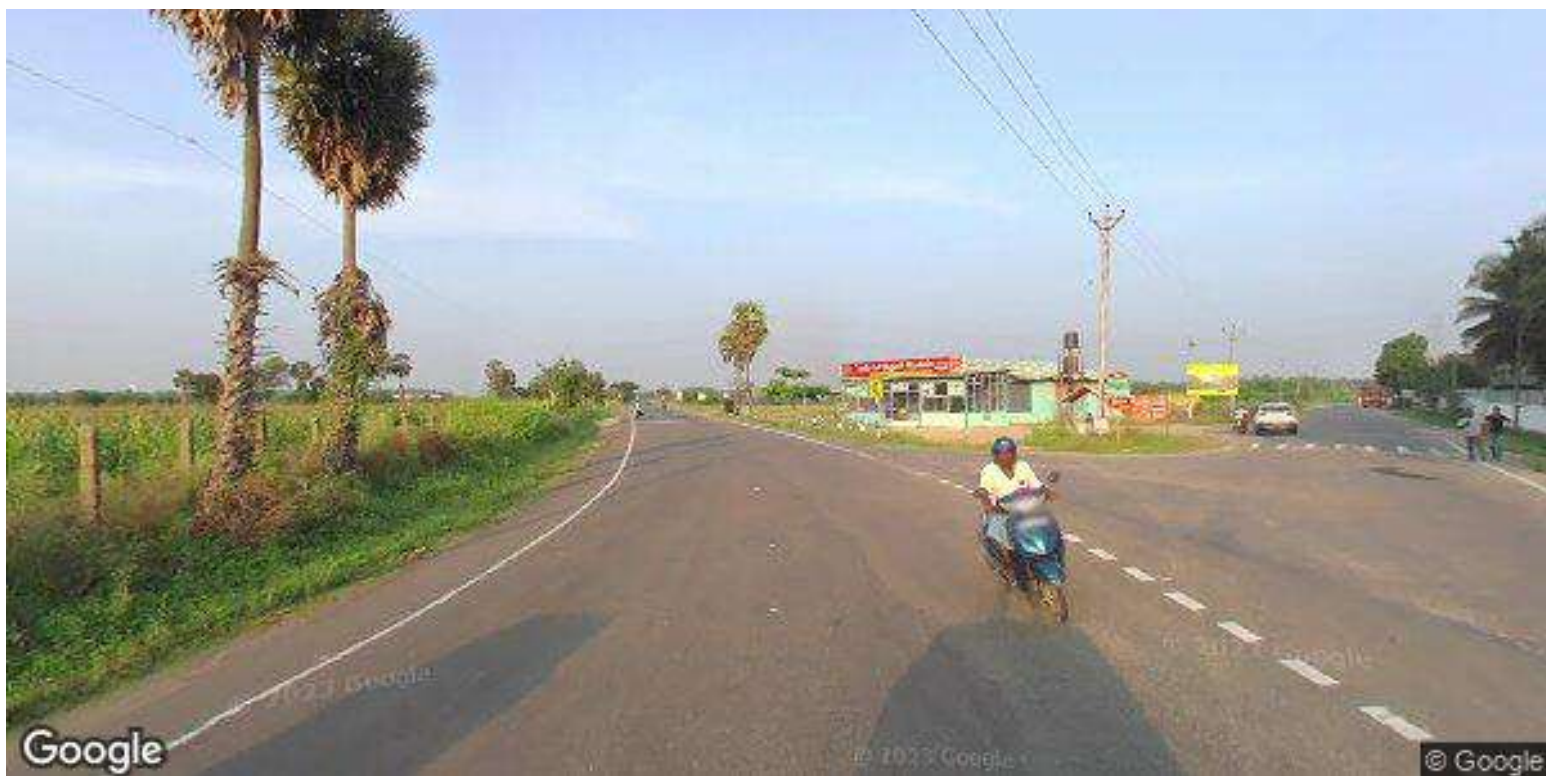
Coordinates: 10.99497, 77.29079



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.99424, 77.28932



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.83693, 77.16717



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.81683, 77.15309



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.81226, 77.14705



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.81089, 77.14710



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.79203, 77.13175



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.78307, 77.13018



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.76885, 77.11731



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.70292, 77.05615



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.70075, 77.05536



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.69533, 77.05063



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.69492, 77.04939



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.66188, 77.01446
