



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO ESAAN 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

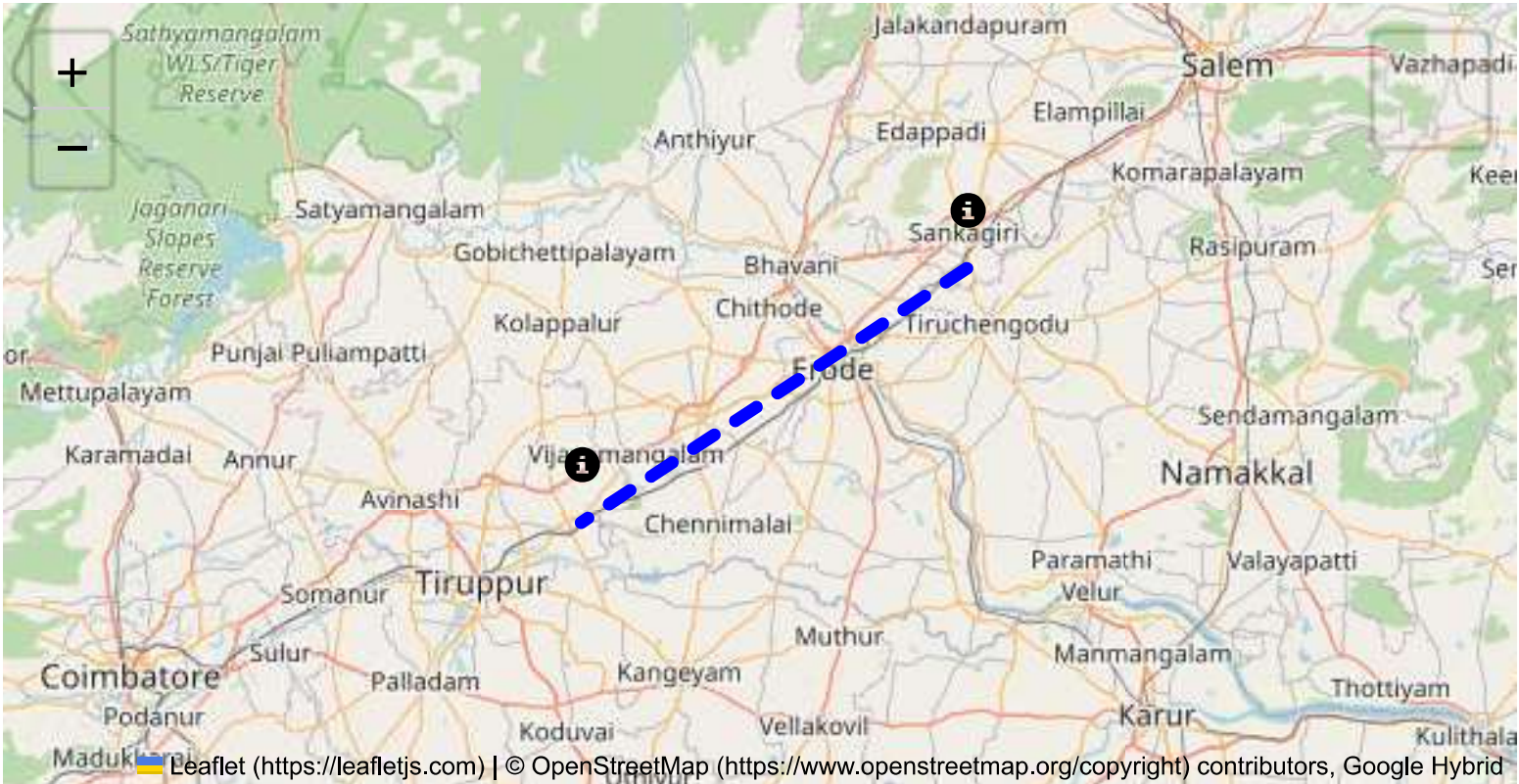
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

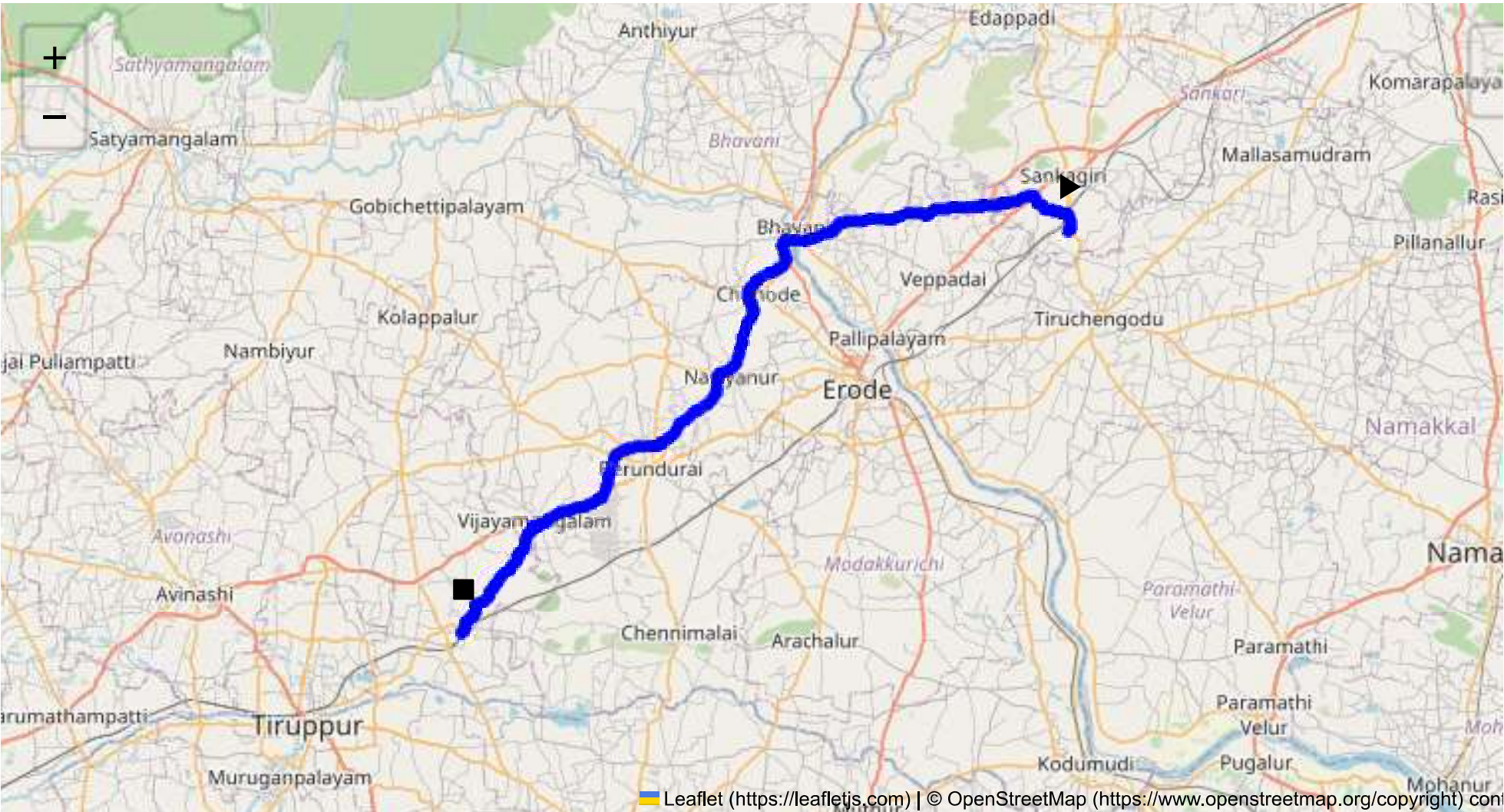
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 67.27 km
Estimated Duration: 1.3 hours
Adjusted Duration (Heavy Vehicle): 1.7 hours
Start: (11.4381, 77.8734)
End: (11.164228, 77.452438)



Welcome to the Journey Risk Management Study

Route Safety Analysis Report

1. Overview of the Route Map: The route from CVQF+23W, Sangagiri to 5F72+MX Vadugapalayam, Tamil Nadu covers approximately 67.27 kilometers, primarily over state highways with some rural roads. The route runs through agricultural regions, small towns, and rural areas.

2. Typical Weather Conditions and Potential Weather-Related Hazards: Tamil Nadu typically experiences a tropical climate. The region can face heavy rain during the monsoon months (June to September and October to December) leading to potential road flooding and reduced visibility. The dry season, from March to May, can pose heat-related challenges and dust hazards.

3. Analysis of Traffic Patterns: Traffic increases during morning (7:30 AM - 9:30 AM) and evening (5:00 PM - 7:00 PM) as local residents commute. Congestion is most likely near town centers and junctions such as Sangagiri and Komarapalayam.

4. Assessment of Road Quality and Infrastructure: The main highways are generally in good condition but narrow in some areas, particularly rural segments. Roads may lack shoulder space and adequate signage. Expect variations in road quality with potential potholes and uneven pavement as you enter smaller towns and rural areas.

5. Suggestions for Alternative Routes for Emergencies:

- Consider using alternate state highways that run parallel, bypassing congested areas like Komarapalayam.
- Local roads may serve as emergency detours; however, they should be approached cautiously due to variable conditions.

6. Summary of Local Regulations Affecting Hazardous Material Transport: Tamil Nadu mandates specific permits for transporting hazardous materials. Compliance with the Central Motor Vehicles rules and local guidelines is necessary. Restrictions may include time-of-day limits and prohibition of transit through dense urban centers.

7. Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials: While major incidents are infrequent, minor accidents involving heavy vehicles often occur at junctions and narrow bridges. Past incidents highlight the need for caution, particularly in areas with sharp turns and inadequate signage.

8. Environmental Considerations and Sensitive Areas: The route passes through agricultural land. Operators should exercise caution to avoid contaminating soil and water sources. Wildlife crossings near forest patches may require lowered speeds.

9. Analysis of Communication Coverage: Cellular coverage is generally reliable along the highway. However, rural sections, especially mid-route, may experience brief dead zones. Emergency communication systems should be tested beforehand.

10. Estimated Emergency Response Times for Different Route Segments:

- Urban segments: 20-30 minutes
- Rural segments: 40-50 minutes Emergency services are more accessible near major towns but may face delays in rural areas due to distance and road conditions.

11. Overall Summary of Risk Assessment: The route presents moderate risks typical of rural highway travel in Tamil Nadu, with specific challenges during monsoon season and at congestion points. Compliance with local regulations and awareness of environmental sensitivities are essential. Pre-planned alternative routes and verified communications can mitigate risks. Continuous vigilance

regarding road condition changes and real-time weather updates is advisable for safe transit of hazardous materials.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	Medium	11.43822, 77.87348	30 KM/Hr
1	Turn	High	11.43968, 77.87345	15 KM/Hr
2	Turn	High	11.44029, 77.87544	15 KM/Hr
3	Turn	High	11.44898, 77.87410	15 KM/Hr
4	Turn	Medium	11.45357, 77.85789	30 KM/Hr
5	Turn	High	11.45352, 77.85698	15 KM/Hr
6	Turn	Medium	11.45847, 77.85140	30 KM/Hr
7	Turn	Medium	11.46303, 77.84945	30 KM/Hr
8	Turn	Medium	11.46314, 77.84928	30 KM/Hr
9	Turn	Medium	11.45509, 77.81383	30 KM/Hr
10	Turn	Medium	11.29288, 77.59029	30 KM/Hr
11	Turn	Medium	11.29140, 77.58253	30 KM/Hr
12	Turn	Medium	11.29154, 77.58236	30 KM/Hr
13	Blind Spot	Blind Spot	11.23716, 77.50666	10 KM/Hr
14	Blind Spot	Blind Spot	11.23704, 77.50676	10 KM/Hr
15	Blind Spot	Blind Spot	11.23686, 77.50216	10 KM/Hr
16	Turn	Medium	11.23649, 77.50219	30 KM/Hr
17	Turn	Medium	11.23396, 77.50105	30 KM/Hr
18	Turn	Medium	11.23329, 77.49966	30 KM/Hr
19	Turn	Medium	11.17851, 77.46169	30 KM/Hr
20	Turn	Medium	11.17521, 77.45978	30 KM/Hr
21	Turn	Medium	11.17368, 77.45730	30 KM/Hr
22	Turn	High	11.17096, 77.45516	15 KM/Hr
23	Turn	Medium	11.17048, 77.45544	30 KM/Hr
24	Turn	Medium	11.16706, 77.45494	30 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
3	hospital	Government Hospital	11.4525596, 77.7749426	30 km/h	Medium
4	hospital	Dhanvantri Multi Speciality Hospital	11.451362, 77.766602	30 km/h	Medium
5	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
6	hospital	J.K.K. Trust Hospital	11.4445841, 77.7307962	30 km/h	Medium
8	hospital	Shri Sathyanarayana Hospital	11.4291297, 77.6913408	30 km/h	Medium
9	hospital	Thanish Siddha Hospital	11.430003, 77.674964	30 km/h	Medium
10	clinic	Harshitha Clinic	11.4313207, 77.674718	30 km/h	Medium
11	hospital	Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam	11.432369, 77.674894	30 km/h	Medium
12	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
13	clinic	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium
15	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
17	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium
18	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
20	hospital	Aravind Eye Care Hospital	11.1729469, 77.4574467	30 km/h	Medium
21	clinic	Sri Maha Annai Clinic	11.1707162, 77.4536498	30 km/h	Medium
22	hospital	Ram Doctor Hospital	11.1709391, 77.4532808	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
0	school	KRP Matric. Hr. Sec School	11.4546193, 77.8142445	30 km/h	Medium
1	college	Vivekanandha Engineering College	11.4589312, 77.7899284	30 km/h	Medium
2	marketplace	Monday market	11.452863, 77.775989	30 km/h	Medium
7	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
14	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
16	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium
19	college	Sasurie Engineering College	11.2171482, 77.4898552	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44029, 77.87544



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44898, 77.87410



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45357, 77.85789



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45352, 77.85698



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45847, 77.85140



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46303, 77.84945



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.46314, 77.84928



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.45509, 77.81383



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29288, 77.59029



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29140, 77.58253



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29154, 77.58236



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.23716, 77.50666



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.23704, 77.50676



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.23686, 77.50216



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23649, 77.50219



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23396, 77.50105



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.23329, 77.49966



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17851, 77.46169



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17521, 77.45978



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17368, 77.45730



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.17096, 77.45516



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17048, 77.45544



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16706, 77.45494

