



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO S K AGENCY

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

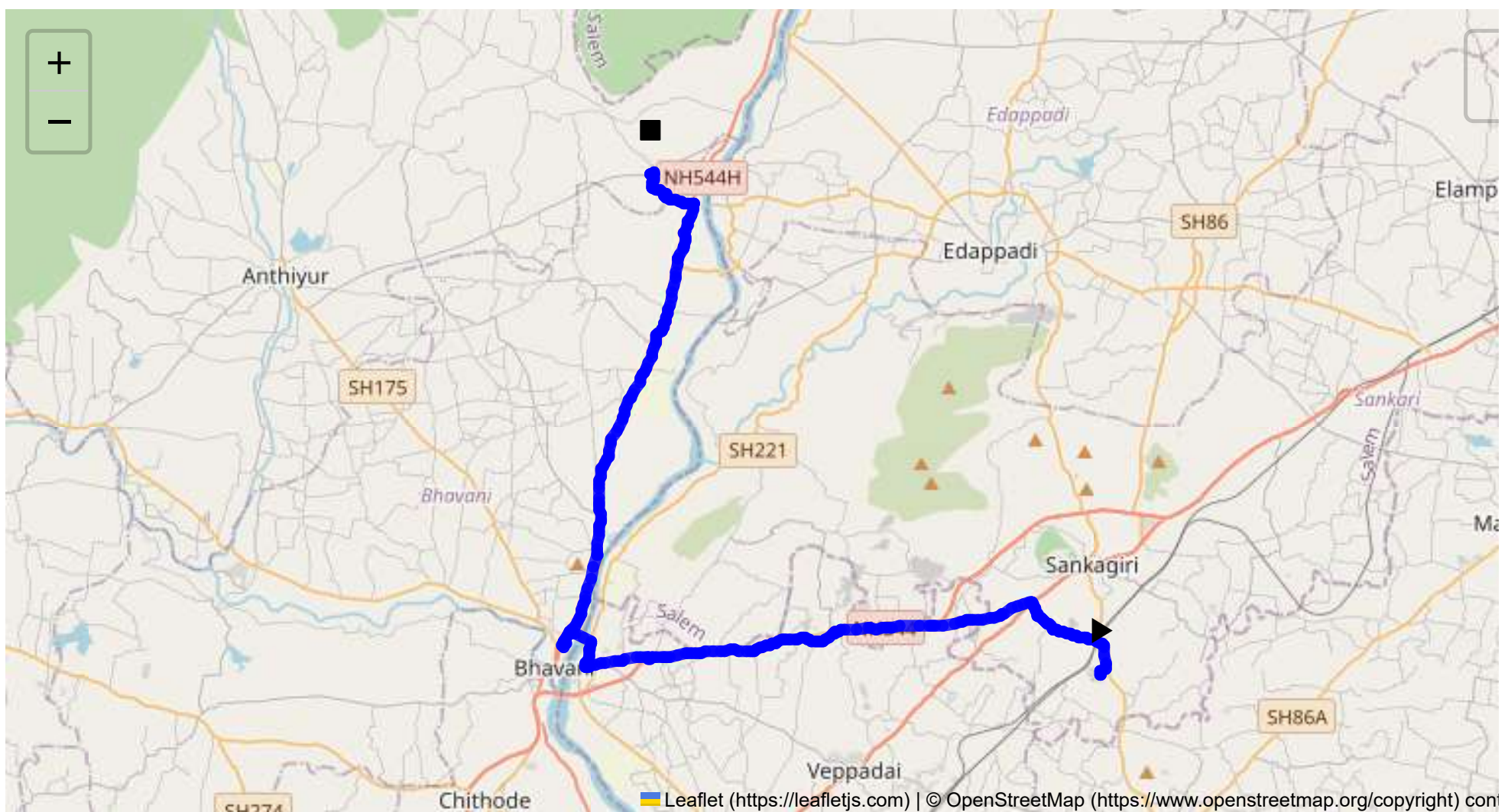
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 45.70 km
Estimated Duration: 1.1 hours
Adjusted Duration (Heavy Vehicle): 1.4 hours
Start: (11.4381, 77.8734)
End: (11.609876, 77.715544)



Welcome to the Journey Risk Management Study

Route Safety Analysis Report

1. Overview of the Route Map

- The route from CVQF+23W, Sangagiri to JP58+V3C, Boothapadi spans approximately 45.70 kilometers and typically takes about 1.12 hours for heavy vehicles. The path follows local roads through Sangagiri and Puthur before joining the Salem Main Road and NH 544H. This route navigates through both rural and semi-urban regions.

2. Typical Weather Conditions and Hazards

- Tamil Nadu generally experiences hot and dry conditions, but the monsoon season (October to December) can bring heavy rains, which may cause flooding or make roads slippery. The summer season (March to June) can lead to high temperatures, risking heat-stress-related issues for drivers.

3. Traffic Patterns and Congestion

- Erode and the Salem Main Road can experience congestion, particularly during peak hours (8-10 AM and 5-7 PM). The towns of Sangagiri and Boothapadi, being less congested, are not major concerns for traffic jams.

4. Road Quality and Infrastructure

- The road quality on NH 544H is generally good, being a national highway. However, local roads may suffer from potholes and uneven surfaces, especially after monsoon rains. Drivers should be cautious of sudden road quality changes transitioning between local roads and highways.

5. Alternative Routes for Emergencies

- As an alternative, if NH 544H is inaccessible, taking the Erode-Bhavani Road to connect to Boothapadi might be viable. Ensure to check the current road conditions and traffic updates before diversion.

6. Local Regulations for Hazardous Material Transport

- Permit requirements must be checked and complied with for transporting hazardous materials in Tamil Nadu. Transport vehicles need to adhere strictly to regulations concerning transit times and designated routes for hazardous materials.

7. Historical Incidents Involving Heavy Vehicles or Hazardous Materials

- Regionally, incidents have been sparse but have occurred during the rainy season due to skidding or improper maintenance of heavy vehicles. No major incidents on this specific route have been reported recently, but caution remains imperative.

8. Environmental Considerations and Sensitive Areas

- Ensure to be aware of areas that might be environmentally sensitive, especially around Erode due to its proximity to agricultural lands. Avoid unnecessary idling of vehicles to reduce impact.

9. Communication Coverage and Dead Zones

- The route primarily has good mobile network coverage. However, some rural sections between Puthur and Erode may experience weak signals. It's advisable to have GPS devices updated and offline maps downloaded.

10. Estimated Emergency Response Times

- In urban regions like Erode, response times can be within 15-30 minutes. However, in rural stretches, it could extend to 45 minutes or more depending on accessibility and weather conditions.

11. Overall Summary of Risk Assessment

- The route is generally safe for the transport of hazardous materials under normal weather conditions. Key risks involve traffic congestion in Erode, potential weather impacts, and road quality on local roads. Adequate planning, strictly following local regulations, and being prepared for emergency diversions enhance the safety of this route. Regular vehicle maintenance checks and driver readiness are essential to mitigate risks.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43811, 77.87348	15 KM/Hr
1	Turn	Medium	11.43961, 77.87341	30 KM/Hr
2	Turn	Medium	11.43968, 77.87345	30 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr
4	Turn	Medium	11.44893, 77.87413	30 KM/Hr
5	Turn	High	11.45350, 77.85700	15 KM/Hr
6	Turn	Medium	11.46046, 77.85037	30 KM/Hr
7	Turn	Medium	11.46303, 77.84945	30 KM/Hr
8	Turn	Medium	11.46316, 77.84921	30 KM/Hr
9	Turn	Medium	11.44467, 77.72092	30 KM/Hr
10	Turn	High	11.44377, 77.71562	15 KM/Hr
11	Turn	Medium	11.44438, 77.71501	30 KM/Hr
12	Blind Spot	Blind Spot	11.44105, 77.69331	10 KM/Hr
13	Turn	High	11.44985, 77.69520	15 KM/Hr
14	Turn	High	11.45331, 77.68803	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
15	Blind Spot	Blind Spot	11.44979, 77.68549	10 KM/Hr
16	Turn	High	11.44948, 77.68645	15 KM/Hr
17	Turn	High	11.44801, 77.68596	15 KM/Hr
18	Blind Spot	Blind Spot	11.44842, 77.68473	10 KM/Hr
19	Turn	Medium	11.59946, 77.73130	30 KM/Hr
20	Turn	Medium	11.60201, 77.72112	30 KM/Hr
21	Turn	High	11.60214, 77.72100	15 KM/Hr
22	Turn	Medium	11.60343, 77.72102	30 KM/Hr
23	Turn	Medium	11.60642, 77.71645	30 KM/Hr
24	Turn	Medium	11.61011, 77.71752	30 KM/Hr
25	Blind Spot	Blind Spot	11.61026, 77.71748	10 KM/Hr
26	Blind Spot	Blind Spot	11.60971, 77.71572	10 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
10	hospital	Senthil Nursing Home	11.4395054, 77.6957293	30 km/h	Medium
11	hospital	Govt hospital	11.4432595, 77.6941951	30 km/h	Medium
12	hospital	Government Hospital, Komarapalayam	11.4435826, 77.6946365	30 km/h	Medium
13	police	Komarapalayam Police station	11.4413141, 77.6931115	30 km/h	Medium
14	pharmacy	Devi pharmacy	11.4410349, 77.6928556	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
16	hospital	Sri Balaji Womens Centre	11.4531821, 77.6875979	30 km/h	Medium
17	hospital	Lrk Hospital	11.4544553, 77.6889783	30 km/h	Medium
18	hospital	Vignesh Hospital	11.4513898, 77.6879679	30 km/h	Medium
19	hospital	Mahaswaran Hospital	11.4519883, 77.6882952	30 km/h	Medium
20	hospital	Karunya Hospital	11.451637, 77.687949	30 km/h	Medium
21	hospital	Balakrishna Hospital	11.4514522, 77.688074	30 km/h	Medium
22	hospital	PGR Hospital	11.4512002, 77.687185	30 km/h	Medium
23	hospital	Kharthik Hospital	11.4516542, 77.6871221	30 km/h	Medium
24	hospital	Ramya Hospital	11.4512773, 77.6870043	30 km/h	Medium
25	clinic	JK Skin Clinic	11.4508168, 77.6865545	30 km/h	Medium
26	clinic	V.S Eye and Dental Care	11.4512557, 77.686801	30 km/h	Medium
27	hospital	Gopikrishnan Eye Hospital	11.451813, 77.687171	30 km/h	Medium
28	clinic	KS Homeo Clinic	11.451398, 77.687344	30 km/h	Medium
29	clinic	Suriyaraja Siddha Health Care	11.45133, 77.686898	30 km/h	Medium
30	hospital	Jaswanth Arun Hospital	11.451794, 77.687216	30 km/h	Medium
31	clinic	Soorya Hospital Maternity and Child Care	11.4517604, 77.6871956	30 km/h	Medium
32	hospital	Saraswathi Siddha Hospital	11.451769, 77.6865838	30 km/h	Medium
33	hospital	Dr Loganathan Orthopaedic Hospital	11.4554834, 77.6903362	30 km/h	Medium
34	hospital	Anbe Sivam Hospital	11.4508139, 77.6854947	30 km/h	Medium
35	hospital	Adithya Hospital	11.4515977, 77.6864105	30 km/h	Medium
36	hospital	Sri Saravana Hospital	11.4506202, 77.6829676	30 km/h	Medium
37	hospital	Ashok Krishna Hospital	11.4483344, 77.6856579	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
38	hospital	Senthil Hospital	11.4475854, 77.6844482	30 km/h	Medium
39	hospital	Shri Mani Hospital	11.44771, 77.6838471	30 km/h	Medium
40	clinic	Sri Hari Clinic	11.4483503, 77.6850963	30 km/h	Medium
41	hospital	Immiaditya Hospital	11.4501276, 77.6836088	30 km/h	Medium
42	hospital	Government Hospital	11.45112, 77.682149	30 km/h	Medium
43	hospital	Vijay Hospital	11.45091, 77.682019	30 km/h	Medium
44	hospital	S.N.A. Siddha Hospital	11.44704, 77.682877	30 km/h	Medium
45	hospital	Suham Hospital and Diabetic Centre	11.4572053, 77.6912235	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	JKK Matriculation and Higher Secondary school	11.4446843, 77.7066207	30 km/h	Medium
8	school	JKK Girls Higher Secondary school	11.4437747, 77.7066298	30 km/h	Medium
9	school	Government Girls Hr Sec School	11.4456929, 77.7007497	30 km/h	Medium
15	school	Municipality Middle School	11.4386238, 77.6957329	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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.44893, 77.87413



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.45350, 77.85700



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.46046, 77.85037



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: 11.46316, 77.84921



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.44467, 77.72092



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44377, 77.71562



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.44438, 77.71501



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.44105, 77.69331



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44985, 77.69520



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45331, 77.68803



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.44979, 77.68549



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44948, 77.68645



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44801, 77.68596



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.44842, 77.68473



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.59946, 77.73130



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.61011, 77.71752



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.61026, 77.71748



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.60971, 77.71572

