



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to A K R 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

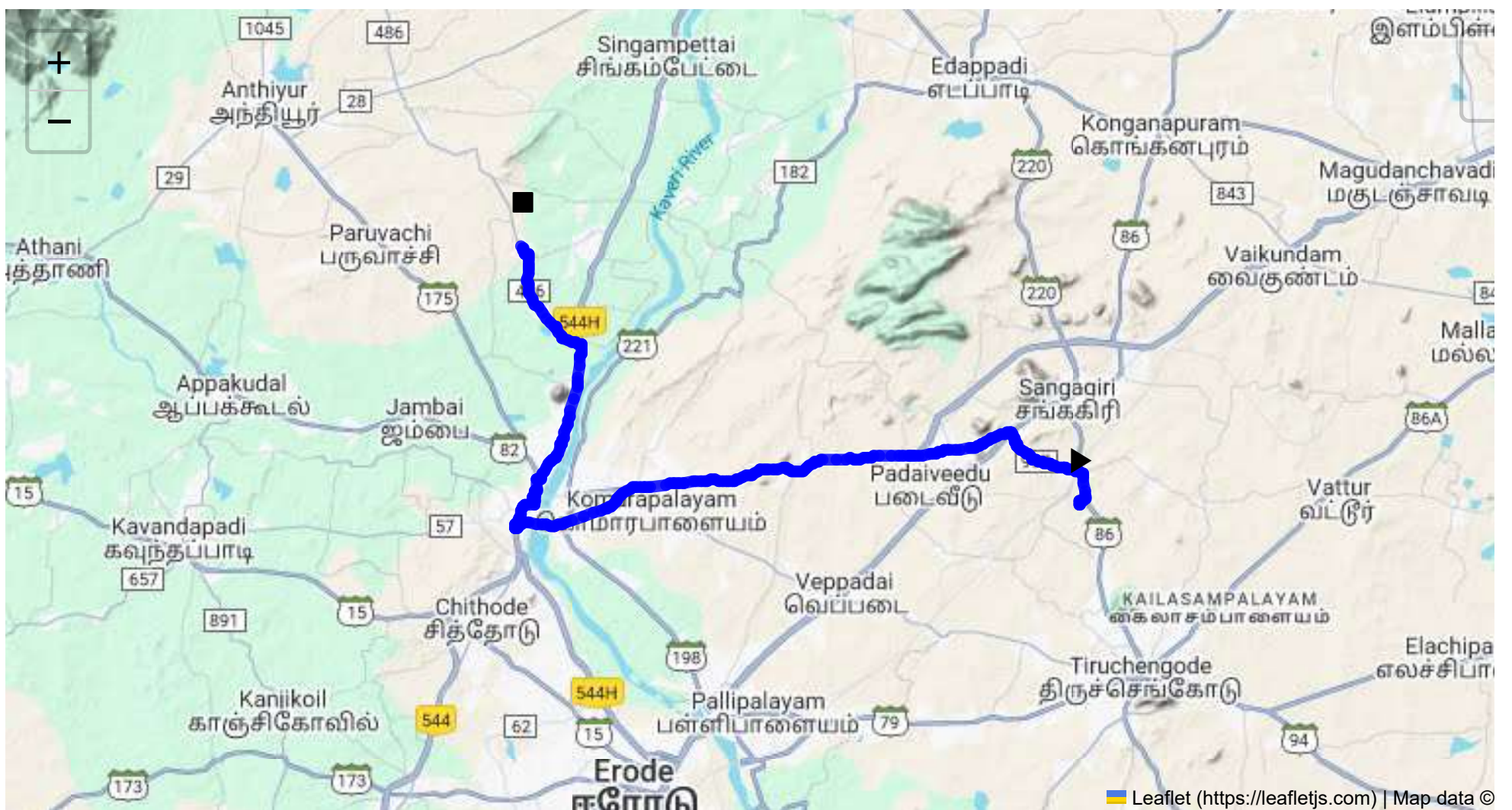
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 37.57 km
Estimated Duration: 0.9 hours
Adjusted Duration (Heavy Vehicle): 1.1 hours
Start: (11.4381, 77.8734)
End: (11.526936, 77.677437)



Welcome to the Journey Risk Management Study

Route Safety Analysis: Sangagiri (CVQF+23W) to Mylambadi (GMGG+PWW)

1. Overview of the Route Map

The route from Sangagiri to Mylambadi spans about 37.57 kilometers, encompassing rural and semi-urban areas. The journey typically involves traveling through SH-86 and several local roads, with a setting that includes agricultural land, small towns, and interspersed patches of forest.

2. Typical Weather Conditions and Potential Hazards

Tamil Nadu usually experiences tropical weather, with moderate to high temperatures throughout the year. The monsoon period from June to September often brings heavy rains, which can lead to flash flooding and reduced visibility on roads. Conversely, the dry season from March to May poses risks of heat waves.

3. Traffic Patterns and Congestion Points

Traffic in rural Tamil Nadu generally flows smoothly. However, peak congestion usually occurs in the early morning (7-9 AM) and late afternoon (5-7 PM) due to commuting patterns. Traffic can particularly jam in market areas and near schools in towns like Erode. Agricultural vehicles, particularly during harvest seasons, can cause slowdowns.

4. Road Quality and Infrastructure

The route is a mix of state highways and smaller roads. The state highway SH-86 is generally well-maintained with appropriate signage and lighting. Smaller roads may have uneven surfaces, occasional potholes, and fewer signs. Be cautious of unmanned railway crossings and narrow bridges.

5. Alternative Routes for Emergencies

In case of emergencies, an alternative route through NH-544 may be used, which is a wider and more frequently patrolled highway, albeit slightly longer. Local back roads could offer additional bypass options, though they may have inconsistent maintenance.

6. Local Regulations on Hazardous Material Transport

Transport of hazardous materials is governed by Indian government regulations, mandating appropriate vehicle signage, safety equipment, and driver certification. Specific routes may restrict timings or impose limits on particular materials. Restrictions commonly apply during festivals or local events.

7. Historical Incidents

No significant large-scale incidents involving heavy vehicles or hazardous materials have been frequently reported in this specific area. However, isolated cases of vehicle breakdowns and minor spills exist and should underscore the importance of proper maintenance and emergency preparation.

8. Environmental Considerations

The route runs through agricultural and forest areas. Drivers should be mindful of wildlife crossings, especially at night, and take care to prevent contamination of local water bodies, particularly during the rainy season when runoff is prevalent.

9. Communication Coverage

Mobile network coverage along SH-86 is generally reliable. However, signal strength can be variable in rural patches, particularly deeper into forest or hilly areas. GPS devices often maintain signal, but drivers should carry updated offline maps as a backup.

10. Estimated Emergency Response Times

Emergency response times can fluctuate based on location. Near urban areas like Erode, responses typically range from 15-30 minutes. In more remote stretches, times can extend to an hour or more, highlighting the need for prepared roadside assistance resources.

11. Summary of Risk Assessment

Overall, the route from Sangagiri to Mylambadi poses low to moderate risks. Major concerns include unpredictable weather patterns, minor road quality issues, and periodic traffic knots. Ensuring vehicle readiness, constant awareness of road conditions, and adherence to regulations significantly mitigate potential hazards.

This analysis recommends thorough pre-journey checks, continuous monitoring of weather forecasts, and adherence to road laws and safety practices for the safe transport of heavy or hazardous materials along this route.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43811, 77.87348	15 KM/Hr
1	Turn	Medium	11.43956, 77.87340	30 KM/Hr
2	Turn	High	11.43968, 77.87345	15 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr
4	Turn	Medium	11.44898, 77.87410	30 KM/Hr
5	Turn	Medium	11.45357, 77.85789	30 KM/Hr
6	Turn	Medium	11.45352, 77.85698	30 KM/Hr
7	Turn	Medium	11.46303, 77.84945	30 KM/Hr
8	Turn	Medium	11.46318, 77.84913	30 KM/Hr
9	Turn	High	11.45516, 77.81346	15 KM/Hr
10	Turn	High	11.45521, 77.81343	15 KM/Hr
11	Turn	High	11.43001, 77.67575	15 KM/Hr
12	Turn	High	11.43026, 77.67525	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
13	Turn	Medium	11.43769, 77.67810	30 KM/Hr
14	Turn	High	11.43863, 77.68223	15 KM/Hr
15	Turn	Medium	11.43871, 77.68228	30 KM/Hr
16	Turn	Medium	11.43965, 77.68224	30 KM/Hr
17	Turn	Medium	11.43997, 77.68198	30 KM/Hr
18	Turn	High	11.44105, 77.68187	15 KM/Hr
19	Turn	High	11.44119, 77.68217	15 KM/Hr
20	Turn	Medium	11.44295, 77.68261	30 KM/Hr
21	Turn	High	11.44300, 77.68275	15 KM/Hr
22	Turn	High	11.44715, 77.68304	15 KM/Hr
23	Turn	Medium	11.44714, 77.68402	30 KM/Hr
24	Turn	High	11.49333, 77.69855	15 KM/Hr
25	Turn	Medium	11.52464, 77.67958	30 KM/Hr
26	Turn	Medium	11.52457, 77.67861	30 KM/Hr
27	Turn	Medium	11.52468, 77.67849	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
7	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

	type	name	coordinates	speed_limit	risk_level
12	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
13	hospital	Sutha Hospital	11.4365526, 77.6796472	30 km/h	Medium
14	hospital	Maha Hospital	11.4372003, 77.6781345	30 km/h	Medium
15	hospital	Jothikumar Hospital	11.43687, 77.678407	30 km/h	Medium
16	clinic	Velavan Homoeo Clinic	11.4367087, 77.6761472	30 km/h	Medium
17	hospital	SKMH Hospital	11.4379787, 77.6780268	30 km/h	Medium
18	clinic	Sri Dharshan Diabetes Care	11.437649, 77.6778126	30 km/h	Medium
19	hospital	Kavin Hospital	11.4399114, 77.6838194	30 km/h	Medium
20	clinic	Thangam Acupuncture	11.4418816, 77.6832318	30 km/h	Medium
21	hospital	Sumangali Hospital	11.4427668, 77.6827131	30 km/h	Medium
22	hospital	Annusiya Hospital	11.4432777, 77.6813562	30 km/h	Medium
23	hospital	Kandasamy Hospital	11.4450062, 77.6832304	30 km/h	Medium
24	hospital	Ashok Krishna Hospital	11.4483344, 77.6856579	30 km/h	Medium
25	hospital	Senthil Hospital	11.4475854, 77.6844482	30 km/h	Medium
26	hospital	S.N.A. Siddha Hospital	11.44704, 77.682877	30 km/h	Medium
27	hospital	Shri Mani Hospital	11.44771, 77.6838471	30 km/h	Medium
28	clinic	Sri Hari Clinic	11.4483503, 77.6850963	30 km/h	Medium
29	hospital	Immiaditya Hospital	11.4501276, 77.6836088	30 km/h	Medium
30	hospital	Sri Saravana Hospital	11.4506202, 77.6829676	30 km/h	Medium
31	hospital	PGR Hospital	11.4512002, 77.687185	30 km/h	Medium
32	hospital	Kharthik Hospital	11.4516542, 77.6871221	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
33	hospital	Ramya Hospital	11.4512773, 77.6870043	30 km/h	Medium
34	hospital	Anbe Sivam Hospital	11.4508139, 77.6854947	30 km/h	Medium
35	clinic	JK Skin Clinic	11.4508168, 77.6865545	30 km/h	Medium
36	clinic	V.S Eye and Dental Care	11.4512557, 77.686801	30 km/h	Medium
37	clinic	KS Homeo Clinic	11.451398, 77.687344	30 km/h	Medium
38	clinic	Suriyaraja Siddha Health Care	11.45133, 77.686898	30 km/h	Medium
39	clinic	Soorya Hospital Maternity and Child Care	11.4517604, 77.6871956	30 km/h	Medium
40	hospital	Adithya Hospital	11.4515977, 77.6864105	30 km/h	Medium
41	hospital	Saraswathi Siddha Hospital	11.451769, 77.6865838	30 km/h	Medium
42	hospital	Vignesh Hospital	11.4513898, 77.6879679	30 km/h	Medium
43	hospital	Gopikrishnan Eye Hospital	11.451813, 77.687171	30 km/h	Medium
44	hospital	Mahaswaran Hospital	11.4519883, 77.6882952	30 km/h	Medium
45	hospital	Karunya Hospital	11.451637, 77.687949	30 km/h	Medium
46	hospital	Jaswanth Arun Hospital	11.451794, 77.687216	30 km/h	Medium
47	hospital	Balakrishna Hospital	11.4514522, 77.688074	30 km/h	Medium
48	hospital	Sri Balaji Womens Centre	11.4531821, 77.6875979	30 km/h	Medium
49	hospital	Lrk Hospital	11.4544553, 77.6889783	30 km/h	Medium
50	hospital	Dr Loganathan Orthopaedic Hospital	11.4554834, 77.6903362	30 km/h	Medium
51	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
8	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	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: 11.44898, 77.87410



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.45357, 77.85789



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.45352, 77.85698



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: 11.46318, 77.84913



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.45516, 77.81346



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.45521, 77.81343



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.43001, 77.67575



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.43026, 77.67525



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43769, 77.67810



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.43863, 77.68223



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43871, 77.68228



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43965, 77.68224



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43997, 77.68198



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44105, 77.68187



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44119, 77.68217



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.44295, 77.68261



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44300, 77.68275



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44715, 77.68304



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.44714, 77.68402



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.49333, 77.69855



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.52464, 77.67958



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.52457, 77.67861



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.52468, 77.67849
