



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

**Salem Terminal to ADHOC SRI GARUDA AGENCY UNIT
II, 330720 JANANEYSHRI 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

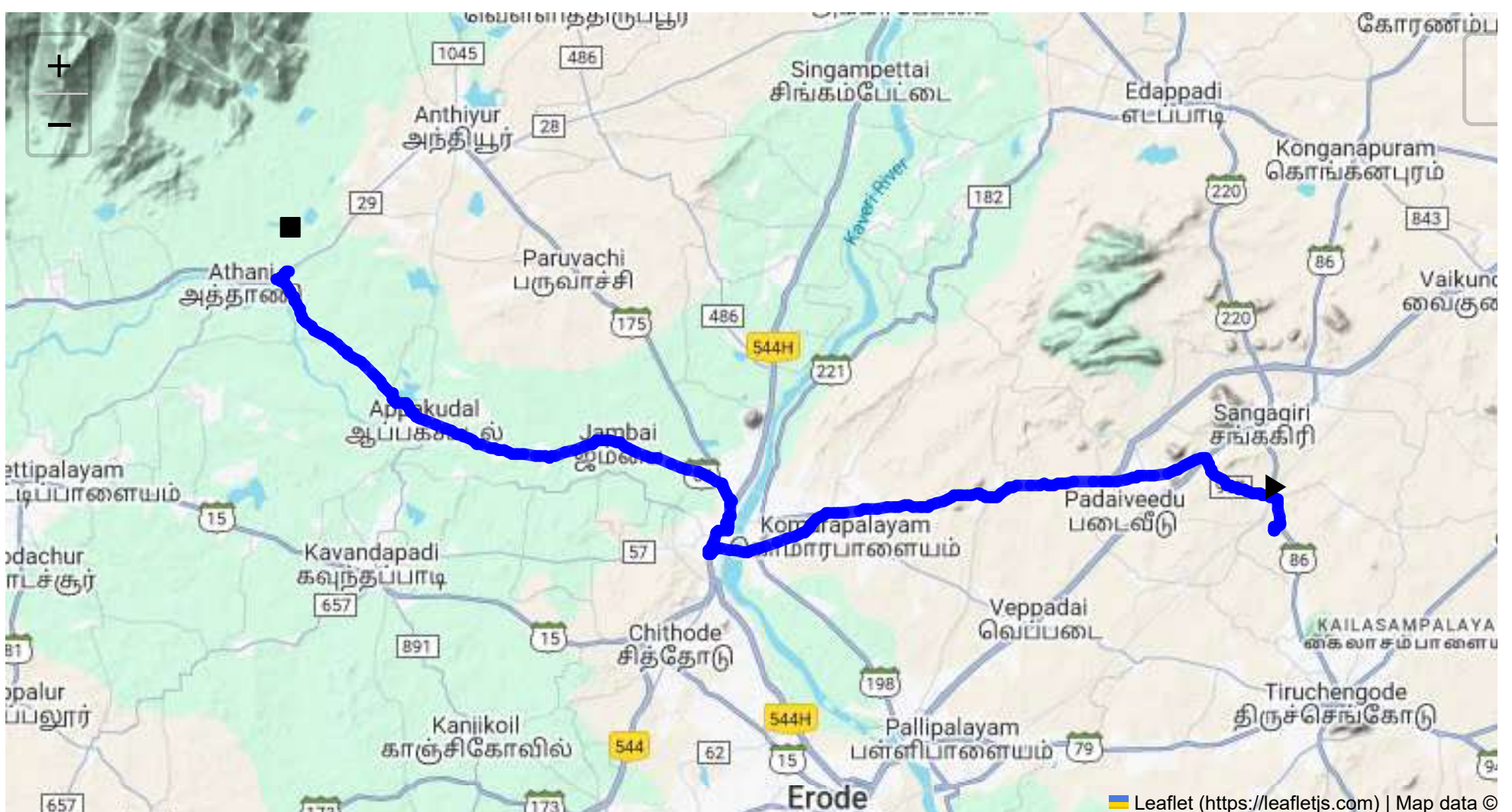
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 48.81 km
Estimated Duration: 1.1 hours
Adjusted Duration (Heavy Vehicle): 1.4 hours
Start: (11.4381, 77.8734)
End: (11.5269, 77.52846)



Welcome to the Journey Risk Management Study

Route Safety Analysis Report

1. Overview of the Route Map

The route from CVQF+23W, Sangagiri, Tamil Nadu to GGGH+HF5, Karuvalvadi Pudur, Tamil Nadu covers approximately 48.81 kilometers. The route predominately follows NH 544 passing through the towns and

rural landscapes typical to the region, intersecting several local roads and requiring navigation through smaller towns where traffic conditions can vary.

2. Typical Weather Conditions and Potential Weather-related Hazards

Tamil Nadu generally experiences a tropical climate with hot and humid conditions. The southwest monsoon (June to September) and northeast monsoon (October to December) bring heavy rainfall, which can cause flooding and poor visibility in lower-lying areas of the route, particularly near water bodies and narrow channels. During summer months (March to May), high temperatures may lead to road surface deteriorations such as softening of asphalt.

3. Analysis of Traffic Patterns, Highlighting Peak Hours and Congestion-prone Areas

Traffic congestion is typically higher during morning (8:00 - 10:00 AM) and evening (5:00 - 8:00 PM) peak hours due to commuter movements. Choke points are usually seen in town centers like Sankari where local traffic mingles with highway vehicles. Markets and educational institutions can also contribute to traffic during school hours.

4. Assessment of Road Quality and Infrastructure

The NH 544 is generally well-maintained with adequate signage and road markings; however, feeder roads may be less maintained with potential potholes and narrower widths. Watch for construction zones or poorly patched sections that might pose a risk to heavy vehicles.

5. Suggestions for Alternative Routes for Emergencies

For emergencies, consider using locally known bypasses around congested town areas, although be mindful that these routes may not always support heavy vehicles or hazardous materials due to infrastructure limitations. Alternatively, NH 544 features several entry and exit points that can be used to divert traffic.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Transport of hazardous materials is regulated by local and federal laws in India, including the need for appropriate signage on vehicles, adherence to speed limits, and prohibited movement through congested or sensitive areas during peak hours or certain times. Relevant permits must be secured before transport.

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

The region has historically seen incidents primarily related to poor compliance with traffic norms and over-speed or improper vehicle operations. There is less frequent but notable mention of incidents involving hazardous materials, typically linked to inadequate containment or driver error.

8. Environmental Considerations and Sensitive Areas

Sensitive areas include regions near schools, hospitals, and places of worship. The route passes close to agricultural lands where strict measures to prevent spillage or contamination from hazardous materials are crucial. Additionally, avoiding nighttime travel through wildlife-sensitive regions is recommended.

9. Analysis of Communication Coverage, Noting Potential Dead Zones

While major parts of NH 544 have good cellular coverage, there are potential dead zones in rural pockets and sections with dense vegetation. It is handy to carry alternative communication devices or ways to ensure continuous contact.

10. Estimated Emergency Response Times for Different Route Segments

Emergency response time varies; urban areas like Sangagiri can expect faster response times of about 15-20 minutes, while rural areas may experience delays up to 45 minutes, due to longer distances to emergency services or ambulance dispatch centers.

11. Overall Summary of Risk Assessment

The primary hazards identified along the route include weather-related impacts, congestion in town areas, and sections of lesser-maintained roads. Proper planning around peak times and ensuring compliance with regulations significantly mitigates risk. Being prepared for communications issues and slowed emergency responses in rural stretches is advised.

Overall, the route is manageable with proper precautions and adherence to regulations related to hazardous material transport. Continuous monitoring of weather, traffic updates, and officials’ advisories will aid in a safe journey.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43811, 77.87348	15 KM/Hr
1	Turn	High	11.43968, 77.87345	15 KM/Hr
2	Turn	High	11.44029, 77.87544	15 KM/Hr
3	Turn	Medium	11.44898, 77.87410	30 KM/Hr
4	Turn	Medium	11.45357, 77.85789	30 KM/Hr
5	Turn	Medium	11.45352, 77.85698	30 KM/Hr
6	Turn	Medium	11.46048, 77.85036	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
7	Turn	Medium	11.46303, 77.84945	30 KM/Hr
8	Turn	Medium	11.46318, 77.84913	30 KM/Hr
9	Turn	High	11.43001, 77.67575	15 KM/Hr
10	Turn	Medium	11.43003, 77.67551	30 KM/Hr
11	Turn	High	11.43026, 77.67525	15 KM/Hr
12	Turn	Medium	11.43769, 77.67810	30 KM/Hr
13	Turn	High	11.43863, 77.68223	15 KM/Hr
14	Turn	Medium	11.43871, 77.68228	30 KM/Hr
15	Turn	Medium	11.43965, 77.68224	30 KM/Hr
16	Turn	Medium	11.43997, 77.68198	30 KM/Hr
17	Turn	High	11.44105, 77.68187	15 KM/Hr
18	Turn	High	11.44119, 77.68217	15 KM/Hr
19	Turn	Medium	11.44295, 77.68261	30 KM/Hr
20	Turn	High	11.44300, 77.68275	15 KM/Hr
21	Turn	High	11.44853, 77.68331	15 KM/Hr
22	Blind Spot	Blind Spot	11.52420, 77.52412	10 KM/Hr
23	Turn	High	11.52536, 77.52695	15 KM/Hr
24	Turn	High	11.52702, 77.52743	15 KM/Hr
25	Turn	High	11.52706, 77.52821	15 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

	type	name	coordinates	speed_limit	risk_level
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	hospital	Maha Hospital	11.4372003, 77.6781345	30 km/h	Medium
14	hospital	Jothikumar Hospital	11.43687, 77.678407	30 km/h	Medium
15	hospital	Sutha Hospital	11.4365526, 77.6796472	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

	type	name	coordinates	speed_limit	risk_level
31	hospital	Government Hospital	11.45112, 77.682149	30 km/h	Medium
32	hospital	Vijay Hospital	11.45091, 77.682019	30 km/h	Medium
33	hospital	Anbe Sivam Hospital	11.4508139, 77.6854947	30 km/h	Medium
34	clinic	Kalyani Nursing Home	11.452097, 77.6808974	30 km/h	Medium
35	hospital	Government Hospital	11.4519113, 77.6819742	30 km/h	Medium
36	hospital	Ragav Hospital	11.475895, 77.581045	30 km/h	Medium
37	hospital	Sriram Child and Maternity Hospital	11.4739074, 77.5783099	30 km/h	Medium
38	hospital	NM Hospital	11.4765419, 77.5801178	30 km/h	Medium
39	hospital	Dr. Kandhasamy Hospital	11.4750159, 77.5798168	30 km/h	Medium
40	hospital	SPK Hospital	11.47498, 77.5798076	30 km/h	Medium
41	clinic	Krithik Clinic	11.4756073, 77.5780846	30 km/h	Medium
42	hospital	Vmk Hospital	11.4791501, 77.5724052	30 km/h	Medium
43	hospital	Subi Hospital	11.5070348, 77.5375885	30 km/h	Medium
45	hospital	Government Hospital	11.5218505, 77.5285238	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

	type	name	coordinates	speed_limit	risk_level
7	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
44	marketplace	Weekly Market	11.5078119, 77.5364552	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: 11.46048, 77.85036



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: 11.43001, 77.67575



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43003, 77.67551



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: 11.44853, 77.68331



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.52420, 77.52412
