



JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal To SRI ANNAMAR ENTERPRIZES

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

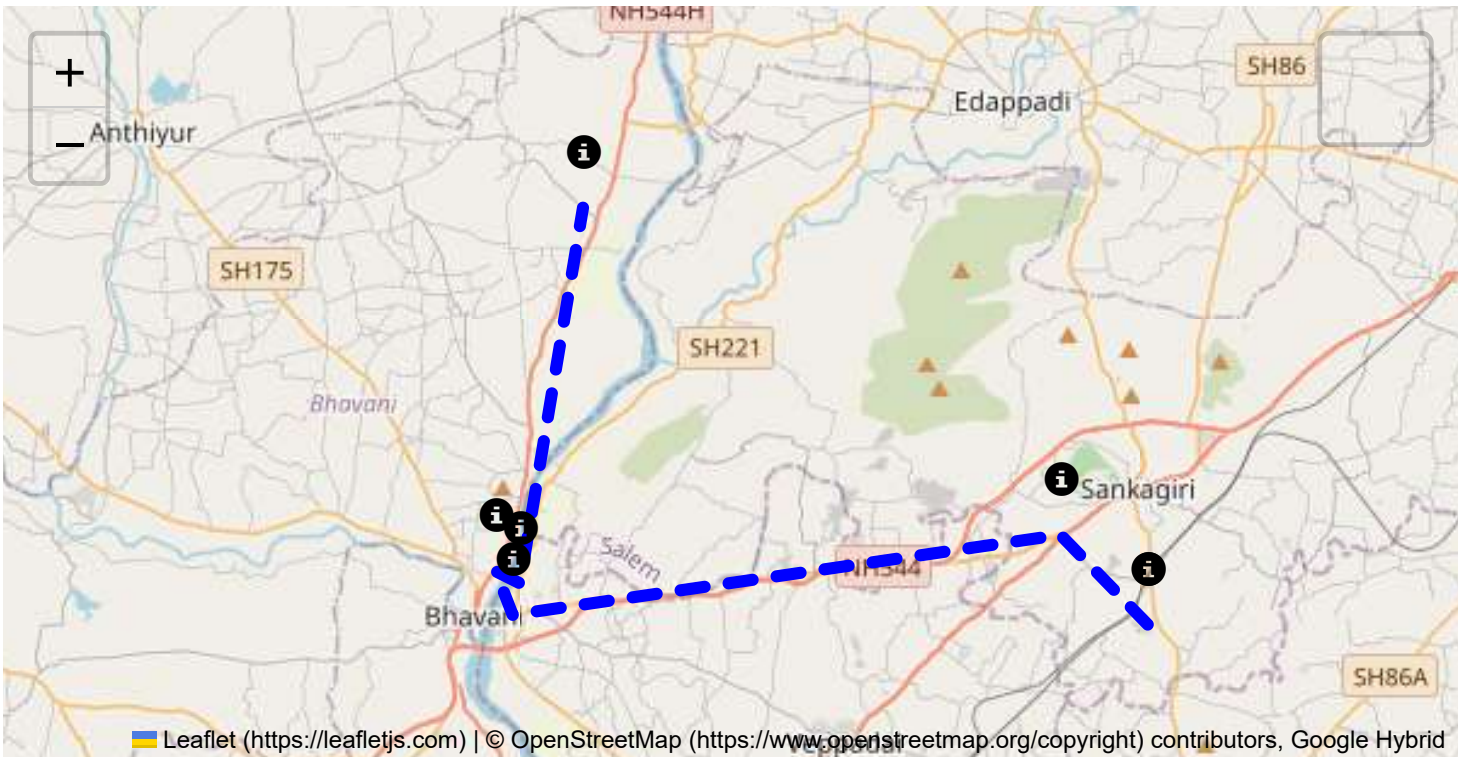
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

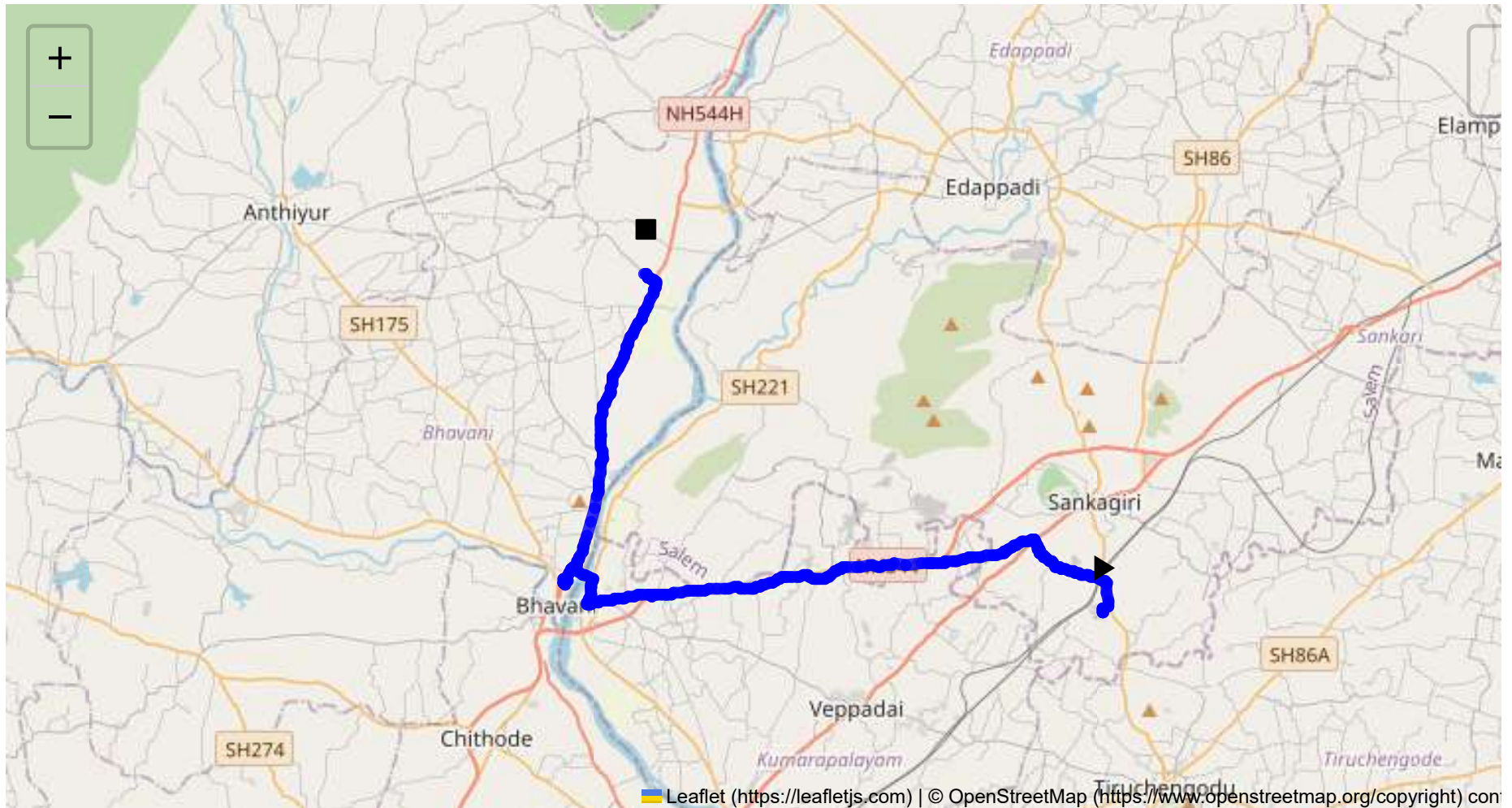
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 37.94 km
Estimated Duration: 0.9 hours
Adjusted Duration (Heavy Vehicle): 1.2 hours
Start: (11.4381, 77.8734)
End: (11.5538, 77.713143)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route from Sangagiri to Chittar via Sankari West, Komarapalayam, and Bhavani travels through a combination of rural and semi-urban areas in Tamil Nadu. It mainly uses regional roads, integrating local streets and highways. This route passes through varying landscapes, including agricultural lands and small towns.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu typically experiences a tropical climate. The region sees high temperatures, especially from March to June, and receives substantial rainfall during the monsoon months (October to December).

Potential hazards include:

- Reduced visibility and slippery roads during monsoon rains.
- Heat-induced stress on vehicles and drivers during summer.
- Occasional instances of flooding in low-lying areas during heavy rains.

3. Analysis of Traffic Patterns

- **Peak Hours:** Traffic density increases during mornings (7-9 AM) and evenings (5-8 PM) due to local commute activities.
- **Congestion-Prone Areas:** Town centers in Sangagiri, Sankari West, Komarapalayam, and Bhavani might experience congestion, particularly near markets and schools.

4. Assessment of Road Quality and Infrastructure

- Most roads are generally well-maintained, but some stretches may be narrow and less smooth, especially in rural areas.
- Key infrastructures include bridges at Bhavani, which are crucial for route continuity.

5. Suggestions for Alternative Routes

In an emergency, consider diversions through nearby town roads or national highways, such as using NH544 for quicker transit or to avoid local congestion. Detailed local maps should be consulted for alternative routes.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Transport of hazardous materials is strictly regulated. Ensure compliance with vehicle permits, load specifications, and timings allowed for hazardous material transport. Movement is often restricted during day hours to avoid risks in populated areas.

7. Overview of Historical Incidents

There have been occasional incidents of vehicular accidents, mainly due to driver error and road conditions. Historical data does not show significant accidents involving hazardous materials specifically along this route.

8. Environmental Considerations and Sensitive Areas

- Proximity to agricultural areas requires strict adherence to environmental protocols to prevent contamination.
- Be cautious near water bodies, specifically when crossing bridges.

9. Analysis of Communication Coverage

Communication networks are generally robust but expect potential coverage issues in rural segments between towns. Equip vehicles with emergency communication devices that can function even in areas of limited cellular coverage.

10. Estimated Emergency Response Times

- **Sangagiri to Sankari West:** Approximately 15-20 minutes.
- **Sankari West to Komarapalayam:** 25-30 minutes.
- **Komarapalayam to Bhavani:** 30-35 minutes, influenced by the bridge connectivity.

- **Bhavani to Chittar:** 15-20 minutes. Local emergency services are generally prompt, but rural stretches may experience delays.

11. An Overall Summary of Risk Assessment

This route involves moderate risk, primarily due to potential congestion in towns and weather-related issues. Road infrastructure is mostly reliable, though weather and peak traffic periods pose risks. Proper adherence to local transport laws for hazardous materials is critical. Employing alternative routes during emergencies and ensuring robust communication measures are in place will enhance safety for heavy vehicles transporting hazardous materials.

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	High	11.45350, 77.85700	15 KM/Hr
5	Turn	Medium	11.46303, 77.84945	30 KM/Hr
6	Turn	Medium	11.46318, 77.84913	30 KM/Hr
7	Turn	High	11.45518, 77.81344	15 KM/Hr
8	Turn	High	11.45521, 77.81343	15 KM/Hr
9	Turn	High	11.44377, 77.71562	15 KM/Hr
10	Turn	Medium	11.44435, 77.71509	30 KM/Hr
11	Blind Spot	Blind Spot	11.44105, 77.69331	10 KM/Hr
12	Turn	High	11.44985, 77.69520	15 KM/Hr
13	Turn	High	11.45331, 77.68803	15 KM/Hr
14	Blind Spot	Blind Spot	11.44979, 77.68549	10 KM/Hr
15	Turn	High	11.44947, 77.68646	15 KM/Hr
16	Turn	High	11.44801, 77.68596	15 KM/Hr
17	Blind Spot	Blind Spot	11.44842, 77.68473	10 KM/Hr
18	Turn	High	11.55125, 77.71740	15 KM/Hr
19	Turn	Medium	11.55278, 77.71449	30 KM/Hr
20	Turn	Medium	11.55372, 77.71403	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
11	hospital	Senthil Nursing Home	11.4395054, 77.6957293	30 km/h	Medium
12	hospital	Govt hospital	11.4432595, 77.6941951	30 km/h	Medium
13	hospital	Government Hospital, Komarapalayam	11.4435826, 77.6946365	30 km/h	Medium
14	police	Komarapalayam Police station	11.4413141, 77.6931115	30 km/h	Medium
15	pharmacy	Devi pharmacy	11.4410349, 77.6928556	30 km/h	Medium
17	hospital	Sri Balaji Womens Centre	11.4531821, 77.6875979	30 km/h	Medium
18	hospital	Lrk Hospital	11.4544553, 77.6889783	30 km/h	Medium
19	hospital	Vignesh Hospital	11.4513898, 77.6879679	30 km/h	Medium
20	hospital	Mahaswaran Hospital	11.4519883, 77.6882952	30 km/h	Medium
21	clinic	KS Homeo Clinic	11.451398, 77.687344	30 km/h	Medium
22	hospital	Karunya Hospital	11.451637, 77.687949	30 km/h	Medium
23	hospital	Jaswanth Arun Hospital	11.451794, 77.687216	30 km/h	Medium
24	hospital	Balakrishna Hospital	11.4514522, 77.688074	30 km/h	Medium
25	hospital	PGR Hospital	11.4512002, 77.687185	30 km/h	Medium
26	hospital	Kharthik Hospital	11.4516542, 77.6871221	30 km/h	Medium
27	hospital	Ramya Hospital	11.4512773, 77.6870043	30 km/h	Medium
28	clinic	V.S Eye and Dental Care	11.4512557, 77.686801	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
29	hospital	Gopikrishnan Eye Hospital	11.451813, 77.687171	30 km/h	Medium
30	clinic	Suriyaraja Siddha Health Care	11.45133, 77.686898	30 km/h	Medium
31	clinic	Soorya Hospital Maternity and Child Care	11.4517604, 77.6871956	30 km/h	Medium
32	hospital	Dr Loganathan Orthopaedic Hospital	11.4554834, 77.6903362	30 km/h	Medium
33	hospital	Anbe Sivam Hospital	11.4508139, 77.6854947	30 km/h	Medium
34	clinic	JK Skin Clinic	11.4508168, 77.6865545	30 km/h	Medium
35	hospital	Adithya Hospital	11.4515977, 77.6864105	30 km/h	Medium
36	hospital	Saraswathi Siddha Hospital	11.451769, 77.6865838	30 km/h	Medium
37	hospital	Ashok Krishna Hospital	11.4483344, 77.6856579	30 km/h	Medium
38	clinic	Sri Hari Clinic	11.4483503, 77.6850963	30 km/h	Medium
39	hospital	Immiaditya Hospital	11.4501276, 77.6836088	30 km/h	Medium
40	hospital	Sri Saravana Hospital	11.4506202, 77.6829676	30 km/h	Medium
41	hospital	Senthil Hospital	11.4475854, 77.6844482	30 km/h	Medium
42	hospital	Shri Mani Hospital	11.44771, 77.6838471	30 km/h	Medium
43	hospital	S.N.A. Siddha Hospital	11.44704, 77.682877	30 km/h	Medium
44	hospital	Government Hospital	11.45112, 77.682149	30 km/h	Medium
45	hospital	Vijay Hospital	11.45091, 77.682019	30 km/h	Medium
46	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

	type	name	coordinates	speed_limit	risk_level
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	college	Government College of Education	11.4476704, 77.705553	30 km/h	Medium
10	school	Government Girls Hr Sec School	11.4456929, 77.7007497	30 km/h	Medium
16	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: High
Speed Limit: 15 KM/Hr
Coordinates: 11.45350, 77.85700



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: 11.45518, 77.81344



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: 11.44377, 77.71562



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.44435, 77.71509



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: 11.44947, 77.68646



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: High

Speed Limit: 15 KM/Hr

Coordinates: 11.55125, 77.71740

