



## **JOURNEY RISK MANAGEMENT (JRM) STUDY**

### **Salem Terminal To SRI ALMP 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.

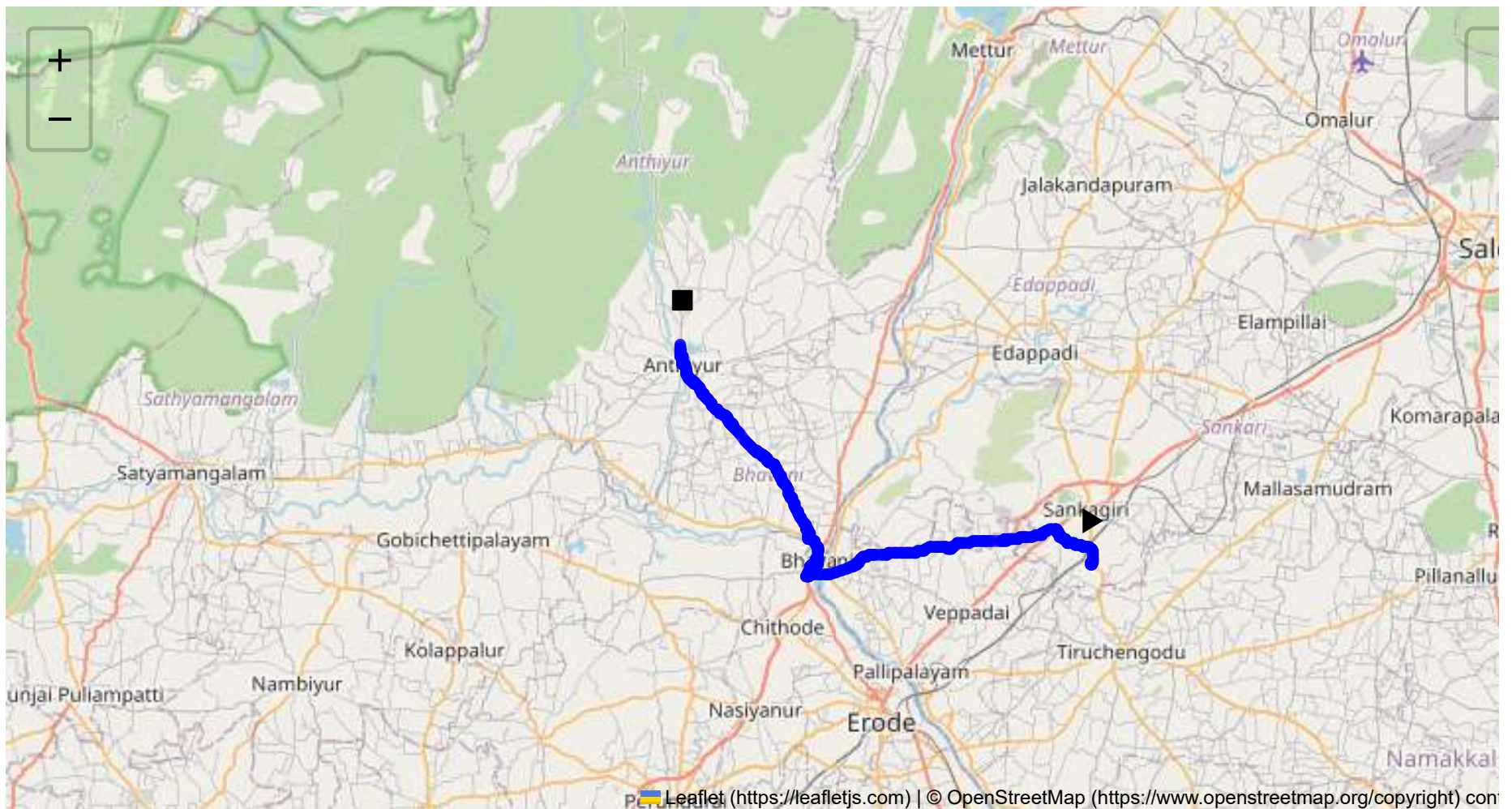
## Compliance with Government Directives

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: 46.88 km**  
**Estimated Duration: 1.1 hours**  
**Adjusted Duration (Heavy Vehicle): 1.4 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.588543, 77.587233)**



## Welcome to the Journey Risk Management Study

### 1. Overview of the Route Map

The route originates in Sangagiri, Tamil Nadu, at CVQF+23W and proceeds through SH 79A and Bhavani Main Rd, before arriving at the destination in Anthiyur, covering a span of approximately 46.88 kilometers. This route predominantly follows state highways and main roads, essential for accommodating heavy vehicles transporting hazardous materials.

### 2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu experiences a tropical climate with distinct wet and dry seasons. During the monsoon months (June to September and October to November), heavy rainfall could lead to poor visibility and slippery road conditions, increasing the risk of hydroplaning. In the dry months, particularly from March to May, high temperatures can negatively affect vehicle tires and contribute to potential road fatigue.

### 3. Analysis of Traffic Patterns

Traffic congestion typically occurs during local commuting hours (8:30 AM - 10:00 AM and 5:30 PM - 7:00 PM) and around market areas, especially near Bhavani. Sangagiri and Bhavani are small towns that experience moderate traffic except during festivities, which can exacerbate congestion.

## 4. Assessment of Road Quality and Infrastructure

The state highways tend to be well-maintained with clear signage, but stretches of road, particularly in rural areas, could have uneven surfaces and narrower lanes, posing challenges for heavy vehicles. Watch for potential potholes or debris, which might not be promptly cleared, especially after rainfall.

## 5. Suggestions for Alternative Routes for Emergencies

In case of emergencies, the alternative route from Sangagiri to Anthiyur may involve taking NH-544 towards Erode and then proceeding via NH-381A or local roads towards Anthiyur. Checking current road conditions and traffic reports is advisable before deviation.

## 6. Summary of Local Regulations Affecting Hazardous Material Transport

Transporting hazardous materials requires adherence to the Motor Vehicles Act and GPRS tracking of consignments might be mandated. It's essential to carry proper documentation and adhere to prescribed routes for hazardous materials transport. Night-time travel with such loads is often restricted.

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

In the past, incidents have been reported due to overturned vehicles resulting from poor road conditions or mechanical failures. Awareness of these risks and regular vehicle maintenance can mitigate such hazards. Local incidents have led to increased patrols on state highways during peak hours.

## 8. Environmental Considerations and Sensitive Areas

This route passes through several populated areas and agricultural lands, necessitating care to avoid spillage or accidents that could have detrimental ecological impacts. High standards of safety regulations should be maintained to prevent contamination.

## 9. Analysis of Communication Coverage

Most parts of this route have good mobile network coverage. However, occasional coverage gaps may occur in rural stretches or where terrain obstructs signals. Ensuring offline navigation backups and communication contingencies are recommended.

## 10. Estimated Emergency Response Times for Different Route Segments

Emergency response times can range from 15 to 30 minutes in urban areas like Sangagiri and Bhavani, but may increase to 45 minutes in more rural or isolated segments. Proximity to major towns typically implies faster access to medical and road services.

## 12. Overall Summary of Risk Assessment

The primary risks along this route involve weather-related challenges during monsoon, congestion in towns, and the potential for road surface deterioration at certain points. Ensuring equipment checks,

staying updated on weather and traffic reports, and having alternative strategies in place are key for safe transport of hazardous materials. This overall assessment suggests that while feasible, the route requires diligence and adherence to safety protocols.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.56355, 77.59597	15 KM/Hr
1	Roundabout	High	11.57607, 77.58841	15 KM/Hr
2	Turn	High	11.43811, 77.87348	15 KM/Hr
3	Turn	Medium	11.43961, 77.87341	30 KM/Hr
4	Turn	Medium	11.43968, 77.87345	30 KM/Hr
5	Turn	High	11.44029, 77.87544	15 KM/Hr
6	Turn	Medium	11.44893, 77.87413	30 KM/Hr
7	Turn	High	11.45350, 77.85700	15 KM/Hr
8	Turn	Medium	11.46046, 77.85037	30 KM/Hr
9	Turn	Medium	11.46303, 77.84945	30 KM/Hr
10	Turn	High	11.43001, 77.67575	15 KM/Hr
11	Turn	Medium	11.43000, 77.67564	30 KM/Hr
12	Turn	Medium	11.43009, 77.67540	30 KM/Hr
13	Turn	High	11.43026, 77.67525	15 KM/Hr
14	Turn	High	11.43864, 77.68225	15 KM/Hr
15	Turn	Medium	11.43965, 77.68224	30 KM/Hr
16	Turn	High	11.44105, 77.68188	15 KM/Hr
17	Turn	High	11.44120, 77.68218	15 KM/Hr
18	Turn	High	11.44288, 77.68254	15 KM/Hr
19	Turn	High	11.44298, 77.68273	15 KM/Hr
20	Turn	High	11.44858, 77.68333	15 KM/Hr
21	Turn	High	11.45649, 77.67621	15 KM/Hr
22	Turn	Medium	11.54439, 77.61209	30 KM/Hr
23	Turn	Medium	11.58067, 77.58800	30 KM/Hr
24	Turn	Medium	11.58080, 77.58786	30 KM/Hr
25	Turn	High	11.58103, 77.58704	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
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	hospital	Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam	11.432369, 77.674894	30 km/h	Medium
11	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
12	clinic	Harshitha Clinic	11.4313207, 77.674718	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	hospital	SKMH Hospital	11.4379787, 77.6780268	30 km/h	Medium
17	clinic	Sri Dharshan Diabetes Care	11.437649, 77.6778126	30 km/h	Medium
18	clinic	Velavan Homoeo Clinic	11.4367087, 77.6761472	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	Annusiya Hospital	11.4432777, 77.6813562	30 km/h	Medium
22	hospital	Sumangali Hospital	11.4427668, 77.6827131	30 km/h	Medium
23	hospital	Kandasamy Hospital	11.4450062, 77.6832304	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
24	hospital	Senthil Hospital	11.4475854, 77.6844482	30 km/h	Medium
25	hospital	S.N.A. Siddha Hospital	11.44704, 77.682877	30 km/h	Medium
26	hospital	Ashok Krishna Hospital	11.4483344, 77.6856579	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	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	Sindhu Hospital	11.57417, 77.590371	30 km/h	Medium
37	hospital	Arun Gowri Hospital	11.57659, 77.588756	30 km/h	Medium
38	clinic	P G K Nursing Home	11.5785675, 77.5891802	30 km/h	Medium
39	hospital	Annai Hospital	11.57992, 77.588319	30 km/h	Medium
40	hospital	Rani Hospital	11.5810663, 77.5879236	30 km/h	Medium
41	hospital	Government Hospital, Anthiyur	11.5813367, 77.5862689	30 km/h	Medium
42	hospital	Surya Hospital	11.58091, 77.58527	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
8	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium

## Route Photos of Risky Spots



**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.56355, 77.59597



**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.57607, 77.58841





**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:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.43001, 77.67575



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.43000, 77.67564



**Risk Type:** Turn

**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.43009, 77.67540**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.43026, 77.67525**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.43864, 77.68225**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.43965, 77.68224



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.44105, 77.68188



**Risk Type:** Turn

**Risk Level:** High



Speed Limit: 15 KM/Hr

Coordinates: 11.44120, 77.68218



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44288, 77.68254



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44298, 77.68273





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.44858, 77.68333



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45649, 77.67621



**Risk Type:** Turn  
**Risk Level:** Medium



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.54439, 77.61209**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.58067, 77.58800**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.58080, 77.58786**





Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.58103, 77.58704

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