



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal to SRI VELAVAN 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.







The route covers approximately 31.23 kilometers, connecting Sangagiri to Erode via the Erode-Chennimalai Road. It passes through primarily rural and semi-urban areas of Tamil Nadu. The journey typically takes about 0.89 hours for heavy vehicles carrying hazardous materials.

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

- **Weather Conditions:** The region experiences a tropical climate with high temperatures and humidity. The summer months can be extremely hot, while the monsoon season, from June to September, brings heavy rainfall.
- **Potential Hazards:** During the monsoon, roads can be slippery and prone to flooding. Visibility might be reduced due to heavy rain, affecting driving safety.

## 3. Traffic Patterns and Congestion

- **Peak Hours:** Typically, traffic congestion occurs from 8:00-10:00 AM and 5:30-7:30 PM due to local commuting.
- **Congestion-Prone Areas:** Areas near Sangagiri and the outskirts of Erode might face congestion, especially around junctions and marketplaces.

## 4. Assessment of Road Quality and Infrastructure

- **Road Quality:** The roads are generally well-paved but may have occasional potholes and uneven patches, particularly in rural sections.
- **Infrastructure:** Some narrow bridges and intersections may pose challenges for large vehicles.

## 5. Suggestions for Alternative Routes

- In case of emergencies, consider:
  - Route through SH-79 if NH-544 gets blocked, although it may add additional travel time.
  - Local roads may offer detours but require knowledge of the area to navigate effectively.

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

- Tamil Nadu has specific bylaws for the transportation of hazardous materials. Ensure compliance with regulations like proper vehicle marking, driver certification, and route approval.
- Night travel for hazardous materials is typically restricted.

## 7. Overview of Historical Incidents

- Historically, there have been few reported incidents involving hazardous material transport on this route. However, standard safety precautions and monitoring should always be practiced.

## 8. Environmental Considerations and Sensitive Areas

- There are agricultural zones at various points; ensure no spillage or leakage occurs to prevent contamination.
- Several small water bodies and fields depend on local waterways; transportation must be managed to avoid environmental impact.

## 9. Analysis of Communication Coverage

- **Communication Coverage:** Mobile network coverage is generally good, but some rural segments may experience weak signals. Dead zones are not frequent but can occur near hilly terrain.
- Recommend establishing alternate communication means, such as portable radios, especially for emergency purposes.

## 10. Estimated Emergency Response Times

- Response times are variable but generally range from 30 minutes to 1 hour, depending on proximity to major towns.
- Closest emergency services are located in Erode, with smaller first aid options available en route.

## 11. Overall Summary of Risk Assessment

- **Risks Identified:** Monsoon-related rain can lead to road hazards, moderate traffic congestion, and infrastructure limitations like narrow bridges.
- **Overall Safety:** With proper planning and adherence to safety protocols, the route is manageable for hazardous material transportation.
- **Recommendations:** Ensure all drivers are trained in emergency response and knowledgeable of alternative routes. Pre-trip inspections, especially during monsoon season, are crucial.

In conclusion, while the route from Sangagiri to Erode is generally safe for transporting hazardous materials, special attention is needed for weather conditions, compliance with regulations, and emergency preparedness. Regular updates on traffic conditions and infrastructure developments should be monitored to maintain safety levels.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.37086, 77.74828	15 KM/Hr
1	Turn	High	11.43811, 77.87348	15 KM/Hr
2	Turn	Medium	11.43956, 77.87340	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
3	Turn	High	11.43968, 77.87345	15 KM/Hr
4	Turn	High	11.44029, 77.87544	15 KM/Hr
5	Turn	Medium	11.44898, 77.87410	30 KM/Hr
6	Turn	Medium	11.45357, 77.85789	30 KM/Hr
7	Turn	Medium	11.45352, 77.85698	30 KM/Hr
8	Turn	Medium	11.46303, 77.84945	30 KM/Hr
9	Turn	Medium	11.46318, 77.84913	30 KM/Hr
10	Turn	Medium	11.46312, 77.84886	30 KM/Hr
11	Turn	Medium	11.36622, 77.74789	30 KM/Hr
12	Turn	Medium	11.34493, 77.73032	30 KM/Hr
13	Blind Spot	Blind Spot	11.33920, 77.72902	10 KM/Hr
14	Turn	Medium	11.33914, 77.72659	30 KM/Hr
15	Turn	High	11.33890, 77.72637	15 KM/Hr
16	Turn	Medium	11.33095, 77.72748	30 KM/Hr
17	Turn	High	11.33090, 77.72748	15 KM/Hr
18	Turn	Medium	11.33084, 77.72742	30 KM/Hr
19	Turn	Medium	11.33083, 77.72734	30 KM/Hr
20	Turn	High	11.33084, 77.72731	15 KM/Hr
21	Turn	High	11.31172, 77.70715	15 KM/Hr
22	Turn	Medium	11.31050, 77.70781	30 KM/Hr
23	Turn	Medium	11.31032, 77.70783	30 KM/Hr
24	Turn	Medium	11.30807, 77.70415	30 KM/Hr

### Emergency Locations

	type	name	coordinates	speed_limit	risk_level
1	hospital	Cheran Hospital	11.3680302, 77.7481976	30 km/h	Medium
2	pharmacy	Pharmacy	11.3652161, 77.7486375	30 km/h	Medium
3	hospital	Sri Kumaran E N T Hospital	11.3657814, 77.7477763	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
4	hospital	Sri Krishna Hospital	11.3656648, 77.7477783	30 km/h	Medium
5	hospital	Visaalam Hospitals	11.3651528, 77.747808	30 km/h	Medium
6	police	Police Station	11.3630177, 77.7476505	30 km/h	Medium
7	hospital	Government Hospital	11.3608508, 77.747453	30 km/h	Medium
9	hospital	Sri Hari Sakthivel Hospital	11.3526901, 77.7323055	30 km/h	Medium
10	hospital	Senthil Prakash Hospital	11.352639, 77.732267	30 km/h	Medium
11	hospital	V K Hospital	11.3513792, 77.7313976	30 km/h	Medium
12	hospital	Dhanvantri Critical Care Center	11.3504266, 77.7311274	30 km/h	Medium
13	hospital	Dhanvantri Critical Care Centre	11.35099, 77.730508	30 km/h	Medium
14	hospital	Indrajith Yoga Nature Cure Hospital	11.3499973, 77.732974	30 km/h	Medium
16	hospital	Kumudha Hospital	11.3467172, 77.7306797	30 km/h	Medium
17	hospital	City Hospital	11.3451151, 77.7300887	30 km/h	Medium
18	clinic	K.B.N. Nursing Home	11.344835, 77.7310771	30 km/h	Medium
19	clinic	Kpn Nursing Home	11.3437022, 77.7304525	30 km/h	Medium
20	hospital	Milan Hospital	11.343591, 77.733182	30 km/h	Medium
21	hospital	Kaviraj Ayurveda Hospital	11.3400349, 77.7298199	30 km/h	Medium
22	hospital	Dr Kokilasekar Nursing Hospital	11.3395874, 77.7269838	30 km/h	Medium
23	clinic	M.R Nursing Home	11.3386746, 77.7294262	30 km/h	Medium
25	hospital	Government Maternity Hospital, Agathiar	11.33716, 77.727075	30 km/h	Medium
26	clinic	Naseer Nursing Home	11.3364485, 77.7271691	30 km/h	Medium
27	hospital	Vikram Hospital, Erode	11.3356411, 77.7280569	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
28	hospital	Shabeer Hospital	11.33529, 77.7285236	30 km/h	Medium
29	hospital	J.B. Clinic And Hospital	11.3351769, 77.7282031	30 km/h	Medium
30	hospital	Dr. R.M. Habibullah Hospital	11.335246, 77.7266028	30 km/h	Medium
31	hospital	Kumarasamy Hospital	11.334273, 77.7259118	30 km/h	Medium
32	hospital	Thangam Hospital, Erode	11.3340961, 77.7262437	30 km/h	Medium
33	hospital	Ck Hospital	11.3326562, 77.7282011	30 km/h	Medium
34	hospital	Immick Hospital	11.332617, 77.728073	30 km/h	Medium
35	fire_station	Erode District Fire Station	11.3326366, 77.7272532	30 km/h	Medium
36	hospital	JJ hospital	11.33168, 77.728823	30 km/h	Medium
37	hospital	Jai Maaruthi Hospital	11.332, 77.727272	30 km/h	Medium
38	hospital	Shubiksha Hospital	11.3318174, 77.7299544	30 km/h	Medium
39	hospital	Bethesda Hospital	11.3314183, 77.7266231	30 km/h	Medium
40	hospital	Mercury Hospital	11.3328384, 77.7240531	30 km/h	Medium
41	hospital	Erode Ortho Centre	11.3294487, 77.7230172	30 km/h	Medium
42	hospital	Aditi Ent Hospital	11.3300862, 77.7236924	30 km/h	Medium
43	hospital	KRN Hospital	11.330054, 77.723136	30 km/h	Medium
44	hospital	Dr. Snm Siddha Hospital	11.3306597, 77.7196144	30 km/h	Medium
45	hospital	Joseph Hospital	11.30801, 77.704584	30 km/h	Medium

**Crowded Spots**



	type	name	coordinates	speed_limit	risk_level
0	school	Ssri Valliappa Vidhayalayam mat hr school	11.4004878, 77.7794381	30 km/h	Medium
8	marketplace	Weekly Market	11.3605669, 77.7488199	30 km/h	Medium
15	school	Municipality Girls Higher secondary school	11.3495618, 77.7325011	30 km/h	Medium
24	school	E.V.R. Govt Girls Hr. Sec School	11.3371265, 77.7266283	30 km/h	Medium
46	college	Erode Arts and Science College	11.3002956, 77.6984443	30 km/h	Medium

## Route Photos of Risky Spots



**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.37086, 77.74828





**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:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.46312, 77.84886



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.36622, 77.74789





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.34493, 77.73032



**Risk Type:** Blind Spot

**Risk Level:** Blind Spot

**Speed Limit:** 10 KM/Hr

**Coordinates:** 11.33920, 77.72902





**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.33914, 77.72659**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.33890, 77.72637**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.33095, 77.72748**





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.33090, 77.72748



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.33084, 77.72742





**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.33083, 77.72734**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.33084, 77.72731**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.31172, 77.70715**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.31050, 77.70781



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.31032, 77.70783





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.30807, 77.70415

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