



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

### **Salem Terminal To SRE VEERAKUMAR PETROFILS**

#### **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.

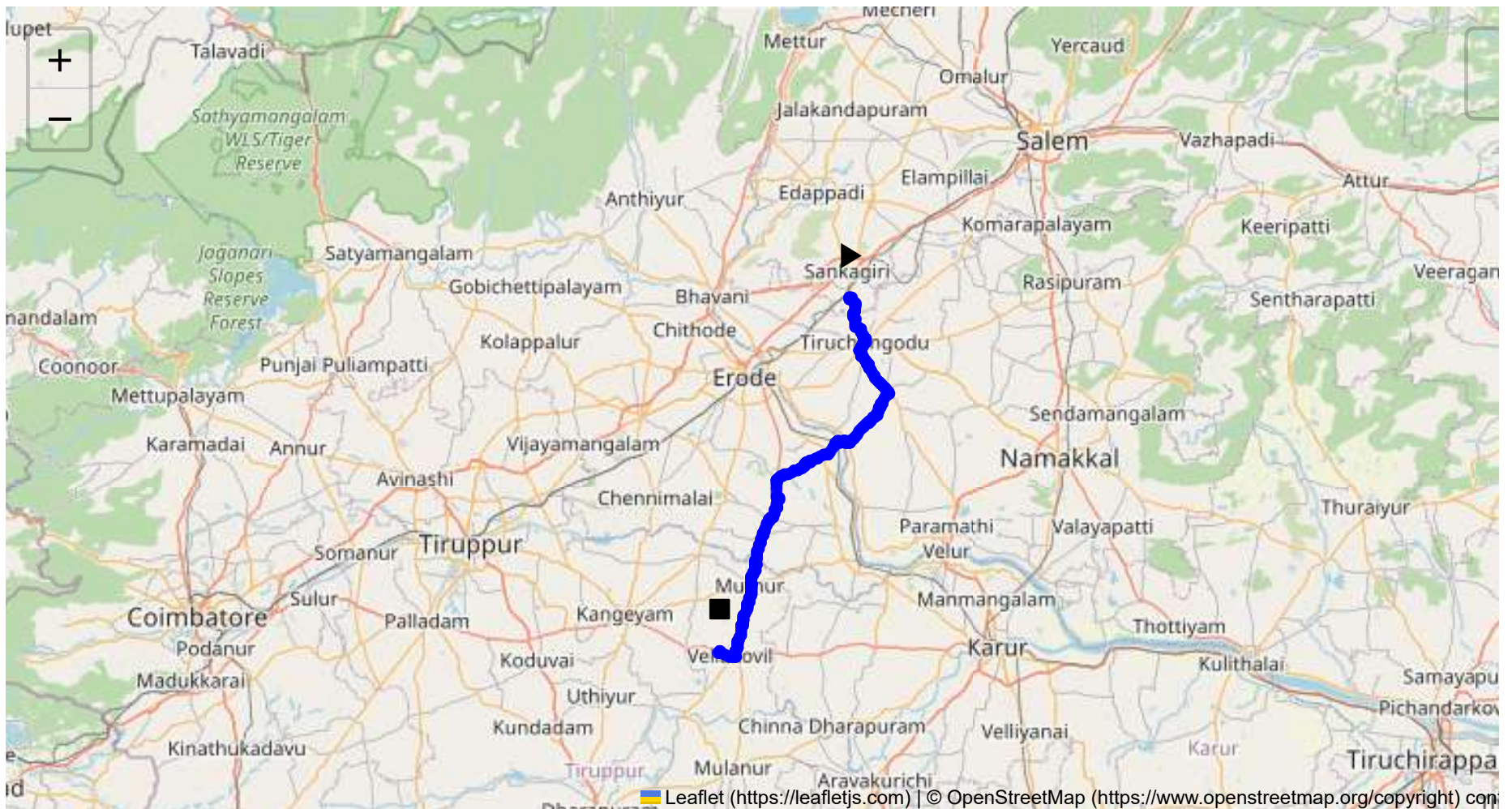
## Compliance with Government Directives

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: 72.53 km  
Estimated Duration: 1.7 hours  
Adjusted Duration (Heavy Vehicle): 2.1 hours  
Start: (11.4381, 77.8734)  
End: (10.953, 77.691)



## Welcome to the Journey Risk Management Study

### Route Safety Analysis Report

#### 1. Route Overview

The route from Sangagiri to Nagapattinam via several intermediate points in Tamil Nadu covers approximately 72.53 kilometers. The journey commences in Sangagiri, proceeds through Sullipalayam and Solasiramani, and ends on the Nagapattinam - Coimbatore - Gundlupet Highway. The trip typically takes around 1.69 hours for trucks transporting hazardous materials.

#### 2. Weather Conditions

- **Typical Weather:** The region primarily experiences a tropical climate with hot summers, moderate winters, and significant monsoon rains.
- **Weather-Related Hazards:** During monsoon season (June to September), heavy rains can lead to flooding and waterlogged roads, creating slippery conditions that are hazardous for heavy vehicles. Summer heat can also lead to issues such as tire blowouts.

#### 3. Traffic Patterns

- **Congestion Areas:** Expect congestion near towns, especially during school hours and trading peak times. Traffic may be heavier during morning (8-10 AM) and evening (5-7 PM) rush hours.

- **Traffic Analysis:** SH 86 is a regional route with variable traffic; therefore, monitor real-time traffic updates for potential delays.

## 4. Road Quality and Infrastructure

- **General Assessment:** The roads are generally in fair condition but may have sections with potholes and uneven surfaces, especially after monsoons. Watch for inadequate signage in rural areas.
- **Infrastructure:** Highway infrastructure includes major junctions and bridges, which must be approached with caution due to possible weaknesses.

## 5. Alternative Routes

- **Emergency Alternatives:** In case of roadblocks or significant delays, consider using nearby state highways that circle around affected segments, depending on real-time traffic data and road conditions.

## 6. Local Regulations

- **Hazardous Material Transport:** Ensure compliance with Tamil Nadu Transport Department regulations on transporting hazardous materials, including permissible hours and specific routes.

## 7. Historical Incidents

- **Incidents Involving Heavy Vehicles:** Few documented cases of accidents involving heavy vehicles on this route suggest general low-risk, but recent localized flooding has reportedly led to increased accidents during the monsoon.
- **Hazardous Materials:** No significant incidents reported; however, always adhere to safety protocols.

## 8. Environmental Considerations

- **Sensitive Areas:** The route passes near agricultural zones and small communities. Limit emissions and noise pollution, and pay attention to local wildlife, especially in undeveloped regions.

## 9. Communication Coverage

- **Dead Zones:** Expect occasional coverage gaps in rural stretches between towns, particularly on secondary roads. Equip vehicles with emergency communication equipment.

## 10. Emergency Response Times

- **Response Time:** Emergency services are generally accessible within 30-45 minutes in urban areas, but response times increase to 1-2 hours in rural sectors. Plan accordingly for any emergencies.

## 11. Overall Summary of Risk Assessment

- **General Risk:** The route is manageable with moderate risk under clear weather conditions; however, risk elevation occurs during adverse weather.

- **Key Risks:** The main safety concerns include road conditions post-monsoon, timely access to emergency facilities, and effective communication in less populated areas.
- **Recommendations:** Optimize travel schedules to avoid peak congestion, remain vigilant about weather conditions, and ensure compliance with safety regulations. Regularly check vehicle conditions, especially tires, before the journey.

Preparing drivers with this information can significantly enhance safety and efficiency during transportation along this stretch in Tamil Nadu.

### Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.38395, 77.89480	15 KM/Hr
1	Roundabout	High	11.04637, 77.73761	15 KM/Hr
2	Turn	Medium	11.43822, 77.87348	30 KM/Hr
3	Turn	High	11.43961, 77.87341	15 KM/Hr
4	Turn	High	11.44029, 77.87544	15 KM/Hr
5	Turn	Medium	11.39671, 77.88878	30 KM/Hr
6	Turn	High	11.37862, 77.89488	15 KM/Hr
7	Turn	High	11.37850, 77.89453	15 KM/Hr
8	Turn	High	11.30859, 77.92918	15 KM/Hr
9	Turn	Medium	11.24421, 77.87541	30 KM/Hr
10	Turn	Medium	11.24192, 77.87363	30 KM/Hr
11	Turn	High	11.24001, 77.87368	15 KM/Hr
12	Turn	High	11.24061, 77.86899	15 KM/Hr
13	Turn	High	11.24157, 77.86876	15 KM/Hr
14	Turn	High	11.24167, 77.86843	15 KM/Hr
15	Turn	High	11.24242, 77.86833	15 KM/Hr
16	Turn	Medium	11.24252, 77.86780	30 KM/Hr
17	Blind Spot	Blind Spot	11.24384, 77.86689	10 KM/Hr
18	Turn	High	11.24101, 77.86023	15 KM/Hr
19	Turn	Medium	11.24198, 77.85893	30 KM/Hr
20	Turn	Medium	11.24198, 77.85860	30 KM/Hr
21	Blind Spot	Blind Spot	11.18861, 77.77108	10 KM/Hr
22	Turn	Medium	11.16450, 77.77357	30 KM/Hr
23	Turn	Medium	11.16407, 77.77376	30 KM/Hr
24	Turn	Medium	11.16357, 77.77434	30 KM/Hr



	Risk Type	Risk Level	Coordinates	Speed Limit
25	Turn	High	11.13667, 77.76526	15 KM/Hr
26	Turn	Medium	11.04703, 77.73745	30 KM/Hr
27	Turn	Medium	11.04528, 77.73627	30 KM/Hr
28	Turn	High	10.99029, 77.72513	15 KM/Hr
29	Turn	Medium	10.98961, 77.72379	30 KM/Hr
30	Turn	High	10.94597, 77.71319	15 KM/Hr
31	Turn	Medium	10.94591, 77.71309	30 KM/Hr
32	Blind Spot	Blind Spot	10.95350, 77.69133	10 KM/Hr

### Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Tiruchengode, Goverment Hospital	11.3903328, 77.8920627	30 km/h	Medium
1	hospital	SPM Medical Centre,Tiruchengode	11.3881331, 77.8931963	30 km/h	Medium
5	clinic	Kongu Nursing Home	11.3783065, 77.8961134	30 km/h	Medium
6	hospital	T.C.A Hospital Tiruchengode	11.3791885, 77.8965774	30 km/h	Medium
7	hospital	Soorya Multispecialty Hospital	11.3786429, 77.8931912	30 km/h	Medium
8	hospital	Tiruchengode Government Hospital	11.37645, 77.89426	30 km/h	Medium
9	hospital	Krishna Hospital, Namakkal	11.3754811, 77.8931817	30 km/h	Medium
10	hospital	Tirukumaran Hospitals	11.3782118, 77.8914933	30 km/h	Medium
13	police	கரட்டுப்பாளையம் காவல் நிலையம்	11.357586, 77.8922539	30 km/h	Medium
14	hospital	Government Hospital, Elumathur	11.18533, 77.772496	30 km/h	Medium
15	hospital	Malar Hospital, Muthur	11.0438049, 77.7361156	30 km/h	Medium
16	hospital	SIBI Hospital, Vellakoil	10.9569141, 77.7160216	30 km/h	Medium
17	hospital	KG Hospital, Vellakoil	10.9511, 77.714116	30 km/h	Medium

## Crowded Spots

	type	name	coordinates	speed_limit	risk_level
2	school	அரசு ஆண்கள் மேல்நிலைப் பள்ளி	11.3850439, 77.8948279	30 km/h	Medium
3	school	அரசு பெண்கள் மேல்நிலைப் பள்ளி	11.3844247, 77.8949053	30 km/h	Medium
4	marketplace	திருச்செங்கோடு தினசரி காய்கறி சந்தை	11.3833608, 77.8970145	30 km/h	Medium
11	school	KSR Educational institution	11.3772013, 77.8908807	30 km/h	Medium
12	school	MDV School	11.3719843, 77.8915244	30 km/h	Medium

## Route Photos of Risky Spots



**Risk Type:** Roundabout

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.38395, 77.89480





**Risk Type:** Roundabout  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.04637, 77.73761



**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: 11.39671, 77.88878



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.37862, 77.89488



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.37850, 77.89453





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.30859, 77.92918



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.24421, 77.87541



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



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.24192, 77.87363**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.24001, 77.87368**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.24061, 77.86899**





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.24157, 77.86876



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.24167, 77.86843



**Risk Type:** Turn

**Risk Level:** High



Speed Limit: 15 KM/Hr

Coordinates: 11.24242, 77.86833



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24252, 77.86780



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.24384, 77.86689





**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.24101, 77.86023



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.24198, 77.85893



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



**Speed Limit: 30 KM/Hr**

**Coordinates: 11.24198, 77.85860**



**Risk Type: Blind Spot**

**Risk Level: Blind Spot**

**Speed Limit: 10 KM/Hr**

**Coordinates: 11.18861, 77.77108**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.16450, 77.77357**





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.16407, 77.77376



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.16357, 77.77434



**Risk Type:** Turn

**Risk Level:** High



**Speed Limit: 15 KM/Hr**

**Coordinates: 11.13667, 77.76526**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.04703, 77.73745**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.04528, 77.73627**





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 10.99029, 77.72513



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 10.98961, 77.72379



**Risk Type:** Turn

**Risk Level:** High



Speed Limit: 15 KM/Hr

Coordinates: 10.94597, 77.71319



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.94591, 77.71309



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 10.95350, 77.69133



