



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal to TSA ENTERPRISES

#### 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.

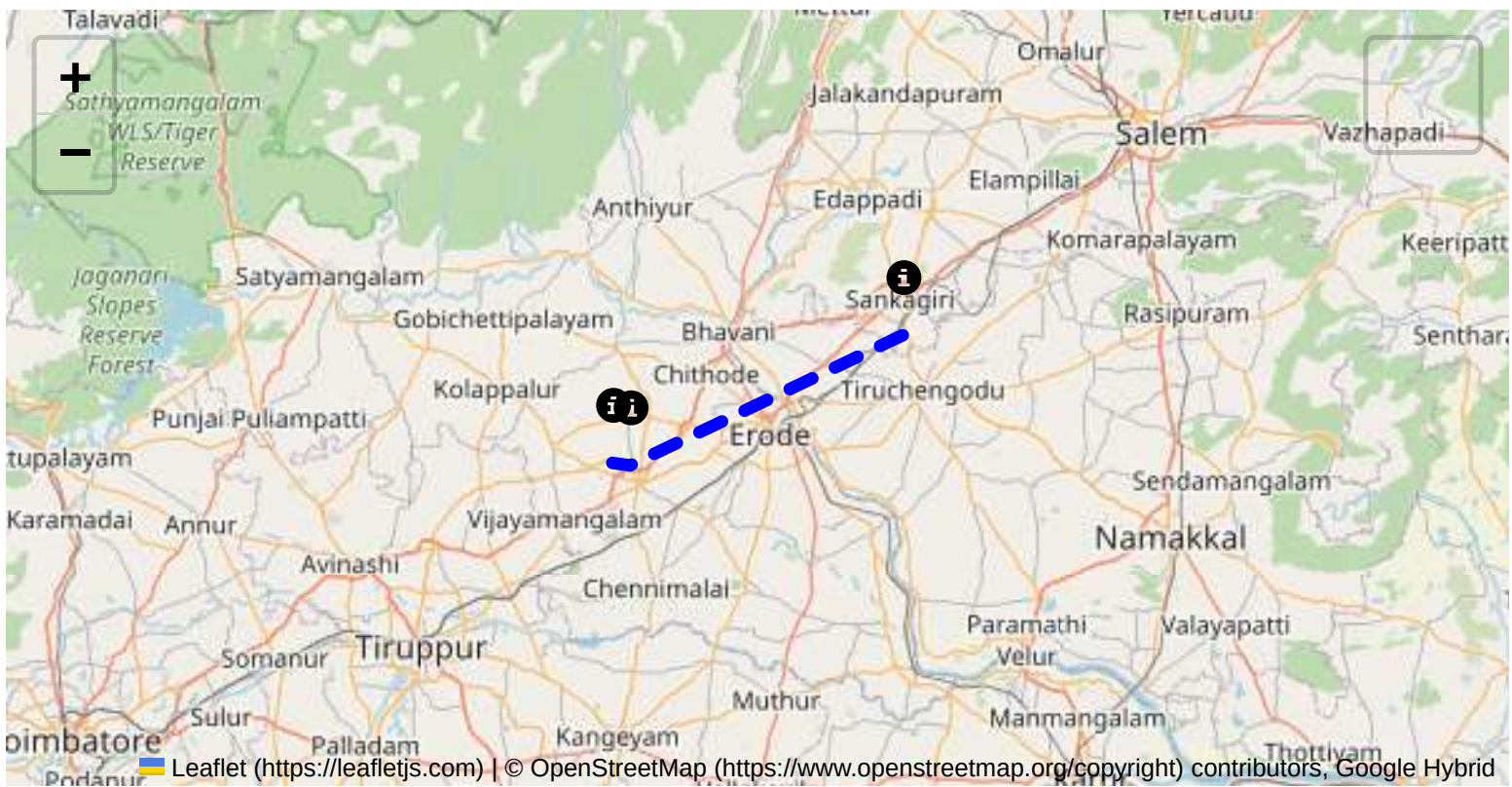
## **Journey Risk Mitigation**

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.

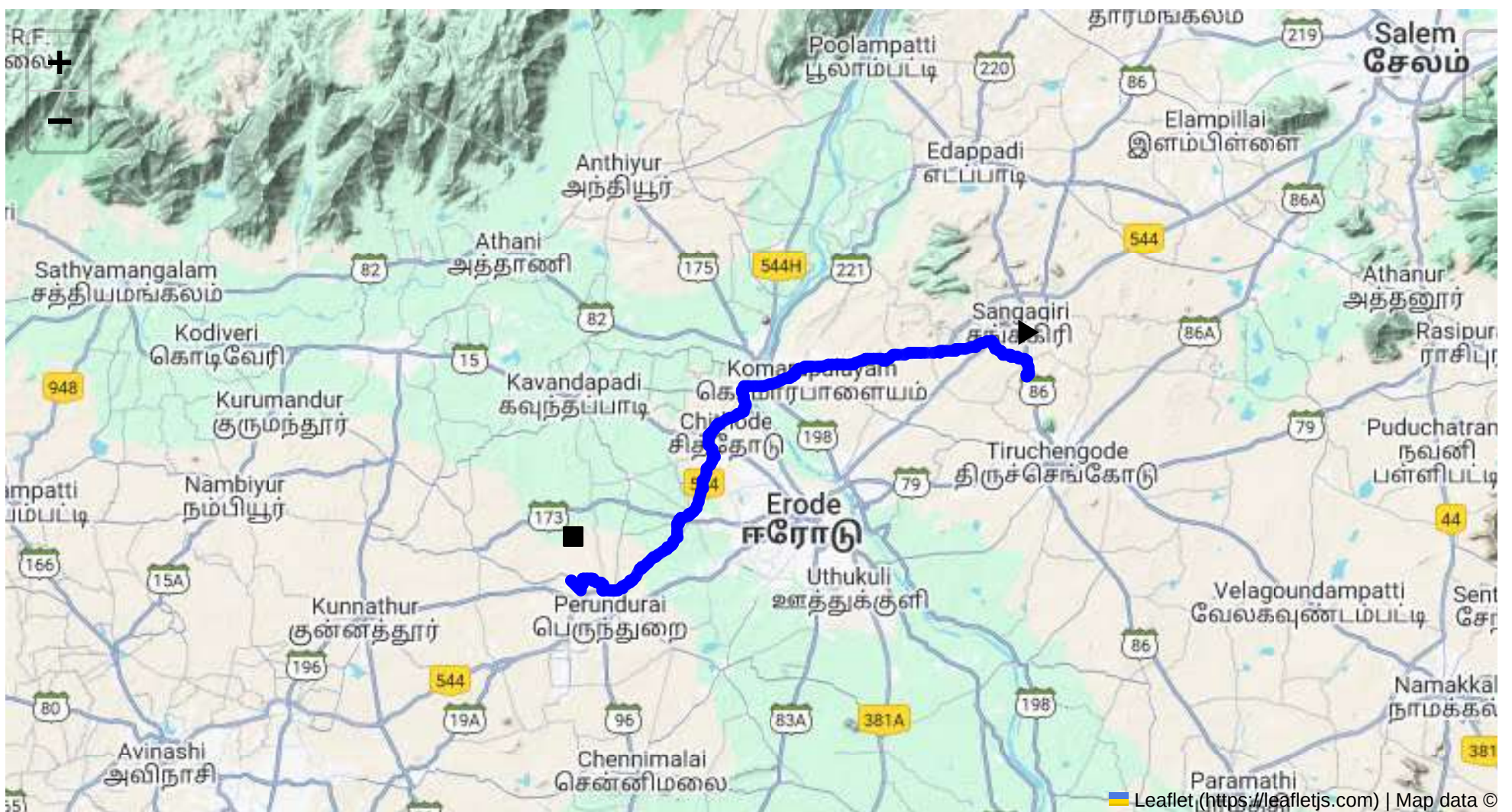
## **Compliance with Government Directives**

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: 50.03 km**  
**Estimated Duration: 1.0 hours**  
**Adjusted Duration (Heavy Vehicle): 1.3 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.2987263, 77.5545961)**



## Welcome to the Journey Risk Management Study

### Route Overview

The route from Sangagiri to Erode via Karumandisellipalayam is approximately 50.03 kilometers, roughly an hour's drive for heavy vehicles. It features a mix of state highways and local roads, offering a moderately straightforward path through rural and semi-urban areas.



# Weather Conditions

Tamil Nadu generally experiences tropical climate conditions. Weather-related hazards might include:

- **Monsoons (June to September):** Heavy rainfall can cause flooding and road washouts.
- **Summer (March to May):** High temperatures can affect tire pressure and increase the risk of engine overheating.
- **Fog and Mist:** Though uncommon, these can occur in early mornings, particularly in winter months (December to February).

# Traffic Patterns

- **Peak Hours:** Morning (8:00-10:00 AM) and evening (5:00-7:00 PM) can witness elevated traffic in town areas and near markets.
- **Congestion-Prone Areas:** Entry and exit points of Karumandisellipalayam and Erode may see slow traffic, especially during peak market hours.

# Road Quality and Infrastructure

- **Highways:** Generally in good condition, but occasional potholes and narrow stretches may be encountered.
- **Local Roads:** Can be narrower and less maintained, with higher chances of encountering sharp turns and pedestrian activity.

# Alternative Routes

- If primary routes are blocked, consider regional roads bypassing major towns to the east. However, these may add additional time and complexity to the journey.

# Local Regulations

- **Permits:** Necessary for carrying hazardous materials.
- **Speed Limits:** Vary between 50 km/h in rural zones to 25 km/h in towns.
- **Time Restrictions:** Some local roads may impose restrictions on heavy vehicle movement during peak times.

# Historical Incidents

- **Heavy Vehicles:** Few recorded incidents, though the potential for accidents increases during monsoons due to slippery roads.
- **Hazardous Materials:** Limited data, but caution is advised given the presence of agricultural traffic and markets.

# Environmental Considerations

- **Agricultural Areas:** Sensitive to chemical spills that may affect farmland and water sources.

- **Residential Zones:** In Erode and Karumandisellipalayam, loud noise and pollutants from heavy truck traffic should be minimized.

## Communication Coverage

- **Strong Network:** Along majority of the highways and towns.
- **Potential Dead Zones:** Rural stretches between towns may have weaker signals; advisable to plan communications accordingly.

## Emergency Response Times

- **Rural Areas:** Emergency vehicles may take 30-45 minutes to arrive.
- **Urban Areas:** Response times can be quicker, around 15-20 minutes in towns like Erode.

## Overall Summary of Risk Assessment

- **Moderate Risk:** The route poses moderate risk levels, primarily from weather impacts and road conditions. Preparedness and caution can mitigate these risks.
- **Recommendations:** Stay updated on weather forecasts, adhere to speed and vehicle guidelines, and ensure that communication devices are charged and functional. Prepare alternative routes and familiarize with regulations before transporting hazardous materials.

The above analysis should serve as a thorough guideline for truck drivers navigating this route, emphasizing safety and preparedness for any eventuality.

### 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
7	Turn	Medium	11.46303, 77.84945	30 KM/Hr
8	Turn	Medium	11.46318, 77.84913	30 KM/Hr
9	Turn	Medium	11.29288, 77.59029	30 KM/Hr
10	Turn	Medium	11.29164, 77.58610	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
11	Turn	High	11.29158, 77.58600	15 KM/Hr
12	Turn	Medium	11.29163, 77.58591	30 KM/Hr
13	Turn	Medium	11.29140, 77.58253	30 KM/Hr
14	Turn	Medium	11.29154, 77.58236	30 KM/Hr
15	Turn	High	11.29157, 77.57721	15 KM/Hr
16	Turn	High	11.29575, 77.57723	15 KM/Hr
17	Turn	Medium	11.29653, 77.57535	30 KM/Hr
18	Turn	Medium	11.29700, 77.57492	30 KM/Hr
19	Turn	Medium	11.29744, 77.57339	30 KM/Hr
20	Turn	Medium	11.29736, 77.57272	30 KM/Hr
21	Turn	Medium	11.29841, 77.57022	30 KM/Hr
22	Turn	Medium	11.29940, 77.57018	30 KM/Hr
23	Turn	High	11.29960, 77.57008	15 KM/Hr
24	Turn	Medium	11.29965, 77.56919	30 KM/Hr
25	Turn	Medium	11.29976, 77.56904	30 KM/Hr
26	Turn	High	11.29968, 77.56335	15 KM/Hr
27	Blind Spot	Blind Spot	11.29195, 77.56218	10 KM/Hr
28	Turn	High	11.29869, 77.55489	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	clinic	Erode Cancer Centre	11.3732, 77.649152	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
7	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	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:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29288, 77.59029





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.29164, 77.58610



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.29158, 77.58600





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29163, 77.58591



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29140, 77.58253



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29154, 77.58236





**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.29157, 77.57721



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.29575, 77.57723





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29653, 77.57535



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29700, 77.57492



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29744, 77.57339





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.29736, 77.57272



**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.29841, 77.57022





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29940, 77.57018



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.29960, 77.57008



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.29965, 77.56919





**Risk Type:** Turn

**Risk Level:** Medium

**Speed Limit:** 30 KM/Hr

**Coordinates:** 11.29976, 77.56904



**Risk Type:** Turn

**Risk Level:** High

**Speed Limit:** 15 KM/Hr

**Coordinates:** 11.29968, 77.56335





**Risk Type:** Blind Spot  
**Risk Level:** Blind Spot  
**Speed Limit:** 10 KM/Hr  
**Coordinates:** 11.29195, 77.56218



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.29869, 77.55489

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