



# IndianOil

## JOURNEY RISK MANAGEMENT (JRM) STUDY

### Salem Terminal TO K P MARKETING

#### 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.

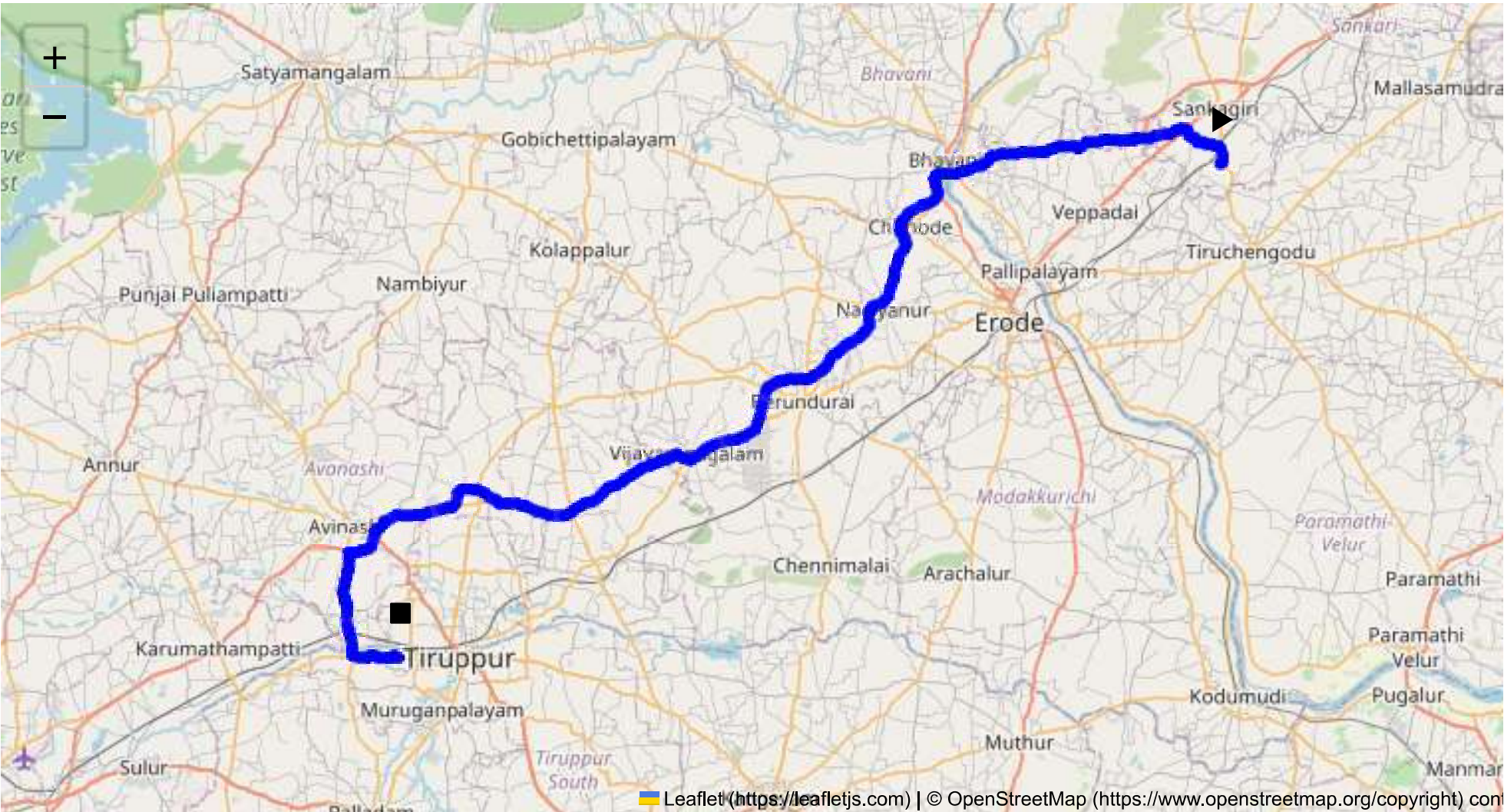
## Compliance with Government Directives

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: 98.17 km**  
**Estimated Duration: 1.8 hours**  
**Adjusted Duration (Heavy Vehicle): 2.3 hours**  
**Start: (11.4381, 77.8734)**  
**End: (11.10156, 77.30202)**



Welcome to the Journey Risk Management Study

**1. Overview of the Route Map:** The route from Sangagiri to Tiruppur is approximately 98.17 kilometers and covers primarily NH 544. This national highway is a well-traveled road that connects several major towns and cities in Tamil Nadu. The route passes through Erode, a significant waypoint before reaching the industrial hub of Tiruppur.



**2. Typical Weather Conditions and Potential Weather-Related Hazards:** Tamil Nadu experiences a tropical climate with three distinct seasons: summer, monsoon, and winter. During monsoon (June to September), heavy rains can lead to waterlogged roads, especially in low-lying areas around Erode. The summer months (March to June) bring extreme heat, which can affect vehicle performance.

**3. Analysis of Traffic Patterns:** NH 544 can experience high traffic density, especially near Erode and Tiruppur, due to local businesses and industrial activities. Peak hours typically occur in the morning from 8 AM to 11 AM and in the evening from 5 PM to 8 PM. Congestion is common in towns along the route.

**4. Assessment of Road Quality and Infrastructure:** NH 544 is mostly a four-lane highway with good road quality, though maintenance varies. Occasional potholes and uneven surfaces may be present, requiring cautious driving. Signage and lane markings are generally clear but can sometimes be obscured by vegetation or dust.

**5. Suggestions for Alternative Routes for Emergencies:** In the event of road closure or heavy congestion, state highways 79 and 81 can be used as detours. SH 81, in particular, runs parallel to NH 544 and offers a viable alternative to bypass major towns.

**6. Summary of Local Regulations Affecting Hazardous Material Transport:** Transport of hazardous materials is regulated under the Motor Vehicles Act and requires a special permit. Vehicles must bear appropriate signage indicating the nature of the materials transported. Transport is generally restricted through densely populated urban areas during peak hours to minimize risk.

**7. Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials:** There have been incidents in the region involving vehicle overturns and spillage due to sharp turns, especially near hilly areas. Awareness of local topography and careful speed management reduces the risk of such incidents.

**8. Environmental Considerations and Sensitive Areas:** Several small natural reserves and agricultural zones are adjacent to NH 544, particularly near Erode. Noise and emissions should be minimized in these areas to prevent any negative environmental impact.

**9. Analysis of Communication Coverage:** The communication network along NH 544 is generally reliable, with good coverage in urban areas. Potential dead zones can exist in rural stretches and hilly regions around Erode. It is advisable to carry an alternate communication device, like a satellite phone, for emergencies.

**10. Estimated Emergency Response Times for Different Route Segments:** Emergency response times can vary significantly. Urban areas like Erode and Tiruppur can have response times as short as 20-30 minutes due to proximity to services. In rural sections, response times can extend to an hour or more.

**12. Overall Summary of Risk Assessment:** The route is relatively well-maintained but not without risks. Congestion, seasonal weather impacts, and road quality variations are notable. To mitigate risks, it is recommended to travel during off-peak hours, ensure vehicle maintenance is current, and stay updated on weather forecasts. Proper training on local regulations and the use of alternative communication tools is essential for safety when transporting hazardous materials.

Safety measures, such as route familiarization and regular communications with local authorities, are vital to efficient and secure transport on this route.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.17250, 77.26863	15 KM/Hr
1	Roundabout	High	11.10249, 77.27146	15 KM/Hr
2	Turn	High	11.43968, 77.87345	15 KM/Hr
3	Turn	High	11.44024, 77.87528	15 KM/Hr
4	Turn	High	11.44898, 77.87410	15 KM/Hr
5	Turn	Medium	11.45357, 77.85789	30 KM/Hr
6	Turn	High	11.45352, 77.85698	15 KM/Hr
7	Turn	Medium	11.45847, 77.85140	30 KM/Hr
8	Turn	Medium	11.45898, 77.85135	30 KM/Hr
9	Turn	High	11.46303, 77.84945	15 KM/Hr
10	Turn	Medium	11.45509, 77.81383	30 KM/Hr
11	Turn	Medium	11.45085, 77.77020	30 KM/Hr
12	Turn	Medium	11.43165, 77.67734	30 KM/Hr
13	Turn	Medium	11.18808, 77.28672	30 KM/Hr
14	Turn	Medium	11.16848, 77.26757	30 KM/Hr
15	Turn	Medium	11.14580, 77.26363	30 KM/Hr
16	Turn	Medium	11.10890, 77.27134	30 KM/Hr
17	Turn	Medium	11.10680, 77.27043	30 KM/Hr
18	Turn	Medium	11.10256, 77.27210	30 KM/Hr
19	Turn	Medium	11.10162, 77.27443	30 KM/Hr
20	Turn	Medium	11.10164, 77.29834	30 KM/Hr
21	Turn	High	11.10238, 77.29955	15 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
3	hospital	Dhanvantri Multi Speciality Hospital	11.451362, 77.766602	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
4	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
5	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
8	hospital	Thanish Siddha Hospital	11.430003, 77.674964	30 km/h	Medium
9	clinic	Harshitha Clinic	11.4313207, 77.674718	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	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium
14	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
16	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium
17	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
18	hospital	Dr. N Viswanathan Hospital	11.2412783, 77.5005502	30 km/h	Medium
19	clinic	P.M. Clinic	11.2281078, 77.4647296	30 km/h	Medium
21	hospital	Sri Renu Hospital	11.1990225, 77.4219937	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



	type	name	coordinates	speed_limit	risk_level
6	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
13	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
15	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium
20	marketplace	Weekly Market (sandhai)	11.2287229, 77.4646676	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout  
Risk Level: High  
Speed Limit: 15 KM/Hr  
Coordinates: 11.17250, 77.26863



Risk Type: Roundabout  
Risk Level: High



**Speed Limit: 15 KM/Hr**  
**Coordinates: 11.10249, 77.27146**



**Risk Type: Turn**  
**Risk Level: High**  
**Speed Limit: 15 KM/Hr**  
**Coordinates: 11.44024, 77.87528**



**Risk Type: Turn**  
**Risk Level: High**  
**Speed Limit: 15 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:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.45352, 77.85698





**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.45847, 77.85140**



**Risk Type: Turn**

**Risk Level: Medium**

**Speed Limit: 30 KM/Hr**

**Coordinates: 11.45898, 77.85135**



**Risk Type: Turn**

**Risk Level: High**

**Speed Limit: 15 KM/Hr**

**Coordinates: 11.46303, 77.84945**





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45509, 77.81383



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.45085, 77.77020





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.43165, 77.67734



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.18808, 77.28672



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.16848, 77.26757





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.14580, 77.26363



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.10890, 77.27134





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.10680, 77.27043



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.10256, 77.27210



**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.10162, 77.27443





**Risk Type:** Turn  
**Risk Level:** Medium  
**Speed Limit:** 30 KM/Hr  
**Coordinates:** 11.10164, 77.29834



**Risk Type:** Turn  
**Risk Level:** High  
**Speed Limit:** 15 KM/Hr  
**Coordinates:** 11.10238, 77.29955

