



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to TSP & CO

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

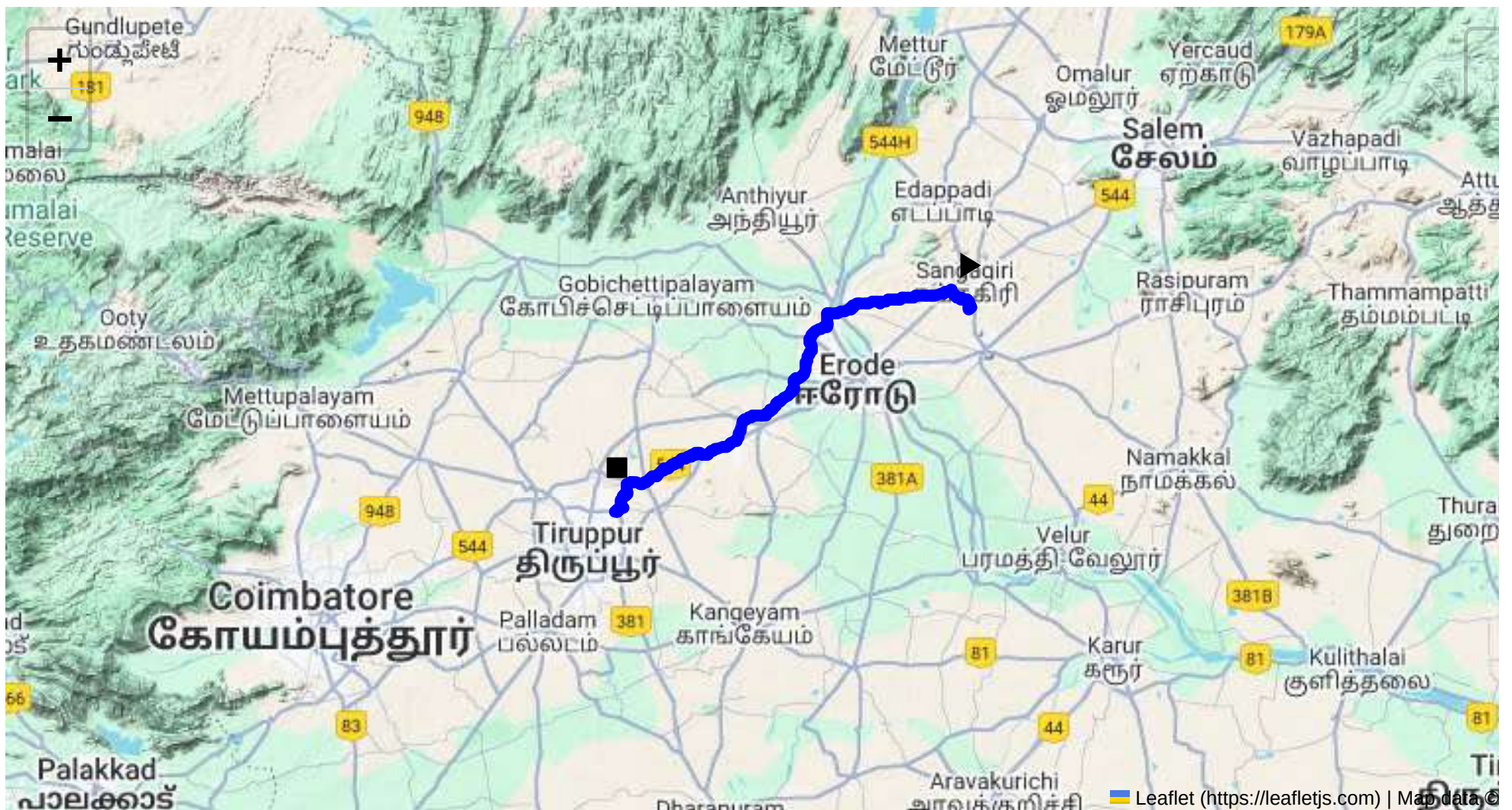
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 75.85 km
Estimated Duration: 1.5 hours
Adjusted Duration (Heavy Vehicle): 1.9 hours
Start: (11.4381, 77.8734)
End: (11.159066, 77.379294)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route from Sangagiri to Vavipalayam via Kalipalayam in Tamil Nadu covers approximately 75.85 kilometers. The path typically involves several highways and regional roads, starting from Sangagiri, passing through Kalipalayam Road, and eventually connecting to NH 381 in Tiruppur District. The route traverses a mix of rural and minor urban areas.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu, especially the interior regions, experiences a tropical climate. Key weather considerations include:

- **Summer (March-June):** High temperatures ranging from 30°C to 40°C.
- **Monsoon (June-September):** Moderate to heavy rainfall may cause waterlogging and reduced visibility. Roads in rural areas could become slippery and hazardous.
- **Winter (November-February):** Relatively mild with temperatures ranging between 20°C and 30°C. Fog is less common but possible in early mornings.

3. Analysis of Traffic Patterns

- **Peak Hours:** Morning (7:30 AM - 9:30 AM) and evening (5 PM - 7 PM) are peak traffic hours.
- **Congestion-Prone Areas:** Entry and exit points of towns along the route, particularly at intersections near Kalipalayam, and the junction at NH 381, experience higher congestion.

4. Assessment of Road Quality and Infrastructure

Generally, the roads are maintained, but:

- **Regional Roads:** May have uneven surfaces and occasional potholes, particularly after monsoon.
- **Highways:** NH 381 is in relatively better condition, with proper signages and lane markings.

5. Suggestions for Alternative Routes for Emergencies

In case of heavy traffic congestion or emergencies:

- Utilize smaller state roads bypassing congested areas.
- Local knowledge should be consulted to determine the best alternative to NH 381, as minor roads might have limited capacity.

6. Summary of Local Regulations Affecting Hazardous Material Transport

- Drivers must adhere to regulations set by Tamil Nadu's Motor Vehicles Department for transporting hazardous materials, including specific permits and safety equipment.
- Restrictions may apply through certain municipal roads during peak hours.

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

- Historical data indicates occasional accidents involving heavy vehicles, often attributed to speeding, overtaking inappropriately, or adverse weather conditions.

- No significant incidents involving hazardous materials have been reported on this specific route recently, emphasizing the importance of continued diligence.

8. Environmental Considerations and Sensitive Areas

- Care should be taken near agricultural lands and residential pockets to minimize noise and emissions.
- Sensitive areas include water bodies alongside which showing extra caution to prevent contamination.

9. Analysis of Communication Coverage

- Most major mobile networks provide good coverage along the route.
- Potential dead zones could be in isolated rural stretches, particularly in and around Kalipalayam.

10. Estimated Emergency Response Times

- Urban/Highway Segments:** 30-45 minutes for emergency services due to accessibility.
- Rural Segments:** Could extend to 60-90 minutes due to infrastructural constraints and lower road quality.

11. Overall Summary of Risk Assessment

The Sangagiri to Vavipalayam route through Kalipalayam appears moderately safe for transporting goods, including hazardous materials, provided due diligence is maintained. Major risks include weather-related hazards, congestion at peak hours, and potential communication dead zones. Adhering to safety regulations, checking vehicle conditions, and staying informed of weather and traffic updates will mitigate most risks. Alternative pathways should be considered during poor conditions or emergencies to ensure timely and safe transport. Overall, careful planning for potential hazards and emergencies should ensure effective risk management along this route.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	Medium	11.43822, 77.87348	30 KM/Hr
1	Turn	High	11.43968, 77.87345	15 KM/Hr
2	Turn	High	11.44029, 77.87544	15 KM/Hr
3	Turn	High	11.44898, 77.87410	15 KM/Hr
4	Turn	Medium	11.45357, 77.85789	30 KM/Hr
5	Turn	High	11.45352, 77.85698	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
6	Turn	Medium	11.45847, 77.85140	30 KM/Hr
7	Turn	Medium	11.45898, 77.85135	30 KM/Hr
8	Turn	Medium	11.46303, 77.84945	30 KM/Hr
9	Turn	Medium	11.46314, 77.84928	30 KM/Hr
10	Turn	Medium	11.45509, 77.81383	30 KM/Hr
11	Turn	High	11.20025, 77.40116	15 KM/Hr
12	Turn	Medium	11.19997, 77.40107	30 KM/Hr
13	Turn	Medium	11.19631, 77.39488	30 KM/Hr
14	Turn	Medium	11.19598, 77.39467	30 KM/Hr
15	Turn	High	11.18450, 77.39632	15 KM/Hr
16	Turn	Medium	11.18445, 77.39621	30 KM/Hr
17	Turn	Medium	11.18379, 77.39234	30 KM/Hr
18	Turn	High	11.18220, 77.39207	15 KM/Hr
19	Turn	Medium	11.18215, 77.39187	30 KM/Hr
20	Turn	High	11.16402, 77.38920	15 KM/Hr
21	Turn	Medium	11.16111, 77.38425	30 KM/Hr
22	Turn	Medium	11.16092, 77.38279	30 KM/Hr
23	Turn	Medium	11.16081, 77.38267	30 KM/Hr
24	Blind Spot	Blind Spot	11.15926, 77.38262	10 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
15	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
17	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium
18	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
19	hospital	Dr. N Viswanathan Hospital	11.2412783, 77.5005502	30 km/h	Medium
20	clinic	P.M. Clinic	11.2281078, 77.4647296	30 km/h	Medium
22	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
7	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
14	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
16	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
21	marketplace	Weekly Market (sandhai)	11.2287229, 77.4646676	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: 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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46303, 77.84945



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46314, 77.84928



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45509, 77.81383



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.20025, 77.40116



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.19997, 77.40107



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.19631, 77.39488



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.19598, 77.39467



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.16402, 77.38920



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16111, 77.38425



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16092, 77.38279



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16081, 77.38267



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.15926, 77.38262
