JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO GOUNDER AGENCIES

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

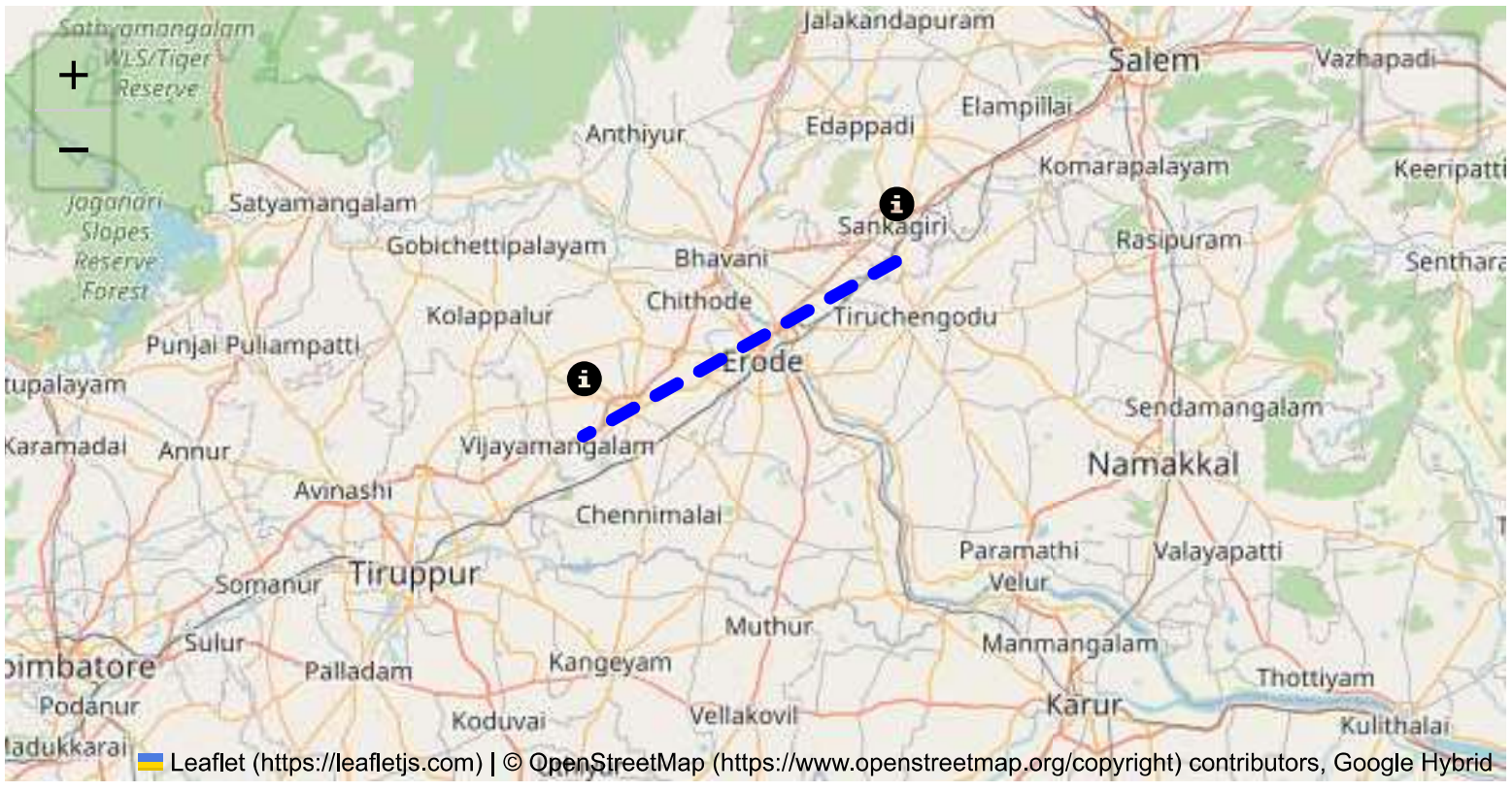
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 53.56 km
Estimated Duration: 1.0 hours
Adjusted Duration (Heavy Vehicle): 1.3 hours
Start: (11.4381, 77.8734)
End: (11.24864, 77.530383)

Welcome to the Journey Risk Management Study

1. Overview of the Route Map: The route from Sangagiri to Ponmudi runs approximately 53.56 kilometers and involves traversing through a mix of highways and local roads. Starting from Sangagiri, the route typically follows major state highways, likely utilizing SH-86 and other local roads to reach Ponmudi. The journey involves passing through both rural and semi-urban areas, with varying traffic and infrastructure conditions.

2. Typical Weather Conditions and Potential Weather-Related Hazards: This region of Tamil Nadu experiences a tropical savanna climate. During the monsoon season (June to September), there is a risk of heavy rains that can lead to flooded roads and reduced visibility. Between March and June, high temperatures can lead to road surface damage, while the winter months (November to February) tend to be drier and more conducive for travel but can still have foggy mornings.

3. Analysis of Traffic Patterns and Congestion-Prone Areas: Traffic is typically heavier during the morning (8 AM - 10 AM) and evening (5 PM - 8 PM) due to commuters. Key congestion points might include town centers in the semi-urban areas this route connects. Highways may provide smoother flow, but local roads could see delays, especially near market areas or during local festivities.

4. Assessment of Road Quality and Infrastructure: The major highways tend to be well-maintained, though caution is advised on smaller local roads where potholes and narrow stretches can pose hazards. Ongoing roadworks may cause temporary disruptions, and signage in rural areas may be insufficient for non-local drivers.

5. Suggestions for Alternative Routes for Emergencies: In case of emergencies, NH-544, which lies to the north of the route, offers a potential alternative as a more robust national highway network; although longer, it usually offers better infrastructure and quicker emergency responses.

6. Summary of Local Regulations Affecting Hazardous Material Transport: Transport of hazardous materials in Tamil Nadu requires adherence to specific state regulations, including permits, proper labeling, and documentation as per Motor Vehicle Act regulations. Transporters must ensure vehicle safety standards, driver certifications, and adhere to restricted timings if specified by local authorities.

7. Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials: While precise data specific to this route might be limited, general trends in the region suggest occasional accidents involving heavy vehicles, often due to overloading or inadequate vehicle maintenance. Precautions are mandated, especially through villages and crowded areas.

8. Environmental Considerations and Sensitive Areas: The route does not typically pass through noteworthy environmental protection zones, but drivers must be cautious near agricultural lands and water bodies to prevent contamination. Awareness of local wildlife crossings is also important in rural regions.

9. Analysis of Communication Coverage, Noting Potential Dead Zones: For most parts of the route, cellular network coverage is generally good, especially near towns and highways. However, remote stretches might have intermittent signals, especially on smaller roads away from towns.

10. Estimated Emergency Response Times for Different Route Segments: Response time can vary significantly; within towns or near highways, responders may arrive within 15-30 minutes. In isolated rural stretches, delays could extend beyond an hour due to distance from services.

11. Overall Summary of Risk Assessment: The primary risks on this route stem from variable road surface quality, congestion in populated areas, and potential weather impacts during the monsoon season. Reliable itinerary planning, constant communication, and adherence to safety and regulatory protocols for hazardous materials are essential for mitigating risks. Proactive routing depending on current conditions and maintaining updated emergency contact information will further bolster journey safety.

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
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	Medium	11.29012, 77.56873	30 KM/Hr
16	Turn	Medium	11.28994, 77.56861	30 KM/Hr
17	Turn	Medium	11.28713, 77.56216	30 KM/Hr
18	Turn	Medium	11.28713, 77.56195	30 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

	type	name	coordinates	speed_limit	risk_level
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
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

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

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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.29012, 77.56873

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.28994, 77.56861

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.28713, 77.56216

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.28713, 77.56195