JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to SRI SHANMUGA 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

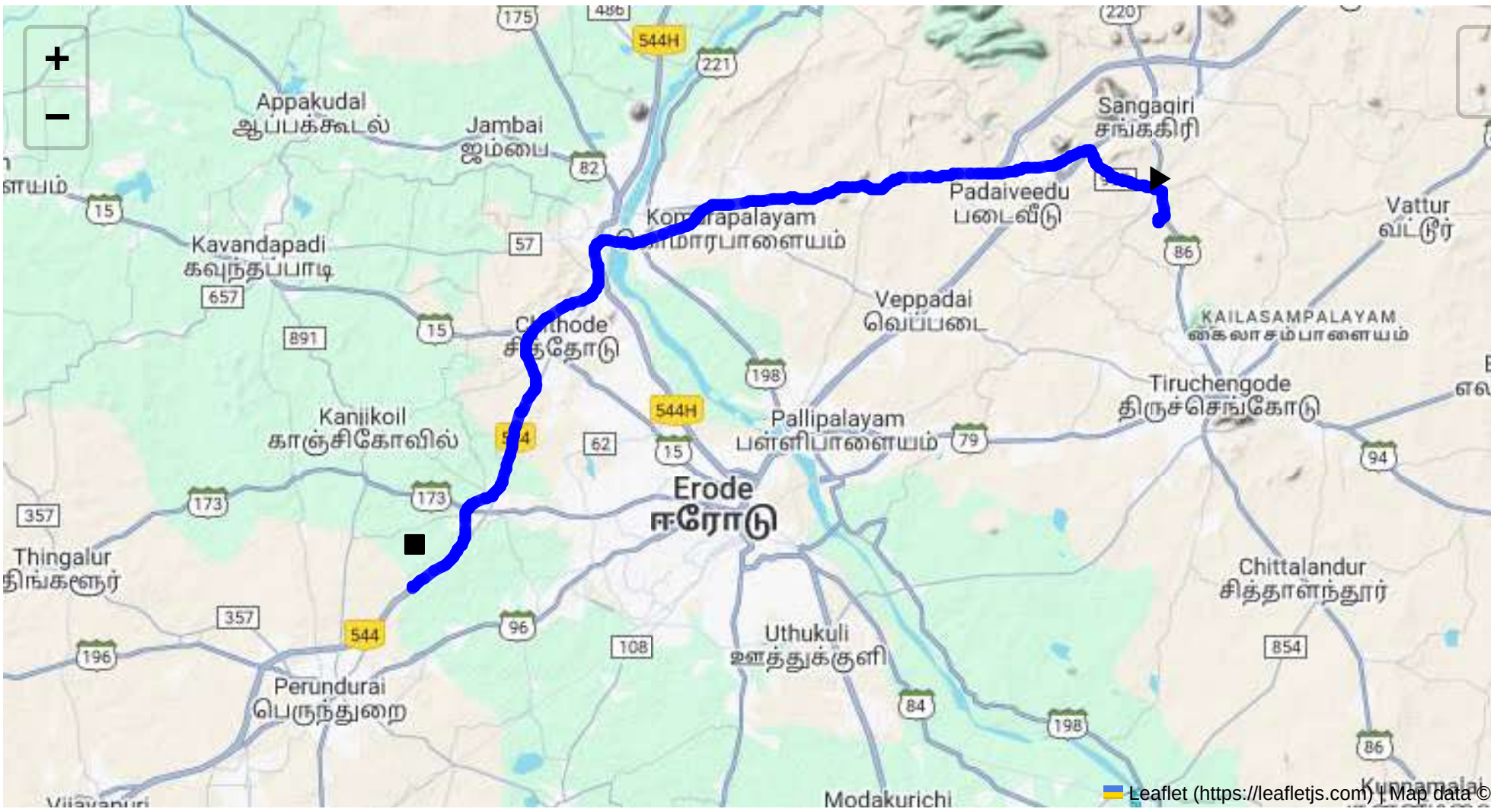
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 41.14 km
Estimated Duration: 0.8 hours
Adjusted Duration (Heavy Vehicle): 1.0 hours
Start: (11.4381, 77.8734)
End: (11.312506, 77.611631)



Welcome to the Journey Risk Management Study

Route Safety Analysis: Sangagiri to Vavikadai

1. Overview of the Route Map

The route from Sangagiri to Vavikadai covers approximately 41.14 kilometers, primarily traveling along state highways and local roads. The journey is relatively straightforward, with a mix of rural and semi-urban environments. Key towns along the route include Sangagiri, which serves as the starting point, and smaller settlements leading to Vavikadai.

2. Typical Weather Conditions and Potential Hazards

- **Weather Patterns:** Tamil Nadu experiences a tropical climate with distinct monsoon seasons. The northeast monsoon from October to December can bring heavy rains.
- **Weather Hazards:** Expect potential hazards from waterlogging and poor visibility during heavy rains, which can affect driving conditions and increase the risk of accidents.

3. Traffic Patterns

- **Peak Hours:** Traffic congestion is more likely during morning (8:00-10:00 AM) and evening (5:00-7:00 PM) peak hours, particularly near towns and market areas.
- **Congestion Areas:** Sangagiri and any market areas in the towns may experience slowdowns. The road quality can also contribute to traffic delays.

4. Road Quality and Infrastructure

- **Road Conditions:** The roads are generally paved but may have sections with potholes and uneven surfaces, particularly post-monsoon. Signage may be limited in some rural stretches.
- **Infrastructure:** Limited availability of roadside amenities such as rest stops or fuel stations on rural segments.

5. Suggestions for Alternative Routes

- **Alternative Route:** An alternative route can be plotted via major highways like NH44, which might offer better road conditions and facilities. However, it may extend travel time.
- **Emergency Detours:** Smaller connecting roads can be used for detours in the event of roadblocks, though they might not support heavy vehicles.

6. Local Regulations on Hazardous Materials

- **Transport Restrictions:** Compliance with local and national regulations for hazardous materials is essential. Restrictions may include time-specific travel bans and limits on material types.

7. Historical Incidents

- **Incidents:** There have been occasional incidents of truck accidents due to speeding or poor road conditions, especially during severe weather. Limited data on hazardous material spills.

8. Environmental Considerations

- **Sensitive Areas:** The route does not pass through major protected environmental zones, but care should be taken near water bodies to prevent contamination.
- **Local Flora and Fauna:** Observance of speed limits in designated areas to protect local wildlife.

9. Communication Coverage

- **Signal Availability:** Most of the route has adequate cell coverage, but expect potential dead zones in more rural or less densely populated areas.
- **Communication Plans:** Ensure backup communication plans, such as satellite phones, especially for emergency reporting.

10. Emergency Response Times

- **Proximity to Services:** Emergency services are closer in urbanized areas like Sangagiri but may take longer in rural segments, potentially exceeding 30-40 minutes.
- **Response Resources:** Availability of local fire stations and hospital services is better near town centers.

12. Overall Summary of Risk Assessment

This route poses moderate risks due to variable road conditions and weather-related challenges. Traffic density and road quality are primary concerns, and careful planning is advisable to manage hazardous material transport. Communication gaps and extended emergency response times in rural areas necessitate additional precautions. Ensuring adherence to local regulations increases trip safety. Alternative routes should be considered for better facilities and quicker emergency access when needed.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43811, 77.87348	15 KM/Hr
1	Turn	Medium	11.43956, 77.87340	30 KM/Hr
2	Turn	High	11.43968, 77.87345	15 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr
4	Turn	Medium	11.44898, 77.87410	30 KM/Hr
5	Turn	Medium	11.45357, 77.85789	30 KM/Hr
6	Turn	Medium	11.45352, 77.85698	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	High	11.45516, 77.81346	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
10	Turn	High	11.45521, 77.81343	15 KM/Hr
11	Blind Spot	Blind Spot	11.31301, 77.61186	10 KM/Hr
12	Blind Spot	Blind Spot	11.31291, 77.61196	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
7	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

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

	type	name	coordinates	speed_limit	risk_level
2	marketplace	Monday market	11.452863, 77.775989	30 km/h	Medium
8	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: 11.46303, 77.84945

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46318, 77.84913

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45516, 77.81346

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45521, 77.81343

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.31301, 77.61186

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.31291, 77.61196