



JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal To SRI CHELLANDI AMMAN 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

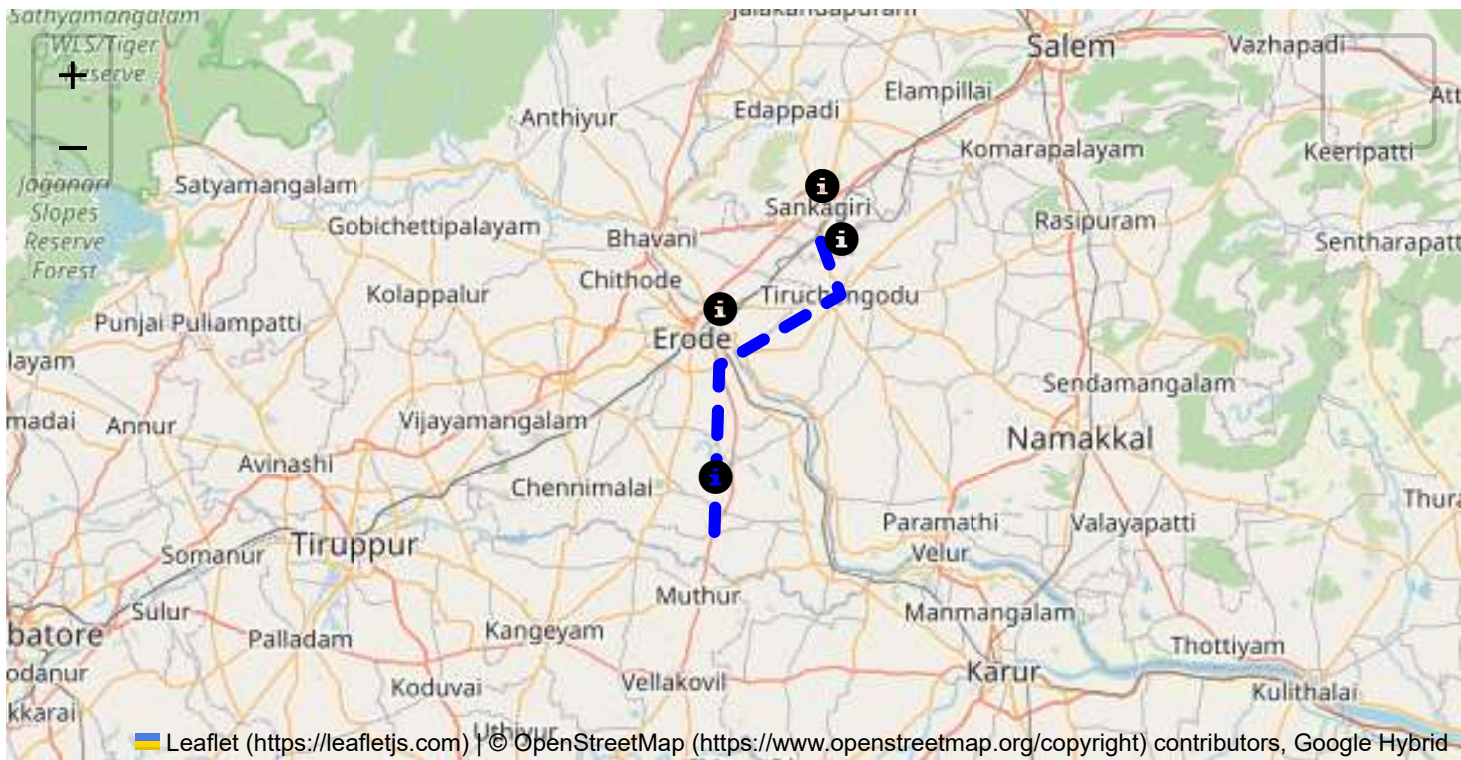
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental impacts during transport.

Journey Risk Mitigation

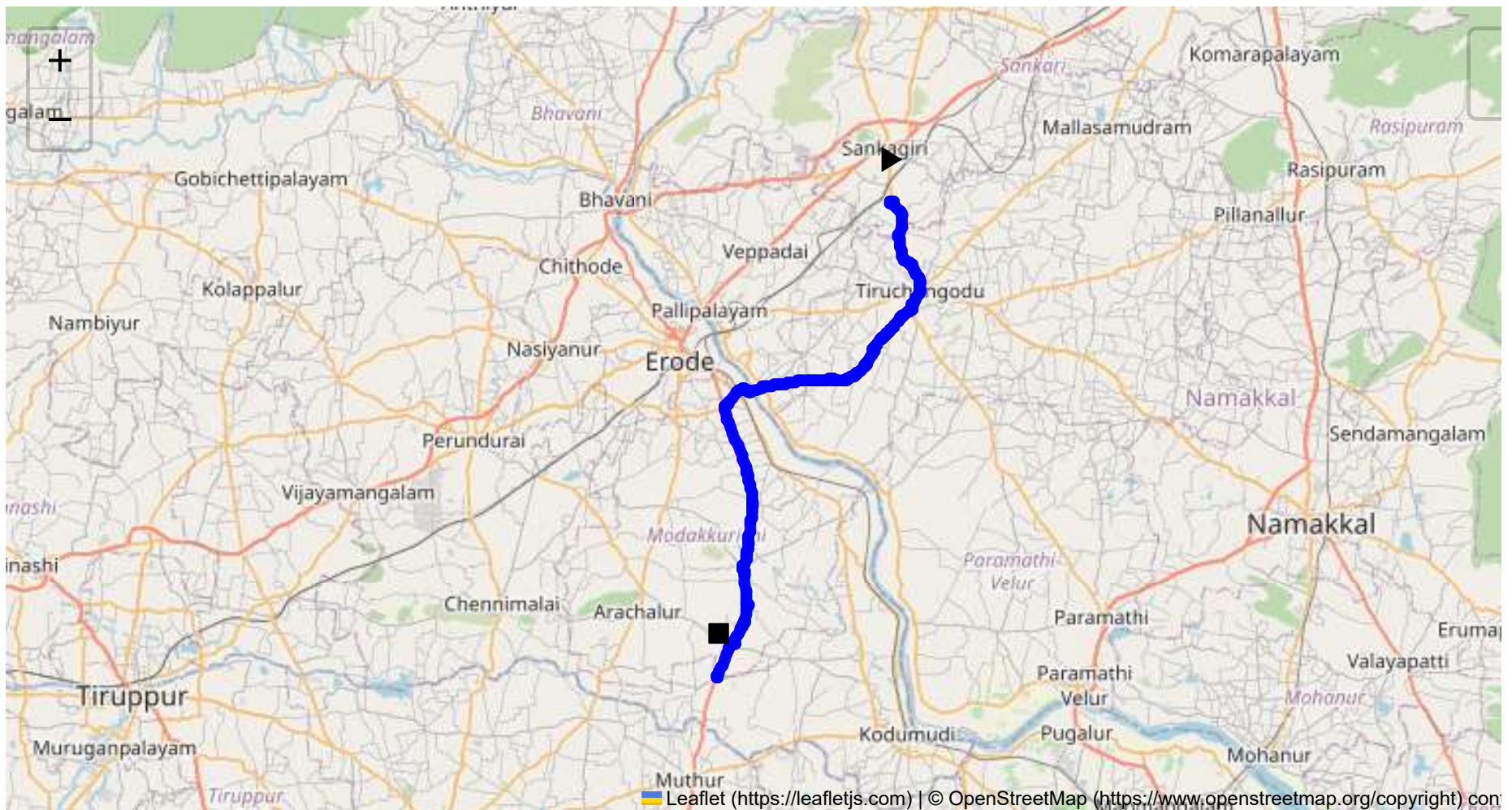
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 49.00 km
Estimated Duration: 1.2 hours
Adjusted Duration (Heavy Vehicle): 1.6 hours
Start: (11.4381, 77.8734)
End: (11.114295, 77.75289)



Welcome to the Journey Risk Management Study

Route Map Overview

The proposed route starts at Sangagiri, progresses through roads such as Tiruchengode - Paramathi - Velur Road, and State Highway 84A passing through Thondikaradu and Lakkapuram, concluding at Vadugapatti. This journey covers approximately 49 kilometers, estimated to take 1.25 hours for heavy vehicles with hazardous materials, depending on traffic and road conditions.

Weather Conditions and Hazards

The region generally experiences a tropical climate, with hot summers and moderate to heavy rainfall during the monsoon season (June to September). Common weather-related hazards include reduced visibility and slippery roads due to heavy rain during monsoons. Summers can lead to higher road temperatures, potentially affecting tire performance.

Traffic Patterns

- **Peak Hours:** Morning (8-10 AM) and evening (5-8 PM) are typical rush hours.
- **Congestion-Prone Areas:** Urban stretch near Sangagiri and Tiruchengode might face congestion, especially near market areas and intersections.

Road Quality and Infrastructure

- **Quality:** Generally good, with major sections of the route comprising well-maintained highways. However, some rural areas might feature narrower roads and occasional potholes.
- **Infrastructure:** Adequate signage and barriers along highways, but rural roads may lack sufficient lighting and shoulders.

Alternative Routes for Emergencies

In case of roadblocks or emergencies, an alternate route would be to take NH 544 via Salem and then connect to State Highway 84A. This would add distance but offer wider roads and better maintenance.

Local Regulations on Hazardous Materials

Transporting hazardous materials requires adherence to Indian government regulations like having valid permits, proper labeling, and emergency response procedures. Regular checkpoints may verify compliance.

Historical Incidents

There have been sporadic accidents involving heavy vehicles primarily due to brake failure or navigating narrow turns. However, no specific publicized incidents on this exact route regarding hazardous material spills.

Environmental Considerations

Key environmental zones like water bodies and farmlands exist, especially near Lakkapuram, requiring caution to prevent contamination from spills. Reducing noise and pollution is a priority near residential and ecological zones.

Communication Coverage

Cellular coverage is generally reliable but potential dead zones may exist near Thondikaradu and rural stretches with less infrastructural development. It's advisable to carry multiple communication devices.

Emergency Response Times

- **Urban Segments (Sangagiri, Tiruchengode):** Estimated emergency response time is around 15-30 minutes.
- **Rural Segments:** Could extend to 45 minutes to an hour due to accessibility challenges.

Risk Assessment Summary

While the overall route is manageable with proper planning, potential risks include:

- Weather impacts during the monsoon.
- Traffic delays in urban areas.
- Infrequent emergency facilities in rural zones.
- Certain localized infrastructure limitations.

To mitigate risks, ensure constant communication, adherence to safety protocols, and prompt readiness for detours. Regular weather and traffic monitoring will aid in decision-making during transit.

This holistic approach will assist in achieving a safe journey, minimizing risks associated with transporting hazardous materials on this particular route.

Risk Assessment - Turns

| | Risk Type | Risk Level | Coordinates | Speed Limit |
|----|------------|------------|--------------------|-------------|
| 0 | Roundabout | High | 11.38395, 77.89480 | 15 KM/Hr |
| 1 | Turn | High | 11.43811, 77.87348 | 15 KM/Hr |
| 2 | Turn | Medium | 11.43961, 77.87341 | 30 KM/Hr |
| 3 | Turn | Medium | 11.43968, 77.87345 | 30 KM/Hr |
| 4 | Blind Spot | Blind Spot | 11.44029, 77.87544 | 10 KM/Hr |
| 5 | Turn | Medium | 11.39671, 77.88878 | 30 KM/Hr |
| 6 | Turn | High | 11.37868, 77.89498 | 15 KM/Hr |
| 7 | Turn | High | 11.37850, 77.89453 | 15 KM/Hr |
| 8 | Turn | High | 11.36604, 77.88887 | 15 KM/Hr |
| 9 | Turn | Medium | 11.33882, 77.86218 | 30 KM/Hr |
| 10 | Turn | Medium | 11.30970, 77.76705 | 30 KM/Hr |
| 11 | Turn | High | 11.29899, 77.75806 | 15 KM/Hr |
| 12 | Turn | Medium | 11.18959, 77.77076 | 30 KM/Hr |
| 13 | Turn | Medium | 11.16421, 77.77364 | 30 KM/Hr |
| 14 | Turn | Medium | 11.16357, 77.77434 | 30 KM/Hr |
| 15 | Blind Spot | Blind Spot | 11.11427, 77.75261 | 10 KM/Hr |
| 16 | Turn | Medium | 11.11424, 77.75282 | 30 KM/Hr |
| 17 | Turn | High | 11.11428, 77.75288 | 15 KM/Hr |

Emergency Locations

| | type | name | coordinates | speed_limit | risk_level |
|---|----------|----------------------------------|------------------------|-------------|------------|
| 0 | hospital | Tiruchengode, Goverment Hospital | 11.3903328, 77.8920627 | 30 km/h | Medium |
| 1 | hospital | SPM Medical Centre,Tiruchengode | 11.3881331, 77.8931963 | 30 km/h | Medium |
| 5 | hospital | T.C.A Hospital Tiruchengode | 11.3791885, 77.8965774 | 30 km/h | Medium |

| | type | name | coordinates | speed_limit | risk_level |
|----|----------|----------------------------------|------------------------|-------------|------------|
| 6 | hospital | Soorya Multispecialty Hospital | 11.3786429, 77.8931912 | 30 km/h | Medium |
| 7 | clinic | Kongu Nursing Home | 11.3783065, 77.8961134 | 30 km/h | Medium |
| 8 | hospital | Tiruchengode Government Hospital | 11.37645, 77.89426 | 30 km/h | Medium |
| 9 | hospital | Krishna Hospital, Namakkal | 11.3754811, 77.8931817 | 30 km/h | Medium |
| 10 | hospital | Tirukumaran Hospitals | 11.3782118, 77.8914933 | 30 km/h | Medium |
| 13 | hospital | Keerthana Hospital | 11.2365339, 77.7772287 | 30 km/h | Medium |
| 14 | hospital | Nataraj Nursing Home | 11.2351682, 77.7785956 | 30 km/h | Medium |
| 15 | hospital | Government Hospital, Elumathur | 11.18533, 77.772496 | 30 km/h | Medium |

Crowded Spots

| | type | name | coordinates | speed_limit | risk_level |
|----|-------------|-------------------------------------|------------------------|-------------|------------|
| 2 | school | அரசு ஆண்கள் மேல்நிலைப் பள்ளி | 11.3850439, 77.8948279 | 30 km/h | Medium |
| 3 | school | அரசு பெண்கள் மேல்நிலைப் பள்ளி | 11.3844247, 77.8949053 | 30 km/h | Medium |
| 4 | marketplace | திருச்செங்கோடு தினசரி காய்கறி சந்தை | 11.3833608, 77.8970145 | 30 km/h | Medium |
| 11 | school | KSR Educational institution | 11.3772013, 77.8908807 | 30 km/h | Medium |
| 12 | school | MDV School | 11.3719843, 77.8915244 | 30 km/h | Medium |

Route Photos of Risky Spots



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.38395, 77.89480



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.44029, 77.87544



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.39671, 77.88878



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.37868, 77.89498



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.37850, 77.89453



Risk Type: Turn
Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.36604, 77.88887



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.33882, 77.86218



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.30970, 77.76705



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.29899, 77.75806



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.18959, 77.77076



Risk Type: Turn
Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16421, 77.77364



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16357, 77.77434



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.11427, 77.75261



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11424, 77.75282



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.11428, 77.75288
