JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO SAMIAPPA ENTERPRISES

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

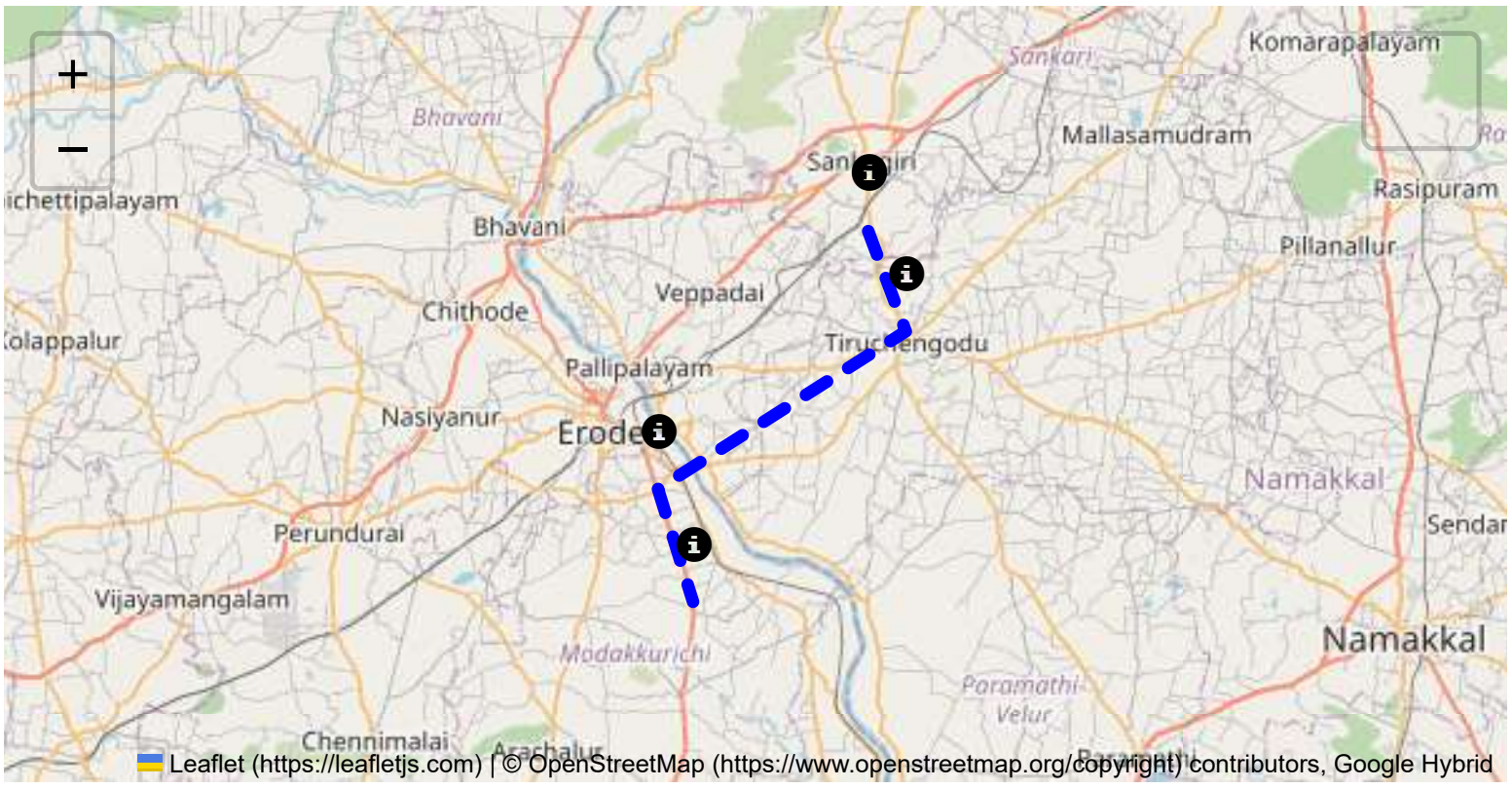
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 34.32 km
Estimated Duration: 0.9 hours
Adjusted Duration (Heavy Vehicle): 1.1 hours
Start: (11.4381, 77.8734)
End: (11.238867, 77.777104)

Welcome to the Journey Risk Management Study

1. **Overview of the Route Map:**
    - The route begins at Sangagiri and ends at Modakurichi, passing through Puthur, Tiruchengode, and Lakkapuram. It spans a total of approximately 34.32 kilometers. Predominantly, this route traverses rural and semi-urban areas, with the terrain being largely flat, featuring a mix of arterial roads and smaller connecting roads.

2. **Typical Weather Conditions and Potential Weather-Related Hazards:**
    - Tamil Nadu typically experiences a tropical climate with hot summers, monsoon rains, and mild winters. Monsoon season (June to September and November to December) may cause roads to become slippery and prone to flooding in low-lying areas. Hence, drivers should be cautious of water-logged sections during heavy rainfalls in these periods.
3. **Traffic Patterns:**
    - Peak hours generally occur from 8:00-10:00 AM and 5:00-7:00 PM. Congestion is more likely in semi-urban centers such as Tiruchengode and Erode, especially near marketplaces, educational institutions, and industrial zones. Vehicle movement might be slower due to mixed traffic of two-wheelers, buses, and autos.
4. **Assessment of Road Quality and Infrastructure:**
    - The road conditions are a mix of well-maintained highways and narrower local roads. Potholes and uneven surfaces may be present in sections, especially after monsoon rains. Signposting may vary, with major intersections clearly marked but rural stretches less so.
5. **Suggestions for Alternative Routes for Emergencies:**
    - An alternative in case of emergencies could be the NH544 route, connecting these regions through major highways, although it may require a detour through Erode city.
    - Considering current conditions and availability, diversions to smaller district roads might be used, albeit with caution.
6. **Summary of Local Regulations Affecting Hazardous Material Transport:**
    - Transporting hazardous materials in Tamil Nadu mandates adherence to established safety regulations, including permissible hours, especially avoiding school zones during open hours, and ensuring all safety checks and certifications are in order.
7. **Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials:**
    - Areas like Erode have industrial activity where past incidents involving hazardous materials have typically involved inadequate safety practices or mishaps in congested areas. Such incidents highlight the need for constant vigilance and adherence to transport regulations.
8. **Environmental Considerations and Sensitive Areas:**
    - The route passes near some agricultural lands, and care must be taken to avoid contaminating these areas. Chemical spills can significantly impact ground soil and water sources.
9. **Analysis of Communication Coverage:**
    - Mobile network coverage along this route is generally reliable, but rural stretches may experience weak signals or dead zones. Drivers should prepare for potential communication drop-offs and plan for alternative means of contact during such instances.
10. **Estimated Emergency Response Times:**
    - Emergency services in urban sections (like Tiruchengode and Erode) could likely respond in 15-20 minutes. However, in more rural areas, response times could extend up to 45 minutes.
11. **Overall Summary of Risk Assessment:**

- The journey from Sangagiri to Modakurichi is generally straightforward but does present certain risks, especially concerning traffic congestion, poor road conditions in sections, and weather impacts during monsoon seasons. It is crucial for truck drivers to adhere to local regulations, remain informed of current traffic and weather conditions, and prioritize safety at all times. A proactive approach to communication and a strategic plan for emergency scenarios will enhance safety and ensure compliance is maintained throughout the transport of hazardous materials.

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	High	11.37868, 77.89498	15 KM/Hr
6	Turn	High	11.37850, 77.89453	15 KM/Hr
7	Turn	High	11.36604, 77.88887	15 KM/Hr
8	Turn	Medium	11.33882, 77.86218	30 KM/Hr
9	Turn	High	11.29899, 77.75806	15 KM/Hr
10	Blind Spot	Blind Spot	11.23890, 77.77738	10 KM/Hr
11	Turn	Medium	11.23890, 77.77725	30 KM/Hr
12	Turn	Medium	11.23887, 77.77720	30 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
6	clinic	Kongu Nursing Home	11.3783065, 77.8961134	30 km/h	Medium
7	hospital	Soorya Multispecialty Hospital	11.3786429, 77.8931912	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
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

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: 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: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29899, 77.75806

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.23890, 77.77738

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23890, 77.77725

Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23887, 77.77720