JOURNEY RISK MANAGEMENT (JRM) STUDY

IOCL Coimbatore Terminal to Sri Skanda Agencies Unit II

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

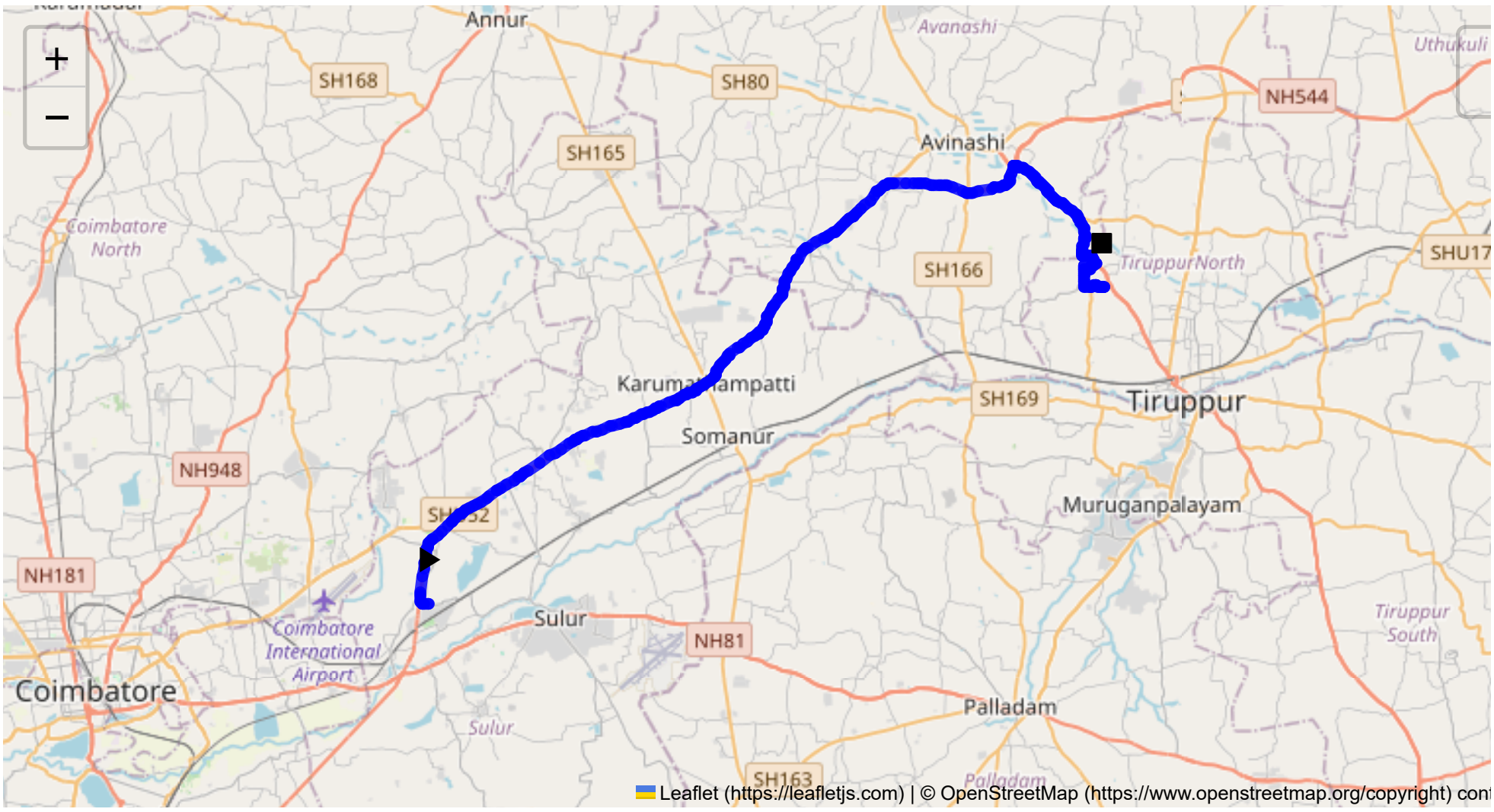
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 38.84 km
Estimated Duration: 0.8 hours
Adjusted Duration (Heavy Vehicle): 1.0 hours
Start: (11.0315, 77.0797)
End: (11.140564, 77.315249)



Welcome to the Journey Risk Management Study

To provide a comprehensive analysis of the route from Athappagoundenpudur to Velampalayam, Tiruppur, in Tamil Nadu, India, here are the details covering various safety aspects:

1. **Overview of the Route Map**:
    - The route spans approximately 38.84 kilometers, mainly comprising state highways and arterial roads.

- It passes through rural and urban areas of Tamil Nadu, connecting Coimbatore district to the outskirts of Tiruppur.

2. **Typical Weather Conditions and Potential Weather-Related Hazards**:
    - The region experiences a tropical climate with a significant monsoon season from June to September.
    - Heavy rainfall during the monsoon may cause localized flooding and landslides, particularly on poorly drained roads.
    - Fog can occasionally be a hazard during winter mornings, reducing visibility.
3. **Analysis of Traffic Patterns**:
    - Peak traffic hours typically occur between 8:00 - 10:00 AM and 5:00 - 7:00 PM.
    - Congestion is most likely around market areas in towns like Tiruppur and on approaches to industrial zones.
    - Some rural roads may have heavy two-wheeler and commercial vehicle activity, increasing risk for accidents.
4. **Assessment of Road Quality and Infrastructure**:
    - The state highways in Tamil Nadu are generally well-maintained, but some connecting roads may have potholes and uneven surfaces.
    - Rural stretches might lack adequate shoulder space and marked lanes, posing risks for larger vehicles.
5. **Suggestions for Alternative Routes for Emergencies**:
    - In case of a road blockage, an alternative route could be diverted through Pongalur and Dharapuram Road, though it would increase the travel distance.
6. **Summary of Local Regulations Affecting Hazardous Material Transport**:
    - Transport of hazardous materials is regulated by the Motor Vehicles Act and requires adherence to safety protocols, including proper signage and vehicle load limits.
    - Night travel for vehicles carrying hazardous materials might be restricted in certain areas.
7. **Overview of Historical Incidents Involving Heavy Vehicles**:
    - While specific data for this route segment may not be extensively documented, incidents generally arise from traffic congestion, inadequate signage, and poor road conditions in some parts.
8. **Environmental Considerations and Sensitive Areas**:
    - The route does not typically pass through areas of significant environmental concern, though care should be taken near water bodies to prevent contamination.
9. **Analysis of Communication Coverage**:
    - Mobile communication is generally reliable, but some rural stretches may encounter sporadic service interruptions.
    - It is recommended to carry communication devices with multiple network capabilities.
10. **Estimated Emergency Response Times**:

- In densely populated areas, emergency services could arrive in about 15-30 minutes.
- Rural or less accessible areas might experience delays of up to an hour or more, depending on road conditions and weather.

11. **Overall Summary of Risk Assessment**:

    - The route, while generally safe, requires caution due to potential weather impacts and variable road conditions.
    - Adherence to traffic laws and careful planning around peak hours are essential.
    - Ensuring vehicles are roadworthy and equipped with proper safety gear is critical for safe transport, especially when carrying hazardous materials.

Overall, while the route from Athappagoundenpudur to Velampalayam is manageable, heightened awareness of local conditions and compliance with safety and regulatory measures are crucial for minimizing risks, particularly for truck drivers transporting hazardous materials.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	U-Turn	High	11.1409643, 77.3164038	10 KM/Hr
1	Turn	High	11.03211, 77.07640	15 KM/Hr
2	Turn	High	11.17756, 77.28350	15 KM/Hr
3	Turn	High	11.17771, 77.28339	15 KM/Hr
4	Blind Spot	Blind Spot	11.18268, 77.28468	10 KM/Hr
5	Blind Spot	Blind Spot	11.14859, 77.31337	10 KM/Hr
6	Blind Spot	Blind Spot	11.14698, 77.30948	10 KM/Hr
7	Blind Spot	Blind Spot	11.14782, 77.30965	10 KM/Hr
8	Turn	High	11.14086, 77.30953	15 KM/Hr
9	Turn	High	11.14096, 77.31640	15 KM/Hr
10	Blind Spot	Blind Spot	11.14091, 77.31641	10 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Royal Care Hospital, Coimbatore	11.059106, 77.0893479	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
4	police	Karumathampatti Police Station	11.1093464, 77.1802095	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
1	college	PSG Institute of Technology and Applied Research	11.0677118, 77.0945744	30 km/h	Medium
2	school	GRD-CPF Matriculation Higher Secondary School	11.0610217, 77.0933504	30 km/h	Medium
3	school	M. Nanjappa Chettiar Matriculation Hr. Sec. School	11.0715394, 77.1039133	30 km/h	Medium
5	marketplace	Thekkalur Weekly market	11.1537037, 77.2126685	30 km/h	Medium
6	marketplace	Thekalur weekly market	11.1547211, 77.2140187	30 km/h	Medium

Route Photos of Risky Spots

Risk Type: U-Turn

Risk Level: High

Speed Limit: 10 KM/Hr

Coordinates: 11.1409643, 77.3164038

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.03211, 77.07640

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.17756, 77.28350

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.17771, 77.28339

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.18268, 77.28468

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.14859, 77.31337

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.14698, 77.30948

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.14782, 77.30965

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.14086, 77.30953

Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.14096, 77.31640

Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.14091, 77.31641