



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to AANJANEYA FUELS

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

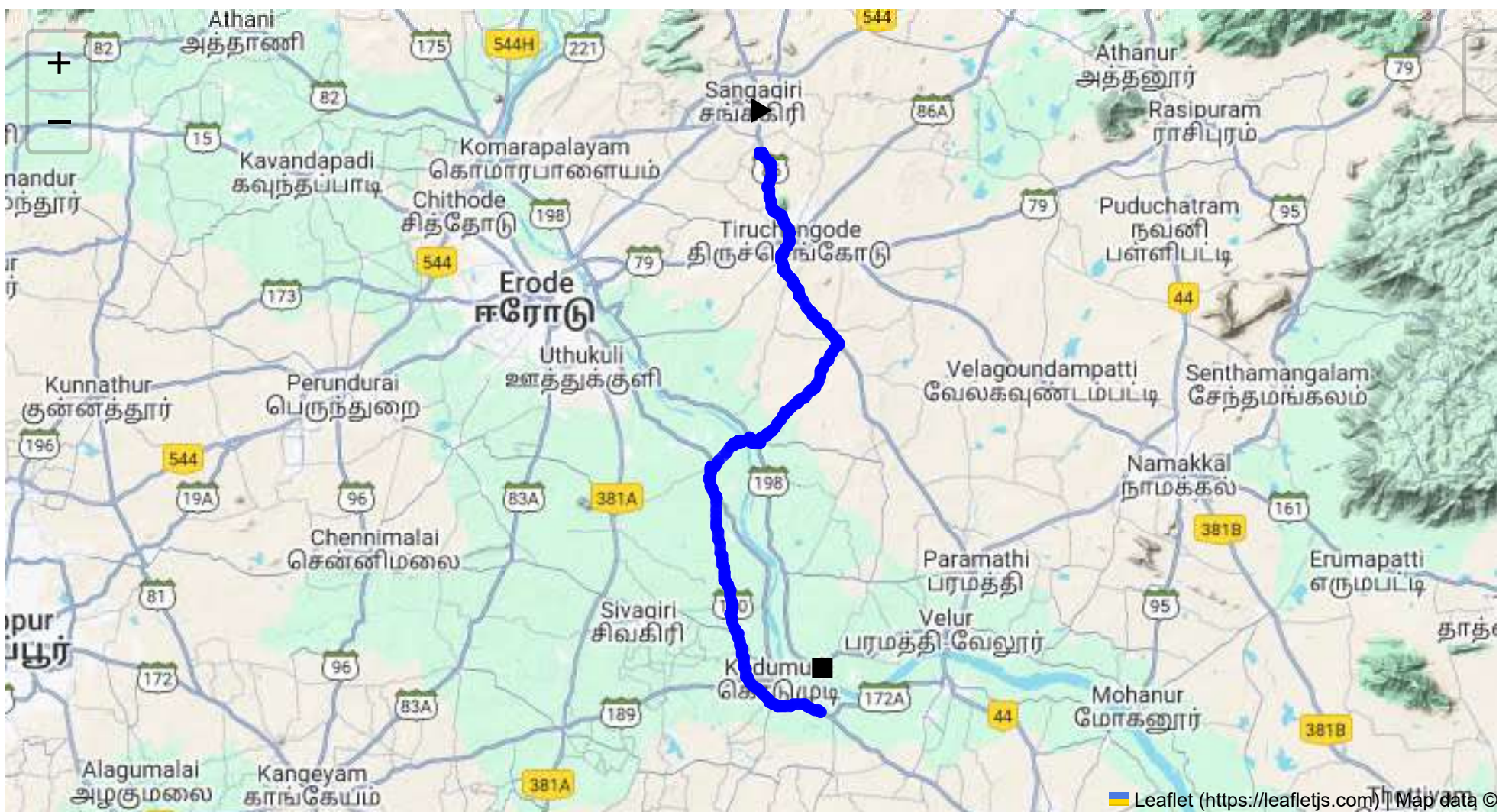
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 55.88 km
Estimated Duration: 1.3 hours
Adjusted Duration (Heavy Vehicle): 1.6 hours
Start: (11.4381, 77.8734)
End: (11.05604, 77.9166)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route begins in Sangagiri, proceeds via SH 86 passing through Sullipalayam, and ends in Kodumudi. Covering approximately 55.88 kilometers, it is a relatively short distance traveled mainly on state highways, which are moderately maintained and equipped to handle heavy vehicles.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu experiences a tropical climate. The region is susceptible to:

- **Monsoons (October-December):** The route may become slippery and visibility reduced due to heavy rain.
- **Summer Heat (March-June):** High temperatures could affect vehicle performance and increase the risk of road surface damage.

3. Analysis of Traffic Patterns

- **Peak Hours:** Traffic congestion is most likely during morning (8:00 AM - 10:00 AM) and evening (5:00 PM - 7:00 PM) rush hours.
- **Congestion-Prone Areas:** Sangagiri Market and school zones in Sullipalayam can occasionally lead to slow-moving traffic.

4. Assessment of Road Quality and Infrastructure

- **Road Quality:** SH 86 is generally in good condition but may have occasional potholes after monsoon seasons.
- **Infrastructure:** There are well-marked roads with adequate signage, though lighting may be inadequate in rural stretches.

5. Suggestions for Alternative Routes for Emergencies

In case of road blockages or emergencies:

- Consider taking the NH 544 via Sankagiri for bypassing SH 86.
- The route via NH 544 and SH 21 could serve as an alternative path.

6. Summary of Local Regulations Affecting Hazardous Material Transport

- Heavy vehicles and hazardous material transports should adhere to specific timing regulations, usually discouraging travel during school start and end times.
- Check local laws regarding the transport of hazardous materials, as certain villages may have restrictions.

7. Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials

While specific data is limited, the region has reported instances of accidents involving heavy vehicles, particularly during monsoon seasons when road conditions deteriorate. Precaution is advised.

8. Environmental Considerations and Sensitive Areas

- Sensitive Areas:** Agricultural zones near Sullipalayam may require caution to prevent contamination.
- Environmental Care:** Avoid potential spills as this region has waterways important for agriculture.

9. Analysis of Communication Coverage

- Mobile coverage is generally reliable in towns; however, rural areas, especially between Sullipalayam and Kodumudi, might experience weaker signals, affecting communication reliability.

10. Estimated Emergency Response Times for Different Route Segments

- Sangagiri to Sullipalayam:** 15-25 minutes response time due to proximity to town facilities.
- Sullipalayam to Kodumudi:** 30-45 minutes on average, slower during monsoon due to challenging road conditions.

12. Overall Summary of Risk Assessment

This route involves moderate risk primarily driven by weather conditions and unexpected local traffic. Key risks include poor weather during monsoons, potential for traffic congestion, and rural stretches with weaker communication signals. Vehicles carrying hazardous materials should ensure compliance with local transport regulations and prepare for possible detours. Emergency response infrastructure is generally good, albeit delayed in rural segments. Regular road maintenance and monitoring weather forecasts can mitigate many risks associated with this route.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.38395, 77.89480	15 KM/Hr
1	Turn	Medium	11.43822, 77.87348	30 KM/Hr
2	Turn	High	11.43968, 77.87345	15 KM/Hr
3	Blind Spot	Blind Spot	11.44029, 77.87544	10 KM/Hr
4	Turn	High	11.37868, 77.89498	15 KM/Hr
5	Turn	Medium	11.37842, 77.89452	30 KM/Hr
6	Turn	High	11.30859, 77.92918	15 KM/Hr
7	Turn	High	11.24000, 77.87363	15 KM/Hr
8	Turn	Medium	11.24053, 77.86902	30 KM/Hr
9	Turn	Medium	11.24115, 77.86891	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
10	Turn	Medium	11.24122, 77.86883	30 KM/Hr
11	Turn	High	11.24159, 77.86874	15 KM/Hr
12	Turn	High	11.24170, 77.86842	15 KM/Hr
13	Turn	High	11.24248, 77.86829	15 KM/Hr
14	Turn	Medium	11.24257, 77.86776	30 KM/Hr
15	Blind Spot	Blind Spot	11.24384, 77.86689	10 KM/Hr
16	Turn	Medium	11.24101, 77.86034	30 KM/Hr
17	Turn	Medium	11.24103, 77.86020	30 KM/Hr
18	Turn	Medium	11.24197, 77.85905	30 KM/Hr
19	Turn	Medium	11.24196, 77.85856	30 KM/Hr
20	Turn	High	11.22377, 77.83980	15 KM/Hr
21	Turn	Medium	11.14839, 77.84954	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	clinic	Kongu Nursing Home	11.3783065, 77.8961134	30 km/h	Medium
6	hospital	T.C.A Hospital Tiruchengode	11.3791885, 77.8965774	30 km/h	Medium
7	hospital	Soorya Multispecialty Hospital	11.3786429, 77.8931912	30 km/h	Medium
8	hospital	Tiruchengode Government Hospital	11.37645, 77.89426	30 km/h	Medium
9	hospital	Tirukumaran Hospitals	11.3782118, 77.8914933	30 km/h	Medium
10	hospital	Krishna Hospital, Namakkal	11.3754811, 77.8931817	30 km/h	Medium
13	police	கரட்டுப்பாளையம் காவல் நிலையம்	11.357586, 77.8922539	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
14	clinic	Jai Sri Amman Clinic	11.1102489, 77.8579522	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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.37842, 77.89452



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.30859, 77.92918



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.24000, 77.87363



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24053, 77.86902



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24115, 77.86891



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24122, 77.86883



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.24159, 77.86874



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.24170, 77.86842



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.24248, 77.86829



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24257, 77.86776



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.24384, 77.86689



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.24101, 77.86034



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.24103, 77.86020



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24197, 77.85905



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.24196, 77.85856



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.22377, 77.83980



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14839, 77.84954
