



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to SRI RAGAVENDRA 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

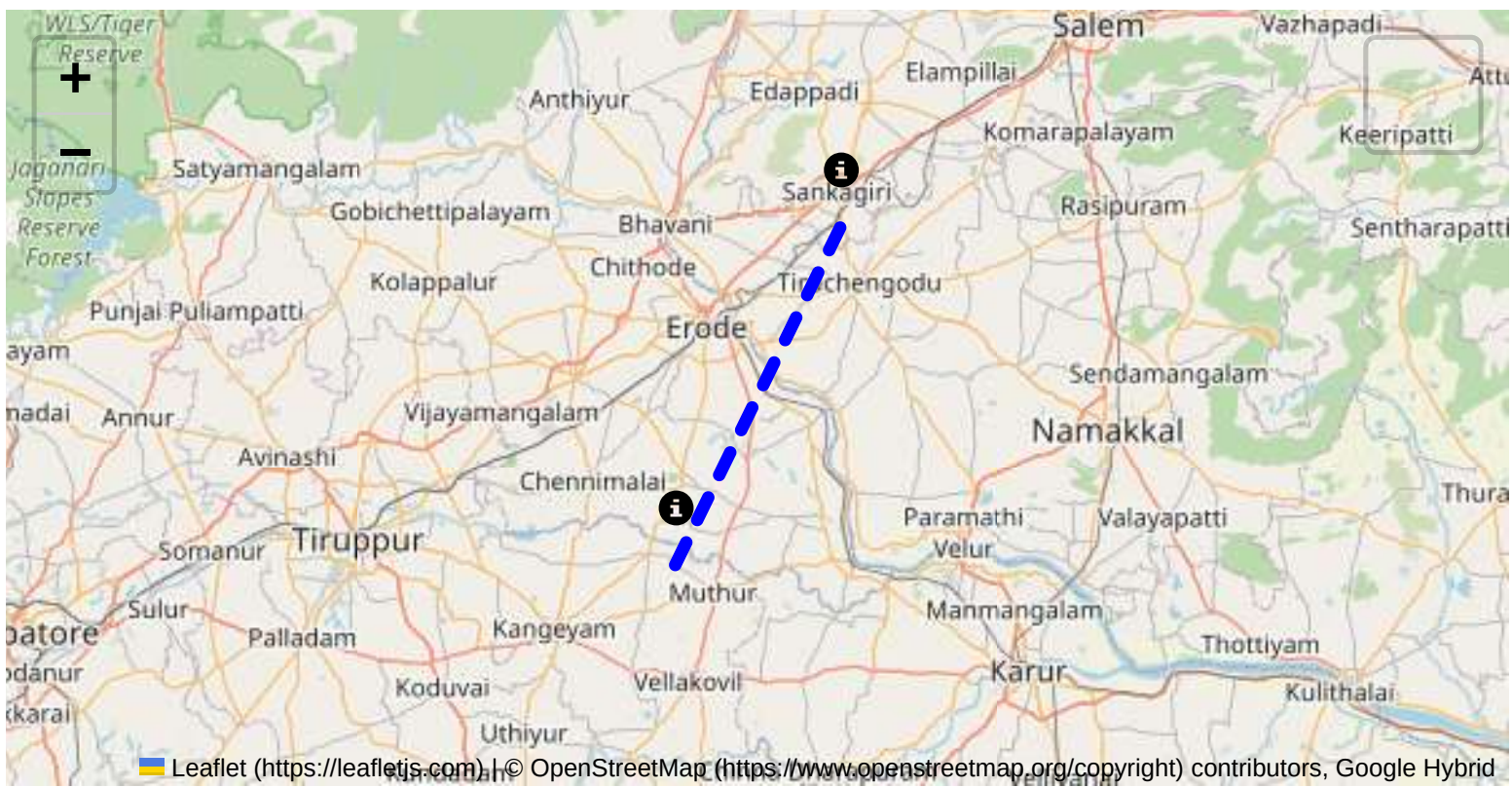
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

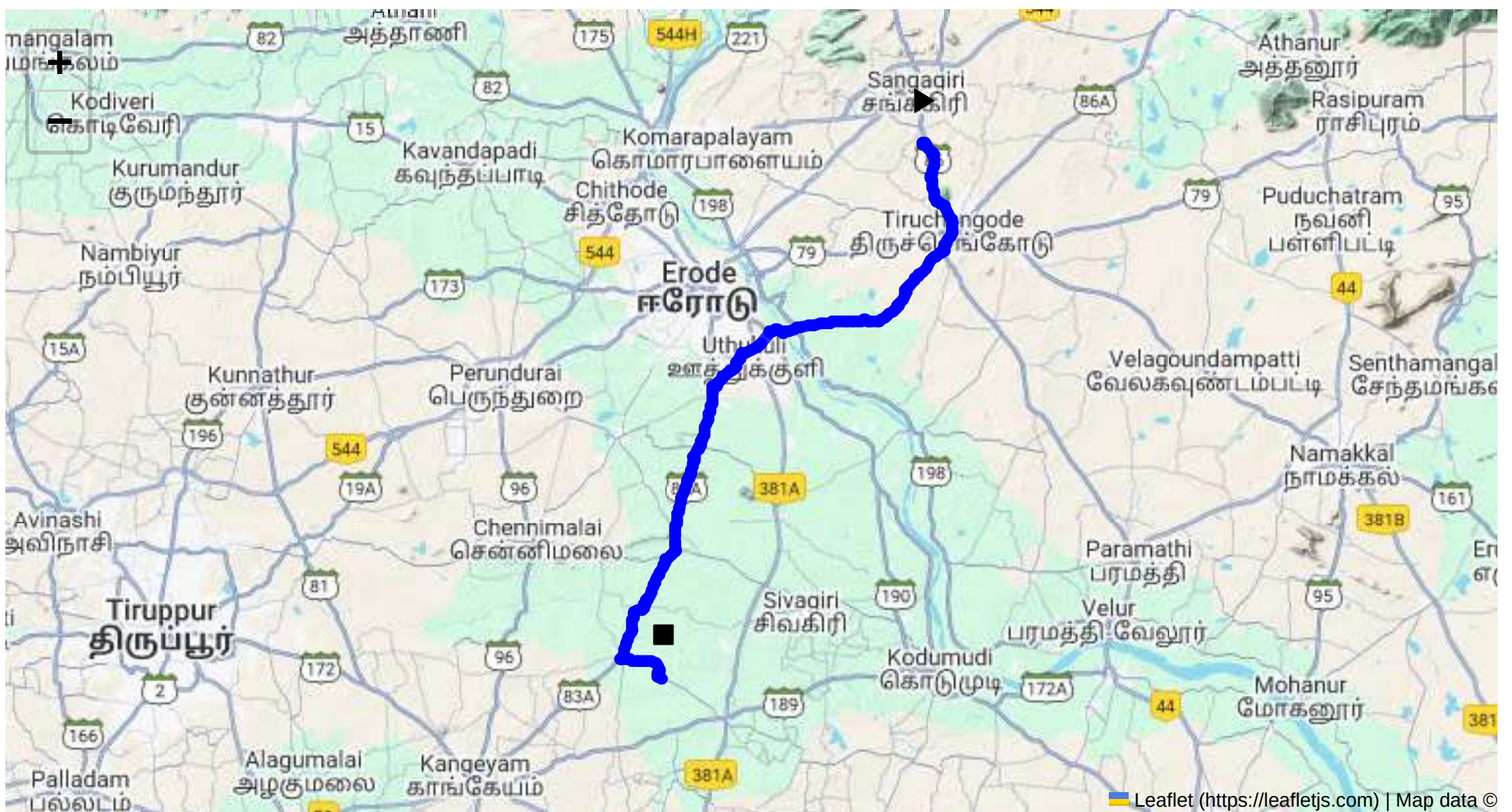
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 59.27 km
Estimated Duration: 1.5 hours
Adjusted Duration (Heavy Vehicle): 1.8 hours
Start: (11.4381, 77.8734)
End: (11.07208174, 77.6913313)



Welcome to the Journey Risk Management Study

Route Safety Analysis: CVQF+23W, Sangagiri to 3MCR+RG Keetapalayam

1. Overview of the Route Map

The route from CVQF+23W, Sangagiri to 3MCR+RG Keetapalayam spans approximately 59.27 kilometers. It primarily involves regional roads and state highways, reflective of a rural to semi-urban transition characteristic in Tamil Nadu. The drive for a heavy vehicle takes about 1.5 hours, considering standard speed regulations and current road conditions.

2. Typical Weather Conditions and Hazards

Tamil Nadu generally experiences a tropical climate. The region can face intense monsoons (primarily between October and December) which may lead to flooding on lower-lying road sections. In the summer (March to June), high temperatures might contribute to road fatigue or heat-related vehicle strain. Fog is occasionally a concern during early mornings in the winter months.

3. Traffic Patterns

- **Peak Hours:** Morning (8 AM - 10 AM) and Evening (5 PM - 7 PM).
- **Congestion-Prone Areas:** Entry and exit points of major towns like Salem. Traffic is typically denser near urban junctions and can be affected during festival seasons.

4. Road Quality and Infrastructure

- **Road Quality:** Mixed. Highways are generally in good condition, but some rural roads display signs of wear, including potholes and uneven patches.
- **Bridges:** Check for weight limits and structural integrity reports on key bridges.
- **Signage and Lighting:** Major highways are well-marked, but rural routes may have insufficient lighting and signages.

5. Emergency Alternative Routes

- **Route Variations:** Utilize NH 44 and respective bypass roads during severe congestion or road work.
- In the event of road closures or extreme weather impacting sections, use eastbound diversions towards the Salem district center as a connection to alternative routes.

6. Local Regulations on Hazardous Material Transport

- Night travel recently restricted through certain populated areas.
- Hazardous material transport requires requisite permits and adherence to local environmental safety standards.
- Operators must be familiar with "No Entry" zones particularly in urban areas to avoid fines or detainment.

7. Historical Incidents

- Few incidents have been noted involving heavy vehicles leading to temporary roadblocks. Most common causes relate to overturning due to sharp turns or road quality.

- Hazardous material-related incidents are rare but have historically led to significant cross-examinations and policy tightening.

8. Environmental Considerations

- The route has agricultural lands and water bodies – marked as sensitive to contamination risks.
- Proximity to reserves could demand more stringent noise and emission controls.

9. Communication Coverage

- **Coverage:** Generally good with occasional dead zones in more isolated rural areas. High probability of loss of signal in deeply vegetated zones or near hill bases.
- **Recommendations:** Equip vehicle with CB radios as a backup communication method.

10. Emergency Response Times

- **Urban Sections:** Quick, typically within 20–30 minutes.
- **Rural Sections:** Slower, emergencies may take up to an hour for response teams to arrive. Contacting nearest town first may expedite response.

11. Summary of Risk

The route from Sangagiri to Keetapalayam demands considerable attention to both environmental and regulation compliance. The major risks stem from weather-related factors, road quality variances, and poor signage on rural stretches. Traffic congestion is moderate to high during peak times, mandating patience and potentially delaying deliveries.

Overall Risk Assessment: Moderate risks due to the combination of natural and human factors. By staying informed of weather forecasts, maintaining vehicle integrity, complying with local regulations, and integrating GPS technologies, challenges can be effectively mitigated.

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	Turn	High	11.44022, 77.87546	15 KM/Hr
4	Turn	High	11.37868, 77.89498	15 KM/Hr
5	Turn	Medium	11.37842, 77.89452	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
6	Turn	Medium	11.36616, 77.88885	30 KM/Hr
7	Turn	Medium	11.36602, 77.88875	30 KM/Hr
8	Turn	Medium	11.34067, 77.86347	30 KM/Hr
9	Turn	Medium	11.33882, 77.86218	30 KM/Hr
10	Turn	Medium	11.33778, 77.86236	30 KM/Hr
11	Turn	Medium	11.30973, 77.76712	30 KM/Hr
12	Turn	High	11.29490, 77.74685	15 KM/Hr
13	Turn	High	11.29141, 77.74662	15 KM/Hr
14	Turn	Medium	11.28844, 77.74319	30 KM/Hr
15	Turn	Medium	11.28573, 77.74281	30 KM/Hr
16	Turn	Medium	11.27336, 77.72999	30 KM/Hr
17	Turn	Medium	11.27319, 77.72981	30 KM/Hr
18	Turn	High	11.27328, 77.72705	15 KM/Hr
19	Turn	Medium	11.23054, 77.71796	30 KM/Hr
20	Turn	Medium	11.22387, 77.71385	30 KM/Hr
21	Turn	Medium	11.20776, 77.70916	30 KM/Hr
22	Turn	Medium	11.16078, 77.70122	30 KM/Hr
23	Turn	High	11.15942, 77.70068	15 KM/Hr
24	Turn	Medium	11.11932, 77.67786	30 KM/Hr
25	Turn	Medium	11.11710, 77.67175	30 KM/Hr
26	Turn	Medium	11.09491, 77.66603	30 KM/Hr
27	Blind Spot	Blind Spot	11.08565, 77.66268	10 KM/Hr
28	Turn	Medium	11.08380, 77.68463	30 KM/Hr
29	Turn	Medium	11.08165, 77.68830	30 KM/Hr
30	Turn	Medium	11.07800, 77.68953	30 KM/Hr
31	Turn	High	11.07327, 77.68855	15 KM/Hr
32	Turn	Medium	11.07301, 77.68877	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

	type	name	coordinates	speed_limit	risk_level
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	hospital	Government Hospital	11.2343326, 77.719226	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: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44022, 77.87546



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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.36616, 77.88885



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.36602, 77.88875



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.34067, 77.86347



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: 11.33778, 77.86236



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.30973, 77.76712



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29490, 77.74685



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29141, 77.74662



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.28844, 77.74319



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.28573, 77.74281



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.27336, 77.72999



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.27319, 77.72981



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.27328, 77.72705



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23054, 77.71796



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.22387, 77.71385



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.20776, 77.70916



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16078, 77.70122



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.15942, 77.70068



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11932, 77.67786



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11710, 77.67175



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.09491, 77.66603



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.08565, 77.66268



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.08380, 77.68463



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.08165, 77.68830



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.07800, 77.68953



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.07327, 77.68855



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.07301, 77.68877
