



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO JAI ANJANEYA 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

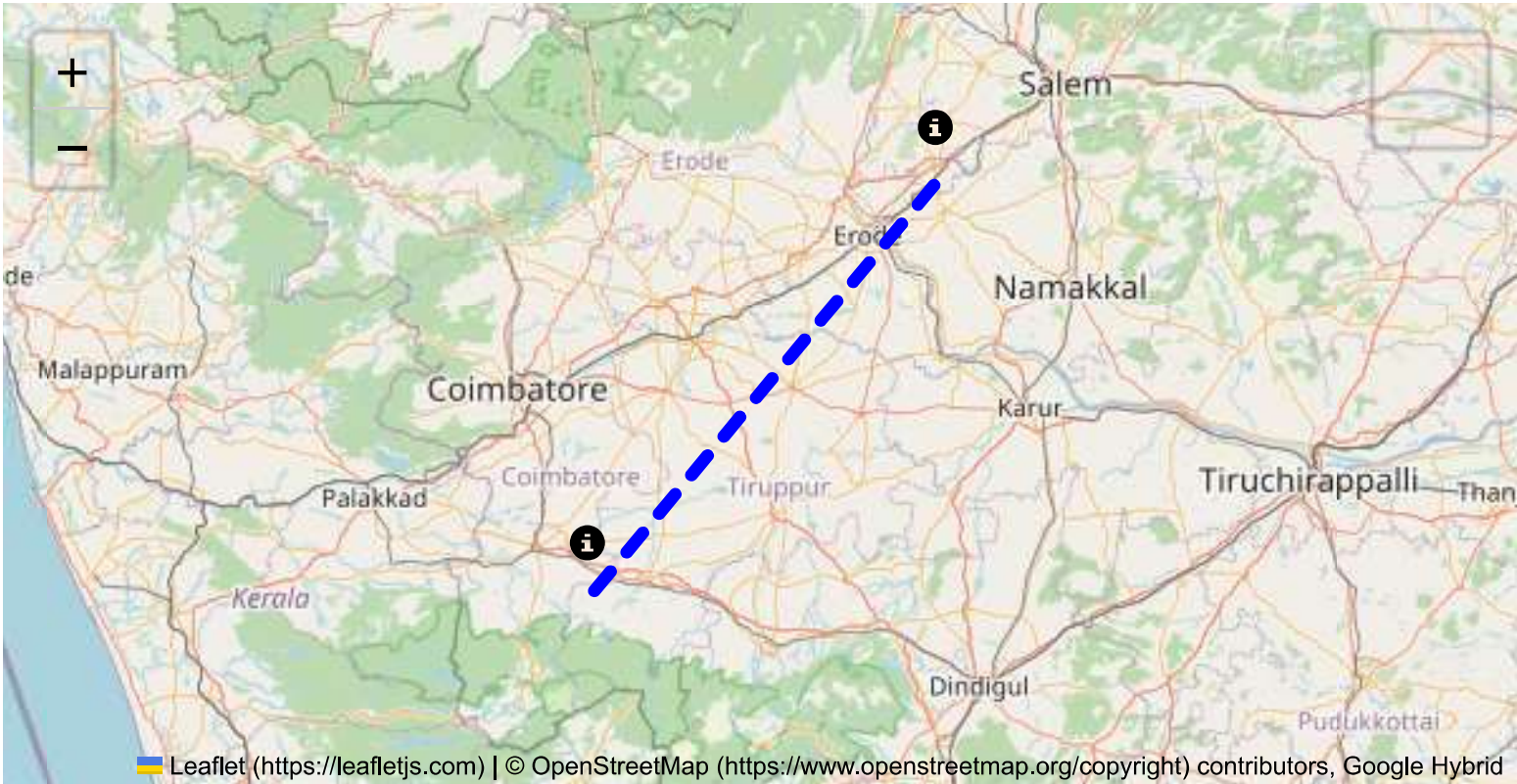
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental 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: 171.16 km
Estimated Duration: 3.4 hours
Adjusted Duration (Heavy Vehicle): 4.2 hours
Start: (11.4381, 77.8734)
End: (10.546297, 77.113941)



Welcome to the Journey Risk Management Study

Route Safety Analysis

- 1. Overview of the Route Map:
 - o The route from CVQF+23W, Sangagiri to G4W7+HM4, Tiruppur spans approximately 171.16 km. The journey is primarily on national and state highways, with a mixture of rural and urban areas.

2. Typical Weather Conditions:

- Tamil Nadu generally experiences a tropical climate, with hot summers, a monsoon season from June to September, and mild winters. The monsoon can lead to heavy rains, potentially causing floods and reduced visibility, especially in rural and low-lying areas.

3. Traffic Patterns:

- Traffic is generally denser during morning (8:00 AM to 10:30 AM) and evening (5:30 PM to 8:00 PM) rush hours, especially near major towns and cities.
- Congestion-prone areas include city centers and intersections of major highways, such as NH 44 and NH 544.

4. Assessment of Road Quality and Infrastructure:

- National highways are generally well-maintained, but certain stretches of state roads might have potholes or uneven surfaces.
- Be cautious around construction zones or areas with narrow bridges and sharp turns.

5. Suggestions for Alternative Routes:

- For emergencies, consider using NH 544 as an alternative, depending on the exact starting and ending points. Local roads might offer shortcuts but are less suited for heavy vehicles.

6. Local Regulations for Hazardous Material Transport:

- Adherence to the Petroleum Rules and the Motor Vehicles Act is mandatory. Night travel for hazardous materials might be restricted in certain areas.

7. Historical Incidents:

- There have been occasional reports of heavy vehicle accidents, mainly due to speeding, sharp turns, and overloaded carriage. Incidents involving hazardous materials are rarer but necessitate strict compliance with safety regulations.

8. Environmental Considerations:

- Sensitive areas include agricultural lands and watersheds. Spillage of hazardous material could severely affect these zones, so utmost caution is advised.

9. Communication Coverage:

- Most of the route has good cellular network coverage. However, there may be dead zones in rural and hilly areas, particularly on less traveled segments of state roads.

10. Estimated Emergency Response Times:

- Near urban centers, emergency response times range from 15 to 30 minutes. In rural or remote areas, response times could extend to 60 minutes or more due to geographical and infrastructural challenges.

11. Overall Summary of Risk Assessment:

- The route is generally safe but involves typical risks associated with Indian highways, such as traffic congestion, varying road conditions, and weather-related challenges.
- Precautionary measures, such as avoiding peak traffic hours, using GPS navigation to monitor traffic updates, and ensuring communication devices are functional, will mitigate many risks.

- Transporting hazardous materials demands scrupulous adherence to regulations, constant monitoring of vehicle conditions, and judicious planning around environmental and infrastructural sensitivities.

This analysis facilitates improved decision-making for truck drivers, emphasizing safety and compliance to protect both human and environmental health.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.17250, 77.26863	15 KM/Hr
1	Turn	High	11.43968, 77.87345	15 KM/Hr
2	Turn	High	11.44024, 77.87528	15 KM/Hr
3	Turn	High	11.44898, 77.87410	15 KM/Hr
4	Turn	High	11.45352, 77.85698	15 KM/Hr
5	Turn	Medium	11.45764, 77.85219	30 KM/Hr
6	Turn	High	11.46303, 77.84945	15 KM/Hr
7	Turn	Medium	11.44965, 77.77565	30 KM/Hr
8	Turn	Medium	11.44953, 77.77344	30 KM/Hr
9	Turn	Medium	11.43165, 77.67734	30 KM/Hr
10	Turn	Medium	11.42935, 77.67551	30 KM/Hr
11	Turn	Medium	11.39771, 77.65194	30 KM/Hr
12	Turn	Medium	11.39391, 77.65140	30 KM/Hr
13	Turn	Medium	11.38467, 77.65485	30 KM/Hr
14	Turn	Medium	11.34575, 77.64101	30 KM/Hr
15	Turn	Medium	11.34124, 77.63222	30 KM/Hr
16	Turn	Medium	11.33904, 77.63045	30 KM/Hr
17	Turn	Medium	11.25880, 77.55049	30 KM/Hr
18	Turn	Medium	11.23760, 77.50768	30 KM/Hr
19	Turn	Medium	11.24004, 77.49422	30 KM/Hr
20	Turn	Medium	11.20705, 77.37253	30 KM/Hr
21	Turn	Medium	11.21550, 77.34674	30 KM/Hr
22	Turn	Medium	11.21287, 77.34408	30 KM/Hr
23	Turn	Medium	11.20688, 77.34205	30 KM/Hr
24	Turn	Medium	11.20451, 77.33962	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
25	Turn	Medium	11.18808, 77.28672	30 KM/Hr
26	Turn	Medium	11.17768, 77.28370	30 KM/Hr
27	Turn	Medium	11.17593, 77.28219	30 KM/Hr
28	Turn	Medium	11.14693, 77.26378	30 KM/Hr
29	Turn	Medium	11.10964, 77.27122	30 KM/Hr
30	Turn	High	11.10680, 77.27043	15 KM/Hr
31	Turn	Medium	11.06989, 77.26801	30 KM/Hr
32	Turn	High	11.06781, 77.27098	15 KM/Hr
33	Turn	Medium	11.04685, 77.27434	30 KM/Hr
34	Turn	Medium	11.03372, 77.28725	30 KM/Hr
35	Turn	Medium	10.99004, 77.28522	30 KM/Hr
36	Turn	Medium	10.98097, 77.27931	30 KM/Hr
37	Turn	Medium	10.94858, 77.27947	30 KM/Hr
38	Turn	Medium	10.91709, 77.26600	30 KM/Hr
39	Turn	Medium	10.90521, 77.27107	30 KM/Hr
40	Turn	Medium	10.76051, 77.26889	30 KM/Hr
41	Turn	Medium	10.64949, 77.26823	30 KM/Hr
42	Turn	High	10.60736, 77.25301	15 KM/Hr
43	Turn	High	10.60929, 77.23350	15 KM/Hr
44	Turn	High	10.59248, 77.19943	15 KM/Hr
45	Turn	Medium	10.58878, 77.19723	30 KM/Hr
46	Turn	Medium	10.58662, 77.19250	30 KM/Hr
47	Turn	High	10.58721, 77.19016	15 KM/Hr
48	Turn	High	10.58520, 77.18955	15 KM/Hr
49	Turn	High	10.55878, 77.14143	15 KM/Hr
50	Turn	Medium	10.55458, 77.14132	30 KM/Hr
51	Turn	Medium	10.54829, 77.13132	30 KM/Hr
52	Turn	Medium	10.54594, 77.11748	30 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
3	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
4	hospital	J.K.K. Trust Hospital	11.4445841, 77.7307962	30 km/h	Medium
6	hospital	Shri Sathyanarayana Hospital	11.4291297, 77.6913408	30 km/h	Medium
7	hospital	Thanish Siddha Hospital	11.430003, 77.674964	30 km/h	Medium
8	clinic	Harshitha Clinic	11.4313207, 77.674718	30 km/h	Medium
9	hospital	Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam	11.432369, 77.674894	30 km/h	Medium
10	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
11	clinic	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium
13	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
15	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium
16	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
17	hospital	Dr. N Viswanathan Hospital	11.2412783, 77.5005502	30 km/h	Medium
18	clinic	P.M. Clinic	11.2281078, 77.4647296	30 km/h	Medium
20	hospital	Sri Renu Hospital	11.1990225, 77.4219937	30 km/h	Medium
21	clinic	Rajeshwari Nursing Home	10.9953069, 77.2841138	30 km/h	Medium
22	hospital	Balaji Hospital	10.9936939, 77.2849449	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
0	school	KRP Matric. Hr. Sec School	11.4546193, 77.8142445	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
1	college	Vivekanandha Engineering College	11.4589312, 77.7899284	30 km/h	Medium
2	marketplace	Monday market	11.452863, 77.775989	30 km/h	Medium
5	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
12	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
14	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium
19	marketplace	Weekly Market (sandhai)	11.2287229, 77.4646676	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.17250, 77.26863



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44024, 77.87528



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44898, 77.87410



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.45352, 77.85698



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.45764, 77.85219



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.46303, 77.84945



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.44965, 77.77565



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.44953, 77.77344



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.43165, 77.67734



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.42935, 77.67551



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.39771, 77.65194



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.39391, 77.65140



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.38467, 77.65485



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.34575, 77.64101



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.34124, 77.63222



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.33904, 77.63045



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.25880, 77.55049



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.23760, 77.50768



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.24004, 77.49422



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.20705, 77.37253



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.21550, 77.34674



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.21287, 77.34408



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.20688, 77.34205



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.20451, 77.33962



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.18808, 77.28672



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17768, 77.28370



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17593, 77.28219



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.14693, 77.26378



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.10964, 77.27122



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.10680, 77.27043



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.06989, 77.26801



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.06781, 77.27098



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.04685, 77.27434



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.03372, 77.28725



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.99004, 77.28522



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.98097, 77.27931



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.94858, 77.27947



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.91709, 77.26600



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.90521, 77.27107



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.76051, 77.26889



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.64949, 77.26823



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.60736, 77.25301



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.60929, 77.23350



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.59248, 77.19943



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.58878, 77.19723



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.58662, 77.19250



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.58721, 77.19016



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.58520, 77.18955



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.55878, 77.14143



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.55458, 77.14132



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.54829, 77.13132



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.54594, 77.11748