



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to VAIRAVEL 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

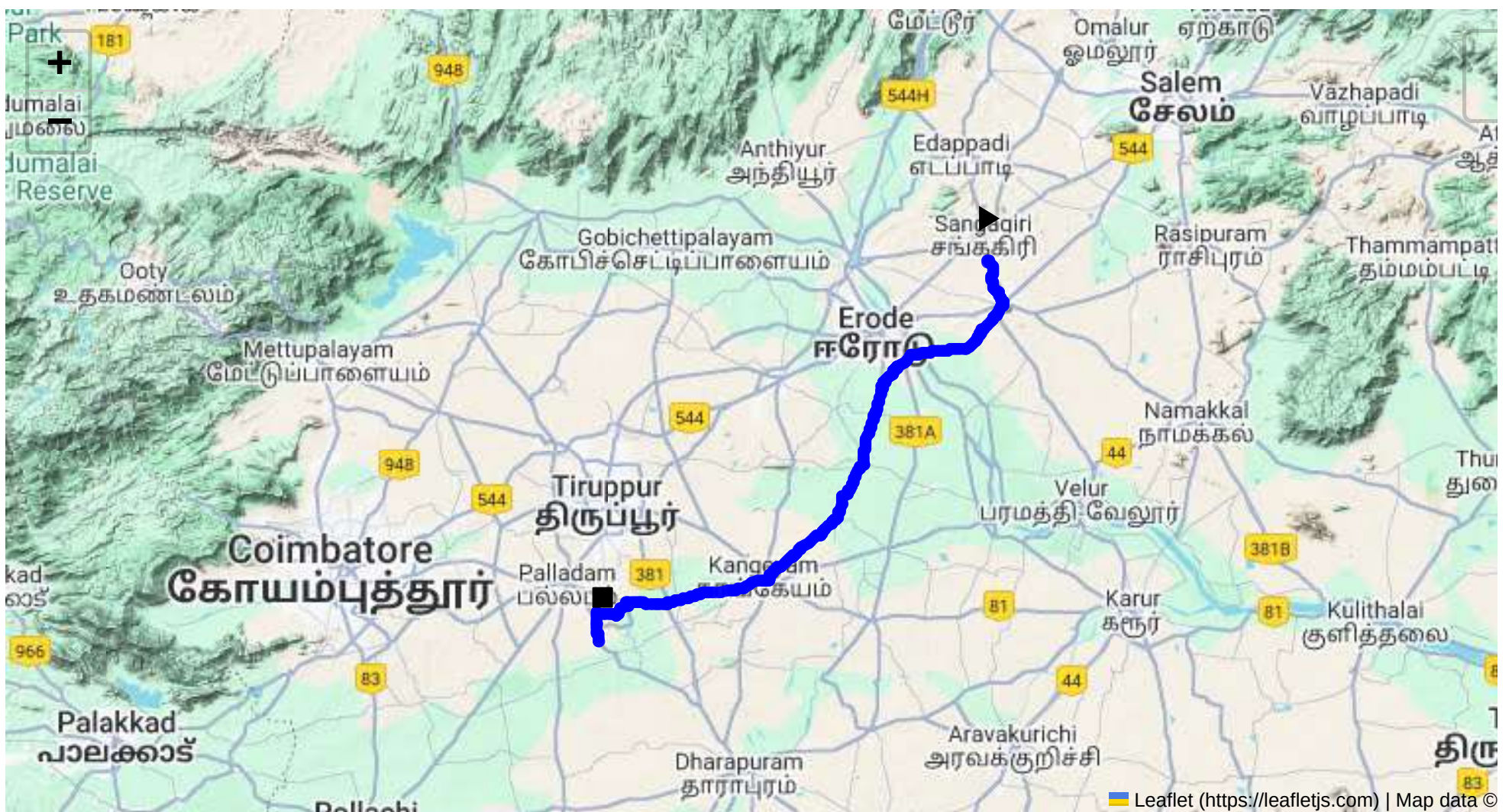
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 103.14 km
Estimated Duration: 2.3 hours
Adjusted Duration (Heavy Vehicle): 2.9 hours
Start: (11.4381, 77.8734)
End: (10.915707, 77.3314)



Welcome to the Journey Risk Management Study

Route Overview

The route from CVQF+23W, Sangagiri to W88J+7HH, Palladam-Dharapuram Rd via CVCJ+9C7, Palmadai spans approximately 103.14 kilometers. It crosses various districts in Tamil Nadu and involves state highways and local roads, typical for goods transport, including heavy vehicles carrying hazardous materials.

Typical Weather Conditions and Hazards

Tamil Nadu generally experiences tropical weather with high temperatures and significant humidity year-round. Monsoon season (June to September) could cause heavy rainfall, leading to slick roads and localized flooding. During summer months (April to June), high temperatures could lead to asphalt fatigue and tire blowouts.

Traffic Patterns

- **Peak Hours:** Morning (7:00 AM - 10:00 AM) and Evening (5:00 PM - 8:00 PM) are peak traffic times, especially near urban centers like Sangagiri and Palladam.
- **Congestion-Prone Areas:** Bottlenecks can occur near market centers and during local festivals. Urban fringes of towns along the route may also see frequent traffic disruptions.

Road Quality and Infrastructure

- **Conditions:** The state highways are generally in fair condition but can have patches of degraded pavement, especially after the monsoon season.
- **Infrastructural Challenges:** Narrow shoulders, inadequate lighting in rural stretches, and sparse traffic signage.

Alternative Routes for Emergencies

In case of roadblocks or emergencies, alternatives include:

- Using State Highway SH-86 from Sangagiri to bypass major traffic.
- Rerouting through local village roads could be an option, though these roads might not support heavy vehicles due to width and structural integrity.

Regulations for Hazardous Material Transport

- **Permits:** Operators must possess proper licensing and documentation for transporting hazardous materials.
- **Time Restrictions:** Movement might be restricted within urban areas during peak hours or when school zones are active.
- **Safety Measures:** Vehicles must adhere to safety standards including labeling and containment.

Historical Incidents

While precise local data may not be available, Tamil Nadu has experienced several traffic incidents involving heavy vehicles primarily due to driver fatigue, vehicle malfunction, or adverse conditions. Awareness and compliance with safety regulations can mitigate these risks.

Environmental Considerations

The route does pass through agricultural zones; thus, care should be taken to prevent spillage or contamination, especially near water bodies and farmlands.

Communication Coverage

Major segments of the route have adequate mobile network coverage, though isolated patches in rural areas might lack reliable connectivity, creating potential communication dead zones.

Estimated Emergency Response Times

- Urban Areas:** Emergency services could respond within 15-30 minutes.
- Rural Areas:** Response times might extend to 45 minutes or more due to distance from service centers.

Overall Risk Assessment

The primary risks involve adverse weather, road conditions, and heavy traffic, particularly during peak travel times. Emergencies require knowledge of alternate routes and strict adherence to regulations governing hazardous materials. Continuous communication and monitoring are key to ensuring a safe journey.

In summary, this route requires careful planning and adherence to regulations due to the mix of urban-rural dynamics, potential weather issues, and varying infrastructure quality.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.38395, 77.89480	15 KM/Hr
1	Turn	High	11.43968, 77.87345	15 KM/Hr
2	Turn	High	11.44022, 77.87546	15 KM/Hr
3	Turn	Medium	11.39983, 77.88377	30 KM/Hr
4	Turn	Medium	11.39706, 77.88825	30 KM/Hr
5	Turn	Medium	11.37862, 77.89488	30 KM/Hr
6	Turn	Medium	11.37823, 77.89448	30 KM/Hr
7	Turn	Medium	11.36638, 77.88885	30 KM/Hr
8	Turn	Medium	11.34105, 77.86426	30 KM/Hr
9	Turn	Medium	11.34074, 77.86356	30 KM/Hr
10	Turn	Medium	11.33865, 77.86216	30 KM/Hr
11	Turn	Medium	11.31746, 77.84231	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
12	Turn	Medium	11.30951, 77.77598	30 KM/Hr
13	Turn	Medium	11.31109, 77.77183	30 KM/Hr
14	Turn	High	11.29473, 77.74685	15 KM/Hr
15	Turn	High	11.29128, 77.74656	15 KM/Hr
16	Turn	Medium	11.28859, 77.74323	30 KM/Hr
17	Turn	Medium	11.28533, 77.74247	30 KM/Hr
18	Turn	High	11.27326, 77.72991	15 KM/Hr
19	Turn	High	11.27330, 77.72720	15 KM/Hr
20	Turn	Medium	11.23062, 77.71799	30 KM/Hr
21	Turn	High	11.15942, 77.70068	15 KM/Hr
22	Turn	Medium	11.12126, 77.67929	30 KM/Hr
23	Turn	Medium	11.11935, 77.67790	30 KM/Hr
24	Turn	Medium	11.11716, 77.67178	30 KM/Hr
25	Turn	Medium	11.10462, 77.67055	30 KM/Hr
26	Turn	Medium	11.09494, 77.66604	30 KM/Hr
27	Turn	Medium	11.08701, 77.66412	30 KM/Hr
28	Turn	High	11.08285, 77.65839	15 KM/Hr
29	Turn	High	11.06183, 77.63929	15 KM/Hr
30	Turn	High	11.00834, 77.56962	15 KM/Hr
31	Blind Spot	Blind Spot	11.00065, 77.56884	10 KM/Hr
32	Turn	Medium	11.00170, 77.56267	30 KM/Hr
33	Turn	High	10.97021, 77.42717	15 KM/Hr
34	Turn	Medium	10.96816, 77.42718	30 KM/Hr
35	Turn	Medium	10.96794, 77.42698	30 KM/Hr
36	Turn	High	10.97058, 77.36962	15 KM/Hr
37	Blind Spot	Blind Spot	10.96443, 77.36996	10 KM/Hr
38	Turn	Medium	10.96448, 77.36586	30 KM/Hr
39	Turn	High	10.95865, 77.35820	15 KM/Hr
40	Turn	High	10.95846, 77.35658	15 KM/Hr
41	Turn	High	10.95366, 77.35642	15 KM/Hr
42	Turn	Medium	10.95322, 77.35534	30 KM/Hr
43	Turn	Medium	10.95414, 77.33798	30 KM/Hr
44	Turn	Medium	10.95504, 77.33685	30 KM/Hr
45	Blind Spot	Blind Spot	10.95603, 77.32831	10 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
46	Turn	Medium	10.92307, 77.33075	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	Krishna Hospital, Namakkal	11.3754811, 77.8931817	30 km/h	Medium
12	hospital	Government Hospital	11.2343326, 77.719226	30 km/h	Medium
15	police	Kangeyam Police Station	11.0011411, 77.562688	30 km/h	Medium
16	hospital	J K Hospital	11.0042298, 77.5603345	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
10	school	KSR Educational institution	11.3772013, 77.8908807	30 km/h	Medium
11	school	MDV School	11.3719843, 77.8915244	30 km/h	Medium
13	college	Government Arts and Science College, Kangeyam	11.0626738, 77.636227	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
14	school	Carmel Girls Higher Secondary School	11.0009019, 77.5710182	30 km/h	Medium
17	school	PVKN Higher Secondary School	10.9711766, 77.3699335	30 km/h	Medium
18	school	Pongalur Uppathiyar Venkadasamy Naidu Elementry School	10.9703113, 77.3693546	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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.39983, 77.88377



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.39706, 77.88825



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.37862, 77.89488



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.37823, 77.89448



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.36638, 77.88885



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.34105, 77.86426



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.34074, 77.86356



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.33865, 77.86216



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.31746, 77.84231



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.30951, 77.77598



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.31109, 77.77183



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29473, 77.74685



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.29128, 77.74656



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.28859, 77.74323



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.28533, 77.74247



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.27326, 77.72991



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.27330, 77.72720



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.23062, 77.71799



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: 11.12126, 77.67929



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11935, 77.67790



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11716, 77.67178



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10462, 77.67055



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.09494, 77.66604



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.08701, 77.66412



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.08285, 77.65839



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.06183, 77.63929



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.00834, 77.56962



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.00065, 77.56884



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.00170, 77.56267



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.97021, 77.42717



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.96816, 77.42718



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.96794, 77.42698



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.97058, 77.36962



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 10.96443, 77.36996



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.96448, 77.36586



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.95865, 77.35820



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.95846, 77.35658



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 10.95366, 77.35642



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.95322, 77.35534



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.95414, 77.33798



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 10.95504, 77.33685



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 10.95603, 77.32831
