



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to UDAYAM AUTO CARE

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

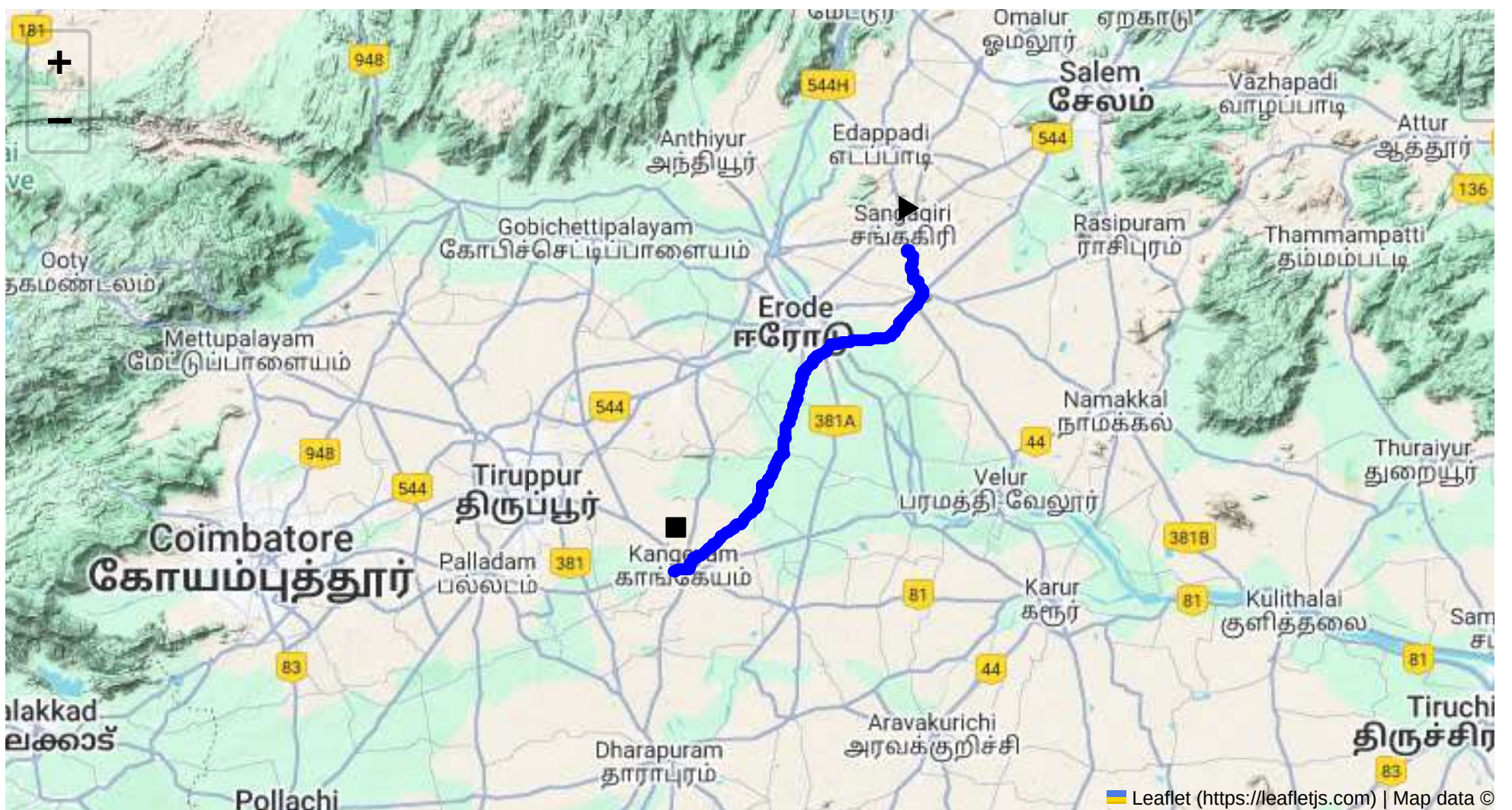
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 72.24 km
Estimated Duration: 1.7 hours
Adjusted Duration (Heavy Vehicle): 2.2 hours
Start: (11.4381, 77.8734)
End: (10.997644, 77.546018)



Welcome to the Journey Risk Management Study

Route Safety Analysis: Sangagiri to Kangeyam

1. Overview of the Route Map

The route from CVQF+23W, Sangagiri to XGXW+28G, Kangeyam covers approximately 72.24 kilometers through a combination of rural and semi-urban areas. The primary highways used are the NH 544 and SH

96, which are key connecting routes in Tamil Nadu.

2. Typical Weather Conditions and Hazards

- **Weather:** The region typically experiences a tropical climate with hot summers, mild winters, and a monsoon season from July to September. During the monsoon, roads may become slippery and prone to waterlogging.
- **Hazards:** Heavy rains can lead to flooding in low-lying areas, while reduced visibility can be expected during rainy seasons.

3. Traffic Patterns

- **Peak Hours:** Morning (7:00 AM - 10:00 AM) and evening (5:00 PM - 8:00 PM) times generally experience higher traffic volumes.
- **Congestion-Prone Areas:** Major junctions such as near Erode city and Tiruppur have potential congestion, particularly during peak hours.

4. Road Quality and Infrastructure

- **Quality:** Main roads such as NH 544 have relatively good infrastructure, with proper signage and maintained surfaces. However, some rural roads may have potholes and narrower lanes.
- **Maintenance:** Regular maintenance is observed, but specific segments, especially on rural roads, require attention.

5. Alternative Routes for Emergencies

- **Via Erode:** In case of major disruptions, an alternate route through Erode, utilizing SH 83A, could be considered, although it may increase travel time.
- **Local Roads:** There are various smaller roads connecting towns and villages, which can serve as secondary options.

6. Local Regulations on Hazardous Material Transport

- **Permissions:** Transport of hazardous materials requires specific permits and adherence to safety standards outlined by local statutes.
- **Timing Restrictions:** Heavy vehicles are typically restricted during peak hours in urban centers to alleviate congestion.

7. Historical Incidents

- **Accidents:** There have been incidents involving heavy vehicles, often due to poor visibility and erratic driving.
- **Hazmat:** While less frequent, hazardous material transport incidents have occurred due to improper handling or spillages, emphasizing the need for stringent safety protocols.

8. Environmental Considerations

- **Sensitive Areas:** Near agricultural zones, spillage of hazardous chemicals can have detrimental effects. It is crucial to have spill containment plans.
- **Wildlife:** Minimal wildlife interference expected, but certain areas may see local fauna crossings.

9. Communication Coverage

- **Reception:** Generally robust mobile network coverage along the route. However, some rural patches may experience weak signals.
- **Dead Zones:** Particularly on some stretches of SH 96, expect patchy coverage.

10. Estimated Emergency Response Times

- **Rural Segments:** Emergency services may take approximately 30-60 minutes due to distance from major towns.
- **Urban and Semi-Urban Areas:** Faster response times within 15-30 minutes, primarily near towns like Erode and Tiruppur.

12. Overall Summary of Risk Assessment

The route from Sangagiri to Kangeyam is generally viable for transporting hazardous materials but requires diligence. Key risks include weather-related disruptions, traffic congestion, and road quality issues in rural areas. Drivers should be prepared for potential delays, ensure they have all necessary permits, and maintain communication with relevant authorities. Emergency preparedness, including knowledge of alternative routes and response procedures, is essential for safe transport operations.

For maximum safety, continuous monitoring of weather conditions and traffic reports is advised, coupled with adherence to best practices for hazardous material handling.

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
6	Turn	Medium	11.36616, 77.88885	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
7	Turn	Medium	11.36602, 77.88875	30 KM/Hr
8	Turn	Medium	11.34067, 77.86347	30 KM/Hr
9	Turn	Medium	11.33854, 77.86216	30 KM/Hr
10	Turn	Medium	11.33778, 77.86236	30 KM/Hr
11	Turn	Medium	11.30952, 77.77587	30 KM/Hr
12	Turn	Medium	11.30973, 77.76712	30 KM/Hr
13	Turn	High	11.29490, 77.74685	15 KM/Hr
14	Turn	High	11.29141, 77.74662	15 KM/Hr
15	Turn	Medium	11.28844, 77.74319	30 KM/Hr
16	Turn	Medium	11.28573, 77.74281	30 KM/Hr
17	Turn	High	11.27319, 77.72981	15 KM/Hr
18	Blind Spot	Blind Spot	11.27330, 77.72715	10 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	High	11.15942, 77.70068	15 KM/Hr
23	Turn	Medium	11.12102, 77.67919	30 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	Turn	Medium	11.08282, 77.65837	30 KM/Hr
28	Turn	Medium	11.06183, 77.63924	30 KM/Hr
29	Turn	High	11.00826, 77.56962	15 KM/Hr
30	Blind Spot	Blind Spot	11.00058, 77.56882	10 KM/Hr
31	Turn	High	11.00172, 77.56268	15 KM/Hr
32	Turn	Medium	11.00170, 77.56267	30 KM/Hr
33	Turn	Medium	11.00168, 77.56264	30 KM/Hr
34	Turn	High	10.99763, 77.54603	15 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	hospital	Government Hospital	11.2343326, 77.719226	30 km/h	Medium
16	police	Kangeyam Police Station	11.0011411, 77.562688	30 km/h	Medium
17	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
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
14	college	Government Arts and Science College, Kangeyam	11.0626738, 77.636227	30 km/h	Medium
15	school	Carmel Girls Higher Secondary School	11.0009019, 77.5710182	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: 11.33854, 77.86216



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: 11.30952, 77.77587



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: High

Speed Limit: 15 KM/Hr

Coordinates: 11.27319, 77.72981



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.27330, 77.72715



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: High

Speed Limit: 15 KM/Hr

Coordinates: 11.15942, 77.70068



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12102, 77.67919



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: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.08282, 77.65837



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.06183, 77.63924



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.00826, 77.56962



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.00058, 77.56882



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.00172, 77.56268



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.00170, 77.56267



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.00168, 77.56264



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 10.99763, 77.54603
