



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to VALARMATHI COOP PETROL BUNK

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

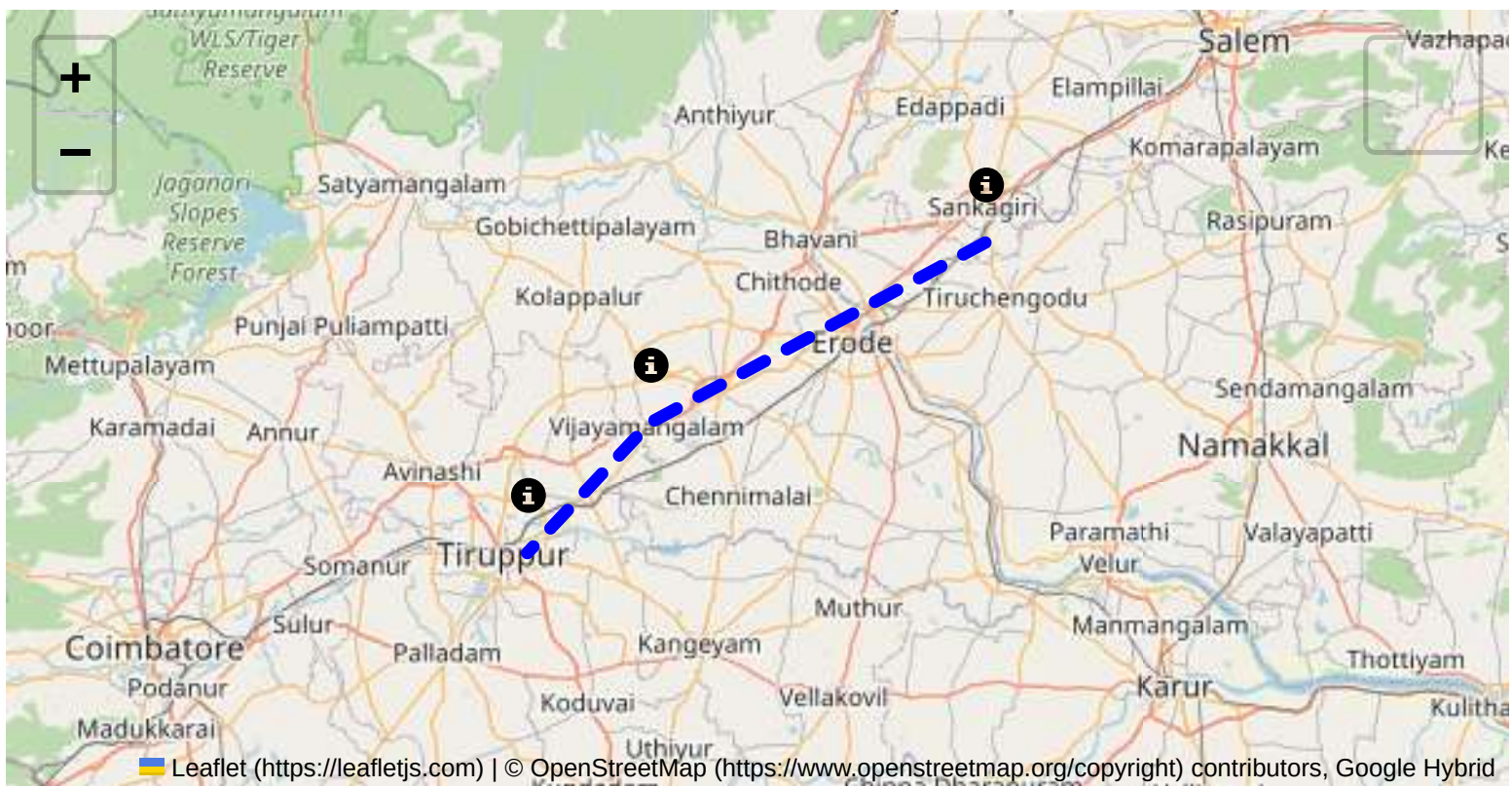
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

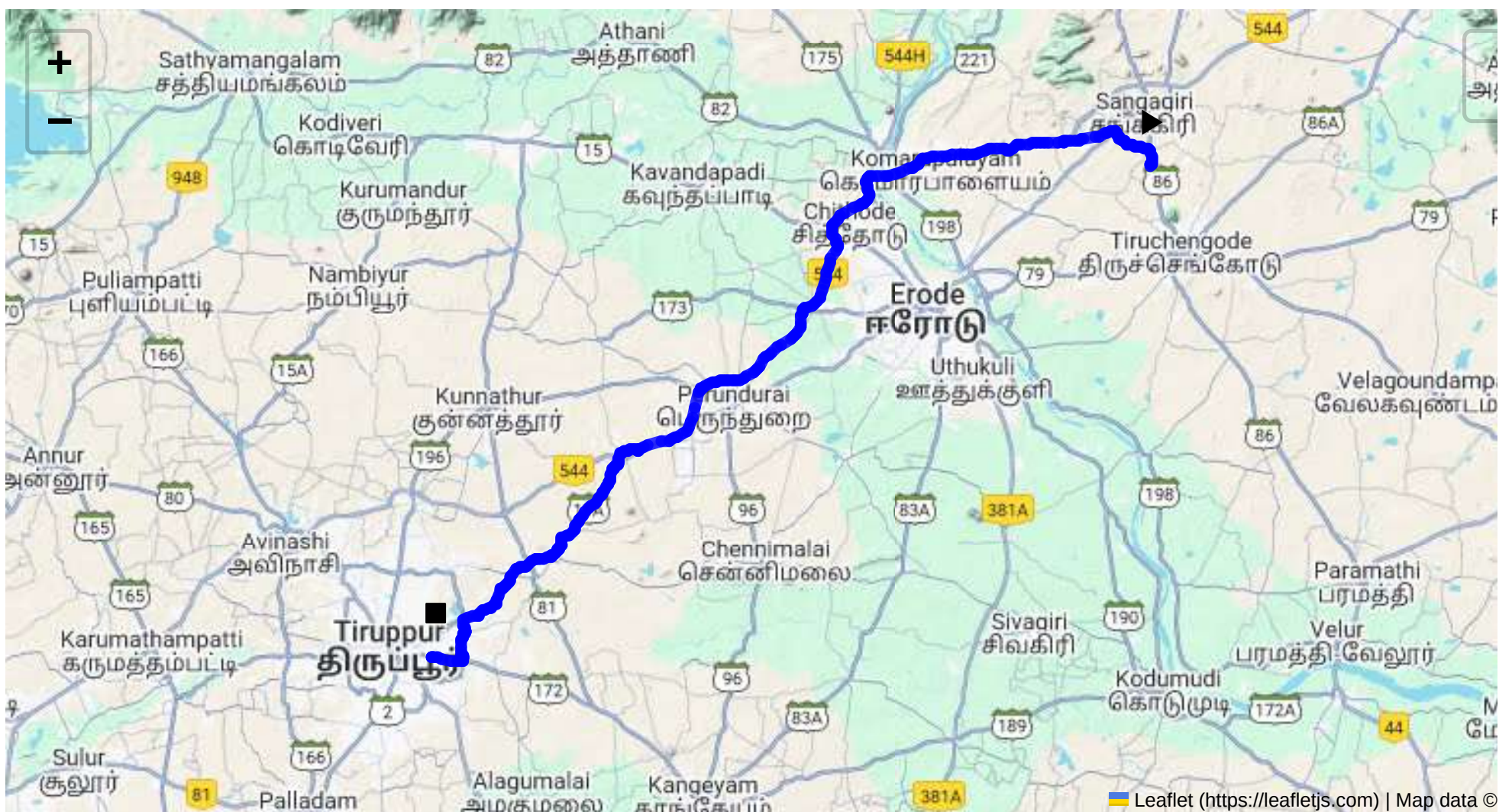
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 81.85 km
Estimated Duration: 1.8 hours
Adjusted Duration (Heavy Vehicle): 2.2 hours
Start: (11.4381, 77.8734)
End: (11.101979, 77.372231)



Welcome to the Journey Risk Management Study

Route Overview

The route from Sangagiri to Tiruppur via Vijayamangalam covers approximately 81.85 kilometers and typically takes around 1.76 hours for heavy vehicles carrying hazardous materials. It primarily involves traveling on National Highways and regional roads that include a mix of urban and rural settings.

Typical Weather Conditions and Potential Hazards

Tamil Nadu generally experiences a tropical climate with the potential for heavy monsoons, especially from October to December. The transitional seasons can bring rain-induced hazards such as slippery roads, reduced visibility, and flooding in low-lying areas. Summers can be extremely hot, causing road fatigue and the possibility of vehicle overheating.

Traffic Patterns and Congestion-Prone Areas

Traffic is typically heavier during morning (8 AM - 10 AM) and evening (5 PM - 7 PM) peak hours. Major congestion points include areas near city centers and junctions, particularly around regional markets and intersections between highways. The region near Vijayamangalam can experience additional traffic due to local commercial activities.

Road Quality and Infrastructure

National highways provide generally good road quality with regular maintenance. However, some regional roads might be narrower and less maintained, which can pose risks for heavy vehicles. Watch for speed bumps and potholes in rural areas that can pose risks, especially after the monsoon season.

Alternative Routes for Emergencies

- An alternative route avoiding potential congestion is via the NH544, which may offer fewer stops but slightly longer distance.
- In case of severe roadblocks or accidents, local roads can be used, but drivers must be wary of smaller road sizes and lower quality.

Local Regulations Affecting Hazardous Material Transport

Local regulations require specific permits for transporting hazardous materials, with compulsory adherence to safety standards like having safety equipment on board and proper vehicle labeling. Driving such vehicles through populated areas might also have timing restrictions.

Historical Incidents Involving Heavy Vehicles or Hazardous Materials

While specific incident data might not be readily available, the region's highways occasionally report accidents involving heavy vehicles, especially during fog or rainy conditions. Adequate caution is advised in all weather conditions.

Environmental Considerations and Sensitive Areas

The route traverses through some agricultural zones, hence spills of hazardous material can severely impact local crops and soil. Environmental caution is necessary near water bodies and agricultural areas to prevent contamination.

Communication Coverage and Potential Dead Zones

Mobile network coverage is generally reliable along the route, especially near major towns. However, certain rural segments might have weaker signals, which can pose challenges in emergencies or when navigation support is needed.

Estimated Emergency Response Times

- Urban areas (e.g., Tiruppur): Approximately 15-30 minutes
 - Rural areas (mid-route): Approximately 30-60 minutes
- Emergency response units are relatively quicker near cities and towns but may take longer in more remote areas due to distance and road conditions.

Overall Summary of Risk Assessment

Traveling from Sangagiri to Tiruppur with hazardous materials involves several risks, particularly weather-related hazards, congestion in urban areas, and road quality in rural sections. The primary vulnerabilities are related to weather impacts, road infrastructure in less urban areas, and traffic during peak hours. Efficient emergency planning and adherence to transport regulations are critical to managing risks effectively.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	U-Turn	High	11.1017915, 77.37060389999999	10 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	Medium	11.45357, 77.85789	30 KM/Hr
5	Turn	High	11.45352, 77.85698	15 KM/Hr
6	Turn	Medium	11.45847, 77.85140	30 KM/Hr
7	Turn	Medium	11.45898, 77.85135	30 KM/Hr
8	Turn	High	11.46303, 77.84945	15 KM/Hr
9	Turn	Medium	11.45509, 77.81383	30 KM/Hr
10	Turn	Medium	11.45085, 77.77020	30 KM/Hr
11	Turn	Medium	11.43165, 77.67734	30 KM/Hr
12	Turn	Medium	11.24349, 77.51573	30 KM/Hr
13	Turn	High	11.24350, 77.51548	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
14	Turn	High	11.24379, 77.51525	15 KM/Hr
15	Turn	High	11.24184, 77.50270	15 KM/Hr
16	Turn	Medium	11.23649, 77.50219	30 KM/Hr
17	Turn	High	11.23396, 77.50105	15 KM/Hr
18	Turn	Medium	11.23329, 77.49966	30 KM/Hr
19	Turn	Medium	11.17851, 77.46169	30 KM/Hr
20	Turn	Medium	11.17521, 77.45978	30 KM/Hr
21	Turn	Medium	11.17368, 77.45730	30 KM/Hr
22	Turn	High	11.16959, 77.44396	15 KM/Hr
23	Turn	Medium	11.16381, 77.43700	30 KM/Hr
24	Turn	Medium	11.16280, 77.43139	30 KM/Hr
25	Turn	Medium	11.15023, 77.42247	30 KM/Hr
26	Turn	Medium	11.13848, 77.41611	30 KM/Hr
27	Turn	Medium	11.13578, 77.41299	30 KM/Hr
28	Turn	Medium	11.12989, 77.40302	30 KM/Hr
29	Turn	High	11.12775, 77.39347	15 KM/Hr
30	Turn	High	11.11863, 77.39473	15 KM/Hr
31	Turn	Medium	11.11846, 77.39460	30 KM/Hr
32	Turn	High	11.11833, 77.39390	15 KM/Hr
33	Turn	High	11.10276, 77.39199	15 KM/Hr
34	Turn	Medium	11.10256, 77.39273	30 KM/Hr
35	Blind Spot	Blind Spot	11.09882, 77.39312	10 KM/Hr
36	Blind Spot	Blind Spot	11.10189, 77.37059	10 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
3	hospital	Dhanvantri Multi Speciality Hospital	11.451362, 77.766602	30 km/h	Medium
4	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
5	hospital	J.K.K. Trust Hospital	11.4445841, 77.7307962	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
7	hospital	Shri Sathyanarayana Hospital	11.4291297, 77.6913408	30 km/h	Medium
8	hospital	Thanish Siddha Hospital	11.430003, 77.674964	30 km/h	Medium
9	clinic	Harshitha Clinic	11.4313207, 77.674718	30 km/h	Medium
10	hospital	Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam	11.432369, 77.674894	30 km/h	Medium
11	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
12	clinic	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium
14	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
16	clinic	Malar Clinic	11.2424525, 77.5043955	30 km/h	Medium
18	hospital	R.P Hospital	11.2417652, 77.5037061	30 km/h	Medium
19	clinic	Dr. Subburam Clinic	11.2417484, 77.5031796	30 km/h	Medium
22	hospital	Dr. N Viswanathan Hospital	11.2412783, 77.5005502	30 km/h	Medium
23	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
25	hospital	Aravind Eye Care Hospital	11.1729469, 77.4574467	30 km/h	Medium
26	clinic	Sri Maha Annai Clinic	11.1707162, 77.4536498	30 km/h	Medium
27	hospital	Ram Doctor Hospital	11.1709391, 77.4532808	30 km/h	Medium
28	clinic	Kumaran Clinic	11.1697553, 77.451543	30 km/h	Medium
29	hospital	Sri Aravindhar Hospital	11.1697756, 77.4448276	30 km/h	Medium
30	clinic	Dr. Raja Clinic	11.1278464, 77.3927768	30 km/h	Medium
31	clinic	D K Clinic General & Ortho	11.1117864, 77.3906835	30 km/h	Medium
32	hospital	Dsk Hospital, Tiruppur	11.102044, 77.3692605	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
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
6	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
13	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
15	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium
17	marketplace	Sandhai	11.2437612, 77.5039598	30 km/h	Medium
20	school	Govt. Higher Secondary school	11.2447931, 77.5024492	30 km/h	Medium
21	school	Govt. Elementry School	11.2445514, 77.501443	30 km/h	Medium
24	college	Sasurie Engineering College	11.2171482, 77.4898552	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: U-Turn

Risk Level: High

Speed Limit: 10 KM/Hr

Coordinates: 11.1017915, 77.37060389999999



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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45357, 77.85789



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: 11.45847, 77.85140



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45898, 77.85135



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: 11.45509, 77.81383



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45085, 77.77020



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: 11.24349, 77.51573



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.24350, 77.51548



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.24379, 77.51525



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.24184, 77.50270



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.23649, 77.50219



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.23396, 77.50105



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.23329, 77.49966



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17851, 77.46169



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17521, 77.45978



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17368, 77.45730



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.16959, 77.44396



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.16381, 77.43700



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16280, 77.43139



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15023, 77.42247



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.13848, 77.41611



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.13578, 77.41299



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12989, 77.40302



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.12775, 77.39347



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.11863, 77.39473



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11846, 77.39460



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.11833, 77.39390



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.10276, 77.39199



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10256, 77.39273



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.09882, 77.39312



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.10189, 77.37059
