



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to SRI UDAYAGIRI FUELS KSK

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

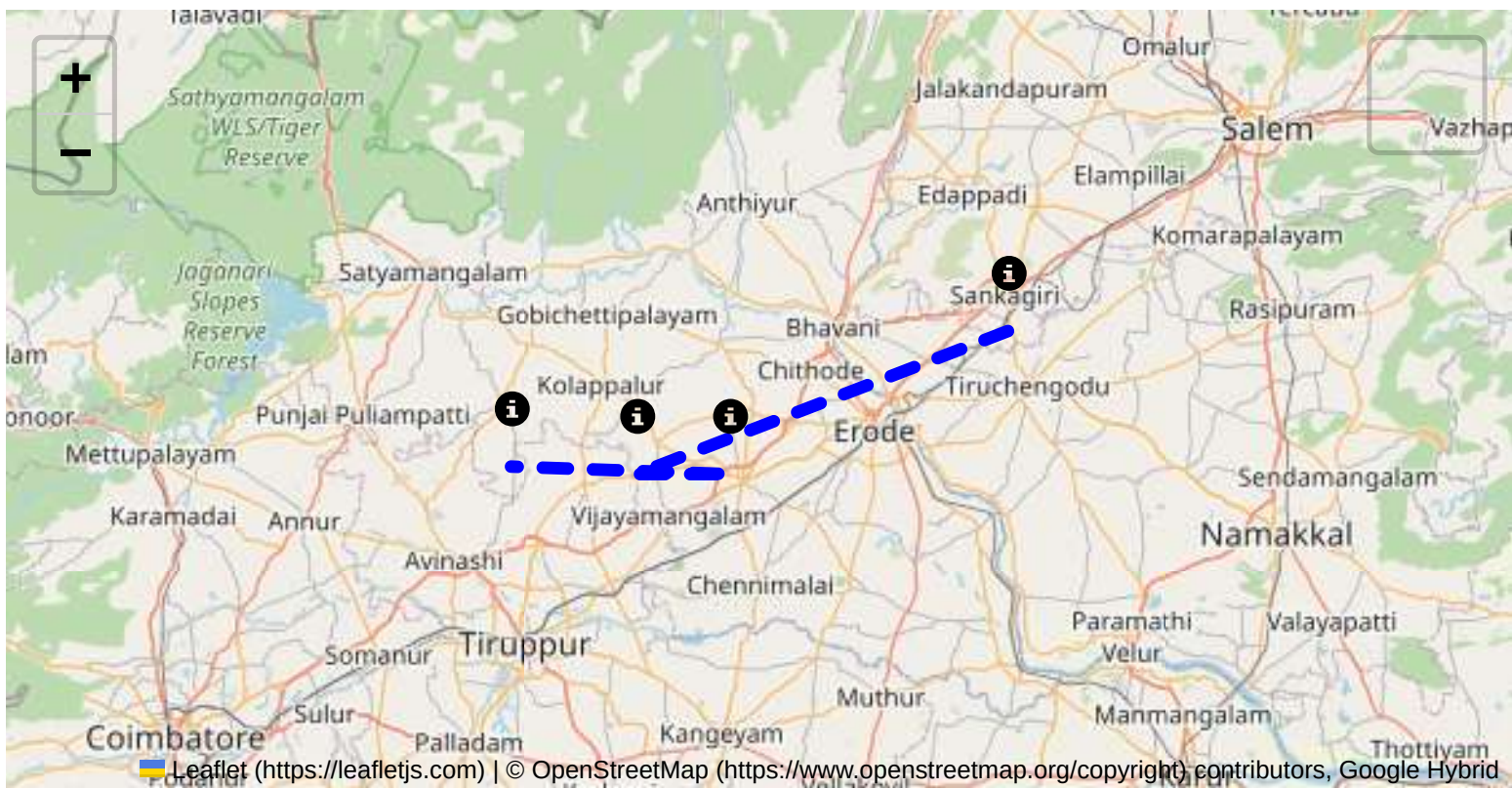
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

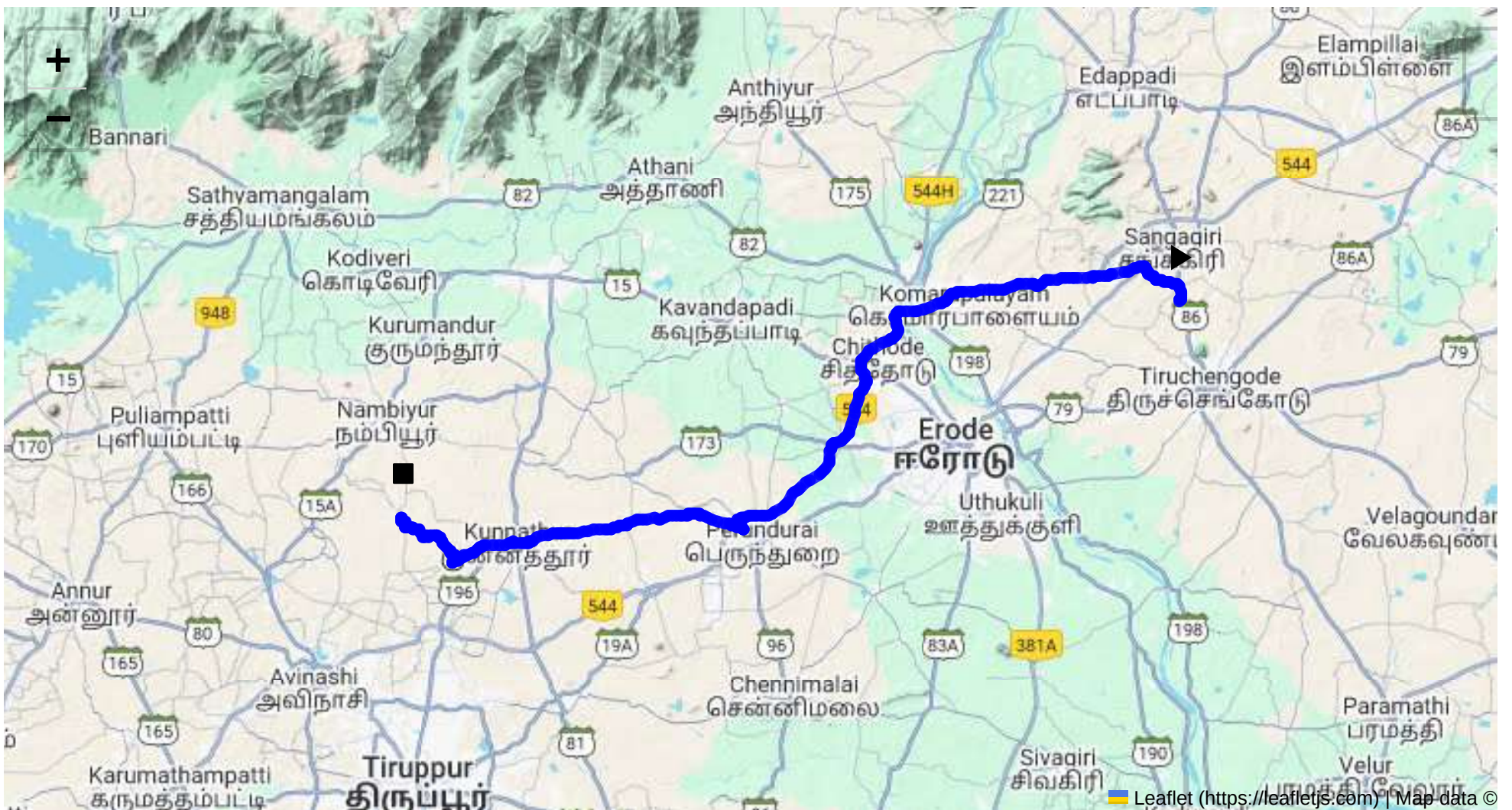
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 78.35 km
Estimated Duration: 1.7 hours
Adjusted Duration (Heavy Vehicle): 2.2 hours
Start: (11.4381, 77.8734)
End: (11.290265, 77.329872)



Welcome to the Journey Risk Management Study

Route Analysis Report

1. Overview of the Route Map

The route begins at Sangagiri in Tamil Nadu, passing through SH 196 and Perundurai, and concludes at Olalakovil via Avinashi-Palangarai-Nambiyur Road. It stretches approximately 78.35 kilometers and is

predominantly rural with some small town crossings.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu experiences tropical weather with hot summers, a monsoon season, and mild winters. Monsoon months (June to September) could bring heavy rains leading to waterlogging or reduced visibility. Occasional thunderstorms are also a risk which can impact driving conditions, particularly on rural roads.

3. Analysis of Traffic Patterns

Traffic is typically moderate but can become congested during the early morning and late afternoon hours as people commute for work and school. Perundurai is a potential congestion point as it is a notable town along the route, especially during weekends or local market days.

4. Assessment of Road Quality and Infrastructure

Road conditions along SH 196 are generally good, but variations in quality exist. Potholes and uneven road surfaces can be found, particularly in rural stretches. The infrastructure improves near town centers but lessens in more isolated areas.

5. Suggestions for Alternative Routes for Emergencies

In case of road closure or major delays, an alternative route could involve diverting through the NH 544 (Salem-Kochi-Kanyakumari Highway) which is approximately parallel but may be longer in distance.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Transporting hazardous materials requires compliance with Tamil Nadu's strict protocols, including possessing proper documentation and permits. There are designated times when heavy vehicles are restricted from accessing certain urban areas.

7. Overview of Historical Incidents Involving Heavy Vehicles

While there are periodic incidents involving heavy vehicles, including rollovers or collisions mainly due to speeding or overloaded vehicles, there are no major recurring incidents involving hazardous material reported specifically along this route.

8. Environmental Considerations and Sensitive Areas

There are a few environmentally sensitive areas along the route, including agricultural lands and water bodies that require cautious driving to prevent contamination or disruption.

9. Analysis of Communication Coverage

Mobile signal coverage is generally consistent along the main highways but can become patchy in rural or forested areas. Dead zones are most likely in isolated stretches between towns.

10. Estimated Emergency Response Times

Emergency services in urban areas like Perundurai tend to respond quickly (within 15-20 minutes), whereas in rural areas, response times could extend to 30-45 minutes due to longer travel distances.

11. Overall Summary of Risk Assessment

Overall, the risk on this route is moderate. Key risks include potential weather impacts during the monsoon, occasional traffic congestion, and variable road conditions. Due to these factors and the potential for communication signal loss in certain areas, preparedness in the form of route planning and compliance with local transport regulations is crucial for safe transportation of hazardous materials.

Recommendation: Drivers should be updated about weather conditions and advised to plan travel avoiding peak traffic hours whenever possible. It is imperative to have all required permits for hazardous material transport and have emergency contacts readily available. Regular maintenance checks on vehicles can help prevent accidents related to mechanical failures.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43968, 77.87345	15 KM/Hr
1	Turn	High	11.44024, 77.87528	15 KM/Hr
2	Turn	High	11.44898, 77.87410	15 KM/Hr
3	Turn	Medium	11.45357, 77.85789	30 KM/Hr
4	Turn	High	11.45352, 77.85698	15 KM/Hr
5	Turn	Medium	11.45847, 77.85140	30 KM/Hr
6	Turn	Medium	11.45898, 77.85135	30 KM/Hr
7	Turn	High	11.46303, 77.84945	15 KM/Hr
8	Turn	Medium	11.45509, 77.81383	30 KM/Hr
9	Turn	Medium	11.45085, 77.77020	30 KM/Hr
10	Turn	Medium	11.43165, 77.67734	30 KM/Hr
11	Blind Spot	Blind Spot	11.28888, 77.56550	10 KM/Hr
12	Blind Spot	Blind Spot	11.28189, 77.56929	10 KM/Hr
13	Turn	Medium	11.29281, 77.53814	30 KM/Hr
14	Turn	High	11.29251, 77.53037	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
15	Turn	Medium	11.29192, 77.52990	30 KM/Hr
16	Turn	Medium	11.27393, 77.42230	30 KM/Hr
17	Turn	Medium	11.27378, 77.41973	30 KM/Hr
18	Turn	Medium	11.27288, 77.41914	30 KM/Hr
19	Turn	Medium	11.27254, 77.41851	30 KM/Hr
20	Turn	Medium	11.27228, 77.41323	30 KM/Hr
21	Turn	Medium	11.27353, 77.40862	30 KM/Hr
22	Turn	High	11.27057, 77.38574	15 KM/Hr
23	Turn	Medium	11.26001, 77.36845	30 KM/Hr
24	Turn	Medium	11.25977, 77.36633	30 KM/Hr
25	Blind Spot	Blind Spot	11.25985, 77.36605	10 KM/Hr
26	Turn	Medium	11.26055, 77.36646	30 KM/Hr
27	Turn	Medium	11.26413, 77.36636	30 KM/Hr
28	Turn	Medium	11.26461, 77.36664	30 KM/Hr
29	Blind Spot	Blind Spot	11.26487, 77.36723	10 KM/Hr
30	Turn	High	11.26516, 77.36707	15 KM/Hr
31	Turn	High	11.26513, 77.36557	15 KM/Hr
32	Turn	Medium	11.26796, 77.36396	30 KM/Hr
33	Turn	High	11.27740, 77.35788	15 KM/Hr
34	Blind Spot	Blind Spot	11.27682, 77.34555	10 KM/Hr
35	Turn	Medium	11.28158, 77.34302	30 KM/Hr
36	Turn	Medium	11.28239, 77.33843	30 KM/Hr
37	Turn	Medium	11.28317, 77.33761	30 KM/Hr
38	Turn	High	11.28349, 77.33752	15 KM/Hr
39	Blind Spot	Blind Spot	11.28369, 77.33267	10 KM/Hr
40	Turn	Medium	11.28760, 77.33292	30 KM/Hr
41	Turn	Medium	11.28784, 77.33263	30 KM/Hr
42	Turn	High	11.28799, 77.32982	15 KM/Hr
43	Turn	High	11.29047, 77.32961	15 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
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
15	hospital	IRT Ramalingam Tuberculosis Hospital	11.2828419, 77.5628621	30 km/h	Medium
16	hospital	Sanitorium Hospital	11.2828041, 77.5629626	30 km/h	Medium
17	clinic	Sumathi Clinic	11.2725128, 77.411116	30 km/h	Medium
18	hospital	Thavamani Hospital	11.2719549, 77.4120852	30 km/h	Medium
19	hospital	Viswanathan Hospital	11.2725112, 77.411171	30 km/h	Medium
20	clinic	Harisandhara Clinic	11.2711263, 77.4109069	30 km/h	Medium
21	hospital	S V Hospital	11.273427, 77.411431	30 km/h	Medium
22	hospital	Dhanam Thangam Hospital	11.2719384, 77.4121472	30 km/h	Medium
23	police	Kunnathur Police Station	11.2730826, 77.4111808	30 km/h	Medium
24	clinic	Arogya Clinic	11.2706519, 77.4100587	30 km/h	Medium
25	clinic	Sri Murugan Nursing Home	11.271798, 77.409776	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

Route Photos of Risky Spots



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: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.28888, 77.56550



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.28189, 77.56929



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29281, 77.53814



Coordinates: 11.29251, 77.53037



Coordinates: 11.29192, 77.52990



Coordinates: 11.27393, 77.42230



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.27378, 77.41973



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.27288, 77.41914



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.27254, 77.41851



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.27228, 77.41323



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.27353, 77.40862



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.27057, 77.38574



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.26001, 77.36845



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.25977, 77.36633



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.25985, 77.36605



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.26055, 77.36646



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.26413, 77.36636



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.26461, 77.36664



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.26487, 77.36723



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.26516, 77.36707



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.26513, 77.36557



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.26796, 77.36396



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.27740, 77.35788



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.27682, 77.34555



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.28158, 77.34302



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.28239, 77.33843



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.28317, 77.33761



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.28349, 77.33752



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.28369, 77.33267



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.28760, 77.33292



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.28784, 77.33263



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.28799, 77.32982



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29047, 77.32961
