



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal TO S P S MARKETING

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

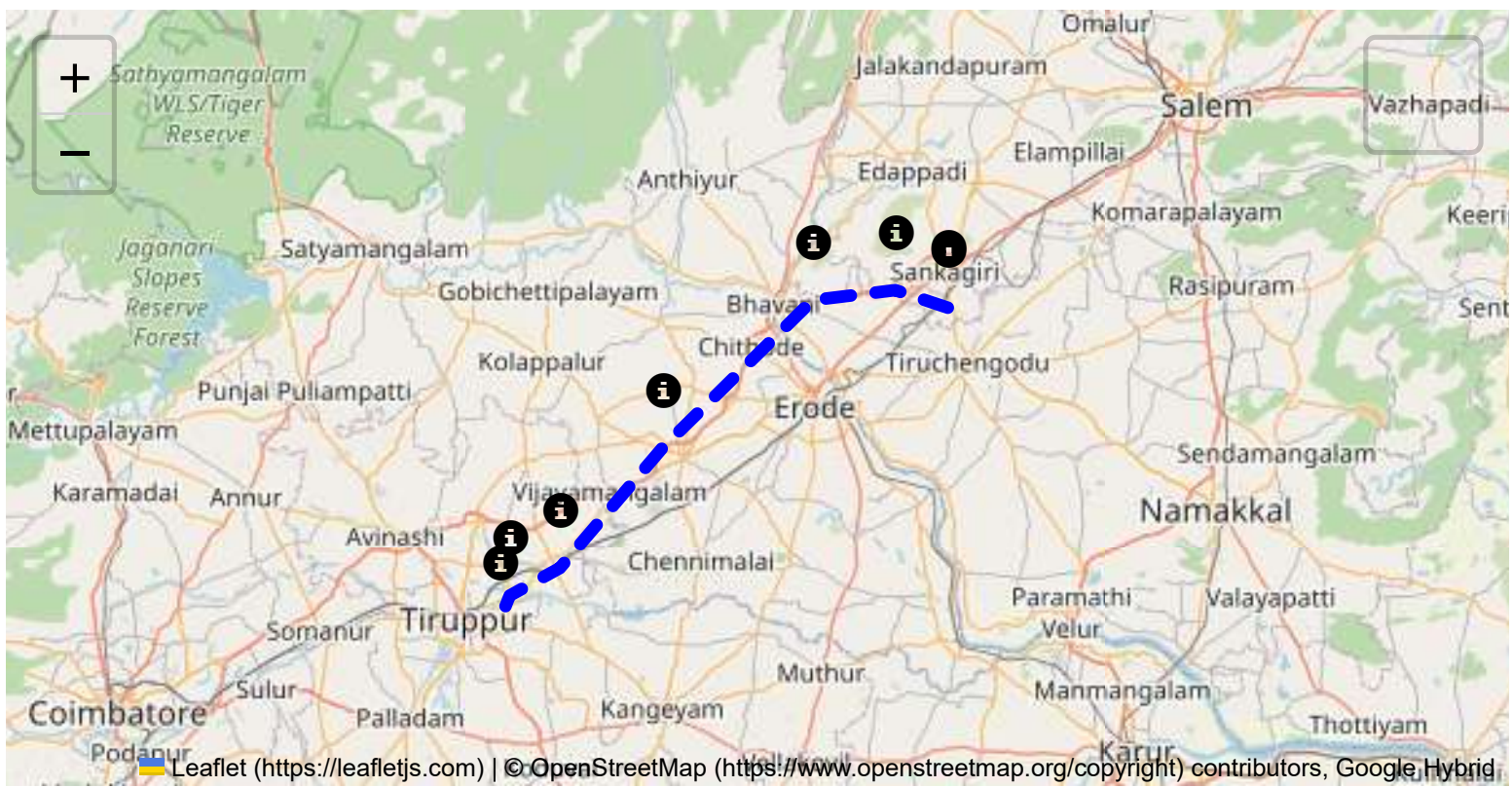
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

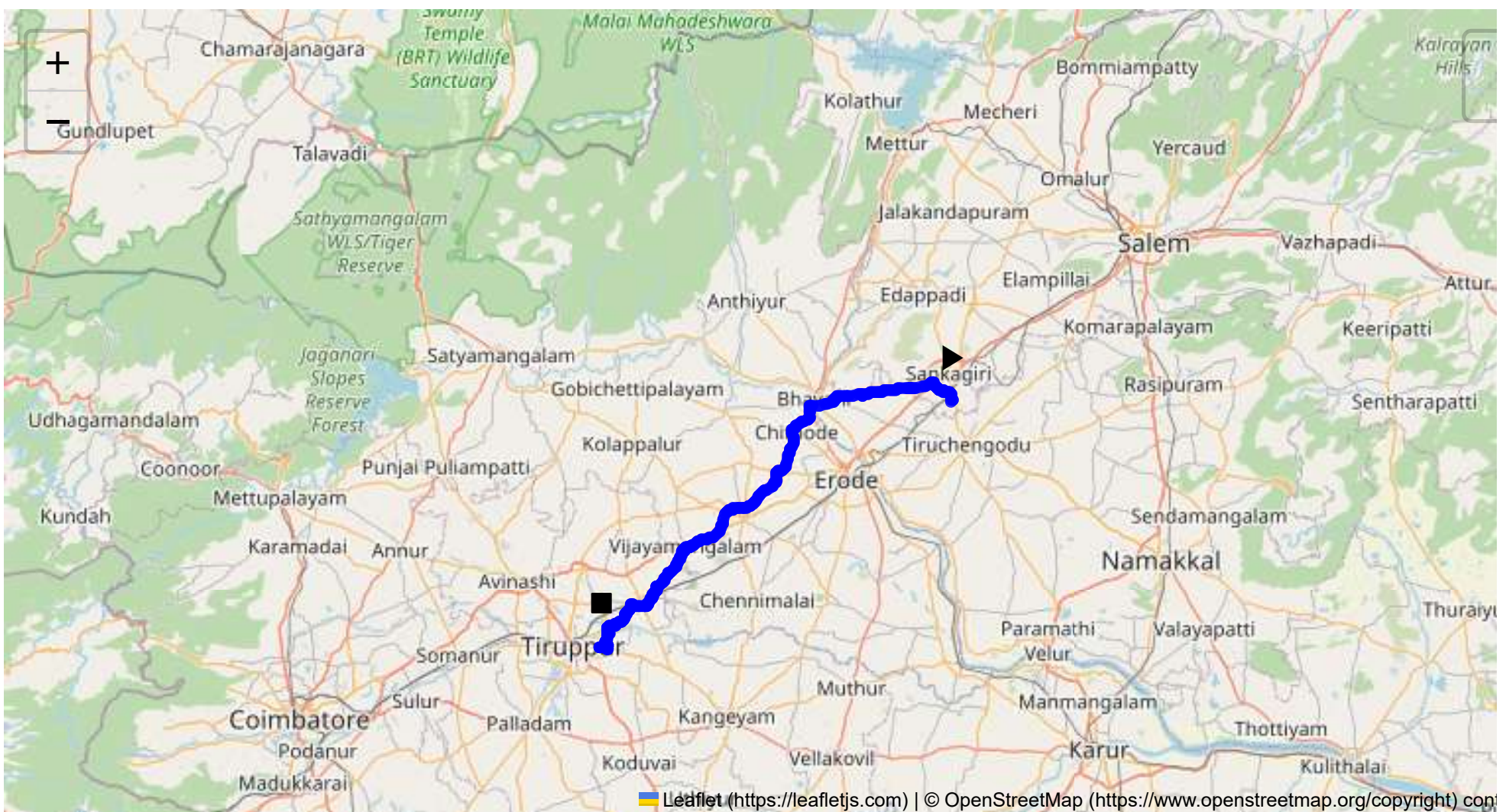
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 81.21 km
Estimated Duration: 1.7 hours
Adjusted Duration (Heavy Vehicle): 2.2 hours
Start: (11.4381, 77.8734)
End: (11.100261, 77.383082)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map: The route from CVQF+23W, Sangagiri to 201, PALLAKATTU PUDHUR in Tiruppur traverses through multiple small towns and relatively rural areas. The journey covers approximately 81.21 kilometers, primarily along regional highways and bypass roads. Notable waypoints include Puthur, Padaiveedu, Perundurai Bypass, and Vadugapalayam.

2. Typical Weather Conditions and Potential Hazards: The region experiences tropical weather conditions. During the southwest monsoon (June to September) and northeast monsoon (October to December), heavy rainfall can cause flooding and reduce road visibility, creating hazardous driving conditions. Summers are hot and dry, with temperatures sometimes exceeding 40°C, which can lead to road surface stress.

3. Traffic Patterns: Traffic tends to be moderate with increased activity during morning (8:00-10:00 AM) and evening (5:00-7:00 PM) peak hours, especially near market areas and town centers like Perundurai. Tiruppur, being a central hub, might experience congestion, especially near industrial zones.

4. Road Quality and Infrastructure: Road quality varies along the route. Most highways are in fair condition but expect occasional potholes or roadworks, particularly after monsoon seasons. The bypass roads offer a smoother drive but may have less lighting and signage.

5. Alternative Routes for Emergencies: In case of severe road blockages or emergencies, taking the NH 544 through Erode before making connections back towards Tiruppur provides a more developed itinerary with possibly quicker clearance times.

6. Local Regulations on Hazardous Material Transport: Transport of hazardous materials is regulated by the Motor Vehicles Act and the Central Motor Vehicles Rules. Specific time restrictions might apply for entering populated urban areas, and proper documentation, following safety protocols, and displaying hazard warning placards are mandatory.

7. Historical Incidents Involving Heavy Vehicles: There have been occasional reports of accidents involving heavy vehicles, particularly during monsoons, due to slippery roads and reduced visibility. Compliance with safety measures has generally reduced hazardous material incidents.

8. Environmental Considerations and Sensitive Areas: Travelers should be mindful around agricultural areas to avoid contaminating crops with hazardous materials. Noise and emissions should also be minimized, especially near residential zones or wildlife areas.

9. Communication Coverage: Most segments have reliable network coverage; however, rural sections might experience brief communication dead zones, especially between Puthur and Perundurai. Pre-trip communications and radio systems can ensure regular updates and emergency contact.

10. Estimated Emergency Response Times: Emergency response in rural segments could face delays, taking up to 30-45 minutes, depending on proximity to the nearest town. Around Tiruppur and Erode, response times are quicker, within 15-20 minutes.

12. Overall Risk Assessment Summary: The route is generally safe for transporting hazardous materials, provided that proper precautions are in place, especially during adverse weather and peak traffic times. Monitoring traffic conditions, maintaining communication, and adhering to regulations can mitigate risks. Regularly updated GPS navigation systems and communications equipment are essential for real-time updates and optimizing travel safety.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	U-Turn	High	11.0999904, 77.3822943	10 KM/Hr
1	Turn	High	11.43961, 77.87341	15 KM/Hr
2	Turn	High	11.44029, 77.87544	15 KM/Hr
3	Turn	High	11.44893, 77.87413	15 KM/Hr
4	Turn	Medium	11.45127, 77.86734	30 KM/Hr
5	Turn	High	11.45350, 77.85700	15 KM/Hr
6	Turn	Medium	11.45845, 77.85141	30 KM/Hr
7	Turn	Medium	11.45889, 77.85136	30 KM/Hr
8	Turn	High	11.46303, 77.84945	15 KM/Hr
9	Turn	High	11.45542, 77.81725	15 KM/Hr
10	Blind Spot	Blind Spot	11.45634, 77.81673	10 KM/Hr
11	Turn	High	11.45556, 77.81729	15 KM/Hr
12	Turn	High	11.45542, 77.81725	15 KM/Hr
13	Turn	Medium	11.45081, 77.77034	30 KM/Hr
14	Turn	Medium	11.43192, 77.67803	30 KM/Hr
15	Turn	Medium	11.23716, 77.50666	30 KM/Hr
16	Turn	High	11.23697, 77.50655	15 KM/Hr
17	Blind Spot	Blind Spot	11.23687, 77.50213	10 KM/Hr
18	Turn	Medium	11.23645, 77.50218	30 KM/Hr
19	Turn	High	11.23386, 77.50098	15 KM/Hr
20	Turn	Medium	11.23319, 77.49954	30 KM/Hr
21	Turn	Medium	11.23054, 77.49777	30 KM/Hr
22	Turn	Medium	11.18389, 77.46306	30 KM/Hr
23	Turn	Medium	11.17834, 77.46162	30 KM/Hr
24	Turn	Medium	11.17518, 77.45976	30 KM/Hr
25	Turn	Medium	11.17366, 77.45728	30 KM/Hr
26	Turn	Medium	11.17144, 77.45602	30 KM/Hr
27	Turn	High	11.17103, 77.45527	15 KM/Hr
28	Turn	High	11.15693, 77.44742	15 KM/Hr
29	Turn	High	11.15727, 77.44546	15 KM/Hr
30	Turn	High	11.15557, 77.44475	15 KM/Hr
31	Turn	Medium	11.15595, 77.43624	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
32	Turn	High	11.15646, 77.43598	15 KM/Hr
33	Turn	Medium	11.15642, 77.43541	30 KM/Hr
34	Turn	High	11.15606, 77.43505	15 KM/Hr
35	Turn	Medium	11.15781, 77.43115	30 KM/Hr
36	Turn	Medium	11.15839, 77.42789	30 KM/Hr
37	Turn	High	11.15833, 77.42740	15 KM/Hr
38	Turn	Medium	11.15226, 77.42425	30 KM/Hr
39	Turn	Medium	11.15141, 77.42304	30 KM/Hr
40	Turn	Medium	11.14904, 77.42031	30 KM/Hr
41	Turn	Medium	11.13860, 77.41623	30 KM/Hr
42	Turn	Medium	11.12993, 77.40310	30 KM/Hr
43	Turn	High	11.12780, 77.39364	15 KM/Hr
44	Blind Spot	Blind Spot	11.11848, 77.39475	10 KM/Hr
45	Turn	Medium	11.11841, 77.39405	30 KM/Hr
46	Turn	Medium	11.11826, 77.39386	30 KM/Hr
47	Turn	High	11.10290, 77.39189	15 KM/Hr
48	Turn	Medium	11.10233, 77.39295	30 KM/Hr
49	Blind Spot	Blind Spot	11.09878, 77.39311	10 KM/Hr
50	Blind Spot	Blind Spot	11.09997, 77.38242	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
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

	type	name	coordinates	speed_limit	risk_level
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	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium
17	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
19	hospital	Aravind Eye Care Hospital	11.1729469, 77.4574467	30 km/h	Medium
20	clinic	Sri Maha Annai Clinic	11.1707162, 77.4536498	30 km/h	Medium
21	hospital	Ram Doctor Hospital	11.1709391, 77.4532808	30 km/h	Medium
22	clinic	Vasumathi Health Care	11.1576405, 77.4436732	30 km/h	Medium
23	clinic	Jeeva Health Care	11.155934, 77.444441	30 km/h	Medium
24	clinic	Sri Kumaran Clinic	11.155488, 77.443657	30 km/h	Medium
25	clinic	Dr. Raja Clinic	11.1278464, 77.3927768	30 km/h	Medium
26	clinic	D K Clinic General & Ortho	11.1117864, 77.3906835	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

	type	name	coordinates	speed_limit	risk_level
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
18	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: 11.0999904, 77.3822943



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr
Coordinates: 11.44029, 77.87544



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44893, 77.87413



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.45127, 77.86734



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45350, 77.85700



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45845, 77.85141



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45889, 77.85136



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.46303, 77.84945



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45542, 77.81725



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.45634, 77.81673



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.45556, 77.81729



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45542, 77.81725



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45081, 77.77034



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43192, 77.67803



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23716, 77.50666



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.23697, 77.50655



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.23687, 77.50213



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.23645, 77.50218



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.23386, 77.50098



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23319, 77.49954



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23054, 77.49777



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.18389, 77.46306



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17834, 77.46162



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17518, 77.45976



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17366, 77.45728



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17144, 77.45602



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.17103, 77.45527



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.15693, 77.44742



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.15727, 77.44546



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.15557, 77.44475



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.15595, 77.43624



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.15646, 77.43598



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.15642, 77.43541



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.15606, 77.43505



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15781, 77.43115



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15839, 77.42789



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.15833, 77.42740



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.15226, 77.42425



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.15141, 77.42304



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14904, 77.42031



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.13860, 77.41623



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.12993, 77.40310



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.12780, 77.39364



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.11848, 77.39475



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11841, 77.39405



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.11826, 77.39386



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.10290, 77.39189



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.10233, 77.39295



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.09878, 77.39311



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.09997, 77.38242
