



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to SRI SAI SAINDAVI AGENCY

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

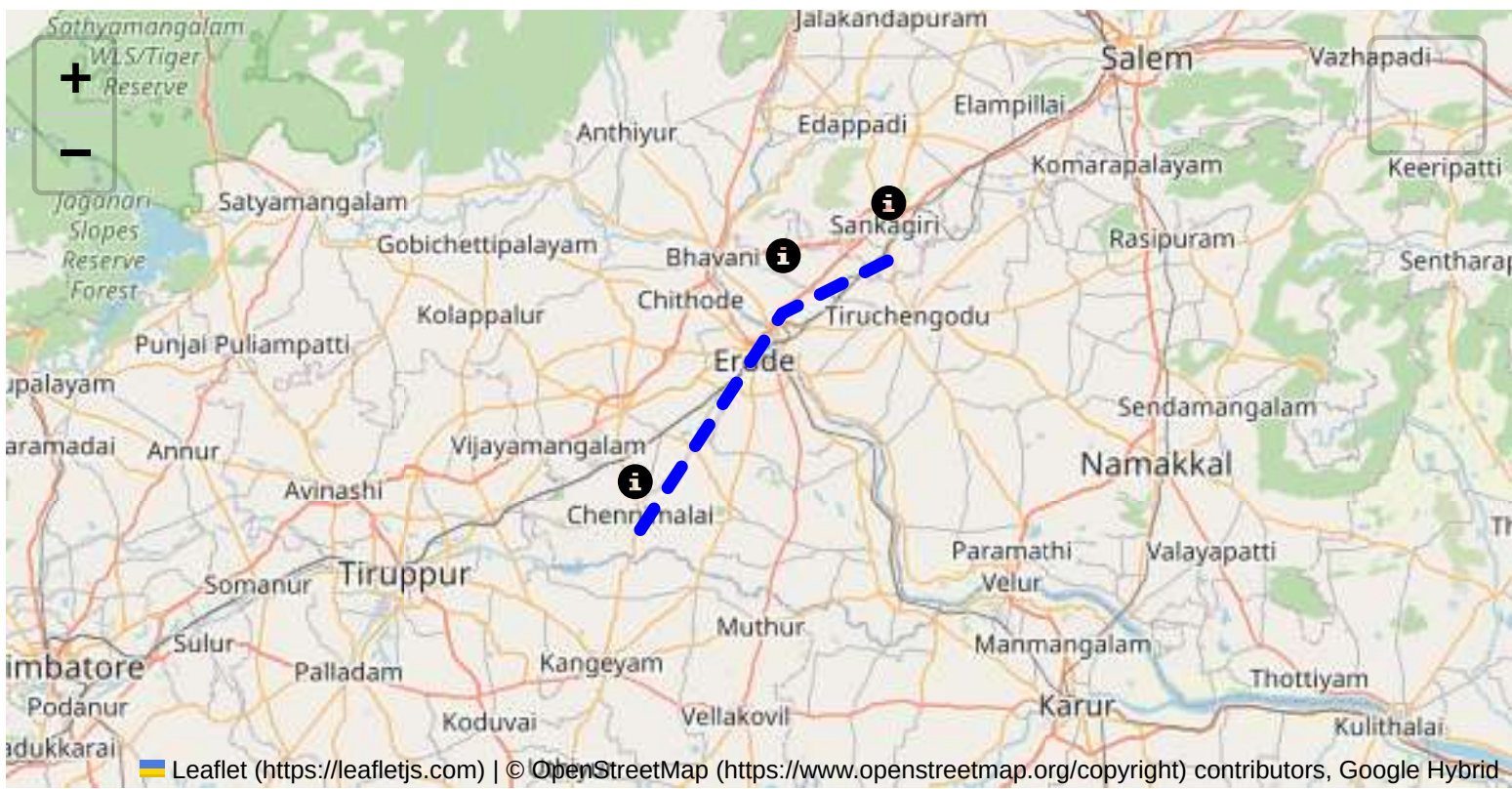
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

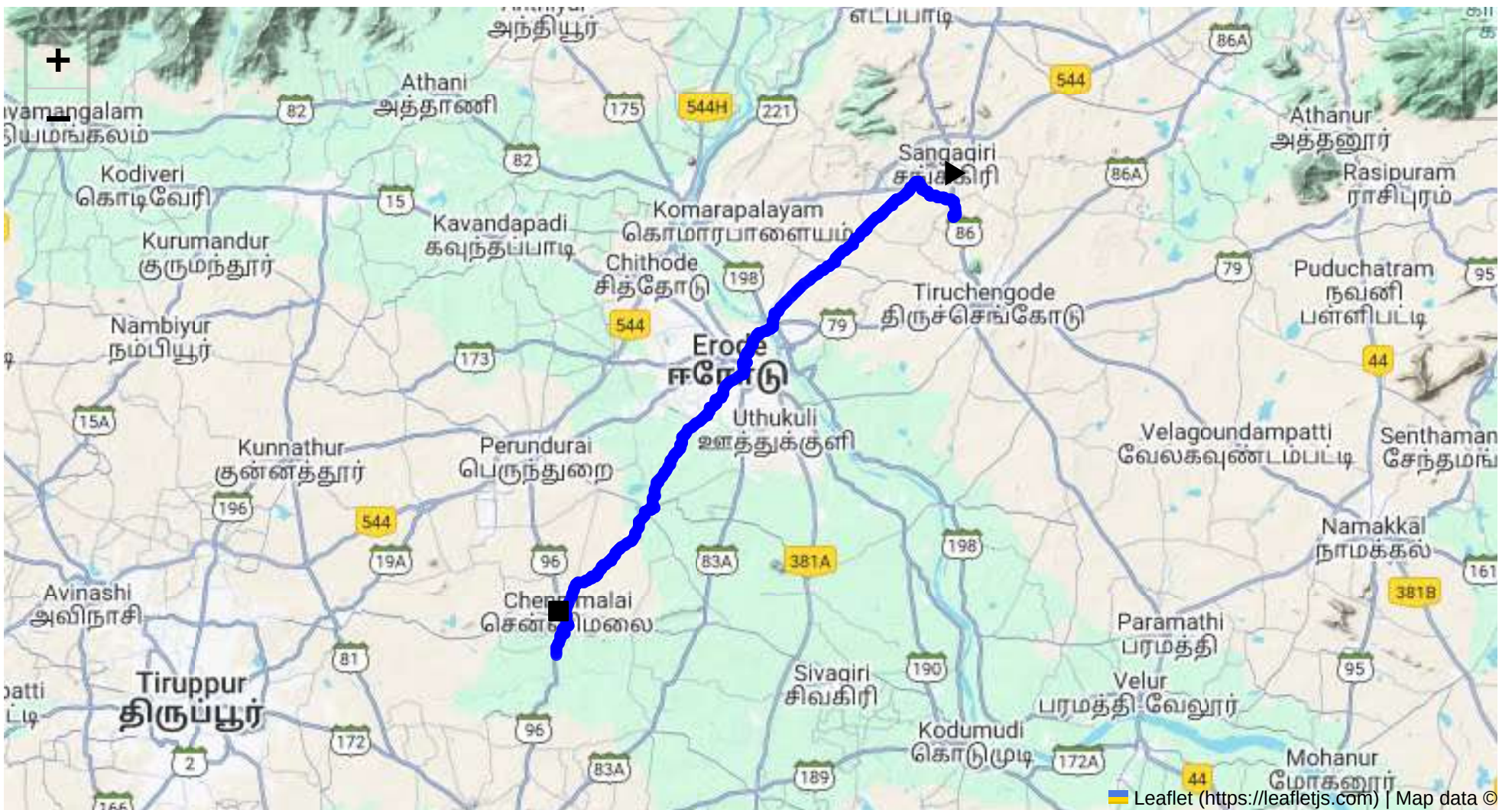
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 53.85 km
Estimated Duration: 1.4 hours
Adjusted Duration (Heavy Vehicle): 1.8 hours
Start: (11.4381, 77.8734)
End: (11.13742, 77.59583)



Welcome to the Journey Risk Management Study

Route Safety Analysis from Sangagiri to Perundurai via Pallipalayam

1. Overview of the Route Map

The route from Sangagiri to Perundurai via Pallipalayam covers approximately 53.85 kilometers of diverse terrain in Tamil Nadu, India. Starting from CVQF+23W in Sangagiri, it proceeds through Pallipalayam (9QJ5+R4Q) before reaching the destination at SH 96 in Anjur, Ekkattampalayam. The route travels along several state highways and local roads, which may vary in terms of width and traffic density.

2. Typical Weather Conditions and Potential Weather-Related Hazards

Tamil Nadu generally experiences a tropical climate with significant rainfall during the monsoon seasons, from June to September and October to December. Potential weather-related hazards include:

- Heavy rain and flooding, especially during monsoon seasons.
- Reduced visibility due to fog or heavy rain.
- Heatwaves during peak summer, affecting vehicle performance.

3. Analysis of Traffic Patterns

- **Peak Hours:** Morning (7:30 AM - 10:00 AM) and evening (5:00 PM - 8:00 PM) due to local commutes and school timings.
- **Congestion-Prone Areas:** Near major intersections and entry points to Pallipalayam and Ekkattampalayam, especially around market areas or industrial hubs.

4. Assessment of Road Quality and Infrastructure

- Most state highways are well-maintained; however, local roads might have potholes, uneven surfaces, or narrow lanes, particularly in rural sections.
- Infrastructure improvements like signage, lighting, and guardrails might be less prominent in remote areas.

5. Suggestions for Alternative Routes for Emergencies

In case of emergencies or severe congestion:

- Consider taking the alternate SH route bypassing dense urban areas, although it might add extra mileage.
- Use available bypass routes around larger towns to minimize time spent in congested zones.

6. Summary of Local Regulations Affecting Hazardous Material Transport

- Comply with local transportation regulations for hazardous materials, including permissible hours for travel and required safety permits.
- Ensure vehicles are equipped with hazard placards and drivers are trained for emergency handling.

7. Overview of Historical Incidents

While specific records of incidents may not be readily available, regions with high industrial activity might have recorded incidents related to:

- Overturned heavy vehicles.
- Spillages of hazardous materials leading to road closures.

8. Environmental Considerations and Sensitive Areas

- Areas around water bodies and agricultural land must be protected from potential contamination due to spills.
- Wildlife crossing zones near forested parts should be approached cautiously, especially during night hours.

9. Analysis of Communication Coverage

- Major highways generally have good cellular coverage; however, expect potential dead zones in rural stretches away from urban centers.
- Ensure communication devices are functional and alternative communication means like radio are available.

10. Estimated Emergency Response Times

- Urban areas (Sangagiri, Pallipalayam, Ekkattampalayam): 15-30 minutes.
- Rural segments: Potential delays up to 60 minutes due to remote location and infrastructure limitations.

11. Overall Summary of Risk Assessment

The route presents a moderate risk for trucks carrying hazardous materials. Risks stem from weather-induced hazards, road quality variation, and potential traffic congestion. Thorough pre-trip planning, adherence to local regulations, and the availability of alternative routes could mitigate many of these risks. Enhancing driver training, ensuring vehicle preparedness, and maintaining open communication channels are crucial for safe transport along this route.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.37086, 77.74828	15 KM/Hr
1	Roundabout	High	11.23678, 77.65868	15 KM/Hr
2	Turn	Medium	11.43822, 77.87348	30 KM/Hr
3	Turn	High	11.43968, 77.87345	15 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
4	Turn	High	11.44029, 77.87544	15 KM/Hr
5	Turn	Medium	11.44898, 77.87410	30 KM/Hr
6	Turn	Medium	11.45357, 77.85789	30 KM/Hr
7	Turn	Medium	11.45352, 77.85698	30 KM/Hr
8	Turn	Medium	11.45847, 77.85140	30 KM/Hr
9	Turn	Medium	11.46303, 77.84945	30 KM/Hr
10	Turn	Medium	11.46318, 77.84913	30 KM/Hr
11	Turn	Medium	11.46302, 77.84874	30 KM/Hr
12	Turn	Medium	11.36626, 77.74788	30 KM/Hr
13	Turn	Medium	11.34192, 77.72824	30 KM/Hr
14	Blind Spot	Blind Spot	11.33920, 77.72902	10 KM/Hr
15	Turn	High	11.33909, 77.72653	15 KM/Hr
16	Turn	Medium	11.33896, 77.72642	30 KM/Hr
17	Turn	Medium	11.33091, 77.72748	30 KM/Hr
18	Turn	Medium	11.33084, 77.72743	30 KM/Hr
19	Turn	Medium	11.32269, 77.71464	30 KM/Hr
20	Turn	High	11.31172, 77.70715	15 KM/Hr
21	Turn	Medium	11.31052, 77.70780	30 KM/Hr
22	Turn	High	11.31020, 77.70779	15 KM/Hr
23	Turn	Medium	11.30818, 77.70425	30 KM/Hr
24	Turn	High	11.23904, 77.66459	15 KM/Hr
25	Turn	Medium	11.23738, 77.66170	30 KM/Hr
26	Turn	Medium	11.19411, 77.62559	30 KM/Hr
27	Turn	High	11.18700, 77.60980	15 KM/Hr
28	Turn	High	11.16550, 77.60237	15 KM/Hr
29	Turn	High	11.16528, 77.60376	15 KM/Hr
30	Turn	Medium	11.15874, 77.60432	30 KM/Hr
31	Turn	Medium	11.15804, 77.60400	30 KM/Hr
32	Turn	Medium	11.15538, 77.60092	30 KM/Hr
33	Turn	Medium	11.15287, 77.60137	30 KM/Hr
34	Turn	High	11.15262, 77.60135	15 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
1	hospital	Cheran Hospital	11.3680302, 77.7481976	30 km/h	Medium
2	pharmacy	Pharmacy	11.3652161, 77.7486375	30 km/h	Medium
3	hospital	Visaalam Hospitals	11.3651528, 77.747808	30 km/h	Medium
4	hospital	Sri Kumaran E N T Hospital	11.3657814, 77.7477763	30 km/h	Medium
5	hospital	Sri Krishna Hospital	11.3656648, 77.7477783	30 km/h	Medium
6	police	Police Station	11.3630177, 77.7476505	30 km/h	Medium
7	hospital	Government Hospital	11.3608508, 77.747453	30 km/h	Medium
9	hospital	Sri Hari Sakthivel Hospital	11.3526901, 77.7323055	30 km/h	Medium
10	hospital	Senthil Prakash Hospital	11.352639, 77.732267	30 km/h	Medium
11	hospital	V K Hospital	11.3513792, 77.7313976	30 km/h	Medium
12	hospital	Dhanvantri Critical Care Center	11.3504266, 77.7311274	30 km/h	Medium
13	hospital	Indrajith Yoga Nature Cure Hospital	11.3499973, 77.732974	30 km/h	Medium
15	hospital	Kumudha Hospital	11.3467172, 77.7306797	30 km/h	Medium
16	hospital	Dhanvantri Critical Care Centre	11.35099, 77.730508	30 km/h	Medium
17	hospital	City Hospital	11.3451151, 77.7300887	30 km/h	Medium
18	clinic	K.B.N. Nursing Home	11.344835, 77.7310771	30 km/h	Medium
19	clinic	Kpn Nursing Home	11.3437022, 77.7304525	30 km/h	Medium
20	hospital	Milan Hospital	11.343591, 77.733182	30 km/h	Medium
21	hospital	Kaviraj Ayurveda Hospital	11.3400349, 77.7298199	30 km/h	Medium
22	hospital	Dr Kokilasekar Nursing Hospital	11.3395874, 77.7269838	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
23	clinic	M.R Nursing Home	11.3386746, 77.7294262	30 km/h	Medium
25	hospital	Government Maternity Hospital, Agathiar	11.33716, 77.727075	30 km/h	Medium
26	clinic	Naseer Nursing Home	11.3364485, 77.7271691	30 km/h	Medium
27	hospital	Vikram Hospital, Erode	11.3356411, 77.7280569	30 km/h	Medium
28	hospital	Shabeer Hospital	11.33529, 77.7285236	30 km/h	Medium
29	hospital	J.B. Clinic And Hospital	11.3351769, 77.7282031	30 km/h	Medium
30	hospital	Dr. R.M. Habibullah Hospital	11.335246, 77.7266028	30 km/h	Medium
31	hospital	Kumarasamy Hospital	11.334273, 77.7259118	30 km/h	Medium
32	hospital	Thangam Hospital, Erode	11.3340961, 77.7262437	30 km/h	Medium
33	hospital	Ck Hospital	11.3326562, 77.7282011	30 km/h	Medium
34	hospital	JJ hospital	11.33168, 77.728823	30 km/h	Medium
35	hospital	Jai Maaruthi Hospital	11.332, 77.727272	30 km/h	Medium
36	hospital	Bethesda Hospital	11.3314183, 77.7266231	30 km/h	Medium
37	hospital	Shubiksha Hospital	11.3318174, 77.7299544	30 km/h	Medium
38	hospital	Immick Hospital	11.332617, 77.728073	30 km/h	Medium
39	fire_station	Erode District Fire Station	11.3326366, 77.7272532	30 km/h	Medium
40	hospital	Mercury Hospital	11.3328384, 77.7240531	30 km/h	Medium
41	hospital	Erode Ortho Centre	11.3294487, 77.7230172	30 km/h	Medium
42	hospital	Aditi Ent Hospital	11.3300862, 77.7236924	30 km/h	Medium
43	hospital	KRN Hospital	11.330054, 77.723136	30 km/h	Medium
44	hospital	Joseph Hospital	11.30801, 77.704584	30 km/h	Medium
47	hospital	Kavitha Hospital	11.238653, 77.663961	30 km/h	Medium
48	clinic	Chrisdella Clinic	11.1874064, 77.6118627	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
49	hospital	Herbert Brough Memorial Hospital	11.1688371, 77.601892	30 km/h	Medium
50	hospital	Shanmuga Hospital	11.1650789, 77.6036595	30 km/h	Medium
51	clinic	Senthil Clinic	11.163922, 77.601461	30 km/h	Medium
52	hospital	Dr. Palanisamy Hospital	11.161573, 77.603607	30 km/h	Medium
53	hospital	Abhirami Hospital	11.1616659, 77.6057677	30 km/h	Medium
54	hospital	Dharani Hospital	11.1616599, 77.605546	30 km/h	Medium
55	hospital	Arul Murgan Hospital	11.161705, 77.603603	30 km/h	Medium
56	hospital	Cattle Hospital	11.1597961, 77.6039276	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
0	school	Ssri Valliappa Vidhayalayam mat hr school	11.4004878, 77.7794381	30 km/h	Medium
8	marketplace	Weekly Market	11.3605669, 77.7488199	30 km/h	Medium
14	school	Municipality Girls Higher secondary school	11.3495618, 77.7325011	30 km/h	Medium
24	school	E.V.R. Govt Girls Hr. Sec School	11.3371265, 77.7266283	30 km/h	Medium
45	college	Erode Arts and Science College	11.3002956, 77.6984443	30 km/h	Medium
46	school	The Indian Public School	11.2908927, 77.6934601	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.37086, 77.74828



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.23678, 77.65868



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.44029, 77.87544



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 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: Medium

Speed Limit: 30 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: 11.46303, 77.84945



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46318, 77.84913



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.46302, 77.84874



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.36626, 77.74788



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.34192, 77.72824



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.33920, 77.72902



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.33909, 77.72653



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.33896, 77.72642



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.33091, 77.72748



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.33084, 77.72743



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.32269, 77.71464



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.31172, 77.70715



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.31052, 77.70780



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.31020, 77.70779



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.30818, 77.70425



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.23904, 77.66459



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23738, 77.66170



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.19411, 77.62559



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.18700, 77.60980



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.16550, 77.60237



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.16528, 77.60376



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.15874, 77.60432



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.15804, 77.60400



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15538, 77.60092



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15287, 77.60137



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.15262, 77.60135
