



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to ARJUN AGENCIES

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

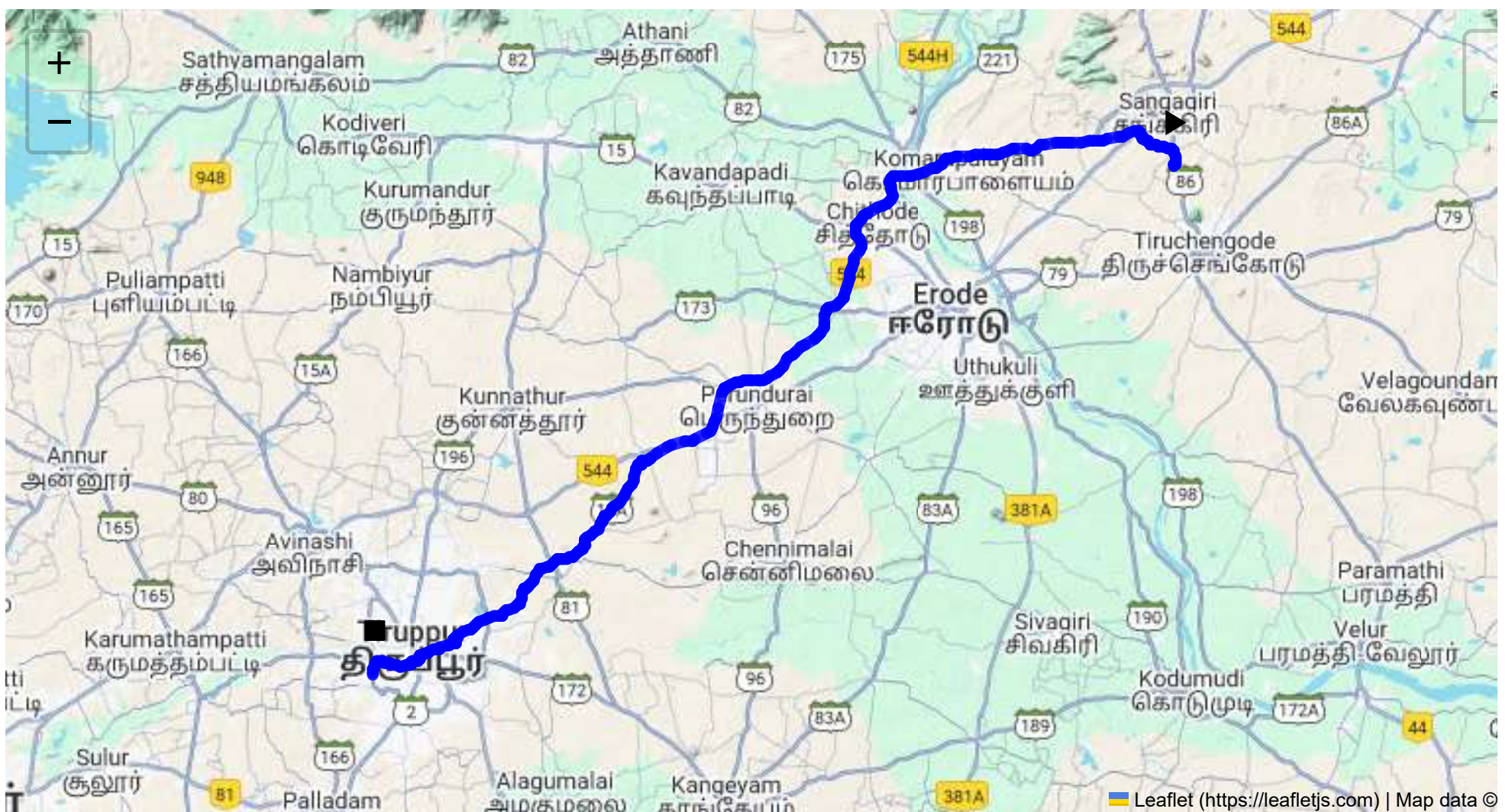
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 87.20 km
Estimated Duration: 2.0 hours
Adjusted Duration (Heavy Vehicle): 2.5 hours
Start: (11.4381, 77.8734)
End: (11.089295, 77.313553)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map:

The route begins from Sangagiri, travels via Pagallayur, passes through Uthukuli Road in Mannarai, and continues on Karumarampalayam Road before reaching the destination in Valai Tottam, Periyandipalayam, Tiruppur. This journey covers approximately 87.20 kilometers and navigates mostly through rural and semi-urban areas.

2. Typical Weather Conditions and Potential Weather-Related Hazards:

Tamil Nadu typically experiences a tropical climate, which includes hot, dry summers and heavy monsoons. During the monsoon season (June to September), the route may experience flooding and reduced visibility due to heavy rains, creating slippery road conditions. Additionally, the heat during summer months can cause road fatigue and degradation of road surfaces.

3. Analysis of Traffic Patterns:

Traffic tends to be higher during the morning (7-9 AM) and evening (5-8 PM) hours, especially near urban areas like Tiruppur. The areas around Uthukuli Road and core Tiruppur city often experience congestion, particularly near market and school zones.

4. Assessment of Road Quality and Infrastructure:

The route generally involves state highways and local roads. State highways are generally well-maintained, but local roads may have potholes and uneven terrain, particularly during or after heavy rains. Road signage may not be consistent throughout, and lighting can be sparse in rural segments.

5. Suggestions for Alternative Routes for Emergencies:

In case of roadblocks or high congestion, consider alternate routes avoiding dense urban centers by circumventing through nearby village roads. However, be mindful of the road condition and accessibility, particularly during monsoon season. The NH44 (previously NH7) nearby can serve as a major alternate route for certain segments.

6. Summary of Local Regulations Affecting Hazardous Material Transport:

Transportation of hazardous materials requires adherence to the Motor Vehicles Act and specific permissions relating to the type of materials. Restrictions may apply within city limits for transit during peak hours or through certain sensitive areas.

7. Overview of Historical Incidents:

While specific data is scarce, heavy vehicle accidents due to narrow roads, especially near urban centers like Tiruppur, have been reported. Incidents often increase during monsoon seasons due to slippery roads and reduced visibility.

8. Environmental Considerations and Sensitive Areas:

The route passes through areas that may have agricultural fields, local water bodies, and possibly protected areas necessitating caution. There is a requirement to minimize pollution and avoid spillage, especially near water bodies.

9. Analysis of Communication Coverage:

The route covers well-populated areas, and major mobile network providers offer good coverage, though rural road segments may occasionally experience reduced signal strength or dead zones.

10. Estimated Emergency Response Times:

Response times can vary considerably. In urban areas like Tiruppur, emergency services response can be within 15-30 minutes. Rural segments may experience longer delays, with potential waiting times extending over an hour.

11. Overall Summary of Risk Assessment:

Considering the diverse nature of the route, primary risks include weather-related hazards, road quality issues in rural areas, and urban congestion. Proper planning for peak traffic times, weather conditions, and adequate communication for unexpected delays is essential for safe transit. Regular checks for vehicle roadworthiness, especially for heavy vehicles, are crucial in mitigating potential risks.

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	High	11.45352, 77.85698	15 KM/Hr
4	Turn	Medium	11.45847, 77.85140	30 KM/Hr
5	Turn	Medium	11.45898, 77.85135	30 KM/Hr
6	Turn	High	11.46303, 77.84945	15 KM/Hr
7	Turn	Medium	11.44965, 77.77565	30 KM/Hr
8	Turn	Medium	11.44953, 77.77344	30 KM/Hr
9	Turn	Medium	11.43165, 77.67734	30 KM/Hr
10	Turn	Medium	11.23724, 77.50686	30 KM/Hr
11	Turn	High	11.23704, 77.50676	15 KM/Hr
12	Blind Spot	Blind Spot	11.23686, 77.50216	10 KM/Hr
13	Turn	Medium	11.23649, 77.50219	30 KM/Hr
14	Turn	High	11.23396, 77.50105	15 KM/Hr
15	Turn	Medium	11.23306, 77.49944	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
16	Turn	Medium	11.18420, 77.46354	30 KM/Hr
17	Turn	Medium	11.18294, 77.46232	30 KM/Hr
18	Turn	Medium	11.17869, 77.46175	30 KM/Hr
19	Turn	Medium	11.17528, 77.45982	30 KM/Hr
20	Turn	Medium	11.17373, 77.45734	30 KM/Hr
21	Turn	Medium	11.17120, 77.45567	30 KM/Hr
22	Turn	High	11.16960, 77.44406	15 KM/Hr
23	Turn	Medium	11.16385, 77.43707	30 KM/Hr
24	Turn	Medium	11.16282, 77.43145	30 KM/Hr
25	Turn	Medium	11.15226, 77.42425	30 KM/Hr
26	Turn	Medium	11.15141, 77.42304	30 KM/Hr
27	Turn	Medium	11.14904, 77.42031	30 KM/Hr
28	Turn	Medium	11.13860, 77.41623	30 KM/Hr
29	Turn	Medium	11.13539, 77.41233	30 KM/Hr
30	Turn	Medium	11.12993, 77.40310	30 KM/Hr
31	Turn	Medium	11.12236, 77.38293	30 KM/Hr
32	Turn	High	11.11673, 77.37277	15 KM/Hr
33	Turn	High	11.11572, 77.37284	15 KM/Hr
34	Blind Spot	Blind Spot	11.11323, 77.36958	10 KM/Hr
35	Blind Spot	Blind Spot	11.11383, 77.37073	10 KM/Hr
36	Blind Spot	Blind Spot	11.11095, 77.37141	10 KM/Hr
37	Turn	Medium	11.10299, 77.34682	30 KM/Hr
38	Turn	Medium	11.10246, 77.34646	30 KM/Hr
39	Turn	High	11.10108, 77.34655	15 KM/Hr
40	Turn	Medium	11.09817, 77.34009	30 KM/Hr
41	Turn	Medium	11.09753, 77.33961	30 KM/Hr
42	Turn	High	11.09646, 77.33972	15 KM/Hr
43	Turn	Medium	11.09870, 77.32058	30 KM/Hr
44	Turn	Medium	11.09901, 77.31972	30 KM/Hr
45	Turn	High	11.09934, 77.31602	15 KM/Hr
46	Turn	Medium	11.09917, 77.31590	30 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
3	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
4	hospital	J.K.K. Trust Hospital	11.4445841, 77.7307962	30 km/h	Medium
6	hospital	Shri Sathyanarayana Hospital	11.4291297, 77.6913408	30 km/h	Medium
7	hospital	Thanish Siddha Hospital	11.430003, 77.674964	30 km/h	Medium
8	clinic	Harshitha Clinic	11.4313207, 77.674718	30 km/h	Medium
9	hospital	Sri Kaalangi Siddhar Mooligai Vaithiya Nilayam	11.432369, 77.674894	30 km/h	Medium
10	clinic	G.K Clinic	11.4297244, 77.6749715	30 km/h	Medium
11	clinic	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium
13	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
15	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium
16	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
18	hospital	Aravind Eye Care Hospital	11.1729469, 77.4574467	30 km/h	Medium
19	clinic	Sri Maha Annai Clinic	11.1707162, 77.4536498	30 km/h	Medium
20	hospital	Ram Doctor Hospital	11.1709391, 77.4532808	30 km/h	Medium
21	clinic	Kumaran Clinic	11.1697553, 77.451543	30 km/h	Medium
22	hospital	Sri Aravindhar Hospital	11.1697756, 77.4448276	30 km/h	Medium
23	clinic	Dr. Raja Clinic	11.1278464, 77.3927768	30 km/h	Medium
24	clinic	V.S.A Saran Clinic	11.1047087, 77.356983	30 km/h	Medium
25	hospital	Nallini Hospital	11.1091685, 77.353517	30 km/h	Medium
26	clinic	Ramasamy Skin Clinic	11.104714, 77.348272	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
27	hospital	Lotus Eye Hospital	11.1031666, 77.3474352	30 km/h	Medium
28	hospital	Sankara Hospital , Tiruppur	11.0996262, 77.3440224	30 km/h	Medium
29	clinic	Eswaran Poly Clinic	11.097679, 77.3470729	30 km/h	Medium
30	clinic	Ramya Children's Clinic	11.0993206, 77.342525	30 km/h	Medium
31	hospital	RJR Herbal Hospitals	11.096753, 77.346988	30 km/h	Medium
32	clinic	Miracle Healing Zone	11.0972324, 77.3470134	30 km/h	Medium
33	clinic	Dental and Orthodontic Center	11.0990919, 77.3411027	30 km/h	Medium
34	clinic	Dr. Raman Velumani Clinic	11.0994555, 77.3412062	30 km/h	Medium
35	clinic	Dr. Gunashekaran Clinic	11.0990514, 77.3400514	30 km/h	Medium
36	clinic	Arumugam Clinic	11.0970252, 77.3393636	30 km/h	Medium
37	clinic	Subas Clinic	11.0968948, 77.3396048	30 km/h	Medium
38	hospital	Krithika Hospital , Tiruppur	11.0958666, 77.337589	30 km/h	Medium
39	clinic	Sakthi Clinic	11.0945881, 77.3424228	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
5	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
12	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
14	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium
17	college	Sasurie Engineering College	11.2171482, 77.4898552	30 km/h	Medium
40	college	Tiruppur Kumaran College For Women	11.0979724, 77.3222063	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: 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: 11.44965, 77.77565



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.44953, 77.77344



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: 11.23724, 77.50686



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.23704, 77.50676



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.23686, 77.50216



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: 11.23306, 77.49944



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.18420, 77.46354



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.18294, 77.46232



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17869, 77.46175



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17528, 77.45982



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17373, 77.45734



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17120, 77.45567



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.16960, 77.44406



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.16385, 77.43707



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.16282, 77.43145



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: 11.13539, 77.41233



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12993, 77.40310



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12236, 77.38293



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.11673, 77.37277



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.11572, 77.37284



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.11323, 77.36958



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.11383, 77.37073



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.11095, 77.37141



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10299, 77.34682



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10246, 77.34646



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.10108, 77.34655



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.09817, 77.34009



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.09753, 77.33961



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.09646, 77.33972



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.09870, 77.32058



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.09901, 77.31972



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.09934, 77.31602



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.09917, 77.31590
