



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to SRI VIGNESHWARA ENTERPRISES

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

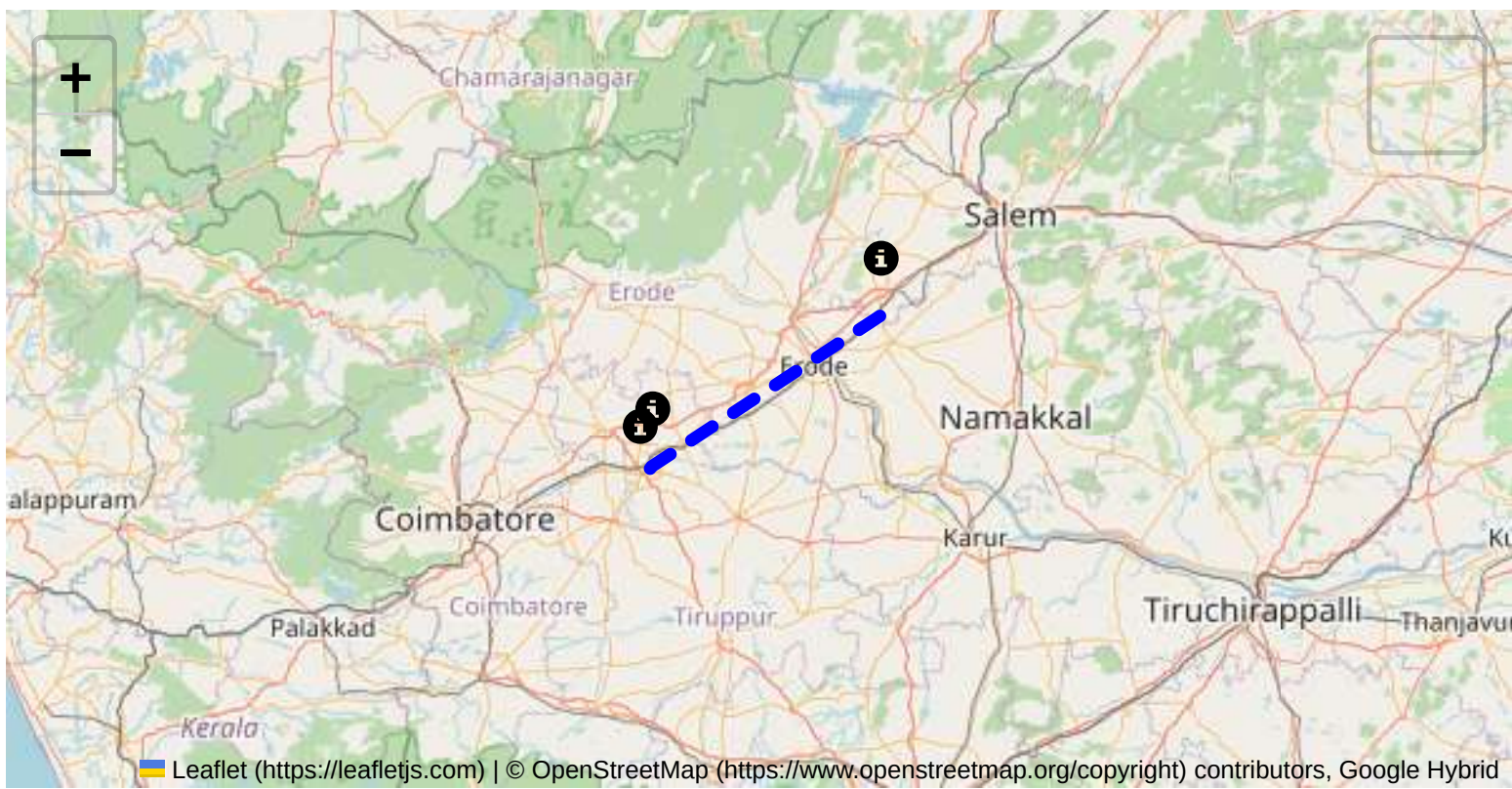
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

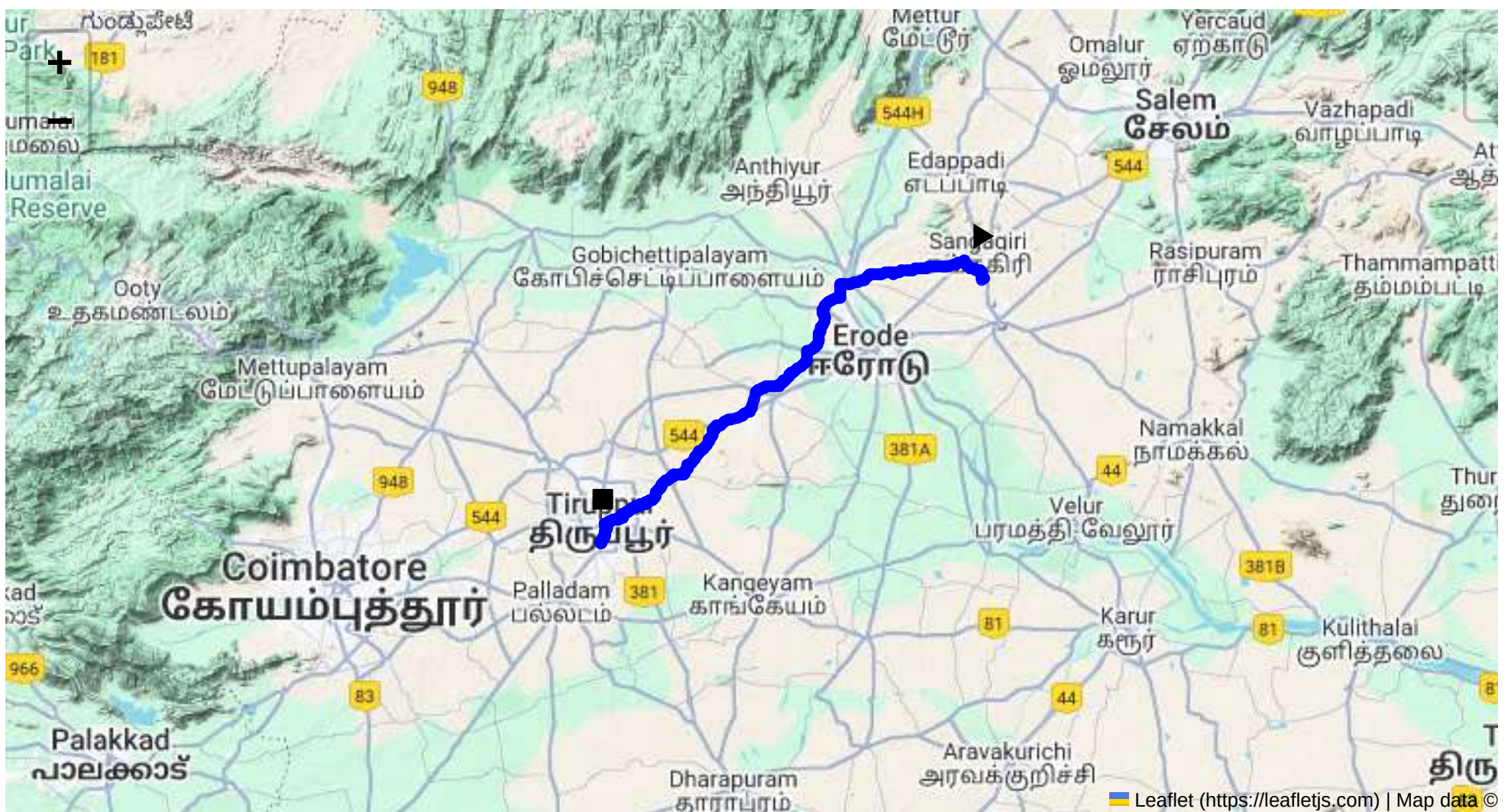
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 85.21 km
Estimated Duration: 1.9 hours
Adjusted Duration (Heavy Vehicle): 2.3 hours
Start: (11.4381, 77.8734)
End: (11.076057, 77.341614)



Welcome to the Journey Risk Management Study

Route Overview

The route from CVQF+23W, Sangagiri to 4/149B, Palladam Main Rd in Tiruppur via Mannarai spans approximately 85.21 kilometers and usually takes about 1.86 hours for heavy vehicles with hazardous materials. The journey proceeds along major roads that are significant for regional transportation, primarily including state highways and main district roads.

Weather Conditions

Tamil Nadu generally experiences a tropical climate with hot summers, moderate monsoons, and mild winters. Potential weather-related hazards include:

- **Heavy Rainfall:** During the monsoon season, which occurs from October to December, heavy rains can cause flooding and poor visibility.
- **High Temperatures:** The summer months (March to May) bring high temperatures which can cause road surface wear and increase risk of tire blowouts.

Traffic Patterns

- **Peak Hours:** Traffic tends to peak in the morning (8:00 AM - 10:00 AM) and in the evening (5:00 PM - 7:00 PM), especially near Tiruppur due to industrial activity.
- **Congestion-Prone Areas:** Key congestion points are likely near urban centers and industrial clusters, particularly as you approach Mannarai and Tiruppur.

Road Quality and Infrastructure

- **Road Condition:** Roads are generally well-maintained, consisting primarily of tarred surfaces. However, some local roads leading into rural areas might present potholes and undulating surfaces.
- **Infrastructure:** Waypoints such as intersections can be bottleneck zones, especially without proper traffic regulation systems.

Alternative Routes

In case of emergencies or blockages, consider route alternatives that bypass major congestion zones. For instance, using bypass roads near Tiruppur can help avoid city traffic.

Local Regulations

Most relevant regulations include:

- **Speed Limits:** Adherence to posted speed regulations is critical, particularly when transporting hazardous materials.
- **Transport Permits:** Ensure proper permits are in place for hazardous materials.

Historical Incidents

While specific historic incidents involving heavy vehicles or hazardous materials might not be publicly detailed, the region generally poses risks due to high traffic density and industrial proximity.

Environmental Considerations

- Transport routes intersect agricultural fields and small water bodies, necessitating caution to prevent spills.

- Certain areas near Tiruppur are environmentally sensitive because of textile industry activity.

Communication Coverage

Mobile network coverage is generally good, but remote stretches may experience brief coverage interruptions, particularly along rural paths.

Emergency Response Times

- **Urban Areas (Tiruppur, Palladam):** Typically, emergency services can respond within 15-25 minutes.
- **Rural Areas:** Response times might extend to 30-45 minutes given less dense emergency service distribution.

Risk Assessment Summary

The route traverses through both industrial and rural areas with varying risks including traffic congestion, road conditions, and environmental hazards. Proactive measures such as monitoring weather forecasts, adhering to traffic regulations, and maintaining communication are essential. Having contingency plans for alternative routing and emergency responses will be crucial to mitigate potential risks during transportation of hazardous materials.

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

	Risk Type	Risk Level	Coordinates	Speed Limit
14	Turn	High	11.23396, 77.50105	15 KM/Hr
15	Turn	Medium	11.23287, 77.49934	30 KM/Hr
16	Turn	Medium	11.18407, 77.46330	30 KM/Hr
17	Turn	Medium	11.18273, 77.46224	30 KM/Hr
18	Turn	Medium	11.17851, 77.46169	30 KM/Hr
19	Turn	Medium	11.17521, 77.45978	30 KM/Hr
20	Turn	Medium	11.17368, 77.45730	30 KM/Hr
21	Turn	Medium	11.17111, 77.45547	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	11.15217, 77.42418	30 KM/Hr
26	Turn	Medium	11.15134, 77.42300	30 KM/Hr
27	Turn	Medium	11.15023, 77.42247	30 KM/Hr
28	Turn	Medium	11.14925, 77.42065	30 KM/Hr
29	Turn	Medium	11.13848, 77.41611	30 KM/Hr
30	Turn	Medium	11.13578, 77.41299	30 KM/Hr
31	Turn	Medium	11.12989, 77.40302	30 KM/Hr
32	Turn	Medium	11.12465, 77.38649	30 KM/Hr
33	Turn	Medium	11.12232, 77.38291	30 KM/Hr
34	Turn	Medium	11.12104, 77.38220	30 KM/Hr
35	Turn	High	11.11673, 77.37277	15 KM/Hr
36	Turn	High	11.11572, 77.37284	15 KM/Hr
37	Turn	High	11.11392, 77.37070	15 KM/Hr
38	Turn	High	11.11101, 77.37139	15 KM/Hr
39	Turn	Medium	11.10407, 77.35039	30 KM/Hr
40	Turn	High	11.10284, 77.34655	15 KM/Hr
41	Turn	Medium	11.10175, 77.34643	30 KM/Hr
42	Turn	High	11.10125, 77.34667	15 KM/Hr
43	Turn	High	11.10159, 77.34796	15 KM/Hr
44	Turn	Medium	11.08626, 77.34604	30 KM/Hr
45	Blind Spot	Blind Spot	11.07585, 77.34126	10 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	clinic	Ramasamy Skin Clinic	11.104714, 77.348272	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
26	hospital	Lotus Eye Hospital	11.1031666, 77.3474352	30 km/h	Medium
27	hospital	Sankara Hospital , Tiruppur	11.0996262, 77.3440224	30 km/h	Medium
29	hospital	Vimal Hospital - Tiruppur	11.09742, 77.349707	30 km/h	Medium
30	clinic	Eswaran Poly Clinic	11.097679, 77.3470729	30 km/h	Medium
31	clinic	Miracle Healing Zone	11.0972324, 77.3470134	30 km/h	Medium
32	hospital	K N Children Hospital	11.0964068, 77.3495315	30 km/h	Medium
33	clinic	Sree Shanthoshi gastro clinic	11.0954216, 77.3511899	30 km/h	Medium
34	hospital	NSK Hospital, Tiruppur	11.0961562, 77.3494699	30 km/h	Medium
35	hospital	RJR Herbal Hospitals	11.096753, 77.346988	30 km/h	Medium
36	hospital	AMC Super Speciality Hospital	11.0963178, 77.3490793	30 km/h	Medium
37	hospital	Ideal Homeo care	11.0966359, 77.3498083	30 km/h	Medium
38	hospital	PN Hospital - Tiruppur	11.09041, 77.348581	30 km/h	Medium
39	hospital	Ars Hospitals - Tirupur	11.0880071, 77.3469948	30 km/h	Medium
40	hospital	Divya Hospital, Tiruppur	11.0874791, 77.3471518	30 km/h	Medium
41	hospital	Life Guard, Tiruppur	11.07895, 77.34231	30 km/h	Medium
42	police	Maavatta Kaaval Aluvalagam - Tiruppur	11.0811826, 77.3409296	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

	type	name	coordinates	speed_limit	risk_level
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
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
28	school	KSC Boys High School	11.0995669, 77.3505782	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: 11.23287, 77.49934



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.18407, 77.46330



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.18273, 77.46224



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: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.17111, 77.45547



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: 11.15217, 77.42418



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.15134, 77.42300



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: 11.14925, 77.42065



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: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12465, 77.38649



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12232, 77.38291



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12104, 77.38220



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: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.11392, 77.37070



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.11101, 77.37139



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10407, 77.35039



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.10284, 77.34655



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10175, 77.34643



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.10125, 77.34667



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.10159, 77.34796



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.08626, 77.34604



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.07585, 77.34126
