



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

IOCL Coimbatore Terminal to Mettur Thermal Power Station

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

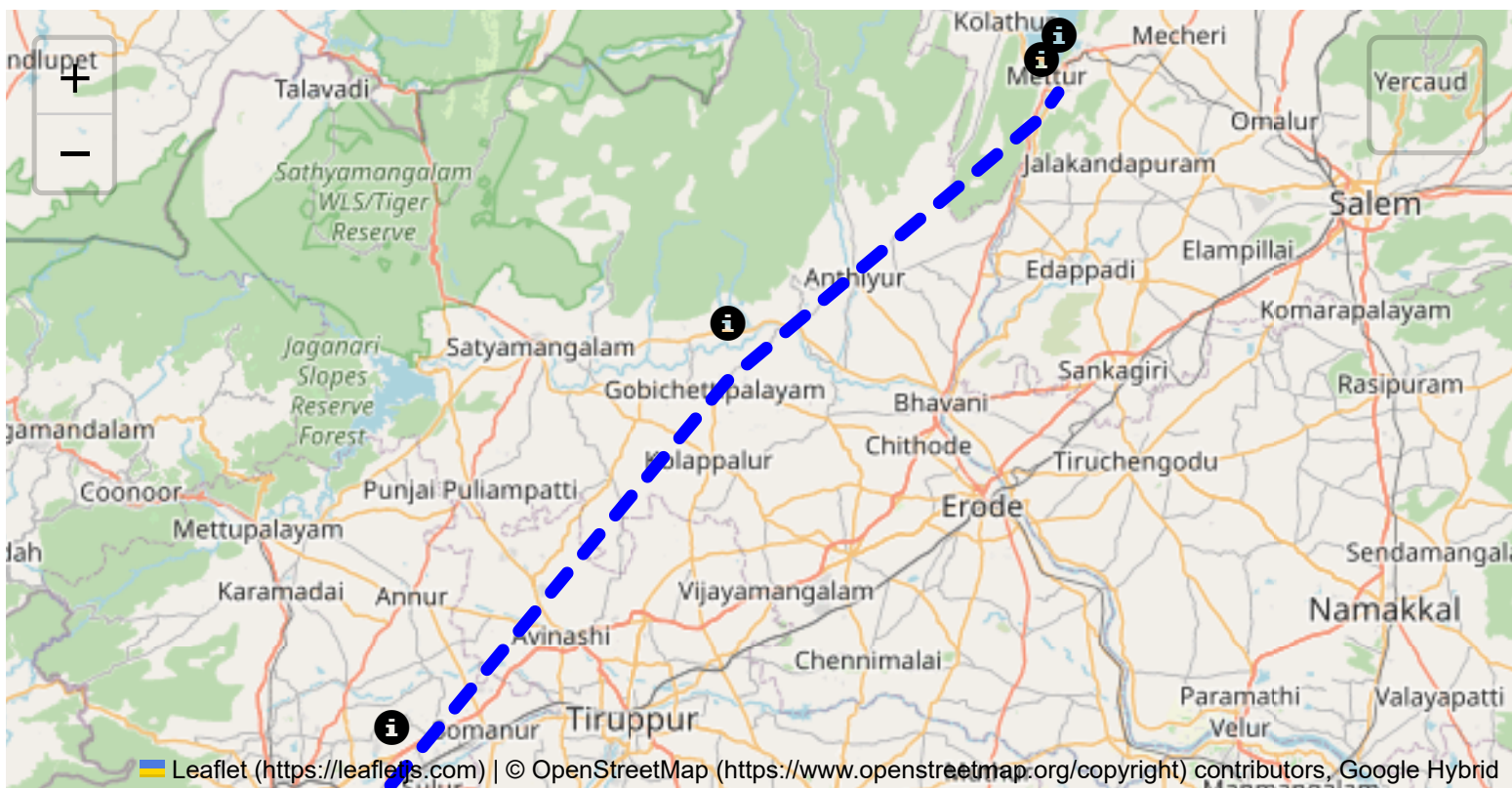
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

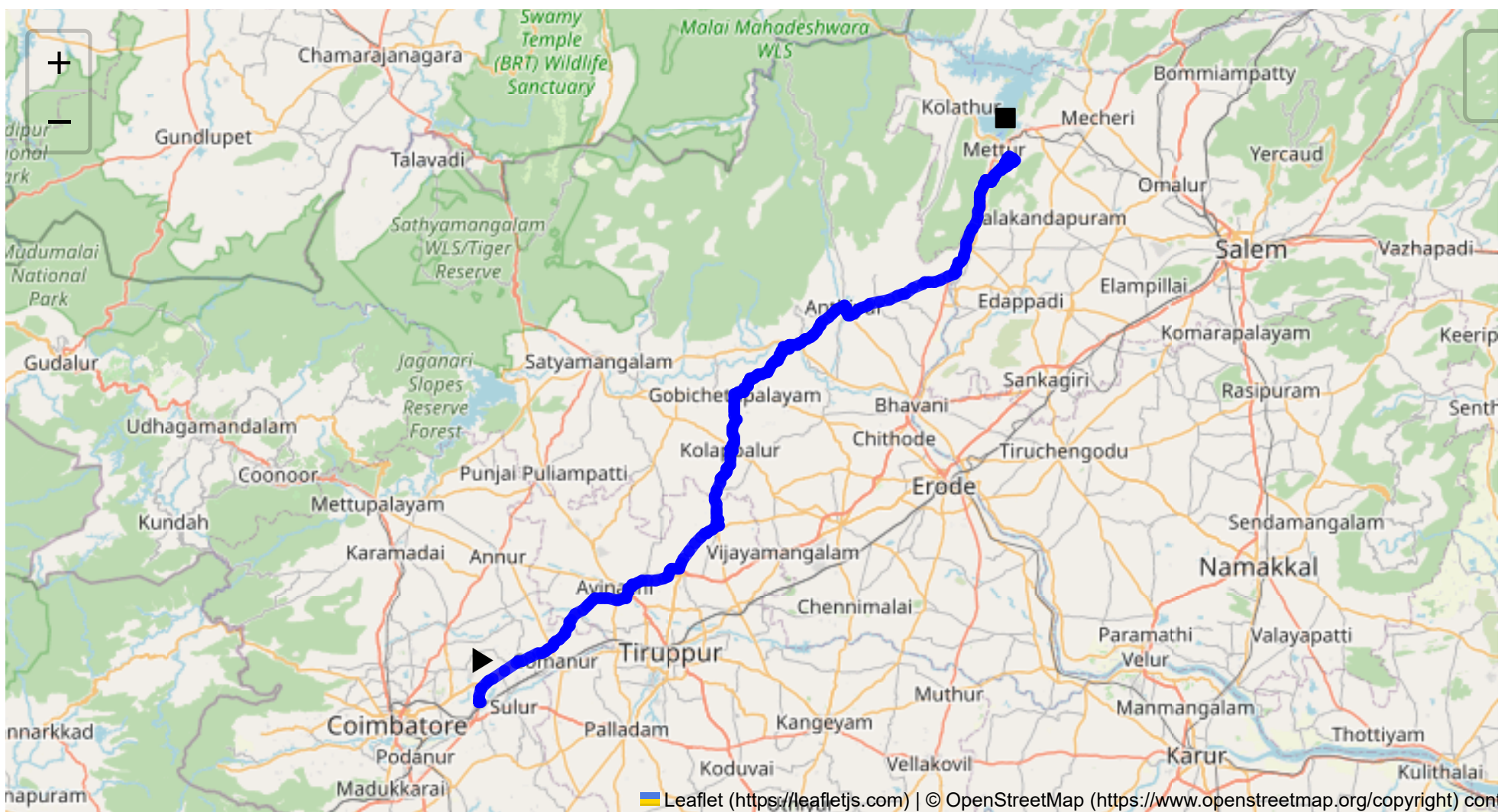
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 137.50 km
Estimated Duration: 3.1 hours
Adjusted Duration (Heavy Vehicle): 3.8 hours
Start: (11.0315, 77.0797)
End: (11.77279, 77.811972)



Welcome to the Journey Risk Management Study

Route Overview

The route from Coimbatore (23JH+HR8, Athappagoundenpudur) to Thottipatti (QRF7+53J) via Murugan Puthur (FC6X+HGW) and Kolanayakkanpatti (PQWR+5XH) covers approximately 137.50 kilometers. The journey typically takes about 3.06 hours for heavy vehicles carrying hazardous materials. The path primarily involves state and national highways and passes through rural and semi-urban regions.

Typical Weather Conditions and Potential Hazards

The region experiences a tropical climate with heavy rains during the monsoon season (June to September) and high temperatures in summer (March to May). Potential weather-related hazards include:

- **Heavy rains and flooding** during monsoons, particularly affecting low-lying road sections.
- **Heatwaves** and potential road surface damage in the summer months.

Traffic Patterns

- **Peak Hours:** Traffic congestion is most likely during morning (8 AM - 10 AM) and evening (6 PM - 8 PM) hours, particularly near urban areas and junctions.
- **Congestion-Prone Areas:** Road segments near major towns such as Erode and Salem could experience higher traffic volume.

Road Quality and Infrastructure

- **Road Conditions:** Varied road quality with some segments being well-maintained highways and others potentially having potholes or narrower lanes.
- **Bridges and Overpasses:** Check for any height restrictions or weight limits that may affect heavy vehicle transit.

Alternative Routes for Emergencies

1. **Via National Highway 44 (NH44):** Offers a direct route with more facilities, but may be longer depending on the entry/exit points.
2. **Via State Highway 83 (SH-83):** Another potential detour with less traffic but check for specific road conditions during monsoons.

Local Regulations Affecting Hazardous Material Transport

Tamil Nadu has stringent regulations for transporting hazardous materials, including restricted timings and specific vehicle safety requirements. Ensure all necessary permits are obtained, and vehicles comply with state safety standards.

Historical Incidents

- Road segments near industrial areas have recorded incidents involving heavy vehicles, typically related to brake failures or overturning due to sharp turns.
- Monitor reports from local traffic authorities for specific accident-prone zones.

Environmental Considerations and Sensitive Areas

- **Ecological Zones:** Avoid pollutants near forested regions and water bodies.
- **Agricultural Lands:** Minimize disturbances to prevent environmental contamination.

Communication Coverage

- **Dead Zones:** Potential signal loss in rural stretches, particularly around hillocks and dense vegetation.
- **Alternative Communication:** Recommend satellite phones or CB radios as a backup.

Estimated Emergency Response Times

- **Urban Areas:** 30-45 minutes due to proximity to emergency services.
- **Rural Areas:** 1-2 hours, depending on terrain and road access.

Overall Summary of Risk Assessment

The route through Tamil Nadu offers a relatively feasible path for heavy vehicles but requires awareness of weather conditions, traffic patterns, and road quality. Preparedness for emergencies and understanding local regulations are crucial for safety. Ensuring solid communication and having alternative routes and contingency plans can significantly reduce risks associated with this journey.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.57619, 77.58821	15 KM/Hr
1	Roundabout	High	11.56369, 77.59596	15 KM/Hr
2	Turn	High	11.03255, 77.07645	15 KM/Hr
3	Turn	Medium	11.12749, 77.19755	30 KM/Hr
4	Turn	Medium	11.15332, 77.21111	30 KM/Hr
5	Turn	Medium	11.17621, 77.24067	30 KM/Hr
6	Turn	Medium	11.17650, 77.28271	30 KM/Hr
7	Turn	Medium	11.20521, 77.34049	30 KM/Hr
8	Turn	Medium	11.21423, 77.34480	30 KM/Hr
9	Turn	Medium	11.21609, 77.34750	30 KM/Hr
10	Turn	High	11.21630, 77.35739	15 KM/Hr
11	Turn	Medium	11.27430, 77.40893	30 KM/Hr
12	Turn	High	11.27461, 77.41095	15 KM/Hr
13	Turn	Medium	11.27659, 77.41120	30 KM/Hr
14	Turn	Medium	11.28464, 77.41145	30 KM/Hr
15	Turn	Medium	11.34061, 77.41509	30 KM/Hr
16	Turn	Medium	11.34575, 77.42137	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
17	Turn	High	11.35179, 77.42291	15 KM/Hr
18	Turn	Medium	11.35260, 77.42426	30 KM/Hr
19	Turn	High	11.37941, 77.43080	15 KM/Hr
20	Turn	High	11.37971, 77.42984	15 KM/Hr
21	Turn	Medium	11.38016, 77.42980	30 KM/Hr
22	Turn	High	11.38072, 77.42938	15 KM/Hr
23	Turn	Medium	11.41947, 77.43607	30 KM/Hr
24	Turn	High	11.45497, 77.43538	15 KM/Hr
25	Turn	High	11.45508, 77.43873	15 KM/Hr
26	Turn	High	11.45961, 77.44792	15 KM/Hr
27	Turn	Medium	11.46371, 77.44943	30 KM/Hr
28	Turn	High	11.46586, 77.45232	15 KM/Hr
29	Turn	Medium	11.47207, 77.45385	30 KM/Hr
30	Turn	Medium	11.47674, 77.45765	30 KM/Hr
31	Turn	Medium	11.47835, 77.46201	30 KM/Hr
32	Turn	Medium	11.48005, 77.46487	30 KM/Hr
33	Turn	Medium	11.50013, 77.49025	30 KM/Hr
34	Turn	High	11.50133, 77.49516	15 KM/Hr
35	Turn	Medium	11.50675, 77.49747	30 KM/Hr
36	Turn	High	11.50724, 77.49819	15 KM/Hr
37	Turn	High	11.50949, 77.49799	15 KM/Hr
38	Turn	High	11.51152, 77.50080	15 KM/Hr
39	Turn	Medium	11.51973, 77.50422	30 KM/Hr
40	Turn	High	11.51991, 77.50616	15 KM/Hr
41	Turn	High	11.51836, 77.50774	15 KM/Hr
42	Turn	High	11.51862, 77.51128	15 KM/Hr
43	Turn	High	11.52301, 77.51204	15 KM/Hr
44	Turn	Medium	11.52400, 77.52124	30 KM/Hr
45	Turn	Medium	11.54950, 77.55529	30 KM/Hr
46	Turn	Medium	11.57544, 77.58955	30 KM/Hr
47	Turn	Medium	11.56477, 77.59375	30 KM/Hr
48	Turn	High	11.62195, 77.74293	15 KM/Hr
49	Turn	Medium	11.63511, 77.74825	30 KM/Hr
50	Turn	Medium	11.71510, 77.77904	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
51	Turn	High	11.74787, 77.78561	15 KM/Hr
52	Turn	High	11.74552, 77.79245	15 KM/Hr
53	Turn	Medium	11.75579, 77.79865	30 KM/Hr
54	Turn	High	11.75729, 77.79868	15 KM/Hr
55	Turn	Medium	11.75775, 77.80017	30 KM/Hr
56	Turn	Medium	11.76308, 77.80681	30 KM/Hr
57	Turn	High	11.76601, 77.80869	15 KM/Hr
58	Turn	High	11.76594, 77.81023	15 KM/Hr
59	Turn	Medium	11.76679, 77.81085	30 KM/Hr
60	Turn	Medium	11.76861, 77.81578	30 KM/Hr
61	Turn	High	11.77561, 77.82582	15 KM/Hr
62	Turn	Medium	11.77606, 77.82570	30 KM/Hr
63	Turn	High	11.78047, 77.81897	15 KM/Hr
64	Turn	High	11.77324, 77.81376	15 KM/Hr
65	Turn	High	11.77363, 77.81313	15 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Royal Care Hospital, Coimbatore	11.059106, 77.0893479	30 km/h	Medium
2	police	Karumathampatti Police Station	11.1093464, 77.1802095	30 km/h	Medium
5	clinic	Arogya Clinic	11.2706519, 77.4100587	30 km/h	Medium
6	clinic	Sri Murugan Nursing Home	11.271798, 77.409776	30 km/h	Medium
7	clinic	Sumathi Clinic	11.2725128, 77.411116	30 km/h	Medium
8	hospital	Viswanathan Hospital	11.2725112, 77.411171	30 km/h	Medium
9	hospital	S V Hospital	11.273427, 77.411431	30 km/h	Medium
10	police	Kunnathur Police Station	11.2730826, 77.4111808	30 km/h	Medium
11	hospital	Thavamani Hospital	11.2719549, 77.4120852	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
12	hospital	Dhanam Thangam Hospital	11.2719384, 77.4121472	30 km/h	Medium
13	clinic	GK Siddha Ayurveda Clinic	11.445915, 77.433649	30 km/h	Medium
14	hospital	Seetha Lakshmi Hospital	11.4474948, 77.4341288	30 km/h	Medium
15	hospital	Jesus Hospital	11.4511405, 77.4355211	30 km/h	Medium
16	clinic	AG Kids Clinic	11.4501348, 77.4349865	30 km/h	Medium
18	hospital	Siranjeeve Hospitals	11.453132, 77.4344382	30 km/h	Medium
19	clinic	Anandhan Clinic	11.4548037, 77.4349074	30 km/h	Medium
20	hospital	Ramachandran Hospital	11.452242, 77.434641	30 km/h	Medium
21	hospital	Kumaran Hospital	11.4533971, 77.4349621	30 km/h	Medium
22	hospital	Gobi Neuro Mind Care	11.4548344, 77.434649	30 km/h	Medium
23	hospital	NSPP Hospital	11.4576543, 77.4328152	30 km/h	Medium
24	hospital	Dr. Rathinasamy Hospital	11.457562, 77.4327752	30 km/h	Medium
25	clinic	Germen Homeopathy Clinic	11.4536305, 77.4394692	30 km/h	Medium
26	hospital	JP Hospital	11.454765, 77.438257	30 km/h	Medium
27	hospital	ESI Hospital	11.457705, 77.440475	30 km/h	Medium
28	hospital	KKS Hospital	11.4551792, 77.4392927	30 km/h	Medium
31	hospital	Kariyamanikam Hospital	11.5229297, 77.5134812	30 km/h	Medium
32	hospital	Bala Hospital	11.522996, 77.512794	30 km/h	Medium
33	hospital	Nalam General & Diabetes Care Hospital	11.523399, 77.51107	30 km/h	Medium
34	hospital	Sri Arungani Hospital	11.5736078, 77.5826436	30 km/h	Medium
35	clinic	P G K Nursing Home	11.5785675, 77.5891802	30 km/h	Medium
36	hospital	Sindhu Hospital	11.57417, 77.590371	30 km/h	Medium
37	hospital	Arun Gowri Hospital	11.57659, 77.588756	30 km/h	Medium
38	hospital	Chinnakavur Hospital	11.7830314, 77.8206836	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
1	college	PSG Institute of Technology and Applied Research	11.0677118, 77.0945744	30 km/h	Medium
3	marketplace	Thekkalur Weekly market	11.1537037, 77.2126685	30 km/h	Medium
4	marketplace	Thekalur weekly market	11.1547211, 77.2140187	30 km/h	Medium
17	school	Saratha Matric Higher Secondary School	11.4480452, 77.431079	30 km/h	Medium
29	school	Shree Vidyalaya Matric Higher Secondary School	11.4536114, 77.4383163	30 km/h	Medium
30	college	P.K.R.Arts College For Women	11.4620658, 77.4480182	30 km/h	Medium

Route Photos of Risky Spots

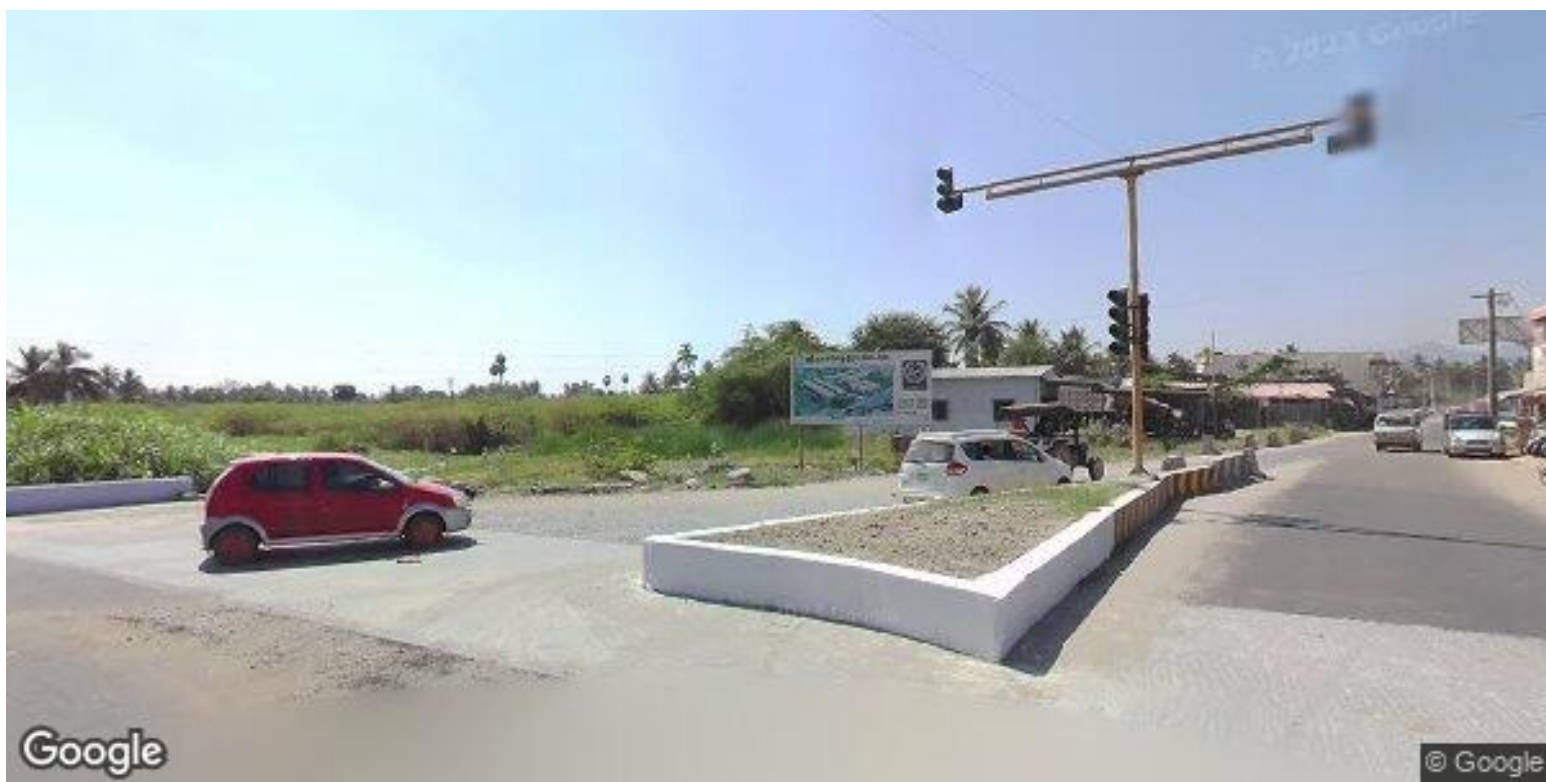


Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.57619, 77.58821



Risk Type: Roundabout

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.56369, 77.59596



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.03255, 77.07645



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12749, 77.19755



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15332, 77.21111



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17621, 77.24067



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17650, 77.28271



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.20521, 77.34049



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.21423, 77.34480



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.21609, 77.34750



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.21630, 77.35739



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.27430, 77.40893



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.27461, 77.41095



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.27659, 77.41120



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.34061, 77.41509



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.34575, 77.42137



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.35179, 77.42291



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.35260, 77.42426



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.37941, 77.43080



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.37971, 77.42984



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.38016, 77.42980



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.38072, 77.42938



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.41947, 77.43607



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45497, 77.43538



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45508, 77.43873



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.47674, 77.45765



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.47835, 77.46201



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.48005, 77.46487



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.50013, 77.49025



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.50133, 77.49516



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.50675, 77.49747



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.50724, 77.49819



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.50949, 77.49799



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.51152, 77.50080



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.51973, 77.50422



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.51991, 77.50616



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.51836, 77.50774



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.51862, 77.51128



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.52301, 77.51204



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.52400, 77.52124



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.54950, 77.55529



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.57544, 77.58955



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.56477, 77.59375



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.62195, 77.74293



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.63511, 77.74825



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.71510, 77.77904



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.74787, 77.78561



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.74552, 77.79245



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.75579, 77.79865



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.75729, 77.79868



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.75775, 77.80017
