



IndianOil

JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal to ARA 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

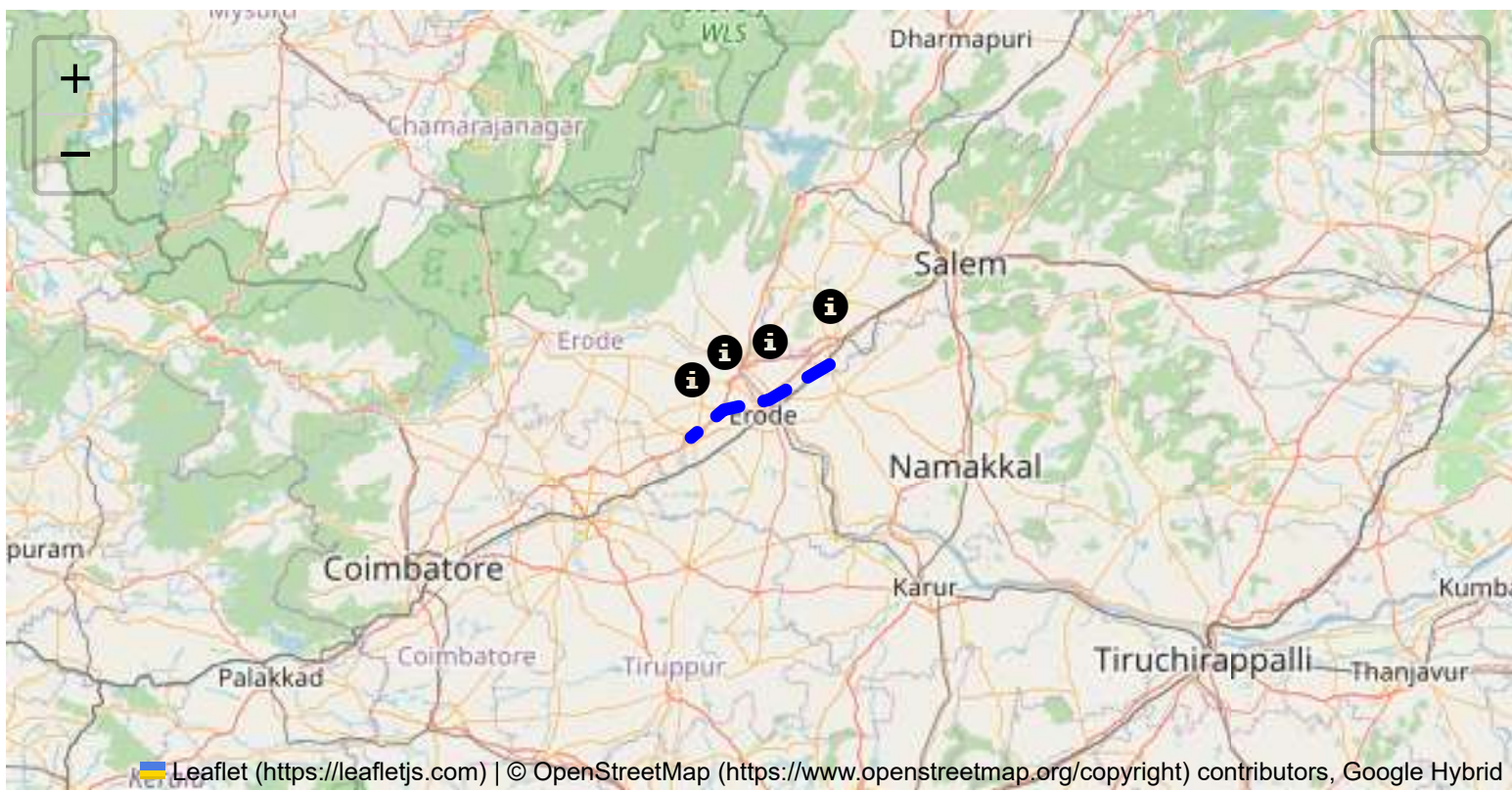
The JRM report addresses environmental risks along the route, ensuring compliance with environmental protection laws in ecologically sensitive zones. It suggests strategies such as identifying areas near water bodies, forests, or populated regions and implementing safety measures to minimize environmental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

Journey Risk Mitigation

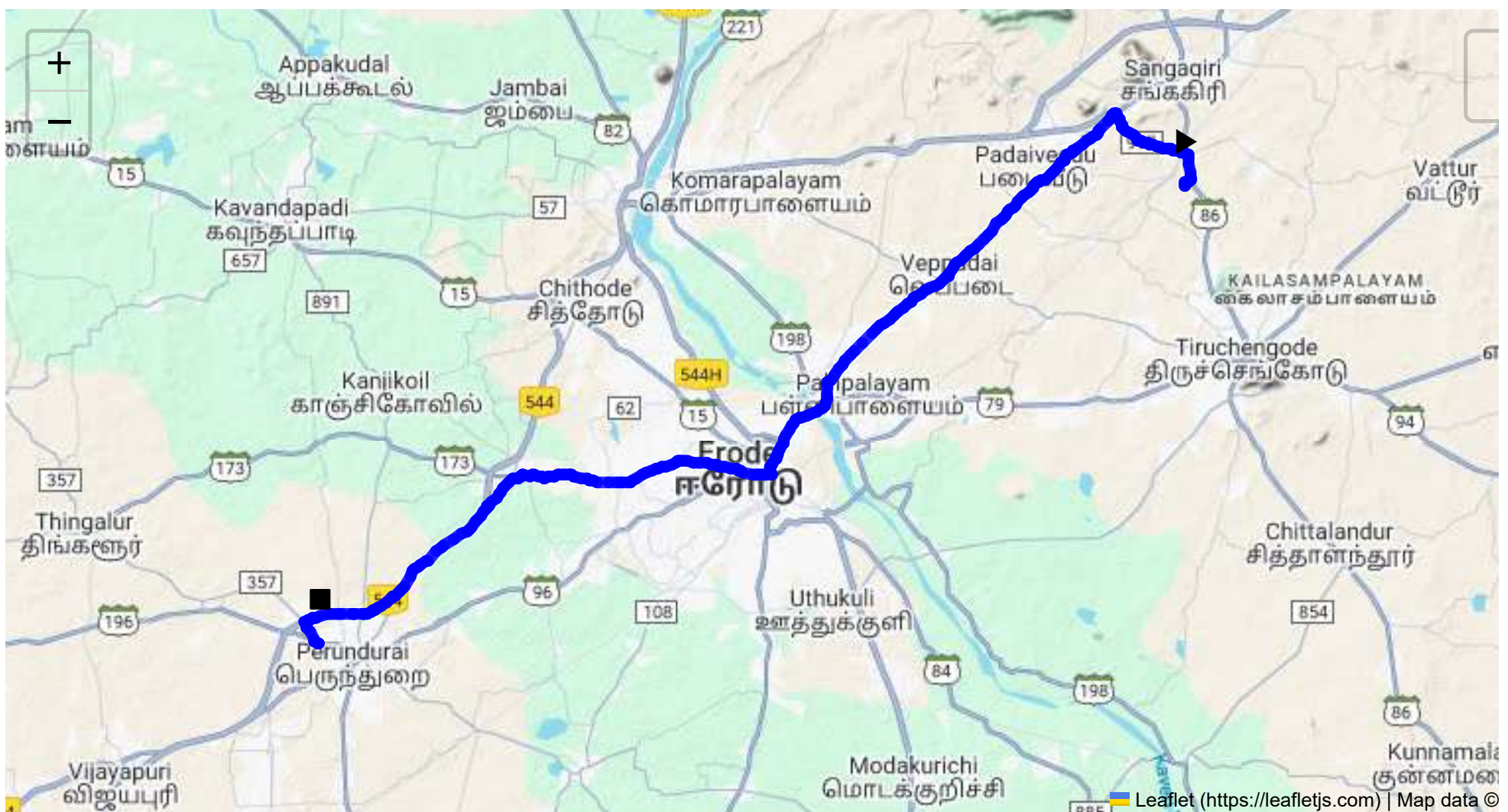
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 46.04 km
Estimated Duration: 1.2 hours
Adjusted Duration (Heavy Vehicle): 1.5 hours
Start: (11.4381, 77.8734)
End: (11.281674, 77.570241)



Welcome to the Journey Risk Management Study

Route Overview

The route covers approximately 46.04 kilometers and typically takes about 1.22 hours for heavy trucks carrying hazardous materials. It starts from CVQF+23W, Sangagiri, proceeding via the Attur - Rasipuram - Erode Road, passing through Erode, and finally branching via Nasiyanur Road towards Perundurai.

Weather Conditions

- **Typical Weather:** The region experiences a tropical climate, with high temperatures and humidity. The summers are particularly hot, reaching up to 40°C (104°F), while winters remain temperate.
- **Weather-Related Hazards:** Monsoon season (June to September) can bring heavy rainfall, resulting in waterlogging and reduced visibility. Fog is also a concern during early mornings in winter months.

Traffic Patterns

- **Peak Hours:** Expect heavy vehicle traffic in the morning (7 AM - 9 AM) and evening (5 PM - 7 PM), particularly in and around Erode.
- **Congestion-Prone Areas:** Erode and Nasiyanur have notable congestion, particularly during market hours and weekends.

Road Quality and Infrastructure

- **Road Condition:** The main highways are generally well-maintained, but secondary roads may have uneven surfaces and potholes, especially post-monsoon.
- **Infrastructure:** Signage is adequate, though rural areas might lack street lighting.

Alternative Routes for Emergencies

1. **Alternate via NH44:** Divert towards NH44 for a more direct, albeit longer, route to Perundurai.
2. **Alternate via SH81:** A slightly longer rural road option, useful if major highways are blocked.

Local Regulations on Hazardous Materials

- **Transport Restrictions:** Certain times may restrict the transport of hazardous materials, especially during daytime peak hours in populated areas.
- **Permits Required:** Ensure all necessary permits and licenses are secured prior to transportation.

Historical Incidents

- **Heavy Vehicles:** Some accidents involving heavy vehicles have been reported, often linked to rainy conditions or speeding.
- **Hazardous Materials:** No major incidents reported, but safe handling and driving practices are crucial.

Environmental Considerations

- **Sensitive Areas:** The route passes close to agricultural regions; avoid spills and ensure loud noises are minimized to prevent disruption.

Communication Coverage

- **Dead Zones:** Sporadic mobile network coverage might be expected in rural sections between Erode and Nasiyanur.
- **Emergency Services:** Reliable coverage near Erode, but patchier as you move into rural stretches.

Emergency Response Times

- **Urban Segments:** Quick response within Erode (15-20 minutes).
- **Rural Segments:** May extend to 30-40 minutes due to distance from major towns.

Overall Summary of Risk Assessment

The route involves moderate risk due to traffic congestion, variable road quality, and weather conditions, particularly during the monsoon season. However, with proper planning, adherence to safety standards, and readiness for alternative routing, the route can be navigated safely. The primary concern lies in adherence to hazardous material transport regulations and maintaining vigilance during adverse weather conditions.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.37086, 77.74828	15 KM/Hr
1	Turn	Medium	11.43822, 77.87348	30 KM/Hr
2	Turn	High	11.43968, 77.87345	15 KM/Hr
3	Turn	High	11.44029, 77.87544	15 KM/Hr
4	Turn	Medium	11.44898, 77.87410	30 KM/Hr
5	Turn	Medium	11.45357, 77.85789	30 KM/Hr
6	Turn	Medium	11.45352, 77.85698	30 KM/Hr
7	Turn	Medium	11.46048, 77.85036	30 KM/Hr
8	Turn	Medium	11.46303, 77.84945	30 KM/Hr
9	Turn	Medium	11.46318, 77.84913	30 KM/Hr
10	Turn	Medium	11.46302, 77.84874	30 KM/Hr
11	Turn	Medium	11.36622, 77.74789	30 KM/Hr
12	Turn	Medium	11.34192, 77.72824	30 KM/Hr
13	Blind Spot	Blind Spot	11.33920, 77.72902	10 KM/Hr
14	Blind Spot	Blind Spot	11.34068, 77.71709	10 KM/Hr
15	Blind Spot	Blind Spot	11.34097, 77.71715	10 KM/Hr
16	Turn	Medium	11.33843, 77.64074	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
17	Turn	High	11.33828, 77.63811	15 KM/Hr
18	Turn	High	11.32831, 77.62967	15 KM/Hr
19	Turn	High	11.32841, 77.62931	15 KM/Hr
20	Turn	High	11.29158, 77.58600	15 KM/Hr
21	Turn	Medium	11.29163, 77.58591	30 KM/Hr
22	Turn	Medium	11.29140, 77.58253	30 KM/Hr
23	Turn	Medium	11.29154, 77.58236	30 KM/Hr
24	Turn	Medium	11.29012, 77.56873	30 KM/Hr
25	Turn	Medium	11.28994, 77.56861	30 KM/Hr
26	Blind Spot	Blind Spot	11.28888, 77.56550	10 KM/Hr
27	Turn	Medium	11.28189, 77.56929	30 KM/Hr
28	Blind Spot	Blind Spot	11.28152, 77.57025	10 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

	type	name	coordinates	speed_limit	risk_level
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	Dhanvantri Critical Care Centre	11.35099, 77.730508	30 km/h	Medium
16	hospital	Kumudha Hospital	11.3467172, 77.7306797	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
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	clinic	Dr. R Kumaraswamy Sexologist Clinic	11.3396057, 77.7221701	30 km/h	Medium
28	clinic	Newlife Fertility Centre	11.3389396, 77.7213358	30 km/h	Medium
29	hospital	Dr. Pondiperumal Hospital	11.3390924, 77.7205408	30 km/h	Medium
30	hospital	Guhan ENT Hospital	11.339489, 77.721001	30 km/h	Medium
31	hospital	Abisek Medical Centre	11.3415975, 77.7191789	30 km/h	Medium
32	clinic	Janet Nursing Home	11.3396455, 77.7203698	30 km/h	Medium
33	hospital	Sri Vijaya Hitech Hospital	11.3400011, 77.7192251	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
34	hospital	Shri Vijaiah Trauma Care Hospital	11.3418935, 77.7193036	30 km/h	Medium
36	hospital	Dr. Agarwal's Eye Hospital Ltd. - Erode	11.3421842, 77.7173066	30 km/h	Medium
37	hospital	Universal Hospital	11.3411046, 77.7185217	30 km/h	Medium
38	hospital	Erode Kidney's Centre	11.3383801, 77.7164201	30 km/h	Medium
39	hospital	Duraisamy Hospital	11.3391625, 77.7187054	30 km/h	Medium
40	hospital	Srimathi Murugeshan Hospital	11.3389205, 77.7187791	30 km/h	Medium
41	hospital	Devi Hospital	11.34116, 77.718307	30 km/h	Medium
42	hospital	KMCH Speciality Hospital	11.33911, 77.716284	30 km/h	Medium
43	hospital	SCS Hospital And Urology Clinic	11.3410253, 77.718043	30 km/h	Medium
44	hospital	Anusha Hospital	11.3397168, 77.7166805	30 km/h	Medium
45	clinic	Vanalika Homoeo Centre	11.341349, 77.717987	30 km/h	Medium
46	hospital	Suriya Hospital	11.340248, 77.7186452	30 km/h	Medium
47	clinic	Skin Care Clinic	11.3409042, 77.7178413	30 km/h	Medium
48	hospital	Care Hospital	11.338443, 77.716511	30 km/h	Medium
49	hospital	Abitha Eye Hospital	11.34021, 77.7187589	30 km/h	Medium
50	hospital	Ortho Life Hospital	11.3395729, 77.7167329	30 km/h	Medium
51	clinic	Sathyavathi Ramalingam Clinic	11.3380366, 77.7166875	30 km/h	Medium
52	hospital	SRC Hospital	11.3413999, 77.7177834	30 km/h	Medium
53	hospital	Nalan Hospital	11.3399703, 77.716773	30 km/h	Medium
54	hospital	Surya Hospital	11.3400026, 77.7190977	30 km/h	Medium
55	clinic	Dr. Chandran Skin Laser Centre	11.3413527, 77.7174891	30 km/h	Medium
56	hospital	Sri Hari Hospital	11.338357, 77.7164204	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
57	hospital	District Hospital, Eroda	11.3393048, 77.717926	30 km/h	Medium
58	hospital	L.V.S. Eye Hospital	11.3385839, 77.7156597	30 km/h	Medium
59	hospital	Shri Preethe Hospital	11.3385944, 77.7157979	30 km/h	Medium
60	hospital	Dr Nsk Hospital	11.3381737, 77.7153821	30 km/h	Medium
61	hospital	Keran Hospital	11.3400456, 77.7154808	30 km/h	Medium
62	hospital	Gem Hospital	11.338106, 77.7155077	30 km/h	Medium
63	hospital	Annai Ent and Head and Neck Care Center	11.3387785, 77.7149034	30 km/h	Medium
64	clinic	Madhu Surgical Clinic	11.3386602, 77.7143441	30 km/h	Medium
65	pharmacy	Tava Drug Mart	11.3436578, 77.7182673	30 km/h	Medium
66	clinic	RB Kids Clinic	11.339221, 77.713915	30 km/h	Medium
67	hospital	Senthil Multispeciality Hospital	11.338983, 77.7138529	30 km/h	Medium
68	hospital	Erode Trust Hospital	11.3399422, 77.7134188	30 km/h	Medium
69	hospital	Arc Fertility Hospital	11.3397231, 77.7130655	30 km/h	Medium
70	hospital	Vanjee Multispeciality Dental Centre	11.3418385, 77.7132218	30 km/h	Medium
71	hospital	Sri Athi Sathya Hospital	11.3392651, 77.7126583	30 km/h	Medium
72	clinic	Erode Women and Children Clinic	11.3420279, 77.7116815	30 km/h	Medium
73	hospital	Arun Hospital	11.3447248, 77.7138215	30 km/h	Medium
74	hospital	Ranm Malathy Vijayakumar Hospital	11.3413334, 77.708922	30 km/h	Medium
76	hospital	K.G. Baby Hospital	11.343848, 77.699081	30 km/h	Medium
77	hospital	Veena Hospital	11.3367614, 77.6366566	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
79	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
80	hospital	Rama Prasad Multispeciality Hospital	11.2794959, 77.5723401	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
35	school	Sengunthar matriculation School	11.3407075, 77.7195086	30 km/h	Medium
75	school	Nandha Central City School (City Campus)	11.3409392, 77.7047156	30 km/h	Medium
78	college	Government polytechnic college	11.2907053, 77.5698726	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: 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: 11.46048, 77.85036



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: 11.36622, 77.74789



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: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.34068, 77.71709



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.34097, 77.71715



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.33843, 77.64074



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.33828, 77.63811



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.32831, 77.62967



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.32841, 77.62931



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.29158, 77.58600



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.29163, 77.58591



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29140, 77.58253



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29154, 77.58236



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.29012, 77.56873



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.28994, 77.56861



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.28888, 77.56550



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.28189, 77.56929



Risk Type: Blind Spot

Risk Level: Blind Spot

Speed Limit: 10 KM/Hr

Coordinates: 11.28152, 77.57025
