



JOURNEY RISK MANAGEMENT (JRM) STUDY

Salem Terminal To SRI LAXMI OIL 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

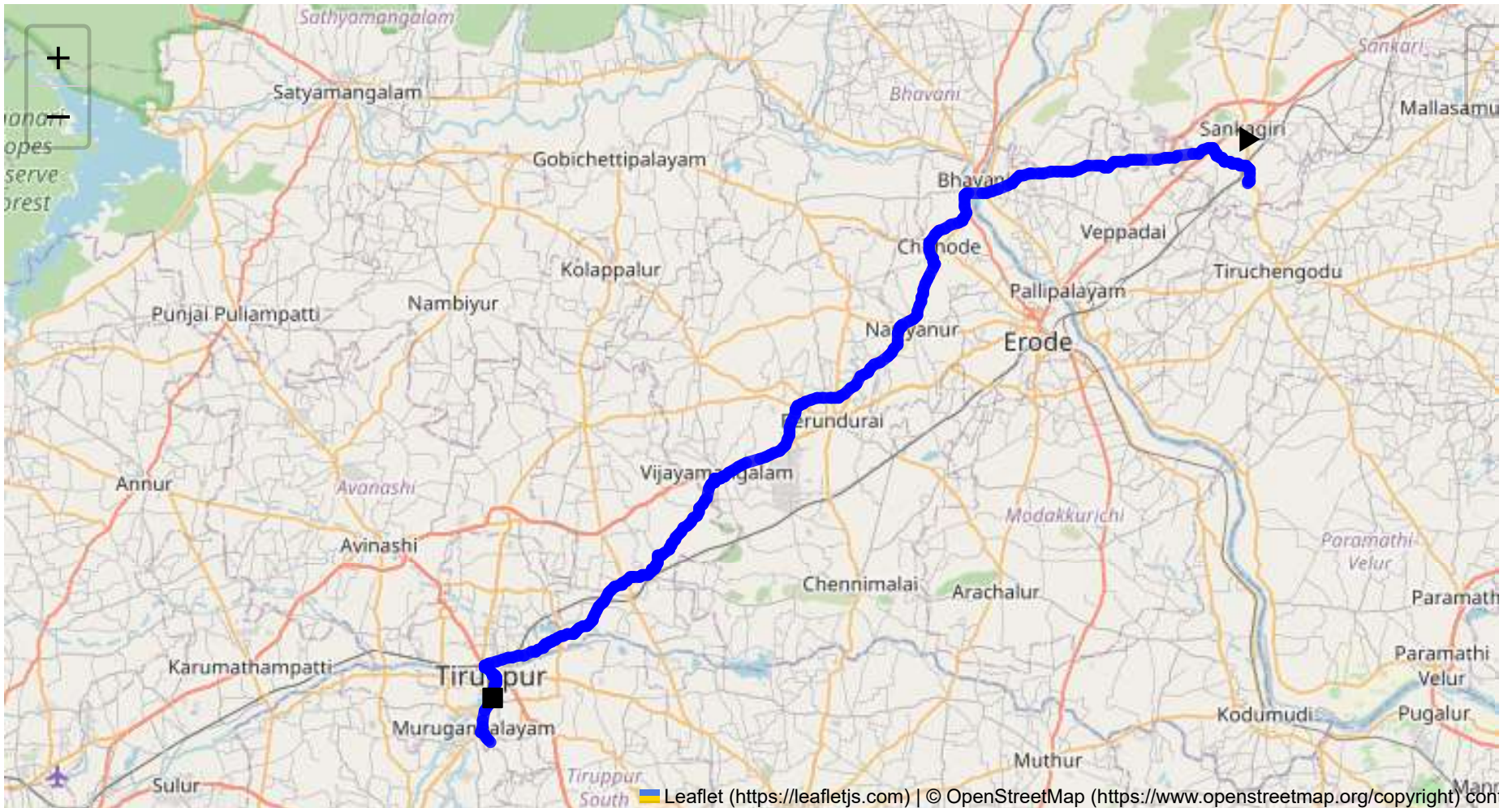
The report includes route-specific risk assessments, detailed journey charts, and defensive driving guidelines for each transport route. Integration with vehicle tracking systems guarantees real-time warnings on hazardous areas, speed limits, and mandatory stops, consistent with RTSP and CMVR safety 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: 88.53 km
Estimated Duration: 2.0 hours
Adjusted Duration (Heavy Vehicle): 2.5 hours
Start: (11.4381, 77.8734)
End: (11.056378, 77.344741)



Welcome to the Journey Risk Management Study

1. Overview of the Route Map

The route from CVQF+23W, Sangagiri to 384V+HRC, Nochipalayam involves traveling primarily on SH 79A and NH544. The journey covers a distance of approximately 88.53 kilometers and passes through towns like Bhavani. It also involves navigating a mix of state highways, national highways, and urban roadways, leading into Tiruppur.

2. Typical Weather Conditions and Potential Weather-Related Hazards

The region experiences a tropical climate with hot summers (March to June), a rainy season with monsoons (June to September), and mild winters (November to February). The monsoon season can lead to heavy rains, causing waterlogging and reduced visibility. High summer temperatures could also lead to road surface damage and tire blowouts.

3. Analysis of Traffic Patterns

Traffic in this region is typically dense during morning hours (8 AM to 10 AM) and late-afternoon/early-evening (5 PM to 7 PM). Sangagiri and Bhavani are congestion-prone areas, especially during festival seasons and weekends. NH544 may experience higher traffic volumes due to its role as a significant transit route for cargo.

4. Assessment of Road Quality and Infrastructure

State Highway 79A and NH544 generally have good road conditions with well-marked lanes and frequent signage. However, rural stretches may have narrower lanes and lesser maintenance, potentially increasing risk during the night or adverse weather. Regular maintenance checks and clear signage can significantly improve road safety.

5. Suggestions for Alternative Routes for Emergencies

In case of emergencies like roadblocks or accidents on SH 79A or NH544, consider using alternate local or district roads that parallel the main route. These can be accessed especially around Bhavani for SH 79A and Erode for NH544.

6. Summary of Local Regulations Affecting Hazardous Material Transport

Tamil Nadu follows strict regulations for hazardous material transport, requiring permits and adherence to designated routes for such materials. Night travel restrictions may apply in particular zones, and compliance with safety norms is mandatory.

7. Overview of Historical Incidents

There have been instances of accidents involving heavy vehicles on NH544, often due to driver fatigue or overloaded freight. No major hazardous material incidents have been recorded, but precautionary measures are strongly advised.

8. Environmental Considerations and Sensitive Areas

The route passes near agricultural lands and possibly areas with water bodies. Care should be taken to avoid spillages that could harm the local environment. Transport near these areas should minimize disruption to the local ecology.

9. Analysis of Communication Coverage

The route mostly maintains good communication coverage; however, there may be short stretches, particularly in rural areas between Bhavani and Tiruppur, where signal strength is weak. Drivers should be equipped with alternatives like satellite communication tools for such zones.

10. Estimated Emergency Response Times

Emergency response times along the route can vary: urban areas like Sangagiri and Bhavani generally see quicker response (15-30 minutes), while response may be delayed in rural stretches between towns, potentially taking up to an hour.

12. Overall Summary of Risk Assessment

This route presents a medium risk level for transporting hazardous materials. The well-maintained highways provide a secure pathway for heavy freight, yet considerations for weather conditions and traffic

congestion play a crucial role. Continuous monitoring of road conditions, compliance with hazardous materials regulation, and emergency preparedness are essential to mitigate risks.

Conclusion

Drivers should be trained in routine safety procedures and emergency response protocols. Firms must ensure trucks are equipped with necessary safety equipment and communication tools while keeping a close eye on weather forecasts and adhering to traffic laws and regulations.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Turn	High	11.43961, 77.87341	15 KM/Hr
1	Turn	High	11.44029, 77.87544	15 KM/Hr
2	Turn	High	11.44893, 77.87413	15 KM/Hr
3	Turn	Medium	11.45127, 77.86734	30 KM/Hr
4	Turn	High	11.45350, 77.85700	15 KM/Hr
5	Turn	Medium	11.45845, 77.85141	30 KM/Hr
6	Turn	Medium	11.45889, 77.85136	30 KM/Hr
7	Turn	High	11.46303, 77.84945	15 KM/Hr
8	Turn	Medium	11.46317, 77.84906	30 KM/Hr
9	Turn	Medium	11.44971, 77.77586	30 KM/Hr
10	Turn	Medium	11.43175, 77.67757	30 KM/Hr
11	Turn	Medium	11.23724, 77.50686	30 KM/Hr
12	Turn	High	11.23704, 77.50676	15 KM/Hr
13	Turn	Medium	11.23685, 77.50236	30 KM/Hr
14	Turn	High	11.23675, 77.50215	15 KM/Hr
15	Turn	Medium	11.23622, 77.50210	30 KM/Hr
16	Turn	Medium	11.23396, 77.50105	30 KM/Hr
17	Turn	Medium	11.23329, 77.49966	30 KM/Hr
18	Turn	Medium	11.18329, 77.46249	30 KM/Hr
19	Turn	Medium	11.17851, 77.46169	30 KM/Hr
20	Turn	Medium	11.17497, 77.45961	30 KM/Hr
21	Turn	Medium	11.17383, 77.45750	30 KM/Hr
22	Turn	Medium	11.17133, 77.45590	30 KM/Hr
23	Turn	Medium	11.16959, 77.44438	30 KM/Hr
24	Turn	Medium	11.16950, 77.44376	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
25	Turn	Medium	11.16364, 77.43649	30 KM/Hr
26	Turn	Medium	11.16259, 77.43103	30 KM/Hr
27	Turn	Medium	11.15161, 77.42320	30 KM/Hr
28	Turn	Medium	11.14985, 77.42215	30 KM/Hr
29	Turn	Medium	11.14892, 77.42022	30 KM/Hr
30	Turn	Medium	11.13893, 77.41649	30 KM/Hr
31	Turn	Medium	11.13578, 77.41299	30 KM/Hr
32	Turn	Medium	11.13007, 77.40331	30 KM/Hr
33	Turn	Medium	11.12475, 77.38681	30 KM/Hr
34	Turn	Medium	11.12251, 77.38307	30 KM/Hr
35	Turn	Medium	11.10807, 77.34103	30 KM/Hr
36	Turn	High	11.10780, 77.34080	15 KM/Hr
37	Turn	Medium	11.10310, 77.34634	30 KM/Hr
38	Turn	High	11.10125, 77.34667	15 KM/Hr
39	Turn	High	11.10159, 77.34796	15 KM/Hr
40	Turn	Medium	11.08626, 77.34604	30 KM/Hr
41	Turn	High	11.06204, 77.33852	15 KM/Hr
42	Turn	Medium	11.06050, 77.34154	30 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
3	hospital	Dhanvantri Multi Speciality Hospital	11.451362, 77.766602	30 km/h	Medium
4	hospital	Dhanvanthri Hospital	11.4496712, 77.7593772	30 km/h	Medium
5	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
8	hospital	Thanish Siddha Hospital	11.430003, 77.674964	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

	type	name	coordinates	speed_limit	risk_level
11	clinic	Harshitha Clinic	11.4313207, 77.674718	30 km/h	Medium
12	clinic	Erode Cancer Centre	11.3732, 77.649152	30 km/h	Medium
14	hospital	Irt Hospital	11.2803603, 77.5644118	30 km/h	Medium
16	hospital	Gen Siddha Hospital	11.2375033, 77.5059797	30 km/h	Medium
17	hospital	Vijayamangalm Government Hospital	11.2382827, 77.501687	30 km/h	Medium
19	hospital	Aravind Eye Care Hospital	11.1729469, 77.4574467	30 km/h	Medium
20	clinic	Sri Maha Annai Clinic	11.1707162, 77.4536498	30 km/h	Medium
21	hospital	Ram Doctor Hospital	11.1709391, 77.4532808	30 km/h	Medium
22	clinic	Kumaran Clinic	11.1697553, 77.451543	30 km/h	Medium
23	hospital	Sri Aravindhar Hospital	11.1697756, 77.4448276	30 km/h	Medium
24	clinic	Dr. Raja Clinic	11.1278464, 77.3927768	30 km/h	Medium
25	hospital	Sakthi Sugam Hospital - Tiruppur	11.1151517, 77.3621541	30 km/h	Medium
26	hospital	AG Hospital, Tiruppur	11.1090267, 77.3528045	30 km/h	Medium
27	hospital	Nallini Hospital	11.1091685, 77.353517	30 km/h	Medium
28	clinic	S R Nursing Home, Tiruppur	11.111432, 77.3489019	30 km/h	Medium
29	clinic	Immuno Lab & Health Care	11.1136966, 77.3487122	30 km/h	Medium
30	police	TIRUPPUR NORTH	11.107892, 77.3450511	30 km/h	Medium
31	police	Tiruppur North	11.1066254, 77.3427939	30 km/h	Medium
32	hospital	Tirupur Medical Foundation (P) Limited	11.1090003, 77.3449825	30 km/h	Medium
35	hospital	Lotus Eye Hospital	11.1031666, 77.3474352	30 km/h	Medium
36	clinic	Ramasamy Skin Clinic	11.104714, 77.348272	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
37	hospital	Sankara Hospital , Tiruppur	11.0996262, 77.3440224	30 km/h	Medium
39	hospital	Vimal Hospital - Tiruppur	11.09742, 77.349707	30 km/h	Medium
40	clinic	Eswaran Poly Clinic	11.097679, 77.3470729	30 km/h	Medium
41	clinic	Miracle Healing Zone	11.0972324, 77.3470134	30 km/h	Medium
42	hospital	K N Children Hospital	11.0964068, 77.3495315	30 km/h	Medium
43	clinic	Sree Shanthoshi gastro clinic	11.0954216, 77.3511899	30 km/h	Medium
44	hospital	NSK Hospital, Tiruppur	11.0961562, 77.3494699	30 km/h	Medium
45	hospital	RJR Herbal Hospitals	11.096753, 77.346988	30 km/h	Medium
46	hospital	AMC Super Speciality Hospital	11.0963178, 77.3490793	30 km/h	Medium
47	hospital	Ideal Homeo care	11.0966359, 77.3498083	30 km/h	Medium
48	hospital	PN Hospital - Tiruppur	11.09041, 77.348581	30 km/h	Medium
49	hospital	Ars Hospitals - Tirupur	11.0880071, 77.3469948	30 km/h	Medium
50	hospital	Divya Hospital, Tiruppur	11.0874791, 77.3471518	30 km/h	Medium
51	hospital	Life Guard, Tiruppur	11.07895, 77.34231	30 km/h	Medium
52	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
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
7	school	SSM Matriculation Higher Secondary School	11.4321653, 77.6880046	30 km/h	Medium
13	college	Government polytechnic college	11.2907053, 77.5698726	30 km/h	Medium
15	school	Bharathi Matriculation School	11.2494613, 77.5307028	30 km/h	Medium
18	college	Sasurie Engineering College	11.2171482, 77.4898552	30 km/h	Medium
33	school	Nanjappa Boys Higher Secondary School	11.1044446, 77.3399245	30 km/h	Medium
34	school	St.Joseph's Matriculation School	11.1046832, 77.3422087	30 km/h	Medium
38	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: 11.44029, 77.87544



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.44893, 77.87413



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45127, 77.86734



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.45350, 77.85700



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45845, 77.85141



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.45889, 77.85136

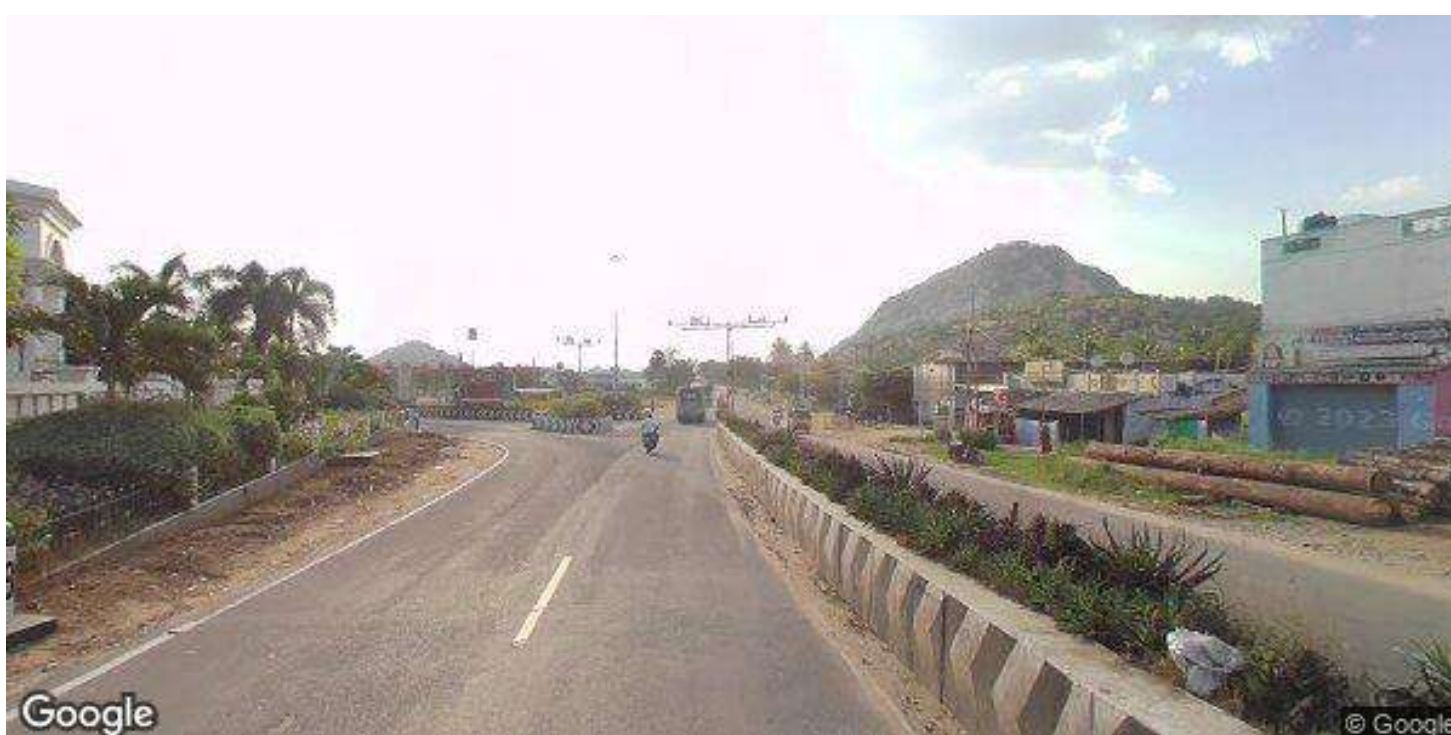


Risk Type: Turn

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: 11.46317, 77.84906



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.44971, 77.77586



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.43175, 77.67757



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: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23685, 77.50236



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.23675, 77.50215



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23622, 77.50210



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.23396, 77.50105



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.23329, 77.49966



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.18329, 77.46249



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: 11.17497, 77.45961



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17383, 77.45750



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.17133, 77.45590



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16959, 77.44438



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16950, 77.44376



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16364, 77.43649



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.16259, 77.43103



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.15161, 77.42320



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14985, 77.42215



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.14892, 77.42022



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.13893, 77.41649



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: 11.13007, 77.40331



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.12475, 77.38681



Risk Type: Turn
Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.12251, 77.38307



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10807, 77.34103



Risk Type: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.10780, 77.34080



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.10310, 77.34634



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: Turn

Risk Level: High

Speed Limit: 15 KM/Hr

Coordinates: 11.06204, 77.33852



Risk Type: Turn

Risk Level: Medium

Speed Limit: 30 KM/Hr

Coordinates: 11.06050, 77.34154
