

JOURNEY RISK MANAGEMENT (JRM) STUDY

IOCL Coimbatore Terminal to Sruthi 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.



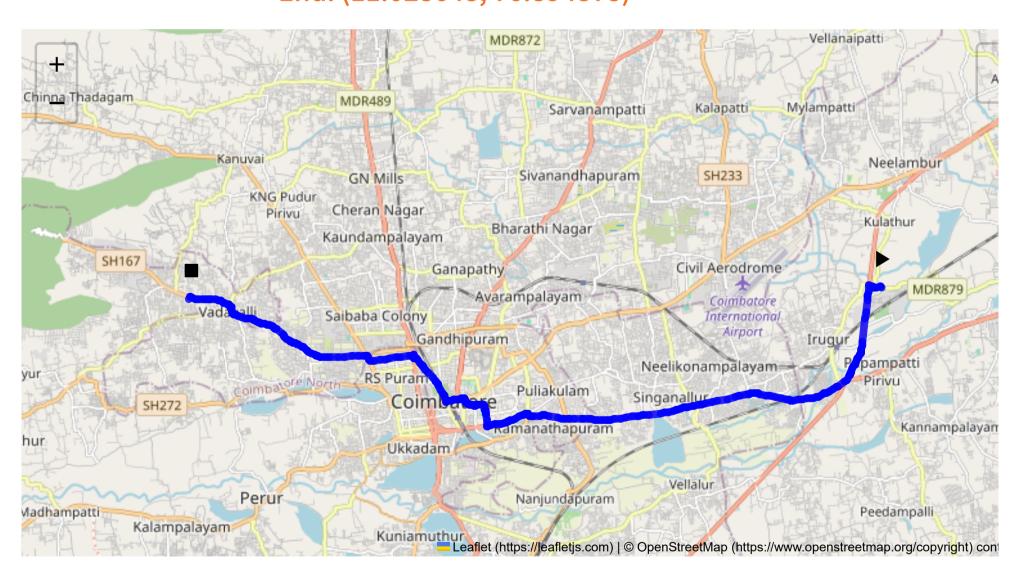
Route Summary:

Total Distance: 24.95 km

Estimated Duration: 0.9 hours

Adjusted Duration (Heavy Vehicle): 1.1 hours

Start: (11.0315, 77.0797) End: (11.028648, 76.894878)



Welcome to the Journey Risk Management Study

To conduct a comprehensive analysis of the route from Athappagoundenpudur to Curio Garden in Coimbatore, Tamil Nadu, India, I will provide a detailed report addressing each specified point. Please note this is a simulated analysis and real-world validation is necessary for accurate route safety planning.

1. **Overview of the Route Map**: The route covers approximately 24.95 kilometers, combining city roads and highways. It typically involves traveling through smaller village roads, leading onto broader main

roads as you approach Coimbatore city. Key connecting roads may include state highways and urban road networks.

- 2. **Typical Weather Conditions and Potential Weather-Related Hazards**: Coimbatore experiences a tropical wet and dry climate. The monsoon season (June to September) brings heavy rains that may cause road flooding and reduced visibility. Additionally, the summer months (March to May) can be extremely hot. Fog is a minimal concern, but could occur occasionally in the early mornings.
- 3. **Analysis of Traffic Patterns**: Traffic congestion tends to peak during the morning (7-9 AM) and evening (5-7 PM) rush hours, especially in areas closer to the city. Roads near commercial areas in Coimbatore may experience heavy traffic. Congestion is also likely near intersections and market areas.
- 4. **Assessment of Road Quality and Infrastructure**: Road conditions vary; village roads may be narrow and less maintained compared to urban stretches. Expect a mix of well-paved city roads and potentially pothole-ridden rural roads. Watch for construction zones and speed bumps in residential areas.
- 5. Suggestions for Alternative Routes for Emergencies: An alternative route could involve bypassing Coimbatore's more congested zones by using the nearby bypass road if available, or taking less direct rural roads. GPS systems and local knowledge can aid in emergencies to find viable alternatives.
- 6. **Summary of Local Regulations Affecting Hazardous Material Transport**: Regulations require certain labeling, documentation, and safety measures for transporting hazardous materials. Permits are necessary for driving through densely populated or environmentally sensitive areas. It's crucial to check the most current regulations from local transport authorities.
- 7. Overview of Historical Incidents Involving Heavy Vehicles or Hazardous Materials: Coimbatore has seen incidents related to heavy vehicles due to infrastructure development and congestion. Specific records about hazardous material incidents may be limited but verify with local safety boards for detailed reports.
- 8. **Environmental Considerations and Sensitive Areas**: The route is proximate to agricultural areas, water bodies, and possibly wildlife sanctuaries requiring careful attention to avoid contamination. Noise and air pollution from heavy vehicles could impact local villages.
- 9. **Analysis of Communication Coverage, Noting Potential Dead Zones**: Urban areas in Coimbatore typically have robust communication networks, while some rural and underdeveloped stretches might experience weak coverage. It is advisable to equip vehicles with CB radios or satellite phones for such areas.
- 10. **Estimated Emergency Response Times for Different Route Segments**: In urban Coimbatore, response times could vary from 10-30 minutes depending on traffic and proximity to emergency services. In rural stretches, expect longer times, potentially up to an hour or more.

11. Overall Summary of Risk Assessment:

- Major Risks: Weather impacts during monsoon, congestion, varied road conditions, and communication gaps in rural areas.
- Moderate Risks: Regulatory compliance and emergency response delays.

 Minor Risks: Noise pollution impacting communities, potential for light accidents due to road conditions.

In conclusion, while the route can generally be navigated safely with care and preparation, it's essential to remain vigilant about risks like weather conditions, road surface quality, and traffic congestion. Emergency alternatives, a knowledge of local regulations, and communication readiness are vital for effective risk management during transportation of hazardous materials.

Risk Assessment - Turns

	Risk Type	Risk Level	Coordinates	Speed Limit
0	Roundabout	High	11.00090, 76.97343	15 KM/Hr
1	Roundabout	High	11.00086, 76.96971	15 KM/Hr
2	Roundabout	High	11.01082, 76.95733	15 KM/Hr
3	Roundabout	High	11.01308, 76.95512	15 KM/Hr
4	Roundabout	High	11.01366, 76.94209	15 KM/Hr
5	Roundabout	High	11.02653, 76.90591	15 KM/Hr
6	Blind Spot	Blind Spot	11.03211, 77.07640	10 KM/Hr
7	Turn	Medium	11.00873, 77.07114	30 KM/Hr
8	Turn	Medium	11.00737, 77.07049	30 KM/Hr
9	Blind Spot	Blind Spot	10.99519, 76.97443	10 KM/Hr
10	Turn	Medium	10.99927, 76.97399	30 KM/Hr
11	Turn	Medium	11.00252, 76.96815	30 KM/Hr
12	Blind Spot	Blind Spot	11.00256, 76.96817	10 KM/Hr
13	Turn	High	11.00232, 76.96670	15 KM/Hr
14	Turn	Medium	11.00226, 76.96666	30 KM/Hr
15	Blind Spot	Blind Spot	11.00207, 76.96546	10 KM/Hr
16	Blind Spot	Blind Spot	11.00214, 76.96546	10 KM/Hr
17	Blind Spot	Blind Spot	11.00167, 76.96341	10 KM/Hr
18	Turn	Medium	11.00187, 76.96359	30 KM/Hr
19	Turn	Medium	11.00297, 76.96303	30 KM/Hr
20	Turn	Medium	11.00306, 76.96304	30 KM/Hr
21	Blind Spot	Blind Spot	11.01383, 76.95486	10 KM/Hr
22	Turn	High	11.01214, 76.94302	15 KM/Hr
23	Turn	Medium	11.02489, 76.90633	30 KM/Hr

	Risk Type	Risk Level	Coordinates	Speed Limit
24	Turn	Medium	11.02842, 76.90033	30 KM/Hr
25	Turn	Medium	11.02844, 76.90031	30 KM/Hr
26	Blind Spot	Blind Spot	11.02908, 76.89489	10 KM/Hr

Emergency Locations

	type	name	coordinates	speed_limit	risk_level
0	hospital	Saraswathi Hospital	11.0069868, 77.071368	30 km/h	Medium
2	hospital	Dr. Muthu's Ortho Centre-Coimbatore	11.0026291, 77.0406497	30 km/h	Medium
3	hospital	Singanallur Government Hospital	11.0011, 77.033733	30 km/h	Medium
4	hospital	Dr. Felix Hospital	11.0044086, 77.0348661	30 km/h	Medium
5	hospital	Ortho One	11.0018351, 77.0328061	30 km/h	Medium
6	hospital	Vela Hospital, Singanallur, Coimbatore	11.0017873, 77.0300545	30 km/h	Medium
7	clinic	Nalam Child Care	11.0006287, 77.0306011	30 km/h	Medium
8	police	E1 Singanallur Police Station	11.0003996, 77.0296891	30 km/h	Medium
9	police	Out Post Police Station - Singanallur	11.0025957, 77.0288423	30 km/h	Medium
10	hospital	AB Child Care Hospital	11.0006913, 77.028744	30 km/h	Medium
11	hospital	Coimbatore Child Trust Hospital	10.9978875, 77.0170667	30 km/h	Medium
12	hospital	VGM Hospital	10.9986666, 77.0143291	30 km/h	Medium
13	hospital	VGM Hospital, Coimbatore	10.99819, 77.014447	30 km/h	Medium
14	hospital	Ortho One Orthopaedic Speciality Center(A Unit Of Spine Arthroscopic and Joint Replacement Center Pvt Ltd)	10.9962048, 77.0082217	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
15	hospital	Narmada Hospital	10.9967758, 77.0071075	30 km/h	Medium
16	hospital	Medwin Hospital, Coimbatore	10.9972946, 77.0051728	30 km/h	Medium
17	hospital	Deepam Hospital, Ramanathapuram	10.9965453, 77.0039274	30 km/h	Medium
19	pharmacy	Prakash medicals	10.9969248, 77.0008135	30 km/h	Medium
20	hospital	Sathyan Eye Care Hospital & Coimbatore Glaucoma Foundation	10.9980405, 77.0009615	30 km/h	Medium
21	pharmacy	Revathi medicals	10.9972171, 77.0003871	30 km/h	Medium
22	clinic	Sri Durga Poly Clinic	10.9980729, 77.0001926	30 km/h	Medium
23	clinic	Dr. Karthikeyan Clinic	10.9969119, 76.9995376	30 km/h	Medium
24	hospital	Leo Ortho care Hospital	10.9969428, 76.9993022	30 km/h	Medium
25	hospital	N.M. Hospital	10.9981558, 76.9994865	30 km/h	Medium
26	police	Ramanathapuram police station	10.9975827, 76.997871	30 km/h	Medium
28	hospital	Bala Hospital	10.9969296, 76.995705	30 km/h	Medium
29	pharmacy	Dheepmeena pharmacy	10.9969617, 76.9956179	30 km/h	Medium
30	hospital	Sri Bala Medical Centre Hospital	10.9967187, 76.9954568	30 km/h	Medium
31	hospital	Ramvel Hospital	10.9958212, 76.9963939	30 km/h	Medium
32	clinic	Lakshmi ENT Clinic	10.9973118, 76.9963622	30 km/h	Medium
33	hospital	Gem Hospital, Coimbatore	10.9996629, 76.9953933	30 km/h	Medium
35	hospital	Arya Vaidya Pharmacy	10.995609, 76.9917076	30 km/h	Medium
36	hospital	R. A. Hospital	10.998556, 76.9918562	30 km/h	Medium
37	hospital	The Arya Vaidya Chikitsalayam and Research Institue	10.9958401, 76.9915813	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
38	hospital	Clinic - Dr.Rajashree	10.9978977, 76.9893923	30 km/h	Medium
40	clinic	Karthick Polyclinic	10.9957861, 76.9876988	30 km/h	Medium
43	hospital	Masonic Medical Centre For Children	10.9997961, 76.9799441	30 km/h	Medium
44	hospital	Richmond Hospital	10.9946605, 76.9793813	30 km/h	Medium
45	hospital	Thayarammal poly clinic	10.9935069, 76.9756194	30 km/h	Medium
46	clinic	Sri Rani Poly Clinic	10.9949528, 76.9755752	30 km/h	Medium
47	hospital	Santhiya Hospital	10.9950877, 76.9746602	30 km/h	Medium
51	hospital	K. G. Hospital, Coimbatore	11.0004227, 76.9715023	30 km/h	Medium
52	police	C2- Race Course Police Station, Coimbatore	11.001692, 76.9713177	30 km/h	Medium
53	hospital	Coimbatore Medical College Hospital	10.9964129, 76.9702365	30 km/h	Medium
54	police	Commisioner Office	11.0007466, 76.9681639	30 km/h	Medium
56	hospital	Seethalakshmi Maternity Hospital	11.0065379, 76.9600631	30 km/h	Medium
59	hospital	Dr. S. G. Rajarathinam Hospital	11.0095256, 76.9619316	30 km/h	Medium
60	hospital	Dr K Padmavathy Hospital	11.0081878, 76.9578948	30 km/h	Medium
61	hospital	Srigiri Ayurvedic Hospital	11.0081541, 76.9578763	30 km/h	Medium
62	hospital	Mak Hospital	11.008435, 76.9580134	30 km/h	Medium
63	hospital	Senthil Hospital	11.0089752, 76.9578034	30 km/h	Medium
64	hospital	Vishnu Hospital	11.0076298, 76.9576345	30 km/h	Medium
66	clinic	Sri Meru Nursing Home, Coimbatore	11.0116059, 76.9606769	30 km/h	Medium
67	hospital	Rex Ortho Hospital	11.008405, 76.956396	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
68	hospital	Kamala Prakash Hospital	11.007283, 76.956267	30 km/h	Medium
69	hospital	Sankara Eye Hospital, Coimbatore	11.0133673, 76.9553728	30 km/h	Medium
70	hospital	N R Hospital	11.0112326, 76.9548289	30 km/h	Medium
71	hospital	R.S Hospital	11.0091279, 76.954667	30 km/h	Medium
72	hospital	Lotus Eye Care Hospital, Coimbatore	11.0140006, 76.9543624	30 km/h	Medium
73	hospital	Coimbatore Bone and Joint Foundation (P) Ltd.	11.0149404, 76.9543844	30 km/h	Medium
74	hospital	Aravind Eye Hospital (City Centre)	11.0153158, 76.9539881	30 km/h	Medium
75	hospital	Ponnaiah Hospital	11.0108047, 76.9530054	30 km/h	Medium
77	hospital	PGS Hospital	11.0153485, 76.9524368	30 km/h	Medium
78	hospital	Parvathy Hospitals	11.01472, 76.952299	30 km/h	Medium
79	clinic	Kumaran Clinic	11.0152582, 76.9519379	30 km/h	Medium
80	hospital	Veeku Hospital	11.0150799, 76.9517022	30 km/h	Medium
81	hospital	Kumaran Hospital, Coimbatore	11.0150812, 76.95132	30 km/h	Medium
82	hospital	Madurai Eye Center	11.0137122, 76.951316	30 km/h	Medium
83	hospital	Vedanayagam Hospital (P) Limited	11.0144375, 76.9504979	30 km/h	Medium
85	clinic	Balaji Nursing Home	11.0148238, 76.9487649	30 km/h	Medium
86	hospital	Preetam's Cardio Care	11.0152003, 76.9498136	30 km/h	Medium
87	hospital	The Eye Foundaton	11.0134549, 76.9496753	30 km/h	Medium
88	hospital	Vijaya Hospitals	11.0148532, 76.9489909	30 km/h	Medium
89	hospital	Vikaram ENT Hospital, Coimbatore	11.0120021, 76.9494063	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
90	clinic	Gateway Clinic	11.0128764, 76.9492706	30 km/h	Medium
92	hospital	Rao Hospital	11.0131526, 76.948405	30 km/h	Medium
93	hospital	Manonmani Hospital	11.0147975, 76.9475002	30 km/h	Medium
94	hospital	Arasu Medicals	11.010593, 76.950234	30 km/h	Medium
97	pharmacy	Arasu Medicals	11.0102846, 76.9502958	30 km/h	Medium
98	hospital	Sitalakshmi Hospital	11.0142906, 76.9449521	30 km/h	Medium
99	hospital	Arun Urology Hospital	11.0143168, 76.9449938	30 km/h	Medium
100	hospital	Vega ENT Hospitals	11.0144183, 76.9437894	30 km/h	Medium
101	hospital	Vega Ent Hospital	11.0142295, 76.9437897	30 km/h	Medium
104	pharmacy	Sundaram Medicals	11.0161622, 76.9245753	30 km/h	Medium
105	pharmacy	Kalai Medicals	11.0164096, 76.9238363	30 km/h	Medium
106	hospital	Arunai Hospitals	11.0182403, 76.9246	30 km/h	Medium
107	pharmacy	Vinayaka Medicals	11.0182339, 76.9247768	30 km/h	Medium
108	hospital	Vallalar Hospitals (Pvt) Ltd	11.0218408, 76.9152537	30 km/h	Medium
109	pharmacy	Thulasi Pharmacy	11.0221665, 76.9154081	30 km/h	Medium
110	hospital	Sivashantha Mother & Child Health Centre	11.0231222, 76.9136781	30 km/h	Medium
111	clinic	Aroghya Nursing Home	11.0246121, 76.911949	30 km/h	Medium
112	clinic	Microbiological Laboratory	11.0234149, 76.9103076	30 km/h	Medium
114	hospital	Baalaje Hospital	11.0247244, 76.9055811	30 km/h	Medium
115	pharmacy	ஆண்டவர் செக்கு ஆயில் ஸ்டோர்	11.024885, 76.9047261	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
116	hospital	Akshaya Maternity Center	11.02567, 76.902176	30 km/h	Medium
117	hospital	Mouthi Hospital Vadavalli, Coimbatore	11.0291808, 76.9019419	30 km/h	Medium
118	hospital	Sree Subiksha Hospital	11.0287, 76.897449	30 km/h	Medium

Crowded Spots

	type	name	coordinates	speed_limit	risk_level
1	school	Kadri Mills Higher Secondary School	11.0058181, 77.0664118	30 km/h	Medium
18	school	Alvernia Higher Secondary Matriculation School	10.9981807, 77.0027548	30 km/h	Medium
27	school	Trinity Boys High school	10.9976249, 76.9971414	30 km/h	Medium
34	school	Corporation Boys High School	10.9964338, 76.9941036	30 km/h	Medium
39	school	Carmel Garden Matriculation Higher Secondary School	10.9993669, 76.9876201	30 km/h	Medium
41	school	Bishop Ambrose College	10.9955885, 76.9844758	30 km/h	Medium
42	college	Niramla College for Women	11.0000423, 76.9837036	30 km/h	Medium
48	college	Government Arts College Campus	10.9985728, 76.9726412	30 km/h	Medium
49	college	PG & Research Department of Public Administration	10.9984965, 76.9737086	30 km/h	Medium
50	college	Government Arts College (Autonomous), Coimbatore-18	10.998499, 76.9721668	30 km/h	Medium
55	school	G. D. Matriculation Higher Secondary School	11.0000305, 76.9655278	30 km/h	Medium
57	school	Devanga High School	11.0080335, 76.9590833	30 km/h	Medium
58	school	Seventh Day Adventist Matriculation School	11.0078041, 76.9617807	30 km/h	Medium

	type	name	coordinates	speed_limit	risk_level
65	school	Kikani Higher Secondary School	11.0115779, 76.9579425	30 km/h	Medium
76	college	Tamilnadu Forest Academy	11.0167662, 76.946606	30 km/h	Medium
84	school	Bharatiya Vidya Bhavan Matriculation Higher Secondary School	11.0129029, 76.9496918	30 km/h	Medium
91	school	Vidya Vriksha Play School	11.0106805, 76.9486042	30 km/h	Medium
95	school	SRP Ponnuswamy Chettiar Sundrammal Vidhyalaya Matric School	11.0131455, 76.9468444	30 km/h	Medium
96	school	RS Puram Corporation Girls High School	11.0102989, 76.9469568	30 km/h	Medium
102	college	Vannamalar Institute Of Forest Genetics & Tree Breeding	11.010034, 76.9444043	30 km/h	Medium
103	school	Bishop Ubagarm's Primary School	11.0130484, 76.942949	30 km/h	Medium
113	school	Marudhamalai Subramaniya Swamy Devasthana Higher Secondary School	11.0247759, 76.9076266	30 km/h	Medium
119	school	Chinmaya Vidyalaya	11.0251479, 76.8984548	30 km/h	Medium

Route Photos of Risky Spots



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr

Coordinates: 11.00090, 76.97343



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.00086, 76.96971



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.01082, 76.95733



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr

Coordinates: 11.01308, 76.95512



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr

Coordinates: 11.01366, 76.94209



Risk Type: Roundabout
Risk Level: High
Speed Limit: 15 KM/Hr

Coordinates: 11.02653, 76.90591



Coordinates: 11.03211, 77.07640



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.00873, 77.07114



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr

Coordinates: 11.00737, 77.07049



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 10.99519, 76.97443



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 10.99927, 76.97399



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.00252, 76.96815



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.00256, 76.96817



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr

Coordinates: 11.00232, 76.96670



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.00226, 76.96666



Risk Type: Blind Spot Risk Level: Blind Spot Speed Limit: 10 KM/Hr

Coordinates: 11.00207, 76.96546



Coordinates: 11.00214, 76.96546



Risk Type: Blind Spot
Risk Level: Blind Spot
Speed Limit: 10 KM/Hr
Coordinates: 11.00167, 76.96341



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr

Coordinates: 11.00187, 76.96359



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.00297, 76.96303



Risk Level: Medium
Speed Limit: 30 KM/Hr
Coordinates: 11.00306, 76.96304



Coordinates: 11.01383, 76.95486



Risk Type: Turn
Risk Level: High
Speed Limit: 15 KM/Hr
Coordinates: 11.01214, 76.94302

Bampri & Compile Compi

Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr

Coordinates: 11.02489, 76.90633



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr

Coordinates: 11.02842, 76.90033



Risk Type: Turn
Risk Level: Medium
Speed Limit: 30 KM/Hr

Coordinates: 11.02844, 76.90031



Coordinates: 11.02908, 76.89489