

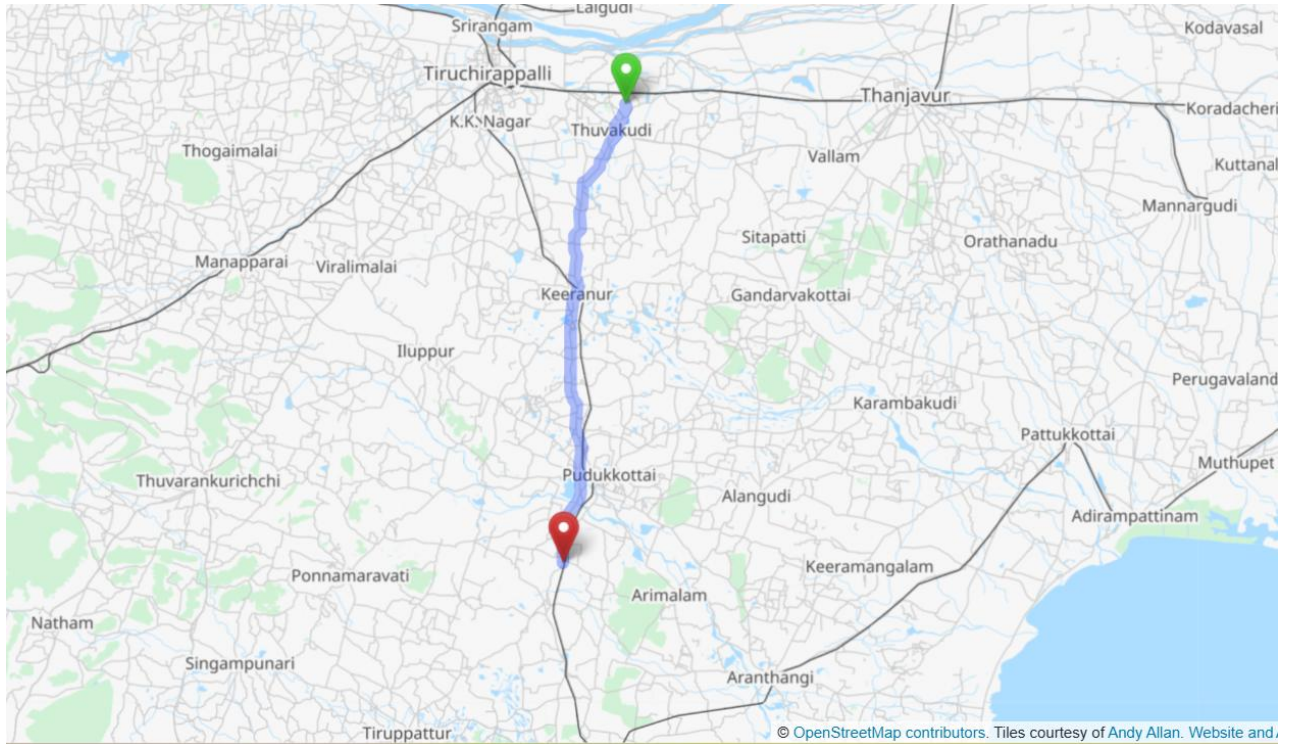


IndianOil

WELCOME TO JOURNEY
RISK MANAGEMENT (JRM)
STUDY USING ARTIFICIAL
INTELLIGENCE (AI)
FOR IOCL TRICHY
TERMINAL

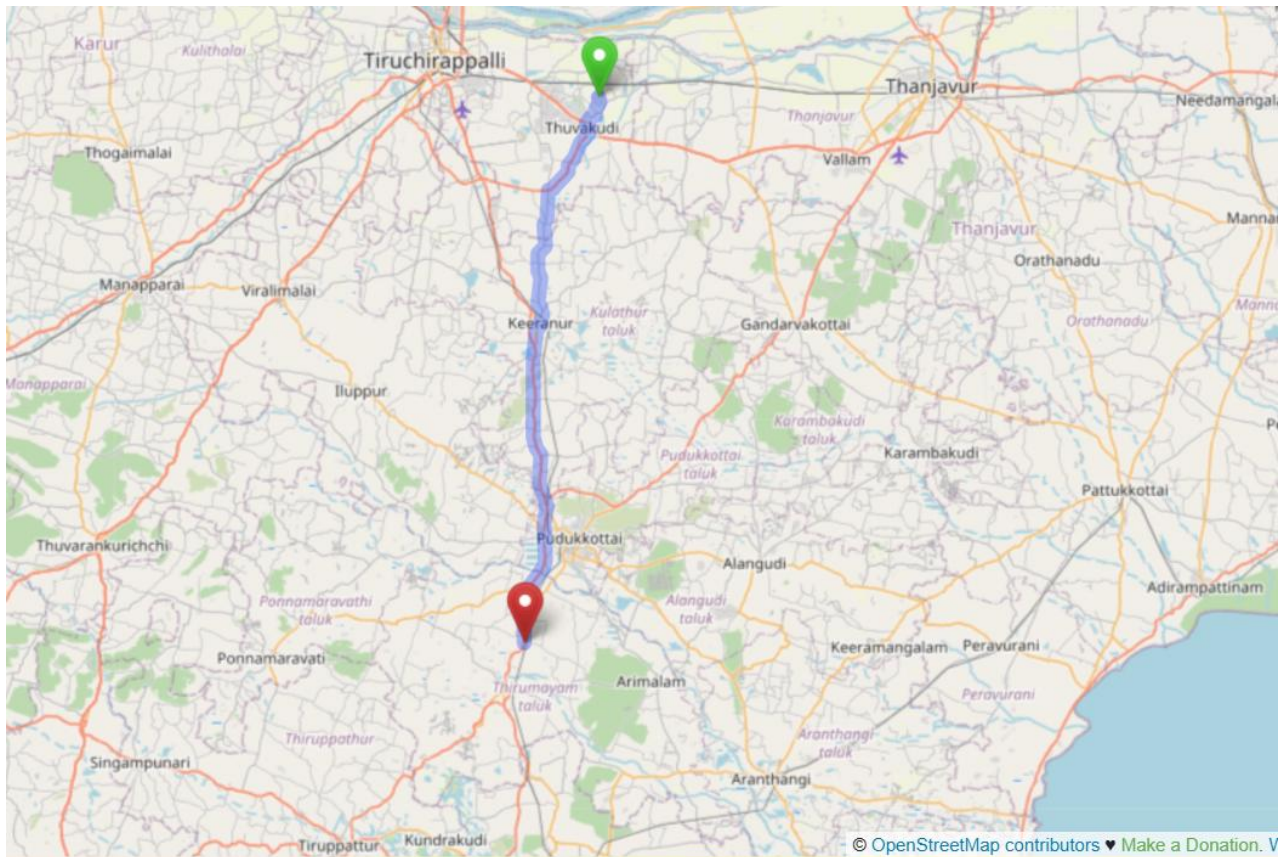
JOURNEY RISK MANAGEMENT REPORT

IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO G.S.S. ENTERPRISES
10.288709645598935 , 78.76880742470799) TOTAL DISTANCE – 60.4 KM



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Welcome to the Journey Risk Management Study for G.S.S. ENTERPRISES

Total distance: 60.4 KM; Start with: (10.7753 , 78.8368), End with: 10.288709645598935 , 78.76880742470799)

- Route Safety Analysis Report
- 1. Overview of the Route Map

The route from Trichy Terminal (T.N). TO GSS ENTERPRISES Take IS
Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, At Jude Digital Studios,

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continue onto Thuvakudi toSIDCO& Indian oil Storage, Take Outer Ring Rd/Trichy Bypass to Kanthalur Rd in Sooriyur, Continue on Kanthalur Rd to Pallathuppatti, urn left at AMMAN CARS& BIKES onto NH336, Turn right onto SH 20. and Total distance from Trichy Terminal To G.S.S. ENTERPRISES IS 60.4 KM.

Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions: Trichy Terminal (T.N) To G.S.S. ENTERPRISES experiences a tropical climate with heavy monsoon rains from June to September, high humidity, and moderate temperatures throughout the year ,The summers are short and sweltering; the winters are short, cool, and dry; and it is mostly clear year-round. Over the course of the year, the temperature typically varies from 60.8°F to 110°F and is rarely below 60.8°F to 110°F.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Nov	Oct	Dec	Year
Record high °C (°F)	33.0 (91.4)	38.0 (100.4)	41.0 (105.8)	43.0 (109.4)	43.0 (109.4)	42.0 (107.6)	40.0 (104.0)	39.0 (102.2)	38.0 (100.4)	37.0 (98.6)	34.0 (93.2)	33.0 (91.4)	43.0 (109.4)
Average high °C (°F)	30.27 (86.49)	32.88 (91.18)	36.0 (96.8)	38.27 (100.89)	38.79 (101.82)	36.78 (98.2)	36.17 (97.11)	35.4 (95.72)	35.03 (95.05)	32.9 (91.22)	30.38 (86.68)	29.34 (84.81)	34.35 (93.83)
Daily mean °C (°F)	26.57 (79.83)	28.67 (83.61)	31.87 (89.37)	34.46 (94.03)	35.18 (95.32)	33.45 (92.21)	32.92 (91.26)	32.18 (89.92)	31.78 (89.2)	29.86 (85.75)	27.44 (81.39)	26.32 (79.38)	30.89 (87.6)
Average low °C (°F)	19.88 (67.78)	20.93 (69.67)	24.04 (75.27)	27.62 (81.72)	28.89 (84.0)	27.59 (81.66)	27.04 (80.67)	26.45 (79.61)	25.95 (78.71)	24.64 (76.35)	22.43 (72.37)	20.93 (69.67)	24.7 (76.46)
Record low °C (°F)	16.0 (60.8)	17.0 (62.6)	19.0 (66.2)	22.0 (71.6)	25.0 (77.0)	25.0 (77.0)	24.0 (75.2)	23.0 (73.4)	22.0 (71.6)	21.0 (69.8)	18.0 (64.4)	17.0 (62.6)	16.0 (60.8)
Average precipitation mm (inches)	12.32 (0.49)	20.82 (0.82)	26.34 (1.04)	57.63 (2.27)	102.32 (4.03)	61.68 (2.43)	63.88 (2.51)	124.75 (4.91)	141.74 (5.58)	231.04 (9.1)	159.62 (6.28)	71.08 (2.8)	89.44 (3.52)
Average precipitation days (≥ 1.0 mm)	3.09	3.27	5.36	7.36	16.73	12.36	13.55	18.91	19.64	22.73	17.55	9.73	12.52
Average relative humidity (%)	72.01	65.19	58.27	53.97	51.56	50.59	51.14	56.11	60.33	70.18	77.39	76.61	61.95
Mean monthly sunshine hours	11.19	11.34	11.34	11.63	12.65	12.68	11.83	11.24	11.05	9.11	7.68	8.29	10.84

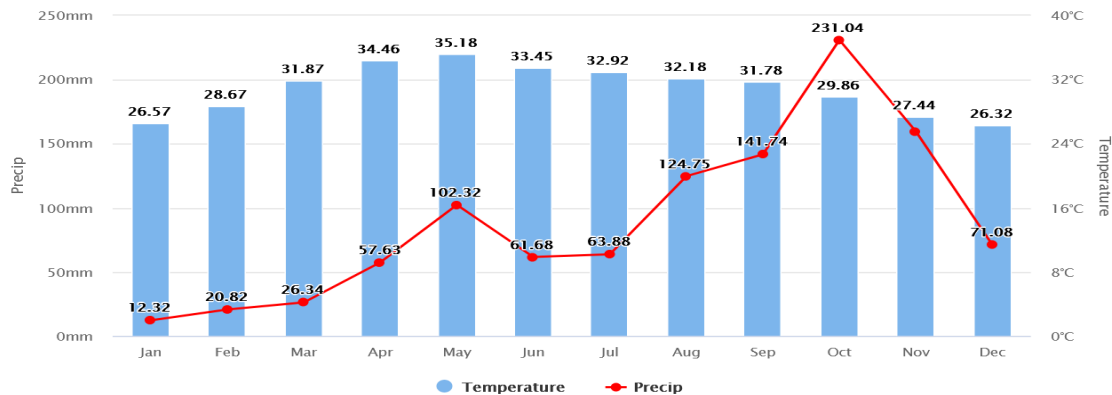
Weather-Related Hazards: Trichy Terminal (T.N) To G.S.S. ENTERPRISES Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

The Long-range 12 day forecast also includes detail for weather today. Live weather reports from Trichy Terminal (T.N) To G.S.S. ENTERPRISES weather stations and weather warnings that include risk of thunder, high UV index and forecast gales.

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Climate Graph

The chart below shows the mean monthly temperature and precipitation of Tiruchirappalli in recent years.



Analysis of Traffic Patterns

Peak Hours:

Typically, Trichy Terminal (T.N) To G.S.S. ENTERPRISES peak traffic hours are from 8:00 AM to 11:00 AM and 4:00 PM to 8:00 PM on weekdays.

Congestion-Prone Areas:

- Old Burma Colony
 - TIRUCHY PUBLIC SCHOOL
 - Wonder World Theme Park
 - Goverment TB Hospital
 - Km food product
 - BHARAT PETROLEUM CORPORATION LIMITED BOTTLING PLANT,
 - Government Higher Secondary School
-
- Assessment of Road Quality and Infrastructure

Road Quality: Generally, the roads are well-maintained but can suffer from potholes and waterlogging on State Highway during the monsoon season.

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Infrastructure: Adequate signage, street lighting, and traffic signals are present, but some areas may lack proper drainage systems, leading to waterlogging.

- **Suggestions for Alternative Routes for Emergencies**

Alternative Route 1-). The route from Trichy Terminal (T.N). TO GANESG PETROL BUNK Take IS Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, At Jude Digital Studios, continue onto Thuvakudi to SIDCO& Indian oil Storage, Take Outer Ring Rd/Trichy Bypass to Kanthalur Rd in Sooriyur, Continue on Kanthalur Rd to Pallathuppatti, turn left at AMMAN CARS& BIKES onto NH336, Turn right onto SH 20.

Alternative Route 2 -). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, At Jude Digital Studios, continue onto Thuvakudi toSIDCO& Indian oil Storage, Take NH336 to SH 201 in Namanasamuthiram, Turn right onto SH 201.

Summary of Local Regulations Affecting Hazardous Material Transport

Regulations: Transport of hazardous materials is regulated by the Petroleum and Explosives Safety Organization (PESO) and the Motor Vehicles Act. Specific routes and timings may be restricted for hazardous material transport.

Permits: Ensure all necessary permits and documentation are in place.

- **Overview of Historical Incidents**

Historical Incidents: There have been occasional incidents involving heavy vehicles, particularly during the monsoon season due to waterlogging and poor visibility. No major incidents involving hazardous materials have been reported recently.

- **Environmental Considerations and Sensitive Areas**

- **Sensitive Areas:** Old Burma Colony, TIRUCHY PUBLIC SCHOOL, Wonder World Theme Park, Government TB Hospital, Km food product, BHARAT PETROLEUM CORPORATION LIMITED BOTTLING PLANT.
- **Educational institutions:** State Institute Of Hotel Management and Catering Technology, Arasu Education - Jcb Institute in Trichy, Gnanam School of Business.
- **Hospital:** Dr Kamali's Home Clinic, Aruna Hospital,
- **Gas Station:** IndianOil, Nayara Petrol Pump Nayara Petrol Pump, IndianOil, HP Petrol Pump, IndianOil, Bharat Petroleum, Petrol Pump -Raj Agency, IndianOil.

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- **Environmental Impact:** Minimize noise and air pollution, especially in residential and sensitive areas.
- **Air pollution:** Volatile chemicals evaporate during the filling and discharge process, or from leaks.
- **Loss of habitats:** Oil and gas operations can degrade animal habitats and disrupt migratory pathways.
- **Oil spills:** Oil spills can be devastating for animals and humans.
- **Greenhouse gas emissions:** Oil and gas operations can emit greenhouse gases like methane.
- **Analysis of Communication Coverage**

Communication Coverage: Generally good throughout the route, but potential dead zones may exist densely built-up areas or underpasses.

Dead Zones: Monitor for any communication blackouts, especially in underpasses or near large buildings.

- **Estimated Emergency Response Times:-** Old Burma Colony, TIRUCHY PUBLIC SCHOOL, Wonder World Theme Park, Government TB Hospital, Km food product, BHARAT PETROLEUM CORPORATION LIMITED BOTTLING PLANT..areas like have quicker response times (15- 20 minutes). Congested areas may experience delays (up to 30-40 minutes).

Overall Summary of Risk Assessment

- **Risk Level:** Moderate to High, especially during monsoon season.
- **Key Risks:** Waterlogging, traffic congestion, and potential communication dead zones.
- **Mitigation Measures:** Plan travel during non-peak hours, ensure proper vehicle maintenance, and have alternative routes and emergency contacts ready and control on the speed limit of the vehicle.
- **Road Signage for TT/PT Driver**














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Road Traffic Signs in India

Mandatory/Regulatory Signs

 Stop	 Give way	 No entry	 Straight prohibited
 One way	 One way	 Vehicles prohibited in both directions	 Horn prohibited
 Pedestrians prohibited	 Cycles prohibited	 Right turn prohibited	 Left turn prohibited
 U-turn prohibited	 Overtaking prohibited	 Trucks prohibited	 Tonga prohibited

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 <p>All motor vehicles prohibited</p>	 <p>Hand cart prohibited</p>	 <p>Bullock cart prohibited</p>	 <p>Bullock and hand carts prohibited</p>
 <p>No parking</p>	 <p>No parking or stopping</p>	 <p>Speed limit</p>	 <p>Axle load limit</p>
 <p>Width limit</p>	 <p>Weight limit</p>	 <p>Length limit</p>	 <p>Load limit</p>
 <p>Restriction and</p>			




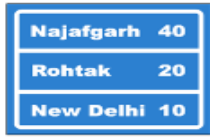
















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Cautionary signs

			
Right hand curve	Left hand curve	Right hand pin bend	Left hand pin bend
			
Right reverse bend	Narrow bridge	Gap in median	Cycle crossing
			
Pedestrian crossing	School	Men at work	Roundabout
			
Narrow road	Road widens	Side road left	Side road right

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Information signs

 <p>Advance direction</p>	 <p>Map type advance direction</p>	 <p>Rotary intersection</p>	 <p>Reassurance</p>
 <p>Direction</p>	 <p>Direction</p>	 <p>Place identification</p>	 <p>Truck lay bay</p>
 <p>Toll booth ahead</p>	 <p>Parking this side</p>	 <p>Parking both sides</p>	 <p>Cycle stand</p>
 <p>Scooter and motor cycle stand</p>	 <p>Taxi stand</p>	 <p>Auto-rickshaw stand</p>	 <p>Cycle-rickshaw stand</p>
 <p>Public telephone</p>	 <p>Filling station</p>	 <p>Hospital</p>	 <p>First aid post</p>

Conclusion

The route for Trichy Terminal (T.N) To G.S.S. ENTERPRISES is generally manageable but poses several risks, particularly during the monsoon season. Proper planning, adherence to regulations, and awareness of potential hazards can significantly mitigate these risks.

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- Risk Assessment - Sharp Turns**

Risk Type	Risk Level	Coordination	Distance From Start	Recommendation Speed
Sharp turn	Medium	10.769517372474736, 78.83735063199906	650 M	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.76584461192607, 78.8361700257199	1.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.764182189802032, 78.83459588401435	1.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.75826698538096, 78.83349398474651	2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.756372549032195, 78.83034570133539	2.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.751346435623256, 78.8252297405902	3.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.749451955814655, 78.83046376176118	3.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.739322086318483, 78.83809834927386	5.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.73638358720799, 78.85765706064745	7.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.733122814995076, 78.87540261560731	9.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.730613315581481, 78.9075879625983	12.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.723935824957472, 78.92931083702165	15.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.720496466902269, 78.93941529718165	16.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.718227178328238, 78.94244663522967	17 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.716915238110442, 78.94868974811423	17.7 KM	20km/hr TO 30 Km/Hr

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Sharp turn	Medium	10.717034532262224, 78.95121165756625	18 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.717266449544763, 78.95436593524407	18.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.720766270598597, 78.96376439526372	19.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.71945911325298, 78.96003076046141	19.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.718657949508776, 78.95859309648579	20.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.717241891210914, 78.95508572420601	20.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.716950198660903, 78.95453759661429	20.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.71088808615262, 78.9558416688753	21.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.710656163985194, 78.95781577463286	21.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.708611024458909, 78.95824492805842	21.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.672882868891097, 78.98920221330918	27 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.668686633204702, 78.98958845139218	27.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.66839141846377, 78.98960990906346	27.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.643015219065195, 78.99498654103147	30.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.625206404186365, 78.99565428827928	32.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.62478460858532, 78.9957401189644	32.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.574357794339809, 79.01368001472272	38.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.573825676264207, 79.01064867667473	38.9 KM	20km/hr TO 30 Km/Hr

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Sharp turn	Medium	10.555280810368673, 78.99235389940597	41.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.55375530802717, 78.98932256135797	42.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.546659848677978, 78.98491990351165	43.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.536473949790345, 78.97096810505661	45.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.412339485186124, 78.78920089118412	52.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.33797436581919, 78.77159585623242	53.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.32430094969298, 78.77305191536144	55.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.31791981838706, 78.77040453491922	55.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.308152530575784, 78.7681542617198	56.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.30724090159075, 78.76881610677844	57 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.302541918198077, 78.77017507999521	57.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.302038570141677, 78.76824675640592	57.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.29980270253144, 78.7687354288789	58 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.29929658848644, 78.76892832996461	58.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.296323152025716, 78.76843000213276	58.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.29371346392934, 78.76756194721936	58.8 km	10km/hr TO 15 Km/Hr
Sharp turn	High	10.29238488717874, 78.76957133352875		10km/hr TO 15 Km/Hr

- **Risk Assessment - Elevation Changes**

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Risk Type	Specific Risk	Risk Level	Coordination	Elevation Change	Gradient	Recommendation Speed
Elevation Change	Descent	Low	10.7753, 78.8368	-3.02m	-2.96 %	40 km/hr to 50 km/hr
Elevation Change	Descent	Low	10.993921 , 78.326323	-9.28m	-6.28%	40 km/hr to 50 km/hr

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10.769073692604486, 78.83720120889187



10.764113439530249, 78.83446118711721



10.758209570013967, 78.83344387884853

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10.751314343624747, 78.82530656733346



10.75126610223314, 78.82518044583597

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10.749591316479634, 78.83018387464983



10.749104378396837, 78.83128038055115

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10.739027364156707, 78.83807729846241



10.723600498494587, 78.92918549372726

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10.716821349530969, 78.95251175926562



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10.711197851415859, 78.95596724397815



10.600833535970231, 78.76120460878047

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10.699496414281612, 78.73237308824935



10.692360156306822, 78.79247909334298

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10.302122330961106, 78.76838049635099



10.292517657142964, 78.76948529401845

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10.288744857990507, 78.768714648292

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