

JOURNEY RISK MANAGEMENT REPORT

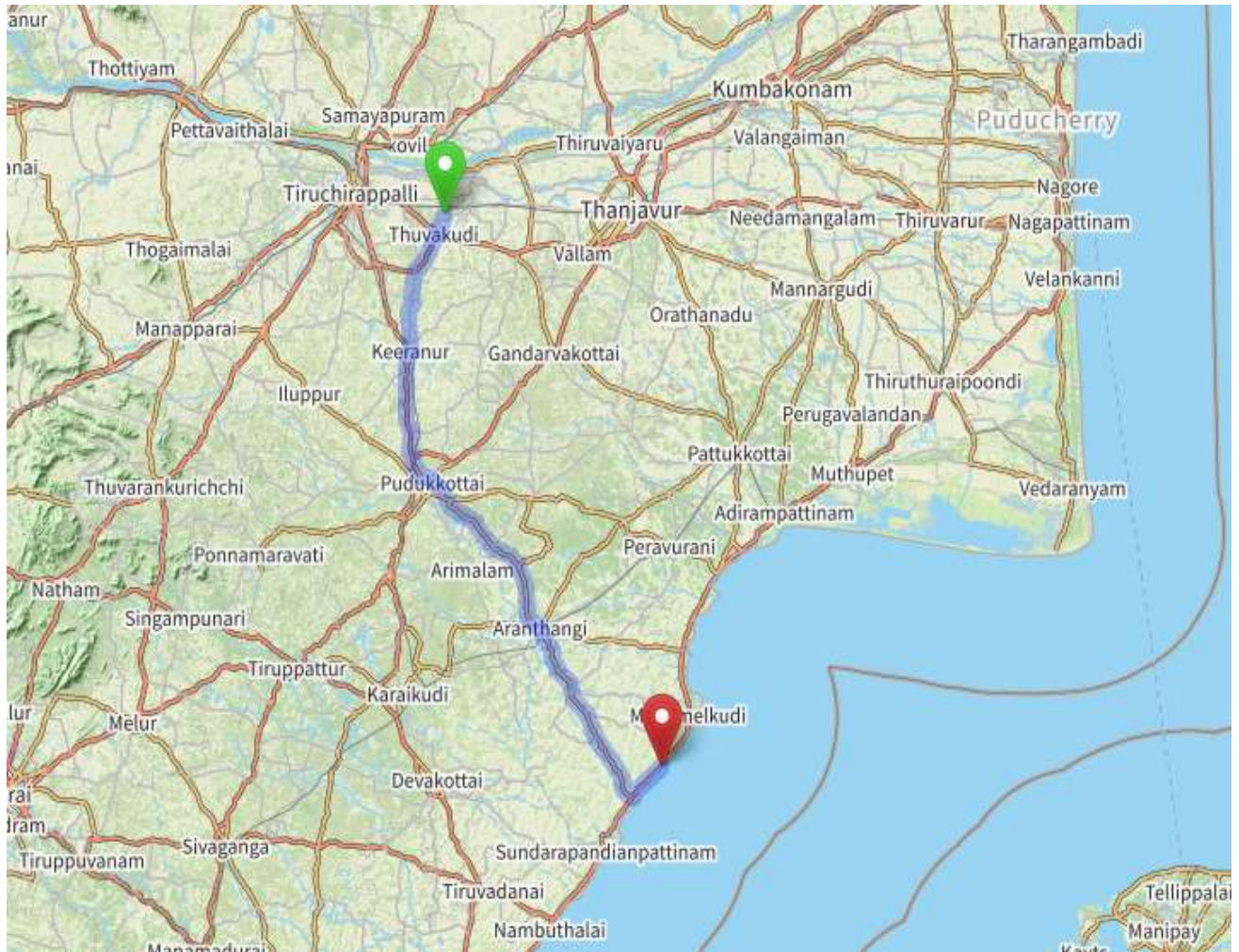


WELCOME TO JOURNEY
RISK MANAGEMENT (JRM)
STUDY USING ARTIFICIAL
INTELLIGENCE (AI)
FOR IOCL TRICHY
TERMINAL

ALARP/JRM/TNSO/TJAGBHA

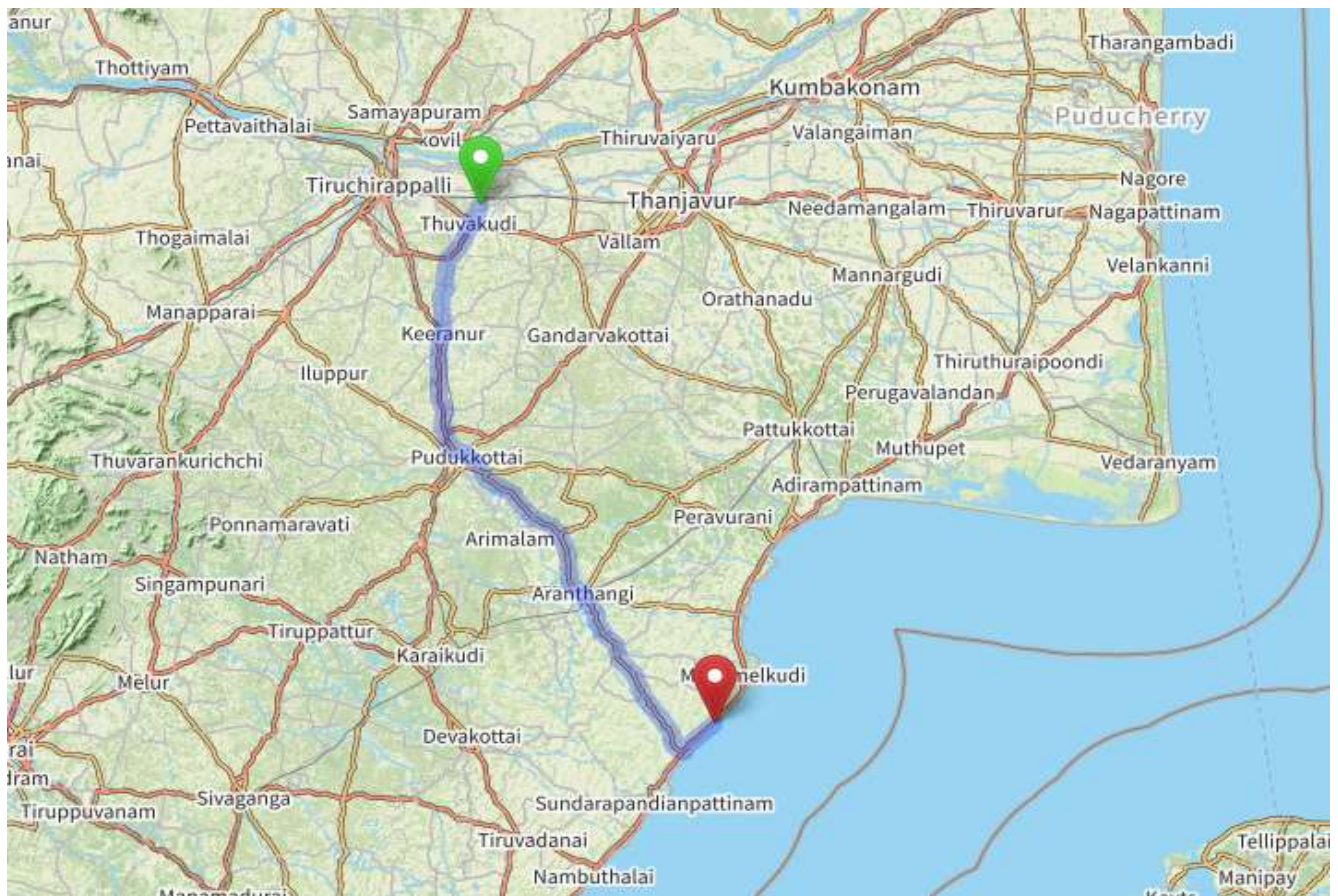
JOURNEY RISK MANAGEMENT REPORT

**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO TAFCOFED -
JAGADHAPATTINAM (9.962416, 79.185531) TOTAL DISTANCE – 122 KM**



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Welcome to the Journey Risk Management Study for TAFCOFED - JAGADHAPATTINAM

Total distance: 122 km; start with: (10.7753, 78.8368), End with: (9.962416, 79.185531)

- **Route Safety Analysis Report**

- 1. Overview of the Route Map**

The route from Trichy Terminal (T.N)- Take SIDCO to Indian oil Storage to NH 83 Follow Outer Ring Rd/Trichy Bypass to Kanthalur Rd in Sooriyur continue on Kanthalur Rd to Pallathuppatti ,Continue on NH336. Take Vadakkadu - Alangudi Rd, Pudukkottai - Aranthangi Rd and SH 26 to Semmanampottal Kottaippattinam Rd and Total distance from Trichy Terminal To AMBAL AGENCIES AGENCIES IS 122 KM.

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Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions:

Trichy Terminal (T.N) To TAFCOFED – JAGADHAPATTINAM 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:

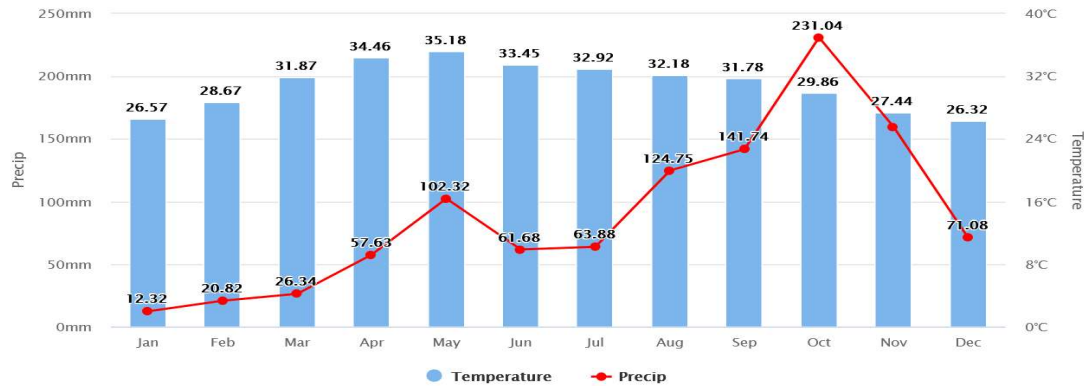
Trichy Terminal (T.N) To TAFCOFED – JAGADHAPATTINAM providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

The Long-range 12 day forecast also includes detail for weather today. Live weather reports from Trichy Terminal (T.N) To AMBAL AGENCIES 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 TAFCOFED – JAGADHAPATTINAM 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:

- SIDCO Industrial Estate Valavanthankottai
- NSTC TRICHY RE CONDITIONING UNIT(RC)
- MANAKKUDI PATTI
- Palandampatti PHC
- FX Complex
- Mettukkaruppar temple
- Tamil Nadu Pollution Control Board

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- **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.

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)- Take SIDCO to Indian oil Storage to NH 83 Follow Outer Ring Rd/Trichy Bypass to Kanthalur Rd in Sooriyur continue on Kanthalur Rd to Pallathuppatti ,Continue on NH336. Take Vadakkadu - Alangudi Rd, Pudukkottai - Aranthangi Rd and SH 26 to Semmanampottal Kottaippattinam Rd and Total distance from Trichy Terminal To AMBAL AGENCIES AGENCIES IS 122 KM

Alternative Route 2 :-) The route from Trichy Terminal (T.N)- Take SIDCO to Indian oil Storage to NH 83 Follow Outer Ring Rd/Trichy Bypass to Kanthalur Rd in Sooriyur continue on Kanthalur Rd to Pallathuppatti ,Continue on NH336. Take Vadakkadu - Alangudi Rd, Pudukkottai - Aranthangi Rd and SH 26 to Semmanampottal Kottaippattinam Rd.

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.

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❖ Environmental Considerations and Sensitive Areas

- **Sensitive Areas:** SIDCO Industrial Estate Valavanthankottai, NSTC TRICHY RE CONDITIONING UNIT(RC), MANAKKUDI PATTI Palandampatti , PHCFX Complex mettukkaruppar temple , Tamil Nadu Pollution Control Board.

- **Educational institutions** Aishwarya Medical Centre, : Green and Clean Technology
- **Hospital:** - Aishwarya Medical Centre, Vivekananda Hospital, AYUSH HOSPITAL.
- **Gas Station:** ESSAR petrol pump, SP Petroleum (HPCL), HP PETROL PUMP - M/S. A.V.R. PETROL , Indian Oil, Indian Oil.sk petrol (BPCL)
- **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: : :** SIDCO Industrial Estate Valavanthankottai, NSTC TRICHY RE CONDITIONING UNIT(RC), MANAKKUDI PATTI Palandampatti , PHCFX Complex mettukkaruppar temple , Tamil Nadu Pollution Control Board.

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- 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**

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 ands</p>			

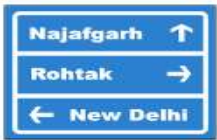

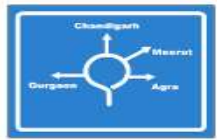
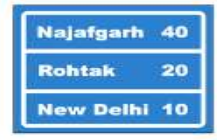
















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Cautionary signs

			
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

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

Conclusion

The route for Trichy Terminal (T.N) To TAFCOFED – JAGADHAPATTINAM 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	10.741610640579689, 78.82718594844422	4.8 km	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.734287918634735, 78.82046183804047	5.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.713512709090521, 78.80911996491783	8.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.706666925588681, 78.80782375086409	9.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.699582172344776, 78.80004646577926	10.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.691462364523247, 78.79064891388968	11.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.6638374704095, 78.78862357927507	14.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.660732498370965, 78.78635520468103	15.4 KM	20km/hr TO 30 Km/Hr

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Sharp turn	Medium	10.64842417274851, 78.78704271204515	16.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.642648477065759, 78.78790978721874	17.4 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.639334503912071, 78.7842488031525	18 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.638103590426153, 78.78270733617721	18.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.63038659627268, 78.78135855241705	19.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.624941974019475, 78.78241831096254	19.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.619736436728504, 78.78185104657456	20.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.613392037576439, 78.78421141788797	21 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.604822155245836, 78.78266995091272	22 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.597762474060362, 78.78165149877057	22.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.590328563954534, 78.7826630864731	23.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.588623947680798, 78.78150698624165	23.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.58674533173466, 78.77729220760148	24.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.58637702814883, 78.77604894716654	24.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.585791089639176, 78.7750441199752	24.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.584033267538665, 78.77536770828819	24.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.55207259980482, 78.77880669261698	28.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.54546223984727, 78.77944431801846	29.3 KM	20km/hr TO 30 Km/Hr

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Sharp turn	Medium	10.541561023304784, 78.77784340726133	29.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.52477999016818, 78.77752490228748	31.6 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.521431084738632, 78.77745677842805	32 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.514728592539958, 78.77906070610587	32.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.507838008323152, 78.77943735896314	33.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.50052020126909, 78.7790797087057	34.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.496250005036513, 78.77734255028975	34.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.489166372788649, 78.7783644081588	35.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.474420648999708, 78.77808616022145	37.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.45391794914818, 78.78476638769894	39.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.443872002798981, 78.78448084740042	40.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.426564690033553, 78.784106018056	42.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.419529717884418, 78.787205653675	43.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.410653640207517, 78.78942177042451	44.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.408086816992583, 78.79021138170222	45 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.392767935903917, 78.7984669421206	46.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.389652130315442, 78.7982455395774	47.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.389300343861581, 78.79947176904749	47.4 KM	20km/hr TO 30 Km/Hr

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Sharp turn	Medium	10.388781039324968, 78.80178798026876	47.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.3861350173034, 78.80463458801475	122 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.383052649752944, 78.80414069003375	48.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.381997266923852, 78.80923294852758	49 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.379450931691476, 78.80819405973043	49.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.377524414312752, 78.81982620901724	50.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.376519270076473, 78.82554861340262	51.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.373409207132324, 78.82952024849244	51.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.372404049727633, 78.83216004804609	52.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.37243755502647, 78.83219410997582	52.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.326504763399162, 78.88574519312373	60.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.172017928378938, 78.98849953492733	83.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.168652864104017, 78.99298565756973	83.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.089846120503708, 79.04080637469704	95.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.077386460232105, 79.04182147711595	96.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.029611736842284, 79.13272256705041	110 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	9.978357476755383, 79.19598522278099	120 KM	10km/hr TO 15 Km/Hr

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JAGADHAPATTINAM(9.962416 , 79.185531) TOTAL DISTANCE – 122 KM**



10.757864054403178, 78.8335156875251

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10.764113439530249, 78.834461187122 21



10.751281467293017, 78.82523571998917

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10.75126610223314, 78.82518044583597

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10.75028318292191, 78.82795244340517



10.749185832475025, 78.8304590222586

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10.749124282637489, 78.8307596000869

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10.64268729363335, 78.78787314013873

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