

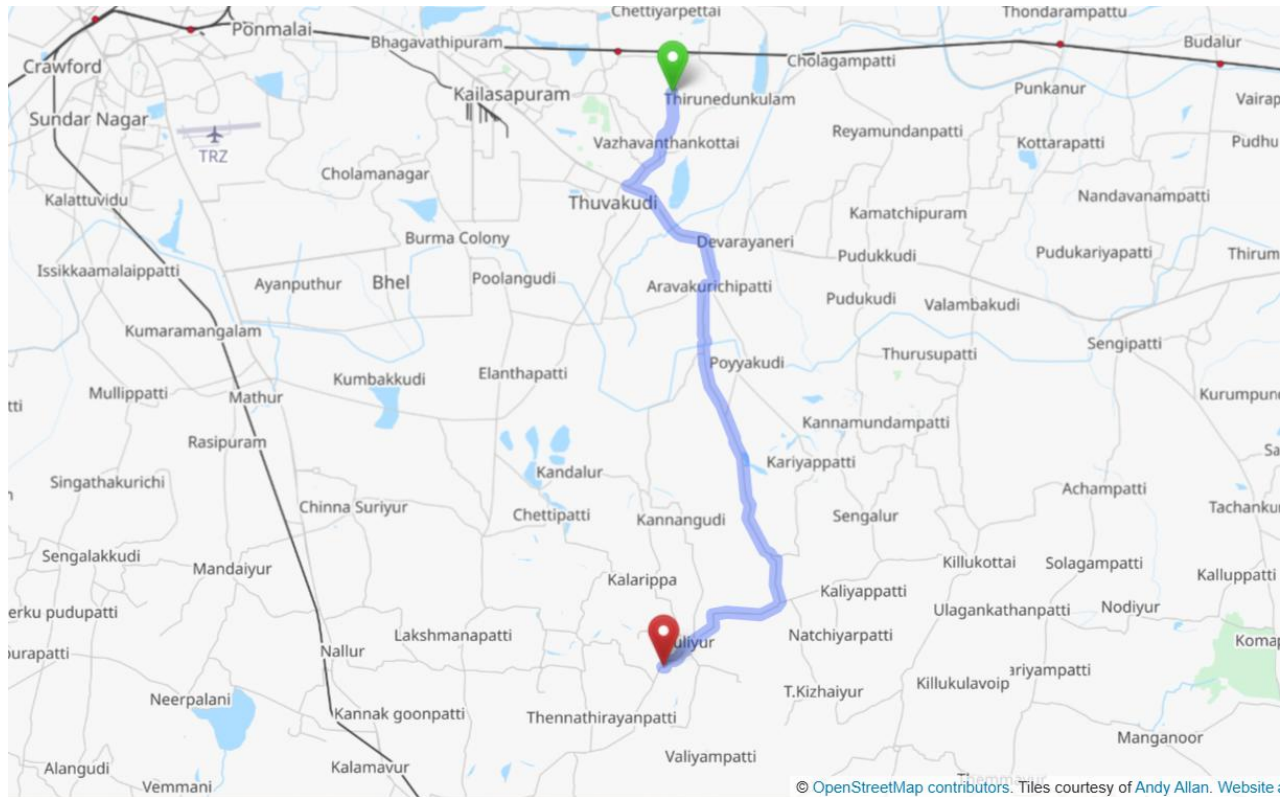


IndianOil

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

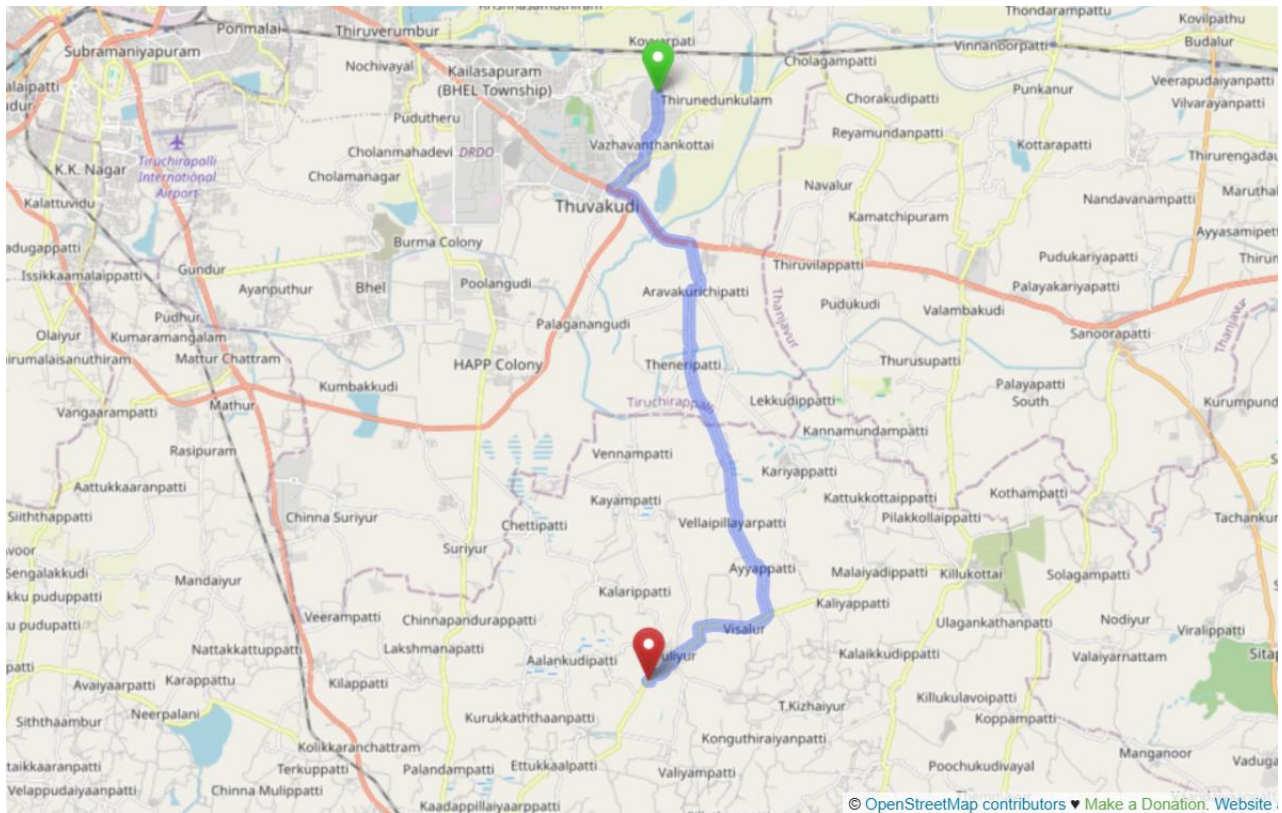
JOURNEY RISK MANAGEMENT REPORT

IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO HASINI AGENCY(10.62736 , 78.834518) TOTAL DISTANCE – 21.1 KM



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Welcome to the Journey Risk Management Study for HASINI AGENCY

Total distance: 21.1 KM; Start with: (10.7753 , 78.8368), End with: (10.62736 , 78.834518)

- **Route Safety Analysis Report**

1. **Overview of the Route Map**

The route from Trichy Terminal (T.N) TO HASINI AGENCY. The route passes through several key point including Take SIDCO to Indian oil Storage to NH

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83 in Thuvakudi, Continue on NH 83 to Asoor, Take Kannankudi - Puliur Rd to Keeranur - Puliur - Killukkottai Rd in Puliur, Turn right at Puliur pudukkottai onto Keeranur - Puliur - Killukkottai Rd and Total distance from Trichy Terminal To HASINI AGENCYIS 21.1 KM.

Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions: Trichy Terminal (T.N) To HASINI AGENCY 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

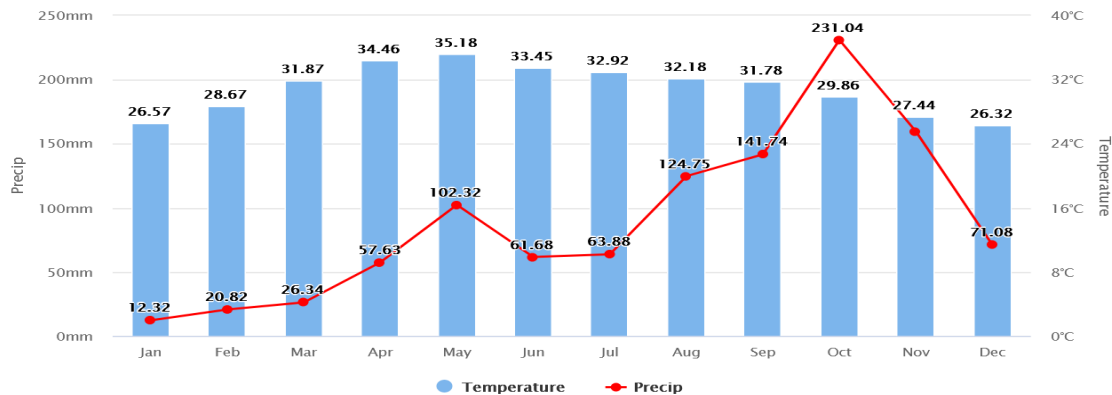
Weather-Related Hazards: Trichy Terminal (T.N) To HASINI AGENCY Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

The Long-range 12 day forecast also includes detail for weather today. Live weather reports from Trichy Terminal (T.N) To HASINI AGENCY 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 HASINI AGENCY 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:

- Womens SIDCO Industrial Park
- TRICHY REFRACTORIES
- Clear Aqua Technologies Private Limited
- P.selvamani Madhu's Mahal...
- State Institute Of Hotel Management and Catering Technology
- Valavanthankottai Toll Plaza
- SPOT ON 42969 Royal Residency
- Theneripatti - Sri Thenmuthu Mariamman
- Kannangudi Post Office
- Government Hr. Sec. School Puliur

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- **Assessment of Road Quality and Infrastructure**

Road Quality: Generally, the roads are well-maintained but can suffer from potholes and water logging 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 water logging.

- **Suggestions for Alternative Routes for Emergencies**

Alternative Route 1-). Take SIDCO to Indian oil Storage to NH 83 in Thuvakudi, Continue on NH 83 to Asoor, Take Kannankudi - Puliur Rd to Keeranur - Puliur - Killukkottai Rd in Puliur, Turn right at Puliur pudukkottai onto Keeranur - Puliur – Killukkottai.

Alternative Route 2 :-) Take SIDCO to Indian oil Storage to NH 83, Drive from NH to Asoor Rd to Asoor, Take Kannankudi - Puliur Rd to Keeranur - Puliur - Killukkottai Rd in Puliur, Turn right at Puliur pudukkottai onto Keeranur - Puliur - Killukkottai 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 water logging and poor visibility. No major incidents involving hazardous materials have been reported recently.

- ❖ **Environmental Considerations and Sensitive Areas**

- **Sensitive Areas:** Womens SIDCO Industrial Park, TRICHY REFRATORIES, Clear Aqua Technologies Private Limited

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P.selvamani Madhu's Mahal, State Institute Of Hotel Management and Catering Technology, Valavanthankottai Toll Plaza SPOT ON 42969 Royal Residency, Theneripatti - Sri Thenmuthu Mariamman Kannangudi Post Office, Government Hr. Sec. School Puliyur.

- **Educational institutions:** State Institute Of Hotel Management and Catering Technology, Irrigation Management Training Institute, Himalayan Access Pvt.Ltd, Indian Institute Of Management–Tiruchirappalli (IIM–Tiruchirappalli).
- **Hospital:** - Dr Kamali's Home Clinic, Viveganandha Hospital, AYUSH MULTISPECIALITY HOSPITAL.
- **Gas Station:** ESSAR petrol pump, SP Petroleum (HPCL), HP PETROL PUMP - M/S. A.V.R. PETROL BUNK, IndianOil, IndianOil.
- **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.

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- **Estimated Emergency Response Times** Womens SIDCO Industrial Park, TRICHY REFRATORIES, Clear Aqua Technologies Private Limited P.selvamani Madhu's Mahal, State Institute Of Hotel Management and Catering Technology, Valavanthankottai Toll Plaza SPOT ON 42969 Royal Residency, Theneripatti - Sri Thenmuthu Mariamman Kannangudi Post Office, Government Hr. Sec. School Puliyur. 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**














JOURNEY RISK MANAGEMENT REPORT

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

JOURNEY RISK MANAGEMENT REPORT

 <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>			



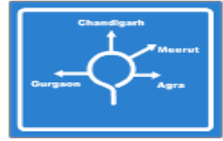
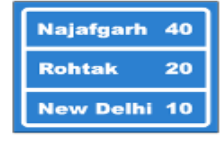
















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Cautionary signs

			
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

			
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 HASINI AGENCY 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.

JOURNEY RISK MANAGEMENT REPORT

- **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	10.751304052896094, 78.82517133719256	3.2 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.749480258668328, 78.83028062675677	3.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.739637461695816, 78.837724455658	5.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.737596071115414, 78.8452180803522	6.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.72796532722708, 78.8477507740358	7.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.725672856531498, 78.84534940794062	7.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.714833540740129, 78.84505434223266	8.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.71138631187044, 78.84573558084122	9.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.708162240372918, 78.84524436252887	9.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.708028365190902, 78.8434731421466	9.9 KM	20km/hr TO 30 Km/Hr

JOURNEY RISK MANAGEMENT REPORT

Sharp turn	Medium	10.705150034471721, 78.84224691265119	10.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.699913245248888, 78.83996663214144	10.9 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.696014000254188, 78.83688402743769	11.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.694101433098856, 78.83080066100901	12.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.686855017915102, 78.83114128031329	13 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.684263774143801, 78.83050565752382	13.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.673756368002826, 78.83077223289798	14.5 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.672635034418663, 78.83210064818469	14.7 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.669715915142884, 78.8367716495056	15.3 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.664737169506008, 78.8392788790811	16.1 KM	10km/hr TO 15 Km/Hr
Sharp turn	High	10.659331139083035, 78.84038589182003	16.7 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.64735241119464, 78.8448785056533	18.2 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.634190538757814, 78.84273159140868	19.8 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.63119760939914, 78.83969675832056	20.3 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.628787237200616, 78.83567745053001	20.8 KM	10km/hr TO 15 Km/Hr
Sharp turn	Medium	10.627230528375156, 78.83451934489547	21.1 KM	20km/hr TO 30 Km/Hr

- **Risk Assessment - Elevation Changes**

JOURNEY RISK MANAGEMENT REPORT

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

IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO HASINI AGENCY(10.62736 , 78.834518) TOTAL DISTANCE – 21.1 KM

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**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.769073692604486,
78.83720120889187**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:
10.764113439530249, 78.83446118711721**

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**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:
10.758209570013967, 78.83344387884853**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI:
10.751314343624747, 78.82530656733346**

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JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.75126610223314,
78.82518044583597**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.75028318292191,
78.82795244340517**

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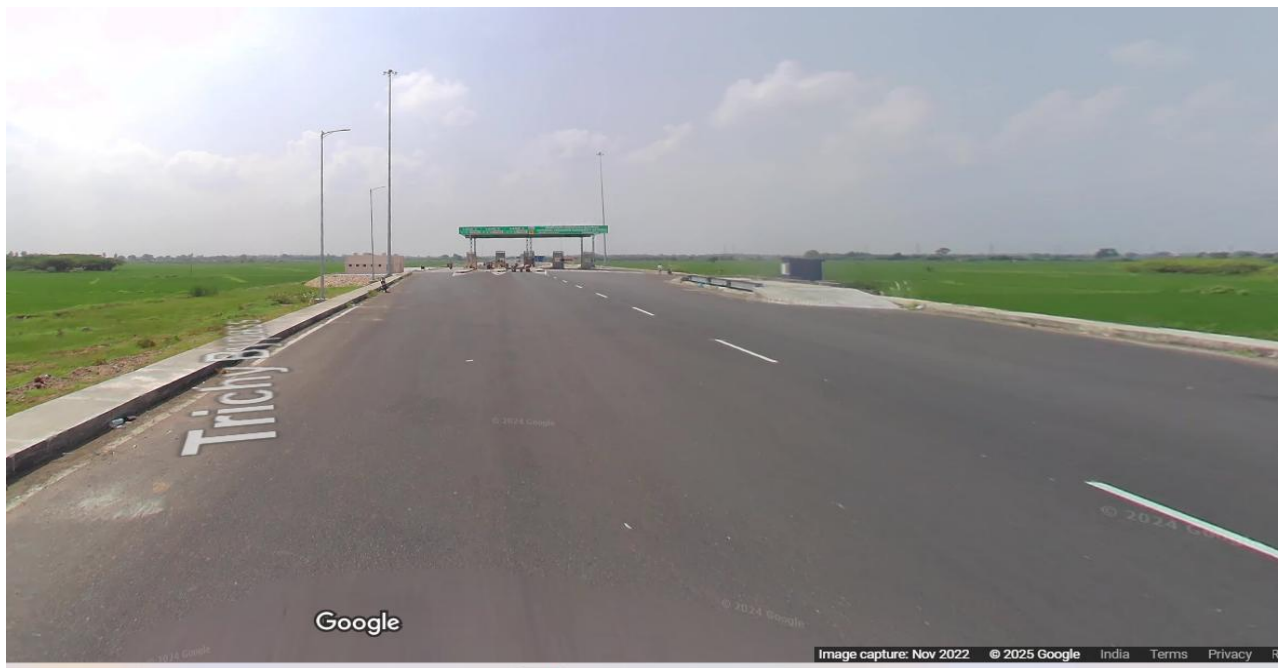
**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.749185832475025,
78.8304590222586**

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JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.741921874045772,
78.82722276361802**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.739952905239392,
78.82561093459273**

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JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.732984887447019,
78.82010630464889**

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JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.710670265833901,
78.84453350800965**

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JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.695449544460395,
78.83514027301443**

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JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.677824686503651,
78.83060493064278**



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.661499973423643,
78.84018323907002**

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JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.635790424396609,
78.84231231691732**

ALARP/JRM/TNSO/HASINI AGENCY

JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.629224205700247,
78.836716760296**

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JOURNEY RISK MANAGEMENT REPORT



**IMAGE :- SHARP TURN RISK LEVEL :- MEDIUM COORDI: 10.627278729545749,
78.83435263827789**

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