

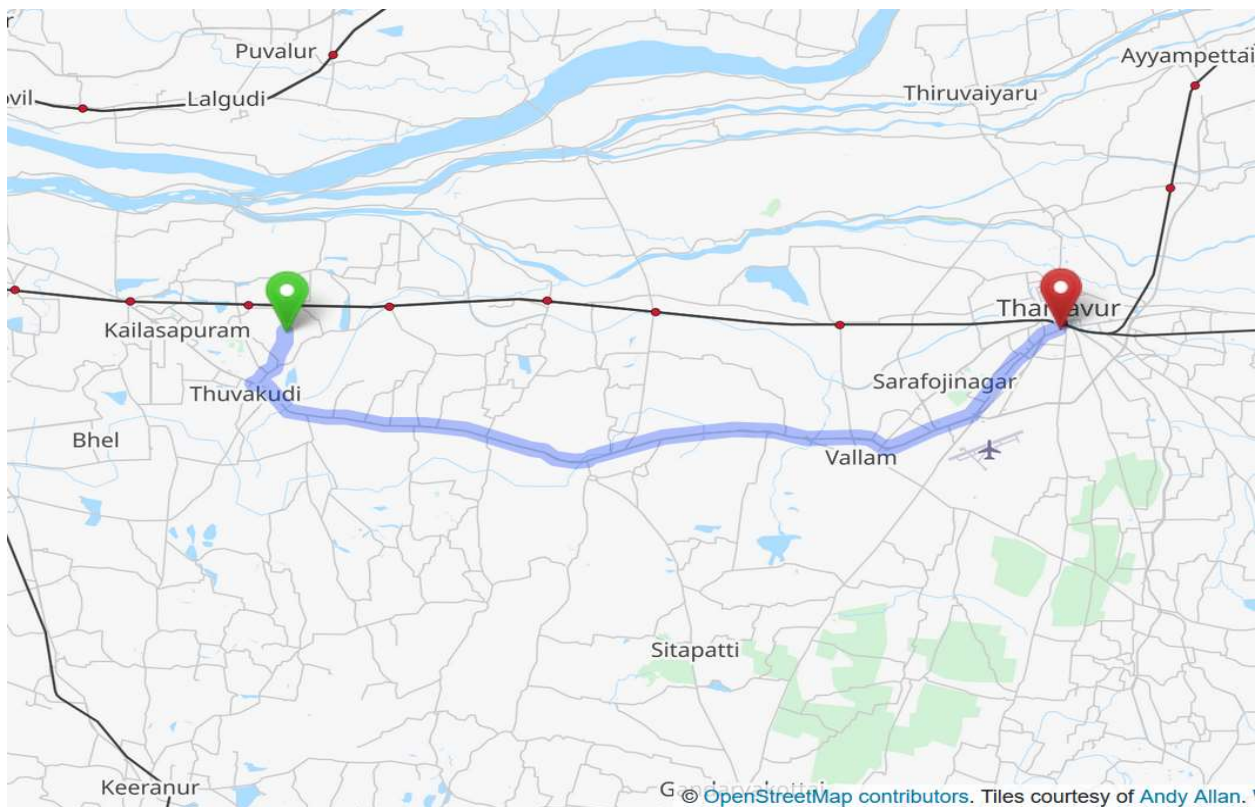
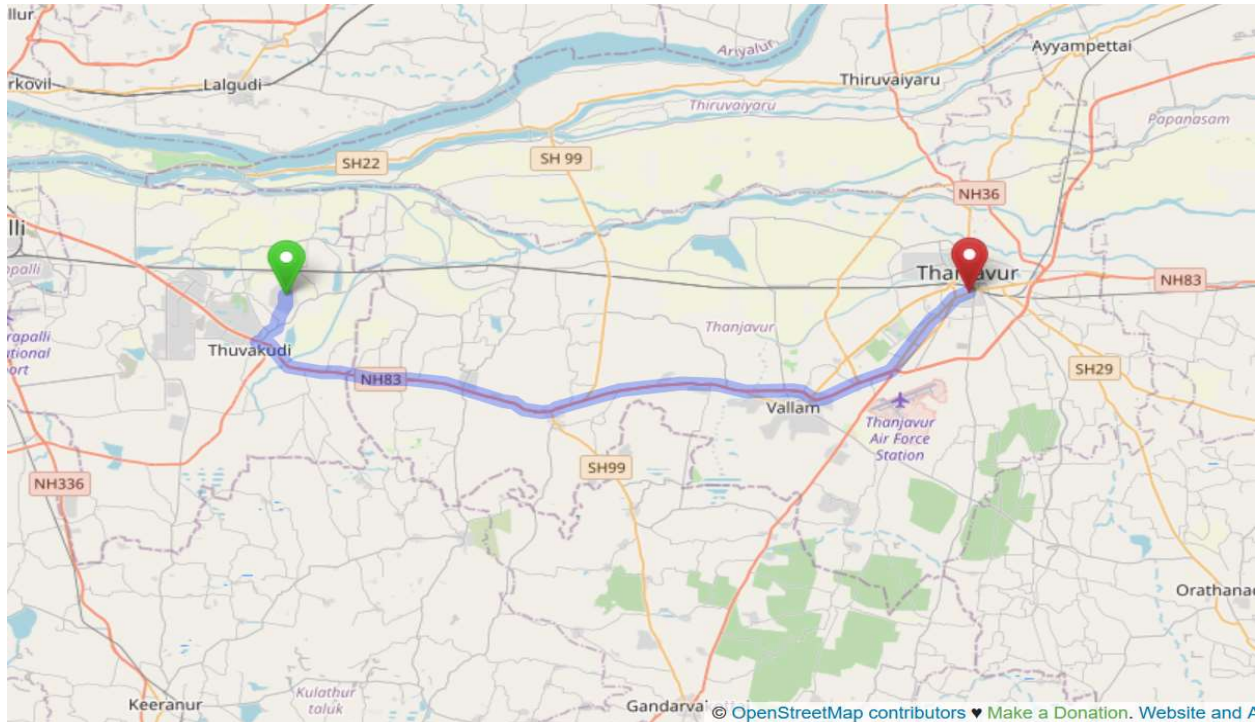


IndianOil

**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 HAJEE (10.775103, 79.138391), TOTAL DISTANCE -41.3 KM



JOURNEY RISK MANAGEMENT REPORT

Welcome to the Journey Risk Management Study for HAJEE Agency

Total distance: 41.3 km; Start with: (10.7753, 78.8368), End with: (10.955673, 79.825134)

❖ Route Safety Analysis Report Overview of the Route Map

The route from Trichy Terminal (T.N) to Hajee Agency. The route passes through several key points including SIDCO Industrial Estate Valavanthankottai, Coimbatore-Nagapattnam hwy turn right, Maravapattivillur-kalikkudi Road, SH99A, Nagapattinum Rd,

Typical Weather Conditions and Potential Weather-Related Hazards

Weather Conditions: Trichy Terminal (T.N) to Hajee 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

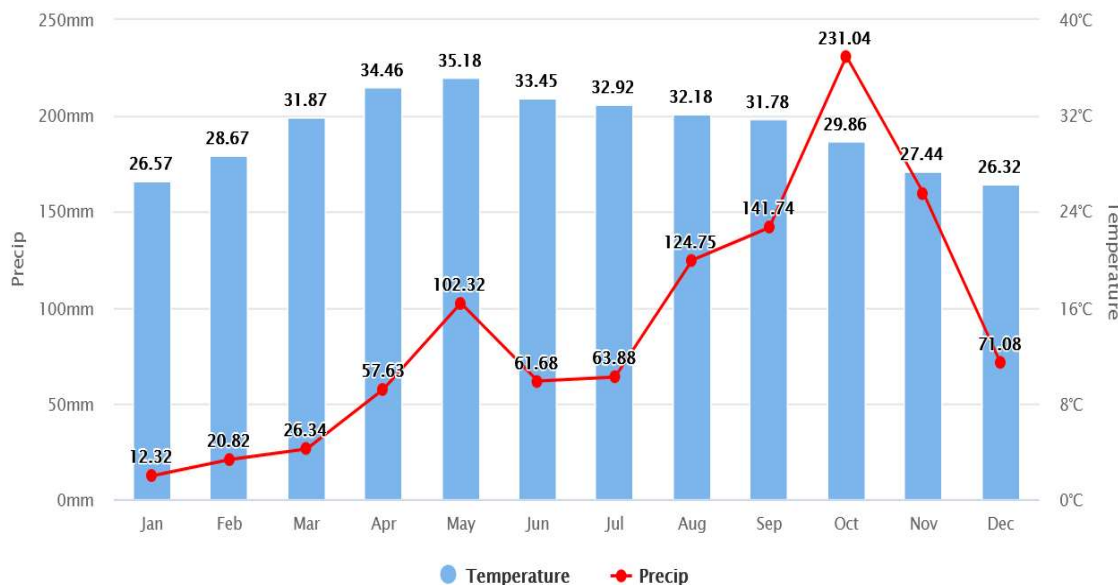
Weather-Related Hazards: Trichy Terminal (T.N) To Hajee Agency Providing a local hourly weather forecast of rain, sun, wind, humidity and temperature.

JOURNEY RISK MANAGEMENT REPORT

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

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 Hajee Agency peak traffic hours are from 8:00 AM to 11:00 AM and 4:00 PM to 9:00 PM on weekdays.

Congestion-Prone Areas:

- Ganesh Wine
- Bridgestone Select - Shakthi Tyres
- Diamond Diesel Pump Service
- Government hospital kottucherry
- Servite Higher secondary School
- Kottucherry Police Station,
- Navakiraha Orphanage Care Home - Nocomer Trust,

JOURNEY RISK MANAGEMENT REPORT

- Mary Help Of Christians Church,
- Mary St,
- Kumarpillai st

❖ 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 Route1: Thuvakudi toSIDCO& Indian oil Storage, Trichy-Tanjore Rd, Tanjore to Nagapattinam two way bye pass Rd, NH83, Kottucherry Rd, Vedamattam Main Rd, Maravapatti-villur-kalikkudi Road.

Alternative Route 2: SH-99A, Kulithalai -Manapparai Rd, Vadakkada – Alangudi Rd, Rannathpuram Rd, NH83/service Road, Trichy – Tanjore Road, East Cost Rg, Nedungadura, SH99A, Kollumangudi 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.

❖ Environmental Considerations and Sensitive Areas

JOURNEY RISK MANAGEMENT REPORT

- **Sensitive Areas:** Bridgestone Select - Shakthi Tyres, Ganesh Wines, Government hospital kottucherry, Servite Higher secondary School, Kottucherry Police Station, Navakiraha Orphanage Care Home - Nocomer Trust, Mary Help Of Christians Church, Marryy St, Kumarpillai st
- **Educational institutions:** - Irrigation Management Training Institute, State Institute Of Hotel Management and Catering Technology, St, Xavier ITI,
- **Hospital:** - ESI Dispensary, Trustee Medical Center Velangudi, Govt.Hospital Thenkarai Mathur
- **Gas Station:** - In there are several of fuel/Gas station some of them are G Parthasarathi Fuel Agencies , S N Ravi Kumar Agencies, Siva Fuels , Bhavani Agencies , SRI BHAGAVAN AGENCY PETROL BUNK, BPCL segipatti petrol pump, ESSAR petroleum pudukudi Thanjavur, NAYARA Energy-Sri Kandhar AGenct truchy-thanjavur Hyw , rakku sakti Kamatchupura fuel sataion.
- **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

JOURNEY RISK MANAGEMENT REPORT

Bridgestone Select - Shakthi Tyres, Ganesh Wines, Government hospital kottucherry, Servite Higher secondary School, Kottucherry Police Station, Navakiraha Orphanage Care Home - Nocom Trust, Mary Help Of Christians Church, Marryy St, Kumarpillai st. 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 ands</p>			

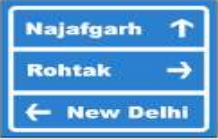


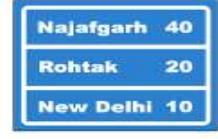
















JOURNEY RISK MANAGEMENT REPORT

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

JOURNEY RISK MANAGEMENT REPORT

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 Hajee Agency, Nallathur Road, Nedungadu Commune, Kurumbagaram, Thiruvavur State-TN is generally manageable but poses several risks, particularly during the monsoon season and Winter (Fog Weather) 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	10.75826994715787, 78.83326651420096	2.0 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.756715887788083, 78.83021887801165	2.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	High	10.751274985268047, 78.82506273704801	3.2 KM	10km/hr TO 20 Km/Hr
Sharp turn	High	10.750277996315637, 78.82811314184613	3.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.74905481445307, 78.83068971790057	3.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.742539235146788, 78.82757393279459	4.7 KM	10km/hr TO 20 Km/Hr
Sharp turn	Medium	10.73973556832621, 78.82562793774534	5.1 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.736441637916617, 78.85866865833536	7.5KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.73306853761192, 78.87530689191752	9.4 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.730466677694444, 78.90793169146286	13.0 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.720355782572513, 78.93953458514072	16.6 KM	10km/hr TO 20 Km/Hr
Sharp turn	Medium	10.716855431264852, 78.94865012422567	17.7KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.717254606701436, 78.95458103348875	18.4 KM	10km/hr TO 20 Km/Hr
Sharp turn	Medium	10.730142316906687, 79.02045012148626	25.8 KM	10 km/hr TO 20 Km/Hr
Sharp turn	High	10.726945721254284, 79.03852767991275	27.8 KM	10km/hr TO 20 Km/Hr
Sharp turn	Medium	10.726662618067378, 79.06547234748942	30.7 KM	20km/hr TO 30 Km/Hr

JOURNEY RISK MANAGEMENT REPORT

Sharp turn	Medium	10.72287025138317, 79.07106498558738	31.5 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.737084366135134, 79.10597418877352	35.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.736035539591844, 79.11050550047638	36.2 KM	10km/hr TO 20 Km/Hr
Sharp turn	Medium	10.742964311939556, 79.13371387905696	38.8 KM	10km/hr TO 20 Km/Hr
Sharp turn	Medium	10.742749345230601, 79.14340308146065	39.9 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.772705096379182, 79.13248857230546	40.6 KM	20km/hr TO 30 Km/Hr
Sharp turn	Medium	10.775023176358971, 79.13838153426023	41.3 KM	20km/hr TO 30 Km/Hr

❖ Risk Assessment - Elevation Changes

Risk Type	Specific Risk	Risk Level	Coordination	Elevation Change	Gradient	Recommendation Speed
Elevation Change	Descent	Low	10.7753, 78.8368	1.02 m	5%	30 km/hr to 40 km/hr
Elevation Change	Descent	Low	10.955673, 79.825134	1.02 m	5%	30 km/hr to 40 km/hr

JOURNEY RISK MANAGEMENT REPORT

❖ Risk Assessment – Key Location:

Sr No	Location	Lat, lon.
1	Hall/Hotel	10.757627679523425, 78.83287045929539
2	OLD Burma Colony	10.75810448259808, 78.83342945889828
3	School/College	10.751940259658717, 78.824855152166
4	School/College	10.751244043943656, 78.82964545444308
5	Bank	10.749935829138195, 78.8268757083185
6	Toll Plaza	10.744657137862134, 78.83396676954393
	Residency/Hotel	10.74244590807412, 78.83739600508359
7	Jagdish Filling station IOCL RO	10.730096699158965, 78.86385149738328
8	Bus Stand	10.737757663945956, 78.84463219368527
9	School/College	10.743654738281231, 78.85235497712233
10	Shri Rakku Sakti IOCL retail outlet	10.736854782210685, 78.85825905782572
11	School/College	10.727678358770339, 78.97828938482074
12	BPCL RO	10.725879040209913, 78.98063626596378
13	Institution/School	10.731872102837507, 79.06810085715502
14	Hospital	10.774993493269479, 79.13777917621749
15	Hospital	10.774388696147616, 79.13628320183983
16	BSNL Headquarters	10.775996541243037, 79.1389038707455

JOURNEY RISK MANAGEMENT REPORT

**IOCL TIRCHY TERMINAL (10.7753, 78.8368) TO HAJEE- CO , City-
THANJAVUR, (10.775103 , 79.138391), TOTAL DISTANCE -41.5 KM**



10.758262863684411, 78.83351425048



10.755557510143007, 78.82964043768688

JOURNEY RISK MANAGEMENT REPORT



10.752134298790681, 78.82718013759803



10.75124649331893, 78.8252916438317

JOURNEY RISK MANAGEMENT REPORT



10.744321179303157, 78.83417370199756



10.739248384583261, 78.8381029124365

JOURNEY RISK MANAGEMENT REPORT



10.729351757363672, 78.9111983896726



10.718199438174326, 78.94263468659615

JOURNEY RISK MANAGEMENT REPORT



10.730165958806392, 79.0200749419451



10.730038373807972, 79.02697854293257

JOURNEY RISK MANAGEMENT REPORT



10.722889017911928, 79.0708448272496



10.737039321922905, 79.10617598879925

JOURNEY RISK MANAGEMENT REPORT



10.736059554306644, 79.11087033763184



10.742887598886316, 79.1339170990376

JOURNEY RISK MANAGEMENT REPORT



10.743106188872718, 79.14359127001919



10.767849216068843, 79.16395199458142

JOURNEY RISK MANAGEMENT REPORT



10.775014909597555, 79.13836075033966