Route Intelligence: How Every Fare Is Calculated

The economics behind every positioning decision in TaxiIntel. This guide explains how the system ranks routes, when short trips beat long drives, and why empty drives are sometimes the most profitable move.

DÜSSELDORF TARIFF STRUCTURE (EFFECTIVE 1 MAY 2025)

COMPONENT	RATE	WHAT IT MEANS
Grundgebühr (start fee)	**€5.00**	Charged on every ride. The foundation of the accumulation strategy.
Kilometerpreis	**€2.70/km**	Distance component. 12km airport run = €32.40 in distance alone.
Wartezeit	**€0.75/min**	Below 12 km/h. Rush-hour traffic = passive revenue at €45/hr.
Flughafen-Zuschlag	**€2.00**	Airport pickup surcharge. Added to every fare from DUS terminal.
Messe ↔ Flughafen	**€25.00**	Fixed fare. Guaranteed regardless of traffic.
Großraum-Zuschlag	**€9.00**	>4 passengers. Major uplift on group bookings.
Nachtzuschlag	**€0.00**	Düsseldorf has NO night surcharge. Same tariff 24/7.

THE TWO EARNING STRATEGIES

PREMIUM POSITIONING **Long fares, high value per ride**

Target zones: **Airport, Messe, Oberkassel, Kaiserswerth, Benrath**
Avg fare: **€28–35** · Avg distance: **10–15km** · Frequency: 1–2 fares/hr
Formula: €5 start + (12km × €2.70) + €2 airport surcharge = **€39.40**
Best when: Demand is concentrated (flight arrivals, Messe events, hotel checkouts). Low queue depth at pickup point. The start fee (€5) is a small fraction — distance drives the revenue.

ACCUMULATION MODE **Short fares, start-fee stacking**

Target zones: **Altstadt, Königsallee, Medienhafen, HBF, Bilk**
Avg fare: **€8–15** · Avg distance: **1.5–4km** · Frequency: 3–4 fares/hr
Formula: 3 rides × (€5 start + 2km × €2.70) = 3 × €10.40 = **€31.20/hr**
But at peak (12:30 lunch cluster): 3 rides in 22 min = **€81.55/hr**
Key insight: Start fees (€5 per ride) are 48% of revenue on short trips. Three €10 fares earn more than one €25 fare in the same time window because you collect €15 in start fees vs. €5.

LULL BRIDGING **Dead-time repositioning**

When demand drops (11:00–12:15, 14:00–15:30), the system repositions to the next high-yield zone. Empty drive cost: fuel + time. The system calculates whether the empty drive yield exceeds the stay-and-wait yield. If empty drive + expected fare > current zone idle revenue, it moves.

14 ZONES RANKED BY YIELD PER HOUR

#	ZONE	AVG FARE	TIP %	FREQUENCY	YIELD/HR	BEST HOURS
1	**Flughafen DUS**	**€32**	**40%**	**1.5/hr**	**€70/hr**	**07–10, 15–17**
2	**Messe (event day)**	**€25**	**35%**	**2.5/hr**	**€62/hr**	**08–10, 16–18**
3	Königsallee	€22	50%	2/hr	€44/hr	07–09, 12–13, 17–18
4	Kaiserswerth	€35	50%	1/hr	€35/hr	07–08, 16–17
5	Benrath	€35	40%	0.8/hr	€28/hr	08–09, 16–17
6	Oberkassel	€28	45%	1/hr	€28/hr	07–08, 16–18
7	Altstadt (lunch peak)	€15	30%	3.5/hr	**€52/hr***	12–14 only
8	Medienhafen	€20	35%	1.5/hr	€30/hr	08–09, 12–13, 17–18
9	Gerresheim	€30	35%	0.8/hr	€24/hr	08–09, 16–17
10	Hauptbahnhof	€18	30%	1.5/hr	€27/hr	07–09, 12–13, 16–18
11	Derendorf	€20	35%	1/hr	€20/hr	08–09, 17–18
12	Hafen/Zollhafen	€19	35%	1/hr	€19/hr	12–13, 17–18
13	Bilk	€17	30%	1/hr	€17/hr	08–09, 12–13, 17
14	Flingern	€16	30%	0.8/hr	€13/hr	08–09, 12, 17

***Altstadt at lunch peak (12:00–14:00)** jumps to #2 overall because of the start-fee accumulation effect: 3-4 short fares × €5 start fee each. Outside lunch hours, Altstadt drops to ~€22/hr.

THE TOP 5 MOST PROFITABLE ROUTES

#	ROUTE	DISTANCE	FARE	INCL.	YIELD/HR
1	**Oberkassel Flughafen**	**9km**	**€31.30**	**€2 airport**	**€78/hr**
2	**Königsallee Hotel Flughafen**	**12km**	**€39.40**	**€2 airport**	**€70/hr**
3	Messe ↔ Flughafen (Festpreis)	5km	**€25.00**	Fixed fare	**€100/hr**
4	Flughafen Königsallee	12km	**€39.40**	€2 airport	€65/hr
5	Benrath Innenstadt	14km	**€42.80**	—	€55/hr

The **Messe ↔ Flughafen fixed fare (€25)** is the single most profitable route per hour because the distance is only 5km (~8 min). On Messe days, a driver can do 4 of these per hour = **€100/hr**. TaxiIntel detects Messe event days and prioritises this route automatically.

WHY TIPS CHANGE THE RANKING

Tip probability by zone ranges from 30% (Altstadt, HBF) to 50% (Königsallee, Kaiserswerth). At an average tip of €3–5 on business fares, tips add **€6–10/hr** in high-tip zones. TaxiIntel factors tip probability into the yield calculation — a €28 Oberkassel fare with 45% tip probability is worth more than a €30 Gerresheim fare with 35% tip probability.

DEMAND MATRIX: WHERE TO BE, WHEN

TIME	BEST ZONE	MODE	WHY	YIELD/HR
06:00–07:30	**Flughafen**	P	**First arrivals. Low queue. Business passengers.**	**€70**
07:00–08:00	Königsallee Hotels	P	Hotel checkouts Airport. Premium fares + tips.	€55
08:00–10:00	**Messe (event day)**	P	**Registration wave. First-mover at north entrance.**	**€62**
08:00–10:00	Flughafen (no Messe)	P	Steady arrivals. Queue manageable if <8 taxis.	€55
10:30–11:30	Königsallee Hotels	P	Late checkout wave Airport or Messe.	€48
11:00–12:00	— LULL —	L	Reposition to Altstadt. Demand at low point.	€18
12:00–14:00	**Altstadt circuit**	A	**Lunch cluster. Start-fee stacking. Peak frequency.**	**€52–82**
14:00–15:30	— BREAK —	L	Lowest demand of day. Optimal break window.	€12
14:30–16:00	Flughafen	P	Afternoon arrivals. Hotel check-in wave.	€50
16:00–17:00	Messe (event day)	P	Afternoon session ends. Exhibitor departures.	€58
17:00–18:30	**Medienhafen Oberkassel**	A	**Rush hour. High frequency + wait-time revenue (€45/hr passive in traffic).**	**€55**
19:00–21:00	Altstadt	A	Dinner + nightlife starting. Short fares, high frequency.	€35
22:00–02:00	Altstadt + Medienhafen	P	Nightlife departures. Longer rides home to suburbs. No night surcharge but premium demand.	€42

P = Premium Positioning · A = Accumulation Mode · L = Lull Bridging

WEATHER & SEASONAL MULTIPLIERS

CONDITION	EFFECT	STRATEGY ADJUSTMENT
Rain	+30% demand	Stay in current zone. Demand spikes everywhere. Don't reposition — serve the surge.
Snow/Ice	+50% demand, -20% speed	Wait-time revenue increases (€45/hr passive). Short trips become more profitable.
Messe days	+40% in Messe zone	All morning resources to Messe Nord. Afternoon: airport for exhibitor departures.
Flight delay	Shifted arrival wave	TaxiIntel recalculates. Don't queue early — arrive when passengers land.
Construction	Route detour	Longer distance = higher fare. Wait-time revenue in slow zones increases.
	-40% business, +20%	Shift from Messe/Kö to Altstadt/residential. Leisure passengers

WHEN EMPTY DRIVES ARE PROFITABLE

An empty drive costs fuel + time with zero fare. TaxiIntel only recommends an empty drive when the **net yield** (expected fare minus fuel cost, divided by total time including the empty drive) exceeds the current zone's yield.

Example: Altstadt → Flughafen at 13:30

Empty drive: 11km, 15 min, fuel cost €0.68 (8L/100km × €2.30/L × 0.11 × 0.337)
Expected fare: €5 start + 12km × €2.70 + €2 airport surcharge = €39.40
Expected wait at airport: 5 min (queue: 4 taxis, departure wave imminent)
Total time: 15 min drive + 5 min wait + 20 min fare = 40 min
Net yield: (€39.40 - €0.68) ÷ 0.67hr = **€57.79/hr**

Alternative: Stay Altstadt
Post-lunch dead zone. Maybe 1 fare at €9 in 30 min = **€18/hr**

Verdict: Empty drive is 3.2× more profitable. TaxiIntel recommends the move.

THE START-FEE PARADOX

Düsseldorf's **€5.00 Grundgebühr** creates a mathematical paradox: on short trips under 3km, the start fee can be **40–60% of the total fare**. Three short trips collect €15 in start fees; one long trip collects €5. At high frequency (3+ fares/hr), short-trip accumulation outperforms premium positioning.

The Proof: Beat 6 of the Simulation (12:30)

3 fares in 22 minutes from Altstadt restaurant circuit:
Fare 1: Restaurant → Hotel, 1.5km · €5 + €4.05 = **€9.05**
Fare 2: Restaurant → Medienhafen, 2.1km · €5 + €5.67 = **€10.67**
Fare 3: Walk-up → Königsallee, 1.8km · €5 + €4.86 = **€9.86**

Total: **€29.58 in 22 min = €80.67/hr**
Start fees: €15 (50.7% of revenue)

Same 22 minutes at the airport: wait in queue. 0 fares. **€0/hr.**

WHAT TAXIINTEL CALCULATES IN REAL TIME

VARIABLE	SOURCE	UPDATE FREQUENCY
Zone demand density	Historical patterns + live event calendar	Every 15 min
Airport queue depth	Queue model based on flight schedule	Per flight arrival
Messe activity	Event calendar + registration patterns	Per event session
Expected fare per zone	Tariff × avg distance × tip probability	Continuous
Empty drive cost	Distance × fuel price × consumption rate	Per repositioning
Wait-time revenue	Traffic speed model × €0.75/min	Per zone, per hour
Start-fee accumulation rate	Short-trip frequency × €5 per ride	Per zone, per hour
Competitor density	Queue models + zone saturation estimate	Hourly
Weather multiplier	Forecast API	Hourly
Construction/detour impact	Route length delta + wait-time increase	Daily

Every 15 minutes, the system recalculates the yield-per-hour for all 14 zones and recommends the highest-yield position — factoring in the empty drive cost to get there. The driver sees one recommendation. The system considered all alternatives.