The European Cycling Risk Index: Methodology, Validation, and a City-Level Analysis of 219 Cities

Defensive Pedal Research

Companion to Severity Without Frequency, Tiers, Not Ranks, and the public release Streets, Not Reputations. This report is the extensive record: every methodological decision, the full validation programme, and a data-generated profile of every indexed city.

ABSTRACT

We rank 219 European cities across 30 countries on the cycling risk of their street networks, using the per-road risk model that serves a production bicycle-routing service. Every public road in the coverage area — 67.3 million scored segments — contributes to three per-city dimensions: the risk of the street network itself (weight 0.40), the risk of 210 standardised simulated journeys (0.30), and population-weighted low-stress accessibility (0.30). The underlying per-road score was validated against 3.98 billion measured bicycle passages and 1,169 serious injuries across 13 European regions; at the city level the index predicts measured serious-injury rates (rate ratio 0.79 [0.71–0.89] per +10 index points, $p < 0.001$) and correlates with bicycle commuting share at $\rho = 0.500$ ($n = 156$), meeting the pre-registered validation target. Ranks are published with 90% rank intervals from 2,000 method respecifications; 191 of 219 cities are confidently placed in one of three tiers. The three dimensions correlate (Spearman S–R 0.50, S–A -0.82, R–A -0.74) yet diverge informatively for individual cities; we analyse each dimension separately and profile every city.

1. Introduction

City cycling rankings are, almost without exception, composites of infrastructure inventories, usage statistics, and policy assessment — the Copenhagenize Index being the best-known example. Such composites answer the question *"which cities are doing well at cycling?"*. This index answers a narrower and more falsifiable one: *"how dangerous is the street network a rider actually encounters?"*. It uses no votes, no policy points, and no usage statistics as inputs; every number derives from the streets as mapped and modelled. The narrowing is deliberate:

it makes the index checkable against injury outcomes (Section 3), immune to advocacy, and sensitive only to physical change in the network.

The frame is every European city with a modelled motor-traffic layer: the union of the 117-city baseline published earlier and the Eurostat city-population top 200 within the 30 covered countries — 219 cities after removing four agglomeration artifacts and two Canary Islands cities that lie outside the map-data coverage entirely. Twenty cities are Romanian, a legacy of the pilot, and the frame therefore over-represents that country's higher-risk networks at the tail.

2. The street-level risk model

The unit of measurement is the individual road segment. Each of the 67.3 million segments receives a risk score assembled from factor families read from OpenStreetMap and from model-side overlays: legal and signed speed (including each country's statutory urban default where no sign is mapped), modelled motor-traffic volume from a capacity-constrained assignment model calibrated to observed congestion indices, lane count and heavy-vehicle access, the presence and grade of separation (track, lane, none; with mandatory-sidepath law respected), street class and function, lighting and surface, and junction/crossing context. Exact factor weights are proprietary to the routing product; consistent with the public product's disclosure policy, this report names factors and directions but not magnitudes. Two properties matter for what follows: the model is *identical in every city*, and it is the *production model* — the same scores plan real routes daily, so the index measures the network the service actually navigates.

Two model-side constructions deserve note. First, the traffic layer is a model, not a measurement: it reproduces congestion-calibrated demand over the road hierarchy, and validation against national count data shows it behaves as a road-class proxy rather than a volume gauge. It is retained because it is the largest outcome-supported component (Section 3) and because it is computed identically everywhere. Second, scores are exported once per model generation; this index was built from a single export whose only difference from the published generation is the extension of the traffic layer to the new cities — verified by reproducing the previous 117 cities' data byte-identically (112 of 117 exact; the remaining five differ only in traffic terms where a newly modelled neighbouring city shares border streets).

3. Validation of the risk algorithm

3.1 DESIGN

The validation programme avoids the two classic failure modes of crash-based city comparison: crash-per-capita metrics (confounded by exposure via the safety-in-numbers effect) and infrastructure inventories (unfalsifiable). Instead it joins permanent and campaign bicycle counters — which measure exposure directly — to geocoded crash registers, and asks whether the model's per-road score predicts *outcomes per passage*. The final panel comprises **2,034 counter sites in 13 regions of six countries, 3.98 billion measured passages, and 1,169 killed-or-seriously- injured (KSI) records**.

3.2 PRINCIPAL RESULTS

- **The score predicts severity, not frequency.** All-crash incidence is flat across the score (RR ≈ 1.05, null), but serious injury per passage rises monotonically: KSI RR 1.62 [1.28–2.06] above score 80, and riders on streets above 100 are seriously injured 2.11× [1.44–3.09] as often per passage as on streets below 30.
- **The signal survives road-class control on mid-block links** (KSI RR 1.48 [1.02–2.13], p = 0.038) but not at junctions, where road class explains the association — junction design is the model's largest known gap.
- **Factor-level audit.** Tested individually against 614 (later 1,035) KSI records: mandatory-sidepath carriageways (RR 1.83), primary-road exposure (1.75), heavy-vehicle access (1.54), on-road stress (1.30) and motor-traffic volume (1.23) are confirmed with correct direction; surface smoothness and secondary-road exposure are well-powered nulls; the gradient family shows no detectable injury relationship (final RR 1.10 [0.72–1.66]); one legacy factor (one-way bonus) was wrong-signed (RR 1.80) and set to zero. Components the audit rejected are removed before city aggregation; production routing is unchanged.
- **Exposure-free replication.** In Munich (26,000 crashes) and Paris (BAAC), crash-type-disambiguated density places ~2× more in-traffic cycling crashes on extreme-score roads (Munich 1.95×, Paris 2.37×; junction crashes 2.66×/2.46×; facility falls 0.39×/0.42×) — replicated across two countries and coding systems.

3.3 CITY-LEVEL CRITERION

Aggregated to cities, 17 panel cities carry both an index value and a measured KSI rate per passage. The index predicts the rate: RR 0.79 [0.71–0.89] per +10 index points ($p < 0.001$); Spearman −0.32. With country fixed effects the association is null (1.00 [0.85–1.17]) — five countries of outcome data cannot separate a city from its national reporting and riding culture, and the panel's tier coverage is lopsided. This is reported as an inconclusive country-adjusted result, not as support for fine-grained rank claims.

3.4 CONVERGENT VALIDITY

Bicycle commuting share (Eurostat Urban Audit, 156 matched cities, some vintages dating to 2003) correlates with the index at ϱ = 0.500 — exactly the pre-registered target and on par with the best published city indices (Bike Score r = 0.52; PeopleForBikes BNA ϱ = 0.57). Against the Copenhagenize Index 2025 — a deliberately different construct — ϱ = 0.47 over its 27 European top-30 cities, with 19 of 27 inside our top 50. In the two disagreements where independent injury data exists (Bordeaux, Zürich), the injury data sides with this index.

4. From roads to cities: the index

Three dimensions, weighted 0.40 / 0.30 / 0.30, each answering a distinct question a rider or an administration would ask. Weights follow the pilot's design (network first, experience and access equal); the respecification analysis below perturbs them.

4.1 S — STREET-NETWORK RISK (0.40)

What it is: the length-weighted mean comparable risk per street-km (0.6 of S) plus the share of street-km in the highest-risk band (0.4 of S). *Why it matters:* the mean is the exposure a rider cannot route around in daily use, and the tail is the component with the strongest validated severity claim — a city cannot bury a few lethal arterials inside a pleasant average. *Constructions:* streets with a parallel protected track (geometrically detected or legally implied by mandatory-sidepath tagging) are scored as the track — a road nobody may or would ride is not counted as ridden; roads above 80 km/h are excluded as bypass rather than urban fabric; city-specific manual overlays and outcome-rejected components are removed for comparability.

4.2 R — JOURNEY RISK (0.30)

What it is: 210 standardised trips per city — origins drawn from the population grid, destinations from amenity distributions — planned by the live production router and scored on the restricted per-road values. *Why it matters:* it measures the network as experienced, not as averaged: a city with a coherent low-risk sub-network scores far better here than its street average suggests (the "escape valve"), while a city whose calm streets do not connect cannot hide.

4.3 A — LOW-STRESS ACCESSIBILITY (0.30)

What it is: on a 1-km population grid, the share of daily destinations reachable over a *connected* low-stress network (0.7) plus the size of the largest connected low-stress component (0.3), averaged over three calibrated low-stress thresholds. *Why it matters:* risk that can be

avoided only by not going is not avoided; this dimension prices network connectivity, which the other two cannot see. Averaging across thresholds removes the cliff a single cut creates for cities whose street risk clusters near it.

4.4 NORMALISATION, UNCERTAINTY, TIERS

Each raw input is normalised against goalposts at the 2.5th and 97.5th percentiles of the 219-city sample (clipping is reported, not hidden), the three dimensions are combined, and the entire method — weights, goalposts, aggregation — is respecified 2,000 times. The 90% rank interval accompanies every rank; the median city moves across 25 places, which is why tiers, not places, are the headline claim. 191 of 219 cities keep one tier in at least two-thirds of respecifications.

5. Results: the ranking

The full ranking, with per-dimension ranks. Overall rank is not a sufficient statistic — Section 6 shows why.

#	City	Ctry	Index	Interval	S rank	R rank	A rank	Tier
1	*Stockholm*	SE	**98.0**	[1–7]	**1**	**15**	**1**	**1**
2	*Helsinki*	FI	**97.0**	[1–9]	**7**	**1**	**13**	**1**
3	*Antwerp*	BE	**96.4**	[2–13]	**9**	**7**	**7**	**1**
4	*Haarlem*	NL	**96.3**	[1–11]	**2**	**33**	**2**	**1**
5	*Leiden*	NL	**96.2**	[3–13]	**3**	**37**	**3**	**1**
6	*Vantaa*	FI	**96.2**	[2–10]	**13**	**2**	**10**	**1**
7	*The Hague*	NL	**95.0**	[4–18]	**6**	**23**	**8**	**1**
8	*Espoo*	FI	**94.7**	[3–14]	**12**	**3**	**17**	**1**
9	*Amsterdam*	NL	**94.2**	[5–17]	**8**	**10**	**14**	**1**
10	*Barcelona*	ES	**93.2**	[6–19]	**20**	**21**	**4**	**1**
11	*Paris*	FR	**93.0**	[5–16]	**16**	**25**	**5**	**1**
12	*Tampere*	FI	**92.5**	[4–17]	**15**	**4**	**24**	**1**
13	*Eindhoven*	NL	**92.4**	[9–23]	**10**	**20**	**19**	**1**
14	*Utrecht*	NL	**91.8**	[11–22]	**14**	**17**	**18**	**1**
15	*Brussels*	BE	**91.3**	[3–23]	**4**	**74**	**6**	**1**
16	*Rotterdam*	NL	**90.8**	[14–24]	**21**	**19**	**16**	**1**

#	City	Ctry	Index	Interval	S rank	R rank	A rank	Tier
17	*Copenhagen*	DK	**89.0**	[8–28]	**5**	**35**	**41**	**1**
18	*San Sebastián*	ES	**88.8**	[17–29]	**19**	**36**	**23**	**1**
19	*Turku*	FI	**88.4**	[6–24]	**29**	**5**	**37**	**1**
20	*Hanover*	DE	**87.7**	[18–28]	**25**	**26**	**26**	**1**
21	*Munich*	DE	**86.9**	[20–33]	**22**	**41**	**25**	**1**
22	*Bremen*	DE	**86.4**	[18–36]	**11**	**48**	**32**	**1**
23	*Ghent*	BE	**85.5**	[21–37]	**17**	**45**	**33**	**1**
24	*Braunschweig*	DE	**84.1**	[23–36]	**30**	**29**	**40**	**1**
25	*Bilbao*	ES	**83.8**	[13–44]	**23**	**110**	**11**	**1**
26	*Almere*	NL	**83.6**	[11–36]	**45**	**9**	**43**	**1**
27	*Lyon*	FR	**83.6**	[13–38]	**46**	**65**	**9**	**1**
28	*Lübeck*	DE	**83.3**	[24–40]	**24**	**27**	**48**	**1**
29	*Groningen*	NL	**82.6**	[26–37]	**50**	**30**	**31**	**1**
30	*Montpellier*	FR	**82.4**	[25–42]	**44**	**55**	**22**	**1**
31	*Toulouse*	FR	**82.1**	[27–44]	**27**	**64**	**36**	**1**
32	*Grenoble*	FR	**80.0**	[27–48]	**51**	**72**	**21**	**1**
33	*Tilburg*	NL	**79.6**	[31–46]	**77**	**32**	**28**	**1**
34	*Strasbourg*	FR	**79.1**	[22–55]	**115**	**18**	**20**	**1**
35	*Nantes*	FR	**79.0**	[27–52]	**18**	**82**	**52**	**1**
36	*Málaga*	ES	**78.6**	[30–50]	**28**	**69**	**46**	**1**
37	*Münster*	DE	**78.5**	[34–49]	**41**	**57**	**42**	**1**
38	*Malmö*	SE	**78.3**	[12–57]	**113**	**8**	**34**	**1**
39	*Seville*	ES	**78.0**	[24–55]	**109**	**16**	**29**	**1**
40	*Bologna*	IT	**78.0**	[18–49]	**71**	**13**	**50**	**1**
41	*Valencia*	ES	**77.8**	[15–67]	**137**	**28**	**12**	**1**
42	*Tours*	FR	**76.7**	[32–65]	**31**	**121**	**35**	**1**
43	*Valladolid*	ES	**76.4**	[37–60]	**102**	**42**	**30**	**1**
44	*Freiburg*	DE	**76.1**	[37–58]	**38**	**83**	**45**	**1**
45	*Vitoria-Gasteiz*	ES	**75.7**	[39–56]	**82**	**34**	**44**	**1**
46	*Sabadell*	ES	**75.5**	[24–69]	**64**	**117**	**15**	**1**
47	*Zaragoza*	ES	**75.0**	[44–56]	**61**	**58**	**49**	**1**

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48	*Duisburg*	DE	**74.9**	[38–62]	**34**	**92**	**55**	**1**
49	*Vienna*	AT	**74.0**	[36–77]	**129**	**22**	**39**	**1**
50	*Palma*	ES	**73.8**	[48–59]	**63**	**52**	**54**	**1**
51	*Berlin*	DE	**73.6**	[37–63]	**32**	**78**	**67**	**1**
52	*Mannheim*	DE	**73.6**	[40–73]	**94**	**86**	**27**	**1**
53	*Pamplona*	ES	**73.4**	[45–72]	**100**	**60**	**38**	**1**
54	*Oulu*	FI	**71.8**	[10–81]	**128**	**6**	**63**	**1**
55	*Córdoba*	ES	**71.7**	[44–70]	**42**	**104**	**61**	**1**
56	*Lille*	FR	**71.1**	[51–79]	**58**	**113**	**47**	**1**
57	*Bonn*	DE	**70.5**	[43–87]	**36**	**135**	**58**	**1**
58	*Düsseldorf*	DE	**70.5**	[55–73]	**60**	**95**	**59**	**1**
59	*Magdeburg*	DE	**70.2**	[55–77]	**86**	**67**	**57**	**1**
60	*Maribor*	SI	**70.1**	[47–73]	**52**	**47**	**100**	**1**
61	*Trondheim*	NO	**70.1**	[46–73]	**65**	**40**	**94**	**1**
62	*Oslo*	NO	**69.9**	[40–81]	**33**	**54**	**125**	**1**
63	*Graz*	AT	**69.5**	[53–80]	**92**	**44**	**69**	**1**
64	*Augsburg*	DE	**69.4**	[54–74]	**53**	**88**	**73**	**1**
65	*Nancy*	FR	**69.0**	[38–108]	**26**	**170**	**53**	**1**
66	*Odense*	DK	**68.6**	[23–89]	**122**	**14**	**78**	**1**
67	*Kiel*	DE	**68.3**	[62–82]	**72**	**96**	**62**	**1**
68	*Szeged*	HU	**68.3**	[63–75]	**66**	**76**	**75**	**1**
69	*Elche*	ES	**68.2**	[65–76]	**68**	**79**	**74**	**1**
70	*Gijón*	ES	**67.9**	[48–84]	**40**	**99**	**96**	**1**
71	*Cologne*	DE	**67.4**	[61–91]	**91**	**106**	**56**	**1**
72	*Aarhus*	DK	**67.2**	[43–90]	**101**	**24**	**108**	**1**
73	*Murcia*	ES	**67.0**	[61–85]	**56**	**98**	**89**	**1**
74	*Oberhausen*	DE	**66.3**	[52–103]	**39**	**141**	**80**	**2**
75	*Rennes*	FR	**66.1**	[61–100]	**49**	**127**	**82**	**2**
76	*A Coruña*	ES	**65.7**	[61–101]	**116**	**105**	**51**	**2**
77	*Białystok*	PL	**65.3**	[61–102]	**133**	**46**	**71**	**2**
78	*Halle (Saale)*	DE	**65.1**	[70–94]	**59**	**107**	**101**	**2**

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79	*Alicante*	ES	**65.0**	[76–89]	**89**	**80**	**85**	**2**
80	*Wrocław*	PL	**65.0**	[66–99]	**121**	**61**	**70**	**2**
81	*Luxembourg*	LU	**64.1**	[73–99]	**112**	**87**	**65**	**2**
82	*Ljubljana*	SI	**63.9**	[76–96]	**69**	**91**	**109**	**2**
83	*Karlsruhe*	DE	**63.7**	[76–106]	**75**	**126**	**72**	**2**
84	*Hamburg*	DE	**63.1**	[68–112]	**48**	**138**	**97**	**2**
85	*Uppsala*	SE	**62.5**	[18–131]	**172**	**11**	**83**	**2**
86	*Bergen*	NO	**62.4**	[70–113]	**55**	**97**	**133**	**2**
87	*Gdańsk*	PL	**61.4**	[88–103]	**95**	**100**	**106**	**2**
88	*Stavanger*	NO	**61.3**	[75–117]	**87**	**62**	**136**	**2**
89	*Krefeld*	DE	**61.1**	[81–118]	**104**	**136**	**64**	**2**
90	*Vigo*	ES	**61.0**	[76–127]	**54**	**156**	**93**	**2**
91	*Almería*	ES	**60.8**	[91–108]	**93**	**111**	**102**	**2**
92	*Debrecen*	HU	**60.5**	[71–119]	**132**	**49**	**116**	**2**
93	*Łódź*	PL	**60.4**	[88–113]	**108**	**73**	**117**	**2**
94	*Leipzig*	DE	**60.2**	[81–123]	**62**	**112**	**137**	**2**
95	*Rostock*	DE	**60.0**	[80–123]	**57**	**142**	**124**	**2**
96	*Toruń*	PL	**59.9**	[85–127]	**151**	**77**	**77**	**2**
97	*Angers*	FR	**59.9**	[73–133]	**47**	**160**	**110**	**2**
98	*Mainz*	DE	**59.7**	[88–127]	**97**	**144**	**76**	**2**
99	*Nuremberg*	DE	**59.7**	[95–116]	**103**	**122**	**90**	**2**
100	*Gelsenkirchen*	DE	**59.6**	[93–121]	**84**	**139**	**92**	**2**
101	*Terrassa*	ES	**59.6**	[85–126]	**124**	**129**	**68**	**2**
102	*Jerez de la Frontera*	ES	**59.3**	[97–117]	**99**	**102**	**119**	**2**
103	*Tallinn*	EE	**59.3**	[53–130]	**136**	**31**	**145**	**2**
104	*Budapest*	HU	**59.1**	[78–124]	**138**	**53**	**121**	**2**
105	*Reykjavik*	IS	**59.0**	[89–129]	**150**	**90**	**81**	**2**
106	*Orléans*	FR	**58.9**	[98–124]	**105**	**134**	**88**	**2**
107	*Alkmaar*	NL	**58.8**	[80–140]	**164**	**75**	**66**	**2**
108	*Bern*	CH	**58.7**	[67–144]	**43**	**181**	**98**	**2**
109	*Madrid*	ES	**58.6**	[82–127]	**139**	**59**	**127**	**2**

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110	*Clermont-Ferrand*	FR	**58.6**	[93–128]	**125**	**124**	**79**	**2**
111	*Warsaw*	PL	**58.2**	[67–137]	**159**	**43**	**115**	**2**
112	*Geneva*	CH	**58.1**	[93–126]	**74**	**133**	**128**	**2**
113	*Linz*	AT	**58.0**	[84–141]	**163**	**70**	**84**	**2**
114	*Valletta*	MT	**57.9**	[65–151]	**37**	**186**	**103**	**2**
115	*Granada*	ES	**57.9**	[90–140]	**73**	**166**	**91**	**2**
116	*Bordeaux*	FR	**57.6**	[100–132]	**83**	**146**	**112**	**2**
117	*Venice*	IT	**57.2**	[62–142]	**158**	**39**	**130**	**2**
118	*Aachen*	DE	**56.9**	[89–145]	**67**	**171**	**105**	**2**
119	*Gdynia*	PL	**56.5**	[114–130]	**111**	**130**	**111**	**2**
120	*Florence*	IT	**56.1**	[88–137]	**144**	**56**	**142**	**2**
121	*Poznań*	PL	**56.1**	[106–141]	**153**	**103**	**95**	**2**
122	*Frankfurt*	DE	**56.1**	[114–135]	**126**	**131**	**99**	**2**
123	*Liège*	BE	**56.0**	[91–147]	**165**	**63**	**107**	**2**
124	*Oviedo*	ES	**55.9**	[66–157]	**35**	**188**	**122**	**2**
125	*Mönchengladbach*	DE	**55.8**	[106–142]	**134**	**145**	**86**	**2**
126	*Lublin*	PL	**55.2**	[95–141]	**143**	**66**	**146**	**2**
127	*Dortmund*	DE	**55.1**	[103–138]	**79**	**140**	**143**	**2**
128	*Gothenburg*	SE	**55.0**	[96–150]	**166**	**68**	**114**	**2**
129	*Kraków*	PL	**54.8**	[114–136]	**106**	**114**	**144**	**2**
130	*Rouen*	FR	**54.5**	[90–159]	**135**	**178**	**60**	**2**
131	*Dublin*	IE	**54.0**	[107–143]	**81**	**137**	**153**	**2**
132	*Bielefeld*	DE	**53.6**	[112–145]	**90**	**149**	**138**	**2**
133	*Stuttgart*	DE	**53.5**	[113–152]	**96**	**169**	**113**	**2**
134	*Bratislava*	SK	**53.0**	[119–143]	**142**	**108**	**141**	**2**
135	*Zurich*	CH	**52.3**	[120–153]	**98**	**165**	**129**	**2**
136	*Kassel*	DE	**51.5**	[109–168]	**85**	**189**	**104**	**2**
137	*Turin*	IT	**51.4**	[24–167]	**194**	**12**	**118**	**2**
138	*Rzeszów*	PL	**51.0**	[135–150]	**148**	**125**	**131**	**2**
139	*Toulon*	FR	**51.0**	[118–155]	**88**	**159**	**151**	**2**
140	*Riga*	LV	**51.0**	[120–150]	**140**	**101**	**162**	**2**

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141	*Parma*	IT	**51.0**	[67–166]	**186**	**38**	**120**	**2**
142	*Bydgoszcz*	PL	**51.0**	[120–155]	**160**	**94**	**135**	**2**
143	*Bergamo*	IT	**50.8**	[111–153]	**147**	**85**	**163**	**2**
144	*Dresden*	DE	**50.7**	[113–160]	**78**	**173**	**148**	**2**
145	*Reims*	FR	**50.1**	[133–160]	**120**	**167**	**126**	**2**
146	*Essen*	DE	**50.1**	[133–157]	**110**	**158**	**139**	**2**
147	*Basel*	CH	**50.0**	[125–164]	**155**	**168**	**87**	**3**
148	*Szczecin*	PL	**48.9**	[137–159]	**162**	**115**	**134**	**3**
149	*Bochum*	DE	**48.1**	[121–168]	**80**	**180**	**155**	**3**
150	*Cartagena*	ES	**47.7**	[135–165]	**107**	**175**	**150**	**3**
151	*Zagreb*	HR	**47.7**	[136–164]	**119**	**123**	**181**	**3**
152	*Le Havre*	FR	**47.6**	[144–159]	**127**	**143**	**166**	**3**
153	*Prague*	CZ	**47.5**	[143–158]	**141**	**132**	**169**	**3**
154	*Lausanne*	CH	**47.1**	[112–175]	**70**	**197**	**149**	**3**
155	*Pescara*	IT	**47.1**	[128–162]	**169**	**89**	**164**	**3**
156	*Vilnius*	LT	**46.6**	[149–162]	**130**	**148**	**167**	**3**
157	*Verona*	IT	**46.4**	[124–166]	**174**	**81**	**158**	**3**
158	*Alcalá de Henares*	ES	**46.3**	[139–173]	**114**	**185**	**132**	**3**
159	*Nice*	FR	**45.2**	[145–165]	**168**	**118**	**159**	**3**
160	*Brescia*	IT	**44.6**	[103–176]	**185**	**50**	**160**	**3**
161	*Wuppertal*	DE	**43.8**	[147–177]	**117**	**187**	**152**	**3**
162	*Erfurt*	DE	**43.7**	[158–169]	**154**	**157**	**156**	**3**
163	*Częstochowa*	PL	**42.9**	[135–182]	**191**	**109**	**123**	**3**
164	*Katowice*	PL	**42.8**	[159–169]	**149**	**152**	**176**	**3**
165	*Marseille*	FR	**42.4**	[159–171]	**145**	**154**	**177**	**3**
166	*Radom*	PL	**42.4**	[150–175]	**182**	**116**	**154**	**3**
167	*Chemnitz*	DE	**41.5**	[157–176]	**131**	**177**	**173**	**3**
168	*Prato*	IT	**40.7**	[125–185]	**195**	**71**	**161**	**3**
169	*Brno*	CZ	**40.1**	[168–175]	**170**	**155**	**168**	**3**
170	*Thessaloniki*	GR	**39.9**	[134–187]	**76**	**194**	**198**	**3**
171	*Kaunas*	LT	**39.8**	[165–176]	**177**	**147**	**165**	**3**

#	City	Ctry	Index	Interval	S rank	R rank	A rank	Tier
172	*Plovdiv*	BG	**39.7**	[110–187]	**197**	**51**	**178**	**3**
173	*Ostrava*	CZ	**39.3**	[145–181]	**184**	**93**	**183**	**3**
174	*Košice*	SK	**39.1**	[166–176]	**156**	**162**	**182**	**3**
175	*Genoa*	IT	**37.5**	[157–191]	**118**	**199**	**180**	**3**
176	*Wiesbaden*	DE	**37.1**	[165–188]	**171**	**191**	**147**	**3**
177	*Milan*	IT	**36.6**	[162–184]	**181**	**120**	**192**	**3**
178	*Varna*	BG	**36.3**	[169–183]	**157**	**176**	**189**	**3**
179	*Cluj-Napoca*	RO	**36.1**	[171–183]	**161**	**179**	**185**	**3**
180	*Padua*	IT	**34.7**	[176–187]	**183**	**163**	**171**	**3**
181	*Lisbon*	PT	**34.2**	[147–193]	**205**	**84**	**175**	**3**
182	*Cork*	IE	**33.0**	[179–189]	**173**	**182**	**184**	**3**
183	*Porto*	PT	**32.0**	[169–196]	**146**	**201**	**197**	**3**
184	*Sofia*	BG	**31.8**	[182–189]	**175**	**174**	**201**	**3**
185	*Rome*	IT	**31.5**	[176–193]	**176**	**151**	**214**	**3**
186	*Dijon*	FR	**31.2**	[174–196]	**189**	**190**	**140**	**3**
187	*Charleroi*	BE	**31.0**	[178–192]	**188**	**150**	**188**	**3**
188	*Naples*	IT	**29.0**	[173–200]	**152**	**206**	**196**	**3**
189	*Trieste*	IT	**28.8**	[188–194]	**180**	**183**	**195**	**3**
190	*Palermo*	IT	**28.7**	[186–196]	**179**	**172**	**210**	**3**
191	*Sintra*	PT	**28.2**	[181–198]	**167**	**193**	**212**	**3**
192	*Cagliari*	IT	**27.6**	[184–196]	**200**	**161**	**187**	**3**
193	*Arad*	RO	**27.0**	[187–197]	**192**	**164**	**200**	**3**
194	*Satu Mare*	RO	**26.8**	[170–208]	**216**	**128**	**157**	**3**
195	*Oradea*	RO	**26.4**	[172–205]	**209**	**119**	**190**	**3**
196	*Nicosia*	CY	**25.7**	[193–198]	**187**	**184**	**199**	**3**
197	*Targu Mures*	RO	**23.9**	[189–201]	**203**	**192**	**170**	**3**
198	*Messina*	IT	**23.8**	[169–209]	**123**	**213**	**215**	**3**
199	*Brasov*	RO	**23.1**	[191–201]	**193**	**203**	**172**	**3**
200	*Burgas*	BG	**21.8**	[189–209]	**208**	**153**	**209**	**3**
201	*Sibiu*	RO	**21.7**	[198–201]	**198**	**196**	**191**	**3**
202	*Timisoara*	RO	**19.7**	[200–204]	**201**	**195**	**203**	**3**

#	City	Ctry	Index	Interval	S rank	R rank	A rank	Tier
203	*Constanta*	RO	**18.2**	[202–207]	**202**	**200**	**202**	**3**
204	*Athens*	GR	**17.2**	[203–208]	**204**	**204**	**193**	**3**
205	*Braga*	PT	**17.0**	[200–210]	**190**	**205**	**208**	**3**
206	*Bari*	IT	**16.8**	[203–210]	**199**	**202**	**211**	**3**
207	*Bucharest*	RO	**16.0**	[201–209]	**206**	**210**	**179**	**3**
208	*Baia Mare*	RO	**15.6**	[201–210]	**196**	**211**	**204**	**3**
209	*Catania*	IT	**15.3**	[193–214]	**178**	**214**	**216**	**3**
210	*Bacau*	RO	**13.1**	[203–212]	**213**	**198**	**194**	**3**
211	*Split*	HR	**11.9**	[203–214]	**207**	**215**	**174**	**3**
212	*Pitesti*	RO	**10.9**	[207–213]	**214**	**207**	**186**	**3**
213	*Craiova*	RO	**9.2**	[211–214]	**210**	**208**	**207**	**3**
214	*Galati*	RO	**7.0**	[212–215]	**211**	**209**	**217**	**3**
215	*Iasi*	RO	**3.3**	[215–218]	**215**	**212**	**218**	**3**
216	*Botosani*	RO	**2.0**	[214–219]	**217**	**216**	**205**	**3**
217	*Buzau*	RO	**1.7**	[215–219]	**218**	**217**	**206**	**3**
218	*Ploiesti*	RO	**1.6**	[215–219]	**212**	**218**	**219**	**3**
219	*Braila*	RO	**0.4**	[218–219]	**219**	**219**	**213**	**3**

5.1 COUNTRY PATTERNS

Mean index by country (countries with ≥4 indexed cities):

Country	Cities	Mean index	Rank span
FI	**6**	**90.1**	2–54
NL	**11**	**87.4**	4–107
SE	**4**	**73.5**	1–128
BE	**5**	**72.0**	3–187
ES	**27**	**69.0**	10–158
NO	**4**	**65.9**	61–88
FR	**22**	**64.5**	11–186
DE	**40**	**63.4**	20–176
PL	**16**	**54.5**	77–166
CH	**5**	**53.2**	108–154

Country	Cities	Mean index	Rank span
IT	**21**	**39.7**	40–209
BG	**4**	**32.4**	172–200
PT	**4**	**27.9**	181–205
RO	**20**	**15.2**	179–219

6. The dimensions, separately

6.1 STREET-NETWORK RISK (S)

Across the 219 cities the mean street risk per km averages 59.0 (median 58.1, IQR 53.3–64.0). The dimension is dominated by speed regime and modelled traffic: cities with Dutch-level signed-30 coverage occupy the strong end regardless of country, and compact cities whose arterials thread the municipality sit at the weak end.

City	Ctry	Value	Overall rank
STRONGEST FIFTEEN			
Brussels	BE	**41.1**	**15**
Haarlem	NL	**42.3**	**4**
Bremen	DE	**42.9**	**22**
Copenhagen	DK	**43.5**	**17**
Stockholm	SE	**44.2**	**1**
Leiden	NL	**45.0**	**5**
Barcelona	ES	**45.2**	**10**
Nantes	FR	**45.9**	**35**
Antwerp	BE	**46.5**	**3**
The Hague	NL	**46.6**	**7**
Paris	FR	**46.6**	**11**
Eindhoven	NL	**46.8**	**13**
Helsinki	FI	**46.9**	**2**
Ghent	BE	**47.0**	**23**
Bilbao	ES	**47.0**	**25**
WEAKEST FIFTEEN			
Craiova	RO	**73.3**	**213**

City	Ctry	Value	Overall rank
Timisoara	RO	**73.8**	**202**
Split	HR	**73.8**	**211**
Oradea	RO	**74.6**	**195**
Burgas	BG	**74.7**	**200**
Ploiesti	RO	**75.2**	**218**
Baia Mare	RO	**75.9**	**208**
Bacau	RO	**76.1**	**210**
Iasi	RO	**77.2**	**215**
Pitesti	RO	**77.6**	**212**
Galati	RO	**78.4**	**214**
Buzau	RO	**79.7**	**217**
Satu Mare	RO	**82.4**	**194**
Botosani	RO	**83.7**	**216**
Braila	RO	**84.6**	**219**

6.2 JOURNEY RISK (R)

Simulated journeys average 15.3 across cities (median 11.4, IQR -0.7–29.0). Values are on the model's raw comparable scale, which is negative where a journey rides mostly bonus-carrying protected infrastructure — the strongest cities' typical trip scores below zero. R rewards coherent low-risk sub-networks; its divergence from S is the single most informative cross-dimensional signal (Section 7).

City	Ctry	Value	Overall rank
STRONGEST FIFTEEN			
Tampere	FI	**-30.6**	**12**
Helsinki	FI	**-28.9**	**2**
Espoo	FI	**-27.6**	**8**
Turku	FI	**-25.9**	**19**
Vantaa	FI	**-25.6**	**6**
Oulu	FI	**-22.1**	**54**
Antwerp	BE	**-18.6**	**3**
Malmö	SE	**-18.5**	**38**

City	Ctry	Value	Overall rank
Almere	NL	**-18.4**	**26**
Amsterdam	NL	**-16.2**	**9**
Uppsala	SE	**-16.2**	**85**
Turin	IT	**-14.9**	**137**
Bologna	IT	**-14.7**	**40**
Odense	DK	**-14.5**	**66**
Stockholm	SE	**-14.4**	**1**
WEAKEST FIFTEEN			
Braga	PT	**54.9**	**205**
Naples	IT	**57.6**	**188**
Pitesti	RO	**57.6**	**212**
Craiova	RO	**58.1**	**213**
Galati	RO	**58.4**	**214**
Bucharest	RO	**60.0**	**207**
Baia Mare	RO	**62.0**	**208**
Iasi	RO	**63.1**	**215**
Messina	IT	**71.4**	**198**
Buzau	RO	**74.0**	**217**
Catania	IT	**75.5**	**209**
Braila	RO	**75.7**	**219**
Ploiesti	RO	**76.0**	**218**
Botosani	RO	**78.3**	**216**
Split	HR	**85.6**	**211**

6.3 LOW-STRESS ACCESSIBILITY (A)

The composite accessibility input averages 0.414 (median 0.410, IQR 0.285–0.538); on average 49% of residents are locked to high-stress streets at the central threshold. A is the harshest dimension: connectivity is multiplicative, and most cities' calm streets form islands.

City	Ctry	Value	Overall rank
STRONGEST FIFTEEN			
Haarlem	NL	**0.841**	**4**

City	Ctry	Value	Overall rank
Brussels	BE	**0.787**	**15**
Stockholm	SE	**0.774**	**1**
Leiden	NL	**0.761**	**5**
Paris	FR	**0.755**	**11**
Barcelona	ES	**0.723**	**10**
Antwerp	BE	**0.703**	**3**
Lyon	FR	**0.698**	**27**
The Hague	NL	**0.698**	**7**
Vantaa	FI	**0.697**	**6**
Bilbao	ES	**0.696**	**25**
Valencia	ES	**0.691**	**41**
Helsinki	FI	**0.682**	**2**
Amsterdam	NL	**0.674**	**9**
Sabadell	ES	**0.674**	**46**
WEAKEST FIFTEEN			
Botosani	RO	**0.169**	**216**
Buzau	RO	**0.165**	**217**
Craiova	RO	**0.159**	**213**
Braga	PT	**0.155**	**205**
Burgas	BG	**0.151**	**200**
Palermo	IT	**0.150**	**190**
Bari	IT	**0.149**	**206**
Sintra	PT	**0.144**	**191**
Braila	RO	**0.138**	**219**
Rome	IT	**0.125**	**185**
Ploiesti	RO	**0.124**	**218**
Iasi	RO	**0.116**	**215**
Messina	IT	**0.113**	**198**
Galati	RO	**0.112**	**214**
Catania	IT	**0.104**	**209**

7. Cross-dimensional analysis

The dimensions correlate (Spearman S–R 0.50, S–A -0.82, R–A -0.74) — safe streets, safe journeys and connected access tend to come together — but the exceptions carry the diagnosis.

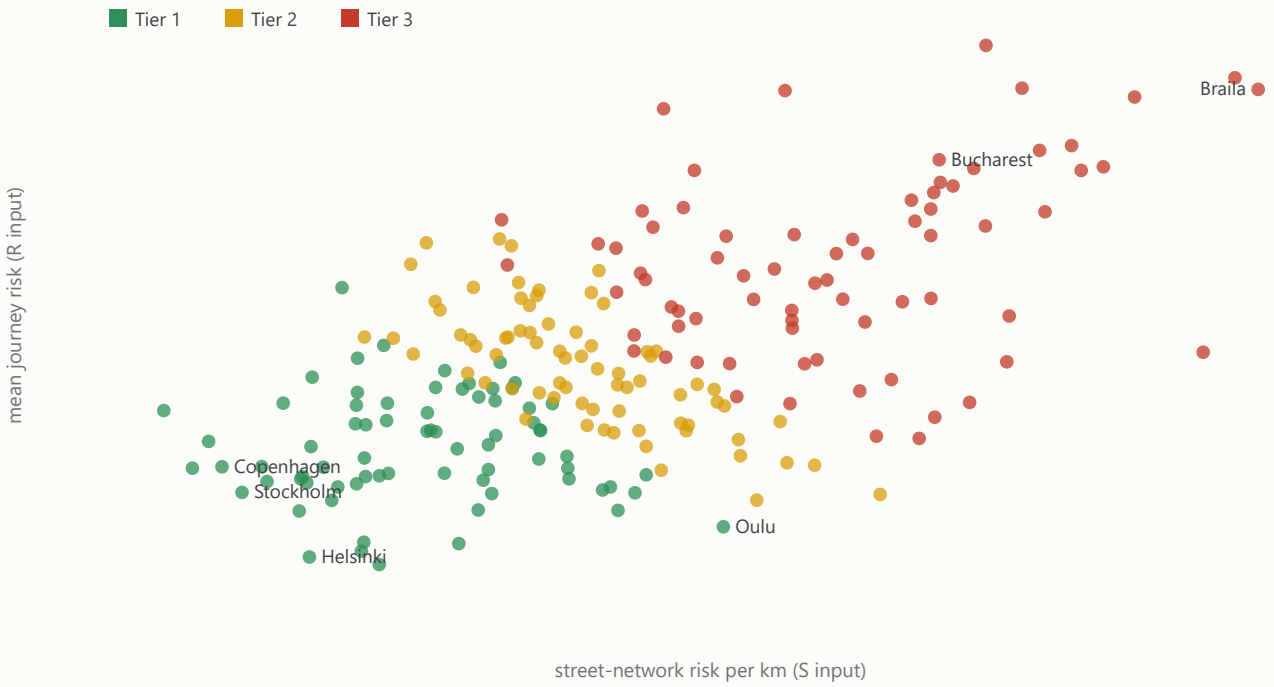

Figure 1. Street risk vs journey risk. Cities far below the diagonal trend own an "escape valve": a connected low-risk sub-network that journeys can use even where the average street is hostile. Cities on or above it offer the router no refuge.

The escape-valve gap (street risk minus journey risk) ranges from 85.5 (Oulu) to -11.8 (Split). The fifteen largest escape valves: Oulu, Turin, Uppsala, Tampere, Turku, Malmö, Espoo, Helsinki, Parma, Vantaa, Odense, Venice, Brescia, Seville, Strasbourg. The fifteen smallest: Baia Mare, Porto, Kassel, Bucharest, Genoa, Oviedo, Braila, Lausanne, Buzau, Botosani, Naples, Ploiesti, Catania, Messina, Split. The second list is a policy target in itself: these are the cities where building a coherent sub-network would move the experienced risk fastest.

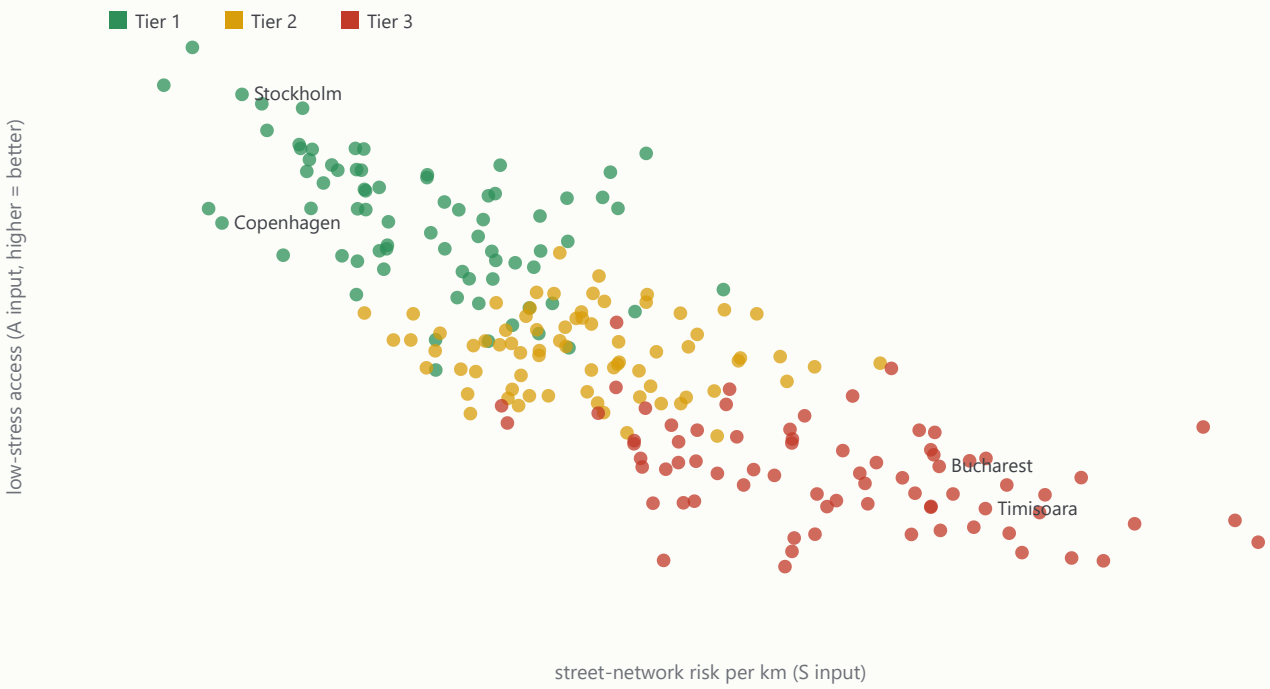

Figure 2. Street risk vs low-stress access. The vertical spread at fixed street risk is connectivity: cities with identical averages differ several-fold in how much of daily life their calm streets can actually reach.

8. City profiles

One data-generated profile per city, alphabetical. Dimension ranks are out of 219; "escape-valve rank" orders the street-minus-journey gap (1 = largest escape valve). Factor names follow the public sign-only disclosure policy.

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76. A CORUÑA ES · INDEX 65.7 · INTERVAL 61–101 · TIER 2 (MIDDLE) · TIER STABILITY 67%

A Coruña holds an uneven profile — strongest on low-stress access (rank 51), weakest on street-network risk (rank 116). Streets: mean comparable risk 56.9 per km over 489 street-km (dimension rank 116/219), with 12.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 10.0 (rank 105/219; 90th percentile 42.7). Access: composite low-stress accessibility 0.549 (rank 51/219); 0% of 259,172 residents are locked to high-stress streets at the central threshold, against 450 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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118. AACHEN DE · INDEX 56.9 · INTERVAL 89–145 · TIER 2 (MIDDLE) · TIER STABILITY 95%

Aachen holds an uneven profile — strongest on street-network risk (rank 67), weakest on journey risk (rank 171). Streets: mean comparable risk 53.4 per km over 1,063 street-km (dimension rank 67/219), with 9.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 31.4 (rank 171/219; 90th percentile 50.8). Access: composite low-stress accessibility 0.417 (rank 105/219); 54% of 214,663 residents are locked to high-stress streets at the central threshold, against 860 km of low-stress network. Leading risk

drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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72. AARHUS DK · INDEX 67.2 · INTERVAL 43–90 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 64%

Aarhus holds an uneven profile — strongest on journey risk (rank 24), weakest on low-stress access (rank 108). Streets: mean comparable risk 57.2 per km over 3,096 street-km (dimension rank 101/219), with 10.1% of the network in the highest-risk band. Journeys: 210 standardised trips average -11.4 (rank 24/219; 90th percentile 4.0). Access: composite low-stress accessibility 0.414 (rank 108/219); 85% of 335,337 residents are locked to high-stress streets at the central threshold, against 1,630 km of low-stress network. Leading risk drivers on its streets: On-road stress (speed × lanes), Score cap, 50 km/h limit. Leading protections: Separated cycle track, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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158. ALCALÁ DE HENARES ES · INDEX 46.3 · INTERVAL 139–173 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 77%

Alcalá de Henares holds an uneven profile — strongest on street-network risk (rank 114), weakest on journey risk (rank 185). Streets: mean comparable risk 59.1 per km over 549 street-km (dimension rank 114/219), with 10.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 40.2 (rank 185/219; 90th percentile 56.8). Access: composite low-stress accessibility 0.358 (rank 132/219); 19% of 193,162 residents are locked to high-stress streets at the central threshold, against 397 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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79. ALICANTE ES · INDEX 65.0 · INTERVAL 76–89 · TIER 2 (MIDDLE) · TIER STABILITY 73%

Alicante holds a balanced profile. Streets: mean comparable risk 57.8 per km over 1,085 street-km (dimension rank 89/219), with 8.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 5.5 (rank 80/219; 90th percentile 33.0). Access: composite low-stress accessibility 0.457 (rank 85/219); 8% of 401,574 residents are locked to high-stress streets at the central threshold, against 1,163 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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107. ALKMAAR NL · INDEX 58.8 · INTERVAL 80–140 · TIER 2 (MIDDLE) · TIER STABILITY 94%

Alkmaar holds an uneven profile — strongest on low-stress access (rank 66), weakest on street-network risk (rank 164). Streets: mean comparable risk 58.2 per km over 599 street-km (dimension rank 164/219), with 20.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 4.1 (rank 75/219; 90th percentile 34.3). Access: composite low-stress accessibility 0.492 (rank 66/219); 14% of 105,253 residents are locked to high-stress streets at the central threshold, against 435 km of low-stress network. Leading risk drivers on its streets: On-road stress (speed × lanes), Score cap, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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26. ALMERE NL · INDEX 83.6 · INTERVAL 11–36 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Almere holds a balanced profile. Streets: mean comparable risk 53.6 per km over 1,040 street-km (dimension rank 45/219), with 5.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -18.4 (rank 9/219; 90th percentile -11.3). Access: composite low-stress accessibility 0.573 (rank 43/219); 27% of 232,828 residents are locked to high-stress streets at the central threshold, against 1,142 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten on at least one dimension.

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91. ALMERÍA ES · INDEX 60.8 · INTERVAL 91–108 · TIER 2 (MIDDLE) · TIER STABILITY 99%

Almería holds a balanced profile. Streets: mean comparable risk 59.2 per km over 781 street-km (dimension rank 93/219), with 6.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 12.2 (rank 111/219; 90th percentile 41.4). Access: composite low-stress accessibility 0.423 (rank 102/219); 14% of 230,082 residents are locked to high-stress streets at the central threshold, against 1,035 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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9. AMSTERDAM NL · INDEX 94.2 · INTERVAL 5–17 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Amsterdam holds a balanced profile. Streets: mean comparable risk 47.8 per km over 1,675 street-km (dimension rank 8/219), with 2.3% of the network in the highest-risk band. Journeys: 210 standardised trips average -16.2 (rank 10/219; 90th percentile -5.5). Access: composite low-stress accessibility 0.674 (rank 14/219); 3% of 774,206 residents are locked to high-stress streets at the central threshold, against 2,180 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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97. ANGERS FR · INDEX 59.9 · INTERVAL 73–133 · TIER 2 (MIDDLE) · TIER STABILITY 84%

Angers holds an uneven profile — strongest on street-network risk (rank 47), weakest on journey risk (rank 160). Streets: mean comparable risk 51.9 per km over 647 street-km (dimension rank 47/219), with 7.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 28.2 (rank 160/219; 90th percentile 42.2). Access: composite low-stress accessibility 0.410 (rank 110/219); 5% of 145,109 residents are locked to high-stress streets at the central threshold, against 356 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Signed bike network.

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3. ANTWERP BE · INDEX 96.4 · INTERVAL 2–13 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Antwerp holds a balanced profile. Streets: mean comparable risk 46.5 per km over 1,220 street-km (dimension rank 9/219), with 3.9% of the network in the highest-risk band. Journeys: 210 standardised trips average -18.6 (rank 7/219; 90th percentile -8.7). Access: composite low-stress accessibility 0.703 (rank 7/219); 9% of 538,620 residents are locked to high-stress streets at the central threshold, against 1,514 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, On-road stress (speed × lanes). Leading

protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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193. ARAD RO · INDEX 27.0 · INTERVAL 187–197 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Arad holds a balanced profile. Streets: mean comparable risk 71.6 per km over 732 street-km (dimension rank 192/219), with 17.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 28.9 (rank 164/219; 90th percentile 58.3). Access: composite low-stress accessibility 0.189 (rank 200/219); 99% of 128,074 residents are locked to high-stress streets at the central threshold, against 132 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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204. ATHENS GR · INDEX 17.2 · INTERVAL 203–208 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Athens holds a balanced profile. Streets: mean comparable risk 72.5 per km over 980 street-km (dimension rank 204/219), with 20.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 54.1 (rank 204/219; 90th percentile 65.3). Access: composite low-stress accessibility 0.207 (rank 193/219); 99% of 622,088 residents are locked to high-stress streets at the central threshold, against 155 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Pedestrian Zone, Residential street.

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64. AUGSBURG DE · INDEX 69.4 · INTERVAL 54–74 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 84%

Augsburg holds a balanced profile. Streets: mean comparable risk 53.6 per km over 1,164 street-km (dimension rank 53/219), with 6.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 6.9 (rank 88/219; 90th percentile 27.4). Access: composite low-stress accessibility 0.477 (rank 73/219); 72% of 300,974 residents are locked to high-stress streets at the central threshold, against 1,028 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, On-road stress (speed × lanes). Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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210. BACAU RO · INDEX 13.1 · INTERVAL 203–212 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Bacau holds a balanced profile. Streets: mean comparable risk 76.1 per km over 390 street-km (dimension rank 213/219), with 25.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 48.3 (rank 198/219; 90th percentile 81.0). Access: composite low-stress accessibility 0.206 (rank 194/219); 100% of 116,669 residents are locked to high-stress streets at the central threshold, against 38 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Residential street, Service Road.

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208. BAIA MARE RO · INDEX 15.6 · INTERVAL 201–210 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Baia Mare holds a balanced profile. Streets: mean comparable risk 75.9 per km over 416 street-km (dimension rank 196/219), with 13.2% of the network in the highest-risk band. Journeys: 210 standardised trips average

62.0 (rank 211/219; 90th percentile 88.7). Access: composite low-stress accessibility 0.180 (rank 204/219); 88% of 109,100 residents are locked to high-stress streets at the central threshold, against 471 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 205 of 219). Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Path, Car-Free Zone.

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10. BARCELONA ES · INDEX 93.2 · INTERVAL 6–19 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Barcelona holds a balanced profile. Streets: mean comparable risk 45.2 per km over 1,303 street-km (dimension rank 20/219), with 7.9% of the network in the highest-risk band. Journeys: 210 standardised trips average -12.0 (rank 21/219; 90th percentile 0.2). Access: composite low-stress accessibility 0.723 (rank 4/219); 5% of 1,744,231 residents are locked to high-stress streets at the central threshold, against 1,596 km of low-stress network. Leading risk drivers on its streets: Incline, Score cap, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone. Notes: top-ten overall; top-ten on at least one dimension.

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206. BARI IT · INDEX 16.8 · INTERVAL 203–210 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Bari holds a balanced profile. Streets: mean comparable risk 70.8 per km over 1,153 street-km (dimension rank 199/219), with 20.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 50.9 (rank 202/219; 90th percentile 81.3). Access: composite low-stress accessibility 0.149 (rank 211/219); 98% of 301,196 residents are locked to high-stress streets at the central threshold, against 183 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Heavy-vehicle access, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track.

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147. BASEL CH · INDEX 50.0 · INTERVAL 125–164 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 51%

Basel holds an uneven profile — strongest on low-stress access (rank 87), weakest on journey risk (rank 168). Streets: mean comparable risk 59.1 per km over 368 street-km (dimension rank 155/219), with 16.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 30.4 (rank 168/219; 90th percentile 46.4). Access: composite low-stress accessibility 0.451 (rank 87/219); 0% of 161,619 residents are locked to high-stress streets at the central threshold, against 184 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Signed bike network. Notes: straddles a tier boundary under respecification.

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143. BERGAMO IT · INDEX 50.8 · INTERVAL 111–153 · TIER 2 (MIDDLE) · TIER STABILITY 65%

Bergamo holds an uneven profile — strongest on journey risk (rank 85), weakest on low-stress access (rank 163). Streets: mean comparable risk 63.1 per km over 419 street-km (dimension rank 147/219), with 10.2% of the network in the highest-risk band. Journeys: 209 standardised trips average 5.8 (rank 85/219; 90th percentile 28.9). Access: composite low-stress accessibility 0.289 (rank 163/219); 88% of 115,714 residents are locked to high-stress streets at the central threshold, against 195 km of low-stress network. Leading risk drivers on its streets: Score cap, Heavy-vehicle access, Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

86. BERGEN NO · INDEX 62.4 · INTERVAL 70–113 · TIER 2 (MIDDLE) · TIER STABILITY 70%

Bergen holds an uneven profile — strongest on street-network risk (rank 55), weakest on low-stress access (rank 133). Streets: mean comparable risk 55.0 per km over 2,586 street-km (dimension rank 55/219), with 5.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 8.8 (rank 97/219; 90th percentile 43.4). Access: composite low-stress accessibility 0.355 (rank 133/219); 20% of 282,215 residents are locked to high-stress streets at the central threshold, against 2,728 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track.

51. BERLIN DE · INDEX 73.6 · INTERVAL 37–63 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 98%

Berlin holds an uneven profile — strongest on street-network risk (rank 32), weakest on journey risk (rank 78). Streets: mean comparable risk 48.8 per km over 8,764 street-km (dimension rank 32/219), with 7.7% of the network in the highest-risk band. Journeys: 209 standardised trips average 5.1 (rank 78/219; 90th percentile 22.4). Access: composite low-stress accessibility 0.490 (rank 67/219); 27% of 3,235,142 residents are locked to high-stress streets at the central threshold, against 7,004 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Track Grade 4/5. Leading protections: Signed ≤30 km/h zone, Separated cycle track.

108. BERN CH · INDEX 58.7 · INTERVAL 67–144 · TIER 2 (MIDDLE) · TIER STABILITY 79%

Bern holds an uneven profile — strongest on street-network risk (rank 43), weakest on journey risk (rank 181). Streets: mean comparable risk 51.0 per km over 521 street-km (dimension rank 43/219), with 7.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 36.6 (rank 181/219; 90th percentile 47.9). Access: composite low-stress accessibility 0.425 (rank 98/219); 10% of 119,340 residents are locked to high-stress streets at the central threshold, against 474 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Car-Free Zone.

77. BIAŁYSTOK PL · INDEX 65.3 · INTERVAL 61–102 · TIER 2 (MIDDLE) · TIER STABILITY 58%

Białystok holds an uneven profile — strongest on journey risk (rank 46), weakest on street-network risk (rank 133). Streets: mean comparable risk 60.3 per km over 1,067 street-km (dimension rank 133/219), with 11.1% of the network in the highest-risk band. Journeys: 210 standardised trips average -4.1 (rank 46/219; 90th percentile 13.7). Access: composite low-stress accessibility 0.479 (rank 71/219); 87% of 286,740 residents are locked to high-stress streets at the central threshold, against 541 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

132. BIELEFELD DE · INDEX 53.6 · INTERVAL 112–145 · TIER 2 (MIDDLE) · TIER STABILITY 84%

Bielefeld holds an uneven profile — strongest on street-network risk (rank 90), weakest on journey risk (rank 149). Streets: mean comparable risk 56.4 per km over 2,189 street-km (dimension rank 90/219), with 9.5% of

the network in the highest-risk band. Journeys: 210 standardised trips average 23.2 (rank 149/219; 90th percentile 44.5). Access: composite low-stress accessibility 0.346 (rank 138/219); 79% of 326,589 residents are locked to high-stress streets at the central threshold, against 1,273 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Incline. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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25. BILBAO ES · INDEX 83.8 · INTERVAL 13–44 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Bilbao holds an uneven profile — strongest on low-stress access (rank 11), weakest on journey risk (rank 110). Streets: mean comparable risk 47.0 per km over 400 street-km (dimension rank 23/219), with 7.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 11.4 (rank 110/219; 90th percentile 36.5). Access: composite low-stress accessibility 0.696 (rank 11/219); 0% of 356,270 residents are locked to high-stress streets at the central threshold, against 498 km of low-stress network. Leading risk drivers on its streets: Incline, Heavy-vehicle access, Motor-traffic volume. Leading protections: Signed ≤30 km/h zone, Pedestrian Zone.

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149. BOCHUM DE · INDEX 48.1 · INTERVAL 121–168 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 56%

Bochum holds an uneven profile — strongest on street-network risk (rank 80), weakest on journey risk (rank 180). Streets: mean comparable risk 54.8 per km over 1,887 street-km (dimension rank 80/219), with 10.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 36.4 (rank 180/219; 90th percentile 53.2). Access: composite low-stress accessibility 0.308 (rank 155/219); 74% of 341,599 residents are locked to high-stress streets at the central threshold, against 1,088 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Incline. Leading protections: Signed ≤30 km/h zone, Bicycle Designated. Notes: straddles a tier boundary under respecification.

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40. BOLOGNA IT · INDEX 78.0 · INTERVAL 18–49 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Bologna holds an uneven profile — strongest on journey risk (rank 13), weakest on street-network risk (rank 71). Streets: mean comparable risk 54.2 per km over 1,184 street-km (dimension rank 71/219), with 9.5% of the network in the highest-risk band. Journeys: 210 standardised trips average -14.7 (rank 13/219; 90th percentile 2.1). Access: composite low-stress accessibility 0.551 (rank 50/219); 7% of 365,705 residents are locked to high-stress streets at the central threshold, against 801 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, Incline. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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57. BONN DE · INDEX 70.5 · INTERVAL 43–87 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 88%

Bonn holds an uneven profile — strongest on street-network risk (rank 36), weakest on journey risk (rank 135). Streets: mean comparable risk 49.9 per km over 1,144 street-km (dimension rank 36/219), with 7.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 18.5 (rank 135/219; 90th percentile 36.1). Access: composite low-stress accessibility 0.526 (rank 58/219); 13% of 300,622 residents are locked to high-stress streets at the central threshold, against 998 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

116. BORDEAUX FR · INDEX 57.6 · INTERVAL 100–132 · TIER 2 (MIDDLE) · TIER STABILITY 99%

Bordeaux holds an uneven profile — strongest on street-network risk (rank 83), weakest on journey risk (rank 146). Streets: mean comparable risk 55.3 per km over 858 street-km (dimension rank 83/219), with 10.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 21.7 (rank 146/219; 90th percentile 42.6). Access: composite low-stress accessibility 0.407 (rank 112/219); 19% of 267,216 residents are locked to high-stress streets at the central threshold, against 366 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed bike network, Signed ≤30 km/h zone.

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216. BOTOSANI RO · INDEX 2.0 · INTERVAL 214–219 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Botosani holds a balanced profile. Streets: mean comparable risk 83.7 per km over 271 street-km (dimension rank 217/219), with 35.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 78.3 (rank 216/219; 90th percentile 90.9). Access: composite low-stress accessibility 0.169 (rank 205/219); 97% of 91,625 residents are locked to high-stress streets at the central threshold, against 39 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 214 of 219). Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Residential street, Pedestrian Zone.

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205. BRAGA PT · INDEX 17.0 · INTERVAL 200–210 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Braga holds a balanced profile. Streets: mean comparable risk 72.0 per km over 1,389 street-km (dimension rank 190/219), with 17.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 54.9 (rank 205/219; 90th percentile 86.5). Access: composite low-stress accessibility 0.155 (rank 208/219); 97% of 187,521 residents are locked to high-stress streets at the central threshold, against 434 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Residential street, Cycleway/Sidewalk.

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219. BRAILA RO · INDEX 0.4 · INTERVAL 218–219 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Braila holds a balanced profile. Streets: mean comparable risk 84.6 per km over 400 street-km (dimension rank 219/219), with 39.7% of the network in the highest-risk band. Journeys: 209 standardised trips average 75.7 (rank 219/219; 90th percentile 92.8). Access: composite low-stress accessibility 0.138 (rank 213/219); 96% of 151,827 residents are locked to high-stress streets at the central threshold, against 46 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 211 of 219). Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Residential street, Signed ≤30 km/h zone.

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199. BRASOV RO · INDEX 23.1 · INTERVAL 191–201 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Brasov holds a balanced profile. Streets: mean comparable risk 71.7 per km over 888 street-km (dimension rank 193/219), with 17.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 52.7 (rank 203/219; 90th percentile 76.4). Access: composite low-stress accessibility 0.263 (rank 172/219); 83% of 235,694 residents are locked to high-stress streets at the central threshold, against 410 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Incline. Leading protections: Signed ≤30 km/h zone, Service Road.

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134. BRATISLAVA SK · INDEX 53.0 · INTERVAL 119–143 · TIER 2 (MIDDLE) · TIER STABILITY 82%

Bratislava holds a balanced profile. Streets: mean comparable risk 60.0 per km over 2,096 street-km (dimension rank 142/219), with 12.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 10.5 (rank 108/219; 90th percentile 43.4). Access: composite low-stress accessibility 0.344 (rank 141/219); 58% of 392,119 residents are locked to high-stress streets at the central threshold, against 1,374 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, Incline. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

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24. BRAUNSCHWEIG DE · INDEX 84.1 · INTERVAL 23–36 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Braunschweig holds a balanced profile. Streets: mean comparable risk 50.1 per km over 1,102 street-km (dimension rank 30/219), with 5.9% of the network in the highest-risk band. Journeys: 210 standardised trips average -10.2 (rank 29/219; 90th percentile 8.5). Access: composite low-stress accessibility 0.593 (rank 40/219); 20% of 231,178 residents are locked to high-stress streets at the central threshold, against 1,176 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, Track Grade 4/5. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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22. BREMEN DE · INDEX 86.4 · INTERVAL 18–36 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Bremen holds a balanced profile. Streets: mean comparable risk 42.9 per km over 2,429 street-km (dimension rank 11/219), with 5.9% of the network in the highest-risk band. Journeys: 210 standardised trips average -3.0 (rank 48/219; 90th percentile 19.9). Access: composite low-stress accessibility 0.612 (rank 32/219); 31% of 550,217 residents are locked to high-stress streets at the central threshold, against 1,821 km of low-stress network. Leading risk drivers on its streets: 50 km/h limit, Heavy-vehicle access, Motor-traffic volume. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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160. BRESCIA IT · INDEX 44.6 · INTERVAL 103–176 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 62%

Brescia holds an uneven profile — strongest on journey risk (rank 50), weakest on street-network risk (rank 185). Streets: mean comparable risk 71.1 per km over 862 street-km (dimension rank 185/219), with 15.2% of the network in the highest-risk band. Journeys: 210 standardised trips average -2.3 (rank 50/219; 90th percentile 22.2). Access: composite low-stress accessibility 0.298 (rank 160/219); 81% of 203,969 residents are locked to high-stress streets at the central threshold, against 473 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 13 of 219). Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Score cap.

Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

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169. BRNO CZ · INDEX 40.1 · INTERVAL 168–175 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Brno holds a balanced profile. Streets: mean comparable risk 66.1 per km over 1,567 street-km (dimension rank 170/219), with 12.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 26.3 (rank 155/219; 90th percentile 50.4). Access: composite low-stress accessibility 0.279 (rank 168/219); 72% of 358,325 residents are locked to high-stress streets at the central threshold, against 1,264 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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15. BRUSSELS BE · INDEX 91.3 · INTERVAL 3–23 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Brussels holds an uneven profile — strongest on street-network risk (rank 4), weakest on journey risk (rank 74). Streets: mean comparable risk 41.1 per km over 2,110 street-km (dimension rank 4/219), with 3.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 3.9 (rank 74/219; 90th percentile 20.9). Access: composite low-stress accessibility 0.787 (rank 6/219); 0% of 1,270,904 residents are locked to high-stress streets at the central threshold, against 2,120 km of low-stress network. Leading risk drivers on its streets: Score cap, Incline, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: top-ten on at least one dimension.

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207. BUCHAREST RO · INDEX 16.0 · INTERVAL 201–209 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Bucharest holds a balanced profile. Streets: mean comparable risk 71.9 per km over 3,751 street-km (dimension rank 206/219), with 23.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 60.0 (rank 210/219; 90th percentile 83.3). Access: composite low-stress accessibility 0.246 (rank 179/219); 78% of 1,834,401 residents are locked to high-stress streets at the central threshold, against 1,304 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 208 of 219). Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Bucharest City. Leading protections: Signed ≤30 km/h zone, Residential street.

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104. BUDAPEST HU · INDEX 59.1 · INTERVAL 78–124 · TIER 2 (MIDDLE) · TIER STABILITY 87%

Budapest holds an uneven profile — strongest on journey risk (rank 53), weakest on street-network risk (rank 138). Streets: mean comparable risk 59.0 per km over 5,448 street-km (dimension rank 138/219), with 13.2% of the network in the highest-risk band. Journeys: 210 standardised trips average -1.1 (rank 53/219; 90th percentile 27.5). Access: composite low-stress accessibility 0.386 (rank 121/219); 38% of 1,849,171 residents are locked to high-stress streets at the central threshold, against 3,074 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Signed bike network.

200. BURGAS BG · INDEX 21.8 · INTERVAL 189–209 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Burgas holds an uneven profile — strongest on journey risk (rank 153), weakest on low-stress access (rank 209). Streets: mean comparable risk 74.7 per km over 896 street-km (dimension rank 208/219), with 21.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 25.0 (rank 153/219; 90th percentile 68.2). Access: composite low-stress accessibility 0.151 (rank 209/219); 87% of 144,584 residents are locked to high-stress streets at the central threshold, against 343 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Track Grade 4/5. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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217. BUZAU RO · INDEX 1.7 · INTERVAL 215–219 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Buzau holds a balanced profile. Streets: mean comparable risk 79.7 per km over 349 street-km (dimension rank 218/219), with 30.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 74.0 (rank 217/219; 90th percentile 90.0). Access: composite low-stress accessibility 0.165 (rank 206/219); 99% of 105,005 residents are locked to high-stress streets at the central threshold, against 46 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 213 of 219). Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Service Road.

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142. BYDGOSZCZ PL · INDEX 51.0 · INTERVAL 120–155 · TIER 2 (MIDDLE) · TIER STABILITY 64%

Bydgoszcz holds an uneven profile — strongest on journey risk (rank 94), weakest on street-network risk (rank 160). Streets: mean comparable risk 63.0 per km over 1,494 street-km (dimension rank 160/219), with 13.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 8.6 (rank 94/219; 90th percentile 32.3). Access: composite low-stress accessibility 0.353 (rank 135/219); 92% of 339,941 residents are locked to high-stress streets at the central threshold, against 741 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Track Grade 4/5. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

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192. CAGLIARI IT · INDEX 27.6 · INTERVAL 184–196 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Cagliari holds a balanced profile. Streets: mean comparable risk 70.5 per km over 637 street-km (dimension rank 200/219), with 21.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 28.2 (rank 161/219; 90th percentile 72.0). Access: composite low-stress accessibility 0.230 (rank 187/219); 100% of 134,639 residents are locked to high-stress streets at the central threshold, against 194 km of low-stress network. Leading risk drivers on its streets: On-road stress (speed × lanes), Motor-traffic volume, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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150. CARTAGENA ES · INDEX 47.7 · INTERVAL 135–165 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 66%

Cartagena holds an uneven profile — strongest on street-network risk (rank 107), weakest on journey risk (rank 175). Streets: mean comparable risk 60.3 per km over 2,051 street-km (dimension rank 107/219), with 7.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 33.2 (rank 175/219; 90th percentile 58.9). Access: composite low-stress accessibility 0.329 (rank 150/219); 25% of 247,214 residents are locked to high-stress streets at the central threshold, against 1,561 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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209. CATANIA IT · INDEX 15.3 · INTERVAL 193–214 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Catania holds a balanced profile. Streets: mean comparable risk 65.8 per km over 1,369 street-km (dimension rank 178/219), with 16.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 75.5 (rank 214/219; 90th percentile 96.4). Access: composite low-stress accessibility 0.104 (rank 216/219); 100% of 286,809 residents are locked to high-stress streets at the central threshold, against 200 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 217 of 219). Leading risk drivers on its streets: Motor-traffic volume, Heavy-vehicle access, On-road stress (speed × lanes). Leading protections: Residential street, Service Road.

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187. CHARLEROI BE · INDEX 31.0 · INTERVAL 178–192 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Charleroi holds a balanced profile. Streets: mean comparable risk 69.0 per km over 1,041 street-km (dimension rank 188/219), with 19.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 23.7 (rank 150/219; 90th percentile 56.8). Access: composite low-stress accessibility 0.222 (rank 188/219); 90% of 207,385 residents are locked to high-stress streets at the central threshold, against 290 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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167. CHEMNITZ DE · INDEX 41.5 · INTERVAL 157–176 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 96%

Chemnitz holds an uneven profile — strongest on street-network risk (rank 131), weakest on journey risk (rank 177). Streets: mean comparable risk 60.1 per km over 1,644 street-km (dimension rank 131/219), with 11.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 34.6 (rank 177/219; 90th percentile 54.5). Access: composite low-stress accessibility 0.257 (rank 173/219); 87% of 228,532 residents are locked to high-stress streets at the central threshold, against 922 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Service Road.

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110. CLERMONT-FERRAND FR · INDEX 58.6 · INTERVAL 93–128 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Clermont-Ferrand holds an uneven profile — strongest on low-stress access (rank 79), weakest on street-network risk (rank 125). Streets: mean comparable risk 57.7 per km over 629 street-km (dimension rank

125/219), with 13.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 16.0 (rank 124/219; 90th percentile 37.6). Access: composite low-stress accessibility 0.465 (rank 79/219); 9% of 158,380 residents are locked to high-stress streets at the central threshold, against 358 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Heavy-vehicle access, Incline. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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179. CLUJ-NAPOCA RO · INDEX 36.1 · INTERVAL 171–183 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Cluj-Napoca holds a balanced profile. Streets: mean comparable risk 65.4 per km over 928 street-km (dimension rank 161/219), with 11.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 35.5 (rank 179/219; 90th percentile 59.2). Access: composite low-stress accessibility 0.233 (rank 185/219); 82% of 315,238 residents are locked to high-stress streets at the central threshold, against 491 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Car-Free Zone, Cycleway/Sidewalk.

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71. COLOGNE DE · INDEX 67.4 · INTERVAL 61–91 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 60%

Cologne holds an uneven profile — strongest on low-stress access (rank 56), weakest on journey risk (rank 106). Streets: mean comparable risk 55.1 per km over 3,506 street-km (dimension rank 91/219), with 11.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 10.1 (rank 106/219; 90th percentile 26.4). Access: composite low-stress accessibility 0.535 (rank 56/219); 45% of 1,049,893 residents are locked to high-stress streets at the central threshold, against 2,497 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Signed ≤30 km/h zone. Notes: straddles a tier boundary under respecification.

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203. CONSTANTA RO · INDEX 18.2 · INTERVAL 202–207 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Constanta holds a balanced profile. Streets: mean comparable risk 71.6 per km over 946 street-km (dimension rank 202/219), with 21.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 49.0 (rank 200/219; 90th percentile 71.6). Access: composite low-stress accessibility 0.188 (rank 202/219); 99% of 267,291 residents are locked to high-stress streets at the central threshold, against 180 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Service Road.

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17. COPENHAGEN DK · INDEX 89.0 · INTERVAL 8–28 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Copenhagen holds a balanced profile. Streets: mean comparable risk 43.5 per km over 1,370 street-km (dimension rank 5/219), with 3.2% of the network in the highest-risk band. Journeys: 210 standardised trips average -8.7 (rank 35/219; 90th percentile 9.1). Access: composite low-stress accessibility 0.592 (rank 41/219); 2% of 646,742 residents are locked to high-stress streets at the central threshold, against 751 km of low-stress network. Leading risk drivers on its streets: Score cap, 50 km/h limit, On-road stress (speed × lanes). Leading protections: Separated cycle track, Cycleway/Sidewalk. Notes: top-ten on at least one dimension.

182. CORK IE · INDEX 33.0 · INTERVAL 179–189 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Cork holds a balanced profile. Streets: mean comparable risk 63.1 per km over 1,908 street-km (dimension rank 173/219), with 17.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 38.0 (rank 182/219; 90th percentile 62.5). Access: composite low-stress accessibility 0.236 (rank 184/219); 96% of 193,838 residents are locked to high-stress streets at the central threshold, against 535 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

213. CRAIOVA RO · INDEX 9.2 · INTERVAL 211–214 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Craiova holds a balanced profile. Streets: mean comparable risk 73.3 per km over 834 street-km (dimension rank 210/219), with 29.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 58.1 (rank 208/219; 90th percentile 84.6). Access: composite low-stress accessibility 0.159 (rank 207/219); 98% of 238,912 residents are locked to high-stress streets at the central threshold, against 140 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Residential street.

163. CZĘSTOCHOWA PL · INDEX 42.9 · INTERVAL 135–182 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 83%

Częstochowa holds an uneven profile — strongest on journey risk (rank 109), weakest on street-network risk (rank 191). Streets: mean comparable risk 70.0 per km over 1,042 street-km (dimension rank 191/219), with 19.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 10.8 (rank 109/219; 90th percentile 34.5). Access: composite low-stress accessibility 0.385 (rank 123/219); 94% of 215,456 residents are locked to high-stress streets at the central threshold, against 382 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Cycle Infra Car-Free.

55. CÓRDOBA ES · INDEX 71.7 · INTERVAL 44–70 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 97%

Córdoba holds an uneven profile — strongest on street-network risk (rank 42), weakest on journey risk (rank 104). Streets: mean comparable risk 53.3 per km over 1,640 street-km (dimension rank 42/219), with 4.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 10.0 (rank 104/219; 90th percentile 35.7). Access: composite low-stress accessibility 0.512 (rank 61/219); 10% of 343,726 residents are locked to high-stress streets at the central threshold, against 2,390 km of low-stress network. Leading risk drivers on its streets: Incline, Heavy-vehicle access, Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

92. DEBRECEN HU · INDEX 60.5 · INTERVAL 71–119 · TIER 2 (MIDDLE) · TIER STABILITY 83%

Debrecen holds an uneven profile — strongest on journey risk (rank 49), weakest on street-network risk (rank 132). Streets: mean comparable risk 64.0 per km over 1,208 street-km (dimension rank 132/219), with 6.9% of

the network in the highest-risk band. Journeys: 210 standardised trips average -2.6 (rank 49/219; 90th percentile 20.6). Access: composite low-stress accessibility 0.396 (rank 116/219); 69% of 260,634 residents are locked to high-stress streets at the central threshold, against 654 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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186. DIJON FR · INDEX 31.2 · INTERVAL 174–196 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Dijon holds an uneven profile — strongest on low-stress access (rank 140), weakest on journey risk (rank 190). Streets: mean comparable risk 68.5 per km over 584 street-km (dimension rank 189/219), with 20.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 42.2 (rank 190/219; 90th percentile 74.2). Access: composite low-stress accessibility 0.346 (rank 140/219); 16% of 143,194 residents are locked to high-stress streets at the central threshold, against 216 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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127. DORTMUND DE · INDEX 55.1 · INTERVAL 103–138 · TIER 2 (MIDDLE) · TIER STABILITY 90%

Dortmund holds an uneven profile — strongest on street-network risk (rank 79), weakest on low-stress access (rank 143). Streets: mean comparable risk 54.8 per km over 2,853 street-km (dimension rank 79/219), with 10.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 20.3 (rank 140/219; 90th percentile 42.2). Access: composite low-stress accessibility 0.342 (rank 143/219); 64% of 581,910 residents are locked to high-stress streets at the central threshold, against 1,808 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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144. DRESDEN DE · INDEX 50.7 · INTERVAL 113–160 · TIER 2 (MIDDLE) · TIER STABILITY 62%

Dresden holds an uneven profile — strongest on street-network risk (rank 78), weakest on journey risk (rank 173). Streets: mean comparable risk 55.2 per km over 2,318 street-km (dimension rank 78/219), with 9.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 32.5 (rank 173/219; 90th percentile 50.9). Access: composite low-stress accessibility 0.332 (rank 148/219); 73% of 520,280 residents are locked to high-stress streets at the central threshold, against 1,816 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, Incline. Leading protections: Signed ≤30 km/h zone, Car-Free Zone. Notes: straddles a tier boundary under respecification.

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131. DUBLIN IE · INDEX 54.0 · INTERVAL 107–143 · TIER 2 (MIDDLE) · TIER STABILITY 84%

Dublin holds an uneven profile — strongest on street-network risk (rank 81), weakest on low-stress access (rank 153). Streets: mean comparable risk 53.3 per km over 1,947 street-km (dimension rank 81/219), with 12.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 19.7 (rank 137/219; 90th percentile 45.6). Access: composite low-stress accessibility 0.321 (rank 153/219); 36% of 533,623 residents are locked to high-stress streets at the central threshold, against 1,147 km of low-stress network. Leading risk

drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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48. DUISBURG DE · INDEX 74.9 · INTERVAL 38–62 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Duisburg holds an uneven profile — strongest on street-network risk (rank 34), weakest on journey risk (rank 92). Streets: mean comparable risk 48.8 per km over 1,827 street-km (dimension rank 34/219), with 8.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 7.9 (rank 92/219; 90th percentile 26.0). Access: composite low-stress accessibility 0.538 (rank 55/219); 12% of 467,099 residents are locked to high-stress streets at the central threshold, against 1,513 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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58. DÜSSELDORF DE · INDEX 70.5 · INTERVAL 55–73 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 96%

Düsseldorf holds a balanced profile. Streets: mean comparable risk 53.0 per km over 1,941 street-km (dimension rank 60/219), with 8.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 8.7 (rank 95/219; 90th percentile 23.5). Access: composite low-stress accessibility 0.523 (rank 59/219); 53% of 610,480 residents are locked to high-stress streets at the central threshold, against 1,518 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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13. EINDHOVEN NL · INDEX 92.4 · INTERVAL 9–23 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Eindhoven holds a balanced profile. Streets: mean comparable risk 46.8 per km over 995 street-km (dimension rank 10/219), with 3.5% of the network in the highest-risk band. Journeys: 210 standardised trips average -12.3 (rank 20/219; 90th percentile 1.4). Access: composite low-stress accessibility 0.665 (rank 19/219); 9% of 221,413 residents are locked to high-stress streets at the central threshold, against 1,084 km of low-stress network. Leading risk drivers on its streets: Score cap, Heavy-vehicle access, Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten on at least one dimension.

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69. ELCHE ES · INDEX 68.2 · INTERVAL 65–76 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 73%

Elche holds a balanced profile. Streets: mean comparable risk 56.6 per km over 1,771 street-km (dimension rank 68/219), with 6.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 5.4 (rank 79/219; 90th percentile 44.8). Access: composite low-stress accessibility 0.478 (rank 74/219); 7% of 260,857 residents are locked to high-stress streets at the central threshold, against 1,364 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Heavy-vehicle access, Incline. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

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162. ERFURT DE · INDEX 43.7 · INTERVAL 158–169 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 98%

Erfurt holds a balanced profile. Streets: mean comparable risk 61.3 per km over 1,182 street-km (dimension rank 154/219), with 13.9% of the network in the highest-risk band. Journeys: 210 standardised trips average

27.0 (rank 157/219; 90th percentile 49.9). Access: composite low-stress accessibility 0.304 (rank 156/219); 80% of 202,557 residents are locked to high-stress streets at the central threshold, against 948 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, Incline. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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8. ESPOO FI · INDEX 94.7 · INTERVAL 3–14 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Espoo holds a balanced profile. Streets: mean comparable risk 49.0 per km over 2,122 street-km (dimension rank 12/219), with 1.8% of the network in the highest-risk band. Journeys: 210 standardised trips average -27.6 (rank 3/219; 90th percentile -11.2). Access: composite low-stress accessibility 0.667 (rank 17/219); 11% of 293,108 residents are locked to high-stress streets at the central threshold, against 2,846 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 7 of 219). Leading risk drivers on its streets: Score cap, Incline, MTB >= 1. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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146. ESSEN DE · INDEX 50.1 · INTERVAL 133–157 · TIER 2 (MIDDLE) · TIER STABILITY 57%

Essen holds an uneven profile — strongest on street-network risk (rank 110), weakest on journey risk (rank 158). Streets: mean comparable risk 55.7 per km over 2,360 street-km (dimension rank 110/219), with 13.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 27.4 (rank 158/219; 90th percentile 44.4). Access: composite low-stress accessibility 0.346 (rank 139/219); 46% of 547,081 residents are locked to high-stress streets at the central threshold, against 1,598 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Bicycle Designated. Notes: straddles a tier boundary under respecification.

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120. FLORENCE IT · INDEX 56.1 · INTERVAL 88–137 · TIER 2 (MIDDLE) · TIER STABILITY 85%

Florence holds an uneven profile — strongest on journey risk (rank 56), weakest on street-network risk (rank 144). Streets: mean comparable risk 61.9 per km over 1,095 street-km (dimension rank 144/219), with 11.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -0.6 (rank 56/219; 90th percentile 22.2). Access: composite low-stress accessibility 0.344 (rank 142/219); 79% of 351,064 residents are locked to high-stress streets at the central threshold, against 537 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Heavy-vehicle access, Incline. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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122. FRANKFURT DE · INDEX 56.1 · INTERVAL 114–135 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Frankfurt holds a balanced profile. Streets: mean comparable risk 56.9 per km over 2,025 street-km (dimension rank 126/219), with 14.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 17.2 (rank 131/219; 90th percentile 35.1). Access: composite low-stress accessibility 0.424 (rank 99/219); 22% of 708,360 residents are locked to high-stress streets at the central threshold, against 1,645 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

44. FREIBURG DE · INDEX 76.1 · INTERVAL 37–58 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Freiburg holds an uneven profile — strongest on street-network risk (rank 38), weakest on journey risk (rank 83). Streets: mean comparable risk 50.0 per km over 881 street-km (dimension rank 38/219), with 7.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 5.5 (rank 83/219; 90th percentile 29.0). Access: composite low-stress accessibility 0.560 (rank 45/219); 23% of 195,183 residents are locked to high-stress streets at the central threshold, against 1,236 km of low-stress network. Leading risk drivers on its streets: Track Grade 4/5, Incline, Motor-traffic volume. Leading protections: Car-Free Zone, Bicycle Designated.

214. GALATI RO · INDEX 7.0 · INTERVAL 212–215 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Galati holds a balanced profile. Streets: mean comparable risk 78.4 per km over 662 street-km (dimension rank 211/219), with 22.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 58.4 (rank 209/219; 90th percentile 86.5). Access: composite low-stress accessibility 0.112 (rank 217/219); 96% of 212,138 residents are locked to high-stress streets at the central threshold, against 103 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Service Road, Cycleway/Sidewalk.

87. GDAŃSK PL · INDEX 61.4 · INTERVAL 88–103 · TIER 2 (MIDDLE) · TIER STABILITY 96%

Gdańsk holds a balanced profile. Streets: mean comparable risk 57.1 per km over 2,219 street-km (dimension rank 95/219), with 9.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 9.1 (rank 100/219; 90th percentile 38.0). Access: composite low-stress accessibility 0.417 (rank 106/219); 80% of 441,548 residents are locked to high-stress streets at the central threshold, against 1,400 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Track Grade 4/5. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

119. GDYNIA PL · INDEX 56.5 · INTERVAL 114–130 · TIER 2 (MIDDLE) · TIER STABILITY 99%

Gdynia holds a balanced profile. Streets: mean comparable risk 60.7 per km over 939 street-km (dimension rank 111/219), with 8.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 17.2 (rank 130/219; 90th percentile 41.2). Access: composite low-stress accessibility 0.409 (rank 111/219); 64% of 238,919 residents are locked to high-stress streets at the central threshold, against 818 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Track Grade 4/5. Leading protections: Signed ≤30 km/h zone, Car-Free Zone.

100. GELSENKIRCHEN DE · INDEX 59.6 · INTERVAL 93–121 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Gelsenkirchen holds an uneven profile — strongest on street-network risk (rank 84), weakest on journey risk (rank 139). Streets: mean comparable risk 54.7 per km over 1,092 street-km (dimension rank 84/219), with 11.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 20.1 (rank 139/219; 90th percentile 39.3). Access: composite low-stress accessibility 0.439 (rank 92/219); 50% of 239,785 residents are locked to high-stress streets at the central threshold, against 730 km of low-stress network. Leading risk

drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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112. GENEVA CH · INDEX 58.1 · INTERVAL 93–126 · TIER 2 (MIDDLE) · TIER STABILITY 97%

Geneva holds an uneven profile — strongest on street-network risk (rank 74), weakest on journey risk (rank 133). Streets: mean comparable risk 53.5 per km over 299 street-km (dimension rank 74/219), with 10.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 18.3 (rank 133/219; 90th percentile 35.4). Access: composite low-stress accessibility 0.381 (rank 128/219); 0% of 202,402 residents are locked to high-stress streets at the central threshold, against 166 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed bike network, Separated cycle track.

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175. GENOA IT · INDEX 37.5 · INTERVAL 157–191 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 97%

Genoa holds an uneven profile — strongest on street-network risk (rank 118), weakest on journey risk (rank 199). Streets: mean comparable risk 60.1 per km over 1,739 street-km (dimension rank 118/219), with 9.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 48.5 (rank 199/219; 90th percentile 77.8). Access: composite low-stress accessibility 0.245 (rank 180/219); 81% of 546,709 residents are locked to high-stress streets at the central threshold, against 1,203 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 209 of 219). Leading risk drivers on its streets: Incline, Motor-traffic volume, Heavy-vehicle access. Leading protections: Pedestrian Zone, Residential street.

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23. GHENT BE · INDEX 85.5 · INTERVAL 21–37 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Ghent holds a balanced profile. Streets: mean comparable risk 47.0 per km over 1,392 street-km (dimension rank 17/219), with 5.8% of the network in the highest-risk band. Journeys: 210 standardised trips average -4.2 (rank 45/219; 90th percentile 14.2). Access: composite low-stress accessibility 0.612 (rank 33/219); 17% of 259,126 residents are locked to high-stress streets at the central threshold, against 1,014 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track.

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70. GIJÓN ES · INDEX 67.9 · INTERVAL 48–84 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 69%

Gijón holds an uneven profile — strongest on street-network risk (rank 40), weakest on journey risk (rank 99). Streets: mean comparable risk 51.9 per km over 1,113 street-km (dimension rank 40/219), with 5.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 9.0 (rank 99/219; 90th percentile 41.2). Access: composite low-stress accessibility 0.426 (rank 96/219); 8% of 273,456 residents are locked to high-stress streets at the central threshold, against 910 km of low-stress network. Leading risk drivers on its streets: Incline, Heavy-vehicle access, Motor-traffic volume. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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128. GOTHENBURG SE · INDEX 55.0 · INTERVAL 96–150 · TIER 2 (MIDDLE) · TIER STABILITY 87%

Gothenburg holds an uneven profile — strongest on journey risk (rank 68), weakest on street-network risk (rank 166). Streets: mean comparable risk 65.6 per km over 3,751 street-km (dimension rank 166/219), with 12.0% of the network in the highest-risk band. Journeys: 208 standardised trips average 1.4 (rank 68/219; 90th percentile 20.3). Access: composite low-stress accessibility 0.402 (rank 114/219); 82% of 563,683 residents are locked to high-stress streets at the central threshold, against 2,161 km of low-stress network. Leading risk drivers on its streets: On-road stress (speed × lanes), Motor-traffic volume, Incline. Leading protections: Bicycle Designated, Cycle Infra Car-Free.

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115. GRANADA ES · INDEX 57.9 · INTERVAL 90–140 · TIER 2 (MIDDLE) · TIER STABILITY 98%

Granada holds an uneven profile — strongest on street-network risk (rank 73), weakest on journey risk (rank 166). Streets: mean comparable risk 56.0 per km over 631 street-km (dimension rank 73/219), with 7.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 29.6 (rank 166/219; 90th percentile 55.8). Access: composite low-stress accessibility 0.440 (rank 91/219); 10% of 259,109 residents are locked to high-stress streets at the central threshold, against 740 km of low-stress network. Leading risk drivers on its streets: Incline, Heavy-vehicle access, Motor-traffic volume. Leading protections: Signed ≤30 km/h zone, Pedestrian Zone.

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63. GRAZ AT · INDEX 69.5 · INTERVAL 53–80 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 82%

Graz holds an uneven profile — strongest on journey risk (rank 44), weakest on street-network risk (rank 92). Streets: mean comparable risk 52.8 per km over 1,276 street-km (dimension rank 92/219), with 13.9% of the network in the highest-risk band. Journeys: 210 standardised trips average -4.7 (rank 44/219; 90th percentile 22.4). Access: composite low-stress accessibility 0.486 (rank 69/219); 25% of 302,143 residents are locked to high-stress streets at the central threshold, against 966 km of low-stress network. Leading risk drivers on its streets: Legal Dismount, Motor-traffic volume, Incline. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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32. GRENOBLE FR · INDEX 80.0 · INTERVAL 27–48 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Grenoble holds an uneven profile — strongest on low-stress access (rank 21), weakest on journey risk (rank 72). Streets: mean comparable risk 51.6 per km over 326 street-km (dimension rank 51/219), with 9.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 3.4 (rank 72/219; 90th percentile 29.1). Access: composite low-stress accessibility 0.660 (rank 21/219); 0% of 135,756 residents are locked to high-stress streets at the central threshold, against 248 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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29. GRONINGEN NL · INDEX 82.6 · INTERVAL 26–37 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Groningen holds a balanced profile. Streets: mean comparable risk 52.3 per km over 1,055 street-km (dimension rank 50/219), with 7.8% of the network in the highest-risk band. Journeys: 210 standardised trips average -10.1 (rank 30/219; 90th percentile 3.3). Access: composite low-stress accessibility 0.622 (rank 31/219); 10% of 230,666 residents are locked to high-stress streets at the central threshold, against 1,064 km of low-

stress network. Leading risk drivers on its streets: Score cap, On-road stress (speed × lanes), Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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4. HAARLEM NL · INDEX 96.3 · INTERVAL 1–11 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Haarlem holds a balanced profile. Streets: mean comparable risk 42.3 per km over 415 street-km (dimension rank 2/219), with 1.8% of the network in the highest-risk band. Journeys: 210 standardised trips average -9.0 (rank 33/219; 90th percentile 4.3). Access: composite low-stress accessibility 0.841 (rank 2/219); 0% of 147,840 residents are locked to high-stress streets at the central threshold, against 517 km of low-stress network. Leading risk drivers on its streets: Score cap, Heavy-vehicle access, Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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78. HALLE (SAALE) DE · INDEX 65.1 · INTERVAL 70–94 · TIER 2 (MIDDLE) · TIER STABILITY 61%

Halle (Saale) holds an uneven profile — strongest on street-network risk (rank 59), weakest on journey risk (rank 107). Streets: mean comparable risk 53.9 per km over 944 street-km (dimension rank 59/219), with 7.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 10.1 (rank 107/219; 90th percentile 29.2). Access: composite low-stress accessibility 0.424 (rank 101/219); 42% of 216,860 residents are locked to high-stress streets at the central threshold, against 668 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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84. HAMBURG DE · INDEX 63.1 · INTERVAL 68–112 · TIER 2 (MIDDLE) · TIER STABILITY 74%

Hamburg holds an uneven profile — strongest on street-network risk (rank 48), weakest on journey risk (rank 138). Streets: mean comparable risk 50.3 per km over 6,052 street-km (dimension rank 48/219), with 9.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 20.1 (rank 138/219; 90th percentile 40.4). Access: composite low-stress accessibility 0.425 (rank 97/219); 47% of 1,673,225 residents are locked to high-stress streets at the central threshold, against 3,774 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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20. HANOVER DE · INDEX 87.7 · INTERVAL 18–28 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Hanover holds a balanced profile. Streets: mean comparable risk 49.1 per km over 1,845 street-km (dimension rank 25/219), with 5.3% of the network in the highest-risk band. Journeys: 210 standardised trips average -10.9 (rank 26/219; 90th percentile 2.1). Access: composite low-stress accessibility 0.637 (rank 26/219); 15% of 482,592 residents are locked to high-stress streets at the central threshold, against 1,752 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, On-road stress (speed × lanes). Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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2. HELSINKI FI · INDEX 97.0 · INTERVAL 1–9 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Helsinki holds a balanced profile. Streets: mean comparable risk 46.9 per km over 2,030 street-km (dimension rank 7/219), with 0.9% of the network in the highest-risk band. Journeys: 210 standardised trips average -28.9 (rank 1/219; 90th percentile -22.7). Access: composite low-stress accessibility 0.682 (rank 13/219); 1% of 662,727 residents are locked to high-stress streets at the central threshold, against 2,865 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 8 of 219). Leading risk drivers on its streets: Score cap, Incline, MTB >= 1. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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215. IASI RO · INDEX 3.3 · INTERVAL 215–218 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Iasi holds a balanced profile. Streets: mean comparable risk 77.2 per km over 796 street-km (dimension rank 215/219), with 26.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 63.1 (rank 212/219; 90th percentile 87.0). Access: composite low-stress accessibility 0.116 (rank 218/219); 97% of 267,550 residents are locked to high-stress streets at the central threshold, against 141 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Residential street, Service Road.

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102. JEREZ DE LA FRONTERA ES · INDEX 59.3 · INTERVAL 97–117 · TIER 2 (MIDDLE) · TIER STABILITY 98%

Jerez de la Frontera holds a balanced profile. Streets: mean comparable risk 59.2 per km over 1,281 street-km (dimension rank 99/219), with 7.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 9.7 (rank 102/219; 90th percentile 46.1). Access: composite low-stress accessibility 0.391 (rank 119/219); 10% of 233,562 residents are locked to high-stress streets at the central threshold, against 1,330 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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83. KARLSRUHE DE · INDEX 63.7 · INTERVAL 76–106 · TIER 2 (MIDDLE) · TIER STABILITY 91%

Karlsruhe holds an uneven profile — strongest on low-stress access (rank 72), weakest on journey risk (rank 126). Streets: mean comparable risk 54.3 per km over 1,225 street-km (dimension rank 75/219), with 10.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 16.4 (rank 126/219; 90th percentile 32.7). Access: composite low-stress accessibility 0.478 (rank 72/219); 52% of 328,610 residents are locked to high-stress streets at the central threshold, against 1,252 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, Incline. Leading protections: Signed ≤30 km/h zone, Car-Free Zone.

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136. KASSEL DE · INDEX 51.5 · INTERVAL 109–168 · TIER 2 (MIDDLE) · TIER STABILITY 69%

Kassel holds an uneven profile — strongest on street-network risk (rank 85), weakest on journey risk (rank 189). Streets: mean comparable risk 54.5 per km over 988 street-km (dimension rank 85/219), with 11.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 42.3 (rank 189/219; 90th percentile 63.3). Access: composite low-stress accessibility 0.419 (rank 104/219); 47% of 184,814 residents are locked to high-stress streets at the central threshold, against 778 km of low-stress network. Its routed journeys score

close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 207 of 219). Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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164. KATOWICE PL · INDEX 42.8 · INTERVAL 159–169 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 94%

Katowice holds a balanced profile. Streets: mean comparable risk 62.3 per km over 1,327 street-km (dimension rank 149/219), with 11.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 24.4 (rank 152/219; 90th percentile 52.7). Access: composite low-stress accessibility 0.253 (rank 176/219); 91% of 287,559 residents are locked to high-stress streets at the central threshold, against 641 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Service Road, Bicycle Designated.

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171. KAUNAS LT · INDEX 39.8 · INTERVAL 165–176 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 99%

Kaunas holds a balanced profile. Streets: mean comparable risk 66.1 per km over 1,877 street-km (dimension rank 177/219), with 15.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 22.3 (rank 147/219; 90th percentile 48.2). Access: composite low-stress accessibility 0.285 (rank 165/219); 92% of 239,169 residents are locked to high-stress streets at the central threshold, against 451 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Service Road.

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67. KIEL DE · INDEX 68.3 · INTERVAL 62–82 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 76%

Kiel holds a balanced profile. Streets: mean comparable risk 54.2 per km over 954 street-km (dimension rank 72/219), with 9.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 8.8 (rank 96/219; 90th percentile 31.8). Access: composite low-stress accessibility 0.512 (rank 62/219); 48% of 234,447 residents are locked to high-stress streets at the central threshold, against 711 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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174. KOŠICE SK · INDEX 39.1 · INTERVAL 166–176 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Košice holds a balanced profile. Streets: mean comparable risk 64.6 per km over 998 street-km (dimension rank 156/219), with 11.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 28.8 (rank 162/219; 90th percentile 59.8). Access: composite low-stress accessibility 0.241 (rank 182/219); 87% of 247,633 residents are locked to high-stress streets at the central threshold, against 734 km of low-stress network. Leading risk drivers on its streets: Incline, Track Grade 4/5, Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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129. KRAKÓW PL · INDEX 54.8 · INTERVAL 114–136 · TIER 2 (MIDDLE) · TIER STABILITY 89%

Kraków holds a balanced profile. Streets: mean comparable risk 58.4 per km over 3,271 street-km (dimension rank 106/219), with 9.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 13.2 (rank 114/219; 90th percentile 32.5). Access: composite low-stress accessibility 0.336 (rank 144/219); 87% of 722,627 residents are locked to high-stress streets at the central threshold, against 1,423 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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89. KREFELD DE · INDEX 61.1 · INTERVAL 81–118 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Krefeld holds an uneven profile — strongest on low-stress access (rank 64), weakest on journey risk (rank 136). Streets: mean comparable risk 55.9 per km over 1,167 street-km (dimension rank 104/219), with 12.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 19.1 (rank 136/219; 90th percentile 36.9). Access: composite low-stress accessibility 0.493 (rank 64/219); 31% of 204,885 residents are locked to high-stress streets at the central threshold, against 743 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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154. LAUSANNE CH · INDEX 47.1 · INTERVAL 112–175 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 57%

Lausanne holds an uneven profile — strongest on street-network risk (rank 70), weakest on journey risk (rank 197). Streets: mean comparable risk 54.5 per km over 457 street-km (dimension rank 70/219), with 8.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 46.6 (rank 197/219; 90th percentile 58.6). Access: composite low-stress accessibility 0.332 (rank 149/219); 80% of 110,030 residents are locked to high-stress streets at the central threshold, against 332 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 212 of 219). Leading risk drivers on its streets: Incline, On-road stress (speed × lanes), Motor-traffic volume. Leading protections: Signed ≤30 km/h zone, Car-Free Zone. Notes: straddles a tier boundary under respecification.

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152. LE HAVRE FR · INDEX 47.6 · INTERVAL 144–159 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 60%

Le Havre holds a balanced profile. Streets: mean comparable risk 59.8 per km over 916 street-km (dimension rank 127/219), with 11.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 20.8 (rank 143/219; 90th percentile 42.2). Access: composite low-stress accessibility 0.283 (rank 166/219); 99% of 160,810 residents are locked to high-stress streets at the central threshold, against 218 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

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5. LEIDEN NL · INDEX 96.2 · INTERVAL 3–13 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Leiden holds a balanced profile. Streets: mean comparable risk 45.0 per km over 323 street-km (dimension rank 3/219), with 1.8% of the network in the highest-risk band. Journeys: 210 standardised trips average -8.7

(rank 37/219; 90th percentile 10.4). Access: composite low-stress accessibility 0.761 (rank 3/219); 0% of 111,679 residents are locked to high-stress streets at the central threshold, against 406 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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94. LEIPZIG DE · INDEX 60.2 · INTERVAL 81–123 · TIER 2 (MIDDLE) · TIER STABILITY 85%

Leipzig holds an uneven profile — strongest on street-network risk (rank 62), weakest on low-stress access (rank 137). Streets: mean comparable risk 53.2 per km over 2,296 street-km (dimension rank 62/219), with 8.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 12.2 (rank 112/219; 90th percentile 33.1). Access: composite low-stress accessibility 0.349 (rank 137/219); 60% of 500,066 residents are locked to high-stress streets at the central threshold, against 1,506 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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56. LILLE FR · INDEX 71.1 · INTERVAL 51–79 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 97%

Lille holds an uneven profile — strongest on low-stress access (rank 47), weakest on journey risk (rank 113). Streets: mean comparable risk 52.3 per km over 607 street-km (dimension rank 58/219), with 8.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 12.8 (rank 113/219; 90th percentile 32.6). Access: composite low-stress accessibility 0.555 (rank 47/219); 13% of 236,876 residents are locked to high-stress streets at the central threshold, against 381 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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113. LINZ AT · INDEX 58.0 · INTERVAL 84–141 · TIER 2 (MIDDLE) · TIER STABILITY 93%

Linz holds an uneven profile — strongest on journey risk (rank 70), weakest on street-network risk (rank 163). Streets: mean comparable risk 55.5 per km over 864 street-km (dimension rank 163/219), with 23.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 2.0 (rank 70/219; 90th percentile 19.9). Access: composite low-stress accessibility 0.459 (rank 84/219); 66% of 189,574 residents are locked to high-stress streets at the central threshold, against 589 km of low-stress network. Leading risk drivers on its streets: Legal Dismount, Motor-traffic volume, Incline. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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181. LISBON PT · INDEX 34.2 · INTERVAL 147–193 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 92%

Lisbon holds an uneven profile — strongest on journey risk (rank 84), weakest on street-network risk (rank 205). Streets: mean comparable risk 73.1 per km over 1,514 street-km (dimension rank 205/219), with 21.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 5.7 (rank 84/219; 90th percentile 40.8). Access: composite low-stress accessibility 0.254 (rank 175/219); 95% of 532,174 residents are locked to high-stress streets at the central threshold, against 600 km of low-stress network. Leading risk

drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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123. LIÈGE BE · INDEX 56.0 · INTERVAL 91–147 · TIER 2 (MIDDLE) · TIER STABILITY 89%

Liège holds an uneven profile — strongest on journey risk (rank 63), weakest on street-network risk (rank 165). Streets: mean comparable risk 62.0 per km over 742 street-km (dimension rank 165/219), with 16.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 0.6 (rank 63/219; 90th percentile 39.2). Access: composite low-stress accessibility 0.416 (rank 107/219); 29% of 187,949 residents are locked to high-stress streets at the central threshold, against 453 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Score cap. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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82. LJUBLJANA SI · INDEX 63.9 · INTERVAL 76–96 · TIER 2 (MIDDLE) · TIER STABILITY 73%

Ljubljana holds an uneven profile — strongest on street-network risk (rank 69), weakest on low-stress access (rank 109). Streets: mean comparable risk 56.0 per km over 1,621 street-km (dimension rank 69/219), with 6.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 7.9 (rank 91/219; 90th percentile 32.1). Access: composite low-stress accessibility 0.411 (rank 109/219); 82% of 302,716 residents are locked to high-stress streets at the central threshold, against 1,381 km of low-stress network. Leading risk drivers on its streets: Incline, Track Grade 4/5, Motor-traffic volume. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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126. LUBLIN PL · INDEX 55.2 · INTERVAL 95–141 · TIER 2 (MIDDLE) · TIER STABILITY 85%

Lublin holds an uneven profile — strongest on journey risk (rank 66), weakest on low-stress access (rank 146). Streets: mean comparable risk 61.7 per km over 1,605 street-km (dimension rank 143/219), with 11.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 1.0 (rank 66/219; 90th percentile 28.8). Access: composite low-stress accessibility 0.335 (rank 146/219); 86% of 325,425 residents are locked to high-stress streets at the central threshold, against 775 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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81. LUXEMBOURG LU · INDEX 64.1 · INTERVAL 73–99 · TIER 2 (MIDDLE) · TIER STABILITY 87%

Luxembourg holds an uneven profile — strongest on low-stress access (rank 65), weakest on street-network risk (rank 112). Streets: mean comparable risk 56.6 per km over 453 street-km (dimension rank 112/219), with 12.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 6.7 (rank 87/219; 90th percentile 29.2). Access: composite low-stress accessibility 0.492 (rank 65/219); 2% of 121,571 residents are locked to high-stress streets at the central threshold, against 452 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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27. LYON FR · INDEX 83.6 · INTERVAL 13–38 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Lyon holds an uneven profile — strongest on low-stress access (rank 9), weakest on journey risk (rank 65). Streets: mean comparable risk 48.8 per km over 787 street-km (dimension rank 46/219), with 10.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 0.9 (rank 65/219; 90th percentile 18.7). Access: composite low-stress accessibility 0.698 (rank 9/219); 1% of 527,759 residents are locked to high-stress streets at the central threshold, against 611 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Dismount. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: top-ten on at least one dimension.

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28. LÜBECK DE · INDEX 83.3 · INTERVAL 24–40 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Lübeck holds a balanced profile. Streets: mean comparable risk 49.7 per km over 1,044 street-km (dimension rank 24/219), with 4.6% of the network in the highest-risk band. Journeys: 210 standardised trips average -10.7 (rank 27/219; 90th percentile 8.8). Access: composite low-stress accessibility 0.552 (rank 48/219); 23% of 208,540 residents are locked to high-stress streets at the central threshold, against 915 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Bicycle Designated.

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109. MADRID ES · INDEX 58.6 · INTERVAL 82–127 · TIER 2 (MIDDLE) · TIER STABILITY 88%

Madrid holds an uneven profile — strongest on journey risk (rank 59), weakest on street-network risk (rank 139). Streets: mean comparable risk 60.0 per km over 4,840 street-km (dimension rank 139/219), with 12.2% of the network in the highest-risk band. Journeys: 209 standardised trips average -0.6 (rank 59/219; 90th percentile 26.7). Access: composite low-stress accessibility 0.382 (rank 127/219); 4% of 3,742,851 residents are locked to high-stress streets at the central threshold, against 4,107 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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59. MAGDEBURG DE · INDEX 70.2 · INTERVAL 55–77 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 94%

Magdeburg holds a balanced profile. Streets: mean comparable risk 55.8 per km over 1,280 street-km (dimension rank 86/219), with 9.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 1.1 (rank 67/219; 90th percentile 20.3). Access: composite low-stress accessibility 0.529 (rank 57/219); 42% of 229,914 residents are locked to high-stress streets at the central threshold, against 995 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Track Grade 4/5. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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98. MAINZ DE · INDEX 59.7 · INTERVAL 88–127 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Mainz holds an uneven profile — strongest on low-stress access (rank 76), weakest on journey risk (rank 144). Streets: mean comparable risk 55.7 per km over 841 street-km (dimension rank 97/219), with 11.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 21.3 (rank 144/219; 90th percentile 38.1). Access: composite low-stress accessibility 0.471 (rank 76/219); 35% of 207,314 residents are locked to high-stress streets at the central threshold, against 712 km of low-stress network. Leading risk drivers on its

streets: Motor-traffic volume, Track Grade 4/5, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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38. MALMÖ SE · INDEX 78.3 · INTERVAL 12–57 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 99%

Malmö holds an uneven profile — strongest on journey risk (rank 8), weakest on street-network risk (rank 113). Streets: mean comparable risk 59.2 per km over 1,095 street-km (dimension rank 113/219), with 9.9% of the network in the highest-risk band. Journeys: 210 standardised trips average -18.5 (rank 8/219; 90th percentile -8.3). Access: composite low-stress accessibility 0.612 (rank 34/219); 31% of 359,132 residents are locked to high-stress streets at the central threshold, against 719 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 6 of 219). Leading risk drivers on its streets: Score cap, Motor-traffic volume, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten on at least one dimension.

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52. MANNHEIM DE · INDEX 73.6 · INTERVAL 40–73 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 99%

Mannheim holds an uneven profile — strongest on low-stress access (rank 27), weakest on street-network risk (rank 94). Streets: mean comparable risk 54.3 per km over 1,298 street-km (dimension rank 94/219), with 12.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 6.1 (rank 86/219; 90th percentile 24.4). Access: composite low-stress accessibility 0.633 (rank 27/219); 7% of 280,913 residents are locked to high-stress streets at the central threshold, against 1,126 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, On-road stress (speed × lanes). Leading protections: Car-Free Zone, Signed ≤30 km/h zone.

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60. MARIBOR SI · INDEX 70.1 · INTERVAL 47–73 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 84%

Maribor holds an uneven profile — strongest on journey risk (rank 47), weakest on low-stress access (rank 100). Streets: mean comparable risk 54.0 per km over 909 street-km (dimension rank 52/219), with 6.3% of the network in the highest-risk band. Journeys: 210 standardised trips average -3.8 (rank 47/219; 90th percentile 31.8). Access: composite low-stress accessibility 0.424 (rank 100/219); 25% of 105,163 residents are locked to high-stress streets at the central threshold, against 678 km of low-stress network. Leading risk drivers on its streets: Incline, Track Grade 4/5, Score cap. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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165. MARSEILLE FR · INDEX 42.4 · INTERVAL 159–171 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 95%

Marseille holds a balanced profile. Streets: mean comparable risk 61.6 per km over 2,252 street-km (dimension rank 145/219), with 11.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 26.1 (rank 154/219; 90th percentile 50.6). Access: composite low-stress accessibility 0.251 (rank 177/219); 89% of 898,652 residents are locked to high-stress streets at the central threshold, against 1,172 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Residential street.

198. MESSINA IT · INDEX 23.8 · INTERVAL 169–209 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Messina holds an uneven profile — strongest on street-network risk (rank 123), weakest on low-stress access (rank 215). Streets: mean comparable risk 61.0 per km over 947 street-km (dimension rank 123/219), with 9.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 71.4 (rank 213/219; 90th percentile 92.9). Access: composite low-stress accessibility 0.113 (rank 215/219); 87% of 222,663 residents are locked to high-stress streets at the central threshold, against 635 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 218 of 219). Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Track Grade 2, Residential street.

177. MILAN IT · INDEX 36.6 · INTERVAL 162–184 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 97%

Milan holds an uneven profile — strongest on journey risk (rank 120), weakest on low-stress access (rank 192). Streets: mean comparable risk 67.1 per km over 2,146 street-km (dimension rank 181/219), with 16.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 15.2 (rank 120/219; 90th percentile 36.9). Access: composite low-stress accessibility 0.207 (rank 192/219); 93% of 1,161,421 residents are locked to high-stress streets at the central threshold, against 769 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

30. MONTPELLIER FR · INDEX 82.4 · INTERVAL 25–42 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Montpellier holds a balanced profile. Streets: mean comparable risk 51.6 per km over 897 street-km (dimension rank 44/219), with 7.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -0.7 (rank 55/219; 90th percentile 13.6). Access: composite low-stress accessibility 0.656 (rank 22/219); 0% of 304,163 residents are locked to high-stress streets at the central threshold, against 769 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

21. MUNICH DE · INDEX 86.9 · INTERVAL 20–33 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Munich holds a balanced profile. Streets: mean comparable risk 49.1 per km over 3,108 street-km (dimension rank 22/219), with 4.6% of the network in the highest-risk band. Journeys: 210 standardised trips average -6.7 (rank 41/219; 90th percentile 2.3). Access: composite low-stress accessibility 0.639 (rank 25/219); 13% of 1,485,388 residents are locked to high-stress streets at the central threshold, against 2,913 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, On-road stress (speed × lanes). Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

73. MURCIA ES · INDEX 67.0 · INTERVAL 61–85 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 59%

Murcia holds an uneven profile — strongest on street-network risk (rank 56), weakest on journey risk (rank 98). Streets: mean comparable risk 55.0 per km over 2,974 street-km (dimension rank 56/219), with 5.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 8.9 (rank 98/219; 90th percentile 48.2). Access: composite low-stress accessibility 0.447 (rank 89/219); 10% of 584,240 residents are locked to high-stress streets at the central threshold, against 3,303 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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36. MÁLAGA ES · INDEX 78.6 · INTERVAL 30–50 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Málaga holds an uneven profile — strongest on street-network risk (rank 28), weakest on journey risk (rank 69). Streets: mean comparable risk 50.0 per km over 1,764 street-km (dimension rank 28/219), with 5.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 1.6 (rank 69/219; 90th percentile 37.7). Access: composite low-stress accessibility 0.555 (rank 46/219); 8% of 683,468 residents are locked to high-stress streets at the central threshold, against 2,818 km of low-stress network. Leading risk drivers on its streets: Incline, Heavy-vehicle access, Motor-traffic volume. Leading protections: Signed ≤30 km/h zone, Track Grade 2.

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125. MÖNCHENGLADBACH DE · INDEX 55.8 · INTERVAL 106–142 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Mönchengladbach holds an uneven profile — strongest on low-stress access (rank 86), weakest on journey risk (rank 145). Streets: mean comparable risk 57.5 per km over 1,343 street-km (dimension rank 134/219), with 14.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 21.4 (rank 145/219; 90th percentile 39.5). Access: composite low-stress accessibility 0.456 (rank 86/219); 49% of 244,618 residents are locked to high-stress streets at the central threshold, against 953 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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37. MÜNSTER DE · INDEX 78.5 · INTERVAL 34–49 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Münster holds a balanced profile. Streets: mean comparable risk 51.7 per km over 1,700 street-km (dimension rank 41/219), with 6.6% of the network in the highest-risk band. Journeys: 210 standardised trips average -0.5 (rank 57/219; 90th percentile 17.3). Access: composite low-stress accessibility 0.578 (rank 42/219); 37% of 321,103 residents are locked to high-stress streets at the central threshold, against 1,366 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Track Grade 4/5. Leading protections: Bicycle Designated, Cycle Infra Car-Free.

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65. NANCY FR · INDEX 69.0 · INTERVAL 38–108 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 76%

Nancy holds an uneven profile — strongest on street-network risk (rank 26), weakest on journey risk (rank 170). Streets: mean comparable risk 48.2 per km over 270 street-km (dimension rank 26/219), with 6.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 31.4 (rank 170/219; 90th percentile 45.6). Access: composite low-stress accessibility 0.545 (rank 53/219); 0% of 108,783 residents are locked to high-stress streets at the central threshold, against 186 km of low-stress network. Leading risk drivers on its streets:

Motor-traffic volume, Heavy-vehicle access, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Signed bike network.

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35. NANTES FR · INDEX 79.0 · INTERVAL 27–52 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Nantes holds an uneven profile — strongest on street-network risk (rank 18), weakest on journey risk (rank 82). Streets: mean comparable risk 45.9 per km over 948 street-km (dimension rank 18/219), with 7.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 5.5 (rank 82/219; 90th percentile 26.1). Access: composite low-stress accessibility 0.546 (rank 52/219); 0% of 286,121 residents are locked to high-stress streets at the central threshold, against 775 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Signed bike network.

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188. NAPLES IT · INDEX 29.0 · INTERVAL 173–200 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Naples holds an uneven profile — strongest on street-network risk (rank 152), weakest on journey risk (rank 206). Streets: mean comparable risk 62.2 per km over 1,578 street-km (dimension rank 152/219), with 11.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 57.6 (rank 206/219; 90th percentile 68.8). Access: composite low-stress accessibility 0.197 (rank 196/219); 86% of 898,628 residents are locked to high-stress streets at the central threshold, against 437 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 215 of 219). Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Residential street, Pedestrian Zone.

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159. NICE FR · INDEX 45.2 · INTERVAL 145–165 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 83%

Nice holds an uneven profile — strongest on journey risk (rank 118), weakest on street-network risk (rank 168). Streets: mean comparable risk 62.3 per km over 905 street-km (dimension rank 168/219), with 16.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 14.7 (rank 118/219; 90th percentile 50.5). Access: composite low-stress accessibility 0.297 (rank 159/219); 89% of 326,754 residents are locked to high-stress streets at the central threshold, against 386 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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196. NICOSIA CY · INDEX 25.7 · INTERVAL 193–198 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Nicosia holds a balanced profile. Streets: mean comparable risk 69.1 per km over 316 street-km (dimension rank 187/219), with 17.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 39.0 (rank 184/219; 90th percentile 67.2). Access: composite low-stress accessibility 0.193 (rank 199/219); 97% of 43,726 residents are locked to high-stress streets at the central threshold, against 62 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

99. NUREMBERG DE · INDEX 59.7 · INTERVAL 95–116 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Nuremberg holds a balanced profile. Streets: mean comparable risk 57.1 per km over 1,780 street-km (dimension rank 103/219), with 10.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 15.6 (rank 122/219; 90th percentile 35.1). Access: composite low-stress accessibility 0.444 (rank 90/219); 55% of 486,520 residents are locked to high-stress streets at the central threshold, against 1,352 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Bicycle Designated.

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74. OBERHAUSEN DE · INDEX 66.3 · INTERVAL 52–103 · TIER 2 (MIDDLE) · TIER STABILITY 49%

Oberhausen holds an uneven profile — strongest on street-network risk (rank 39), weakest on journey risk (rank 141). Streets: mean comparable risk 49.1 per km over 806 street-km (dimension rank 39/219), with 9.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 20.3 (rank 141/219; 90th percentile 38.2). Access: composite low-stress accessibility 0.464 (rank 80/219); 42% of 192,982 residents are locked to high-stress streets at the central threshold, against 509 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, 50 km/h limit, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Bicycle Designated. Notes: straddles a tier boundary under respecification.

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66. ODENSE DK · INDEX 68.6 · INTERVAL 23–89 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 73%

Odense holds an uneven profile — strongest on journey risk (rank 14), weakest on street-network risk (rank 122). Streets: mean comparable risk 59.9 per km over 1,983 street-km (dimension rank 122/219), with 10.6% of the network in the highest-risk band. Journeys: 210 standardised trips average -14.5 (rank 14/219; 90th percentile 0.1). Access: composite low-stress accessibility 0.466 (rank 78/219); 91% of 193,803 residents are locked to high-stress streets at the central threshold, against 842 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 11 of 219). Leading risk drivers on its streets: On-road stress (speed × lanes), Score cap, 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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195. ORADEA RO · INDEX 26.4 · INTERVAL 172–205 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 99%

Oradea holds an uneven profile — strongest on journey risk (rank 119), weakest on street-network risk (rank 209). Streets: mean comparable risk 74.6 per km over 881 street-km (dimension rank 209/219), with 24.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 14.8 (rank 119/219; 90th percentile 58.8). Access: composite low-stress accessibility 0.219 (rank 190/219); 97% of 198,591 residents are locked to high-stress streets at the central threshold, against 240 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

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106. ORLÉANS FR · INDEX 58.9 · INTERVAL 98–124 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Orléans holds an uneven profile — strongest on low-stress access (rank 88), weakest on journey risk (rank 134). Streets: mean comparable risk 58.1 per km over 459 street-km (dimension rank 105/219), with 9.8% of the

network in the highest-risk band. Journeys: 210 standardised trips average 18.4 (rank 134/219; 90th percentile 38.8). Access: composite low-stress accessibility 0.448 (rank 88/219); 13% of 103,906 residents are locked to high-stress streets at the central threshold, against 217 km of low-stress network. Leading risk drivers on its streets: On-road stress (speed × lanes), Motor-traffic volume, Score cap. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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62. OSLO NO · INDEX 69.9 · INTERVAL 40–81 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 80%

Oslo holds an uneven profile — strongest on street-network risk (rank 33), weakest on low-stress access (rank 125). Streets: mean comparable risk 51.9 per km over 3,010 street-km (dimension rank 33/219), with 4.4% of the network in the highest-risk band. Journeys: 210 standardised trips average -0.9 (rank 54/219; 90th percentile 24.1). Access: composite low-stress accessibility 0.383 (rank 125/219); 19% of 698,949 residents are locked to high-stress streets at the central threshold, against 3,455 km of low-stress network. Leading risk drivers on its streets: Incline, Score cap, Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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173. OSTRAVA CZ · INDEX 39.3 · INTERVAL 145–181 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 89%

Ostrava holds an uneven profile — strongest on journey risk (rank 93), weakest on street-network risk (rank 184). Streets: mean comparable risk 68.8 per km over 1,656 street-km (dimension rank 184/219), with 15.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 8.3 (rank 93/219; 90th percentile 32.5). Access: composite low-stress accessibility 0.236 (rank 183/219); 83% of 273,406 residents are locked to high-stress streets at the central threshold, against 734 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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54. OULU FI · INDEX 71.8 · INTERVAL 10–81 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 88%

Oulu holds an uneven profile — strongest on journey risk (rank 6), weakest on street-network risk (rank 128). Streets: mean comparable risk 63.4 per km over 3,312 street-km (dimension rank 128/219), with 7.1% of the network in the highest-risk band. Journeys: 210 standardised trips average -22.1 (rank 6/219; 90th percentile -0.1). Access: composite low-stress accessibility 0.497 (rank 63/219); 48% of 210,303 residents are locked to high-stress streets at the central threshold, against 3,183 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 1 of 219). Leading risk drivers on its streets: Score cap, On-road stress (speed × lanes), Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten on at least one dimension.

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124. OVIEDO ES · INDEX 55.9 · INTERVAL 66–157 · TIER 2 (MIDDLE) · TIER STABILITY 70%

Oviedo holds an uneven profile — strongest on street-network risk (rank 35), weakest on journey risk (rank 188). Streets: mean comparable risk 51.6 per km over 865 street-km (dimension rank 35/219), with 5.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 41.4 (rank 188/219; 90th percentile 58.3). Access: composite low-stress accessibility 0.386 (rank 122/219); 7% of 218,267 residents are locked to high-stress streets at the central threshold, against 763 km of low-stress network. Its routed journeys score

close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 210 of 219). Leading risk drivers on its streets: Incline, Heavy-vehicle access, Motor-traffic volume. Leading protections: Signed ≤30 km/h zone, Pedestrian Zone.

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180. PADUA IT · INDEX 34.7 · INTERVAL 176–187 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Padua holds a balanced profile. Streets: mean comparable risk 68.1 per km over 1,017 street-km (dimension rank 183/219), with 16.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 28.8 (rank 163/219; 90th percentile 48.6). Access: composite low-stress accessibility 0.268 (rank 171/219); 98% of 209,164 residents are locked to high-stress streets at the central threshold, against 278 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Cycle Infra Car-Free.

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190. PALERMO IT · INDEX 28.7 · INTERVAL 186–196 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Palermo holds a balanced profile. Streets: mean comparable risk 67.0 per km over 1,415 street-km (dimension rank 179/219), with 15.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 32.4 (rank 172/219; 90th percentile 76.9). Access: composite low-stress accessibility 0.150 (rank 210/219); 98% of 603,577 residents are locked to high-stress streets at the central threshold, against 439 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Residential street, Cycleway/Sidewalk.

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50. PALMA ES · INDEX 73.8 · INTERVAL 48–59 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Palma holds a balanced profile. Streets: mean comparable risk 54.3 per km over 1,298 street-km (dimension rank 63/219), with 8.3% of the network in the highest-risk band. Journeys: 210 standardised trips average -1.7 (rank 52/219; 90th percentile 28.0). Access: composite low-stress accessibility 0.538 (rank 54/219); 9% of 503,810 residents are locked to high-stress streets at the central threshold, against 1,056 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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53. PAMPLONA ES · INDEX 73.4 · INTERVAL 45–72 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 99%

Pamplona holds an uneven profile — strongest on low-stress access (rank 38), weakest on street-network risk (rank 100). Streets: mean comparable risk 56.1 per km over 341 street-km (dimension rank 100/219), with 11.3% of the network in the highest-risk band. Journeys: 210 standardised trips average -0.5 (rank 60/219; 90th percentile 21.9). Access: composite low-stress accessibility 0.602 (rank 38/219); 1% of 195,988 residents are locked to high-stress streets at the central threshold, against 333 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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11. PARIS FR · INDEX 93.0 · INTERVAL 5–16 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Paris holds a balanced profile. Streets: mean comparable risk 46.6 per km over 1,419 street-km (dimension rank 16/219), with 6.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -10.9 (rank 25/219; 90th percentile 2.5). Access: composite low-stress accessibility 0.755 (rank 5/219); 0% of 2,374,638 residents are locked to high-stress streets at the central threshold, against 1,619 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: top-ten on at least one dimension.

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141. PARMA IT · INDEX 51.0 · INTERVAL 67–166 · TIER 2 (MIDDLE) · TIER STABILITY 56%

Parma holds an uneven profile — strongest on journey risk (rank 38), weakest on street-network risk (rank 186). Streets: mean comparable risk 67.0 per km over 1,270 street-km (dimension rank 186/219), with 20.2% of the network in the highest-risk band. Journeys: 210 standardised trips average -8.3 (rank 38/219; 90th percentile 15.4). Access: composite low-stress accessibility 0.388 (rank 120/219); 76% of 182,953 residents are locked to high-stress streets at the central threshold, against 452 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 9 of 219). Leading risk drivers on its streets: Track Grade 4/5, Motor-traffic volume, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

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155. PESCARA IT · INDEX 47.1 · INTERVAL 128–162 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 61%

Pescara holds an uneven profile — strongest on journey risk (rank 89), weakest on street-network risk (rank 169). Streets: mean comparable risk 63.9 per km over 479 street-km (dimension rank 169/219), with 14.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 7.0 (rank 89/219; 90th percentile 47.8). Access: composite low-stress accessibility 0.288 (rank 164/219); 99% of 117,486 residents are locked to high-stress streets at the central threshold, against 166 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

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212. PITESTI RO · INDEX 10.9 · INTERVAL 207–213 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Pitesti holds a balanced profile. Streets: mean comparable risk 77.6 per km over 349 street-km (dimension rank 214/219), with 24.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 57.6 (rank 207/219; 90th percentile 75.5). Access: composite low-stress accessibility 0.230 (rank 186/219); 98% of 135,915 residents are locked to high-stress streets at the central threshold, against 89 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Residential street.

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218. PLOIESTI RO · INDEX 1.6 · INTERVAL 215–219 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Ploiesti holds a balanced profile. Streets: mean comparable risk 75.2 per km over 589 street-km (dimension rank 212/219), with 26.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 76.0 (rank 218/219; 90th percentile 92.9). Access: composite low-stress accessibility 0.124 (rank 219/219); 99% of 185,677 residents are locked to high-stress streets at the central threshold, against 56 km of low-stress

network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 216 of 219). Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Residential street, Signed ≤30 km/h zone.

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172. PLOVDIV BG · INDEX 39.7 · INTERVAL 110–187 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 75%

Plovdiv holds an uneven profile — strongest on journey risk (rank 51), weakest on street-network risk (rank 197). Streets: mean comparable risk 69.4 per km over 946 street-km (dimension rank 197/219), with 20.8% of the network in the highest-risk band. Journeys: 210 standardised trips average -1.9 (rank 51/219; 90th percentile 29.1). Access: composite low-stress accessibility 0.251 (rank 178/219); 99% of 296,828 residents are locked to high-stress streets at the central threshold, against 217 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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183. PORTO PT · INDEX 32.0 · INTERVAL 169–196 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Porto holds an uneven profile — strongest on street-network risk (rank 146), weakest on journey risk (rank 201). Streets: mean comparable risk 61.8 per km over 765 street-km (dimension rank 146/219), with 11.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 49.3 (rank 201/219; 90th percentile 66.8). Access: composite low-stress accessibility 0.194 (rank 197/219); 98% of 201,129 residents are locked to high-stress streets at the central threshold, against 191 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 206 of 219). Leading risk drivers on its streets: On-road stress (speed × lanes), 50 km/h limit, Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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121. POZNAŃ PL · INDEX 56.1 · INTERVAL 106–141 · TIER 2 (MIDDLE) · TIER STABILITY 99%

Poznań holds an uneven profile — strongest on low-stress access (rank 95), weakest on street-network risk (rank 153). Streets: mean comparable risk 62.3 per km over 2,267 street-km (dimension rank 153/219), with 12.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 9.7 (rank 103/219; 90th percentile 31.9). Access: composite low-stress accessibility 0.433 (rank 95/219); 64% of 510,987 residents are locked to high-stress streets at the central threshold, against 1,283 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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153. PRAGUE CZ · INDEX 47.5 · INTERVAL 143–158 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 61%

Prague holds a balanced profile. Streets: mean comparable risk 59.8 per km over 4,626 street-km (dimension rank 141/219), with 12.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 17.2 (rank 132/219; 90th percentile 42.4). Access: composite low-stress accessibility 0.278 (rank 169/219); 59% of 1,334,017 residents are locked to high-stress streets at the central threshold, against 3,005 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h

limit. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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168. PRATO IT · INDEX 40.7 · INTERVAL 125–185 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 79%

Prato holds an uneven profile — strongest on journey risk (rank 71), weakest on street-network risk (rank 195). Streets: mean comparable risk 71.8 per km over 722 street-km (dimension rank 195/219), with 17.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 2.4 (rank 71/219; 90th percentile 23.9). Access: composite low-stress accessibility 0.294 (rank 161/219); 94% of 192,494 residents are locked to high-stress streets at the central threshold, against 327 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Heavy-vehicle access, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track.

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166. RADOM PL · INDEX 42.4 · INTERVAL 150–175 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 91%

Radom holds an uneven profile — strongest on journey risk (rank 116), weakest on street-network risk (rank 182). Streets: mean comparable risk 66.6 per km over 1,133 street-km (dimension rank 182/219), with 17.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 14.3 (rank 116/219; 90th percentile 43.7). Access: composite low-stress accessibility 0.318 (rank 154/219); 89% of 198,991 residents are locked to high-stress streets at the central threshold, against 423 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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145. REIMS FR · INDEX 50.1 · INTERVAL 133–160 · TIER 2 (MIDDLE) · TIER STABILITY 53%

Reims holds an uneven profile — strongest on street-network risk (rank 120), weakest on journey risk (rank 167). Streets: mean comparable risk 58.1 per km over 786 street-km (dimension rank 120/219), with 12.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 30.3 (rank 167/219; 90th percentile 49.7). Access: composite low-stress accessibility 0.383 (rank 126/219); 25% of 147,981 residents are locked to high-stress streets at the central threshold, against 323 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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75. RENNES FR · INDEX 66.1 · INTERVAL 61–100 · TIER 2 (MIDDLE) · TIER STABILITY 53%

Rennes holds an uneven profile — strongest on street-network risk (rank 49), weakest on journey risk (rank 127). Streets: mean comparable risk 51.0 per km over 750 street-km (dimension rank 49/219), with 8.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 16.5 (rank 127/219; 90th percentile 34.8). Access: composite low-stress accessibility 0.463 (rank 82/219); 1% of 207,978 residents are locked to high-stress streets at the central threshold, against 499 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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105. REYKJAVIK IS · INDEX 59.0 · INTERVAL 89–129 · TIER 2 (MIDDLE) · TIER STABILITY 99%

Reykjavik holds an uneven profile — strongest on low-stress access (rank 81), weakest on street-network risk (rank 150). Streets: mean comparable risk 61.6 per km over 1,089 street-km (dimension rank 150/219), with 12.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 7.4 (rank 90/219; 90th percentile 28.6). Access: composite low-stress accessibility 0.463 (rank 81/219); 6% of 109,562 residents are locked to high-stress streets at the central threshold, against 912 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Heavy-vehicle access. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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140. RIGA LV · INDEX 51.0 · INTERVAL 120–150 · TIER 2 (MIDDLE) · TIER STABILITY 67%

Riga holds an uneven profile — strongest on journey risk (rank 101), weakest on low-stress access (rank 162). Streets: mean comparable risk 59.5 per km over 2,988 street-km (dimension rank 140/219), with 12.7% of the network in the highest-risk band. Journeys: 210 standardised trips average 9.1 (rank 101/219; 90th percentile 45.0). Access: composite low-stress accessibility 0.294 (rank 162/219); 85% of 564,574 residents are locked to high-stress streets at the central threshold, against 1,400 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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185. ROME IT · INDEX 31.5 · INTERVAL 176–193 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Rome holds an uneven profile — strongest on journey risk (rank 151), weakest on low-stress access (rank 214). Streets: mean comparable risk 66.1 per km over 8,943 street-km (dimension rank 176/219), with 14.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 24.1 (rank 151/219; 90th percentile 57.7). Access: composite low-stress accessibility 0.125 (rank 214/219); 97% of 2,596,788 residents are locked to high-stress streets at the central threshold, against 2,829 km of low-stress network. Leading risk drivers on its streets: On-road stress (speed × lanes), Incline, 50 km/h limit. Leading protections: Residential street, Cycleway/Sidewalk.

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95. ROSTOCK DE · INDEX 60.0 · INTERVAL 80–123 · TIER 2 (MIDDLE) · TIER STABILITY 88%

Rostock holds an uneven profile — strongest on street-network risk (rank 57), weakest on journey risk (rank 142). Streets: mean comparable risk 52.9 per km over 1,137 street-km (dimension rank 57/219), with 7.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 20.8 (rank 142/219; 90th percentile 34.1). Access: composite low-stress accessibility 0.384 (rank 124/219); 78% of 190,579 residents are locked to high-stress streets at the central threshold, against 732 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, Heavy-vehicle access. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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16. ROTTERDAM NL · INDEX 90.8 · INTERVAL 14–24 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Rotterdam holds a balanced profile. Streets: mean comparable risk 48.8 per km over 1,860 street-km (dimension rank 21/219), with 4.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -12.5 (rank 19/219; 90th percentile 8.8). Access: composite low-stress accessibility 0.667 (rank 16/219); 13% of 602,272 residents are locked to high-stress streets at the central threshold, against 2,306 km of low-

stress network. Leading risk drivers on its streets: Score cap, On-road stress (speed × lanes), Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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130. ROUEN FR · INDEX 54.5 · INTERVAL 90–159 · TIER 2 (MIDDLE) · TIER STABILITY 91%

Rouen holds an uneven profile — strongest on low-stress access (rank 60), weakest on journey risk (rank 178). Streets: mean comparable risk 58.4 per km over 384 street-km (dimension rank 135/219), with 13.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 35.2 (rank 178/219; 90th percentile 54.5). Access: composite low-stress accessibility 0.516 (rank 60/219); 2% of 110,003 residents are locked to high-stress streets at the central threshold, against 224 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Heavy-vehicle access, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Pedestrian Zone.

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138. RZESZÓW PL · INDEX 51.0 · INTERVAL 135–150 · TIER 2 (MIDDLE) · TIER STABILITY 68%

Rzeszów holds a balanced profile. Streets: mean comparable risk 60.5 per km over 1,433 street-km (dimension rank 148/219), with 13.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 16.1 (rank 125/219; 90th percentile 51.7). Access: composite low-stress accessibility 0.360 (rank 131/219); 91% of 210,050 residents are locked to high-stress streets at the central threshold, against 528 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Service Road.

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46. SABADELL ES · INDEX 75.5 · INTERVAL 24–69 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 99%

Sabadell holds an uneven profile — strongest on low-stress access (rank 15), weakest on journey risk (rank 117). Streets: mean comparable risk 54.5 per km over 380 street-km (dimension rank 64/219), with 8.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 14.6 (rank 117/219; 90th percentile 46.7). Access: composite low-stress accessibility 0.674 (rank 15/219); 0% of 256,346 residents are locked to high-stress streets at the central threshold, against 458 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, Score cap. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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18. SAN SEBASTIÁN ES · INDEX 88.8 · INTERVAL 17–29 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

San Sebastián holds a balanced profile. Streets: mean comparable risk 47.5 per km over 490 street-km (dimension rank 19/219), with 5.3% of the network in the highest-risk band. Journeys: 210 standardised trips average -8.8 (rank 36/219; 90th percentile 9.0). Access: composite low-stress accessibility 0.649 (rank 23/219); 0% of 206,288 residents are locked to high-stress streets at the central threshold, against 581 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, Score cap. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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194. SATU MARE RO · INDEX 26.8 · INTERVAL 170–208 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Satu Mare holds an uneven profile — strongest on journey risk (rank 128), weakest on street-network risk (rank 216). Streets: mean comparable risk 82.4 per km over 398 street-km (dimension rank 216/219), with 26.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 16.9 (rank 128/219; 90th percentile 47.6). Access: composite low-stress accessibility 0.302 (rank 157/219); 96% of 96,200 residents are locked to high-stress streets at the central threshold, against 90 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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39. SEVILLE ES · INDEX 78.0 · INTERVAL 24–55 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Seville holds an uneven profile — strongest on journey risk (rank 16), weakest on street-network risk (rank 109). Streets: mean comparable risk 58.6 per km over 1,310 street-km (dimension rank 109/219), with 10.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -13.9 (rank 16/219; 90th percentile -1.2). Access: composite low-stress accessibility 0.628 (rank 29/219); 4% of 753,142 residents are locked to high-stress streets at the central threshold, against 1,181 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 14 of 219). Leading risk drivers on its streets: Motor-traffic volume, Score cap, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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201. SIBIU RO · INDEX 21.7 · INTERVAL 198–201 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Sibiu holds a balanced profile. Streets: mean comparable risk 71.0 per km over 565 street-km (dimension rank 198/219), with 19.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 46.3 (rank 196/219; 90th percentile 77.1). Access: composite low-stress accessibility 0.208 (rank 191/219); 95% of 137,639 residents are locked to high-stress streets at the central threshold, against 189 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

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191. SINTRA PT · INDEX 28.2 · INTERVAL 181–198 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Sintra holds an uneven profile — strongest on street-network risk (rank 167), weakest on low-stress access (rank 212). Streets: mean comparable risk 66.2 per km over 2,116 street-km (dimension rank 167/219), with 11.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 43.2 (rank 193/219; 90th percentile 75.8). Access: composite low-stress accessibility 0.144 (rank 212/219); 95% of 366,087 residents are locked to high-stress streets at the central threshold, against 1,053 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Residential street, Cycleway/Sidewalk.

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184. SOFIA BG · INDEX 31.8 · INTERVAL 182–189 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Sofia holds a balanced profile. Streets: mean comparable risk 67.5 per km over 3,586 street-km (dimension rank 175/219), with 12.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 33.1 (rank 174/219; 90th percentile 58.8). Access: composite low-stress accessibility 0.189 (rank 201/219); 90% of 782,516 residents are locked to high-stress streets at the central threshold, against 1,083 km of low-stress

network. Leading risk drivers on its streets: On-road stress (speed × lanes), Motor-traffic volume, 50 km/h limit. Leading protections: Residential street, Service Road.

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211. SPLIT HR · INDEX 11.9 · INTERVAL 203–214 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Split holds an uneven profile — strongest on low-stress access (rank 174), weakest on journey risk (rank 215). Streets: mean comparable risk 73.8 per km over 402 street-km (dimension rank 207/219), with 22.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 85.6 (rank 215/219; 90th percentile 115.7). Access: composite low-stress accessibility 0.257 (rank 174/219); 97% of 86,044 residents are locked to high-stress streets at the central threshold, against 105 km of low-stress network. Its routed journeys score close to (or above) its street average — the router finds little refuge from the ordinary street network (escape-valve rank 219 of 219). Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Pedestrian Zone, Service Road.

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88. STAVANGER NO · INDEX 61.3 · INTERVAL 75–117 · TIER 2 (MIDDLE) · TIER STABILITY 78%

Stavanger holds an uneven profile — strongest on journey risk (rank 62), weakest on low-stress access (rank 136). Streets: mean comparable risk 58.0 per km over 1,533 street-km (dimension rank 87/219), with 7.6% of the network in the highest-risk band. Journeys: 203 standardised trips average 0.6 (rank 62/219; 90th percentile 26.9). Access: composite low-stress accessibility 0.352 (rank 136/219); 65% of 155,900 residents are locked to high-stress streets at the central threshold, against 961 km of low-stress network. Leading risk drivers on its streets: Incline, On-road stress (speed × lanes), Score cap. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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1. STOCKHOLM SE · INDEX 98.0 · INTERVAL 1–7 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Stockholm holds a balanced profile. Streets: mean comparable risk 44.2 per km over 2,227 street-km (dimension rank 1/219), with 1.5% of the network in the highest-risk band. Journeys: 210 standardised trips average -14.4 (rank 15/219; 90th percentile 9.0). Access: composite low-stress accessibility 0.774 (rank 1/219); 0% of 993,829 residents are locked to high-stress streets at the central threshold, against 2,858 km of low-stress network. Leading risk drivers on its streets: Score cap, Incline, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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34. STRASBOURG FR · INDEX 79.1 · INTERVAL 22–55 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 99%

Strasbourg holds an uneven profile — strongest on journey risk (rank 18), weakest on street-network risk (rank 115). Streets: mean comparable risk 58.9 per km over 788 street-km (dimension rank 115/219), with 10.6% of the network in the highest-risk band. Journeys: 210 standardised trips average -13.2 (rank 18/219; 90th percentile -1.1). Access: composite low-stress accessibility 0.664 (rank 20/219); 1% of 273,459 residents are locked to high-stress streets at the central threshold, against 656 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 15 of 219). Leading risk drivers on its streets: Score cap, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track.

133. STUTTGART DE · INDEX 53.5 · INTERVAL 113–152 · TIER 2 (MIDDLE) · TIER STABILITY 87%

Stuttgart holds an uneven profile — strongest on street-network risk (rank 96), weakest on journey risk (rank 169). Streets: mean comparable risk 56.0 per km over 1,875 street-km (dimension rank 96/219), with 10.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 30.8 (rank 169/219; 90th percentile 44.4). Access: composite low-stress accessibility 0.404 (rank 113/219); 30% of 585,807 residents are locked to high-stress streets at the central threshold, against 1,961 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Car-Free Zone, Signed ≤30 km/h zone.

148. SZCZECIN PL · INDEX 48.9 · INTERVAL 137–159 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 60%

Szczecin holds an uneven profile — strongest on journey risk (rank 115), weakest on street-network risk (rank 162). Streets: mean comparable risk 63.6 per km over 1,687 street-km (dimension rank 162/219), with 13.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 14.4 (rank 115/219; 90th percentile 50.8). Access: composite low-stress accessibility 0.356 (rank 134/219); 81% of 383,763 residents are locked to high-stress streets at the central threshold, against 868 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Track Grade 4/5. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

68. SZEGED HU · INDEX 68.3 · INTERVAL 63–75 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 74%

Szeged holds a balanced profile. Streets: mean comparable risk 55.7 per km over 884 street-km (dimension rank 66/219), with 6.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 4.4 (rank 76/219; 90th percentile 32.1). Access: composite low-stress accessibility 0.471 (rank 75/219); 19% of 167,859 residents are locked to high-stress streets at the central threshold, against 554 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Score cap. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

103. TALLINN EE · INDEX 59.3 · INTERVAL 53–130 · TIER 2 (MIDDLE) · TIER STABILITY 67%

Tallinn holds an uneven profile — strongest on journey risk (rank 31), weakest on low-stress access (rank 145). Streets: mean comparable risk 60.9 per km over 1,911 street-km (dimension rank 136/219), with 10.8% of the network in the highest-risk band. Journeys: 210 standardised trips average -9.4 (rank 31/219; 90th percentile 14.9). Access: composite low-stress accessibility 0.335 (rank 145/219); 83% of 357,104 residents are locked to high-stress streets at the central threshold, against 1,054 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track.

12. TAMPERE FI · INDEX 92.5 · INTERVAL 4–17 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Tampere holds a balanced profile. Streets: mean comparable risk 49.7 per km over 2,254 street-km (dimension rank 15/219), with 2.5% of the network in the highest-risk band. Journeys: 210 standardised trips average -30.6

(rank 4/219; 90th percentile -22.0). Access: composite low-stress accessibility 0.642 (rank 24/219); 3% of 227,142 residents are locked to high-stress streets at the central threshold, against 2,555 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 4 of 219). Leading risk drivers on its streets: Score cap, Incline, MTB >= 1. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten on at least one dimension.

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197. TARGU MURES RO · INDEX 23.9 · INTERVAL 189–201 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Targu Mures holds a balanced profile. Streets: mean comparable risk 71.6 per km over 402 street-km (dimension rank 203/219), with 21.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 43.0 (rank 192/219; 90th percentile 67.7). Access: composite low-stress accessibility 0.269 (rank 170/219); 92% of 124,537 residents are locked to high-stress streets at the central threshold, against 185 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Signed ≤30 km/h zone, Residential street.

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101. TERRASSA ES · INDEX 59.6 · INTERVAL 85–126 · TIER 2 (MIDDLE) · TIER STABILITY 100%

Terrassa holds an uneven profile — strongest on low-stress access (rank 68), weakest on journey risk (rank 129). Streets: mean comparable risk 60.3 per km over 499 street-km (dimension rank 124/219), with 10.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 17.0 (rank 129/219; 90th percentile 48.4). Access: composite low-stress accessibility 0.490 (rank 68/219); 2% of 234,350 residents are locked to high-stress streets at the central threshold, against 573 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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7. THE HAGUE NL · INDEX 95.0 · INTERVAL 4–18 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

The Hague holds a balanced profile. Streets: mean comparable risk 46.6 per km over 1,100 street-km (dimension rank 6/219), with 2.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -11.4 (rank 23/219; 90th percentile 7.1). Access: composite low-stress accessibility 0.698 (rank 8/219); 4% of 508,908 residents are locked to high-stress streets at the central threshold, against 1,443 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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170. THESSALONIKI GR · INDEX 39.9 · INTERVAL 134–187 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 79%

Thessaloniki holds an uneven profile — strongest on street-network risk (rank 76), weakest on low-stress access (rank 198). Streets: mean comparable risk 60.6 per km over 9,099 street-km (dimension rank 76/219), with 3.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 44.9 (rank 194/219; 90th percentile 61.6). Access: composite low-stress accessibility 0.194 (rank 198/219); 93% of 1,081,946 residents are locked to high-stress streets at the central threshold, against 5,704 km of low-stress network. Leading risk

drivers on its streets: Incline, On-road stress (speed × lanes), Heavy-vehicle access. Leading protections: Residential street, Track Grade 1.

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33. TILBURG NL · INDEX 79.6 · INTERVAL 31–46 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Tilburg holds an uneven profile — strongest on low-stress access (rank 28), weakest on street-network risk (rank 77). Streets: mean comparable risk 54.0 per km over 957 street-km (dimension rank 77/219), with 10.7% of the network in the highest-risk band. Journeys: 210 standardised trips average -9.3 (rank 32/219; 90th percentile 5.9). Access: composite low-stress accessibility 0.630 (rank 28/219); 4% of 218,558 residents are locked to high-stress streets at the central threshold, against 960 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track.

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202. TIMISOARA RO · INDEX 19.7 · INTERVAL 200–204 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Timisoara holds a balanced profile. Streets: mean comparable risk 73.8 per km over 896 street-km (dimension rank 201/219), with 18.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 45.2 (rank 195/219; 90th percentile 76.8). Access: composite low-stress accessibility 0.186 (rank 203/219); 98% of 286,276 residents are locked to high-stress streets at the central threshold, against 205 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Cycleway/Sidewalk.

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96. TORUŃ PL · INDEX 59.9 · INTERVAL 85–127 · TIER 2 (MIDDLE) · TIER STABILITY 96%

Toruń holds an uneven profile — strongest on journey risk (rank 77), weakest on street-network risk (rank 151). Streets: mean comparable risk 63.4 per km over 1,252 street-km (dimension rank 151/219), with 10.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 4.9 (rank 77/219; 90th percentile 24.6). Access: composite low-stress accessibility 0.468 (rank 77/219); 97% of 190,856 residents are locked to high-stress streets at the central threshold, against 528 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Bicycle Designated, Cycleway/Sidewalk.

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139. TOULON FR · INDEX 51.0 · INTERVAL 118–155 · TIER 2 (MIDDLE) · TIER STABILITY 65%

Toulon holds an uneven profile — strongest on street-network risk (rank 88), weakest on journey risk (rank 159). Streets: mean comparable risk 58.6 per km over 534 street-km (dimension rank 88/219), with 6.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 27.8 (rank 159/219; 90th percentile 57.1). Access: composite low-stress accessibility 0.322 (rank 151/219); 94% of 160,097 residents are locked to high-stress streets at the central threshold, against 234 km of low-stress network. Leading risk drivers on its streets: Incline, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Residential street, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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31. TOULOUSE FR · INDEX 82.1 · INTERVAL 27–44 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Toulouse holds a balanced profile. Streets: mean comparable risk 49.2 per km over 1,717 street-km (dimension rank 27/219), with 6.1% of the network in the highest-risk band. Journeys: 210 standardised trips average 0.7 (rank 64/219; 90th percentile 14.6). Access: composite low-stress accessibility 0.611 (rank 36/219); 7% of 503,163 residents are locked to high-stress streets at the central threshold, against 1,277 km of low-stress network. Leading risk drivers on its streets: Score cap, Motor-traffic volume, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Cycleway/Sidewalk.

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42. TOURS FR · INDEX 76.7 · INTERVAL 32–65 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 99%

Tours holds an uneven profile — strongest on street-network risk (rank 31), weakest on journey risk (rank 121). Streets: mean comparable risk 48.8 per km over 606 street-km (dimension rank 31/219), with 7.4% of the network in the highest-risk band. Journeys: 210 standardised trips average 15.6 (rank 121/219; 90th percentile 33.2). Access: composite low-stress accessibility 0.612 (rank 35/219); 15% of 130,355 residents are locked to high-stress streets at the central threshold, against 403 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Heavy-vehicle access, Primary-road exposure. Leading protections: Signed ≤30 km/h zone, Signed bike network.

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189. TRIESTE IT · INDEX 28.8 · INTERVAL 188–194 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Trieste holds a balanced profile. Streets: mean comparable risk 67.8 per km over 769 street-km (dimension rank 180/219), with 14.9% of the network in the highest-risk band. Journeys: 210 standardised trips average 39.0 (rank 183/219; 90th percentile 87.5). Access: composite low-stress accessibility 0.197 (rank 195/219); 94% of 187,765 residents are locked to high-stress streets at the central threshold, against 434 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Car-Free Zone.

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61. TRONDHEIM NO · INDEX 70.1 · INTERVAL 46–73 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 84%

Trondheim holds an uneven profile — strongest on journey risk (rank 40), weakest on low-stress access (rank 94). Streets: mean comparable risk 56.0 per km over 1,899 street-km (dimension rank 65/219), with 6.5% of the network in the highest-risk band. Journeys: 210 standardised trips average -7.0 (rank 40/219; 90th percentile 19.4). Access: composite low-stress accessibility 0.434 (rank 94/219); 11% of 205,269 residents are locked to high-stress streets at the central threshold, against 2,251 km of low-stress network. Leading risk drivers on its streets: Incline, Score cap, Track Grade 4/5. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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137. TURIN IT · INDEX 51.4 · INTERVAL 24–167 · TIER 2 (MIDDLE) · TIER STABILITY 44%

Turin holds an uneven profile — strongest on journey risk (rank 12), weakest on street-network risk (rank 194). Streets: mean comparable risk 69.6 per km over 1,742 street-km (dimension rank 194/219), with 20.1% of the network in the highest-risk band. Journeys: 210 standardised trips average -14.9 (rank 12/219; 90th percentile 2.3). Access: composite low-stress accessibility 0.393 (rank 118/219); 90% of 869,949 residents are locked to high-stress streets at the central threshold, against 785 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 2 of 219). Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h

limit. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

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19. TURKU FI · INDEX 88.4 · INTERVAL 6–24 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Turku holds a balanced profile. Streets: mean comparable risk 52.9 per km over 1,557 street-km (dimension rank 29/219), with 2.6% of the network in the highest-risk band. Journeys: 210 standardised trips average -25.9 (rank 5/219; 90th percentile -16.6). Access: composite low-stress accessibility 0.610 (rank 37/219); 25% of 190,529 residents are locked to high-stress streets at the central threshold, against 1,492 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 5 of 219). Leading risk drivers on its streets: Score cap, Incline, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten on at least one dimension.

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85. UPPSALA SE · INDEX 62.5 · INTERVAL 18–131 · TIER 2 (MIDDLE) · TIER STABILITY 47%

Uppsala holds an uneven profile — strongest on journey risk (rank 11), weakest on street-network risk (rank 172). Streets: mean comparable risk 64.7 per km over 3,938 street-km (dimension rank 172/219), with 15.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -16.2 (rank 11/219; 90th percentile 22.7). Access: composite low-stress accessibility 0.463 (rank 83/219); 21% of 225,093 residents are locked to high-stress streets at the central threshold, against 2,654 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 3 of 219). Leading risk drivers on its streets: Incline, Heavy-vehicle access, On-road stress (speed × lanes). Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

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14. UTRECHT NL · INDEX 91.8 · INTERVAL 11–22 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Utrecht holds a balanced profile. Streets: mean comparable risk 48.0 per km over 1,070 street-km (dimension rank 14/219), with 3.7% of the network in the highest-risk band. Journeys: 210 standardised trips average -13.2 (rank 17/219; 90th percentile 2.6). Access: composite low-stress accessibility 0.667 (rank 18/219); 5% of 351,191 residents are locked to high-stress streets at the central threshold, against 1,074 km of low-stress network. Leading risk drivers on its streets: Score cap, On-road stress (speed × lanes), Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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41. VALENCIA ES · INDEX 77.8 · INTERVAL 15–67 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 98%

Valencia holds an uneven profile — strongest on low-stress access (rank 12), weakest on street-network risk (rank 137). Streets: mean comparable risk 60.3 per km over 1,126 street-km (dimension rank 137/219), with 11.7% of the network in the highest-risk band. Journeys: 210 standardised trips average -10.5 (rank 28/219; 90th percentile 5.3). Access: composite low-stress accessibility 0.691 (rank 12/219); 3% of 874,661 residents are locked to high-stress streets at the central threshold, against 1,103 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track.

43. VALLADOLID ES · INDEX 76.4 · INTERVAL 37–60 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Valladolid holds an uneven profile — strongest on low-stress access (rank 30), weakest on street-network risk (rank 102). Streets: mean comparable risk 57.1 per km over 763 street-km (dimension rank 102/219), with 10.4% of the network in the highest-risk band. Journeys: 210 standardised trips average -6.4 (rank 42/219; 90th percentile 13.5). Access: composite low-stress accessibility 0.627 (rank 30/219); 1% of 324,563 residents are locked to high-stress streets at the central threshold, against 830 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Score cap, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

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114. VALLETTA MT · INDEX 57.9 · INTERVAL 65–151 · TIER 2 (MIDDLE) · TIER STABILITY 74%

Valletta holds an uneven profile — strongest on street-network risk (rank 37), weakest on journey risk (rank 186). Streets: mean comparable risk 54.9 per km over 21 street-km (dimension rank 37/219), with 1.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 40.7 (rank 186/219; 90th percentile 49.3). Access: composite low-stress accessibility 0.421 (rank 103/219); 0% of 954 residents are locked to high-stress streets at the central threshold, against 8 km of low-stress network. Leading risk drivers on its streets: On-road stress (speed × lanes), 50 km/h limit, Incline. Leading protections: Pedestrian Zone, Signed ≤30 km/h zone.

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6. VANTAA FI · INDEX 96.2 · INTERVAL 2–10 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Vantaa holds a balanced profile. Streets: mean comparable risk 49.1 per km over 1,426 street-km (dimension rank 13/219), with 1.6% of the network in the highest-risk band. Journeys: 210 standardised trips average -25.6 (rank 2/219; 90th percentile -1.9). Access: composite low-stress accessibility 0.697 (rank 10/219); 3% of 240,437 residents are locked to high-stress streets at the central threshold, against 2,142 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 10 of 219). Leading risk drivers on its streets: Score cap, Incline, MTB >= 1. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: top-ten overall; top-ten on at least one dimension.

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178. VARNA BG · INDEX 36.3 · INTERVAL 169–183 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Varna holds a balanced profile. Streets: mean comparable risk 64.2 per km over 1,401 street-km (dimension rank 157/219), with 11.8% of the network in the highest-risk band. Journeys: 210 standardised trips average 34.0 (rank 176/219; 90th percentile 75.1). Access: composite low-stress accessibility 0.220 (rank 189/219); 86% of 241,288 residents are locked to high-stress streets at the central threshold, against 498 km of low-stress network. Leading risk drivers on its streets: On-road stress (speed × lanes), Incline, Motor-traffic volume. Leading protections: Residential street, Service Road.

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117. VENICE IT · INDEX 57.2 · INTERVAL 62–142 · TIER 2 (MIDDLE) · TIER STABILITY 74%

Venice holds an uneven profile — strongest on journey risk (rank 39), weakest on street-network risk (rank 158). Streets: mean comparable risk 65.9 per km over 1,029 street-km (dimension rank 158/219), with 10.1% of the network in the highest-risk band. Journeys: 165 standardised trips average -7.8 (rank 39/219; 90th percentile 25.5). Access: composite low-stress accessibility 0.367 (rank 130/219); 68% of 242,184 residents are locked to high-stress streets at the central threshold, against 474 km of low-stress network. Its routed journeys score far below its street average — a working low-risk sub-network the router can exploit (escape-valve rank 12 of 219). Leading risk drivers on its streets: Score cap, On-road stress (speed × lanes), Motor-traffic volume. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: only 165/210 journeys routable (water/topology).

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157. VERONA IT · INDEX 46.4 · INTERVAL 124–166 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 65%

Verona holds an uneven profile — strongest on journey risk (rank 81), weakest on street-network risk (rank 174). Streets: mean comparable risk 66.0 per km over 1,286 street-km (dimension rank 174/219), with 14.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 5.4 (rank 81/219; 90th percentile 38.0). Access: composite low-stress accessibility 0.298 (rank 158/219); 70% of 251,660 residents are locked to high-stress streets at the central threshold, against 614 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Separated cycle track. Notes: straddles a tier boundary under respecification.

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49. VIENNA AT · INDEX 74.0 · INTERVAL 36–77 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 96%

Vienna holds an uneven profile — strongest on journey risk (rank 22), weakest on street-network risk (rank 129). Streets: mean comparable risk 53.8 per km over 3,523 street-km (dimension rank 129/219), with 18.1% of the network in the highest-risk band. Journeys: 210 standardised trips average -11.7 (rank 22/219; 90th percentile 5.3). Access: composite low-stress accessibility 0.596 (rank 39/219); 11% of 1,901,218 residents are locked to high-stress streets at the central threshold, against 3,106 km of low-stress network. Leading risk drivers on its streets: Legal Dismount, Motor-traffic volume, Score cap. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

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90. VIGO ES · INDEX 61.0 · INTERVAL 76–127 · TIER 2 (MIDDLE) · TIER STABILITY 86%

Vigo holds an uneven profile — strongest on street-network risk (rank 54), weakest on journey risk (rank 156). Streets: mean comparable risk 52.1 per km over 1,171 street-km (dimension rank 54/219), with 8.5% of the network in the highest-risk band. Journeys: 210 standardised trips average 26.4 (rank 156/219; 90th percentile 54.4). Access: composite low-stress accessibility 0.435 (rank 93/219); 1% of 295,956 residents are locked to high-stress streets at the central threshold, against 1,039 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, Heavy-vehicle access. Leading protections: Signed ≤30 km/h zone, Residential street.

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156. VILNIUS LT · INDEX 46.6 · INTERVAL 149–162 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 70%

Vilnius holds a balanced profile. Streets: mean comparable risk 61.6 per km over 3,462 street-km (dimension rank 130/219), with 9.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 22.7

(rank 148/219; 90th percentile 47.6). Access: composite low-stress accessibility 0.281 (rank 167/219); 82% of 466,507 residents are locked to high-stress streets at the central threshold, against 1,643 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Incline. Leading protections: Bicycle Designated, Signed ≤30 km/h zone.

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45. VITORIA-GASTEIZ ES · INDEX 75.7 · INTERVAL 39–56 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Vitoria-Gasteiz holds an uneven profile — strongest on journey risk (rank 34), weakest on street-network risk (rank 82). Streets: mean comparable risk 57.2 per km over 641 street-km (dimension rank 82/219), with 7.9% of the network in the highest-risk band. Journeys: 210 standardised trips average -9.0 (rank 34/219; 90th percentile 10.5). Access: composite low-stress accessibility 0.565 (rank 44/219); 5% of 270,907 residents are locked to high-stress streets at the central threshold, against 1,113 km of low-stress network. Leading risk drivers on its streets: Incline, Track Grade 4/5, Score cap. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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111. WARSAW PL · INDEX 58.2 · INTERVAL 67–137 · TIER 2 (MIDDLE) · TIER STABILITY 79%

Warsaw holds an uneven profile — strongest on journey risk (rank 43), weakest on street-network risk (rank 159). Streets: mean comparable risk 64.0 per km over 5,462 street-km (dimension rank 159/219), with 12.4% of the network in the highest-risk band. Journeys: 210 standardised trips average -6.2 (rank 43/219; 90th percentile 9.0). Access: composite low-stress accessibility 0.400 (rank 115/219); 91% of 1,750,470 residents are locked to high-stress streets at the central threshold, against 2,350 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

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176. WIESBADEN DE · INDEX 37.1 · INTERVAL 165–188 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 100%

Wiesbaden holds an uneven profile — strongest on low-stress access (rank 147), weakest on journey risk (rank 191). Streets: mean comparable risk 63.5 per km over 1,159 street-km (dimension rank 171/219), with 16.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 42.9 (rank 191/219; 90th percentile 61.2). Access: composite low-stress accessibility 0.334 (rank 147/219); 74% of 269,254 residents are locked to high-stress streets at the central threshold, against 1,124 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Track Grade 4/5, Incline. Leading protections: Car-Free Zone, Signed ≤30 km/h zone.

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80. WROCŁAW PL · INDEX 65.0 · INTERVAL 66–99 · TIER 2 (MIDDLE) · TIER STABILITY 66%

Wrocław holds an uneven profile — strongest on journey risk (rank 61), weakest on street-network risk (rank 121). Streets: mean comparable risk 58.6 per km over 2,666 street-km (dimension rank 121/219), with 11.8% of the network in the highest-risk band. Journeys: 210 standardised trips average -0.5 (rank 61/219; 90th percentile 13.8). Access: composite low-stress accessibility 0.480 (rank 70/219); 94% of 596,147 residents are locked to high-stress streets at the central threshold, against 1,374 km of low-stress network. Leading risk

drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), Track Grade 4/5. Leading protections: Signed ≤30 km/h zone, Bicycle Designated. Notes: straddles a tier boundary under respecification.

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161. WUPPERTAL DE · INDEX 43.8 · INTERVAL 147–177 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 88%

Wuppertal holds an uneven profile — strongest on street-network risk (rank 117), weakest on journey risk (rank 187). Streets: mean comparable risk 58.4 per km over 1,462 street-km (dimension rank 117/219), with 11.3% of the network in the highest-risk band. Journeys: 210 standardised trips average 41.2 (rank 187/219; 90th percentile 82.8). Access: composite low-stress accessibility 0.321 (rank 152/219); 44% of 328,209 residents are locked to high-stress streets at the central threshold, against 1,129 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Car-Free Zone.

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151. ZAGREB HR · INDEX 47.7 · INTERVAL 136–164 · TIER 3 (HIGHER ASSESSED RISK) · TIER STABILITY 52%

Zagreb holds an uneven profile — strongest on street-network risk (rank 119), weakest on low-stress access (rank 181). Streets: mean comparable risk 61.1 per km over 2,595 street-km (dimension rank 119/219), with 8.6% of the network in the highest-risk band. Journeys: 210 standardised trips average 15.8 (rank 123/219; 90th percentile 45.5). Access: composite low-stress accessibility 0.242 (rank 181/219); 91% of 525,428 residents are locked to high-stress streets at the central threshold, against 1,162 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, On-road stress (speed × lanes). Leading protections: Bicycle Designated, Cycleway/Sidewalk. Notes: straddles a tier boundary under respecification.

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47. ZARAGOZA ES · INDEX 75.0 · INTERVAL 44–56 · TIER 1 (LOWER ASSESSED RISK) · TIER STABILITY 100%

Zaragoza holds a balanced profile. Streets: mean comparable risk 56.1 per km over 1,679 street-km (dimension rank 61/219), with 5.0% of the network in the highest-risk band. Journeys: 210 standardised trips average -0.6 (rank 58/219; 90th percentile 25.0). Access: composite low-stress accessibility 0.552 (rank 49/219); 12% of 749,796 residents are locked to high-stress streets at the central threshold, against 2,848 km of low-stress network. Leading risk drivers on its streets: Incline, Motor-traffic volume, Heavy-vehicle access. Leading protections: Cycleway/Sidewalk, Signed ≤30 km/h zone.

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135. ZURICH CH · INDEX 52.3 · INTERVAL 120–153 · TIER 2 (MIDDLE) · TIER STABILITY 77%

Zurich holds an uneven profile — strongest on street-network risk (rank 98), weakest on journey risk (rank 165). Streets: mean comparable risk 55.3 per km over 1,052 street-km (dimension rank 98/219), with 12.0% of the network in the highest-risk band. Journeys: 210 standardised trips average 29.0 (rank 165/219; 90th percentile 41.2). Access: composite low-stress accessibility 0.375 (rank 129/219); 32% of 404,189 residents are locked to high-stress streets at the central threshold, against 852 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, Incline, On-road stress (speed × lanes). Leading protections: Signed ≤30 km/h zone, Car-Free Zone.

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93. ŁÓDŹ PL · INDEX 60.4 · INTERVAL 88–113 · TIER 2 (MIDDLE) · TIER STABILITY 93%

Łódź holds an uneven profile — strongest on journey risk (rank 73), weakest on low-stress access (rank 117). Streets: mean comparable risk 59.2 per km over 2,949 street-km (dimension rank 108/219), with 9.2% of the network in the highest-risk band. Journeys: 210 standardised trips average 3.8 (rank 73/219; 90th percentile 23.6). Access: composite low-stress accessibility 0.394 (rank 117/219); 93% of 645,433 residents are locked to high-stress streets at the central threshold, against 1,093 km of low-stress network. Leading risk drivers on its streets: Motor-traffic volume, On-road stress (speed × lanes), 50 km/h limit. Leading protections: Cycleway/Sidewalk, Separated cycle track.

9. Robustness, sensitivity, and audits

Beyond the 2,000 respecifications, three targeted audits were run before publication. (1) *Formulation sensitivity:* the three adopted street-set rules (bypass exclusion, mandatory-sidepath treatment, threshold-averaged access) move the median city 6 places of 219 against the unmodified formulation (rank correlation 0.98), change 20 tier memberships, improve confident placement from 173 to 191, and leave the injury criterion unchanged — a correction of identified measurement artifacts, not a re-ranking. (2) *The first place:* Stockholm's lead was audited against tagging completeness (94% explicit speed limits), boundary composition (street density comparable to Copenhagen's), and its unusually low modelled traffic load; even tripling that load to the peer median leaves it on the podium. Its one-point margin over Helsinki is inside both intervals and is not a claim. (3) *A case study in artifact-hunting:* an inversion between two Romanian cities (Timișoara below Bucharest) was traced to three artifacts — an in-boundary ring road, undetected mandatory-sidepath carriageways, and a threshold cliff — whose corrections became the adopted formulation.

10. Limitations

- Junction design is under-measured; the validated severity signal is mid-block.
- The traffic layer is a congestion-calibrated model behaving as a road-class proxy, not a volume measurement.
- Country-adjusted outcome validation is inconclusive at n = 17 panel cities in five countries; between-country comparisons inherit national reporting differences.
- Cities are administrative municipalities of very different sizes; the Canary Islands lie outside coverage; Romania is over-represented by design history.
- OSM completeness varies; corrections (legal defaults, sidepath law, parallel-track detection) reduce but cannot eliminate tagging-culture effects.
- Weather, theft, bicycle parking, modal share and culture are not measured at all.

11. Reproducibility

Built from a single pinned export of the production risk model with the traffic layer extended to all indexed cities (verified byte-identical on the prior baseline), via the pipeline slice → parallel-track detection → comparability corrections → three pillars → normalisation → 2,000 respecifications. Route sampling used the live read-only endpoint, throttled. Component weights are proprietary; no result in this report requires them. This report is archived open-access at DOI 10.5281/zenodo.22771452 (CC-BY-4.0), with the per-city data supplement. The public summary of this report is published as *Streets, Not Reputations*; the underlying tiers release and its criterion analysis are published separately.

KEY REFERENCES

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