2021 National List of Major Freight Highway Bottlenecks and Congested Corridors
Federal Highway Administration (FHWA) Freight Mobility Trends: Truck Hours of Delay

The following table lists the top Interstate bottlenecks and congested corridors in the U.S. based on Annual Truck Hours of Delay per Mile from 2021. The U.S. Federal Highway Administration (FHWA) used the Freight Mobility Trends tool with data from the National Performance Management Research Data Set (NPMRDS) to develop the list (https://npmrds.ritis.org).

Annual Truck Hours of Delay per Mile is calculated for each Interstate segment using the 2021 NPMRDS travel time data as follows:

- Delay is calculated for each 15-minute time period as the difference between actual travel time and reference travel time. Reference travel time is based on 85th percentile speed during off-peak and overnight time periods.

- Delay for each 15-minute time period is multiplied by 15-minute truck volumes. Truck volumes are estimated from annual average daily truck traffic (AADTT) using typical time-of-day traffic volume profiles. Delay for each 15-minute time period is aggregated to get annual truck hours of delay.

- The total number of truck hours of delay is then divided by the segment length to get total truck hours of delay per mile, allowing for the comparison of all roadway sections across the National Highway System.

This analysis has been conducted for 2017 through 2021 to compare trends in congestion and delay. The use of delay per mile for assessing bottlenecks is a consistent measure that allows for comparing performance over the entire Interstate system from year to year and across all States. Annual truck hours of delay are quantified along corridors, as opposed to individual points, to consider the full delay that a truck would experience driving along a congested corridor.

The segment data for annual truck hours of delay were used as a starting point and validated against other data sources. The top bottleneck locations were compared with the bottlenecks identified by States in their State Freight Plan and 2018 and 2020 Transportation Performance Management Performance Reports. Finally, the FHWA Office of Operations' Office of Freight Management and Operations coordinated the locations with the FHWA Division Offices and State Departments of Transportation (DOTs) for review and comment.

A new metric added to the bottleneck table is total annual metric tons of carbon dioxide (CO_2) emission generated from trucks per mile of bottleneck roadway along bottleneck segment.

Table 1 lists the route, urban area, and State ranked by 2021 truck hours of delay per mile.

- **Most congested bottleneck segment:** Annual truck hours of delay per mile is determined at the most congested segment of the corridor. Delay will be lower along other segments of the corridor. Information is provided for AADTT, annual truck hours of delay, planning time index (PTI), buffer index (BI), travel time index (TTI), travel reliability index (TRI), and metric tons (MT) of CO_2 emissions per mile from trucks for the most congested segment of the corridor.

- **Full congested corridor:** Limits of congested corridor, corridor length, and total corridor congestion cost are calculated for the full extent of delay along the congested corridor, which may include multiple bottleneck segments.

Table 1. National List of Major Freight Highway Bottlenecks and Congested Corridors Based on Truck Hours of Delay per Mile, 2021 National Performance Management Research Data Set

2021 Rank	2020 Rank	Road	Urban Area, State	Limits of Congested Corridor	Corridor Length (Miles)	AADTT (Trucks)	Delay (Hours)	Delay/ Mile	Change From 2020	Change From 2019	PTI	BI	TTI	TRI	CO_2/ Mile (MT)	Total Congestion Cost of Full Corridor ($/year)
1	1	I–95/ I–295	New York-Newark, NY-NJ-CT	US-46 in NJ to I–278/I–678 in NY	12	26,626	2,182,899	340,120	86%	29%	11.98	271.4	3.86	2.11	87	$159,883,554
2	2	I–90/ I–94	Chicago, IL-IN	I–94N to I–55	10.5	16,052	1,140,838	123,947	79%	-12%	8.13	172.2	2.97	2.38	57	$63,058,035
3	27	I–71/ I–75	Cincinnati, OH-KY-IN	I–275 in KY to Western Hills in OH	9.2	21,302	543,489	109,555	286%	146%	5.44	130.6	2.25	1.41	48	$30,037,300
4	3	I–278	New York-Newark, NY-NJ-CT	I–95/I–678 to Grand Central Pkwy. and SR-27 Prospect Expy. to SR-29 Queens Blvd.	7.7 9.2	19,650	2,703,702	106,846	58%	21%	7.62	199.9	2.71	2.38	61	$149,451,493
5	23	I–80	San Francisco-Oakland, CA	US-101 to Bay Bridge and at I–580	10.7	15,758	717,622	105,254	254%	106%	8.09	215.6	2.5	1.78	46	$39,665,893
6	4	I–678	New York-Newark, NY-NJ-CT	I–495 to Belt Parkway and I–295/I–95 to south end Bronx-Whitestone Bridge	5.8 2.9	13,550	480,092	101,075	50%	1%	7.1	175.1	2.59	2.33	43	$26,538,634
7	15	I–10	Baton Rouge, LA	I–110 to SR-1	2.2	22,378	647,215	90,002	143%	56%	6.43	257.5	1.8	2.54	53	$35,771,085
8	31	I–80/ I–94	Chicago, IL-IN	I–294 to I–94	4.8	49,806	963,494	82,968	200%	28%	3.05	126.2	1.43	2.57	89	$53,248,838
9	-	I–69C	McAllen, TX	At I–2	2.7	17,046	236,951	78,304	133%	119%	4.45	136.8	1.83	2.05	44	$13,093,864
10	6	I–87	New York-Newark, NY-NJ-CT	I–278 to 230th St.	5.9	11,502	408,332	77,972	76%	20%	7.39	216.7	2.34	1.78	36	$22,570,472

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11	5	I–495	New York-Newark, NY-NJ-CT	Little Neck Parkway to Queens Midtown Tunnel	14.3	20,124	1,597,202	76,833	66%	8%	5.69	177.6	2.13	1.82	56	$88,287,636
12	11	I–45	Houston, TX	US-90 to I–69	4.2	18,374	593,798	73,569	85%	-13%	4.73	131.5	2.02	1.63	51	$32,817,007
13	8	I–35	Waco, TX	At 5th St.	1.4	29,552	630,635	72,581	68%	13%	4.64	193.6	1.57	2.86	58	$34,852,255
14	35	I–710	Los Angeles-Long Beach-Anaheim, CA	Cesar Chavez Ave. to Atlantic Blvd.	3	17,386	378,710	70,329	176%	-18%	6.2	231.7	1.77	2.9	45	$20,931,647
15	10	I–10	Los Angeles-Long Beach-Anaheim, CA	20th Street to I–5 and at I–605	15.3 6.0	16,674	1,385,645	68,351	66%	-21%	7.6	240.8	2.23	2.63	42	$76,583,680
16	7	I–75	Chattanooga, TN-GA	At I–24	1.6	23,078	102,909	66,083	50%	62%	4.39	150.8	1.71	1.53	45	$5,687,739
17	17	I–5	Los Angeles-Long Beach-Anaheim, CA	SR-134 Ventura Fwy. to I–605	19.8	16,674	1,320,114	63,774	85%	-7%	5.75	199.4	1.92	1.88	42	$72,966,141
18	16	I–290	Chicago, IL-IN	I–90/I–94 to I–294	13.5	14,894	617,075	62,566	79%	-34%	4.61	155.9	1.8	1.95	36	$34,107,314
19	9	I–35	Austin, TX	US 290 N to Ben White Blvd./SH 71	7.9	18,820	454,504	62,363	49%	-44%	5.97	190.9	2.05	1.73	32	$25,120,597
20	38	I–5	Seattle, WA	I–90 to 85th St. and SR-18 to Port of Tacoma Rd.	9.6 7.1	14,582	882,485	62,041	147%	-11%	5.74	216	1.99	2.54	37	$48,774,259
21	12	I–610	Houston, TX	I–69 to I–10 and at I–45	4.1 2.1	15,452	379,358	61,566	60%	-41%	5.71	210	1.93	2.49	42	$20,967,423
22	24	I–75/ I–85	Atlanta, GA	I–20 to I–75/I–85 split	4.2	14,710	326,884	61,019	109%	-4%	5.93	166.4	2.22	1.82	39	$18,068,079
23	36	I–285	Atlanta, GA	East/ SR-400 to US-78 and West/ I–20 to Northside Dr.	11.7 11.2	23,710	1,203,300	59,712	137%	11%	3.71	139.1	1.55	2.39	50	$66,501,658
24	-	I–40/ I–55	Memphis, TN-MS-AR	Between I–40 and I–55 split exits 279 and 277 in AR	2.7	29,118	158,998	59,510	661%	2309%	5.22	231.5	1.56	4.64	44	$8,786,757
25	22	I–69/ US-59	Houston, TX	SR-527 to I 10	4.4	13,774	350,962	58,407	95%	-35%	7.07	251.2	2.1	2.32	37	$19,396,490
26	18	I–405	Los Angeles-Long Beach-Anaheim, CA	At SR-73 and SR-2 Santa Monica Blvd. to SR-42 Manchester Blvd.	2.5 7.5	15,162	1,311,450	58,005	73%	-39%	5.89	207.1	1.94	2.7	38	$72,484,527

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27	54	I–75	Cincinnati, OH-KY-IN	SR-562 to SR-126	3	23,338	246,864	56,959	219%	65%	4.11	141.8	1.52	2.27	46	$13,644,113
28	39	I–105	Los Angeles-Long Beach-Anaheim, CA	I–405 to Long Beach Blvd.	13.7	16,674	767,698	55,564	122%	-14%	6.78	270.3	1.8	4.63	42	$42,429,278
29	-	I–55	Memphis, TN-MS-AR	I–40 and I–55 split in AR to Crump Blvd. on TN side of Mississippi River	4.7	21,294	144,247	54,996	1555%	1709%	6.61	323.4	1.55	5.85	44	$7,972,033
30	70	I–15	Las Vegas-Henderson, NV	I–515 to Tropicana Ave.	5.5	31,010	634,588	54,634	258%	147%	3.09	118.6	1.41	1.96	59	$35,068,519
31	14	I–24	Nashville-Davidson, TN	US-41 to SR-155	5.8	26,772	474,415	53,456	42%	-38%	3.74	171.5	1.49	3.05	57	$26,221,736
32	13	I–35W	Dallas-Fort Worth-Arlington, TX	At I–30	1.2	13,818	97,911	52,554	38%	111%	4.62	121.3	2.06	1.3	29	$5,411,445
33	73	I–93	Boston, MA-NH-RI	At I–90 and at SR-3	5.0 5.5	13,704	543,540	49,510	233%	81%	5.22	176.9	1.88	2.94	37	$30,042,839
34	29	I–24/ I–65	Nashville-Davidson, TN	I–65 to I–24	1.8	27,488	84,780	48,337	75%	50%	2.88	98.1	1.43	1.31	50	$4,685,762
35	20	I–95	Washington, DC-VA-MD	SR-123 to SR-286	6.3	17,652	595,518	46,146	41%	-6%	3.93	145	1.61	2.03	38	$32,912,098
36	53	I–80/ I–294	Chicago, IL-IN	I–94 to I–294	6.5	37,032	300,763	46,132	145%	40%	3.05	126.4	1.34	2.65	57	$16,622,028
37	64	I–10	Houston, TX	I–69 to I–45	2.1	19,098	291,811	44,603	176%	-75%	3.98	144.6	1.58	1.78		$16,128,461
38	26	I–25	Denver-Aurora, CO	I–70 to University Blvd.	8.7	24,402	350,753	43,161	52%	-23%	4.16	152	1.65	2.47	60	$19,386,789
39	52	I–24	Chattanooga, TN-GA	I–75 to US-41	3.5	39,326	610,877	42,780	125%	33%	3.95	186.6	1.38	3.58	90	$33,763,659
40	44	I–75	Atlanta, GA	I–85 to Moores Mill Rd.	3.3	16,804	261,395	42,285	95%	78%	4.85	208.3	1.57	2.5	36	$14,445,832
41	34	I–76	Philadelphia, PA-NJ-DE-MD	University Ave. to US-1	6.2	11,440	305,582	42,017	62%	-37%	5.39	188.5	1.84	2.06	33	$16,891,818
42	21	I–270	Denver-Aurora, CO	I–25 to I–70	5.8	10,750	182,009	40,436	32%	-19%	5.85	191.9	1.98	1.86	26	$10,059,745
43	32	I–5	Portland, OR-WA	Columbia River to Terwilliger Blvd.	10.5	19,440	503,062	40,407	48%	-27%	4.71	202.4	1.55	2.75	37	$27,804,513
44	49	I–10	New Orleans, LA	SR-49 to I–610 and at Pontchartrain Expy.	7.5 3.9	39,384	412,570	39,944	102%	-35%	4.3	153.1	1.7	2.23	82	$22,800,365

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45	45	I–55	Chicago, IL-IN	I–94 to SR-171	10	14,356	363,710	38,433	78%	-29%	4.89	181.9	1.69	2.22	32	$20,102,458
46	-	I–345/ US-75	Dallas-Fort Worth-Arlington, TX	Woodall Rodgers Fwy. to I–30	2	13,210	73,033	37,216	34%	5%	5.24	216.6	1.63	3.03	27	$4,036,493
47	19	I–30	Little Rock, AR	I–630 to I–40	2.9	40,520	334,023	36,188	9%	-30%	1.98	56	1.21	1.74	86	$18,461,092
48	48	I–95	Philadelphia, PA-NJ-DE-MD	At I–676	1.7	26,644	60,526	35,778	77%	0%	3.42	157.8	1.33	3.07	66	$3,345,131
49	47	I–635	Dallas-Fort Worth-Arlington, TX	I–35 to SR-78	14	18,302	624,526	35,693	73%	-4%	3.8	137	1.6	2.1	39	$34,515,016
50	40	I–676	Philadelphia, PA-NJ-DE-MD	I–76 to I–95	2.2	8,760	135,423	35,595	47%	-12%	4.69	142.4	2.03	1.64	26	$7,485,968
51	-	I–610	New Orleans, LA	At I–10	1.4	14,920	50,400	35,067	59%	-7%	4.8	220.4	1.49	3.65	39	$2,785,692
52	-	I–515	Las Vegas-Henderson, NV	I–15 to Flamingo Rd.	7.1	18,342	281,575	34,631	367%	171%	4.3	132.6	1.79	1.56	34	$15,561,856
53	63	I–15	Los Angeles-Long Beach-Anaheim, CA	At I–10	3.2	16,674	174,824	34,480	106%	-28%	3.07	114.1	1.42	2	38	$9,662,995
54	30	I–70	Denver-Aurora, CO	I–25 to I–270	4.8	16,580	144,385	34,127	23%	-36%	3.97	141.9	1.64	1.79	36	$7,980,896
55	71	I–294	Chicago, IL-IN	At I–290; and at I–90	6.1 3.9	31,888	351,488	33,250	118%	-21%	3.06	131.9	1.31	2.39	59	$19,426,409
56	28	I–30	Dallas-Fort Worth-Arlington, TX	I–35 to Grand Ave.	4	15,156	297,056	33,199	20%	6%	4.28	157.2	1.65	1.94	26	$16,418,607
57	33	I–95	Bridgeport-Stamford, CT-NY	At US-1 in Fairfield and at US-1 in Stamford	1.5 1.8	20,496	1,116,502	32,554	22%	19%	3.48	139.3	1.46	2.22	46	$61,708,615
58	55	I–95	New Haven, CT	I–91 to SR-10	1.8	15,794	58,948	32,277	82%	20%	3.92	172.6	1.43	2.98	32	$3,258,121
59	61	I–15	Riverside-San Bernardino, CA	At SR-91	2.2	11,350	113,529	32,247	92%	-33%	6.66	245.2	2.05	3.73	30	$6,274,869
60		I–15	Ogden-Layton, UT	I–84 to 650 N	4	24,584	172,848	32,081	101%	33%	3.38	155.6	1.32	2.85	58	$9,552,901
61	86	I–90	Chicago, IL-IN	I–90/94 to I–294	6.7	22,800	352,554	31,695	166%	-27%	6.29	160.3	2.42	2.5	40	$19,483,539
62	65	I–110	Los Angeles-Long Beach-Anaheim, CA	I–10 to SR-42 Stauson Ave.	3.4	11,556	96,545	31,370	94%	-36%	4.86	158.3	1.86	2.04	25	$5,336,276
63	90	I–64	St. Louis, MO-IL	Market St. to I–70 (over Mississippi River)	5	10,130	41,181	30,634	170%	-28%	3.47	129.8	1.42	2.94	30	$2,275,952

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64	58	I–880	San Francisco-Oakland, CA	SR-92 to SR-84	6.4	16,524	268,839	30,103	75%	-9%	3.02	109.3	1.43	1.62	38	$14,858,141
65		I–45	Dallas-Fort Worth-Arlington, TX	Illinois Ave to Wright Fwy.	3.4	16,680	101,570	29,874	206%	89%	2.93	89.6	1.42	1.47	36	$5,613,271
66	51	I–695	Baltimore, MD	I–95 to I–795	10.1	19,174	31,097	29,491	53%	-36%	2.73	110.4	1.3	2.11	48	$1,718,878
67	46	I–605	Los Angeles-Long Beach-Anaheim, CA	I–5 to SR-60	6.5	16,024	179,208	29,179	38%	-79%	3.27	94.4	1.68	1.43	34	$9,905,503
68	69	I–215	Riverside-San Bernardino, CA	I–10 to SR-80	5.9	14,384	435,697	28,811	88%	-18%	2.92	79.5	1.54	1.28	31	$24,083,078
69	41	I–35E	Dallas-Fort Worth-Arlington, TX	I–30 to John W. Carpenter/SH 183	2.8	17,298	117,682	28,780	23%	-23%	3.02	111.3	1.42	1.69	35	$6,505,010
70	68	I–210	Los Angeles-Long Beach-Anaheim, CA	SR-39/164 Azusa Ave. to SR-19 Rosemead Blvd	10	19,966	255,762	28,244	80%	-53%	2.87	116.3	1.36	1.8	44	$14,136,524
71	74	I–580	Concord, CA	At I–680	1.1	16,674	30,924	28,133	96%	-42%	3.66	166.8	1.37	3.01	35	$1,709,154
72	43	I–94	Chicago, IL-IN	I–90/94 to US-14	2.3	16,000	91,783	27,301	23%	-19%	3.03	117.7	1.39	1.63	33	$5,072,824
73	50	I–405	Seattle, WA	I–90 to SR-520	3.7	10,364	121,276	27,213	40%	-33%	4.35	171.6	1.56	2.27	27	$6,702,947
74	62	I–85	Atlanta, GA	I–75 to SR 13/141 and I–285 to SR-378	2.8 6.6	23,884	322,228	27,192	63%	-28%	5.32	169.4	1.96	1.8	50	$17,807,833
75	79	I–580	San Francisco-Oakland, CA	At I–980 and at US-101	1.4	16,674	37,888	26,717	106%	-31%	3.07	100.5	1.47	1.6	36	$2,093,729
76	80	I–10	Riverside-San Bernardino, CA	At I–215	8.5	20,308	223,143	26,329	345%	-16%	2.35	80.4	1.27	1.64	45	$12,333,853
77	66	I–24/ I–40	Nashville-Davidson, TN	I–24 to I–65	3.0	12,032	42,086	25,217	57%	-26%	3.11	111.9	1.46	1.48	25	$2,326,247
78	79	I–40	Memphis, TN-MS-AR	At I–55	2.8	19,464	71,443	24,961	95%	911%	1.9	33.2	1.4	1.77	26	$3,948,148
79		I–70	Rural, IN	SR-9 to N 600 W	9.6	18,104	231,819	24,229	608%	276%	3.51	138	1.46	1.61	35	$12,813,635
80	98	I–20	Dallas-Fort Worth-Arlington, TX	At SR-360	5.8	26,572	139,885	24,095	123%	106%	1.97	56.6	1.22	1.39	50	$7,730,484
81	88	I–40	Knoxville, TN	At I–140	2.3	20,680	54,804	24,063	108%	20%	2.64	108.7	1.25	2.24	37	$3,028,903
82	-	I–110	El Paso, TX-NM	I–10 to Mexican border	0.7	2,168	16,422	23,785	166%	379%	11.22	130.8	4.8	1.24	5	$907,489

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83	-	I–205	Rural, CA	At I–580	4.0	13,870	89,660	23,343	31%	-43%	4.24	197	1.43	3.04	29	$4,955,402
84	-	I–630	Little Rock, AR	At I–30	0.7	33,186	15,886	23,312	127%	-3%	1.8	46.6	1.22	1.37	55	$877,947
85	37	I–495	Washington, DC-VA-MD	I–66 (VA) to I–95 (MD)	19.5	8644	83,856	23,167	264%	72%	2.39	90	1.25	1.84	38.42	$5,515,292
86	-	I–74/ I–465	Indianapolis, IN	I–65 to SR-37	4.3	20,244	99,783	23,167	264%	72%	2.39	89.9	1.25	1.84	38	$5,515,292
87	75	I–12	Baton Rouge, LA	At I–10	3.1	19,292	72,240	23,108	62%	-2%	2.07	65.9	1.24	1.88	43	$3,992,476
88	59	I–10	Lake Charles, LA	At I–210	9.3	29,982	208,203	22,434	31%	-63%	1.57	32.8	1.17	1.4	59	$11,506,626
89	77	I–20	Atlanta, GA	I–285 to SR-6	6.0	11,800	133,215	22,379	73%	16%	2.98	108.7	1.43	1.69	28	$7,363,013
90	78	I–820	Dallas-Fort Worth-Arlington, TX	At I–35W	3.0	8,596	66,133	22,237	72%	379%	3.61	98.5	1.68	1.37	22	$3,655,498
91	76	I–376	Pittsburgh, PA	Fort Pitt Bridge to Squirrel Hill	4.5	5,156	35,777	22,195	58%	-29%	5.19	211.7	1.67	2.7	17	$1,977,539
92	60	I–95	Aberdeen-Bel Air South-Bel Air North, MD	SR 24 to SR 152	1.6	23,414	35,629	21,597	28%	-40%	2.76	117.5	1.27	2.31	52	$1,969,047
93	-	I–55	St. Louis, MO-IL	I–44 and I–64	1.5	17,276	33,118	21,408	264%	83%	2.72	106.6	1.29	2.09	29	$1,830,424
94	-	I–287	New York-Newark, NY-NJ-CT	I–87 to SR-100	2.5	20,914	52,564	21,385	90%	-32%	2.03	62.5	1.23	1.26	40	$2,905,230
95	-	I–35	San Antonio, TX	At I–10	4.4	24,856	92,582	21,195	111%	-46%	2.22	79.6	1.22	1.6	56	$5,116,612
96	-	I–65	Nashville, TN	At SR-386	2.6	13,768	53,488	20,874	84%	4%	3.44	156	1.33	2.75	25	$2,955,977
97	-	I–5	San Diego, CA	Via de la Valle to Encinitas Blvd	5.2	16,674	105,443	20,351			2.69	108	1.29	2.05	37	$31,211,000
98	-	I–4	Tampa, FL	East of I–275	5.8	13,750	110,354	19,103	68%	-12%	1.36	61	2.32	1.32	29	$16,630,000
99	-	I–95	Miami, FL	Florida Turnpike to I–395	7.7	4,816	147,218	19,018	72%	-13%	3.90	146	1.58	2.00	20	$8,136,264
100	-	I–94	Milwaukee, WI	At I–41/I–894	2.9	7,004	43,760	15,219	75%	-19%	2.6	102	1.27	2.03	29	$2,418,631

AADTT = average daily truck traffic; BI = buffer index; PTI = planning time index; TRI = travel reliability index; TTI = travel time index.

Information is provided in the table for the overall congested corridor, bottleneck segment with the greatest delay, and congestion costs for all congested segments with the urbanized area.

- **Limits of Congested Corridor and Corridor Length:** The extent of congestion of the primary bottleneck on the corridor is estimated based on review of corridor congestion scans in the NPMRDS and review of State Freight Plans. For major congested corridors, the described limits of the congested corridor may include multiple contiguous bottlenecks. For corridors with multiple distinct bottleneck locations, two corridors will be noted. These locations have been further refined based on review of 2021 NPMRDS data and State 2020 Performance Reports.
- **Bottleneck Segment with Greatest Delay:** The following information is provided for the segment along the corridor with the greatest truck hours of delay per mile:
  - **AADTT (Trucks):** NPMRDS total of single-unit and combination trucks conflated from Highway Performance Monitoring System (HPMS). Note, the prior year HPMS data are conflated to the NPMRDS at the beginning of each year. Therefore, the 2021 NPMRDS shows traffic counts taken in 2018.
  - **Delay per mile:** Annual truck hours of delay determined as the difference between actual travel time and reference travel time ("free-flow" travel time), multiplied by truck volumes for the segment with the greatest delay. Annual truck hours of delay is divided by the segment length to provide the delay per mile. For larger bottlenecks that span multiple roadway segments, delay is provided for the most congested segment and direction of the bottleneck, not the full corridor.
  - **Change from 2020:** The percent change in annual truck hours of delay per mile from 2020 to 2021.
  - **Change from 2019:** The percent change in annual truck hours of delay per mile from 2019 to 2021 is provided for a comparison to pre-COVID-19 global pandemic traffic conditions.
  - **PTI:** Ratio of the 95th percentile travel time to the reference travel time ("free-flow" travel time), computed during the AM and PM peak periods.
  - **BI:** Represents the extra time (or time cushion) that travelers must add to their average travel time when planning trips to ensure on-time arrival.
  - **TTI:** Ratio of the peak-period travel time to the reference travel time ("free-flow" travel time), computed for the AM and PM peak periods.
  - **TRI:** Ratio of the 95th percentile travel time to the 50th percentile travel time during five different time periods of the day. Calculated similar to the Moving Ahead for Progress in the 21st Century Act (MAP-21) (Pub. L. No. 112-141) performance measure for truck travel time reliability (TTTR); however, results will differ from the NPMRDS TTTR due to differences in route segmentation.

- **CO_2 per Mile:** Total annual metric tons of CO_2 generated from trucks per mile of bottleneck roadway along segment.

- **Total Congestion Cost of Full Corridor ($/year):** Calculated for the full extent of delay along the congested corridor as a function of both the time and fuel used while the truck is in congested traffic, factoring costs of personnel, commercial vehicle operation, and wasted fuel. For major bottlenecks with long congestion queues, the full corridor will include multiple roadway segments. For major congested corridors, the congestion cost will include the full cost of congestion along the corridor through the entire urban area, which may include multiple bottlenecks. The congestion cost may include delay at other congested segments beyond the primary bottleneck in the urban area.

Changes Between 2020 and 2021

There was an overall increase in delay for nearly all bottlenecks as traffic volumes began to resume after the 2020 COVID-19 global pandemic stay-at-home orders. Nationwide, there was a reduction in total truck delay on the Interstate system of 41 percent between 2019 and 2020 followed by an increase in 2021. Total truck delay on the Interstate system in 2021 returned to 84 percent of 2019 pre-COVID-19 global pandemic delay.

Although there was a large increase in delay for nearly all bottlenecks, the following bottlenecks saw the greatest relative percent increase in delay between 2020 and 2021. Major roadwork was another source of increased delay on certain routes. As table 2 shows, the emergency closure of the I–40 Hernando DeSoto Bridge over the Mississippi River caused the largest increase in delay on I–55 and other roadways in the Memphis, TN-AR area.

Table 2. Greatest Increase in Delay Between 2020 and 2021

Road	Urban Area, State	Percent Increase in Delay Per Mile From 2020
I–55	Memphis, TN-MS-AR	1555%
I–40/ I–55	Memphis, TN-MS-AR	661%
I–70	Rural, IN	608%
I–515	Las Vegas-Henderson, NV	367%
I–580	San Francisco-Oakland, CA	363%
I–71/ I–75	Cincinnati, OH-KY-IN	286%
I–74/ I–465	Indianapolis, IN	264%
I–55	St. Louis, MO-IL	264%
I–15	Las Vegas-Henderson, NV	258%
I–80	San Francisco-Oakland, CA	254%

Based on changes to truck hours of delay per mile, the following bottlenecks saw a relative increase in delay, moving the locations to the top 100 bottlenecks, or a relative decrease in delay, dropping the locations below the top 100 bottlenecks.

The following bottlenecks were added to the list in 2021:

Table 3. Locations Added to Top 100 Between 2020 and 2021

Road	Urban Area, State
I–55	Memphis, TN-MS-AR
I–40/ I–55	Memphis, TN-MS-AR
I–70	Rural, IN
I–515	Las Vegas-Henderson, NV
I–74/ I–465	Indianapolis, IN
I–55	St. Louis, MO-IL
I–45	Dallas-Fort Worth-Arlington, TX
I–110	El Paso, TX-NM
I–69C	McAllen, TX
I–630	Little Rock, AR
I–35	San Antonio, TX
I–15	Ogden-Layton, UT
I–287	New York-Newark, NY-NJ-CT
I–610	New Orleans, LA
I–345/ US-75	Dallas-Fort Worth-Arlington, TX
I–205	Rural, CA
I–5	San Diego, CA
I–4	Tampa-St. Petersburg, FL
I–94	Milwaukee, WI

The following bottlenecks from 2020 dropped off the list in 2021:

Table 4 Locations Removed From Top 100 Between 2020 and 2021

Road	Urban Area, State
I–680	San Francisco-Oakland, CA
I–580	Livermore, CA
I–435	Kansas City, MO-KS
I–15	Salt Lake City, UT
I–95	Washington, DC-MD-VA
I–78	New York-Newark, NY-NJ
I–84	Waterbury, CT
I–39	Rockford IL
I–70	St. Louis, MO
I–270	St. Louis, MO
I–4	Orlando, FL
I–270	Washington, DC-MD-VA
I–225	Denver-Aurora, CO
I–95	Fredericksburg, VA
I–295	New York-Newark, NY-NJ-CT
I–80/	Chicago, IL-IN
I–35	Kansas City, MO-KS
I–15	Murrieta-Temecula-Menifee, CA
I–75	Toledo, OH

Mapped Locations

Figure 1 shows the top Interstate bottlenecks in the United States as listed in table 1 based on Annual Truck Hours of Delay per Mile for 2021.

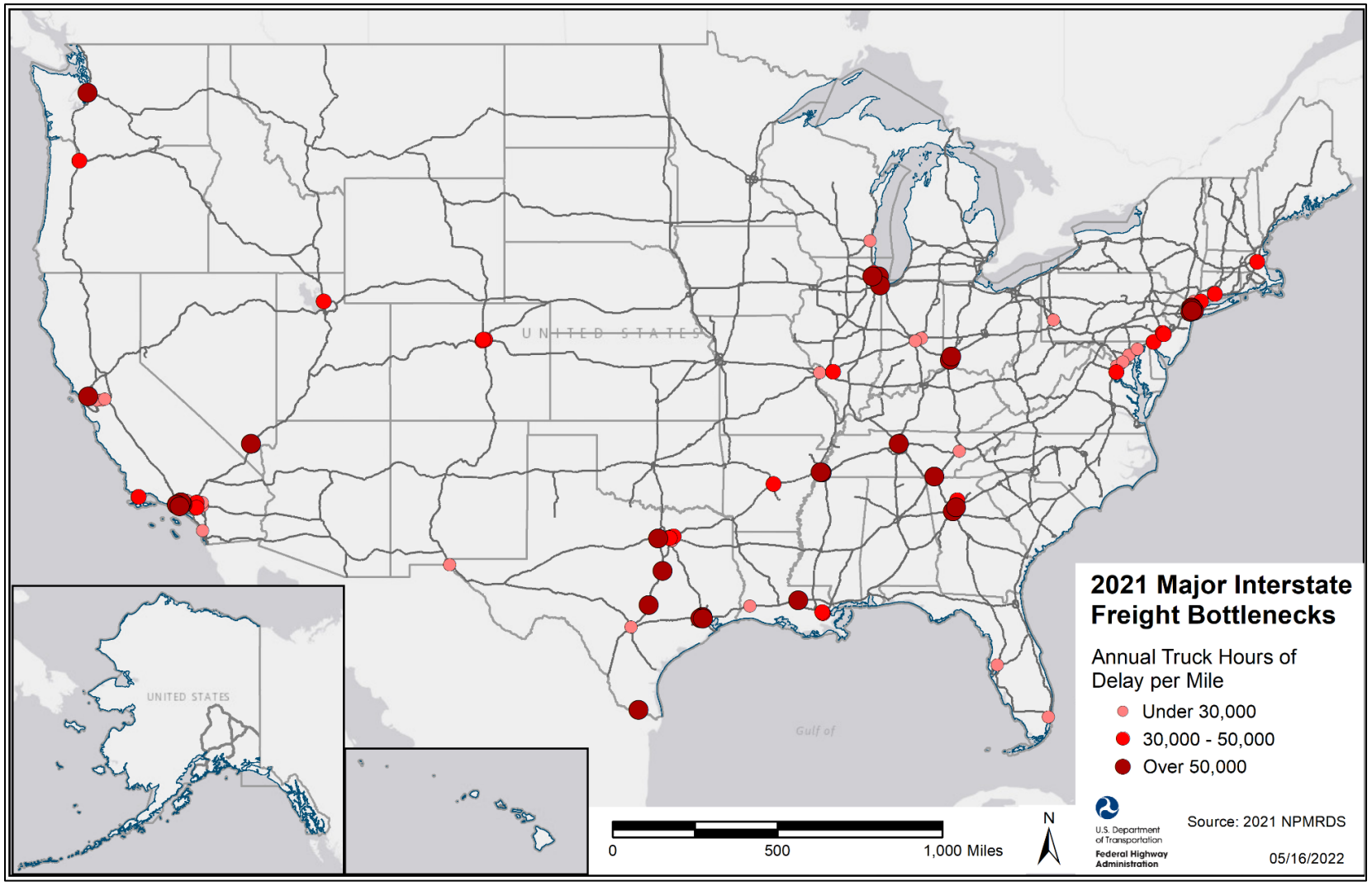

Figure 1. Map. Major Interstate Highway Freight Bottlenecks Based on Annual Truck Hours of Delay per Mile, 2021 National Performance Management Research Data Set

Other Bottlenecks

The analysis in this report uses delay per mile for assessing bottlenecks to allow for comparison over the entire Interstate system across all States. Individual State DOTs and metropolitan planning organizations use a range of bottleneck identification methods based on their freight plan development process and local traffic characteristics, infrastructure constraints, and impediments to efficient freight movement.

There is a range of methods for measuring congestion, delay, and reliability. Reliability is another factor that is important to the freight industry and can be measured with metrics such as the TTTR or some of the other indices listed in table 1.

In addition to congestion-based delay, some truck freight bottlenecks can be attributed to infrastructure restrictions that uniquely impact trucks, such as bridges with weight or clearance restrictions; steep grades; frequent adverse weather; or constraints at facilities, such as ports, intermodal rail facilities, and border crossings.

Individual State Freight Plans should be reviewed for additional information on the various types of freight bottlenecks.

Disclaimer

Except for the statutes and regulations cited, the contents of this document do not have the force and effect of law and are not meant to bind the States or the public in any way. This document is intended only to provide information regarding existing requirements under the law or agency policies.