New York City DOT Vision Zero & Big Data

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NYCDOT & Vision Zero

NYC Open Data

City Fleet Telematics

Yellow and Green Taxi GPS

MTA Bus Time

NYC VS. USA TRAFFIC FATALITIES

Total Fatalities

Pedestrian Fatalities

Traffic Fatalities per 100,000 Residents





USA data excludes NYC; Average of last 3 years available data nyc.gov/dot





What is Vision Zero in NYC

- Led by City Hall
- Prominent
- Multi-Agency
- Funded
- Comprehensive
 - Engineering
 - Enforcement
 - Education
 - Policy



Priority Geographies

- Developed for 5 Vision Zero Borough Pedestrian Safety Action Plans (2015)
- To prioritize engineering, enforcement & education
- Priority Corridors highest pedestrian KSI per mile = 50% of total
- Priority Intersections highest pedestrian KSI, account 15% of total
- Priority Areas highest density of pedestrian KSI crashes per square mile = 50% of total



Vision Zero: Year 1 Accomplishments

- DOT & NYPD Street Teams
- Public information campaigns
- Passage of Speed camera bill
- 25mph default speed limit
- 27 Arterial Slow Zones
- 57 Safety Engineering Projects





Vision Zero: Year 2

- 80 Safety engineering projects
- 12 protected bike lane miles
- 400+ LPIs at Priority Corridors and Intersections
- Targeted safety education and outreach
- Enhanced street lighting on Priority Corridors
- 140 speed cameras installed by mid-September
- 9 completed Neighborhood Slow Zones
- 340 speed humps installed

2015 Safety Engineering Project: *Intervale Ave, The Bronx*







PEDESTRIAN TRAFFIC FATALITIES





Search Q

Click here for the official list of NYC datasets



Business



City Government



Health



Housing & Development



Education



Environment



Public Safety



Recreation



Social Services



Transportation



NYC BigApps

- NYC Open Data launched in 2011
- In 2012, the New York City Council approved Local Law 11, requiring all city agencies to open their data by 2018
- Repository of 1350+ government-produced, machine-readable data sets
- Socrata platform
 - Provides metadata, raw download, generates automatic & consistent API
- https://nycopendata.socrata.com





STATEN ISLAND

City Fleet Telematics for Vision Zero

- Part of the City's Automated Fuel Management System with EJ Ward, NYC is currently rolling out tracking devices called CANceivers on all City fleet vehicles
- Covers all major agencies, including Sanitation, Police, Fire, Parks, Transportation
 - 20,000 (out of 27,000) installations to date
- OBDII interface
- WiFi update capability
- No manual entry once the vehicle arrives at the terminal
- CANceivers track up to 30 variables including:
 - Location
 - Speed
 - Hard Braking
 - Hard Acceleration
 - Seat Belt Usage





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bet bet <td>Agency</td> <td>Unit Number</td> <td>CANceiver</td> <td>Odometer</td> <td>Driven</td> <td>Collisions</td> <td>Collisions</td> <td>Collisions</td> <td>Light</td> <td>Lane</td> <td>Zone</td> <td>Events</td> <td>Speed</td> <td>Events</td> <td>Events</td> <td>Events</td> <td>Acceleration</td> <td>Events</td> <td>Braking</td> <td>Compliance</td>	Agency	Unit Number	CANceiver	Odometer	Driven	Collisions	Collisions	Collisions	Light	Lane	Zone	Events	Speed	Events	Events	Events	Acceleration	Events	Braking	Compliance
567 No N/A				Event					-			per 100mi	Events	50-64mph	65mph+	per 100mi	Events	per 100mi	Events	
385 Ye 64/2015 178 0 0 0 0 18 15 5 1.12 2 4.21 75 NA 387 Ye 773/2020 3.44 0 0 1 0 0 1.14 18 15 5 1.14 156 1.14 1.14 1.15 1.14 1.15 1.14 1.15 1.14 1.15 1.14 1.15 1.14 1.15 1.14 1.15 1.14 1.15 1.14 1.15<		367	No	N/A	N/A	0	0	0	1	0	0	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
386 Ye 73/3/2015 3.441 0 0 0 0 1.514 263 544 5.52 1.57 1.781 6.23 NA 387 Ye 77.3/2020 1.181 0 0 0 0 0 1.514 288 5 0.124 1.514 2.62 7.62 7.62 7.62 7.62 7.64 7.62		385	Yes	6/4/2015	178	0	0	0	0	0	0	10.11	18	15	3	1.12	2	42.13	75	N/A
387 YWE 7/32/2015 1,48 0 0 1 0 0 0 1,43 120 1,88 5 10,14 1,36 31,23 4,29 NAA 388 YWE 7/32/2015 1,79 0 0 0 0 0 1,73 1,60 42 24,60 27,1 1,48 1,45 <td></td> <td>386</td> <td>Yes</td> <td>7/31/2015</td> <td>3,499</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>21.06</td> <td>737</td> <td>643</td> <td>94</td> <td>3.92</td> <td>137</td> <td>17.81</td> <td>623</td> <td>N/A</td>		386	Yes	7/31/2015	3,499	0	0	0	0	0	0	21.06	737	643	94	3.92	137	17.81	623	N/A
388 Yie 7,3/2/2015 1,158 0 0 0 0 1,389 1,27 10 6,22 70 25,43 256 NA 389 Yie 61/2/2015 1,169 0 0 0 0 1,138 1,28 1,25 1,145 1,7 145 16,7 186 NA 390 Yie 7/1/2/2015 1,27 0 0 0 0 0 1,458 70 1,451 1,45 1,45 1,44 124 1,41 144 144 144 144 144 144 144 144 144 144 144 144 144 144 144 </td <td></td> <td>387</td> <td>Yes</td> <td>7/29/2015</td> <td>1,341</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>0</td> <td>15.14</td> <td>208</td> <td>198</td> <td>5</td> <td>10.14</td> <td>136</td> <td>31.25</td> <td>419</td> <td>N/A</td>		387	Yes	7/29/2015	1,341	0	0	1	0	0	0	15.14	208	198	5	10.14	136	31.25	419	N/A
386 Yre 7/3/2015 975 0 0 0 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 1 0 1 0 1 0 1 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 1 1 1 0 0 0 0 0 0 0 0 1 1 1 1 1 0 0 0 0 0 1 1 1 0 0 0 0 1		388	Yes	7/31/2015	1,163	0	0	0	0	0	0	14.53	169	157	12	6.02	70	25.45	296	N/A
390 Yes 6/17/2026 1.45 0 0 0 0 0 0 1 0 0 1.65 1.15 <th< td=""><td></td><td>389</td><td>Yes</td><td>7/31/2015</td><td>975</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>13.95</td><td>136</td><td>125</td><td>11</td><td>5.03</td><td>49</td><td>28.00</td><td>273</td><td>N/A</td></th<>		389	Yes	7/31/2015	975	0	0	0	0	0	0	13.95	136	125	11	5.03	49	28.00	273	N/A
381 Yee 73/2020 411 0 0 0 0 0 0 0 153 70 163 7 10.09 45 15.39 96 N/A 392 Yee 77/3/202 4.13 0 0 0 0 2 135 2.11 4.1 15.44 2.13 0 0 0 0 2 135 2.11 4.1 15.44 2.13 0 0 0 0 1.1 6.1 1.1 6.1 1.1 6.1 1.1 6.1 1.1 6.1 1.1 <td></td> <td>390</td> <td>Yes</td> <td>6/17/2015</td> <td>1,169</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> <td>0</td> <td>0</td> <td>7.70</td> <td>90</td> <td>86</td> <td>4</td> <td>1.45</td> <td>17</td> <td>16.77</td> <td>196</td> <td>N/A</td>		390	Yes	6/17/2015	1,169	0	0	0	1	0	0	7.70	90	86	4	1.45	17	16.77	196	N/A
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383 Yee 7/31/2015 415 0 0 0 0 2 232 236 266 22 27 78 21.52 21.52 21.52 22.52 22.52 22.52 22.52 22.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.52 23.53 33.53		392	Yes	7/27/2015	1,278	0	0	0	0	0	0	17.84	228	209	19	3.21	41	19.64	251	N/A
384 Yes 7/81/2015 1.113 0 0 0 0 2.2,7 7.8 2.1.52 2.6.7 7.8 2.1.52 N.A		393	Yes	7/31/2015	415	0	0	0	0	0	2	19.52	81	60	1	6.51	27	20.48	85	N/A
500 Yes 7/8/2015 3374 0 0 0 2 0 1 123 65 57 Bs 127 603 8.34 278 100% 501 Wes 3/2/1025 380 0 0 0 1 10 N/A		394	Yes	7/31/2015	1,213	0	0	0	0	0	0	23.74	288	266	22	6.27	76	21.52	261	N/A
501 Yes 3/2/2015 280 0 0 0 0 0 1 611 18 8.52 25 N/A 502 No N/A N/A N/A 0 0 0 0 1 N/A N		500	Yes	7/31/2015	3,374	0	0	0	2	0	1	18.23	815	527	36	37.87	603	8.24	278	100%
502 No N/A N/		501	Yes	3/2/2015	290	0	0	0	0	0	• (24.14	70	69	1	6.21	18	8.62	25	N/A
503 No N/A N/A N/A 0 0 0 0 1 N/A 673 671 668 N/A 772 N/A 255 100% 564 We 7/2/2015 1.182 0 0 0 0 1 32.2 32.2 32.2 32.2 12.8 14.1 8.88 105 N/A 565 Ye 6/12/2015 1.573 0 0 0 1 32.2 32.2 32.2 34.8 35.6 167.1 17.78 31.77 N/A 566 Ye 6/12/2015 1.580 0 0 1 1.6.5 2.26 2.44 4.2 11.89 1.44 42.5 9.6 9.6 1.1 1.1.80 1.1.80 1.1.80 1.1.80 1.1.80 1.1.80 1.1.80 1.1.80 1.1.80 1.1.80 1.1.80 1.1.81 1.1.80 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1.81 1.1		502	No	N/A	N/A	0	0	0	0	1	0	N/A	N/A	N/A	N/A 🔪	N/A	N/A	N/A	N/A	N/A
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505 YE 7/22/2015 1,152 0 0 0 0 1 2,22 382 372 10 1.41 8.88 105 N/A 506 YE 6/13/2015 1,372 0 0 0 1.64.5 322 28 1.58 500 1.64.7 31.92 41.8 41.2 N/A 506 YE 6/13/2015 1.57.0 0 0 1 0 0 2.262 2.66 7.4 8.15.6 1.7 1.7.9 3.17 1.0 0 1.8.0 1.8.0 2.28 1.8.5 1.6.7 1.7.7 9.1 1.1.4 4.8.5 1.1.8 1.8.5 1.6.7 1.8.9 1.8.9 2.1.8 60.1 1.2.2.0 1.0.9 1.8.5 2.28 1.0.5 1.1.1 1.1.1 1.2.00 1.0.9 1.0.9 1.8.5 2.2.8 1.0.9 1.4.1 2.8.4 1.0.9 1.4.1 2.8.4 1.0.9 1.4.1 2.8.4 1.0.9 1.4.1 2.8.4 1.0.9 1.4.1 2.8.4 1.0.9 1.4.1 2.8.4 1.0.9		504	No	N/A	N/A	0	0	0	~	0	0	N/A	1,072	971	101	N/A	323	N/A	205	N/A
966 Yes 5/20/205 2,553 0 0 0 0 0 16,45 420 392 28 19,58 500 16,14 412 N/A 507 Yes 6/2/2055 1,590 0 0 1 0 0 22,52 642 568 74 8,56 157 17,79 347 N/A 509 Yes 6/2/2055 1,548 0 0 1 0 0 38,85 286 247 42 11,88 184 13,70 112 N/A 511 Yes 7/19/2015 2,854 0 0 0 1 12,00 0,91 950 141 2,884 1,487 12,58 62,4 100% 513 Yes 7/19/2015 4,853 0 0 0 1 92,00 0,91 930 141 2,884 1,487 14,42 158 144 146 14,43 100% 514 Yes 7/13/2015 3,630 0 0 0 1,23,42 72 <td></td> <td>505</td> <td>Yes</td> <td>7/22/2015</td> <td>1,182</td> <td>0</td> <td>0</td> <td>0 /</td> <td>0</td> <td>Q</td> <td>1</td> <td>32.32</td> <td>382</td> <td>372</td> <td>10</td> <td>11.95</td> <td>141</td> <td>8.88</td> <td>105</td> <td>N/A</td>		505	Yes	7/22/2015	1,182	0	0	0 /	0	Q	1	32.32	382	372	10	11.95	141	8.88	105	N/A
907 Yes 6/12/DDS 1.372 0 0 0 2.045 286 2.44 4.2 3.192 4.38 22.81 3.13 N/A 509 Yes 6/7/2015 1.550 0 0 1 0 0 2.252 642 568 74 8.56 115.44 4.25 5% 510 Yes 6/7/2015 1.548 0 0 0 1 0.0 0 1.80 1.84 65 21.85 601 15.44 425 5% 511 Yes 7/12/D015 2.824 0 0 0 1 1.200 0.001 59.59 1.11 2.84 1.406 1.25.8 62.4 1.018 2.145 1.124 1.146 1.124 1.146 1.154 4.25 1.154 1.14 488 1.00% 1.105 1.146 1.154 4.25 1.00% 1.154 1.14 1.146 1.154 4.25 1.00% 1.105 1.142 1.126 1.142 1.00% 1.145 1.146 1.105 1.106		506	Yes	5/20/2015	2,553	0	0	0 (0	0	<u> </u>	16.45	420	392	28	19.58	500	16.14	412	N/A
508 Yee 6/5/2025 1,550 0 0 0 1 0 0 32,52 642 568 74 8,56 167 17,79 347 N/A 510 Yee 6/20/2015 1,548 0 0 0 18,57 258 247 42 11,89 184 13,70 21,2 N/A 511 Yee 7/19/2015 4,551 0 0 0 1,857 258 247 42 11,89 184 13,70 12,85 644 565 74 42 11,89 144 12,85 624 566 100% 10 0 13,857 223,87 10,85 12,85 624 10,85 12,85 624 10,85 12,85 <td></td> <td>507</td> <td>Yes</td> <td>6/13/2015</td> <td>1,372</td> <td>0</td> <td>0</td> <td>• \</td> <td>1</td> <td>0</td> <td>10</td> <td>20.85</td> <td>286</td> <td>244</td> <td>42</td> <td>31.92</td> <td>438</td> <td>22.81</td> <td>313</td> <td>N/A</td>		507	Yes	6/13/2015	1,372	0	0	• \	1	0	10	20.85	286	244	42	31.92	438	22.81	313	N/A
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513 Yes //32/2015 3/80 0 0 0 19/99 asa /40 10/8 2/15 0/12 1/4 4/98 100% 514 Yes /73/2015 3/80 0 0 0 19/99 asa /40 10/8 2/15 0/12 1/4 4/98 100% 515 Yes /73/2015 3/59 0 0 0 0 12/34 722 580 142 30/15 1/28<		512	Yes	7/19/2015	4,959	•			\°	-0	1	12.00	2,091	950	141	29.84	1480	12.58	624	100%
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		513	Yes	7/31/2015	4,243	<	ľ		1	2	-	19.99	848	740	108	27.15	9.12	11./4	498	100%
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516 Yes 1242/4215 5,559 0 0 0 0 23.60 840 649 191 31.51 1085 14.05 1		515	Yes	7/31/2015	3,083		/ * *	~	2	<u>ا</u> م	1	23.42	722	580	142	30,05	929)12.91	395	100%
517 110 7/32/2015 2859 0 0 0 0 1 1/36 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 4/8 1/1		510	Yes	7/34/2015	3,559		0		, °\	్స		23.60	840	649	191		1,088	14,80	516	100%
518 NO NA NA <t< td=""><td></td><td>517</td><td>No.</td><td>//51/2015</td><td>2,009</td><td></td><td></td><td></td><td>~~~</td><td>~</td><td>1</td><td>17.98</td><td>4/8</td><td>449</td><td>how</td><td>18.54</td><td></td><td>7.90</td><td>210</td><td>100%</td></t<>		517	No.	//51/2015	2,009				~~~	~	1	17.98	4/8	449	how	18.54		7.90	210	100%
519 112 0 <td></td> <td>510</td> <td>Var</td> <td>7/22/2015</td> <td></td> <td>× ×</td> <td></td> <td>~</td> <td>~</td> <td></td> <td></td> <td>N/A</td> <td>1.026</td> <td>542</td> <td>6.3</td> <td></td> <td></td> <td>N/A</td> <td>401</td> <td>100%</td>		510	Var	7/22/2015		× ×		~	~			N/A	1.026	542	6.3			N/A	401	100%
520 he 6) 1/2015 43 0 <		519	THE .	6/17/2015	3,535		N.	\sim	_			29.02	1,026	-	(teo/	23	1,401	15.50	548	100%
521 Yes 7/31/2015 21,65 0 0 1 0 0 1 14,1 0 0 0 21,37 50 0,47 103 3515 784 13,28 228 100% 523 Yes 7/31/2015 3,117 0 0 0 1 20,95 574 594 405 35,69 1,148 12,23 416 100% 525 Yes 7/31/2015 3,017 0 0 0 1 0 0 19,99 603 497 405 21,94 662 8.88 268 100% 526 Yes 7/31/2015 3,076 0 0 0 0 21,09 712 617 95 22,16 748 9,15 309 100% 527 No N/A 0 0 0 0 0,1 0 N/A 346 267 79 N/A 337 N/A 165 100% 530 Yes 7/31/2015 3,214 0 0 0 0 19,74 <		520	2.	7/21/2015	43		~		4			10.44			171	11	- 15 E44	18.00	207	N/A 100%
522 Yes 7/31/2015 3,217 0 0 0 0 1 20.95 674 594 105 36,15 7/64 15,26 285 100% 523 Yes 7/31/2015 3,217 0 0 0 0 1 20.95 674 594 60 31.69 1,148 12.93 416 100% 525 Yes 7/31/2015 3,376 0 0 0 0 21.09 712 617 95 22.15 748 9.15 309 100% 526 Yes 7/30/2015 3,376 0 0 0 1 0 N/A 346 267 79 N/A 337 N/A 165 100% 528 Yes 7/30/2015 2,052 0 0 0 0 30.31 616 566 50 20.52 417 10.93 222 100% 530 Yes 7/31/2015 3,214 0 0 0 0 15,74 506 453 53 <t< td=""><td></td><td>521</td><td>V.</td><td>7/31/2015</td><td>X451</td><td></td><td>$\langle \cdot \rangle$</td><td></td><td>-</td><td></td><td></td><td>19,41</td><td>000</td><td></td><td>1</td><td></td><td>244</td><td>12.05</td><td>207</td><td>100%</td></t<>		521	V.	7/31/2015	X451		$\langle \cdot \rangle$		-			19,41	000		1		244	12.05	207	100%
525 Yes 7/31/2015 3,177 0 0 0 1 0 10335 104 544 105 21.94 642 12.95 1435 1435 1435 1435 1435 1435 1435 100% 525 Yes 7/31/2015 3,376 0 0 0 0 102 112 617 95 21.94 642 8.88 268 100% 526 Yes 7/30/2015 3,376 0 0 0 1 0 8 N/A 346 267 79 N/A 337 N/A 165 100% 528 Yes 7/30/2015 1,032 0 0 0 0 30.31 615 566 50 20.52 417 10.93 222 100% 530 Yes 7/31/2015 3,214 0 0 0 0 15/74 506 453 53 35.59 1,144 20.72 666 30% 531 Yes 7/31/2015 3,2510 0 0		522		7/21/2015	2,100	1.5	\sim	-		~	1	20.05	6.0	504		25.60	11/2	13.28	200	100%
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Citywide Safety Index Report

Yellow and Green Taxi GPS

- GPS in over 13,000 taxi cabs
- Each fare trip is recorded
- Since 2008, over 1 billion records have been stored and analyzed
- Since 2015, green taxi and breadcrumb GPS points available
- The data provide numerous insights:
 - Spatial and Temporal Trip Distributions
 - Origin-Destination Patterns
 - Trip Length and Travel Times
 - Intra-zonal, Inter-zonal and corridor-wide travel speeds
 - Useful for Before-After comparisons



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This calendar shows average daily speeds in the Manhattan CBD, 6 a.m. to 6 p.m.

Key:

The 25 fastest days (average speed between 16.3 m.p.h. and 11.9 m.p.h.). Most occur on major holidays or on Sundays in January or July.

The next 75 fastest days (average daily speed between 11.7 m.p.h. and 10.5 m.p.h.). Most occur on weekends during spring or fall seasons, or immediately before or after holidays.

Between the 100 fastest days and 100 slowest days are the 165 days with average daily speeds between 10.5 m.p.h. and 9.2 m.p.h. Most are weekdays during spring and summer seasons.

The next 75 slowest days (9.2 to 8.6 m.p.h.) fall into mid-week weekdays late in the year.

The 25 slowest days (8.6 to 6.9 m.p.h.) mostly occur in the latter part of the year and all are weekdays. The heaviest concentrations are in late September during the United Nations General Assembly, and in November and December.

Fastest Day

- 2008: Sunday, June 1 (15.1 m.p.h.)
- 2009: Thursday, January 1 (13.9 m.p.h.)
- 2010: Sunday, July 4 (14.2 m.p.h.)
- 2011: Sunday, August 28 (16.3 m.p.h.)

Fastest Non-Holiday Weekday

- 2008: Friday, May 11 (12.4 m.p.h.)
- 2009: Monday, September 28 (11.9 m.p.h.)
- 2010: Monday, January 4 (11.8 m.p.h.)
- 2011: Monday, January 3 (11.6 m.p.h.)

Slowest Day

- 2008: Wednesday, September 24 (7.0 m.p.h.)
- 2009: Monday, December 21 (8.0 m.p.h.)
- 2010: Wednesday, December 29 (6.4 m.p.h.)
- 2011: Friday, January 28 (6.9 m.p.h.)

:----; 2011 Holidays

 January	New Year's Day (1)		
	Martin Luther King Jr. Day (17)		
February	President's Day (21)		
April	Easter Sunday (24)		
May	Memorial Day (30)		
July	Independence Day Observed (4)		
September	Labor Day (5)		
October	Columbus Day (10)		
November	Veteran's Day (11)		
	Thanksgiving (24)		
December	Christmas Day (25)		

MTA Bus Time

- GPS devices on entire MTA NYCT and MTA Bus fleet in the 5 Boroughs
- Currently over 6 million records per day
- Gathers bus activity, position and speed at 30-second frequency
- Includes data for corridors and crossings where speed data are not typically gathered
- Coverage of the Outer Boroughs in addition to Manhattan
- Specific vehicle, route and timeof-day data can be isolated and analyzed
- Useful for Before-After comparisons





