INRIX U.S. Signals Scorecard
April 2022 Update

Rick Schuman
May 2022

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Signal Analytics

Tools to help an agency proactively manage and monitor traffic signals

Dashboard

Intersection Analytics

Corridor Analytics
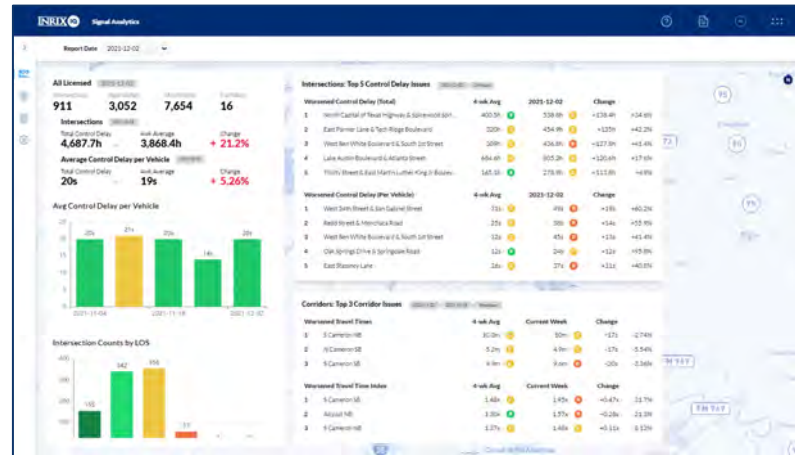

Custom Reports

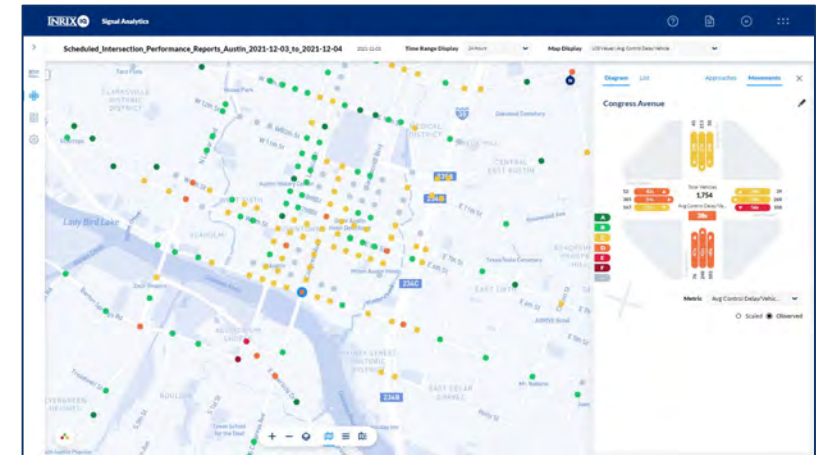**Web Based Tools**
No data storage or software installation

Complete Coverage
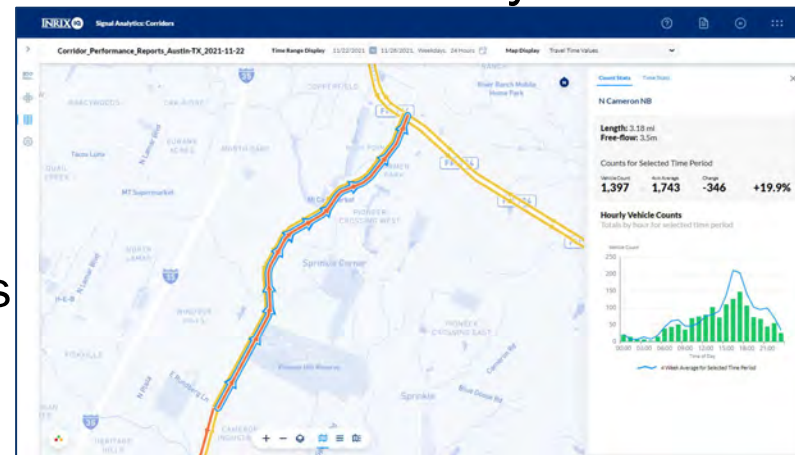Available at any signalized intersection in a network

Ready to Use
See performance measures without any infrastructure

https://inrix.com/products/signal-analytics/

U.S. Signals Scorecard – April 2022 Update

https://inrix.com/signals-scorecard/
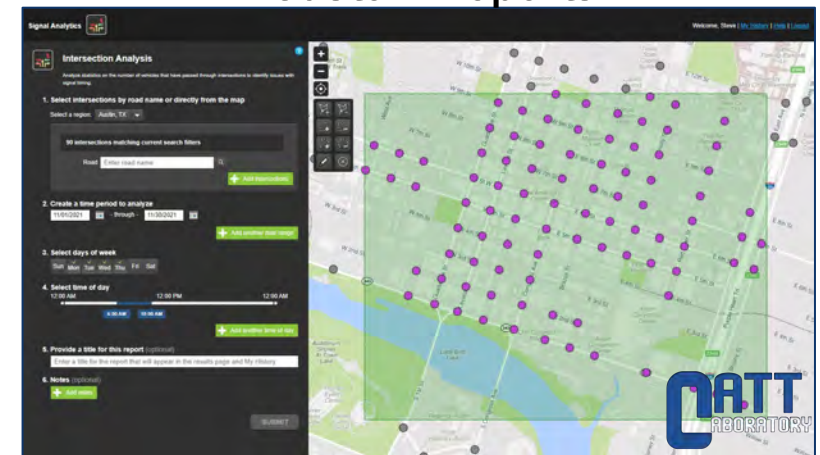
Original – Data from October 4-10, 2020
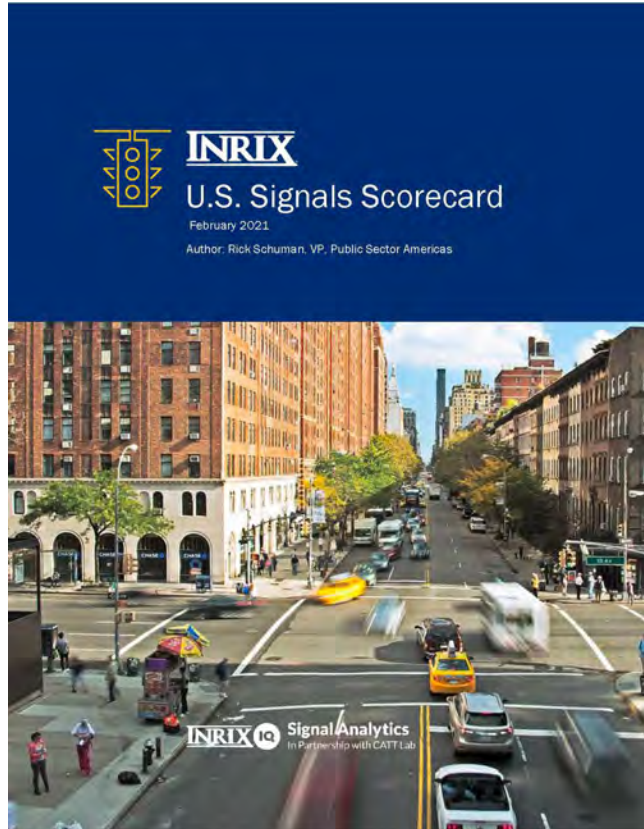
Update – Data from December 13-19, 2021

https://inrix.com/signals-scorecard/archive/
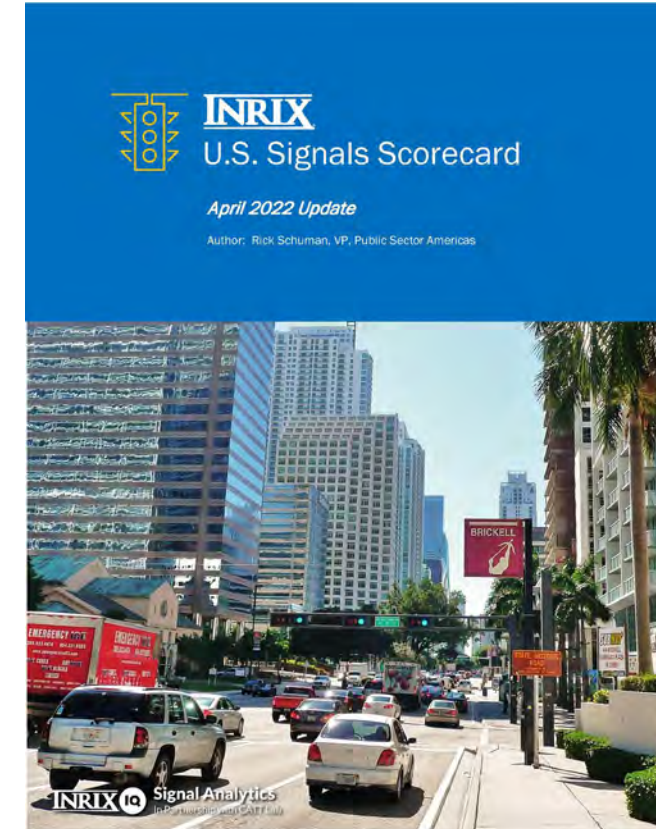
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Topics

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Scorecard Methodology

Four Steps

- Step 1: Ingest sufficient, high quality GPS data
- Step 2: Translate GPS readings into Trip Paths
- Step 3: Generate Signal Performance Metrics
- Step 4: Scorecard Calculations

Requires/Uses NO INFRASTRUCTURE

Requires/Uses NO SIGNAL TIMING DATA
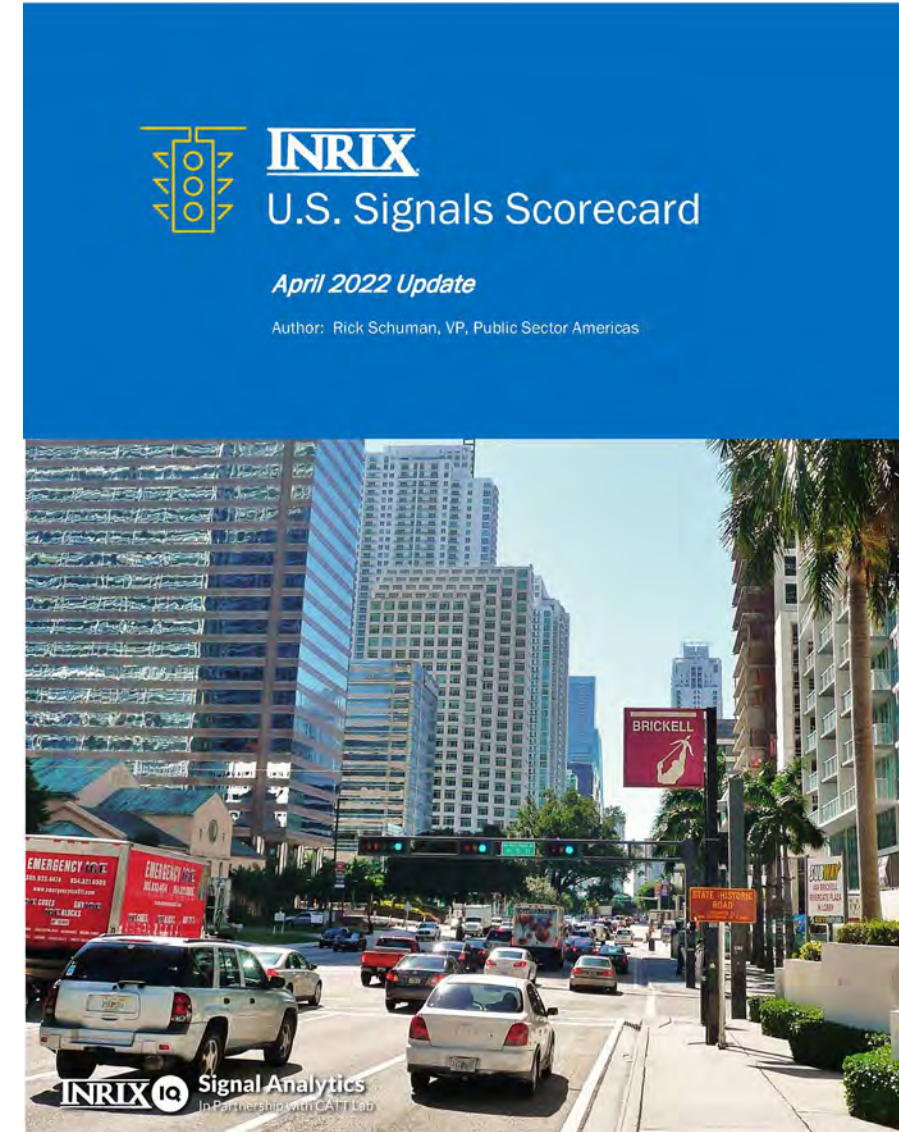
Scorecard Methodology

Four Steps

- Step 1: Ingest sufficient, high quality GPS data
- Step 2: Translate GPS readings into Trip Paths
- Step 3: Generate Signal Performance Metrics
- *Step 4: Scorecard Calculations*
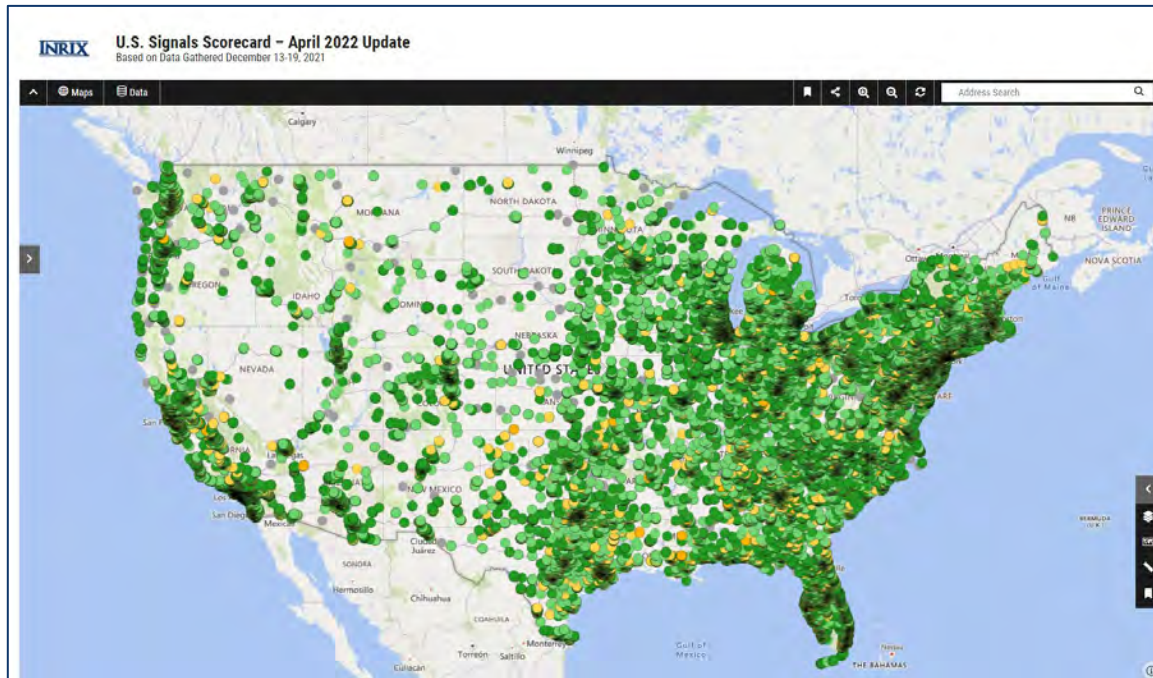
- Data computed in 15-minute increments
- Metrics used:
  - Observed vehicle crossings
  - Average control delay per vehicle
  - Average arrival on green percentage
- INRIX Volume Profiles used to estimate penetration rate to scale up to estimated vehicle crossings
- Intersections rolled up by state, county, metropolitan areas
- Local time used

U.S. Signals Scorecard – April 2022 Update
Based on Data Gathered December 13-19, 2021
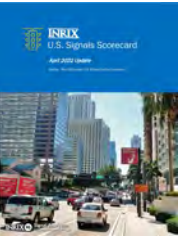
Topics

Methodology

Results

Key Findings

For More Information...

Q&A

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National Results Updated vs. Original

National Daily Averages

(Original Scorecard Results in Parens)

Signals Analyzed: 241,181 (210,815)

Traffic Volume/ Vehicle Crossings	• Observed Crossings: 169.1 million (130.5) • Observed Crossings/Signal: ~700 (~620) • Total Estimated Crossings: 4.66 billion (3.67) • Estimated Crossings/Signal: ~19,300 (~17,400)	**Performance**	• Average Delay/Vehicle: 18.3 secs (16.9) • Average Total Delay/Signal: 98.2 hours (81.7) • Total Delay: ~23.7 million hours (~17.25) • Arrival on Green: 62.8% (62.8%)
Average Trip	• Trip Length: 9.4 miles (9.8) • Trip Time: 17.0 minutes (17.0) • Monitored Signals Crossed: 4.7 (4.1) • Total Signal Delay per Trip: 86 secs (69.3) • % of Trip Time Delayed at Signals: 8.4% (6.8%)	**Impacts**	• C02 Created by Signal Delay: ~76,500 Tonnes • Oil Wasted in Signal Delay: ~199,200 Barrels • *At measured volume, 1 Sec Delay/Vehicle =* o *4,100 Tonnes of CO_2, ~10,800 barrels of Oil* • *Impacts not estimated in Original Scorecard*

- Signals Analyzed: **14%**
- Observed Crossing/Signal: **13%**
- Estimated Crossings/Signal: **11%**
- Delay/Vehicle: **8%**
- Daily Delay/Signal: **20%**
- Total Daily Delay: **37%**
- Signals Crossed/Trip: **12%**
- Signal Delay/Trip: **24%**

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Observed Crossings

2020

Observed Vehicle Crossings Nationwide Each Rolling Hour (Millions)
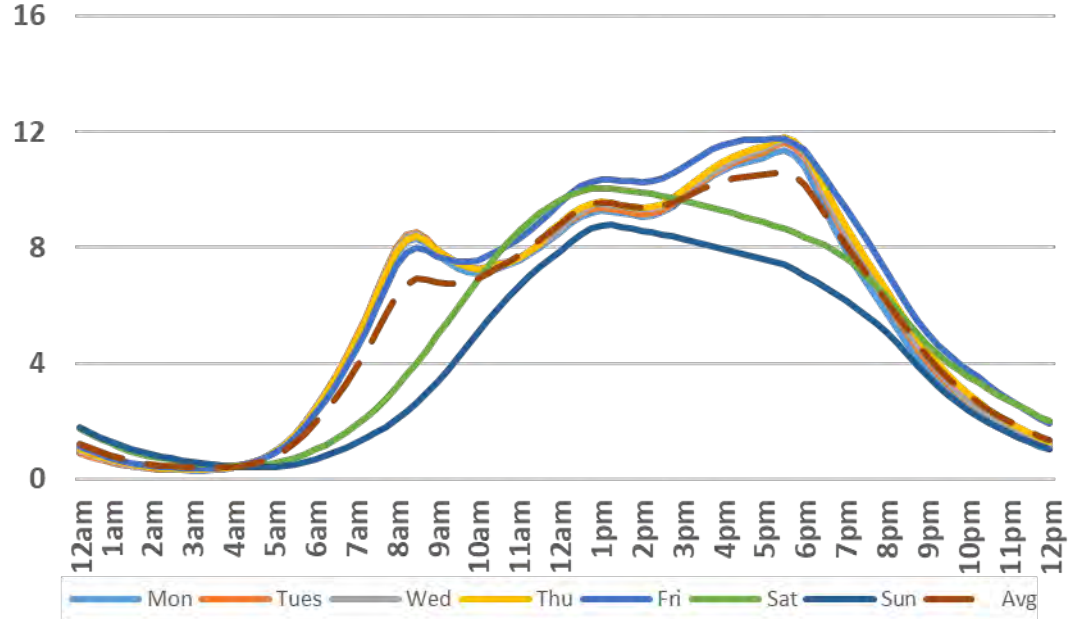
2021

Observed Vehicle Crossings Nationwide Each Rolling Hour (Millions)

INRIX
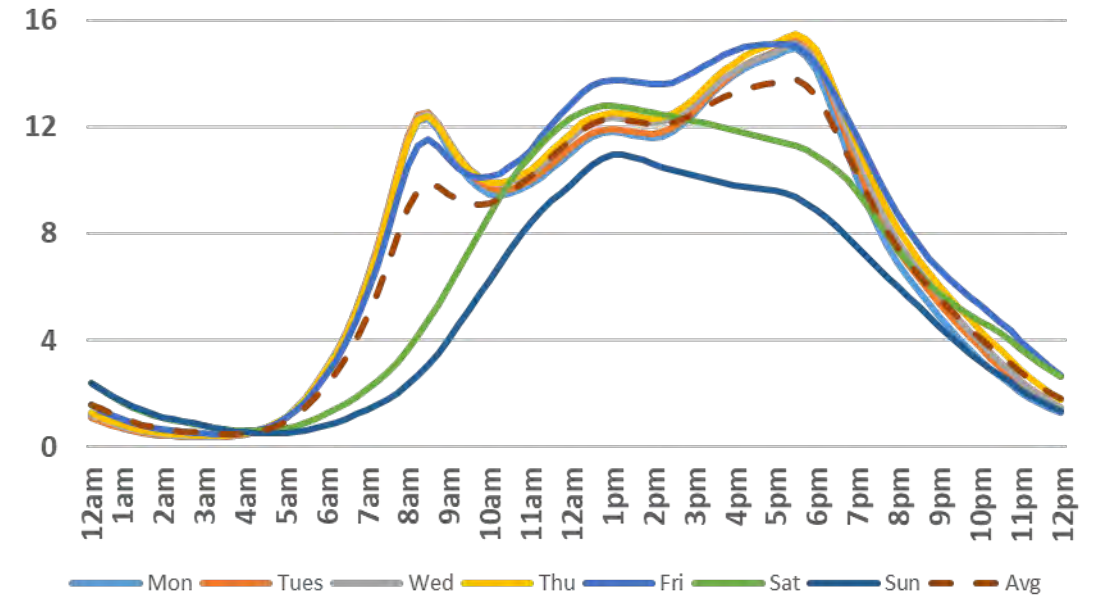
Estimated Crossings

Per Signal 'ADT' → ~17,400 in 2020…~19,300 in 2021

2020

Estimated Vehicle Crossings Nationwide Each Rolling Hour (Millions)
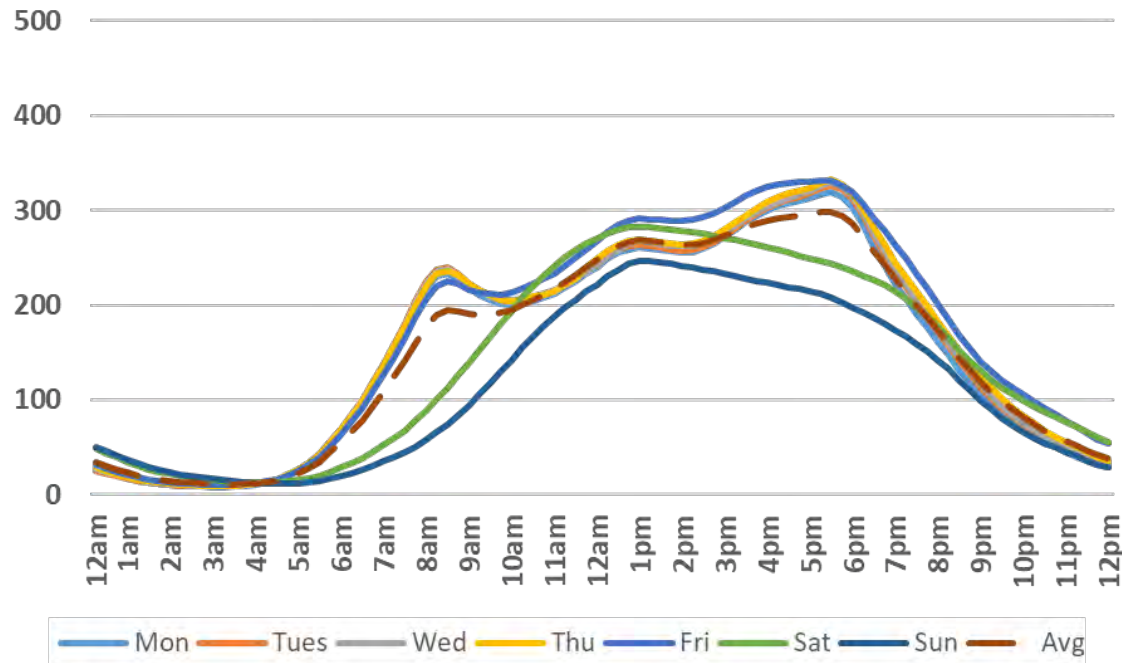
Legend: Mon — Tues — Wed — Thu — Fri — Sat — Sun — Avg

2021

Estimated Vehicle Crossings Nationwide Each Rolling Hour (Millions)

Legend: Mon — Tues — Wed — Thu — Fri — Sat — Sun — Avg

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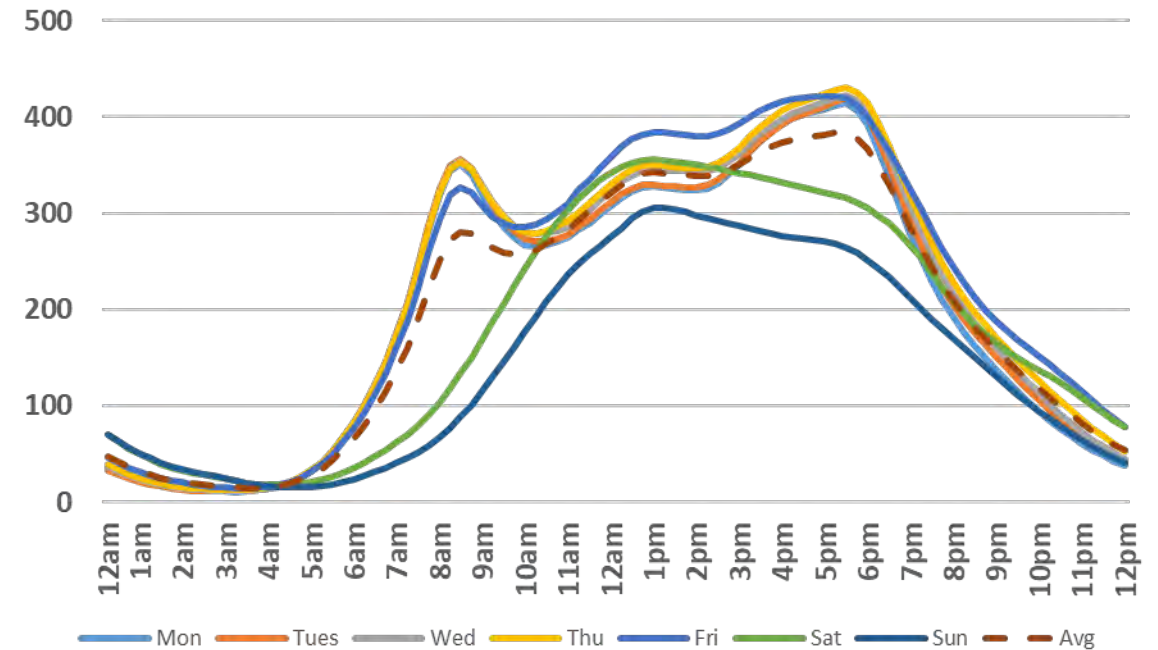
Percent Arrival on Green

Average POG same for both 2020 and 2021: ~62.8%

2021

National Arrival on Green % by Rolling Hour
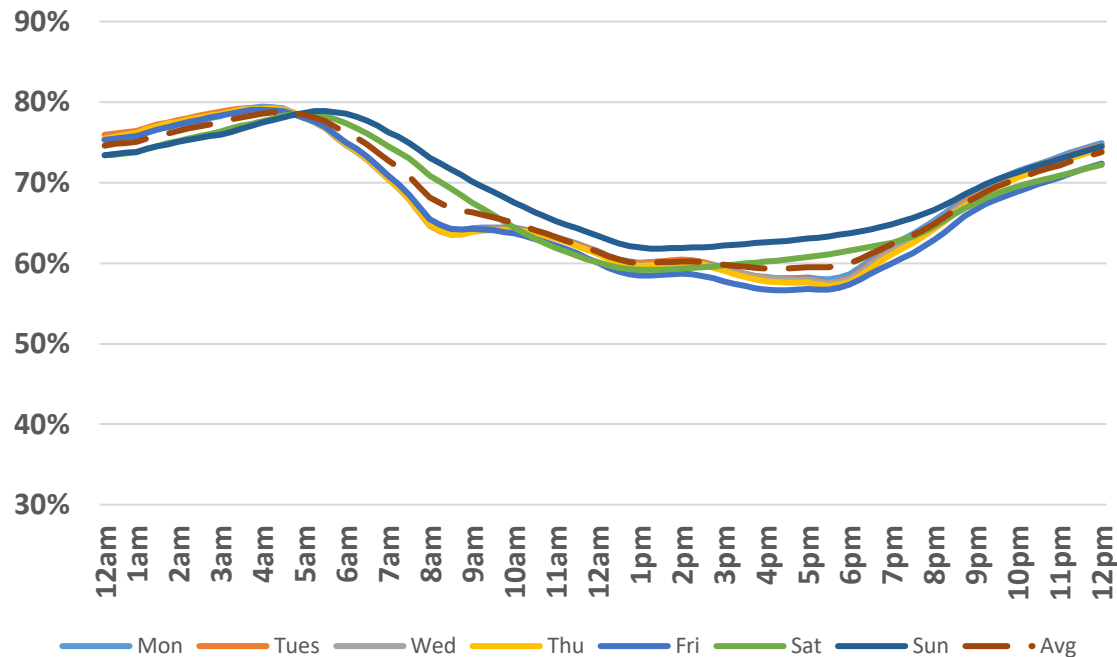
2022

Nationwide Arrival on Green Each Rolling Hour

11
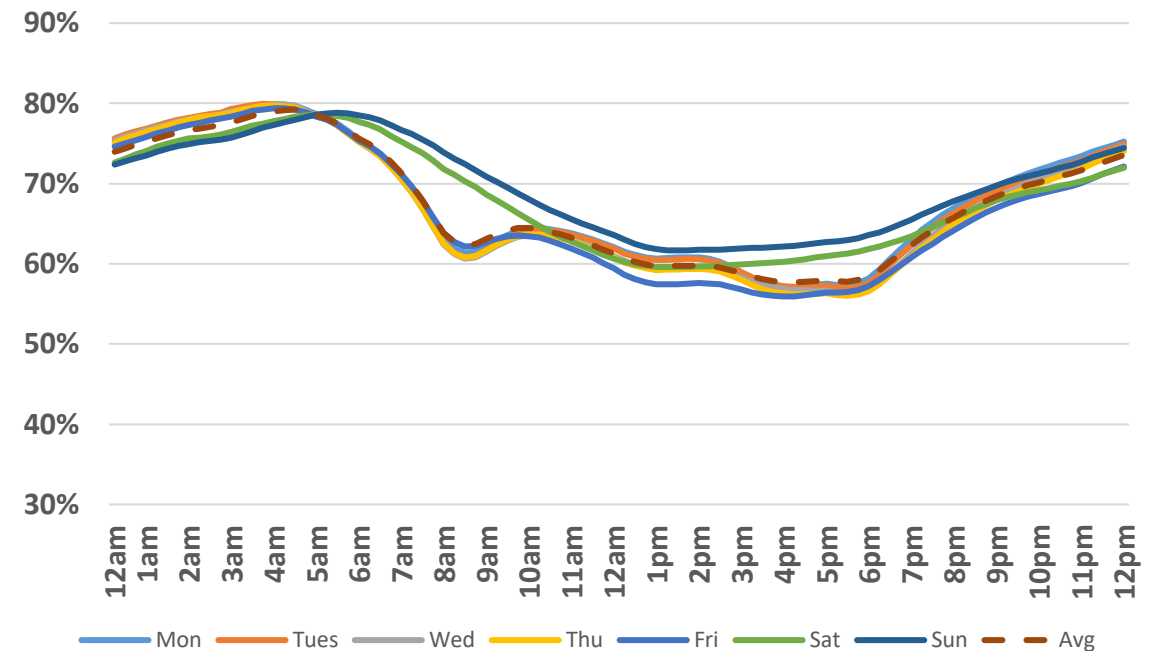
Split Failures

Not Analyzed in Detail in 2020; overall ~50% increase per signal from 2020

Estimated Split Failures Nationwide Each Rolling Hour

Nationwide Split Failure % Each Rolling Hour

Estimated Split Failures Nationwide Each Day
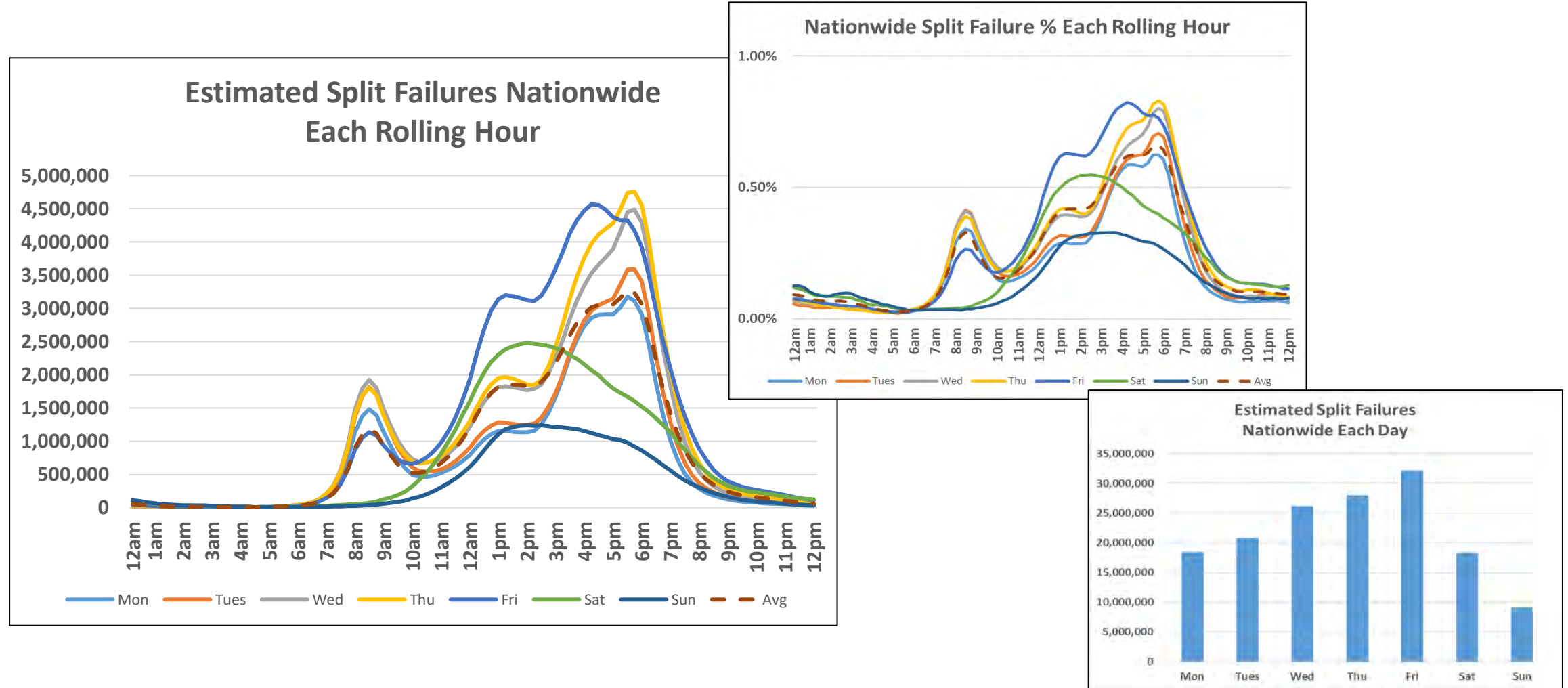
Delay per Vehicle (Level of Service)

Average D/V per crossing → ~16.9 secs in 2020...~18.3 secs in 2021

2020

2021

Nationwide Delay Per Vehicle (Seconds) by Rolling Hour
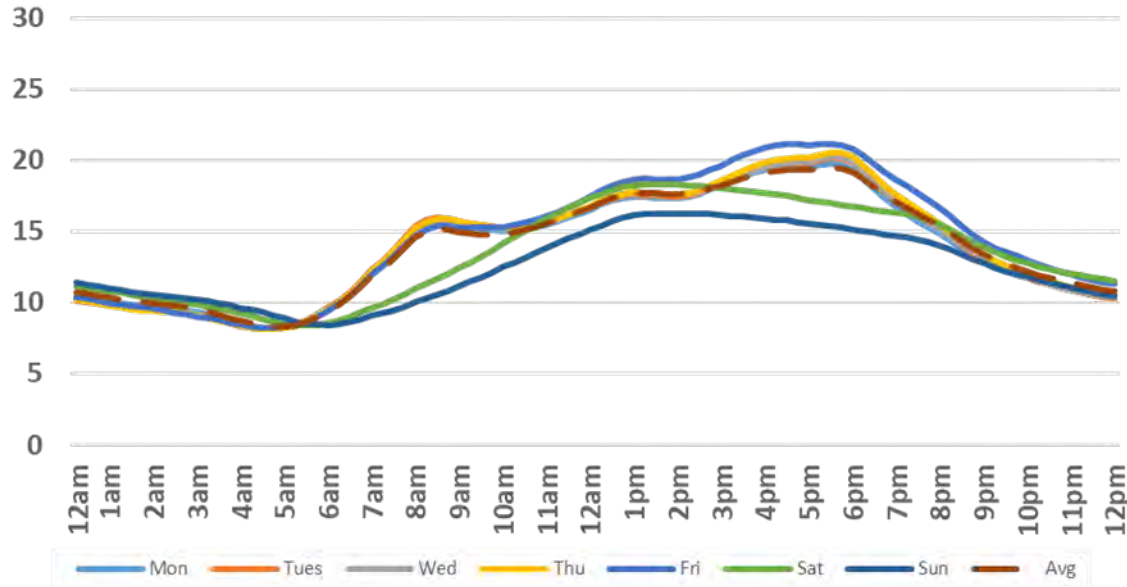
Nationwide Delay/Vehicle (Secs) Daily by Rolling Hour
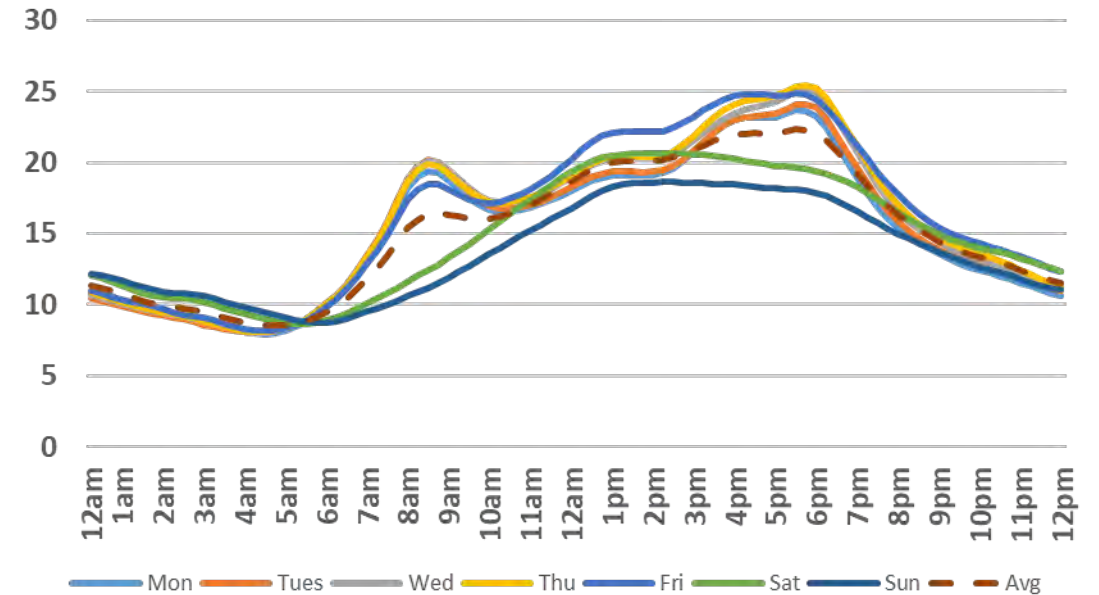
Total Delay

Per Signal Total Delay/Day → ~82 hours in 2020…~98 hours in 2021

2020
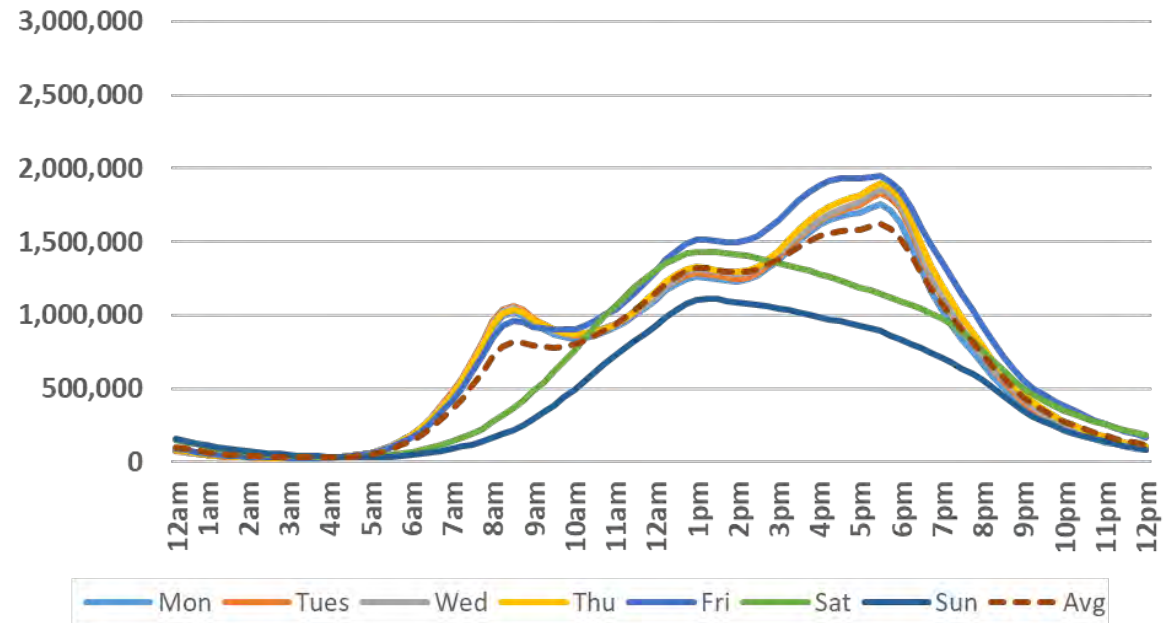
2021
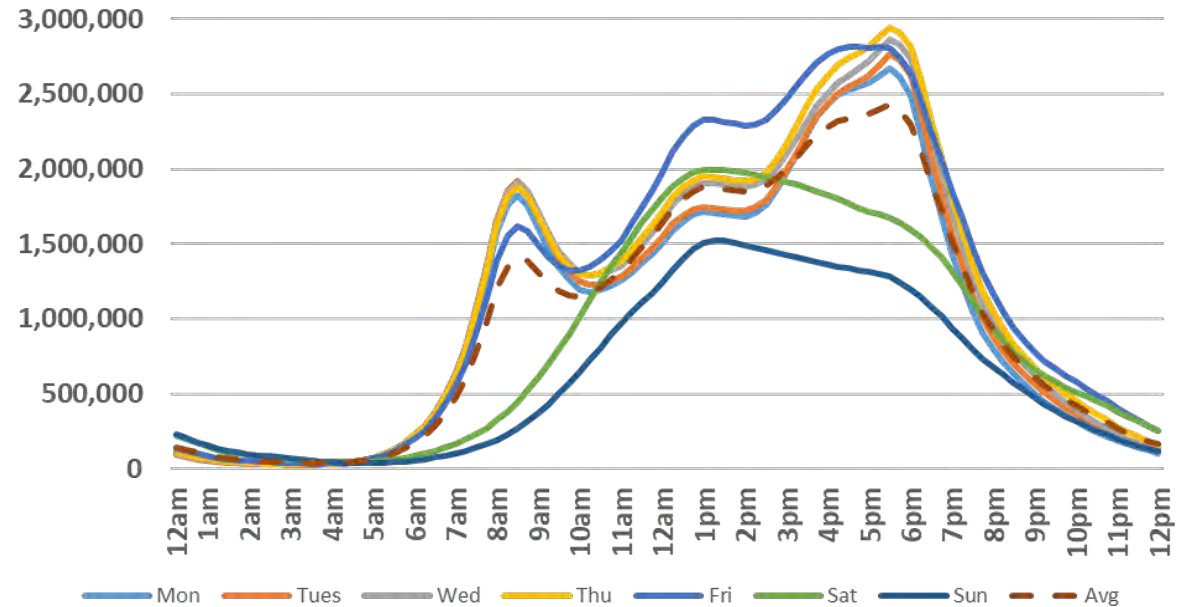
Energy Metric Calculator

- Uses the following inputs:
  - Assumed Fleet Year
  - Vehicle Volume
  - Percentage of Heavy Duty Trucks
  - Initial Average Control Delay
  - Final Average Control Delay
  - Urban or Rural Environment

- To Calculate:
  - Total Hours Saved
  - Carbon Dioxide Equivalents
  - Total Fuel Savings
  - Other GHG reductions

Explore: https://inrix.com/green-calculator/

Estimation of Fuel and Emissions

Methodology

- 1 vehicle-hour of delay at signals in the U.S is estimated to result in:
  - 7.05 pounds of CO_2 equivalents
  - 0.35 gallons of fuel

- Values based on EPA MOVES model

- Assumptions:
  - 2022 Vehicle Fleet
  - 3.24% Heavy Vehicles (based on USDOT BTS #s)
  - 1 gallon of fuel = 120,286 BTU (US EIA)

Carbon and Fuel Use Impacts of Signal Delay

Impact of 1.4 sec measured increase
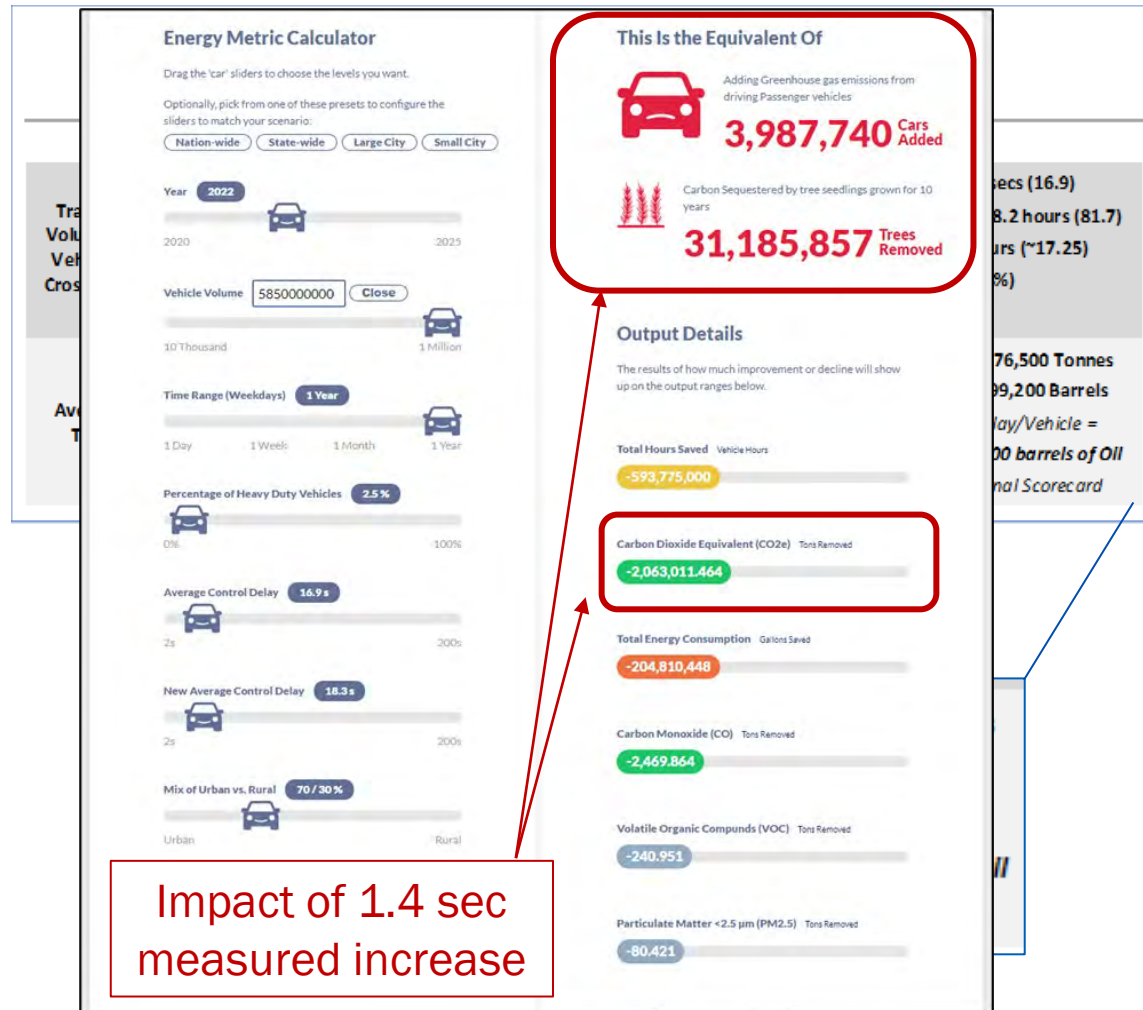
If Annualized, Nationally…

- Total Impact of ALL Signal Delay
  - CO_2 Generated: 27.9 million metric tons
  - Oil Used: 72.7 million barrels

- Impact of 1 second change in Average D/V
  - CO_2 Generated: 1.5 million metric tons
  - Oil Used: 3.9 million barrels
  - Can go up or down…same math

Why Add Impact Elements?

Carbon

§ 11403   32

[NEW] Carbon Reduction Program (formula)

Purpose	Provide funding for projects to reduce transportation emissions or the development of carbon reduction strategies.
Funding	$6.4 B (FY 22-26) in Contract Authority from the HTF
Recipients	• States (including DC)
Distribution formula	• Apportioned to States by formula • 65% of funds are suballocated (reserved for use in certain areas of the State, based on population)
Other key provisions	• Requires State, in consultation with MPOs, to develop (and update at least every 4 years) a carbon reduction strategy and submit it to DOT for approval. • DOT must certify that a State's strategy meets the statutory requirements.
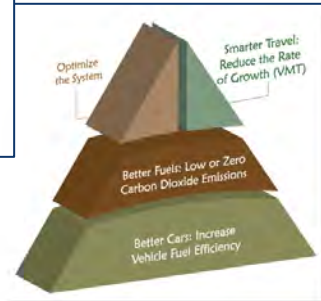
Carbon Reduction Program FY 2022 Funding ($M, Est)

State	$M
Texas	123.2
California	106.7
Florida	61.6
Pennsylvania	50.9
New York	49.5
Illinois	43.4
Ohio	41.3
Georgia	40.5
North Carolina	32.9
Michigan	32.4
Virginia	31.9
Missouri	30.5
Indiana	30.0
New Jersey	29.7
Tennessee	26.7
Alabama	24.7
Wisconsin	24.0
Louisiana	22.7
Arizona	22.5
South Carolina	21.7
Kentucky	21.5
Washington	21.1
Oklahoma	20.6
Minnesota	20.5
Maryland	18.1
Massachusetts	18.0
Arkansas	16.7
Colorado	16.5
Iowa	15.9
Oregon	15.9
Alaska	15.7
Mississippi	15.6
Connecticut	15.2
West Virginia	14.0
Montana	13.1
Kansas	12.2
New Mexico	11.8
Utah	11.0
Nevada	11.0
Nebraska	9.2
Idaho	9.0
South Dakota	8.9
Wyoming	8.1
North Dakota	7.9
Rhode Island	6.9
Vermont	6.3
Maine	5.8
Hawaii	5.2
Delaware	5.2
New Hampshire	5.1
Dist. of Col.	4.9

Sources:
- https://www.fhwa.dot.gov/bipartisan-infrastructure-law/docs/bil_overview_20211122.pdf
- https://www.fhwa.dot.gov/legsregs/directives/notices/n4510858/n4510858_t1.cfm
- http://realsolutions2.transportation.org/pages/GHGReductionSummary.aspx

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Why Add Impact Elements?

Fuel Use/Prices

18 Month Average Retail Price Chart

Sources:
- https://www.cnbc.com/2022/03/07/gas-prices-are-heading-to-a-new-all-time-record.html
- https://www.gasbuddy.com/charts

State Results

State	Signals Analyzed	Est Vehicle Crossings/ Signal	Observed Crossings/ Signal	Arrival on Green (%)	Delay/ Vehicle (Sec)	Total Delay/ Signal (Hours)	CO_2 from Delay (Tonnes)	Oil from Delay (Barrels)
AK	398	21,041	590	65.8%	16.7	97.5	124	323
AL	2,614	23,368	750	66.1%	17.7	115.1	962	2,506
AR	928	19,715	884	61.3%	17.8	97.3	289	752
AZ	5,510	26,941	896	63.2%	18.1	135.3	2,384	6,208
CA	*31,607*	19,724	534	60.1%	19.7	108.1	*10,922*	*28,447*
CO	5,584	19,739	534	67.6%	15.8	86.4	1,542	4,017
CT	2,690	15,054	424	62.8%	16.1	67.2	578	1,505
DC	1,141	18,828	378	60.9%	*24.2*	126.5	462	1,202
DE	982	12,665	777	66.4%	17.2	60.6	190	495
MA	4,884	17,213	434	*57.4%*	20.4	97.5	1,522	3,964
MD	5,001	21,177	594	63.5%	19.0	112.0	1,791	4,664
VA	5,780	19,742	554	64.8%	17.3	94.9	1,754	4,568
VT	278	14,239	541	62.6%	16.6	65.7	58	152
WA	5,573	17,101	343	61.1%	18.7	88.9	1,585	4,128
WI	3,535	16,213	763	64.5%	14.3	64.5	729	1,898
WV	699	12,977	597	62.4%	15.9	57.5	128	335
WY	366	17,247	535	69.1%	11.7	56.1	65	171
Total	241,181	19,331	701	62.8%	18.3	98.2	76,493	199,232

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Appendix B – State Summaries

Maryland Summary

Left (Original), Right (Update)

State Trends: Hours of Delay/Signal/Day

37 states with 10%+ increases

Change in Average Total Hours of Delay/Signal/Day by State

Oct 2020 — Dec 2021

183 - Florida
167 - Nevada
Nevada - 144
140 - Georgia
135 - Arizona
134 - Tennessee
127 - District of Columbia
125 - Louisiana

Florida - 113
Arizona - 110
Hawaii - 103
District of Maryland - 97
Idaho - 95
South Carolina - 90
Colorado - 89
Illinois - 88
Massachusetts - 84
Michigan - 82
Wisconsin - 79
New Hampshire - 76
Arkansas - 74
New Mexico - 72
Oklahoma - 71
North Dakota - 69
West Virginia - 66
Connecticut - 64
Minnesota - 61
Ohio - 59
Wisconsin - 53
Nebraska - 52
South Dakota - 48
Wyoming - 47

116 - Idaho
115 - Alabama
112 - Maryland
108 - California
106 - South Carolina
104 - Texas
102 - Indiana
98 - Alaska
97 - Massachusetts
95 - Virginia
92 - New Jersey
91 - North Carolina
89 - Washington
87 - Montana
86 - Kentucky
80 - Oklahoma
79 - Maine
77 - Michigan
72 - Ohio
71 - Oregon Dakota
68 - Kansas Island
66 - New Hampshire
63 - Wisconsin
61 - Delaware
57 - West Virginia
55 - South Dakota

Zoomed panel

Left axis (Oct 2020):
FL - 113
AZ - 110
HI - 103
CA, TN - 99
DC - 98
MD - 97
ID - 95
SC - 90
CO - 89
IL - 88
MA - 84
MI - 82
GA, VA, ME - 81
UT, MS - 80
WA, LA, AK - 79
NY, AL - 77
TX, NH, MT - 76
AR, DE - 74
NM - 72
OK - 71
KY - 70
NC, NJ, RI - 69
IN, OR, WV - 66
VT - 65
CT - 64
PA, ND - 63
MO - 62
MN, KS - 61
OH - 59
WI - 53
NE - 52
SD - 48
IA, WY - 47

Right axis (Dec 2021):
116 - ID
115 - AL
112 - MD
108 - CA, MS
106 - SC
104 - TX
102 - IN
98 - AK
97 - MA, AR, NM
96 - IL
95 - VA
92 - NJ
91 - NC, MO
89 - WA
87 - MT
86 - CO, KY
80 - OK
79 - ME
77 - MI, PA
72 - OH
71 - OR, ND
69 - KS
68 - RI
67 - CT
66 - NH, VT
64 - WI
63 - NY, NE
61 - DE
57 - MN, WV
56 - WY
55 - IA, SD

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MPO/MPA Analysis
401 Areas Analyzed – 93% of Signals

- MPAs/MPOs with...
  - 100 or more signals analyzed:
    - 266, up from 254
  - 500 or more signals analyzed:
    - 79, up from 69
  - 1,000 or more signals analyzed:
    - 45, up from 41
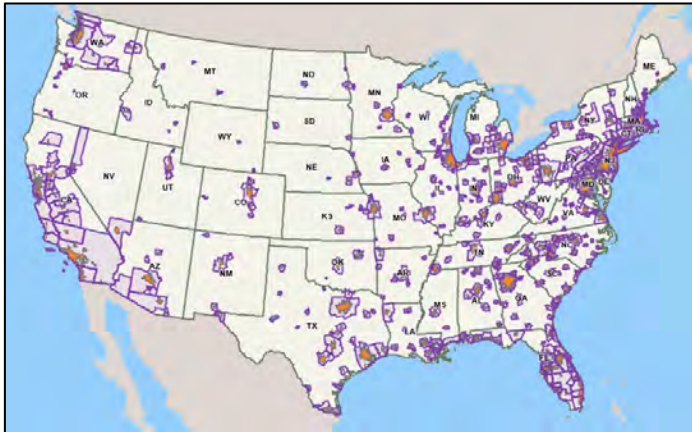
MPO	Signals Analyzed	Est Vehicle Crossings/ Signal	Observed Crossings/ Signal	Arrival on Green (%)	Delay/ Vehicle (Sec)	Total Delay/ Signal (Hours)	CO_2 from Delay (Tonnes)	Oil from Delay (Barrels)
SCAG (Los Angeles)	*17,226*	23,001	617	60.5%	20.0	127.7	*7,030*	*18,311*
NYMTC (New York)	15,191	11,513	347	62.3%	23.1	74.0	3,593	9,357
CMAP (Chicago)	7,961	21,529	979	61.6%	18.2	108.7	2,766	7,205
MTC (San Francisco Bay Area)	7,290	14,808	332	59.9%	20.0	82.5	1,922	5,006
NCTCOG (Dallas/Ft. Worth)	5,986	19,962	971	61.4%	19.6	108.7	2,081	5,420
NJTPA (Northern New Jersey)	5,912	17,905	532	60.5%	18.9	93.8	1,773	4,618
DVRPC (Philadelphia)	5,577	17,599	586	59.7%	19.0	92.9	1,656	4,314
HGAC (Houston)	5,339	19,935	962	60.1%	21.3	118.1	2,016	5,250
SEMCOG (Detroit)	5,105	19,284	*1,491*	67.7%	15.2	81.4	1,329	3,462
NCR TPB (Washington, DC)	4,913	22,090	520	63.9%	19.5	119.6	1,878	4,893
MAG (Phoenix)	4,099	28,465	955	63.2%	18.5	146.0	1,913	4,983
DRCOG (Denver)	3,824	20,484	537	68.0%	15.9	90.5	1,106	2,881
PSRC (Seattle)	3,479	17,410	341	61.1%	19.7	95.1	1,057	2,754
ARC (Atlanta)	3,316	29,554	898	64.0%	21.0	172.6	1,830	4,767
Boston Region MPO	3,200	17,085	405	*56.6%*	22.2	105.5	1,080	2,812
Miami-Dade MPO	2,876	*30,253*	1,153	61.3%	*24.9*	*209.2*	1,924	5,011
SANDAG (San Diego)	2,755	18,539	450	59.6%	20.0	102.9	906	2,360
OKI RCOG (Cincinnati)	2,716	18,177	743	66.6%	16.0	80.9	702	1,830
Metropolitan Council (Twin Cities)	2,692	13,739	598	66.3%	14.9	56.7	488	1,271
Baltimore RTB	2,687	19,605	586	62.0%	19.9	108.3	931	2,424
EWCGOC (St. Louis)	2,318	21,933	1,005	68.6%	15.3	93.4	692	1,802
SPC (Pittsburgh)	2,242	14,912	708	62.4%	18.5	76.5	548	1,428
NOACA (Cleveland)	2,131	15,594	759	62.8%	16.8	72.6	495	1,288
PACTS (Portland, OR)	2,050	15,362	289	64.1%	17.3	73.7	483	1,257
MARC (Kansas City)	1,992	17,971	626	63.4%	15.5	77.5	493	1,285

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Metro Area Trends: Hours of Delay/Signal/Day

39 areas with 10%+ increases

Change in Average Total Hours of Delay/Signal/Day for Top 50 Metro Areas/MPOs in US

Oct 2020 → Dec 2021

243 - Ft. Lauderdale
209 - Miami-Dade
198 - Tampa / Palm Beach
194 - Orlando
191 - Las Vegas
173 - Atlanta
Las Vegas - 167

146 - Phoenix
141 - Jacksonville
139 - Charlotte
135 - Indianapolis
131 - Salt Lake City
128 - Los Angeles
120 - Washington, DC
118 - Houston
116 - Tucson
115 - Brownsville
109 - Austin, DFW
108 - Baltimore
106 - Boston
103 - Raleigh, SD
100 - Norfolk
96 - San Antonio
94 - Columbus, North Jersey
93 - Philadelphia, St. Louis
90 - OKC, Denver
89 - Louisville
84 - Sacramento
82 - SF Bay Area
81 - Cincinnati, Detroit
77 - Kansas City
76 - Pittsburgh
74 - NYC, Portland, MKE
73 - Cleveland
68 - Providence
67 - Omaha
61 - Buffalo
57 - Twin Cities, MN
45 - Albany

Maryland MPO/MPA Summary

Left (Original), Right (Update)

MPOs Listed by Signal Count

MPO	Signals	D/V (Secs)	D/V Δ (%)	DHD/ Signal	DHD/ Signal Δ	Annual CO$_2$ (Tonnes)	Annual Oil (Barrels)
Baltimore RTB	2,687	19.9	9%	108	16%	339,719	884,819
National Capital Region TPB	1,586	19.4	7%	137	24%	253,613	660,550
Hagerstown-Eastern Panhandle MPO	163	16.7	12%	64	9%	12,116	31,556
Salisbury-Wicomico MPO	99	17.1	9%	91	8%	10,498	27,341
Wilmington Area Planning Council	59	17.4	-1%	102	-12%	7,045	18,348
Cumberland Area MPO	54	14.2	-3%	43	-17%	2,710	7,059
Calvert - St. Mary's MPO	45	16.5	17%	113	7%	5,946	15,488

Maryland County Summary

Left (Original), Right (Update)

Maryland (Original)

Signals Analyzed: 4,772
Signals Analyzed Rank: 13

Daily Averages of Counties Listed by Signal Count

County	Signals	D/V	Total DHD	DHD/Signal	AOG (%)	Total Stops
BALTIMORE (CITY)	1,115	20.7	84,058	75	59.7%	5,884,549
MONTGOMERY	737	17.8	73,853	100	64.6%	5,303,184
BALTIMORE	649	16.9	66,477	102	64.3%	5,067,356
PRINCE GEORGE'S	511	18.5	63,308	124	62.9%	4,556,043
ANNE ARUNDEL	358	17.9	41,477	116	63.0%	3,086,767
HOWARD	218	15.9	16,756	77	63.0%	1,399,631
FREDERICK	162	18.3	15,474	96	59.5%	1,235,138
WASHINGTON	160	15.0	9,316	58	63.1%	826,526
HARFORD	159	18.7	22,807	143	59.9%	1,759,173
WICOMICO	109	15.3	8,914	82	67.5%	683,682

Notes:
- The methodology used to generate results shown is detailed in Appendix A of the Scorecard
- The graphs represent rolling hour statewide summaries, advancing in 15 minute increments
- Acronyms in the lower tables: 'D/V' – Delay per Vehicle in Seconds; 'DHD' – Daily Hours of Delay; AOG (%) – Arrival on Green (%); ADT – Estimated Daily Scaled Crossings
- Counties shown in lower left table must have 10 or more signals to be included. Signalized intersection names come from OSM and may be incomplete.
- All Signals analyzed can be viewed at https://inrix.com/scorecard/map

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Maryland (Update)

Signals Analyzed: 5,001
Signals Analyzed Rank: 16

Counties Listed by Signal Count

County	Signals	D/V (Secs)	D/V Δ (%)	DHD/ Signal	DHD/ Signal Δ	Annual CO$_2$ (Tonnes)	Annual Oil (Barrels)
Baltimore City	1,163	23.0	11%	92	23%	125,517	326,916
Montgomery	786	19.5	10%	135	35%	124,214	323,524
Baltimore	654	18.7	11%	123	20%	93,531	243,606
Prince George's	547	19.3	4%	149	20%	95,255	248,097
Anne Arundel	387	19.0	7%	129	11%	58,142	151,436
Howard	228	17.6	10%	103	34%	27,371	71,289
Frederick	166	20.3	11%	102	7%	19,819	51,620
Harford	165	19.6	4%	135	-6%	26,004	67,729
Washington	163	16.7	12%	64	9%	12,116	31,556
Worcester	121	9.1	-23%	53	-48%	7,430	19,353

Notes:
- The methodology used to generate results shown is detailed in Appendix A of the Scorecard
- Results based on data gathered the week of December 13-19, 2021
- The graphs represent rolling hour statewide summaries, advancing in 15-minute increments
- Acronyms used: 'LOS' – Level of Service; 'D/V' – Delay per Vehicle in Seconds; 'DHD' – Daily Hours of Delay; 'Δ (%)' – Change from February 2021; Tonnes – Metric Tons
- Counties and MPOs shown in lower tables are 10 largest in the state by signals analyzed; must have 10 or more signals to be included in table
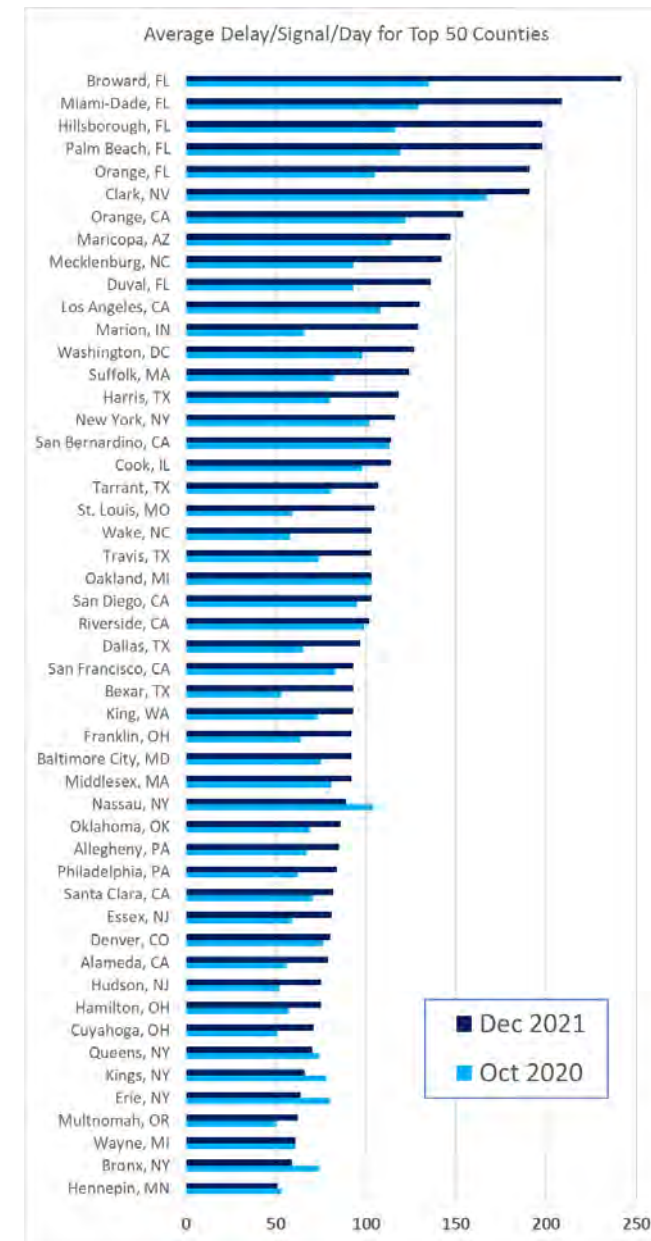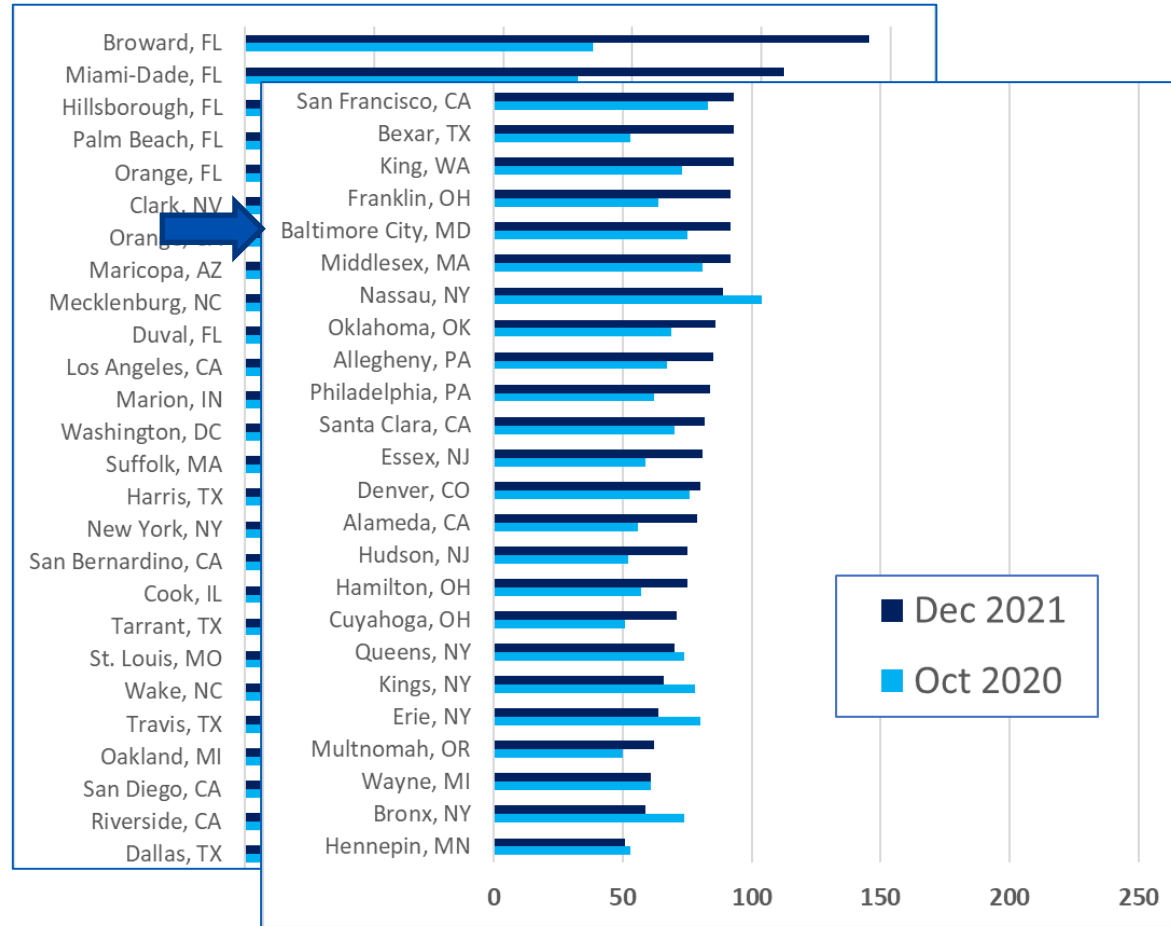- All Signals analyzed can be viewed at https://inrix.com/scorecard/map

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Trends: Hours of Delay/Signal/Day
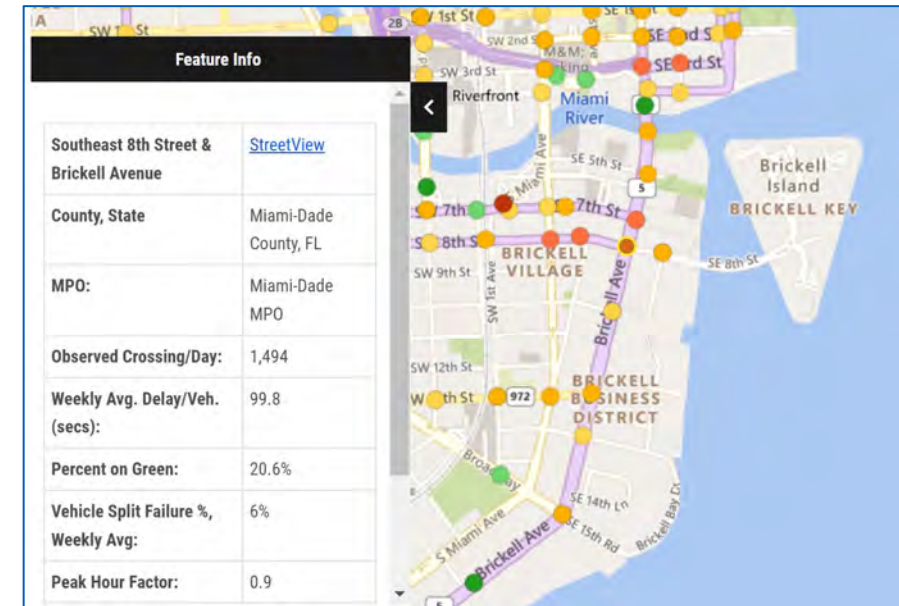
38 counties with 10%+ increases

Average Delay/Signal/Day for Top 50 Counties

'Worst' Intersections

Scorecard Update has 7 different tables, 92 intersections listed

Tables (filtered for 1,000+ observed crossings/day)

- Top 25 Average Weekly LOS in Metro areas

- Top 25 Peak Demand Hour LOS in Metro areas

- AM peak LOS "F" in Metro areas (11 signals)

- Top 10 PM Peak LOS in Metro Areas
  - 81 Signals with LOS "F"

- Top 10 Weekend Midday LOS Nationally
  - 18 Signals with LOS "F"

- Non-Metro Avg Weekly LOS (11 over 50 secs)

- Top 10 Avg Weekly vehicle split failure %

Highest Weekly Average Delay/Vehicle Intersection

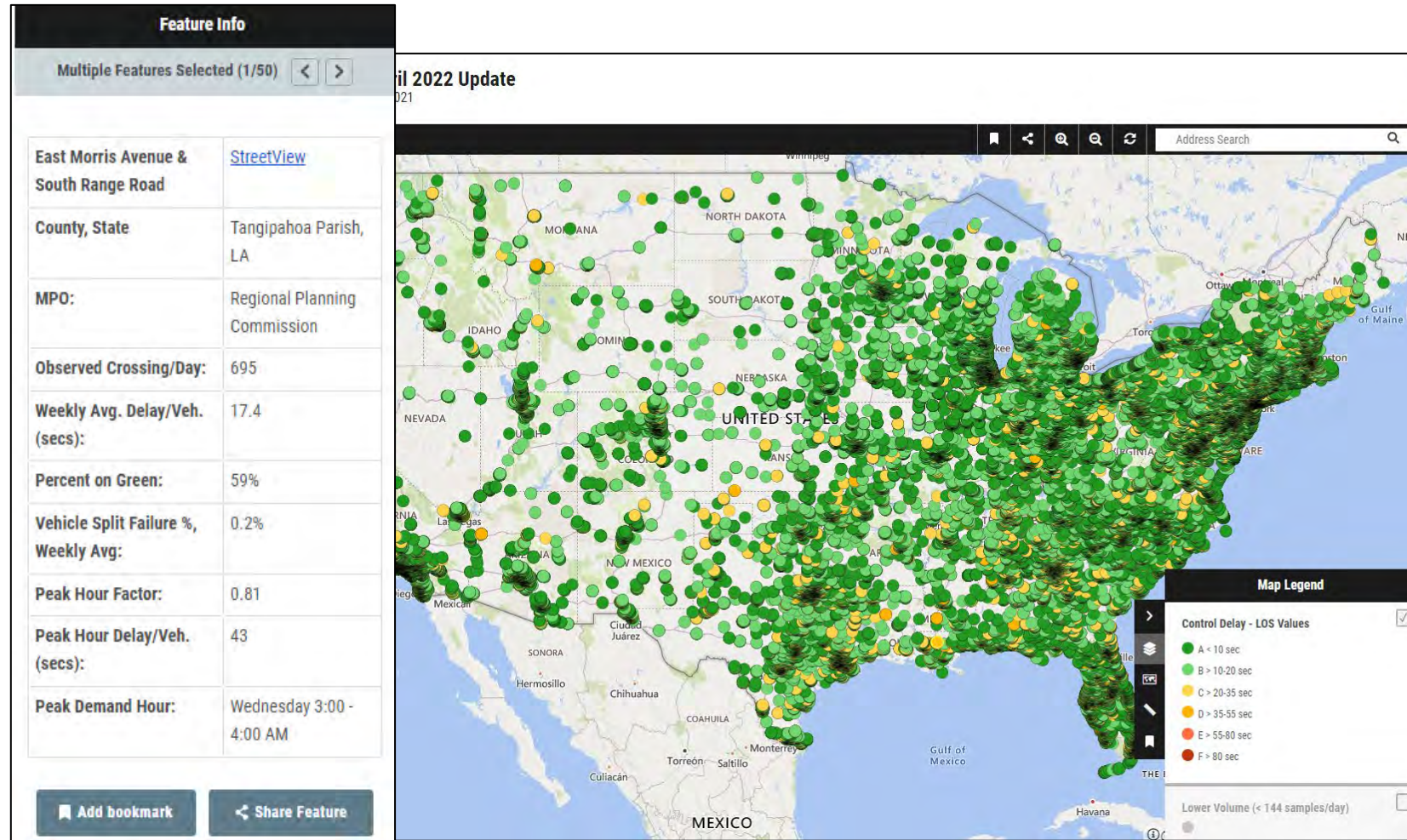| Feature Info	
Southeast 8th Street & Brickell Avenue	StreetView
County, State	Miami-Dade County, FL
MPO:	Miami-Dade MPO
Observed Crossing/Day:	1,494
Weekly Avg. Delay/Veh. (secs):	99.8
Percent on Green:	20.6%
Vehicle Split Failure %, Weekly Avg:	6%
Peak Hour Factor:	0.9

21 states and 57 counties represented in the 92 'slots'

However…none were in Maryland

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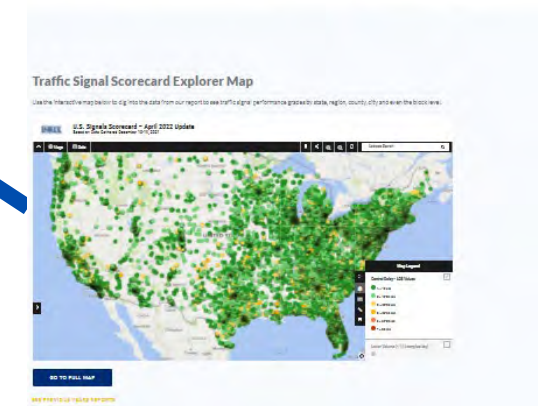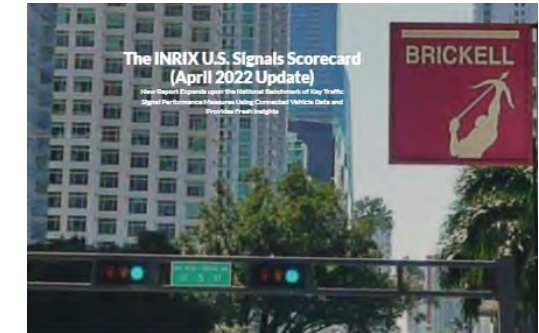
Interactive Map

All Intersections Analyzed are Clickable, with embedded Street View

Feature Info

Multiple Features Selected (1/50)

East Morris Avenue & South Range Road	StreetView
County, State	Tangipahoa Parish, LA
MPO:	Regional Planning Commission
Observed Crossing/Day:	695
Weekly Avg. Delay/Veh. (secs)	17.4
Percent on Green:	59%
Vehicle Split Failure %, Weekly Avg:	0.2%
Peak Hour Factor:	0.81
Peak Hour Delay/Veh. (secs):	43
Peak Demand Hour:	Wednesday 3:00 - 4:00 AM

Add bookmark   Share Feature

Map Legend

Control Delay - LOS Values

- A < 10 sec
- B > 10-20 sec
- C > 20-35 sec
- D > 35-55 sec
- E > 55-80 sec
- F > 80 sec

Lower Volume (< 144 samples/day)

Added Detail in Update

https://inrix.com/signals-scorecard/map

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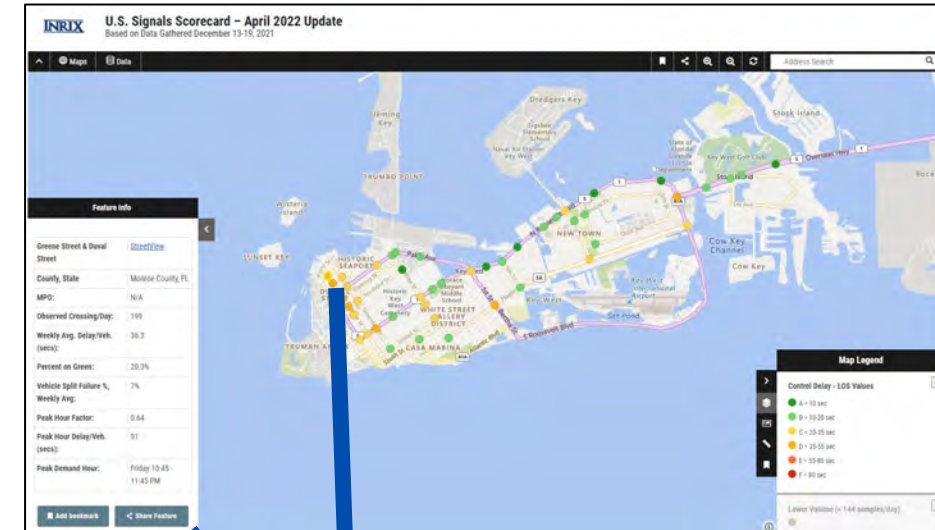
Interactive Map

All Intersections Analyzed are Clickable, with embedded Street View

https://inrix.com/signals-scorecard/map

That's 241,181…What about the rest?

All Signals Tagged as such in OpenStreetMaps (OSM) is included…you can help fill gaps!

U.S. Signals Scorecard – April 2022 Update
Based on Data Gathered December 13-19, 2021

Map Legend

Control Delay - LOS Values
- A < 10 sec
- B > 10-20 sec
- C > 20-35 sec
- D > 35-55 sec
- E > 55-80 sec
- F > 80 sec

Lower Volume (< 144 samples/day)
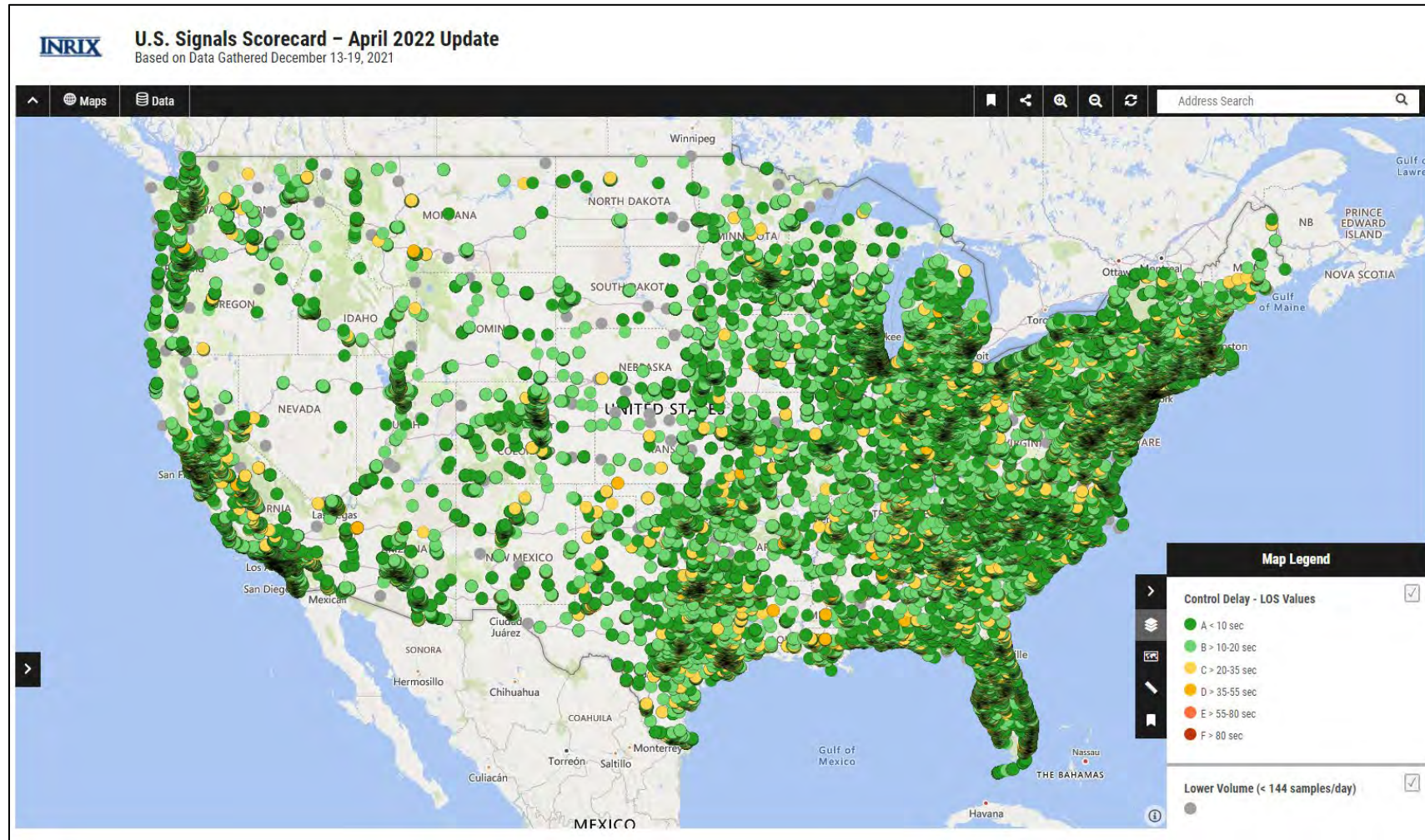
Topics

Methodology

Results

Key Findings

For More Information...

Q&A

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Key Findings

- Revisit Original Scorecard Findings
  - Signals contribute more to overall network delay than previously thought
  - Middays need more attention, 'AM peak may need less'
- New Findings
  - Travel patterns are on the way, but not yet at, the 'new normal'
  - Consider 'time of year' timing plans
  - Signals and Climate – Part of the Solution…or the Problem?

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Topics

Methodology
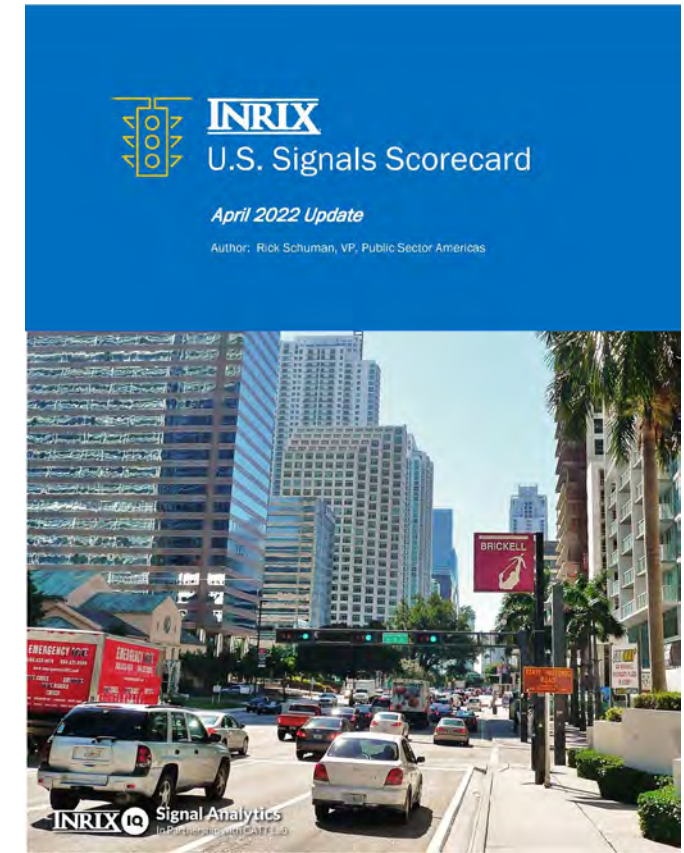
Results

Key Findings

For More Information...

Q&A

INRIX

Reference Sites/Links

- US Signals Scorecard:
  - Home Page: https://inrix.com/signals-scorecard/
  - April 7, 2022 Webinar: https://inrix.com/resources/on-demand-webinar-inrix-u-s-signals-scorecard-april-2022-update/
  - Interactive Map: https://inrix.com/signals-scorecard/map/
  - Blog post: https://inrix.com/blog/signals-scorecard-insights/
  - Original Scorecard Archive: https://inrix.com/signals-scorecard/archive/
- INRIX IQ Signal Analytics
  - Product Page: https://inrix.com/products/signal-analytics/
  - IQ Trial: https://iq.inrix.com/
  - Videos:
    - How it works: https://www.youtube.com/watch?v=jXiiiKasS9A&feature=youtu.be
    - Intersection Analytics Module (w/CATT Lab): https://ritis.org/tutorials/videos/404397193
- References:
  - FHWA's ATSPM Home Page:
    - https://ops.fhwa.dot.gov/arterial_mgmt/performance_measures.htm
  - Old Causes of Congestion Study:
    - https://ops.fhwa.dot.gov/congestion_report/executive_summary.htm#what_is_congestion
  - USDOT BTS/TETC Coalition/UMD CATT Lab TDADS Study:
    - https://tetcoalition.org/projects/transportation-disruption-and-disaster-statistics/

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U.S. Signals Scorecard
April 2022 Update
Author: Rick Schuman, VP, Public Sector Americas

INRIX IQ Signal Analytics

Topics

Methodology

Results

Key Findings

For More Information...

Q&A

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Thank You

Visit: https://inrix.com/signals-scorecard/
https://iq.inrix.com

Contact: Rick Schuman
rick@inrix.com

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