INRIX

Traffic Scorecard

2015

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OVERVIEW/INTRODUCTION

Applying big data to create intelligent transportation systems will be key to solving urban mobility problems.

Urbanization continues to drive increased congestion in many major cities worldwide. Strong economies, population growth, higher employment rates and declining gas prices have resulted in more drivers on the road – and more time wasted in traffic.

INRIX's 2015 Traffic Scorecard analyzes and compares the state of traffic congestion in countries and major metropolitan areas worldwide. The report reveals the cities most impacted by worsened traffic conditions are those that experienced the most economic improvement during the past year. The U.S. had the worst congestion, with the average commuter spending nearly 50 hours in traffic in 2015. Belgium ranked second with 44 hours, followed by the Netherlands (39), Germany (38), Luxembourg (33), Switzerland (30), the United Kingdom (30), and France (28).

The report also compared traffic in more than 100 metropolitan areas worldwide. London topped the list, with drivers wasting an average of 101 hours, or more than four days, in gridlock. This marks the first time a metro has surpassed the 100-hours threshold.

Challenges of urban mobility can lead to reduced productivity, higher emissions and increased stress levels. While not all cities experienced increased congestion in 2015, the impact of traffic is felt worldwide, leading governments and agencies to seek better solutions for city planning and infrastructure improvements.

For most cities, applying big data to create intelligent transportation systems will be key to solving urban mobility problems. INRIX's data and analytics on traffic, parking and population movement can help city planners and engineers make data-based decisions to prioritize spending where it will create the biggest impact now and for the future.

The key findings of the 2015 Traffic Scorecard provide a quantifiable benchmark for governments and cities in Europe and the U.S. to measure progress in improving urban mobility and track the impact of spending on smart city initiatives.

KEY FINDINGS: UNITED STATES OF AMERICA

> **Commuters spent a total of more than 8 billion extra hours stuck in traffic.**

ECONOMIC GROWTH COMPOUNDS U.S. CONGESTION WOES

The INRIX 2015 Traffic Scorecard confirms that the U.S. continues to face challenges in solving its congestion issues. Driven by strong economic growth, the U.S. landed the top ranking as the country experiencing the worst congestion of any of the nations surveyed. Across the country, commuters spent a total of more than eight billion extra hours stuck in traffic, representing almost 50 hours per driver. The most striking common feature of the 10 metros on the most-congested list is a relatively high level of economic growth and job creation. This points to one of the fundamental challenges confronting our nation's traffic policy: How to respond to metropolitan economic growth – or, better yet, anticipate it – in such a way as to head off the waste, inefficiency, and market distortions arising from congestion. This challenge will only become more pressing as the growth of our leading metros continues to accelerate.

SEEKING NEW SOLUTIONS TO CONGESTION CRISIS

As the problem of traffic congestion has become more acute in the U.S., policymakers at all levels have begun to devote more attention to this issue. After all, congested streets create numerous policy problems – they constrain economic activity, worsen air quality, and impede emergency response, to name just a few consequences of chronic gridlock. The U.S. Department of Transportation's $50 million Smart City Challenge and Seattle's successful transportation-infrastructure levy ballot measure are just a couple of examples of innovative ways to reconcile metropolitan growth and mobility.

FUEL PRICES AND CONGESTION

While declining gas prices certainly contribute to congestion, the metros ranked in the 2015 Traffic Scorecard did not experience particularly significant fuel-cost reductions compared to the rest of the country.

Gas prices in all 10 metros did indeed decline in 2015, but most of these high-congestion areas experienced price reductions that were less significant than those found nationwide. While any number of factors may explain why a particular metro ranks among the nation's 10 most congested, gas-price reductions are probably not high among them.

HIGHLIGHTS OF THE INRIX 2015 TRAFFIC SCORECARD ACROSS THE U.S. INCLUDE:

- *THE 2015 U.S. TOP 10*

  The INRIX 2015 Traffic Scorecard ranks U.S. major metropolitan areas by the amount of time an average commuter spends in traffic, measured in hours per year. INRIX found that the 10 most congested U.S. metros in 2015 were:

  The 2015 Top American Cities

  01. Los Angeles, CA – 81 hours
  02. Washington, DC – 75 hours
  03. San Francisco, CA – 75 hours
  04. Houston, TX – 74 hours
  05. New York, NY – 73 hours
  06. Seattle, WA – 66 hours
  07. Boston, MA – 64 hours
  08. Chicago, IL – 60 hours
  09. Atlanta, GA – 59 hours
  10. Honolulu, HI – 49 hours

- *ECONOMIC GROWTH, UNEMPLOYMENT RATES, AND CONGESTION*

  Perhaps the strongest unifying factor across the 10 most congested metros is robust GDP growth. Metros that have experienced the most economic improvement during the past year are at highest risk for consequences related to worsened traffic conditions – including reduced productivity, higher emissions and increased stress levels.

  All top-10 metros except Houston saw their GDPs rise more sharply than the national average of 2.4 percent. Some, such as San Francisco (4.5 percent), Atlanta (4.5 percent), Seattle (4.1 percent), and Washington, DC (3.9 percent), outpaced the national rate by especially impressive margins. Even Houston, which saw its GDP actually decline slightly in 2015, may be an exception that proves the rule – it had long boasted one of the fastest-growing economies of any metro area in the nation, and a single year of modest retrenchment probably wouldn't suffice to curb its overall congestion levels.

The 2015 U.S. Top 10: GDP Growth
(National Average: 2.4 percent)

01. Los Angeles, CA (GDP Growth: 3.3 percent)
02. Washington, DC (3.9 percent)
03. San Francisco, CA (4.5 percent)
04. Houston, TX (-1.36 percent)
05. New York, NY (3.4 percent)
06. Seattle, WA (4.1 percent)
07. Boston, MA (3.6 percent)
08. Chicago, IL (3.2 percent)
09. Atlanta, GA (4.5 percent)
10. Honolulu, HI (3.0 percent)

The most congested metro on the list, Los Angeles, had an unemployment rate (5.9 percent) slightly higher than the national average (5.5 percent), but its jobless rate was nonetheless heading downward.[1] Atlanta was the only other Top 10 metro that had an unemployment rate higher the national average. Chicago's rate essentially equaled that of the country as a whole.

The 2015 U.S. Top 10: Unemployment Rates
(National Average: 5.5 percent)

01. Los Angeles, CA (Unemployment Rate: 5.9 percent)
02. Washington, DC (4.5 percent)
03. San Francisco, CA (4.1 percent)
04. Houston, TX (4.9 percent)
05. New York, NY (4.1 percent)
06. Seattle, WA (4.6 percent)
07. Boston, MA (3.9 percent)
08. Chicago, IL (5.4 percent)
09. Atlanta, GA (5.7 percent)
10. Honolulu, HI (3.5 percent)

[1] United States Department of Labor, Bureau of Labor Statistics, http://www.bls.gov/home.htm.

POPULATION GROWTH AND CONGESTION

Not surprisingly, the 10 most congested metros are not only populous; several of them also saw their populations grow at a substantial rate.

Population growth does not seem to be quite as strong a correlative factor as economic growth or low unemployment; four metro areas in the Top 10 either had flat population growth (Chicago) or experienced population increases below the national rate (New York, Honolulu, and – by a slim margin – Los Angeles). Nonetheless, the list does include three metros that more than doubled the national population-growth rate (Houston, Seattle, and Atlanta) and another that came close to doing so (San Francisco).

The 2015 U.S. Top 10: Population Growth
(National Average: 0.76 percent)

01. Los Angeles, CA (Population Growth Rate: 0.7 percent)
02. Washington, DC (1.12 percent)
03. San Francisco, CA (1.4 percent)
04. Houston, TX (1.62 percent)
05. New York, NY (0.5 percent)
06. Seattle, WA (1.6 percent)
07. Boston, MA (0.7 percent)
08. Chicago, IL (unchanged)
09. Atlanta, GA (1.61 percent)
10. Honolulu, HI (0.5 percent)

GEOGRAPHY AND CONGESTION

Honolulu's presence on this list suggests that a large population base and strong growth rate are not perfect predictors of traffic levels. Honolulu's metro population is not especially large by U.S. standards (the entire metro area has just under a million people – by far the smallest population of any on the top 10 list), and its growth rate lagged behind the national average.

Another factor that must be taken into account is geography: Honolulu is tucked into the corner of the island of Oahu, fronting onto the Pacific Ocean. This location, of course, greatly enhances Honolulu's aesthetic allure – but it also reduces the space available for drivers to enter the urban core.

Similar space constraints are at work in other maritime metros in the top 10, including New York, San Francisco and Seattle. These and other coastal metros derive enormous benefits from their proximity to water; that proximity, however, requires them to devise imaginative approaches to transportation and traffic management.

Of course, even landlocked metros are hardly immune to congestion – as any resident of ninth-ranked Atlanta would be quick to confirm.

KEY FINDINGS: EUROPE

WEAK ECONOMY CONTRIBUTES TO CONGESTION DECREASE

INRIX's 2015 Traffic Scorecard shows that 70% of the 13 European countries analyzed saw a decrease in congestion compared to 2014. This can be attributed to a sluggish Europe-wide economy, with an average quarterly GDP rate of just 0.3% in the second half of last year[2], which was still below the pre-crisis peak of 2008.

IMPACT OF INCREASED EMPLOYMENT

By December 2015, unemployment in the European Union (EU) fell to its lowest level since August 2011. As employment goes up, congestion levels typically rise due to increases in commuter numbers and in consumer spending power. As Europe works toward the European Commission's goal of 75% employment by 2020, nations will need to invest heavily in infrastructure to avoid long term congestion.

'BREXIT' DEBATE CASTS UNCERTAIN FUTURE OVER UK

UK Prime Minister David Cameron has announced that a referendum will be held on 23 June to decide if Britain will remain in the EU. Debate in the months ahead of the vote is widely expected to cause economic uncertainty and the value of the pound has already fallen. This is likely to have an impact on business across the UK, and in particular in London, which contributed 22% of UK GDP in 2015 and is currently the most congested city included in the Traffic Scorecard. If the UK does vote to leave the EU, the economic impact could be felt across the continent.

[2] http://www.economist.com/blogs/graphicdetail/2016/02/taking-europe-s-pulse

HIGHLIGHTS OF THE INRIX 2015 TRAFFIC SCORECARD ACROSS EUROPE INCLUDE:

The 2015 Top European Countries:

Measured in hours per year, INRIX found that the most congested European countries in 2015 were:

01. Belgium – 44 hours
02. Netherlands – 39 hours
03. Germany – 38 hours
04. Luxemburg – 33 hours
05. Switzerland – 30 hours
06. UK – 30 hours
07. France – 28 hours
08. Austria – 25 hours
09. Ireland – 25 hours
10. Italy – 19 hours
11. Spain – 18 hours
12. Portugal – 6 hours
13. Hungary – 5 hours

The 2015 Top European Cities:

01. London Commute Zone, UK – 101 hours
02. Stuttgart, Germany – 73 hours
03. Antwerp, Belgium – 71 hours
04. Cologne, Germany – 71 hours
05. Brussels, Belgium – 70 hours
06. Moscow, Russia – 57 hours
07. Karlsruhe, Germany – 54 hours
08. Munich, Germany – 53 hours
09. Utrecht, Netherlands – 53 hours
10. Milan, Italy – 52 hours
11. Greater Manchester, UK – 51 hours
12. Düsseldorf, Germany – 50 hours
13. s-Gravenhage (The Hague), Netherlands – 48 hours
14. Rotterdam, The Netherlands – 46 hours
15. Paris, France – 45 hours

LONDON TOPS GLOBAL CONGESTION RANKINGS

London retained its status as Europe's most gridlocked city, thanks to continued economic growth, record population levels and roadworks to improve infrastructure. Drivers wasted an average of 101 hours, or more than four days, in traffic congestion during 2015 – the first city to surpass 100 hours in gridlock. Urbanisation is a key driver of congestion, and London's population topped 8.6 million[3] last year, the highest since its 1939 peak, increasing by more than 100,000.[4] Transport for London is tackling the congestion problem with its £4 billion Road Modernisation Plan, funding improvements such as the Cycle Superhighways and multiple bridge replacements. In the short term the roadworks associated with this plan and other initiatives, such as Crossrail (an ambitious programme to create a high-frequency rail link between London and the South East of England) and Crossrail 2 (a connector between North East and South West London), are leading to more congestion – but they are steps towards creating a more sustainable and modernised transport network.

RISE IN VEHICLE REGISTRATIONS HELPS MAKE STUTTGART GERMANY'S MOST GRIDLOCKED CITY

Stuttgart experienced the highest increase of European cities analyzed, reaching 73 average hours wasted in 2015, a rise of 8.5 hours from 2014. This propelled Stuttgart from fifth to second in the rankings and can be attributed to low fuel prices[5], a record 50,000 more registered vehicles in the city[6] and more people commuting to work by car.

DESPITE DROP IN TRAFFIC, BELGIUM REMAINS MOST CONGESTED EUROPEAN COUNTRY

Brussels – Europe's most congested city in 2012 and 2013 and second to London in 2014 – experienced a significant drop in delays in 2015 with 70 hours wasted in traffic, a decline of more than four hours from 2014 and moving the city down to fifth in the rankings. A key contributing factor is recent investments in Brussels to strengthen key suburban rail services in and around the city to help ease gridlock.[7] In contrast, Antwerp experienced significant increases in hours spent idle in traffic, and Belgium remained the most congested European country analysed.

[3] http://www.bbc.co.uk/news/uk-england-london-31082941

[4] http://webarchive.nationalarchives.gov.uk/20160105160709/http://www.ons.gov.uk/ons/rel/pop-estimate/population-estimates-for-uk--england-and-wales--scotland-and-northern-ireland/mid-2014/sty---overview-of-the-uk-population.html

[5] http://www.bild.de/geld/wirtschaft/oelpreis/halb-europa-tankt-teurer-als-wir-44217182.bild.html

[6] http://www.kfz-innung-stuttgart.de/presse/pkw-zulassungen-region-stuttgart/

[7] Suburban train service strengthened in and around Brussels

- *ROADWORKS AND NEW CONSTRUCTION LEAD TO SHORT-TERM PAIN, LONG-TERM GAIN*
  While London is the biggest victim of a growing economy attracting more people, more construction and consequently more traffic – other regions throughout the UK and the rest of Europe also experienced this short-term side effect on the way to long-term benefits. In Belfast, roadworks on the M2 as a result of a road improvement scheme[8] caused drivers to sit idle for 38 hours in 2015. On the other hand, Birmingham experienced the biggest decline in delays, with a decrease of 2.5 hours annually, which could be attributed to the completion of roadworks on the M6 and redevelopment projects in the city centre.

ADDITIONAL EUROPEAN FINDINGS FROM 2015 INRIX TRAFFIC SCORECARD

- Of the 13 European countries analyzed, nine saw reduced congestion figures in 2014: Belgium (-6.3 hours), Netherlands (-1.5), Germany (-0.7), Luxemburg (-0.9), UK (-0.1), France (-0.3), Italy (-0.6), Portugal (-0.2) and Hungary (-1.0). The remaining four saw increases: Switzerland (1.2 hours), Austria (0.4), Ireland (0.5) and Spain (0.2).

- 48 of 94 cities saw an increase in traffic (51%), while the remaining 46 saw a decrease (49%). Amongst the top 14 most congested cities, seven saw reduced congestion: Brussels (-4.2 hours), Karlsruhe (-8.9), Milan (-5.0), Greater Manchester (-0.4), Düsseldorf (-3.2), s-Gravenhage (The Hague, -2.6 hours) and Rotterdam (-2.1). The remaining seven saw increases: London Commute Zone (5.2 hours), Stuttgart (8.5), Antwerp (6.6), Cologne (5.2), Munich (4.5), Utrecht (0.1) and Paris (0.1).

- The INRIX 2015 Traffic Scorecard for the first time also included analysis of traffic congestion in Moscow and Istanbul. In Moscow, drivers spent 57 hours wasted in traffic, making it sixth on the list of Europe's most congestion metropolitan areas for 2015. Istanbul was ranked 66th on the list, with delays that resulted in 27 hours wasted per commuter last year.

[8] http://www.belfasttelegraph.co.uk/news/northern-ireland/m2-drivers-face-delays-in-400000-roadworks-31408138.html

CONCLUSIONS

Looking ahead, the INRIX 2015 Traffic Scorecard identifies the following issues for policymakers and the public to watch in the year ahead:

- *ECONOMIC GROWTH WORSENS CONGESTION – BUT CONGESTION CAN THREATEN ECONOMIC GROWTH*

  As metropolitan economies continue to grow, governments should be prepared to invest in solutions to reduce the inevitable rise in congestion – a condition that can undermine the dynamism, livability, natural beauty, and other qualities that make certain cities so attractive in the first place.

  The problem of congestion cannot be solved simply by adding new roads or fixing the pavement on existing ones. If our cities are to enjoy the benefits of growth without experiencing the myriad ill effects of congestion, they will need to invest in smarter solutions.

  Some of these solutions are tried-and true, such as increased mass transit and other multimodal options, including pedestrian and bicycle programs. Others are more novel, such as the adjustment of traffic-signal intervals based on up-to-the-minute traffic data.

  Fueling the transformation toward new approaches for city planning are programs such as the U.S. Department of Transportation's $50 million Smart City Challenge and the European Innovation Partnership on Smart Cities and Communities. As these and similar programs introduce new strategies for combatting congestion, policymakers will need increasingly sophisticated data to assess their effectiveness, and to ensure that commuters and taxpayers get a sound return on their public investments.

- *DATA ANALYTICS CAN TRANSFORM INFRASTRUCTURE*

  Data-based solutions are increasingly arising as valuable tools for planners and policy makers looking to break the growth-congestion cycle. By 2017, according to ABI Research, 80 percent of cars on the road in the U.S. and Western Europe will have the ability to receive and generate real-time traffic data.

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Planners to make long-term transportation policy with a sharper sense of congestion trends.

Using the best available data, such as INRIX's floating car data (FCD) from GPS sensors, will also allow municipal, state, and federal planners to make long-term transportation policy with a sharper sense of congestion trends and potential future needs

Connected car technology is already enabling trends in how agencies are using big data to monitor and manage traffic as never before. INRIX currently partners with more than 200 governments and transport agencies worldwide, providing them with the industry's most accurate traffic data and analytics to address today's transportation challenges and enhance intelligent movement. INRIX's data is collected across its network of five million miles (8 million km) of road in more than 42 countries to provide accurate, timely information on traffic patterns, accidents, and blockages.

This data can help create the intelligent transportation systems that will be crucial to solving urban mobility problems. INRIX's traffic analytics can help city planners and engineers make data-based decisions to prioritize spending where it will create the biggest impact now and for the future. When working with limited budgets to manage transportation systems, using data-based performance metrics can make a major difference in the outcomes of planning and implementing new infrastructure.

Using the best available data, such as INRIX's floating car data (FCD) from GPS sensors, will also allow municipal, state, and federal planners to make long-term transportation policy with a sharper sense of congestion trends and potential future needs. This is already happening in Denmark, where INRIX has provided the Danish Road Directorate with technologies that detect traffic patterns and issue congestion warnings with unprecedented responsiveness and accuracy.

Such approaches are becoming increasingly available and affordable. As our leading cities continue to grow, these strategies will also become increasingly necessary to the long-term prosperity, health, and happiness of their populations.

METHODOLOGY: INRIX 2015 TRAFFIC SCORECARD

This section provides an overview of the methodology used to develop the INRIX 2015 Traffic Scorecard.

SOURCE DATA & ANALYSIS

The INRIX Traffic Data Archive is the source of “Big Data” (typically several years of historical traffic information) used in the Scorecard. The INRIX 2015 Traffic Scorecard analyzes metropolitan areas in the United States and European countries, as well as select cities in Asia.

INRIX has developed efficient methods for interpreting its real-time traffic data to establish monthly and annual averages of travel patterns. These same methods can aggregate data over periods of time to provide reliable information on speeds and congestion levels for specific segments of roads.

ANALYSIS TIME PERIOD

The Scorecard contains detailed information from January 2010 through the current year.

METROPOLITAN AREA & ROADS/SEGMENTS ANALYZED

One of the difficulties in analyzing and comparing metropolitan area congestion is defining what constitutes a geographic area. INRIX has strived to take standard definitions of metropolitan areas rather than creating our own.

For Europe, INRIX follows the Eurostat Urban Audit definitions of Larger Urban Zones (LUZ). At present the Urban Audit includes 321 cities from the 27 European Union Member States, 26 Turkish cities, six Norwegian cities and four Swiss cities. **See this link for more information and maps of LUZs**. For the United States, INRIX uses metropolitan-area definitions established by the Census Bureau.

For each metropolitan area, INRIX analyzes its reporting network of major motorways and arterial roads. INRIX utilizes a common industry convention known as “TMC location codes” developed and maintained by the leading electronic map database vendors to uniquely define road segments.

The typical road segment is the interchange and the portion of linear road leading up to the interchange across all lanes in a single direction of travel. The length of a segment will depend upon the length of the distance between interchanges.

ROAD SEGMENT DATA

There are two key building blocks for the different analyses included in this report:

- Reference Speed (RS): An uncongested "free-flow" speed is determined for each road segment using the INRIX Traffic Archive.

- Calculated Speed (CS): All archived speeds for each 15-minute period each day for each road segment is calculated for each month (e.g. Monday from 06:00 to 06:15 for April 2014), and a "calculated speed" for each time slot is established for each road segment. Thus, each segment has 672 corresponding calculated speed values – representing four 15-minute time windows for all 24 hours of each day, multiplied by the seven days in a week.

OVERALL CONGESTION BY METROPOLITAN AREA

To assess congestion across a metropolitan area, INRIX utilizes and adapts several concepts that have been used in similar studies and previous Scorecards.

INRIX Travel Time Index (TTI): The INRIX Travel Time Index represents the measurement of congestion intensity. For a road segment with no congestion, the TTI would be zero. Each additional point in the TTI represents a percentage-point increase in the average travel time of a commute above free-flow conditions during peak hours. A TTI of 30, for example, indicates a 30 percent increase over the free-flow speed; under such conditions, a 20-minute free-flow trip will take 26 minutes during peak travel time. For each road segment, a TTI is calculated hourly over the period of a single week.

"Drive Time" Congestion: To assess and compare congestion levels year to year and between metropolitan areas, only "peak hours" are analyzed. Consistent with similar studies, peak hours are defined as the hours from 06:00 to 10:00 and 15:00 to 19:00 of "local time," Monday through Friday – 40 of the 168 hours of a week.

For each metropolitan area, an overall level of congestion is determined for each of the 40 peak hours by determining the extent and amount of average congestion on the analyzed road network. This is easy to compute once INRIX Indices are calculated for each segment:

- **STEP 1:** For each of the 40 peak hours, FRC1, FRC2 and FRC3 segments are analyzed in the metro areas are checked. Each segment where the TTI is greater than zero is contributing congestion, and it is analyzed further.

- **STEP 2:** For each segment contributing congestion, the amount the TTI is greater than 1 is multiplied by the length (metric or imperial, based on region) of the segment, resulting in a congestion factor.

- **STEP 3:** For each hour period, the overall metropolitan congestion factor is the sum of the congestion factors calculated in STEP 2.

- **STEP 4:** To establish the metropolitan TTI for a given hour period, the metropolitan congestion factor from STEP 3 is divided by the number of road lengths analyzed.

- **STEP 5:** A peak period TTI is determined by averaging the hour indices from STEP 4 during the peak hours as defined above.

WASTED TIME (HOURS/MINUTES) IN CONGESTION

To convert delay from a typical commute trip into monthly and annual delay totals – "Hours Wasted in Congestion" – requires an estimate of typical commute trip length (in time) and the number of trips the typical commuter takes in a month/year.

In Europe, government trip-time estimates are used where credible. Otherwise, a 30-minute trip time is used.

CONGESTED CORRIDORS

We analyze specific road segments on an annual basis to identify the locations of the most congested corridors within a given metropolitan area. The following approach is used to determine and then rank corridors:

- The corridor must be comprised of multiple road segments (i.e., TMCs).

- The corridor must have at least one segment that is congested for ten hours a week or more on average.

- All road segments in the corridor must have at least four hours a week of congestion on average.

- To prevent inadvertently breaking up logical corridors, in cases where one or two short segments do not meet the four-hour minimum, exceptions are made. However, these segments be in the middle of a corridor, not at the start or end.

- Once the corridors were identified, another analysis determined several different travel-time statistics that are used to describe and rank each corridor. The following steps were used to analyze and rank the corridors:

For each corridor:

- The uncongested/free-flow travel time is calculated (from the RS of each road segment in a corridor).

- Average travel times for both peak periods (AM and PM) are determined.

- The highest peak-period travel time is compared to the uncongested/free-flow travel time, resulting in both an average peak-period delay and a peak-period INRIX Index.

- To illustrate how bad a corridor is at its most congested, the INRIX Index is used to identify the hour at which that corridor suffers its most severe delays.

- To rank corridors:

    - A corridor-congestion factor is determined for each corridor by multiplying average delay by the INRIX Index for the worse of the AM or PM peak periods.

    - Each corridor's congestion factor can be compared to and ranked against others within the same metropolitan area, and against corridors in other metro areas.