



PRE-XVII CONGRESO ARGENTINO
de Vialidad y Tránsito

8º EXPOVIAL ARGENTINA

3 AL 6 DE NOVIEMBRE 2014

HOTEL PANAMERICANO - Buenos Aires, Argentina



Cloud ITS: Reducing Congestion & Saving Lives

X CONGRESO INTERNACIONAL ITS

X SIMPOSIO DEL ASFALTO

II SEMINARIO INTERNACIONAL DE PAVIMENTOS DE HORMIGÓN



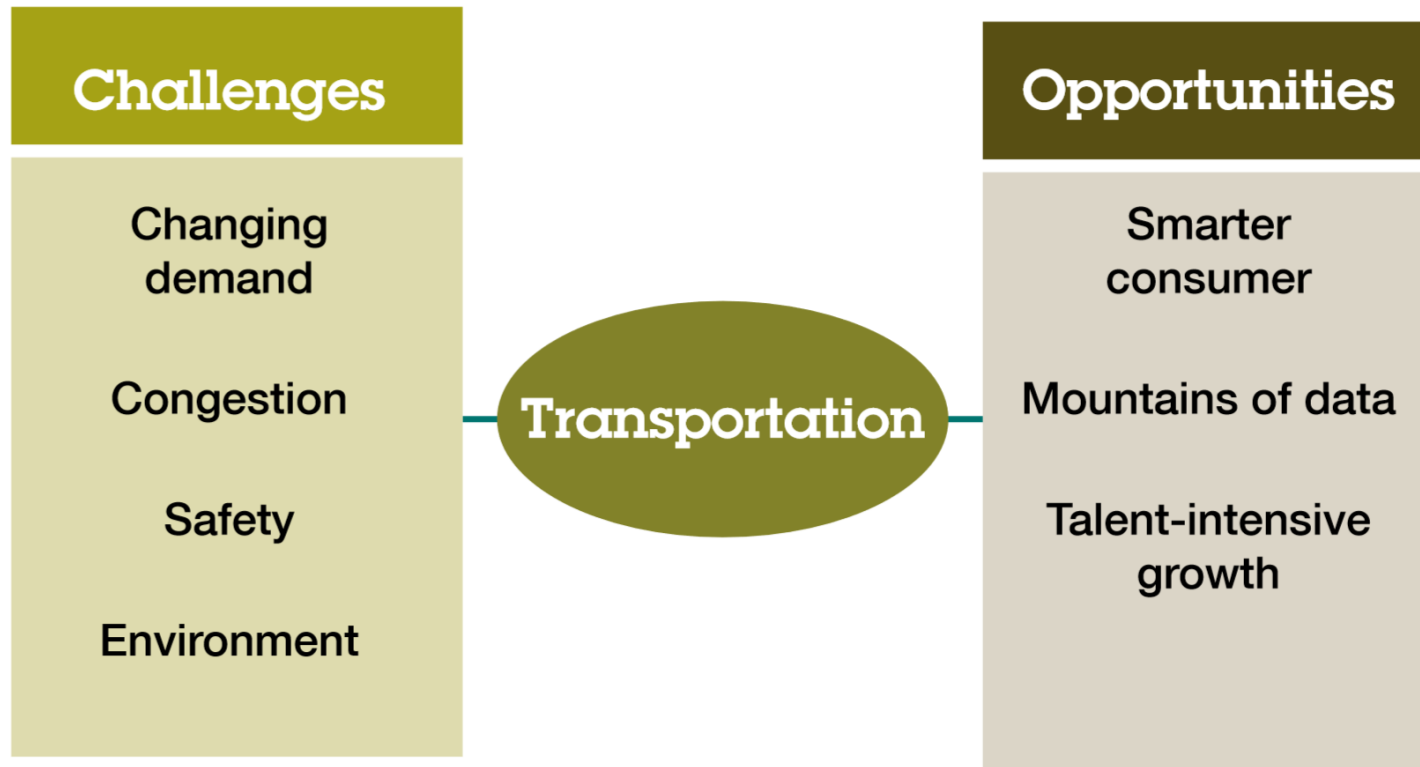
www.congresodevialidad.org.ar

In 2008, for the first time in human history, the proportion of the world's population based in urban areas was greater than 50 percent.

*IBM Report: Transportation and Economic Development

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Challenges & Opportunities



Source: IBM Institute for Business Value Center for Economic Analysis.



Why ITS?

Intelligent Transportation Systems (ITS) are the present and future of transportation management in the U.S. and around the world.

- Transit time reduction (est. up to 25%)
- Decreased emissions (~ 22%)
- Enhanced accident prevention
- Facilitate systems management approach for intermodal planning
- Conserve space for community development
- Job growth - up to 600K new jobs over the next 20 years.



Intelligent Transport Systems

- \$1 billion-plus market in US, projected to expand to \$3 billion by 2017 (IMS, Pike, ITIF).
- Nearly 80% of current ITS spending is on Advanced Traffic Management Systems (ATMS) and Advanced Traveler Information Systems (ATIS).
- Efficiency upgrade provide a 3 - 10x cost-benefit improvement over infrastructure (roads, bridges), which was \$39 billion in 2009 per the CBO (2011).

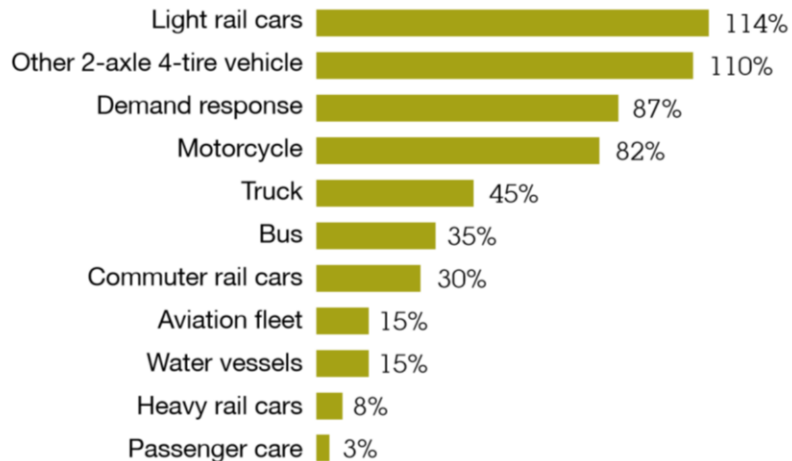


Traffic Adaptive Control

- Dynamically respond to congestion conditions
- Increase overall roadway capacity
- Update network wide signal coordination based upon criteria:
 - Congestion mitigation
 - Emissions control
 - Idle times
 - Vehicle throughput

Why is this important?

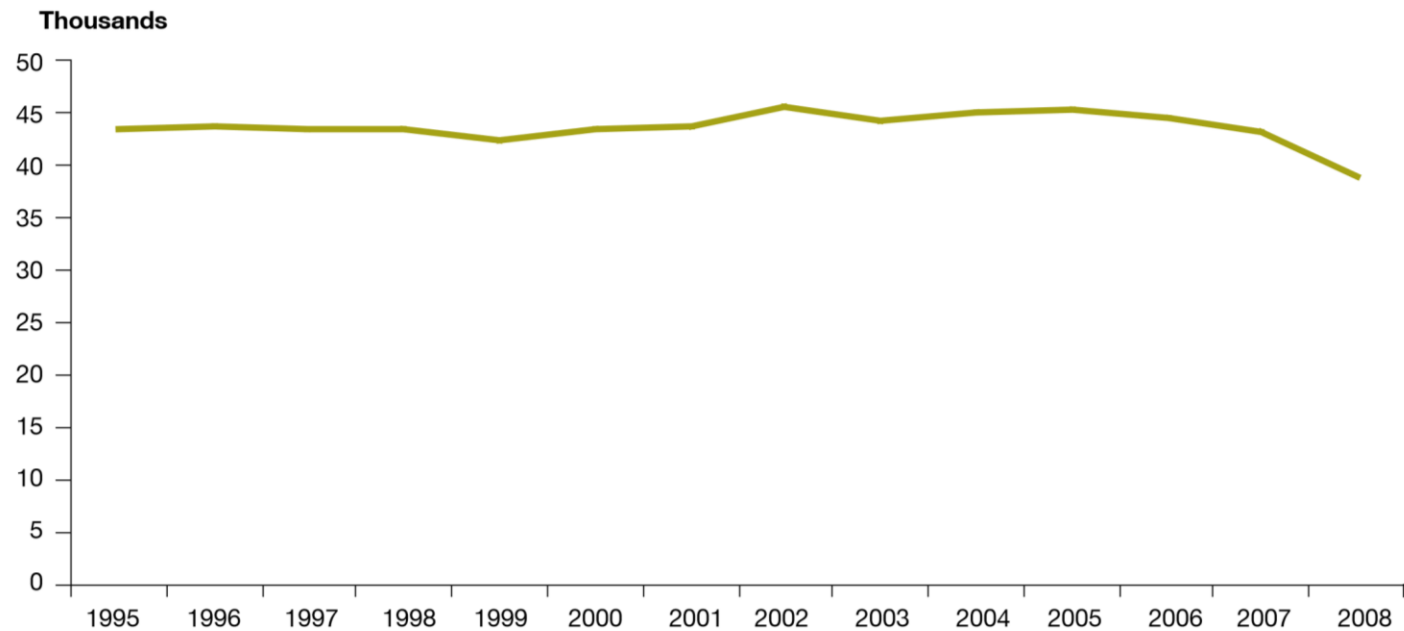
Increase Transport Usage



Source: Research and Innovative Technology Administration, Bureau of Transportation Statistics.

- Cost of Congestion in US
 - US \$101 Billion
 - 4.8 Billion hours of wasted time
 - Quality of life
 - Emissions
 - Air pollution
 - Noise pollution
- As societies become wealthier, quality of life increases in importance

Traffic Fatalities



Source: The 2011 Statistical Abstract. Transportation: Motor Vehicle Accidents and Fatalities. Table 1102. Motor Vehicle Accidents—Number and Deaths: 1980 to 2008. US Census Bureau.



Connecting People

- Connected vehicle initiative
- Shift to multi-modal travel
- Getting information into the hands of the people who need it!
- How do we get there?
 - Connecting people with the information they need!
 - Relevant and accurate, real-time information

Congestion Measurement Technology

- Inconspicuous installation
- Measure total congestion:
 - Travel-time
 - Delay
- Cost-effective solutions
 - Easy to install
 - Limited maintenance
 - Cloud-based infrastructure



Smart phones, laptops, tablets and other devices each have a unique MAC address



48:27:45:67:89:fb

01:23:11:56:76:ab

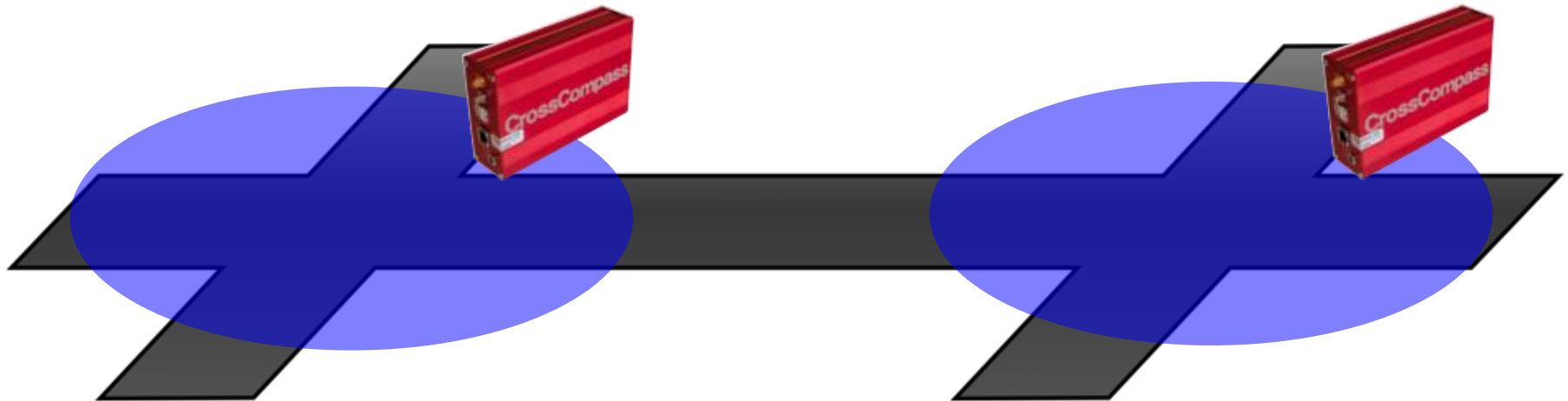
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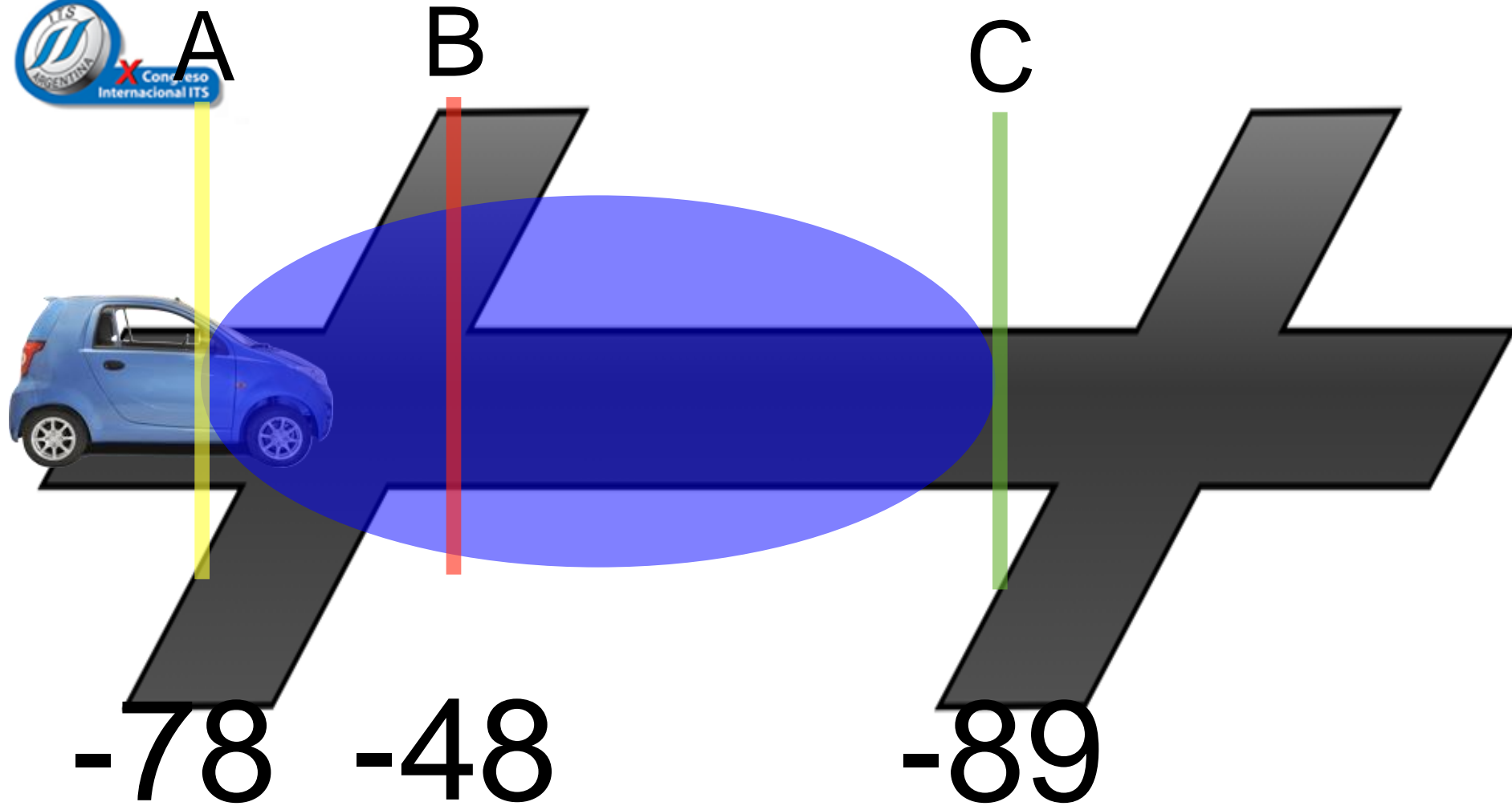
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Acyclica technology anonymously
collects information and distills
actionable information

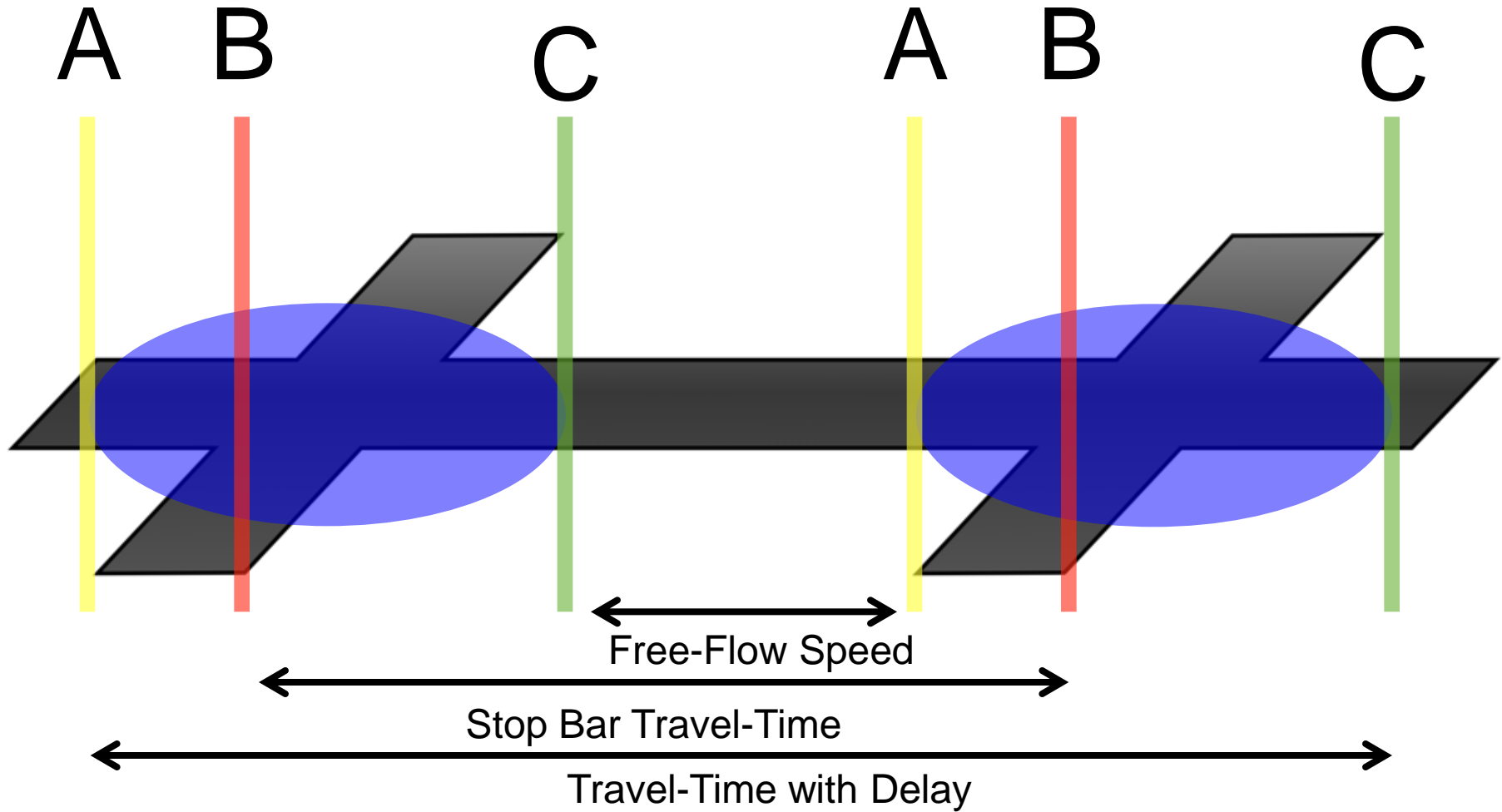
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With Wifi detection, we fully characterize vehicle movement as it approaches, stops and leaves an intersection.

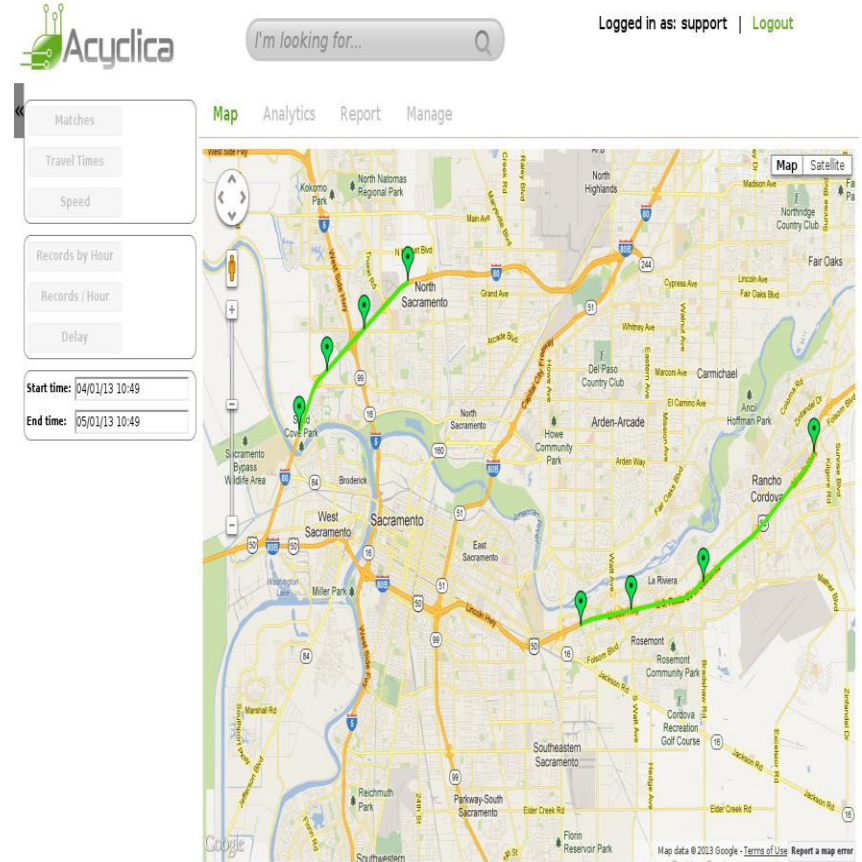


Understanding Travel-Time



Applications

- Congestion mapping
- 511 systems
- Route planning
- Intersection high speed approach
- HOV / congestion based tolling
- Travel times
- Intersection delay analysis
- Level of service indications
- 24x7 turning movement analysis



Applications

- Workzone congestion enforcement
- Variable message signs
- Corridor speed & travel-time analysis
- Ramp metering activations
- Incident Detection
- Origin - Destination Analysis



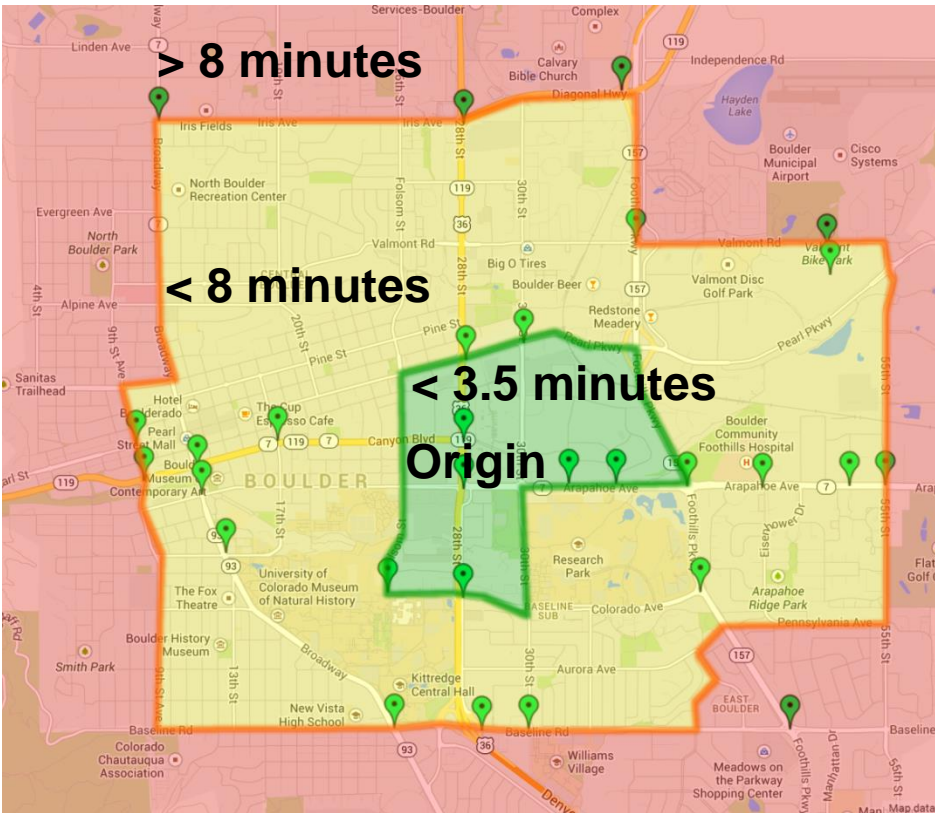
Applications

- Public transit utilization
- Public transit origin - destination
- Round-a-bout entry-departure analysis
- Time-based route planning
- Emergency responder routing



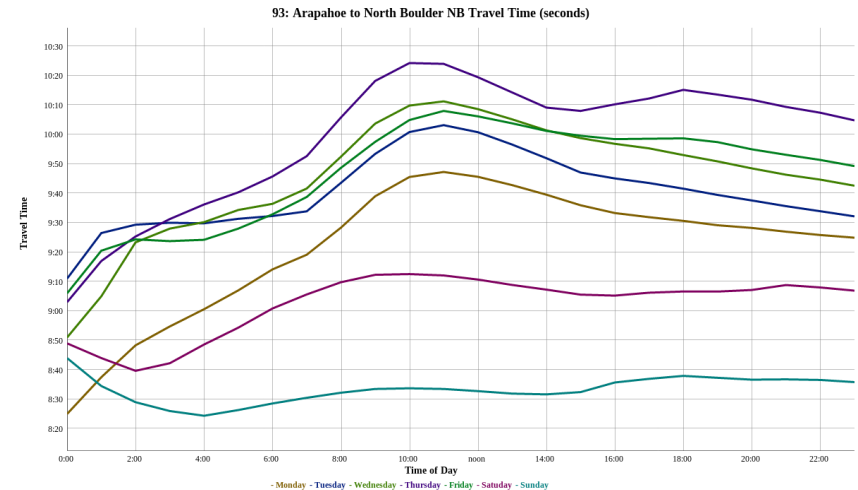
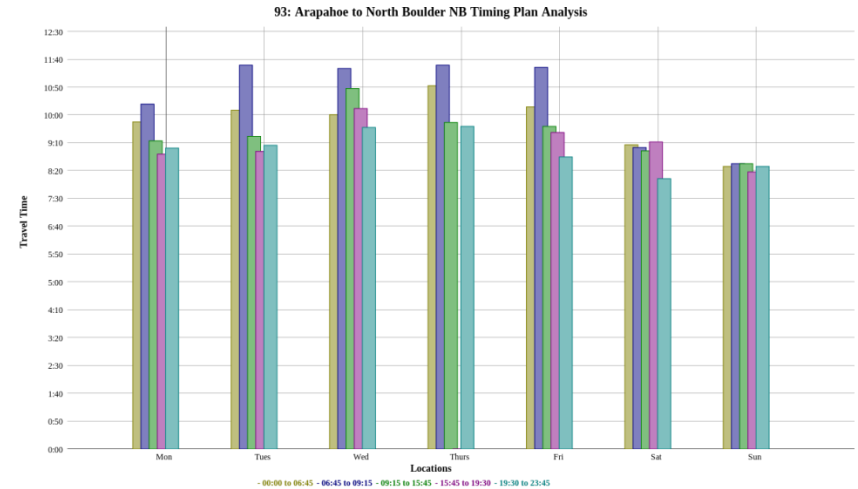
Time Mappings

- Given any origin location, Acyclica can provide travel times across city
- Valuable analytics for economic development
- Understand commute times across region
- Optimize public transit based on travel-time



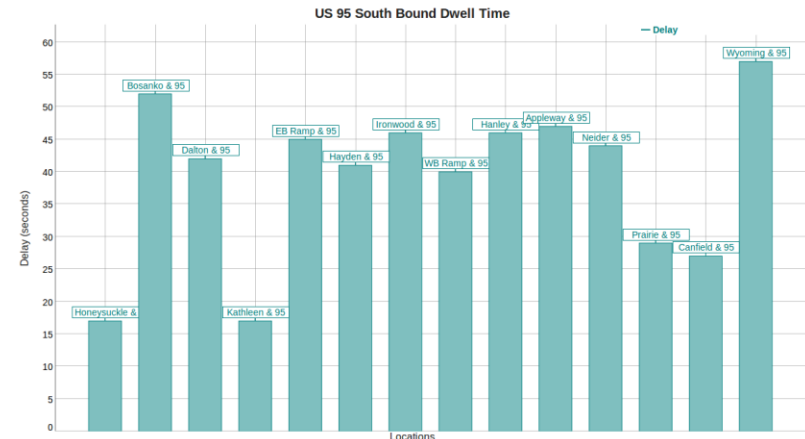
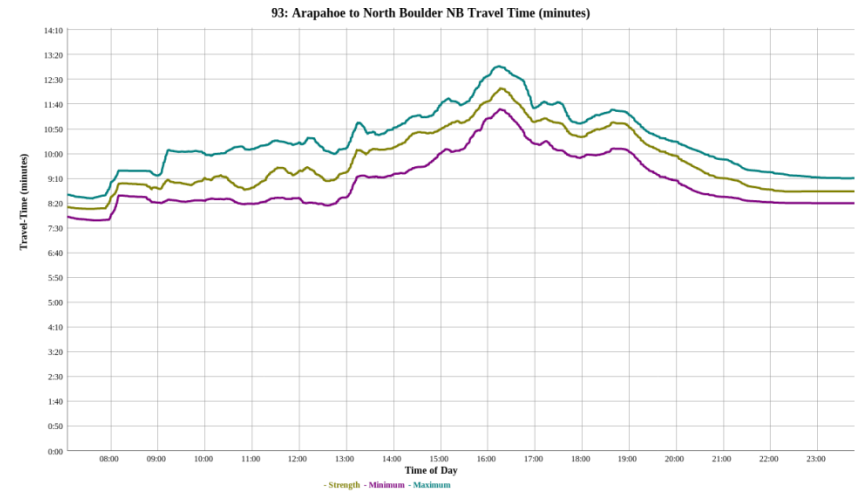
Corridor Analysis

- Advanced traffic engineering tools to optimize signal timing
- Analyze route travel-times by time of day and day of week
- Quickly analyze traffic patterns week-over-week or day by day
- Provide direct feedback for adaptive traffic systems



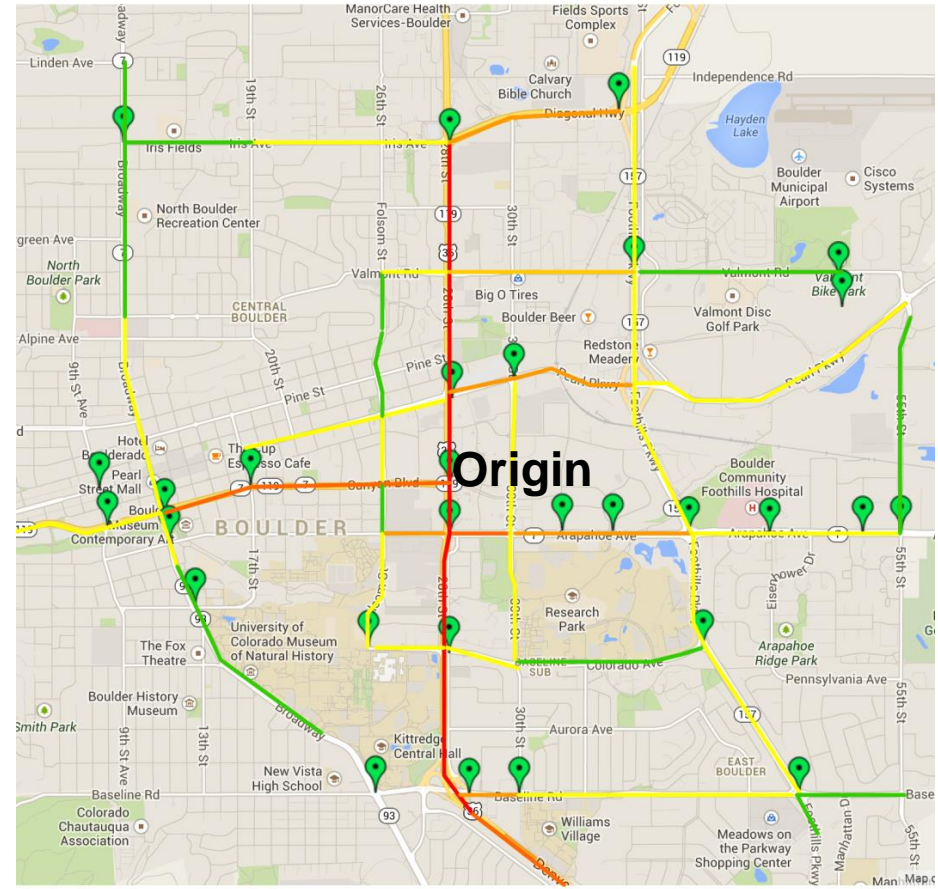
Intersection Delay Analytics

- Sensor provide reliable free-flow travel time and average delay
- Travel-times reported from stop-bar
- Provide 95% confidence interval for any route
- Delay analysis shows left, right, thru delay for every approach

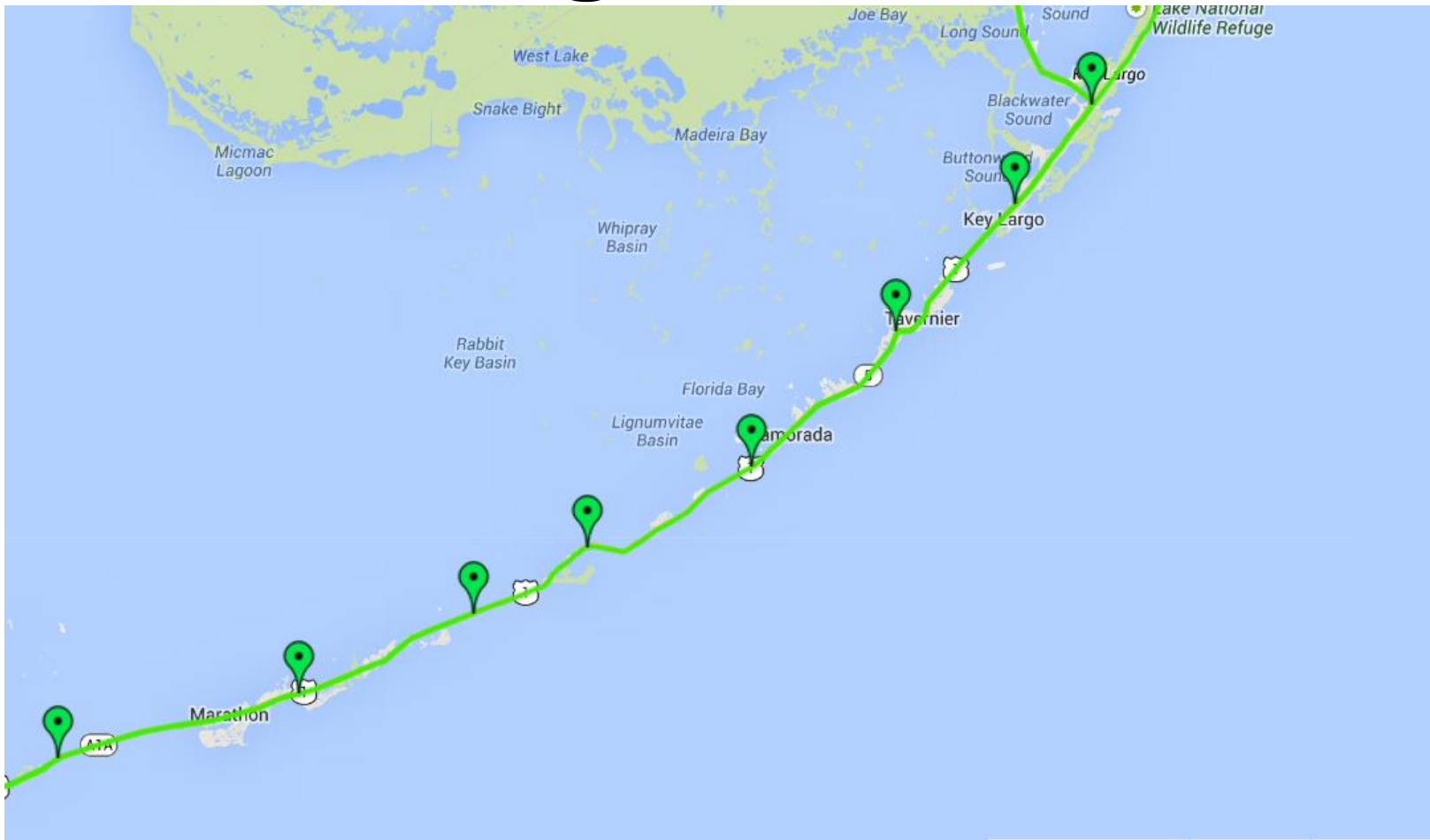


Route Utilization

- Pattern analysis tools visualize egress routes
- Allows city planning / MPO to understand routing choices
- Stimulate economic development by understanding traffic patterns
- Visualize commuter traffic patterns
- Use in conjunction with bike paths to monitor travel behavior



Emergency Management





Thank you!

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