Traffic Solutions

Contents
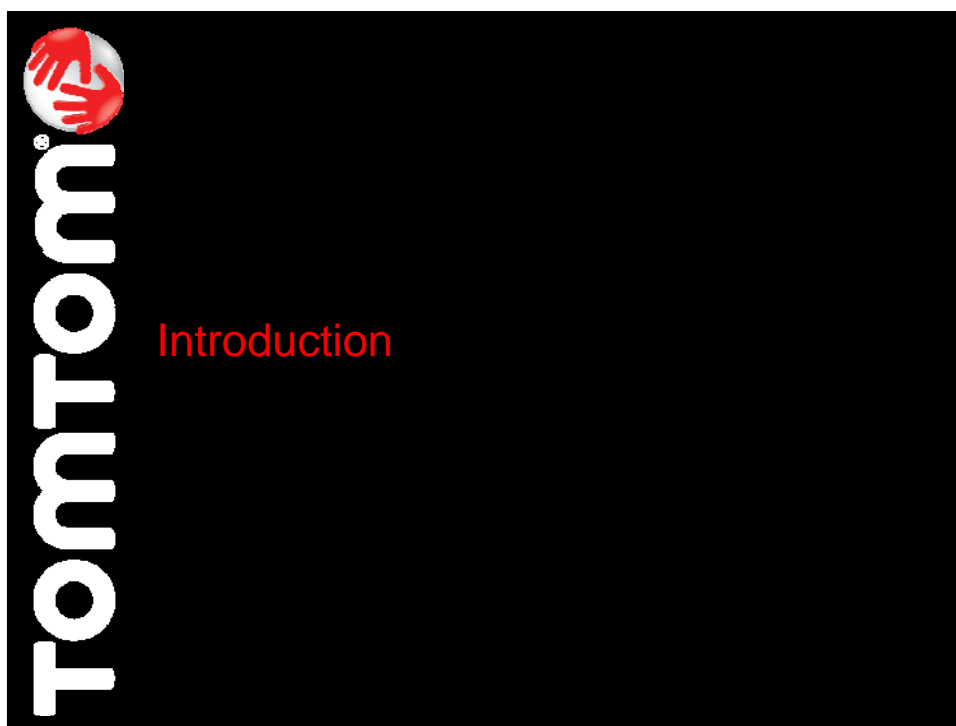
› Introduction

› Traffic Data

› Travel Times

› Origin-Destination

Note that this presentation provides an overview of TomTom's historical traffic information.

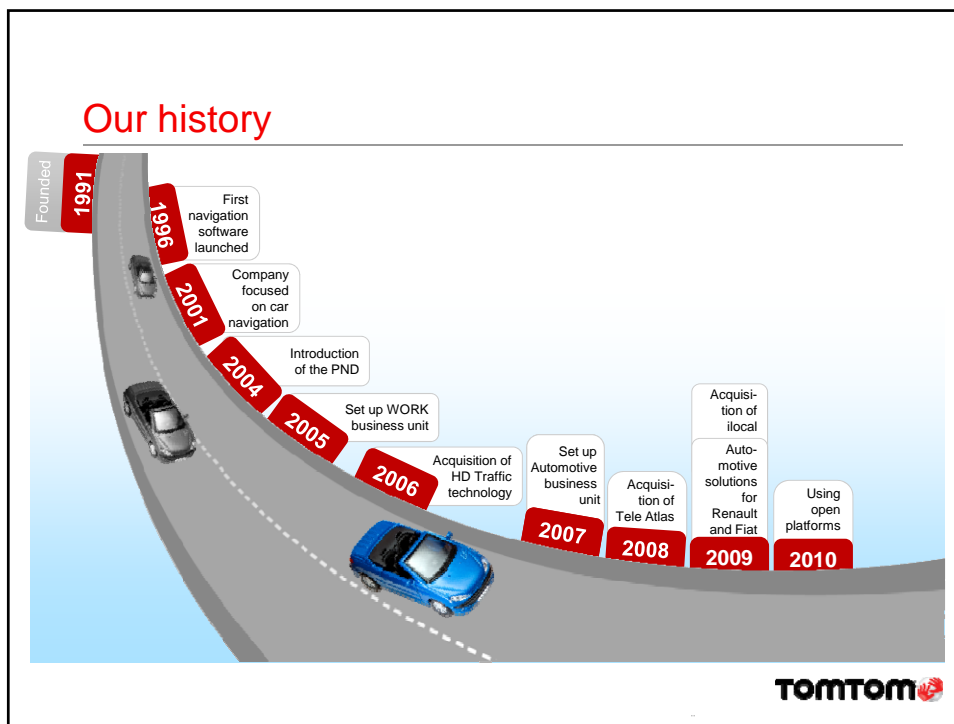TomTom's real-time traffic information is not included here.

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Introduction

Our products

Consumer	Automotive

WORK	Licensing

- Tele Atlas Multinet®
- Tele Atlas ConnectPlus®
- Tele Atlas Connect™
- Connector Roads for MultiNet®
- Navigable Coverage via Partner Product

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Our history

First navigation software launched

Company focused on car navigation

Introduction of the PND

Set up WORK business unit

Acquisition of HD Traffic technology

Set up Automotive business unit

Acquisition of Tele Atlas

Acquisition of ilocal

Automotive solutions for Renault and Fiat

Using open platforms

Founded

1991
1996
2001
2004
2005
2006
2007
2008
2009
2010

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Data Collection

Data collection
Using community feedback

TomTom Home

TomTom WORK
LINK Boxes

Connected
navigation

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Data collection: new channels
Integration IN the Car

RENAULT

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Data collection: new channels
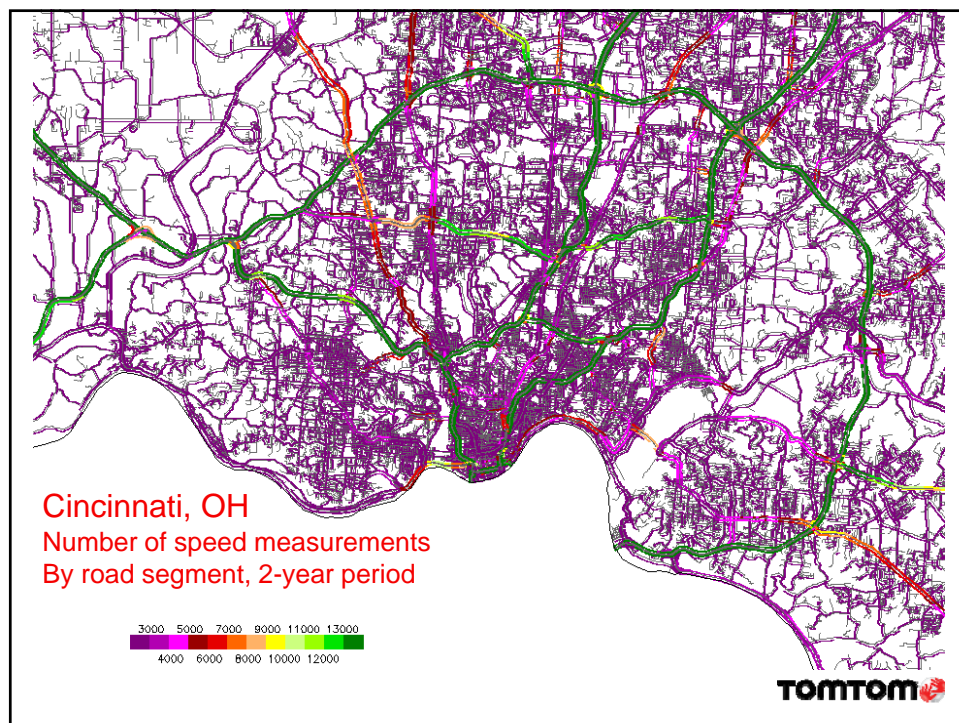
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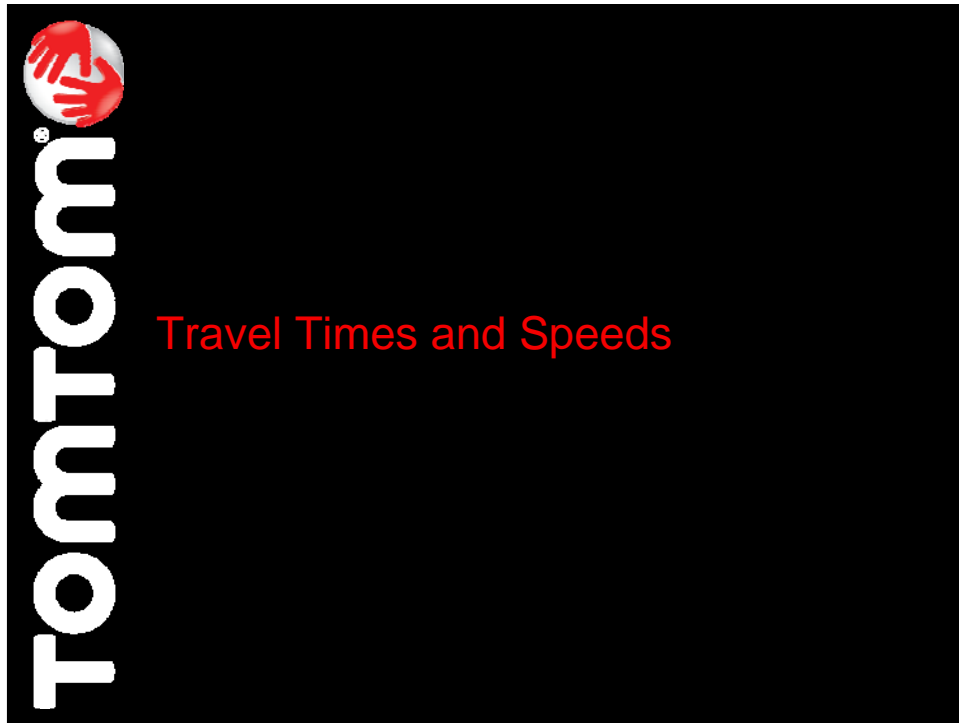## Data collection
TomTom Historical Speed Database

- **several billion** speed measurements per day
- **2 trillion** speed measurements to date worldwide
- **500 billion** of these are in North America

- TomTom first used this data to improve our navigation systems, but we now do more...

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TomTom Speed Data characteristics

- 99% private car data; TomTom WORK data stored separately

- Speed measurements stored at TomTom map segment level, which average between 10 yards and 1 mile (much more granular than TMC)

- Customized: users can define peak periods, obtain information using specific calendar periods (excluding holidays, etc.)

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Cincinnati, OH
Number of speed measurements
By road segment, 2-year period

3000 5000 7000 9000 11000 13000
4000 6000 8000 10000 12000

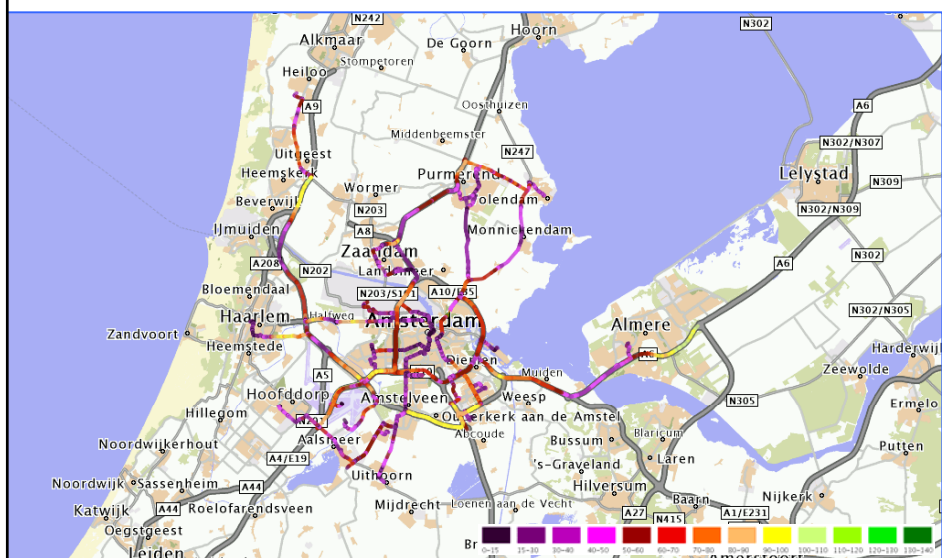TOMTOM

Travel Times and Speeds

Case Study 1: Amsterdam, Netherlands

- Joint project of:
  - City of Amsterdam
  - Amsterdam MPO
  - Netherlands Ministry of Transport
- Goals:
  - Report travel times
  - Report travel time reliability
  - Identify bottlenecks
  - Provide a basis for prioritizing improvement projects
  - Validate new generation traffic models

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Custom Travel Times
Route travel times and reliability report

Travel time product: Output forms

First Quarter 2009				Travel time (min + sec)					
Route	Time	Length (km)	Sample Size	Median	Average	95th percentile time	Median + 10 minutes	Percentage 'on time'	Travel time factor
01A	Off-Peak	27.050	8994	22:52	26:11	40:26	32:52	86%	
01A	PM Peak	27.050	3733	24:00	29:53	55:00	34:00	78%	1.14
01A	Free Flow	27.050	6171	22:20	26:19	42:46	32:20	87%	
01A	AM Peak	27.050	4713	27:04	36:29	82:45	37:04	72%	1.39

Speed overlay   Travel time ratio overlay

Conclusions

- TomTom speed data more reliable than current standard methods of performing field drives using smart phones or stop watches
- TomTom speed data as reliable as highway loops for measuring speeds

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Case Study 2: Aalborg, Denmark

- City of Aalborg together with five other cities in Europe are involved in the ARCHIMEDES project within the CIVITAS+ framework. The focus of the project is sustainable transport.
- The goal of Aalborg is to reduce emissions by reducing urban congestion through intelligent traffic management measures.
- TomTom is providing improved traffic speed monitoring and historical information for management purposes.

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Speed ratio morning peak vs normal. One direction only.
Winter 2008 until winter 2009
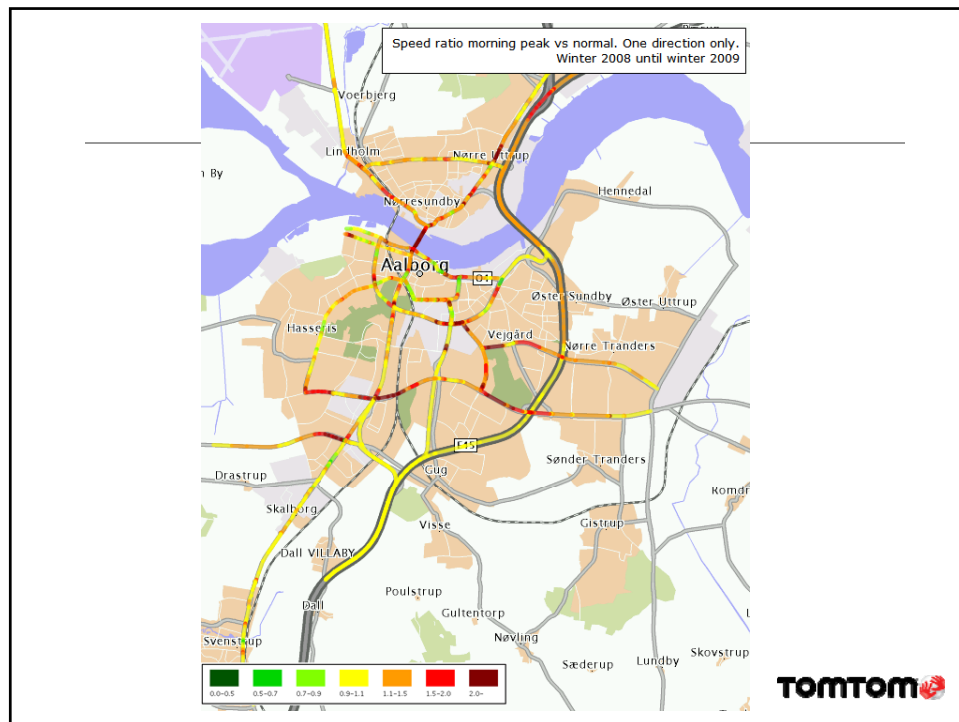
US examples:

- Arterial in San Francisco
- San Jose freeway speeds by time of day
- San Diego isoquant map (travel times)
- National measures of delay

Custom Travel Times: Arterials
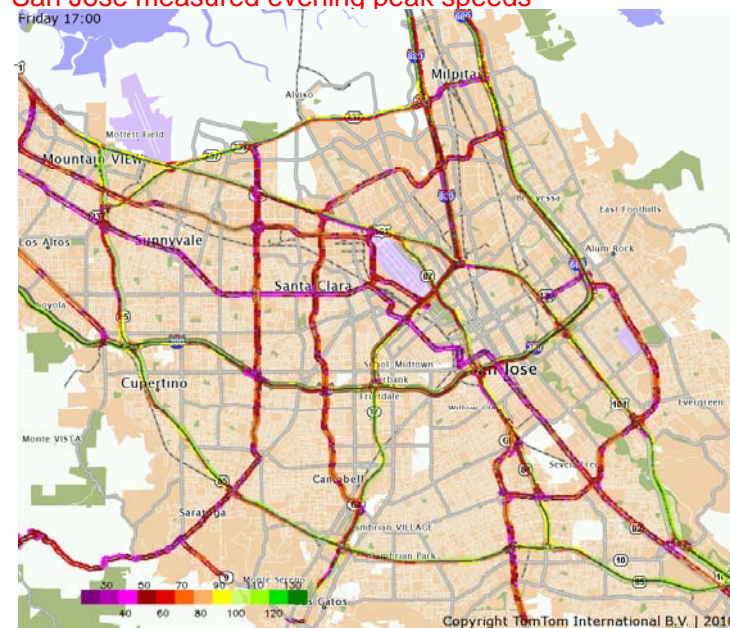Southbound Van Ness: pm peak vs. off-peak day
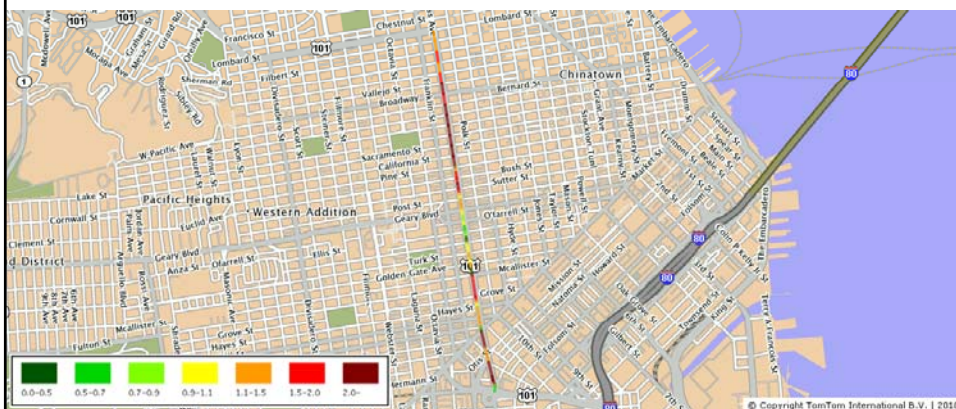
Custom Travel Times: Freeways
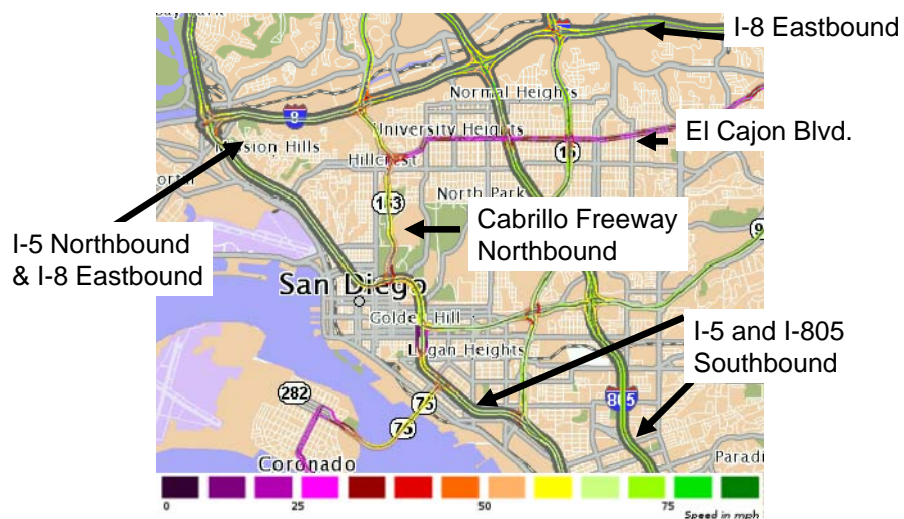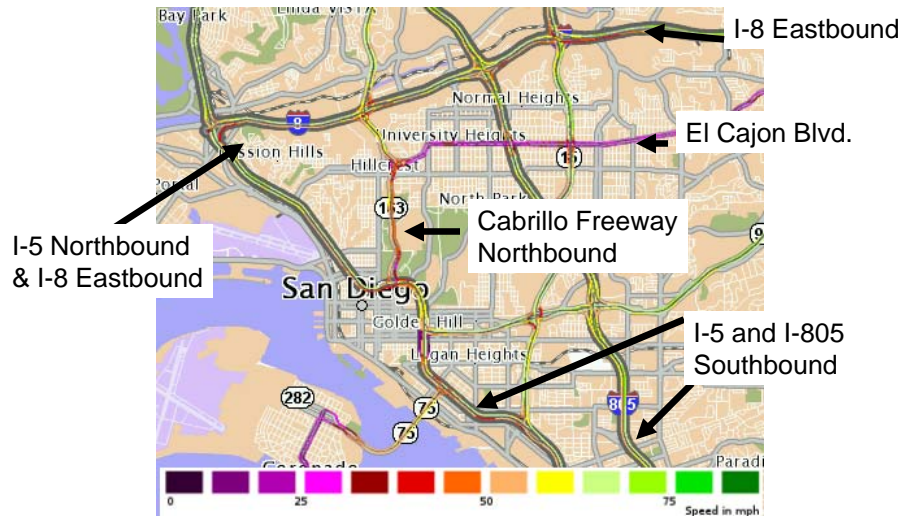San Jose measured evening peak speeds

Custom Travel Times: Freeways
San Diego weeknight free-flow

I-8 Eastbound
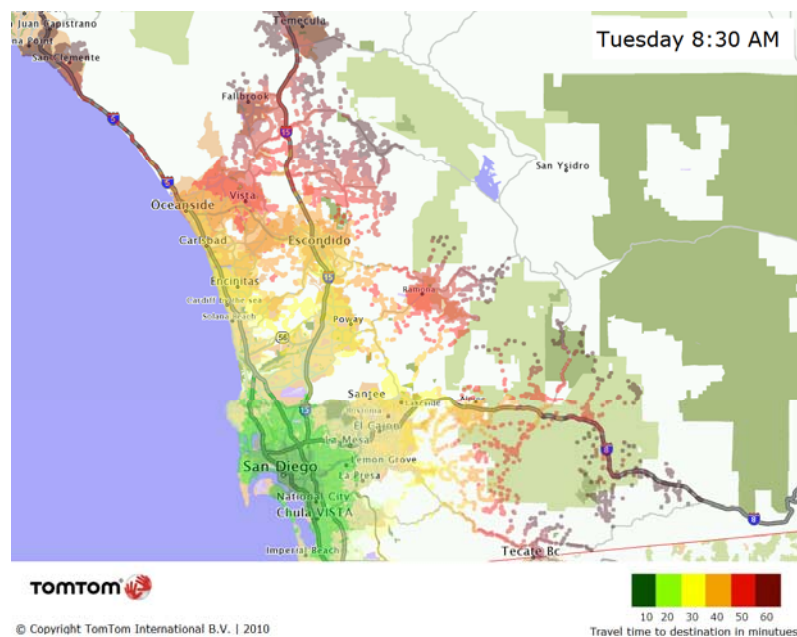
El Cajon Blvd.

Cabrillo Freeway
Northbound

I-5 Northbound
& I-8 Eastbound

I-5 and I-805
Southbound

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Custom Travel Times: Freeways
San Diego average weekday 5pm

I-8 Eastbound

El Cajon Blvd.

Cabrillo Freeway
Northbound

I-5 Northbound
& I-8 Eastbound

I-5 and I-805
Southbound

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Isochronal Maps
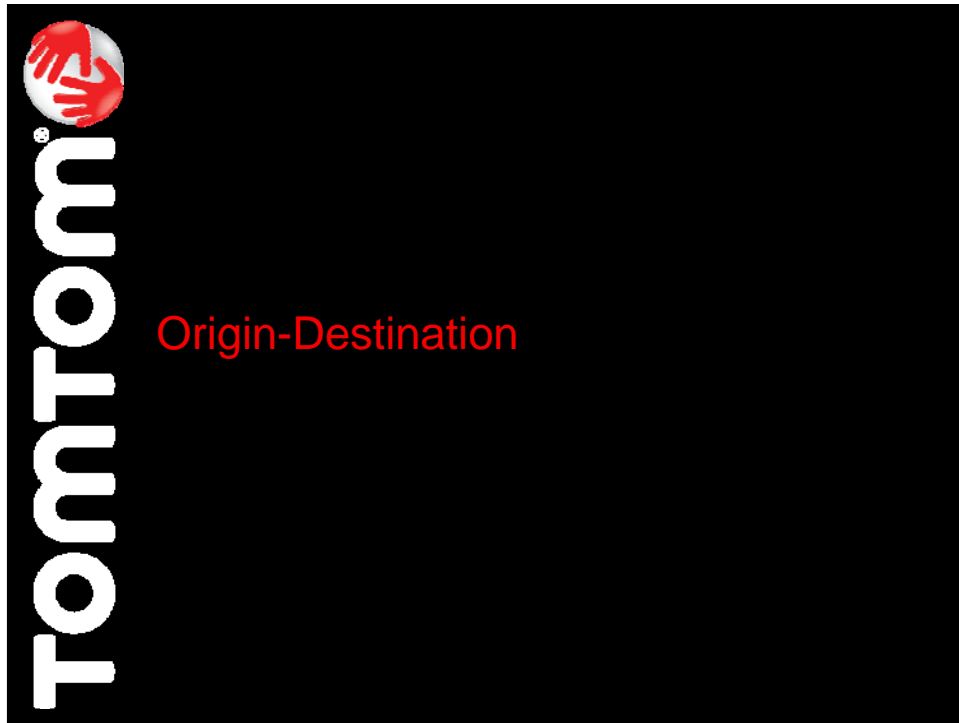Travel time to San Diego Convention Center

Network Performance Statistics
Proportion of measured traffic traveling at <50% free flow speed

Origin-Destination
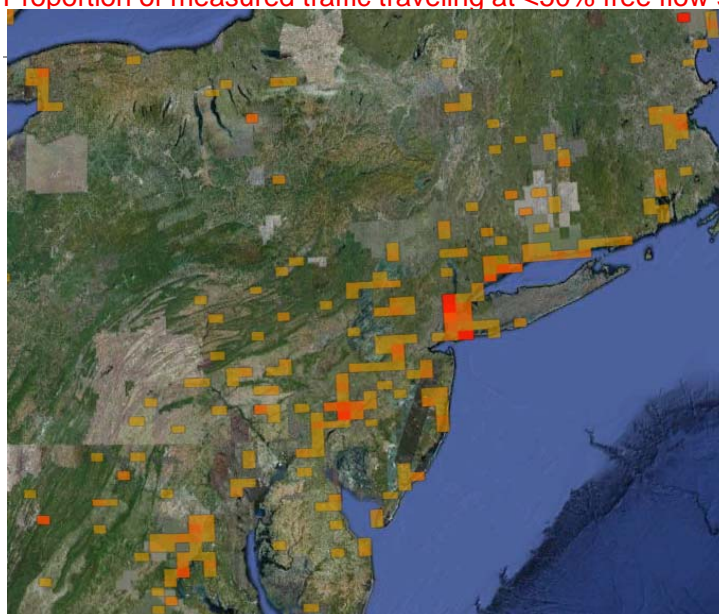
Future Developments: Origin Destination

- Currently in product development
- Case study: Interbest

TomTom OD data characteristics:
- Person profile and trip length distribution representative
- No trip purpose or person characteristics linked to the data due to privacy limitations built into our systems

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Case Study: Interbest outdoor advertising

Outdoor Media Advertising

What?

Speeds at any location
Origin – Destination for any location*

Purpose?

Choice and valuation of new locations
Valuation of current locations
Coverage of campaign

*available for all highways and motorways in Western
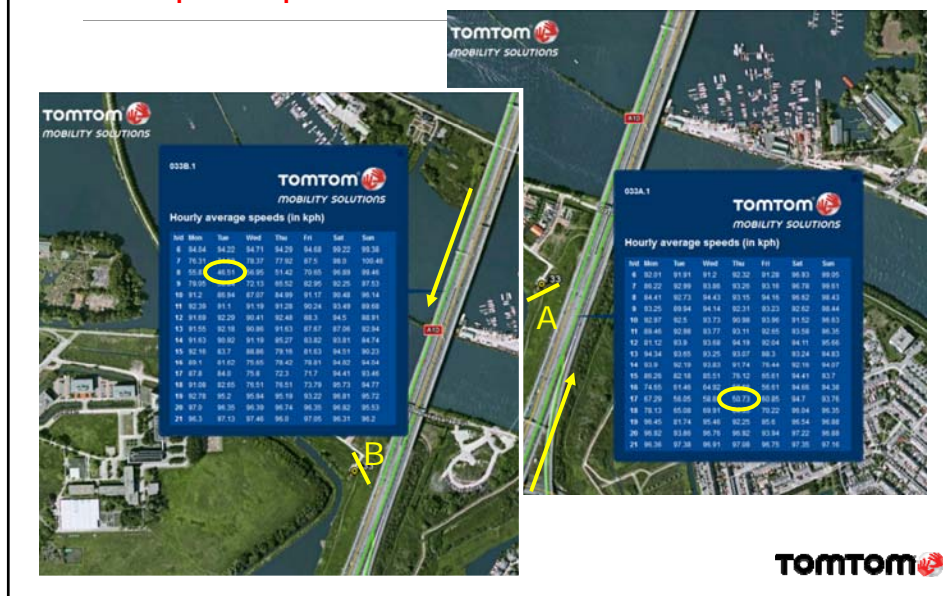Europe and North America. Arterials often available as
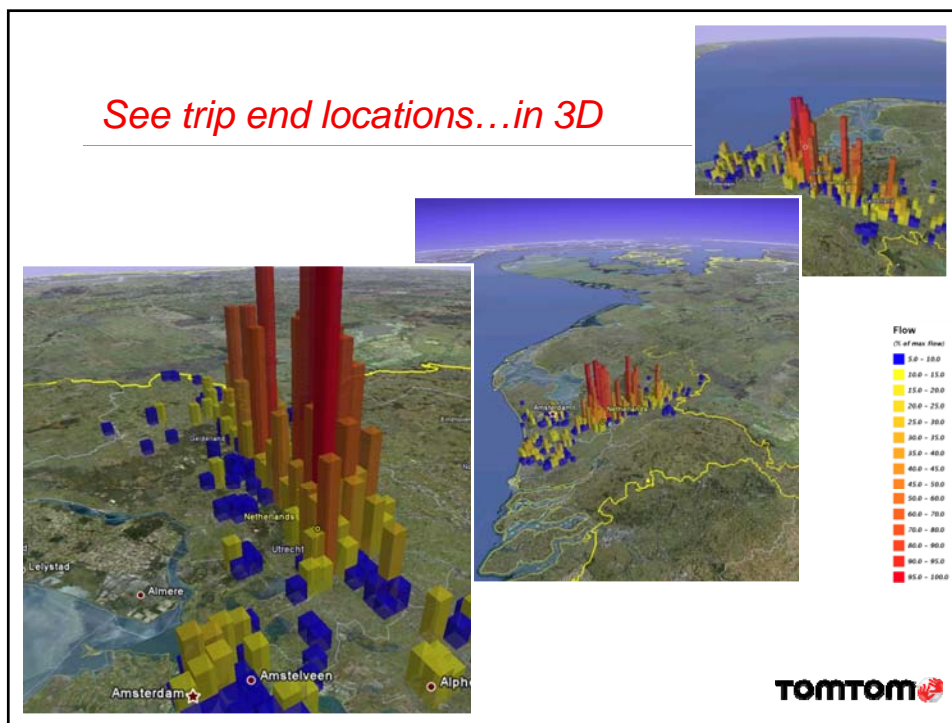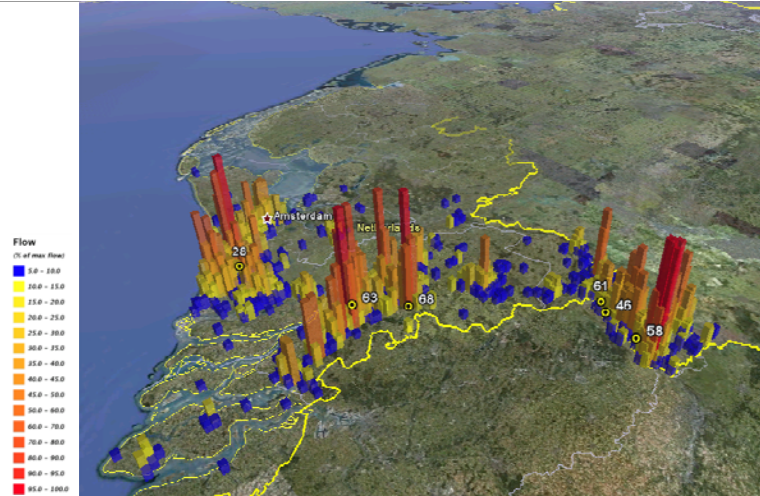well.

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Define or select any location

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Compare speeds between masts or directions

See trip end locations…in 3D

…for multiple locations

For more information…

- TomTom / Tele Atlas booth at:
  - 2010 ESRI International User Conference July 13-15 in San Diego
- Nick.Cohn@TomTom.com

Thank you.