Building on GTFS

U.S. and international case studies for transit planning and transit operations

Kevin Webb, Conveyal

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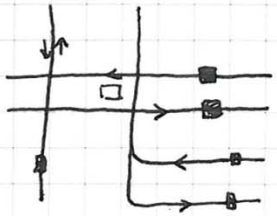
A Guide to the GENERAL TRANSIT FEED SPECIFICATION

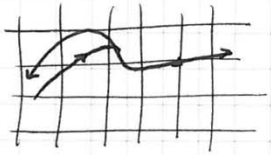
Table names of .txt files shown in red boxes.
Fields linking tables in redtext.

TRANSIT SYSTEM

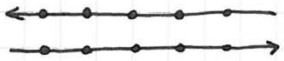


FARES

MAPS

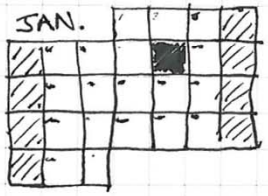


ROUTES

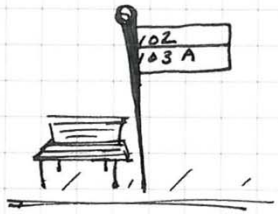


TRIPS

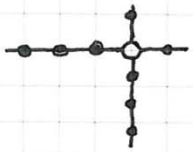
CALENDAR

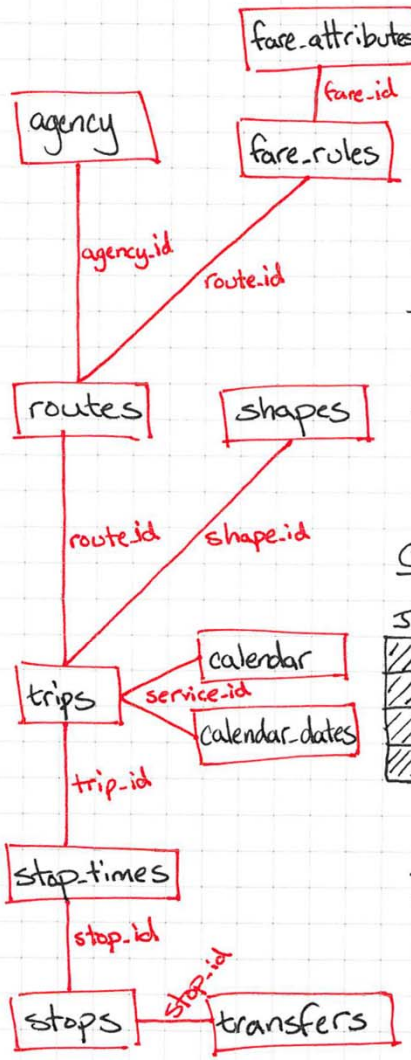


STOPS



TRANSFERS





Mexico City

Prior to project, no city-wide transit data of any kind.

Project used GTFS as a framework to coordinate data collection and produce a unified, city-wide transit data product.

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Transit Database | Inicio | Metrobús | Exportar | Administrador

1 Información básica — 2 Paradas/Estaciones — 3 Patrones de viajes — 4 Viajes — 5 Revisar

Organismo de Transporte: **Metrobús**

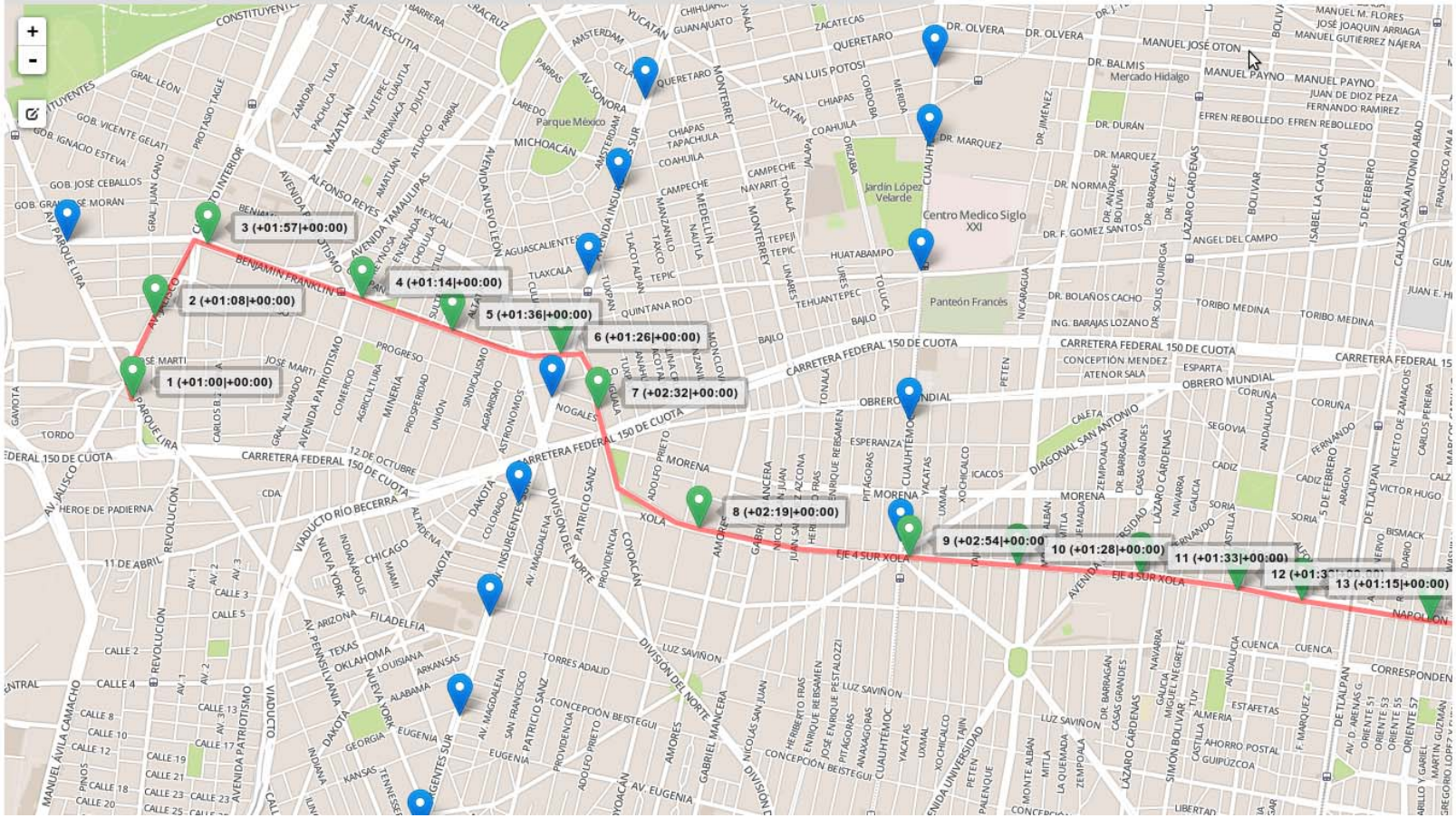
Nombre corto: **Línea 2**

Nombre largo.: **Tepalcates - Tacubaya**

Tipo: **Metrobús**

Detalles

Clic en las paradas/estaciones en el mapa para crear la secuencia de un patrón de viaje. Establezca el tie
paradas/estaciones y el de ascenso-descenso de pasajeros y genere un alineamiento.



Filtrar Paradas/Es

- Mostrar solo las paradas
- Mostrar todas las parada

Patrones de viaje

Tacubaya - Tepalcates

Crear un nuevo patrón | Borrar p

route.trip-pattern-duplicate-pattern

Detener la secuencia

-- Parada/estaciones del

Zoom al patrón | Limpiar patrón

route.trip-pattern-reverse-pattern

Alineamiento

Crear alineamiento a partir del pat

Tiempos

km/hr

Mexico City

By the numbers:

- Six transit operators
- 129 routes
- 5215 stops
- Six weeks of effort to collect , validate and release a data product

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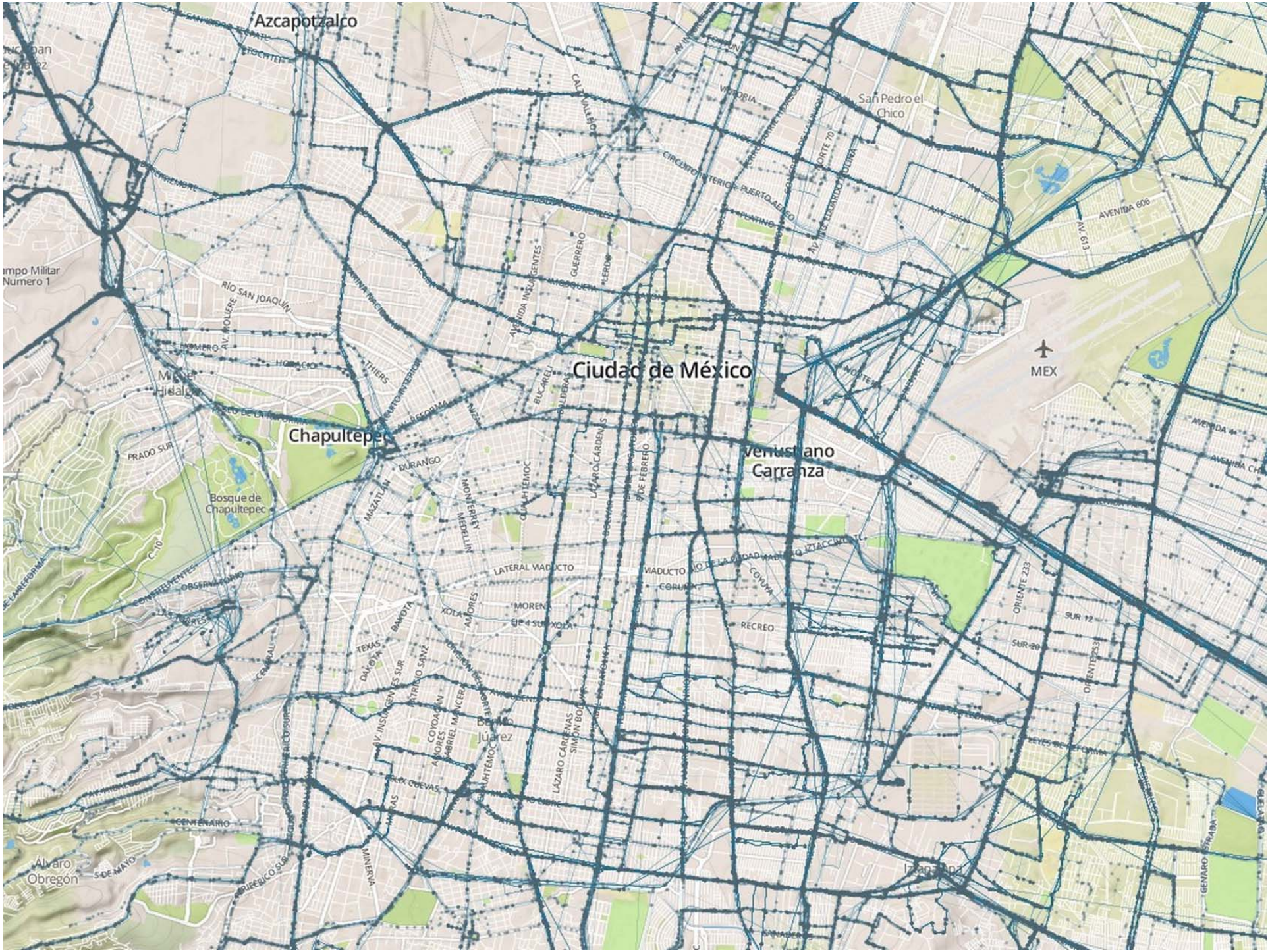
Azcapotzalco
San Pedro el Chico
Ciudad de México
MEX
Chapultepec
Venustiano Carranza
Bosque de Chapultepec
Benito Juárez
Álvaro Obregón
Iztapalapa
Campo Militar Numero 1
RÍO SAN JOAQUÍN
PRADO SUR
DURANGO
MAZATLÁN
MONTERREY
MEDELLÍN
CUAUHTÉMOC
LÁZARO CÁRDENAS
BUCARELI
GUERRERO
LERDO
VICTORIA
CALZ. VALLEJO
CIRCUITO INTERIOR
PUERTO ALTO
PUENTE
AVENIDA 606
AV. 613
ORIENTE 233
SUR 12
SUR 20
LATERAL VIADUCTO
VIADUCTO
CORUÑA
CONVA
RECREO
MORENA
EJE 4 SUR XOLA
XOLA
AMORES
TEXAS
DAKOTA
PATRICIO SANZ
AV. INSURGENTES SUR
COYOACÁN
GABRIEL MIRÓ
MINERVA
CENTENARIO
5 DE MAYO
CUEREVACA SUR
THIERS
HORACIO
NÚMERO
AV. MOLIERE
AVENIDA INSURGENTES
CALZADA VALLEJO
AV. 16 DE SEPTIEMBRE
AV. 5 DE FEBRERO
AV. 20 DE NOVIEMBRE
AV. 20 DE NOVIEMBRE
AV. 5 DE FEBRERO
AV. 16 DE SEPT

Mexico City

Public benefit: thanks to open standards, within hours of the public data release multiple commercial providers offered journey planning and transit information services.

Operational benefit: simple and effective framework for coordinating data collection and distribution within government.

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Mexico City

Fundamentally, it's not just a **map** of transit infrastructure.

It's a **working model** of transport, and a framework for collaboration.

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OpenTripPlanner Analyst

Search Type

Single-origin difference

Time lenience: up to 10 min

Lenience at: Initial

Search A Setup

Time of day:

Arrive by 2013-08-16T02:15:00

Mode: Transit

Max walk/bike: 4km

Search B Setup

Time relative to origin: Same as Above

Arrive by 2013-08-16T02:15:00

Mode: Bus only

Max walk/bike: Same as Above

Refresh Map

* Times must be expressed in ISO8601 combined date/time format: YYYY-MM-DDTHH:MM:SS

travel time (minutes)

0 30 60 90 120

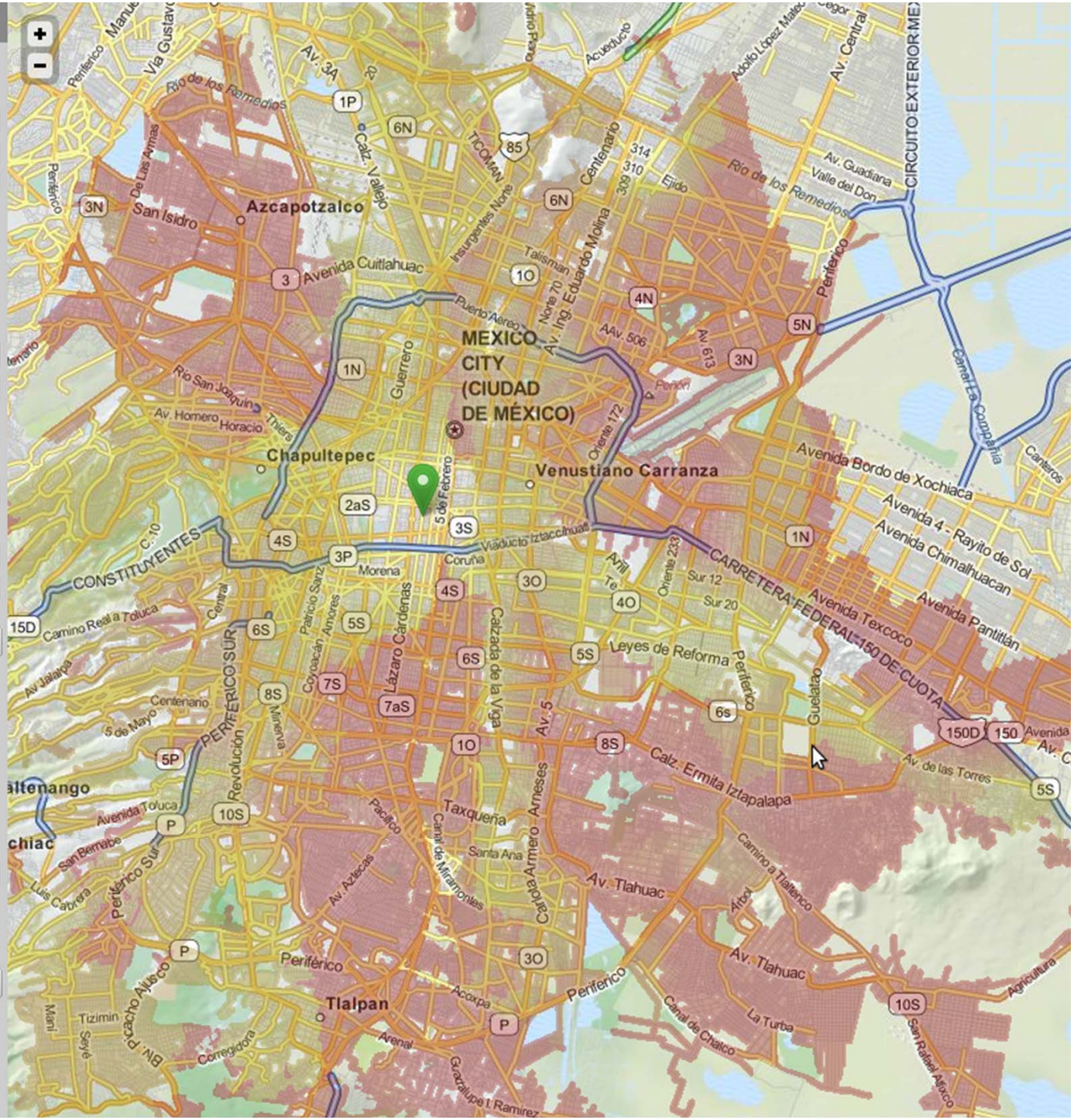
Download Image Tool

Image Format: GeoTIFF

Projection: EPSG:4326

Resolution (SRS units):

Download Image



New York City

Demonstrated use of GTFS to model transport accessibility impact of Hurricane Sandy

Able to release rider communication tools and analysis using GTFS within hours

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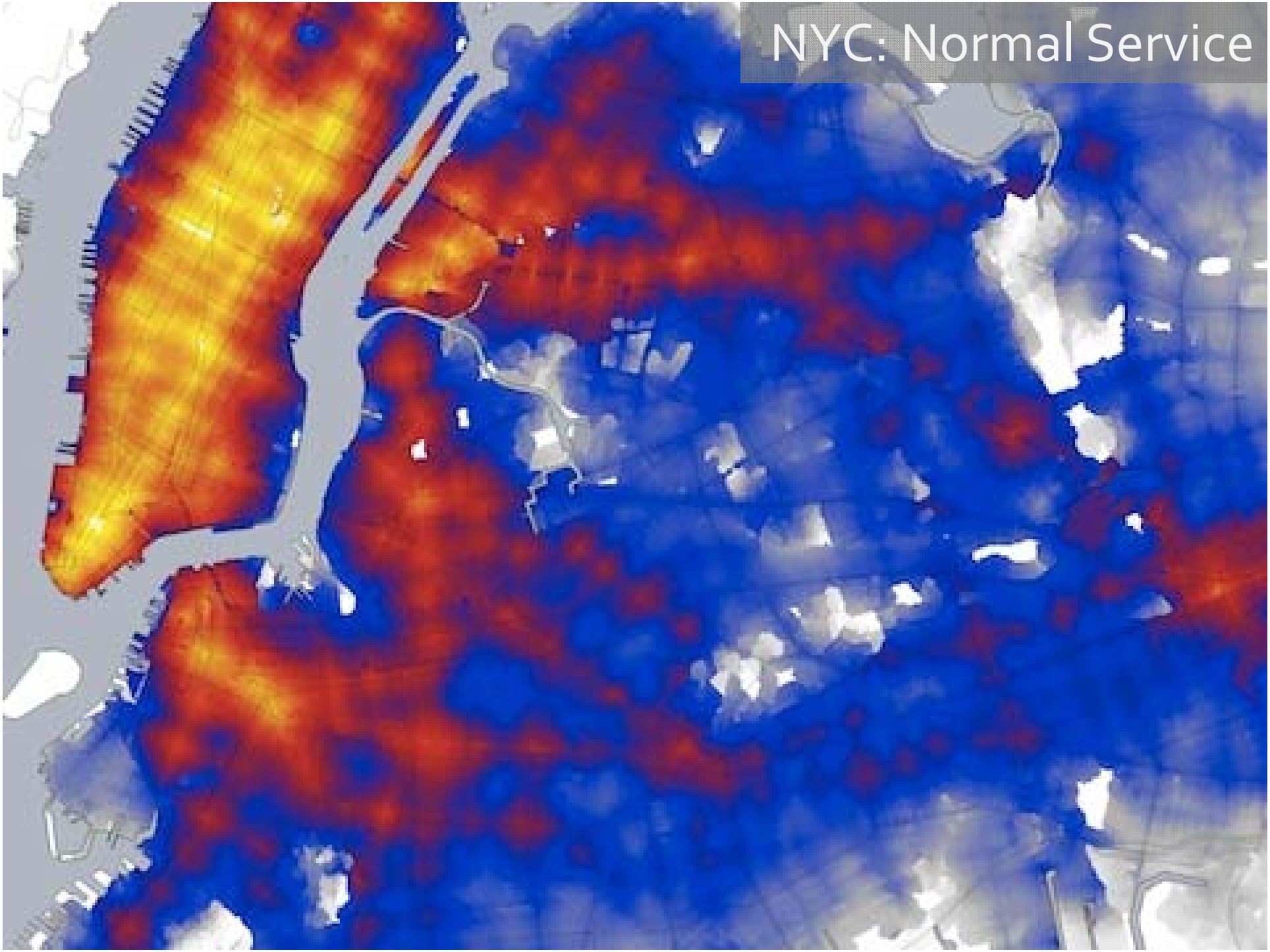
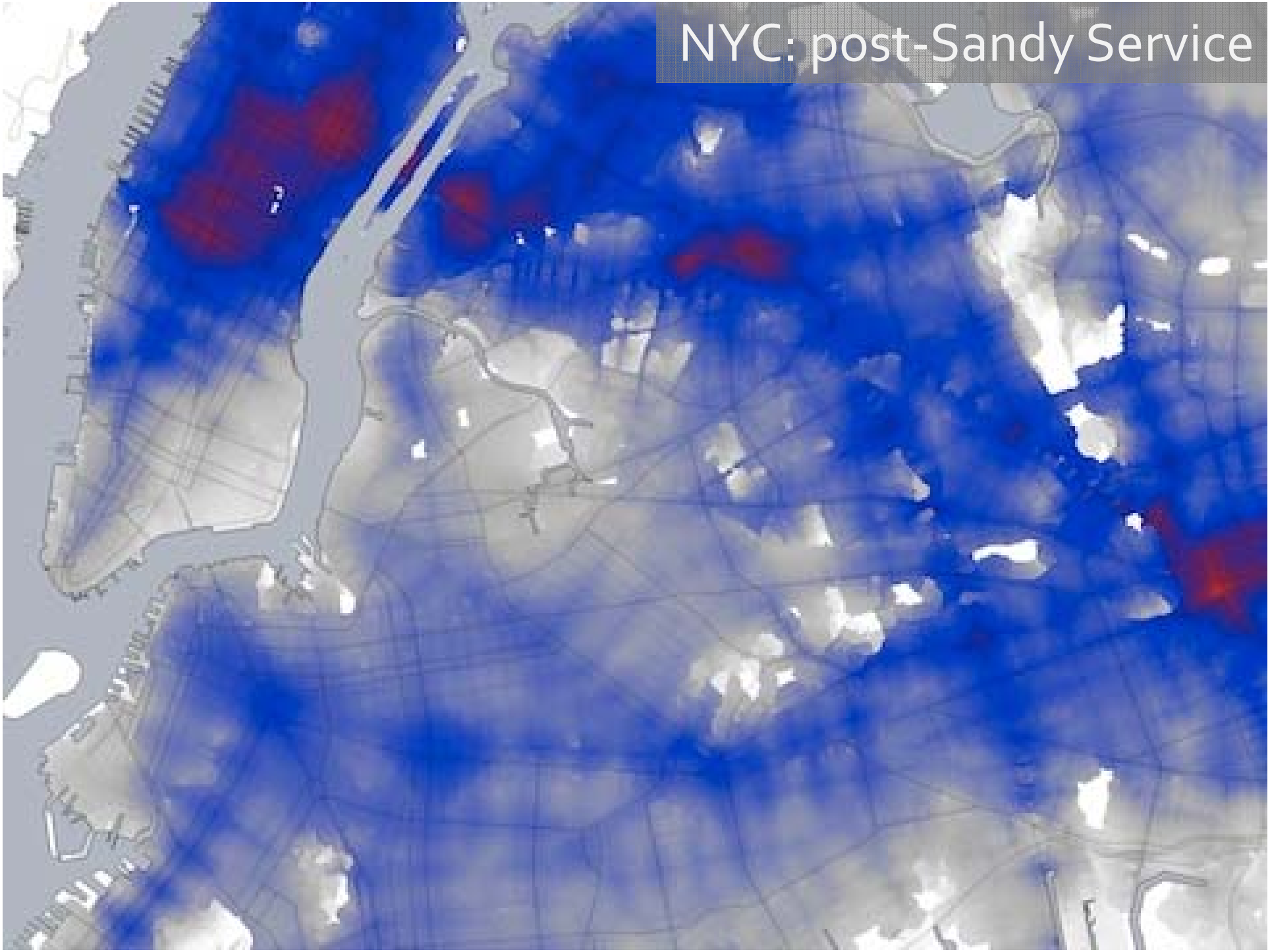
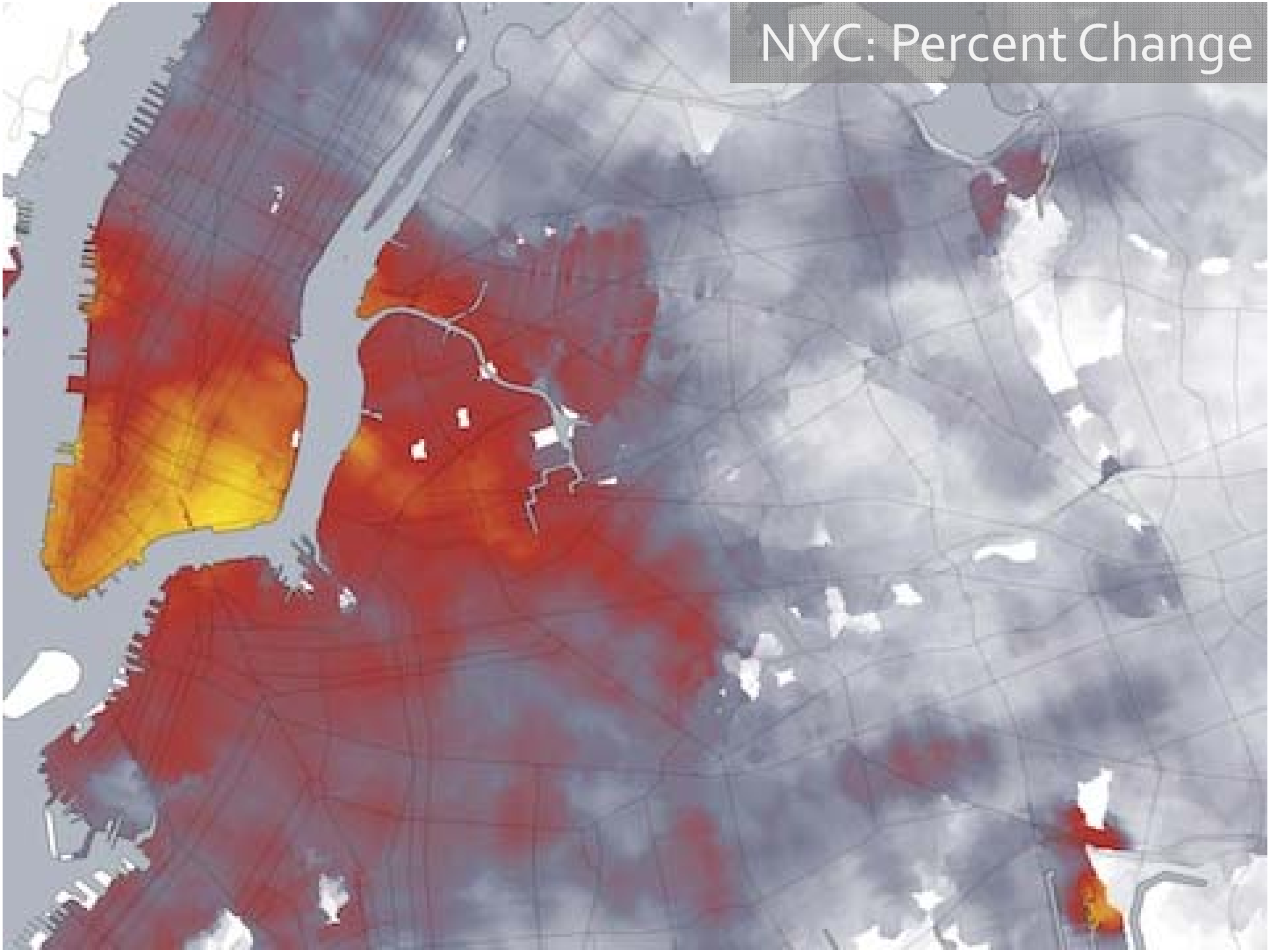

NYC: Normal Service

NYC: post-Sandy Service




NYC: Percent Change

Paris

Used GTFS to model and communicate accessibility changes from a new circumferential route.

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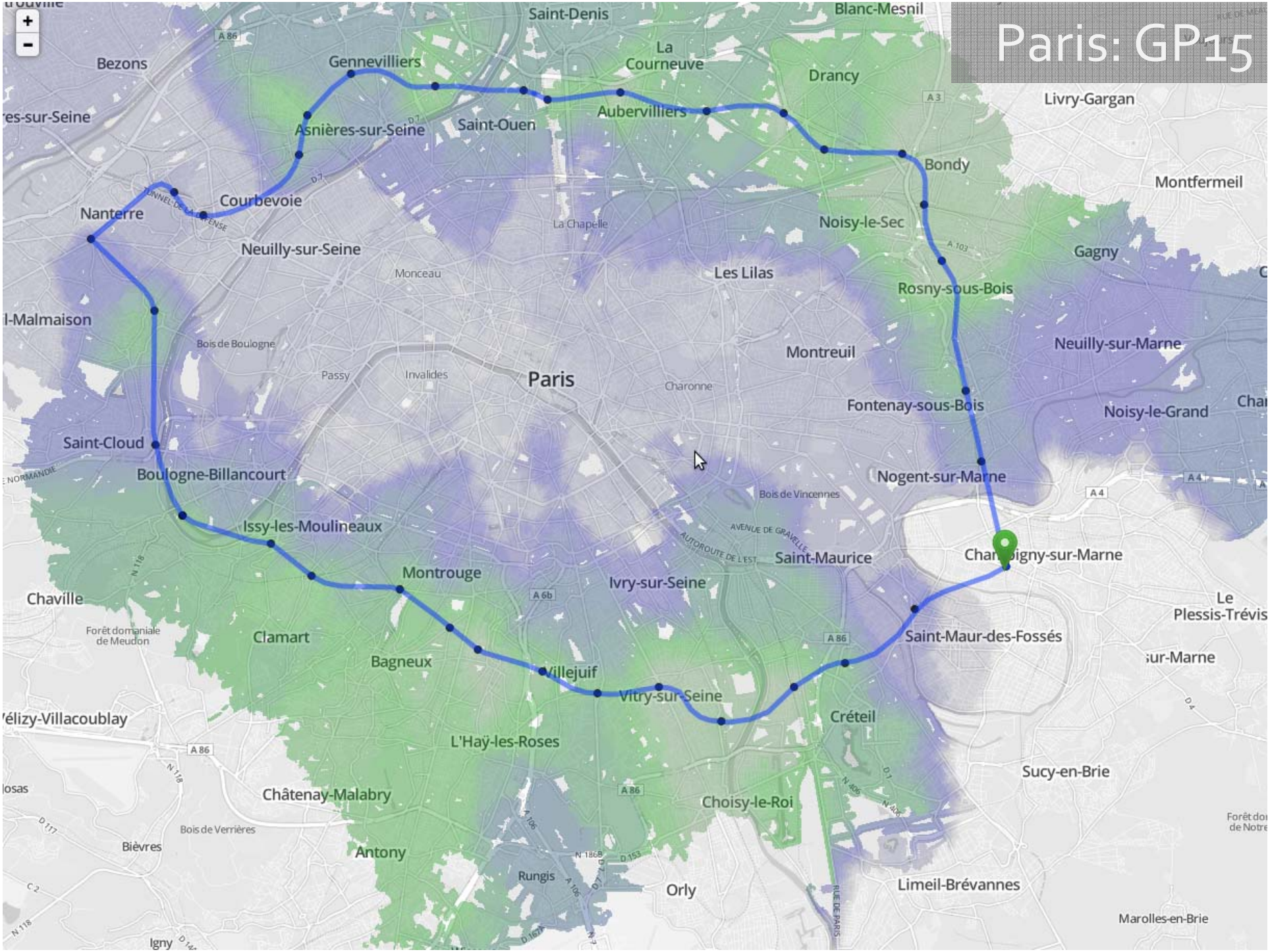
Paris: GP15
Saint-Denis
Blanc-Mesnil
Bezons
Gennevilliers
La Courneuve
Drancy
Livry-Gargan
Asnières-sur-Seine
Saint-Ouen
Aubervilliers
Bondy
Montfermeil
Courbevoie
Nanterre
Noisy-le-Sec
Neuilly-sur-Seine
Gagny
Les Lilas
Rosny-sous-Bois
Neuilly-sur-Marne
Montreuil
Paris
Fontenay-sous-Bois
Noisy-le-Grand
Saint-Cloud
Boulogne-Billancourt
Nogent-sur-Marne
Issy-les-Moulineaux
Saint-Maurice
Montrouge
Ivry-sur-Seine
Chaville
Le Plessis-Trévis
Clamart
Saint-Maur-des-Fossés
Bagneux
Villejuif
Vitry-sur-Seine
Créteil
L'Haÿ-les-Roses
Sucy-en-Brie
Châtenay-Malabry
Choisy-le-Roi
Bièvres
Antony
Rungis
Orly
Limeil-Brévannes
Marolles-en-Brie
Igny

TCRP

REPORT 100

2nd Edition

Transit Capacity and Quality of Service

MANUAL

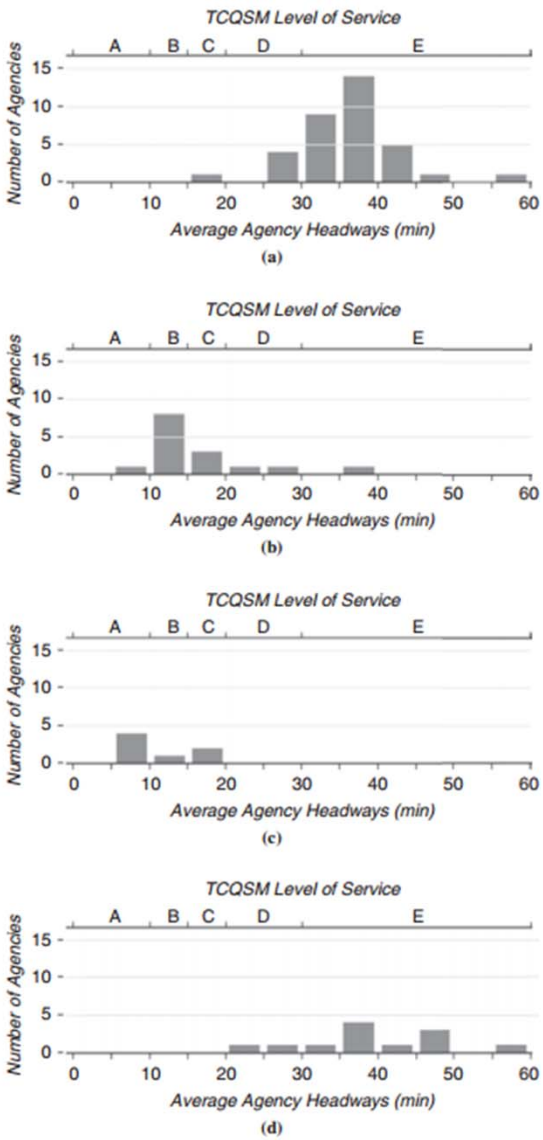

FIGURE 5 Distribution of agency average headways for (*a*) bus, (*b*) light rail, tram, or streetcar, (*c*) subway or metro, and (*d*) rail.

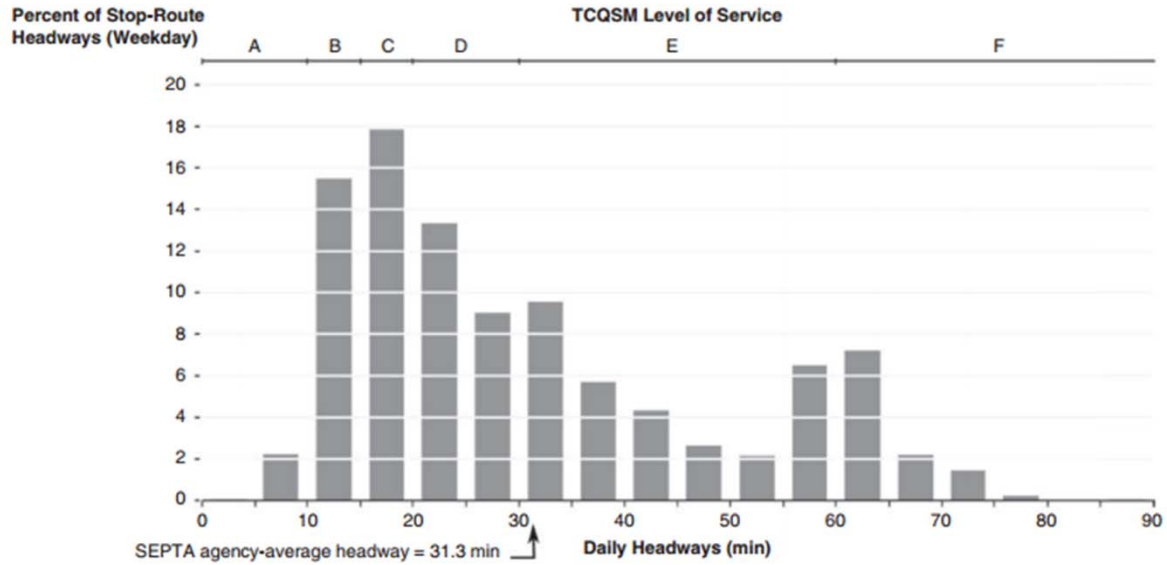

FIGURE 3 Distribution of daily headways at stop–route level for SEPTA bus system.

Leveraging the General Transit Feed Specification for Efficient Transit Analysis

James Wong

Since 2007, the transit industry has benefited from a widely adopted data standard called the General Transit Feed Specification (GTFS), which has enabled the development of numerous traveler information tools (i.e., transit trip planners). The purpose of this project is to demonstrate the potential for GTFS feeds as a data source for transit analyses, such as those found in the *Transit Capacity and Quality of Service Manual.* There are three primary project tasks: an analysis of GTFS field usage by different agencies; an analysis of a single agency's operations at the stop, route, and system levels; and a batch analysis and comparison of 50 large transit agencies in North America. Compared with manually transcribing schedules from transit websites or parsing printed schedules, the use of scripts and database queries suggests that the GTFS is a highly efficient data source and proves the importance of broadly accepted data standards. The methodology documented in this paper and the open source scripts (made available online) will be useful for any analyst or researcher who has tasks related to the analysis of single or multiple transit systems at the stop, route, or system level.

guidance is likely a result of the variety of software solutions and reporting features available in the transit industry. Consequently, researchers and analysts who try to compare or aggregate data from one or multiple agencies may face challenges in data acquisition and cleaning. Furthermore, data tools used in one region may not be applicable elsewhere, a situation that could lead to customized analyses and increased costs for agencies that outsource this kind of work. When the first edition of the TCQSM was released, transit agencies in Florida, especially large ones, found it challenging to use the tools that catered to specific data formats (*8*). After that experience, a 2008 report with application guidelines for TCQSM methods recommended the use of data from the National Transit Database (NTD) for some analyses (*9*), despite the NTD's low resolution with system-level data (information is not provided at the route or stop level). The same report specifically cited the NTD as a good data source because of the ease with which comparisons between different agencies can be achieved.

Spreading phenomenon

- GTFS now produced by/for over **1,200 cities**
- Currently piloted as a **national data standard** for transport planning in China
- A legally mandated framework for performance evaluation and operator coordination in Brazil

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Thanks!

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