Transport for Cairo

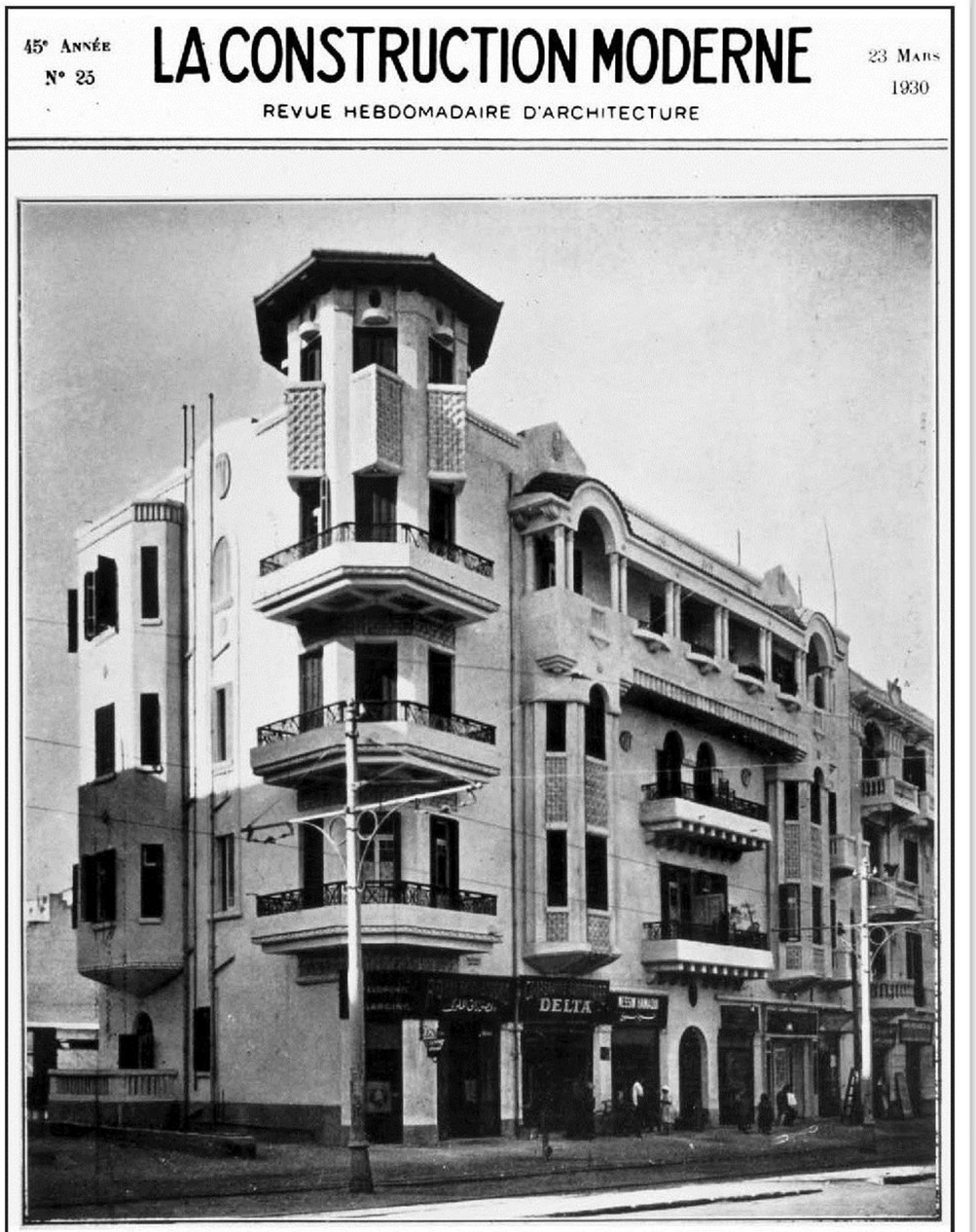
مواصلات للقاهرة

Living in a MegaCity
A patchwork of Individual Solutions

Egyptian citizens waiting for a bus at an Informal Bus Station at Gamee't El-Dowal boulevard

1907

Baron Empain



45e Année
N° 25

LA CONSTRUCTION MODERNE

REVUE HEBDOMADAIRE D'ARCHITECTURE

23 Mars
1930

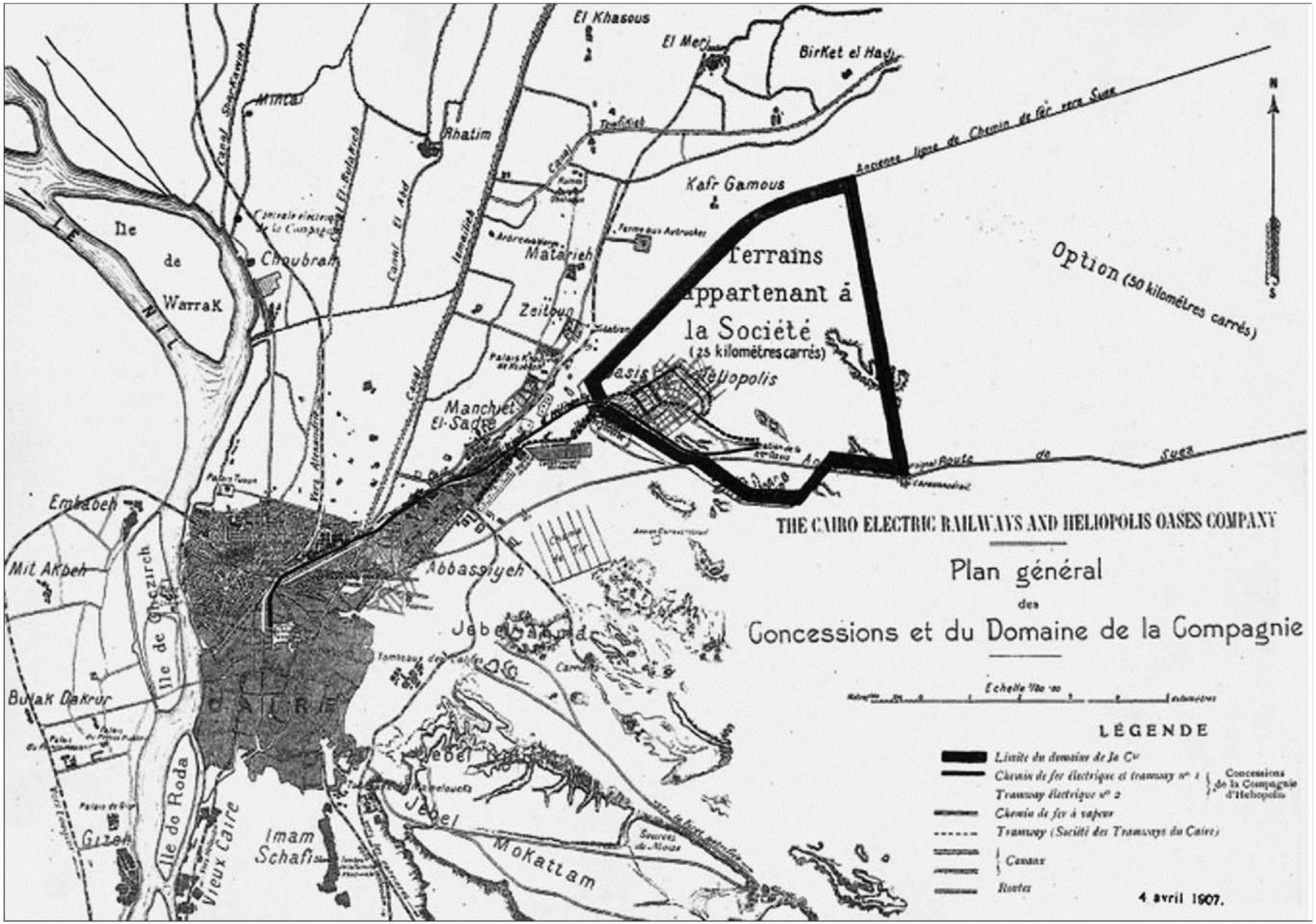
DELTA

London Photo.

Un immeuble de rapport à Héliopolis : M. C. Ayrout, Architecte.

(Voir page 378).

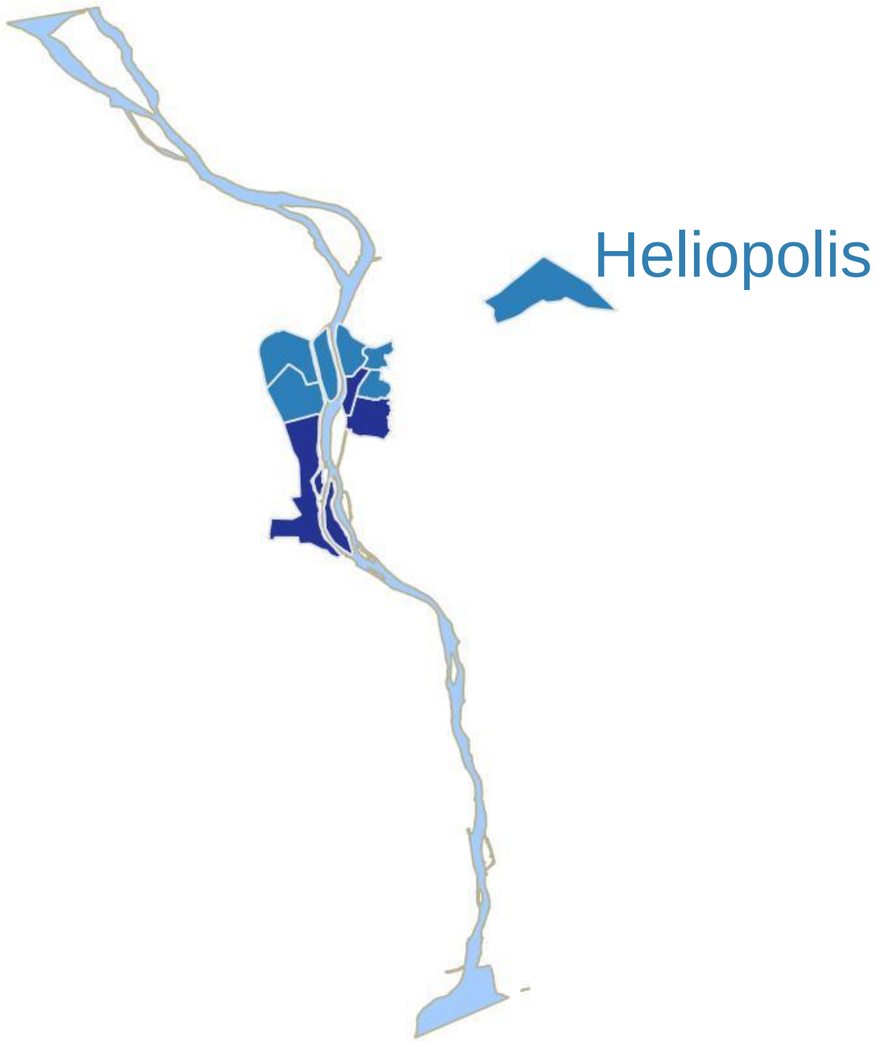
Heliopolis - Cairo's First Desert City



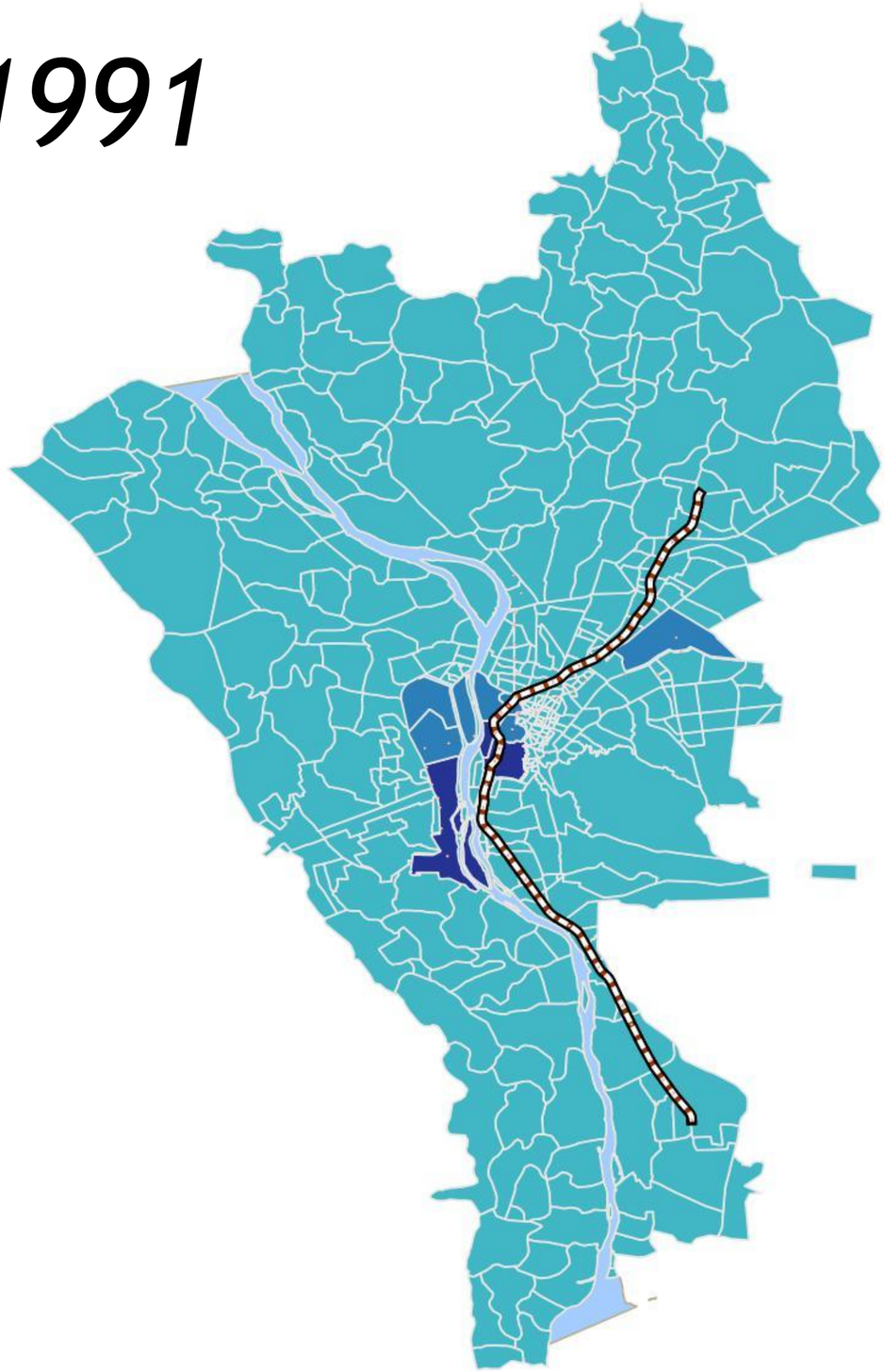
1957

Population ~2.5 million

Cairo 1907



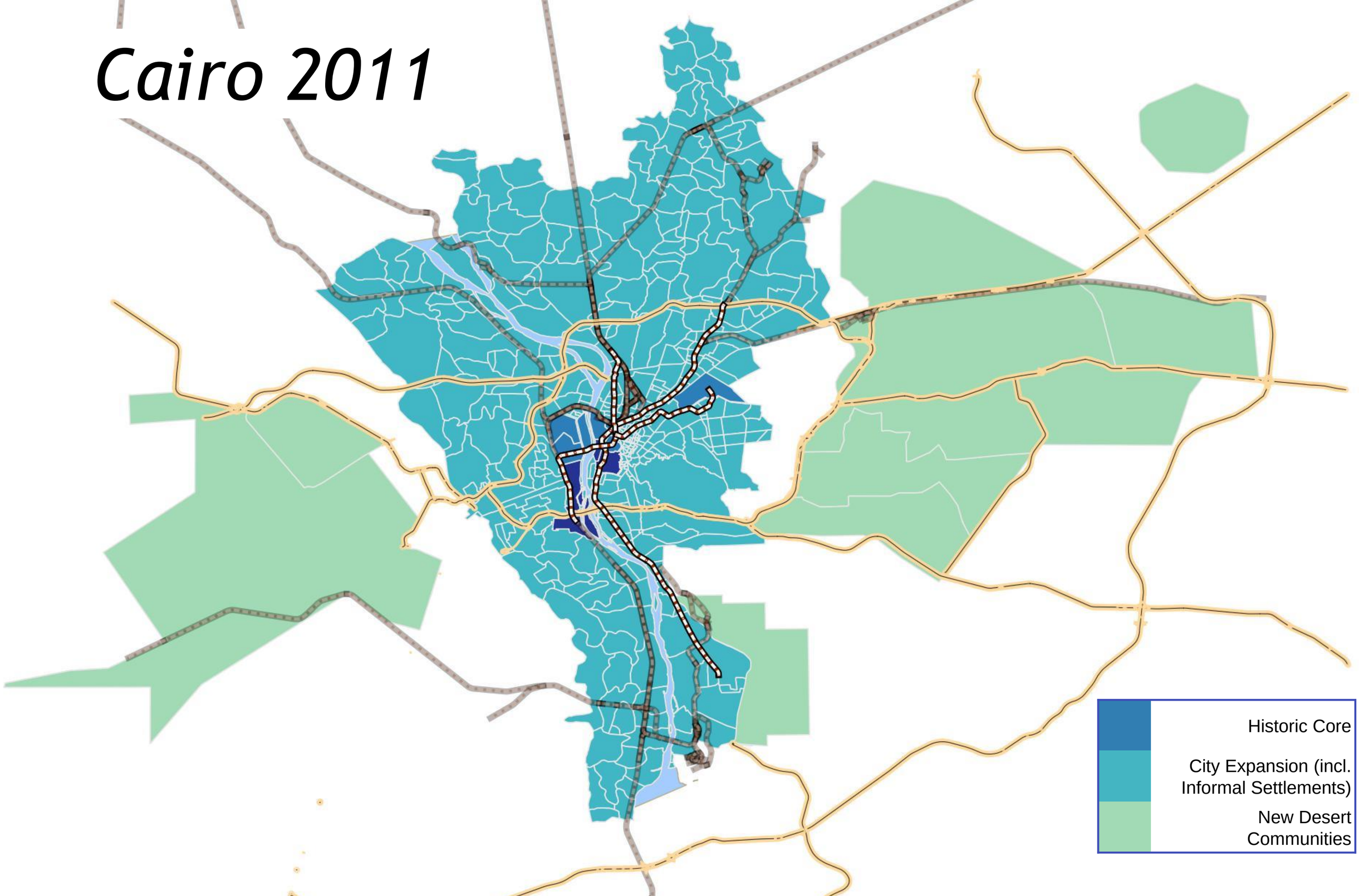
Cairo 1991



Population ~12 million

1991

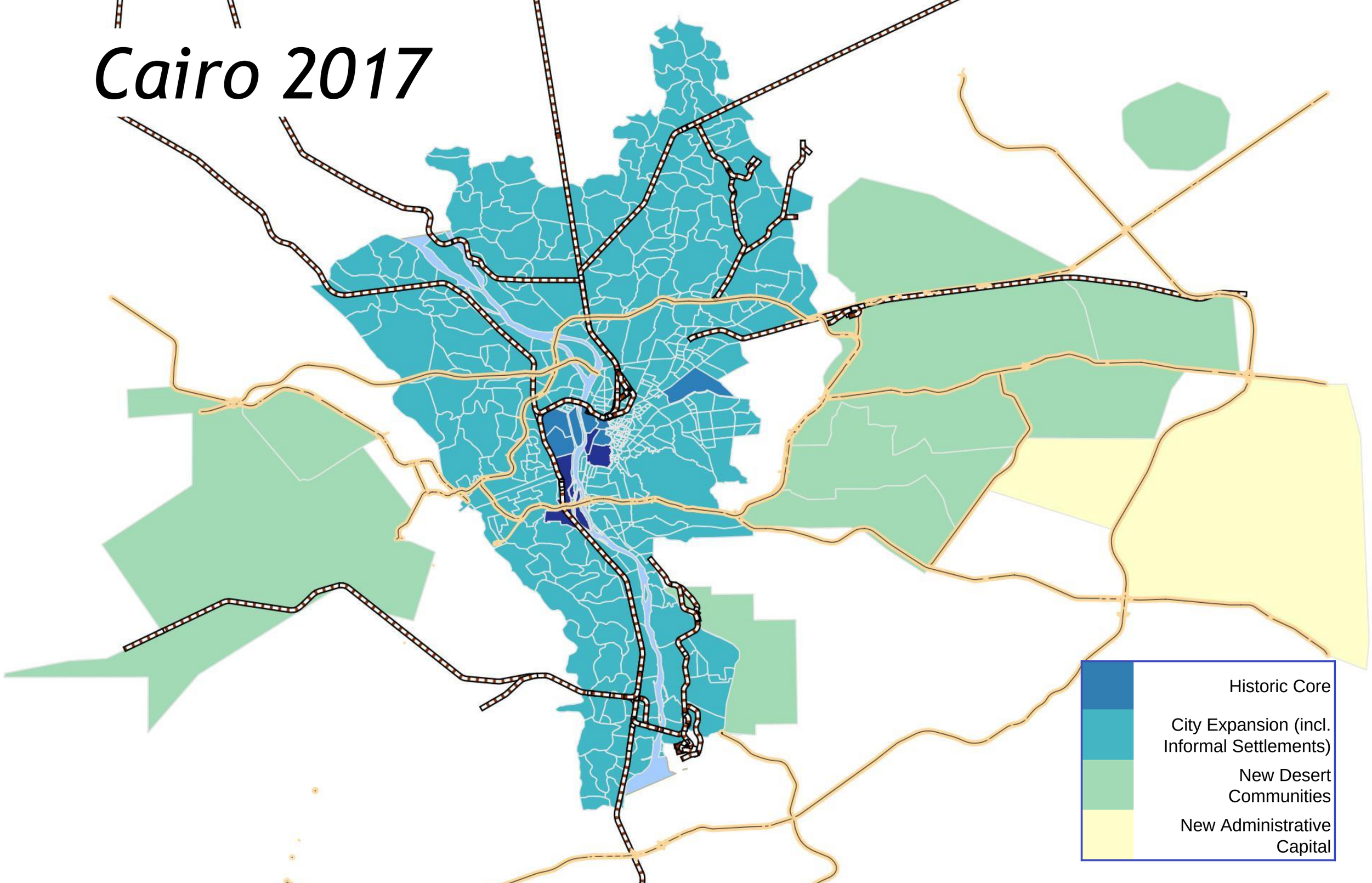
Cairo 2011


Historic Core
City Expansion (incl. Informal Settlements)
New Desert Communities

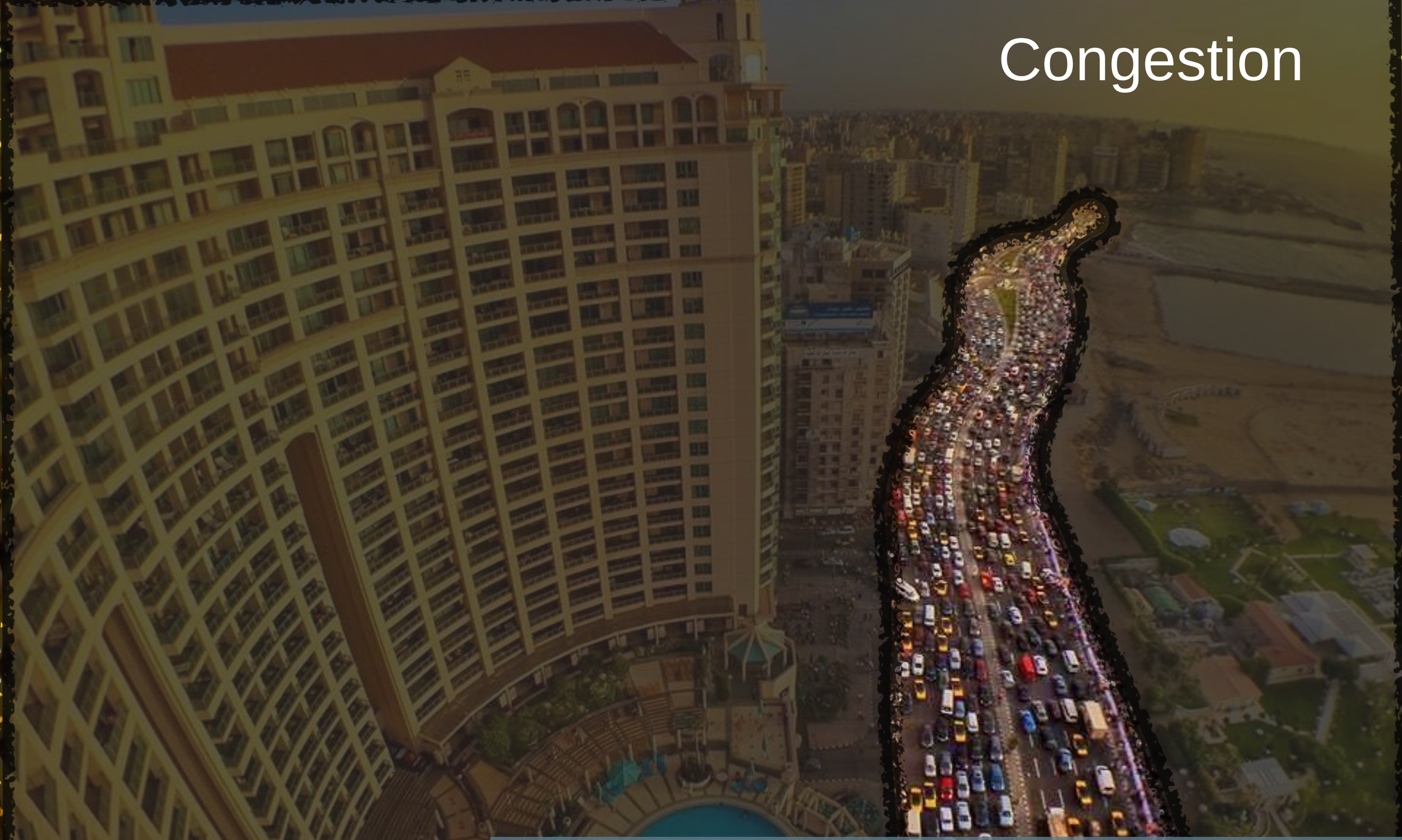
2011 - Present: Suzuki (⅛)

Microbuses from Al-Azhar to Attaba, and back

Cairo 2017

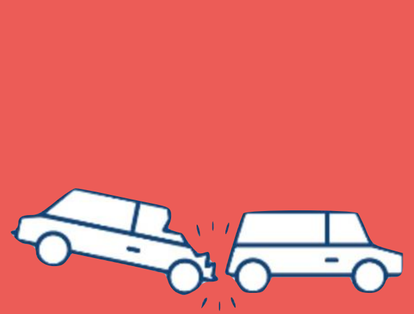

Historic Core
City Expansion (incl. Informal Settlements)
New Desert Communities
New Administrative Capital

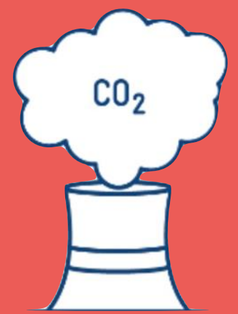
Congestion

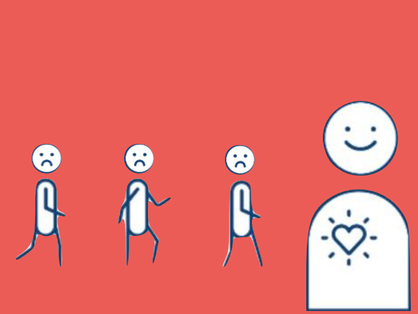


Traffic Jam in on the Alexandria corniche , © Sherif Salem Photography

Congestion is a problem







Economic

2.3% of GDP annually
50%+ Public Housing Vacant

Environmental

27% of GHG emissions
Air Quality Pollution

Health

Road Safety Problems
Increased Risk of Diabetes & Cardiovascular disease

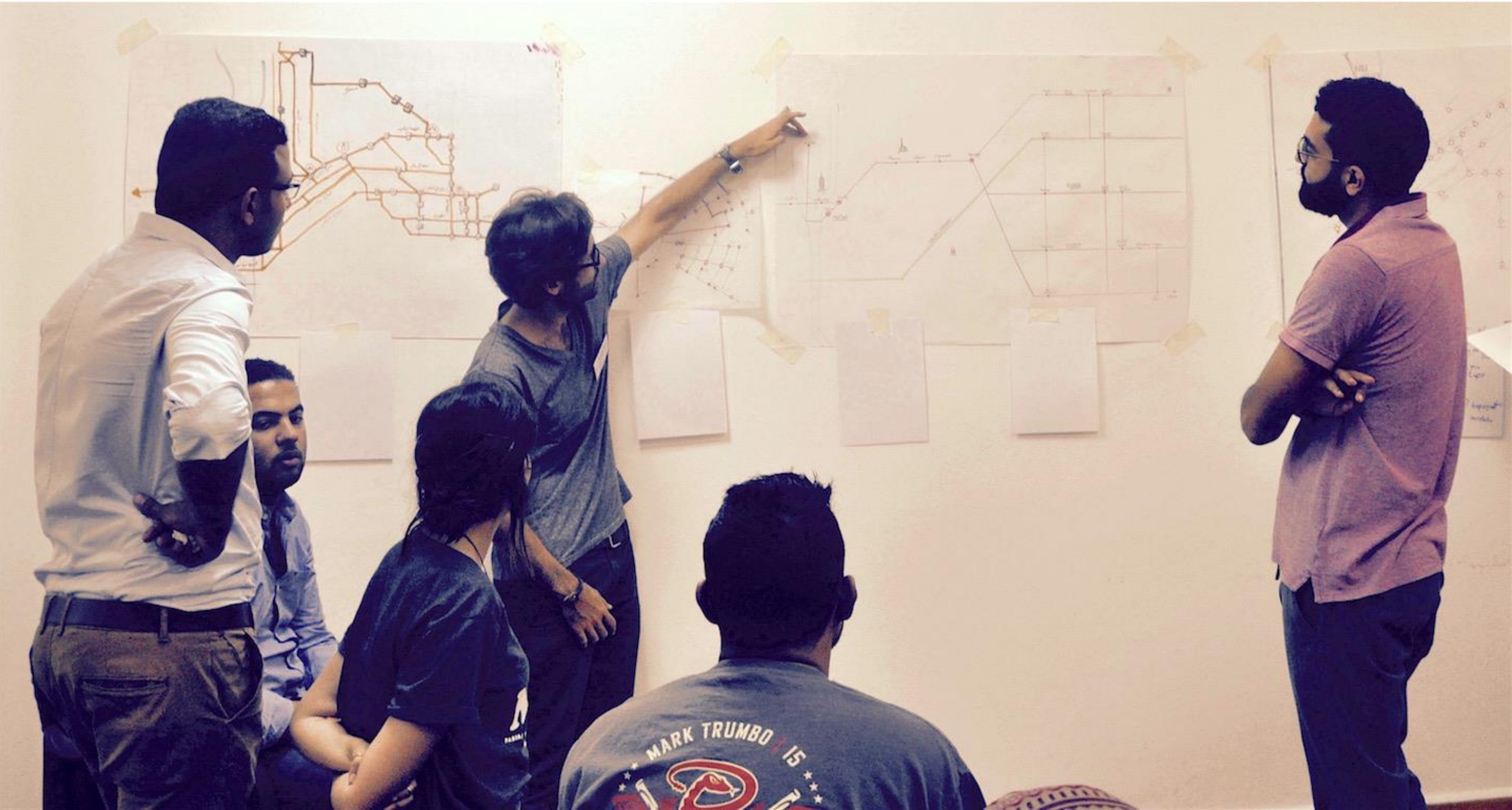
Social

Reduced accessibility for women, disabled and refugees
Captive riders

Founded in 2015

Transport for Cairo

مواصلات للقاهرة



خريطة تجريبية لخطوط سير وتحركات أتوبيسات القاهرة

Experimental Transit Map:
Visualizing 20 Bus Lines in Cairo

N

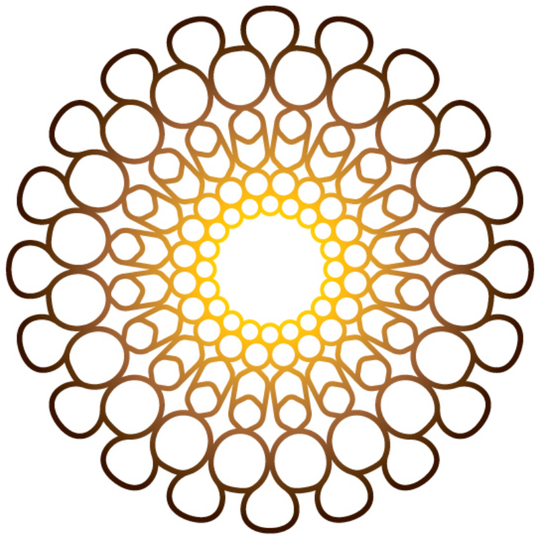
مفتاح الخريطة
Key of the map

- مسار الأتوبيس — *Bus route*
- اسم المحطة — *Name of the station*
- رقم الأتوبيس — *Bus number*
- بداية أو نهاية الخط — *Start or end of the route*
- علامة مميزة — *Landmark*
- موقف لعدة أتوبيسات — *Multiple bus stops*

وحده عربية Wenda Arabya
مسترد Mustrod
مطرية Matarya
ج.الزيتون H.El-Zaytoun
عين شمس Ain Shams
ألف مسكن Alf Maskan
المظلات El-Mazallat
شبرا Shobra
شارع حلمي HELMY STREET
الخليفة المأمون El-Khalifa El-Ma'mun
روكسي Roxy
الميرلاند Meryland
م.المحكمة Mahkama Sq.
م.الحجاز El-Hegaz Sq.
سانت فاطيمة Saint Facima
م. ترياصف Triumph Sq.
عبدالحميد بدوي Abdelhamid Badawi
مطار القاهرة Cairo Airport
م. شيراتون Sheraton Square
الحمدراش Demerdash
عباسية Abbassya
غمره Ghamra
رمسيس Ramses
صلاح سالم Salah Salem
صلاح سالم SALAH SALEM
النزهه El-Nozha
رقابة إدارية Reqaba Edarya
م.الطلبة Madinet Talba
م.المحكمة Mahkama
إمبابة Imbaba
جراج Garage
الكتكات kit kat
عرابي Orabi
السودان Sudan st.
م.لبنان Lebanon sq.
م.سفنكس Sphinx Square
زمالك Zamalk
اسعاف Saaf
التحرير Tahrir
قصر النيل KASR EL NILE
EL MEHWAR
EL CORNICHE الكورنيش
السكة الحديد Railway
جامعة الأزهر AL-Azhar Uni.
رابعة العدوية Rabaa El-Adawya
أول عباس Awel Abbas
أول مكرم Awel Makram
النادي الأهلي El-Nady El-Ahly
عزبة الهجانة Ezbet El-Hagana
الطيران Tayran
شارع الطيران TAYARAN STREET
مصطفي النحاس Mustafa El-Nahas
الحي الثامن 8th District
التبه El-Tabba
الحي السابع 7th District
السراج مول El-Serag Mall
انبي Inppi
جامع السلام Al salam Mosque
الحي العاشر 10th District
الحي السادس 6th District
زهراء مدينة نصر Zahraa M. Nasr
First Settlement
ميدان المقطم Maqatam Square
بولاق الدكرور Boulaq El-Dakror
السيدة عائشة El-Sayda Zeinab
القلعة The Citadel
السيدة عائشة El-Sayda Aysha
جامعة القاهرة Cairo University
حديقة الحيوان The zoo
كوبري الجامعة Kobry El-Gama'a
جيزة Giza
كوبري عباس KOBRY ABBAS
MATBAA
EL NASR STREET
صلاح سالم SALAH SALEM

Ismail Moneer
Mohamed Khalaf
Nada Hesham
Sarah Eldepissy

2017 - 2019



إكسبو EXPO 2020

دبي، الإمـــارات العربيـة المتحـدة

DUBAI, UNITED ARAB EMIRATES

Transport for Cairo مواصلات للقاهرة

تكوين لتنمية المجتمعات المتكاملة

Takween Integrated Community Development

digitalmatatus

CSUD Center for Sustainable Urban Development Columbia University

CIVIC DESIGN DATA LAB

GROUPSHOT

Acknowledging Open-Source & Starting Points

Tools & Technology

OpenTripPlanner

GTFS

How did you contribute to OpenStreetMap?

Transport for Cairo (TfC) Search

Name: Transport for Cairo (TfC)
Registered: July 05th, 2017
Active mapping days: 35 (27.6%)
Changesets: 125
Map changes: 19 094
GPS-tracks: 0

مواصلات للقاهرة

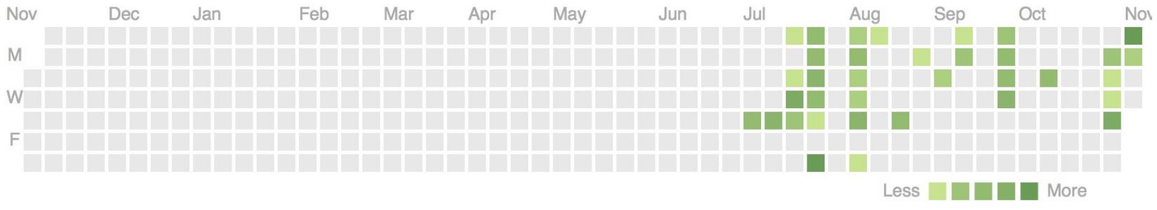
Type? Casual Mapper (Regularly Active)

Recent changesets: Egypt 50

Recent ranks: Egypt #2

OSM Notes: Closed with comment 0 (w/o 0), commented 0 and 0 opened
Changeset discussions: Participated in 0 and created 0 comments

35 mapping days with 125 changesets in the last year



Methodology & Research

Journal of Transport Geography 49 (2015) 39–51

Contents lists available at ScienceDirect

Journal of Transport Geography

journal homepage: www.elsevier.com/locate/jtrg

The digital matatu project: Using cell phones to create an open source data for Nairobi's semi-formal bus system

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[c] School of Computing and Informatics, University of Nairobi, P. O. Box 30197-00100 GPO Nairobi, Kenya
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ARTICLE INFO

Article history:
Received 14 October 2014
Received in revised form 27 September 2015
Accepted 2 October 2015
Available online 30 October 2015

Keywords:
Mobile data collection
Mobile phones
Open data
General Transit Feed Specification (GTFS)
African transit
Informality
Semi-formal transit
Paratransit
Nairobi
Kenya
Informal transit
Data standards
International
Matatu

ABSTRACT

In many of the world's growing cities, semi-formal buses form the basis of public transit systems. However, little open and standardized data exist on these systems. The Digital Matatus project in Nairobi, Kenya set out to test whether the geo-locative capabilities of mobile technology could be used to collect data on a semi-formal transit system and whether that data could be translated into the General Transit Feed Specification (GTFS) data standard for wider use. The results of this work show that mobile technologies, particularly mobile phones, which are increasingly prevalent in developing countries, can indeed be used effectively to collect and deliver data in a modified GTFS format for semi-formal transit. Perhaps more importantly, through our work in Nairobi, we were able to identify the benefits and technical needs for developing data on semi-formal transit. Overall, the work illustrates (1) how the GTFS can be adapted to semi-formal systems and used by other cities with such transit systems, (2) that there is demand from technologists as well as transport communities for comprehensive data on semi-formal transit, (3) that releasing the data openly in the GTFS standard format can help to encourage the development of transportation applications, and (4) that including the entire transit community during the data development can create a community of users and mechanisms for institutionalizing a process of data updating and sharing. The engagement strategies our research team developed around the data collection process in Nairobi became just as important as the resulting data it produced.

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1. Introduction

For millions in the developing world, citywide transportation options are often limited to semi-formal networks of buses and minibuses run by hundreds of diverse operators. Often referred to as paratransit, these systems constitute the backbone of mass transit for the majority of citizens in the rapidly growing cities of Africa, Asia, and Latin America (Cervero and Golub, 2007; Behrens et al., 2012; Guillen and Cordova, 2012). System-wide maps of station locations, routes, fares, schedules, operating calendars, and other key information are simply not available to the public for the majority of paratransit routes around the world. Lack of data makes it hard for users to know how to navigate these systems and creates limitations for transit planners when developing transit models (Thakur and Sharma, 2009; Barcelo et al., 2010). This is a stark contrast to cities with formal, planned transport systems where such information is expected of operators and increasingly being integrated with new technology to allow better planning decisions in real time (Catala, 2011; Lee-Gosselin and Buliung, 2012; Sussman, 2005; Kramers, 2014).

Semi-formal bus networks are composed of many private actors that, like taxis, operate for profit and are owned either by the drivers themselves or by businesses of varying size (Cervero and Golub, 2007; Guillen and Cordova, 2012). Vehicle size and capacity can vary widely, from small cars to full-size buses (Zhang et al., 2013). Unlike regular taxis, these paratransit bus systems often follow set routes with designated stops, much like formal transit systems (Cervero and Golub, 2007). They deliver an essential transportation infrastructure to developing cities by providing mobility to residents, especially the urban poor and lower middle class who often cannot afford other means of transport (Zhang et al., 2013). While they help to fill a transportation gap, paratransit systems have some drawbacks including contributions to traffic congestion, crashes, and environmental pollution (Cervero, 2000) as well as unreliability and safety concerns (Klopp and Mitullah,

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http://dx.doi.org/10.1016/j.jtrangeo.2015.10.005
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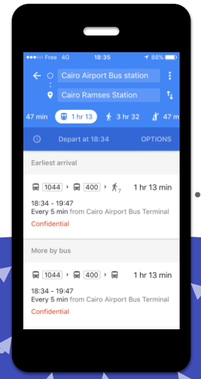
Transport for Cairo

مواصلات للقاهرة



Affordability

Availability

Accessibility

Acceptability

Safety

Sustainability

System Adequacy

Temporal

Geography

Map / Data

Better Customer Experience

Data & Tools for Industry and Decision-makers

Bus Routes

Route 1013

Route 1017

Route 1018

Route 1020

Route 1022

Route 1024

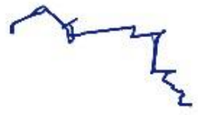
Route 1032

Route 1043

Route 1047

Route 1062

Route 1064



Route 1078

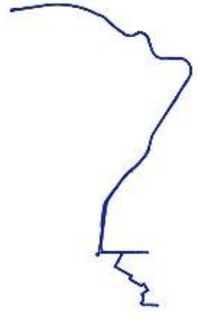
Route 108

Route 1083

Route 1107

Route 1111

Route 1122



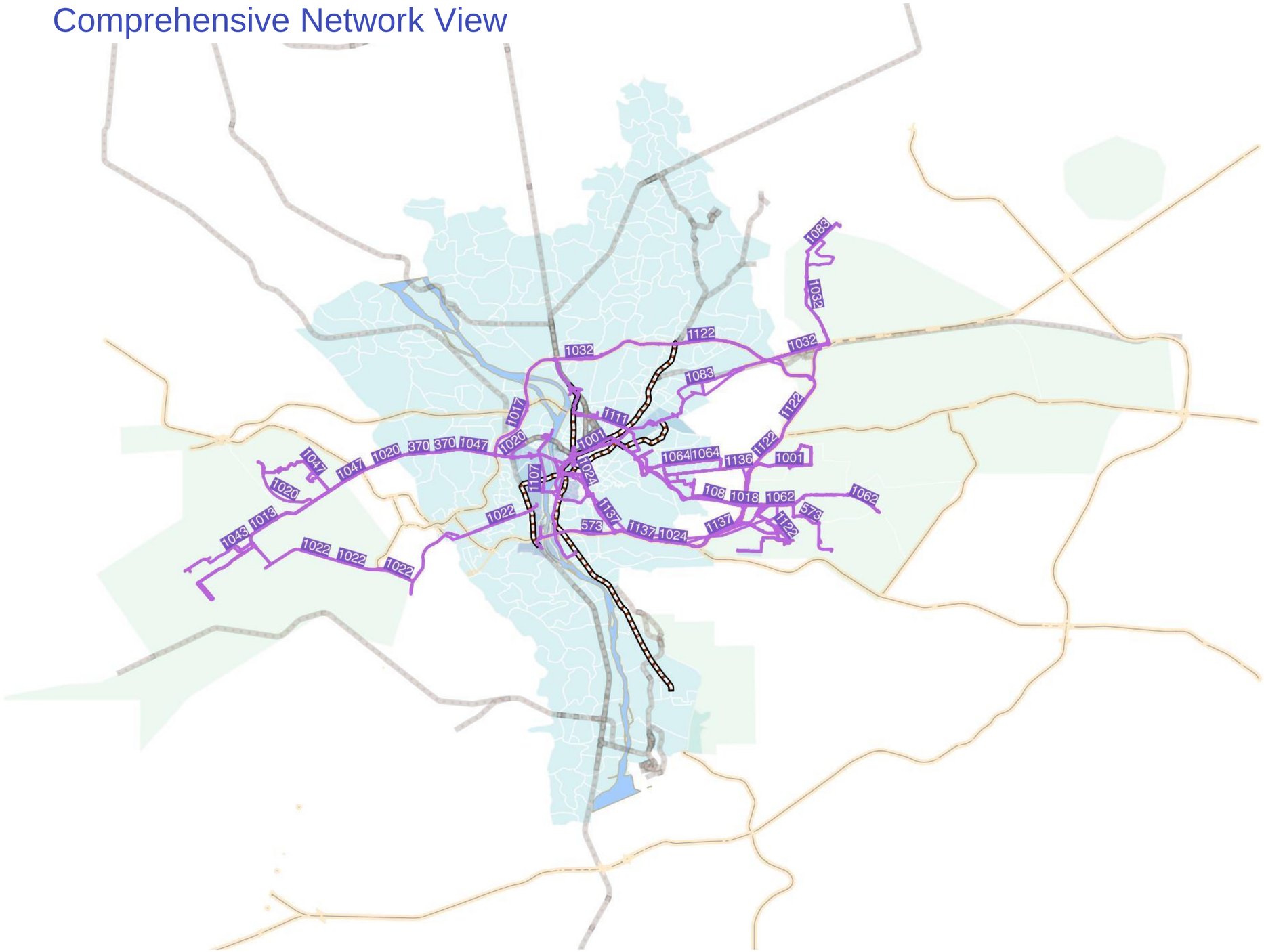
Transport for Cairo

مواصلات للقاهرة

Comprehensive Network View

Transport for Cairo

مواصلات للقاهرة

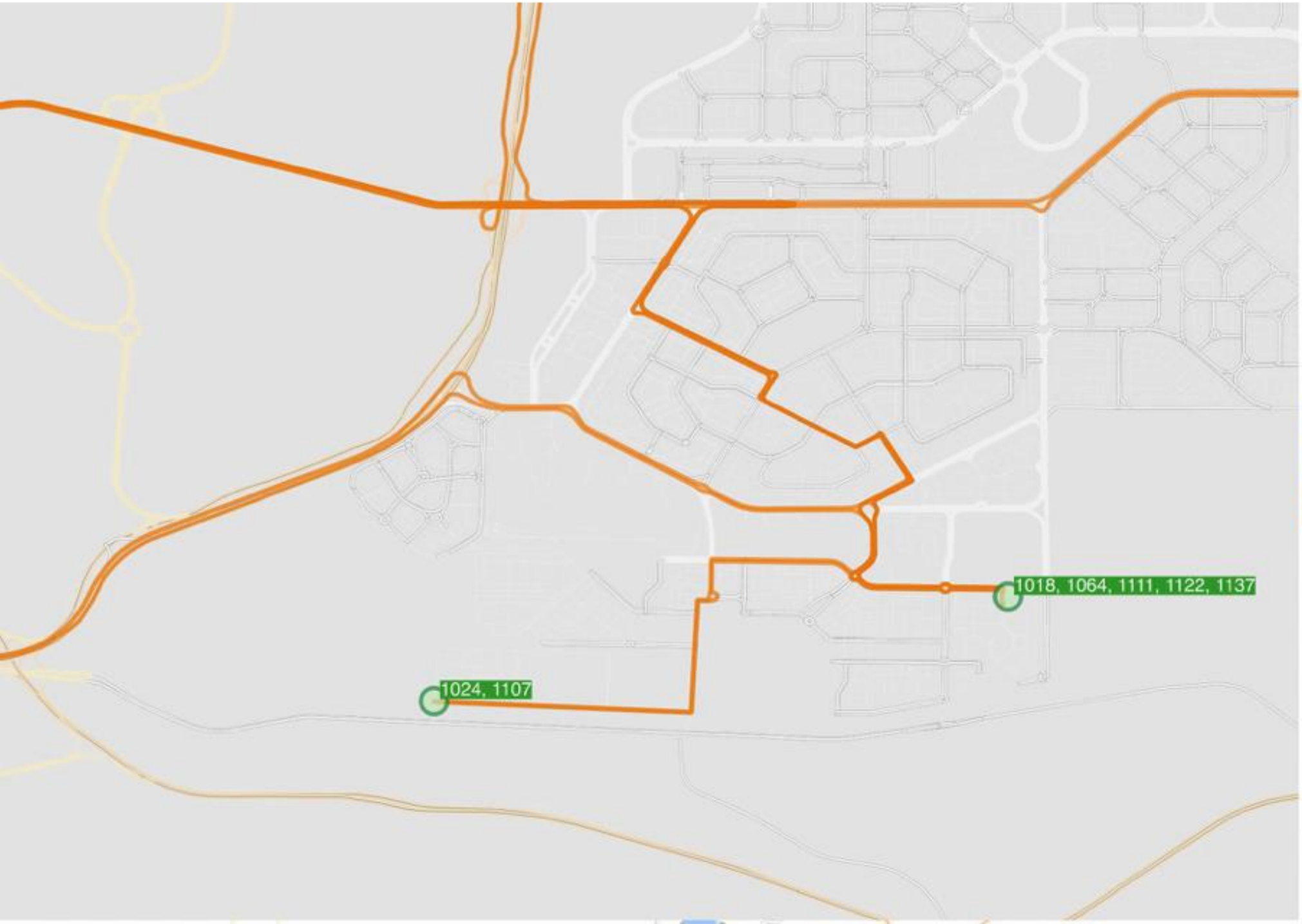


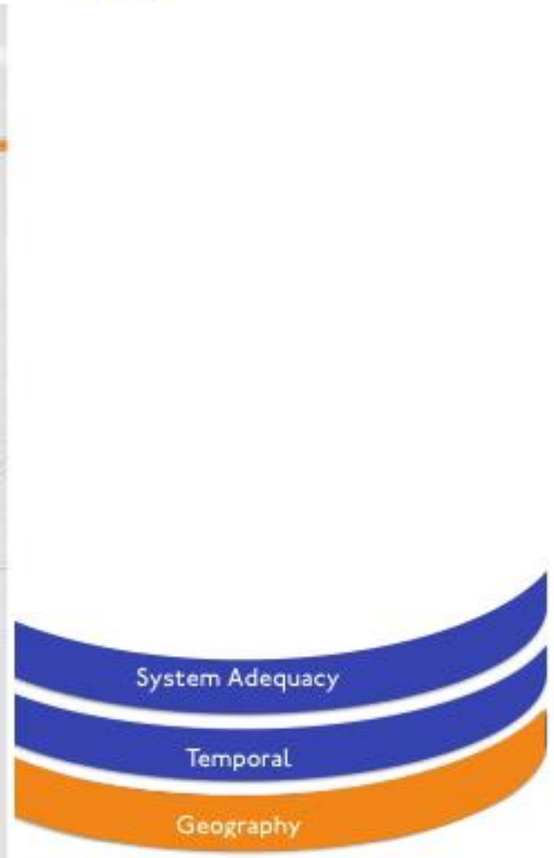
System Adequacy

Temporal

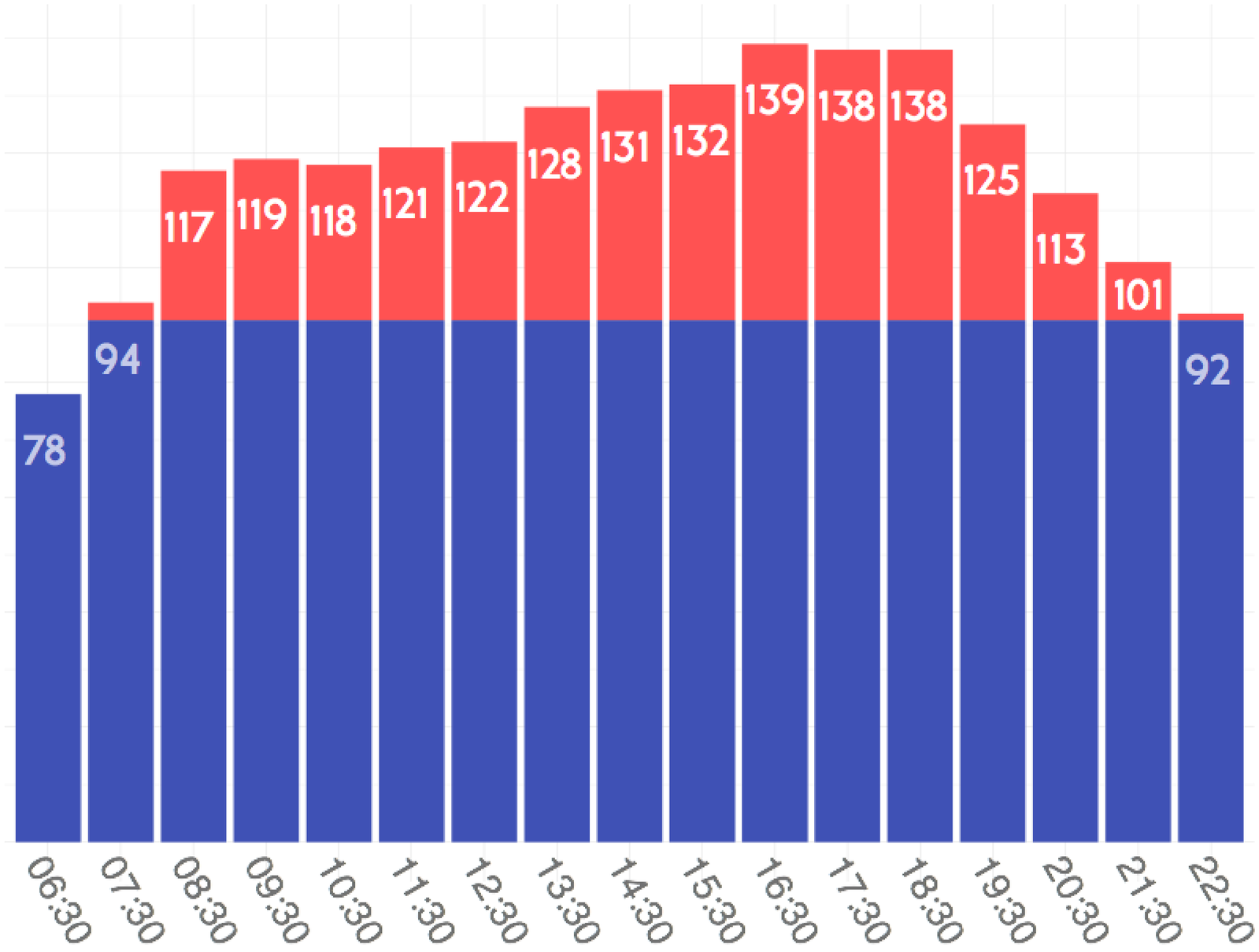
Geography

How do we create Stops?



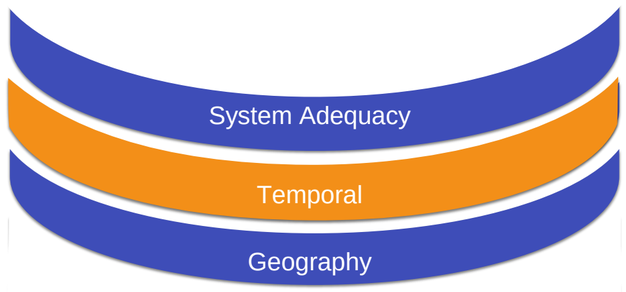


Minutes to complete a complete route



Transport for Cairo

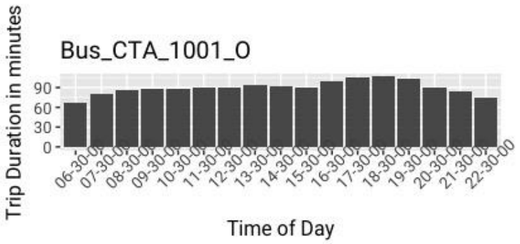
مواصلات للقاهرة

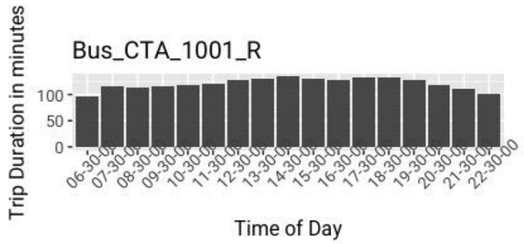


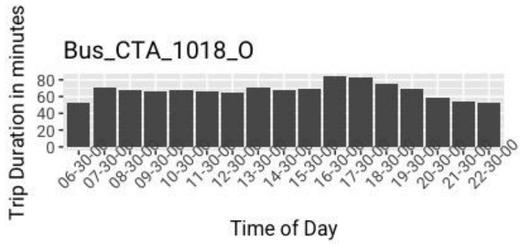
Big-Data-based schedule estimations:
Every Route, every hour, every day

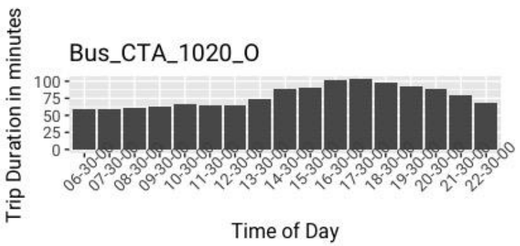
Transport for Cairo

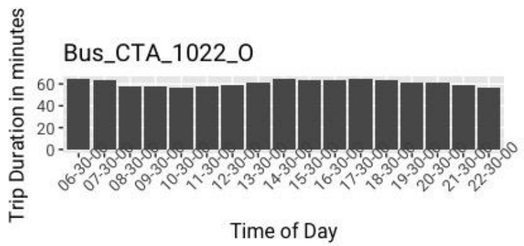
مواصلات للقاهرة

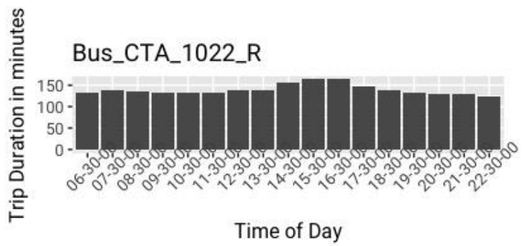


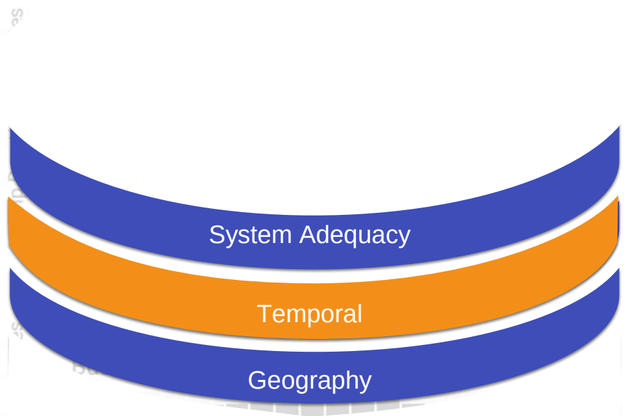


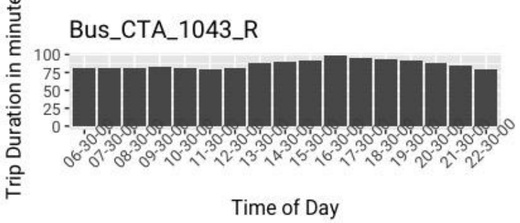


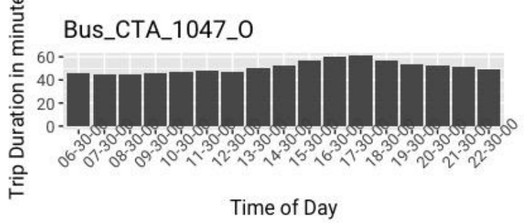


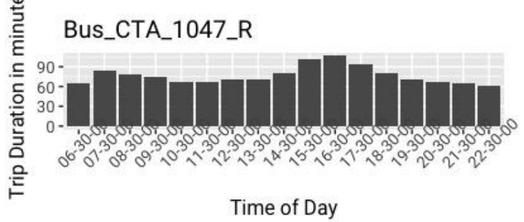


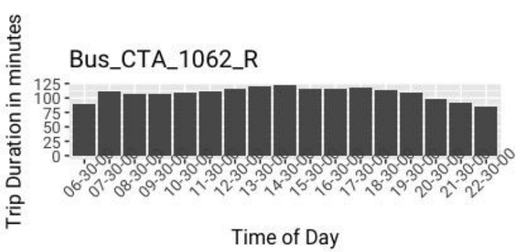


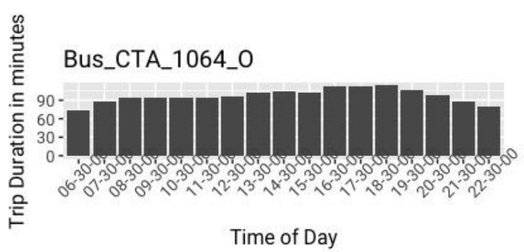


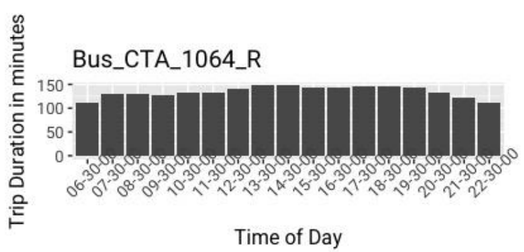






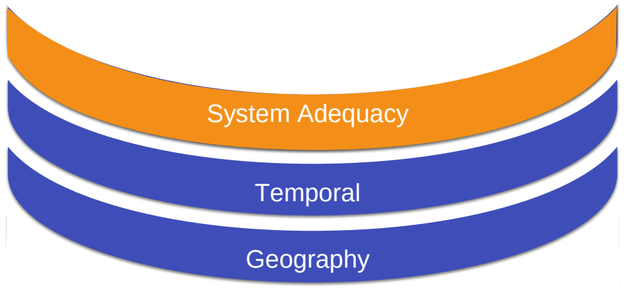






Citizen unsuccessfully chasing public transit in Batal Ahmed Str., Mohandessin

What else might keep commuters from using public transportation?

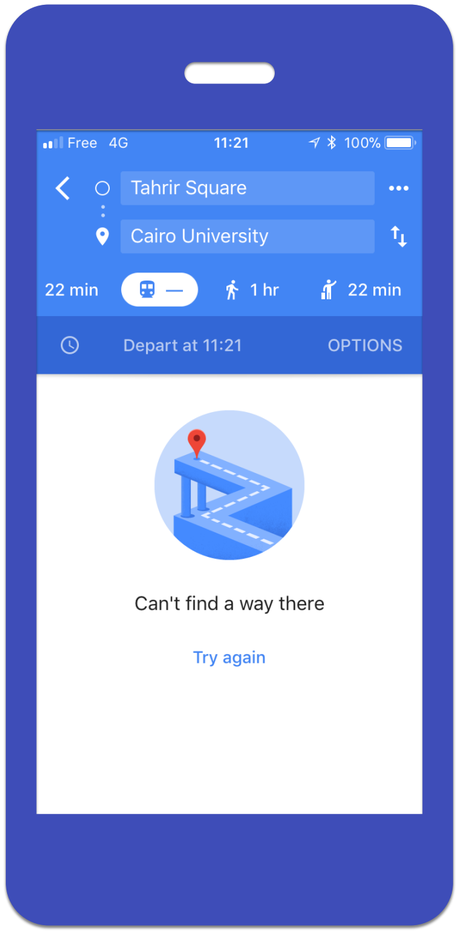


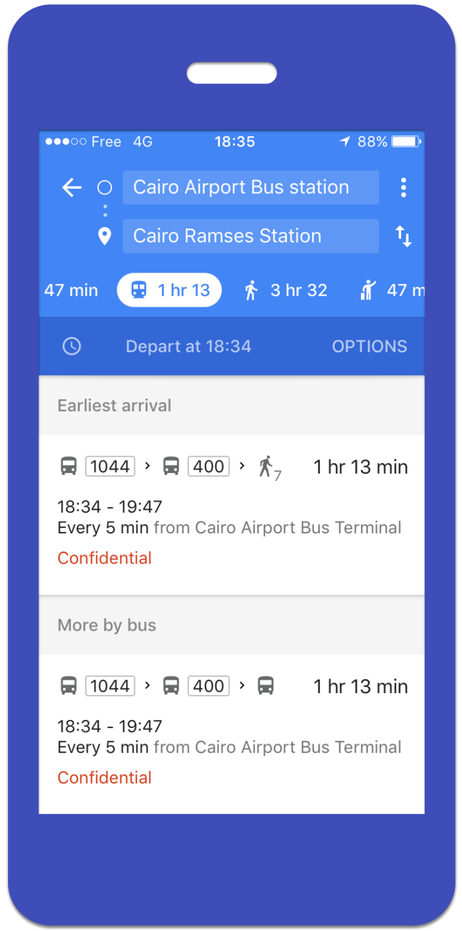
Transport for Cairo

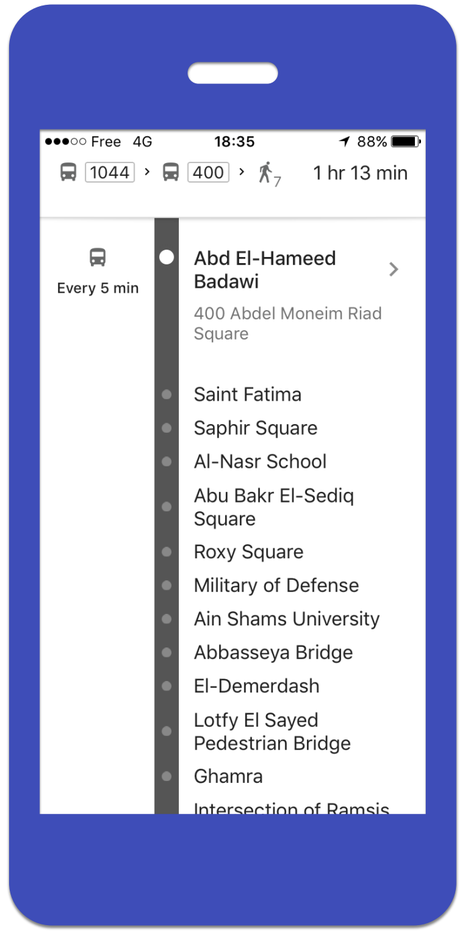
مواصلات للقاهرة

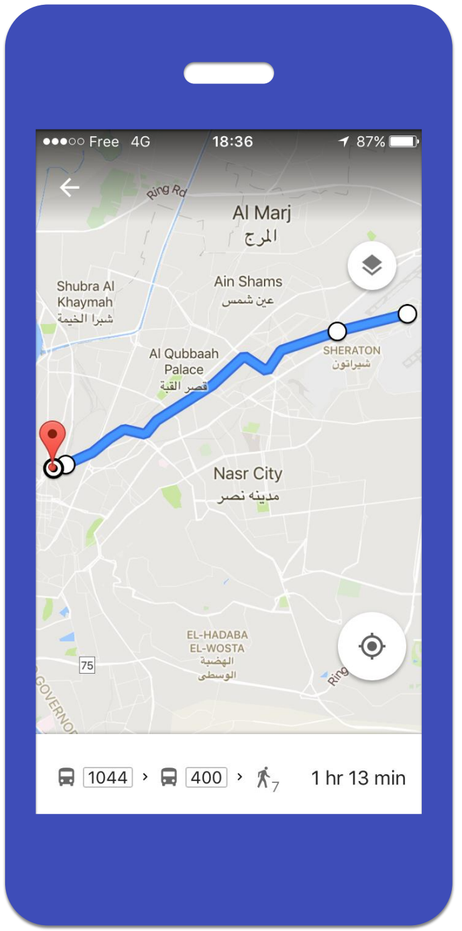
Better Customer Experience

Higher Public Transport Ridership & Modal Share









Present

Target: Enabling Trip Planning

Driving time Heat-map

The map shows the average travel time from the origin zone (Cairo Airport) to all other zones for a given date-time range. (21-06-2017 at 8:30 am)

Better Planning & More Investments

Data & Tools for
Industry and Decision-makers

Travel Times (mins)

0 5 10 15 20 25 30 40 50 60 90

'CC-BY-NC' Transport for Cairo (TfC) L.L.P., 2017. Basemap © Wikimania

School Bus

Informal Schoolbus: Nasser School, Dokki

Scheikh Zayed City, Hyper One Microbus Terminal

Dokki Metro Station 2017

Paratransit Station

Dokki Metro Station 2009

No Paratransit in sight

@ Google Earth - Digital Globe 2017

El Shorouk City

Process of formation of informal microbus stops

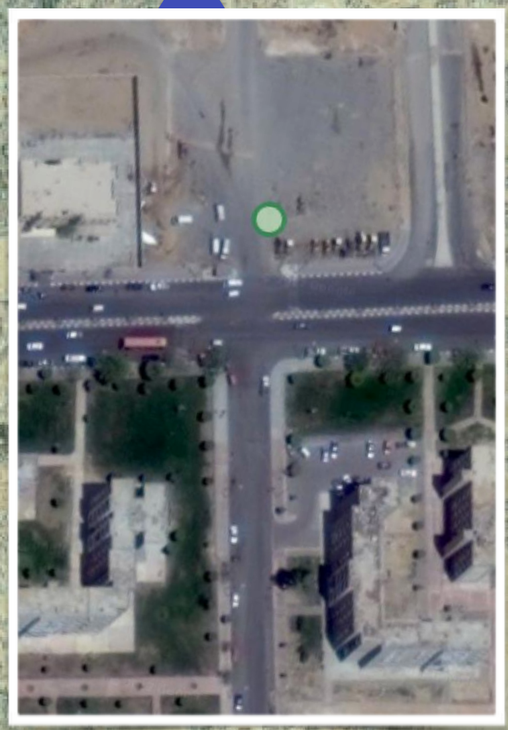
938 998 1056 323 1016 421 422 420 425

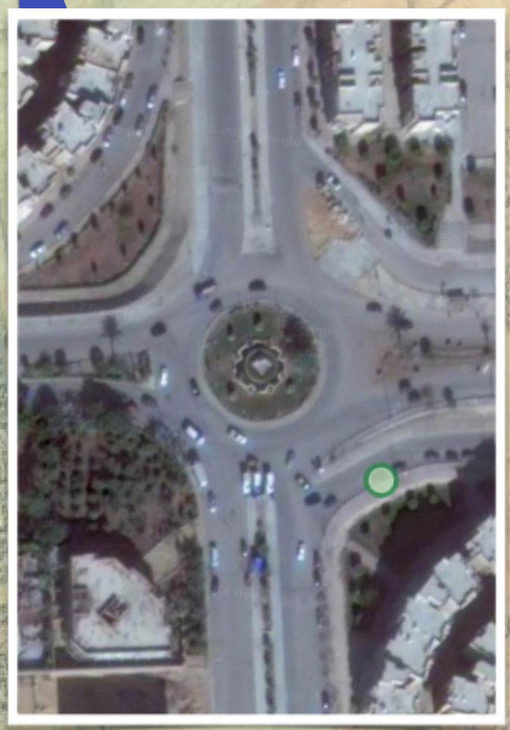
@ Google Earth - Digital Globe 2017

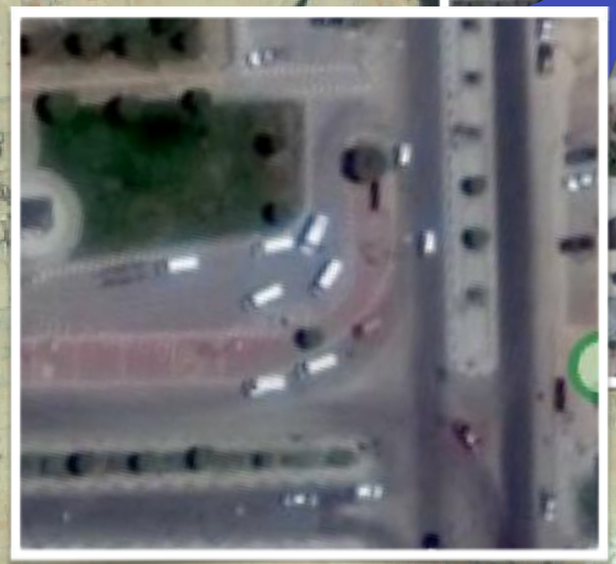
El Shorouk City

Process of formation of informal microbus stops

938 998 1056 323 1016 421 422 420 425







@ Google Earth - Digital Globe 2017

Theory of Change

4 Vision

3 Impact

2 Outcome

Economic | Environmental | Health | Social

Better Planning & More Investments

Data & Tools for Industry and Decision-makers

Higher Public Transport Ridership & Modal Share

Better Customer Experience

1 Strategy

Geographic mapping

Temporal Modelling

System Adequacy

Qualitative Research

Trip-Planning

How can Transit Mapping contribute to achieving Adequate Urban Mobility?

The case of the Greater Cairo Region (GCR)

http://transportforcairo.com

* Mappable Network, i.e. regular and scheduled.

One common consortium

October 3, 2017

EXPO 2020 إكسبو
دبي، الإمـــارات العربيـة المتحـدة
DUBAI, UNITED ARAB EMIRATES

Transport for Cairo
مواصلات للقاهرة

تكوين
تكوين لتنمية المجتمعات المتكاملة
Takween Integrated Community Development

digitalmatatus