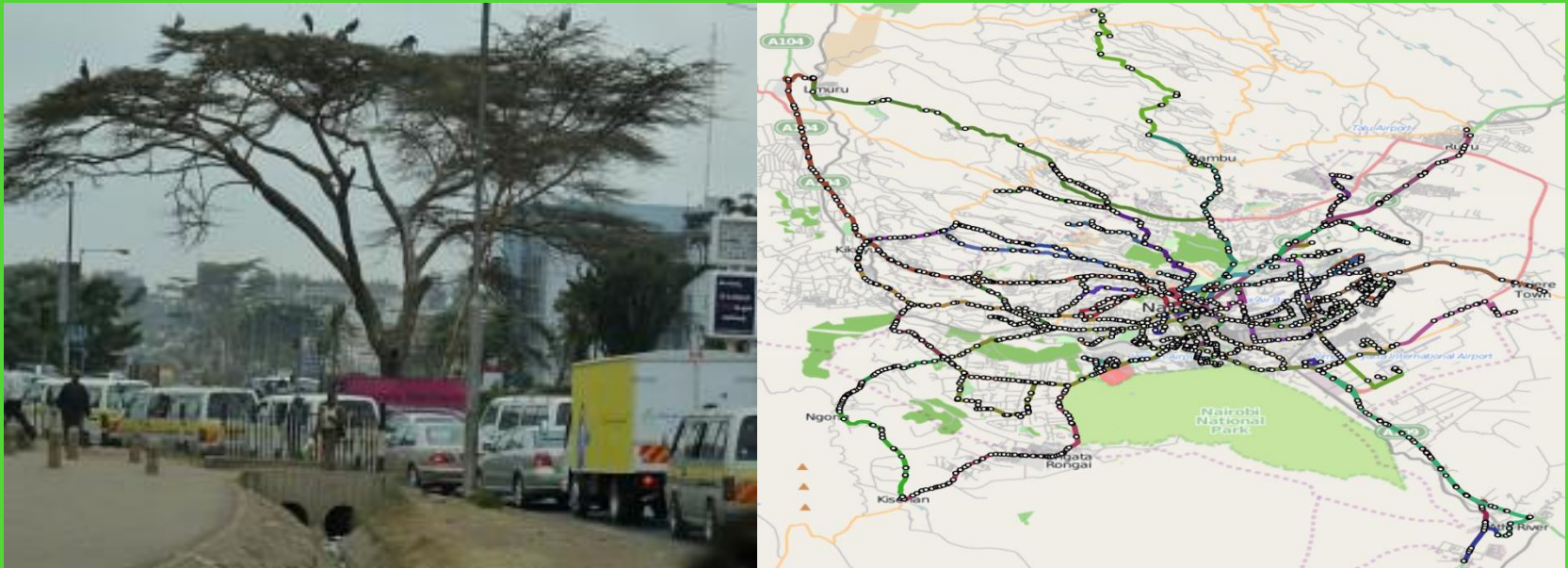


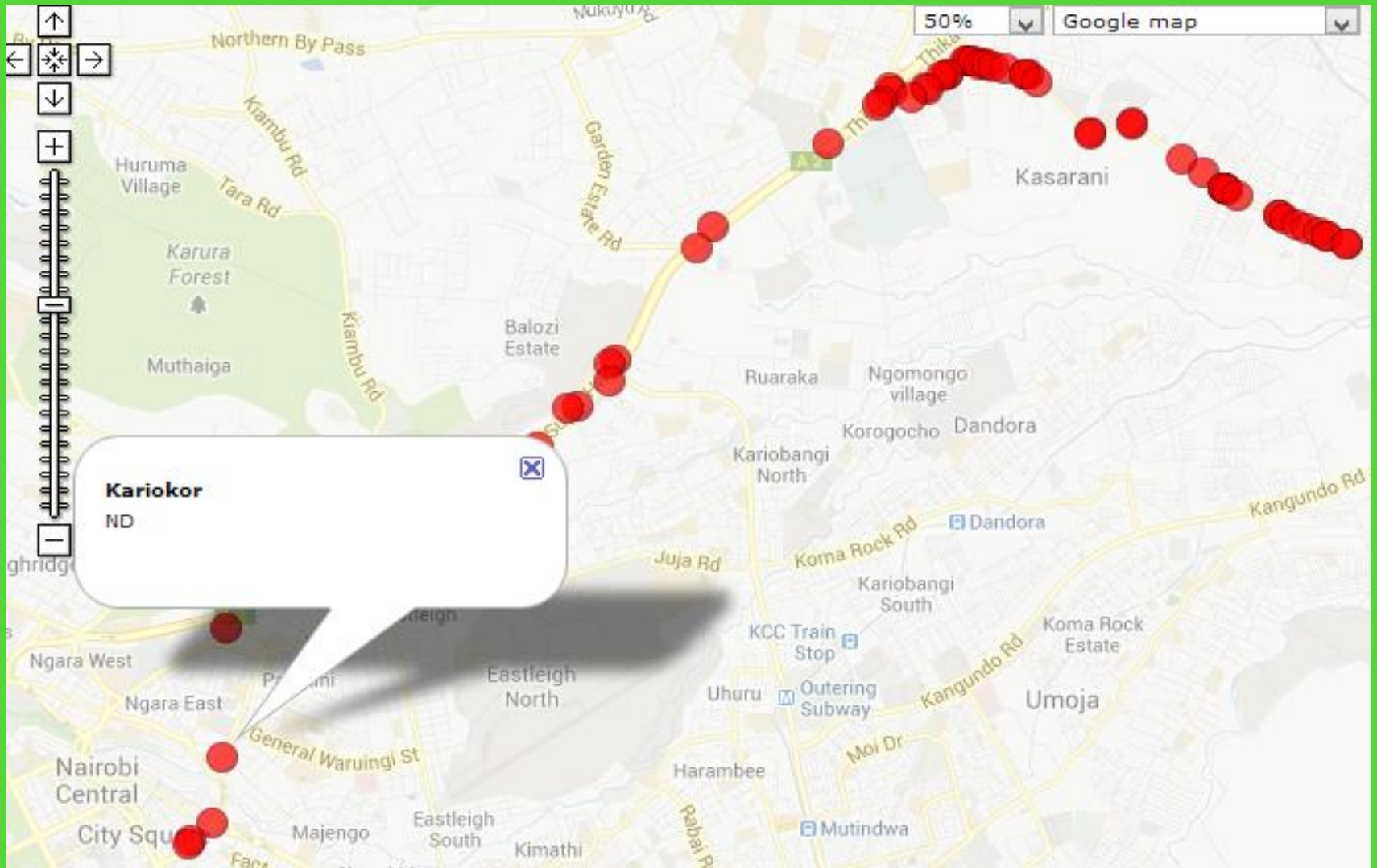
Why Open Transit Data Matters for Sustainable Urban Transport:

A Nairobi Case Study

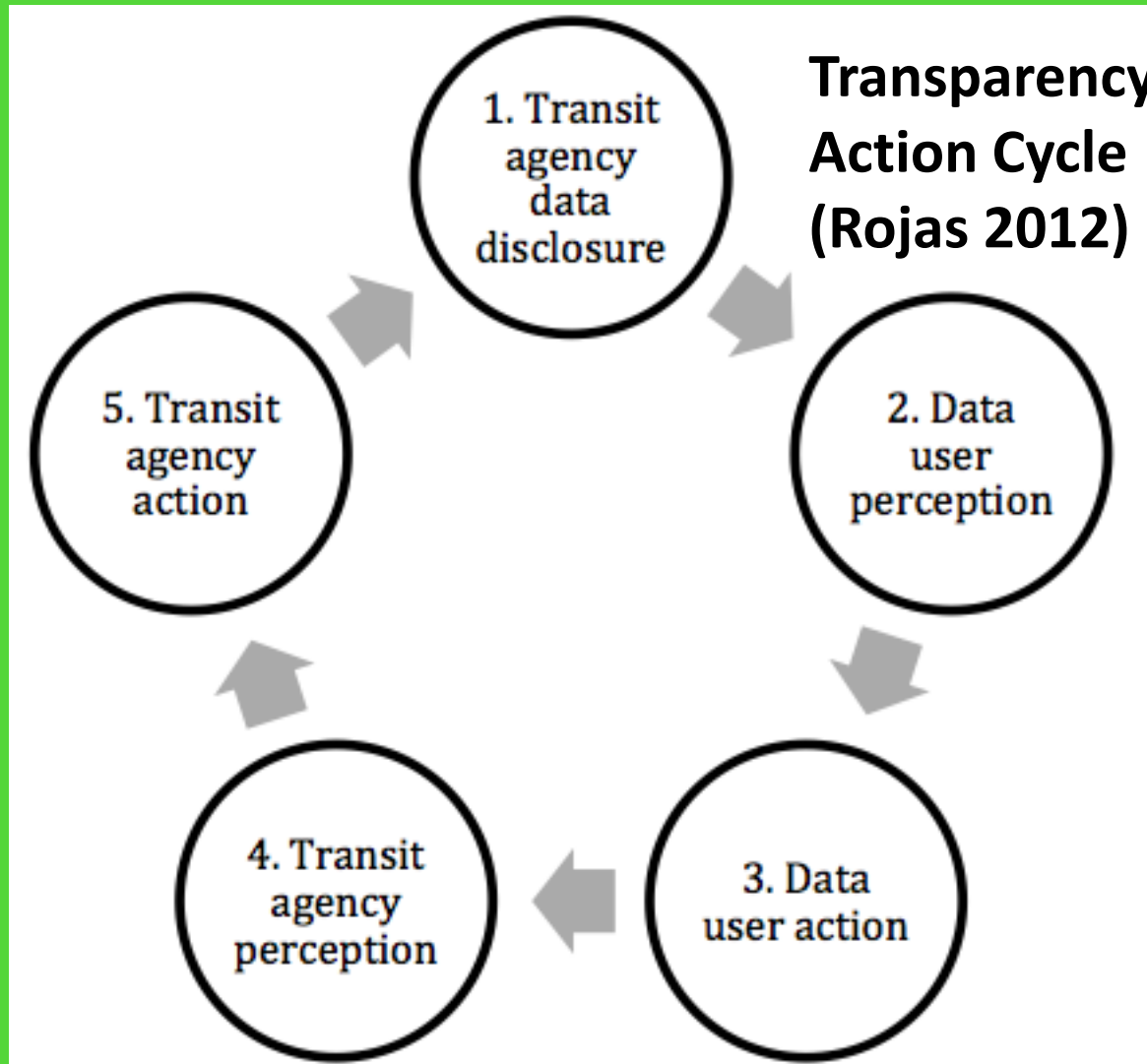


Jacqueline M. Klopp
Columbia University

CAN OPEN TRANSIT DATA HELP BUILD ENVIRONMENTALLY SUSTAINABLE TRANSPORT?



Open Transit Data Movement



The Importance of Standardized Data Format

A photograph of a white bus, likely in a developing region, with several people visible inside and outside. The bus has a sign on the windshield with a red circle and a slash, indicating a no-parking or no-idling zone. The image is overlaid with large white text and a smaller block of text below it.

GTFS

**STANDARDIZED TRANSIT FORMAT THAT
ALLOWS DEVELOPERS TO BUILD TOOLS
ON TOP OF DATA. THE STANDARDIZATION
ALLOWS FOR TOOLS TO BE USED FOR
DATA CREATED ANYWHERE.**

NAIROBI PUBLIC TRANSIT



A photograph of two men in a crowd, both using mobile phones. The man on the left is wearing a green patterned shirt, and the man on the right is wearing a light blue shirt and a grey vest. The background is a blurred crowd of people.

UNIVERSITY OF NAIROBI
SCHOOL OF COMPUTING AND INFORMATICS

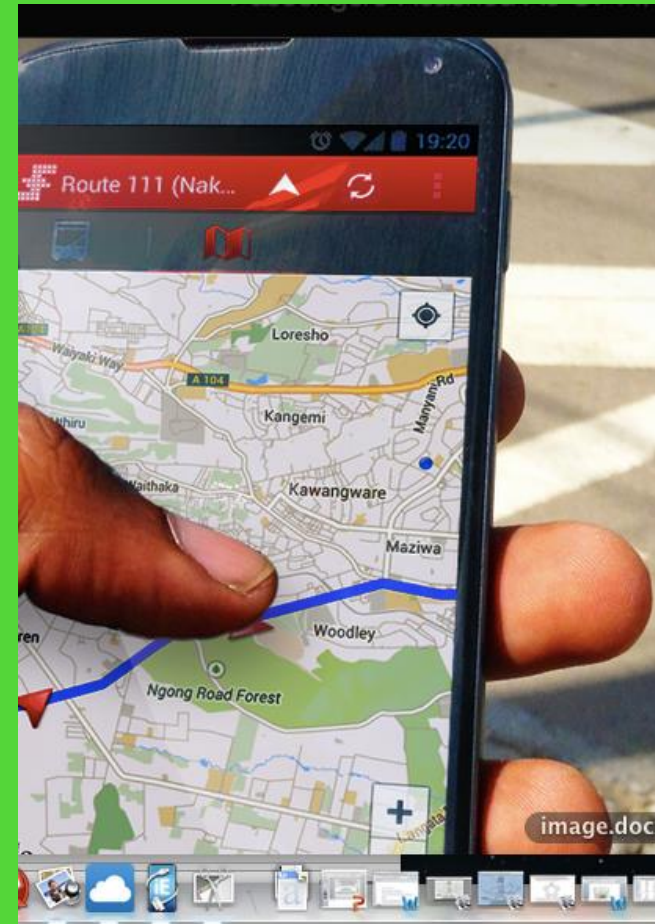
COLUMBIA UNIVERSITY
CENTER FOR SUSTAINABLE URBAN DEVELOPMENT

GROUPSHOT
TECHNOLOGY & DEVELOPMENT

MIT
CIVIC DESIGN
DATA LAB

PROJECT OBJECTIVES

- 1. BRAINSTORM WAYS TO LEVERAGE TECHNOLOGY FOR SUSTAINABLE URBAN TRANSPORT
- 2. CONTRIBUTE TO THE CREATION OF OPEN MASS PUBLIC TRANSPORT DATA TO STIMULATE INNOVATION
- 3. EXPLORE THE USE OF A DATA STANDARD (GTFS) THAT CAN HELP TRANSFERABILITY OF TOOLS; MAPPING OF TRANSIT ONTO GOOGLE MAPS
- 4. SUPPORT COMMUNITIES OF USERS AND POLICY CHANGE/TRANSPORT INFORMATION PORTAL



Low Cost Data Collection

The Local Government Act

(Cap. 265)

IT IS NOTIFIED for general information that the City Council of Nairobi has amended its omnibus By-law to provide for the following routes and designated parking for omnibus-

TERMINUS	ROUTE	DESTINATION	ROUTE DESCRIPTION
Circular	CBD Shuttle A	Circular within CBD	Muthurwa- Globe Cinema Roundabout (via Haile Selassie Avenue-Moi Avenue-Muranga Road) Community (via Tom Mboya Street - Cabral Street - Moi Avenue - Kenyatta Avenue-Ngong Road) and back to Muthurwa (via Ngong Road - Haile Selassie Avenue)
Circular	CBD Shuttle B	Circular within CBD	Muthurwa - Community (via Haile Selassie Avenue and Ngong road) Globe Cinema Roundabout (via Ngong Road - Kenyatta Avenue - Moi Avenue - Muranga Road) and back to Muthurwa (via Tom Mboya Street - Moi Avenue - Haile Selassie Avenue)
Muthurwa	19-C	Komarakock	Komarock Estate - Kangundo Road - Outer Ring Road - Jogoo Road Muthurwa
Muthurwa	19-60	Kayole	Kayole Estate - Kangundo Road - Outer Ring Road - Jogoo Road Muthurwa
Muthurwa	19-61	Kayole	Kayole Estate - Kangundo Road - Outer Ring Road - Jogoo Road Muthurwa

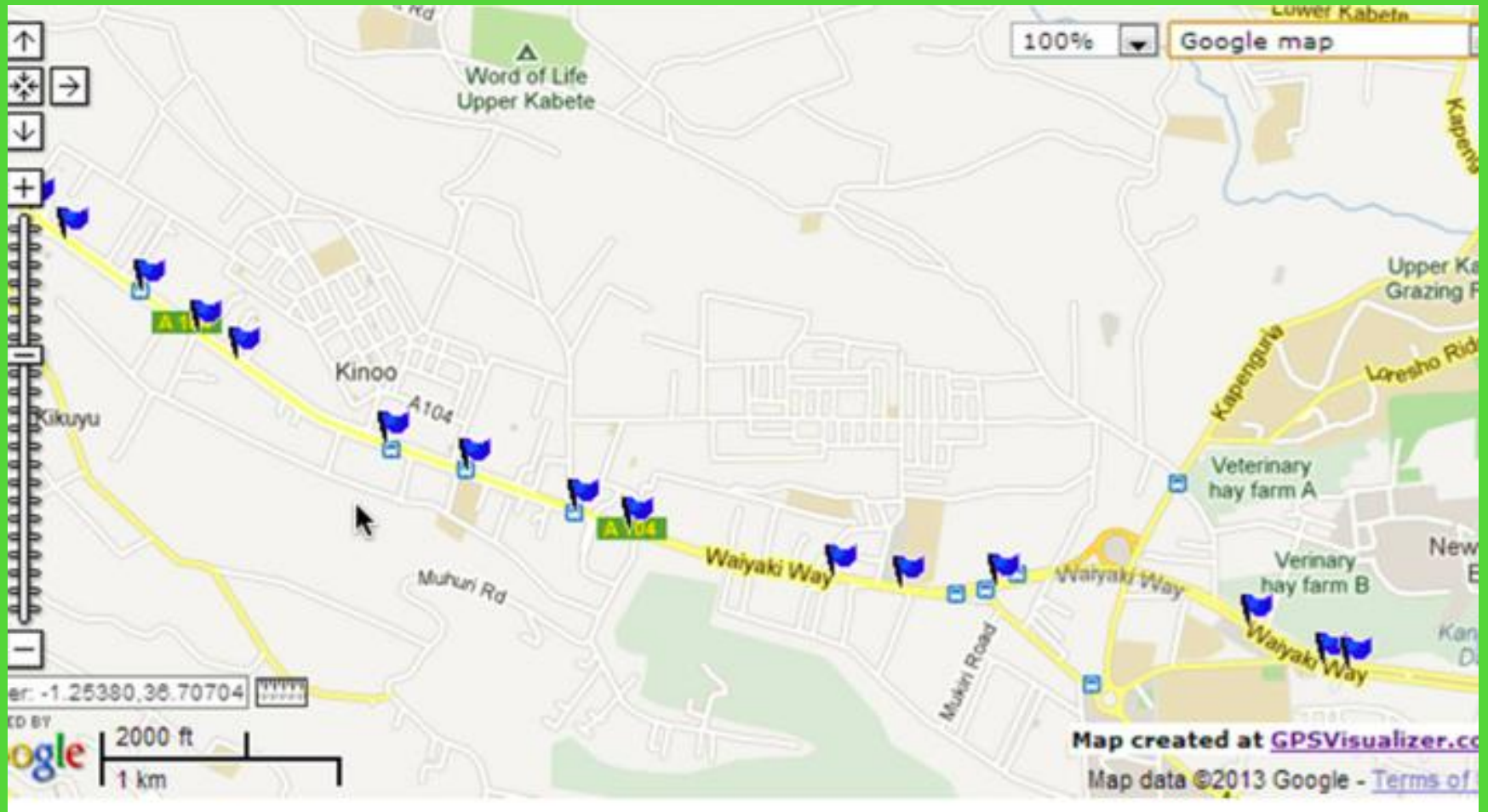


SAMPLE DATA

WESTLANDS – KIKUYU SECTION ROUTE # 105

Label	Description	Latitude	Longitude	Type of Stop
1	Westlands	-1.2628	36.80031	D
2	St. Marks	-1.26132	36.79749	D
3	Lions Place	-1.26109	36.79608	U
4	Brookside	-1.26075	36.79245	U
5	AACC/Safaricom/Church Road	-1.25982	36.78687	D
6	Aga Khan High School	-1.25934	36.78281	D
7	ABC Place Stage	-1.25897	36.7786	D
8	ABC Place Entrance	-1.25919	36.77746	U
9	James Gichuru Junction	-1.25946	36.77551	U
10	KARI	-1.25974	36.77392	D
11	Nairobi School	-1.26035	36.77108	D
12	Deloitte	-1.26309	36.76439	U
13	AFRALTI	-1.26366	36.7613	D
14	Kianda School	-1.26395	36.75863	U
15	Sodom	-1.26425	36.75426	D
16	Kangemi Market	-1.26429	36.74858	U
17	Sugarboard/Shell	-1.26454	36.74197	U

New MAPs FOR NAVIGATION



NEW TOOLS FOR ANALYSIS



STOPS ANALYSIS



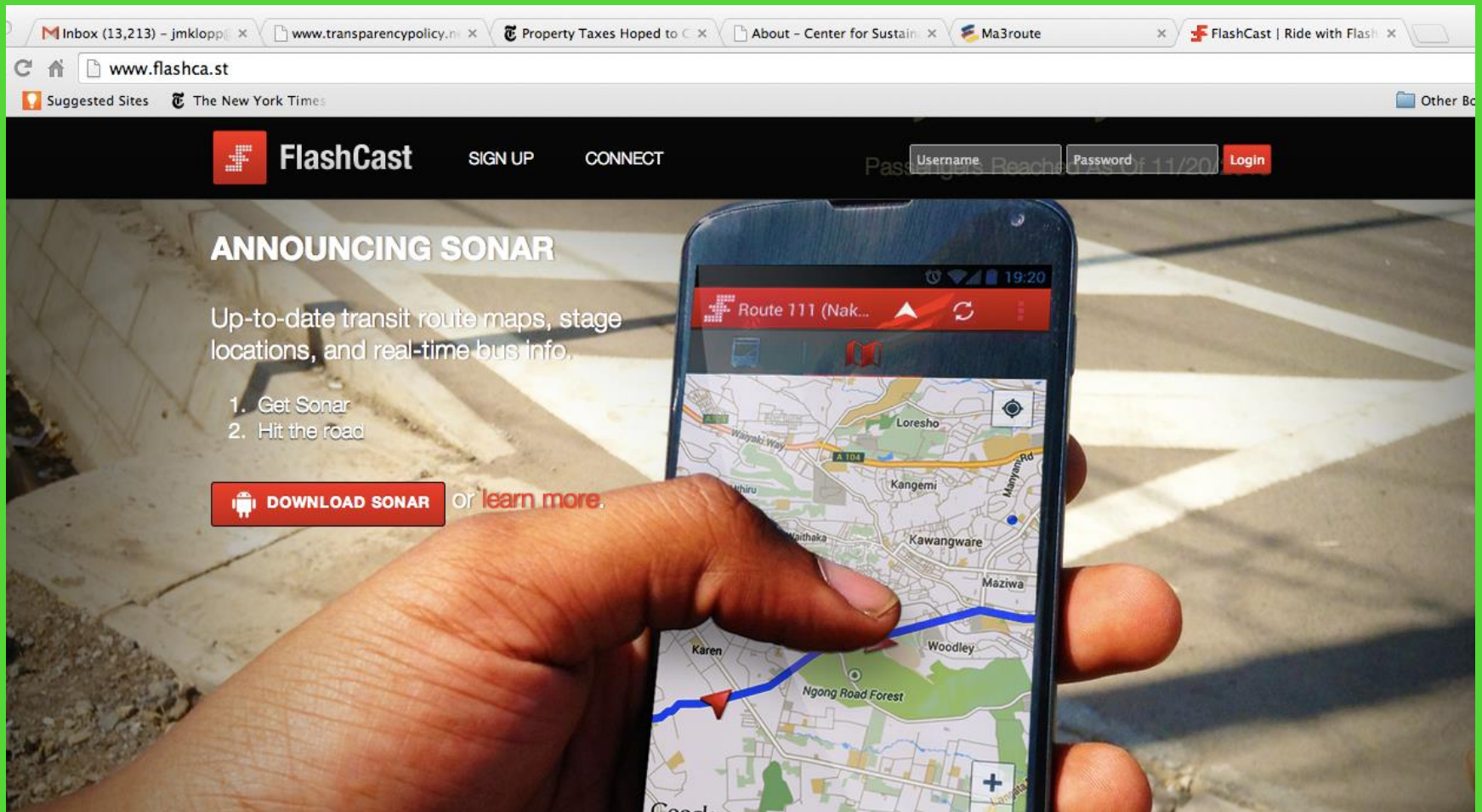
NEW TRANSIT MAPS



APPS FOR USERS:ma3route

The screenshot shows the ma3route website interface. At the top, there are browser tabs for 'Inbox (13,209) - jmklopp', 'www.transparencypolicy.ni', 'Property Taxes Hoped to C', 'About - Center for Sustain', and 'Ma3route'. The address bar shows 'www.ma3route.com/#!/traffic'. The main navigation includes 'Search', 'Get Directions', 'Register', 'Login', and 'Settings'. A sidebar on the left contains 'Report Driving', 'Update Traffic', 'Traffic feeds', 'Driving reports', 'Services/Deals', 'News/Stories', and 'Get our app' with links for Google Play, Windows Phone Store, and the App Store. The main content area features a search bar and a 'Traffic Feeds' section with five entries: 1) '6:30pm-Valley road to GPO roundabout is clear!' by @clrmclaren; 2) 'Mbagathi way then ngong rd hugs. Smooth!' by @okune; 3) 'Seems like all langata peoples are going for night shift in tao. Wilson to tmlal to nyayo super busy' by lbo; 4) 'Hailesellasiye towards retail is hell.. I need to stop and tweet...WTH???' by @ireri_moses; 5) 'Mad traffic along Mombasa road heading to town with spill over causing more traffic into South C Bollowe'. A 'Recommended' section on the right features 'Patcab Tours' with a logo and text: 'We provide taxi services to residents, tourists, business professionals, corporate clients etc. Our cabs are located at various locations around Nairobi. Our offices at Fatima flats argwings kod...' and 'Mercury - The Last Drop' with a logo.

ANOTHER APP: Flashcast/Sonar



The image shows a browser window displaying the FlashCast website. The browser's address bar shows 'www.flashca.st'. The website header includes the FlashCast logo, 'SIGN UP', and 'CONNECT' buttons. A login form with fields for 'Username' and 'Password' and a 'Login' button is visible. The main content area features the heading 'ANNOUNCING SONAR' and the text 'Up-to-date transit route maps, stage locations, and real-time bus info.' Below this is a list of instructions: '1. Get Sonar' and '2. Hit the road'. A red button with an Android icon says 'DOWNLOAD SONAR' followed by the text 'or learn more.' The background of the website is a photograph of a hand holding a smartphone. The phone screen displays the Sonar app interface, showing a map of Nairobi with a blue route highlighted. The app's header shows 'Route 111 (Nak...)' and a red arrow icon. The map includes labels for areas like Loresho, Kangemi, Kawangware, Maziwa, Woodley, Ngong Road Forest, Karen, and Mithika.

KEY IDEAS

Open Transit Data and
Data Standard (GTFS) key

Power of City-Transit Agency-
University-Developer Community
collaboration eg. New York “Town
and Gown” 311

