

Insights for urban and transportation planning from mobile data

May 2014

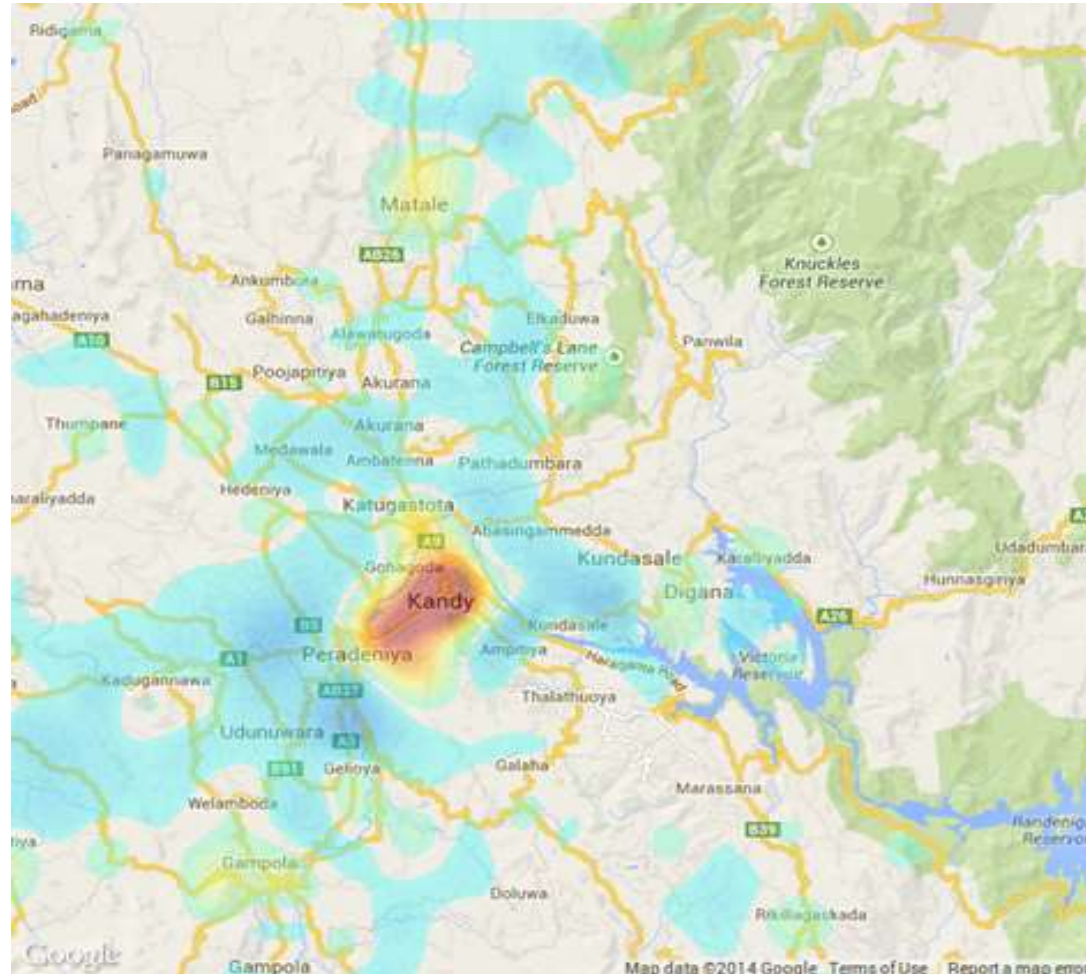


This work was carried out with the aid of a grant from the International Development Research Centre, Ottawa, Canada.

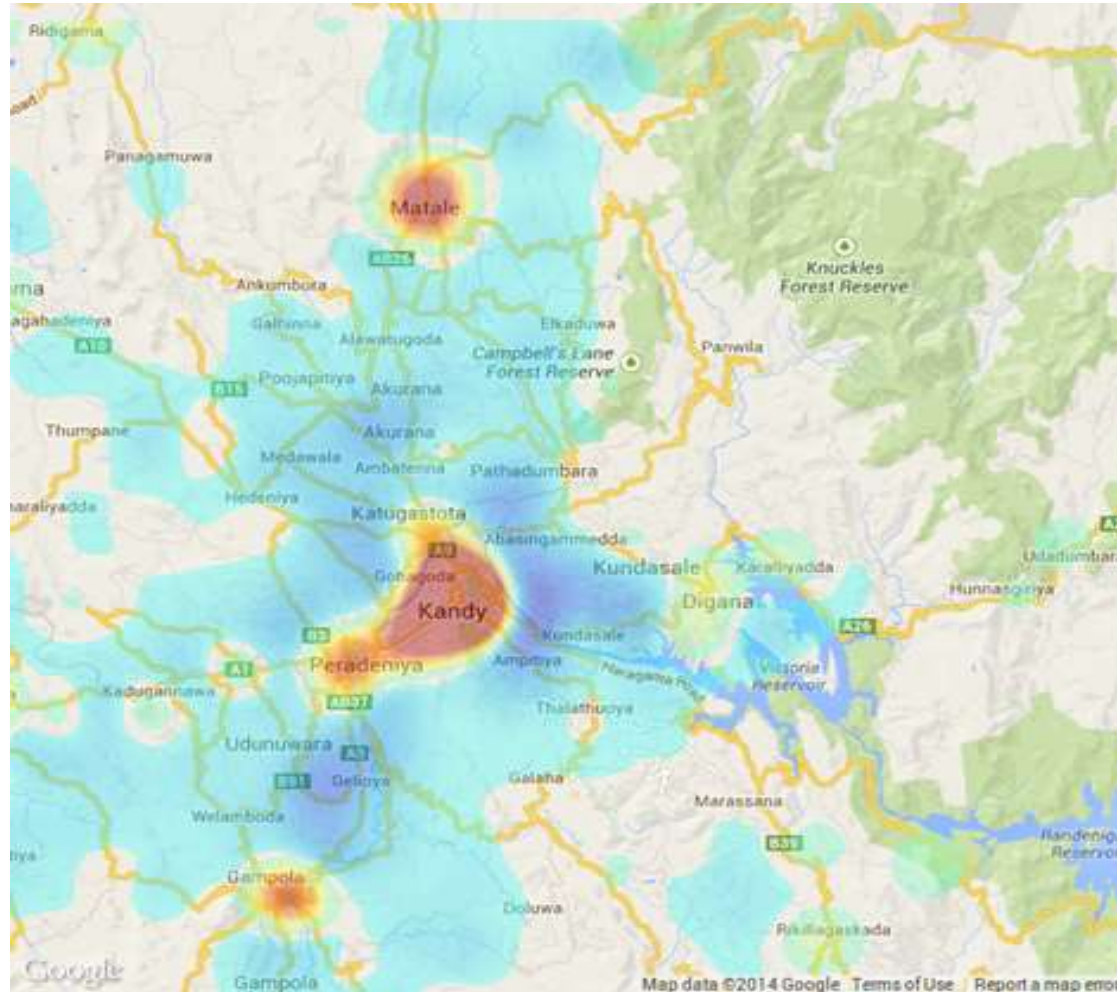
LIRNEasia's Big Data for Development Research

- LIRNEasia has negotiated access to **historical and anonymized** telecom network meta-data from multiple operators in Sri Lanka
 - Combined subscriber base of more than 50% (~10 million) of Sri Lanka's population
- In the current research cycle we are
 - Conducting exploratory research on answering a *few* social science questions related to mobility and connectedness
 - Developing a framework for the collection, use and sharing of mobile transaction-generated data
- Technical partners:
 - Auton Lab (Carnegie Mellon University) and WSO2 provide technical and analytical support
- <http://lirneasia.net/projects/bd4d/>

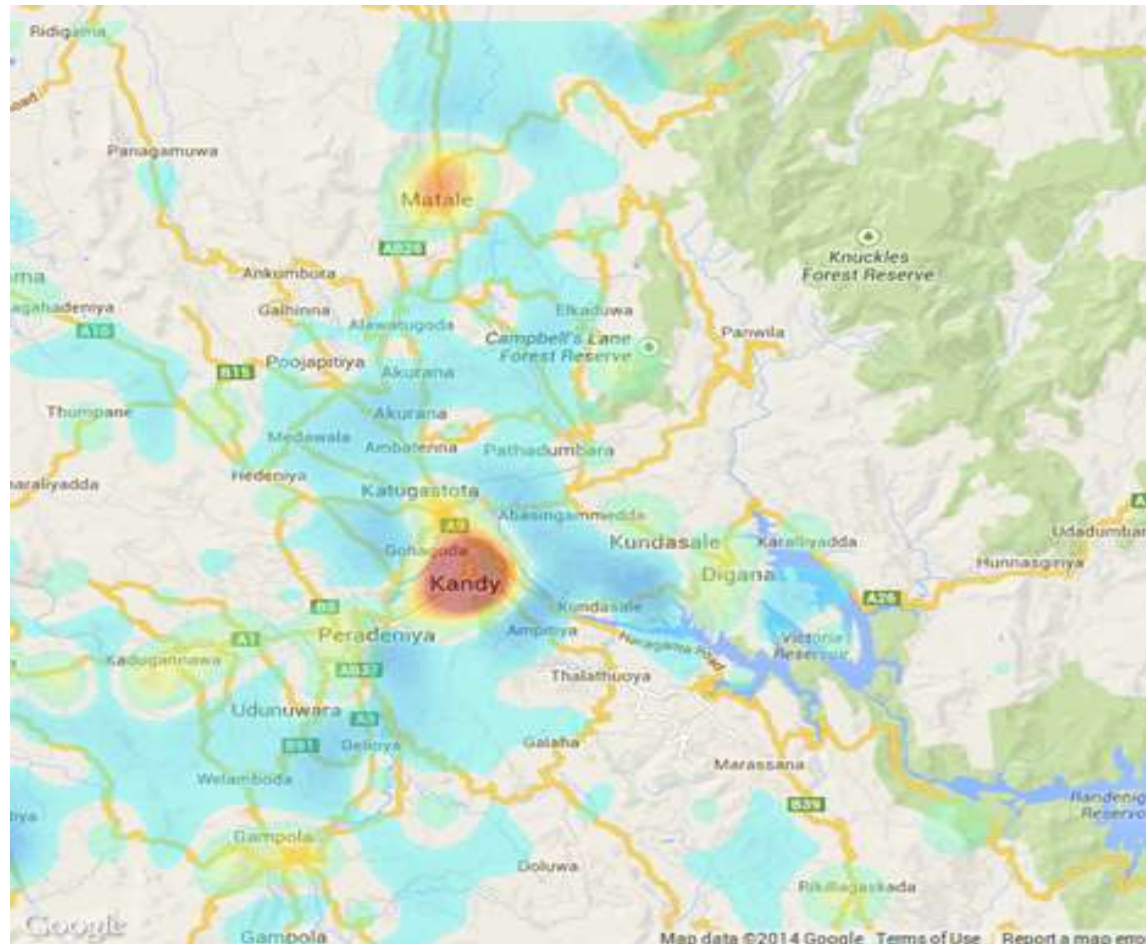
Kandy region, 0630 weekday January 2013



Kandy region, 1230 weekday January 2013



Kandy region, 1830 weekday January 2013

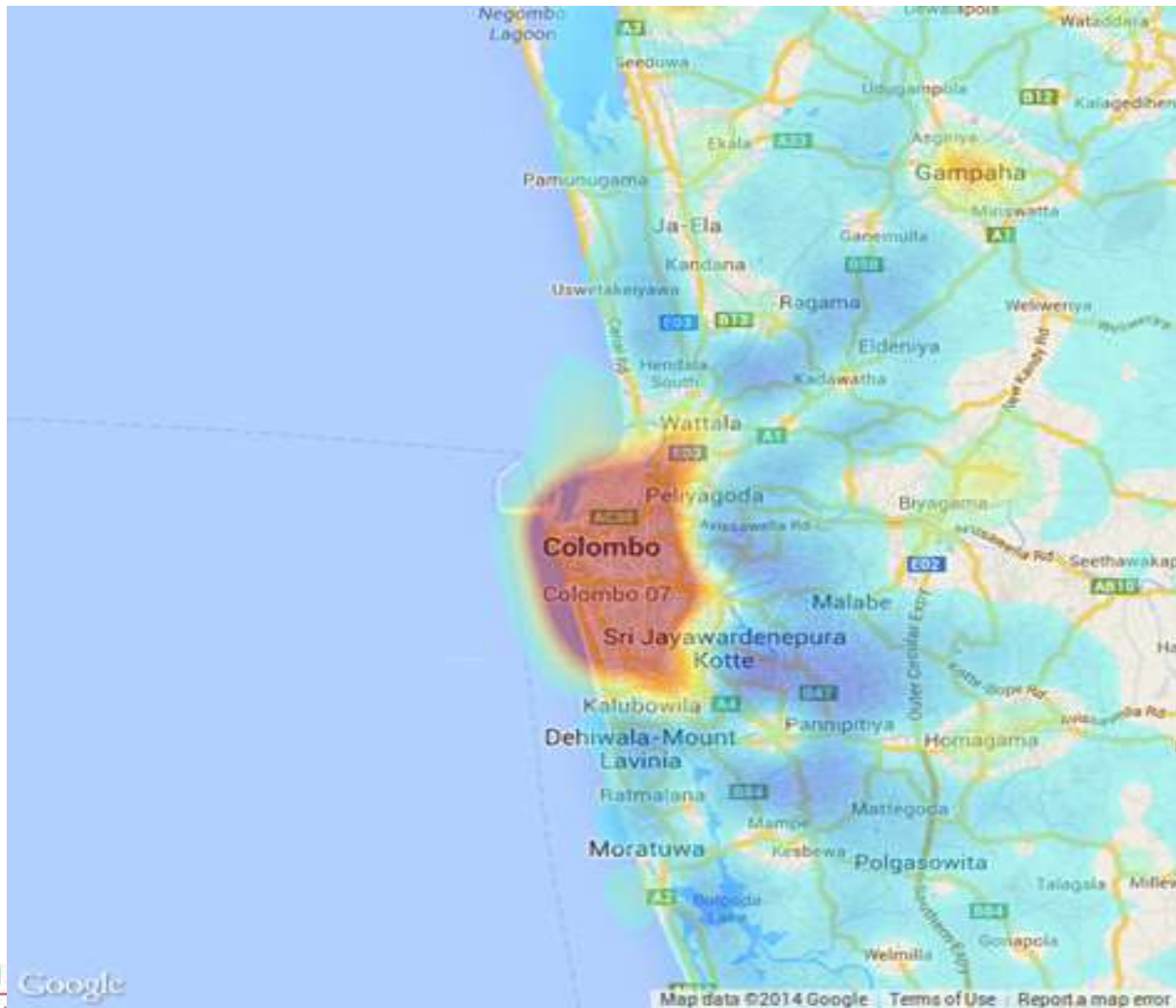


From where do people come to Kandy?

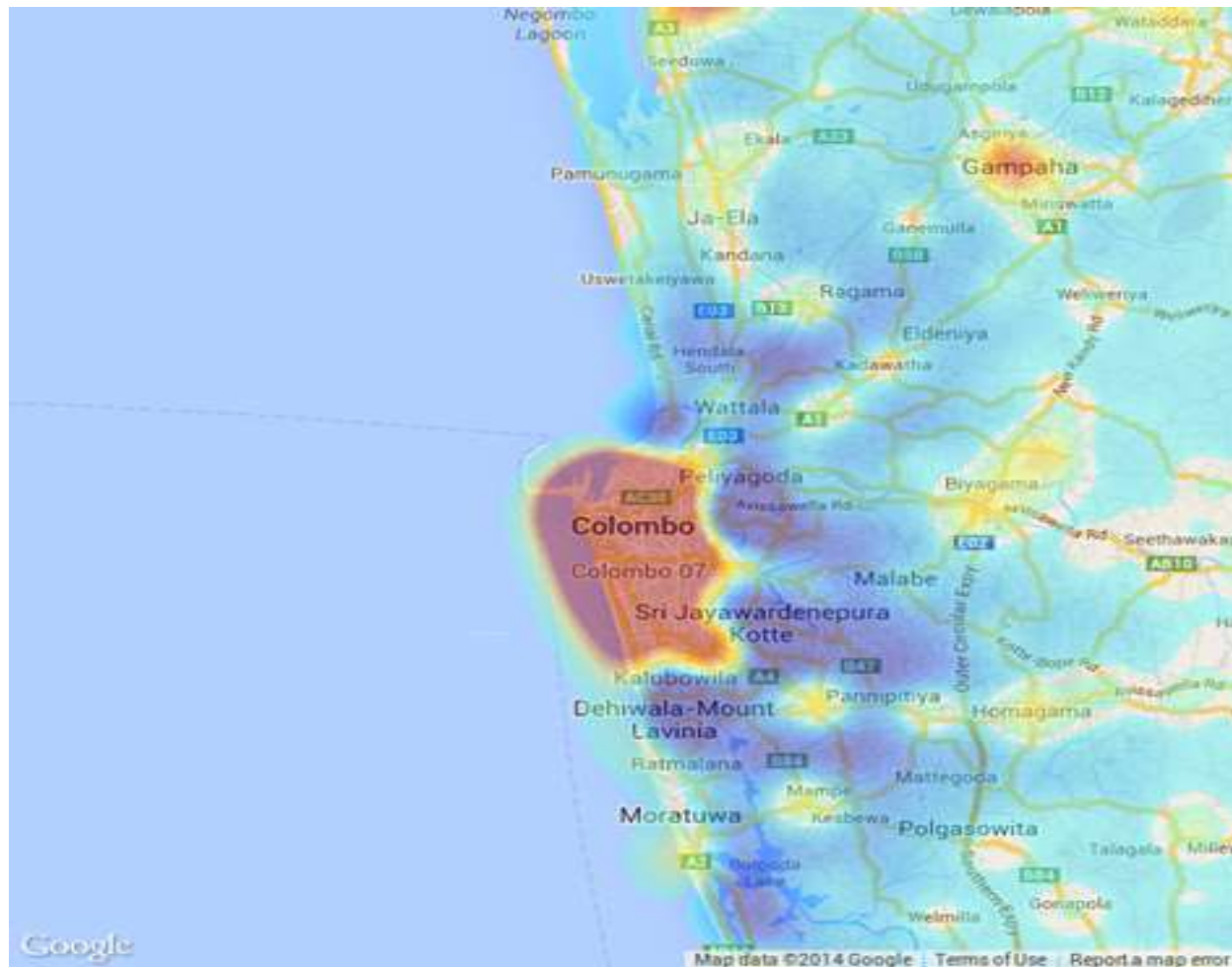
Home DSD	%age of Kandy's daytime population	%age of Home DSD population that is in Kandy during daytime
Kandy Four Gravets & Gangawata Korale	59.6	82.6
Kundasale	7.4	18.8
Yatinuwara	4.5	14.9
Harispattuwa	4.2	22.3
Udunuwara	3.8	11.1
Pathahewaheta	2.2	22.8
Pathadumbara	1.9	14.4
Akurana	1.3	6.4
Udapalatha	1.3	3.8
Pujapitiya	1.0	7.9
Ukuwela	1.0	4.6



Colombo region, 0630 weekday January 2013



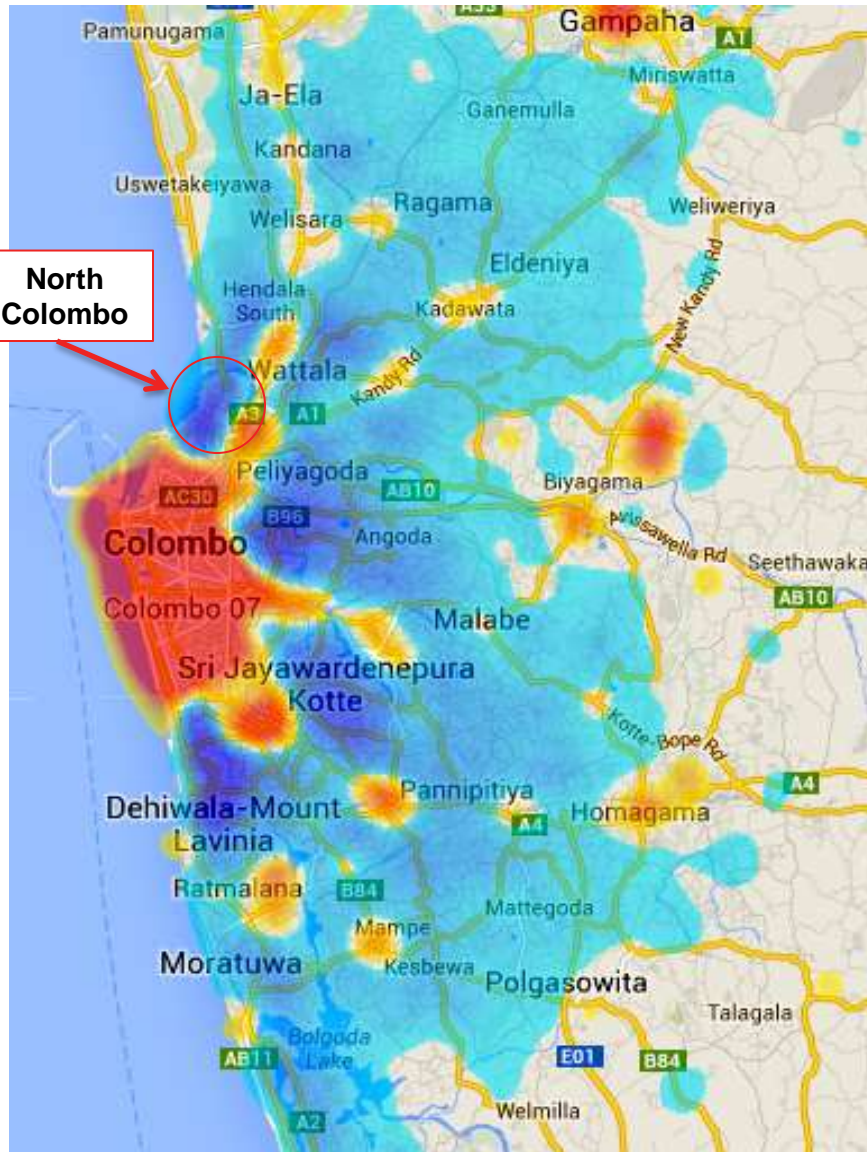
Colombo region, 1830 weekday January 2013



From where do people come to Colombo City?

Home DSD	%age of Colombo's daytime population	%age of Home DSD population that is in Colombo during daytime
Colombo city	53.1	86.6
Maharagama	3.7	17.7
Kolonnawa	3.5	23.6
Kaduwela	3.3	17.0
Sri Jayawardanapura Kotte	2.9	24.3
Dehiwala	2.6	22.9
Kesbewa	2.5	14.5
Wattala	2.5	16.1
Kelaniya	2.1	19.7
Ratmalana	1.9	18.6
Moratuwa	1.8	14.7
Biyagama	1.7	11.6
Homagama	1.6	10.1
Ja-Ela	1.6	10.1
Mahara	1.5	12.8
Gampaha	1.4	10.4
Panadura	1.3	10.9
Katana	1.0	5.3

What does this analysis tell us?

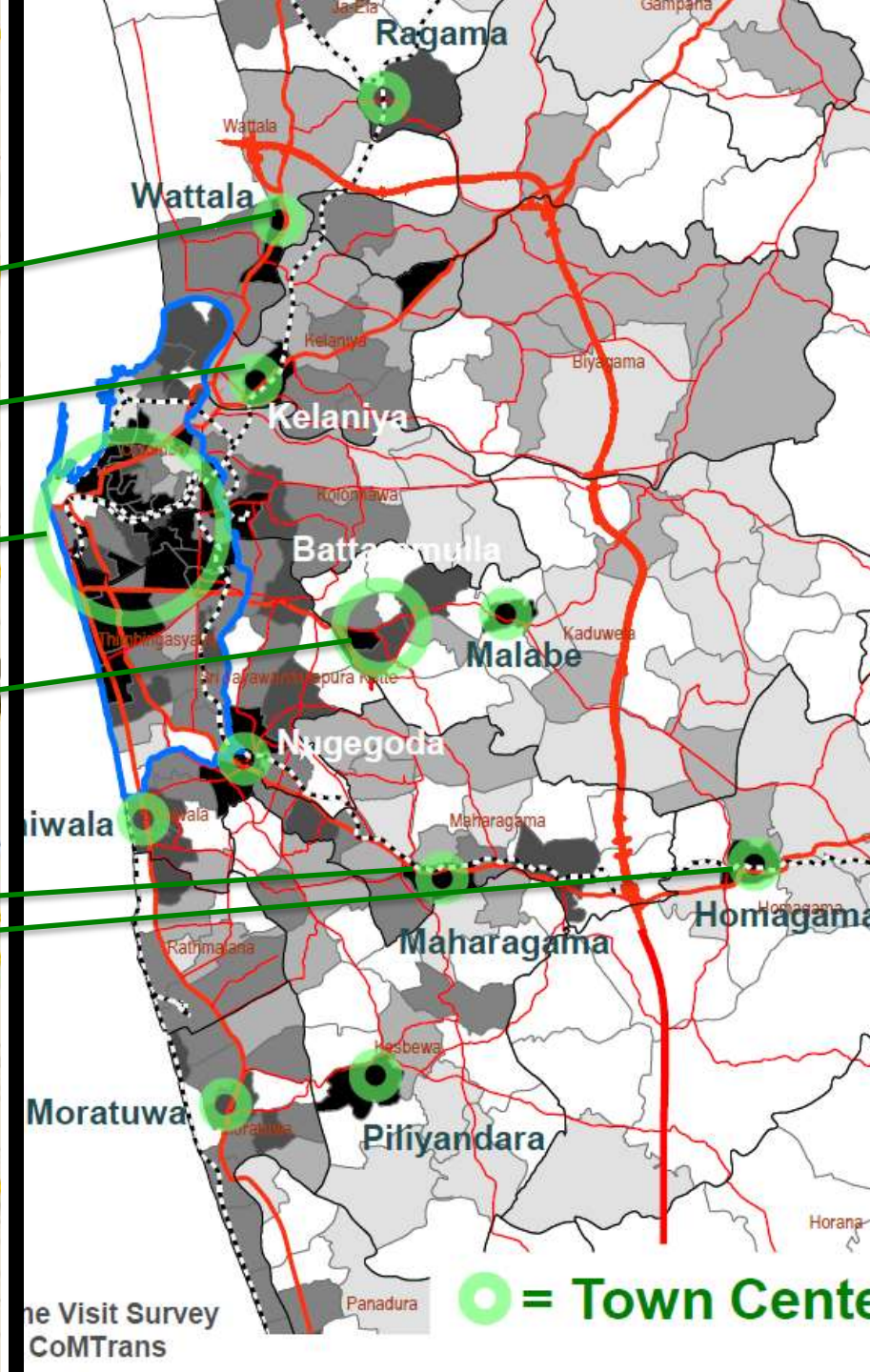
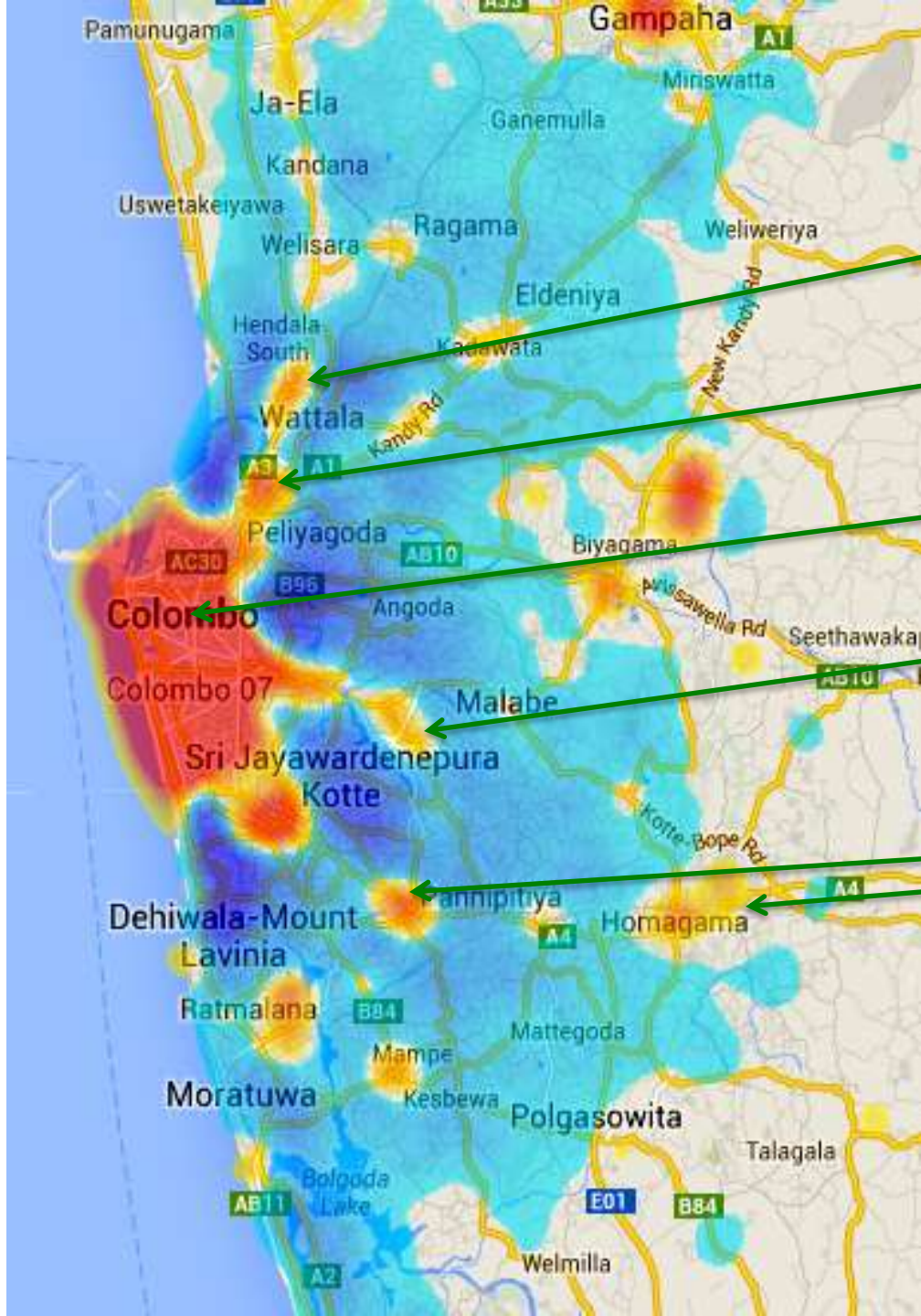


We can see how Colombo city acts as a sink, sucking people out of the surrounding suburbs during work times.

North Colombo, which is the poorest part of the city, is integrally connected to the southern part of the city, providing labor to the rest of the city.

The hotspots reflect major daytime destinations and closely align with findings based on expensive transportation surveys.

- See next slide: the image on the right is from the Draft Urban Transportation Master Plan for the Colombo Metropolitan Region & Suburbs



the Visit Survey
CoMTrans

Green Circle = Town Center

Advantages of using mobile network big data for transportation & urban planning?

- Reduces need for costly transportation surveys
 - Can find out how people actually moved instead of relying on error-prone recall data
 - No need to create traffic jams on two days
- Can give ‘real-time’ insights on the geo-spatial distribution of the population
 - Where people live, work and congregate
 - Aggregate patterns of population movements over varying temporal scales