ONE OF THE LARGEST TRAFFIC AND TRANSPORT ENGINEERING COMPANIES IN BRAZIL
With over 550 projects developed and technically recognized in 08 countries and 24 Brazilian states, for more than 200 private companies and public agencies, ImTraff positions itself as one of the mobility and transportation leaders in Latin America.
ImTraff is one of the few companies in the World with full Accreditation to implement the iRAP methodology.
The needs of an urban life...

How easy, safe, inclusive and sustainable is to move within a city, for any reason?

How much the urban mobility conditions are prepared to make people’s life easier, in developing countries?

And what are we doing concerning that?
HOW DID OUR URBAN MOBILITY PROBLEMS BEGIN?
IN THE BEGGINING WE JUST HAD A SMALL TOWN...

1927
AND THE TOWN STARTED TO GROW...

1940
BUT WITH NO PLANNING...

1950
AND IT WAS LIKE THAT FOR MANY YEARS...  

1960

ENGINEERING AND MOBILITY
UNTIL PEOPLE START TO REALIZE THAT...
WE SHOULD HAD PLANNED OUR GROWTH...

1980
How are our cities today?

São Paulo - Brazil

Belo Horizonte - Brazil

Jakarta - Indonesia

Mumbai - India

Santo Domingo – Dominican Republic

Addis Ababa - Ethiopia

ENGINEERING AND MOBILITY
But more than that…
Curiosities in Developing countries
The urban mobility in developing countries cities today...

Car pooling...
The urban mobility in developing countries cities today...
The urban mobility in developing countries cities today...

And what about respecting the speed limits?
Anyway…

Joking or not,

We have a lot of issues to solve in developing countries…
And how about now?
THE CHALLENGES OF DEVELOPING COUNTRIES...

Fix our present

Planning our future

Better cities for everyone
But what about the actual revolution in urban mobility?
Urban Mobility Revolution in the current time...

- The advent of mobility applications (Uber, Cabify, etc);
- The fast growth of e-commerce;
- The changes in young 18\textsuperscript{th} behavior (driver license);
- Electric cars;
- Autonomous cars;
- Flying cars;
- Car sharing;
- Working/Studying remotely;
- Smart and connected cities;
- Mobility-as-a-Service (MaaS);
- A world after Covid-19...
Are the cities from developing countries prepared for this revolution?
Unfortunately, maybe not...

- Public transportation is in decline;
- The growing use of cars and motorcycles;
- Poor infrastructure for active modes and disabled people;
- Poor prioritization of public transport;
- Insufficient traffic safety measures;
- Lack of effective public policies to urban mobility;
- Lack of technical professionals;
- A poor vision of sustainable mobility;
- A poor vision of environmental issues;
- Among others.
Therefore, we have a lot of issues to work on! Let’s do it!
How to solve the urban mobility issues?

Pray for the best, but be prepared for the worst...

If we want a different city, let’s make it happen!

And how do we do that?

Fixing our present, and planning our future...
Planning our urban mobility...

3 basic questions (Urban Mobility Plan):

What city do we have?
What city do we want to have?
What do we need to do to have this city?
Mobility Plans in Brazil: It’s a research/study developed to guide the future of the mobility in that city.

- Law 12.587/2012;
- Cities > 20,000 inhabitants, metropolitan areas and areas of tourist interest;
- Penalty: No access to federal financial resources for urban mobility and infrastructure.
Mobility Plans in Brazil: A long way ahead

- No plan and isn’t preparing one: 76%
- Has a plan: 18%
- Preparing a plan: 6%

Source: Regional Development Ministry
10 PRINCIPLES FOR MOBILITY PLANNING

- Decreasing need for motorized trips
- Rethinking urban design
- Rethinking vehicle circulation
- Developing non-motorized means of transport
- Recognizing the importance of pedestrian movement
- Prioritizing public transport
- Providing mobility to disable people
- Reducing the environmental impacts of urban mobility
- Promoting integration of different modes of transport
- Structuring local management

Mobility Plan Actions
HOW TO DO A MOBILITY PLAN?
OUR EFFORTS AND GUIDELINE MUST FOCUS ON...

ROAD
SUSTAINABILITY
LOGISTICS

GROUND USE AND OCCUPATION
ACTIVE TRANSPORT
SUSTAINABILITY
ROAD SAFETY
ACCESSIBILITY
GOVERNANCE AND POPULAR PARTICIPATION
VOLTA REDONDA, RJ, BRAZIL

Population: 275,000 inhabitants
Area: 182.11 km² (70,311.13 sq mi)
Demographic Density: 1,510 in/km²
WHAT KIND OF CITY DO WE HAVE TODAY?

General diagnosis

✓ Large Industrial company; (CSN – A steelworks company)
✓ Several Physical barriers; (Railroad, Rivers);
✓ Poor connection between the north and south portions;
✓ Lack of cycle infrastructure.

Physical barriers; (Railroad, Rivers), and transpositions points.
WHAT KIND OF CITY DO WE HAVE TODAY?

General diagnosis

• Poor infrastructure
• Holes in the pavement
• Narrow streets
• No sidewalks
• No infrastructure for disabled people
WHAT KIND OF CITY DO WE WANT TO?

✓ Create **new forms of connection** between the northern and southern regions and cross physical barriers.

✓ **Cycling network** planning.

✓ **Efficient Public Transport**, serving most of the population.

✓ Fewer freight vehicles during rush hours in the central area.

✓ Improvement and **revitalization of sidewalks** and pedestrian crossings.

✓ Adequate infrastructure for active transport.
WHAT DO WE NEED TO DO TO HAVE THIS CITY?

More than 100 km of cycle paths

First phase
- 42 km

Second phase

Third phase
- 27 km

Several changes at the traffic circulation
WHAT DO WE NEED TO DO TO HAVE THIS CITY?

Improvements in the Public Transportation (BRT)  
Actions to enhance Traffic safety up to 80%
✓ Immediately reduction in saturated roads up to **50%** until 2015 (P07)

✓ Reduction in CO² emission up to 25%;

✓ Reduction in travel time up to 37%.

<table>
<thead>
<tr>
<th>CENÁRIO</th>
<th>2015 km</th>
<th>%**</th>
<th>2020 km</th>
<th>%**</th>
<th>2025 km</th>
<th>%**</th>
<th>2030 km</th>
<th>%**</th>
<th>2035 km</th>
<th>%**</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASE</td>
<td>41,4</td>
<td>3,6%</td>
<td>81,6</td>
<td>7,1%</td>
<td>129,9</td>
<td>11,3%</td>
<td>185,9</td>
<td>16,1%</td>
<td>233,8</td>
<td>20,3%</td>
</tr>
<tr>
<td>P01</td>
<td>38,4</td>
<td>3,3%</td>
<td>75,2</td>
<td>6,6%</td>
<td>129,9</td>
<td>11,3%</td>
<td>183,2</td>
<td>16,0%</td>
<td>230,6</td>
<td>20,1%</td>
</tr>
<tr>
<td>P02</td>
<td>31,8</td>
<td>2,8%</td>
<td>75,7</td>
<td>6,6%</td>
<td>128,9</td>
<td>11,2%</td>
<td>175,9</td>
<td>15,2%</td>
<td>225,4</td>
<td>19,5%</td>
</tr>
<tr>
<td>P03</td>
<td>28,1</td>
<td>2,1%</td>
<td>69,6</td>
<td>4,2%</td>
<td>120,5</td>
<td>7,6%</td>
<td>157,6</td>
<td>11,3%</td>
<td>209,0</td>
<td>15,7%</td>
</tr>
<tr>
<td>P03 A</td>
<td>28,1</td>
<td>2,1%</td>
<td>70,7</td>
<td>4,3%</td>
<td>121,1</td>
<td>8,0%</td>
<td>157,5</td>
<td>11,3%</td>
<td>206,7</td>
<td>15,5%</td>
</tr>
<tr>
<td>P04</td>
<td>25,0</td>
<td>2,1%</td>
<td>57,8</td>
<td>4,9%</td>
<td>105,4</td>
<td>8,9%</td>
<td>150,3</td>
<td>12,7%</td>
<td>200,5</td>
<td>16,9%</td>
</tr>
<tr>
<td>P04 A</td>
<td>24,3</td>
<td>2,0%</td>
<td>62,5</td>
<td>5,3%</td>
<td>108,9</td>
<td>9,2%</td>
<td>152,2</td>
<td>12,8%</td>
<td>197,7</td>
<td>16,7%</td>
</tr>
<tr>
<td>P05</td>
<td>22,2</td>
<td>1,9%</td>
<td>45,9</td>
<td>3,9%</td>
<td>92,0</td>
<td>7,8%</td>
<td>132,4</td>
<td>11,2%</td>
<td>179,9</td>
<td>15,2%</td>
</tr>
<tr>
<td>P06</td>
<td>18,0</td>
<td>1,5%</td>
<td>35,0</td>
<td>2,9%</td>
<td>74,7</td>
<td>6,3%</td>
<td>128,4</td>
<td>10,8%</td>
<td>174,8</td>
<td>14,7%</td>
</tr>
<tr>
<td>P07</td>
<td>19,3</td>
<td>1,6%</td>
<td>40,4</td>
<td>3,4%</td>
<td>72,8</td>
<td>6,1%</td>
<td>119,9</td>
<td>10,1%</td>
<td>166,1</td>
<td>14,0%</td>
</tr>
</tbody>
</table>

But...If we don´t change our modal split, we won´t be able to make significant changes/improvements in the traffic operation in the future.
VOLTA REDONDA – AND WHAT IF WE DON´T DO ANYTHING?
SANTO DOMINGO – DOMINICAN REPUBLIC CAPITAL

Population: 2,908,607
Area: 2,696.69 km² (1,041.20 sq mi)
WHAT CITY DO WE HAVE TODAY?

- Discontinuity of the road system
- Significant through traffic
- No prioritization of the public transport
- Poor infrastructure to active modes
- Unoptimized Intersections
- Limited access vs. High traffic demand 8 points
- Among others
Several traffic simulations
OF THIS CITY?

✓ Specific improvement plan (84 points);
✓ Traffic Light Reduction Plan;
✓ Implementation of Road Corridors;
✓ Plan of Optimization of traffic lights;
✓ Overpass design;
✓ Among others.
We just achieve traffic improvements if we change the passenger modal split!
So, where should we focus on?
GUIDELINES TO URBAN MOBILITY

Reducing urban trips
• Remote work;
• Living close to work;
• Completes land user;

More People in less space
• Change our passenger modal split;
• Increase public transportation use;
• Active modes;
• Car pooling/sharing;

Trips in more sustainable modes
• Car sharing/pooling;
• Electric cars;
• Less emission, a better environment

Cities planned for people, not cars
• Pedestrian areas
• Cycle path/lanes

Smart and connected cities

Optimized urban logistics
Final Reflection
The physics laws will always be the same:
2 different bodies will never occupy the same space at the same time ...

The challenge continues: we need an urban mobility with less cars in the streets (moving people occupying less space)
Even with all the technology that is changing the mobility nowadays, if we don’t reduce the trips or achieve changes in the passenger modal split, we will not be able to really improve the urban mobility...
We need cities... For Everyone...
Thank you...

frederico@imtraff.com.br
Tel.: +55 (31) 2516-8001
LinkedIn:
https://www.linkedin.com/in/eng-frederico-rodrigues-d-sc-18893a24/
Instagram: https://www.instagram.com/frederico_imtraff/

ImTraff Engenharia e Mobilidade
www.imtraff.com.br