Digital Public Participation in Bogota: A Case Study Using Streetmix

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Content of today

What is Streetmix
How has NUMO supported them
Bogotá 2020 project
How to move forward collaboratively
Streetmix - its main characteristics

• Open source platform (GitHub) launched in 2013
• Enables specific suggestions to street design
• Translates the design into code (can be analyzed quantitatively)
NUMO support to Streetmix

• NUMO support in 2019:
  • Street capacity
  • AVs
  • Magic carpet
  • Revamp database structure
• NUMO Support 2020:
  • Added Bus Rapid Transit bus and station (NUMO + ITDP)
• Bogotá 2020 “Séptima Verde”
The street of the future?

24 m wide: 55,502 people/hr

4 m Sidewalk: 15,000 people/hr
3 m Food truck
2.9 m Rideshare loading
1.7 m Electric scooter lane: 12,000 people/hr
1.7 m Bike lane: 12,000 people/hr
0.9 m Bicycle lane
0.6 m Pedestrian lane
0.6 m Sidewalk: 15,000 people/hr

21 employees: 1,500 people/hr
NUMO in Bogotá: Séptima Verde
Getting the word out

- Twitter
- Email
- Print and online newspaper articles
- In-person workshops (directing people to site)
Streetmix for Séptima Verde

- October 17-31, 2020
- 6,712 proposals (avg. 480 daily proposals)
- Equivalent to 650 hours of work
- 91% valid proposals (5,941 valid streets adjusted to profile as of 31 oct, 6,093 as of nov 3)
IP control (to control for excessive repetitions)

<table>
<thead>
<tr>
<th>Cantidad Diseños por calle/IP</th>
<th>Eso pasa en cuántos casos?</th>
<th>Pct</th>
<th>Cuáles?</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4300</td>
<td>83.40%</td>
<td>CARRERA 7A X CALLE 72 (IP: 186.29.231.189)</td>
</tr>
<tr>
<td>2</td>
<td>571</td>
<td>11.07%</td>
<td>CARRERA 7A X CALLE 62 (IP: 186.29.41.73)</td>
</tr>
<tr>
<td>3</td>
<td>166</td>
<td>3.22%</td>
<td>CARRERA 7A X CALLE 26 (IP: 186.154.239.19)</td>
</tr>
<tr>
<td>4</td>
<td>68</td>
<td>1.32%</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>24</td>
<td>0.47%</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>0.14%</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>9</td>
<td>0.17%</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>0.12%</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>0.02%</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>2</td>
<td>0.04%</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>1</td>
<td>0.02%</td>
<td>CARRERA 7A X CALLE 26 (IP: 186.84.91.12)</td>
</tr>
<tr>
<td>32</td>
<td>1</td>
<td>0.02%</td>
<td>CARRERA 7A X CALLE 26 (IP: 186.28.92.38)</td>
</tr>
</tbody>
</table>
How many proposals per section?

396 proposals per section on average
How many proposals per day?
What we saw: a creative citizenry and open to change

235 proposals with at least one magic carpet in their design

248 integrated autonomous vehicles

CARRERA 7A X CALLE 72

https://www.miseptima.co/-/411
Bogotanos propose a more sustainable and equitable way of distributing space on the road

<table>
<thead>
<tr>
<th></th>
<th>Today’s average</th>
<th>Proposed - average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bike-scooter</td>
<td>2.0</td>
<td>3.1</td>
</tr>
<tr>
<td>Walking, green</td>
<td>13.3</td>
<td>12.6</td>
</tr>
<tr>
<td>Individual motorized</td>
<td>15.3</td>
<td>12.3</td>
</tr>
<tr>
<td>Public</td>
<td>3.4</td>
<td>5.9</td>
</tr>
</tbody>
</table>

- **Increase 56%** space to bicycles, skateboards
- **Increase 74%** of space to public transit
- **Reduce 19%** of space from private vehicles
- **Create space** for more services (food, etc.)
How roadways are distributed today

<table>
<thead>
<tr>
<th>Bike-scooter</th>
<th>Walking, green</th>
<th>Individual motorized</th>
</tr>
</thead>
<tbody>
<tr>
<td>C136</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C137</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C139</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C148</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C162</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C172</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: space allocated to the public is at 50% as it is not exclusive.
### How proposed changes look

<table>
<thead>
<tr>
<th>Bike-scooter</th>
<th>Walking, green</th>
<th>Individual motorized</th>
<th>Public</th>
</tr>
</thead>
<tbody>
<tr>
<td>C26</td>
<td>32</td>
<td>9.4</td>
<td>0.1</td>
</tr>
<tr>
<td>C37</td>
<td>3.3</td>
<td>11.9</td>
<td>1.1</td>
</tr>
<tr>
<td>C59</td>
<td>3.5</td>
<td>12.0</td>
<td>0.4</td>
</tr>
<tr>
<td>C48</td>
<td>3.3</td>
<td>11.5</td>
<td>0.9</td>
</tr>
<tr>
<td>C62</td>
<td>3.1</td>
<td>9.9</td>
<td>1.0</td>
</tr>
<tr>
<td>C72</td>
<td>3.1</td>
<td>8.0</td>
<td>0.1</td>
</tr>
<tr>
<td>C88</td>
<td>3.2</td>
<td>10.3</td>
<td>0.8</td>
</tr>
<tr>
<td>C92</td>
<td>3.0</td>
<td>9.6</td>
<td>0.1</td>
</tr>
<tr>
<td>C100</td>
<td>3.1</td>
<td>18.2</td>
<td>0.1</td>
</tr>
<tr>
<td>C113</td>
<td>2.5</td>
<td>13.1</td>
<td>0.4</td>
</tr>
<tr>
<td>C128</td>
<td>2.4</td>
<td>14.6</td>
<td>0.1</td>
</tr>
<tr>
<td>C147</td>
<td>2.7</td>
<td>14.2</td>
<td>0.0</td>
</tr>
<tr>
<td>C162</td>
<td>3.0</td>
<td>18.7</td>
<td>0.8</td>
</tr>
<tr>
<td>C175</td>
<td>2.3</td>
<td>12.0</td>
<td>0.1</td>
</tr>
<tr>
<td>C200</td>
<td>4.4</td>
<td>15.9</td>
<td>0.1</td>
</tr>
</tbody>
</table>
Citizens propose corridors that reduce emissions by up to 22% (conservative scenario)

- On average, proposals reduce emissions by 6%
- Proposals for Calle 100 reduce emissions by 26%
- Mainly giving priority to public and active transport
Bogotanos propose corridors with greater capacity (sometimes almost double)

- On average, the proposals increase capacity by 45% (from 59,000 to 86,000 passengers)
- Calle 163 increased 80%
Lessons – in general

• The activity had wide participation which is useful as an input to the process

• Citizens proposed emissions reduction, higher capacity in corridor

• Bogotá is open to change
Lessons for design

• Create dedicated space for **public transport**
• Preserve and expand space for **walking**
• Preserve and improve space for **bicycles**
• Improve public space **furniture**, green areas, services (food etc)
• Be **creative** in the design
Today…

CARRERA 7A X CALLE 37

How it’s proposed…

CARRERA 7A X CALLE 37

Hecho con Streetmix

BOGOTA
Today...

CARRERA 7A X CALLE 37

How it’s proposed...

CARRERA 7A X CALLE 37

Hecho con Streetmix

BOGOTA
Today...

How it’s proposed...
Today...

Cra 7a x Calle 163

How it’s proposed...

Cra 7a x Calle 163
Low emissions proposal (205 grCO₂/pax-km, 80k pax/h)
Another proposal of low emissions

CARRERA 7A X CALLE 175

https://www.miseptima.co/-/17
Highest capacity proposal (265,000 people per hour)
Lowest capacity: 1,500 passengers per hour.
CARRERA 7A X CALLE 26

4.6 m
Acera

3.3 m
Carril vehicular

3.3 m
Carril vehicular

0.5 m
1.5 m
1.5 m

5 m
Acera

Hecho con Streetmix

https://www.miseptima.co/-/460
Super highways… for bicycles

https://www.miseptima.co/-/922
How to move forward

Séptima process was “by hand” but can be improved:

- Streets coded and scraped to CSV *(automate process)*
- CSV used to create google drive to clean database *(automate)*
- Clean database used to produce graphs *(PowerBI / datastudio / create other visual interface)*
Yet another step - going isometric (or Plan View)