THE ROLE OF BICYCLING IN CHANGING URBAN REGIONS

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F = G

\[ \frac{m_1 m_2}{d^2} \]

ATTRACTION

RESISTANCE
BICYCLING ACCESS

\[
\frac{m_1 m_2}{d^2}
\]

<table>
<thead>
<tr>
<th>ATTRACTION (PROXIMITY TO DESTINATIONS)</th>
<th>RESISTANCE (CONNECTIONS TO DESTINATIONS)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>m_1</strong></td>
<td><strong>d^2</strong></td>
</tr>
<tr>
<td><strong>m_2</strong></td>
<td><strong>m_1</strong></td>
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</tbody>
</table>
URBAN FORM DETERMINANTS FOR BICYCLING ACCESS

- street density | % bicycle facilities
- 20km lane miles/km² | 15% bicycle facilities
- road safety
- 5 deaths/year
- topography
- 50m/vertical gain
- population density
- 25/ha
- land use mix
- medium

BICYCLING ACCESS = ATTRACTION RESISTANCE
Street density and percent of bicycle facilities calculated from GIS; road safety interpreted from annual averages for pedestrian/bicycle related deaths; values for topography gleaned from elevation data; population density recalculated using values from wikipedia and for entire city, not restricted to the area shown earlier; land use mix assessed experientially.
THRESHOLDS to MEASURE and ADVANCE BICYCLING ACCESS

BOULDER
United States

AMSTERDAM
The Netherlands

MEDELLIN
Colombia

BICYCLING ACCESS
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