

Commuting by car and public transportation comparison to Gran Area Metropolitana, Costa Rica

City	Land (km <sup>2</sup> )	Population (million)	Population Density per km <sup>2</sup>	Registered Cars (million)	Avg Daily Commuting time daily (Minutes)	Avg distance (km)
Gran Area Metropolitana de Costa Rica	1780 <sup>1</sup>	2.26 <sup>2</sup>	1274	0.52 <sup>3</sup>	54	16.3
Singapore	718 <sup>4</sup>	5.92 <sup>5</sup>	8245	0.99 <sup>6</sup>	42 <sup>7</sup>	7.7 <sup>8</sup>
Bogotá <sup>9</sup>	380	7.96	20968	1.6(cars) <sup>10</sup> 0.6 <sup>11</sup> (motorcycle)	48 <sup>12</sup>	7.7 <sup>13</sup>
Austin Tx.	862 <sup>14</sup>	0.97 <sup>15</sup>	1132	2.11 <sup>16</sup>	28 <sup>17</sup>	18.7 <sup>18</sup>
CDMX	1494 <sup>19</sup>	9.20 <sup>20</sup>	6164	5.6 <sup>21</sup> 0.7 <sup>22</sup>	32 <sup>23</sup>	10 <sup>24</sup>
Area metropolitana de Buenos Aires	3833 <sup>25</sup>	17.5 <sup>26</sup>	4583	14.84 <sup>27</sup>	95 <sup>28</sup>	9.6 <sup>29</sup>
Jakarta great metropolitan area <sup>30</sup>	7062	35	4956	5.9(cars) 18.5(motorcycle)	30 <sup>31</sup>	20.2 <sup>32</sup>
Beijing	16410 <sup>33</sup>	21.8 <sup>34</sup>	1331	5.64	11.3 <sup>35</sup>	48 <sup>36</sup>
Hong Kong	1114 <sup>37</sup>	7.50 <sup>38</sup>	6732	0.70 <sup>39</sup>	45 <sup>40</sup>	81 <sup>41</sup>
Riyadh	1782 <sup>42</sup>	7.80 <sup>43</sup>	4377	2.7 <sup>44</sup>	50 <sup>45</sup>	21.6 <sup>46</sup>

<sup>1</sup> Martínez-Baldares, T; Cordero-Montero, A. Herramienta de monitoreo del Plan GAM 2013-2030, dimensión Urbano-Regional, Cantón Central de Cartago. *Tecnología en Marcha*. Vol. 30-4. Octubre-Diciembre 2017. Pág 40-51.

<sup>2</sup> Guillen, D. et al. (2021). Situación de los Sistemas de Información Territorial para la gestión municipal: caso de la GAM, Costa Rica, 2018. *Revista Geografica de America Central*. June, 2021. 1(66):79-98

<sup>3</sup> Giroi, P. et al. (2018). Transporte y Movilidad: Retos en favor del desarrollo humano. *Estado de la Nación*. Capítulo 6.

<sup>4</sup> Food and Agriculture Organization. (2021). *Land area (sq. km) – Singapore*. The World Bank. <https://data.worldbank.org/indicator/AG.LND.TOTL.K2?locations=SG>

<sup>5</sup> Singapore National Population and Talent Division (2023). *Population Trends*. Singapore National Population and Talent Division. <https://www.population.gov.sg/our-population/population-trends/overview/>

<sup>6</sup> Statista Research Department. (2023). *Total motor vehicle population in Singapore from 2013 to 2022*. Statista. <https://www.population.gov.sg/our-population/population-trends/overview/>

<sup>7</sup> SG101. (2022). *Peak Hour Commuting*. SG101

<sup>8</sup> Statista Research Department. (2023). *Average distance traveled with public transport on a commute trip in Singapore from 2019 to 2022*. Statista. <https://www.statista.com/statistics/1232857/singapore-average-distance-on-commute-trip/>

<sup>9</sup> Peña, J. et al. Which dots to connect? Employment centers and commuting inequalities in Bogotá. *The Journal of Transport and Land Use*. VOL. 15 NO. 1 [2022] pp. 17–34

<sup>10</sup> Reinoso, G. (2023). El número de motos será mayor que el de autos este año en Bogotá y La Sabana. *El Tiempo*

<sup>11</sup> Avendaño, P. (2023). Cuántos motos se venden por minuto en Bogotá? Sorprendente dato del Runt. *El Tiempo*. <https://www.eltiempo.com/economia/finanzas-personales/en-bogota-se-venden-30-motos-por-minuto-segun-datos-del-runt-799666>

<sup>12</sup> Secretaría de Movilidad Bogotá. (2023). Encuesta de movilidad 2023. Alcaldía Mayor de Bogotá. <https://www.encuestademovilidad2023.com/>

<sup>13</sup> Peña, J. et al. Which dots to connect? Employment centers and commuting inequalities in Bogotá. *The Journal of Transport and Land Use*. VOL. 15 NO. 1 [2022] pp. 17–34

<sup>14</sup> Austin District Statistics. (2022). <https://www.dot.state.tx.us/apps-cg/discos/default.htm?dist=AUS>

<sup>15</sup> Austin Demographics. (2024). <https://demographics-austin.hub.arcgis.com/>

<sup>16</sup> Austin District Statistics. (2023). Vehicles Registered (FY 2023).

<sup>17</sup> Heckler, A. (2023). Austin takes surprising ranking on list of hardest commutes in the U.S. *Culture Map Austin*. <https://austin.culturemap.com/news/city-life/austin-commute-times-second-best/>

<sup>18</sup> CBS Austin (2020). Public transit is 2nd-largest mode of transportation for Downtown Austin commuters. CBS Austin. <https://cbssaustin.com/news/local/public-transit-is-2nd-largest-mode-of-transportation-for-downtown-austin-commuters>

<sup>19</sup> Embajada de Mexico en Estados Unidos (2024). Relaciones Exteriores. <https://embamex.sre.gob.mx/usa/index.php/es/enterate/391-acerca-de-mexico>

<sup>20</sup> Gobierno de Mexico (2024). Ciudad de Mexico. <https://www.economia.gob.mx/datamexico/es/profile/geo/ciudad-de-mexico-cx>

<sup>21</sup> INEGI (2022). Parque Vehicular. *INEGI, Economía y Sectores Productivos*. [https://www.inegi.org.mx/temas/vehiculos/#informacion\\_general](https://www.inegi.org.mx/temas/vehiculos/#informacion_general)

<sup>22</sup> López, J. (2024). Número de motos crece en CDMX, ya suman 700 mil circulando. EXCELSIOR. [https://www.excelsior.com.mx/comunidad/numero-de-motos-crece-en-cdmx-ya-suman-700-mil-circulando/1630654#:~:text=En%202017%20se%20estimaba%20que,hay%20m%C3%A1s%20de%20700%20mil.&text=El%20n%C3%BAmero%20de%20motocicletas%20sigue,Secretar%C3%ADa%20de%20Movilidad%20\(Semovi\).](https://www.excelsior.com.mx/comunidad/numero-de-motos-crece-en-cdmx-ya-suman-700-mil-circulando/1630654#:~:text=En%202017%20se%20estimaba%20que,hay%20m%C3%A1s%20de%20700%20mil.&text=El%20n%C3%BAmero%20de%20motocicletas%20sigue,Secretar%C3%ADa%20de%20Movilidad%20(Semovi).)

<sup>23</sup> Cervantes, R. (2023). México busca reducir las horas de la jornada laboral. Con home office ya nos sobrarían 8 horas cada semana. *Motorpasion*. <https://www.motorpasion.com.mx/industria/cdmx-ciudad-que-desperdicia-tiempo-camino-al-trabajo#:~:text=De%20acuerdo%20con%20datos%20de,M%C3%A1xico%20es%20de%2045.9%20minutos.>

<sup>24</sup> Statista Research Department. (2023). Average commute distance using public transport in Latin America as of May 2018, by selected city. <https://www.statista.com/statistics/885837/latin-america-commute-distance-public-transport/>

<sup>25</sup> Gobierno de Argentina (2024). AMBA. <https://www.argentina.gob.ar/dami/centro/amba>

<sup>26</sup> Martínez, L & Ferreiro, I. (2023). Censo 2022: cómo evolucionó la población de la Ciudad y la Provincia de Buenos Aires. *Chequeado*. <https://chequeado.com/el-explicador/censo-2022-como-evoluciono-la-poblacion-de-la-ciudad-y-la-provincia-de-buenos-aires/>

<sup>27</sup> AFAC (2023). *FLOTA VEHICULAR CIRCULANTE EN ARGENTINA 2022*. AFAC. <https://cdn.motor1.com/pdf-files/afac-flota-circulante-2022.pdf>

<sup>28</sup> Zalazar, M. (2023). Vivir en el tránsito: los trabajadores del GBA destinan el equivalente a 4 jornadas por mes para viajar a sus empleos. *Infobae*. <https://www.infobae.com/economia/2023/03/05/vivir-en-el-transito-los-trabajadores-del-gba-destinan-el-equivalente-a-4-jornadas-por-mes-para-viajar-a-sus-empleos/#:~:text=Los%20datos%20de%20la%20encuesta,a%20sus%20trabajos%20y%20viceversa.>

<sup>29</sup> Anapolksy, S. (2020). ¿Cómo nos movemos en el amba? Conclusiones de la evidencia empírica y alternativas post-Covid. *Universidad Nacional de San Martín*. [https://www.argentina.gob.ar/sites/default/files/sebastian\\_anapolksy\\_-\\_como\\_nos\\_movemos\\_en\\_el\\_amba.pdf](https://www.argentina.gob.ar/sites/default/files/sebastian_anapolksy_-_como_nos_movemos_en_el_amba.pdf)

<sup>30</sup> Resdiansyah (2021). *SUSTAINABLE ASSESSMENT OF URBAN TRANSPORT SYSTEM IN GREATER JAKARTA*. Greater Jakarta Transport Authority Ministry of Transportation. [https://www.unescap.org/sites/default/files/event-documents/5.%20Sustainability%20Assessment\\_Greater%20Jakarta.pdf](https://www.unescap.org/sites/default/files/event-documents/5.%20Sustainability%20Assessment_Greater%20Jakarta.pdf)

<sup>31</sup> B B Suharto et al 2021 IOP Conf. Ser.: Earth Environ. Sci. 737 012020

<sup>32</sup> Yusuf, S. & Atiqah, S. 2020. "Exploring the Changes of Commuting Patterns, Commuting Flows, and Travel-to-work Behaviour in the Jakarta Metropolitan Area from 2014 to 2019: A Comparative Analysis of Two Cross-sectional Commuting S", LPEM FEBUI Working Papers 202054, LPEM, Faculty of Economics and Business, University of Indonesia.

<sup>33</sup> Beijing Municipality (2022). Demographic Geography. [https://english.beijing.gov.cn/beijinginfo/facts/202006/t20200601\\_1912281.html](https://english.beijing.gov.cn/beijinginfo/facts/202006/t20200601_1912281.html)

<sup>34</sup> C, Tector. (2023). Population of the administrative area of Beijing municipality, China from 1980 to 2022. *Statista*. <https://www.statista.com/statistics/1137629/china-population-of-beijing-municipality-administrative-area/>

<sup>35</sup> Zhang, W. (2024). Average distance travelled for commuting purposes in China in 2021, by selected city. *Statista*. <https://www.statista.com/statistics/1333267/china-average-commute-distance-by-city/#:~:text=Average%20commute%20distance%20in%20China%202021%2C%20by%20city&text=According%20to%20Baidu%2C%20the%20average,distance%20among%20cities%20in%20China.>

<sup>36</sup> Zhang, W. (2024). Average time needed for commuting purposes in China in 2021, by selected city. *Statista*. <https://www.statista.com/statistics/1333284/china-average-commute-time-by-city/#:~:text=Average%20commute%20time%20in%20China%202021%2C%20by%20city&text=According%20to%20a%20report%20published,time%20among%20cities%20in%20China.>

<sup>37</sup> C, Tector. (2023). Land area of Hong Kong from 2012 to 2022. *Statista*. <https://www.statista.com/statistics/316823/hong-kong-land-area/>

<sup>38</sup> Hong Kong Census and Statistics Department (2023). Mid-year population for 2023 [15 Aug 2023]. *The Government of the Hong Kong Special Administrative Region*. [https://www.censtatd.gov.hk/en/press\\_release\\_detail.html?id=5265](https://www.censtatd.gov.hk/en/press_release_detail.html?id=5265)

<sup>39</sup> CEIC (2023). Hong Kong SAR, China Number of Registered Vehicles. [https://www.ceicdata.com/en/indicator/hong-kong/number-of-registered-vehicles#:~:text=Hong%20Kong%20SAR%20\(China\)%20Number%20of%20Registered%20Vehicles%20data%20is,556%2C507%20Unit%20in%20Mar%202006.](https://www.ceicdata.com/en/indicator/hong-kong/number-of-registered-vehicles#:~:text=Hong%20Kong%20SAR%20(China)%20Number%20of%20Registered%20Vehicles%20data%20is,556%2C507%20Unit%20in%20Mar%202006.)

<sup>40</sup> Jin, S., Nie, T., Pun, N. et al. Spatial Mismatch, Different Labor Markets and Precarious Employment: The Case of Hong Kong. *Soc Indic Res* 161, 51–73 (2022). <https://doi.org/10.1007/s11205-021-02819-z>

<sup>41</sup> Jin, S., Nie, T., Pun, N. et al. Spatial Mismatch, Different Labor Markets and Precarious Employment: The Case of Hong Kong. *Soc Indic Res* 161, 51–73 (2022). <https://doi.org/10.1007/s11205-021-02819-z>

<sup>42</sup> Obure, J. et al. (2019). CPI PROFILE RIYADH. *UN-HABITAT & MOMRA*. [https://unhabitat.org/sites/default/files/2020/04/cpi\\_profile\\_for\\_riyadh\\_2019.pdf](https://unhabitat.org/sites/default/files/2020/04/cpi_profile_for_riyadh_2019.pdf)

<sup>43</sup> Obure, J. et al. (2019). CPI PROFILE RIYADH. *UN-HABITAT & MOMRA*. [https://unhabitat.org/sites/default/files/2020/04/cpi\\_profile\\_for\\_riyadh\\_2019.pdf](https://unhabitat.org/sites/default/files/2020/04/cpi_profile_for_riyadh_2019.pdf)

<sup>44</sup> Saudi Arabian Ministry of Transport (2019). Saudi Transportation Ministry: 18 Million Road Trips in August. <https://mot.gov.sa/en/MediaCenter/News/Pages/NEWS1078.aspx>

<sup>45</sup> Dizikes, P. (2014). Study: Commuting times stay constant even as distances change. *MIT*. <https://news.mit.edu/2014/study-commuting-times-stay-constant-even-distances-change>

<sup>46</sup> Field, E. et al. (2018). Allowing Women to Drive in Saudi Arabia May Reduce Cost of Travel Case Study: Riyadh. *Hardvard Kennedy School*. <https://epod.cid.harvard.edu/sites/default/files/2018-06/Women-Driving-Policy-Brief.pdf>

City	Car or motorcycle transportation	Public transport
Gran Area Metropolitana de Costa Rica	40% (10% moto) <sup>47</sup>	34%
Singapore	21.1% <sup>48</sup>	57.7%
Bogotá <sup>49</sup>	19.8% (5.5% in motorcycle)	36.5%
Austin Tx. <sup>50</sup>	74%	4%
CDMX <sup>51</sup>	32 (2% motorcycle)	61%
Area Metropolitana de Buenos Aires <sup>52 53</sup>	16% (8.25% motos)	42%
Jakarta Metropolitan Area	55.1% (motos) 22.9% (car)	21.8%
Beijing <sup>54</sup>	18.65	52.2
Hong kong	Not enough data. Assumed to be less than 10% of commuters	90% <sup>55</sup>
Riyadh	90% <sup>56</sup>	2% <sup>57</sup> planned to reduce the private transportation by 7.5% <sup>58</sup> by 2030

Taxi is considered as private transportation.

<sup>47</sup> Giro, P. et al. (2018). Transporte y Movilidad: Retos en favor del desarrollo humano. Estado de la Nación. Capítulo 6.

<sup>48</sup> Yufeng, K. (2021). More Singapore residents take trains and buses to work, fewer drive to the office: Population census. *The Straits Times*. <https://www.straitstimes.com/singapore/more-singapore-residents-take-trains-and-buses-to-work-fewer-drive-to-the-office-population>

<sup>49</sup> Secretaría Distrital de Movilidad (2019). Encuesta de Movilidad 2019. *Alcaldía Mayor de Bogotá*. [https://www.movilidadbogota.gov.co/web/sites/default/files/Paginas/20-12-2019/resultados\\_preliminares\\_encuestamovilidad\\_2019-20191220.pdf](https://www.movilidadbogota.gov.co/web/sites/default/files/Paginas/20-12-2019/resultados_preliminares_encuestamovilidad_2019-20191220.pdf)

<sup>50</sup> Austin Texas Government (2023). Percent split of modes based on commute to work (mode share). <https://data.austintexas.gov/stories/s/M-A-1-Percent-split-of-modes-based-on-commute-to-work/hm3r-8jfy/#:~:text=The%20City%20of%20Austin%27s%20current,carpooling%2C%20or%20working%20from%20home.>

<sup>51</sup> INEGI (2018). ENCUESTA DE ORIGEN DESTINO EN HOGARES DE LA ZMVM. *COMUNICADO DE PRENSA NÚM. 104/18*.

[https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2018/EstSociodemografico/OrigenDestino2018\\_02.pdf](https://www.inegi.org.mx/contenidos/saladeprensa/boletines/2018/EstSociodemografico/OrigenDestino2018_02.pdf)

<sup>52</sup> Anapolsky, S. (2020). ¿Cómo nos movemos en el área? Conclusiones de la evidencia empírica y alternativas post-Covid. *Universidad Nacional de San Martín*. [https://www.argentina.gob.ar/sites/default/files/sebastian\\_anapolsky\\_-\\_como\\_nos\\_movemos\\_en\\_el\\_area.pdf](https://www.argentina.gob.ar/sites/default/files/sebastian_anapolsky_-_como_nos_movemos_en_el_area.pdf)

<sup>53</sup> Ministerio de Transporte Argentina (2021). Anuario Estadístico de Seguridad Vial 2019. [https://www.argentina.gob.ar/sites/default/files/2018/12/ansv\\_ov\\_anuario\\_estadistico\\_2019\\_final.pdf](https://www.argentina.gob.ar/sites/default/files/2018/12/ansv_ov_anuario_estadistico_2019_final.pdf)

<sup>54</sup> Zhao, W. & Bi, R. (2022). 地铁出行比例最高！北京绿色通勤还有这些新特点. *北京网*.

<https://news.bjd.com.cn/2022/05/23/10091750.shtml#:~:text=%E9%9A%8F%E7%9D%80%E5%8C%97%E4%BA%AC%E5%B8%82%E5%9F%8E%E5%B8%82,%E5%87%BA%E7%A7%9F%E8%BD%A6%E7%9A%84%E9%80%9A%E5%8B%A4%E6%96%B9%E5%BC%8F%E3%80%82>

<sup>55</sup> Hong Kong Legislative Council Secretariat (2016). Public Transport Statistical Highlights. *Information Services Division*. <https://www.legco.gov.hk/research-publications/english/1617ish06-public-transport-20161028-e.pdf>

<sup>56</sup> Toasin, A. et al. What would it take for the people of Riyadh city to shift from their cars to the proposed metro? *Case Studies on Transport Policy*, Volume 12, 2023, 101008, ISSN 2213-624X.

<sup>57</sup> Resdiansyah (2021). SUSTAINABLE ASSESSMENT OF URBAN TRANSPORT SYSTEM IN GREATER JAKARTA. Greater Jakarta Transport Authority Ministry of Transportation. [https://www.unescap.org/sites/default/d8files/event-documents/5.%20Sustainability%20Assessment\\_Greater%20Jakarta.pdf](https://www.unescap.org/sites/default/d8files/event-documents/5.%20Sustainability%20Assessment_Greater%20Jakarta.pdf)

<sup>58</sup> PMI (2021). Riyadh Metro. <https://www.pmi.org/most-influential-projects-2021/50-most-influential-projects-2021/riyadh-metro>