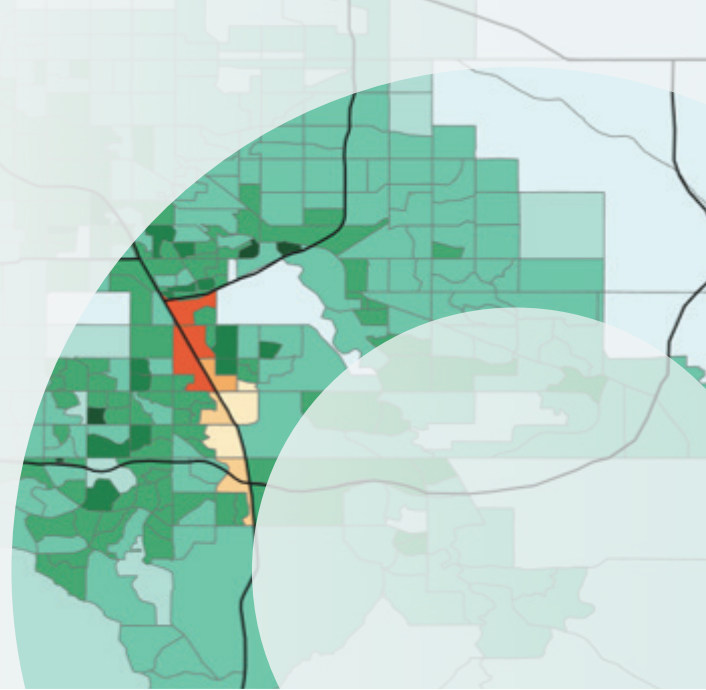


## CASE STUDY

# Denver South

How big data helps Denver South and TomTom map the causes of congestion



### The overview

Understanding how people and goods move around cities is essential for urban planners, but a lack of precise vehicle mobility data has historically inhibited regional transportation planning.

#### Location

> Denver, Colorado

#### Product/service

> TomTom MOVE – Origin/Destination

The result is that congestion increasingly constricts American cities, gnawing away billions of dollars in productivity losses per minute<sup>1</sup>. Using big data provided by TomTom MOVE, planners in the Denver South region holistically mapped the vehicle trips that are contributing to congestion, infusing their decision criteria with actionable information.

Denver South, a 30-year old nonprofit economic development group and transportation management association, initiates and coordinates transportation projects across one of Colorado's most productive and congested regions. Anchored by the Denver Technological Center, Denver South already encompasses the state's most traveled highways – and the area is growing fast. Though 88% of Denver South employees commute to work in private vehicles, surveys indicated that last-mile connections are the most significant barrier to mass transit's attractiveness for commuters.

These surveys alerted Denver South that there was a market for improved last-mile connections, but with a lack of vehicle mobility data, planners could not address commuter needs or create new transportation capacity for the growing employment hub.

Denver South partnered with [TomTom](#) to understand the spatial arrangement of its daily commuters and to help design intelligent connectivity solutions. TomTom is a leading location technology provider collecting GPS data to make best-in-class maps and traffic data. With a clearer awareness of travel demand dynamics and commuter origins, Denver South was able to fast-track the laborious transit demand scoping to begin testing a suite of smart solutions through the [Denver South Mobility Evolution Initiative](#).

<sup>1</sup> Florida, R. L. (2011). The Great Reset: How the post-crash economy will change the way we live and work. New York: Harper.

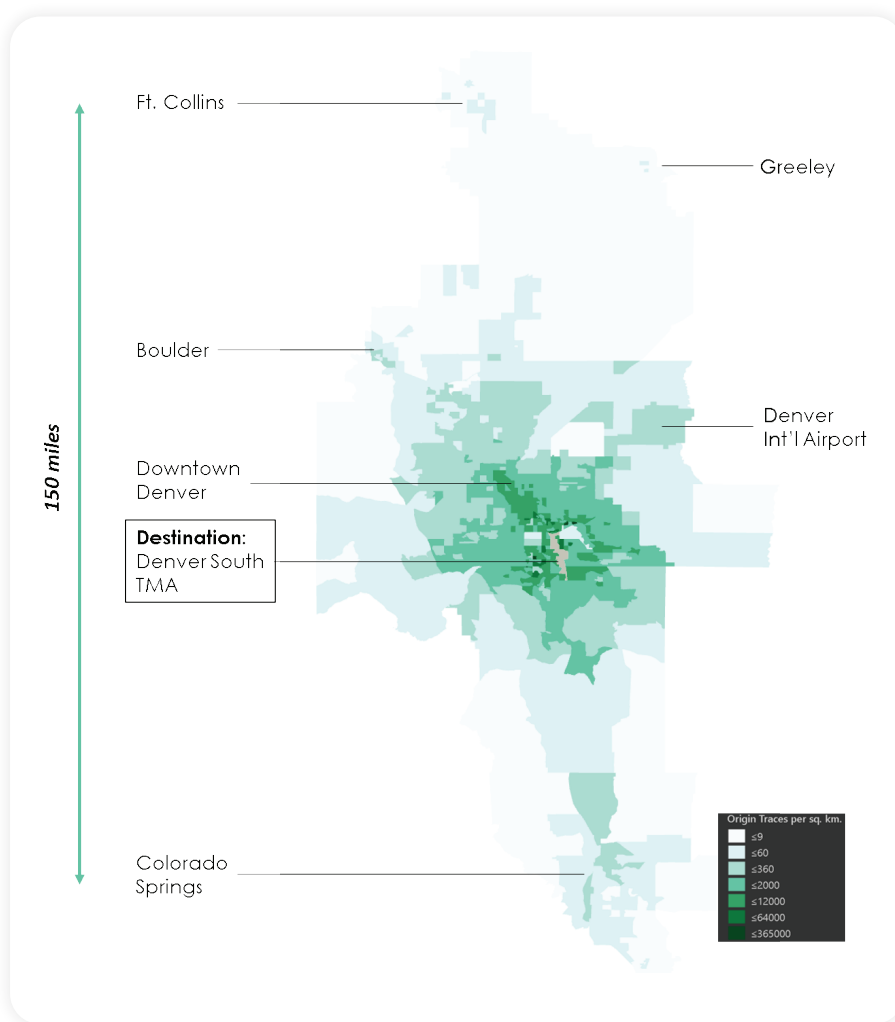
## The challenge

Beyond glaring social and environmental ramifications, vehicular congestion constrains labor market accessibility and inflates marginal costs at every point in the production chain. In a growing number of U.S. metropolises, urban planners and decision-makers must actively confront and manage congestion through focused roadway optimizations and strategic investments in mass transit. To model the utility of streamlined infrastructures or identify markets for improved connectivity, planners first must understand the causes of congestion suggested by vehicle origin-destination data. Cities that fail to combat congestion with these data-driven approaches risk eroding their market competitiveness.

## Mapping the flow of commuters

For planners who have long relied on imprecise and inflexible origin and destination (O-D) commuter surveys, the data aggregated by TomTom are an untapped trove of urban dynamic information. TomTom aggregates this data from its vast community, primarily sourced by GPS data collected from actual driven trips. **TomTom MOVE** is a complete urban analytical toolkit for time-strapped and data-starved transportation planners. This platform offers an O-D tool that visualizes the flows of supply and demand in urban labor markets.

Using **TomTom's O-D tool**, Denver South was able to visualize the 2019 morning commutes originating from all the major population centers along the Front Range Urban Corridor destined for their labor market.



### Origins of Denver South destined vehicles – 2019 morning commute (6am-10am)

This map illustrates that 40% of Denver South-bound vehicles originate within 5 miles of the Denver Tech Center. Further statistical analyses revealed significant clusters and spatial anomalies among the origin shapes, adding interpretative clarity to the raw data. Combining this with some land use insights and hot spot significance tests, the findings are an invaluable resource for understanding travel markets and optimizing solutions. Where O-D surveys had often left planners with more questions than answers, TomTom MOVE is generating actionable information for planners in Denver South.

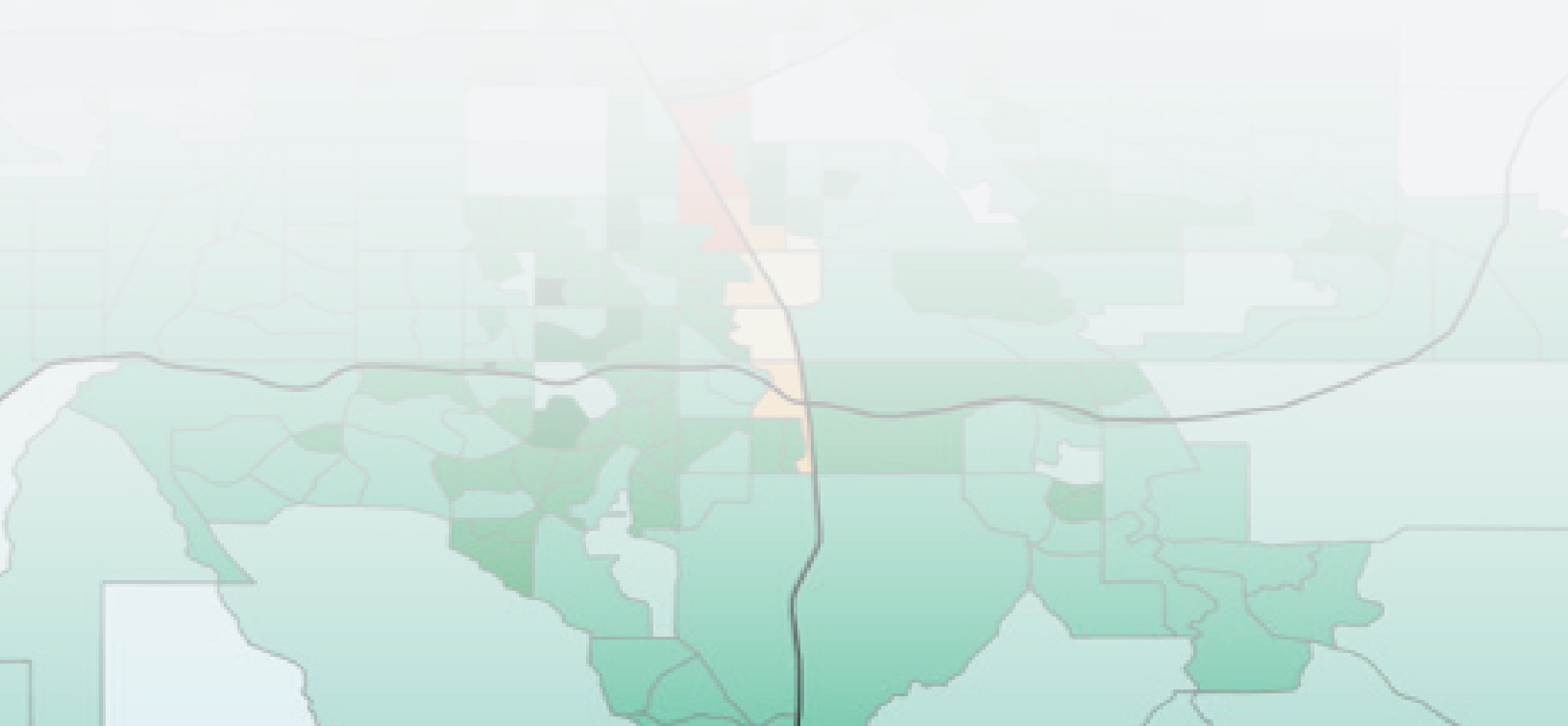
## The takeaway

TomTom MOVE enabled Denver South to quickly understand regional commute patterns so that they could focus their efforts on optimizing connections between commuters and employers. During project scoping, TomTom MOVE O-D's differentiator was its iterative interface, which allowed O-D experiments to be honed over different space and time constraints.

Daniel Hutton, Denver South's Director of Transportation & Mobility offered, "understanding origin and destination data has become imperative for transportation and mobility planning, especially at the scales and penetration rates we're now able to achieve. The speed, reliability and analytical capabilities of TomTom's MOVE offerings were impossible to reach through traditional methods. The future for us is regional – no longer simply based on individual cities. These tools help us push beyond boundaries, allowing us to analyze flows among our six member jurisdictions and 200,000+ daily commuters as we develop better solutions."

Denver South's transition to a data-driven approach empowers its planners to take an active role in combating congestion. Whether in the market analysis of novel technologies or in the evaluation of infrastructure changes, O-D analyses have a role to play before, during, and after project inception.

After discovering the nuances of their travel market, Denver South is testing the feasibility of several last-mile transit improvements that would complement regional light rail service. O-D studies will subsequently verify the results of these efforts to judge their impacts. This case illustrates how big data unlocks metropolitan-scale mobility analyses that were not possible using traditional data collection methods. The findings are relevant not only for transit optimizers like Denver South, but also for industries spanning development, planning, and architectural realms. With TomTom MOVE, the long-observed dynamics between mobility and the built environment at last are revealed.



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