

### Big data sources and uses

“Big data” is defined as “extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions.” Transportation practitioners are turning increasingly to such data to improve planning, operations, design, customer service and other functions. Some commonly cited big data sources are listed below, along with their applicability to two major concerns: mobility (traveler or vehicle volume and/or speed) and accessibility/connectivity (traveler or vehicle origin, destination and/or route). The field is rapidly advancing, so an indication of “partial” or “no” may be interpreted as “we’re not aware of anyone doing this – yet.” It should be noted that these data sources offer other uses as well; for example, though smart parking meters are limited in their ability to inform mobility and accessibility decisions, they are essential in setting pricing to manage parking demand and thereby reducing localized congestion.

Source	Mobility	Accessibility/ Connectivity
Bike/ped counts	Yes	No
Bluetooth	Yes	No
Camera sensors	Yes	No
Cellular telephone signals	Yes	Yes
Custom smartphone apps	Yes	Yes
Fitness smartphone apps	Yes	Yes
GPS devices	Yes	Yes
Loop detectors	Yes	No
Mapping smartphone apps	Yes	Yes
Smart parking meters	No	Partial
Social media	Partial	No
Taxi logs	Partial	Yes
Tolls	Yes	No
Transit fares/smart cards	Yes	Partial
Truck logs	Partial	Yes