

No. 10-1259

IN THE
Supreme Court of the United States

UNITED STATES OF AMERICA,

Petitioner,

v.

ANTOINE JONES,

Respondent.

On a Writ of Certiorari to
The United States Court of Appeals
For The District of Columbia Circuit

**BRIEF OF *AMICI CURIAE* ELECTRONIC
PRIVACY INFORMATION CENTER (EPIC)
AND LEGAL SCHOLARS AND TECHNICAL
EXPERTS IN SUPPORT OF THE
RESPONDENT**

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INTEREST OF THE *AMICI CURIAE*

The Electronic Privacy Information Center (EPIC) is a public interest research center in Washington, D.C., which was established in 1994 to focus public attention on emerging civil liberties issues and to protect privacy, the First Amendment, and other constitutional values.¹ EPIC has participated as *amicus curiae* in several cases before this Court and other courts concerning privacy issues, new technologies, and constitutional interests, including *Sorrell v. IMS Health Inc.*, 131 S. Ct. 2653 (2011); *FCC v. AT&T Inc.*, 131 S. Ct. 1177 (2011); *NASA v. Nelson*, 131 S. Ct. 746 (2011); *Doe v. Reed*, 130 S. Ct. 2811 (2010); *Quon v. City of Ontario*, 130 S. Ct. 2619 (2010); *Tolentino v. New York*, 926 N.E.2d 1212 (N.Y. 2010), *cert. granted*, 131 S. Ct. 595, (2010) and *cert. dismissed as improvidently granted*, 131 S. Ct. 1387 (2011); *Flores-Figueroa v. United States*, 129 S. Ct. 1886 (2009); *Herring v. United States*, 129 S. Ct. 695 (2009); *Crawford v. Marion County Election Board*, 128 S. Ct. 1610

¹ Letters of Consent to the filing of this brief have been lodged with the Clerk of the Court pursuant to Rule 37.3. *Amici* lodged with the Court Petitioner's and Respondent's letters of consent contemporaneous with the filing of this brief. In accordance with Rule 37.6, the undersigned states that no monetary contributions were made for the preparation or submission of this brief, and this brief was not authored, in whole or in part, by counsel for a party. EPIC Appellate Advocacy Fellow Alan Butler contributed to the preparation of this brief.

(2008); *Hiibel v. Sixth Judicial Circuit of Nevada*, 542 U.S. 177 (2004); *Doe v. Chao*, 540 U.S. 614 (2003); *Smith v. Doe*, 538 U.S. 84 (2003); *Department of Justice v. City of Chicago*, 537 U.S. 1229 (2003); *Watchtower Bible and Tract Society of N.Y., Inc. v. Village of Stratton*, 536 U.S. 150 (2002); *Reno v. Condon*, 528 U.S. 141 (2000); *Chicago Tribune v. University of Illinois*, No. 10-0568, 2011 WL 982531 (N.D. Ill. Mar. 7, 2011), *appeal docketed*, No. 11-2066 (7th Cir. Apr. 1, 2011); *US v. Pool*, 621 F.3d 1213 (9th Cir. 2010); *Doe v. Luzerne County*, No. 08-1155, (M.D. Penn. Aug. 31, 2010), *appeal docketed*, No. 10-3921 (3rd Cir. Sept. 19, 2010); *S.E.C. v. Rajaratnam*, 622 F.3d 159 (2d Cir. 2010); *IMS Health v. Ayotte*, 550 F.3d 42 (1st Cir. 2008) *cert. denied*, 129 S. Ct. 2864 (2009); *National Cable and Telecommunications Association v. Federal Communications Commission*, 555 F.3d 996 (D.C. Cir. 2009); *Bunnell v. Motion Picture Association of America*, No. 07-56640 (9th Cir. filed Nov. 12, 2007); *Kohler v. Englade*, 470 F.3d 1104 (5th Cir. 2006) 470 F.3d 1104 (5th Cir. 2006); *United States v. Kincade*, 379 F.3d 813 (9th Cir. 2004), *cert. denied* 544 U.S. 924 (2005); *Commonwealth v. Connolly*, 913 N.E.2d 356 (Mass. 2009); and *State v. Raines*, 857 A.2d 19 (Md. 2003).

EPIC has a particular interest in the impact of new surveillance technologies that have the capacity to enable warrantless, pervasive mass surveillance of the public by law enforcement agents. Such techniques offend the right of individuals to operate vehicles on public roads while maintaining privacy and their right to be free of unreasonable searches. EPIC has routinely urged regulators and courts to take meaningful steps towards protecting the privacy

interests of motorists. *See, e.g.* Comments of the Electronic Privacy Information Center to the National Highway Traffic Safety Administration, August 13, 2004, Docket No. NHTSA-2004-18029, (supporting strong privacy safeguards for automobile Event Data Recorders (EDRs), including a clear consumer right to control the collection and dissemination of their driving data);² *Herring v. U.S.*, 129 S. Ct. 695, 708-709 (2009) (advocating for suppression of evidence discovered in search of motorist resulting from erroneous police records); *Commonwealth v. Connolly*, 454 Mass. 808 (2009) (concluding that the “installation and use of [a GPS tracking device] was a seizure requiring a warrant” under the Massachusetts Constitution).

The Circuit Court’s determination in the present case applies long-standing Fourth Amendment safeguards to emerging technologies. The Court’s requirement that law enforcement obtain a warrant before tracking citizens’ every movement is consistent with core constitutional principles. If the Court overturns the decision below, it would severely restrict the privacy interests of drivers by allowing unchecked, continuous, surreptitious tracking and monitoring of individuals operating privately-owned vehicles. The Fourth Amendment prohibits such tracking absent a valid warrant.

² Available at http://epic.org/privacy/drivers/edr_comm81304.html.

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SUMMARY OF THE ARGUMENT

GPS tracking systems are a rapidly growing new technology based on data received from the Global Positioning System satellite constellation. The systems provide a wide range of benefits, including navigation, transportation, mapping, scientific research, economic planning, and public safety.

United States law enforcement agencies use GPS tracking devices to monitor the activities of residents. The devices can be installed in vehicles, record data including location and velocity, and can store information indefinitely. In this particular application, GPS tracking systems transmit and store a large amount of detailed, personal information concerning an individual's movements. Typically, police covertly install GPS tracking systems in a suspect's vehicle. However, several public and private entities recently mandated the installation of GPS tracking units in vehicles for non-law enforcement purposes. Government proposals are presently pending that would effectively force the installation of GPS tracking units in every vehicle in America. In addition, smartphones and other popular consumer electronics now include built-in GPS receivers that can be used to track individuals' movements.

In this context, the proliferation of GPS tracking technology creates a large, and largely unregulated, repository containing detailed travel profiles of American citizens. Law enforcement access to such information raises the specter of mass, pervasive surveillance without any predicate act that would

justify this activity. Constitutional protections against unreasonable searches are intended to protect individuals from this precise sort of government intrusion.

ARGUMENT

I. GPS Tracking Systems Use Invasive Techniques to Collect and Store a Large Amount of Detailed, Personal Information About Individuals' Movements.

A. The Global Positioning System is a Satellite-based Service

The Global Positioning System (“GPS”) is a satellite-based service that enables individuals to determine their precise location anywhere on Earth. The U.S. government operates GPS, and provides free access to the public. 10 U.S.C. § 2281(b) (2011) (requiring the U.S. Department of Defense to provide GPS “for peaceful civil, commercial, and scientific uses on a continuous worldwide basis free of direct user fees”). Anyone can use an electronic device, commonly called a “GPS receiver,” to access GPS signals and determine their precise location, altitude, and speed. ANITA L. ALLEN, *PRIVACY LAW AND SOCIETY* 846 (2007).

GPS relies on a minimum of 24 satellites configured to provide navigation and timing information worldwide on a constant 24 hour per day basis. Los Angeles Air Force Base, *Global Positioning System Fact Sheet*.³ The U.S. Department of Defense created the system, launching

³<http://web.archive.org/web/20090119020458/http://www.losangeles.af.mil/library/factsheets/factsheet.asp?id=5325>.

the first GPS satellite in 1978. Cheryl Pellerin, *United States Updates Global Positioning System Technology: New GPS Satellite Ushers in a Range of Future Improvement*, U.S. Dep't of State, Feb. 3, 2006.⁴ The GPS service became fully operational in December 1993. Letter from Les Aspin to Secretary of Transportation Federico Pena, (Dec. 8, 1993).⁵ There are currently 31 satellites, including "back-up" satellites, in the GPS constellation. National Geospatial-Intelligence Agency, *Current GPS Satellite Data*.⁶ The satellites comprising the GPS network are run by the U.S. Air Force 50th Space Wing's 2nd Space Operations Squadron, located at Schriever Air Force Base in Colorado. Global Positioning System Fact Sheet, *supra* at 6. The satellites transmit data on two low-frequency radio bands, one reserved for military use, and the other assigned for civilian use. Garmin, What is GPS?⁷ Civilian GPS data is transmitted on the "L1" frequency, 1575.42 Mhz in the UHF band. *Id.* GPS satellites can provide three-dimensional location data (longitude, latitude and altitude) as well as precise velocity and timing information to an unlimited

⁴<http://web.archive.org/web/20061001222057/http://usinfo.state.gov/xarchives/display.html?p=washfile-english&y=2006&m=February&x=20060203125928lcniirellep0.5061609>.

⁵ Available at <http://web.archive.org/web/20031116092811/http://www.navcen.uscg.gov/ftp/gps/ARCHIVES/gpsdoc/IOCLTR.TXT>.

⁶ <http://earth-info.nga.mil/GandG/sathtml/satinfo.html>.

⁷ <http://www8.garmin.com/aboutGPS/>.

number of users simultaneously. Global Positioning System Fact Sheet, *supra* 6. GPS signals “are so accurate, time can be figured to within a millionth of a second, velocity within a fraction of a mile per hour and location to within 100 feet.” US Airforce, Airforce Link, *Global Positioning System Fact Sheet*.⁸ Individuals can access the service by using a “GPS receiver.” *See* Garmin, *supra*.

B. GPS Receivers Enable Individuals to Access the GPS Satellite System and Determine Their Location, Velocity, and Altitude

A GPS receiver calculates and typically displays its location, velocity, altitude, and the time by decoding data from the GPS satellite network. *Global Positioning System Fact Sheet, supra* 6. As the receiver moves, it continuously updates its location. GPS receivers are readily available through commercial retailers, and commonly used by the general public to assist in navigation. *Id.* Civilian-grade GPS receivers are small enough to be installed in handheld devices or vehicles. *E.g.* Rakon GPS Solutions, *Fact Sheet*, at 2 (detailing a current 2.0 x 1.6 mm chip for use in “smartphones, PNDs, mobile phones, netbooks, recreational GPS, automotive and wireless applications”).⁹ They are capable of maintaining a strong signal lock with the GPS

⁸<http://web.archive.org/web/20090311031941/http://www.af.mil/factsheets/factsheet.asp?id=119>.

⁹<http://www.rakon.com/resources/Documents/Rakon%20GPS%20Fact%20Sheet.pdf>.

satellites, thus remaining accurate, even when they are used “under tree canopies or in canyons, on country roads or beneath sky scrapers.” GPS for Today, *Small GPS Tracking Chips*, Dec. 21, 2009.¹⁰

The sale of GPS receivers has grown exponentially since the joint trial of defendants Jones and Maynard ended in 2008. Berg Insight AB, *GPS and Mobile Handsets* (showing an estimated 228 Million GPS-enabled handsets sold in 2008-2009 with predicted sales of over 770 Million units in 2014).¹¹ Millions of GPS navigation receivers are sold per quarter by the top three manufacturers – Garmin, TomTom and Magellan. Canalys, *US PND Market Doubles in Q2*, Aug. 14, 2008.¹² However these navigation companies are facing increased competition because GPS technology is now integrated into most smartphones and vehicles. Sayantani Ghosh and Roberta Cowan, *GPS Sales Drop as Smartphones, New Vehicles Offer Navigation*, The Globe and Mail, Aug. 08, 2011.¹³ Drivers use Smartphones in much the same way as

¹⁰ <http://www.gpsfortoday.com/small-gps-tracking-chips/>.

¹¹ Available at <http://www.berginsight.com/ReportPDF/ProductSheet/bi-gps4-ps.pdf>.

¹² Available at <http://www.canalys.com/pr/2008/r2008081.htm>. See also Suzanne Choney, *GPS Manufacturers Tout Software Features*, MSNBC, Sept. 17, 2008, available at <http://today.msnbc.msn.com/id/26747443/#storyContinued>.

¹³ Available at <http://www.theglobeandmail.com/globe-drive/car-life/gizmos/gps-sales-drop-as-smartphones-new-vehicles-offer-navigation/article2123105/>.

traditional GPS navigation devices. *Id.* (“PNDs are fast being cannibalized as Google and smartphone makers such as Nokia offer free turn-by-turn navigation.”). *See, e.g.* Google, *Google Maps Navigation Features*, (describing in-car features such as “Search by voice” and “Car dock mode”).¹⁴ GPS receivers not only display location data derived from the satellite network, but also download and relay user location data to manufacturers and service providers. *E.g.*, Garmin, *Garmin’s New 3D Traffic*, (describing the company’s “multidimensional feed” of traffic data from “high quality sources” such as “other Garmin Nüvi owners”);¹⁵ *TomTom HD Traffic – Highlights*, TomTom (describing how TomTom GPS units transmit “real time flow data provided by vehicles...” to the company).¹⁶ The devices generally do not store data regarding their long-term historical movements. *But see, e.g.*, Nate Anderson, *Senator Questions Apple Over iPhone Tracking*, *Ars Technica* Apr. 21, 2011 (describing the recent discovery of location tracking data stored by default on every Apple iPhone).¹⁷

¹⁴ <http://www.google.com/mobile/navigation/>.

¹⁵ http://www8.garmin.com/move/guidance.html#TB_inline?height=625&width=900&inlineId=vid1.

¹⁶ <http://www.tomtom.com/services/service.php?id=89>.

¹⁷ <http://arstechnica.com/apple/news/2011/04/senator-questions-apple-in-wake-of-ios-tracking-scandal.ars>.

C. Law Enforcement Uses GPS Tracking Systems to Conduct Warrantless Surveillance

Law enforcement agencies nationwide use “GPS tracking systems” to conduct surveillance on individuals. *See* Keith Hodges, *Tracking Bad Guys: Legal Considerations in Using GPS*, Federal Bureau of Investigation Law Enforcement Bulletin, July 2007.¹⁸ Typically, law enforcement agents covertly install GPS units in vehicles used by suspects. (*E.g.*, J.A. 112). GPS tracking systems are comprised of three distinct devices that, when combined, allow for the continuous monitoring of a tracked vehicle from a remote computer. (*E.g.*, J.A. 80-82). Effective installation and use enables law enforcement agents to monitor a suspect’s movements. (J.A. 82).

The GPS tracking system’s first component is a GPS receiver, described above. (J.A. 79). This device decodes GPS satellite data and calculates the receiver’s location and velocity. *Id.* The receiver is connected to the GPS tracking system’s second component, a cellular phone or other type of cellular radio transmitter that can transmit the GPS data to law enforcement. (J.A. 80). This second component enables police to access GPS data and monitor the status of the receiver from afar. (J.A. 82). The transmitted GPS data is received and stored on the GPS tracking system’s third component, a law enforcement computer. *Id.* These computers use

¹⁸ Available at <http://www.fletc.gov/training/programs/legal-division/downloads-articles-and-faqs/articles/FBI-LE-Bulletin-GPS-Tracking-Jul2007.pdf/download>.

mapping software that can display the location and velocity of the GPS receiver in real time, as well as store historical data concerning the receiver's past movements. (J.A. 81). Like most computer files, this data can be retained indefinitely on the computer's hard drive and freely copied and distributed.

Prior to the deployment of GPS tracking systems, law enforcement agents used visual surveillance to track suspects' vehicles. Police occasionally enhanced surveillance through the use of a "beeper." *E.g.* *United States v. Karo*, 468 U.S. 705, 710 (1984); *United States v. Knotts*, 460 U.S. 276 (1983). A beeper device transmits a radio signal to a receiving unit that "beeps" more loudly as it is moved closer to the transmitter. *Knotts*, 460 U.S. at 277. After surreptitious installation of a beeper in a suspect's car, agents could use a police car-mounted receiving unit to estimate their distance from the location of the beeper as well as its general direction. *Id.* The beeper thus aided the tracking or "tailing" of a suspect in a vehicle by providing rough information concerning an agent's distance and direction from a suspect vehicle that is nearby, but outside the range of visual surveillance. *Id.* at 278. The signal produced by the beeper was ephemeral, did not contain any data about the suspect's absolute location, and could not be stored or distributed by law enforcement.

The covert installation of GPS tracking devices by law enforcement may soon seem as obsolete as the "beeper" used in *Knotts*. Law enforcement can now access various repositories of GPS (and other) tracking data stored by telecommunications providers and others. *See, United States v. Pineda-Moreno*, 617 F.3d 1120, 1125 (9th Cir. 2010)

(Kozinski, J., dissenting) (discussing the ease with which law enforcement can access historical GPS data from telecommunications companies); *ACLU v. US Dept. of Justice*, Nos. 10-5159, 10-5167, 2011 WL 3890837 (D.C. Cir. Sept. 6, 2011) (addressing the Department of Justice's decision to redact and withhold information about cases involving cell phone location data acquired without a warrant).

D. GPS Systems Dramatically Expand the Ability of Law Enforcement to Track Vehicles

GPS tracking systems collect and retain a vast amount of data regarding a suspect's movements, and are substantially more invasive than beeper technology. GPS tracking systems are not merely sophisticated beepers. Beepers augment visual surveillance, helping police to keep track of vehicles that briefly elude their gaze. In contrast, GPS tracking systems are wholesale replacements for physical surveillance; this is true whether or not visual observation is possible from a public roadway. In addition, GPS tracking systems collect and retain far more data than beeper technology. A GPS tracking system ascertains and records an individual's precise location. A beeper only determines an individual's approximate location relative to pursuing officers. A GPS tracking system collects and stores the receiver's precise velocity and altitude. A beeper does not detect velocity or altitude data. All information collected by a GPS tracking system can be stored on law enforcement computers for future use. Beeper data is ephemeral – it is heard

by law enforcement agents in real time, and never stored.

GPS technology goes beyond merely enhancing the capabilities of law enforcement to track a suspect. GPS tracking systems transform the capability of the police and allow an officer to simultaneously monitor the activities and locations of many vehicles from a remote computer, substituting for visual surveillance of a single vehicle. Further, data collected by GPS tracking systems can be stored indefinitely on law enforcement computers, and used to create historical logs of citizens' movements. By accessing stored data, law enforcement officers can effectively extend the duration of the original search. Unlike a beeper, which merely enhances human sensory ability in real time, GPS tracking systems allow officers to comb stored data to conduct new searches using a suspect's historical location data, as well as to aggregate data from a variety of sources, both public and private.

In the law enforcement context, the ability of GPS systems to track and store an individual's every move creates substantial privacy risks – precisely the sort of risks the Fourth Amendment aims to prevent. GPS tracking records can reveal a range of private activities to law enforcement – where and when one works, shops, worships, socializes or volunteers. GPS tracking systems can monitor and retain data on every facet of an individual's existence. Absent constitutional limitations, GPS tracking enables law enforcement officials to record and retain an individual's travel history indefinitely, even in circumstances where there is no predicate activity that would justify surveillance and for purposes unrelated to an ongoing investigation.

The abuse of this technique has been established. Private citizens have misused GPS tracking capabilities to stalk ex-lovers or spouses. *E.g.*, Justin Scheck, *Stalkers Exploit Cellphone GPS*, Wall St. J., Aug. 5, 2010, at A1, A14; ShinyHacks.com, *Guide to GPS Stalking Using iPhone, Blackberry, and Android*, Apr. 15, 2011.¹⁹ Widespread, warrantless use of GPS tracking systems by law enforcement presents opportunities for similar misuse. *See Pineda-Moreno*, 617 F.3d at 1125 (Kozinski, J., dissenting) (“Acting together [cell towers and GPS satellites] alone can provide law enforcement with a swift, efficient, silent, invisible and *cheap* way of tracking the movements of virtually anyone and everyone they choose.”) (emphasis in original). This risk is particularly severe if no obligation exists to report publicly on this type of surveillance as there is, for example, with the federal Wiretap Act. *See* 18 U.S.C. § 2519 (2011) (“Reports concerning intercepted, wire, oral, or electronic communications”). Application of the Fourth Amendment’s warrant requirement to GPS tracking would ensure independent judicial oversight of GPS tracking systems, generate transparency and accountability, and mitigate the privacy risks inherent to this powerful surveillance technology.

¹⁹ <http://www.shinyhacks.com/2011/04/guide-to-gps-stalking-using-iphone.html>.

II. Absent a Warrant Requirement, GPS Tracking Systems in the Law Enforcement Context Threaten to Enable Pervasive Mass Surveillance

Widespread installation of GPS tracking systems increases the potential for pervasive mass surveillance of the American public by law enforcement. In the present case, an FBI-Metropolitan Police Department Safe Streets Task Force installed a GPS tracking device on the defendant Jones' Jeep without a valid warrant. *United States v. Maynard*, 615 F.3d 544, 549, 555 (D.C. Cir. 2010). In this instance, the installation was time-consuming, costly, and presumably fraught with peril, as law enforcement agents sought to install the device without alerting Jones to the surveillance. These factors – time, cost, and risk – imposed practical limitations on law enforcement's ability to conduct GPS-based surveillance on hundreds, thousands, or millions of citizens.

However, these practical limitations are being reduced or eliminated as GPS tracking devices become standardized in smartphones and are installed in most vehicles pursuant to government and private sector mandates. Once GPS tracking systems are installed in most vehicles, covert access to a suspect's vehicle will no longer be a necessary predicate to GPS tracking. *See Pineda-Moreno*, 617 F.3d at 1125 (Kozinski, J., dissenting) (discussing the ease with which law enforcement can access historical GPS data from telecommunications companies). Instead, individuals' travel histories will be broadcast and stored as a matter of course. *Id.* *See also*, Garmin, *Garmin's New 3D Traffic*,

<http://www8.garmin.com/move/guidance.html>
(describing their “multidimensional feed” of traffic data from “high quality sources” such as “other Garmin Nüvi owners”);²⁰ *TomTom HD Traffic – Highlights*, TomTom (describing TomTom’s superior traffic service drawing on data sources such as “real time flow data provided by vehicles...”).²¹ Ease of access to ubiquitous GPS tracking information enables pervasive mass surveillance of the American public by law enforcement. *Pineda-Moreno*, 617 F.3d at 1125 (Kozinski, J., dissenting) (“By tracking and decoding the movements of millions of individuals the government can use computers to detect patterns and develop suspicions). Such surveillance is inconsistent with citizens’ constitutional right to privacy as well as the Fourth Amendment’s protections “against unreasonable searches and seizures.” U.S. Const. amend. IV. We must, as Professor Jeffrey Rosen recently noted, “preserve our right to some degree of anonymity in the public.” Jeffrey Rosen, *Preserve Our Right to Anonymity*, NY Times – The Opinion Pages (Sept. 12, 2011).²² Therefore, it is critical that police access to GPS tracking be subject to a warrant requirement.

²⁰http://www8.garmin.com/move/guidance.html#TB_inline?height=625&width=900&inlineId=vid1.

²¹ <http://www.tomtom.com/services/service.php?id=89>.

²² http://www.nytimes.com/2011/09/13/opinion/protect-our-right-to-anonymity.html?_r=1&ref=opinion.

A. Government-mandated GPS Tracking

The future of routine surveillance of motor vehicles in the United States remains unclear. The federal government is tracking drivers in six states using GPS tracking systems designed to assess a mileage tax as an adjunct or replacement for federal gasoline tax revenue. Mileage-based Road User Charge Study FAQs (describing federal pilot program tracking vehicles in California, Idaho, Iowa, Maryland, North Carolina, and Texas).²³ The program could be expanded nationwide. *Id.* (stating “[t]his system could one day replace the gas tax.”). See David A. Patten, *White House Wants to Track and Tax Your Mileage*, NewsMax, May 5, 2011.²⁴ Such expansion would effectively mandate the installation of GPS tracking devices in every private vehicle in America. Several states, including Massachusetts, are also considering the implementation of mileage tax schemes.²⁵ Mileage

²³<http://web.archive.org/web/20090307175147/http://www.roaduserstudy.org/faq.aspx>.

²⁴Available at <http://www.newsmax.com/Headline/gas-tax-tracking-obama/2011/05/05/id/395346>.

²⁵ See, e.g., Secretary James Aloisi, Massachusetts Executive Office of Transportation, Exploring VMT, Feb. 24, 2009, <http://transportation.blog.state.ma.us/blog/2009/02/exploring-vmt.html> (Massachusetts mileage tax proposal); U.S. Dep’t of Transportation, *Minnesota: Mileage-Based User Fee Regional Outreach Statewide*, http://ops.fhwa.dot.gov/tolling_pricing/value_pricing/projects/not_involving_tolls/autousecostsvariable/mn_mileagedbasedfee.htm (Minnesota mileage tax proposal); Colorado Dep’t. of Transportation, *VMT Fee Option*,

tax regimes typically hinge on mandatory installation of GPS tracking systems in citizens' vehicles. For example, Massachusetts Governor Deval Patrick proposed a "Transportation and Economic Security Plan," which included taxes based on "vehicle miles traveled," calculated through mandatory GPS tracking. Secretary James Aloisi, Massachusetts Executive Office of Transportation, *Exploring VMT*, Feb. 24, 2009 (Massachusetts mileage tax proposal).²⁶

Government employers also use GPS tracking systems to monitor their workers. The Massachusetts Highway Department requires independent snowplow contractors to carry GPS tracking units that seek to determine if workers are driving at an optimal speed for laying down road salt. See Nannette Green Kaminski and William Tran, *The National Workrights Institute, On Your Tracks: GPS Tracking in the Workplace* at 6.²⁷ In 2006, IC Corporation, the nation's leading manufacturer of school buses, began installing GPS tracking units in its buses, including buses purchased and use by school districts nationwide. *Automotive World, IC*

www.chcpf.state.co.us/governor/pdf/blueribbon-transporation/8-2007-Meeting/RevenueOption-VMT-08-07.pdf (Colorado mileage tax proposal).

²⁶ <http://transportation.blog.state.ma.us/blog/2009/02/exploring-vmt.html>. See also, Glenn Johnson, *Massachusetts May Consider a Mileage Charge*, Associated Press, Feb. 17, 2009, available at <http://abcnews.go.com/Technology/wireStory?id=6894994>.

²⁷ Available at http://workrights.us/wp-content/uploads/2011/02/NWI_GPS_Report.pdf

Corporation to offer GPS tracking in school buses, Mar. 11, 2005.²⁸ In Wayne County, Michigan, salt trucks and pothole crews are equipped with GPS tracking units that broadcast the location and speed of trucks and snowplows. Kaminski and Tran, *supra* at 15. Oakland, California maintains GPS tracking units on every road crew and each street-sweeping vehicle. Judy Muller, *Worker Whereabouts: California City Monitors Employees Via Satellite Technology*, ABC News, Feb. 21 2004.²⁹ King County, Washington installed GPS tracking units on vehicles responsible for hauling waste between landfills and transfer stations. Kaminski and Tran, *supra* at 8. Charleston, South Carolina and Aurora, Colorado use GPS tracking units to monitor city garbage trucks and street sweepers. *Id.* Authorities in Clinton Township, New Jersey surreptitiously placed GPS tracking units on police cruisers. *Id.* at 7-8. Police in Johnstown, New York use GPS tracking systems to keep an eye on the location of patrol cars. Jim McGuire, *GPS Units Keep Tabs on Johnstown Officers' Whereabouts*, Schenectady Daily Gazette, Apr. 4, 2009.³⁰

²⁸ <http://www.automotiveworld.com/news/commercial-vehicles/ic-corporation-to-offer-gps-tracking-in-school-buses>. See also Adam Geller, *Bosses keep sharp eye on mobile workers via GPS*, Associated Press, Jan. 3, 2005, available at http://www.usatoday.com/tech/news/2005-01-03-gps-supervision_x.htm.

²⁹ Available at <http://abcnews.go.com/WNT/story?id=129219&page=1>.

³⁰ Available at http://www.dailygazette.com/news/2009/apr/04/0404_geepeeeses/.

B. Private Sector-mandated GPS Tracking

Private employers have also been aggressive in mandating GPS tracking technologies. The United Parcel Service (“UPS”) uses GPS tracking units to monitor all UPS trucks. United Parcel Service, *UPS Drivers Receiving New Wireless Computers*, May 9, 2005.³¹ In 2001, Roadway Express, a long-haul trucking company, installed GPS devices on rigs operated by union drivers. Adam Geller, *New Uses of GPS Boost Productivity but Rankle Employees*, Associated Press, Jan. 1, 2005.³² J.B. Hunt, one of the nation’s largest trucking lines, also utilizes GPS tracking systems to monitor trucks. See J.B. Hunt-Delivery Services, *Technology*.³³

GPS devices are widely available and are becoming increasingly inexpensive.³⁴ Estimates

³¹ Available at

<http://www.pressroom.ups.com/mediakits/pressrelease/0,2300,4560,00.html>

³² Available at

http://www.seattlepi.com/business/207150_trackingworkers10.html.

³³ http://www.jbhunt.com/solutions/final_mile/technology/ .

³⁴ See, e.g., GPS World, Business Outlook—GPS Purchases to Generate \$4.1 billion in 2007, May 1, 2007, <http://cp.gpsworld.com/gpsc/Business+News+&+Outlook/Business+Outlook+mdash+GPS+Purchases+to+Generate+4/ArticleStandard/Article/detail/421378>.; RNCOS, *Declining Prices, Rising Demands Drive Global GPS Technology Market*, Jun 10, 2008, http://www.rncos.com/Press_Releases/Declining-

predict that over 770 million new GPS handsets will be sold worldwide in 2014, an increase from the 150 million new units sold in 2009. *GPS and Mobile Handsets*, Berg Insight AB.³⁵ Many vehicles purchased for private use are now with GPS technology pre-installed. Some cars are equipped with GPS tracking units.³⁶ For example, millions of drivers subscribe to General Motors' OnStar service.³⁷ OnStar GPS devices operate much like the GPS tracking system used by in the present case; OnStar systems use a combination of GPS receivers and cellular technology to transmit location data to an OnStar call center. *Id.* OnStar will soon begin collecting tracking data from owners of pre-equipped cars, even if the car owners do not subscribe to OnStar's service. Bill Ray, *GM OnStar Cars Will Upload All Data Unless Owners Opt Out*, The

Prices-Rising-Demand-Driving-Global-GPS-Technology-Market.htm.

³⁵ Available at

<http://www.berginsight.com/ReportPDF/ProductSheet/bi-gps4-ps.pdf>.

³⁶ See, e.g. Ford Motor Company, *Ford Expands Availability of Next-Generation Navigation to More Than a Dozen 2009 Products*, <http://www.ford.com/about-ford/news-announcements/press-releases/press-releases-detail/pr-ford-expands-availability-of-28982>; OnStar-Equipped Vehicles, http://www.onstar.com/us_english/jsp/equip_vehicles/current_vehicles.jsp (stating "OnStar is available on more than 50 GM vehicles").

³⁷ OnStar Technology,

http://www.onstar.com/us_english/jsp/explore/onstar_basics/technology.jsp.

Register, Sept. 21, 2011.³⁸ GPS location data is clearly useful to consumers who use navigation devices, and it may prove valuable to third parties or government investigators as well. However, the usefulness of the technology should not undercut the reasonable expectation of consumers to keep their historical movements private and anonymous. See Jeffrey Rosen, *Preserve Our Right to Anonymity*, NY Times – The Opinion Pages (Sept. 12, 2011).³⁹

Many other GPS devices are receivers that lack a cellular transmitter. However, even these receivers can be easily converted for use as covert GPS tracking systems. Lightning GPS, the largest provider of GPS tracking technology to law enforcement, manufactures a GPS tracking system that is secretly built into a traditional navigation system. Lightning GPS, *Dashboard Navigation System Doubles as Covert GPS Tracker: Lets Boss Sit in Passenger Seat*, Apr. 2, 2009.⁴⁰ The tracking system even includes two manuals, one for the driver, which omits mention of the tracking feature, and

³⁸ Available at http://www.theregister.co.uk/2011/09/21/onstar_ecall/.

³⁹ http://www.nytimes.com/2011/09/13/opinion/protect-our-right-to-anonymity.html?_r=1&ref=opinion.

⁴⁰ <http://www.prweb.com/releases/2009/04/prweb2292264.htm>. See also, Lightning GPS, *Law Enforcement – Suspect Tracking*, <http://www.lightninggps.com/law-enforcement/law-enforcement.php> (“Our ruggedized equipment can be covertly stashed on any vehicle or evidence for easy tracking on any computer. Then simply apprehend the unsuspecting suspects’ in their lair.”).

another for the person monitoring the driver's movements. Geller, *supra* at 19.

Warrantless access to data obtained through these systems could lead to pervasive surveillance of American citizens by law enforcement agents on a mass scale. Imposition of a warrant requirement by law enforcement for GPS tracking would mitigate this threat by requiring independent judicial oversight of GPS tracking.

III. Police Must Obtain a Warrant Prior to Monitoring a GPS Tracking Unit on an Individual's Vehicle

This Court has recognized the substantial privacy risks posed by the use of surveillance technology by law enforcement, observing:

that the fantastic advances in the field of electronic communication constitute a great danger to the privacy of the individual; that indiscriminate use of such devices in law enforcement raises grave constitutional questions under the Fourth and Fifth Amendments, and that these considerations impose a heavier responsibility on this Court in its supervision of the fairness of procedures in the federal court system.

Lopez v. United States, 373 U.S. 427, 441 (1963) (Warren, J. concurring). Furthermore, “[w]hat [one] seeks to preserve as private, even in an area accessible to the public, may be constitutionally protected.” *Katz v. United States*, 389 U.S. 347, 351 (1967) (Harlan, J. concurring). The Fourth Amendment protects “people, not places.” *Id.* In *Katz*

v. *U.S.*, the Court embraced the notion that an individual had a reasonable expectation of privacy within the glass walls of a phone booth, holding that “[what] he sought to exclude ... was not the intruding eye - it was the uninvited ear.” *Id.* at 352. Likewise, cars traveling on the public roads may not shield occupants from visual observation, but drivers have a reasonable expectation of privacy that their travel activities would not be recorded absent their choice to record such activity or where they are the target of an investigation, based on a legal standard and a predicate act. The complete record of a driver’s movements over the course of a month is neither actually nor constructively exposed to the public. *United States v. Maynard*, 615 F.3d 544, 558 (D.C. Cir. 2010) *cert. denied*, 131 S. Ct. 671, 178 L. Ed. 2d 500 (U.S. 2010) and *cert. granted*, 131 S. Ct. 3064 (U.S. 2011). In addition, warrantless GPS tracking would not automatically withstand constitutional scrutiny even if police could deduce the information through visual observation. *Kyllo v. United States*, 533 U.S. 27 (2001), 35 n.2 (stating “the fact that equivalent information could sometimes be obtained by other means does not make lawful the use of means that violate the Fourth Amendment.”).

This Court has recognized that privacy protections must keep pace with advances in surveillance technology. In *Arizona v. Evans*, Justice O’Connor acknowledged that “the police, of course, are entitled to enjoy the substantial advantages [that] technology confers.” *Arizona v. Evans*, 514 U.S. 1 (1995) (O’Connor, J. concurring). However, *Evans* warns, “they may [not] rely on it blindly. With the benefits of more efficient law enforcement

mechanisms comes the burden of corresponding constitutional responsibilities.” *Id.*

The Court has not directly addressed whether warrantless GPS tracking constitutes a search under the Fourth Amendment, or whether citizens have a reasonable expectation of privacy concerning GPS tracking. *United States v. Berry*, 300 F. Supp. 2d 366, 368 (D. Md. 2004), (noting that “the Supreme Court’s analysis may or may not cover more sophisticated GPS tracking technology, which, unlike a beeper, is a substitute for police surveillance.”). However, the Court did rule that visual surveillance aided by beeper technology is not a Fourth Amendment search, and does not require a warrant. *Knotts*, 460 U.S. at 279. In *Knotts*, the Court held that “a principal rationale for allowing warrantless tracking of beepers, particularly beepers in or on an auto, is that beepers are merely a more effective means of observing what is already public.” *Id.* at 281.

GPS tracking systems collect and retain vast amounts of data, including precise location, velocity, altitude, and historical information. This information cannot be discerned through mere visual observation, and is therefore not “already public.” Even when this information is shared with GPS navigation providers, it is typically kept anonymous. *See, e.g., Bill Ray, GM OnStar Cars Will Upload All Data Unless Owners Opt Out*, *The Register*, Sept. 21, 2011. The Court in *Knotts* dismissed the defendant’s allegation that beepers enable “twenty-four hour surveillance of any citizen of this country ... without judicial knowledge or supervision.” *Id.* at 283. The Court observed that, *circa* 1983, “the reality hardly suggests abuse.” *Id.* However, the Court in *Knotts* cautioned that the

holding was largely based on the limitations of available beeper technology, and warned, “if such dragnet-type law enforcement practices ... should eventually occur, there will be time enough then to determine whether different constitutional principles may be applicable.” *Id.* at 284. In *U.S. v. Garcia*, the Seventh Circuit, following *Knotts*, reiterated this warning, stating “new technologies [including GPS tracking] enable, as the old (because of expense) do not, wholesale surveillance.” *United States v. Garcia*, 474 F.3d 994, 998 (7th Cir. 2007). The court warned

One can imagine the police affixing GPS tracking devices to thousands of cars at random, recovering the devices, and using digital search techniques to identify suspicious driving patterns. One can even imagine a law requiring all new cars to come equipped with the device so that the government can keep track of all vehicular movement in the United States. It would be premature to rule that such a program of mass surveillance could not possibly raise a question under the Fourth Amendment - - that it could not be a search because it would merely be an efficient alternative to hiring another 10 million police officers to tail every vehicle on the nation’s roads.

Id. Many state courts have followed suit and recognized that warrantless GPS tracking could open the door too mass surveillance of everyday citizens. *See, e.g., Commonwealth v. Connolly*, 454 Mass. 808 (2009) (concluding that the “installation and use of [a

GPS tracking device] was a seizure requiring a warrant” under the Massachusetts Constitution); *State v. Jackson*, 76 P. 3d 217 (Wash. 2003) (holding that a warrant must be obtained prior to GPS monitoring); *see also State v. Campbell*, 759 P.2d 1040 (Or. 1988) (holding that warrantless attachment of radio transmitter to suspects car violated Oregon’s constitutional protection against unreasonable searches).

As set forth above, GPS tracking systems enable precisely the sort of “dragnet-type law enforcement practices” and “wholesale surveillance” foreshadowed in *Knotts* and *Garcia*. The use of GPS tracking data impedes an individual’s reasonable expectation of privacy protected under the Fourth Amendment of the Constitution.

CONCLUSION

Amici respectfully ask this Court to deny Petitioner's motion and uphold the decision of the District of Columbia Circuit.

Respectfully submitted,

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