

Satellite Surveillance Within U.S. Borders

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A spy satellite owned and operated by the United States government can track the movements of individuals on the ground, identify cars, and, perhaps, even read a license plate—all while operating covertly hundreds of miles above in space and transmitting images in real time. Since 9-11 proved the reality that the United States is indeed vulnerable to attacks from within its borders, government spy satellites have been continuously and covertly snapping pictures of the United States. America's spy satellite agency has even established a special section to focus on imagery of the United States. Moreover, a growing commercial spy satellite industry is profiting from selling slightly less detailed imagery to both the public and private sectors. The government is also vigorously developing its next generation of spy satellites.

Historically, law enforcement quickly embraces new technology that aids in the collection of evidence of a crime. Thermal imagers, night vision, and GPS tracking devices are all examples of new technologies that are routinely employed by law enforcement. However, new technology, while increasing police surveillance power, is usually accompanied by new legal questions that mostly center on whether the utilization of the technology infringes on the privacy interests of individuals.

Spy satellites are no exception. Law enforcement is currently using spy satellite imagery in a wide variety of law enforcement actions and for logistical purposes. As the government satellites focus more on activities in the United States and the commercial spy satellite industry grows, coverage and access to satellite imagery by law enforcement is likely to increase, and law enforcement will undoubtedly welcome the new surveillance power.

The increased utilization of spy satellites by law enforcement only pushes the operational authority of America's spy satellite agencies and limits on government surveillance power imposed by the Supreme Court's Fourth Amendment jurisprudence. Nevertheless, a regulatory oversight framework should be established that balances law enforcement needs with society's privacy expectation that everyday activities will not be monitored without a level of justification.

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I. INTRODUCTION

When the sniper attacks in the fall of 2002 paralyzed Washington, D.C., officials from the National Security Agency (NSA),¹ and the Pentagon met to consider whether spy satellites would be useful in hunting down the snipers.² Pentagon officials eventually played down the use of satellites in the case, and, instead, Defense Secretary Donald Rumsfeld approved a plan to dispatch sophisticated military surveillance aircraft with law enforcement personnel aboard.³ Despite the fact that the Pentagon chose not to utilize satellite technology in the sniper attack investigation, spy satellites are covertly operating over the United States, snapping detailed pictures of cities, homes, cars, and persons. This satellite imagery is being used by law enforcement in a wide variety of enforcement actions and for logistical purposes.

Logistically, satellite imagery can be an exceptional way to get situational awareness over a large area and “provide a single integrated picture of an incident area.”⁴ High-resolution satellite imagery was used to assess the damage and destruction in Florida caused by the hurricanes of 2004.⁵ Government agencies responding to the attacks of September 11, 2001 on the World Trade Center used satellite images of the site taken the day after the attacks to plan the recovery effort.⁶ Satellite imagery was also used by the Secret Service, local police, and the Federal Bureau of Investigation (FBI) to provide information necessary to secure

¹ The NSA is a Department of Defense (DoD) agency and member of the Intelligence Community (IC). The NSA primarily uses satellites to intercept and process signals, such as cellular telephone calls. For more information about the NSA, see <http://www.nsa.gov>. The IC is a federation of fourteen executive branch agencies and organizations, including all three branches of the Armed Forces, that work separately and together to conduct intelligence operations necessary for national security and foreign relations. For more information about the IC, see <http://www.intelligence.gov>.

² Robert Dreyfuss, *The Watchful and the Wary: From FBI and CIA Headquarters to Small-Town Police Departments, the Government Is Building a Massive Intelligence Network Designed to Spy on Terrorists—and on Everyday Americans*, MOTHER JONES, July–Aug. 2003, at 56, 61.

³ Robert Cohen, *Pentagon to Search Ground from the Skies*, THE STAR-LEDGER (Newark, N.J.), Oct. 16, 2002, at 8. Spy satellites could have provided detailed imagery of miles around the site of an attack immediately after it occurred that could have aided in the identification of the vehicles in the vicinity. *Id.*

⁴ Lt. Col. S. Didi Kuo, *High Ground over the Homeland: Issues in the Use of Space Assets for Homeland Security*, AIR & SPACE POWER J., Spring 2003 at 47, 49.

⁵ Press Release, DigitalGlobe, DigitalGlobe Delivers Before and After Satellite Imagery of Florida Gulf Coast Following Hurricane Charley Destruction (Aug. 16, 2004), available at http://media.digitalglobe.com/index.php?s=press_releases&year=2004.

⁶ See Kuo, *supra* note 4, at 49.

the venues of the 2002 Winter Olympics in Salt Lake City, Utah.⁷ More recently, America's spy imagery agency provided information to help secure the Ronald Regan funeral procession in June 2004.⁸

State law enforcement agencies have found satellite imagery to be an effective tool to investigate violations of zoning and environmental regulations. For example, the Arizona Department of Water Resources has used satellite imagery from a French satellite to find violations of irrigation permits.⁹ Satellite imagery has been used to discover unreported timber harvesting.¹⁰ Several counties in North Carolina have used satellite imagery "to find unreported building activities, agricultural development and other property improvements that would raise property-tax assessments."¹¹ Satellite imagery could also be used to look for building permit violations involving the construction of small backyard porches.¹²

In most cases to date, spy satellites simply provide a more efficient form of aerial photography because a single satellite image can cover an extremely large area.¹³ This capability has made satellite imagery an effective tool for law enforcement for both logistical purposes and to obtain evidence of a violation of the law. As one Arizona farmer fined for violations of water permits based on evidence from satellite imagery stated, "[y]ou can't argue with a satellite."¹⁴

These examples, however, fail to illustrate the ability of satellites to operate as a covert surveillance tool, observing individuals and activities invisibly and silently from hundreds of miles above in space. As spy satellite technology advances and imagery becomes more available to law enforcement agencies in the post-9-11 world, privacy concerns regarding the use of spy satellites to observe individuals, their activities, and their movements will push the limits of constitutional protections and society's privacy expectations.

This Note argues that the use of spy satellites by law enforcement to conduct warrantless physical surveillance is not illegal under current Fourth Amendment

⁷ CNN Live at Daybreak, *Agency Created to Spy on Others Now Keeping an Eye on This Nation* (CNN television broadcast, Dec. 11, 2002) (transcript available at <http://www.cnn.com/TRANSCRIPTS/0212/11/lad.05.html>) [hereinafter *Agency Created to Spy on Others*].

⁸ Associated Press, *Satellite Imagery Keeping Eye on U.S.*, <http://www.foxnews.com/story/0,2933,133635,00.html> (last visited Oct. 10, 2004) ("Roughly twice a month, the [NGA] is called upon to help with the security of events inside the United States."). *Id.*

⁹ Ross Kerber, *Privacy: When Is a Satellite Photo An Unreasonable Search?*, WALL ST. J., Jan. 27, 1998, at B1.

¹⁰ *Id.*

¹¹ *Id.*

¹² *See id.*

¹³ The images being sold from Russian spy satellites cover about 10 square kilometers. *Id.*

¹⁴ *Id.*

jurisprudence, but nevertheless should be regulated.¹⁵ Part II evaluates sources of satellite imagery; identifies, as accurately as possible, the imaging capabilities and parameters of these potential sources;¹⁶ and describes possible applications of satellite imagery for law enforcement purposes. Part III discusses the legal implications surrounding the use of spy satellites to conduct physical surveillance. Specifically, Part III.A examines the restrictions imposed on military and intelligence agencies, the owners and operators of government spy satellites, which limit their participation in law enforcement. Part III.B discusses Fourth Amendment protections against warrantless surveillance by spy satellites. Finally, Part IV discusses the benefits of a regulatory framework governing the use of spy satellites that balances legitimate law enforcement needs and society's privacy concerns.

¹⁵ This Note focuses on the use of spy satellite imagery by law enforcement agencies. There are security and privacy concerns that surround the sale of spy-quality images by non-U.S. government sources, such as the growing commercial sector and foreign governments. See Soon Ae Chun & Vijayalakshmi Atluri, *Protecting Privacy from Continuous High-Resolution Satellite Surveillance*, in DATA AND APPLICATION SECURITY: DEVELOPMENTS AND DIRECTIONS 233, 234 (Bhavani Thuraisingham et al. eds., 2001) http://cimic.rutgers.edu/~soon/papers/ifip_book.pdf (last visited Oct. 10, 2004) (arguing that the sale of spy-quality photographs "can result in a technological invasion" of the privacy of individuals and organizations). Chun and Atluri propose that access to images be controlled in two ways: control the depth, or resolution, of the images a user can access on the Internet and control a user's access to high resolution images to certain regions such as property the user owns, public parks, etc. *Id.* at 237. There are also concerns that the sale of satellite imagery threatens national security because anyone with a credit card may be able to purchase imagery of almost anywhere on Earth. See Bob Drogin, *Sale to Public of Satellite Photos Debated*, L.A. TIMES, Jan. 15, 2000, at A1 (A former assistant secretary of Defense "said that 'all the bad guys around the world' will find uses for the commercial satellite photos. 'We're entering a brave new world that I think will cause us grief. . . ."). *Id.*

¹⁶ There are "four important satellite parameters: orbits, inclination, resolution, and sensor type." C. J. D. Spicer, *Satellite Reconnaissance and Arms Control* 12 (Apr. 8, 1993) (unpublished manuscript) available at http://gizmo.org/ds/collected_works/SAT.DOC (last visited Oct. 10, 2004). The orbit, the distance a satellite maintains from Earth as it circles the earth, affects the lifespan, coverage area, and resolution capabilities. See *id.* A higher orbit provides for expanded coverage, meaning it can take photos of a larger region, but a slower overflight time, meaning that the satellite will pass over that region less frequently. See Roger Guillemette, *Trio of NRO Spy Satellites to be Launched During Next Two Months*, at http://www.space.com/missionlaunches/nro_preview_010906.html (Sept. 6, 2001). The inclination "refers to the angle (measured from the equator) at which a satellite is to travel. . . . Inclination is directly related to which of the seven continental land masses and four oceans over which the satellite will fly and so is obviously of critical importance to strategic thinking. . . ." Spicer, *supra*, at 13-14. Resolution determines how small of an "object can be seen and identified from space. . . ." *Id.* at 15. The sensor type of a satellite depends on its purpose. See *id.* at 16. This Note focuses on the imaging capabilities of spy satellites for imaging purposes.

II. THE WORLD OF SPY SATELLITE TECHNOLOGY

Spy satellites exist in both the black and white worlds. The black world is composed of classified intelligence gathering systems.¹⁷ The white world consists of the unclassified systems.¹⁸ Because much of the cutting-edge capabilities of the spy satellites currently in space—such as the resolution of optical images, the ability to see through weather using radar imaging, and the ability to capture images in darkness using infrared sensors—are presumably classified, it is impossible to know exactly what information the Intelligence Community (IC)¹⁹ can obtain from satellite imagery.

In December 2002, Robert Zitz, the Innovation Director for the National Imagery and Mapping Agency (NIMA), which is now the National Geospatial-Intelligence Agency (NGA) and a member of the IC with some responsibility for interpretation of satellite imagery,²⁰ stated that satellite technology, although nowhere near, was moving in the direction of the video-like capabilities seen in the film “Enemy of the State.”²¹ The IC’s satellites are thought to be able to tell

¹⁷ Kuo, *supra* note 4, at 50. Lt. Col. Kuo argues that, in the wake of September 11, 2001, the United States should integrate its space assets into the homeland-security mission for operation within U.S. borders. However, Kuo realizes that there are “several challenges to overcome” before space assets can be used within U.S. borders. *Id.* at 47. The hurdles include legal constraints, security classification, and complicated relationships among agencies that operate the space assets and the agencies tasked with homeland-security responsibilities. *See id.* at 52–54.

¹⁸ *Id.* at 50.

¹⁹ *See supra* note 1.

²⁰ NIMA was created in 1996 to combine the old defense mapping agency and the Central Intelligence Agency’s (CIA) satellite photo analysis office. *See NGA History*, at www.nima.mil/staticfiles/OCR/nga_history.pdf (last visited Oct. 10, 2004). With the signing of the fiscal year 2004 Defense Authorization Bill, NIMA became NGA. *New Name Symbolizes Profound Change For Geospatial-Intelligence Agency*, NGA PATHFINDER, Nov.–Dec. 2003, at 8, available at <http://www.nima.mil/ast/fm/acq/nov-dec2003.pdf> (last visited Oct. 10, 2004). NGA specializes in geospatial intelligence, which “is the exploitation and analysis of imagery and geospatial information to describe, assess and visually depict physical features and geographically referenced activities on Earth.” *Id.* NGA touts that “with [geospatial intelligence], decision makers are empowered to view the geographical context of their situation, visualize national security events as they unfold, and ‘see’ possible outcomes as a situation develops.” *Id.*

²¹ *CNN Live at Daybreak, Look Inside National Imagery and Mapping Agency*, (CNN television broadcast, Dec. 12, 2002) (transcript available at <http://www.cnn.com/TRANSCRIPTS/0212/12/lad.07.html>) (last visited Oct. 10, 2004). More information about NIMA is available at <http://www.nga.mil>. *Enemy of the State*, released in 1998, portrayed a global spy satellite system producing real-time video of a subject moving throughout a city. *ENEMY OF THE STATE* (Touchstone Video 1998).

whether a car has a license plate, but unable to read the plate.²² Still, the most accurate answer is that the true technological aspects of the most advanced spy satellites are classified.²³

Although spy satellites continue to become more technologically advanced, the quantity, quality, and availability of their images are constrained by two physical principles—orbit and inclination.²⁴ The orbit and inclination of a spy satellite play an important role in determining where and when a satellite will be over a target and the quality of the image captured. The orbit is the distance a satellite maintains from the Earth as it circles, and it affects the coverage area and resolution quality of spy satellite imagery.²⁵ Based on the inclination of a satellite, “planners can predict when an area of interest will appear under the sensors of their satellite With altitude control rockets, . . . [ground controllers] can also alter the altitude of their space assets, dropping in for ‘close look’ purposes.”²⁶

For example, some of the United States’ spy satellites are in sun-synchronous orbits,²⁷ a type of polar orbit.²⁸ A spy satellite in a sun-synchronous orbit will predictably pass over a target at the same time daily, but will have the benefit of lighting from the sun to capture images with the optical sensor.²⁹ Some spy satellites are in an equatorial orbit.³⁰ A satellite in equatorial orbit flies along the line of the Earth’s equator.³¹ This disadvantage can mean less than optimal

²² See Vernon Loeb, *Spy Satellite Effort Viewed as Lagging; Defense, Intelligence Officials Seek More Money*, WASH. POST, Dec. 11, 2002, at A31. The IC’s satellites “are thought to have the ability to depict objects as small as 10 centimeters in length. While they cannot read license plates, they can tell whether a car has a license plate. The satellites’ exact capabilities are classified.” *Id.*

²³ *Id.*

²⁴ See *supra* note 16 (discussing orbits and inclination). A satellite’s orbit and inclination are directly related; for example, in a “polar orbit,” the word “polar” describes an orbit with a ninety degree inclination from the equator. See Spicer, *supra* note 16, at 13. A satellite in a polar orbit travels from the north to south poles as the Earth spins below it.

²⁵ See *supra* note 16.

²⁶ Spicer, *supra* note 16, at 14. Most photoreconnaissance satellites operate in a lower earth orbit, circling between 200–400 kms above the earth. *Id.* at 13. The inclination of a satellite can also be altered by ground controllers. But, altering the orbit and inclination of the satellite uses fuel, decreasing the lifespan of the spacecraft. See *infra* note 48.

²⁷ Craig Covault, *Secret NRO Recons Eye Iraqi Threats*, AVIATION WEEK & SPACE TECH., Sept. 16, 2002, at 23 [hereinafter Covault, *Iraqi Threats*].

²⁸ See *supra* note 24 (describing a polar orbit).

²⁹ See Craig Covault, *Advanced KH-11 Broadens U.S. Recon Capability*, AVIATION WEEK & SPACE TECH., Jan. 6, 1997, at 24, 25.

³⁰ For example, Israel’s Ofec military reconnaissance satellites are in an equatorial orbit. Craig Covault, *Israel Launches Recon Satellite, Pushes Global Space Marketing*, AVIATION WEEK & SPACE TECH., June 3, 2002, at 24.

³¹ *Equatorial Orbit*, at <http://collections.ic.gc.ca/satellites/english/anatomy/orbit/equatori.html> (last modified Aug. 8, 1997).

performance in areas that are distant from the equator. If a satellite is 35,850 km above the Earth, it is in a geosynchronous orbit and hovers over one spot on the equator.³² Weather satellites are often placed in geosynchronous orbits so as to provide around-the-clock coverage of a specific region.

Thus, when discussing the capabilities of spy satellites, it is important to remember that the satellites are constrained by physical principles. The orbit and inclination of a satellite determine its ground tract, footprint, overflight time, and influence the quality of images the satellite's sensors can capture.

A. United States Government Satellite Systems

In February 1958, President Dwight D. Eisenhower ushered in space-based reconnaissance by approving the project that would lead to CORONA, the first operational space-based photo-reconnaissance satellite system.³³ Between 1960 and 1972, the CORONA satellite system collected at least 860,000 images of the Earth's surface using a panoramic camera filled with Kodak film, which was delivered back to earth for recovery in a film capsule to be developed.³⁴ The resolution of the images from the early years of the system ranged from thirty-five to forty feet, while in 1972 CORONA delivered resolutions of six to ten feet.³⁵

³² *Geostationary Orbit*, at <http://collections.ic.gc.ca/satellites/english/anatomy/orbit/geostati.html> (last modified Aug. 8, 1997). A geosynchronous orbit is a type of equatorial orbit. *Id.* When a satellite is in a geosynchronous orbit, "its instruments are looking at a certain part of the Earth" called a footprint. *Id.* Because these satellites are in extremely high orbits, their footprints are pretty big. For example, "the footprint for most Canadian communications satellites is almost the whole of Canada." *Id.*

³³ Global Security.Org, *CORONA Summary*, at <http://globalsecurity.org/space/systems/corona.htm> (last visited Oct. 10, 2004). The Cold War, specifically the need to confirm developments in Soviet strategic missile capabilities, drove the development of satellites to be used for intelligence gathering. Jeffrey T. Richelson, *The Satellite Gap*, BULLETIN OF THE ATOMIC SCIENTISTS, Jan.-Feb. 2003, at 48, 49. Prior to the CORONA satellites, the United States relied on imagery from high altitude reconnaissance flights by U-2 spy planes. *Id.* But when the U-2 missions came to a halt after Gary Powers' U-2 was shot down over the Soviet Union, creating an international incident and a gap in U.S. intelligence, CORONA became "the last, best hope to fill the [intelligence] gap." DWAYNE A. DAY ET AL., EYE IN THE SKY: THE STORY OF THE CORONA SPY SATELLITES 59 (1998). When the first successful launch of a CORONA satellite produced more photos of the Soviet Union than twenty-four U-2 spy missions, satellite photo-reconnaissance became an invaluable part of America's intelligence gathering operations. Kathleen Johnson, *CORONA and Spy Satellites*, at <http://www.coldwar.org/articles/60s/corona.html> (last visited Sept. 1, 2004).

³⁴ *CORONA Summary*, *supra* note 33.

³⁵ *Id.* An imaging satellite's resolution is the minimum land area that can be represented with the smallest image unit, called a pixel. See *Orthophotographs*, at <http://www.ernet.gr/ortho/html/satellites.html> (last visited Oct. 10, 2004). The resolution directly corresponds to the level of detail revealed by the image. The smaller the resolution, the

CORONA was able to provide accurate intelligence that showed there was a Cold War missile gap, but that it was very much in America's favor.³⁶

Over thirty years since CORONA was retired, when the United States urgently sought new intelligence on Iraq before the second Gulf War in 2003, six secret National Reconnaissance Office (NRO)³⁷ high-resolution photoreconnaissance satellites maintained almost an hourly watch on specific Iraqi installations.³⁸ Three of the satellites were advanced KH-11s with optical sensors capable of providing digital images with resolutions as good as four to six inches during the day and infrared sensors capable of two to three feet at night.³⁹ The satellites also have real-time capability, transmitting digital images instantaneously⁴⁰ and the ability to capture images 100 miles to the left or right of its ground track.⁴¹

In addition to the advanced KH-11s, the United States relied on three Onyx radar imagery satellites.⁴² The Onyx satellites do not rely on optical or infrared sensors to capture images.⁴³ Rather, the satellites create images using radar technology, giving them the ability to see through weather that would obstruct optical and infrared sensors.⁴⁴

The next generation government spy satellite system is in the works, designated the Future Imagery Architecture (FIA).⁴⁵ The goal of the system, which will work together with airborne reconnaissance systems, is to provide the

smaller the objects the image will reveal. For example, a satellite that provides images with a resolution of six inches can identify objects that are six inches wide. *See id.*

³⁶ DAY ET AL., *supra* note 33, at 25.

³⁷ The NRO, a member of the IC and a DoD agency, has primary responsibility for designing, building, and operating U.S. reconnaissance satellites. For more information about the NRO, see <http://www.nro.gov>.

³⁸ Covault, *Iraqi Threats*, *supra* note 27, at 23.

³⁹ *Id.* In a different article, Covault specifically describes the advanced KH-11's capabilities: "[T]heir infrared sensors can pinpoint individual campfires at night. In addition to monitoring vehicles, artillery or activity around buildings, their operations over Kosovo illustrated a remarkable capability to image and track the movements of small groups of people walking on the ground from more than 200 mi. in space." Craig Covault, *NRO KH-11 Readied for Afghan Recon*, AVIATION WEEK & SPACE TECH., Oct. 8, 2001, at 68.

⁴⁰ Richelson, *supra* note 33, at 49.

⁴¹ Covault, *Iraqi Threats*, *supra* note 27, at 23. Ground tracks are a satellite's path over the ground. A satellite may only pass directly over a specific spot on the ground every few days because of its inclination. *See id.*

⁴² Richelson, *supra* note 33, at 50.

⁴³ *Id.*

⁴⁴ *Id.* An Onyx satellite sends radio waves that bounce off their targets on earth and are returned to the satellite. *Id.* The data from the returned waves are then converted into an image. *Id.*

⁴⁵ *Id.*

ability to look anywhere, anytime—constant surveillance.⁴⁶ However, Boeing, the developer of FIA, has run into technical and funding problems in its development that have led to an overhaul of the program and schedule.⁴⁷ In fact, there is a growing fear that these new satellites will not be ready by the time the current generation of KH-11s and Onyx satellites will stop working.⁴⁸

In sum, government spy satellites have the ability to capture high-resolution images using optical, infrared, and radar sensors. Further, given the drive for the FIA, coverage and capability of United States government satellites will only increase in the future.

B. Commercial and Foreign Government Satellites

In 1994, the U.S. lifted its restrictions on the sale of high-resolution satellite photos in response to the Russian space agency's⁴⁹ sale of spy-quality photos to raise cash.⁵⁰ This led two Colorado companies, DigitalGlobe and Space Imaging, to launch commercial spy satellites in 2001 and 1999, respectively. The quality of the images produced by these companies has been restricted by the government, although President George W. Bush significantly reduced the controls on them in 2003, "allowing them to capture images with high enough resolution to show people on the ground"⁵¹ Interestingly, the primary client for both DigitalGlobe and Space Imaging is the IC.⁵²

⁴⁶ PHILIP TAUBMAN, *SECRET EMPIRE: EISENHOWER, THE CIA, AND THE HIDDEN STORY OF AMERICA'S SPACE ESPIONAGE* 368 (2003).

⁴⁷ Peter Pae, *Boeing Spy Satellite Program Overhauled*, L.A. TIMES, Sept. 6, 2003, at C1.

⁴⁸ Loeb, *supra* note 22, at A31 ("A secret program for developing the next generation of spy satellites is underfunded and behind schedule and could leave the CIA and Pentagon with gaps in satellite coverage critical to the war on terrorism if the program cannot be restructured . . ."); see also Vago Murdian, *USAF's New 'Black' Bird; Fast, Stealthy, Long-Endurance UAV Would Fill Satellite Gap*, DEFENSE NEWS, Aug. 2, 2004 at 1 (stating that the Air Force is developing advanced unmanned reconnaissance aircraft to "fill a looming gap caused by delays in developing an ambitious new generation of spy satellites"). Satellites require fuel to stay in orbit. "The lower the orbit, the more fuel is required to keep a satellite (a 'bird') in that orbit. Thus planners must balance the enhanced usefulness of a satellite in a low orbit against its reduced lifetime in that mode. Once the fuel runs out, the satellite plummets to a fiery death in the earth's upper atmosphere." Spicer, *supra* note 16, at 12.

⁴⁹ The official name of the Russian space agency is Sovinformspутnik.

⁵⁰ Kerber, *supra* note 9, at B1.

⁵¹ Dan Vergano, *Limits on Commercial Spy Satellites to Ease; Changes Meant to Lower Cost, Boost U.S. Technology*, USA TODAY, May 13, 2003, at 4A. In addition to regulating the resolution capabilities of commercial satellites, the government maintains censorship of the images captured by these commercial satellites through "shutter control," the ability to place certain regions of the earth off limits, and a daily "denied parties list." Mark Carreau, *Satellite Imagery Gives New Look at Battle: Private Firms Help Provide Perspective*, HOUS. CHRON., Mar. 30, 2003, at A14. Some critics are concerned that images captured by the commercial spy satellites might "fall into the wrong hands, such as terrorists targeting dams or power plants or

Several foreign countries have joined Russia and have been selling photos from spy satellites to state and local governments since the early 1980s.⁵³ These countries include France and India.⁵⁴ Additionally, an Israeli company, working with the Israeli government, operates private spy satellites, and private companies in several other nations plan to enter the commercial industry.⁵⁵

With a worldwide interest in the commercial spy satellite industry, the number and quality of images available from commercial spy satellites will grow in the future. To achieve this commercial growth, President George W. Bush began allowing exportation of spy satellite technology by American companies in 2003.⁵⁶ On the government side, the NRO's drive to develop a spy satellite system better suited to tracking terrorists groups around the globe, and even possibly within U.S. borders, will undoubtedly expand the coverage and capability for U.S. government-operated systems. As spy satellite resources become more abundant, law enforcement will certainly embrace this unparalleled surveillance power.

III. THE LEGALITIES OF SATELLITE SURVEILLANCE

In addition to the technological and physical restrictions that limit the capabilities of spy satellites, two prominent legal issues surround the use of spy satellites by law enforcement. First, there are statutes, rules, and regulations that generally prohibit American military and intelligence agencies, who are the owners and operators of government satellites, from engaging in civilian law enforcement.⁵⁷ Second, the Fourth Amendment prohibition against unreasonable searches imposes restrictions on the surveillance methods of law enforcement.⁵⁸

unfriendly nations looking for weak points in U.S. security. . . . But, [a senior administration official] said [the commercial spy satellite companies] restricted sales that might have threatened national security . . .” and referred to the companies as “good citizens.” Vergano, *supra*, at 4A. For further information relating to the government’s ability to impose “shutter control” on commercial spy satellites, see Raphael Prober, Note, *Shutter Control: Confronting Tomorrow’s Technology with Yesterday’s Regulations*, 19 J.L. & POL’Y 203 (2003).

⁵² Vergano, *supra* note 51, at 4A; see also Media Release, NIMA Reinforces Its Commitment to Remote Sensing Industry (Sept. 30, 2003), www.nima.mil/NGASiteContent/StaticFiles/OCR/093003.pdf (last visited Oct. 10, 2004) (describing a five-year contract awarded by NIMA to DigitalGlobe).

⁵³ Kerber, *supra* note 9, at B1.

⁵⁴ *Id.*

⁵⁵ Vergano, *supra* note 51, at 4A.

⁵⁶ *Id.* Of course, these exports will be heavily regulated.

⁵⁷ The Posse Comitatus Act, 18 U.S.C. § 1385 (2001), prohibits individuals from using “any part of the Army or the Air Force as a posse comitatus or otherwise to execute the laws . . .” Executive Order No. 12,333 prohibits the CIA from “engage[ing] in electronic surveillance within the United States. . . .” 46 Fed. Reg. 59,941, 59,951 (Dec. 4, 1981). These statutes, rules, and regulations do not apply to commercial spy satellites because they are not

A. NRO and NGA Over-Head

The NRO and NGA, the operators and image analyzers of U.S. government spy satellites, are Department of Defense affiliated agencies and, therefore, are prohibited from directly engaging in law enforcement operations⁵⁹ by the 125 year-old Posse Comitatus Act (PCA).⁶⁰ Additionally, Executive Order No. 12,333 governs the activities of the IC,⁶¹ of which the NRO and NGA are members, within the United States. Although the PCA and Executive Order No. 12,333 impose significant restrictions on the role that the NRO and NGA can play in law enforcement operations, they do not ban the use of U.S. government spy satellites for law enforcement operations.

The PCA makes it a crime for an individual to use members of the Army or Air Force to execute laws or to act as a posse comitatus.⁶² Nevertheless, this statute has not been read to restrict the use of Army or Air Force material or equipment for law enforcement purposes; rather, it prevents military personnel from playing a direct and active role in civilian law enforcement.⁶³ Thus, the PCA is not seen to prevent the use of military assets to gather information in law

operated by a military agency or the CIA. The operation of commercial spy satellites is governed by different statutes, rules and regulations. For a general description of the restrictions on the operation of commercial spy satellites, see *supra* note 51. Most likely, law enforcement will rely on government satellite resources because of the high costs associated with satellite surveillance. See Vergano, *supra* note 51, at 4A.

⁵⁸ See, e.g., *Katz v. United States*, 389 U.S. 347, 359 (1967) (finding warrantless use of a listening device attached to the outside of a telephone booth by federal officers violated the Fourth Amendment); *Kyllo v. United States*, 533 U.S. 27, 40 (2001) (finding warrantless use of a thermal imager by law enforcement to scan defendant's home violated the Fourth Amendment). *But see Florida v. Riley*, 488 U.S. 445, 451–52 (1989) (finding use of a helicopter overflight by law enforcement to survey defendant's backyard did not violate the Fourth Amendment).

⁵⁹ A law enforcement operation is an investigation or operation likely to obtain evidence of a completed crime or the planning of a crime. They are formalized operations targeting specific persons or organizations. Law enforcement operations are significantly distinct from logistical support of law enforcement agencies. Giving satellite imagery of an area to help law enforcement develop a security plan does not constitute a law enforcement operation.

⁶⁰ 18 U.S.C. § 1385 (2001).

⁶¹ Exec. Order No. 12,333, 46 Fed. Reg. at 59,941 (promulgated to “provide for the effective conduct of United States intelligence activities and the protection of constitutional rights”).

⁶² See 18 U.S.C. § 1385 (2001).

⁶³ See *United States v. Red Feather*, 392 F. Supp. 916, 922 (1975). Congress intended, “according to the legislative history . . . , to eliminate the direct active use of federal troops by civil law enforcement officers. The prevention of the use of military supplies and equipment was never mentioned in the debates, nor can it reasonably be read into the words of the Act.” *Id.*

enforcement operations so long as the information is analyzed by civilian law enforcement authorities.⁶⁴

The PCA also allows Congress to make exceptions to the rule against using federal troops to execute the laws.⁶⁵ To fight the “war on drugs,” Congress, in the 1980s, created several exceptions to the PCA, such as the Military Cooperation with Law Enforcement Officials Act of 1981,⁶⁶ to encourage greater cooperation between the military and law enforcement.⁶⁷ The military-civilian cooperation extended beyond the war on drugs during the 1990s, and, after the September 11th terrorists attacks, the marriage will continue to grow.⁶⁸ Consequently, it is not unrealistic that Congress may pass laws permitting military participation at some levels in the War on Terrorism within the United States.

While the PCA focuses on the use of the military in law enforcement operations, Executive Order No. 12,333 directs the activities of members of the IC within the United States.⁶⁹ It generally prevents agencies within the IC from

⁶⁴ Phillip Carter, *Soldiers as Cops: How Far Can They Go?*, THE STAR-LEDGER (Newark, N.J.), Oct. 20, 2002, at 1. The use of military aircraft in the Washington, D.C. sniper case was an exception to the PCA because, while military personnel flew the aircraft, civilian law enforcement authorities rode along to analyze evidence gathered while in flight. *Id.*

⁶⁵ 18 U.S.C. § 1385 (2001). The PCA recognizes that the military may directly engage in civilian law enforcement when “expressly authorized by the Constitution or Act of Congress . . .” *Id.*

⁶⁶ 10 U.S.C. §§ 371–378 (2001).

⁶⁷ Sean J. Kealy, *Reexamining the Posse Comitatus Act: Toward a Right to Civil Law Enforcement*, 21 YALE L. & POL’Y REV. 383, 384 (2003).

⁶⁸ *See id.* at 384–87. To illustrate the growing marriage between the military and law enforcement, Kealy cites the enlistment of military aircraft in the Washington, D.C. sniper case in the fall of 2002. *Id.* at 387–88. Kealy argues that the line between police and military is becoming blurred. *Id.* at 386. “Since September 11th, moreover, many policymakers have called for, and authorized, increased use of the military in domestic law enforcement. The most visible manifestation has been the thousands of National Guard troops stationed at airports, bridges, power plants, and at the borders.” *Id.* at 387. Furthermore, Congress has “allowed the military to transport suspected terrorists from foreign countries to the United States for trial.” *Id.* Kealy also argues that, since September 11th, the public is more willing to accept the use of the military in law enforcement operations because of the threat posed by terrorism. *Id.*

⁶⁹ Exec. Order No. 12,333, 46 Fed. Reg. 59,941, 59,943 (Dec. 4, 1981) (“The agencies within the Intelligence Community shall, in accordance with applicable United States law and with the other provisions of this Order, conduct intelligence activities necessary for the conduct of foreign relations and the protection of the national security of the United States . . .”). Some members of the IC also function as civilian law enforcement agencies. Executive Order No. 12,333 does not apply to law enforcement operations conducted by these law enforcement agencies. Exec. Order No. 12,333, 46 Fed. Reg. at 59,950 (“Nothing in this Order shall be construed to apply to or interfere with any authorized civil or criminal law enforcement responsibility of any department or agency.”). The agencies that are members of the IC and perform law enforcement functions include the FBI, the Naval Criminal Investigative Service (NCIS), which is tasked with some intelligence responsibilities for the Navy as well as

collecting, retaining or disseminating information concerning United States' persons unless there has been waiver by the target individual, it involves foreign intelligence or counterintelligence operations, or the information acquired by any overhead reconnaissance was not directed at a specific person.⁷⁰ However, Executive Order No. 12,333 probably allows federal law enforcement agencies to task spy satellites for surveillance purposes under the "specialized equipment" and "assistance of expert personnel" exceptions.⁷¹ But availability of this technology to local law enforcement may only be offered in situations where lives are in danger.⁷² Additionally, Executive Order No. 12,333 specifically allows the members of the IC to cooperate with law enforcement agencies in foreign intelligence, counterterrorism, and, notably, narcotics investigations.⁷³

There are also many directives and internal regulations that govern the use of spy satellites inside the United States.⁷⁴ However, these confusing directives most likely do not provide a legal barrier to the tasking of spy satellites in law enforcement operations.⁷⁵ After all, it is common for the military to provide aerial

investigating any crimes to or involving such Navy personnel or assets regardless of whether or not prosecution occurs under civilian law, and the United States Secret Service, which investigates counterfeiting and other securities crimes. Importantly, the NRO, NGA, and CIA only serve as intelligence agencies and, therefore, their activities within the United States are strictly governed by Executive Order No. 12,333. In fact, the CIA is generally prohibited from conducting electronic and physical surveillance inside the United States. *See* National Security Act of 1947, 50 U.S.C. § 403-3(d)(1) (2003); *see also* Weissman v. CIA, 565 F.2d 692, 695 (D.C. Cir. 1988) ("[The National Security Act of 1947] was intended, at the very least, to prohibit the CIA from conducting secret investigations of United States citizens, in this country, who have no connection with the Agency.").

⁷⁰ *See* Exec. Order No. 12,333, 46 Fed. Reg. at 59,950.

⁷¹ Exec. Order No. 12,333, 46 Fed. Reg. at 59,951. ("Agencies within the Intelligence Community are authorized to: . . . [p]rovide specialized equipment, technical knowledge, or assistance of expert personnel for use by any department or agency, or, when lives are endangered, to support local law enforcement agencies."). The National Security Act of 1947 specifically provides that the NRO and NGA can share with federal law enforcement agencies information about non-U.S. citizens collected outside the United States. 50 U.S.C. § 403-5a (2003).

⁷² *See* Exec. Order No. 12,333, 46 Fed. Reg. at 59,951.

⁷³ Exec. Order No. 12,333, 46 Fed. Reg. at 59,951 (Subject to restrictions in the Order and other laws, agencies in the IC can "participate in law enforcement activities to investigate or prevent clandestine intelligence activities by foreign powers, or international terrorist or narcotics activities.").

⁷⁴ There are many regulations affecting the use of spy satellites in the U.S. But, as Lt. Col. Kuo suggests, almost all of the direction is subject to interpretation. Kuo argues that now is the time to revise the regulations in order to provide clear guidance for the collection of intelligence from space within the United States. It is important to note that Kuo is talking about the use of satellite imagery by members of the IC for Homeland Security, not law enforcement agencies. *See* Kuo, *supra* note 4, at 52-53.

⁷⁵ *See, e.g.*, DEPARTMENT OF DEFENSE DIRECTIVE NO. 5525.5, DOD COOPERATION WITH CIVILIAN LAW ENFORCEMENT OFFICIALS E3.2, E4.1.5.4 (Jan. 15, 1986) (permitting the military

reconnaissance support for law enforcement agencies in customs, drug, and border patrol operations.⁷⁶

Moreover, after the 9-11 attacks, the NGA created an “Americas Office” to focus on activities within the United States, and this group has offered “passive assistance” to federal law enforcement agencies for law enforcement purposes.⁷⁷ But the director of the Americas Office minimized the aid provided to law enforcement because the agency likely does not have satellite imagery for the particular time and place requested.⁷⁸ Still, the NGA’s legal counsel understands that, as a member of the IC, its participation in law enforcement operations means toeing the “fine lines” of its legal authority.⁷⁹

Although the satellite imagery produced by the Americas Office at the request of law enforcement was not collected for law enforcement purposes, the creation of the Americas Office and increased tasking of spy satellites within U.S. borders signals a shift in the utilization of intelligence resources from abroad to at home. As spy satellite coverage within U.S. borders expands and law enforcement access to the NGA’s resources increases to include tasking spy satellites for law enforcement purposes, the restrictions imposed on the members of the IC by Executive Order No. 12,333 will be toed. However, with clear guidance, these limits will likely not be crossed, and government spy satellite systems can provide support for law enforcement agencies.

B. Spy Satellite Surveillance and the Fourth Amendment: Is Satellite Imagery a “Search”?

The Fourth Amendment protects “persons, houses, papers, and effects, against unreasonable searches and seizures”⁸⁰ When law enforcement has

to make equipment and bases available to civilian law enforcement for law enforcement purposes but preventing the direct use of DoD personnel for surveillance of individuals). *But see* Walter Pincus & Dana Priest, *Congress Moves to Lift Intelligence Spending; Hill Also Told of Afghan War Cost: \$17 Billion*, WASH. POST, May 15, 2002, at A1 (stating that classified laws prohibit domestic satellite spying without a special waiver).

⁷⁶ Aerial reconnaissance flights by military planes are authorized by statute in some instances. For example, they are allowed to be flown in the enforcement of certain customs laws. *See* 50 U.S.C. § 220 (2003).

⁷⁷ Satellite Imagery Keeping Eye on U.S., *supra* note 8.

⁷⁸ *Id.* Referring to a hypothetical strikingly similar to the Washington area sniper case, Americas Office director Bert Beaulieu stated that law enforcement officials could request information, for example, such as “whether a white truck was at a location at a certain time.” *Id.* The NGA has yet to provide “a smoking gun” to law enforcement officials. *Id.*

⁷⁹ *Id.* The NGA’s associate general counsel concedes that its authority to participate in law enforcement operations is restricted under Executive Order No. 12,333 and “that toeing such fine lines can be difficult.” *Id.*

⁸⁰ U.S. CONST. amend. IV.

employed advanced technologies to collect information, the debate has largely centered on whether this activity constitutes a “search” under the Fourth Amendment.⁸¹ If law enforcement activity does not constitute a “search,” “*the Fourth Amendment simply does not apply to the case.*”⁸² Thus, the critical analysis for this Note is whether the use of satellite imagery by law enforcement to obtain evidence of a crime constitutes a “search” under the Fourth Amendment.

The current Fourth Amendment “search” analysis was outlined in a concurring opinion by Justice John Marshall Harlan in *Katz v. United States*.⁸³ Prior to *Katz*, “search” law was based on property rights. Pre-*Katz*, the Fourth Amendment did not apply absent a trespass or physical intrusion into a “constitutionally protected area,” most notably an individual’s home.⁸⁴ With the advent of modern technology,⁸⁵ the Court in *Katz* realized that the property-rights model was “bad physics as well as bad law,”⁸⁶ and that “electronic as well as physical intrusion into a place that is . . . private may constitute a violation of the Fourth Amendment.”⁸⁷

Katz had been placing bets from a Los Angeles phone booth to Miami and Boston in violation of a federal statute prohibiting interstate gambling.⁸⁸ FBI agents attached an electronic listening and recording device to the exterior of the public telephone booth from which *Katz* placed his calls.⁸⁹ The lower courts found that there was no violation of the Fourth Amendment because there had

⁸¹ See, e.g., *Katz v. United States*, 389 U.S. 347, 353 (1967) (government’s use of a listening device constituted a “search and seizure” within the Fourth Amendment); *Kyllo v. United States*, 533 U.S. 27, 34–35 (2001) (finding that the information obtained by the thermal imager was a product of a search within the Fourth Amendment).

⁸² JOSHUA DRESSLER, UNDERSTANDING CRIMINAL PROCEDURE 93 (3d ed. 2002).

⁸³ 389 U.S. at 360.

⁸⁴ “The well known historical purpose of the Fourth Amendment, directed against general warrants and writs of assistance, was to prevent the use of governmental force to search a man’s house, his person, his papers, and his effects . . .” *Olmstead v. United States*, 277 U.S. 438, 463 (1928), overruled by *Katz v. United States*, 389 U.S. 347 (1967). In *Olmstead*, the Court found that the use of a wiretap by federal agents to listen in on the defendant’s conversations did not constitute a search because, among other reasons, the taps were installed without physical intrusion—the taps were installed on wires coming from the defendant’s home and office. *Id.* at 463–64.

⁸⁵ ALAN WESTIN, PRIVACY AND FREEDOM 67–168 (1967) (examining the new surveillance technology); see also William C. Banks & M.E. Bowman, *Executive Authority for National Security Surveillance*, 50 AM. U. L. REV. 1, 44 (2000) (“As new surveillance technologies continued to emerge . . . , the law of privacy and surveillance by government was forced to modernize. The courts were forced finally to develop a legal theory of privacy in the surveillance context that did not depend upon the outmoded property model.”).

⁸⁶ *Katz*, 389 U.S. at 362 (Harlan, J., concurring).

⁸⁷ *Id.* at 360–61 (Harlan, J., concurring).

⁸⁸ *Id.* at 348.

⁸⁹ *Id.*

been no physical intrusion into the phone booth while Katz was making his calls.⁹⁰ But the Supreme Court ruled that the trespass doctrine was no longer controlling, and Justice Harlan's concurring opinion survived as the operative test for determining if a "search" under the Fourth Amendment had occurred.⁹¹

Under the *Katz* test, law enforcement efforts to obtain evidence only constitutes a Fourth Amendment "search" if the person first "exhibited an actual (subjective) expectation of privacy and, second, that the expectation be one that society is prepared to recognize as 'reasonable.'"⁹² If either prong of this test is lacking, then the activity does not constitute a "search."⁹³ Harlan's first prong embodied the majority's comment that "[w]hat a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection."⁹⁴

Katz made it possible for a Fourth Amendment "search" to occur without a physical intrusion into a constitutionally protected area. But *Katz* probably went further than simply repudiating the trespass doctrine and made the method of surveillance irrelevant. Professor Simmons argues that "[i]n adopting the language 'legitimate expectation of privacy,' *Katz* was presenting a test that focused solely on the activity or information that was being monitored, without regard for how it might have been observed or acquired by the government."⁹⁵

⁹⁰ *Id.* at 348–49.

⁹¹ See *Smith v. Maryland*, 442 U.S. 735, 741 (1979) (construing the *Katz* decision based on Justice Harlan's concurring opinion). In *Smith*, the Court found that the use of pen registers installed at a telephone company to record numbers dialed from a residence did not constitute a "search" because, even if the particular defendant expressed an actual expectation of privacy in the numbers he dialed, such an expectation is not one that society is prepared to recognize because the information was voluntarily conveyed to a third-party, the phone company. *Id.* at 742–43.

⁹² *Katz v. United States*, 389 U.S. 347, 361 (1967) (Harlan, J., concurring). More simply put, "[u]nder the Fourth Amendment and most of its state equivalents, there is no search within the meaning of the Constitution when the government intrudes into some place or interest where the person has no 'reasonable expectation of privacy.' . . . The target of the search must actually expect privacy, and that expectation must be one that society is not prepared to recognize as reasonable." MARK L. MILLER & RONALD F. WRIGHT, *CRIMINAL PROCEDURES* 93–94 (2d ed. 2003).

⁹³ Courts have suggested that the objective prong might be enough to satisfy the analysis. See *United States v. White*, 401 U.S. 745, 751–53 (1971). See also Ric Simmons, *From Katz to Kyllo: A Blueprint for Adapting the Fourth Amendment to Twenty-first Century Technologies*, 53 HASTINGS L.J. 1303, 1314 (2002) ("[I]n applying the *Katz* test a court's sole purpose is to determine what expectations of privacy society deems to be reasonable.").

⁹⁴ *Katz*, 389 U.S. at 351. Because *Katz* held his conversation in a closed telephone booth, he exhibited an actual expectation of privacy that society was prepared to accept as reasonable. *Id.* at 352 ("One who occupies [a telephone booth], shuts the door behind him, and pays the toll that permits him to place a call is surely entitled to assume that the words he utters into the mouthpiece will not be broadcast to the world.").

⁹⁵ Simmons, *supra* note 93, at 1305–06.

Therefore, only the results of the surveillance should be considered in determining if the surveillance infringed on an individual's legitimate expectation of privacy.⁹⁶

Even while adopting Professor Simmons' results-based articulation of the *Katz* test, a property-based analysis remains relevant to determine societal expectations of privacy.⁹⁷ In determining whether an individual's reasonable expectation of privacy has been infringed, thus amounting to a search under the *Katz* test, courts consider the location of the individual or information being observed.⁹⁸ Additionally, in determining societal expectations of privacy, courts look at advancements in technology and the intimacy of the details revealed by the technology.⁹⁹ The location of the satellite, outer space, although inconsistent with the results-based articulation of the *Katz* test, might be a relevant factor in determining whether a "search" has occurred. Thus, these three factors—the location of the surveillance target, the location of the satellite, and the nature of the information or intimate details revealed by satellite imagery—are central to determining whether or not the use of satellite imagery by law enforcement constitutes a "search" under the Fourth Amendment.

1. *The Surveillance Target and the Plain View and Open Fields Doctrines*

Even when property-based Fourth Amendment search jurisprudence prevailed, the Supreme Court took the position that surveillance of a target in plain view from a lawful vantage point by law enforcement did not constitute a "search."¹⁰⁰ The results-based articulation of the *Katz* test reinforces this position:

⁹⁶ Professor Simmons proposes that "the method of surveillance should be irrelevant, and the results of the surveillance are all that should matter in determining whether an individual's reasonable expectation of privacy has been infringed." *Id.* at 1321–22.

⁹⁷ See *Kyllo v. United States*, 533 U.S. 27, 40 (2001) (holding that a warrantless thermal imaging scan of a home constitutes an unreasonable search under the Fourth Amendment); *Dow Chemical Co. v. United States*, 476 U.S. 227, 239 (1986) (concluding that aerial photography of an industrial park from lawful navigable airspace is not a search under the Fourth Amendment). *But see* *United States v. Johnson*, 42 Fed. Appx. 959, 962 (9th Cir. Aug. 5, 2002) *cert. denied*, 537 U.S. 1113 (2003) (holding that warrantless thermal imaging scan during overflight of barn-like structure was a not a search under the Fourth Amendment).

⁹⁸ See *infra* Part III.B.1.

⁹⁹ See *Dow*, 476 U.S. at 238–39 (finding that technology enhancing human vision does not give rise to constitutional problems because the intimate details of the plant, such as trade secrets, were not revealed by the aerial photographs). By focusing on the technology used by law enforcement rather than the information revealed by a search, courts will have to examine new technologies on a case by case basis, which inevitably would lead to inconsistencies. See Simmons, *supra* note 93, at 1322.

¹⁰⁰ See *On Lee v. United States*, 343 U.S. 747, 754 (1952) (comparing the lawfulness of evidence obtained by an undercover officer using a hidden microphone to information obtained

“What a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.”¹⁰¹ Similarly, there is no Fourth Amendment protection for activities conducted in “open fields.”¹⁰² These doctrines have provided the foundation for the now glossed finding that surveillance from the skies of individuals or activities in plain view or “open fields” does not constitute a “search” under the Fourth Amendment.¹⁰³

Flyovers by law enforcement searching for evidence of a crime or conducting surveillance provide the ideal setting for examining the above proposition. These flyovers fall into two categories. The first category is law enforcement surveillance over “open fields,” which are generally private property and public places such as public thoroughfares, parks, or other areas generally accessible by the public. Under *Oliver*, “open fields do not provide the setting for those intimate activities that the [Fourth] Amendment is intended to shelter from government interference or surveillance.”¹⁰⁴ Thus, the Court has ruled that they are simply not covered by the Fourth Amendment.¹⁰⁵ Surveillance or investigations of “open fields” or activities conducted within those areas will never implicate the Fourth

using “bifocals, field glasses or the telescope to magnify the object of the witness’ vision [that is not a forbidden search or seizure]”).

¹⁰¹ *Katz v. United States*, 389 U.S. 347, 351 (1967).

¹⁰² *See Oliver v. United States*, 466 U.S. 170, 180–83 (1984). In *Oliver*, the Court, rejecting an ad-hoc analysis, created a bright-line exception to the warrant requirement by reaffirming the common law “open fields” doctrine. *Id.* The doctrine states that “an individual may not legitimately demand privacy for activities conducted out of doors in fields, except in the area immediately surrounding the home.” *Id.* at 178. “Open fields,” the Court stated, were lands usually “accessible to the public and the police in ways that a home, an office, or commercial structure would not be.” *Id.* at 179. Because the objective prong of the *Katz* test can never be met, any surveillance of an activity or target in an “open field” will not constitute a “search,” regardless of an individual’s attempts to make the area private. *Id.* (finding that fences and “No Trespassing” signs to prevent public access do not create a reasonable expectation of privacy that society is willing to accept). Some states have found that an “open field” is subject to protection under state law. *See, e.g.,* *People v. Scott*, 593 N.E.2d 1328, 1335–38 (N.Y. 1992); *State v. Kirchoff*, 587 A.2d 988, 994 (Vt. 1991); *State v. Myrick*, 688 P.2d 151, 153 (Wash. 1984). Other states have recognized “open fields” as protected areas when an individual unmistakably makes it clear that entry is not permitted by, for example, fencing. *See State v. Bullock*, 901 P.2d 61, 75 (Mont. 1995).

¹⁰³ Courts have consistently found that aerial surveillance does not constitute a “search” under the Fourth Amendment because there is no reasonable expectation that the individual or his home will not be visibly observed from the skies. *See, e.g., California v. Ciraolo*, 476 U.S. 207, 213–15 (1986) (holding that there is no reasonable expectation of privacy even in one’s backyard); *Oliver v. United States*, 466 U.S. 170, 179 (1984) (Both parties conceded “the public and police lawfully may survey lands from the air.”); *United States v. Knotts*, 460 U.S. 276, 281–85 (1983) (holding that there is no reasonable expectation of privacy from visual observation when in a car on a public highway).

¹⁰⁴ *Oliver*, 466 U.S. at 179.

¹⁰⁵ *See id.* at 176–77.

Amendment, regardless of the method or technology employed by law enforcement.¹⁰⁶

The second category involves areas that are entitled to some Fourth Amendment protections. These areas are commonly known as “curtilage,”¹⁰⁷ and are clearly protected from physical trespass.¹⁰⁸ However, “[t]hat the area is within the curtilage does not itself bar all police observation. The Fourth Amendment protection of the home has never been extended to require law enforcement officers to shield their eyes when passing by a home on public thoroughfares.”¹⁰⁹ The essence of the “plain view” doctrine is that there is no reasonable expectation of privacy in matters left within the open view of others.

The Court first addressed the issue of flyovers in *California v. Ciraolo*.¹¹⁰ Law enforcement officers, acting on an anonymous tip that the defendant was growing marijuana in his backyard and without a warrant, flew a fixed-wing aircraft at 1,000 feet and were able to see with the naked eye what officers concluded to be marijuana plants.¹¹¹ The backyard was not visible from ground-level because there was a six-foot high outer fence and an even higher inner fence.¹¹² Based on the flyover, a search warrant was issued, and marijuana plants were found when it was executed.¹¹³

The Court found that the defendant had exhibited an actual expectation of privacy by shielding his yard with the fences so as to prevent observation from ground level, but that an expectation to be free from aerial observation was not one that society was “prepared to honor.”¹¹⁴ The Court’s basis for this conclusion was that private and commercial flights were routine, and, therefore, the backyard

¹⁰⁶ See Simmons, *supra* note 93, at 1314–15 (arguing that the Court’s statement that the fields in *Oliver* could easily have been seen by airplanes flying overhead implied that the method of investigation was immaterial).

¹⁰⁷ The most frequently recognized curtilage is the area immediately surrounding and associated with the home. See *United States v. Dunn*, 480 U.S. 294, 300 (1987). The *Dunn* Court outlined four factors relevant to determining whether land falls within the curtilage: “the proximity of the area claimed to be curtilage to the home, whether the area is included within an enclosure surrounding the home, the nature of the uses to which the area is put, and the steps taken by the resident to protect the area from observation by people passing by.” *Id.* at 301.

¹⁰⁸ A physical trespass of curtilage is clearly a “search” under the Fourth Amendment. See *id.* at 301.

¹⁰⁹ *California v. Ciraolo*, 476 U.S. 207, 213 (1986); *Kyllo v. United States*, 533 U.S. 27, 32 (2001) (“[W]e have held that visual observation [of a portion of a house that is in plain public view] is no ‘search’ at all . . .”).

¹¹⁰ 476 U.S. 207 (1986).

¹¹¹ *Id.* at 207.

¹¹² *Id.* at 209.

¹¹³ *Id.* at 207.

¹¹⁴ *Id.* at 212–14.

was knowingly exposed to the public.¹¹⁵ As *Katz* taught, “[w]hat a person knowingly exposes to the public, even in his own home or office, is not a subject of Fourth Amendment protection.”¹¹⁶

In *Florida v. Riley*¹¹⁷ the Court extended *Ciraolo* to helicopters, which allow for lower-altitude surveillance.¹¹⁸ As was the case in *Ciraolo*, the defendant in *Riley* took precautions to prevent his greenhouse, which was within the curtilage of his home, from ground-level observation.¹¹⁹ However, an officer in a helicopter circling above was, with a naked eye, “able to see through the openings in the roof and one or more of the open sides of the greenhouse” and determined that marijuana was being grown inside.¹²⁰ A warrant was obtained based on these observations, and, sure enough, the greenhouse contained marijuana plants.¹²¹ The Court, applying the “plain view” doctrine, found that “Riley could not reasonably have expected that his greenhouse was protected from public or official observation from a helicopter” flying in navigable airspace because such flights were routine in that day and age.¹²²

Riley represents the willingness of the Court to accept the validity of flyovers of constitutionally protected areas. The defendant had gone to great lengths to prevent observation of his greenhouse. The Court noted that:

Two sides of the greenhouse were enclosed. The other two sides were not enclosed but the contents of the greenhouse were obscured from view from surrounding property by trees, shrubs, and the mobile home. The greenhouse was covered by corrugated roofing panels, some translucent and some opaque. At the time relevant to this case, two of the panels, amounting to approximately 10% of

¹¹⁵ *Id.* at 214–15. Considering the results-based articulation of the *Katz* test, a better conclusion would be that the growth in air traffic influenced societal expectations of privacy. See Simmons, *supra* note 93, at 1335. Before air travel, a backyard shielded from ground level would be considered a protected, private area; however, air travel has changed society and its expectations of privacy.

¹¹⁶ 389 U.S. 347, 351 (1967).

¹¹⁷ 488 U.S. 445 (1989).

¹¹⁸ *Id.* at 450–51.

¹¹⁹ *Id.* at 450 (“Riley no doubt intended and expected that his greenhouse would not be open to public inspection, and the precautions he took protected against ground-level observation.”).

¹²⁰ *Id.* at 448.

¹²¹ *Id.* at 448–49.

¹²² *Id.* at 450–51. In *Riley*, the Court looked at the method of surveillance utilized by law enforcement rather than focusing on information gathered by the flyover. Professor Simmons unhappily agrees that, “[t]hroughout various applications of the *Katz* test, the method of surveillance continues to survive as a factor in determining whether or not a defendant had a reasonable expectation of privacy.” Simmons, *supra* note 93, at 1315.

the roof area were missing. A wire fence surrounded the mobile home and the greenhouse; and the property was posted with a 'DO NOT ENTER' sign.¹²³

Yet, the Court concluded that “[b]ecause the sides and roof of his greenhouse were left partially open, however, what was growing in the greenhouse was subject to viewing from the air” and, therefore, the defendant “could not reasonably have expected the contents of his greenhouse to be immune from examination by an officer seated in a fixed-wing aircraft”¹²⁴ Based on the tremendous effort that the defendant took to protect the privacy of his greenhouse, the very narrow window for observation, and the great lengths that the officer took to gain a vantage point¹²⁵—the officer had to employ a helicopter to circle 400 feet overhead—the Court could have found that the “plain view” doctrine did not apply and that it was reasonable for an individual, and society, to expect that the objects in his greenhouse would remain free from visual observation, even from the sky. Yet, simply because two panels in the greenhouse roof were missing, the Court found that society was not willing to respect the defendant’s privacy expectations.

The Court expanded the permissibility of flyovers by law enforcement to commercial areas that would be constitutionally protected from physical invasion in *Dow Chemical Co. v. United States*.¹²⁶ Dow had taken extensive steps to conceal from ground-level view all manufacturing equipment at its facility in Midland, Michigan.¹²⁷ However, the company did not attempt to conceal all equipment from aerial views.¹²⁸ The Environmental Protection Agency (EPA), without a warrant, contracted a commercial aerial photographer using mapping cameras to take photographs of the facility from navigable airspace to investigate regulatory violations.¹²⁹ The Court recognized that “[a]ny actual physical entry by the EPA into any enclosed area would raise significantly different questions, because ‘[t]he businessman, like the occupant of a residence, has a constitutional right to go about his business free from unreasonable official entries upon his

¹²³ *Riley*, 488 U.S. at 448.

¹²⁴ *Id.* at 450.

¹²⁵ One of the requirements of the “plain view” doctrine is that the observation be made from a lawful vantage point. See *infra* note 134 and accompanying text. In *Riley* and *Ciraolo*, the Court found that the aircraft were flying in accordance with FAA regulations. But, other courts have found that when an officer takes steps to artificially improve a vantage point beyond what was readily available to the public can turn visual observations into a “search.” See *State v. Bobic*, 996 P.2d 610, 616 (Wash. 2000). Presumably, this is because society is still willing to respect the privacy of areas that are not easily viewed by the general public.

¹²⁶ 476 U.S. 227 (1986).

¹²⁷ *Id.* at 229. Dow maintained an elaborate security around the perimeter. It also investigated any low-level flights over the facility. *Id.*

¹²⁸ *Id.*

¹²⁹ *Id.*

private commercial property.”¹³⁰ Still, Justice Burger, for the majority, wrote, in response to an argument that the commercial complex was similar to the “‘curtilage’ of a dwelling,” that “such an industrial complex is more comparable to an open field and as such it is open to the view and observation of persons in aircraft lawfully in the public airspace.”¹³¹

Although Burger draws a distinction between the curtilage surrounding a home and a business complex,¹³² the clear result of *Dow* is that visual observations made during flyovers of commercial or residential properties are not “searches” under the Fourth Amendment. The application of the “plain view” doctrine to this age of flight has led to the realization that there can be no reasonable expectation of privacy in an area visually observable by the public from an aircraft in lawful airspace, even when individuals go to great lengths to protect its view from ground-level.

Applying the “open fields” and “plain view” doctrines, the location of the surveillance target observed by a spy satellite will not give rise to Fourth Amendment protections, at least where the target, activity, or property is visually observable from an aircraft. Further, under the “open fields” doctrine, there can never be a reasonable expectation of privacy to an “open field” or activities conducted within. Thus, utilization of satellite technology to conduct surveillance over “open fields” seems per se constitutional.¹³³

¹³⁰ *Id.* at 237 (internal citations omitted).

¹³¹ *Dow*, 476 U.S. at 239.

¹³² Although this distinction might have been made to distinguish acceptance of the enhanced photography used in *Dow* from the naked eye observation made in *Riley* and *Ciraolo*, it has become irrelevant in interpretations of the case because the Court failed to build on the point. Rather, the opinion has been taken to generally mean that “[t]he mere fact that human vision is enhanced somewhat, at least to the degree here, does not give rise to constitutional problems.” *Id.* at 238. This quote is cited in respect to areas that are clearly not “open fields.” See, e.g., *Kitzmilller v. State*, 548 A.2d 140, 143 (Md. Ct. Spec. App. 1988) (holding “the enhanced vision concept [from *Dow*] applies also, we think, to residential curtilages”).

¹³³ The holding in *Dow* is in conflict with this statement. The Court in *Dow* stated that the complex was similar to an “open field,” but then recognized that the law did offer some protections to the facility, such as protection against warrantless physical searches. See *Dow*, 476 U.S. at 237 (“Any actual physical entry by EPA into any enclosed area would raise significantly different questions, because [t]he businessman, like the occupant of a residence, has a constitutional right to go about his business free from unreasonable official entries upon his private commercial property.”) (internal citations omitted). An “open field” is not an area protected by the Fourth Amendment. See *Oliver v. United States*, 466 U.S. 170, 176 (1984) (finding “open fields” are not persons, houses, places, or effects as covered by the Fourth Amendment). This seems to be an anomaly. Logically, because a “search” of an “open field” can never occur, spy satellite operators should be free to utilize all technological capabilities, including infrared sensors and all magnification capabilities, over “open fields.”

2. *Is Space Too Far Away? A Navigable Airspace Requirement*

Under the “plain view” doctrine, observations by law enforcement must be made from a lawful vantage point.¹³⁴ For aerial surveillance, the Court has required that the observations be made from “public navigable airspace.”¹³⁵ As the Court in *Riley* announced, “[w]e would have a different case if flying [a helicopter] at that altitude had been contrary to law or regulation.”¹³⁶ In *Ciraolo*, Justice Burger equated public navigable airspace to public thoroughfares, concluding that, like a public road, public navigable airspace was a lawful, public vantage point from which law enforcement officers do not have to shield their eyes.¹³⁷ *Dow* affirmed that position, noting that the facility was “open to the view and observation of persons in aircraft lawfully in the public airspace”¹³⁸

Justice O’Connor, in her concurrence in *Riley*, and the four dissenters, minimized the majority’s heavy reliance on compliance with FAA regulations, refusing to believe that these “expectations of privacy ‘society is prepared to recognize as “reasonable”’ simply mirror the FAA’s safety concerns.”¹³⁹ To be consistent with *Katz*, O’Connor argued, there must be evidence that the public travels “with sufficient regularity” at such altitudes that the individual can be said to have known his backyard was in public view.¹⁴⁰ Therefore, if flights overhead are common, an individual knows he is susceptible to aerial surveillance, and there can be no reasonable expectation of privacy for “what a person knowingly exposes to the public.”¹⁴¹

Fifteen years after *Riley*, air travel has expanded, and most areas in the United States are not immune from planes or helicopters flying routinely overhead.¹⁴² Even using O’Connor’s stricter requirement, which is more faithful to the *Katz* test, that flights over areas be made with sufficient regularity, it would be hard to

¹³⁴ An officer might have lawful access to a vantage point either because it is open to the general public or, in places not open to the general public, because he has been given permission to enter that location. *See, e.g., California v. Ciraolo*, 476 U.S. 207, 213 (1986) (officer’s observations were made from a public vantage point where he had a right to be); *State v. Bobic*, 996 P.2d 610, 616 (Wash. 2000) (finding detective lawfully obtained vantage point because the property manager had given him permission to enter).

¹³⁵ *See Ciraolo*, 476 U.S. at 207.

¹³⁶ *Florida v. Riley*, 488 U.S. 445, 451 (1989).

¹³⁷ *See Ciraolo*, 476 U.S. at 213.

¹³⁸ *Dow*, 476 U.S. at 239.

¹³⁹ *Riley*, 488 U.S. at 453.

¹⁴⁰ *Id.* at 454.

¹⁴¹ *Katz v. United States*, 389 U.S. 347, 351 (1967).

¹⁴² There were approximately nine million aircraft departures for the U.S. airline industry every year and 612 million paying passengers on U.S. airliners in 2003. Press Release, United States Census Bureau, Facts for Features (Dec. 3, 2003), http://www.census.gov/Press-Release/www/releases/archives/facts_for_features_special_editions/001573.html.

argue that society recognizes a reasonable expectation of privacy from observations made from aircraft.

Spy satellites are in outer space. Even though they are not in public navigable airspace, there is nothing unlawful about spy satellites operating in space, assuming that they have the proper licensing if private and U.S. based.¹⁴³ Additionally, all types of satellites pass over all parts of the U.S. with sufficient regularity, so an individual's expectation of privacy argument based on the rareness of satellite passes overhead will not hold weight. The difficulties in applying the distinctions between lawful and unlawful satellite orbits, and navigable airspace and outer space, that one would expect from the Court, illustrate the shortcomings of such an application. Instead, applying a results-based analysis, it is apparent that spy satellites do not run afoul of the seemingly strict public navigable airspace requirement simply because, as opposed to using airplanes or helicopters, law enforcement uses satellites.

The Court has recognized that the use of technology to gather information that could have been obtained by other, lawful surveillance methods does not constitute a "search" simply because advanced technology was employed. In *United States v. Knotts*,¹⁴⁴ the Supreme Court held that the monitoring of beeper¹⁴⁵ signals did not invade the individual's reasonable expectation of privacy and, therefore, was not a "search" under the Fourth Amendment. But more important for the issue of spy satellites was the Court's utilization of the results-based *Katz* test.

Believing that the suspect was purchasing chemicals used to manufacture illegal narcotics, law enforcement officers, with the permission of the seller, placed a beeper inside one of the chemical containers to be purchased by the suspect.¹⁴⁶ When the suspect took control of the container, officers followed the car using both visual surveillance and a monitor that received the signals sent by the beeper.¹⁴⁷ While following the vehicle with the container, officers were forced to end visual surveillance because the driver, another suspect, began

¹⁴³ For a discussion of the impact that satellites have on national and territorial sovereignty, see Adeno Addis, *The Thin State in Thick Globalism: Sovereignty in the Information Age*, 37 VAND. J. TRANSNAT'L L. 1, 33–38 (2004).

¹⁴⁴ 460 U.S. 276, 285 (1983). Some states have found that the use of beepers constitutes a "search" under state constitutions and requires a warrant. *See State v. Campbell*, 759 P.2d 1040, 1049 (Or. 1988).

¹⁴⁵ A beeper is a small battery-powered device that can be installed in a vehicle or in an object and that emits radio signals that can be picked up by law enforcement conducting surveillance. They aid law enforcement in tracking the movements of individuals or objects. *Knotts*, 460 U.S. at 277.

¹⁴⁶ *Id.* at 277–78.

¹⁴⁷ *Id.* at 278.

making evasive maneuvers.¹⁴⁸ The officers on the ground eventually lost the beeper signal as well.¹⁴⁹ About an hour later, the signal was picked up by a monitor in a helicopter, and the approximate location of the container, which was now stationary, was determined to be inside a cabin.¹⁵⁰ Based on further visual surveillance and the beeper location, officers obtained a search warrant and uncovered a clandestine drug laboratory.¹⁵¹

At trial, the defendants sought to suppress the evidence based on the warrantless monitoring of the beeper. The Court equated the use of a beeper to conduct surveillance “to the following of an automobile on public streets and highways.”¹⁵² And, under the “open fields” doctrine, “[a] person traveling in an automobile on public thoroughfares has no reasonable expectation of privacy in his movements from one place to another.”¹⁵³ But, importantly, the Court admitted that “because of the failure of the visual surveillance, the beeper enabled the law enforcement officials in this case to ascertain the ultimate resting place of [the container] when they would not have been able to do so had they relied solely on their naked eyes.”¹⁵⁴ Still, the Court allowed the monitoring because “scientific enhancement of this sort raises no constitutional issues which visual surveillance would not also raise.”¹⁵⁵ Because the beeper did not give officers any more information than they could have obtained from visual surveillance, it was presumably constitutional.

The Court made clear that the method of surveillance was irrelevant.¹⁵⁶ Acknowledging a results-based test, the Court stated that “Knotts . . . undoubtedly had the traditional expectation of privacy within a dwelling place insofar as the cabin was concerned.”¹⁵⁷ However, there was no reasonable expectation of

¹⁴⁸ *Id.* (The container was transferred to a different vehicle at one point, which was driven by a different individual).

¹⁴⁹ *Id.*

¹⁵⁰ *Id.*

¹⁵¹ *Knotts*, 460 U.S. at 279.

¹⁵² *Id.* at 281.

¹⁵³ *Id.* The Court recognized that a person has a reduced expectation of privacy in a motor vehicle because of its function and capacity for public scrutiny. *Id.* The Court also found that there was no expectation of privacy against the visual observation of the vehicles on private property nor movement of the container in “open fields.” *Id.* at 282.

¹⁵⁴ *Id.* at 285.

¹⁵⁵ *Id.* The Court recognized that visual surveillance along the traveled route of the car or from lands adjoining Knotts’ premises would have sufficed to reveal all the facts made available by the beeper to the police.

¹⁵⁶ *Id.* at 282. (stating that “[t]he fact that the officers in this case relied not only on visual surveillance, but on the use of the beeper to signal the presence of Petschen’s automobile to the police receiver, does not alter the situation.”)

¹⁵⁷ *Knotts*, 460 U.S. at 282; see also *United States v. Karo*, 468 U.S. 705, 715–16 (1984) (finding use of a beeper to track the movements of objects within a residence unconstitutional).

privacy to movements on a public highway or in “open fields.” For example, Professor Simmons hypothesizes that “the government could have attached a video camera to the container to show where it was being taken—as long as the agents stopped monitoring the camera once it was taken into a private place.”¹⁵⁸

Observations conducted from aircraft in public navigable airspace do not trigger the Fourth Amendment because increased air travel has influenced and changed societal expectations of privacy—simply, there can be no reasonable expectation of privacy that one will not be observed from above. So long as spy satellites are not collecting any information that would not be available to police from some other legal surveillance method, most relevant here is the use of aircraft, the warrantless use of spy satellites will not implicate the Fourth Amendment.¹⁵⁹

3. *United States v. Kyllo: Intimate Details and Advanced Technology*

In *Riley*, the majority noted that “no intimate details connected with the use of the home or curtilage were observed” during the helicopter flyover.¹⁶⁰ In *Dow*, the Court commented that the photographs taken of the facility were “not so revealing of intimate details as to raise constitutional concerns.”¹⁶¹ The concept of “intimate details,” a proposition that closely relates to the pre-*Katz* property-based analysis, is made clear in a footnote in *Ciraolo*: “[T]hose intimate associations, objects or activities otherwise imperceptible to police or fellow citizens [without a physical intrusion].”¹⁶² Law enforcement may not use advanced technology to observe activities or individuals in areas protected by the Fourth Amendment that would otherwise be unobservable without a physical intrusion, at least where the advanced technology is “not in general public use.”¹⁶³ In other words, advanced technology may only reveal information for which there is no societal expectation of privacy.

*Kyllo v. United States*¹⁶⁴ represents a clear example of an advanced technology that triggers Fourth Amendment protections because it reveals

¹⁵⁸ Simmons, *supra* note 93, at 1347.

¹⁵⁹ Professor Simmons accurately captures the absurdity of a rule that was dependent on the method of surveillance: “when the government observes our backyard, do we really care if they are doing it undetectably and legally from a satellite miles in the air or blatantly and illegally from a helicopter hovering ten feet above us?” *Id.* at 1324.

¹⁶⁰ *Florida v. Riley*, 488 U.S. 445, 452 (1989).

¹⁶¹ *Dow Chemical Co. v. United States*, 476 U.S. 227, 238 (1986). The Court, in upholding the enhanced aerial photography, did find “it important that this is *not* an area immediately adjacent to a private home, where privacy expectations are most heightened.” *Id.* at 237 n.4.

¹⁶² *California v. Ciraolo*, 476 U.S. 207, 215 n.3 (1986).

¹⁶³ *Kyllo v. United States*, 533 U.S. 27, 40 (2001).

¹⁶⁴ 533 U.S. 27 (2001).

intimate details. In *Kyllo*, law enforcement used a thermal imaging device to detect indoor marijuana cultivation.¹⁶⁵ The scan of Danny Kyllo's home was consistent with a marijuana growing operation.¹⁶⁶ Based on tips from informants, extremely high utility bills, and the thermal image scan, a judge issued a search warrant and officers discovered Kyllo's marijuana growing operation while executing the search.¹⁶⁷

Justice Scalia, for the Court, recognized that a visual observation of a house that is in plain view is "no 'search' at all."¹⁶⁸ Scalia, applying the *Katz* test, then found that there is an inherent expectation of privacy of the interior of a home that is per se reasonable.¹⁶⁹ A thermal imager, Scalia pointed out, revealed intimate details about the interior of a home, even though it was only how warm, or relatively warm, Kyllo was heating his residence.¹⁷⁰ "In the home," Scalia wrote, "all details are intimate details, because the entire area is held safe from prying government eyes."¹⁷¹ The use of thermal imaging to scan a home constituted a "search" within the meaning of the Fourth Amendment because it allowed law

¹⁶⁵ *Id.* at 29. A thermal imaging device operates somewhat like a video camera showing heat images in a gray-scale; the hotter the image, the closer the shade of gray is to white. *Id.* at 29–30. Marijuana cultivation requires high-intensity lamps that emit large amounts of heat, and it was, prior to *Kyllo*, standard practice for law enforcement to scan homes upon receiving tips that marijuana is being grown inside. Prior to *Kyllo*, both federal and state courts were divided on the issue of whether a thermal imaging scan constituted a Fourth Amendment "search." Some courts held that thermal imagers do not constitute a "search" because a defendant does not have a reasonable expectation of privacy in the heat that is vented from the home—this was known as the heat waste doctrine and analogized to the Supreme Court's holding in *California v. Greenwood*, 486 U.S. 35 (1988), that a homeowner does not have an expectation of privacy in garbage left for pickup on the street curb. *Id.* at 50. Others, still focusing on the heat waste, analogized thermal imagers to canine sniffs that were not "searches." Still other courts focused on the information collected about the interior of the home rather than the heat waste. See Amy Miller, Note, *Kyllo v. United States: New Law Enforcement Technologies and the Fourth Amendment*, 51 U. KAN. L. REV. 181, 185–90 (2002).

¹⁶⁶ The roof over his garage was substantially warmer than neighboring homes and relatively hot compared to the rest of his home. *Kyllo*, 533 U.S. at 30.

¹⁶⁷ *Id.*

¹⁶⁸ *Id.* at 32.

¹⁶⁹ *Id.* at 34 ("While it may be difficult to refine *Katz* when the search of areas such as telephone booths, automobiles, or even the curtilage and uncovered portions of residences is at issue, in the case of the search of the interior of homes . . . there is a ready criterion, with roots deep in the common law, of the minimal expectation of privacy that exists, and that is acknowledged to be reasonable.").

¹⁷⁰ *Id.* at 38. Scalia rejected the Government's argument that the thermal imaging was constitutional because it did not reveal any details of private activities occurring in private areas. See *id.* at 37–38.

¹⁷¹ *Id.* at 37. Courts in general have recognized that homes have heightened protection from governmental intrusion. See, e.g., *Morgan v. State*, 95 P.3d 802, 807 (Wyo. 2004) ("A person's home is sacrosanct in Fourth Amendment jurisprudence.").

enforcement to obtain information regarding “the interior of the home that could not otherwise have been obtained without physical intrusion”¹⁷²

Recognizing *Kyllo* as a definitive return to the results-based *Katz* analysis—as opposed to a test that focused highly on the method of surveillance—ensuing lower court decisions highlighted the importance that advanced technology reveal intimate details or information or activities not in the plain view of the public, to trigger Fourth Amendment protections. In *United States v. Johnson*,¹⁷³ the Ninth Circuit held that a warrantless thermal image scan of a barn-like structure did not constitute a “search” under the meaning of the Fourth Amendment.¹⁷⁴ The court stated that “*Kyllo* applies only to a home,”¹⁷⁵ and there was no evidence that items associated with a home were in the barn or that the barn was lived in by the defendants.¹⁷⁶

In *Rodriguez v. State*,¹⁷⁷ law enforcement used a drug-dog sniff of the defendant’s front door to detect narcotics.¹⁷⁸ Prior to *Kyllo*, canine sniffs that occurred in a public place were generally not considered a Fourth Amendment “search” by the Supreme Court.¹⁷⁹ However, the defendant in *Rodriguez* attempted to extend *Kyllo* to cover canine sniffs of the exterior of residences, a subject that the Supreme Court has not addressed, by arguing that a drug-dog sniff was an investigatory technique that allowed law enforcement to obtain information that could be discovered only by a physical search of the home.¹⁸⁰ The Texas appellate court held that canine sniffs did not reveal intimate details of the interior of the home; rather, the sniff only detected the presence or absence of contraband items.¹⁸¹ Because the sniff did “not reveal legal information about the interior of a home, [it was] not a search for Fourth Amendment purposes.”¹⁸²

¹⁷² *Kyllo*, 533 U.S. at 34.

¹⁷³ 42 Fed. Appx. 959 (9th Cir. Aug. 5, 2002).

¹⁷⁴ *Id.* at 962.

¹⁷⁵ *Id.*

¹⁷⁶ *Id.* The court recognized that the structure was not a home. An argument could be made that the barn-like structure was covered under the “open fields” doctrine. However, the Supreme Court has assumed arguendo that a search occurs if an officer, while in an open field, enters a structure and observes activities that are not visible from the outside. *See United States v. Dunn*, 480 U.S. 294, 303 (1987).

¹⁷⁷ 106 S.W.3d 224 (Tex. App. 2003), *cert. denied*, 124 S.Ct. 1432 (2004).

¹⁷⁸ *Id.* at 228.

¹⁷⁹ *See, e.g., United States v. Place*, 462 U.S. 696, 707 (1983). Importantly, *Place* only considered canine sniffs in public places.

¹⁸⁰ *Rodriguez*, 106 S.W.3d at 228.

¹⁸¹ *See id.*

¹⁸² *Id.* at 229. The Texas court also found that the defendant did not have a reasonable expectation of privacy outside his home where the dog sniffed because the area was accessible, viewable, and used as the main entrance to the house by the public. *Id.* at 228. Additionally, the

The Court in *Kyllo* “made clear that the type of technology employed by the government was irrelevant”¹⁸³ under the *Katz* test, instead focusing on the information or activities observed and whether the defendant had a reasonable expectation of privacy in the information or activities. But, it is still necessary to look at the type of technology to determine what information the technology reveals.

Spy satellites potentially have optical, thermal, radar, and infrared capabilities. Because optical images, such as photographs or observations made under normal light, normally do not reveal “intimate details,” but rather information or activities in plain view of the public, utilizing satellite technology for these purposes does not constitute a Fourth Amendment “search.”¹⁸⁴ But a spy satellite’s thermal imaging, radar, and infrared sensors call for more of a case-by-case analysis. Clearly, from *Kyllo*, law enforcement may not use a satellite for a thermal image scan of a home, but it could be used to scan a structure such as a barn. In sum, there should be no barrier to the use of spy satellites simply because they are an advanced technology so long as the results yielded do not provide intimate details.

4. *Is Satellite Technology Generally Available to the Public?*

In *Kyllo*, Justice Scalia believed he was adopting a rule that took “account of more sophisticated [imaging] systems that are already in use or in development.”¹⁸⁵ The rule of *Kyllo* holds that where “the Government uses a device that is not in general public use, to explore details of the home that would

court’s basis for finding that no legal details were revealed stemmed from the fact that there can be “no legitimate expectation or interest in ‘privately’ possessing an illegal narcotic.” *Id.* at 229.

¹⁸³ Simmons, *supra* note 93, at 1346. Many courts have made a distinction between “sense-enhancing” and “sense-replacing” technology, the latter meaning that the information could never be revealed to a human using existing, natural senses. Professor Simmons argues this distinction has no legal significance because it focuses on the method of the search, rather than the results of the search. *Id.* at 1344–45. See also 1 WAYNE R. LAFAYE, SEARCH AND SEIZURE: A TREATISE ON THE FOURTH AMENDMENT § 2.2(d) (3d ed. 1996 & Supp. 2004) (“The basic point, as it was put in one of the few pre-*Kyllo* cases finding use of a thermal imager to constitute a search, is that ‘*Katz* looked not to the tools employed by the government nor to the phenomena measured by those tools but to the object of the government’s efforts.’”) (internal citation omitted).

¹⁸⁴ There could be instances where use of technology that enhances vision, such as binoculars, would trigger privacy interests. However, the individual must have manifested a reasonable expectation of privacy from vision-enhanced observation. See *People v. Oynes*, 920 P.2d 880, 882–83 (Colo. Ct. App. 1996). But see also *On Lee v. U.S.*, 343 U.S. 747, 754 (1952) (remarking in dicta that “[t]he use of bifocals, field glasses or the telescope to magnify the object of the witness’ vision is not a forbidden search or seizure”).

¹⁸⁵ *Kyllo*, 533 U.S. at 36. Scalia took note that a Department of Justice program was developing technology that would allow law enforcement the ability to “see” through walls. *Id.* at 36 n.3.

previously have been unknowable without physical intrusion, the surveillance is a 'search' and presumptively unreasonable without a warrant."¹⁸⁶

Scalia, however, has been criticized for qualifying this rule by creating the general public use exception.¹⁸⁷ First, the exception has been seen to weaken the rule.¹⁸⁸ Second, the language of the exception implicates a methods-based interpretation of the *Katz* test.¹⁸⁹

A literal reading of *Kyllo* allows police to employ advanced surveillance technologies so long as they are in general public use. But what constitutes general public use? If you can purchase a thermal imager on eBay, does that suffice to meet the exception?¹⁹⁰ What if the advanced technology can be purchased at Wal-Mart?¹⁹¹ Some courts have followed this interpretation.¹⁹² If you believe this is what the Supreme Court meant, then the fact that satellite images can be purchased by the click of a button on the Internet might meet a

¹⁸⁶ *Id.* at 40.

¹⁸⁷ Professor LaFave proposes that perhaps the Court did not assert that "there is a 'general public use' exception, but only that its search conclusion applies 'at least' when the technology is not in public use. That cautious language, therefore, might be taken merely as an indication that the Court has left the 'general public use' situation for another day" LAFAVE, *supra* note 183, at § 2.2(d).

¹⁸⁸ The dissenters in *Kyllo* argued that "this criterion is somewhat perverse because it seems likely that the threat to privacy will grow, rather than recede, as the use of intrusive equipment becomes more readily available." *Kyllo*, 533 U.S. at 47 (Stevens, J., dissenting); see also Adam W. Brill, Note, *Kyllo v. United States: Is the Court's Bright-line Rule on Thermal Imaging Written in Disappearing Ink?*, 56 ARK. L. REV. 431, 431-32 (2003) (arguing that the Court weakened its bright-line rule against use of advanced technologies by law enforcement by defining them in terms of general public use).

¹⁸⁹ Simmons, *supra* note 93, at 1320 ("Unfortunately, the Court also included a poorly phrased methods-based caveat to the test, adding 'at least where (as here) the technology in question is not in general public use.'").

¹⁹⁰ A search on eBay on February 9, 2004 using the term "thermal imager" yielded a result for a used thermal imager. See <http://www.ebay.com>. The dissenters in *Kyllo* argued that thermal imagers are available to the public, and over 10,000 units had been manufactured. See 533 U.S. at 47 n.5 (Stevens, J. dissenting).

¹⁹¹ A search on Wal-Mart's website on February 26, 2004 using the term "night vision" yielded several different models of Night Owl night vision devices, beginning at \$99.96. See <http://www.Walmart.com>.

¹⁹² See *People v. Katz*, 2001 WL 1012114, at *2 n.4 (Mich. Ct. App. Sept. 4, 2001) ("*Kyllo* did not address the use by police of night vision binoculars to obtain visual images (as opposed to invisible heat levels). Such devices are sold at retail and may very well be 'in general public use' such that their use by police would not be considered an illegal search by the *Kyllo* majority."); see also Quin M. Sorenson, Comment, *Losing a Plain View of Katz: The Loss of a Reasonable Expectation of Privacy Under the Readily Available Standard*, 107 DICK. L. REV. 179, 180 (2002) (arguing that the *Kyllo* general public use exception or, as Sorenson refers to it, the "readily available" standard allows police to employ technology "as soon as a sufficient percentage of the public owns a device").

literal interpretation of the exception.¹⁹³ As the New York Times wrote in 1997, “[c]ommercial spy satellites are about to let anyone with a credit card peer down from the heavens into the compounds of dictators or the backyards of neighbors with high fences.”¹⁹⁴ Under this “readily available” interpretation, spy satellite technology may be in general public use—spy satellite imagers are readily available for purchase by the general public.

On the other hand, the language of the so-called methods-focused exception fits nicely into the results-based interpretation of the *Katz* analysis. Professor Simmons argues that the Court meant to convey “that if a technology becomes so widespread and commonplace that it changes societal expectations of privacy, its use is no longer considered a ‘search.’”¹⁹⁵ The logic of this proposition stems from *Katz*: “[I]f the information is exposed to the public, gathering of that information is not a search and the Fourth Amendment does not apply.”¹⁹⁶ When advanced technology is available to society and society has used it to render once-private realms public, then surveillance of those once-private realms, regardless of the technology, does not constitute a “search.”¹⁹⁷

This interpretation illustrates that the Court has not rid itself of the *Katz* analysis and departed from precedent.¹⁹⁸ Rather, the “plain view” doctrine and expectation of privacy analyses have always been dependent on technology—for example, *Riley* and *Ciraolo* were dependent on air travel becoming an everyday norm—to determine what was in plain view and when individuals had a reasonable expectation of privacy.

The use of spy satellites by law enforcement is not per se a Fourth Amendment search simply because it may not meet readily available interpretation of the general public use language. A court must focus on the information and activities observed by the satellites rather than the technology itself—while still taking into account how technology has changed societal expectations of privacy. Any other interpretation would lead to absurd results; for example, law enforcement in a helicopter would be able to use binoculars to look down onto an individual’s backyard, but would not be able to use a spy satellite to get the same information.

¹⁹³ Archived satellite imagery is available for sale on the Internet. See <http://www.digitalglobe.com>.

¹⁹⁴ William J. Broad, *Private Ventures Hope for Profits on Spy Satellites*, N.Y. TIMES, Feb. 10, 1997, at A1.

¹⁹⁵ Simmons, *supra* note 93, at 1334. Professor Simmons further argues that “[c]ourts can—and should—consider how technology has changed society.” *Id.* at 1335.

¹⁹⁶ Raymond Shih Ray Ku, *The Founders’ Privacy: The Fourth Amendment and the Power of Technological Surveillance*, 86 MINN. L. REV. 1325, 1346 (2002).

¹⁹⁷ See Simmons, *supra* note 93, at 1335. Professor Simmons worries that courts will continue to focus on changes in technology rather than how technology changes society. *Id.*

¹⁹⁸ Some commentators believe that *Kyllo* was a departure from precedent. See Sorenson, *supra* note 192, at 180.

In sum, the focus on the constitutional inquiry should be on the information gathered rather than the technology employed. Using this analysis, the use of spy satellites by law enforcement to conduct surveillance is constitutional so long as the information or activities could be observed through other legal surveillance methods.

IV. CALLING FOR A NEW STANDARD: A SATELLITE RULE

The following are apparent: first, growing spy satellite resources will provide law enforcement with the opportunity to use the technology; second, spy satellites are so technologically advanced that their capabilities cannot be duplicated by any other, single surveillance method; and, third, there are no significant legal barriers, other than a prohibition against thermal image scans of homes, to the use of spy satellite technology by law enforcement that arise from federal law. Thus, the logical question is: Should the use of spy satellites by law enforcement be regulated?

The American Bar Association created the Task Force on Technology and Law Enforcement in 1995 to develop guidelines for policymakers, judges, and police departments on the use of technology in physical surveillance.¹⁹⁹ The Task Force emphasized that, although most rules governing searches have come from the courts, they are not the sole source of law: "A variety of entities, including the courts, legislatures, executive officials, prosecutors, the defense bar, law enforcement agencies, and the public, have a responsibility in assessing how best to regulate the use of technologically-assisted physical surveillance."²⁰⁰ The ABA Task Force concluded that law enforcement use of technologically-assisted physical surveillance "may need to be regulated."²⁰¹

Recognizing that law enforcement surveillance methods are becoming dependent on technology, many commentators have called for a new judicial standard to be created for advanced technology, such as thermal imaging and

¹⁹⁹ ABA STANDARDS FOR CRIMINAL JUSTICE, ELECTRONIC SURVEILLANCE 3D, SECTION B: TECHNOLOGICALLY-ASSISTED PHYSICAL SURVEILLANCE 1 (1999). Physical surveillance is the observation of an individual and his activities (as compared to electronic surveillance such as wiretapping).

²⁰⁰ *Id.* at 44.

²⁰¹ *Id.* at 11. The Task Force distinguished between surveillances methods:

[A] satellite or device that can penetrate visually through walls enhances one's senses to a much greater extent than most devices because it can 'see' things that the police would never be able to see with the naked eye from an outside vantage point. Conversely, when an enhancement device is used simply to 'confirm' something already seen by the naked eye (*e.g.*, use of binoculars to confirm an inadvertent sighting), its use is less likely to be seen as a search, even if the surveillance is of the home.

Id. at 33.

high-powered satellite imagery cameras.²⁰² For example, David Sullivan calls for a “Technologically-Advanced Device Standard.”²⁰³ However, even this analysis, in practice, would not restrict the use of spy satellites beyond the restrictions imposed by current constitutional jurisprudence.²⁰⁴

Additionally, any rule directed at advanced technology would have to be super-specific, or might otherwise be too vague, having little impact and causing confusion.²⁰⁵ An effective rule would require the court, legislature, or administrative agency creating the rule to identify a specific type of technology. Some state courts have addressed advanced technology with such an approach. In *State v. Jackson*, the Supreme Court of Washington found that the state constitution requires a warrant to be obtained for the use of GPS tracking devices on an individual’s vehicle.²⁰⁶ The court pronounced that the “citizens of this State have a right to be free from the type of governmental intrusion that occurs when a GPS device is attached to a citizen’s vehicle, regardless of reduced privacy expectations due to advances in technology.”²⁰⁷

²⁰² See, e.g., David A. Sullivan, Note, *A Bright Line in the Sky? Toward a New Fourth Amendment Search Standard for Advancing Surveillance Technology*, 44 ARIZ. L. REV. 967, 987–88 (2002).

²⁰³ This standard only applies to advanced technology, which provides any information including visual detail that was completely unavailable to aided human senses from the observation point, as opposed to low-tech devices, which only provide more detail of what is already observable, not unavailable detail. *Id.* at 987–89. Sullivan’s standard calls for the following analytical framework: first, did the observer use a technologically-advanced device to perform the surveillance; second, did the observer gather information that was unavailable to unaided human senses without physical intrusion into the area under observation; and, third, did the individual have a reasonable expectation of privacy. *Id.* at 989.

²⁰⁴ The second question in Sullivan’s framework depends on whether the information gathered was unavailable without physical intrusion. If the information could be collected without physical intrusion, then it is not a “search” in the constitutional sense. *Id.* Therefore, this is current constitutional jurisprudence and does not place any additional restrictions on the use of technology by law enforcement in surveillance operations. As stated before, optical capabilities, parallel aerial surveillance, and thermal imaging capabilities obviously fall under *Kyllo*.

²⁰⁵ See Christopher Slobogin, *Technologically-Assisted Physical Surveillance: The American Bar Association’s Tentative Draft Standards*, 10 HARV. J.L. & TECH. 383, 426 (1997) (discussing the ABA Task Force’s debate over “whether law is best encapsulated in general or specific terms”). Detailed rules have difficulty adapting to technological developments and can be inadvertently violated by law enforcement, leading to litigation and obstacles to law enforcement. Vague guidelines, on the other hand, would not give clear guidance. The ABA task force decided to structure the standards around functional categories of technology to mitigate the consequences of failing to identify a particular technology. *Id.*

²⁰⁶ 76 P.3d 217, 223–24 (Wash. 2003). A GPS tracking device gives law enforcement the ability to track precise movements of a vehicle without following the vehicle twenty-four hours a day over a long period of time. The movements are electronically stored in the device until an officer returns to the vehicle and retrieves the GPS data.

²⁰⁷ *Id.* at 224.

The Washington Supreme Court focused on the method of the surveillance rather than the character of the information gathered.²⁰⁸ Is the logical solution to impose a judicial warrant requirement on "satellite and other technologically-enhanced surveillance methods"?²⁰⁹ Such a federal court-imposed requirement would run afoul of the *Katz* test and the Fourth Amendment, which focus not on the method of surveillance and technology employed but the information or activities observed. Such a drastic change in jurisprudence would be burdensome and would wreak havoc in the legal system. Lower courts would undoubtedly be split as to what technology required a warrant and what did not, thus forcing the U.S. Supreme Court to spend its time evaluating every specific type of advanced technology.

If society's privacy concerns, as the Washington Supreme Court hinted, lie not within the specific information collected, but the ability to collect this information with ease, then a proper response to the use of satellite imagery and other advanced technology might be to impose restrictions.²¹⁰ However, requiring a warrant based on probable cause to use spy satellites potentially ties the hands of law enforcement. A more appropriate solution to protect against the misuse of this clandestine surveillance technology is a regulatory framework, short of the warrant requirement, that balances privacy concerns and legitimate law enforcement needs.

A regulatory framework controlling the warrantless use of spy satellites should incorporate the following principles:

1. The utilization of spy satellites should be reserved only for instances where an alternative method of surveillance is unavailable, unworkable, or inefficient on a cost or resource basis.

2. All uses of spy satellites by a law enforcement agency should be approved by a designated official. At the state level, the attorney general, or her designee, should approve such requests. At the federal level, the director of the law enforcement agency, or her designee, or the U.S. Attorney for the jurisdiction, or

²⁰⁸ *Id.* ("[There is] a difference between the kind of uninterrupted 24-hour a day surveillance possible through the use of a GPS device, which does not depend upon whether an officer could in fact have maintained visual contact over the tracking period . . ."). *But see* *United States v. McIver*, 186 F.3d 1119, 1125 (9th Cir. 1999) (rejecting the notion that visual observation of defendants in forested area "became unconstitutional merely because law enforcement chose to use a more cost-effective 'mechanical eye' to continue the surveillance").

²⁰⁹ Krysten C. Kelly, Note, *Warrantless Satellite Surveillance: Will Our 4th Amendment Privacy Rights Be Lost in Space?*, 13 J. MARSHALL J. COMPUTER & INFO. L. 729, 760 (1995). Ms. Kelly argues that by "requiring a warrant for both satellite and technological surveillance, the government would preserve the inherent right of privacy while maintaining the use of an extremely helpful method of surveillance." *Id.* at 761.

²¹⁰ Concerns about around-the-clock surveillance have also been aired in response to a movement by many cities and towns to install video surveillance cameras on city streets. *See* Thomas Everly, *Big Brother Only Wants to Protect Us*, BALT. SUN, Feb. 7, 1996, at 15A (arguing that constant video surveillance will cause stress and alter behavior).

her designee, should approve such requests. However, where exigent circumstances exist, law enforcement should be able to use spy satellites without such approval.

3. Where resolution of spy satellite imagery becomes so detailed as to depict individuals on the ground, law enforcement should be conducting investigations of specific crimes or the planning of specific crimes, as opposed to around-the-clock or random surveillance. Thus, law enforcement must be able to articulate specific facts for their belief that the target of the spy satellite has committed a crime or is planning to commit a crime prior to the use of spy satellites.

4. In a misdemeanor or civil enforcement action, in which a spy satellite has been used without prior approval or the existence of exigent circumstances, the evidence offered by satellite imagery should be excluded from use by the prosecution at trial. In a felony action, however, the remedy for violating the satellite rule should be in tort because such evidence may be necessary to make sure that serious crimes do not go unpunished.

A regulatory scheme based on these goals should be welcomed by the law enforcement community because it is consistent with the predominant law enforcement strategy known as community-policing and protects law enforcement's finite resources. The goals recognize that law enforcement budgets never seem to be large enough, and expenditures on spy satellite technology, therefore, should be reserved only for those instances where another surveillance method would be inefficient or satellites are the only method that will serve legitimate law enforcement needs.²¹¹ Additionally, law enforcement dependence on spy satellites to investigate and prevent crime would be inconsistent with the community-policing framework.²¹² Law enforcement, with finite resources,

²¹¹ The ABA Task Force noted that "[w]hen surveillance can be carried out by gadgets rather than people, and when the gadgets are mass produced at increasingly lower costs, then economics may no longer serve as a sufficient restraint." ABA, *supra* note 199 at 24. However, an advanced KH-11 spy satellite costs over one billion dollars to build, not including launching and operating costs. See Covault, *Iraqi Threats*, *supra* note 27, at 23. The New York City Police Department ("NYPD") has an annual budget of 3.3 billion dollars. Michael Weissenstein, *Budgets Tightening, Police Departments Turn to Private Money* (July 20, 2003), at www.nycpolicefoundation.org/news.html (last visited Oct. 10, 2004). Operating a police aircraft may only cost a few hundred dollars an hour. For example, the Columbus, Ohio Police Department's helicopter section operates seven helicopters, and has patrols in the air sixteen hours a day with an annual operating budget of 1.75 million dollars. See Dean Narciso, *Choppers Put Columbus a Cut Above*, THE COLUMBUS DISPATCH, Oct. 13, 2002, at A1. *But see* Lisa J. Stelle, Comment, *The View from on High: Satellite Remote Sensing Technology and the Fourth Amendment*, 6 HIGH TECH. L.J. 317, 333 (1991) (arguing that "budget-conscious law enforcement agencies will note that since satellites have already proved their usefulness in monitoring overseas drug production, training them upon subjects in the United States may result in costs savings by replacing costly aerial sweeps").

²¹² In the 1990s, President Bill Clinton facilitated a shift in policing strategies from three R's policing (rapid response, random patrols, and reactive investigation) to community-policing, an approach that puts more officers in direct contact with communities by using foot

would essentially have to exchange beat officers for spy satellite resources, a move that might shift an entire policing strategy and realize an Orwellian society.

The Supreme Court's formalistic doctrine that what an individual exposes to the public is not protected by the Fourth Amendment can allow law enforcement to monitor individuals outside of the home twenty-four hours a day.²¹³ The thought that every move and moment outside of the home is monitored by the government is frightening; therefore, the government's surveillance power should be restricted by a regulatory framework. A satellite rule would address the issue before it reached the courts, protecting established *Katz* doctrine and preventing privacy invasions that might occur before the Court has the opportunity to address the issue.

Requiring law enforcement to justify the use of spy satellites where the imagery will depict individuals on the ground—in other words, where an individual's identity could be determined from the satellite imagery—addresses the Orwellian fear without restricting law enforcement's ability to investigate and prevent crime to an unreasonable degree. The fear is not that individuals will be observed outside the home, but that individuals will be observed twenty-four hours a day. A regulatory framework that includes an approval process and requires a justification for the use of spy satellites to observe the activities of individuals sufficiently protects against such needless governmental intrusion into daily lives.

V. CONCLUSION

The surveillance capabilities of spy satellites are astonishing, and their numbers and coverage will increase in the future as the commercial industry grows and the government launches the Future Imagery Architecture. With the increased coordination between the military, intelligence agencies, and law enforcement agencies in the post 9-11 scramble for more surveillance power within U.S. borders, and the historical showing that law enforcement has embraced technology to increase its surveillance capabilities, spy satellites will inevitably be utilized by law enforcement on a widespread basis. But because technology is irrelevant to the interpretation of Fourth Amendment protections based on the *Katz* test, spy satellites can operate freely twenty-four hours a day,

patrols and substations and redirects the mission from reactive crime investigating to proactive community problem solving. See Richard Lacayo, *Law and Order*, TIME, Jan. 15, 1996, at 48–54. President Clinton pledged 100,000 additional police officers on America's streets in his State of the Union Address on January 24, 1994. That same year, the Department of Justice established the Office of Community Oriented Policing Services ("COPS") to administer police-hiring grants and to expand community-policing programs. By 1999, 64% of local police departments serving 85% of all residents engaged in community-policing. Tracey L. Mearns, *Praying for Community Policing*, 90 CAL. L. REV. 1593, 1596–97 (2002).

²¹³ See Shih Ray Ku, *supra* note 196, at 1348.

covertly overhead, monitoring an individual's movements and activities outside the home.²¹⁴ This frightening reality should be addressed by a regulatory framework that requires law enforcement to provide a reasonable justification whenever satellite imagery has the ability to identify individuals and provide information about their daily lives. Establishing such a satellite rule balances privacy interests and the legitimate needs of law enforcement.

²¹⁴ It is clear that spy satellites could not be used to obtain information about the interior of a home or an individual's activities or movements within a home without a warrant. *See* *Kyllo v. United States*, 533 U.S. 27, 40 (2001).

