




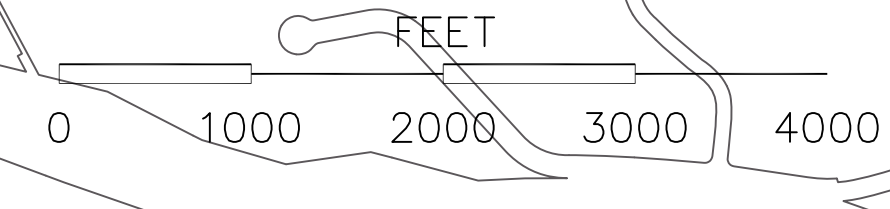
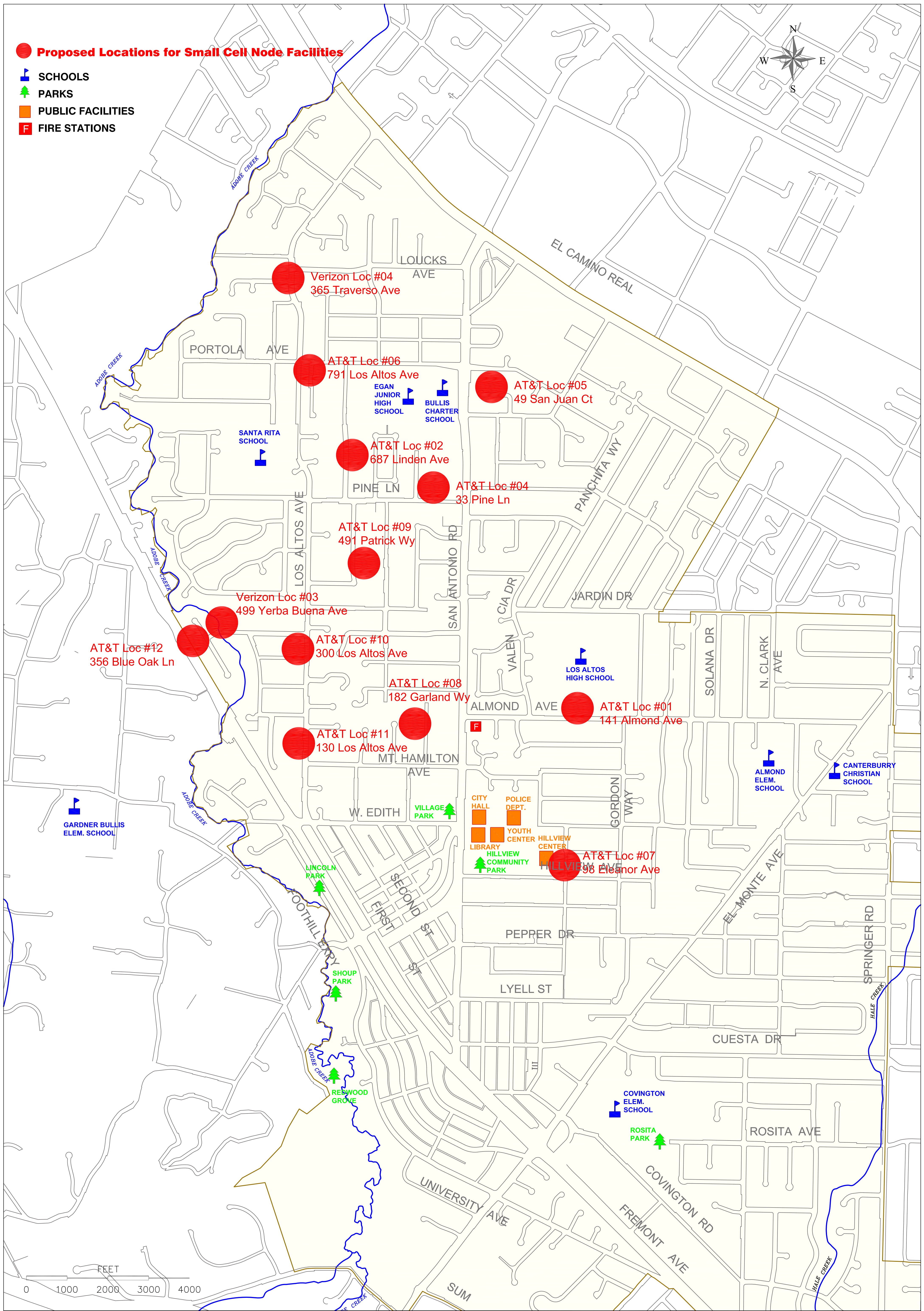
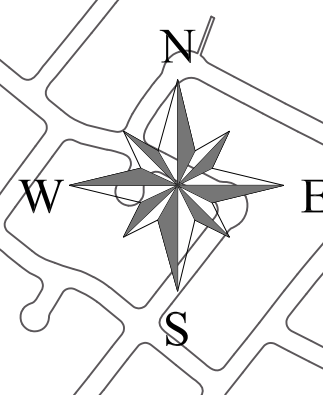


Proposed Locations for Small Cell Node Facilities

-  **Proposed Locations for Small Cell Node Facilities**
-  **SCHOOLS**
-  **PARKS**
-  **PUBLIC FACILITIES**
-  **FIRE STATIONS**



Drawing Number: 1 of 1		CREATED BY ENGINEERING DIVISION	<h3 style="margin: 0;">CITY OF LOS ALTOS</h3> SANTA CLARA COUNTY CALIFORNIA	No.	
		DRAWN: VW		REVISIONS	
		DATE: JULY 8, 2019 SCALE: 1" = 500'			
		LOS ALTOS			



AT&T: Making Sure Your Community Stays Connected

What is the process for developing a new cell site?

- The new site target locations are passed to a construction team to find suitable locations to lease. Collocation with existing facilities is considered and pursued wherever feasible. Placement on suitable existing structures (building rooftops, sides of buildings, cupolas and other existing structures) is preferred if the existing structure meets the network design objectives and is feasible.
- Once AT&T leases a site the approval/permit process begins. In addition to local zoning and permitting review from cities, counties or other jurisdictions, sites often require review by other agencies at the local, state and federal level such as the FAA, FCC and the State and Tribal Historical Preservation Offices.
- Once all of this is complete, AT&T can build the site and commission it for service.
- End-to-end cycle times vary greatly and are heavily influenced by the planning and permitting process of the local jurisdiction. We aim to achieve approvals within timeframes set by the FCC Shot Clock.

AT&T places the safety of its customers first.

- AT&T builds and maintains all cell phone towers and antennas in accordance with FCC guidelines for human exposure to radiofrequency (RF) fields.
 - *The energy from the antennas on cell phone towers decreases with distance. As a result, normal groundlevel exposure is much lower than if a person was very close to the antenna and the main transmitted beam. At a typical cell site, ground-level power densities are well below the FCC's exposure limits. See more at: <http://www.fcc.gov/cgb/consumerfacts/rfexposure.html>*

Reliable broadband and wireless coverage can benefit a community.

- The new generation has largely grown up with, and is comfortable with, technology. In fact, more than half (50.8%) of American homes have chosen to be wireless-only and have given up their landlines.¹
- Consumers want access to wireless phone and broadband technology. The absence of broadband can make a community a less attractive location for new investment and development.
- Wireless and high speed broadband has many positive benefits for vital institutions like schools, hospitals and police and fire departments, and residents. New and upgraded infrastructure delivers community benefits including enhanced public safety, access to improved education, health care and economic development opportunities.

We're working hard with the community to provide the best possible service in the most responsible way.

- Our engineers follow strict federal, state and local safety standards and we work with the local community to improve aesthetics whenever possible.
- AT&T network equipment and technicians constantly monitor and extensively test our network to ensure that we are delivering reliable, robust service to our customers.
- We're also constantly scrutinizing our network and responding to customer feedback to identify locations where we need to add capacity, enhance coverage and address coverage gaps. Some of the tools we use to hear from, and communicate with, customers about capacity and coverage issues include:
 - Mark the Spot App enables users to identify coverage gaps.
 - Responding to customers on social media channels.
 - Customers contacting us directly to discuss coverage gaps.
- Additionally, we work closely with government officials and community leaders to identify areas in need of enhanced capacity and coverage.

AT&T is continuously investing in and upgrading our wireless infrastructure to make sure you and your family stay connected.

Small cells help bring customers faster download speeds, improved call quality and an overall better wireless experience.

Consumers and businesses are using their mobile devices more than ever before to connect to everyone and everything around them. From January 2007 through December 2016, AT&T experienced a 250,000% increase in data usage on our network. And, as streaming video continues to become more prominent and new apps and services are introduced, this growth in data use will continue to rise.

- *With this increased demand and pressure on the mobile network, AT&T is deploying more innovative ways to enhance our network, prepare for the next generation of technologies and services and provide a better experience for our customers. One of these solutions is the deployment of small cells.*

What is a small cell?

- Small cells are flexible network solutions that can be readily deployed to specific locations, including those where customers are prone to experience connectivity issues or in areas that can't effectively be served by a traditional cell tower.
- Small cells provide enhanced voice and data services by helping to bolster network capacity to allow faster downloads and improved call quality within its coverage area.
- Small cells are low profile, compact, scalable and unobtrusive. Depending on the need, small cells can be placed in buildings or outdoors. When placed outdoors, small cells can be attached to existing utility poles, light poles, traffic lights or exterior walls of buildings.

What are the benefits and purposes of a small cell?

- Small cells are often used in dense urban environments where capacity is an issue or in places with particularly difficult geographical challenges where coverage is an issue.
- Small cells are used to densify AT&T's network. This allows us to provide a better LTE experience today and also allows us to prepare for future technologies.
- The size and flexibility of small cells helps AT&T target areas needing additional capacity and to address localized coverage issues.
- Where traditional macro cells are the best solution, we will deploy macros. Where small cells are the best solution, we'll use small cells.

What factors go in to determining whether to deploy small cells?

- AT&T looks to see where we might have potential performance challenges within the network and uses that data to help guide where we need to target small cell solutions.
- Speed, cost, flexibility and scalability are all vital to determining if small cells are the right fit.
- Small cells are not the right solution for all areas, but they are an important innovation that will help provide an enhanced mobile experience with faster downloads, higher voice quality and more seamless coverage.

Small cells provide additional network capacity allowing us to better keep up with customer demand for better, faster and smarter technologies and services.

Small cells are used to densify AT&T's network. This allows us to provide a better LTE experience today and allows us to prepare for future technologies — such as 5G, smart cities and new developments in the Internet of Things (IoT).



In San Diego, GE is upgrading thousands of the city's outdoor light fixtures to sensor-enabled LED technology, making San Diego the world's largest smart city IoT platform. AT&T will act as the data carrier and will provide highly secure connectivity for the deployment – expected to save the city approximately **\$2.4 million** in annual energy costs.¹

The technology that weaves through smart cities and our connected world has the potential to enable large-scale water savings. According to state estimates, California as a whole loses as much as 228 billion gallons a year from water leaks.³



*Wireless sensors in San Francisco can notify police and first responders of the exact location of a gunshot, reducing gun crime by up to **50%** in areas where the technology has been deployed.²*



Grind2Energy, an environmentally sustainable program from AT&T and Emerson, streamlines waste management solutions— ultimately reducing the amount of harmful methane gas released back into the atmosphere through IoT connectivity.⁴



375,000

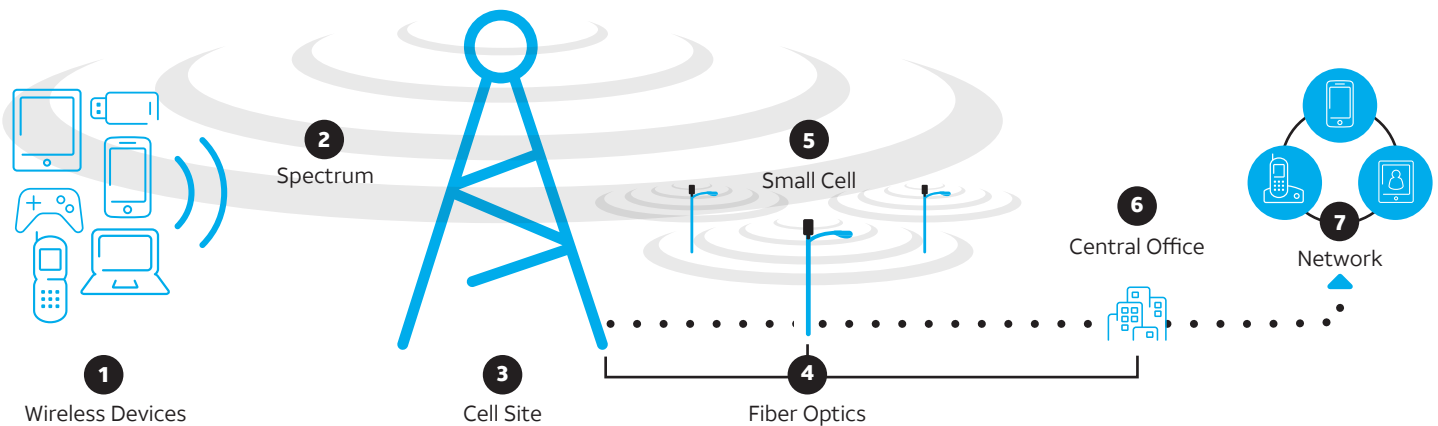
Investment in small cells and 5G networks could result in as many as **375,000** long-term jobs created in California.⁵

From connected homes to driverless cars, the benefits of wireless technology are countless and completely transform and improve our daily interactions.

1 AT&T, "AT&T and Current, powered by GE, Strike Historic Deal to Redefine Smart Cities for the Digital Age," February 27, 2017
2 Accenture Strategy, "Smart Cities: How 5G Can Help Municipalities Become Vibrant Smart Cities," Pg. 10, 2017
3 Los Angeles Daily News, "California Water Agencies Lose Millions of Gallons Underground," October 21, 2014
4 AT&T, "AT&T, Emerson use IoT to turn food waste into energy", February 16, 2017
5 Accenture Strategy, "Smart Cities: How 5G Can Help Municipalities Become Vibrant Smart Cities," Pg. 5, 2017

How Wireless Networks Work

Modern communication networks help drive innovation and improve the way consumers connect with each other, with their entertainment and with their communities.



1. Wireless Devices

Wireless devices need a network to operate. The network is part radio-based (wireless) and part wired.

2. Spectrum

Spectrum is the airwaves over which wireless communications (calls, texts, email, internet traffic, etc.) travel to and from wireless devices via cell sites.

3. Cell Site

Cell sites connect wireless devices to the network using copper and fiber optic wires. Once transmitted from the cell tower to the network, the data of a “wireless” call is virtually indistinguishable from the other data traveling across the network – e.g. traditional landline calls, texts, emails and the internet data. Cell sites are connected in a pattern of overlapping cells that allow users to remain connected while on the move.

4. Fiber Optics

Fiber optic lines are the modern equivalent of copper wire, but instead of using electricity to transmit information, fiber uses pulses of light to transport internet-based data. This technology can support much more data and transmit it faster than traditional copper lines. For example, on a typical fiber cable, a 1 gigabit per second signal can travel over 35 miles without being degraded as compared to only 300 feet over a copper line.¹

5. Small Cells

Small cells play a key role in meeting the increased demand by delivering the network flexibility and reliability our customers depend on. Small cells “densify” AT&T’s network and to bring the network “closer” to its users. This allows us to provide a better LTE experience today while also allowing us to prepare for future developments in technologies such as smart cities and new developments in the Internet of Things (IoT).

6. Central Office (Wireless Switch Building)

At the central office, home and business lines connect to the network. The central office has equipment that routes calls locally or to long-distance carrier facilities.

7. Network

The network consists of all the facilities (wires, antennas, equipment, etc.) and spectrum that we use to deliver data and content (voice, internet and video) that allow customers to use their devices (phones, computers, tablets, SmartGrid, etc.) to communicate better and faster.

¹ Broadband Communities, What Fiber Can Do For Your Community, page 4, http://www.bbcmag.com/Primers/BBC_Nov15_Primer.pdf