

Automated Parking Meters



Parking availability and meter management presents unique challenges for municipalities and impacts aspects of day-to-day life for citizens and visitors including traffic congestion, pollution, merchant prosperity, building construction, and tourism. A Wi-Fi enabled parking management system provides centralized monitoring and control, growing revenue for the city and increasing its attraction for visitors.

BENEFITS

- ❖ Increased revenue capture
- ❖ Alerts for parking violations and faulty meters enabling faster repair/ response
- ❖ Increased effectiveness in managing parking availability
- ❖ Economic boost for local businesses by creating increased pedestrian traffic
- ❖ Convenient payment options improves visitor experience

Improving Parking Availability and Traffic Flow

Cities often struggle with parking management, especially in heavy traffic areas such as downtown districts and college campuses. This is especially important in areas where demand for convenient parking outstrips supply. Parking officials need a solution that gives them flexibility and logistical efficiencies while providing citizens with payment options, including pre-paid parking cards, credit cards, and cash. To enable these options, a parking meter needs to communicate with a city's central parking office for transaction processing. A wireless parking meter solution can alleviate parking related issues by increasing operational efficiencies, improving traffic flow and increasing revenue capture for the city.

Key benefits of Automated Parking Meters over a Tropus broadband network

- ❖ Flexibility to impose different parking fees at different times of day to influence traffic and parking patterns
- ❖ Remote monitoring on the functional status of parking meters, decreasing down time and minimizing revenue loss
- ❖ Real-time information on expired meters accessible to parking enforcement personnel improves efficiencies and revenue capture
- ❖ Helps support local businesses by increasing available parking
- ❖ Convenient payment options: cash, credit cards, debit cards, cell phones, payment over the Internet, and prepaid parking cards
- ❖ Multi-lingual meters addressing ethnic diversities

“Now that they are in place, we see that meter transactions over the network perform well. The Tropos network is quicker and more reliable than cellular, and the cost savings is huge.”

Dan Zack
Downtown Development Coordinator, Redwood City



Tropos MetroMesh Solution Partners

- ❖ **Parking Meters**
Digital PayTech

Tropos Technology Differentiators

- ❖ **Performance** – Multi-mega-bit capacity, low latency
- ❖ **Security** – Layered, military-grade security; VPN support
- ❖ **Mobility** – Seamless roaming across entire coverage area
- ❖ **Reliability** – Mesh architecture creates redundant paths; patented routing algorithms increase resiliency
- ❖ **Scalability** – Can be used across 10s, 100s, and 1000s of square miles
- ❖ **Management** – Most comprehensive configuration, analysis, and reporting

Multi-use Network

Tropos' Wi-Fi network solutions provide a reliable and secure foundation for delivery of multiple simultaneous applications on the same cost-effective physical infrastructure. In addition to the automated parking meter application, a single network can be designed to support a range of municipal services.

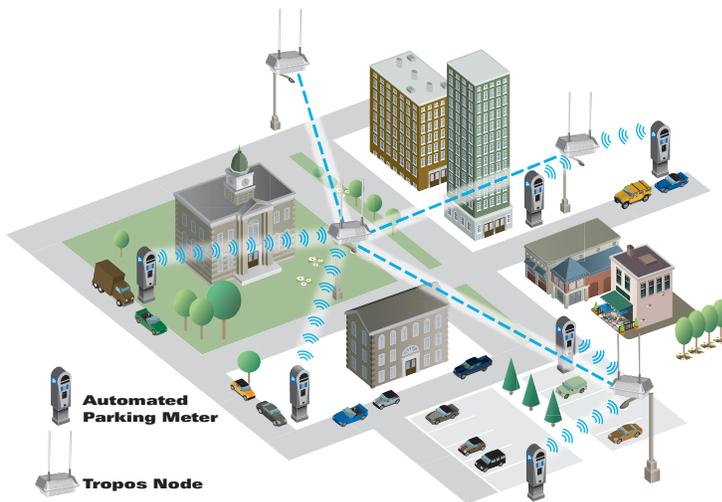
- ❖ **Automated utility meter reading** — Centralized monitoring of water, electric and gas meters, providing fast alerts to problems and accurate meter readings in real time
- ❖ **Mobile public safety** — Enabling police, fire and emergency service personnel to effectively communicate and obtain real-time video and data information from the field
- ❖ **Mobile workforce** — Allows fast, easy access to records and filing of reports from anywhere around town, improving worker efficiency and productivity

Automated Parking Meter Network Building Blocks

The Tropos wireless broadband network nodes are installed outdoors on street fixtures such as light poles, providing Wi-Fi coverage over the desired area. Digital parking meters with built-in Wi-Fi communicate directly to the Tropos nodes. The meters periodically securely send information about parking violations, parking availability, meter faults, and alarms to the central management system over the Internet or a private city network. The central management system is used to monitor, control and plan parking policies.

Customers using Tropos MetroMesh networks today for automating parking meters include: Houston, TX and Redwood City, CA.

Tropos Metro-Scale Automated Parking Meter Network



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