

## City of Seattle Port Security Mesh Network

### Summary:

- The city of Seattle is a maritime city with one of the largest ports in the United States. According to the U.S. Department of Commerce Census Bureau, the Port of Seattle is ranked ninth in the nation for total vessel trade by dollar value. It is estimated that the large influx of cargo handled at the Port of Seattle generates approximately \$2 billion in revenue for the region and supports 135,000 jobs related to the cargo industry. The city has a duty to protect the waterways and our citizens. This mesh network is a tool for that mission.
- The mesh network uses technology based on a multi-radio wireless access point that securely connects to devices on 2.4GHz (Wi-Fi) or 4.9 GHz (licensed public safety) frequencies. The data is transmitted between wireless access points until it reaches fiber, which then delivers the data to an authorized network. The system uses industry-standard wireless security practices so only authorized users can access the network. Those users can connect to the network via existing city-owned equipment such as laptops, smart phones, tablets, and other authorized devices.
- The wireless mesh network will allow police and fire emergency vehicles to connect to their computer aided dispatch systems, specialized equipment such as LikePak cardiac treatment devices to be seen live at a hospital, and voice-over-IP programs to function independent of commercial cellular carriers. This network will give city agencies a redundant way to communicate that does not exist today.
- When complete, the network will consist of 158 wireless access points and up to 30 cameras.
- Cameras may pan-tilt-zoom and will have customized zones of privacy screens. As the camera pans, private areas will be covered with a black box that prevents images of that area from being seen or recorded. The privacy screens originate within the camera, not the DVR, so they cannot be removed after the fact.
- The Steering Committee will determine if a select number of camera views may be shared live on the Internet. Seattle Police is confident that this idea will be supported.
- There is a draft video-use policy that includes a 30-day video retention policy, defines who will have access to the cameras and limitations on who can move the cameras. Patrol officers may be able to view the video but will not be able to steer the cameras.
- Each of the city Operations Centers, Seattle Police 911, Seattle Fire Alarm Center, Seattle Police Harbor Patrol, SDOT Traffic Management Center and the US Coast Guard will have access to live video.

### History:

- Seattle Police conducted pilot projects in 2009 to evaluate this technology:
  - Gasworks Park, July 4, 2009. Four access points and three cameras were deployed in and around Gasworks Park. The purpose was to see if the network would continue to function while 50,000 people were in the park. The local cellular towers went down during the event, but this network stayed operational.
  - Seattle Center, December 31, 2009. A small number of access points and cameras were deployed at Seattle Center for New Years Eve. The command post received connections from four public and private networks that carried 51 camera feeds via a single wireless connection. This connection also stayed live despite having 50,000+ people at Seattle Center at one time.

### Port Security Grant:

- Seattle Police began applying for grants in 2010. In November 2011, Seattle Police received a \$4.875 million Port Security Grant to build this network. The grant application was approved by Port of Tacoma (grant administrator), US Coast Guard Seattle (regional decision maker) and FEMA (grant originator). The City Council passed Ordinance 123879 on May 7, 2012 to authorize spending of the Port Security grant funds.
- The grant was awarded in November 2011. Request for Proposal (RFP) work started immediately in collaboration with Purchasing, DoIT, Fire, SDOT, and KC Metro. Grant went out for bid in February 2012, closed in March 2012. Cascade Networks won the bid and signed a contract in May 2012.
- The wireless access points and cameras will be installed at a total of 169 different sites:
  - As of February 15, 2013, equipment has been installed at 104 sites, including 10 cameras on Harbor Island and in West Seattle.
  - The anticipated “go-live” date for the network is March 31, 2013.
- The bulk of the access points will be deployed in the downtown core: Alaskan Way, Broad St., 4<sup>th</sup> Ave., S. King St. Most, but not all, of the cameras outside of downtown will have wireless access points installed at the same location.
- The cameras are planned for deployment along the waterfront and port areas as follows:
  - North end: seven cameras total, three have been installed: (two at the Ballard Locks, two on the Ballard Bridge (installed), one on the Fremont Bridge (installed), one at SPD Harbor Patrol, and one site near Shilshole Bay TBD).
  - Downtown: ten cameras total (one on the Magnolia Bridge and eight along Alaskan Way between Broad St. and Yesler Way). The Alaskan Way cameras will begin as temporary installations because of the tunnel and seawall projects.
  - West Seattle: twelve cameras total, ten have been installed: three on Harbor Island, three along Harbor Av. SW, two on Alki Av. SW, one on Beach Dr. SW., and one at the Fautleroy Ferry Terminal. Two pending sites: one at the Admiral Viewpoint, and one at the US Coast Guard Lighthouse.
  - Additionally, one marine-grade FLIR camera is being considered for deployment. Two downtown sites are under consideration but are not final. Either site will be a roof-top deployment for an elevated view of Elliott Bay.

### Partnerships:

- This project is another example of a Seattle Police led project where city departments are actively working together. The following is a list of partnering departments and agencies, with their intended uses:
  - Seattle Police: connect police vehicles to network when in coverage areas, allow responding officers to see live video from Port cameras before they arrive, faster network connection than current method offers. Cameras may be used during special events. Harbor Patrol will look at cameras during responses along Ship Canal and Elliott Bay side of Seattle.
  - Seattle Fire: fire trucks will connect to the mesh network when in the coverage area. SFD will connect equipment such as LifePak cardiac devices to the network for live upload to the hospital during treatment. The Fire Alarm Center will view live cameras for incident response along the waterfront.
  - Seattle Department of Transportation: lead agency in installing the wireless network. They will view live cameras on bridges for traffic monitoring, along Alaskan Way for traffic monitoring, and network connection for field units as needed. Lead agency but

- partnering with Metro for new Rapid Ride corridor along Rainier Av. S. between S. Jackson St. and S. Henderson St. (separate grant for Rainier Avenue project).
- King County Metro: early partner in project before grant was awarded. Major use will be for Rapid Ride program along 3<sup>rd</sup> Ave. in downtown. Bus stops, Orca Pass stations, and bus connections to the network are planned. *Note: Mayor McGinn and County Executive Dow Constantine held a press conference about this on December 11, 2012 as part of 3<sup>rd</sup> Av. corridor improvements.*
  - City of Seattle DoIT: has provided support and project management before the grant was awarded. DoIT, SPD IT, SFD IT, SDOT IT and King County IT have collaborated with the vendor on the design, best practices, and deployment strategies for the mesh network.
  - City Light: along with SDOT, major partner in installing and facilitating network deployment. They are studying how they can best use this network.
  - US Coast Guard: we will share access to the cameras with the US Coast Guard to enhance port security and incident response.
  - Port of Seattle: there are preliminary discussions underway with the Port of Seattle to share access to the cameras as a law enforcement partner on the water.

#### Similar Local Deployments:

- Buffer Zone Protection Plan grant:
  - 2011 grant for four wireless access points and four cameras around the Columbia Tower. Note that this was a pass-through grant and the equipment is owned by the Columbia Tower.
- Regional Resilience Assistance Program grant:
  - Plan is to deploy in early 2013 approximately 12 wireless access points total around Safeco Field, CenturyLink Field, Space Needle and Convention Center.
- Chinatown Network:
  - Nine cameras and access points within the Chinatown community of the International District
  - Funded by small grants and significant community fundraisers
  - Went live in August 2012
  - Shares video and camera access with Seattle Police, but they own the video and decide who gets it
  - At least two robberies and a series of burglaries have been solved using their video system.
- Tukwila and Federal Way each operate public camera networks.
- City of Port Angeles is building a 230 wireless access point network without cameras.