Design Considerations

- Existing rules & changing technology
- Streetscapes and views
- Neighborhood business & tenants
- Historic Preservation
Basic outlooks not always best...

Co-Locations aren’t always best

Location, Context, and Scale Matter

Historic resources matter, but can be done right
Example of a Previously Approved Design on a Known Historic Resource

“Macro” WTS Facility

3 Panel Antennas within faux vent pipes and equipment cabinets inside building
Example of a Disapproved Initial Design in the Marina

Views of the Golden Gate area

Scale and Massing Concern
Example of a Disapproved Design in the Marina

Scale and Massing Concern

Vent pipe widths too large for building
Example of a Viable Design in the Marina

3 antennas in “narrow” faux vent pipes

Equipment (rru’s) screened too!

Some neighbors supportive
Implementation Matters | Not quite a finished vent pipe....
DAS Node in Outer Richmond

“DAS R”
Rusted elements and various equipment enclosure colors
• Original design does not include large/bulky battery cabinet & power meter on pole across street

“DAS XL”
view from Washington Street looking west at site

MTAPOLY-VZW Node 221
1175 Washington Street, San Francisco, CA

Existing

Proposed

Proposed Extenet Antennas & Equipment
view from Washington Street looking west at site
MTAPOLY-VZW Node 221
1175 Washington Street, San Francisco, CA
Photosims Produced On 3-3-2015

Existing

Proposed

Proposed Extenet Antennas & Equipment
Got stickers?

Initial meter design on left

New narrow meter on right
Current Sites (whip antenna for Sprint, panel for Verizon)
Phillips/Ericsson “ZeroSite” | Composite Pole with panel antennas inside and equipment in base | Considered too large for most small-scale SF streets
Small Cell System in Chicago
Disapproved Design

Replacement transit (electric MUNI bus/rail) support pole with panel antennas, and 4 boxes including equipment cabinet, battery backup, disconnect, and meter

1 of 9 locations in small scale residential neighborhoods of Haight-Ashbury and the Marina

Not Supported by Planning based on design
Original Small Cell Proposal on City Poles by Extenet for Verizon Wireless.
Initial Concept (2 of 2) | Offset arm not supported by Planning
Passive RF Gear below Antenna

Exposed cabling not supported by Planning
Initial mockup on standard steel tapered light pole owned by San Francisco Public Utilities Commission (SFPUC)

Initial mockup features extra RF warning sticker (not required at this location) and cabling dropping substantially below each radio relay unit (computer)
The little things…cabling
Current Proposed Small Cell on City Poles by Extenet for Verizon Wireless cabling below RRUs (boxes midway down pole) visible, but minimized
Current Proposed Small Cell on SFMTA (MUNI) Poles by Extenet for Verizon Wireless
It’s not always about the antenna......
Proposed faux vents

Proposed coolers

Original Approval
Property owner painted building and vent pipes

2 GPS antennas more visible than needed
Flashing indicator lights
Got stickers?
Crown Castle for Verizon Wireless
Battery Backup Cabinet Only

(non-essential and a wider/bulkier model than commercially available)

"DAS XL"
Crown Castle for Verizon Wireless Battery Backup Cabinet Only

revised narrower battery backup unit

“DAS XL”
The Toolbox

✓ Narrower antennas for vent pipes

✓ Wider and shorter antennas for large historic buildings (faux mechanical penthouse)

✓ Electronic Tilt Antennas paired with slim brackets and cable shrouds for façade mounts

✓ RRUss that can lay flat....
Can newer panel antennas with electronic tilt and cable shrouds improve design?
Network Challenges

- Increase coverage/capacity with zoning acceptance
- Field installation issues
- Workmanship issues
- Component failures, PIM sources

The Solution

Integrated Solutions:

- Zoning friendly aesthetics
- Upgrades without zoning impact
- Reliable factory-tested performance
- Plug and play installation
- Rapid deployment = more sites/month/crew
- Optimum RF performance

Wireless Product Manufacturer catalog showcasing an existing SF DAS site as a design to be avoided
“using nothing but this” for a Planner equals challenging cabling/port locations, complete plans, warranty requirements, internal cultures, and various vendors.
Initial Concept Deployment Map

Approximately 300+ sites on existing steel light and transit poles

Steel Poles owned by City

Initial focus on Article 10 & 11 Districts in SOMA and Northeast of City (east of Van Ness Avenue)