

# PROJECT STATUS

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## Emergency Communication System Upgrade (ECSU)

C800 Project Leader: John Hartsock

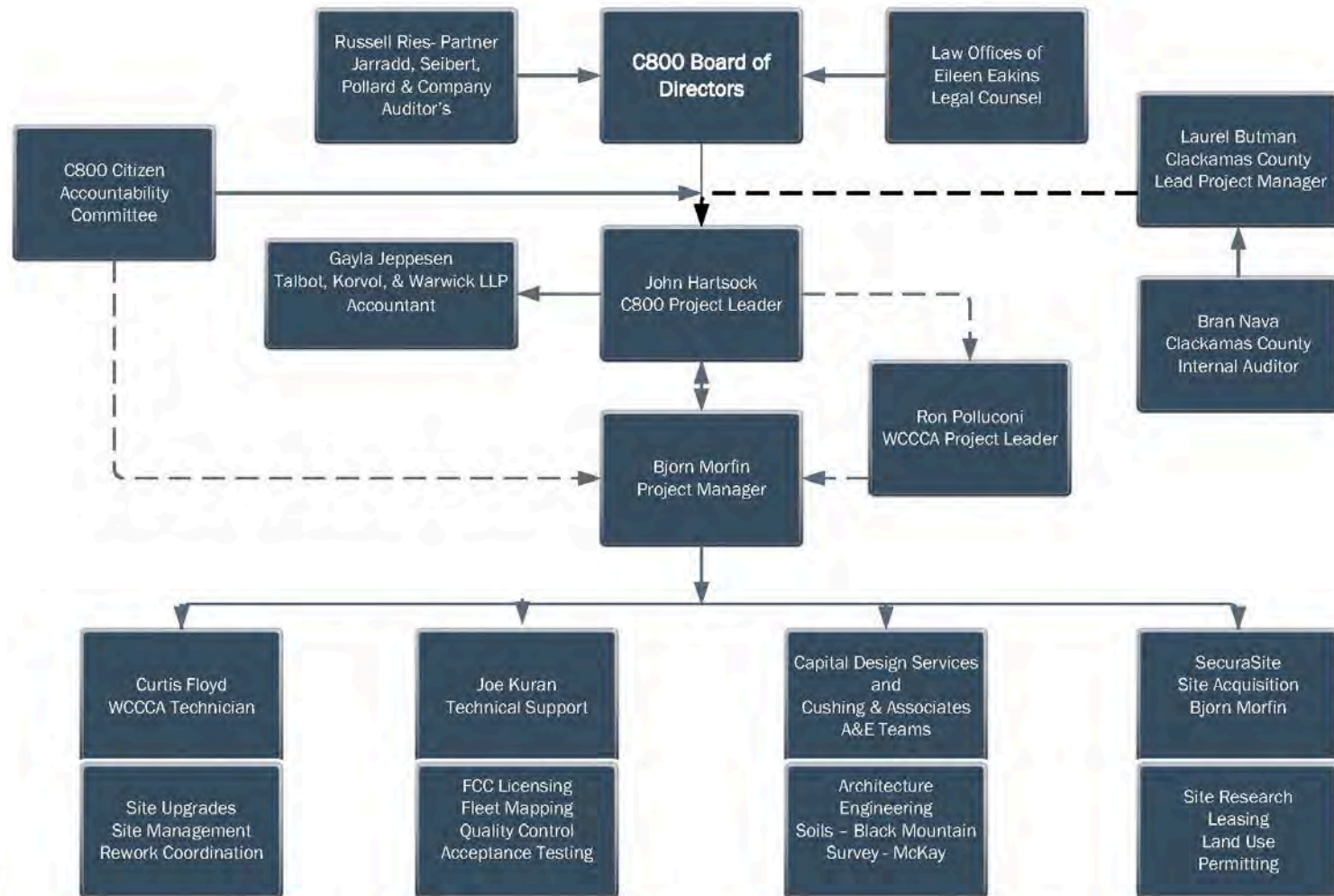
WCCCA Project Leader: Ron Polluconi

C800 Project Manager: Bjorn Morfin

Date: September 1, 2018



# C800 ECSU Project Team



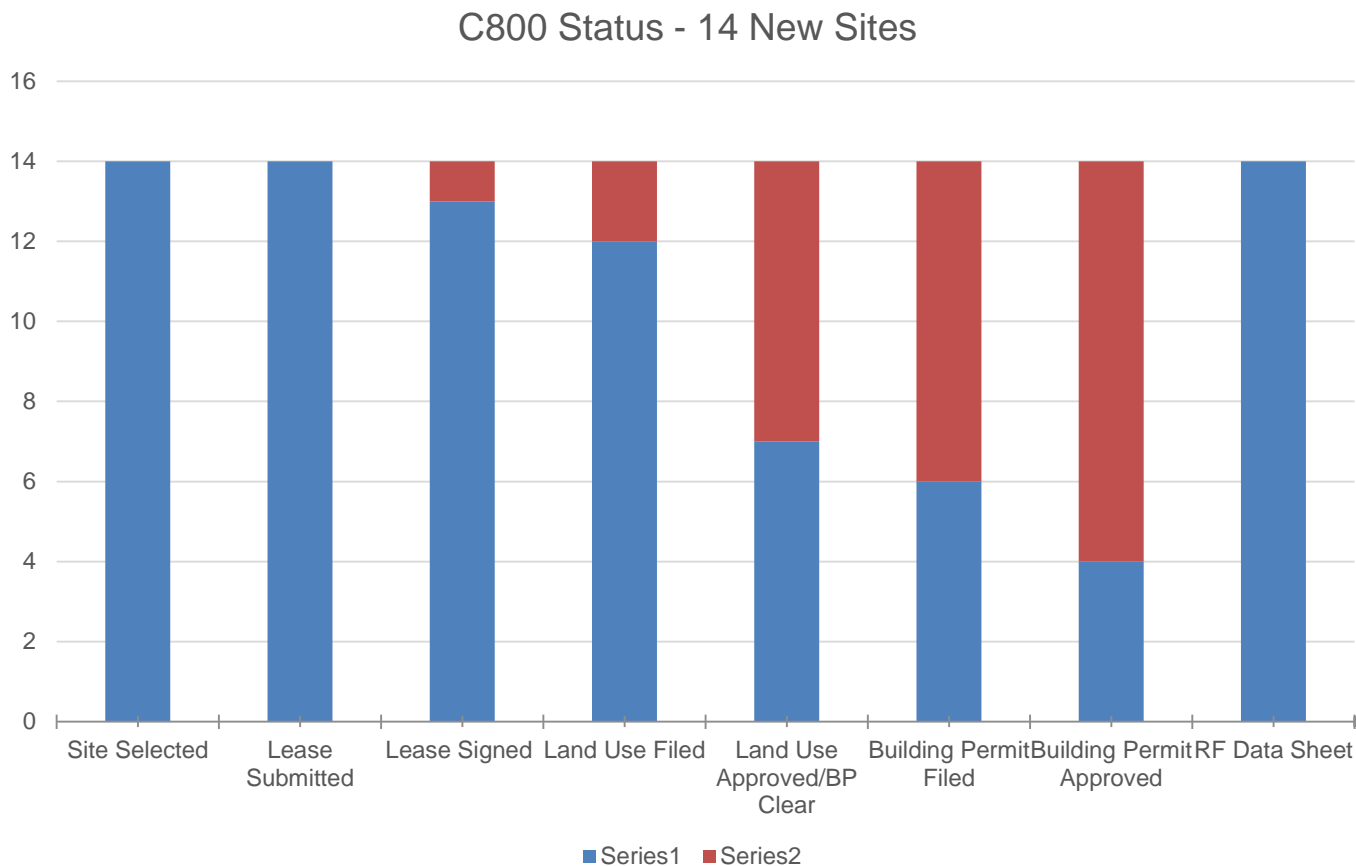
# Project Status Summary

|   | C800  |
|---|---|
| <ul style="list-style-type: none"><li>New Site Acquisition / Design / Construction:</li></ul> | <ul style="list-style-type: none"><li><b>Barton (Carver):</b> Land use submittal anticipate approval by early October project bid on August 7, 2018.</li><li><b>Cooks Butte / Kerr Parkway Water Tank:</b> Awaiting approved lease from City for Kerr Parkway. Design complete for Cooks and Kerr anticipate land use submittal in late October after receipt of Kerr lease.</li><li><b>Damascus:</b> Construction complete.</li><li><b>Wilsonville:</b> No success is gaining an access easement / researching a new site.</li><li><b>Sandy:</b> Construction complete.</li><li><b>Canby:</b> Construction complete.</li></ul> |

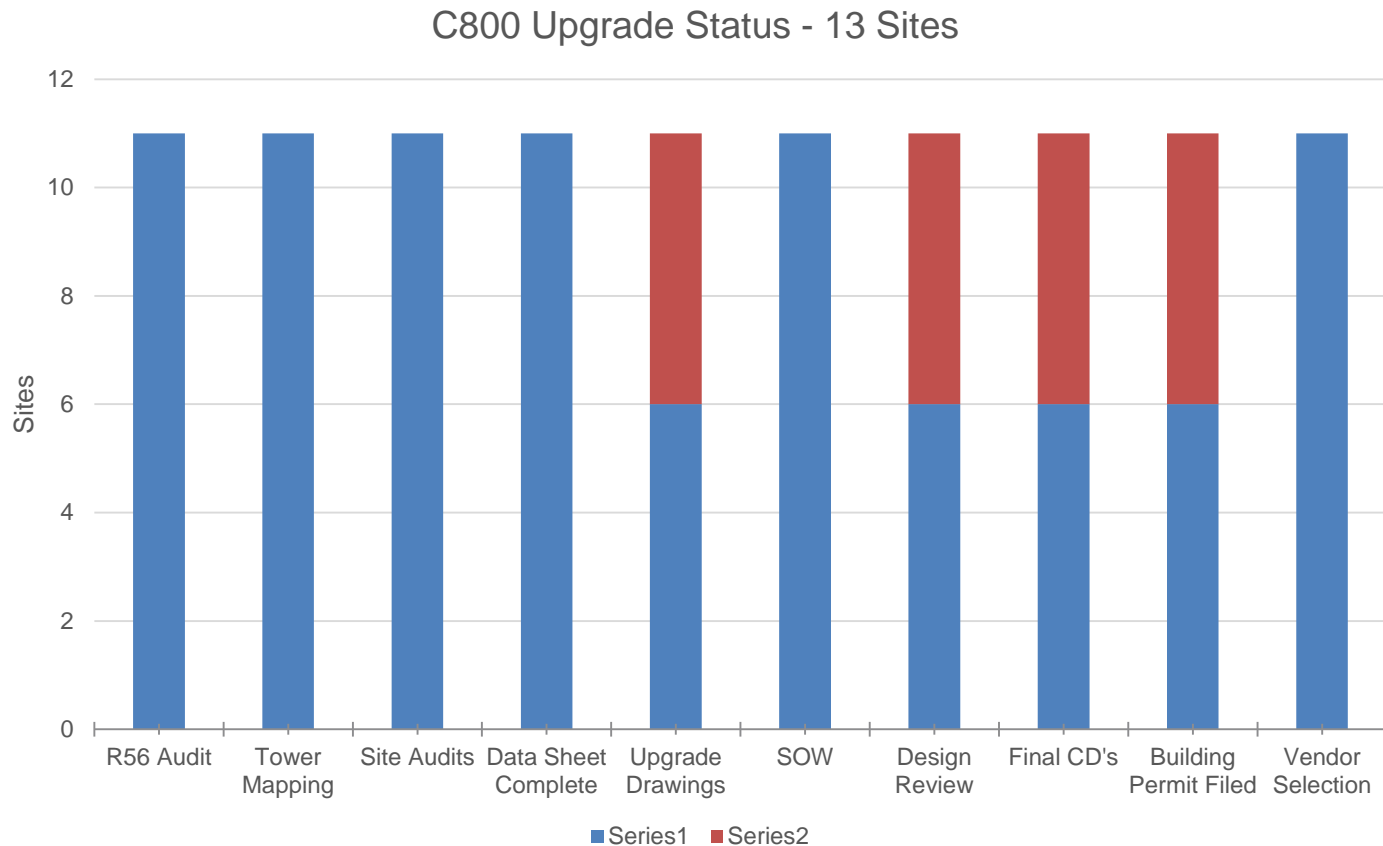
# Project Status Summary

|  | C800  |
|--|---|
| <ul style="list-style-type: none"> <li>New Site Acquisition / Design / Construction:</li> <li>Existing Site Design / Construction</li> </ul> | <ul style="list-style-type: none"> <li><b>Crutcher Bench (BLM):</b> Bid August 7<sup>th</sup> construction to begin at completion of access bridge repair – estimated to be mid-October</li> <li><b>Highland Butte (BLM):</b> Bid August 7<sup>th</sup> construction to begin by October 1, 2018</li> <li><b>Tom Dick &amp; Harry (USFS):</b> NEPA work underway - awaiting USFS review.</li> <li><b>Memaloose (USFS):</b> NEPA work underway - awaiting USFS review.</li> <li><b>Oak Grove Butte (USFS):</b> NEPA work underway - awaiting USFS review. .</li> <li><b>Whale Head (USFS):</b> NEPA work underway - awaiting USFS review.</li> <li><b>Existing Sites</b>—Polivka/Mt Scott/Redland/Mt View/View Acres/Pete's building's complete. Tower upgrades to commence by October 1. Balance of existing sites, seven, under design.</li> </ul> |

# Site Acquisition Status – C800



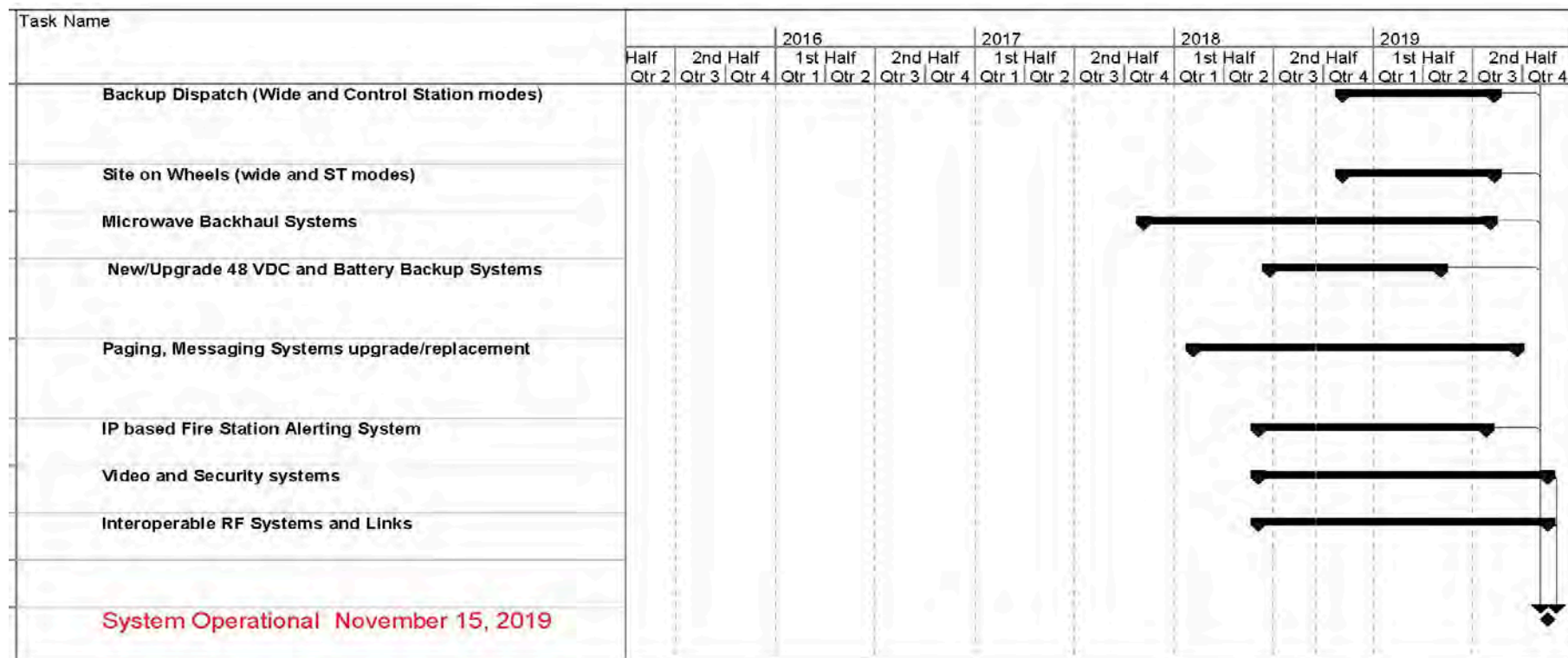
# Site Upgrade Status – C800



# Project Schedule

| Task Name  |            |                        |  |                        | 2016                   |  |                        |                        | 2017 |                        |                        |  | 2018                   |                        |  |  | 2019 |  |  |  |
|--|------------|------------------------|--|------------------------|------------------------|--|------------------------|------------------------|------|------------------------|------------------------|--|------------------------|------------------------|--|--|------|--|--|--|
|  | Half Qtr 2 | 2nd Half Qtr 3   Qtr 4 |  | 1st Half Qtr 1   Qtr 2 | 2nd Half Qtr 3   Qtr 4 |  | 1st Half Qtr 1   Qtr 2 | 2nd Half Qtr 3   Qtr 4 |      | 1st Half Qtr 1   Qtr 2 | 2nd Half Qtr 3   Qtr 4 |  | 1st Half Qtr 1   Qtr 2 | 2nd Half Qtr 3   Qtr 4 |  |  |      |  |  |  |
| <b>C800 Radio Systems Upgrade 6-1-2018</b>   |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Site Acquisition & Design & Construction   |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Aquisition - Land Leases / Survey / Soils / Geotech                                    |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Site Designs, Engineering /Architecture / Land Use / Permits / Bid Award Contract      |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Construct New Site   |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Upgrade Existing Communications Sites  |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Site Designs, Engineering /Architecture / Land Use / Permits/ Bid & Award Construction |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Construct Existing Site  |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| WCCCA/C800 Phase IV P25 System (Voice/Data/Paging)                                     |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| P25 LMR System and Subscribers   |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Upgrade or Replace P25 Subscriber Radios   |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Upgrade P25 LMR Infrastructure   |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| New/upgraded alarms, security, telemetry, site management systems, procurment          |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Upgrade or Replace P25 IV&D Radio/Dispatch Consoles                                    |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |
| Recording/Logging equipment upgrade/replacement  |            |                        |  |                        |                        |  |                        |                        |      |                        |                        |  |                        |                        |  |  |      |  |  |  |

# Project Schedule



- New Site Design & Construction complete: July 2019
- Existing Sites Upgrade complete: April 2018
- System Operational Date: November 2019



# C800 Radio System Upgrade Budget <sup>(1)</sup>

|                  |                                  |               |              |
|------------------|----------------------------------|---------------|--------------|
| Project:         | <b>C800 Radio System Upgrade</b> |               |              |
| Date Original:   | 10/1/2015                        | Date Updated: | Sept 17 2018 |
| Project Manager: | Bjorn Morfin                     |               |              |

| Item  | Budget              | Original Encumbrance | Additional Encumbrance / Change Order | Estimate to Complete | Percent Complete | Estimated Total   | (Over) Under Budget | Expended            |
|---|---------------------|----------------------|---------------------------------------|----------------------|------------------|-------------------|---------------------|---------------------|
| <b>Soft Cost</b>  |                     |                      |                                       |                      |                  |                   |                     |                     |
| Site Acquisition Consulting - Quest                       | 60,000              | 30,000               | 40,000                                | 0                    | 95.81%           | 70,000            | (10,000)            | 67,069.81           |
| Site Acquisition Consulting / Permits - Securasisite      | 320,000             | 268,500              | 50,000                                | 0                    | 85.47%           | 318,500           | 1,500               | 272,214.95          |
| Site Planning A&E - Cushing/Capital/Hess                  | 725,000             | 317,178              | 380,100                               | 30,000               | 86.74%           | 727,278           | (2,278)             | 630,808.45          |
| Geotechnical+13:45 / Environmental Consulting - Black Mtn | 250,000             | 89,100               | 315,992                               | 30,000               | 79.05%           | 435,092           | (185,092)           | 343,947.87          |
| Survey - McKay  | 75,000              | 50,160               | 59,880                                | 20,000               | 51.41%           | 130,040           | (55,040)            | 66,855.00           |
| USFS Land Use Fees  | 15,000              | 10,000               | 24,000                                | 5,000                | 85.48%           | 39,000            | (24,000)            | 33,338.70           |
| Land Use Fees   | 25,000              | 8,379                | 2,500                                 | 15,000               | 36.09%           | 25,879            | (879)               | 9,339.00            |
| Plan Check / Permit Cost                                  | 60,000              | 5,800                | 5,000                                 | 45,000               | 17.07%           | 55,800            | 4,200               | 9,525.20            |
| Printing  | 2,500               |                      |                                       | 2,500                | 0.00%            | 2,500             | 0                   | 0.00                |
| Bid Advertising   | 3,500               | 60                   | 730                                   | 1,000                | 44.12%           | 1,790             | 1,710               | 789.71              |
| Materials Testing & Inspection                            | 40,000              | 1,200                | 2,500                                 | 20,000               | 11.07%           | 23,700            | 16,300              | 2,623.75            |
| Project Management  | 300,000             | 80,000               | 165,200                               | 25,000               | 57.40%           | 270,200           | 29,800              | 155,093.93          |
| Legal Fees  | 30,000              | 12,000               | 10,000                                | 8,000                | 42.63%           | 30,000            | 0                   | 12,787.60           |
| Licensing   | 20,000              | 67,000               |                                       | 20,000               | 76.19%           | 87,000            | (67,000)            | 66,286.50           |
| Miscellaneous   | 30,000              | 6,800                | 70,000                                | 4,000                | 91.78%           | 80,800            | (50,800)            | 74,160.88           |
| <b>Sub-Total Soft Cost</b>                                | <b>1,956,000</b>    | <b>946,177</b>       | <b>1,125,902</b>                      | <b>225,500</b>       | <b>75.94%</b>    | <b>2,297,579</b>  | <b>(341,579)</b>    | <b>1,744,841</b>    |
| <b>Construction Cost</b>                                  |                     |                      |                                       |                      |                  |                   |                     |                     |
| Site Construction   | 8,895,000           | 1,681,161            | 3,587,967                             | 1,290,000            | 32.25%           | 6,559,128         | 2,335,872           | 2,115,039.45        |
| Buildings   | 1,350,000           | 2,710,369            | 101,639                               | (818,002)            | 60.34%           | 1,994,006         | (644,006)           | 1,203,097.60        |
| Towers  | 660,000             | 511,282              | 461,207                               | 250,000              | 40.09%           | 1,222,489         | (562,489)           | 490,041.34          |
| Generator   | 500,000             | 428,750              | 84,446                                | 35,000               | 61.10%           | 548,196           | (48,196)            | 334,942.21          |
| 48VDC   | 1,065,000           | 1,004,051            | 0                                     | 50,000               | 9.15%            | 1,054,051         | 10,949              | 96,466.64           |
| Lake Oswego Antenna                                       | 18,000              | 17,500               | 0                                     | 0                    | 100.07%          | 17,500            | 500                 | 17,511.75           |
| Existing Sites  | In Site Construcion | 0                    | 0                                     | 0                    | 0.00%            | 0                 | 0                   | 0.00                |
| <b>Sub-Total Construction Cost</b>                        | <b>12,488,000</b>   | <b>6,353,113</b>     | <b>4,235,259</b>                      | <b>806,998</b>       | <b>37.36%</b>    | <b>11,395,370</b> | <b>1,092,630</b>    | <b>4,257,098.99</b> |

# C800 Radio System Upgrade Budget <sup>(2)</sup>

|                  |                                  |               |              |
|------------------|----------------------------------|---------------|--------------|
| Project:         | <b>C800 Radio System Upgrade</b> |               |              |
| Date Original:   | 10/1/2015                        | Date Updated: | Sept 17 2018 |
| Project Manager: | Bjorn Morfin                     |               |              |

| Item                            | Budget            | Original Encumbrance | Additional Encumbrance / Change Order | Estimate to Complete | Percent Complete | Estimated Total   | (Over) Under Budget | Expended             |
|---------------------------------|-------------------|----------------------|---------------------------------------|----------------------|------------------|-------------------|---------------------|----------------------|
| <b>Equipment Costs</b>          |                   |                      |                                       |                      |                  |                   |                     |                      |
| Simulcast Equipment             | 20,726,000        | \$22,203,399         |                                       | 200,000              | 14.47%           | 22,403,399        | (1,677,399)         | 3,241,197.67         |
| Master Site Equipment           | in Simulcast      |                      |                                       | 0                    |                  | 0                 |                     | 0.00                 |
| Console                         | in Simulcast      |                      |                                       | 0                    |                  | 0                 |                     | 0.00                 |
| Back up Dispatch                | in Simulcast      |                      |                                       | 0                    |                  | 0                 |                     | 0.00                 |
| Spares                          | in Simulcast      |                      |                                       | 0                    |                  | 0                 |                     | 0.00                 |
| Paging                          | 373,000           |                      |                                       | 373,000              | 0.00%            | 373,000           | 0                   | 0.00                 |
| Subscriber Radios               | 5,000,000         | 5,911,102            | 1,288,896                             | (2,199,998)          | 107.76%          | 5,000,000         | 0                   | 5,388,193.54         |
| Unified Push to Talk            | in Simulcast      |                      |                                       | 0                    |                  | 0                 |                     | 0.00                 |
| Asset Management                | 119,000           |                      |                                       | 119,000              | 0.00%            | 119,000           | 0                   | 0.00                 |
| Post Warranty / System Refresh  | 5,800,000         | 5,812,058            |                                       | 0                    | 100.00%          | 5,812,058         | (12,058)            | 5,812,058.44         |
| Test Equipment                  | 100,000           |                      |                                       | 100,000              | 0.00%            | 100,000           | 0                   | 0.00                 |
| Microwave                       | 3,368,000         | 406,169              | 2,349,951                             | 250,000              | 19.74%           | 3,006,120         | 361,880             | 593,477.01           |
| Security System                 | 1,364,000         |                      |                                       | 500,000              | 0.22%            | 500,000           | 864,000             | 1,079.96             |
|                                 |                   |                      |                                       |                      |                  |                   |                     |                      |
| <b>Subtotal Equipment Costs</b> | <b>36,850,000</b> | <b>34,332,728</b>    | <b>3,638,847</b>                      | <b>(657,998)</b>     | <b>40.30%</b>    | <b>37,313,577</b> | <b>(463,577)</b>    | <b>15,036,007</b>    |
|                                 |                   |                      |                                       |                      |                  |                   |                     |                      |
| Bond Cost                       | 300,000           | 290,372              |                                       | 0                    | 111.43%          | 290,372           | 9,628               | 323,547              |
|                                 |                   |                      |                                       |                      |                  |                   |                     |                      |
| <b>Subtotal Project Cost</b>    | <b>51,594,000</b> | <b>41,922,390</b>    | <b>9,000,008</b>                      | <b>374,500</b>       | <b>41.64%</b>    | <b>51,296,898</b> | <b>297,102</b>      | <b>21,361,494</b>    |
|                                 |                   |                      |                                       |                      |                  |                   |                     |                      |
| <b>Contingency</b>              | <b>7,403,739</b>  |                      |                                       | <b>7,403,739</b>     | <b>0.00%</b>     | <b>7,403,739</b>  | <b>0</b>            |                      |
|                                 |                   |                      |                                       |                      |                  |                   |                     |                      |
| <b>Total Project Cost</b>       | <b>58,997,739</b> | <b>41,922,390</b>    | <b>9,000,008</b>                      | <b>7,778,239</b>     | <b>36.39%</b>    | <b>58,700,637</b> | <b>297,102</b>      | <b>21,361,494.39</b> |

Premium 7,165,794

|               |                   |             |
|---------------|-------------------|-------------|
| Bond Proceeds | 5,845,000         | Taxable     |
|               | 53,155,000        | Non Taxable |
|               | <b>59,000,000</b> |             |

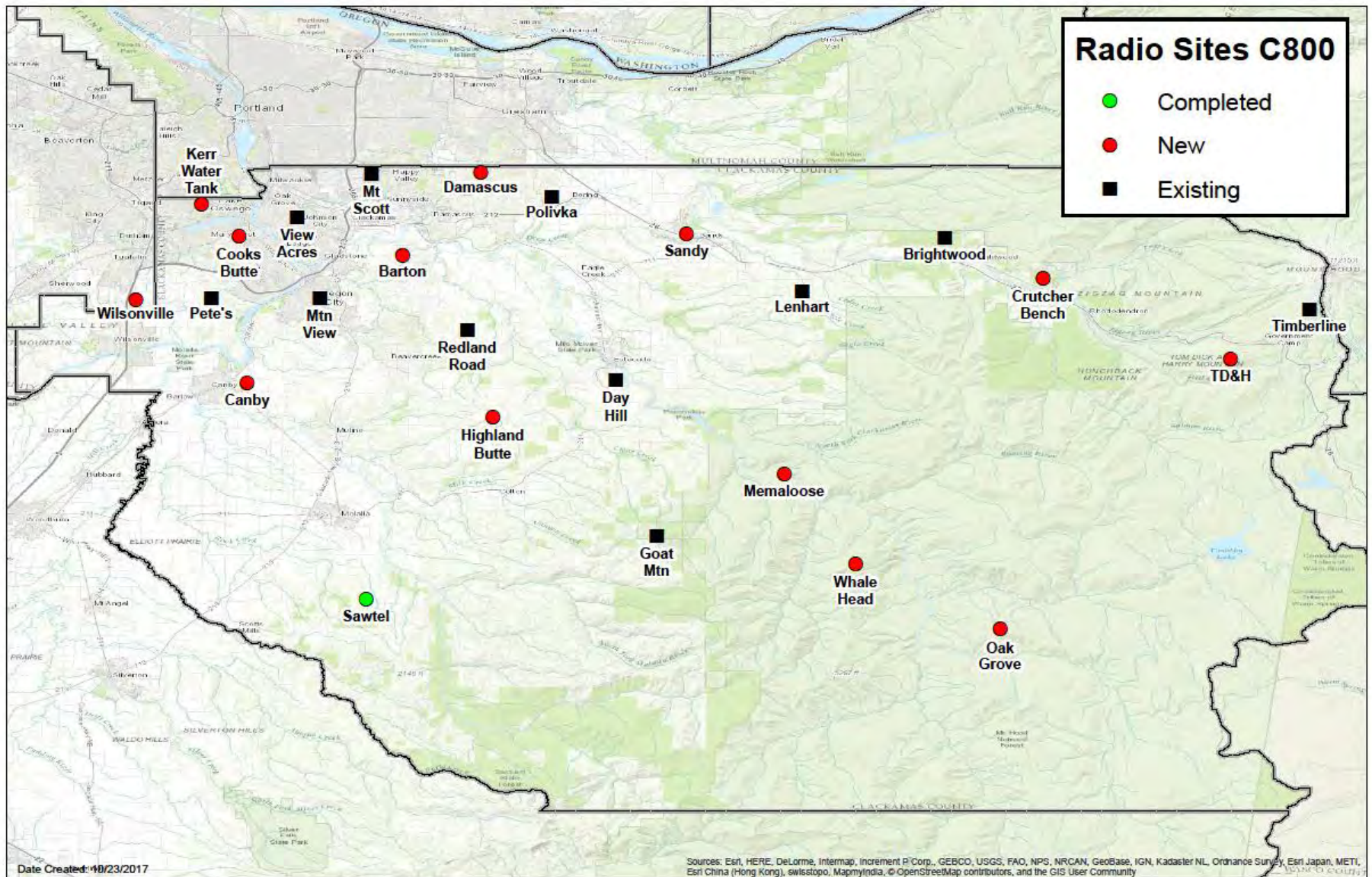
# Q4'18 Quarterly Outlook

|   | <b>C800</b>   |
|---|---|
| <ul style="list-style-type: none"> <li>• Procurement</li> </ul>                           | <ul style="list-style-type: none"> <li>• Bid and award tower upgrade at existing sites</li> <li>• Bid and award asset management system</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Leases &amp; Land Use Applications</li> </ul>    | <ul style="list-style-type: none"> <li>• Submit Cooks Butte and Kerr Parkway location for land use</li> <li>• Submit new Wilsonville site for land use and building permits</li> </ul>  |
| <ul style="list-style-type: none"> <li>• Existing Site &amp; Building Upgrades</li> </ul> | <ul style="list-style-type: none"> <li>• Continue to construct civil work relating to shelter/generator foundation upgrades, doors, electrical, and related site compound renovations.</li> <li>• Construct tower upgrades at existing sites</li> </ul> |
| <ul style="list-style-type: none"> <li>• Radio / Microwave</li> </ul>                     | <ul style="list-style-type: none"> <li>• Start radio infrastructure install</li> <li>• Stage microwave system and begin install</li> <li>• Finalize subscriber template design and distribute radios</li> </ul>   |



# Appendix C

## C800 Site Locations

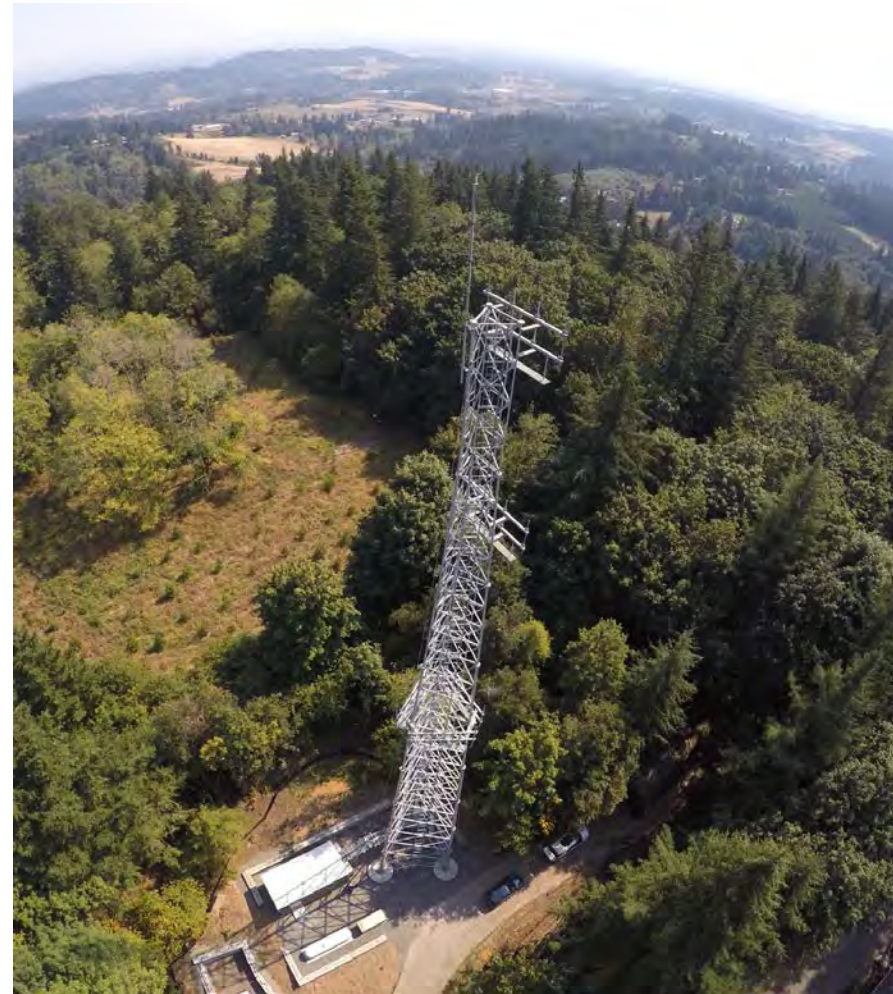


**PROJECT SUMMARY:** To create an efficient, dependable public safety radio communications system that works in all parts of Clackamas County!

## What's Happening With the Communications Upgrade Project?







Damascus Site





Canby Site

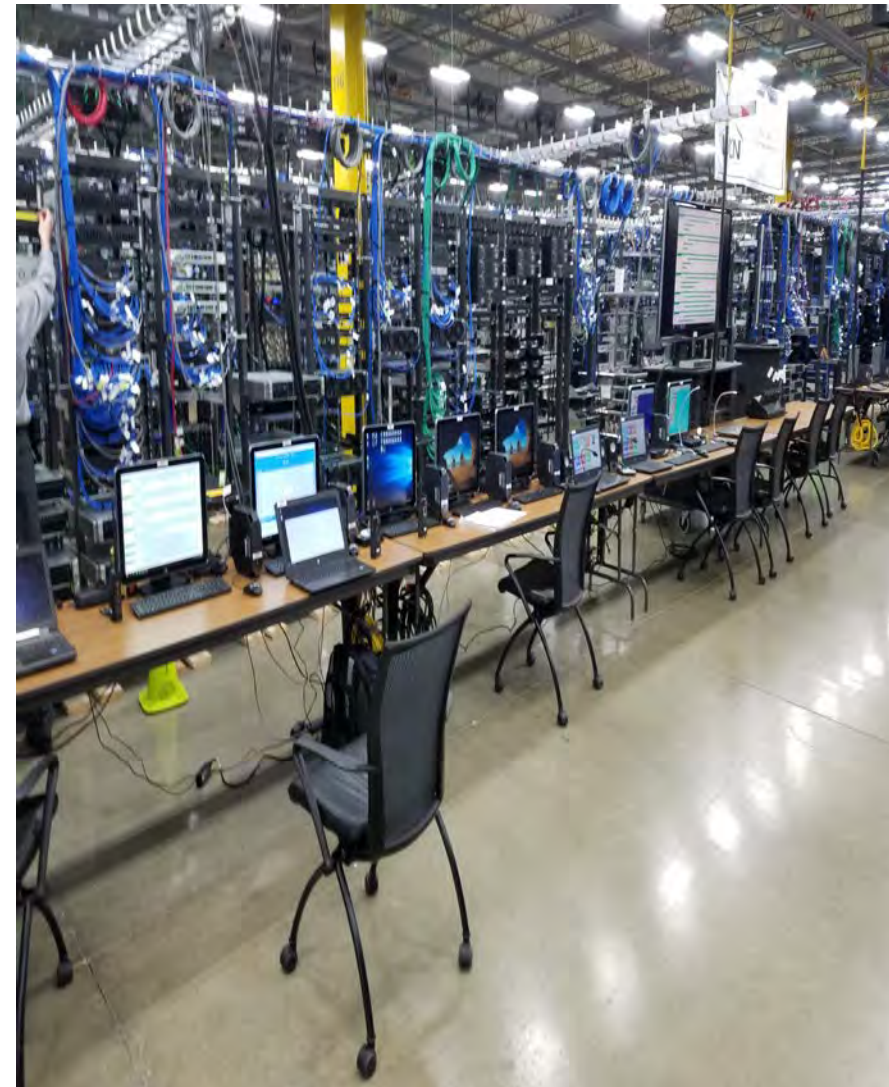




Sandy Site

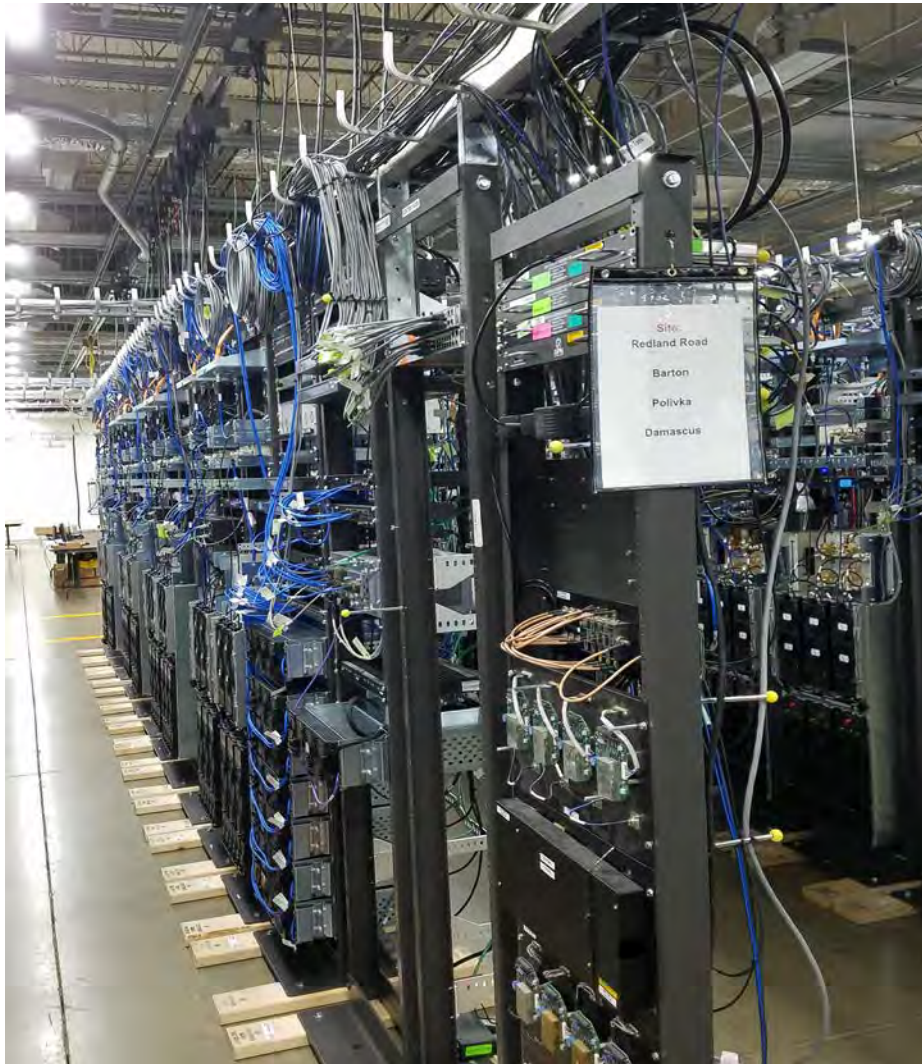






## Motorola Staging





## Motorola Staging





## Motorola Staging





## Motorola Staging