

COVER PAGE

Office of Information Technology

FY 2019-20 CAPITAL CONSTRUCTION REQUESTS (LISTED IN OSPB PRIORITY ORDER)

RECOMMENDED FOR FUNDING BY OSPB:

- Public Safety Communications Network Microwave Infrastructure Replacement
(*continuation*)

TOTAL: FY 2019-20 CAPITAL CONSTRUCTION STATE-FUNDED REQUEST AMOUNT = \$ **10,316,372**

FY 2019-20 CONTROLLED MAINTENANCE REQUESTS (2)

RECOMMENDED FOR FUNDING BY OSPB:

LEVEL I:

- Replace Microwave Towers, Group E

NOT RECOMMENDED FOR FUNDING BY OSPB:

LEVEL II:

- Replace Microwave Communications Site Shelters

HISTORY OF STATE FUNDING

- **\$94.2 million** has been appropriated to the office on behalf of capital projects since FY 2014-15. This represents **9.4 percent** of the total amount appropriated on behalf of all capital construction and controlled maintenance projects during this period.
- **\$21.3 million** was appropriated in FY 2018-19, including \$0.6 million authorized through Senate Bill 17-267 for controlled maintenance.

INVENTORY OF GENERAL FUND SUPPORTED FACILITIES

- The General Fund supported inventory of OIT facilities totals **26,069 GSF**. This total represents **0.1 percent** of the entire General Fund supported inventory of state buildings.

RECENT CDC VISITS

- No visits in the last five years.

Fiscal Year 2019-20 Capital Construction Request

Office of Information Technology

Public Safety Communications Network Microwave Infrastructure Replacement

PROGRAM PLAN STATUS

2016-011

Approved Program Plan?

Date Approved:

PRIORITY NUMBERS

Prioritized By	Priority	
DeptInst	1 of 1	
OSPB	1 of 62	Recommended for funding.

PRIOR APPROPRIATION AND REQUEST INFORMATION

Fund Source	Prior Approp.	FY 2019-20	FY 2020-21	Future Requests	Total Cost
CCF	\$42,100,152	\$10,316,372	\$0	\$0	\$52,416,524
Total	\$42,100,152	\$10,316,372	\$0	\$0	\$52,416,524

ITEMIZED COST INFORMATION

Cost Item	Prior Approp.	FY 2019-20	FY 2020-21	Future Requests	Total Cost
Land Acquisition	\$0	\$0	\$0	\$0	\$0
Professional Services	\$14,688,864	\$4,166,390	\$0	\$0	\$18,855,254
Construction	\$2,811,360	\$0	\$0	\$0	\$2,811,360
Equipment	\$24,062,800	\$6,015,700	\$0	\$0	\$30,078,500
Miscellaneous	\$0	\$0	\$0	\$0	\$0
Contingency	\$537,128	\$134,282	\$0	\$0	\$671,410
Software Acquisition	\$0	\$0	\$0	\$0	\$0
Total	\$42,100,152	\$10,316,372	\$0	\$0	\$52,416,524

PROJECT STATUS

This is a continuation request. This is the final request for funding.

Associated projects. Funding for the Digital Trunked Radio System (DTRS) was awarded in nine years between FY 1998-99 and FY 2008-09. Funding for the DTRS software upgrade was awarded in FY 2013-14, FY 2014-15, and FY 2018-19. Several recent controlled maintenance projects have addressed deteriorating microwave tower infrastructure. Additional, ongoing funding for projects associated with the DTRS was also awarded through House Bill 14-1203.

PROJECT DESCRIPTION / SCOPE OF WORK

The Governor's Office of Information Technology (OIT) is requesting state funds for the fifth year of a multi-phase project to replace the state microwave system with a system that creates more communication safeguards through redundancies. The microwave system provides connectivity between the DTRS transmitter sites. The DTRS is a statewide public safety, two-way radio communication system. The system is used by state and local government agencies for day-to-day communications to improve interagency cooperation and coordination in first responder situations. The request addresses all of the equipment associated with the operation of the microwave transmitter system.

Fiscal Year 2019-20 Capital Construction Request

Office of Information Technology

Public Safety Communications Network Microwave Infrastructure Replacement

A microwave system is used to provide connectivity between remote transceiver sites and dispatchers at centralized or regional communication centers. The term microwave refers to the part of the radio spectrum that is used to transmit data from one radio site to another. A microwave transmitter must have a direct line-of-site connection to the device with which it is communicating. Therefore, a network of transmitters, typically located on tall buildings, transmission towers, or mountaintops, is required to connect across large distances.

The existing microwave transmitter system operates like a chain — each site consists of a main and backup microwave transmitter, and each site is linked to another site in a series or chain. OIT explains that a failure at one site may reduce the communication capabilities of transmitter sites later in the chain. The proposed new system allows for radio traffic to be rerouted in several directions (away from a failed site) in order to avoid large-scale communication outages. The project creates five rings, or loops, using existing communication sites. The department will determine, based on the selected project vendor, the best way to send signals between various sites which will determine the best equipment for each site and whether additional transmitter sites are needed to improve transmissions. As many as six new transmission sites may be constructed through the project.

The project also funds:

- a network monitoring/management system;
- the replacement of obsolete microwave radios (60 percent of state system);
- upgrades to manufacturer-supported microwave radios (40 percent of state system);
- new battery backup power systems;
- test equipment;
- ancillary equipment;
- costs associated with Federal Communications Commission licensing;
- training for vendor-supported equipment;
- project management costs;
- administration costs; and
- project engineering.

The installation of the new equipment will be undertaken by OIT staff. The project replaces equipment region by region. The order and status of replacement by region is as follows:

- Ring 1, Denver Metro area (10 paths), 100 percent complete;
- Ring 2, southeast (34 paths), 85 percent complete;
- Ring 3, northeast (41 paths), 65 percent complete;
- Ring 4, southwest (63 paths), 4 percent complete; and
- Ring 5, Western Slope (79 paths), in design.

The funding in this year's request completes Ring 5 upgrades.

PROJECT JUSTIFICATION

OIT says that if the total project is not funded, the system may experience an unrecoverable electronic failure which would negatively impact first responders. An independent consultant who conducted a system assessment at the beginning of the project found that 60 percent of the microwave radio stations in the DTRS could no longer be supported with existing parts and services. In order to extend the useful life of the system, OIT personnel source parts from sites like eBay and often purchase and repair broken parts. In order to optimize the system, OIT says the system components and equipment should be replaced or upgraded to ensure the same level of redundancy. OIT explains that all of the DTRS partner agencies have already replaced their obsolete microwave system equipment.

OIT says the project will increase system circuit capability and monitoring. It will also minimize ongoing maintenance costs and free up staff to address routine maintenance rather than system failures. Finally, it will improve the office's ability to test and diagnose the entire microwave transmitter system from a centralized location.

Fiscal Year 2019-20 Capital Construction Request

Office of Information Technology

Public Safety Communications Network Microwave Infrastructure Replacement

PROGRAM INFORMATION

According to OIT, about 1,000 local, state, and federal government agencies currently use the DTRS. The system consists of 238 active radio sites and processes about 103 million transmissions a year. The primary stakeholders of the DTRS include state, local, and tribal government public safety entities, and several federal agencies. An agency may opt to use the DTRS as its primary radio system or for interoperability only, especially during first responder situations. The state's components of the microwave system (91 percent of the overall system) are supported through state appropriations, grants from various agencies and groups, local government general funds, and user fees.

PROJECT SCHEDULE

	Start Date	Completion Date
Ring 3, Northeast	April 2016	September 2018
Ring 2, Southeast	April 2017	December 2018
Ring 4, Southwest	June 2017	June 2019
Ring 5, Western Slope	April 2018	December 2020

SOURCE OF CASH FUNDS

This project is not funded from cash sources.

OPERATING BUDGET

The project has no anticipated impact on state operating costs.

STAFF QUESTIONS AND ISSUES

None.