MEMORANDUM

DATE: **June 4, 2015**
TO: **Administration and Finance Committee**
FROM: **Karl Quackenbush, Executive Director**
RE: **CTPS Five Year Computer Resources Plan (SFY2016 – 2020)**

1 BACKGROUND

CTPS prepares a Five-Year Computer Plan annually, with the goal of updating the plan each fiscal year to better represent the computing infrastructure investment needs of the agency. The plan typically includes hardware and software that are considered to be major reinvestments or have a cost of more than $5,000 per single item.

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2 SUMMARY OF PROGRESS

In the past five years, CTPS has made significant progress in updating and replacing its computing infrastructure and ancillary support systems. The following details the year and the total cost of these investments.

Progress made during SFY 2011 (cost $48,500)

- Cluster of high-performance workstations to run the TransCAD modeling software.
- One gigabit network switch to provide high speed data access to the new workstation cluster.
- Replacement fileserver and addition of 4TB of file system storage.
- Replacement of the existing firewall due to the cessation of technical support in the coming year.

Progress made during SFY 2012 (cost $42,400)

- Five additional high-performance workstations to run the TransCAD modeling software.
- Replacement of host computer for backup system due to the upcoming cessation of technical support for this hardware and its operating system.
- Application server to reduce computation load on a single server that had been doing double-duty as both a database server and an application server.
- 11 x 17 color printer capable of handling card stock.
- 8.5 x 11 color printer.

Progress made during SFY 2013 (cost $10,000)

- One high-density (LT05) tape drive
- 11 x 17 color printer
- 8.5 x 11 color printer

Progress made during SFY 2014 (cost $6,000)

- One tape library

Progress made during SFY 2015 (cost $90,000)

- Backup system with data de-duplication support
- Replacement web server

3   PROPOSED DIRECT PURCHASES FOR SFY 2016 (COST $60,100)

- Replacement plotter
- Replace 6 first-generation TransCAD workstations
- Purchase 1 additional TransCAD workstation
- Replacement database server
- Replacement firewall

In SFY2016 CTPS will need to replace our current plotter, which was purchased in 2006 and is nearing the end of its useful life. This device needs to be replaced before it fails. The estimated cost for a replacement plotter is $15,000.

CTPS will need to replace six of the first set of dedicated workstations purchased to run TransCAD, as these machines will have reached the end of their useful lifetimes. The agency will need to purchase an additional TransCAD workstation, due to the high demand for these machines for project work. The estimated cost for one replacement TransCAD workstation is $3,800; the estimated cost for seven of these machines is $26,600.

CTPS will need to replace its database server in SFY2016, as that machine will have reached the end of its useful lifetime. The estimated cost of this server is $12,500.

The firewall CTPS purchased in SFY 2011 has also reached the end of its useful lifetime, and needs to be replaced. The estimated cost of the replacement firewall is $6,000.

4   FUTURE DEVELOPMENTS

Current expectations are that in SFY 2017, CTPS will need to replace the second set of TransCAD workstations and the agency's file server, as these machines will have reached the end of their useful lifetimes. The purchases for SFY2018 are anticipated to include the replacement of an application server, a back-up host and three TransCAD machines. In the outer years of this plan, it will be necessary to assess the storage capacity of the back-up system, replace the tape library and web server, and upgrade the network speed.

5   COST ESTIMATES

Cost estimates for SFY 2016 – 2020 proposed purchases are shown in the attached Table 1 – Direct Charges for Computer Purchases by Fiscal Year. The allocation of direct funding by sources is shown at the bottom of Table 1 in the column for SFY 2016. The funding will be adequate for CTPS to advance the implementation of the plan in SFY 2016. All future year funding will be proposed during the annual update process.

Attachment: Table 1 – Direct Charges for Computer Purchases by Fiscal Year

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TABLE 1
Direct Charges for Computer Purchases by Fiscal Year

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Item	Requested SFY '16	Proposed SFY '17	Proposed SFY '18	Proposed SFY '19	Proposed SFY '20	Total Direct Charges SFY '16-FY'20
Workstations	**$26,600**	**$15,200**	**$11,400**	**$0**	**$0**	**$53,200**
Dedicated workstations for TransCAD modeling cluster ($3,800 per workstation)	$26,600	$15,200	$11,400			$53,200
Servers	**$12,500**	**$8,000**	**$22,500**	**$0**	**$10,000**	**$40,500**
Web server					$10,000	$10,000
Database server	$12,500					$12,500
File server		$8,000				$8,000
Application server			$12,500			
Backup host			$10,000			$10,000
Peripherals	**$15,000**	**$0**	**$0**	**$0**	**$0**	**$15,000**
Plotter	$15,000					$15,000
Network & Computer Room	**$6,000**	**$0**	**$0**	**$28,000**	**$50,000**	**$84,000**
Replace backup system: EMC DD670 + NetBackup						$0
Firewall replacement	$6,000					
Replace tape library				$8,000		$8,000
Additional storage for backup system				$20,000		$20,000
Network upgrade to 10 GB/sec					$50,000	$50,000
Total	**$ 60,100**	**$ 23,200**	**$ 33,900**	**$ 28,000**	**$ 60,000**	**$ 192,700**

Source of Funding for SFY16

3C PL	$33,000
MPO Section 5303	$12,100
MassDOT Section 5303	$5,000
MassDOT SPR	$10,000
	$60,100