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Boulder Valley School District
Information Technology Advisory Committee (ITAC)
April 11, 2007
4:00 p.m. – 6:00 p.m.

Committee members present: Phil Bisant, Jerry Janssen, Kevin Manweiler, Marla Meehl, Mike Monticello, Chris Puccio, Joe Thielen, Jim VanDyke, Bruce Wildman, Dave Williamson

Other BVSD personnel and Bond Oversight Committee members present: Susan Cousins, Kevin Cubillas, Lee Farhar, Robert Hammond, Doug Healy, Brittany Keller, Joe McBreen, Sharon Meyer, Don Orr, Elisabeth Patterson, Jim Reed, Alan Schoenfeld, Denitta Ward

Community members present: Dan Lubar

Chairman Chris Puccio opened the meeting by welcoming committee members and guests to the third ITAC meeting.

Kevin Manweiler, WAN consultant, began the meeting with a PowerPoint presentation and an overview of the deliverables requested at the last ITAC meeting. The deliverables presented included a bandwidth forecast for elementary, middle, and high schools based upon BVSD enrollment and a risk assessment of the previously discussed project approaches. In addition, the question posed at the last ITAC meeting - "Can bond money be used to lease existing dark fiber?" - was answered by the District's lawyers, Calvin Hanson & Jim Lane of Sherman & Howard, LLC, in summary form:

> "The general rule governing the use of tax-exempt bond proceeds, subject to a limited exception, requires they be applied to capital expenditures…We do not believe that the lease of "dark fiber" would satisfy this exception."

To begin the discussion around choosing an RFP strategy, Mr. Manweiler reviewed the three RFP options presented at the March 21, 2007 ITAC meeting:

- Option 1 – Green field build using the Turnkey RFP approach, $13,000,000*
- Option 2 – Green field build using the Project Manager and Material Procurement RFP approach, $9,300,000*
- Option 3 - Greenfield build with Owners-Engineer approach, RFP for construction only, $8,500,000*
- Nederland Build, $8,400,000*

* Estimate only

Mr. Manweiler presented RFP strategies for the three options and added an additional fourth option and strategy:

- Option 1:
  - Green field build, all underground with 288 fiber count, two ring topology
  - Successful offer or offers underground solution specified by BVSD

- Option 2
    - Green field build, hybrid aerial/underground construction methods with 288 fiber count, two ring topology
    - Successful offer or use their expertise to determine most cost-effective construction methods, e.g., aerial vs. underground
- Option 3
    - Owners-Engineers approach including electronics and construction management
    - Multiple RFPs
    - Engineering and permitting first
    - Purchase materials directly
- Option 4 (Additional Option)
    - Lease as much dark fiber and empty conduits via intergovernmental agreements from the City of Boulder, Colorado University (CU) and Boulder Research and Administration Network (BRAN)
    - New build lengths reduced, new build segments - hybrid aerial/underground construction methods with 144 fiber count, two ring topology
    - Successful offer or use their expertise to determine most cost effective construction methods for "New Build" segments of WAN
    - Must connect to all existing shared assets hand holes identified in RFP

A risk assessment of each of the options above was presented. Comments from the committee included Option 3 being the most risky, but also having the most savings, and Option 4 as providing the most options.

Mr. Manweiler then presented a 10-Year Financial Analysis of each of the options with a basis of assumptions including: customer provided FTP enclosure (funded separately); all locations on the fiber WAN (except the 4 mountain schools); recurring costs (internet with 10-year increases, locates, break/fix escrow @ $1000 per month, mountain school service at $8000 per month, and voice trunks and 911 POTS to PTSN included (VoIP)); the inclusion of program and construction management; cost recover from existing WANs; WAN electronics; dark fiber-conduit availability; and 10 GB speeds (excluding mountain schools).

Discussion from the committee regarding the 10-Year Financial Analysis included:

- Who is responsible for a break or fix? Depends on the situation, but that is why escrow accounts are necessary. The escrow account can also be used to move fiber, e.g. if a highway or some other type of road construction occurs along or through the path of the laid fiber.
- Approximately $600,000 is currently being spent on voice communications, 911 services, and outgoing trunks.
- A single brand of switching gears and routers were assumed in the analysis. Prices were obtained off the WSCA contract.
- Numbers were based off jobs Mr. Manweiler has worked on in the past. The fiber strand lease services were based off another school district's project. They are only estimates. Committee member believes this number will be significantly lower.
- Cost recovery is the delta between lease services (what the District is spending now) and what the District will spend with a new network.

- Current equipment is inadequate for a fiber network. New equipment will need to be purchased.

Subsequently, the committee discussed strategy considerations. Discussion, clarification, and questions included:

- Going out for bid on engineering only versus going out to bud for everything and the possibility of menu-style pricing to allow for negotiation in costs and choose the best solution(s) as a package or as individual components.
    - Engineering firms may have to produce two different designs for this type of bid.
    - Menu style pricing takes away some of the risks.
    - A turnkey approach may exceed the budget.
- Clarification that Option 1 includes contractors' premium. Option 1 includes everything, whereas Option 2 mixes aerial and underground construction methods.
- BVSD does not have the manpower to endure the delivery of materials.
- It is necessary to have a project manager – BVSD can't rely on the contractor doing the work that is specified on the drawings. It is good practice to have someone oversee the build/project.
- Cost is only one element of what the committee is discussing. The committee also needs to look at approaches and risks.
- Option 3, going out to bid on engineering, gives the District flexibility. The result with be an engineering design. Then the District can go back out for bid on the rest.
- One disadvantage of going out to bid on a turnkey agreement is the fact that bids could come back over budget and need to be thrown out.
- Option 3 breaks everything out. There is a 15 to 30 percent markup on materials.
- Option 4 accessed existing dark fiber. The District may only have to build to 2/3rds of the schools with the other 1/3 utilizing existing dark fiber through intergovernmental agreements with other entities.
- Engineering costs run $1 per foot, and fiber is $1.25 per foot. 86 percent of costs are in the construction of the network. This is a good reason to put empty conduits in the ground.

Committee Member Marla Meehl proposed to remove Option 2, with includes aerial construction, from the list of options and strategies to consider. ***Ms. Meehl motioned to take Option 2 off the table. Jim VanDyke seconded. None opposed. The motion passed.***

Ms. Meehl then proposed to have Option 1 divided into two designs:

- (New) Option 1 – Turnkey approach (design, engineering, and construction) for a complete build and a turnkey approach with an overlay of existing fiber (shared assets)
- (New) Option 2 - Designing and engineering only for the two options above (complete and hybrid builds)

The committee commented on the importance of meeting with entities that currently have existing fiber if the hybrid approach is to be considered or chosen.

Discussion around intergovernmental agreements needing to be in place before the District goes out to bid included the possibility of using memos of understanding instead, since they are much

more straightforward and taking the agreement in good faith. BVSD will need to discuss this with legal counsel.

Ms. Meehl motioned to proceed with the new Option 2 above (designing and engineering of a complete build and a hybrid build). Phil Bisant seconded. None opposed. The motion passed.

Ms. Meehl recommended that a subcommittee of representatives from the City of Boulder, CU, NOAA, and NCAR meet to discuss shared assets prior to the next ITAC meeting. This meeting will take place on Thursday, May 3, 2007 from 2:00 p.m. – 4:00 p.m., in the Boulder TEC/Arapahoe Ridge staff lounge.

At this point in time the data network option for the mountain schools includes a wireless strategy. Mr. Manweiler asked for Community Member Dan Lubar's assistance in getting information on this. This project for mountain schools can be considered a separate project and could possibly be completed soon. There may be a possibility of running fiber from Nederland Elementary to Nederland Middle/High. That will need to be researched and discussed.

The next ITAC meeting is scheduled for Monday, May 14, 2007, from 4:00 p.m. – 6:00 p.m., in the Boulder TEC/Arapahoe Ridge Staff Lounge, 6600 E. Arapahoe Road, Boulder, 80303.