EXECUTIVE SUMMARY

Recommendation of $500,000 or Greater
19-051E – Managed WAN Lit Service

Introduction
Responsible: Procurement & Warehousing Services (PWS)

This request is to approve the recommendation to award Request for Proposal (RFP) 19-051E to AT&T Corp. for three (3) years starting July 1, 2019 through June 30, 2022, with a renewal option for two (2) additional one (1) year periods. RFP 19-051E will facilitate the continued lease of The School Board of Broward County, Florida's (SBBC), Wide Area Network (WAN). The WAN is critical infrastructure that enables the Information and Technology Department (I&T) to deliver connectivity between sites and the world.

The previous solicitation Bid 14-061E was awarded as item EE-5 on March 17, 2014 through June 30, 2019, with an approved spending authority of $16,000,000, but included the Internet Service Provider and WAN portion, which has been separated and is being presented to the School Board for approval on its own.

Goods/Services Description
Responsible: Information & Technology (I&T)

SBBC, considers a WAN that interconnects its instructional and support facilities and connects them to the Internet, advanced research networks and other World Wide Web resources to be a major part of its strategy for teaching, learning and administration. Various examples of WAN usage include data center hosted applications (TERMS, OneDrive, O365 applications, Video Surveillance images), Apple/Google/Amazon cloud applications, and others (see Exhibit 4). The expiration of the current contract for SBBC WAN services is June 30, 2019, which provides an opportunity to strategically plan for what today has become a growing utility service that is used by students and staff for all the application and Internet access required.

This item is the short-term proposal that will lead to a longer-term plan (comparison listed in Exhibit 1). The goal of this item is to enable a connection through dedicated fiber which will enable SBBC to scale to high speeds of bandwidth while remaining at a flat cost. This request is in line with the Information & Technology Strategic Roadmap presented by Tony Hunter in May 2018.

Procurement Method
Responsible: PWS

The solicitation ran from September 24, 2018 through November 13, 2018. There were two hundred and forty (240) vendors notified, seventeen (17) vendors downloaded the RFP, two (2) bids were received before bid opening, and one (1) bid was found to be non-responsive and rejected for adding terms and conditions contrary to SBBC's.

With one (1) responsible, responsive proposal received, the RFP Evaluation Committee agreed to commence negotiations with the sole proposer based on section 5.3 of the RFP States, "the Committee (Evaluation Committee) will proceed without scoring the one responsive proposal and may negotiate the best terms and conditions."

AT&T Corp is the incumbent vendor and has proven that they are able to support a District of SBBC's size.

Financial Impact
Responsible: PWS and I&T

The total spending authority requested is $10,770,385 (rounded) ($2,154,077 after E-Rate is applied) which represents the cost of all services, equipment and utility fees that SBBC is not exempt from paying and will be funded from the I&T operating budget. The federal E-Rate program is anticipated to fund approximately eighty (80) percent of the total cost below.

Utilizing historical data, sites will increase from the current bandwidth as the consumption of digital resources increases resulting in the contract cost escalating through the term of the contract as predicted below.

School Year	Before E-Rate	FCC fees (12.5%)	Total Before E-Rate with fees	Out of pocket / After E-Rate
2019 - 2020	$2,817,334	$352,167	$3,169,501	$633,900
2020 - 2021	$3,089,531	$386,192	$3,475,723	$695,145
2021 - 2022	$3,666,810	$458,351	$4,125,161	$825,032
		Total Cost	**$10,770,385**	$2,154,077

Pricing is approximately twenty-one (21) percent lower than the previous bid, which equals an approximate savings of $3,000,000.

The approval of this recommendation does not mean the authorized amount will be spent.

Exhibit 1 – Short-Term / Long-Term Comparison

The following two (2) approaches represent Short-Term versus Long-Term; with the Short-Term option required to provide WAN services until SBBC completes migration with an estimated timeframe of twenty-four (24) months from the beginning of the project on July 1, 2020.

Timeline of Short-Term versus Long-Term:

E-Rate decision deadline for any option:
In order to utilize funds available via E-Rate program for 2019-2020, SBBC must file before March 24, 2019.

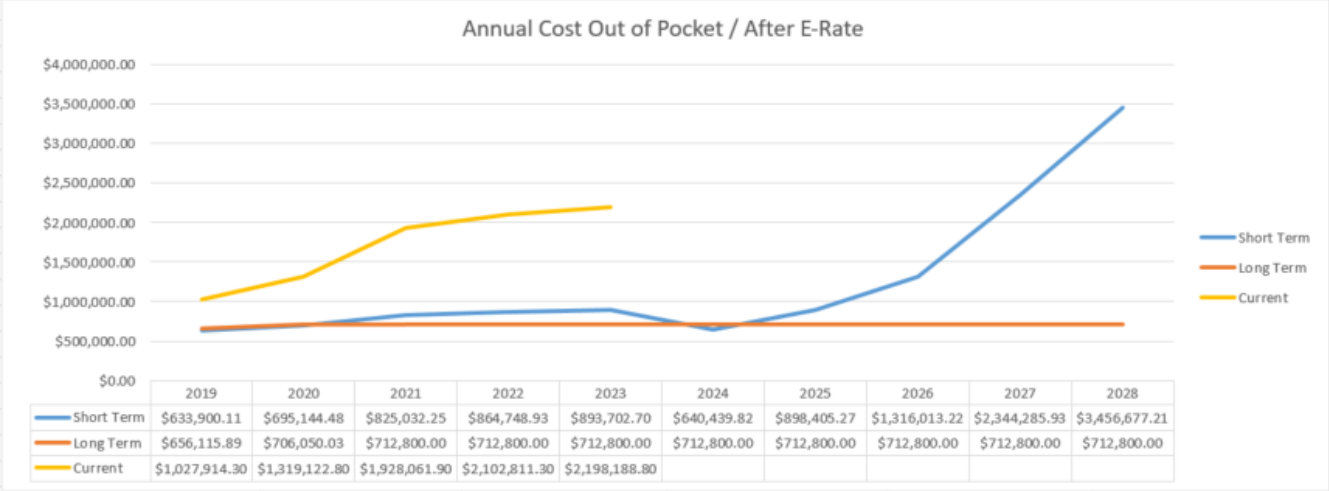
WAN LIT (Short Term)	ENA WAN - (Long Term)
Stay with "ATT WAN LIT" model. Until recently, this was a good option until the *Universal Service Administrative Company* began allowing schools to explore Dark Fiber solutions.	Build "FIBER WAN with Flat Cost Model" which will guarantee flat cost for the next ten through twenty-five (10-25) years. Contract is ten (10) years with three to five (3-5) year renewals.
Pros: 1. Category 1 all-included E-Rate eligibility 2. Takes less than twelve (12) months to build for sites that require higher bandwidth circuits. **Cons:** 1. Cost is directly tied to bandwidth, so it will continue to go up year-after-year as the school's demands grow. SBBC only controls cost during new contract change every five (5) years. 2. Solution is funneled through carrier sites with shared infrastructure which means a higher percent of downtime due to network complexity. 3. No ability to move to a resilient or more robust network model within contract. 4. Single point of failure per school due to no resiliency.	**Pros:** 1. Looking ahead in planning technology for better financial solutions. 2. Scalable at a zero (0) monthly cost increase up to 100X current Bandwidth speed. 3. Large cost savings on long run due to flat cost for the next ten (10) years with three to five (3-5) year renewals. 4. Category 1 all-included E-Rate eligibility 5. Greater resiliency network due to RING design. Today SBBC has Zero resiliency with this solution and SBBC would have one hundred eighty-four (184) sites with dual path of which one hundred and seventy (170) are schools. That's about seventy (70) percent of SBBC's sites. 6. This Fiber solution is a private network dedicated solely to SBBC's needs. This allows for a low complexity network with less points of failure. 7. SBBC site will be connected to the SBBC WAN via two (2) different fiber paths, greatly increasing reliability and making it possible to continue to provide full service to every school even in the event of a major fiber cut. 8. Flexibility to improve site resiliency at any time. **Cons:** 1. Takes two (2) years to implement. 2. Dark fiber solutions require a longer-term commitment.

Exhibit 2 – Short-Term / Long-Term Cost Differential

Table below demonstrates summarized cost for each solution across five (5) and ten (10) year periods, after FCC fees, and after E-Rate is applied.

	ATT WAN LIT Short Term	ENA WAN Long Term	Savings on Long Term Option
TOTAL COST - Solution Type	ATT WAN LIT	FIBER WAN with Flat Cost Model	
5 Year Out of pocket/After E-Rate	$3,912,528.47	$3,500,565.92	$411,962.55
10 Year Out of pocket/After E-Rate	$12,568,349.93	$7,064,565.92	$5,503,784.01

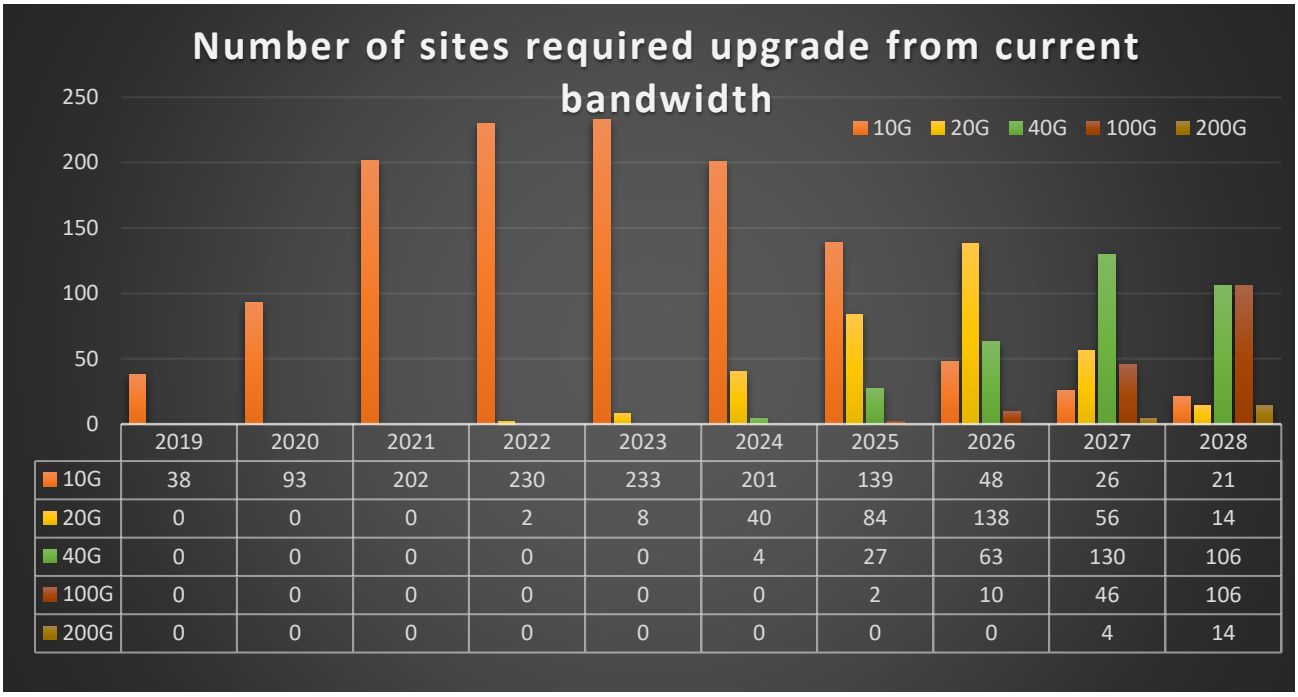
The chart below demonstrates annual cost of each solution with a comparison to SBBC's current WAN prices.



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Short Term	$633,900.11	$695,144.48	$825,032.25	$864,748.93	$893,702.70	$640,439.82	$898,405.27	$1,316,013.22	$2,344,285.93	$3,456,677.21
Long Term	$656,115.89	$706,050.03	$712,800.00	$712,800.00	$712,800.00	$712,800.00	$712,800.00	$712,800.00	$712,800.00	$712,800.00
Current	$1,027,914.30	$1,319,122.80	$1,928,061.90	$2,102,811.30	$2,198,188.80					

Exhibit 3 – Ten (10) Year Bandwidth Forecast

Ten (10) year Bandwidth Forecast: Utilizing industry bandwidth forecast guidelines for K-12 industry provided by Consortium of School Networking and E-Rate. Below is the forecast.



	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
10G	38	93	202	230	233	201	139	48	26	21
20G	0	0	0	2	8	40	84	138	56	14
40G	0	0	0	0	0	4	27	63	130	106
100G	0	0	0	0	0	0	2	10	46	106
200G	0	0	0	0	0	0	0	0	4	14

- G = Gigabits per second – the unit cost of Internet/WAN Usage

Exhibit 4 – WAN Utilization Statistics

Current Usage of WAN Services

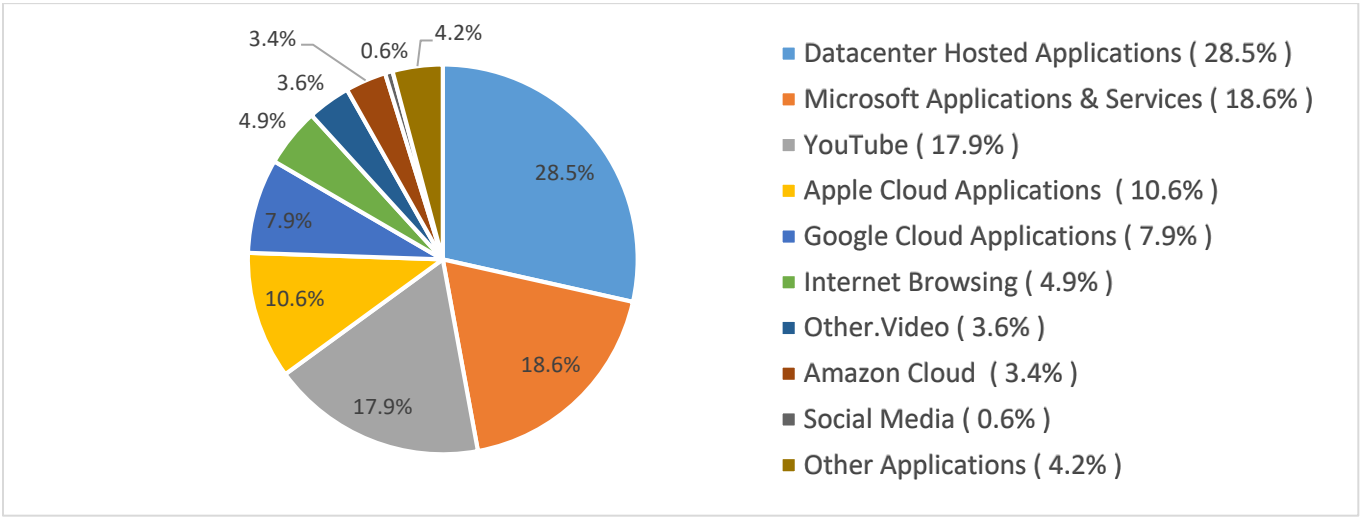


Exhibit 5 – Frequently Asked Questions (FAQ)

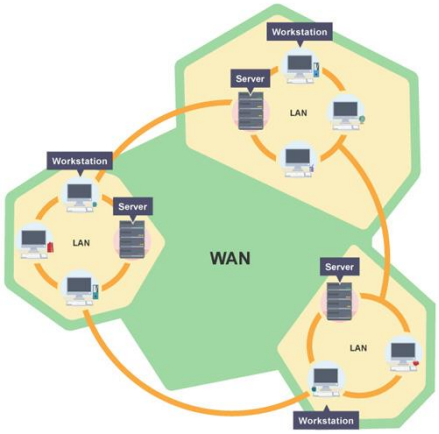
1. What is E-Rate?
   The FCC's E-Rate program makes telecommunications and information services more affordable for schools and libraries. With funding from the Universal Service Fund, E-Rate provides discounts for telecommunications, Internet access and internal connections to eligible schools and libraries. Eligible schools and libraries may receive discounts on telecommunications, telecommunications services, and Internet access, as well as internal connections, managed internal broadband services and basic maintenance of internal connections.

   Discounts range from twenty (20) to ninety (90) percent, with higher discounts for higher poverty and rural schools and libraries. Recipients must pay some portion of the service costs. SBBC currently receives an eighty (80) percent discount.

2. Who is the Universal Service Administrative Company (USAC)?
   The Universal Service Administrative Company is an independent, not-for-profit corporation designated by the Federal Communications Commission as the administrator of universal service.

3. What is Optic Fiber?
   Fiber optics (optical fibers) are long, thin strands of very pure glass about the diameter of a human hair. They are arranged in bundles called optical cables and used to transmit light signals over long distances.

4. What is the Wide Area Network (WAN)?
   The School Board of Broward County, Florida, wide area network (WAN) interconnects its instructional and support facilities and connects them to the Commodity Internet, advanced research networks and other world-wide-web resources.



5. What is WAN role in achieving SBBC's organizational goals?
   WAN plays the same role as roads and highways in the product delivery business – without roads delivery is impossible. So, WAN is an essential component in today's teaching, learning, and administration and plays a major role in basic Internet connectivity, emerging reliance on online educational tools & resources, and transforming the District to a Technology-Rich Learning Environment.

6. Why Optic Fiber for WAN Technology Service?
   Long-Term fiber WAN is an essential component which is built based on long-term technology such as an optic fiber with a life cycle of fifty (50) plus years. Building proper long-term fiber WAN which fits an organization will take eighteen through twenty-four (18-24) months. So, more appropriately to consider long-term fiber WAN as a utility with hard assets like roads, or real estate. Same long-term approaches should apply to long-term fiber WAN as on other hard assets. The technology behind long-term fiber WAN Fiber Optics hasn't changed in the last twenty (20) years & nothing new on technology horizon for the next twenty through thirty (20-30) years. Optic Fiber first was used as a product in the 1960s.

7. Is WAN a "new project"?
   WAN is not a "new project" SBBC has had this service for over twenty (20) years. The only difference today is that only a few years ago E-Rate program finally recognized the value of long-term fiber network for WAN solutions and finally made it Category 1 all-included E-Rate eligible. In the last twenty (20) years, SBBC only had a short-term approach on the plate and couldn't benefit from long-term approaches without paying full price for it.

8. What other comparable school districts are doing for WAN Services?
   Until few years ago when E-Rate made long-term options eligible all other districts utilized short-term options for WAN services. In the last two (2) years the majority of WAN RFPs which were reviewed went with a Fiber WAN solution Long Term ten (10) year contract term with renewals. K-12 industry has recognized the long-term benefits of a flat cost model with flexible bandwidths increase at no cost.

See examples of other school districts:

District	**Annual WAN Cost**	**10 Year Total Cost**
Broward County Schools	$3,139,807.08 (Long Term Avg)	$31,398,070.76
Denver Public Schools	$3,183,452.00	$31,834,520.00
Metropolitan Nashville	$3,122,800.00	$31,228,000.00
Clark County (NV)	$3,275,028.72	$32,750,287.20

9. Why is SBBC's discussing few approaches now? Why is SBBC not already on "best" WAN?
   In the past twenty (20) years, SBBC always took the Short-Term Approach – WAN Lit services, since nothing else was available at a cost-effective price point. This is the difference today:

   - E-Rate only made Long-Term Optic Fiber eligible a few years ago. SBBC is now at the end of the five (5) year cycle, so this is SBBC's first opportunity to change the existing WAN model & benefit from the flat cost model.

- The District's bandwidth utilization will only reach required higher speeds based on SBBC's forecast which allows the District the time today to plan to have it in place in the next two (2) years. So, now is the perfect time to take advantage of a Long-Term Approach because it will take two (2) years to transition to this new model, which means that by the time SBBC will be done the District will immediately utilize flat cost benefits at full speed within the next ten through twenty (10-20) years.

- Broward County area was not in a cost-effective point on fiber until now. Consolidation of Optic Fiber companies has helped drive cost for this design to a reasonably competitive level.

10. <u>What is SBBC losing in the Short-Term approach? What is full list of benefits for the Approach Long-Term vs Short-Term?</u>
    - The Short-Term Approach is delivering similar WAN services as a Long-Term Approach. From a technology standpoint, the District will lose the ability to move to a resilient network traffic model and will lose network reliability due to network complexity in the short-term option.

    - The District's response time to increase bandwidth demands to individual sites is extended to longer periods of time from six (6) months to a year in the short-term option, while in a long-term option SBBC will be able to provide extra bandwidth to sites within few weeks. This translates to periods of time with low performance, degraded video streams, cloud-based and security services.

    - The primary loss in Short-Term vs. Long-Term Approach is the inability to flat out SBBC's WAN cost over the next ten through twenty (10-20) years. Without going with long-term options, the District will never achieve a flat cost model, which means that every year SBBC's cost of WAN services will keep going up.

11. <u>Why ten (10) years? Is the District locked for ten (10) years? How long can The District use it after the ten (10) years is over?</u>

    As mentioned earlier it is more appropriate to consider long-term fiber WAN as hard assets like roads, commodities or real estate. Same Long-Term Approaches should apply to long-term fiber WAN as on other hard assets. The technology behind WAN has not changed in the last twenty (20) years and nothing new on technology horizon for the next twenty through thirty (20-30) years. SBBC is discussing a ten (10) year contract on technology which will take two (2) years just to complete for the District, which really makes it just an eight (8) year in-service period. Based on what SBBC saw in other districts RFPs for ten (10) years is a minimal period of terms for Optical Fiber. The District has the ability to cancel this contract during any year. This applies to all approaches listed in this document.

    The District is forecasting that if this WAN is built, SBBC will satisfy its network demands for ten through twenty-five (10-25) years without additional monthly increases.

12. Why decide now? What will happen if the District does not move forward with Long-Term options today?
    This is definitely a "plan ahead" situation. This year is the proper time to consider going with a LongTerm Approach because such long-term fiber WAN will take twenty-four (24) months to build and by the time SBBC is done, the District will fully benefit from a flat cost model and a scalable network for whatever the District demands. Since this program with USAC E-Rate has only been in place for several years, the District wants to take advantage of it before it changes and is unable to apply for it.

13. Where else can the District save in this contract?
    No additional savings in the Short-Term Approach, while in the Long-Term Approach the District may consider at some point in the future eliminate managed services component by bringing these support services in-house. The Long-Term Approach is based on ten (10) years terms for fiber, but managed services can be reviewed every five (5) years to leverage internal network staff to support equipment if viable at the time of analysis

14. Any additional cost associated with this contract?
    Presented cost numbers are all-inclusive for all options. The TSSC Technology Support Department has dedicated a position District WAN Coordinator which is the primary point of contact for WAN network deployments. The District has equipment that can support up to forty (40) Gbps, and if SBBC needs to upgrade over one hundred (100) Gbps, there will be a small investment per site for equipment, which today SBBC refresh using E-Rate category two (2) funding

15. Why is SBBCs Bandwidth growing? What is driving Bandwidth growth? What is the Bandwidth forecast?
    Since 2013 SBBC has grown forty-eight (4) times on its WAN utilization. SBBC's bandwidth is growing due to many different reasons. SBBC can name a few known reasons below, but many future initiatives and efforts, especially in the Security area will require additional WAN bandwidth.
    - The number of devices on the SBBC network continues to grow as the District moves to a 1:1 model for SBBC's educational goals, adding support for BYOD & guest devices and adding additional security devices.
    - The utilization of cloud storage is increasing
    - Bringing data closer to the customer for data analytics is a technology strategy in the near horizon.
    - Existing applications are becoming more intense on data exchange. Many applications natively start sync data with a cloud.
    - The industry is moving to the Hybrid model (System in the Cloud, high access data back at SBBC datacenter to enable secure/enhanced data retrieval)
    - Educational video content as well as video surveillance content is moving from Standard to High Definition which requires four through five (4-5) times more bandwidth.
    - Other security entities will need access to SBBC's security surveillance video content.
    - Security updates are happening more often, getting larger and is needed for more devices.