

# San Antonio and Greater Bexar County Community Digital Equity Plan and Roadmap

Initiative Details: Education Sponsored

August 2021

# Disclaimer:

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The information found in this portal is intended for public use. It reflects work produced and provided by the SA Digital Connects team and community members starting in January 2021 to the present.

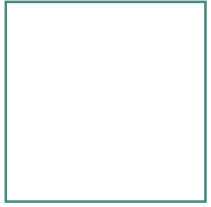
Some information will reflect the moment in time when the work was done. Data, funding, maps and assumptions may fluctuate in the everchanging digital ecosystem.

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# Initiative Details

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# Education Sponsored



# Nature of the problem

## Summary | Overview of the devices & connectivity education landscape in SA/Greater Bexar County



Greater Bexar County contains **19 ISDs and 36 charter schools** which operate independently



**ESC20 is a regional education agency** that has conducted aggregated procurement and laid fiber to connect students at home



The **Texas Education Agency's Operation Connectivity** works to close the statewide K-12 digital divide by leveraging federal programs (e.g., CARES, ECF) and negotiating affordable pricing with ISPs



School districts have been successful in **distributing hotspots and devices and extending school Wi-Fi** but have found getting devices returned and offering effective tech support to be challenging



Moving forward, education efforts can focus on centralized **device management**, better **student needs data**, additional support **staffing / training**, and expansion of **digital curriculum**

## Several initiatives pursued to address the broadband internet and device needs of their students



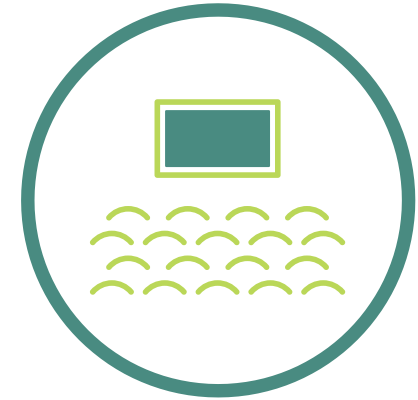
### Broadband Internet

- **Hotspot distribution for at-home internet**, some with no data caps
- **Public access Wi-Fi** (e.g., parking lots, parks, school premises)



### Devices

- **Chromebook / tablet** lending for use away from school
- **1:1 student to device ratio** in nearly all schools



### Digital Literacy

- **Hotlines** for tech support
- Video **digital tutorials** for parents and students
- **Professional development sessions** with parents and staff

Preliminary

# Device and connectivity solutions have varied across Greater Bexar County ISDs and Charter Schools

ISD	Students	Connectivity			Devices			Funding sources
		% Disconnected	Extended Wi-Fi	Hotspots	% Disconnected	Laptops	Tablets	
Northeast	64,215	Unknown		✓	Unknown	✓	✓	State / Federal grants
Harlandale	12,444	40%		✓	90%	✓	✓	ESSER, E-Rate, State / Federal grants
Southside	5,000	30%	✓	✓	15%	✓		ESSER, State / Federal grants
Alamo Heights	4,917	2%		✓	1%	✓		Philanthropy, School budget
Brooks Academy	3,043	26%	✓	✓	72%	✓		Philanthropy, State / Federal grants
Ft. Sam Houston	1,667	0.3%		✓	0%			School budget
Eleanor Kolitz Hebrew Lang. Academy	467	2%		✓	2%	✓		E-Rate, Philanthropy
Promesa Academy	180	17%		✓	89%		✓	School budget



## Key learnings from school connectivity and device distribution efforts

While there have been many learnings and successes....

“ *"The pandemic created a sense of urgency around getting students connected and got a lot of buy-in"*

*"We're really proud of having gotten to 1:1 devices for all out students"*

*"Teachers have responded well to being pushed out of their comfort zone and adapting to the situation"*

*"A lot of students have thrived under remote learning. We're hoping to keep offering that going forward"*

....There have also been challenges

“ *"Getting devices back at the end of the year has been an ongoing issue"*

*"The loss rate for devices is much higher than usual, from 5% to 20%"*

*"Offering 24/7 tech support to students and parents through the hotline has really strained our staff"*

*"We still don't have bilingual tech support for families, which might be leaving some people out"*

## Identified areas for continued support



Additional devices to account for high loss rate



Centralized device management



Better data on student need (i.e., who needs access, where they are)



Additional staffing to support bilingual tech and digital literacy support

## Areas for ongoing K-12 investment in digital

- 1 Maintaining digital curriculums
- 2 Exploring remote / in-person hybrid models
- 3 Planning more robust technology training sessions

## TEA is coordinating state programming and funding for student access

Since March 2020, Operation Connectivity, directed by Governor Greg Abbott, TEA, and Dallas ISD, has worked to close the K-12 digital divide



### Phase 1: Historical triage using CARES funding

- Identified **\$600M+** in funding across Tech & Instructional Materials Allotment, and COVID relief funds (CARES Act)
- Developed a procurement strategy and negotiated with ISPs to secure a **20-40% discount**, closing the full device gap and ~35% of the internet gap



### Phase II: Expansion of affordable access through contracting

- **Negotiating with ISPs** to get uniform low pricing on broadband service for students and families
- **Partnering with districts** to deliver hotspots to disconnected students to provide at-home broadband



### Phase III: Piloting and funding of emerging tech

- Launched RFO for traditional and **innovative technologies**, including radio wave and private LTE networks, to expand infrastructure for the 350K students without a broadband hook-up
- Considering allocating a portion of **\$12B of March 2021 ARP funding** to cover connectivity efforts

*Stay up to date on program developments; use the affordable rates that are negotiated, and advocate for the education needs of COSA/ Greater Bexar County ISDs and Charter Schools*

# Three distinct pilots underway, with Texas A&M SA providing support and evaluation across pilots



## CBTC (COSA)

Leveraging existing ISD / COSANet network offer in-home connection via WiFi; current focus on 13K students in SAISD, Edgewood, and Harlandale



## CBTC (City Education Partners)

Building a private LTE network on Edgewood's 10 gig circuit and small cells to offer in-home connection via routers



## BiblioTech Connect Pilot (County)

Deploying a private LTE network with small cells on water towers to extend wireless service to homes for 100 Southwest ISD students



## Evaluation / help desk (Texas A&M SA)

Providing continuous evaluation of pilots through data collection, interviews, and household surveys; piloting a help desk model to support digital adoption / skills

# Backup | CBTC offers model to get households from 'none-to-some'



## Benefits

- No data caps vs. ISP hotspot programs
- More cost effective (\$8/mo cost vs. \$50/mo ISP rack-rate)
- Addresses both availability and affordability



## Limitations

- Lower avg speeds (15/1 mbps for City pilots; 25-50 mbps for CEP pilot) better for individual usage
- Localized deployment limits capacity, capacity management (e.g., on libraries, fire houses)
- Potential municipal headwinds expanding beyond students

*CBTC offers model to get households from 'none-to-some', extending coverage where none exists and offering services at an affordable rate (vs. existing options)*

## Learnings

**Engage the community, district to support adoption and offer 1:1 support**

### Assess efforts for ROI

- *CEP pilot*: \$325K investment for 800 students (\$400/student)
- *COSA pilot*: \$27M for ~13K students (\$2K/student)

**Consider structural aspects of deployment (e.g., 120 ft tower has the strongest coverage, able to cut through tree canopy)**

# Backup | Progress update on CBTC rollout

	SAISD	Edgewood ISD (COSA)	Harlendale ISD	Edgewood ISD (CEP)
<b>Fiber source</b>	COSAnet	ISD fiber		ISD fiber (Conterra Networks)
<b>Deployment</b>	4 posts (fire station, radio tower, 2 libraries) - <i>limited capacity / capacity mgmt.</i>	Point-to-multi-point from school to home		
<b>Current state</b>	<p><b>Launched</b></p> <ul style="list-style-type: none"> <li>Launched once SAISD could fund PMO</li> <li>Slow adoption due to recent school breaks, awareness building on benefit vs. hotspots, manual sign-up process</li> </ul>	<p><b>Completed site assessments; awaiting approval to build</b></p>		<p><b>Launched</b></p> <ul style="list-style-type: none"> <li>Live at 4 sites with only 12 students connected</li> <li>Manual outreach processes has slowed adoption</li> </ul>
<b>Target reach</b>	<ul style="list-style-type: none"> <li>3 neighborhoods</li> <li>9K target students</li> </ul>	<ul style="list-style-type: none"> <li>3.2K students</li> </ul>	<ul style="list-style-type: none"> <li>2 neighborhoods</li> <li>800 students</li> </ul>	<ul style="list-style-type: none"> <li>800 students</li> </ul>

Currently capacity constrained to 1.2K students

ISD using own funds to extend access to full district



# Comparison city research and local efforts

## E-Rate funding provides a successful foundation...

**E-Rate has successfully provided internet to eligible schools and libraries since 1996**

E-rate set up for schools and libraries to flexibly use funds to improve their internet services

Eligible institutions receive discounts from 20% to 90% based on respective level of poverty

Funding requires a competitive bidding process that brings providers to the table

In 2014, the FCC modernized E-Rate to keep up with tech advancement by allowing for broadband reimbursement

E-Rate uses two categories: category 1 for data transmission and internet access, category 2 for infrastructural costs

E-Rate has helped connect 99% of America's K-12 public school and libraries to the internet

## ...on which to build a sustainable in-home connectivity program

Momentum exists across stakeholders to expand E-Rate funding to include in-home internet



82% of schools and libraries agree that E-Rate is the best solution to support remote learning



38 Senate Democrats wrote a letter to the FCC to include in-home internet in E-Rate language



To support in-home connectivity, E-Rate must evolve its requisite usage definitions and prioritization criteria to:



Cover in-home internet and/or 1:1 devices



Increase funding to cover disconnected students through appropriation or USF expansion



Enable schools to effectively distribute solutions



## The K-12 Bridge to Broadband Initiative helps school districts to identify & purchase service for low-income families through regional / national ISPs

**National broadband associations<sup>1</sup> and EducationSuperHighway (ESH) formed a partnership to help identify and serve low-income families that lack connectivity**

- Built on the recent success of partnerships between school districts and ISPs in Chicago, Atlanta, Philadelphia, Las Vegas, among others
- The program establishes a national framework for broadband providers to work with school districts to identify and connect low-income families through low-cost (e.g., \$10/month) sponsored service agreements paid by the district

**The partnership focuses on delivering equitable service through five core pillars to ensure benefit to families in need**

- **Sponsor service:** companies create a "sponsored" service offering for districts
- **Identify student need:** companies will work with districts to identify students who need service based on their coverage maps
- **Standardize eligibility:** a baseline set of eligibility standards will be used across the board
- **Facilitate enrollment:** companies will sign families up using minimal personal information
- **Protect privacy:** companies will not target families for marketing if they are covered by the program

**Participating internet service providers are positioned to have a significant impact in bridging the digital divide**

- Dozens of ISPs have agreed to support this program including Comcast, Charter, Cox, GCI, Mediacom, Midco, Sjoberg's and Vyve; These providers offer broadband service to 80% of U.S. homes (110M households)
- ISPs were willing to join the initiative for near-term PR and longer-term strategic benefits of an expanded consumer base

1. NCTA - The Internet & Television Association, The Rural Broadband Association, USTelecom  
Source: Press Releases

# Los Angeles Unified School District led efficient procurement and unlocked emergency bond funds to quickly narrow the short-term divide

## The LAUSD Superintendent took swift action to close the digital divide, ahead of state-led guidance

- The school board gave the Superintendent authority to address the crisis, centralizing leadership and accelerating the process
- LAUSD ran a rapid procurement process, recognizing there may be supply chain constraints akin to the earlier PPE supply constraints
- LAUSD received a voter-approved, property tax fund \$78M bond authorization, the outcome of 10-year authorization effort

## LAUSD distributed devices and hotspots to families through schools, enabling 90% of students to engage in online classes

- Estimated that ~150K students (~25%-35% of the district's 470K K-12 students) were on the wrong side of the digital divide in 2019
- Purchased 185K devices and 200K LTE-enabled iPads/hotspots, largely through a Verizon partnership, supplementing existing 1:1 efforts
- Streamlined distribution process with socially distant pick-ups at schools and no required documentation for eligibility
- Stood-up dedicated IT help desk to assist students logging on, significantly expanding support as school went online

## LAUSD recognizes the need for continuing support to ensure ongoing sustainability of device and connectivity efforts, including:

- Developing rigorous use standards to ensure that connectivity is sufficient to enable distanced learning for the entire family
- Identifying additional sources of funding, beyond school budgets, to cover universal access and support costs (e.g. administrative costs, tech support desks)
- Continuing and expanding requisite purchasing, including planning for ongoing repairs / replacements and offering devices to a broader base of students (e.g., including pre-K students)
- Addressing teacher connectivity issues and supporting teachers to effectively teach remotely

# Active community leaders in Chattanooga leveraged existing fiber networks to provide high quality, sustainably funded internet

## The Enterprise Center brought the appropriate stakeholders to the table to help bridge the digital divide in Hamilton County

- As an economic development partner with a focus on digital equity, the Enterprise center was suited to conduct the connection initiative
- Experts were brought together across the municipal, private sector, and school district to strategically tackle the issue
- EPB served as the key provider and increased adoption of Wi-Fi for students thank to an already built, sophisticated fiber network infrastructure

## Identification of students in need and outreach to increase adoption were thoroughly done to support as many families as possible

- While eligibility includes all students under the Free or Reduced Lunch Program (FRLP), about two-third of students, schools helped identify additional underserved populations who required connectivity (e.g. homeless, undocumented, refugee)
- Ensuring trust was the focus of the adoption strategy with established community organizations spreading the word, multilingual pamphlets provided to families, and door to door outreach
- Emphasis is placed on call center and scheduling service quality as well as continued improvements to adoption efforts
- Families receive high-speed fiber service which is far stronger than standard connection and better suited for the virtual learning environment

## A sustainable funding model was created by improving the cost model and fundraising through local partners

- By centralizing connectivity through a single payer, costs were greatly lowered with EPB only paying the cost of service without upcharge
- Over \$6M raised to fund the effort across a combination of private sector, district, and philanthropic donors; \$8.2M needed to fund 10-year plan
- Households must re-qualify for the program each year to receive this free, high-speed internet service

## Key themes from digital curriculum

### Preliminary



Most programs rely on the distribution of hardware such as laptops as the basic pillar for their digital offering

- Irving Independent School District in Dallas re-allocated resources from vast number of unused books to finance laptops for all students in grades 9-12 and netbooks for middle school students for in-school use



Some schools extend hardware roll-out to re-design learning spaces for interactive, digital-enabled in-school learning experiences

- Tampa Preparatory School created IDEA lab where environment is a learning mechanism itself with multiple touch-enabled projectors transforming walls into interactive presentation spaces



Across the board, schools are moving away from textbook education and digitizing both materials and grading for more relevant, personalized and lower cost education

- New Tech High School in Napa adopted online grade books that show students performance in each course, as well as learning outcomes averaged across all courses, with "electronic learning portfolios" sampling students' work



Schools are experimenting with blended and fully virtual learning to reduce per-student cost and increase access

- Michigan's Walled Lake School District developed an online summer school credit recovery program which reduced cost by 57% per student and started offering online learning opportunities during the semester

# Other city examples: Digital curriculum (I/II)

City / County	Stakeholders	Date	How its funded	Why did they do it	Description of actions
Seattle	Kent School District	2005	Kent 1:1 laptop program; Kent Phoenix Virtual Academy	<ul style="list-style-type: none"> <li>Address equity issues in diverse district, reduce school drop out rate and cost</li> </ul>	<ul style="list-style-type: none"> <li>1:1 computing program serving 9,000 students</li> <li>Moving away from textbooks allowing teachers to pull more recent resources from the web (goal to have all textbooks available digitally)</li> <li>Virtual programs designed to teach students to think more critically and demonstrate understanding in other ways than just paper and pencil tests - e.g., create a movie, blog or wiki, animation or game, etc.</li> </ul>
Tampa	Tampa Preparatory School	2017	IDEA lab (Innovate Design Explore Apply)	<ul style="list-style-type: none"> <li>To create a flexible learning environment</li> </ul>	<ul style="list-style-type: none"> <li>Classrooms equipped with innovative technologies and ergonomic furniture with mobility of bumper cars to create "Active Learning Environments" (ALEs)</li> <li>Moving towards "Expositional Centers of Learning" where teachers and textbook content are no longer the sole source of learning - environment is a learning mechanism itself (multiple touch-enabled projectors transforming walls into interactive presentation spaces)</li> <li>Student-initiated programming &amp; VR curriculum, clubs, etc.</li> </ul>
Cumming, GA	Forsyth County Public Schools	2016	Bring Your Own Technology Program	<ul style="list-style-type: none"> <li>To increase student engagement and outcomes</li> </ul>	<ul style="list-style-type: none"> <li>Students are allowed to choose the tools they want and need to direct their own learning</li> <li>Students choose both hardware and software tools, preparing them to arrive with the job skill of adapting how they're individually using technology in a greater environment saturated with tech</li> </ul>
Campbell, Wyoming	Campbell County Virtual School	n/a	Public K-6 online school	<ul style="list-style-type: none"> <li>n/a</li> </ul>	<ul style="list-style-type: none"> <li>Families of enrolled students are loaned computer and receive subsidized Internet access and materials incl. CDs, videos, instructional materials and tools to complete interactive online elements of program</li> </ul>

Source: <https://www.ed.gov/oii-news/use-technology-teaching-and-learning>, <https://www.k12blueprint.com/sites/default/files/Case-Study-Kent-SD.pdf>, <https://thelearningcounsel.com/article/12-school-districts-honored-their-innovative-digital-curriculum-transition-strategies>, <https://tampaprep.org/learn/innovative-spaces/>

## Other city examples: Digital curriculum (II/II)

City / County	Stakeholders	Date	How its funded	Why did they do it	Description of actions
Dallas	Irving Independent School District	2014	1:1 laptop implementation	<ul style="list-style-type: none"> <li>• Reallocate resources (unused textbooks to laptops)</li> </ul>	<ul style="list-style-type: none"> <li>• Replacing textbooks with computerized versions of texts (146K unused textbooks in warehouse equivalent to 15K new laptop computers)</li> <li>• Faculty shifting from textbook learning to wide array of digital curriculum</li> <li>• Laptops for all students in grade 9-12 to take home, netbook computers available for all middle school students during school day</li> </ul>
Bay Area, Milwaukee, Nashville, Washington D.C.	Rocketship Education	2006	Chain of free, public K-5 college prep K-5 charter schools	<ul style="list-style-type: none"> <li>• Catalyze transformative change in low-income communities through scalable and sustainable public school model</li> </ul>	<ul style="list-style-type: none"> <li>• Elementary charter school network with hybrid model: students attend Learning Lab using computers, which doesn't require presence of certified teachers who are engaged in planning while students are in Lab</li> <li>• Rocketship reinvests savings in training, response to intervention, higher teacher salaries, facilities and academic deans</li> </ul>
Mooreville, NC	Mooreville Graded School District	2006	Digital Conversion Initiative	<ul style="list-style-type: none"> <li>• Promote use of technology to improve teaching and learning</li> </ul>	<ul style="list-style-type: none"> <li>• Use of laptop computers and other technologies as instructional tools</li> <li>• Shift to digital textbooks</li> </ul>
Napa, California	New Tech Network / New Technology High School	2008	Online grade books	<ul style="list-style-type: none"> <li>• Inspire students to be responsible, resilient, and personally successful in the rapidly changing 21st century</li> </ul>	<ul style="list-style-type: none"> <li>• Student work is assessed, and feedback is made available to students via online grade books that are continually updated so that students can see how they are doing in each course, but also on each of their learning outcomes averaged across all courses</li> <li>• Electronic learning portfolios contain examples of students' work</li> </ul>

Source: <https://www.ed.gov/oii-news/use-technology-teaching-and-learning>, <https://www.k12blueprint.com/sites/default/files/Case-Study-Kent-SD.pdf>, <https://thelearningcounsel.com/article/12-school-districts-honored-their-innovative-digital-curriculum-transition-strategies>, <https://tampaprep.org/learn/innovative-spaces/>

# Indianapolis used state grants and led district execution in a decentralized model that bridged local digital divides

## The state of Indiana deployed GEER funds to help close the digital divide through a needs-based, competitive grant program

- Rather than distributing funding to states using a formula, grants applications allow districts to express their relative need for funds
- The grant program forced districts to think strategically around how funds would be invested and gave them choice in how to bridge their divide
- Grant money could be spent by the district to improve device availability, connectivity, and educator capacity

## Grant requests were reviewed by the state for quality and overall need to inform the amount to be funded

- District grant requests were rubric evaluated across demonstration of needs, quality of execution plan (including sustainability), evidence of efficient budget usage, and definition of performance benchmarks with district equity and existing technological infrastructure also considered
- Quality assurance was employed to ensure that districts were allocating reasonable costs per line item and requesting an appropriate number of devices based on past student survey results
- High request volumes led to \$1 of funds provided for each ~\$3-4 dollars requested, partially due to some unreasonably high requests
- Stranded investment opportunities, initiatives that could not be funded, were pointed to other state departments and philanthropy funds

## Districts led provisioning of devices and connectivity, with Indianapolis finding success through effective collaboration

- Districts who receive funding have full jurisdiction over the services they purchase and distribute to students in need
- Indianapolis public schools created an 11 district coalition (~10% of students) to increase purchasing power during procurement
- A group of Indianapolis-area philanthropies raised \$2.6 million to help Indianapolis schools narrow the divide with devices and hotspots
- Organized RFP for connectivity, ultimately partnering with T-Mobile for 2 years, with districts driving procurement and distribution; request for hotspots from schools has dropped from 38K in the Spring when the pandemic first hit to 21K in the Fall
- Participated in statewide grant program, receiving ~20% of available funds to be distributed to districts to continue narrowing the divide



# Recommendation



# 3

## Education sponsored solutions

### Detailed recommendations

#### Preliminary

- 3A **Standup school-centric connectivity and device programs, including sponsored service programs and 1:1 models**
  - Encourage schools to maximize E-Rate to ensure high quality, reliable internet in schools and leverage funds that support remote learning (e.g., ECF)
  - Support 1:1 device / hotspot programs made possible by bulk purchasing, ISP student rates, and gov. support (e.g., Operation Connectivity, relief funds)
  - Set up service contracts with providers, extending existing relationships where possible, to cover the cost of new devices, replacements, and repairs
  
- 3B **Elevate schools as a locus for adoption support of available low-cost programs**
  - Conduct data assessments to understand the existing needs of their students
  - Support information sharing and adoption around available low-income programs (e.g., EBB, Lifeline), supporting cost of service if possible
  - Standup help desks (e.g., through IT depts) to troubleshoot software issues, support program enrollment, and help families navigate once connected
  
- 3C **Build digital skills leveling into the backbone of learning, boosting digital literacy across grade levels**
  - Embed digital standards into curriculum and upskill teachers so that they can provide basic digital instruction to students
  - Invest in supportive resources to help students learn virtually (e.g., online digital literacy courses, digital resource centers)
  
- 3D **Expand capacity to support cross-school and cross-district efforts through hiring and aggregated procurement / service delivery**
  - Standup district-wide help desks to troubleshoot issues faced by students
  - Engage in consortium purchasing to maximize volume discounts, share the execution burden, and increase ISP engagement

# Overview of the FCC's ~\$7B Emergency Connectivity Fund to be distributed through the E-Rate mechanism

First window of applications will apply for **purchases for the coming school year** (July 1, 2021 - June 30, 2022) with a second window to **reimburse past invoices** since the beginning of school closures (March 1, 2020 - June 30, 2021)<sup>1</sup>



## Who is eligible?

All E-Rate eligible **K-12 schools, libraries, and consortia** who made purchases to meet the **remote learning needs** (e.g., in-home Wi-Fi, loanable devices) of students, staff, and library patrons

E-Rate excludes **for-profit schools and schools with endowments** valued at over \$50M



## What can be purchased?

**Reasonable support amounts** in line with typical solution costs:

- \$400 reimbursement for devices
- \$250 reimbursement for hotspot
- \$10-\$25 monthly internet service
- Cost of modems & routers (amount under USAC discretion)

Schools / libraries can **fully cover** (vs. the 20-90% E-Rate discount) device and service **purchases that support remote learning**, excluding the purchase of mobile phones or the building of new networks<sup>2</sup>



## How do I apply?

Schools and libraries will apply using the **existing E-Rate application**

**Schools must certify** that they are only seeking support for students / staff who would otherwise lack devices or broadband sufficient to engage in remote learning

Libraries must provide patrons with **eligible use policies moving forward**, which explains that equipment is for those without access to services sufficient for educational needs

**Operation Connectivity has stood up a program to support all Texas ISDs through the ECF application**

1. If it appears that demand far exceeds supply in the initial window, the FCC may open a second “prospective” window for the coming school year before opening an application window for reimbursements; 2. Network construction is eligible only if no commercially available Internet access service for purchase is available to reach students, school staff, and library patrons in their homes



Thank You