GREATER AUSTIN AREA TELECOMMUNICATIONS NETWORK
FAQ's

1. Who are the GAATN participants?

The current GAATN participants include the following agencies: Austin Independent School District (AISD), Austin Community College (ACC), City of Austin (COA), Travis County, State of Texas (DIR), Lower Colorado River Authority (LCRA), University of Texas at Austin (UT).

2. Why was GAATN developed?

GAATN was the out growth of an initiative that began in the 1980's to deliver reliable and economical communication services to the public sector. Each one of the participating agencies was facing rapidly rising costs for leased voice and data service coverage in the growing Austin area (both in-fill and expansion).

The coaxial INET (Institutional Network) that had been relied on for data and video service delivery had become increasingly unreliable and subject to frequent outages that often lasted several days. Coupled with the looming 1996 cable franchise renegotiation that promised to eliminate several of the "free" video channels for school and municipal use, the future partners had to find another solution.

3. What models did Austin examine (if any) in developing GAATN? What other models are there now that you might recommend?

AISD and other early participants were not aware of any similar network projects underway or existing at that time. After much evaluation, AISD chose to follow the recommendations of their engineering consultant to construct the shared fiber optic network that would become GAATN.

4. What is GAATN (legally) and who can and can't be a participant?

GAATN is an Interlocal Agency, created pursuant to Section 791.001 et seq. of the Interlocal Cooperation Act of the *Texas Government Code*, and signed June 10, 1993, by various cooperating agencies and other governmental entities (referred to as participants). Participants are limited to those governmental entities with valid governmental purpose that would be served by construction and operation of the Network to provide high technology communications capability while achieving economy of scale. No private individuals, associations or corporations or any other non-governmental entity may be included.

5. Can GAATN acquire new partners?

Yes. Additional Participants may be admitted by the unanimous approval of all current Participants, with the provision that no additional Participant shall be admitted which would cause any other Participant to violate any provisions in Article 3 (52) or Article 11 (3) of the Texas Constitution. Furthermore, a Participant may not lease, assign, license

the use of, or provide capacity on, any portion of the Network (including, without limitation, individual strands or band-width) to a private individual, association or corporation, except as necessary to facilitate a governmental use by, or on behalf of, the Participant owning the Network Rights.

6. Is there any private sector participation?

There is no private sector participation in GAATN at this time.

7. What was the financial justification used to build GAATN?

Costs for providing AISD voice services in 1988 approached $1million. Projections indicated that it was likely that those costs would triple over the next 10 years. The ensuing engineering study on possible solutions recommended construction of a network that could be utilized not just for voice, but for data and video as well. The recommended fiber installation offered what at the time seemed to be limitless potential compared to copper cabling (fiber limitations are based on terminations and equipment specified, not on the medium itself)

8. How was the GAATN project financed?

A Participant was chosen as the Financial Manager for the Agency and entered into contracts as needed to complete the project.

The Interlocal Agreement defined the original capital and variable network operating costs. Each partner used varying means (CIP, Bonds, etc.) to fund its individual obligations.

The GAATN construction experience was typical for a large public sector project: it was built in stages and paid for incrementally.

a. Other finance mechanisms?
City contributed Right of Way access instead of an initial cash contribution.

b. Any outside funding/grants?
Research money. Also, projects such as this would be suitable for grant applications.

9. How much did GAATN cost to build?

	Projected	Initial Constr(actual)
Original Construction cost	$12.2million	$14.2million

These figures contain no equipment costs for any Participant.

10. How much does it cost to maintain and operate GAATN?

GAATN operation is divided into two parts. There is normal recurring cost with maintaining the existing fiber infrastructure. There is a cost associated with the need to move or change the infrastructure to comply with local construction affecting the right of way. There is a cost associated with GAATN initiated changes of the infrastructure.

NOTE: <u>These figures contain no equipment costs.</u> GAATN is strictly the common Layer 1 (physical) transport system. Each Participant is responsible for designing, implementing and financing its own individual equipment solution.

<u>Capital Cost</u> is defined as Major Projects Cost (Improvements and Major Construction) per mile of plant

Capital cost $2,181.29/mile = average yearly cost (excluding orig.constr)
$43,952.14/mile = total cost (orig.constr. + yearly average)

Annual operating costs	approx. $2,000,000
Average Operating Percentage =	73.29% of annual budget
	10.77% of initial construction cost

11. How are GAATN maintenance and operational costs shared between participants?

Costs are shared based on each Participant's percentage of network rights. The computations for ascertaining individual Participant's costs and percent of Network Rights are directly related to each ring and are based on three basic factors:

1) A Participants presence on a ring
2) A Participants number of sites on a ring
3) A Participants number of fibers on a ring

12. How does GAATN operate technically?

GAATN is a transport medium only.

a. Capabilities?
Determined by each individual Participant's design and equipment installation.

b. Shared services?
Each individual Participant determines and operates its own network services. Individual Participants do interconnect with each other at particular locations on the network.

c. Types and quantities of switching equipment/routers.
Equipment is owned, funded and maintained by each individual Participant.

13. How do Participants connect to GAATN?

Each individual Participant funds its own node cable for attachment to the Agency-owned ring cable at one (single, non-protected) or two (protected) POP's (points of presence) on the common ring. This "last mile" section of plant is 100% the responsibility of the individual Participant. The current number of attachments on the GAATN network is over 400 sites.

14. Who is responsible for the operation, management, and maintenance of the GAATN network?

GAATN has an active Board of Directors who are responsible for setting policies and making financial decisions for the network. The Board has appointed a Technical Subcommittee to plan, review and make technical recommendations to the Board. The Board solicits proposals for Fiber Plant Maintenance, Network Management, Legal Services, Insurance Services, Fiber Locating Services and other agreements as needed.

15. How is security managed? What are open security concerns?

GAATN participants are required by law to protect the infrastructure information. Security is a serious issue for GAATN as it is for each and every Participant. Access beyond legally available information is prohibited.

16. Is the GAATN partnership used for other related projects?

a. Video Conferencing
b. World Congress of Information Technology 2006 Conference
c. National Internet2 Convention
d. National Super Computing Convention 2008
e. School District-Austin Police Department initiatives
f. Internet Access
g. Combined Transportation and Emergency Communications Center

17. What lessons have been learned by GAATN?

Topic	Positive	Negative	Conclusion	Notes
Self Support Cable	Self Support cable is cheaper to place initially	Inflexible to rearrange or adjust slack. Over time requires accelerated replacement	Do not use Self Supporting cable	
Armored Cable	Protection from squirrel and rodent activity	Expensive and more difficult to rearrange	Use armored cable in both aerial and underground installations	
All Dielectric Cable	Lightning effects localized	Difficult to locate, must place parallel locate wire	Do not use all dielectric cable in underground situations	
Pole Assignments		Lowest attachment is more likely to be torn down	Avoid the lowest attachment assignment on the pole	
Cable Slack	sufficient slack locations make modifications and repairs easier	Added cable length, attenuation and cost	Place slack at regular intervals within the network	Standard slack spacing implemented to improve support and expansion
Aerial vs. Buried	Underground placement appears to be more secure than aerial.	Underground construction very expensive compared to aerial. Repairs time consuming and expensive	Place plant via aerial if possible to reduce costs	
Splice Cases	Initial economy	Entry by water, insects	Make sure case is re-enterable	

18. How many slack insertion events occur during a normal year on the GAATN network?

The GAATN network experiences approximately 15 events per year on average. The average cost per event is $2800 with an average yearly cost of $42,000.

19. The breakout of aerial versus underground in new construction versus repair situations is listed below:

	AVERAGE COST PER EVENT (total # of events)		
AERIAL CONSTR. (80)	$14,800	BURIED CONSTR. (90)	$27,200
AERIAL REPAIR (138)	$ 7,500	BURIED REPAIR (41)	$12,300

20. Are there issues/conflicts with state telecommunications reform passed 2003/2005?

GAATN monitors Federal and State Telecom activity through the efforts of its Participants' regulatory and legislative liaison personnel.

21. Does GAATN require any supporting ordinances from City?

Yes. There was an Ordinance 950809A that established/regulated the use by third parties of city-owned infrastructure in late 1994, early 1995.

22. What are the future plans for GAATN?

The GAATN network continues to grow as the Austin area expands and participants add new facilities. Since its initial construction GAATN has added approx. 50 miles of GAATN ring fiber. In the past 5 years an additional 119 connections have been added to the network. The GAATN Agency actively seeks participation from qualifying neighboring entities.

Additional Information:

GAATN Interlocal Agreement http://www.gaatn.org/InterlocalAgreement.pdf

GAATN Policies and Procedures
http://www.gaatn.org/policiesandprocedures.pdf

GAATN Past, Present, and Future Policy Analysis and Recommendations
White Paper written by Quinn Stewart, graduate student, University of Texas, 12/1998
(permission granted by author)
http://www.ischool.utexas.edu/~quinn/GAATN.pdf