

# Exhibit 7: System Costs

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## 1.0 Current 9-1-1 Costs

Currently the Sixteen ETSB's pay the ILEC's for 9-1-1 Service.

ETSB Cost	<u>Per Month</u>	<u>Per Year</u>
	\$59,591.85	\$715,102.20

These costs are covered with surcharge and general government revenue.

## 2.0 Project Cost Analysis

Over half of the ETSB's in this project were facing the need to upgrade their current legacy equipment. Much of the equipment that is operational today is as old as 15 years. The costs that would be endured to completely replace an E9-1-1 system for one agency, was \$16,000 per position. For a complete legacy upgrade at all the CSI PSAP's this cost was estimated to be approximately \$752,000. Realizing that this would be foolish to spend funds on a system that would only be able to answer 40% of the calls in the near future, other estimates were obtained. These estimates were for a Next Generation 9-1-1 system at each PSAP, having costs of at least \$200,000 per PSAP (for a two position PSAP). Accumulatively, these estimates for all CSI participating ETSB's would be greater than \$4.2 million dollars.

			<u>Total</u>
<b>PSAP Upgrade Legacy</b>	\$16,000 per position	X 47 positions	<b>\$752,000</b>
<b>PSAP Upgrade NG9-1-1*</b>	\$200,000 to \$400,000 per PSAP		<b>\$3.2 to \$6.4 Million</b>
<i>*Individually</i>			
<b>CSI Project</b>	NG-911 upgrade/Redundant Network/Redundant Data Centers		<b>\$2.1 million</b>
<b>**\$1.2 million BTOP Funds</b>			
\$600,000	Cops Grant		
\$100,000	Delta Regional Grant		
\$200,000	CSI Shared Costs	(approx \$13,000 per agency)	
<i>**Group</i>			

## 2.1 Projected Costs

At time of this filing the Access Carriers have not provided exact costs of 9-1-1 Trunking. To determine the economic viability of the project, it was necessary to project trunking costs. These costs were projected with the assumption that Access Carriers will aggregate 9-1-1 trunks they deliver to the two diverse/redundant datacenters. The costs were also projected to represent standard industry pricing for circuits. It is not anticipated the ILEC's would supply above industry average pricing to Public Safety.

## 2.2 Trunking Projects

Trunking Projects are:

Carrier*	Counties**	CSI PSAPs	Central Offices***	Trunks****	SS7 Point Codes *****	SS7 using A Links -	Mult	On Net (\$50/mo)  Off-net (\$125/mo)	T1s (Total)  Trunks/24 rounded up and x2 for Data Centers	F Link Implication  Free from SS7 costs, adds T1 Costs	Carrier Monthly Total Estimate
Major Carrier											
AT&T 95% Assurance	Alexander  Pulaski  Union (same LATA)	2	15 total incl. remotes	16	2 Point Codes	Yes	X	On Net \$50 = \$100/mo	16x2=32/24=  2 T1s @ \$550/mo=  \$1100/mo	Add 2 T1s and subtract SS7 Costs – use A Links	\$1200/mo plus \$100
AT&T 95% Assurance	Marion (Cross LATA)	1	1 total incl remotes	16	2 Point Codes	Yes	X	On Net \$50 = \$100/mo	16x2=32/24=  2 T1s @ \$750/mo=  \$1500/mo	Add 2 T1s and subtract SS7 Costs – use A Links	\$1600/mo, plus \$100
AT&T Total		3		32				\$200/mo	\$2600/mo	Assume A-Links	\$2800/mo

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Frontier 50% Assurance	14 plus 1 muni - all but Alex (same LATA)	~21 total	39 plus remotes	140	39 total split /round 25	Yes assume	X	On Net (assume) \$50/mo= \$1250/mo	140x2=280/24=16 T1s@ \$550/mo=\$8800/mo	Add 4 T1s and subtract SS7 Costs - use A Links	\$8800/mo plus \$1250
Frontier 50% Assurance	(Cross LATA)			66	15	Yes assume	X	On Net (assume) \$50/mo= \$750/mo	66x2=132/24=6 T1s@ \$750/mo=\$4500/mo	Add 4 T1s/mo and subtract SS7 Costs - use A Links	\$4500/mo plus \$750
Frontier Total					~40	Yes Assume	X	\$2000/mo	\$13,500/mo	Adds 2 T1s/mo SS7 Costs - Assume use A Links	\$15,500/mo
Regional LEC											
Crossville	White (Cross LATA)	1 PSAP	1 Host	2	1	Yes Assume	X	Off net - Assume \$250/mo	2x2=4/24= 2 T1s rounded up for diversity \$750/mo=\$1500/mo	Adds no T1s if F Links - prefer F Links to save \$250/mo	\$1500/mo plus 0 if F Links
Crossville Total								\$250/mo	\$1500/mo	(\$250)	\$1,500
Fairpoint	Marion (Cross LATA)	1 PSAPs	2 Hosts	4	2	Yes Assume	X	Off net - Assume \$500/mo	4x2=8/24= 2 T1s rounded up for diversity \$750/mo=\$1500/mo	Adds no T1s if F Links - prefer F Links to save \$500/mo	\$1500/mo plus 0 if F Links
Fairpoint Total								\$500	\$1500/mo	(\$500)	\$1,500

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Hamilton	Saline White Hamilton (Cross LATA)	2 PSAPs	1 Host 2 Remotes	4	1	Yes Assume	X	Off net – Assume \$250/mo	$4 \times 2 = 8 / 24 = 2$ T1s rounded up for diversity \$750/mo=\$1500/mo	Adds no T1s if F Links – prefer F Links to save \$250/mo	\$1500/mo plus 0 if F Links
Hamilton Total								\$250	\$1,500	(\$250)	\$1,500
Wabash	Wabash , Richland, Clay Marion (Cross LATA)	4 PSAPs	2 Hosts and 4 Remotes	16	SS7 today (2)	Yes Assume	X	Off net – Assume \$250/mo	$16 \times 2 = 32 / 24 = 2$ T1s rounded up for diversity \$750/mo=\$1500/mo	Adds no T1s if F Links – prefer F Links to save \$500/mo	\$1500/mo plus 0 if F Links
Wabash Total							X	\$500	\$1,500	(\$500)	\$1,500
Egyptian	Jackson , Perry + split (same LATA)	6 PSAPs	1 host 3 remotes	5	SS7 today (1) capable of SIP)	Yes Assume	X	Off net – Assume \$250/mo	$5 \times 2 = 10 / 24 = 2$ T1s rounded up for diversity \$550/mo=\$1100/mo	Adds no T1s if F Links – prefer F Links to save \$250/mo	\$1100/m if SIP or F Links
Egyptian Total								\$250	\$1,100	(\$250)	\$1,100
Shawnee	Saline, Gallatin, Johnson) (same LATA)	2 PSAPs	2 Hosts 5 Remotes	14 Trunks	SS7 today (2) capable of SIP)	Yes Assume	X	Off net – Assume \$500/mo	$14 \times 2 = 28 / 24 = 2$ T1s \$550/month=\$1100/mo	Adds no T1s if F Links – prefer F Links to save \$500/mo	\$1100/mo if SIP or F Links
Shawnee Total							X		\$1,100		\$1,100

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CLEC											
Clearwave CLEC	9 (same LATA)	~21 PSAPs total	1 Host	18 Trunks	SS7 today(1) capable of SIP w/repl switch)	Yes Assume	X	Off net – Assume \$250/mo	All one switch in same LATA 28x2=36/24= 2 T1s incl. F Links x \$550/mo= \$1100/mo	Adds no T1s if F Links then SIP– prefer F Links to save \$250/mo	
	5 (Cross LATA)			10 Trunks	Same as above	Same as above	X	Same as above			
Clearwave Total								\$250	\$1,100	-250	\$1,100
Intrado CLEC plus other CLECs in Partnership unnamed	1 Marion (Cross LATA)	1 PSAP	1 Host assume	4 Trunks	SS7 today(1) capable of SIP future	Yes Assume for Cutover	X	Assume on net \$100/mo	4x2=8/24=2 T1s x \$750/mo=\$1500/mo	Adds no T1s w/A Links	\$1500/mo w/A Links
Intrado Total								\$100	\$1,500		\$1,600
Aero Comm CLEC	6 Counties all in LATA	~14 PSAPs	1 Host assume	14 trunks	Assume SS7 1 PC offnet	Assume A Links	X	\$250/mo	14x2=28/24=2 T1sx\$550/mo= \$1100/mo	Adds no T1s – assume no F Links now	\$1250/mo
Aero Total								\$250	\$1,100		\$1,350
Big River Telecom CLEC	2 counties in LATA		1 Host assume in LATA – no verification	4 Trunks	Assume SS7 1 PC Off net	Assume A Links	X	\$250/mo	4x2=18/24 = 2 T1s @ \$550/mo= \$1100	Adds no T1s w/A Links	\$1350/mo
	2 counties out LATA			4 Trunks	Off net		X		4x2=18/24 = 2 T1s x \$750/mo= \$1500		\$1500/mo
Big River Total								\$250	\$2,600		\$2,850

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Sprint CLEC	7 (same LATA)	13 PSAPs	1 Host assume Cross LATA – no	14 Trunks	Assume SS7 1 PC on net	Assume A Links	X	\$100/mo	$14 \times 2 = 28 / 24 = 2$ T1s x \$750/mo = \$1500/mo	Adds no T1s – assume no F Links now	\$1500/mo
Sprint C Total								\$100	\$1,500		\$1,600
Level 3 CLEC	2 counties in LATA	4 PSAPs	1 Host assume in LATA – no	6 Trunks	Assume SS7 1 PC on net	Assume A Links	X	\$100/mo	$6 \times 2 = 12 / 24 = 2$ T1s x \$550/mo = \$1100/mo	Adds no T1s w/A Links	\$1200/mo
Level 3 Total								\$100	\$1,100		\$1,200
AT&T CLEC	1 County City of Marion Wmsn	1 PSAP	1 Host assume in LATA – no	2 Trunks	Assume SS7 1 PC on net	Assume A Links	X	\$100/mo	$2 \times 2 = 4 / 24 = 2$ T1s x \$550 = \$1100/mo	Adds no T1s w/A Links	\$1200/mo
AT&T C Total								\$100	\$1,100		\$1,200
Charter Fiberlink CLEC	1 County Marion	1 PSAP	1 Host assume CrossLATA – no	2 Trunks	Assume SS7 1 PC offnet	Assume A Links	X	\$250/mo	$2 \times 2 = 4 / 24 = 2$ T1s x \$750 = \$1500/mo	Adds no T1s w/A Links	\$1750/mo
Charter Total								\$250	\$1,500		\$1,750
Lightspeed CLEC	1 County Marion	1 PSAP	1 Host assume Cross LATA – no	2 Trunks	Assume SS7 1 PC offnet	Assume A Links	X	\$250/mo	$2 \times 2 = 4 / 24 = 2$ T1s x \$750 = \$1500/mo	Adds no T1s w/A Links	
LS Total								\$250	\$1,500		\$1,750
Cello Partners (assume CLEC)	3 Counties	6 PSAPs	1 Host assume in LATA – no	8 Trunks	Assume SS7 1 PC offnet	Assume A Links	X	\$250/mo	$8 \times 2 = 16 / 24 = 2$ T1s x \$550 = \$1100/mo	Adds no T1s w/A Links	
Cello Partners Total								\$250	\$1,100		\$1,350

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Delta Comm Assume CLEC	1 Pulaski	1 PSAP	1 Host assume in LATA – no	2 Trunks	Assume SS7 1 PC offnet	Assume A Links	X	\$250/mo	$2 \times 2 = 4 / 24 = 2$ T1s x \$550 = \$1100/mo	Adds no T1s w/A Links	\$1350/mo
Delta Total								\$250	\$1,100		\$1,350
Bitwise Comm Assume CLEC	1 Saline	1 PSAP	1 Host assume in LATA – no	2 Trunks	Assume SS7 1 PC offnet	Assume A Links	X	\$250/mo	$2 \times 2 = 4 / 24 = 2$ T1s x \$550 = \$1100/mo	Adds no T1s w/A Links	\$1350/mo
BW Total								\$250	\$1,100		\$1,350
Wireless add in Pope Hamilton and Hardin terminating counties via M and H so no access trunking											
AT&T Mobility	8 Counties in LATA	16 PSAPs	1 Host assume	20 Trunks	Assume SS7 1 PC on net	Assume A Links	X	\$100/mo	$20 \times 2 = 40 / 24 = 2$ T1s x \$550 = \$1100/mo	Adds no T1s w/A Links	\$1200/mo
	3 Counties Cross LATA	4 PSAPs	1 Host assume	6 trunks	Assume SS7 1 PC on net	Assume A Links	X	\$100/mo	$6 \times 2 = 12 / 24 = 2$ T1s x \$750 = \$1500	Adds no T1s w/A Links	\$1600/mo
AT&T Mobility Total								\$200	\$2,600		\$2,800
TCI Wireless	6 Counties in LATA	12 PSAPs	1 Host assume	12 Trunks	Assume SS7 1 PC on net	\$100	X	\$100/mo	$12 \times 2 = 24 / 24 = 2$ T1s x \$550 = \$1100/mo	Adds no T1s w/A Links	\$1300/mo
TCI Wireless Total								\$100	\$1,100		\$1,200
Cell One	1 County Clay (Cross LATA)	2 PSAPs	1 Host assume	2 Trunks	Assume SS7 1 PC on net	\$100	X	\$100/mo	$2 \times 2 = 4 / 24 = 2$ T1s x \$750 = \$1500/mo	Adds no T1s w/A Links – check for F Links	\$1600/mo
								\$100	\$1,500		\$1,600

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Cellco Comm	1 County Saline In LATA	1 PSAP	1 Host assume	2 Trunks	Assume SS7 1 PC off net	\$250/mo	X	\$250/mo	$2 \times 2 = 4 / 24 = 2$ T1s x \$750 = \$1500/mo	Adds no T1s w/A Links – check for F Links	\$1750/mo
								\$250	\$1,500		\$1,750
Allied/Allnet/First Cellular via Intrado Peering	First Cell 9 in and out of LATA  Allied Alltel was 12 in and out of LATA  Intrado will peer and consolidate and bring in together	~21 PSAPs	1 Host assume	First Cell was 19 –  Allied Alltel was 24 trunks Assume 6 new Trunks	Assume SS7 1 PC on net	\$100/mo	X	\$100/mo	$6 \times 2 = 12 / 24 = 2$ T1s – assume x out of LATA Rates \$750 = \$1500	Adds no T1s w/A Links – check for F Links they are considering SIP future and F Links interim	\$1600/mo
								\$100	\$1,500		\$1,600
Sprint PCS	10 Counties	~21 PSAPs	1 Host assume	24 Trunks	Assume SS7 1 PC on net	\$100/mo	X	\$100/mo	$24 \times 2 = 48 / 24 = 2$ T1s @ \$750 = \$1500	Adds no T1s w/A Links – check for F Links ask about SIP future and F Links interim	\$1600/mo
								\$100	\$1,500		\$1,600

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T- Mobile	10 Counties	~21 PSAPs	1 Host assume	22 Trunks	Assume SS7 1 PC on net	\$100/mo	X	\$100/mo	$22 \times 2 = 44 / 24 = 2$ T1s@ \$750= \$1500	Adds no T1s w/A Links – check for F Links ask about SIP future and F Links interim	\$1600/mo
								\$100	\$1,500		\$1,600
Verizon Wireless	10 Counties	~21 PSAPs	1 Host assume	20 Trunks	Assume SS7 1 PC on net	\$100/mo	X	\$100/mo	$20 \times 2 = 40 / 24 = 2$ T1s@ \$750= \$1500	Adds no T1s w/A Links – check for F Links ask about SIP future and F Links interim	\$1600/mo
								\$100	\$1,500		\$1,600
Nextel Partners assume Wireless	5 Counties	~21 PSAPs	1 Host assume	14 Trunks	Assume SS7 1 PC on net	\$100/mo	X	\$100/mo	$14 \times 2 = 28 / 24 = 2$ T1s@ \$750= \$1500	Adds no T1s w/A Links – check for F Links ask about SIP future and F Links interim	\$1600/mo
								\$100	\$1,500		\$1,600

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VoIP ad Media TV											
Vonage VoIP – Peering w/Intrado ( plus 50 possible VoIPs	15 Counties	~21 PSAPs	1 Host assume	Was listed as 10 trunks in 2 counties on PSAP Sheets Use 6 Total Trunks each DC	Assume SS7 1 PC on net	\$100/mo	X	\$100/mo	6x2=12/24= 2 T1s@ \$750= \$1500 - if they use Level 3 they may be cheaper	Adds no T1s w/A Links – check for F Links ask about SIP future and F Links interim	\$1600/mo
Vonage and VoIP Totals including Mediacom								\$100	\$1,500		\$1,600
<b>Total Trunking Cost</b>											<b>\$60,000</b>

***It is significant to note that the trunking costs represent twice the trunking provided by the ILEC's today.*** This eliminates the single point of failure that exists in the current PSTN 9-1-1 system. This 'double trunking' creates the redundancy that improves the reliability, service quality, and safety. These projected costs are not to exceed \$5,000 more than what the ETSB's estimated. Even so, this additional \$5,000 would be easily absorbed by the ETSB's for a more redundant network.

### 3.0 Database Update Cost

CSI will maintain their data base as a Stand Alone ALI (SALI) with CSI personnel performing the updates. Since Next Generation 9-1-1 databases are so closely related to the GIS process, this will be a natural effort and there will be no additional cost to maintain the database. The sixteen ETSB's will save money because the ILEC's charge ETSB's for database maintenance. Cumulatively, CSI will save over \$3,700 per month, or \$44,400 per year. The ALI database updates have declined significantly over the last ten years, in some cases over a 90% reduction in wireline ALI updates. The effort to keep up with the ALI updates will be at a minimum due to the declining wireline customer base.

### 4.0 Distribution of Cost-Formula's

CSI has developed a fairly simple methodology for dividing costs among the ETSB's. Costs are broken down depending on the service or products and what the application is. For example, if the item is for workstations, each of the ETSB's pay an amount associated with the number of work stations associated with each ETSB. If the costs are PSAP related, the ETSB's pay based on the number of their PSAP's, and so on. Alternatively, for network and datacenter costs, the amount is shared equally.

### 5.0 Conclusion

CSI can afford it.

While the initial costs are high, the savings comes once the system is truly operational.

PSAP upfront costs:***	\$13,000 per PSAP	\$200,000 total
Additional Trunking costs	\$5,000	
Database Savings		\$44,000 a year

Selective Routing fees can only be projected to save money. Currently the ILEC's have not reported what those charges would be to connect to the CSI Network. The amount of savings can be project based on a review of the efforts of the Kentucky Commercial Mobile Radio Services Board (CMRS).

The area CSI provides 9-1-1 service is similar to Lexington Kentucky and is surrounding areas in terms of population and geographic size. The information provided by CMRS<sup>1</sup> is that the Lexington Kentucky region began a test project leading towards Next Generation 9-1-1. While the Lexington area is moving toward a NG9-1-1 system, their project has a different transition path than that of CSI, in that they purchased their own selective router. Similar to CSI, they are connecting nine counties in the Lexington area via a network similar to the ESInet CSI is installing. After the first year, the new trunking cost from one telephone company resulted in a

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<sup>1</sup> Program Review and Investigations Committee. "911 Services and Funding: Accountability and Financial Information Should Be Improved." Legislation Research Committee. Frankfort, Kentucky: December 8, 2011. Print.

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savings of \$27,000 a month, or \$324,000 annually. Using the Kentucky model and their numbers in one year, CSI would realize enough savings from one company to offset the initial PSAP cost. Currently the major phone companies have not come to an agreement to connect to the Kentucky system. If such an agreement is worked out for both Kentucky and Illinois, the savings would be even greater.