



Telecommunications Cooperative Association of Pennsylvania

356 Maiden Creek Road

Fleetwood, PA 19522

P: 484-651-2366

F: 610-944-1102

March 6, 2014

Letter – Expression of Interest (VIA ECFS)

Chairman Thomas Wheeler
Commissioner Mignon Clyburn
Commissioner Jessica Rosenworcel
Commissioner Ajit Pai
Commissioner Michael O’Rielly
Jonathan Chambers
Federal Communications Commission (FCC)
445 12th Street, SW 20024
Washington, DC

**Re: Expression of Interest – Rural Broadband Experiments
Connect America Fund, WC Docket No. 10-90**

Dear Chairman Wheeler, Commissioners, and Mr. Chambers,

This letter is to express the Telecommunications Cooperative Association of Pennsylvania’s interest in receiving funding from the Rural Broadband Experiments announced at the January 30th FCC Open Meeting.

**“IP3 NET - The U.S. ENGINE”
INTERACTIVE PARTNERSHIPS, PROTOCOLS & PEERING NETWORKS
The U.S. Emerging Next Generation Internet Networks Economy**

A collaborative business model utilizing “Open Access” network principles involving interactive Internet Partnerships and Protocols between communities and service providers tied together through Peering across layer regional network centers (RNC) and other networks for availability of voice, video and data retail and wholesale services, as well as shared government services to maximize teaching and learning opportunities, improve government services, attract and retain companies and jobs through economic development initiatives and activities and enhance the overall quality of life for individuals and families in the United States.

This proposal ensures the FCC meet the core value of preserving universal access to communications during historic technology transitions from circuit-switched to IP networks. Access to high quality, secure and high-bandwidth connectivity is critical to the delivery of health care and disaster preparedness. In many of our country’s debates on whether the federal government or private sector is best suited to meet the challenge, this IP3 Net proposal is promoting a partnership where TCAP is an interim party (storefront) between the consumers and service providers and FCC Connect America funding for implementation projects and the service carriers. TCAP feels strongly that this initiative will play a major role in the future with the objectives of “FirstNet” going on across the country which is looking at interconnecting robust IP networks for Department of Homeland Security and other Emergency Response applications and utilization, and Broadband Outreach and Education Programs.

This proposed Connect America Phase II Experiment Proposal is not only structured to generate “Best Practices” that will allow others to replicate experimental successes in other rural areas in building a Next Generation Internet Networks Economy, but addresses other concerns of the FCC including the four (4) Sets of FCC interrelated questions regarding Discrete Technology Transition Experiments and establishing a fair and open Procurement Process.

- (1) Feasibility of Fiber Deployment or Other Technologies at What High Speed Level Above Minimum Standards and Streamlining the ETC Process
 - a. Addresses question that rural areas do not preclude fiber deployment, absent some level of government support **(See Investor model example later in Expression of Interest)**
 - b. Interest of Non-incumbent Service Providers to deploy high speed scalable IP based network potentially with assistance from the Connect America Fund **(Procurement by Cooperative would include Request for Interest [RFI] solicitation)**
 - c. Measures to streamline Eligible Telecommunications Carrier (ETC) Process to encourage such entry by non-incumbent providers. **(Prequalify ETC using FCC Requirements as condition to submit application to Cooperative for solution consideration)**
 - d. Whether providers are willing and able to deliver services with performance characteristics well in excess of the minimum standards that price cap carriers accepting model-based support are required to offer to all locations in funded areas, for the same amount or less support than that calculated by the forward-looking cost model A proven fair and open procurement process for implementation. **(Procurement by Cooperative would include Request for Interest [RFI] solicitation that raises this issue.)**
- (2) Develop a greater understanding of the geographic and demographic characteristics of areas where service providers (both incumbents and non-incumbents) would choose to offer wireless services at pricing reasonably comparable to urban wireline offerings and to identify the likely features of such wireless services and the characteristics of wireless services that residential consumers would find to be an acceptable substitute for fiber-based broadband service. **(Use collected end-user residential and business survey responses* which are geographically identifiable to find out aggregation and willingness of end-users to pay, as well as service features acceptable to end-users as substitute for fiber-based broadband service so rural wireless prices could be set near urban wireline offerings.[Note:*End-user Residential and Business Broadband Surveys were collected in 54 counties throughout Pennsylvania])**
- (3) Develop a greater understanding through this experiment of how these transitions will impact anchor institutions and the people they serve. Learning more about the types of services that will be offered to schools, libraries, health care providers, and other anchor institutions that are served by next generation networks financed in part with Connect America support, and at what price. Explore how the transitions will best ensure the provision of high quality broadband connectivity appropriate to the needs of rural health care providers and enable remote health monitoring at home, which is critical to consumers in rural areas who otherwise would have to travel great distances to have access to health care. Seek to examine whether and how the business case for deployment in rural areas, including Tribal lands, can be improved by securing the participation of anchor institutions to serve as key customers of the next generation networks. Identify strategies to ensure that community-based institutions in rural areas, such as schools, libraries and health care providers, have access to next generation services. **(Use collected end-user residential and business survey responses* which are geographically identifiable to gain a better understanding of how these transitions will impact anchor institutions and the people they serve[Note:*End-user Residential and Business Broadband Surveys were collected in 54 counties throughout Pennsylvania])**
- (4) Finally, seek to work cooperatively with other governmental agencies to advance FCC shared objectives of ensuring that consumers, businesses and anchor institutions have access to next generation services. Under section 254, universal service is a joint federal and State responsibility. Find out how States, localities, Tribal governments, and other non-federal governmental bodies can provide assistance, through matching funding, in-kind contributions or other regulatory approvals and permits, to improve the business case for deployment of next generation networks. **(Cooperative would provide information/applications for existing alternative funding techniques and resources such as CDBG, USDA-RUS, EDA, ARC, etc. and work with the FCC on new innovative opportunities perhaps through the FirstNet initiative and NERC Reliability Standards requirements for Critical Infrastructure Protection approved by FERC)**

This proposal allows the structure to answer one of the critical questions the FCC seeks to explore is under what conditions will consumers prefer next generation wireless services over wireline alternatives. In addition, we want

to better understand the viable business models that could support the deployment of fiber or other next generation wired technology in rural areas despite the challenges we have described. The cooperative structure also provides a think-tank environment to discuss ideas about how to structure experiments that will inform FCC policy decisions regarding the deployment of next generation networks in rural, high-cost areas with innovative ideas that would coordinate actions across FCC various support programs, consistent with the statutory framework set forth in section 254. **(Cooperative would be the interface (storefront) between consumers and providers, as well as the interface between the FCC Connect America funding opportunities and service carriers)**

This proposal not only uses tailored innovative economic incentives to advance the deployment of next generation networks, both wireline and wireless, in rural, high-cost areas of the country, including Tribal lands by for example, tying funding to level of progressing the FirstNet Initiative, but also through Public-Private-Partnerships (PPP) including electric power companies that need to meet the North American Electric Reliability Corporation (NERC) Reliability Standards for Critical Infrastructure Protection (CIP) on Bulk Transmission systems. Upon the Federal Energy Regulatory Commission's (FERC's) approval, NERC's reliability standards became mandatory within the US. These mandatory reliability standards include CIP Standards 001 through 009, which address the security of cyber assets essential to the reliable operation of the electric grid. Many power companies are pursuing installation of Smart Grid-Supervisory Controlled Data and Acquisition (SCADA) devices which need robust and reliable telecommunications transmission infrastructure. Such networks will address both physical (CCTV/Cameras, Motion Detection, etc.) and electronic security (cyber security) issues of the grid. Perhaps if these power companies need to make an investment, there could be some synergies and benefit in utilizing such investments for other benefits like community broadband enhancement. The incentive would be to increase the potential for the electric power entity to get some funding for such investments by partnering and advancing the Connect America Fund initiative. In rural areas of the country cooperatives play an important role and offer broadband services. There are inherent advantages and synergies between electric systems and telecommunications systems such as pole lines, underground trenches, bucket truck and wireline skilled technicians, service provisioning environment, universal access to most end-users, and much more. Another example of where local government can provide an incentive is to place a moratorium (for x number of years) on collection of Cable TV franchise fees in exchange for the agreement to invest these dollars (supplemented by Connect America dollars) into expanding fiber or cable modem service in more rural areas. These proposed economic incentives help ensure Connect America funding will be available to entities to deploy high-speed, scalable, IP-based networks ensuring that rural consumers, businesses, and anchor institutions have access to next generation networks. Consistent with the Commission's goals of bringing robust, scalable broadband networks to rural, high-cost communities and gaining experience and data on how to ensure universal access as networks transition, this experiment is designed to help inform FCC policy decisions in various proceedings pending before the Commission. From the American citizen's perspective, as in the first example this experiment best utilizes funds by avoiding overbuild of networks while at the same time addressing three (3) very important national agendas: FirstNet, Electric Grid Critical Infrastructure Protection (CIP) and providing the catalyst for Rural Broadband access and economic development through the building of a Next Generation Internet Networks Economy. By meeting these needs jointly demonstrates the advantages of IP based networks through interoperable communications of data, video and voice applications that otherwise has difficulty communicating with each other.

Through the proposed **cooperative procurement process**, the FCC will understand what providers would be willing to offer what type of service in price cap areas in the event that a current incumbent ETC chooses not to participate in Connect America Phase II. Through the cooperative procurement process, a competitive bidding mechanism for Phase II of the Connect America Fund to award support in price cap territories in those areas where price cap carriers decline to make a state-level commitment in exchange for model-based support. The proposal could accommodate a forward-looking cost model for the purpose of making an offer of support to price cap carriers in exchange for a state-level commitment. *Since TCAP would be an interim party between the FCC Connect America Funds and the service carriers, such a structure continues to support and reaffirm the Commission's commitment to using competitive bidding to award support to the extent the price cap carriers decline to accept the offer of model-based support.* Whatever the decision is by the FCC as to the specific form of the competitive bidding mechanism that will occur to the extent price cap carriers decline to elect model-based support, should be

able to be implemented through the **cooperative which are historic in purpose to streamlining procurement costs and process through aggregation and direct benefit to its members.**

TCAP would put in-place fiscally responsible, accountable, incentive-based policies. This cooperative model would be a structured model to test, on a limited scale, the use of an application-based competitive bidding process with objective selection criteria on a limited scale before finalizing decisions regarding the competitive bidding mechanism for full-scale implementation in WC Docket No. 10-90 to award support in price cap territories where the incumbent declines the offer of model-based support. We fully recognize that conducting nationwide competitive bidding – whatever form it ultimately takes – to award recurring support to preserve voice service and expand broadband service is a significant undertaking that has never been implemented in this country. Such a process would still allow the FCC to maintain its fundamental obligation to preserve and advance universal service. Even though the Commission has solicited multiple rounds of comment on issues relating to competitive bidding mechanisms, there is no substitute for real world experience to inform our policy decisions. **The FCC will learn from the lessons of past, real world implementation projects through the engineering and consulting team members and staff personnel of TCAP.** Service to potentially millions of consumers, businesses and anchor institutions may be impacted by the particular design of the competitive bidding process. For that reason, the FCC will gain experience and data by experimenting with an application-based competitive bidding process with defined selection criteria that could inform the FCC’s judgment regarding how to structure the Phase II competitive bidding mechanism.

The Nature of the Submitting Entity

Submitting entity: Telecommunications Cooperative Association of Pennsylvania
356 Maiden Creek Road
Fleetwood, PA 19522

Incorporation Date: March 3, 2005

EIN: 20-4475512

Description: Nonexempt Cooperative - The Telecommunications Cooperative Association of Pennsylvania was established to be a nonprofit cooperative of schools, government and quasi-government entities, political subdivisions, businesses, and other public and private sector organizations, associations and individual members working together to establish, operate facilities and improve telecommunications and other voice, video and data telecommunications networks, services and products for the benefit of its members; to maximize teaching and learning opportunities, improve government services, attract and retain companies and jobs through economic development initiatives and activities and enhance the overall quality of life for individuals and families who call Pennsylvania home; to associate with other cooperative societies for mutual and cooperative development; to advance the cooperative movement and serve its members within the scope of the Articles of Incorporation; and to the fullest extent permitted by statute, engage in the lawful business and purposes of a nonprofit cooperative corporation pursuant to the Pennsylvania Nonprofit Corporation Law of 1988.

Current Status: Inactive (Cooperative Organization Board would be redesigned to be balanced and representative of the stakeholders needed to meet the concerns of the FCC’s vetting process such as professional consultants, public (governments and schools) and private (service providers) stakeholders, citizenry, education, health care, businesses, etc.)

Eligible Applicant: Certainly Non-Profit Cooperatives fit into the definition of The Commission “define[d] ‘community anchor institutions] to mean schools, libraries, medical

and healthcare providers, public safety entities, community colleges and other institutions of higher education, and other community support organizations and agencies that provide outreach, access, equipment, and support services to facilitate greater use of broadband service by vulnerable populations, including low-income, the unemployed, and the aged. The FCC is drawing upon the definition used in implementing American Recovery and Reinvestment Act of 2009." Since any and all of these anchor institutions could become members of the cooperative, this proposal is allowing the broadest opportunity to address the needs of these institutions.

Identification of the Proposed Service Area for the Experiment, including Census Block Number, with any relevant information regarding the number of locations that could be served

Per the FCC Website, List of Eligible Locations

"PA", "42001", "Adams", "42001030101", 1,1,20885.6	"PA", "42003", "Allegheny", "42003456003", 4,0,1753.18
"PA", "42001", "Adams", "42001030102", 6,0,11336.93	"PA", "42003", "Allegheny", "42003458000", 3,0,1283.85
"PA", "42001", "Adams", "42001030200", 78,1,69621.53	"PA", "42003", "Allegheny", "42003462100", 1,0,54.59
"PA", "42001", "Adams", "42001030300", 39,0,63182.62	"PA", "42003", "Allegheny", "42003486700", 1,0,341.53
"PA", "42001", "Adams", "42001030400", 120,9,82579.18	"PA", "42003", "Allegheny", "42003487000", 1,0,29.77
"PA", "42001", "Adams", "42001030500", 16,1,7941.42	"PA", "42003", "Allegheny", "42003488100", 2,0,64.28
"PA", "42001", "Adams", "42001030600", 26,1,15968.89	"PA", "42003", "Allegheny", "42003488300", 3,0,1434.43
"PA", "42001", "Adams", "42001030700", 7,0,2413.85	"PA", "42003", "Allegheny", "42003488600", 1,0,2465.84
"PA", "42001", "Adams", "42001030800", 3,0,3298.67	"PA", "42003", "Allegheny", "42003490004", 1,1,369.79
"PA", "42001", "Adams", "42001031000", 1,1,0	"PA", "42003", "Allegheny", "42003491101", 20,1,5407.76
"PA", "42001", "Adams", "42001031201", 17,0,8269.2	"PA", "42003", "Allegheny", "42003491200", 2,1,180.35
"PA", "42001", "Adams", "42001031202", 2,0,3405.2	"PA", "42003", "Allegheny", "42003494000", 1,0,101.27
"PA", "42001", "Adams", "42001031401", 9,0,1514.9	"PA", "42003", "Allegheny", "42003495000", 41,0,7899.36
"PA", "42001", "Adams", "42001031402", 29,2,14029.12	"PA", "42003", "Allegheny", "42003496102", 1,0,414.89
"PA", "42001", "Adams", "42001031600", 10,0,20630.02	"PA", "42003", "Allegheny", "42003496200", 18,0,2349.33
"PA", "42001", "Adams", "42001031700", 32,1,21101.34	"PA", "42003", "Allegheny", "42003498000", 1,0,273.65
"PA", "42003", "Allegheny", "42003281400", 1,0,71.16	"PA", "42003", "Allegheny", "42003499400", 2,0,636.79
"PA", "42003", "Allegheny", "42003310300", 2,0,1359.13	"PA", "42003", "Allegheny", "42003501000", 3,0,99.51
"PA", "42003", "Allegheny", "42003401100", 8,0,4043.51	"PA", "42003", "Allegheny", "42003521500", 3,0,642.3
"PA", "42003", "Allegheny", "42003401200", 1,0,121.41	"PA", "42003", "Allegheny", "42003526101", 1,1,569.75
"PA", "42003", "Allegheny", "42003401300", 2,2,0	"PA", "42003", "Allegheny", "42003526202", 5,0,1730.13
"PA", "42003", "Allegheny", "42003403500", 1,0,338.45	"PA", "42003", "Allegheny", "42003551300", 8,0,2282.99
"PA", "42003", "Allegheny", "42003404000", 2,0,1925.33	"PA", "42003", "Allegheny", "42003551900", 3,0,3480.73
"PA", "42003", "Allegheny", "42003405000", 11,0,7507.81	"PA", "42003", "Allegheny", "42003552100", 1,0,17.52
"PA", "42003", "Allegheny", "42003414102", 1,0,909.3	"PA", "42003", "Allegheny", "42003552400", 1,0,549.5
"PA", "42003", "Allegheny", "42003414200", 4,2,2772.57	"PA", "42003", "Allegheny", "42003563300", 9,0,9676.77
"PA", "42003", "Allegheny", "42003415001", 17,0,4361.34	"PA", "42003", "Allegheny", "42003563800", 2,0,1593.96
"PA", "42003", "Allegheny", "42003419000", 1,0,539.85	"PA", "42003", "Allegheny", "42003564000", 9,0,6733.51
"PA", "42003", "Allegheny", "42003421100", 4,0,2988.28	"PA", "42003", "Allegheny", "42003564200", 2,0,1267.08
"PA", "42003", "Allegheny", "42003425000", 6,0,2788.42	"PA", "42003", "Allegheny", "42003564500", 2,0,2786.24
"PA", "42003", "Allegheny", "42003426800", 2,0,552.31	"PA", "42005", "Armstrong", "42005950100", 955,43,426573.69
"PA", "42003", "Allegheny", "42003429100", 2,0,1149.45	"PA", "42005", "Armstrong", "42005950200", 638,27,214346.77
"PA", "42003", "Allegheny", "42003439000", 1,0,443.67	"PA", "42005", "Armstrong", "42005950300", 212,15,135836.03
"PA", "42003", "Allegheny", "42003446000", 9,0,3949.58	"PA", "42005", "Armstrong", "42005950400", 186,6,64247.07
"PA", "42003", "Allegheny", "42003448000", 1,0,225.7	"PA", "42005", "Armstrong", "42005950500", 108,7,57317.63
"PA", "42003", "Allegheny", "42003451101", 1,1,0	"PA", "42005", "Armstrong", "42005950600", 417,11,202960.21
"PA", "42003", "Allegheny", "42003452000", 11,5,11924.92	

"PA", "42005", "Armstrong", "42005950700", 571, 21, 227121.19
"PA", "42005", "Armstrong", "42005950800", 1123, 24, 394863.64
"PA", "42005", "Armstrong", "42005950900", 31, 2, 8252.71
"PA", "42005", "Armstrong", "42005951200", 74, 2, 83999.17
"PA", "42005", "Armstrong", "42005951300", 2, 0, 2695.14
"PA", "42005", "Armstrong", "42005951400", 22, 0, 11130.79
"PA", "42005", "Armstrong", "42005951500", 1, 0, 1501.41
"PA", "42005", "Armstrong", "42005951600", 77, 8, 40439.47
"PA", "42005", "Armstrong", "42005951700", 717, 24, 303843.51
"PA", "42007", "Beaver", "42007600601", 11, 0, 27306.25
"PA", "42007", "Beaver", "42007600602", 6, 1, 19521.44
"PA", "42007", "Beaver", "42007600700", 10, 0, 13224.13
"PA", "42007", "Beaver", "42007601000", 1, 1, 7704.66
"PA", "42007", "Beaver", "42007601700", 1, 0, 831.69
"PA", "42007", "Beaver", "42007601800", 2, 0, 812.78
"PA", "42007", "Beaver", "42007602601", 1, 1, 11061.36
"PA", "42007", "Beaver", "42007602602", 1, 0, 553.06
"PA", "42007", "Beaver", "42007602701", 5, 0, 3812.89
"PA", "42013", "Blair", "42013011500", 62, 0, 50447.42
"PA", "42013", "Blair", "42013011600", 91, 10, 65168.55
"PA", "42013", "Blair", "4201301200", 1, 0, 295.77
"PA", "42015", "Bradford", "42015950200", 12, 0, 51800.16
"PA", "42015", "Bradford", "42015950500", 178, 5, 78178.57
"PA", "42017", "Bucks", "42017102003", 2, 0, 256.44
"PA", "42017", "Bucks", "42017104000", 2, 0, 9872.43
"PA", "42019", "Butler", "42019910100", 42, 3, 29313
"PA", "42019", "Butler", "42019910200", 157, 12, 82115.07
"PA", "42019", "Butler", "42019910302", 62, 2, 77332.92
"PA", "42019", "Butler", "42019911000", 5, 0, 418.55
"PA", "42019", "Butler", "42019911300", 35, 0, 37789.18
"PA", "42021", "Cambria", "42021000700", 4, 0, 365.39
"PA", "42021", "Cambria", "42021010100", 1, 0, 566.51
"PA", "42021", "Cambria", "42021010200", 2, 0, 17.14
"PA", "42021", "Cambria", "42021010500", 1, 0, 98.55
"PA", "42021", "Cambria", "42021010700", 3, 0, 342.57
"PA", "42021", "Cambria", "42021011500", 43, 3, 12164.51
"PA", "42021", "Cambria", "42021011700", 36, 2, 34252.95
"PA", "42021", "Cambria", "42021011800", 46, 6, 106635.83
"PA", "42021", "Cambria", "42021011900", 2, 0, 1146.24
"PA", "42021", "Cambria", "42021012000", 62, 2, 120684
"PA", "42021", "Cambria", "42021012100", 19, 7, 31454.13
"PA", "42021", "Cambria", "42021012200", 18, 0, 23750.96
"PA", "42021", "Cambria", "42021012300", 36, 0, 83721.44
"PA", "42021", "Cambria", "42021012400", 65, 0, 56257.91
"PA", "42021", "Cambria", "42021012500", 12, 3, 68172.36
"PA", "42021", "Cambria", "42021012700", 19, 3, 50645.3
"PA", "42021", "Cambria", "42021012800", 10, 2, 11826.61
"PA", "42021", "Cambria", "42021012900", 19, 1, 14649.81
"PA", "42021", "Cambria", "42021013100", 37, 0, 24579.87
"PA", "42021", "Cambria", "42021013200", 12, 2, 3570.5
"PA", "42021", "Cambria", "42021013500", 1, 0, 1204
"PA", "42023", "Cameron", "42023960200", 107, 15, 30040.61
"PA", "42025", "Carbon", "42025020200", 101, 1, 29131.74
"PA", "42027", "Centre", "42027010100", 101, 18, 165367.54
"PA", "42007", "Beaver", "42007602702", 4, 0, 5403.05
"PA", "42007", "Beaver", "42007602800", 6, 0, 4618.26
"PA", "42007", "Beaver", "42007602900", 21, 0, 21832.47
"PA", "42007", "Beaver", "42007603000", 3, 0, 14068.68
"PA", "42007", "Beaver", "42007603202", 5, 1, 1947.81
"PA", "42007", "Beaver", "42007603801", 1, 0, 1011.88
"PA", "42007", "Beaver", "42007604000", 1, 0, 11.07
"PA", "42007", "Beaver", "42007604800", 1, 1, 1087.14
"PA", "42007", "Beaver", "42007604901", 27, 1, 1342.74
"PA", "42007", "Beaver", "42007605001", 8, 0, 7884.01
"PA", "42007", "Beaver", "42007605002", 14, 0, 43282.64
"PA", "42007", "Beaver", "42007605200", 2, 0, 149.59
"PA", "42007", "Beaver", "42007605300", 9, 1, 8754.12
"PA", "42007", "Beaver", "42007605400", 1, 0, 658.71
"PA", "42007", "Beaver", "42007605500", 8, 0, 4882.65
"PA", "42007", "Beaver", "42007605600", 2, 0, 2753.43
"PA", "42007", "Beaver", "42007605700", 5, 0, 266.47
"PA", "42009", "Bedford", "42009960100", 21, 6, 27388.53
"PA", "42009", "Bedford", "42009960200", 18, 2, 85371.32
"PA", "42009", "Bedford", "42009960300", 97, 4, 131402.14
"PA", "42009", "Bedford", "42009960400", 54, 2, 74008.31
"PA", "42009", "Bedford", "42009960500", 82, 20, 284305.93
"PA", "42009", "Bedford", "42009960600", 34, 1, 115256.91
"PA", "42009", "Bedford", "42009960800", 24, 1, 97412.91
"PA", "42009", "Bedford", "42009960900", 146, 33, 498040.66
"PA", "42009", "Bedford", "42009961000", 335, 51, 829205.96
"PA", "42009", "Bedford", "42009961100", 14, 3, 87941.27
"PA", "42011", "Berks", "42011010100", 88, 3, 23114.68
"PA", "42011", "Berks", "42011010201", 3, 0, 3433.02
"PA", "42011", "Berks", "42011010202", 4, 0, 2738.5
"PA", "42011", "Berks", "42011010302", 2, 0, 2693.85
"PA", "42011", "Berks", "42011010304", 6, 0, 237.53
"PA", "42011", "Berks", "42011010400", 72, 1, 37701.52
"PA", "42011", "Berks", "42011010500", 51, 0, 29080.77
"PA", "42011", "Berks", "42011010600", 5, 0, 1566.11
"PA", "42011", "Berks", "42011010802", 3, 0, 1201.09
"PA", "42011", "Berks", "42011010902", 1, 0, 103.1
"PA", "42011", "Berks", "42011011000", 1, 0, 1776.88
"PA", "42011", "Berks", "42011012300", 1, 0, 1073.53
"PA", "42011", "Berks", "42011013100", 1, 0, 2864.32
"PA", "42011", "Berks", "42011013302", 3, 0, 558.14
"PA", "42011", "Berks", "42011013702", 9, 0, 12714.7
"PA", "42011", "Berks", "42011013800", 4, 0, 1198.47
"PA", "42013", "Blair", "42013010101", 140, 1, 233945.3
"PA", "42013", "Blair", "42013010102", 1, 0, 575.37
"PA", "42013", "Blair", "42013010402", 93, 3, 88818.36
"PA", "42013", "Blair", "42013010500", 31, 5, 14774.89
"PA", "42013", "Blair", "42013010700", 36, 0, 29749.24
"PA", "42013", "Blair", "42013010800", 18, 1, 168161.73
"PA", "42013", "Blair", "42013010900", 65, 0, 92945.38
"PA", "42013", "Blair", "42013011001", 41, 13, 20029.6
"PA", "42013", "Blair", "42013011002", 1, 0, 634.59
"PA", "42013", "Blair", "42013011100", 19, 0, 4821.35
"PA", "42013", "Blair", "42013011300", 131, 1, 210515.84

"PA", "42027", "Centre", "42027010200", 233,79,86810.52
"PA", "42027", "Centre", "42027010300", 2,0,201.29
"PA", "42027", "Centre", "42027010400", 51,13,49888.59
"PA", "42027", "Centre", "42027010500", 23,3,157529.31
"PA", "42027", "Centre", "42027010600", 17,3,40749.24
"PA", "42027", "Centre", "42027010700", 6,2,11188.73
"PA", "42027", "Centre", "42027010800", 792,80,474675.97
"PA", "42027", "Centre", "42027010900", 157,9,188358.95
"PA", "42027", "Centre", "42027011000", 14,0,8215.42
"PA", "42027", "Centre", "42027011201", 8,0,5643.04
"PA", "42027", "Centre", "42027011300", 4,1,1589
"PA", "42027", "Centre", "42027011600", 4,2,555.75
"PA", "42027", "Centre", "42027011800", 42,17,18750.36
"PA", "42027", "Centre", "42027011902", 28,7,10543.12
"PA", "42027", "Centre", "42027012200", 4,0,2902.88
"PA", "42029", "Chester", "42029301300", 2,0,495.45
"PA", "42029", "Chester", "42029306504", 3,0,1086.87
"PA", "42029", "Chester", "42029307400", 1,0,215.47
"PA", "42041", "Cumberland", "42041011301", 4,0,2258.52
"PA", "42041", "Cumberland", "42041011302", 1,0,119.68
"PA", "42041", "Cumberland", "42041011303", 1,0,763.99
"PA", "42041", "Cumberland", "42041011700", 10,0,10569.52
"PA", "42041", "Cumberland", "42041011803", 7,2,8875.4
"PA", "42041", "Cumberland", "42041011901", 7,0,5692.55
"PA", "42041", "Cumberland", "42041011902", 4,0,1636.88
"PA", "42041", "Cumberland", "42041012400", 1,0,4910.75
"PA", "42041", "Cumberland", "42041012501", 2,0,3058.05
"PA", "42041", "Cumberland", "42041012600", 6,3,16600.25
"PA", "42041", "Cumberland", "42041012701", 5,2,9071.1
"PA", "42041", "Cumberland", "42041012702", 131,3,143651.43
"PA", "42041", "Cumberland", "42041012800", 24,0,39785.91
"PA", "42041", "Cumberland", "42041013000", 74,7,190386.07
"PA", "42041", "Cumberland", "42041013101", 184,14,104107.21
"PA", "42041", "Cumberland", "42041013102", 1,0,1349.2
"PA", "42043", "Dauphin", "42043023602", 3,0,3623.68
"PA", "42043", "Dauphin", "42043024001", 25,0,15544.58
"PA", "42043", "Dauphin", "42043024002", 7,0,8826.98
"PA", "42043", "Dauphin", "42043024502", 3,2,4089.1
"PA", "42043", "Dauphin", "42043024600", 1,1,282.54
"PA", "42043", "Dauphin", "42043024700", 15,4,15479.52
"PA", "42047", "Elk", "42047950100", 5,5,0
"PA", "42047", "Elk", "42047950200", 9,1,9025.24
"PA", "42047", "Elk", "42047950900", 6,3,2811.07
"PA", "42047", "Elk", "42047951000", 2,1,16.8
"PA", "42049", "Erie", "42049001100", 1,0,367.39
"PA", "42049", "Erie", "42049010101", 91,1,64369.06
"PA", "42049", "Erie", "42049010103", 27,1,108172.66
"PA", "42049", "Erie", "42049010104", 37,1,72500.49
"PA", "42049", "Erie", "42049010201", 2,0,1287.79
"PA", "42049", "Erie", "42049010202", 39,2,25893.91
"PA", "42049", "Erie", "42049010301", 62,0,15523.12
"PA", "42049", "Erie", "42049010303", 19,0,17399.36
"PA", "42049", "Erie", "42049011101", 1,0,741.36
"PA", "42049", "Erie", "42049011201", 60,0,29975.25
"PA", "42029", "Chester", "42029311000", 4,0,1306.16
"PA", "42031", "Clarion", "42031160101", 156,1,66205.22
"PA", "42031", "Clarion", "42031160102", 202,4,147373.49
"PA", "42031", "Clarion", "42031160200", 4,2,67163.73
"PA", "42031", "Clarion", "42031160300", 170,1,114697.05
"PA", "42031", "Clarion", "42031160400", 64,8,93732.67
"PA", "42031", "Clarion", "42031160500", 190,22,272088.88
"PA", "42031", "Clarion", "42031160700", 202,21,199037.4
"PA", "42031", "Clarion", "42031160800", 337,45,240220.37
"PA", "42031", "Clarion", "42031160900", 65,8,206251.46
"PA", "42033", "Clearfield", "42033330500", 301,21,137191.37
"PA", "42033", "Clearfield", "42033330600", 97,34,79702.04
"PA", "42033", "Clearfield", "42033330700", 485,117,296948.91
"PA", "42033", "Clearfield", "42033330800", 8,1,7262.88
"PA", "42033", "Clearfield", "42033330900", 125,6,84747.69
"PA", "42033", "Clearfield", "42033331000", 80,10,124789.6
"PA", "42033", "Clearfield", "42033331100", 1,0,1275.85
"PA", "42033", "Clearfield", "42033331300", 35,3,53882.1
"PA", "42033", "Clearfield", "42033331401", 81,16,143800.03
"PA", "42033", "Clearfield", "42033331402", 45,9,49006.28
"PA", "42033", "Clearfield", "42033331500", 304,55,301540.95
"PA", "42033", "Clearfield", "42033331600", 114,17,230933.06
"PA", "42033", "Clearfield", "42033331700", 137,16,80125.62
"PA", "42033", "Clearfield", "42033331800", 45,4,55069.54
"PA", "42033", "Clearfield", "42033331900", 473,29,290444.71
"PA", "42035", "Clinton", "42035030100", 1072,236,483863.59
"PA", "42035", "Clinton", "42035030200", 252,92,115921.26
"PA", "42035", "Clinton", "42035030300", 365,108,128412.15
"PA", "42035", "Clinton", "42035030400", 28,0,14536.49
"PA", "42035", "Clinton", "42035030500", 15,2,6397.9
"PA", "42035", "Clinton", "42035030700", 1,0,71.51
"PA", "42035", "Clinton", "42035030800", 26,2,25644.74
"PA", "42037", "Columbia", "42037050100", 1,0,278006.21
"PA", "42037", "Columbia", "42037050200", 79,2,287081.08
"PA", "42037", "Columbia", "42037050300", 1,0,1893.72
"PA", "42037", "Columbia", "42037051400", 1,0,2916.76
"PA", "42037", "Columbia", "42037051500", 2,1,62505.75
"PA", "42039", "Crawford", "42039110100", 849,26,421670.72
"PA", "42039", "Crawford", "42039110201", 391,5,173782.65
"PA", "42039", "Crawford", "42039110202", 466,5,156819.68
"PA", "42039", "Crawford", "42039110300", 346,4,329170.49
"PA", "42039", "Crawford", "42039110400", 154,6,120415.05
"PA", "42039", "Crawford", "42039110501", 44,1,29922.2
"PA", "42039", "Crawford", "42039110502", 1,0,20455.58
"PA", "42039", "Crawford", "42039110600", 107,0,49073.8
"PA", "42039", "Crawford", "42039110700", 210,0,42435.14
"PA", "42039", "Crawford", "42039110800", 377,3,185009.37
"PA", "42039", "Crawford", "42039110900", 303,6,279142.9
"PA", "42039", "Crawford", "42039111000", 165,1,55309.59
"PA", "42039", "Crawford", "42039111300", 385,6,150390.91
"PA", "42039", "Crawford", "42039111900", 98,7,156272.11
"PA", "42039", "Crawford", "42039112001", 6,0,14354.49
"PA", "42039", "Crawford", "42039112002", 4,1,4662.31
"PA", "42041", "Cumberland", "42041010201", 2,0,381.82

"PA", "42049", "Erie", "42049011202", 22,0,6090.23
"PA", "42049", "Erie", "42049011507", 22,1,6133.09
"PA", "42049", "Erie", "42049011701", 2,0,11314.64
"PA", "42049", "Erie", "42049011702", 150,1,106493.29
"PA", "42049", "Erie", "42049011801", 249,2,120973.56
"PA", "42049", "Erie", "42049011802", 318,12,176063.36
"PA", "42049", "Erie", "42049012001", 160,3,151345.1
"PA", "42049", "Erie", "42049012100", 392,3,157191.97
"PA", "42049", "Erie", "42049012201", 110,0,36138.51
"PA", "42049", "Erie", "42049012400", 27,5,11706.9
"PA", "42051", "Fayette", "42051260100", 2,0,976.17
"PA", "42051", "Fayette", "42051260200", 16,1,13114.02
"PA", "42051", "Fayette", "42051260402", 5,0,2915.35
"PA", "42051", "Fayette", "42051261000", 40,0,18893.12
"PA", "42051", "Fayette", "42051261100", 11,1,8224.19
"PA", "42051", "Fayette", "42051261300", 29,1,12122.76
"PA", "42051", "Fayette", "42051261401", 1,0,193.47
"PA", "42051", "Fayette", "42051261500", 15,0,4522.51
"PA", "42061", "Huntingdon", "42061951200", 251,6,479407.92
"PA", "42061", "Huntingdon", "42061951300", 157,4,191386.96
"PA", "42063", "Indiana", "42063960100", 262,18,387858.02
"PA", "42063", "Indiana", "42063960200", 779,19,472661.46
"PA", "42063", "Indiana", "42063960300", 135,4,198056.88
"PA", "42063", "Indiana", "42063960400", 42,1,150521.7
"PA", "42063", "Indiana", "42063960500", 194,5,96166.84
"PA", "42063", "Indiana", "42063960600", 490,14,298356.58
"PA", "42063", "Indiana", "42063960700", 4,0,756.88
"PA", "42063", "Indiana", "42063960800", 7,0,8382.96
"PA", "42063", "Indiana", "42063960900", 5,0,906.61
"PA", "42063", "Indiana", "42063961300", 28,2,78893.8
"PA", "42063", "Indiana", "42063961400", 230,4,176475.12
"PA", "42063", "Indiana", "42063961500", 108,1,229750.81
"PA", "42063", "Indiana", "42063961600", 15,1,53327.64
"PA", "42063", "Indiana", "42063961800", 224,18,83717.24
"PA", "42063", "Indiana", "42063961900", 265,5,196135.72
"PA", "42063", "Indiana", "42063962000", 12,0,13769.45
"PA", "42063", "Indiana", "42063962100", 3,0,368.11
"PA", "42063", "Indiana", "42063962200", 8,0,26735.82
"PA", "42065", "Jefferson", "42065950200", 62,0,21517.92
"PA", "42065", "Jefferson", "42065950300", 286,2,206389.16
"PA", "42065", "Jefferson", "42065950600", 294,14,149225.38
"PA", "42065", "Jefferson", "42065950800", 51,2,42521.35
"PA", "42065", "Jefferson", "42065950900", 201,35,323631.87
"PA", "42065", "Jefferson", "42065951000", 138,9,172793
"PA", "42065", "Jefferson", "42065951100", 9,1,31401.79
"PA", "42067", "Juniata", "42067070201", 28,0,419186.8
"PA", "42069", "Lackawanna", "42069101200", 4,0,675.77
"PA", "42069", "Lackawanna", "42069101300", 2,0,360.94
"PA", "42069", "Lackawanna", "42069101800", 4,1,400.32
"PA", "42069", "Lackawanna", "42069102800", 4,0,3416.19
"PA", "42069", "Lackawanna", "42069110403", 1,0,2784.9
"PA", "42069", "Lackawanna", "42069111100", 6,1,2179.24
"PA", "42069", "Lackawanna", "42069111300", 2,0,861.48
"PA", "42069", "Lackawanna", "42069111400", 5,5,0
"PA", "42051", "Fayette", "42051261600", 2,0,2227.36
"PA", "42051", "Fayette", "42051261700", 1,0,2.42
"PA", "42051", "Fayette", "42051262600", 4,0,1955.67
"PA", "42051", "Fayette", "42051262701", 148,23,125309.35
"PA", "42051", "Fayette", "42051262702", 82,13,75157.67
"PA", "42051", "Fayette", "42051262800", 9,0,20666.37
"PA", "42051", "Fayette", "42051262900", 50,1,5836.53
"PA", "42051", "Fayette", "42051263000", 4,0,2382.29
"PA", "42051", "Fayette", "42051263100", 115,1,62110.47
"PA", "42051", "Fayette", "42051263200", 2,0,632.54
"PA", "42051", "Fayette", "42051263300", 1,0,183.98
"PA", "42053", "Forest", "42053530100", 874,61,381797.1
"PA", "42053", "Forest", "42053530201", 401,23,146068.58
"PA", "42053", "Forest", "42053530300", 509,29,156699.95
"PA", "42055", "Franklin", "42055010100", 409,6,310907.9
"PA", "42055", "Franklin", "42055010200", 159,11,187004.62
"PA", "42055", "Franklin", "42055010300", 16,1,15702.13
"PA", "42055", "Franklin", "42055010400", 13,1,14167.33
"PA", "42055", "Franklin", "42055010500", 20,0,17825.01
"PA", "42055", "Franklin", "42055010600", 4,0,11388.85
"PA", "42055", "Franklin", "42055010700", 14,0,23720.85
"PA", "42055", "Franklin", "42055010800", 1,0,148.98
"PA", "42055", "Franklin", "42055010900", 1,0,933.51
"PA", "42055", "Franklin", "42055011000", 1,0,46.23
"PA", "42055", "Franklin", "42055011200", 3,0,402.86
"PA", "42055", "Franklin", "42055011301", 2,0,1394.35
"PA", "42055", "Franklin", "42055011302", 13,3,11154.2
"PA", "42055", "Franklin", "42055011400", 75,5,38372.83
"PA", "42055", "Franklin", "42055011500", 88,7,73861.05
"PA", "42055", "Franklin", "42055011600", 25,0,97101.53
"PA", "42055", "Franklin", "42055011700", 14,1,8280.91
"PA", "42055", "Franklin", "42055011900", 18,0,7753.7
"PA", "42055", "Franklin", "42055012000", 39,3,28026.91
"PA", "42055", "Franklin", "42055012100", 18,0,10969.44
"PA", "42055", "Franklin", "42055012400", 2,0,859.13
"PA", "42055", "Franklin", "42055012501", 4,0,3481.27
"PA", "42057", "Fulton", "42057960100", 34,13,104382.4
"PA", "42057", "Fulton", "42057960200", 76,4,441697.61
"PA", "42059", "Greene", "42059970100", 15,0,34008.9
"PA", "42059", "Greene", "42059970200", 18,0,13352.26
"PA", "42059", "Greene", "42059970300", 640,55,417046.25
"PA", "42059", "Greene", "42059970400", 777,124,965658.27
"PA", "42059", "Greene", "42059970501", 6,2,13018.42
"PA", "42059", "Greene", "42059970502", 175,14,227978.06
"PA", "42059", "Greene", "42059970700", 476,40,346709.98
"PA", "42059", "Greene", "42059970800", 67,4,106768.13
"PA", "42061", "Huntingdon", "42061950100", 462,66,440969.78
"PA", "42061", "Huntingdon", "42061950200", 262,30,274318.96
"PA", "42061", "Huntingdon", "42061950300", 187,2,134812.71
"PA", "42061", "Huntingdon", "42061950500", 206,2,254189.07
"PA", "42061", "Huntingdon", "42061950600", 248,14,239573.67
"PA", "42061", "Huntingdon", "42061950800", 560,13,517165.05
"PA", "42061", "Huntingdon", "42061951000", 146,2,229891.48
"PA", "42061", "Huntingdon", "42061951100", 334,25,341549.5

"PA", "42069", "Lackawanna", "42069111700", 3,2,629.76
 "PA", "42069", "Lackawanna", "42069111800", 37,2,24016.06
 "PA", "42069", "Lackawanna", "42069112000", 1,0,411.95
 "PA", "42069", "Lackawanna", "42069112100", 10,3,1929.86
 "PA", "42069", "Lackawanna", "42069112500", 3,0,638.68
 "PA", "42069", "Lackawanna", "42069112800", 12,0,8542.14
 "PA", "42069", "Lackawanna", "42069112901", 17,1,12972.99
 "PA", "42071", "Lancaster", "42071010801", 7,0,4972.8
 "PA", "42071", "Lancaster", "42071010802", 13,1,2941.64
 "PA", "42071", "Lancaster", "42071011100", 2,0,3313.37
 "PA", "42071", "Lancaster", "42071011300", 1,0,342.65
 "PA", "42071", "Lancaster", "42071011502", 1,0,1869.1
 "PA", "42071", "Lancaster", "42071011504", 10,0,4447.2
 "PA", "42071", "Lancaster", "42071011600", 2,0,2219.09
 "PA", "42071", "Lancaster", "42071011705", 2,0,2289.94
 "PA", "42071", "Lancaster", "42071011801", 3,0,25.27
 "PA", "42071", "Lancaster", "42071011805", 1,0,4025.22
 "PA", "42071", "Lancaster", "42071013301", 1,0,1861.59
 "PA", "42081", "Lycoming", "42081010900", 3,0,1345
 "PA", "42081", "Lycoming", "42081011200", 4,0,525.74
 "PA", "42081", "Lycoming", "42081011301", 9,0,5929.89
 "PA", "42081", "Lycoming", "42081011302", 2,0,1113.14
 "PA", "42081", "Lycoming", "42081011400", 4,0,6990.53
 "PA", "42081", "Lycoming", "42081011700", 21,4,32388.73
 "PA", "42081", "Lycoming", "42081011900", 5,0,1831.72
 "PA", "42083", "McKean", "42083420600", 22,1,15986.82
 "PA", "42083", "McKean", "42083420700", 15,2,8970.65
 "PA", "42083", "McKean", "42083420800", 1,1,0
 "PA", "42083", "McKean", "42083420900", 4,0,1918.3
 "PA", "42083", "McKean", "42083421000", 3,1,3135.19
 "PA", "42083", "McKean", "42083421100", 4,0,376.4
 "PA", "42085", "Mercer", "42085031800", 215,4,235544.46
 "PA", "42085", "Mercer", "42085031900", 17,0,35760.89
 "PA", "42085", "Mercer", "42085032000", 85,3,153678.84
 "PA", "42085", "Mercer", "42085032300", 3,0,11438.76
 "PA", "42085", "Mercer", "42085032400", 41,0,86957.93
 "PA", "42085", "Mercer", "42085032501", 194,3,200260.73
 "PA", "42085", "Mercer", "42085032502", 274,2,137678.92
 "PA", "42085", "Mercer", "42085032601", 17,0,73489.34
 "PA", "42085", "Mercer", "42085032602", 62,0,25650.95
 "PA", "42085", "Mercer", "42085032701", 80,1,38014.33
 "PA", "42085", "Mercer", "42085032800", 137,1,57214.77
 "PA", "42085", "Mercer", "42085033100", 69,1,54753.52
 "PA", "42085", "Mercer", "42085033200", 2,0,129.23
 "PA", "42085", "Mercer", "42085033300", 3,0,822.92
 "PA", "42085", "Mercer", "42085033400", 1,0,138.66
 "PA", "42087", "Mifflin", "42087960100", 5,4,25098.45
 "PA", "42087", "Mifflin", "42087960300", 77,2,227516.58
 "PA", "42087", "Mifflin", "42087960400", 2,0,63179.27
 "PA", "42089", "Monroe", "42089300308", 1,0,122.9
 "PA", "42091", "Montgomery", "42091207800", 2,0,3419.37
 "PA", "42093", "Montour", "42093050100", 53,0,69478.79
 "PA", "42093", "Montour", "42093050400", 70,0,58759.01
 "PA", "42097", "Northumberland", "42097080100", 162,2,56303.05
 "PA", "42071", "Lancaster", "42071013501", 2,0,3146.78
 "PA", "42071", "Lancaster", "42071013702", 6,0,1127.27
 "PA", "42071", "Lancaster", "42071013800", 13,1,3228.67
 "PA", "42071", "Lancaster", "42071013902", 6,0,4346
 "PA", "42071", "Lancaster", "42071014000", 7,1,7525.71
 "PA", "42071", "Lancaster", "42071014102", 11,0,5187.9
 "PA", "42071", "Lancaster", "42071014402", 1,0,7960.7
 "PA", "42073", "Lawrence", "42073000700", 1,0,80.16
 "PA", "42073", "Lawrence", "42073010100", 26,0,33218.66
 "PA", "42073", "Lawrence", "42073010201", 1,0,4041.59
 "PA", "42073", "Lawrence", "42073010202", 25,2,14658.26
 "PA", "42073", "Lawrence", "42073010400", 43,0,36849.97
 "PA", "42073", "Lawrence", "42073010500", 27,0,17383.65
 "PA", "42073", "Lawrence", "42073010600", 3,0,3813.69
 "PA", "42073", "Lawrence", "42073011000", 1,1,966.45
 "PA", "42073", "Lawrence", "42073011100", 43,4,16072.06
 "PA", "42073", "Lawrence", "42073011200", 14,0,4042.95
 "PA", "42073", "Lawrence", "42073011300", 244,2,123738.39
 "PA", "42073", "Lawrence", "42073011400", 42,3,13303.45
 "PA", "42073", "Lawrence", "42073011500", 1,0,411.82
 "PA", "42075", "Lebanon", "42075002000", 118,15,42578.55
 "PA", "42075", "Lebanon", "42075002100", 73,0,21592.74
 "PA", "42075", "Lebanon", "42075002200", 26,0,10206.15
 "PA", "42075", "Lebanon", "42075002300", 105,8,30370.38
 "PA", "42075", "Lebanon", "42075002400", 7,0,2362.43
 "PA", "42075", "Lebanon", "42075002500", 2,0,2953.19
 "PA", "42075", "Lebanon", "42075002701", 1,0,2514.62
 "PA", "42075", "Lebanon", "42075002800", 17,0,4139.87
 "PA", "42075", "Lebanon", "42075003000", 32,1,11741.83
 "PA", "42075", "Lebanon", "42075003100", 38,0,22444.29
 "PA", "42075", "Lebanon", "42075003200", 2,0,18003.56
 "PA", "42075", "Lebanon", "42075003700", 12,0,4851.01
 "PA", "42075", "Lebanon", "42075003800", 11,0,4113.6
 "PA", "42075", "Lebanon", "42075003901", 2,0,13.08
 "PA", "42075", "Lebanon", "42075004000", 29,0,15634.17
 "PA", "42079", "Luzerne", "42079210100", 8,0,2080.32
 "PA", "42079", "Luzerne", "42079210200", 4,0,984.82
 "PA", "42079", "Luzerne", "42079210500", 5,0,983.28
 "PA", "42079", "Luzerne", "42079211600", 1,0,1138.49
 "PA", "42079", "Luzerne", "42079211701", 6,0,3892.52
 "PA", "42079", "Luzerne", "42079212200", 1,0,565.56
 "PA", "42079", "Luzerne", "42079213400", 2,0,5182.19
 "PA", "42079", "Luzerne", "42079215400", 16,5,5607.49
 "PA", "42079", "Luzerne", "42079215503", 29,0,2163.9
 "PA", "42079", "Luzerne", "42079215504", 8,0,480.23
 "PA", "42079", "Luzerne", "42079216200", 1,0,191.82
 "PA", "42081", "Lycoming", "42081010100", 314,37,431392.03
 "PA", "42081", "Lycoming", "42081010200", 359,96,219187.35
 "PA", "42081", "Lycoming", "42081010300", 57,1,71227.08
 "PA", "42081", "Lycoming", "42081010400", 131,10,146698.12
 "PA", "42081", "Lycoming", "42081010500", 497,46,329172.1
 "PA", "42081", "Lycoming", "42081010600", 187,9,471501.97
 "PA", "42081", "Lycoming", "42081010700", 38,0,79164.07
 "PA", "42081", "Lycoming", "42081010800", 61,1,21858.97

"PA", "42097", "Northumberland", "42097080200", 104, 2, 21667.78
"PA", "42097", "Northumberland", "42097080400", 35, 0, 8758.91
"PA", "42097", "Northumberland", "42097080700", 135, 11, 121182.72
"PA", "42099", "Perry", "42099030202", 67, 0, 43606.59
"PA", "42099", "Perry", "42099030602", 115, 10, 616571.92
"PA", "42103", "Pike", "42103950502", 1, 1, 0
"PA", "42105", "Potter", "42105950100", 12, 2, 3488.52
"PA", "42105", "Potter", "42105950200", 19, 1, 3339.45
"PA", "42105", "Potter", "42105950300", 5, 0, 1552.1
"PA", "42105", "Potter", "42105950400", 98, 9, 36873.29
"PA", "42105", "Potter", "42105950500", 7, 0, 6835.94
"PA", "42107", "Schuylkill", "42107000100", 1, 0, 81018.19
"PA", "42107", "Schuylkill", "42107000400", 21, 0, 6592.39
"PA", "42107", "Schuylkill", "42107001100", 302, 10, 122189.88
"PA", "42107", "Schuylkill", "42107001300", 7, 1, 29541.04
"PA", "42107", "Schuylkill", "42107001400", 19, 0, 6288.46
"PA", "42107", "Schuylkill", "42107001600", 12, 0, 3852.84
"PA", "42107", "Schuylkill", "42107002000", 1, 0, 234.55
"PA", "42123", "Warren", "42123970300", 480, 11, 507968.18
"PA", "42123", "Warren", "42123970400", 708, 35, 537250.01
"PA", "42123", "Warren", "42123970500", 23, 2, 65401.02
"PA", "42123", "Warren", "42123970600", 17, 0, 10172.48
"PA", "42123", "Warren", "42123971000", 10, 3, 15320.06
"PA", "42123", "Warren", "42123971100", 90, 6, 35436.83
"PA", "42123", "Warren", "42123971200", 188, 27, 236257.53
"PA", "42123", "Warren", "42123971400", 262, 3, 107313.1
"PA", "42125", "Washington", "42125711000", 41, 12, 112763.29
"PA", "42125", "Washington", "42125713700", 9, 0, 29762.69
"PA", "42125", "Washington", "42125714000", 19, 4, 20059.22
"PA", "42125", "Washington", "42125721000", 136, 7, 190184.06
"PA", "42125", "Washington", "42125731000", 181, 15, 161531.26
"PA", "42125", "Washington", "42125732000", 72, 1, 14543.88
"PA", "42125", "Washington", "42125741100", 5, 0, 2875.76
"PA", "42125", "Washington", "42125742100", 10, 0, 3177.82
"PA", "42125", "Washington", "42125745200", 22, 0, 5232.71
"PA", "42125", "Washington", "42125746302", 1, 0, 1049.37
"PA", "42125", "Washington", "42125751100", 2, 0, 2644.51
"PA", "42125", "Washington", "42125754200", 1, 0, 525.63
"PA", "42125", "Washington", "42125755100", 1, 0, 71.88
"PA", "42125", "Washington", "42125755200", 39, 0, 20148.85
"PA", "42125", "Washington", "42125755700", 321, 10, 133118.63
"PA", "42125", "Washington", "42125761000", 340, 2, 92650.56
"PA", "42125", "Washington", "42125762000", 69, 7, 34599.83
"PA", "42125", "Washington", "42125764000", 2, 0, 284.42
"PA", "42125", "Washington", "42125771100", 19, 0, 3094.53
"PA", "42125", "Washington", "42125773100", 1, 0, 281.63
"PA", "42125", "Washington", "42125774700", 9, 0, 9086.34
"PA", "42125", "Washington", "42125775300", 2, 0, 1827.57
"PA", "42125", "Washington", "42125781700", 27, 2, 8473.06
"PA", "42125", "Washington", "42125784000", 1, 1, 1120.69
"PA", "42125", "Washington", "42125795700", 1, 0, 129.8
"PA", "42125", "Washington", "42125795900", 5, 0, 1832.08
"PA", "42125", "Washington", "42125796000", 566, 45, 566254.31
"PA", "42127", "Wayne", "42127960100", 223, 10, 367125.13
"PA", "42107", "Schuylkill", "42107002100", 2, 0, 289.83
"PA", "42107", "Schuylkill", "42107002700", 1, 1, 0
"PA", "42107", "Schuylkill", "42107003000", 44, 0, 62144.69
"PA", "42107", "Schuylkill", "42107003200", 8, 0, 2786.93
"PA", "42107", "Schuylkill", "42107003400", 43, 0, 59795.82
"PA", "42107", "Schuylkill", "42107003500", 17, 1, 8433.21
"PA", "42107", "Schuylkill", "42107003600", 33, 0, 16792.5
"PA", "42107", "Schuylkill", "42107003700", 1, 0, 38800.24
"PA", "42107", "Schuylkill", "42107003900", 11, 1, 2555.44
"PA", "42109", "Snyder", "42109070500", 1, 1, 129421.35
"PA", "42109", "Snyder", "42109070600", 227, 4, 109503.48
"PA", "42111", "Somerset", "42111020101", 7, 0, 2865.85
"PA", "42111", "Somerset", "42111020102", 5, 2, 911.99
"PA", "42111", "Somerset", "42111020200", 227, 8, 71842.35
"PA", "42111", "Somerset", "42111020400", 78, 7, 60492.32
"PA", "42111", "Somerset", "42111020500", 33, 0, 47717.48
"PA", "42111", "Somerset", "42111020600", 144, 17, 67960.33
"PA", "42111", "Somerset", "42111020700", 114, 13, 68397.04
"PA", "42111", "Somerset", "42111020800", 60, 0, 16551.7
"PA", "42111", "Somerset", "42111020900", 75, 1, 25651.78
"PA", "42111", "Somerset", "42111021200", 272, 8, 104521.77
"PA", "42111", "Somerset", "42111021300", 1002, 75, 621011.42
"PA", "42111", "Somerset", "42111021400", 184, 0, 102587.92
"PA", "42111", "Somerset", "42111021500", 223, 3, 92963.36
"PA", "42111", "Somerset", "42111021700", 187, 9, 121458.92
"PA", "42111", "Somerset", "42111021800", 233, 5, 149956.3
"PA", "42111", "Somerset", "42111021901", 351, 9, 162728.17
"PA", "42111", "Somerset", "42111021902", 160, 23, 112414.12
"PA", "42113", "Sullivan", "42113960100", 11, 2, 4740.91
"PA", "42115", "Susquehanna", "42115032000", 33, 1, 101320.86
"PA", "42115", "Susquehanna", "42115032100", 9, 0, 60752.63
"PA", "42115", "Susquehanna", "42115032600", 16, 0, 110628.91
"PA", "42117", "Tioga", "42117950300", 404, 23, 303225.82
"PA", "42117", "Tioga", "42117950400", 1, 1, 0
"PA", "42117", "Tioga", "42117950900", 5, 5, 0
"PA", "42117", "Tioga", "42117951000", 13, 3, 3700.85
"PA", "42119", "Union", "42119090102", 6, 1, 13190.01
"PA", "42119", "Union", "42119090200", 300, 44, 308436.16
"PA", "42119", "Union", "42119090400", 14, 0, 12211.29
"PA", "42119", "Union", "42119090502", 20, 0, 14020.73
"PA", "42119", "Union", "42119090600", 9, 1, 10284.24
"PA", "42121", "Venango", "42121200000", 287, 30, 150882.4
"PA", "42121", "Venango", "42121200100", 396, 10, 187776.62
"PA", "42121", "Venango", "42121200200", 131, 7, 91054.79
"PA", "42121", "Venango", "42121200500", 3, 0, 1281.9
"PA", "42121", "Venango", "42121200600", 22, 0, 18296.61
"PA", "42121", "Venango", "42121200800", 1, 0, 47.32
"PA", "42121", "Venango", "42121201100", 119, 19, 60664.62
"PA", "42121", "Venango", "42121201200", 79, 1, 19376.38
"PA", "42121", "Venango", "42121201300", 38, 0, 25004.97
"PA", "42121", "Venango", "42121201400", 246, 12, 168575.67
"PA", "42121", "Venango", "42121201500", 255, 15, 386736.5
"PA", "42123", "Warren", "42123970100", 126, 46, 192857.31
"PA", "42123", "Warren", "42123970200", 141, 4, 207686.77

"PA", "42129", "Westmoreland", "42129800700", 1,0,453.32
 "PA", "42129", "Westmoreland", "42129801200", 1,0,2248.57
 "PA", "42129", "Westmoreland", "42129801400", 5,0,671.85
 "PA", "42129", "Westmoreland", "42129801500", 1,0,777.08
 "PA", "42129", "Westmoreland", "42129801701", 12,0,5578.66
 "PA", "42129", "Westmoreland", "42129801702", 15,0,7266.84
 "PA", "42129", "Westmoreland", "42129801703", 19,0,9452.76
 "PA", "42129", "Westmoreland", "42129801800", 39,0,12861.84
 "PA", "42129", "Westmoreland", "42129801900", 50,2,49892.71
 "PA", "42129", "Westmoreland", "42129802002", 1,0,2101.86
 "PA", "42129", "Westmoreland", "42129802101", 2,0,332.97
 "PA", "42129", "Westmoreland", "42129802304", 2,0,3896.79
 "PA", "42129", "Westmoreland", "42129802400", 13,0,3608.98
 "PA", "42129", "Westmoreland", "42129802600", 4,0,3986.17
 "PA", "42129", "Westmoreland", "42129802700", 2,0,311.47
 "PA", "42129", "Westmoreland", "42129803000", 1,0,211.73
 "PA", "42129", "Westmoreland", "42129803100", 6,0,726.35
 "PA", "42129", "Westmoreland", "42129803200", 2,0,9716.52
 "PA", "42133", "York", "42133021410", 1,0,34.61
 "PA", "42133", "York", "42133021500", 1,0,478.63
 "PA", "42133", "York", "42133021600", 4,0,1085.7
 "PA", "42133", "York", "42133021711", 8,0,1540.55
 "PA", "42133", "York", "42133021712", 25,0,6968.71
 "PA", "42133", "York", "42133021802", 3,0,7099.85
 "PA", "42133", "York", "42133022200", 1,0,222.19
 "PA", "42133", "York", "42133022401", 33,0,5483.64
 "PA", "42133", "York", "42133022500", 59,1,18071.21
 "PA", "42133", "York", "42133022600", 154,1,29936.04
 "PA", "42133", "York", "42133022700", 1,0,1388.28
 "PA", "42133", "York", "42133022800", 3,0,218.14
 "PA", "42133", "York", "42133022920", 1,0,209.37
 "PA", "42133", "York", "42133023302", 2,0,1188.77
 "PA", "42133", "York", "42133023400", 2,0,2667.79
 "PA", "42133", "York", "42133023500", 6,1,57.65
 "PA", "42133", "York", "42133023601", 5,0,1405.14
 "PA", "42133", "York", "42133023602", 7,0,1328.09
 "PA", "42133", "York", "42133023710", 47,0,12606.6
 "PA", "42133", "York", "42133023721", 79,0,32694.92
 "PA", "42133", "York", "42133023722", 106,1,38363.99
 "PA", "42133", "York", "42133023810", 45,0,20467.35
 "PA", "42133", "York", "42133023821", 4,0,400.45
 "PA", "42133", "York", "42133023902", 21,0,4526.55
 "PA", "42129", "Westmoreland", "42129803400", 3,0,2307.5
 "PA", "42129", "Westmoreland", "42129803501", 3,0,1748.34
 "PA", "42129", "Westmoreland", "42129803600", 2,0,1733.28
 "PA", "42129", "Westmoreland", "42129804600", 11,0,1594.16
 "PA", "42129", "Westmoreland", "42129804701", 6,0,3497.77
 "PA", "42129", "Westmoreland", "42129804801", 2,0,309.99
 "PA", "42129", "Westmoreland", "42129804802", 12,0,1303.08
 "PA", "42129", "Westmoreland", "42129804900", 19,0,26862.62
 "PA", "42129", "Westmoreland", "42129805000", 17,0,18303.99
 "PA", "42129", "Westmoreland", "42129805100", 75,0,21163.68
 "PA", "42129", "Westmoreland", "42129805600", 1,0,32.68
 "PA", "42129", "Westmoreland", "42129805800", 27,1,7596.58
 "PA", "42129", "Westmoreland", "42129805901", 8,0,4184.81
 "PA", "42129", "Westmoreland", "42129805902", 7,0,3295.71
 "PA", "42129", "Westmoreland", "42129806000", 3,0,205.85
 "PA", "42129", "Westmoreland", "42129806200", 13,0,5224.37
 "PA", "42129", "Westmoreland", "42129806600", 1,0,855.53
 "PA", "42129", "Westmoreland", "42129807401", 20,0,4962.64
 "PA", "42129", "Westmoreland", "42129807402", 4,0,2983.51
 "PA", "42129", "Westmoreland", "42129807800", 1,0,312.55
 "PA", "42129", "Westmoreland", "42129807900", 171,3,63570.82
 "PA", "42129", "Westmoreland", "42129808100", 38,2,43595.96
 "PA", "42129", "Westmoreland", "42129808300", 207,12,131951.36
 "PA", "42129", "Westmoreland", "42129808401", 70,21,48856.15
 "PA", "42129", "Westmoreland", "42129808402", 40,5,57235.19
 "PA", "42129", "Westmoreland", "42129808500", 5,0,2525.39
 "PA", "42129", "Westmoreland", "42129808600", 29,11,42841.73
 "PA", "42133", "York", "42133000300", 1,0,213.5
 "PA", "42133", "York", "42133001400", 1,0,689.81
 "PA", "42133", "York", "42133001500", 2,0,77.41
 "PA", "42133", "York", "42133010110", 5,0,914.65
 "PA", "42133", "York", "42133010510", 6,0,2920.69
 "PA", "42133", "York", "42133020410", 2,0,166.93
 "PA", "42133", "York", "42133020420", 3,0,3303.86
 "PA", "42133", "York", "42133020510", 16,0,8112.87
 "PA", "42133", "York", "42133020521", 6,0,6112.1
 "PA", "42133", "York", "42133020522", 2,0,1179.52
 "PA", "42133", "York", "42133020600", 40,0,3380.9
 "PA", "42133", "York", "42133020800", 38,0,2775.96
 "PA", "42133", "York", "42133021020", 5,0,6094.72
 "PA", "42133", "York", "42133021210", 1,0,263.33
 "PA", "42133", "York", "42133021220", 1,0,237.62

The broadband technology or technologies to be deployed

Robust Last Mile Broadband Technologies including, but not limited to:

- ✓ Fiber-to-the-X (FTTX) X=Home, Premise, Node, Curb, etc.
- ✓ Point-to-Point and Point-to-Multi-Point Wireless Technologies (Wi-MAX, Fixed Wireless, etc.)
- ✓ Microwave Links (Wireless Leased Lines)
- ✓ Ultra-Wideband (UWB)
- ✓ Hybrid Network Combinations (Fiber, Coax, Copper, etc.)
- ✓ HSPA, EV-DO, HSPA+, LTE
- ✓ Cable Modem
- ✓ xDSL
- ✓ T-1 Lines

Robust Last Mile Broadband Techniques including, but not limited to:

- ✓ Internet Peering
- ✓ Caching
- ✓ Distributed Antennae Systems (DNA)
- ✓ IP Traceback Techniques
- ✓ Dark Fiber Lease
- ✓ Wave Division Multiplexing (DWDM, CWDM, ROADM)
- ✓ Moratorium on Franchise Fees to Extend Service Area
- ✓ Cost Reduction (Sharing Vertical Assets such as access on public water towers with private providers)
- ✓ Co-Locating (Establishing private provider POP, NOC, CO locations in publically owned facilities)

Contemplated Service Offerings

Telecommunications Cooperative Association of Pennsylvania Services Program

(Two Approaches to Choose From)

Potential Services:

- | | | |
|---------------------------------------|----------------------|---------------------------------------|
| • Voice Over Internet Protocol (VoIP) | • Internet Service | • Video-on-Demand |
| • Gaming-on-Demand | • Distance Learning | • Music-on-Demand |
| • Network Leasing | • FTTP | • Data Backup, Warehousing, Archiving |
| • On-Line Advertising | • Wireless Solutions | • Security Services |
| • Data Backup / Disaster Recovery | • Data Hosting | • Call Center / Help Desk |

Managed Services

Under the managed services approach, the TCAP member can brand the services, be the service provider for some or all services chosen to provide, or elect to have some or all the services managed by another TCAP member.

Managed services may include:

- Hosting Facilities
- Back-office Customer Support
- Technical Support including in-field
- Services Management
- Billing Services
- Advertising Services
- Service Pricing
- Content Delivery Arrangements
- Voice Tone Services
- E-mail Services
- Security, Storage and Backup Services

Potential benefits of service provisioning include:

- ▶ Percentage or Flat Fee of net revenue of sales
- ▶ Facility Lease Payments
- ▶ Billing Service Fees
- ▶ Customer Assistance Fees
- ▶ Advertising Space Fees
- ▶ Right-of-Way Fees
- ▶ Reduced Service Costs
- ▶ Permit Fees
- ▶ Discounts on Services
- ▶ Improved Customer Relationships

Hosted Services

Under the Hosted Services approach, the TCAP-BC member is not a service provider, but rather a promotional entity to endorse brands of service and cooperatively assist the service providers in the community, school, or business. These service providers are required to be members of TCAP-BC. In exchange for hosting and endorsing these services, the TCAP-BC member will benefit from the arrangement in any number of potential ways.

Assistance to Hosted Service Providers may include:

- Lease of Facility Space
- Potential Billing Services
- Customer Sign-up Assistance
- Display of Advertising
- Granting of Right-of-Ways
- Granting of Street Occupancy Permits
- Pole or Trench Lease Arrangements

Potential benefits to hosting entity may include:

- ▶ Facility Lease Payments
- ▶ Billing Service Fees
- ▶ Customer Assistance Fees
- ▶ Advertising Space Fees
- ▶ Right-of-Way Fees
- ▶ Reduced Service Costs
- ▶ Permit Fees
- ▶ Discounts on Non-regulated Services

Roles for Network Services Oversight (in some cases not actual provisioning)

County/City/Municipality Network Retail/Wholesale Utilization

Near Term Service Offerings (within first 6 months)

- Internet
- VoIP
- Network Leasing

Mid Term Service Offerings (6 months+ to 18 months)

- Video-On-Demand
- Music-On-Demand
- Gaming-On-Demand
- Residential & Commercial Security/CCTV
- Wireless Solutions
- Data Back-up and Warehousing
- Rural Dist. Learning /Continuing Ed Streaming
- Rural Work Force Dev./ Job Skill Training Streaming
- Telemedicine / Home Health Care Streaming

Long Term Service Offerings (>18 months)

- On-line Private Utility Account Access / Payment
- Application Software

County/City/Municipality Network Government Services

Near Term Government Services Offerings (within first 6 months)

- Data Backup and Warehousing
- Data Disaster Recovery
- VoIP
- Broadband Demand Aggregation Centers / Bandwidth Sharing
- Geographic Information Services (GIS)
- AutoCAD Records Archiving
- Government Services Site Links
- Regional Recreation Activities
- (Same Services Offered Under Retail/Wholesale)

Mid Term Service Offerings (6 months+ to 18 months)

- Website Design / Hosting
- On-Line Permit Applications / Review
- Economic Development / Site Selection Data
- Global Positioning System Services
- On-Line Muni Utility Account Billing / Access / Payment
- Closed Circuit TV / Surveillance Cameras

Long Term Service Offerings (> 18 months)

- SCADA
- Call Center / Help Desk

Focus of the County/City/Municipality in Partnership with Service Providers (Pricing Format for Negotiations)

In-Kind Service Tradeoffs

<u>Service Provider</u>	<u>Estimated Value</u>	<u>County/City/Municipality</u>	<u>Estimated Value</u>
• Manage & Balance Load @ Internet Exchange	\$ _____	• Provide NOC/POP Facility & Pay Environmental Controls	\$ _____
• Manage the NOC/POP & Provider Connections	\$ _____	• Provide NOC/POP Security	\$ _____
• NOC/POP Call Center / Trouble Ticket Tracking	\$ _____	• Create & Maintain NOC/POP Equipment Schematics	\$ _____
• Manage/Bill Co-locators at NOC/POP	\$ _____	• Pay for Legal Services Associated with NOC/POP Location	\$ _____
• Meet/Coordinate w/Emergency Repair Crews	\$ _____	• Pay for NOC/POP Maintenance	\$ _____
• Customer Call Center / Trouble Ticket Tracking	\$ _____	• Provide Stock & Inventory and Storage	\$ _____
• Manage the CMN	\$ _____	• Purchase, Maintain and Support -FMS for Network	\$ _____
• Bill/Manage Customers of the CMN	\$ _____	• Provide Fiber Transport from Customer to NOC/POP	\$ _____

Service Shared Revenues from Customers Within City/Municipality (Does not include City/Municipality Facilities)

<u>Service Provider</u>	<u>County/City/Municipality</u>
• Hardwire Internet Service	_____ %
• Wireless Internet Service	_____ %
• Wholesale Bandwidth Service	_____ %
• VoIP	_____ %
• Video-on-Demand	_____ %
• Gaming-on-Demand	_____ %
• Music-on-Demand	_____ %
• On-Line Advertising	_____ %
• Distant Learning Programs	_____ %
• Data Backup, Warehousing, Archiving	_____ %
• Disaster Recovery	_____ %
• Data Hosting	_____ %
• Security Services	_____ %

Service Revenues Not Shared

<u>Service Provider</u>	<u>County/City/Municipality</u>
• Emergency Repair Work Reimbursement/Fees	_____ %
• Customer Premise Wiring Fees	_____ %

Shared Expenses

<u>Source of Expense</u>	<u>Service Provider</u>	<u>County/City/Municipality</u>
• Wholesale Bandwidth (Except City Facilities)	_____ Cost \$	_____ %
• Marketing Program/Brochures (On Shared Revenue Services)	_____ Cost \$	_____ %
• Provide ONT (Except City Facilities)	_____ Cost \$	_____ %
• Provide FTTP Last Mile Hook-up of Customer (Except City Facilities)	_____ Cost \$	_____ %

Marketing Plan / Public Relations

As a publicly owned network, the community needs to be conscientious of public relations. Just like use of other public facilities and infrastructure, the governing board should discuss and establish how the network will be perceived by the general public, as well as service providers using the network. Desired perceptions typically include:

- Professionalism
- Legal decency of content
- Fair and equitable/Non-discriminate
- Benefiting public-owners of the network
- Community asset
- Economic development marketing tool

Potential Strategies

- **Coordinate/Aggregate Bandwidth Requests**
- **Service Provisioning Options:** Turn-Key Internet Reselling, Network Leasing, Broadband Over Power Lines, FTTP, Wireless Solutions, Satellite Direct TV, Voice Communications, etc.
- **Broadband Demand Aggregation:** By networking organizations, broadband can be aggregated and allow the entities to pursue sharing one high-speed connection at lower costs.
- **Cooperative Purchasing:** By soliciting pricing together, the request for proposal becomes more attractive to providers and costs for solicitation can be shared among those entities participating.
- **Community Website:** A free community website allows members to make better known available services and opportunities to families, businesses and visitors.
- **Community Programs and Tools:** At public facilities provide free access to computers, software, printers, Internet connectivity, training opportunities, volunteer assistance, and promotional discounts by participating service providers for services such as hardware repair and much more

Commodities and Services

- Private Label Internet Services
 - Residential Access Accounts
 - Commercial Access accounts
 - Domain Hosting Services
- Commercial Web Hosting Services
- Technical Support
 - Toll-Free Telephone Support 24x7
 - E-Mail Support
 - Web-based support
- Affiliate Support
 - Business Account Managers
 - Ticketing Systems
 - Annual Business Reviews
 - Ongoing Capacity Management
 - Additional Services
 - Spam and Virus Protection
 - Filtered Internet Services
 - National Roaming Software

Broadband Reseller

- Turn-Key Operation (Quick Market Entry)
- Broadband wholesale provider remains transparent to the customer
- Mix of available products
- Wholesale Provider Customers = Affiliates
 - Independent telephone companies

- Cable television operators
- Utilities
- Municipalities, non-profits, and trade associations
- Wholesale Services provided to Affiliates
 - Provide Infrastructure and Operations
 - Redundant communications, power, and security
 - Experienced support technicians and engineers 24 hours a day
 - No need to buy and maintain back room equipment, no technical support personnel to hire, train and manage

Services Provided

- Managing the Technology
 - Point of Presence (POP) Equipment Installation and Service
 - Gateway Routers, switches, access servers, DSLAMs, CMTS, BPL, Fixed Wireless, etc.
 - Order backbone connection, provision circuit
 - Plug and play device to authenticate Internet accounts and local domain name resolution
 - 24/7 Network Operations
 - Monitors system, Internet connections and key servers
 - World Class Data Center
 - Fully redundant Internet connections delivered via geographically diverse paths
 - Customer Management Tools
 - Affiliate Management System (Web-based System)
 - Production Tools – Add, modify and delete customer access, e-mail, and commercial Web Hosting accounts and request domain registrations
 - Management Reports – Transaction reports, Subscriber Base reports, Usage Reports
 - Communication Tools – Automatic sending of custom Welcome emails, Broadcast email messages to all or selected customers
 - On-Line Registration (OLR) Software
 - Allows configuration of customers on-line

If known, expected State and/or Local or Tribal Governmental Participation in and/or Support for the Project

The following discussions address local government supporting roles, but Tribal Government Participation could be substituted for the local government municipality.

Typical roles a municipality considers in open access network architecture include:

Option A “Dark Fiber Network”: The municipality does not invest in electronic equipment and generates revenue by leasing dark fibers, collocation fees and through savings by owning the network serving its own facilities. Essentially this is a middle-mile network with the only last-mile network being built to the municipal facilities, but the service provider must buy/install the equipment to light the network and acquire/provide the content (voice, video and data, etc.).

Option B “Hybrid Fiber Network”: The municipality owns and operates the network providing only lit services (municipality buys the equipment and content [i.e., bandwidth, voice services, etc.]) to only serve the municipality facilities itself. Some municipalities provide the services to themselves, others arrange for a third party service provider to serve the municipal facilities. The municipality also leases dark fiber, collocation space, etc. to private providers to service the other end-use customers on the network. Except where connectivity is arranged by the municipality, the service provider leasing the fiber would need to build the last-mile network (fiber, coaxial cable, copper, or wireless) to serve the customers.

Option C “Wholesale Fiber Network”: The municipality builds the middle mile and last mile networks where intended to serve and lights the network (electronic equipment) and sells bandwidth and/or access to all customers on the network. Typically the service providers buying access provides the content.

Option D “Retail Fiber Network”: The municipality owns and operates the network as a service provider providing retail services to the end-use customers. The municipality builds the middle mile and last mile networks where intended to serve and lights the network and purchases and provides the content.

Option E “Hosted Network”: The municipality is not a service provider, but rather a promotional entity to endorse a wholesale transport/open-access network. In addition, some communities form and become a member of a cooperative that will arrange for a hometown provider option brand of retail service and cooperatively assist the hometown option service provider in getting customers to sign-up in the community, schools and businesses. In exchange for hosting the wholesale transport/open access network and endorsing the hometown provider services, the municipality will benefit from the arrangement in any number of potential ways including receiving trench use fees, permit fees, facility/land lease or rent payments, customer sign-up commissions and support fees, advertising fees, maintenance fees, billing outsourcing fees, utility revenues, non-regulated service discounts.

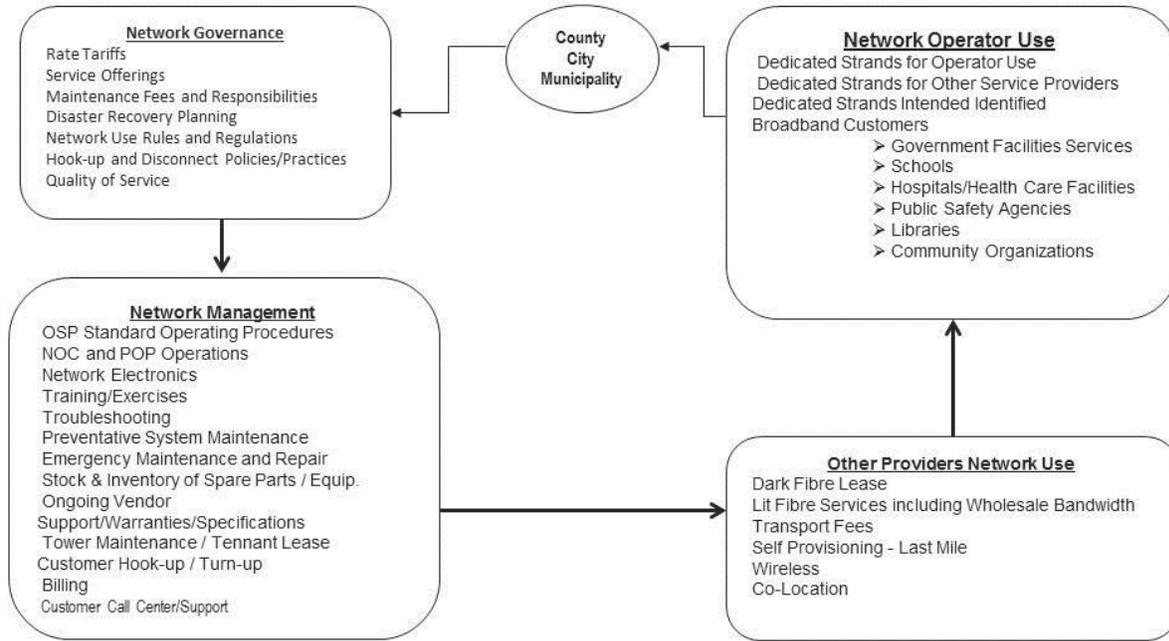
There are certainly other models including slight variations to the above, but these are the most popular.

Pennsylvania Limitations on Municipal Roles

While Open Access Networks are growing in popularity across the country, many of the large ILEC and CLEC carriers are not willing to invest into a PPP initiative if it opens the door to competition. While in other parts of the country there are at least two (2) models that could considered, A Managed Service Model or Hosted Service Model, because of existing Chapter 30 laws in the Commonwealth of Pennsylvania the Hosted Service Model at this time where a more involved Public-Private-Partnership might be considered would initially have to be pursued unless the incumbent service provider elects to not provide the services.

Managed Services Model	Hosted Services Model
Under the Managed Services Model approach, the cooperative member can brand the services, be the service provider for some of or all of the services chosen to provide, or elect to have some or all the services managed by another cooperative member.	Under the Hosted Services Model approach, the cooperative member is not a service provider, but rather a promotional entity to endorse brands of service and cooperatively assist the service providers in the community, school or business. These service providers are required to be members of the cooperative. In exchange for hosting and endorsing these services, the cooperative member will benefit from the arrangement in any number of potential ways (facility lease payments, billing service fees, customer assistance fees, advertising space fees, ROW Fees, reduced service costs, permit fees, discounts on non-regulated services, etc.)

Conceptual Public – Private Partnership Model for an Open Access Network



Sample of Some Sources of Revenues and Expenses

Municipality		Third Party Network Operator	
Revenues	Expenses	Revenues	Expenses
Select Customer Services Fees • Government Facilities • Libraries • Colleges/Universities • Schools • Hospitals/Health Care • Public Safety Agencies • Community Organizations	Network Management Services including Operation and Maintenance (O&M) and Content, if applicable (bandwidth, dial tone, video programming, etc.)	Network Management Services including O&M	Staff, Expertise and Resources to Provide Network Management Services
Dark Fiber Lease	Bandwidth for Broadband Customer	End-use Revenues	Dedicated Fiber Lease
Lighted Fiber Fees	Backhaul /Transport Services on Third Party Network	Service Fees	Transport Fees on BB Authority Network
Tower Rentals	Stock & Inventory of Spare Parts/Equipment	Wireless Services	Access Pt. Equip. & Customer Premises Equipment
Wholesale Bandwidth Sales	Bandwidth Costs	Bandwidth Sales	Bandwidth Expense
Co-Location Fees	NOC / POP Utilities & Other Operating Costs	Customer Support / Help Desk Services	Co-Location Fees
Equipment Rentals / Leases	Network Equipment (NIDs) / Equipment Depreciation	Equipment Rentals/Leases	Office and Field Staffing

The following **is only one example of a network solution** in the tool box of TCAP. Other Potential Models are available for other technologies and techniques, such as a hybrid fiber-wireless solution.

Sample Potential Model: FTTH Solution for Municipal or Cooperative Owned Electric Utilities

The Internet is the jugular vein of the world economy with ever increasing high bandwidth applications being developed to pump through to the lifeline of business, entertainment and communications end-use customers.

As a result, unprecedented telecommunications mergers are going on between huge past competitors to better position and prepare themselves for being able to provide new applications offering high revenue returns.

Everybody is playing in each other's backyard. Cable television providers are now offering voice and Internet services and voice providers are now offering television services. One continuing problem they all face is that they have made in the past huge capital investments in their existing infrastructure, whether that be TV coaxial cable or twisted-pair telephone wires, and this hard-wire technology does not have, nor will have, the capabilities to provide greater bandwidth needed for delivery of high bandwidth services universally. It is not a question of if the infrastructure will change; it is a question of when the infrastructure will change.

While wireless technologies continue to improve, grow and have a significant position in the telecommunications industry, it serves as a nonessential convenient delivery means to the customer of mid-to-low bandwidth applications (under 10 Mbps), but is doubtful if it will be relied on to replace required long-term lifeline essential and high bandwidth applications (10+Mbps to full Giga bit+). Fiber optic networks offer converged services over a single line to enhance the cost effective over-build of current communications infrastructure. Current systems operating at 40 billion bits per second over a single fiber are common. The most difficult obstacle to overcome in building any communication infrastructure is gaining access to the customer; both physical access and marketing access. The investment opportunity being presented is based on a proven successful model and ongoing operations of leveraging municipal electric owned assets (poles, land, utility trucks, billing software, etc.), field technician skills, customer trust and unregulated authority to overbuild a high speed, fiber-optic, voice, video and data telecommunications network. There are multiple advantages to building a communications network in concert with a municipal-owned utility company.

Advantages include:

- Almost instant access to utility poles, ROW, trenches, etc., resulting in lower construction costs & time delays
- Leverage the municipal-owned utility trucks and crews to address customer hook-up
- Integrate the telecommunications billing with other municipal service billing
- Same time marketing access to customers in municipal building to pay their municipal bills or sign-up for service
- Most municipal-owned utilities serve dense, cost-effective service areas
- Partnering with a municipal entity not afraid to compete with investor-owned utilities

Proposed Public-Private Partnership

All municipalities are looking for new sustainable revenue sources. Except in two instances, recently enacted House Bill 30 which amended Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes in essence prohibits a political subdivision or any establishment by a political subdivision from providing to the public for compensation any telecommunications services. Therefore, the public-private partnership arrangement that will result in a win-win scenario is being referred to as a "Hosted Network" approach. Under this approach, the municipality is not a service provider, but rather a promotional entity to endorse a wholesale transport/open-access network. In addition, the community will be a member of a cooperative that will arrange for a hometown provider option brand of retail service and cooperatively assist the hometown option service provider in getting customers to sign-up in the community, schools and businesses. In exchange for hosting the wholesale transport/open access network and endorsing the hometown provider services, the municipality will benefit from the arrangement in any number of potential ways.

"Hosted Network" Model

Assistance to network owner and service provider may include:

- Pole attachment permits/Trench use approval
- Granting of street occupancy permits
- Lease of facility space for POP/NOC
- Land and/or tower lease space
- Customer sign-up assistance
- Display of advertising
- Truck rolls for customer hook-ups
- Network maintenance/fiber splicing
- Billing to customers for some services
- Utilities to service provider
- Public product endorsements

Potential muni benefits include:

- Pole/trench use fees
- Permit Fees
- Facility lease payments
- Land and/or tower rent
- Customer sign-up commission
- Advertising fees
- Customer support fees
- Maintenance fees
- Billing outsourcing fees
- Utility revenues
- Non-regulated service discounts

Value of the Telecommunications Network

The telecommunications network being proposed is perhaps the most future-proof delivery technology available today known as a Fiber-to-the-Premise (FTTP) network. It is the golden highway to the customer. Fiber optics provides unprecedented:

- Speed Capability
- Reliability
- Security
- Long distant transmission

The FTTP system will be utilized to hook-up multi-dwelling units, high density commercial and business sectors, and high band width users such as hospitals, universities and certain industries. The majority of residential customers using commodity Internet services will initially be served utilizing a less expensive fixed wireless solution. The fixed wireless system can be up and running within 120 days from proceeding.

“Win-Win” Model

The Hosted Services model results in a huge win-win scenario for both the public and private sector. For the municipality it results in a reoccurring revenue source just by leveraging their existing investments in poles, trucks, staff, software, etc. The municipality also will gain tremendous economic development opportunities by having a FTTP system deployed in their community.

The service providers win by having available a wholesale transport/open access delivery network which will have overcome some of the most difficult obstacles in constructing and operating communication networks. By utilizing the municipality, the network owner and hometown option service provider needs minimal staffing and equipment.

The business model can be summarized as follows:

- Investors own a holding company and a majority share of an operating company.
- The operating company will receive financing from the holding company to construct and own a hybrid telecommunications system that provides fiber-to-the-premise for aggregated bandwidth and high band width applications, and fixed wireless delivery of bandwidth for low bandwidth needs and less dense locations.
- The operating company leases the network to a nonprofit, member-owned telecommunications cooperative of which municipalities, schools, nonprofit organizations, private businesses and individuals can be members of.
- The cooperative out-sources the management of the cooperative and of the network to a private consulting firm who arranges for wholesale access customers and the delivery of a hometown option retail service provider.
- The private consulting firm collects fees from the wholesale and retail customers on behalf of the cooperative.
- The cooperative pays the operating company for lease of the network.
- The operating company pays the hosting communities for accommodations provided.
- The operating company sells the balance of the revenue receipts back to the holding company at as discount for repayment of the network financing.
- The cooperative also pays the retail service provider for resell of the services.

The investment value is three (3) fold for the investors:

- (1) **Investor’s will recover their capital investment dollars first, over four (4) years** and have majority ownership in an operating company with a continuously churning revenue source of collecting both retail and wholesale service fees day-after-day, week-to-week, month-to-month in the form of a lease arrangement.
- (2) **Dozens of services can be offered over the same infrastructure** with unparalleled bandwidth capability
- (3) The investor’s will have **ownership of a state-of-the-art, future-proof telecommunications network that will have significant attraction for resale (acquisition) to large cash-rich national telecommunications companies**

The following business plan expands upon the investment model in more detail.

Business Plan

Introduction

Just like oil, water, gas and electric, telecommunications bandwidth is a 24/7 consumable product. The providers of these commodities make money every minute, hour, day, month and year. Bandwidth is expected to be there ready for use continuously. Telecommunications and other voice, video and data applications are in their infancy of research and development. Therefore, future growth in this market sector is almost boundless.

There is probably no living person on earth where bandwidth and the Internet do not affect the quality of their lives. Even if the person is not an end-user, government supplied services for these individuals utilize bandwidth applications for their behalf.

There are over 2,000 municipal-owned electric systems operating in the United States serving more than 18,250,000 customers. In Pennsylvania, there are 35 municipal-owned electric systems serving more than 81,000 customers. These municipalities are usually better financially secured than those without utilities. These municipalities have cash, assets, technical skill labor pools, and access to end-use customers, making them ideal candidates for a private-public partnership.

Perhaps the most future-proof telecommunications delivery technology available today is a Fiber-to-the-Premise (FTTP) network. It is the golden highway to the customer. In order to be cost effective to build, own and operate these state-of-the-art networks, there are a number of business model aspects that need to exist.

Existing ingredients needed for a cost-effective FTTP network solution include:

- Fairly dense customer base setting (Urban and midsize communities)
- Multiple service offering capabilities (triple play of voice, video and data)
- Access to “fat pipe”, competitively priced bandwidth for interconnectivity
- Availability to front end funding for at least the first year of operation (FTTP takes slightly longer to initially hook-up end-use customers)
- Reasonable bandwidth hungry demographics; i.e. students, data-intense business, schools or government, health-care facilities, etc.

The biggest problem with public-private partnerships is bringing the two together and the ability to effectively communicate and put together a “win-win” business model proposal. Besides needing to establish a relationship, the rules of engagement must be well understood.

When it comes to rules of engagement for municipal involvement in telecommunications, recently House Bill 30 which amended Title 66 (Public Utilities) of the Pennsylvania Consolidated Statutes was signed by PA Governor Edward G. Rendell on November 30, 2004. Among other things, this legislation added and repealed provisions relating to alternative forms of regulation of telecommunications services. In essence, except in two instances, a political subdivision or any establishment by a political subdivision may not provide to the public for compensation any telecommunications services, including advanced and broadband services, within the service territory of a local exchange telecommunications company operating under a network modernization plan. One exception is where a political subdivision or entity established by a political subdivision may continue providing or offering of telecommunications services of the same type and scope as were being provided on the effective date of the legislation. The other exception is where the political subdivision has submitted a written request for the deployment of such service to the local exchange telecommunications company (LEC) serving the area and, within two months or receipt of the request, the LEC or one of its affiliates has not agreed to provide the data speeds. Therefore in essence, political subdivisions now will have a much more difficult time becoming a telecommunications service provider than before HB 30 was enacted. In order to best work within the allowances and prohibitions of HB 30, a grass roots initiative has resulted in the formation of the *Telecommunications Cooperative Association of Pennsylvania (TCAP)*.

Telecommunications Cooperative Association of Pennsylvania (TCAP)



What is TCAP ?

The Telecommunications Cooperative Association of Pennsylvania is a nonprofit cooperative of schools, government and quasi-government entities, political subdivisions, businesses, and other public and private sector organizations, associations and individual members working together to establish, operate facilities and improve telecommunications and other voice, video and data telecommunications networks, services and products for the benefit of its members; to maximize teaching and learning opportunities, improve government services, attract and retain companies and jobs through economic development initiatives and activities and enhance the overall quality of life for individuals and families who call Pennsylvania home; to associate with other cooperative societies for mutual and cooperative development; to advance the cooperative movement and serve its members within the scope of the Articles of Incorporation; and to the fullest extent permitted by statute, engage in the lawful business and purposes of a nonprofit cooperative corporation pursuant to the Pennsylvania Nonprofit Corporation Law of 1988.

Who are intended members of TCAP ?

It is proposed that membership in TCAP will be open to schools, local government units, non-profit and cooperative organizations, businesses, for-profit enterprises, unincorporated and community associations, and any residential household or residential consumer of telecommunication services and other voice, video and data services in Pennsylvania. The members count on TCAP to help them obtain adequate and reasonably priced telecommunications and other voice, video and data services.

What is the intended focus of TCAP ?

Higher bandwidth voice, video and data related services. Some potential applications include:

- Internet2 Service/E-mail
- E-Business/E-Government
- Videoconferencing/Streaming
- Distributed Computing
- Distant Learning
- IP Telephony
- Telemedicine
- Musical Web Casts
- Data Warehousing
- Residential Internet

Examples of Why is TCAP or Similar Initiative Needed ?

Local Government

- Insufficient network for public safety communications and e-government services
- Seeking economic development opportunities to create jobs and tax base

Schools

- Problems with connectivity and reliability
- Insufficient bandwidth to explore and utilize new education applications
- Schools seeking a more robust network

Businesses

- Difficult to compete globally due to bandwidth limitations and price
- Need to better utilize tele-commuting (tele-work) applications

What are some potential solutions?

- ▶ *Broadband Demand Aggregation:* By networking organizations, broadband can be aggregated and allow the entities to pursue sharing one high-speed connection at lower costs.
- ▶ *Cooperative Purchasing:* By soliciting pricing together, the request for proposal becomes more attractive to providers and costs for solicitation can be shared among those entities participating
- ▶ *TCAP Website:* A free community website allows members to make better known services and opportunities available to families, businesses and visitors
- ▶ *TCAP Tool Sheds:* By locating tools in publicly owned facilities, there would be free access to computers, software, printers, Internet connectivity, training, volunteer assistance, and promotional service discounts for such services as hardware repair and more

- ▶ *TCAP Community School House*: Education institutions involved brings the ability to incorporate a well-rounded education component that could include training, awareness, and Internet teaching and learning applications

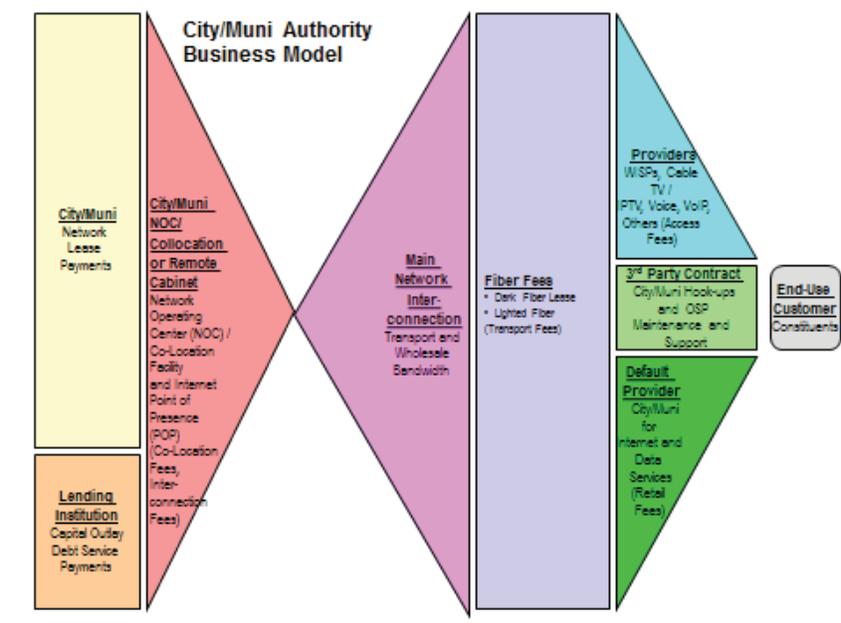
Business Entities

Now that TCAP has been described, in order to fully understand the role of TCAP within the business plan, the roles and relationships of the other companies and their ownership is important.

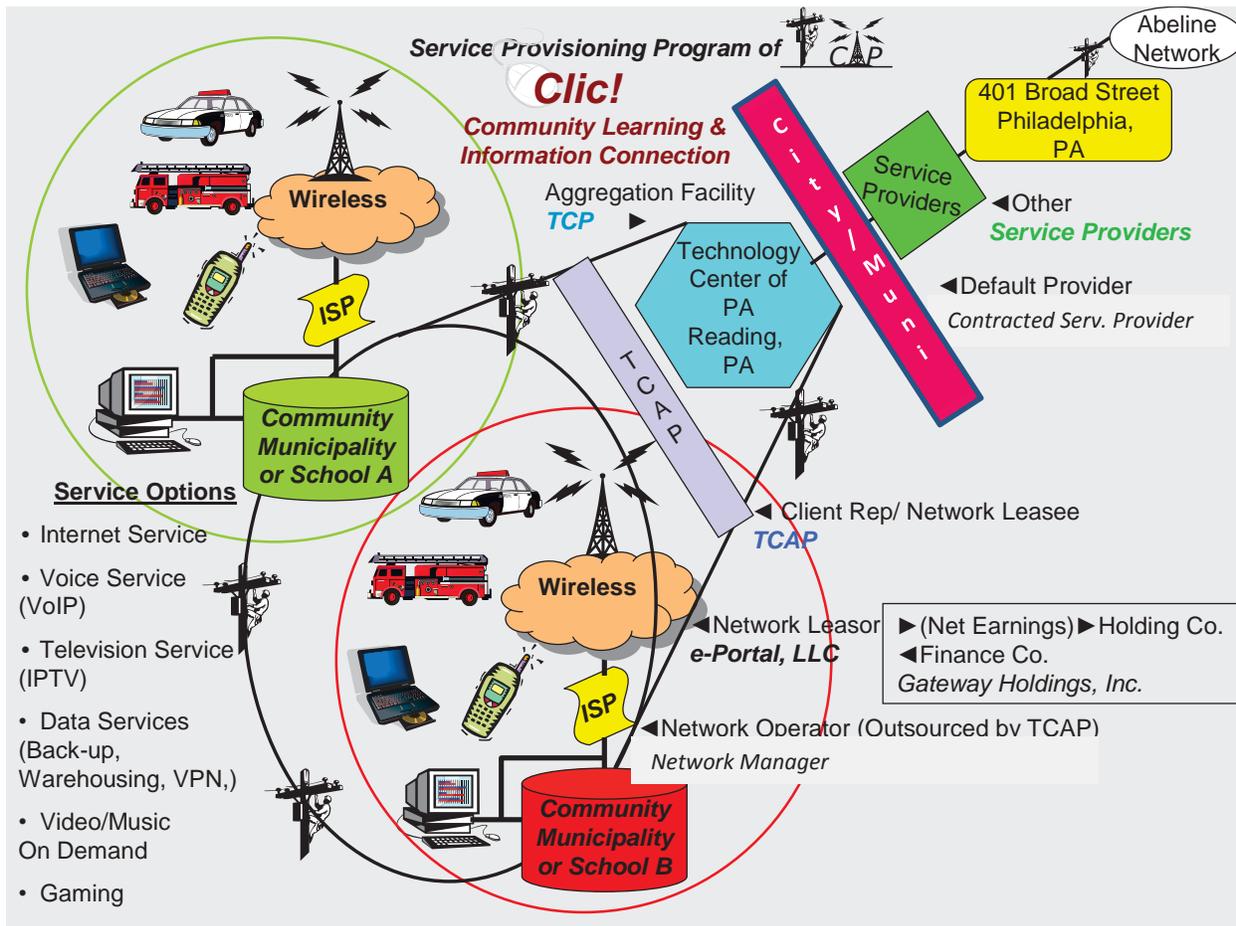
Gateway Holdings, Incorporated (GHI): GHI would be a holding company of the investment group which is established for the purposes of being the finance arm of e-Portal, LLC, an operating company. GHI will also receive the receipts of e-Portal, LLC. Since GHI does not operate or provide any services, it provides asset protection.

e-Portal, LLC: e-Portal would finance, construct and own the wholesale transport/open access fiber-to-the-premise (FTTP) network. E-Portal would lease the network to TCAP for coordinating the relationships of operating the network, marketing for wholesale service to ride the network, coordinating the construction of the networks with the municipalities and distributing the transport revenues from use of the network and all the managing fees to the appropriate recipients. Think of TCAP as the “storefront” where the public and private sector clients come to the counter in the front of the store to arrange for delivery of telecommunication services and TCAP goes into the back of the store where the Technology Center of Pennsylvania (TCP) is an aggregated facility of service providers who are co-located at the TCP. In addition to leasing the network, TCAP will arrange for the municipalities hosting the network to offer a hometown option service provider from which the municipalities can gain additional benefits from hosting. Because TCAP does not have the staff and expertise in-house to operate the wholesale transport/open access network, TCAP will outsource the operations of the network, as well as the management of the cooperative to a third party. TCAP will be governed by an independent Board of Directors.

Technology Center of Pennsylvania (TCP): The Technology Center of Pennsylvania (TCP) is a private-public enterprise being endorsed by the Governor of Pennsylvania to enhance Pennsylvania’s role in the technology industry. The facility and “fat pipe” fiber optic long haul infrastructure already exist and is located just outside the City of Reading in Berks County, Pennsylvania. The TCP facility has all state-of-the-art Network Operating Center (NOC) attributes such as structural integrity in the event of disaster, redundant connectivity with wholesale transport fiber to the national Point of Presence (POP) locations for access to the World-Wide-Web. There are many potential roles the TCP will may fill such as an off-site data warehouse for finance, business and large institution facilities both located in and out of Pennsylvania; also the TCP will serve as a collocation facility for telecommunications’ service providers. In the past, representatives of the TCP have expressed a willingness to recognize TCAP as the “representative” of public entity interests in Pennsylvania.



The TCAP Service Provisioning Model



Premises passed by the proposed fiber distribution network and premises located within approximately five hundred (500) feet of fiber are areas which could most easily be served directly with fiber (Fiber to the Premise or FTTP) by a private service provider. Areas beyond five hundred (500) feet of the fiber network could also be served by using longer service drops for bandwidth intensive customers, adding additional fiber or utilizing wireless services. Wireless services can be deployed by private providers who could purchase wholesale Internet from the network, distributing their data traffic between the network’s central office over fiber optic cable to antennas located anywhere along the network’s fiber backbone. Additionally, current providers can use the distribution fiber to extend the reach of their serving technology (such as DSL and cable modem) into additional areas of the city. These providers would pay a fee for use of the network for transport/backhaul and/or any wholesale Internet access they might purchase from the network. If sufficient potential customers exist, the network could also be extended beyond the primary network area by constructing additional fiber.

TCAP will have numerous offerings for its members including the following:

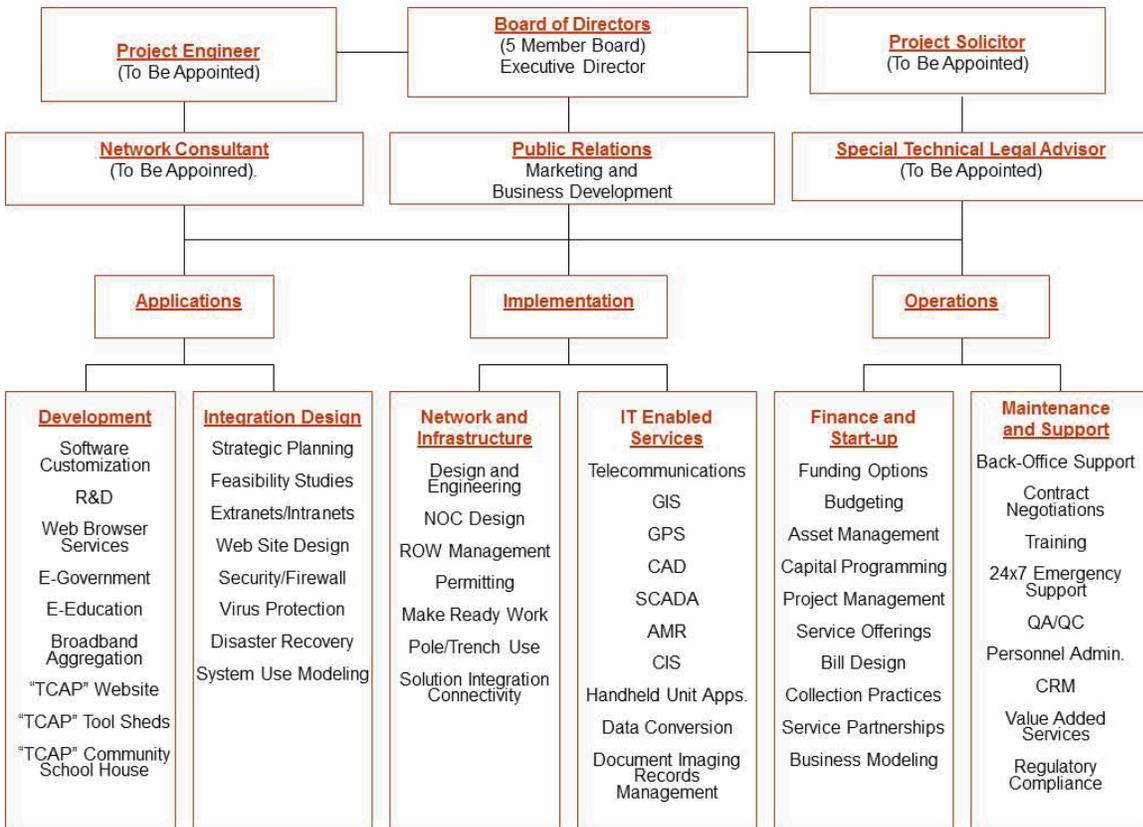
- Educational Program
- Cooperative Purchasing Program
- Discounted Hardware Maintenance and Repair Services Program
- Discounted Software Support Program
- Wholesale Transport/Open Access Network Program
- Telecommunications Service Provisioning Program (*CLIC!*)

CLIC! or Community Learning and Information Connection, is the telecommunications servicing program of TCAP. The above illustration also demonstrates how the wholesale transport/open access network program would be structured.

TCAP Organization Chart

"TCAP"
Telecommunications Cooperative Association of Pennsylvania

"Data without the ability of application is just information, but data that meets the needs of the user is a service and powerful tool."



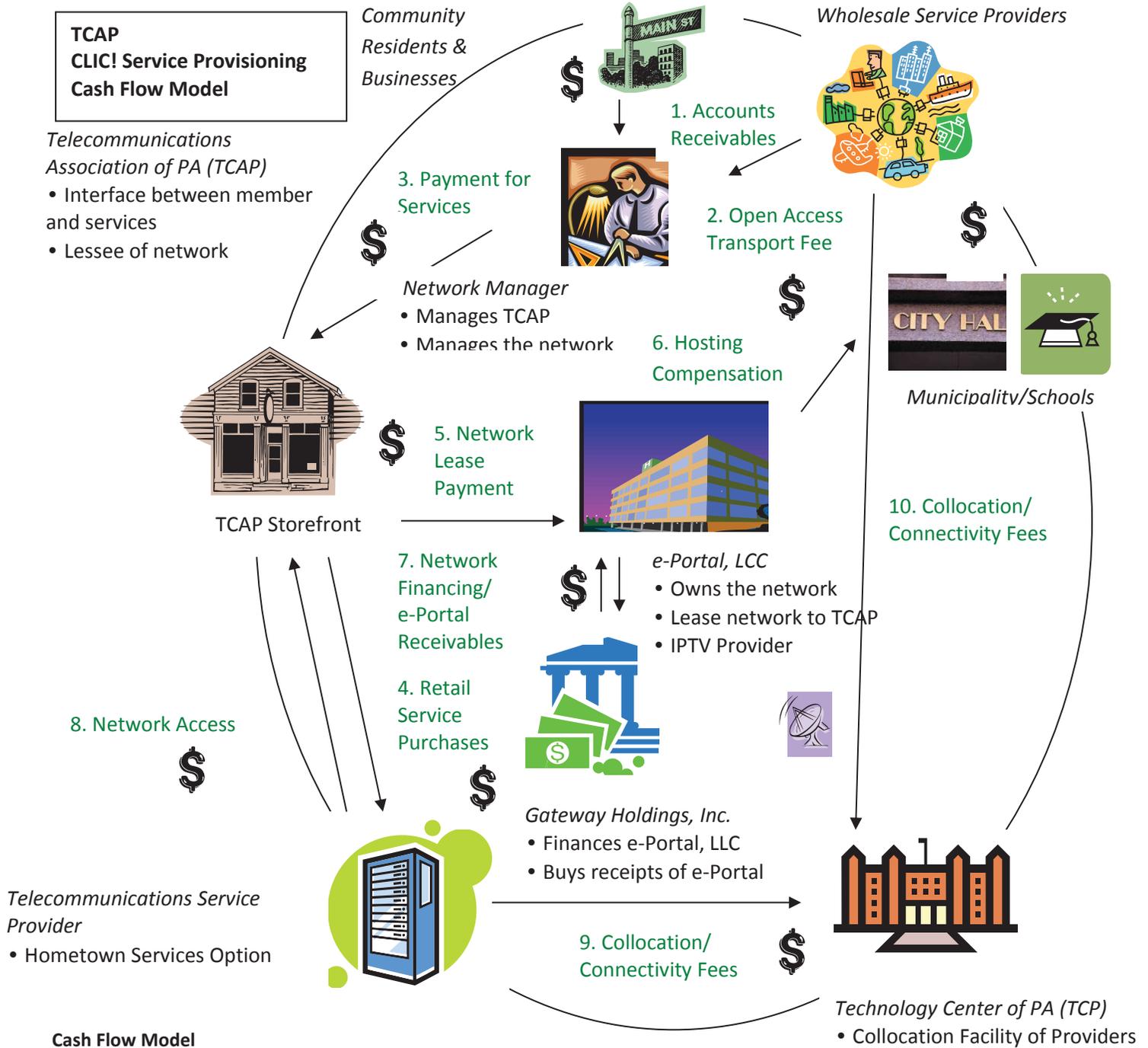
TCAP Wholesale Transport/Open Access Network

Since the TCAP is member owned and operated for the benefit of the majority of its members, the use fees will be negotiated between the network operator with the service providers for approval by the TCAP Board of Directors. There are some wholesale transport/open access network models in the United States that are based on nondiscriminatory tariff rate basis, but the TCAP network is not a municipal funded network and therefore not under any such obligation.

Compensation to Hosting Communities

What sets this business model apart from other public-private arrangements is the intent to provide reasonable compensation to the hosting communities. In other words, the arrangement must be a win-win partnership between the communities and service provider. It is felt that the communities will also be more willing to enter into a service delivery arrangement with the nonprofit, member-owned cooperative TCAP) they themselves will be members of rather than a direct business relationship with a for-profit entity (e-Portal).

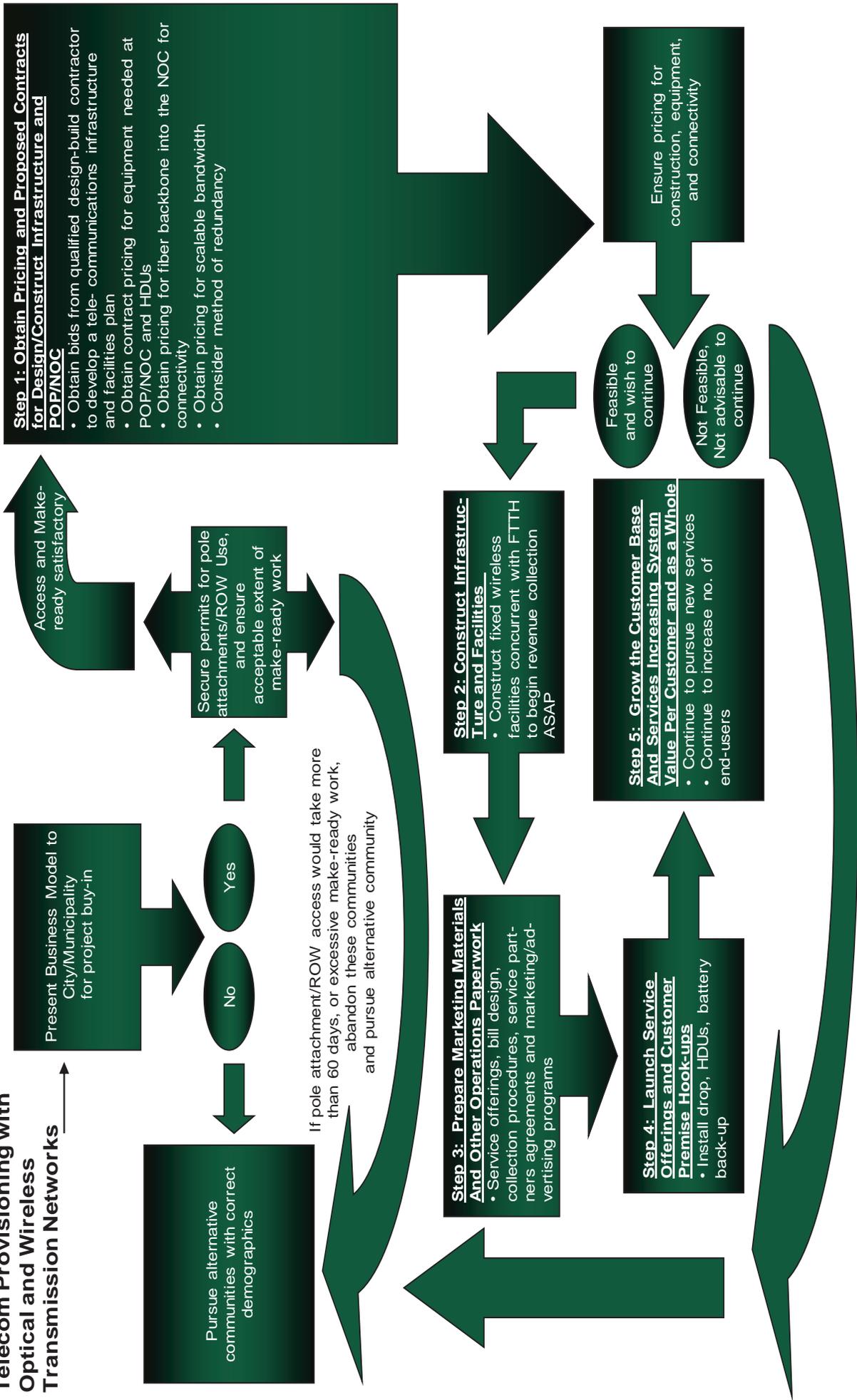
It is proposed to offer an agreed upon compensation to the hosting community or school for their participation. Because Pennsylvania HB 30 does not allow political subdivisions and schools to collect a direct revenue from the provisioning of telecommunications services (except under certain circumstances), to respond to any challenge that even though TCAP is receiving the revenue and returning residual benefits back to the municipal and school members (who own the cooperative along with the other members), no municipality or school will be paid a service fee out of the CLIC! service provisioning arm of TCAP. Instead, e-Portal will compensate the community or school for permitting, attachment fees, right-of-way use, facility space lease and other accommodations provided to e-Portal who owns the network. The revenues for e-Portal to compensate the municipalities and schools will come from the lease arrangement with TCAP.



Cash Flow Model

1. End-use customer pays their TCAP bill to Network Manager for retail services
2. Wholesale providers pay their TCAP bill to Network Manager for open access transport fee
3. Network Manager processes payments for TCAP
4. TCAP pays Telecom Service Provider for retail services
5. TCAP pays e-Portal for network Lease
6. e-Portal compensates municipality or school for hosting accommodations
7. Gateway Holdings, Inc. gets paid by e-Portal receipts for financing network discounts retail services to TCAP
8. Telecom Service Provider to offset payment of network access fees
9. Telecom Service Provider pays TCP for collocation/connectivity
10. Wholesale Service Providers pays TCP for collocation/connectivity

Telecom Provisioning with Optical and Wireless Transmission Networks



Sample Budget and Financial Goals

The planned budget and primary financial goal is for the municipal network to be self-supporting and sustainable over the life of the debt service and beyond. Many different business models were considered during the preliminary portions of this project ultimately settling on one which best met the following objectives:

- Provide an infrastructure over which multiple providers could offer voice, data and video services
- Minimize the involvement of the government in the day to day operations of a community network
- Increase the pace of economic development within the county/city/municipality
- Minimize the demands on the government for staffing of a newly developed fiber optic network
- Create a self-sustaining network not requiring continuous tax base to continue operations

The final choice selected is one in which the County/City/Municipality builds a fiber optic infrastructure which is primarily intended to meet its own municipal needs and secondarily facilitate the delivery of services by both wired and wireless providers. The city involvement would be to build and operate (using a private provider operator) a network. Possible uses of that network would be:

- ❖ To transport content from one area of the County/City/Municipality to another for a private provider that would be actually delivering the service to the end user.
- ❖ Connecting wireless providers' Internet traffic to towers where it can be distributed to wireless users that would otherwise not receive service.
- ❖ Improve communications between emergency services where wireless (radio) services are inadequate or not available.
- ❖ Connect government facilities together over a fiber network to improve internal communications and reduce access costs.
- ❖ Connecting a private provider's network to individual customers over a fiber optic network.

The business model selected identifies the costs and minimum revenues necessary to develop a sustainable network. Service providers interested in use of the County/City/Municipal network can determine the potential number of customers by performing a GIS analysis which can count all of the businesses and homes within 500 feet of the projected fiber path and the potential number of wireless estimated as the number of housing units within three miles (census) of monopoles or towers. That information will be helpful to attract the interest of potential providers, although currently no revenue is attributed to directly serving end users other than the government facilities identified. A prominent objective of the County/City/Municipality is to minimize risk by limiting long term debt for the project. To accomplish this objective combined sources of funding will be investigated.

Whether the proposal is expected to require one-time or continuing funding and a high-level estimate of the amount of funding requested

This Experiment proposal (not the above project used to demonstrate a possible sample solution) is expected to need an initial one-time funding allocation of funding to activate and staff TCAP (with FCC agreed upon stakeholders and structure) for the first 30 months (2-1/2 yrs.) years until the recruitment of cooperative members with annual membership dues is sufficient to be self-sustaining. Keeping in mind the proposed Experiment itself is to set-up a portal for demonstration projects to be proposed by members such as public-private-partnership between county/city/municipal government and the private service providers that become members of the cooperative. Included in the set-up and structuring of this non-profit statewide telecommunications cooperative will be a competitive bid process for applicants to propose demonstration projects to be considered for funding through the Connect American Phase II funds.

While the above sample FTTX project was laid out to demonstrate just one potential solution, and there is much more detailed work already completed to implement, the actual initial demonstration project through the cooperative may be a completely different project. The demonstration project is only a part of the Experiment. The complete Experiment is putting in-place a mechanism that can be used to accomplish many of the FCC objectives previously discussed including, but not limited to:

- Promoting/Funding NexGen IP based Networks with a focus on robust Last-Mile solutions

- Adding value to other ongoing statewide and federal complimentary initiatives
- Generating “Best Practices” that allow replication of the experiment in other states
- Exploring interest and willingness of service providers, including Non-incumbent providers
- Streamlining the ETC Process
- Defining expectations of End-Users, assessing the impact on anchor institutions, and collecting data on pricing justification
- Increasing the understanding of geographic and demographic characteristics for solutions
- Working cooperatively with other government agencies to advance shared objectives
- Exploring Public-Private-Partnerships to accomplish all of the above

Since this proposal is an experiment and keeping in-mind that any funding on demonstration project(s) should be protected from serving only one purpose and not fully meeting all the intended objectives but rather will serve as a means to other ends, such as advancing other government shared initiatives like the FirstNet initiative that also requires robust NexGen IP Networks, one conceptual project that could be explored through the demonstration project is a Public Safety Interoperable Communications network that would also be used to enhance Broadband services in rural areas between more urban areas. In 2007, there was very preliminary work done on a conceptual layout for the “Public SIREN Communications “ Project (Fiber Optic Multiplexing Transport for Public Safety Wireless Radio and Direct Link Interoperability Communications) in the 8 counties of the Regional Economic Development District Initiatives of South-central PA (REDDI). This network effort could be integrated with other projects such as the sample provided,

This project represents an innovative approach to multi-jurisdictional and multi-disciplinary communications that includes a project area of five (5) counties with 273 municipalities, encompassing 342 square miles and an overall Metropolitan Statistical Areas (MSAs) population of almost 2 million people. A broad spectrum of public safety agencies, city administrators and technical communications specialists provided input and assisted the REDDI-ICC in developing the proposal in what has become a strategy for fiber-optic and wireless based interoperable communications in south-central Pennsylvania. There are many critical facilities and operations within the five (5) county project area that warrant improved communications. Located on or within 1 mile of the fiber route includes:

- PA Emergency Management Agency
- PA Department of Transportation Facilities
- Harrisburg International Airport (plus 2 more)
- 50 -75 Law Enforcement Agencies
- 7 PSAPs
- 170 Schools
- Other PA State Office Buildings & Operations
- Indian Town Gap Military Facilities/Operations
- 8 PA State Police Stations
- 50 -75 Fire Stations
- 19 Hospitals

Project Stated Goals and Objectives:

- Significantly improve the interoperability of voice, data and video communications between emergency service providers throughout five (5) counties in South-central PA
- Provide sufficient count and quality of fiber optic cable to allow for growth of the network
- Provide connection to Public Safety Answering Points (PSAPs) and other emergency agencies along the route; as well as provide optional connectivity along the network for use by local governments or other allowable users

Project Description

While alternative designs and technology applications will be investigated, it is anticipated that the Public Safety Interoperable Communications Network will at a minimum consist of fiber-optics cable for secured, long haul transport and some wireless based interoperable communications for nomadic and perhaps redundant purposes. Given the size of the project area, building an entire fiber optic network between all five (5) different cities would be outside the scope of the proposed budget. To mitigate such expense, the project dollars are intended to build fiber rings at each of the cities to connect to area agencies, and build fiber where necessary to complete secured and reliable connectivity among the five (5) different city rings, utilizing (leasing) existing fiber optic networks where available including those constructed under the previous KeyNet Alliance program under the contract with the Commonwealth of Pennsylvania. The KeyNet Alliance network connected state government buildings, state-owned universities, and is intended to be utilized by local government where cost feasible. The fiber-optic network

will act as a conduit for interoperable communications and allow available interface technology to be carried throughout the region.

It is proposed to link several PSAPs. Some equipment purchase for interoperability communications is proposed. The strategy circumvents a one-size fits all approach that would require multiple agencies to abandon currently useful equipment. Large 9-1-1 networks are migrating to a managed Internet Protocol (IP) networks because they can support interoperability of dissimilar systems through Voice over Internet Protocol (VoIP) technologies. The fiber optic cable networks can support IP and TDM interfaces. Legacy PSAP equipment can be interfaced to support SIP VoIP trunking. CML remote PSAP could convert off premise CML Workstation to IP and utilize EIGRP Routing for enhanced reliability and survivability. The CML could support multiple interoperability's for wireline and wireless call transfers with other city's systems.

Network Description

One Hundred Seventy Six (176) miles of new fiber optic cable that would be predominately aerial placed, but where feasible some underground placement may occur, interconnecting to 182 miles of other independently dedicated existing fiber optic cable to provide secured interoperability communications among PSAPs and other emergency response agencies, incorporating Modular Interface/Interconnect systems that would allow normally incompatible communications systems to "talk to each other".

Resources and Past Studies

In November 2006, REDDI completed a broadband assessment of the eight-county region in South-central PA. This project, known as the "**e-REDDI Broadband Assessment Project**" represented Adams County, Berks County, Cumberland County, Dauphin County, Franklin County, Lancaster County, Lebanon County, and York County. The objective of the e-REDDI Broadband Initiative is to enhance broadband throughout the REDDI region of South-central Pennsylvania while maximizing educational opportunities, meeting the voice, video and data needs of business to compete globally, and provide families and individuals of the region with new employment opportunities through the attraction of business, improved health care, better entertainment and recreation, and other higher quality of life benefits from the utilization of technology. As a result, REDDI has a tremendous amount of data, maps of infrastructure and needs, information on service provider networks, and a strategic plan for enhancing connectivity throughout the REDDI region. In addition, by REDDI partnering with the Commonwealth of Pennsylvania Department of Community and Economic Development (PA-DCED) on the project, it has access to the Pennsylvania Technology Investment Maps or PTIM which is a project by PA-DCED consisting of an Internet-based interactive map that allows government and private sector partners to view detailed maps of the Commonwealth's telecom infrastructure. REDDI has wonderful resource partners in local, state and federal government, private business, non-profit organizations and educational institutions.

Summary of Project Approach

Provide a legal review of local, state and federal licensures, permitted uses

Establish base-level communications and interoperability standards for emergency response agencies **and define future requirements** for crucial voice and data communications. Reference the SAFECOM General Guidance and Recommendations.

Investigate system requirements by completing a thorough assessment of current operational and technical environments of each public safety entity

Identify technology solutions and implementation relative to current communications architecture & physical geography

Prepare preliminary design alternatives driven by the operational and technical requirements of the network **and select the preferred design alternative**

Prepare a final design, bid, award the construction contract, as well as arrange for **construction management services**

Develop a legally viable governance system for the final network including vendor specification sheets, system operational manuals, maintenance, troubleshooting, funding, etc.

Telecommunications Regulatory Environment in Pennsylvania

Act 183 of 2004 was signed by Governor Edward G. Rendell on November 30, 2004 amending Title 66 (Public Utilities) of the PA Consolidated Statutes revising provisions to the regulation of telecommunications services. Act

183 had a provision that allowed a one (1) year window for municipalities to own and operate a telecommunications network which expired on December 31, 2005. The Telecommunications Act of 1996 provides certain municipal rights when it comes to telecommunications, while states also can regulate to some extent municipal involvement. Ownership of dark fiber, use of the network, enhancement of existing utility operations and other considerations are provided for. While it would be a questionable public relations judgment call for a private entity to take issue against a Public Safety Interoperable Communications Network, in an effort to avoid such challenges and to assure compliance with the law, it is proposed REDDI's - Public SIREN Communications Network be where the cities only own the dark fiber optic transport network and hire a third party to manage the network through a leased arrangement. The REDDI-ICC could solicit any number of eligible parties such as service providers, non-profit economic development organizations, etc. to manage the network on behalf of the cities. One other option would be to use the Telecommunications Cooperative Association of Pennsylvania (TCAP). Act 183 has no provisions that would prohibit a cooperative from owning, operating, providing services, etc.

Generalized Estimated Budget for the TCAP Experiment

	#	Purpose	Proposed FCC Funds (85%)	Federal Source	Local Share (15%)	Total Funding	Est. Timeline
A D M I N I S T R A T I V E 5%	1	TCAP Revised Structuring & Staffing to Meet FCC Req. (2 Yrs.)	\$297,500	Connect Am. Ph. II Exp. Funds	Contributed Services/Time Valued at \$52,500	\$350,000	6 Mos. Set-up (30 Mos. or 2-1/2 Yrs Support)
	2	Outside Support Staff-Engineers, Attorneys, Accountants, etc. (2 Yrs.)	\$63,750	Connect Am. Ph. II Exp. Funds	Contributed Services/Time Valued at \$11,250	\$75,000	
	3	Data Collection	\$29,750	Connect Am. Ph. II Exp. Funds	Contributed Services/Time Valued at \$5,250	\$35,000	
	4	Website Dev. & Populate Data	\$42,500	Connect Am. Ph. II Exp. Funds	Contributed Services/Time Valued at \$7,500	\$50,000	
	5	Competitive Procurement Process & Associated Expense	\$29,750	Connect Am. Ph. II Exp. Funds	Contributed Services/Time Valued at \$5,250	\$35,000	
		Subtotal	\$463,250		\$81,750	\$545,000	
Project(s) 95%	6	Funding for Initial Demonstration Project(s)	\$8,801,750	Connect Am. Ph. II Exp. Funds	Cash or Contributed Services and/or Infrastructure and/or Time Valued at \$1,553,250	\$10,355,000	24 Mos.
		Subtotal	\$8,801,750		\$1,553,250	\$10,335,000	
100%		Total	\$9,265,000		\$1,553,250	\$10,900,000	30 Mos. (2-1/2 Yrs.)

The above Public SIREN Project and all other information was prepared and provided to only the extent of TCAP's involvement and REDDI and other parties are not currently a participant to this Expression of Interest and therefore TCAP is not representing any endorsement or otherwise support by any other party. Obviously these discussions and proposed budget are very preliminary and conceptual. If the FCC selects the TCAP Experiment for providing a formal proposal, engineering and consulting professionals would revise and better define scope and budget. It is our understanding that the Expression of Interest is nonbinding. The Experiment goals, structures and requested funding can be revised and modified to fit within anticipated expectations and funding by the FCC. Thank you for this opportunity to submit this Expression of Interest. We look forward to hearing from you.

Respectfully Submitted.

Telecommunications Cooperative Association of Pennsylvania



Keith A. Hill

Interim President

P: (484) 651-2366