Comprehensive Community Infrastructure Budget Narrative Template

Applicant Name: Iowa Communications Network

EasyGrants Number: 5390

Organization Type: State Government Sub-division

Proposed Period of Performance: 9/10/10 to 9/10/12

Total Project Costs: $ 23,867,544

Total Federal Grant Request: $ 16,230,118

Total Matching Funds (Cash): $ 7,637,426

Total Matching Funds (In-Kind): $0

Total Matching Funds (Cash + In-Kind): $7,637,426

Total Matching Funds (Cash + In-Kind) as Percentage of Total Project Costs: 31.9992%

1. **Administrative and legal expenses - $25,000**

   $25,000 of this category is for a consulting group to develop and write portions of the grant application.

2. **Land, structure, rights-of-way, appraisals, etc. - $0**

   No costs to allocate in this category

3. **Relocation expenses and payment - $0**

   No costs to allocate in this category

4. **Architectural and engineering fees - $0**

   No costs to allocate in this category

5. **Other architectural and engineering fees - $0**

   No costs to allocate in this category

6. **Project inspection fees - $0**

   No costs to allocate in this category

7. Site work - $2,068,631

This category is composed of Project Planning & Coordination, Project Management, ICN Installation of DWDM Systems, ICN Installation of CWDM & Ethernet Systems, and Provisioning of Customer Circuits and is rounded to the nearest dollar.

$155,401 Project Planning & Coordination:
 This category is for project planning, implementation, coordination and reporting with an hourly cost of $62.26 and an average of 16 hours a week over the life of the project. It is assumed with ramp-up, implementation, and end of project reporting the project will last 3 years.

$93,600 Project Management:
This category is for augmentation of project management, utilizing an outside consultant who is familiar with ICN processes and procedures. Allocation assumes an average of 12 hours per week over a two year period at an hourly wage of $75.

$238,964.76 ICN Installation of DWDM Systems:
The ICN projects 3527 hours will be required to design, install, and cutover a parallel DWDM system and later decommission the old core. Estimates include 82 hours per system for installation at an average cost of $5,557.32 per node with 43 nodes to be deployed. Specific labor to install all 43 systems is as follows:

Personnel	Hours	Rate	Total/Category
Engineering	1032	55.17	$56,935.44
Data Operations	43	75.70	$3,255.10
Training	160	55.1344	$8,821.50
Paetec Personnel			
Training	400	74.75	$29,900.00
Site Travel Time	860	74.75	$64,285.00
Rack, Stack, Power	172	74.75	$12,857.00
Fiber Testing	86	74.75	$6,428.50
Coordination Group	129	74.75	$9,642.75
Commissioning	258	74.75	$19,285.50
Decommissioning	86	74.75	$6,428.50
Data Terminal Techs	258	74.75	$19,285.50
Warehouse	43	42.79	$1,839.97
Totals	3527		$238,964.76

$1,112,444.85 Installation of CWDM & Ethernet Systems:
This project seeks to replace an aging ATM/SONET overlay network with an Ethernet access network. As part of this project 913 Ethernet switches and CWDM systems need to be deployed throughout Iowa. Planning, design, coordination, and commissioning will require an average of 17.75 hours per location with an average cost per site of $1218.45. The hourly breakdown is as follows:

Personnel	Hours	Rate	Total/Category
Finance/Contracting	.5	42.91	$21.46
Engineering	1.5	55.17	$82.76
Warehouse	.75	42.79	$32.09
Project Management	1.5	47.40	$71.10
Data Operations	2	75.70	$151.40
Site Travel (2 techs)	4	74.75	$299.00
Site Prep	1	74.75	$74.75
Fiber Testing (2 techs)	2	74.75	$149.50
Coordination Group	1.5	74.75	$112.13
Commissioning	1	74.75	$74.75
Decommissioning	.5	74.75	$37.38
Data Terminal Techs	1.5	74.75	$112.13
Site Totals	17.75		$1218.45
Project Total	913		$1,112,444.85

$468,220.20 Provisioning of Customer Circuits:
After the new core, aggregation, and access systems are in place customer circuits can be provisioned. At least 1036 customer circuits need to be provisioned with this access network drive and systems upgrade. The cost to provision customer circuits is as follows:

Personnel	Hours	Rate	Total/Category
Sales - Order Entry	.5	63.42	$31.71
Project Management	1	47.40	$47.40
Engineering	1.25	55.17	$68.96
Data Operations	1.5	75.70	$113.55

Data Terminal Techs	1.5	74.75	$112.13
Coordination Group	.75	74.75	$56.06
Finance – First Billing	.5	44.27	$22.14
Total	7		$451.95
Project Total		1036	$468,220.20

8. <u>Demolition and removal - $0</u>

No costs to allocate in this category

9. <u>Construction - $13,533,583</u>

$742,670 of this category is for the construction of fiber in the city of Decorah, Iowa. The CCI partnership includes the city, county, local school district, local hospital, public works department, private college, and a regional education association. Project construction includes 49,511 and 1/3 feet of conduit and fiber along with the necessary handholes and building entrances. A minimum of 72 strands of fiber will be installed to link each facility with an average cost per foot of $15.

$330,525 of this category is to install a fiber from the ICN backbone to the Sac & Fox Tribe Settlement School, medical clinic and administrative center. The average cost of construction including conduit, fiber, handholes, building entrances, etc. is $15 per foot. A total of 22035 feet will be constructed with a minimum of 72 strands per segment.

$757,878 of this category is to install a fiber-to-the-home (FTTH) project linking the residents of the Sac & Fox Tribe to high speed internet. Five subcategories for this turn-key construction project include:

Pre-connectorized fiber: Fiber with pre-connectorized sealed connections is used from a spliced backbone connection to an in-ground distribution point. A fiber drop cord provides the final connection to each home. A total of 68,650 feet of pre-connectorized fiber will be used with an average cost of $1.70563729 per foot.

Trenching Labor: Contract labor to install fiber from the backbone to the distribution point and from the distribution point to the home will cost $5 per foot with a total of 68,650 feet installed.

Backbone fiber installation: Costs include installation of conduit, setting of handholes, and pulling a minimum 144 strands of fiber per segment. Installation cost is $20 per foot with 13,060 feet in total.

Fiber Slicing: 432 splices are required to connect the backbone to the distribution fiber at a cost of $50 per splice.

Fiber Distribution Panels (FDP): Eight fully loaded 72 strand fiber distribution panels are required to terminate fiber at the headend. Average cost per strand for the FDP is $25.58333.

Materials & Labor	Units	Cost/Unit	Total/Category
Preconnectorized -fiber	68,650	$1.70563729	$117,092
Trenching Labor	68,650	$5.00	$343,250
Backbone Fiber Install	13,060	$20.00	$261,200
Fiber Splicing	432	$50.00	$21,600
Fiber Distribution Panels	576	$25.58333	$14,736
Project Total			$757,878

$7,252,910 of this category is to procure 15 year last mile fiber IRUs in 104 cities across Iowa with the average cost per IRU of $69,739.5192307. Average cost per year is $4649.30 or $387.44 per month. The average distance per IRU is 5019 feet.

$4,449,600 of this category relates to the procurement of 5 year IRUs in 198 locations. This project will convert each site from a DS3 lease to a dark fiber segment. Average cost per IRU is $22,472.727272, with a rounded annual cost of $4494.55 or a monthly average cost of $374.55.

10. Equipment - $8,240,330

The cost to deploy network electronics can be divided into six distinct hardware categories: DWDM Systems, CWDM Systems, Ethernet Aggregation Switches, Ethernet Access Switches, FTTH Aggregation, FTTH Customer Premise.

$5,299,630 DWDM Systems:
Costs include all hardware to deploy 43 core node locations around Iowa. The average cost per node is $123,247.21 and includes all optics, multiplexers, amplifiers, transponders, DCMs, and other components to provide a scalable DWDM system. Total system cost is rounded to the closet dollar at $5,299,630.

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$48,725 CWDM Systems:
Five systems are to be deployed to aggregate wavelengths in lower density areas of the network with an average cost of $9745 each.

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				$ 48,725

$748,351 Ethernet Aggregation Switches:

The project procures 10Gbps capable Ethernet switches for aggregation of traffic in each county. There are 99 counties in Iowa; however, some counties have multiple aggregation points. 104 switches are requested at $7,195.68 per switch includes SFPs for optical transmission. Total system cost is rounded to the closet dollar at $748,351.

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				$748,350.72

$1,968,367 Ethernet Access Switches:
The application requests Ethernet switches with SFPs to upgrade or connect 803 customer sites around the state with a 1Gbps of symmetrical Ethernet service. The Ethernet switches and SFPs have an average cost of $2,451.27 per site. Total system cost is rounded to the closet dollar at $1,968,367.

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				$1,968,367.26

$105,407 FTTH Aggregation:
Costs include a Passive Optical Network (PON) headend to aggregate Ethernet services to the 196 tribal homes. The cost per home is $537.79.

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				$105,407

$69,850 FTTH Customer Premise:
The project requests 196 outside ONTs to terminate service at each tribal home served and 4 spares. The cost per home is $356.38.

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11. <u>Miscellaneous - $0</u>

No costs to allocate in this category

13. <u>Contingencies - $0</u>

No costs to allocate in this category

15. <u>Project (program) income - $0</u>

- The value for this line-item on the SF-424C is $0. Please do not provide an estimated Project (program income) on the SF-424C.