



Network Overview

USDA RUS ReConnect Program

Agenda

- Key Components of the Network Section within the ReConnect Application
- Network Overview Introduction
- Key Changes from FY20 Funding Opportunity Announcement (FOA)
- FY22 Requirements for Network
- Grant and Loan Products
- Proposed Funded Service Area (PFSA) and Non-Funded Service Area (NFSA)
- Post Award Requirements
- Designing your Network
- Network Design
- Network Diagram
- Build-out Timeline with Milestones
- Capital Investment Workbook (CIW) and Capital Investment Schedule (CIS)
- Live Demonstration
- Resources

ReConnect Program Network Overview



Network Overview Introduction

Applicants will need to submit the following:

- Network Design
- Network Diagram
- Build-out Timeline and Milestones
- Capital Investment Workbook (CIW) and Capital Investment Schedule (CIS)
- Network Documents

NOTE: Must complete Service Area Maps prior to beginning build-out, CIW and Schedule



Network Overview Introduction (Cont.)

A few things to keep in mind:

- The ReConnect program is technology neutral. 7 CFR 1740.2 defines broadband service: *“Broadband service means any fixed terrestrial technology, including fixed wireless, having the capacity to transmit data to enable a subscriber to the service to originate and receive high quality voice, data, graphics and video.”*
- Only technically feasible projects will be eligible for award
- Any technology or combination of technologies to be constructed with award funds must be capable of delivering 100/100 Mbps to every premise in the service area (PFSA) at the same time. System requirements (7 CFR 1740.3(a)(2)) which is defined in FY2022 FOA.
- USDA will evaluate the technical feasibility of the application by reviewing the requirements pursuant to the October 25, 2021 Funding Opportunity Announcement (FOA).

Changes from FY20 Funding Opportunity Announcement (FOA)

1. Eligible service areas must demonstrate that at least 90% of the households do not have sufficient access to broadband defined as 100 Mbps downstream and 20 Mbps upstream.
2. Applicants must submit a network design, diagram, and build-out timeline certified by a professional engineer (PE) who is certified/licensed in at least one of the states where project construction will be taking place. Requirement stated in the ReConnect Regulation, 7 CFR 1740.64(b).
3. Newly added prohibition on funding requests for acquisition of a system previously funded by RUS, without prior written approval. (7 CFR 1740.12(b)(4))

FOA 3 Requirements for Network

- **Applicants will need to submit the following:**
 - Network design which includes a description of the proposed technology used to deliver the broadband service developed to the level of maturity allowing a cost estimate.
 - Network diagrams (Existing & Proposed)
 - Buildout timeline and milestones for implementation of the project
 - Capital Investment Workbook/Capital Investment Schedule showing that the system can be built within 5 years
- **Requirements to be certified by a Professional Engineer (PE)**
 - PE must be certified/licensed in at least one of the states where there is project construction
- **Technology neutral**
 - Facilities proposed to be constructed with award funds must be capable of meeting the minimum construction requirements of 100 Mbps symmetrical service to every premise in the PFSA.

FOA 3 Requirements for Network (cont.)

Network Buildout Capacity:

- System requirements (7 CFR 1740.3(a)(2)). Facilities proposed to be constructed with award funds must be capable of delivering 100 Mbps symmetrical service to every premise in the proposed funded service area (PFSA). Please note that capable of delivering 100 Mbps symmetrical service to every premise means that all premises in the PFSA must be able to receive this service at the same time.

FOA 3 Requirements for Network (cont.)

System Requirements Clarified:

The following is a clarification of the System Requirements in the FOA (A.3.v). Assets funded by award funds must be capable of delivering 100 Mbps symmetrical service simultaneously to premises. The network link between the premise and the last funded transport network element as well as the last network element shall be capable of meeting this requirement. Further into the network, commonly accepted engineering practices of oversubscription will be permissible provided that the awardee commits to routine network bandwidth utilization monitoring. Should a network link show a high utilization rate, the awardee shall increase the capacity of said link to lower the utilization rate to within commonly accepted engineering practices. An applicant must provide any and all documentation needed to provide support of network buildout capacity requirements. The application shall demonstrate the ability to scale capacity of any link whether funded or not up to a level to support the 100 Mbps symmetrical service.

FOA 3 Requirements for Network (cont.)

Consistency with executive summary must include:

- Detailed description of existing operations
- Discussion about key management
- Description of the company's workforce
- Description of interaction between any parent, subsidiary, or affiliate operation
- Detailed description of the proposed project

Funding Types

	100% Loan	50% Loan-50% Grant Combination	100% Grant	100% Grant for Tribal Governments and Socially Vulnerable Communities
Terms	Max Award: \$50 million Minimum Award: \$100,000 2% Interest Rate	Max Award: \$50 million Minimum Award: \$100,000 UST Interest Rate	Max Award: \$25 million* Minimum Award: \$100,000 25% matching funds	Max Award: \$25 million* Minimum Award: \$100,000 No matching fund requirement**
Application Review	First come, First served	Competitive	Competitive	Competitive
Round 3 Federal Funds	\$200 million	\$250 million	\$350 million	\$350 million
Buildout Speed	100 Mbps symmetrical service to every premise in the PFSA.			

*Applicants may request up to \$35 million by providing supporting information that demonstrates that the PFSA(s) is comprised 100 percent of locations within areas classified by the USDA Economic Research Service as FAR Level 4.

**If the applicant is a Tribal Government or a corporation wholly owned by a Tribal Government proposing to provide services on its own lands, there is no requirement for matching funds. Additionally, if at least 75% of the geographic area of an applicant's PFSA consists of Socially Vulnerable Communities, there is no matching fund requirement.

Symmetrical service means same download and upload speeds.

Key Network Considerations – Service Area Polygons

Proposed Funded Service Area (PFSA)

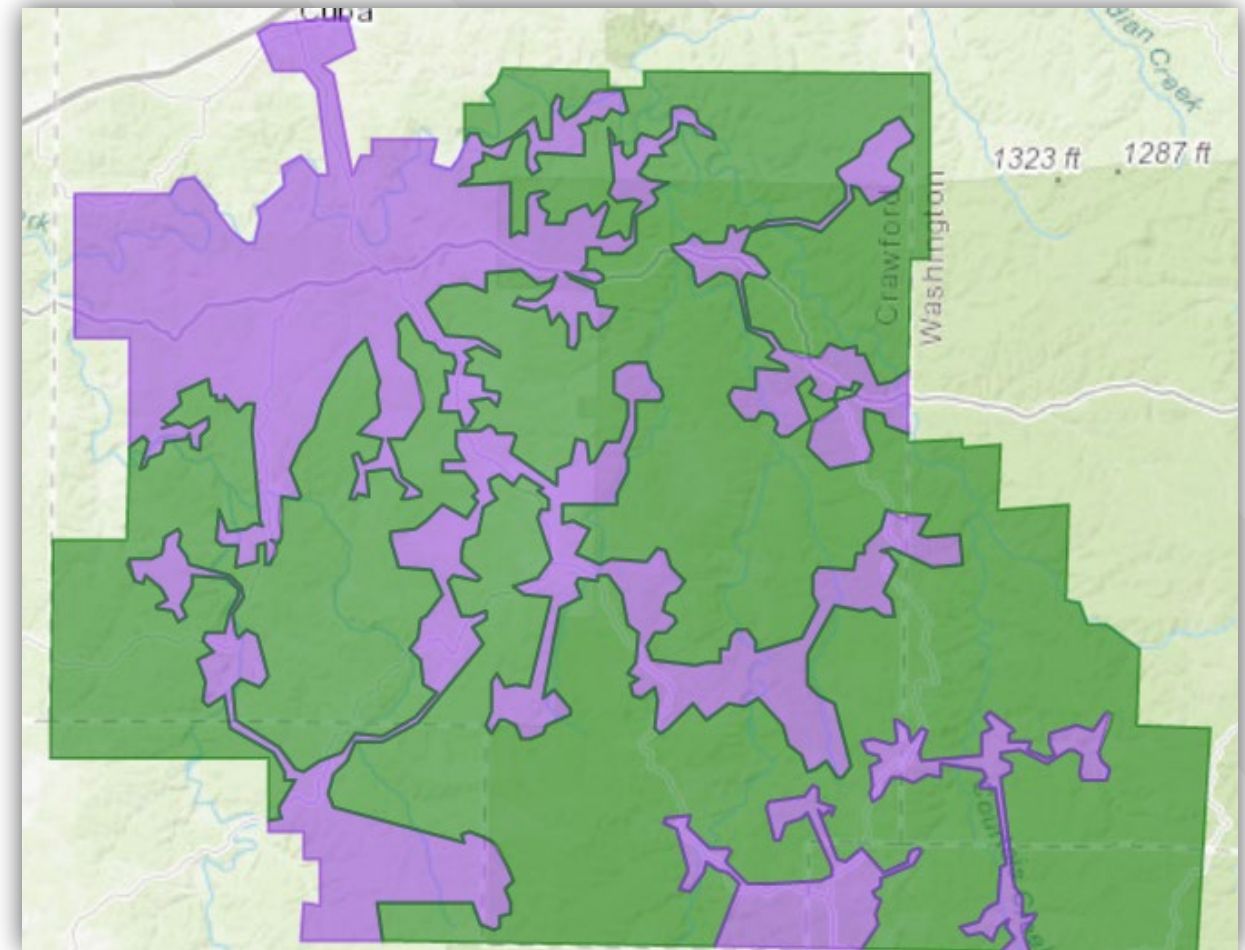
- Per the FY22 FOA, a PFSA is defined as the area where the applicant is requesting funds to provide broadband service
- *Considerations:*
 - Multiple service areas will be treated as separate stand-alone service areas for the purpose of determining how much of the proposed funded service area does not have sufficient access to broadband
 - Each service area must meet the minimum requirements for the appropriate funding category to be an eligible area

Non-Funded Service Area (NFSA)

- Per 7 CFR Part 1740, an NFSA is defined as any area in which the applicant offers service or intends to offer service during the forecast period but is not a part of its PFSA

Key Network Considerations – PFSA and NFSA

- PFSA (Green): Area(s) identified under Service Area Tab.
 - Existing: Area(s) applicant asks for funding where they currently offer broadband service.
 - New: Area(s) applicant asks for funding where they currently have no last-mile broadband facilities.
- NFSA (Purple): Area identified under Service Area Tab.
 - Existing: Current service
 - New: Planned expansion not funded by ReConnect.



Post Award Requirements

Pursuant to 7 CFR Part 1740 Subpart F, applicants are required to adopt and adhere to the following post-award requirements and guidelines:

- Awardees are required to submit annually updated service maps through the RUS mapping tool showing the areas where construction has been completed and premises are receiving service until the entire PFSA can receive the broadband service
- At the end of the project, awardees must submit a service area map indicating that all construction has been completed as proposed in the application

Post Award Requirements (Cont.)

- Applicants must submit annual reports for three (3) years after the completion of construction on the following information:
 - Existing network service improvements and facility upgrades, as well as new equipment and capacity enhancements that support high-speed broadband access for educational institutions, health care providers, and public safety service providers;
 - The estimated number of end users who are currently using or forecasted to use the new or upgraded infrastructure;
 - The progress towards fulfilling project objectives for which assistance was provided;
 - The number and geospatial location of residences and businesses that will receive new broadband service;
 - The speed and price of the Awardee's broadband service offerings; and
 - The average price of broadband service in the project's service area

Designing Your Network



Network Tab - Contents

- Network Design
- Build-out Timeline and Milestones
- Capital Investment Workbook (CIW)
- Capital Investment Schedule
- Network Documents

NOTE: Must complete Service Area Maps prior to beginning Build-out, CIW and Schedule

Network Design Introduction

Network Design

DESCRIPTION OF PROPOSED TECHNOLOGY THAT WILL BE USED TO DELIVER THE BROADBAND SERVICES: *

DETAILED DESCRIPTION OF THE APPLICANT'S EXISTING NETWORK:

DETAILED DESCRIPTION OF THE APPLICANT'S PROPOSED NETWORK: *

Network Design – Proposed Technology

Description of proposed technology that will be used to deliver the broadband services:

- Include in your description appropriate standards-based information concerning the proposed technology

Types of technology:

- Fiber to the Premises (FTTP)
- Hybrid Fiber Coax
- Fixed Wireless (FW) – licensed
- Fixed Wireless (FW) – unlicensed
- Other

Network Design – Existing Network

Applicants should list important considerations concerning how the existing network will be leveraged to support the proposed network requirements.

The detailed description of the applicant's existing network should include the following:

- Primary elements of the network layers (e.g., Access, Distribution, and Core) and how each layer is fed and how it feeds into the next layer
- Important considerations concerning how the existing network will be leveraged to support the proposed network requirements (e.g., speeds, coverages, subscriber counts, services, premises, etc.)
- Interconnection with the proposed network, as well as any other significant connections such as Internet Service Providers (ISPs)

Network Design – Proposed Network

For the proposed network design, applicants should include consider projected subscriber counts, installation, and deployment.

The following should be included in the detailed description of the applicant's proposed network:

- Network layers (e.g., Access, Distribution and Core) and how each layer is fed and how it feeds into the next layer
- How the proposed network will support the requirements (e.g., speeds, coverages, subscriber counts, services, premises, etc.)
- If applicable, include a description of the interconnection with the existing network and any other significant connections such as ISPs
- Location, construction, and deployment considerations, and details on important design redundancy
- Describe any specific design considerations significantly affecting costs and timelines

Network Document Uploads

UPLOAD EXISTING NETWORK DIAGRAM



UPLOAD PROPOSED NETWORK DIAGRAM



UPLOAD NETWORK DESIGN PE CERTIFICATION



Network Document Uploads – Existing Network Diagram

Upload existing network diagram:

- If applicants have an existing network, an Existing Network Diagram is required
 - This diagram should be prepared according to the guidance for the Proposed Network Diagram
 - Existing network utilization rates should be indicated

Network Document Uploads – Proposed Network Diagram

Upload proposed network diagram. A comprehensive network diagram should:

- Show how the traffic flows through the network and include all physical locations where the major network elements are or will be located including, but not limited to, cable routes, wireless access points, and any other equipment required to operate the network
- Display the route miles between each network element, the bandwidth capacity between the network elements, including fiber or pair counts, and the types of facilities (fiber, copper, microwave, etc.) that are used for connection between network elements
- Provide information about basic equipment and the nodes of the proposed network design (e.g., routers, switches, ONTs, gateways, etc.)
- Indicate significant clusters of premises (schools, hospitals, office buildings, major farms, etc.)

Network Document Uploads – PE Certification

Upload network design PE Certification:

- The certification from the Professional Engineer (PE) must clearly state that the proposed network can deliver the broadband service to all premises in the PFSA at the proposed speeds and certify the proposed build-out timeline, milestones, construction schedule, and cost estimate
 - A template for this certification can be found at:
<https://www.usda.gov/reconnect/forms-and-resources>
- The professional engineer must be currently certified in at least one of the states where project construction is taking place

Build-out Timeline and Milestones

A build-out timeline is considered a construction schedule for the project. Milestones representing points throughout the project lifecycle that identify key stages or development changes. The build-out of the project must be completed within five years from the **date funds are made available**.

- The Applicant's build-out timeline and milestones must include the following:
 - Build-out milestones
 - Build-out support for reasonableness/data points for each build-out milestone
 - Supporting documentation

Build-out Timeline and Milestones (Cont.)

USDA will review an applicant's Build-out Timeline for feasibility and reasonableness given the technology and resources estimated:

- **Reasonableness** refers to satisfying interdependences which support the desired requirements (e.g., speeds, coverages, subscriber counts, services, premises, etc.) including basic reasonably expected capabilities and limitations based on considerations such as technology used, equipment, network element distances, type of backhaul, coverages and coverage topography, various construction and deployment expectations and issues, projected costs and timelines, and teams
- Applicants should consider assumptions regarding personnel, licensing, and permitting timelines within a project lifecycle approach which includes four phases (Planning, Design, Deployment, and Operations)

Build-out Timeline and Milestones – Application Walk Through

The Build-out Timeline and Milestones page displays a table listing the timeframe of the project. The timeframe will be broken down quarterly or annually depending on the type of technology used in the project.

- Quarterly:
 - Fixed Wireless – Licensed,
 - Fixed Wireless – Unlicensed
 - Combination of value types
- Annual:
 - Fiber-to the-Premises,
 - Hybrid-Fiber-Coax
 - Other (Specify)

Build-out Timeline and Milestones

Complete the Build-out Timelines and Milestones

Timeframe:	Buildout Milestone:	Buildout Support For Reasonableness / Data Points
2021		▼
2022		▼
2023		▼
2024		▼
2025		▼
2026		▼

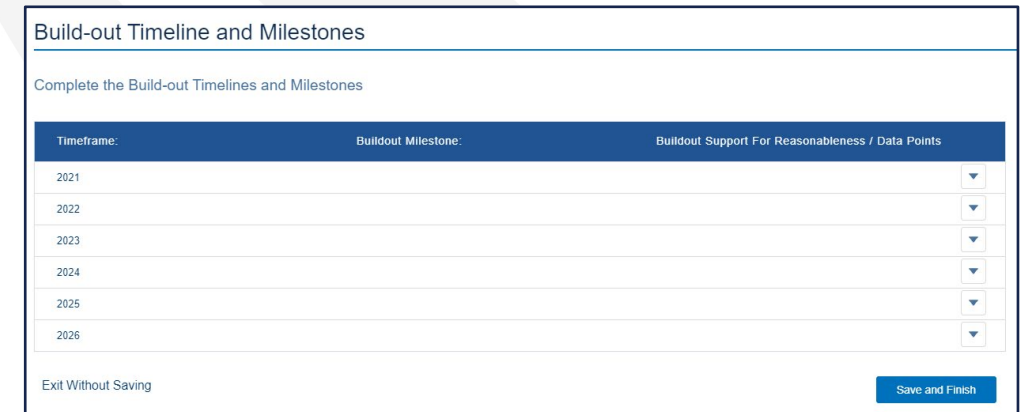
[Exit Without Saving](#)[Save and Finish](#)

Build-out Timeline and Milestones – Application Walk Through (Cont.)

Add information for each year. If the technology type changes, any entries in the Build-out Timeline and Milestones table are deleted.

A pop-up window for the corresponding Timeframe appears. Enter the following information:

- Build-out Milestone – list all relevant Build-out Milestone for the chosen timeframe
- Build-out Support for Reasonableness and Data Points- for the chosen timeframe.

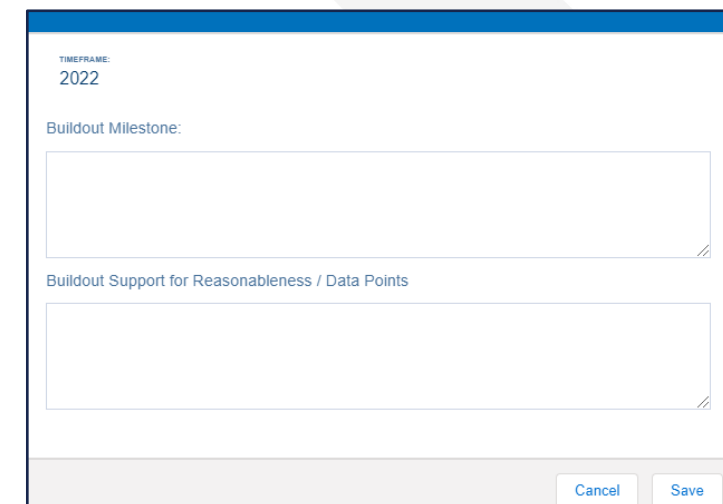


Build-out Timeline and Milestones

Complete the Build-out Timelines and Milestones

Timeframe:	Buildout Milestone:	Buildout Support For Reasonableness / Data Points
2021		
2022		
2023		
2024		
2025		
2026		

Exit Without Saving Save and Finish



TIMEFRAME:
2022

Buildout Milestone:

Buildout Support for Reasonableness / Data Points

Cancel Save

Capital Investment Workbook & Capital Investment Schedule



Capital Investment Workbook (CIW) Introduction

The Capital Investment Workbook (CIW) is a detailed list of **costs of the project**. This includes the costs, quantities, and descriptions of the equipment, materials, and facilities.

- CIW includes all costs and quantities within:
 - PFSA's
 - NFSAs (if applicable)
 - Unadvanced Prior Loan Funds (if applicable) – any funds that a current RUS borrower intends to spend on this project
- Types of costs include:
 - Service Area Costs
 - Common Network Costs
 - Other Costs



CIW – Service Area Costs

Service Area Costs – account for all physical project assets required to deliver broadband to the service area and their costs

- For each asset, applicants select the asset category and the specific asset type
- Applicants will provide a description, the quantity to be used, the unit of measurement, and the cost per unit
- Cost totals will be automatically calculated and populated

CIW – Service Area Costs

Outside Plant	Fiber Cable - Aerial	Total aerial fiber costs
Outside Plant	Fiber - Buried	Total buried fiber costs
Outside Plant	Drops	HO-1P Pigtail splice at customer premise
Outside Plant	Drops	SEBF6 Direct bury shielded six fiber drop
Outside Plant	Drops	ONTB (SHELL) ONT shell for indoor ONT (with cane)
Outside Plant	Drops	ONTR (SHELL) ONT shell for indoor ONT (with cane)

Outside Plant	Fiber Cable - Aerial	Aerial distribution fiber.
Outside Plant	Fiber - Buried	Buried distribution fiber.
Outside Plant	Drops	Fiber drops.

Outside Plant	Fiber - Buried	BFO144 Buried fiber optic cable - 144
Outside Plant	Fiber - Buried	BFO144D Buried fiber optic cable - 144 - Dual Plow
Outside Plant	Fiber - Buried	BFO24 Buried fiber optic cable - 24
Outside Plant	Fiber - Buried	BFO48 Buried fiber optic cable - 48
Outside Plant	Fiber - Buried	BFO48D Buried fiber optic cable - 48 - Dual Plow
Outside Plant	Fiber - Buried	BFO48I Buried fiber optic cable - 48 - New duct

CIW – Table of Asset Categories for Service Area and Common Network Facilities Costs

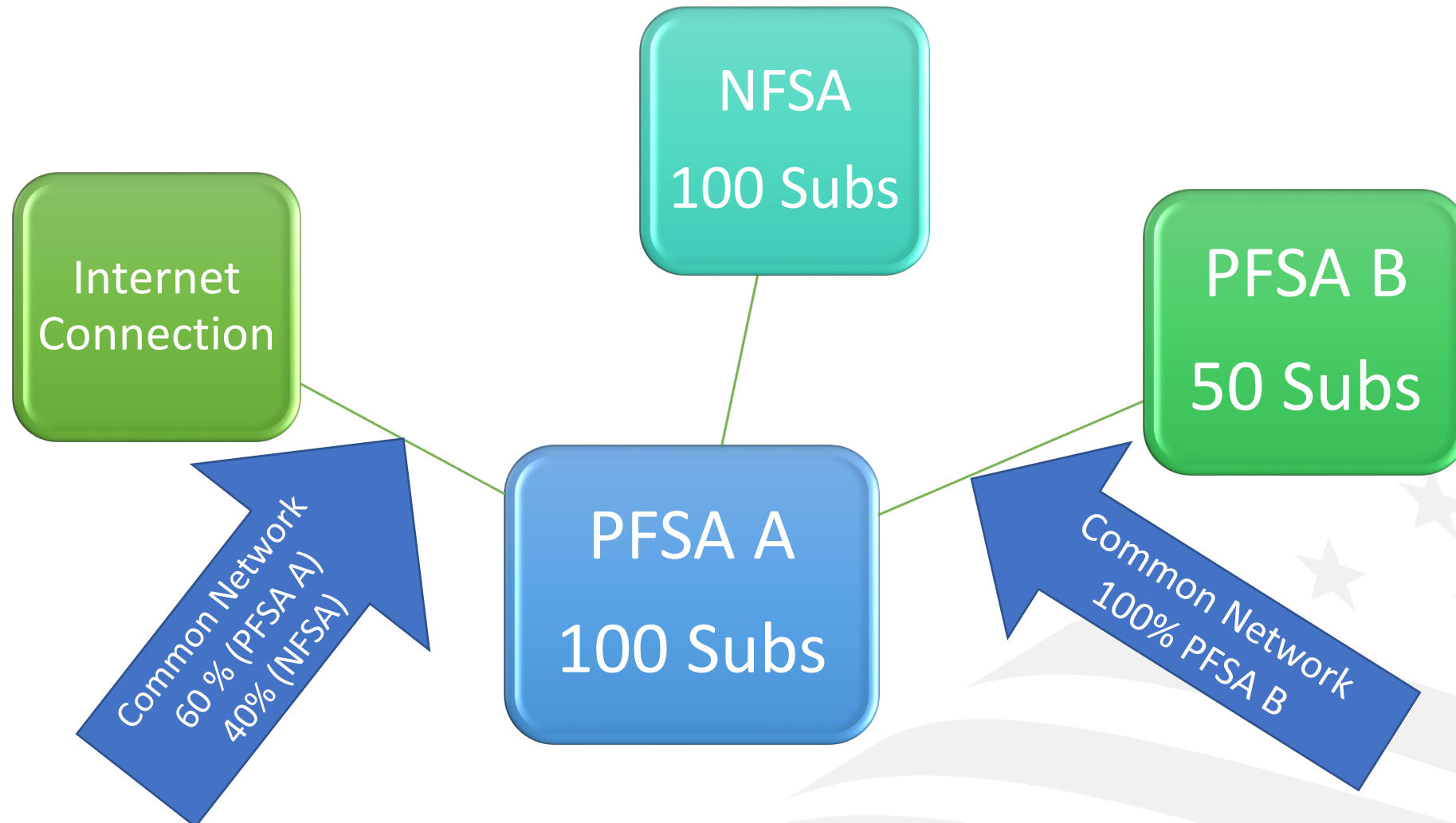
Asset Category	Specific Asset Type	
Network & Access Equipment	<ul style="list-style-type: none"> • Switching Equipment • Routing Equipment • Transport Equipment 	<ul style="list-style-type: none"> • Video Equipment • Power Equipment • Satellite Equipment • Other (specify)
Outside Plant	<ul style="list-style-type: none"> • Copper Cable – Aerial, Buried, Underground • Coaxial Cable – Aerial, Buried, Underground • Fiber Cable – Aerial, Buried Underground • Fiber – Submarine Cable • Conduit Systems 	<ul style="list-style-type: none"> • Ducts (Vacant) • Cabinets/Underground Vaults • Poles • Make-ready • Other (specify)
Buildings	<ul style="list-style-type: none"> • New Construction • Pre-Fab Huts 	<ul style="list-style-type: none"> • Improvements • Other (specify)
Towers	<ul style="list-style-type: none"> • Improvements • Guyed Towers • Lattice Towers 	<ul style="list-style-type: none"> • Monopole/Self-Supporting Tower • Wood Poles • Others (specify)
Customer Premises Equipment	<ul style="list-style-type: none"> • Video Set Top Boxes • Modems and Routers • Inside Wiring 	<ul style="list-style-type: none"> • Multi-Terminal Adapter (VoIP) • Smart Meters • Other (specify)
Non-Depreciable Assets	<ul style="list-style-type: none"> • Land • Right-of-way Procurement 	<ul style="list-style-type: none"> • Others (specify)

CIW –Common Network Facilities Costs

Common Network Facilities Costs – a list of all physical project assets that will be used in the construction of **common** network facilities

- Common Network Facilities Costs are shared between two or more service areas
- Common Network Facilities Costs must be completed for PFSA and NFSAs
- For Common Network Facilities Costs, applicants should only include the portion of the costs allocable to the service area
 - E.g., if 50% of a common network facility is allocable to the PFSA, 50% of the cost should be included in the PFSA CIW – Common Network Facility, and 50% of the cost should be included in the NFSAs CIW – Common Network Facility

Network Tab – CIW (Common Network Facilities Costs)



CIW – Other Costs

Other Costs – includes all other costs not previously identified required to construct the necessary facilities to deliver broadband service to the service area

- Provide a description, the quantity to be used, the unit of measurement, and the cost per unit
- Cost totals will be automatically calculated and populated
- Will include Pre-application Expenses
- Will include identified archaeological monitoring if required

Applicants need to specifically list all other costs associated with the project.

CIW – Other Costs

Asset Category	Specific Asset Type	
Support Assets	<ul style="list-style-type: none">• Construction Vehicles• Construction Equipment• Motor Vehicles• Special Purpose Vehicles• Office Equipment• Office Furniture	<ul style="list-style-type: none">• Billing System• Test Equipment• Portable Generators• Tools• Other (Specify)
Other Expenditures	<ul style="list-style-type: none">• Pre-application Expenses• Acquisition• Other (specify)	
Professional Services	<ul style="list-style-type: none">• Engineering Services• Architectural Services• Environmental Services	<ul style="list-style-type: none">• Project Management Services• Other (specify the type of service)

Monitoring Expenses

- If monitoring costs are considered part of the construction costs and are capitalized, the costs of the monitors are considered professional costs and are eligible to be funded with a ReConnect award.
- Up to 3 percent of the award can be requested to cover tribal monitoring costs. Costs above this amount must be covered by the awardee and are not eligible for reimbursement.
- The 3 percent for monitoring expenses is in addition to environmental review costs included in Pre-Award expenses.
- Awardees will be required to submit a copy of the agreement with the Tribal/State Historic Preservation Officer (THPO/SHPO) and the associated invoices when requesting funds

Network Tab – CIW (Summary)

- Summarizes CIW information for PFSA, NFSA or UPLF
- Captures Applicant Requested Federal Funding Amounts
 - 100% Loan – Enter Loan Amount Requested
 - 50/50 Loan/Grant
 - Enter Loan Amount Requested
 - Enter Grant Amount Requested
 - Enter Cash Substitution (If Applicable)
 - 100% Grant – Enter Grant Amount Requested
- System performs validation checks in this section for Program limits and Match %

Network Tab – Capital Investment Schedule

- Includes 4 Sub-Sections
 - Proposed Funded Service Area
 - Annual Capital Investment (Ties to Financial Tab)
 - Non-Funded Service Area
 - Unadvanced Prior Loan Funds (UPLF)
- All CIW sections must be completed prior to this section
- Validates amounts based on inputs for PFSA, NFSA or UPLF
- Applicant spreads CIW costs over 5-year schedule
- Should correspond with Buildout Timeline
- Professional Services should be spread out through each Line Item. Applicant will need to remember total amount from CIW or return to CIW.

Capital Investment Schedule (CIS)

Capital Investment Schedule (PFSA)

Save Refresh

			Bridge Year	Forecast Years								
<input type="checkbox"/>	Project Asset Category	Project Asset Type	CIW Summary Amounts	2021	2022	2023	2024	2025	2026	Total	Amounts Fully Distributed?	
Project Asset Category: Outside Plant												
<input type="checkbox"/>	Outside Plant	Copper Cable - Aerial	225,000		1,800	1,800	0	0	0	3,600.00	No	
<input type="checkbox"/>	Outside Plant	Professional Services	0		0	0	0	0	0	0.00		
Project Asset Category: Buildings												
<input type="checkbox"/>	Buildings	Pre-Fab Huts	35,000		0	0	0	0	0	0.00	No	
<input type="checkbox"/>	Buildings	Professional Services	0		0	0	0	0	0	0.00		

Network Tab – Network Documents

- Section captures Network Documents uploaded from Network Design section.
- Applicant can view and manage documents from here or the Documents Tab
- Be sure required documentation is uploaded

Live Demo

Available Resources

- **Register for upcoming events** <https://www.usda.gov/reconnect/events>
- **Application Guide** https://www.rd.usda.gov/files/ReConnect_Program_Application_Guide.pdf
- **ReConnect website** <https://www.usda.gov/reconnect>
 - Fact Sheets & Frequently Asked Questions
- **Contact Us** <https://www.usda.gov/reconnect/contact-us>
- **FY 2022 Funding Opportunity Announcement**
 - <https://www.federalregister.gov/documents/2021/10/25/2021-23128/rural-econnectivity-program>
- **Regulation** <https://www.govinfo.gov/content/pkg/FR-2021-02-26/pdf/2021-03443.pdf>
- **General Field Representative (GFR) & State Office**
 - <https://www.rd.usda.gov/contact-us/telecom-gfr/all>
 - <https://www.rd.usda.gov/contact-us/state-offices>





Rural Development
U.S. DEPARTMENT OF AGRICULTURE