Funding and Financing Smart Projects

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BroadbandUSA's One-Stop for Federal Funding

https://broadbandusa.ntia.doc.gov/new-fund-search

Contact: broadbandusa@ntia.gov
Fundamental Research as an Enabler of Smart and Connected Communities

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Directorate for Computer and Information Science and Engineering
National Science Foundation
July 11, 2019
NSF supports all areas of fundamental research

NSF support as a percentage of total federal support for basic academic research

- Computer Science: 69%
- Biology: 63%
- Environmental Sciences: 62%
- Social and Psychological Sciences: 62%
- Mathematics: 62%
- Engineering: 44%
- Physical Sciences: 44%
- All Science and Engineering Fields: 25%


“To promote the progress of science; to advance the national health, prosperity, and welfare; to secure the national defense...”
The value of fundamental research in communities today and in the future

A fundamental understanding of the complex, dynamic interactions between technology and society is essential for unlocking the potential benefits of smart and connected communities.
The value of fundamental research for smart and connected communities

Key research questions within and across disciplines that address real community needs and achieve impact.

Partnerships that enable piloting, testing, and future research in communities to improve community functioning and quality of life.
Upcoming opportunities for NSF’s Smart and Connected Communities program

• Smart and Connected Communities solicitation: NSF 19-564
  • NSF.gov/SCC
  • Letter of Intent deadline: August 6, 2019
  • Full Proposal deadline: September 6, 2019
  • NSF/JST joint funding for US-Japan collaborations

• Civic Innovation Challenge:
  • NSFCivicInnovation.org
Open NSF/JST joint funding for US-Japan collaborations in Smart and Connected Communities

NSF 19-077

Dear Colleague Letter: National Science Foundation (NSF) and Japan Science and Technology Agency (JST) Collaborative Research Opportunity in Smart and Connected Communities

June 28, 2019

Dear Colleagues:

The US National Science Foundation (NSF) and the Japan Science and Technology Agency (JST) have signed a Memorandum of Cooperation (MOC) on Research Cooperation. The MOC provides an overarching framework to encourage collaboration between the US and Japanese research communities. NSF and JST are pleased to announce a collaborative research opportunity aligned with the goals of the NSF Smart and Connected Communities (S&CC) Program.

Complementary expertise and resources in the US and Japan enable research in areas which are fundamental to smart and connected community solutions. Specific areas include, but are not limited to, disaster response and emergency management, precision agriculture, cybersecurity of the electric grid and Internet-of-Things (IoT) devices, and wired and wireless networking.

Proposals are expected to adhere to the solicitation guidelines for the NSF and JST programs from which the funding is sought and must represent an integrated, well-coordinated collaborative effort. This document provides guidelines for the preparation, submission, review, and award of NSF-JST collaborative proposals. Proposers are advised that all documents submitted to NSF or JST may be shared with the other agency in order to implement the two-way agency activities.
Recent transition to practice funding opportunity in Smart and Connected Communities

NSF 19-026

Dear Colleague Letter: Supporting Transition to Practice Supplemental Funding Requests in the NSF Cyber-Physical Systems and Smart and Connected Communities Programs

December 6, 2018

Dear Colleagues:

Through this Dear Colleague Letter (DCL), the National Science Foundation’s (NSF) Directorate for Computer and Information Science and Engineering (CISE) wishes to notify the community of its intention to support Transition to Practice (TTP) supplemental funding requests for active awards funded through its Cyber-Physical Systems (CPS) and Smart and Connected Communities (S&CC) programs. Funded TTP supplements will provide support for periods of up to two years. Supplemental funding requests may not exceed more than one-third of the original award amount or $400,000, whichever is less.

Foundational research is transforming engineered systems and driving innovation in a wide variety of application domains, thereby enabling new levels of economic opportunity and growth, safety and security, health and wellness, and overall quality of life in the Nation’s local communities. With this DCL, NSF is inviting supplemental funding requests for high-impact TTP activities that can enable on-going CPS or S&CC projects to go beyond their original, planned research activities.
Green Cincinnati:
Building a sustainable, equitable, resilient city.
Renewable Energy

• **Financing:** Power Purchase Agreements
Energy Aggregation
Reverse Auction
Net Zero Police HQ

- Net Zero – creates as much energy as it consumes
- Financing: RFP for cost to design + build + operate
RECYCLING: Improving with RFID Technology
Smart Sewers
Green Cincinnati
BUILDING A SUSTAINABLE AND EQUITABLE CITY

GreenCincinnatiPlan.org
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Financing Opportunities for Resiliency:
Broadband and Disaster Recovery

Jeanne Milliken Bonds
jeanne.bonds@rich.frb.org
July 11, 2019

The views and opinions expressed are those of the presenter. They do not represent an official position of the Federal Reserve Bank of Richmond or the Federal Reserve System.
The Community Reinvestment Act

- The Community Reinvestment Act (CRA)
- Federal law passed in 1977
- Encourages banks to meet the credit needs of the communities they’re licensed to serve
- Including low- and moderate-income neighborhoods
- Consistent with safety and soundness
- Collaborative, innovative, relational
Community Development Activities

• Affordable housing for low- and moderate-income (LMI) individuals
• Community services targeted to LMI individuals
• Activities that promote economic development by providing small-business and small-farm financing
• Activities that revitalize or stabilize LMI geographies, distressed or underserved nonmetropolitan middle-income geographies, or designated disaster areas
2016 Interagency Question and Answer

• Broadband is included as a form of infrastructure investment—an essential community service
• The CRA service test—banks should show evidence that “alternative delivery systems” using online banking and financial technology are being adopted and are effective in providing services to LMI individuals
• Economic development:
  o Workforce development was included in the CRA; added workforce development/job training examples
  o Small business development was included in the CRA; added an example to include supporting technical assistance for businesses in the use of technology
Revitalize and Stabilize Disaster Areas

• Providing financing to attract a major new employer that will create long-term job opportunities, including for LMI individuals

• Providing financing to help retain businesses in the area that employ local residents, including LMI individuals

• Providing financing or other assistance for “essential” communitywide infrastructure (flood control measures, levees, dikes, drainage), community services and rebuilding needs

• Providing housing, financial assistance and services to individuals in designated disaster areas and to persons who have been displaced from those areas, including LMI individuals

• As with all revitalization and stabilization activities under CRA, examiners will look for the direct long-term benefits that an institution’s activities provide to a designated disaster area

Source: Federal Financial Institutions Examination Council Interagency Q&A §2 12(g)(4)(ii)—2: examples of activities
Layer and Leverage the Capital Stack

- Construction loans
- Permanent financing
- Equity Bridge loans
- Federal Home Loan Bank Community Investment Service

Corporations

Tax Credits

Sec. 1202

Hospitals

Pay for Success

Financial Institutions

Qualified Opportunity Funds

Disaster Funding

SBA7A lending

Universities

Disaster Recovery

1031 Exchange

CDFIs and Loan Funds

Community Development Block Grants (CDBG)

Debt Financings

State and Local Incentives

EB3

Equity and EQ2

Legacy Health Foundations

Federal and State Grants & s

Philanthropy

SBICs RBICs

Construction loans

Permanent financing

Equity Bridge loans

Federal Home Loan Bank Community Investment Service
NMTC Deal Flow

Leverage Lender
(Project sponsor affiliate)

Bank Loan
Grants
Equity

Leverage Loan
$6.802 MM

Equity
$3.198 MM

Investment Fund
(owned by Investor)

CDFI Fund
New Markets Authority

QEI
$10 MM

Community Development Entity
(CDE)

Tax Credits
$3.9 MM, over 7 yrs

QLICI Loans:
A Loan: $6.802 MM
B Loan: $3.198 MM
(less CDE fees)

Business or Real Estate Project

Source: CAHEC
CRA Contributions and Financing in Broadband and Digital Inclusion

- New Markets Tax Credits-NMTC for broadband infrastructure
- Interim Construction Loans for fiber optic infrastructure deployment and expansion
- Equity Investments
- Equity Equivalent Investments (EQ2)
- Grants for digital inclusion programs: Digital skills in workforce development, closing the homework gap, financial literacy/online & mobile banking, small business technical assistance in the access and use of digital platforms, etc.
- Low-income Housing Tax Credits (LIHTC)
- Grants and/or loans for broadband infrastructure: last-mile infrastructure: WiFi Mesh Networks, WiFi hotspots
Example: RS Fiber (Minnesota) Cooperative
(6,000 HHs, businesses, farms, schools, public and private institutions, hospitals)

- 10 cities formed a Joint Powers Agreement Board – issued a generally obligated tax abatement bond $13.6m in two phases, including construction (the bond payments were covered by member fees instead of property tax increases)
- Fiber to the Home; 700 square miles; development cost $53m
- Banks; federal, state and local gov’ts; CDFI; private foundation; private equity investors; member revenues
- Bank’s $50,000 Investment – engineering and predevelopment work; catalyst for construction financing; PWI authority
- Phase 1 Construction – bond, public and private debt, grants, equity investments, member payments (13 towers for wireless + 17 townships, FFTH)
Example: RS Fiber (Minnesota) Cooperative

- Construction credit - Banks
- Preferred stock in RS Fiber under PWI Authority - Bank
- Loans and Grants – Rural Electric Economic Development
- Debt Financing – CDFI
- Rural Economic Development Grant – USDA
- Rural Economic Development Loan - USDA
New Layers in the Capital Stack: Opportunity and Revitalization Council Actions

• Thirteen federal agencies and led by the Housing and Urban Development Secretary
• The council will work to prioritize opportunity zones in a variety of federal efforts, including grant funding, loan guarantees, infrastructure spending and crime prevention.
• 150 potential actions – i.e. USDA water infrastructure and rural broadband spending in certain zones, or SBA focusing certain loan programs in designated tracts.
• Disaster recovery
Part Five is a template a financial institution can use to tailor its own community development story and recognize ways to demonstrate leadership, responsiveness, and innovation.

- **Investing in Our Communities: A Case Study on Closing the Digital Divide**

- The case study follows the events in New Amsterdam, a fictional urban area that has suffered economic hardship.

Source: Federal Reserve Bank of New York Community Development
Resource: Weathering the Storm

A Framework for Meeting CRA Obligations

Source: Federal Reserve Bank of Dallas Community Development
Resources

“Closing the Digital Divide: A Framework for Meeting CRA Obligations” to provide the rationale and “How to” for banks and their community partners. Visit: www.fedcommunities.org or www.dallasfedcomdev.org


OCC’s Rural Broadband Financing and Development resources page at www.occ.gov/rural

“Climate Adaption Investment and the Community Reinvestment Act” Visit: https://www.frbsf.org/community-development/

“Weathering the Storm: A Framework for Meeting CRA Obligations” Visit: www.dallasfedcomdev.org


Resources

- Videos Resources on the CRA
- What is the Community Reinvestment Act?
- The Small Bank and Intermediate Small Bank CRA Examination
- Leading Practices for Effective CRA Programs
- CRA Community Development Defined
What Communities Need to Know about CRA

- Financially safe and sound strategic partnerships
- Integration into the institution’s short- and long-term business plan
- Explore needs of the least-served areas
- Use government programs as resources to enhance opportunities to manage and mitigate risk
- Target loans, investments, and services to benefit LMI individuals or geographies
- Fulfill community development goals and objectives
Rural Development’s (RD) Mission

USDA Rural Development

Committed to helping improve the economy and quality of life in rural America.

Provide loans, grants, and loan guarantees that support essential services, such as:

- Housing
- Economic Development
- Health Care
- First Responder Services and Equipment
- Water, Electric, and Telecommunications Infrastructure
Rural Development Background

Rural Development includes 3 agencies with unique programs and objectives:

- **Rural Utilities Service (RUS)**
- Rural Housing Service (RHS)
- Rural Business-Cooperative Service (RBS)

Across the three agencies, Rural Development administers over 40 programs.

- RUS Electric & **Telecommunications** programs are administered by National Office
- RHS and RBS programs are administered by State & National Offices
### From electricity to broadband...

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1935</td>
<td>Rural Electrification Administration (REA) created and began providing financing to promote rural electrification</td>
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<tr>
<td>1949</td>
<td>REA received authority to finance telephone service in rural communities</td>
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<tr>
<td>1995</td>
<td>Evolving from the REA, the Rural Utilities Service (RUS) required all financed telecommunications networks have the capacity to deliver broadband</td>
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<tr>
<td>2010 to present</td>
<td>RUS has provided over $6 billion in loans and grants to build out broadband infrastructure in rural areas</td>
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</table>
Rural Broadband Loan Programs

- Telecommunications Infrastructure Loan Program
- Rural Broadband Access Loan Program
Telecommunications Grant Programs

- Community Connect Grants
- Distance Learning & Telemedicine Grants
2018 Consolidated Appropriations Act

ReConnect Program
Pilot program that provides loans and grants to extend broadband service to rural areas.

$600 million in funding
Assist rural areas that do not have sufficient access (10/1) to broadband
Minimum requirements: 25Mbps down/3Mbps up

Additional $550 million added in FY 2019
How to Use the USDA e-Connectivity Matrix

STEP 1 ▶ Identify the type of customer (matrix rows) that will be applying and match it with the type of project (matrix columns) the community needs.

STEP 2 ▶ Review the list of resources that are applicable to your customer and project types. To obtain more information on each resource, either click on its name to be taken to the relevant website (for online viewers) or find the corresponding number in the agency and resource description section starting on page 12 of this booklet (for print viewers).

STEP 3 ▶ Reach out to the USDA specialist for each resource whose contact information is posted online at the locations detailed below.

STEP 4 ▶ Discuss the eligibility of your project(s) and the application process with the USDA specialist to ensure feasibility.

STEP 5 ▶ Develop an application timeline for your project, and closely review requirements, then proceed with the application process.

STEP 6 ▶ Follow up with the USDA specialist if you have any questions before submission of an application, during the process, or after submission.

We have specialists available for each program to help you get started:

National Institute of Food and Agriculture: Use the NIFA grant database to find contacts for NIFA grant programs.

Natural Resources Conservation Service: Contact your local NRCS Service Center to learn more about conservation opportunities.

Farm Service Agency: Contact your local FSA Service Center to learn more about programs for farmers and ranchers.

Forest Service: Visit the FS Special-Use Permits site to learn more about use of FS lands.

Rural Development: Contact your local RD State Office or Telecom General Field Representative to learn more about RD loan, grant, and technical assistance programs.

Partnerships: Contact USDA’s Office of Partnership and Public Engagement for partnership opportunities with USDA.

Community Solutions: Contact the Rural Development Innovation Center for creative solutions to your rural community’s e-Connectivity needs.

For resources at other Federal agencies, visit the Department of Commerce’s BroadbandUSA site.
### USDA e-Connectivity Resource Matrix

#### Customers:

<table>
<thead>
<tr>
<th>Category</th>
<th>Agriculture Technology/Research: Innovative Agriculture using broadband technology</th>
<th>Technical Assistance, Training, &amp; Workforce Development: Sharing information, expertise, instruction, and skills training in broadband technology, etc.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers/ Ranchers:</td>
<td>2a) Sustainable Agriculture Program</td>
<td>4a) Agriculture Conservation Program  4b) Agricultural Management Assistance Program  4c) Conservation Innovation Grant  4d) Conservation Technical Assistance Program  4e) Environmental Quality Incentives Program  4f) Regional Conservation Partnership Program  3d) Direct Operating Loans  3e) Farm Ownership Loans  3f) Guaranteed Farm Loans  3g) Business and Industry Loan Guarantees</td>
</tr>
<tr>
<td>For-Profit Businesses:</td>
<td>2a) Sustainable Agriculture Program</td>
<td>4a) Agriculture Conservation Program  4b) Agricultural Management Assistance Program  4c) Conservation Innovation Grant  4d) Conservation Technical Assistance Program  4e) Environmental Quality Incentives Program  4f) Regional Conservation Partnership Program  3d) Direct Operating Loans  3e) Farm Ownership Loans  3f) Guaranteed Farm Loans  3g) Business and Industry Loan Guarantees</td>
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<tr>
<td>University and Higher Education Institutions:</td>
<td>2a) Sustainable Agriculture Program</td>
<td>4a) Agriculture Conservation Program  4b) Agricultural Management Assistance Program  4c) Conservation Innovation Grant  4d) Conservation Technical Assistance Program  4e) Environmental Quality Incentives Program  4f) Regional Conservation Partnership Program  3d) Direct Operating Loans  3e) Farm Ownership Loans  3f) Guaranteed Farm Loans  3g) Business and Industry Loan Guarantees</td>
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<td>Private Lenders:</td>
<td>2a) Agricultural Research Initiative</td>
<td>4a) Agriculture Conservation Program  4b) Agricultural Management Assistance Program  4c) Conservation Innovation Grant  4d) Conservation Technical Assistance Program  4e) Environmental Quality Incentives Program  4f) Regional Conservation Partnership Program  3d) Direct Operating Loans  3e) Farm Ownership Loans  3f) Guaranteed Farm Loans  3g) Business and Industry Loan Guarantees</td>
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For Planning, Construction, Research, and Other Projects and Activities

More information can be found at [www.usda.gov/broadband](http://www.usda.gov/broadband).
USDA Broadband Reports & Resources:
https://www.usda.gov/broadband

Rural Utilities Service, Telecommunications Program:
https://www.rd.usda.gov/programs-services/all-programs/telecom-programs
GFR States Covered -
www.rd.usda.gov/contact-us/telecom-gfr

Updated: 04/11/2019
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<th>Name</th>
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Rural Development | Telecommunications Program
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