Appalachian Regional Commission
Request for Proposals (RFP)

Access in Appalachia – Review of Current Research and Recommendations for Future Research (Phase 1)

Proposals are due by close of business on
August 31, 2018

Appalachian Regional Commission
1666 Connecticut Ave., NW, Suite 700
Washington, D.C. 20009-1068

Attention: Ryan Brumfield
rbrumfield@arc.gov
202-884-7706

Appalachian Regional Commission Request for Proposals:

Access in Appalachia – Review of Current Research and Recommendations for Future Research (Phase 1)

I. Introduction

In July 2017 the Appalachian Regional Commission (ARC) finished a study, *Economic Analysis of Completing the Appalachian Development Highway System (ADHS)*, which quantified the benefits realized so far from the ADHS and the expected benefits and costs if the remainder of the system is constructed. The study included a look at traditional transportation benefits created by the ADHS, such as travel time savings and improved safety, as well as broader economic benefits like improved market access for businesses, creation of jobs, and Gross Regional Product growth. As pointed out in the study, the ADHS is nearly 90% complete and although the last 10% is expected to cost over $11 Billion, the transportation, economic and societal benefits should far exceed the costs.

When the ADHS was established by Congress in 1965, it was designed to remove isolation and improve access to opportunities and services for Appalachia. The remaining unfinished portions of the system will still serve that original purpose if built, improving access for targeted populations in the region. However, considering much of the system was designated over 50 years ago, and over 2,700 miles are open to traffic, are the remaining unfinished miles still the top transportation priority to improve access in the Region? Where are the least and most accessible areas in Appalachia and how would construction of unfinished ADHS routes help address access deficiencies? As indicated in the 2017 study, building remaining ADHS routes will produce a positive return on investment – but will other non-ADHS solutions produce similar or greater benefits, particularly in terms of improving access? How can targeted non-ADHS transportation solutions coupled with ADHS investments maximize positive impact on access in Appalachia?

To answer these questions, a better understanding of the role access plays in Appalachia is needed. By "access" we generally mean the ability of residents and businesses to reach desired opportunities and services. For residents, opportunities and services may include employment, education, medical facilities, and recreation. For businesses, opportunities and services may include employees, suppliers, and markets (domestic and international). Through this study, ARC hopes to define and measure access, compare quality and level of access among Appalachian communities, consider how access relates to socioeconomic outcomes, and ultimately help practitioners use access metrics to better prioritize transportation investments. ARC envisions a definition of access and subsequent measurements that include, but are not limited to, factors related to isolation (geographic, social, and digital), mobility (including quality, reliability, affordability, and comfort of transportation choices), and multimodal transportation access (to air, rail, highways, transit, walking, biking, etc.).

Due to the complexity of this research, the study will be broken into multiple phases of work. The objective of the first phase, covered by this particular Request for Proposals (RFP), is to gather information, define access, and establish a framework for future research phases.

II. Overview of Request for Proposals (RFP)

The Appalachian Regional Commission (ARC) invites proposals from qualified researchers and consultants to conduct a study regarding access in the Appalachian Region. The main purposes of this study are to: a) synthesize existing research related to access; b) define access and identify the variables impacting access in Appalachia; c) outline future research needs related to access in Appalachia; and d) recommend a methodology for measuring access in Appalachia that could potentially be used by state and regional transportation agencies.
This RFP is for the first phase of a larger study that will ultimately attempt to measure access, correlate access metrics to socioeconomic outcomes, and produce guidance for practitioners to incorporate access data into transportation decision making processes. The selected proposer will be contracted to complete this first phase of work, but ARC may extend the contract for future phases of work without competition, depending on performance during the first phase.

This study (Phase 1) will address the following key research questions:

- What existing research, guidance, regulations, and practices address the issue of access, particularly the relationship between transportation access and economic development? *This study will synthesize existing research and other materials related to access.*

- What is the definition of access? What factors affect access for residents and businesses? *This study will define access and identify the key variables influencing access.*

- How can access be measured and what data is needed to measure it? *This study will recommend a methodology and research framework to measure access.*

- What additional research is needed in order to define and measure access and to determine the impact access has on economic development? *This study will recommend future research related to this topic that could help practitioners better incorporate access considerations into decision making processes.*

Future phases of work may address the following questions:

- In quantifiable terms, what is the level and quality of access for residents and businesses in Appalachia?
- In communities with poor access, what are the key reasons for the poor access and what transportation solutions would be most effective in improving access?
- How does access impact socioeconomic outcomes?
- How have past transportation investments like the Appalachian Development Highway System (ADHS) impacted access in the Appalachian Region?
- How can transportation agencies integrate access considerations into transportation investment decision making processes?

This research will ultimately lead to an improved understanding of access, isolation, and mobility, resulting in better alignment of economic priorities and transportation investments throughout

Appalachia. ARC will utilize findings to help guide transportation policies, strategies and activities. State economic development offices and Local Development Districts (LDDs) may use findings to better understand the access challenges in their state or sub-region and guide future transportation activities and priorities. State DOTs may use findings to better incorporate economic impact considerations when prioritizing investments. Other researchers may use findings and data to analyze relationships between access and socioeconomic outcomes or other possible connections.

III. Background

The primary goal of the Appalachian Development Highway System (ADHS) when established by Congress in 1965 was to remove isolation and better connect the Appalachian Region to markets. Although the ADHS is now nearly 90% complete, many parts of Appalachia, which is largely rural, still suffer from isolation and poor access, inhibiting economic opportunity and growth. In some areas, ADHS routes or other planned four-lane highways remain unbuilt, leaving travel time and reliability challenges for residents and businesses. In other areas, four-lane highway access is available, but many homes do not have a personal automobile and alternative options such as transit or ride sharing are unavailable or unreliable. Other areas may have sufficient access and mobility options for residents, but lack freight transportation connectivity such as access to freight rail, inland ports or marine shipping for businesses. These areas may be too isolated from critical supply chain links to global and domestic markets to attract or retain industry.

Local communities regularly tell ARC that poor access, often due to lack of viable transportation options, is a widespread barrier when implementing economic development solutions. Even when tangible progress appears to occur (e.g., a new business, medical facility, or community college opens), residents without reliable access are far less likely to benefit from that progress. Those lacking access are often the individuals in most need of an economic boost but are at a disadvantage to benefit from new opportunities often due to their transportation constraints.

At the same time, traditional highway investments on new rural roadways have slowed in recent years as many states shift priority to system maintenance. The limited funding states use on capital investments is often doled out in a competitive manner based on traditional mobility considerations and anticipated return-on-investment (ROI) which tends to favor urban projects. Funding for rural transit and other alternative transportation forms varies across the Region, but is generally minuscule compared to traditional highway funding. Broadband service, a form of access, is still unavailable, unaffordable, or unreliable in many rural communities in the Region. State DOTs and planning organizations are often aware, anecdotally, of the isolation and access challenges their communities face, but may not have procedures in place or adequate funding available to fully account for these challenges when making investment decisions. Improved access may be part of a transportation agency's mission and vision, but rarely are investment priorities aligned with the goal of improving access in economically distressed areas.

What do we mean by Access?

Generally, access is the ability of residents and businesses to reach desired opportunities and services. For residents, opportunities and services may include employment, education, medical facilities, and recreation. For businesses, opportunities and services may include employees,

suppliers, and markets (domestic and international). Of course, there are numerous factors which influence this ability to reach opportunities and services, including degree of isolation (geographic, social, and digital) and quality, affordability, comfort, and reliability of transportation choices. Access challenges differ between urban and rural settings, with isolation being a greater factor in rural areas. Anecdotally, isolation coupled with unaffordable or unreliable transportation choices in many areas of Appalachia results in poor access, leading to high unemployment rates, low labor force participation rates, low average household income, and other socioeconomic outcomes. However, few studies have measured access in a way that can prove this linkage.

Past Research on Access

Much of the past research related to defining and measuring access was completed outside of the United States and/or had an urban focus. Very little research has been done on rural access and how that impacts socioeconomic outcomes. As referenced in the Introduction, and discussed later in the RFP, ARC's 2017 study regarding economic impacts of the ADHS did look some at accessibility, but only on a limited basis.

An October 2013 article in the Institute of Transportation (ITE) Journal attempts to define accessibility, mobility, and other factors influencing transportation system performance. The author defines access as the ability to reach desired goods, services, activities and destinations—collectively, "opportunities". The author further concludes that "accessibility is evaluated based on the time, money, discomfort and risk (the generalized cost) required to reach opportunities."

A 2017 guidance document produced by the Governor's Institute on Community Design in partnership with Smart Growth America, the Federal Highway Administration, and the Environmental Protection Agency titled, *"The Why and How of Measuring Access to Opportunity,"* provides the below definition/explanation of access.

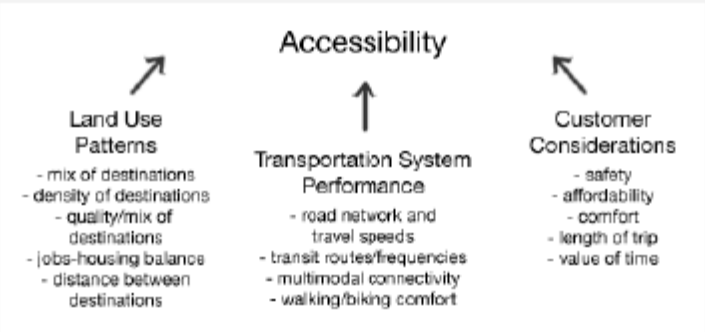

Figure 1. Some of the key variables, each with different data sources that contribute to how we measure accessibility. Projects that call for increased access to achieve community goals like economic development, equity, or connectivity, can be measured by a combination of these example variables. Some variables are controlled by transportation agencies, while they actively influence others. It is important to understand how multiple factors contribute to accessibility.

Additional research and articles related to access can be found here:

Rural Access Index: A Key Development Indicator (2006):
https://openknowledge.worldbank.org/bitstream/handle/10986/17414/360060TP100Rural0access0index01PUBLIC1.pdf?sequence=1&isAllowed=y

Rural Transportation at a Glance (2001):
https://www.ers.usda.gov/webdocs/publications/42593/30151_aib795full_002.pdf?v=41262

Traveling Towards Disease: Transportation Barriers to Health Care Access (December 2014):
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4265215/

Access vs. Isolation: Preserving Appalachia's Rail Connectivity in the 21st Century (March 2017): https://www.arc.gov/research/researchreportdetails.asp?REPORT_ID=131

Evaluating Accessibility for Transport Planning (March 2011):
http://www.vtpi.org/access.pdf

Brookings Institute – Measuring and Exploring the Global Dimensions of Access (February 2017): https://www.brookings.edu/blog/the-avenue/2017/02/15/measuring-and-exploring-the-global-dimensions-of-access/

Scottish Government – Rural Accessibility:
http://www.gov.scot/Publications/2002/05/14710/4286

Integrated Rural Accessibility Planning:
http://www.ifrtd.org/index.php/issues-2/89-integrated-rural-accessibility-planning

Measuring Transportation: Traffic, Mobility, and Accessibility (October 2003):
http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.376.711&rep=rep1&type=pdf

The Why and How of Measuring Access to Opportunity (January 2017):
https://smartgrowthamerica.org/app/uploads/2017/01/how-and-why-of-measuring-access-to-opportunity.pdf

About Appalachia

The Appalachian Region, as defined in ARC's authorizing legislation, is a 205,000-square-mile region that follows the spine of the Appalachian Mountains from southern New York to northern Mississippi. It includes all of West Virginia and parts of 12 other states: Alabama, Georgia, Kentucky, Maryland, Mississippi, New York, North Carolina, Ohio, Pennsylvania, South Carolina, Tennessee, and Virginia. Forty-two percent of the Region's population is rural, compared with 20 percent of the national population.

The Region's economy, once highly dependent on mining, forestry, agriculture, chemical industries, and heavy industry, has become more diversified in recent times, and now includes manufacturing and service industries. In 1960, about 31 percent of Appalachians lived in poverty; over the 2008−2012 period, 16.6 percent lived in poverty. The number of high-poverty counties in Appalachia (counties with poverty rates at least 1.5 times the U.S. average) declined from 295 in 1960 to 107 in the 2008-2012 period.

These gains have transformed the Region from one of widespread poverty to one of economic contrasts: some communities have successfully diversified their economies, while others still require basic infrastructure such as roads and water and sewer systems. The contrasts are not surprising in light of the Region's size and diversity—the Region includes 420 counties in 13 states, extends more than 1,000 miles, from southern New York to northeastern Mississippi, and is home to more than 25 million people.

About the Appalachian Regional Commission

The Appalachian Regional Commission (ARC) is an economic development agency of the federal government and 13 state governments focusing on 420 counties across the Appalachian Region. Established by an act of Congress in 1965, ARC is composed of the governors of the 13 Appalachian states, as well as a federal co-chair appointed by the president. Local participation is provided through multi-county local development districts.

ARC's mission is to innovate, partner, and invest to build community capacity and strengthen economic growth in Appalachia to help the Region achieve socioeconomic parity with the nation. ARC funds projects that address the five goals identified in the Commission's strategic plan:

1. Invest in entrepreneurial and business development strategies that strengthen Appalachia's economy.
2. Increase the education, knowledge, skills, and health of residents to work and succeed in Appalachia.
3. Invest in critical infrastructure—especially broadband; transportation, including the Appalachian Development Highway System; and water/wastewater systems.
4. Strengthen Appalachia's community and economic development potential by leveraging the Region's natural and cultural heritage assets.
5. Build the capacity and skills of current and next-generation leaders and organizations to innovate, collaborate, and advance community and economic development.

Each year, ARC provides funding for several hundred projects in the Appalachian Region in areas such as business development, education and job training, telecommunications, infrastructure, community development, housing, and transportation. These projects create thousands of new jobs; improve local water and wastewater systems; increase school readiness; expand access to health care; assist local communities with strategic planning; and provide technical and managerial assistance to emerging businesses.

Additional information about Appalachia and the Appalachian Regional Commission can be found at www.arc.gov.

About the Appalachian Development Highway System (ADHS)

Congress established the Appalachian Regional Commission in 1965 to foster economic and social development of the Appalachian Region. In order to promote economic development in Appalachia, Congress authorized ARC to carry out a number of programs, including the Appalachian Development Highway System (ADHS).

From its inception, the ADHS was designed to be an instrument of economic development, linking to national and international markets, improving regional traffic efficiency by connecting to the interstate system, facilitating access to jobs and public services, and opening up remote areas within Appalachia for development and job creation. ADHS corridors were designed to close gaps between markets within the Region, as well as to provide access to markets outside of the Region, and to connect to the Interstate Highway System.

Past Economic Research on the ADHS related to Access

Numerous research studies have been conducted to evaluate and estimate the transportation and economic benefits of the ADHS. Given the initial rationale for the ADHS, much of this research has centered on assessing the economic development effects of completing ADHS corridors; either by comparing areas with completed ADHS segments to areas without completed ADHS segments, or by using modeling techniques to forecast the likely effects of completion. Research studies over the past 5 to 10 years have built on past findings to highlight the role of the ADHS in helping connect the Region to national and global trade markets and improving goods movement within the Region and nationwide.

For this study, relevant ARC-funded economic and access research studies include the following:

Economic Analysis of Completing the Appalachian Development Highway System (July 2017): https://www.arc.gov/images/research/ADHSEconomicAnalysisExecutiveSummaryJuly17.pdf

Economic Impact Study of Completing the Appalachian Development Highway System (July 2008): http://www.arc.gov/research/researchreportdetails.asp?REPORT_ID=69

Sources of Regional Growth in Non-Metro Appalachia (January 2007): http://www.arc.gov/research/researchreportdetails.asp?REPORT_ID=84

Appalachian Development Highways Economic Impact Studies (July 1998): http://www.arc.gov/research/researchreportdetails.asp?REPORT_ID=68

Additional ARC transportation research is on the ARC Web site at www.arc.gov/research/ResearchReports.asp?F_Category=18

For more information on the ADHS and links to ADHS reports, see http://www.arc.gov/adhs.

IV. Scope of Work

Proposals must present an outline and description of the research and analysis to be conducted, a work plan, and a schedule for reports and deliverables. The scope of work will require a team of researchers and consultants with a broad set of skills to execute the project. The successful applicant will develop a clear and logical methodology to analyze the topics and key objectives specified in the scope of work. The methodology should include:

- Specification of data sets and methods to be used for each of the proposed analyses, including development of data collection methods and sources of

information.

- Discussion of the scope, advantages, and limitations of these resources for the purposes of this analysis, including issues related to local, regional, and national data coverage.
- Specification of the analytical framework, research methods, and statistical/forecasting techniques to be used for the proposed analysis. Proposals should acknowledge the relative merits of various approaches, and outline the advantages and limitations of the selected approach.
- Specification of any proposed stakeholder outreach or other external feedback and input that would directly inform the analysis and modeling.
- Proposed approach to present research synthesis, collected data, proposed access measurement methodology, and various recommendations.

The following tasks and key work items should be addressed in the design of proposals for this research project. Proposals may offer additional research and policy items to be considered above and beyond the scope described in this RFP that would be advantageous to ARC and its stakeholders.

1. ***Synthesis of Existing Research on Access***
   Synthesize existing research and data related to access, isolation, and mobility with greater focus on research specifically related to Appalachia and/or rural areas.

2. ***Develop Comprehensive Definition of Access***
   The successful proposer will develop a definition of access which includes a comprehensive listing of factors influencing access that should be considered in order to properly measure access. ARC envisions a definition of access that includes, but is not limited to, factors related to isolation (geographic, social, and digital), mobility (including quality, reliability, affordability, and comfort of transportation choices), and multimodal transportation access (to air, rail, highways, transit, walking, biking, etc.).

3. ***Develop Recommended Methodology to Measure Access and Present Findings***
   Based on the definition of access developed above, develop and outline a recommended research methodology to measure access in the Appalachian Region compared to the rest of the United States. This should include a summary of readily available data sets versus new data that may need to be collected, including possibly by survey. It is expected that each of the variables identified as part of the access definition established in task #2 will be measured in a future phase of work and the contractor for that phase will ultimately produce a ranking by county or sub-county for each of the variables compared to other Appalachian areas, to non-Appalachia parts of Appalachian states, and to the rest of the United States. The selected proposer for this phase of work should offer recommendations on presenting access measurement data in a way that enables comparison across communities, allows for further exploration by other researchers, and will lead to extensive usage by practitioners when considering ways to optimize transportation investment decisions for greatest economic impact.

4. ***Study Findings Presentation***
   The results from the research conducted for this study will likely generate a substantial

amount of information by region, scenario, and output variables (e.g. isolation, transportation mode choice trends, links between access and outcomes, etc.). This information must be organized and presented in a clear narrative supported by graphs, maps and tables for use by multiple audiences (federal government, regional stakeholders, state departments of transportation, etc.). The contractor will provide examples of how this information and the study results can most successfully be presented and communicated. In addition, files containing project information, including all studies and data collected, must be submitted to ARC at the end of the project.

5. ***Policy Implications and Strategic Recommendations***
   Summarize key study findings, including themes from existing research, gaps in existing research/knowledge related to access, definition of access established as part of study, and recommended methodology for measuring and presenting data related to access in future phases of work. Discuss policy implications of current and future research related to access in Appalachia. Recommend key research questions for future phases of work which ARC should focus on in order to produce findings, data, and new information related to access that will be most useful to the ARC community and partners.

V. Deliverables

The contract will require monthly progress reports, a draft report, and a final report. The final report must include an executive summary that integrates, summarizes, and interprets key findings of the study. The final report, as well as the executive summary, must be written for a non- technical audience and must include descriptive statistics, analyses, graphs, maps, and tables where appropriate. Technical details, data tables, and details regarding methodology must be presented in appendices.

Contractor must submit one printed copy of the report and two electronic versions: a Microsoft Word file and an Adobe PDF file. Contractor must submit all data collected, analyses performed, and data presentation tools created as part of the study. Contractor may submit relevant data collected as part of the study in a Microsoft Excel workbook or a Microsoft Access database. Contractor will provide metadata (field name description, definition, source, sourced date, and equation if computed) for all raw and computed data fields. If geographic information system maps are developed for the project, contractor must provide map databases, map images, and map documents. ARC will provide contractor with formatting guidance documents for all reports.

VI. Technical, Management, and Cost Proposals

A. Technical Proposal *(This narrative should be 15 pages or fewer not including abstract, resumes, or organizational background materials.*

1. *Summary Abstract* **(300 words)**
   Provide a brief abstract of the technical portion of the proposal by summarizing the background, objectives, proposed methodology, and expected outputs and results of the research.

2. *Methodology*
   Describe the step-by-step approach or methods intended to accomplish all tasks specified in this RFP. This section should provide a detailed explanation of the data and methodologies to be used, describe the limits of the selected methods, and justify the selection of these methods over others. The narrative must identify the tasks in this research project that will require participation by ARC staff. Finally, the narrative must identify any difficulties that may be encountered in this project and propose practical and sound solutions to these problems.

3. *Project Work Plan and Milestones*
   Describe the phases into which the proposed research can logically be divided and completed. Flow charts should be included as necessary. A schedule of milestones and deadlines must be specified for the completion of various work elements, including information collection, interviews, surveys, analyses, quarterly progress reports, preliminary drafts for review, and final draft reports.

B. Management Proposal

1. *Business Management Organization and Personnel*
   Furnish a brief narrative description of the organization, including the division or branch planned to perform the proposed effort, and the authority responsible for controlling these resources and personnel.

2. *Staffing Plan and Key Personnel*
   Provide a staffing plan that describes your proposed key personnel and staff distribution to accomplish this work. Describe key personnel performing the research and their role on the project (e.g., project manager, economist, freight analyst, transportation modeling). Brief resumes (two pages or less) of key personnel are required. The selected contractor will be required to furnish the services of those identified in the proposal as key personnel unless ARC authorizes a change in personnel. The staffing plan should present a chart that partitions the time commitment of each professional staff member to the project's tasks and schedule. In addition, the proposal should include a detailed description of activities for key project-related personnel and anticipated deliverables. Finally, the proposal should identify the relationship of key project personnel to your organization, including consultants and subcontractors.

3. *Relevant Prior Experience*
   Describe the qualifications and experience of the organization and the personnel that will be assigned to the project. Include direct experience with the specific subject-matter area and provide examples (via web links and/or printed materials) of the three most-similar research reports your organization has produced. Provide associated organization names, addresses, names of contact persons, and telephone numbers for reference.

4. *Contract Agreement Requirements*
   List any special requirements you want included in the contract.

C. Cost Proposal

This section must include all cost information. Cost information must be itemized and must include direct labor costs (consistent with the staffing plan), labor overhead costs, transportation, the estimated cost of any subcontracts, other direct costs (such as those for databases), university overhead, total direct cost and overhead, and total cost and fee or profit. Please note that the university overhead rate charged to ARC should not exceed the rate charged to the university's home state.

In addition, ARC requires that the selected contractor travel to four meetings in Washington, D.C.—one meeting with ARC staff to kick off the project, two interim project update meetings, and at least one formal presentation and discussion of key findings with ARC officials at the conclusion of the project.

VII. Cost and Timing

ARC rates this RFP as a **medium-scale project** in the $75,000 to $149,000 range, according to the Commission's rating of the level of effort for conducting research.

The contract awarded for this research project will be a FIRM FIXED-PRICE CONTRACT, with payments on a quarterly schedule. The contract scope of work and budget shall remain firm during the project. The project should be completed within 6 months.

VIII. Evaluation of Proposals

All proposals will be evaluated based on the following criteria:

- Complete, clearly articulated, and logical study design;
- Technically competent methodology;
- Qualifications, relevant prior experience, command of existing research on telecommunications and technology issues, and ability to present findings in a useful manner;
- A credible management proposal for staffing, and the capability to carry out and support the project in a timely fashion;
- The quality of interviews, focus groups, surveys, and/or case study protocols proposed.
- The cost-effectiveness of the proposal.

It is anticipated that (a) contractor(s) will be selected by mid-to-late September, 2018.

IX. Proposal Submission

Proposals are due by close of business on August 31, 2018.

An original and three hard copies of the proposal must be submitted to:
Ryan Brumfield
Regional Planning and Research Division
Appalachian Regional Commission
1666 Connecticut Ave., NW, Suite 700
Washington, D.C. 20009-1068

In addition to the hard-copy submission, ***proposals must also be emailed on or before the deadline*** to rbrumfield@arc.gov. Email attachments should be no more than 10 MB.

Questions about this proposal should be directed to Ryan Brumfield, at rbrumfield@arc.gov or 202-884-7706.