

# **Evaluation of the Appalachian Regional Commission's Infrastructure and Public Works Program Projects**

## **1. Introduction**

### 1.1 Purpose

The Appalachian Regional Commission (ARC) conducted this evaluation of infrastructure and public works projects to determine if projects have achieved their originally stated objectives. In addition, as part of the Commission's on-going performance evaluation process, the ARC wanted to assess how these project investments have contributed to attaining the Commission's strategic objectives.

The report is primarily concerned with economic development impacts. The principal focus of the study is on job creation, business service, income growth, economic diversification, tax revenues, and changes in total business output that can be attributed to ARC investments. While residential water and sewer projects receive some analysis and discussion of quality-of-life impacts, changes in public health that may have resulted from various projects are not quantified.

Some indicators provide a context for local and project analysis but do not provide a basis for inferring project cause and effect. The report provides a variety of traditional and innovative economic indicators for project impacts, including growth trends, retained business growth, entrepreneurship, and diversification. In general, these indicators provide a context for project analysis and a better understanding of the project area economies and their needs. In many instances, these analyses also inform qualitative discussions of how some projects affected land use and development patterns or, for example, entrepreneurial vitality in the primary impact areas.

It is important to note that while reporting mandates are an important impetus for this report (and occupy much of the space in it), the more significant impacts are those which can be seen on the strategic advances made by ARC investments. Statistical impacts are clearly one measure of success, and an important one. But often, more subjective results, such as those discussed in Chapter 5, offer a better flavor of strategic progress made as a result of the investments.

### **1.2 Coverage of This Study**

This project follows a 2000-2001 evaluation of programs funded under the Commission's Infrastructure and Public Works Program.

As with the previous study, the infrastructure projects evaluated in this round represent a range of projects typically funded by the Commission including industrial parks and sites, water and sewer systems, access roads, and business incubators. Housing and telecommunications projects were added to the mix in the current evaluation round.

From a pool of over 400 closed projects, ARC selected a sample of 124 completed representative projects that were funded in part by the Commission between 1998 and 2004, and that were completed in various years between 1999 and 2005. This initial pool was developed to reflect the Commission's current strategic funding priorities for infrastructure projects, and to represent projects from each of the 13 Appalachian states. ARC also wanted to discern unforeseen impacts, trends among types of projects and to assess the wider economic impacts in the local communities. The initial pool was narrowed to 104 projects for the final report, representing 91 different project impact areas.[i] The project evaluation focuses on key performance measurements and outcomes:

- The number of jobs projected and actually created or retained upon project completion;
- Leveraging rates for other project-related funds, including state, local, other federal and private investment;
- Determination of the agency's relative funding contribution;
- Calculation of the job creation rate attributable to ARC's investment once the impact other funds is considered;
- Diversification effects of the projects on the local economic base;
- Indirect and induced economic effects attributable to the project;
- Impacts on the local tax base resulting from the projects;
- An impact/cost analysis of the projects; and
- Quality-of-life improvements provided to residential households served by the housing and water and sewer projects.

### **1.3 ARC's Infrastructure and Public Works Program**

Since 1965, ARC has assisted in funding and developing a wide range of programs in the Appalachian Region, including highway corridors; community water and sewer facilities and other physical infrastructure; health, education,

and human resource development; economic development programs, local capacity building and leadership development. Congress provided the authority for ARC to fund and develop such projects under Title II of the Appalachian Regional Development Act of 1965. The rationale for ARC's Area Development program is to provide the basic building blocks that will enable Appalachian communities to create opportunities for self-sustaining economic development and improved quality of life.

ARC's infrastructure and public works projects are designed to create and retain jobs, serve new and existing businesses, and promote public health. The above listed project objectives form the basis for the evaluation criteria used in this report. These infrastructure objectives are part and parcel of the Commission's broader strategic plan that guides ARC's investment in projects that contribute to one or more of the following goals:

- Increase job opportunities and per capita income in Appalachia to reach parity with the nation
- Strengthen the capacity of the people of Appalachia to compete in the global economy
- Develop and improve Appalachia's infrastructure to make the Region economically competitive
- Build the Appalachian Development Highway System to reduce Appalachia's isolation

In general, the projects that were evaluated relate to the goals set forth in the Commission's strategic plan, with a focus on the first and third. The new housing and telecommunications project categories address community, as well as economic development objectives, as well as work force development objectives.

The sample projects are distributed over 13 states and represent more than 90 different primary impact areas, both non-metropolitan and metropolitan. In addition, these projects are distributed among counties of varying economic status, with projects in distressed counties qualifying for higher direct funding and lower matching requirements. ARC designates counties as one of four types: distressed, transitional, competitive, or attainment. [iii] (An additional class of "at-risk" counties is utilized to differentiate among transitional areas, but is not used for funding eligibility purposes.) Projects in distressed counties are eligible for 80 percent ARC funding, transitional for 50 percent and competitive for 30 percent, while attainment counties are generally not eligible for ARC project funding. In addition, projects in distressed counties do not have to submit estimates for projected jobs, although in most cases such estimates were available.

The Infrastructure Program funds a variety of projects which have been classified into six basic categories for the purposes of this report: access roads, industrial parks, industrial sites, business incubators, water/sewer, telecommunications and housing projects. These classifications were developed to enhance the analysis of projects, but the classifications are subject to some overlap. [iii]

All projects in four categories—access roads, industrial parks, industrial sites and business incubators— were considered economic development projects. Water and sewer projects were divided among economic development and residential development projects, as are telecommunications projects. For purposes of clarity in the economic impact analysis (Chapter 3), residential projects were further divided into (a) community development projects and (b) housing development projects. The reason for this is to separate non-economic development water and sewer, and telecommunications projects, where impacts may be widespread in a community and may also foster job creation, from projects that are solely designed to provide specific housing units. Project counts are summarized below by classification:

**Industrial Parks:** Twenty-one industrial park projects (20 percent of the sample) accounted for 21 percent of the total ARC investment reflected in the sample. Industrial park project grants tended to be very slightly larger than the average sample project.

**Industrial Sites:** Twelve industrial site projects (12 percent of the sample) accounted for 11 percent of the total ARC investment reflected in the sample. Industrial site project grants tended to be slightly smaller than the average sample project.

**Business Incubators:** Five business incubator projects (5 percent of the total analyzed sample) accounted for 6 percent of the total ARC investment reflected in the database. Business incubator projects were on average significantly larger than the representative sample project.

**Access Roads:** Three access road projects (3 percent of the sample) accounted for 2 percent of the total ARC investment reflected in the sample. Industrial access road project grants tended to be smaller than the average sample project.

**Water/Sewer Projects:** Fifty-one water and sewer projects (49 percent of the sample) accounted for 53 percent of the total ARC investment reflected in the sample. Water and sewer projects tended to be larger than the average sample project. Nineteen of the water/sewer projects were residentially-focused and not economic development-related. While these non-development projects are profiled individually, they do not represent the main thrust of analysis in this report. [iv]

Housing: Housing projects accounted for four projects in the sample (4 per cent), and 2 per cent of the total investment in the project sample pool. Housing investments were significantly smaller, on average, than the typical ARC investment.

Eight telecommunications projects accounted for 8 per cent of the sample and five per cent of the total investment in the sample pool. The typical project in this category was also smaller than the average project overall.  
[v]

During the course of the analysis, it became clear that the classification of several projects was ambiguous, and that a handful was probably misclassified. For example, a telecommunications project in an incubator might be classified as either, and the assignment of water-sewer classifications to industrial park projects seemed like a very gray area. One incubator project appeared to us to be more of a multi-tenant industrial site re-use, etc. To adjust these in mid-course would have required policy discussions and revisions that are beyond the scope of this project. As a result, we maintained all of the original classifications and mentioned discrepancies only where they are germane to the discussion.

Similarly, we used the original projections for all projects, even those that were essentially planning or feasibility, where projections for new jobs or households served had been originally made by the applicant. These (two) cases are noted in the discussion, and calculations affecting investment costs and returns are discussed both with and without the outcomes utilized for pure planning projects.

It is important to note that this report analyzes only a portion of ARC infrastructure and public works project investments. For example, a total of 414 projects were developed, completed and closed from 1998 to 2004. Thus, the final sample of 104 projects represents 25 percent of all closed projects during the period examined. The final sample was selected to focus on economic development-related projects and to assure reasonable representation of projects by type, geographic distribution and other factors. In addition, the final sample selection attempted to focus on infrastructure and public works projects that were the most important fields of ARC infrastructure investment. New categories, such as housing and telecommunications, were included on a disproportionate basis in order to develop an initial category assessment with reasonable critical mass. Some categories were also excluded due to diminishing interest of many states (e.g., downtown revitalization projects). A more detailed comparison of the universe of infrastructure and public works investment with the sample projects used in this report can be found in Appendix B.

## **1.4 Methodology**

Project development was essentially divided into six phases:

1. Project Selection & Classification. The first phase identified projects and classified them. This involved a review of ARC records and a computerized classification of selected projects into a database for future ARC use. This database is included as Appendix I, which is available as an electronic Access database supplement to this report.

2. Direct Interviews. Interviews were conducted for each project, most often with local or regional development staff, local government and civic leadership and private sector representatives.

The interviews and analysis of the results provided essential documentation of the nature of the projects and their direct economic effects. These in-depth interviews were conducted by the consulting team with selected local officials, development staff and private sector representatives. Interviews were conducted via telephone and relied upon formal interview guides and procedures. Interviews lasted from 20-45 minutes, and the focus of discussion often varied based on the responses of the interviewees. In some cases, multiple interviews were conducted with one or more local stakeholders.

The results of these interviews were integrated into a project profile covering the following key topics:

- Project area distress data;
- Project data and budget information;
- Project fiscal and economic impact analyses;
- Economic trend analyses of primary impact counties;
- Economic vitality analyses of primary impact counties;
- Interviewee information;
- Qualitative project objectives and outcomes; and
- Impact comments and discussion.

The interview instrument itself can be found in Appendix I.

In addition to phone interviews, six site visits were made to validate project results and to develop more detailed case studies. Narratives of these site visits can be found in Appendix A of this report. Site visits were selected to reflect a reasonable representation of project types, regional geography and area demographics.

3. Baseline Economic Analysis: Background economic information on the baseline economic conditions was developed for each primary project impact area. This phase of the analysis developed county-level economic profiles in order to detail the general economic conditions of project areas. In addition, the

performance of project counties was compared to national trends based on broader measures of economic well-being including, economic diversification, entrepreneurial vitality and business growth. In most cases the size of the project investment was too small to definitely link to the changes in the local economy, but in several cases it was possible to identify local economic changes that corresponded to project impacts. [vi] In general, however, the baseline economic analyses situate the project impacts within economic trends of the counties, particularly the extent of economic diversification and entrepreneurship. Detailed tables reflecting these analyses are available in Appendices G and H, electronic Access database supplements to this report.

4. Analysis of Project Outcomes: This phase of the research analyzed project outcomes by comparing the anticipated and actual project outcomes in terms of the key performance measures used by ARC: new and retained businesses served, new and retained jobs, and new and existing households served. In addition, this part of the research examined the leverage rates of ARC dollars invested in terms of other public and private dollars invested. Furthermore, through the results of the project interviews, the research was able to compile data on additional private investment that was stimulated by the projects.

5. Fiscal and Economic Impact Analysis. This phase of work modeled the economic impacts of projects on their core counties. The economic impacts were measured either by new jobs and personal income generated from business attraction and expansion, or by existing jobs and personal income retained by saving businesses that would otherwise have been forced to close down or move out. Additional economic impacts on leveraging private sector investment and fiscal impacts on increasing local tax revenues were also documented. For each of these impact measures, the ratios of impacts per dollar of ARC investment and per dollar of total public investment were assessed. Relative ratios of benefits and costs were also examined.

6. Qualitative Objectives and Outcomes. In addition to these quantitative outcomes, the interviews conducted with economic development officials and various community leaders in each community served by the projects helped identify certain key trends and commonalities among project types. Several cases were cited as examples in which the projects generated qualitative objectives and outcomes not readily measured by the usual performance measurements. This phase of the research provided yet another facet of the evaluation and offers an important contribution to the overall evaluation process that is often overlooked in purely quantitative approaches.

The resulting report was designed to meet two goals for the Commission: (1) to assist ARC in its internal evaluation of past program performance, identifying opportunities for future improvement, and (2) to facilitate public understanding of the benefits of ARC's infrastructure investments.

## 1.5 Overview of Report

The remainder of this report is organized in six more chapters and is supported by 9 appendices, seven printed and two electronic.

Chapter 2 presents the 104 projects that are in the sample for this evaluation.

Chapters 3 and 4 evaluates the economic impact of projects by classification (economic development and residential), state, project type and county designation. Chapter 3 concentrates on documenting the benefit cost of ARC investments as well as overall as indirect and induced impacts. Chapter 4 analyzes outcomes by project type.

Chapter 5 examines localized project impacts by county and Chapter 6 analyzes the impacts of ARC projects in the context of economic conditions of project areas.

Chapter 7 presents observations and recommendations by the consulting team. These are cumulative, incorporating recommendations made in the 2000 program evaluation.

This study includes the following appendices:

- Appendix A: Site Visit Narratives [iv]
- Appendix B: Methodology of Project Selection
- Appendix C: Methodology of the Impact Analysis
- Appendix D: Methodology of the Economic Vitality Analysis
- Appendix E: Methodology of Distressed County Analysis
- Appendix F: Project List
- Appendix G: Contact List
- Appendix H: Database and Project Thumbnails (Electronic)
- Appendix I: Economic Vitality Analysis Detail (Electronic)

### Notes

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[i] Because of the wide array of start and end dates and, just as important, the relatively recent completion of many projects under review, it was not generally possible to use the time-series to evaluate long-term impacts from the projects.

[ii] Distress designations are developed annually by the ARC and are based on county poverty rates and three-year unemployment rates that are 150 percent of or more than the national average and per capita market income that is two-thirds or less than the national average. The other economic designations likewise compare county economic performance with national rates, ranging from attainment counties that meet or exceed the national averages on these measures; to competitive counties that meet the national averages on unemployment and poverty rates but have 80 percent or less of national per capita market income; to transitional counties that are

simply a residual category. In FY 2007 ARC converted its standard economic indicators into an index-based system.

[iii] A handful of projects were excluded as detailed above, but the timeframe parameters applied to potential projects were the single largest excluding factor.

[iv] Residential projects met ARC criteria for investment in community-projects. In the case of projects that primarily serve *residential households*, the *outcome measure* is the number of *households served*. These households must be in counties that are designated by ARC as “distressed” or show compelling need, such as the location of the project in a “distressed county” of a transitional county, as disaster relief or to address a mandate of the Federal EPA or a state health or environmental agency. See Appendix H for definitions of economic status by county, and Appendix A of ARC Project Guidelines:  
<http://www.arc.gov/index.do?nodeId=1028#Residential>.

[v] Both the Housing and Telecommunications project categories were new to this evaluation, and were not included in the prior (2000) assessment of Infrastructure Project Program impacts.

[vi] Six full site visits and two drive-by visits were conducted to supplement the evaluation derived from written records and phone interviews.