

3. Overall Economic Impact Measures

To accurately measure the overall impacts of ARC's infrastructure and public works projects, it is important to understand the context and objectives of the different types of programs that are addressed in this evaluation. For these purposes, the 104 projects studied in this evaluation are organized into three categories, as reported below.

- ***Economic development projects:*** Investment made for projects in this category is intended to promote business development by attracting new jobs and save existing jobs that are in danger of being lost. Seventy-eight of the 104 projects are counted in this category.
- ***Community development projects:*** The objective of public investment made in this category is to improve basic health and/or quality of life in a community. In most cases these goals were met through providing water and sewer services to communities or by enhancing telecommunications. Though the principal objectives of these projects were not aimed at attracting investment, improvements in basic infrastructure often enhanced the attractiveness of areas for private sector business investment and housing investment. Twenty-two projects are counted in this category.
- ***Housing Development:*** The objective of public investment in this category is to construct or rehabilitate housing for low- and moderate-income residents. These projects do not generate jobs. Four projects are counted in this category.

Measurements Used. For the 78 economic development projects, project impacts are measured in terms of jobs (new or retained), personal income (wages) associated with those jobs, private investment leveraged by the public funding, and tax revenue associated with new private investment. In addition, these measurements, along with the number of households served, are reported in the impact analysis of the 22 community development projects. The impacts of the four housing development projects are also reported in terms of households served.

3.1 Direct Effects: Anticipated vs. Actual Results

Goals. In the initial project applications for funding, local applicants are required to estimate the number of jobs to be created or retained, the number of businesses to be served or retained, and the number of new or existing households to be served directly by the project. The job and business goals were applicable for industrial and commercial projects, while the household goals were applicable for residential water/sewer projects.

Measures of Anticipated vs. Actual Impact. Results show that actual impacts approach, but do not match, projections for retained businesses served, new jobs, and retained jobs. These aggregate results are generally linked to the performance of a handful of large projects that for a variety of reasons have not matured in the three to five years since ARC investments were expended.

Job and Business Development. Overall, 70% of economic development and community development projects met or exceeded expected generation of new jobs, including 55 of 78 economic development projects and one of two community development projects. Twenty community development projects and the four housing development projects did not submit projections of jobs created with their applications.

In total, 87% of predicted new jobs have been realized to date for economic development projects. Two of the projects, one for an industrial site and the other for an industrial park, were funded for planning and engineering. To date, these projects have not been developed. [i] Discounting them, the percent of direct job attainment would be 92% for the seventy-six other economic development projects.

Another reason that job generation falls short of predictions is that seven other industrial park projects projected to generate a cumulative 9,485 jobs have generated only 2,119 jobs to date, a shortfall of 7,366 jobs. The cumulative shortfall of new jobs for the 78 economic development projects is 2,735. Interviews concerning several of the industrial park projects mentioned above indicate that crucial supporting infrastructure development needed to attract private investment trailed the ARC funded project in implementation. These additional infrastructure developments are now underway or were recently completed. Additionally, two of these industrial park projects ran into unforeseen environmental issues during construction and must be reduced in size. Further discussion of these and other industrial park projects is provided in Chapter 4.

The relationship of retained businesses served (102% of expectations²) to jobs saved (88%) indicates that ARC investments were able to prevent local business closures; however, they were unable to protect all of the jobs in those businesses, at least in the short-term.

Data gathered from community development projects shows that the number of businesses served and jobs saved fell short of predicted outcomes due to the slow ramp-up of one of two projects that predicted job impacts.

² In other words, after projects were completed, more businesses said that they remained at their current locations because of ARC projects, than were predicted to relocate or close if the projects were not implemented. Of the evaluation sample, five projects reported retaining more businesses than anticipated (projects in NY, SC, MD, NC and PA) and two projects reported retaining fewer businesses (in NY and MD).

Households Served. Through review and evaluation of 22 community development and four housing development projects, 84% of projected new households served were documented, though 100% of existing households predicted to benefit were served. Overall, 17 of 22 (77%) community development projects met or exceeded expectations for additional households served. In this category too, one of the funded water and sewer projects was to fund administrative and design work; though the ARC part of the project has successfully been completed, the water infrastructure is not yet built. If this project were excluded, the result would be 88% of new households served for 21 projects. Two other projects account for more than 1,000 households falling below predictions for being served (1,194 households projected and 150 served). It is important to look at the contexts in order to understand the outcomes of these projects. First, implementation of a water and sewer project was delayed because the construction company went bankrupt, but this project is back on track. Though delivery is delayed, this project is expected to produce anticipated benefits. Second, implementation of a telecommunications development led other service providers to offer internet services in the project area. As a result, the community benefit was not derived directly through the ARC-funded project.

Housing development projects served 95% of predicted new households. In this case, three of four projects met expectations; the other fell short because significantly less federal, state and local dollars were spent than originally planned. Nonetheless, project proponents consider the outcome successful; the new housing broadened the local tax base, and it has improved quality of life for the many families that didn't have heating systems, potable water and sanitary facilities, or water in their houses.

Table 3.1 below presents aggregate measures for core outcomes of economic development, community development and housing development projects

Table 3.1 Direct Impact: Aggregate Projections and Results			
	Projected Outcomes	Actual Outcomes	Actual as a Percent of Goal
<u>Economic Development Projects</u>			
New businesses served	391	581	151%
Retained businesses served	126	128	102%
New jobs	20,380	17,645	87%
Retained jobs	10,847	9,580	88%
<u>Community Development Projects</u>			
New households served	5,620	4,703	84%
Existing households served	871	871	100%
<u>Housing Projects</u>			
New households served	210	200	95%

These findings for economic development projects and retained jobs are noteworthy for two reasons. First, 71% of all economic development projects met or exceeded their goals, and high percentages of expected jobs were created (87%) and retained (88%), despite several large projects that have not yet generated anticipated results. Commission investments do not always require a guarantee of job creation before granting the funds, so projections of job impact can be somewhat speculative. Second, applicants may be inclined to “stretch the envelope” on job projections in order to enhance the perceived likelihood of project funding. Throughout the evaluation process, including reviews of project closeout documents and interviews with project proponents and other local economic development representatives, there were no indications that regional jobs were relocated to account for the created job outcomes.

In the analysis, reported results from economic development, community development and housing development projects are compared to expected outcomes at application stages of ARC grants. Consequently, these results should be seen as based on fairly rigorous success standards; several types of project outcomes are considered to have fallen short of meeting or exceeding expected outcomes:

- Projects that approached but did not reach projections;
- Projects that had large impacts but nonetheless fell below projections;
- Projects such as recent industrial parks that are still in “immature” stages; and
- ARC grants that fund planning related work, but where implementation of projects relies exclusively on other agencies.

Though not primary measures for accomplishments, some economic development projects reported households served and community development projects reported new and retained jobs and businesses. This is because a portion of water and sewer projects are classified as “economic development,” consistent with these projects’ primary objectives, and these projects provide services to households. Other water and sewer construction, as well as access road and telecommunications projects that are classified as community development projects attracted businesses due to the new or improved infrastructure. [iii] These additional accomplishments are summarized below:

- 13 economic development projects reported serving 6,732 new households;
- 5 economic development projects reported serving 4,352 existing households (4 of these projects also serviced new households); and
- 2 community development projects reported 19 new businesses served and 150 jobs created.

It is possible for a handful of wildly successful projects to distort aggregate totals even if the majority of projects failed to meet or even approach projections; this did not seem to be the case for the sample reviewed for this report. Moreover, unlike the previous study, which funded sewer improvements to support a new BMW plant, this evaluation did not include a single project of that magnitude (although the impacts of the Huntsville Research Park were quite large).

Results by State. As Table 3.2 indicates, the results on businesses, jobs and households served is largely a reflection of differences in the mix of projects. The following analysis is useful mainly as information about the project mix within a state, not as a scorecard or yardstick for comparison between states. For example, housing development projects will have a positive impact on “households served” and zero job impacts. Water and sewer projects in the community development category will lag behind industrial park development in job creation or businesses served.

State-by-state characteristics are useful in the review of individual projects within the context of a state’s total ARC program portfolio. Within each state, the number and dollar value of total investments varied, as did the impacts generated from the projects. For example, Kentucky’s 19 projects included four housing development and 11 water and sewer projects. By contrast, seven of 10 projects in Pennsylvania were to support development of industrial parks or industrial sites; another project funded site plans for an industrial park. Maryland’s projects included include two for telecommunications, and in Alabama seven of nine projects were investments in water and sewer systems. The types of projects reflect state priorities that determined both the scale of required investment and the nature of outcomes.

Table 3.2 Direct Impact: Results by State							
	No.	ARC Investment	Businesses Served	Businesses Retained	New Jobs	Retained Jobs	Households Served
Alabama**	9	\$1,805,085	45	6	4,999	353	2,341
Georgia	8	\$1,826,112	18	2	620	69	150
Kentucky *	19	\$5,815,568	187	8	1,425	660	9,741
Maryland	6	\$1,764,971	21	2	285	1,666	1,000
Mississippi	9	\$1,857,537	13	6	1,670	150	921
North Carolina	9	\$1,584,289	65	10	806	2,100	200
New York	5	\$900,000	4	62	105	1,657	145
Ohio	7	\$2,300,000	30	1	347	46	83
Pennsylvania	10	\$1,650,134	129	5	2,309	764	55
South Carolina	2	\$1,500,000	6	7	1,705	1,800	0
Tennessee	11	\$3,563,496	6	7	1,918	40	903
Virginia	3	\$1,035,000	23	20	320	100	405
West Virginia	6	\$3,811,144	68	0	1,286	175	914
Total	104	\$29,413,336	615	136	17,795	9,580	16,858

** Includes 4,040 direct jobs from the Huntsville (AL) Research Park.

* Excludes 75 hospital jobs added following replacement of the Jackson Water Storage Tank in Jackson, Kentucky due to ambiguous causality between the project and new jobs. This project is listed in the

“community development” category and is located in a single distressed-county. Exclusion is consistent throughout tables.

3.2 Indirect and Induced Effects

“Direct effects” refer to the growth of businesses located at the project site that benefit directly from the project completion, and “indirect and induced effects” refer to additional economic growth typically located elsewhere in the community that follows as a consequence of the direct effects. These additional effects are commonly analyzed in studies of localized economic impacts associated with business relocation and expansion.

Methodology:

Definitions. The economic development projects were intended to either, (a) support the growth or attraction of new business activity that otherwise would not occur in the area, or, (b) support the retention of existing business activity that was economically threatened and which would otherwise decline or move out of the region. The former generally lead to “new” jobs and income, and the latter generally lead to “retained” jobs and income.

Treatment of New Activity. For the new jobs and income, we can distinguish three classes of impacts:

- **Direct Effects.** The business activity of the output, jobs and income directly related to the project are the “direct economic effects” of the project.
- **Indirect Effects.** In addition, projects have broader impacts elsewhere in the community such as expanding business for local suppliers of products or services that service the new businesses. The additional output, jobs, and incomes for such suppliers are typically referred to as “indirect economic effects.”
- **Induced Effects.** Another impact is the so-called induced effect which includes the expansion of local commercial business as a result of income re-spent by persons working at the new businesses (the direct new hires) and suppliers (the indirect employment effect).

Together, the additional indirect and induced effects are often referred to as “multiplier effects.” The total effect on jobs and associated income is thus the sum of the direct project effects, and the indirect and induced effects. Since most of these local areas are characterized by significant unemployment and relatively low labor force participation rates, it is reasonable to expect that the additional jobs and income go to local residents and are not replacing jobs and income from existing business activities.

Indirect and induced impacts were not calculated for retained activity. Following the methodology of the previous evaluation, this study does not estimate indirect or induced effects associated with business retention since it is unclear whether or not all of the business losses would actually occur without the public investment. If the retained jobs and income would indeed be lost without further public investment, then there could be potential negative multiplier impact—leading to additional job loss for existing businesses elsewhere in the local area. Nonetheless, to be conservative, indirect and induced effects to retained businesses and jobs were not attributed due to the uncertainty of the scale of losses and resultant multiplier that would occur without public investment.

Methodology for Analysis: When possible, measures of direct, on-site impacts of business attraction and retention came directly from interviews with local officials, who were asked to report the actual number of affected businesses and jobs. They were also asked to estimate associated personal income, including existing or saved jobs. For cases without reliable estimates of income effects, data from the state labor agency and the US Department of Commerce were used to indicate the average wage per worker (based on data by county and by industry). The measures of indirect and induced effects were developed using the IMPLAN modeling package.³

Multiplier effects differ by industry, by state and by county. Business can generate varying levels of indirect and induced effects depending on the portions of dollars going to pay workers, and to buy different types of equipment and supplies. In addition, the impacts based on specific locations vary, depending on the portion of suppliers and consumer-serving businesses located within each county. For these reasons, multipliers were calculated for each of the counties associated with the 104 projects studied. In cases in which projects involved multiple counties, impacts were estimated for the multi-county area. For each project, the types of industry associated with the business expansion or attraction were identified, and the applicable multipliers were then applied. (See Appendix C for further discussion of indirect and induced methodology applied to this study.)

³ IMPLAN stands for “Impact Analysis for Planning” and is now the most widely used input-output economic modeling system in the United States with a client list of 500 public and private agencies including several federal agencies and numerous state agencies. It utilizes U.S. Commerce Department (“National Income and Product Accounts”) data on inter-industry technology relationships (also known as input-output structural matrices), countywide employment and income data from the Bureau of Economic Analysis (BEA) and Bureau of Labor Statistics (BLS), and its own industry and county-specific estimates of local purchasing rates (“regional purchase coefficients”). It is enhanced over most other input-output models in that it also includes coverage of public sector activity and consumer activity (reflected in its “social accounting matrix”). The industry detail is at the level of 509 industries, and is based on categories of the US Bureau of Economic Analysis (BEA), which correspond to 2 to 5-digit groups in the North American Industrial classification System (NAICS).

3.3 Job Impacts: Direct, Indirect and Induced Effects

New Jobs. A total of 17,795 new jobs were directly created as a result of the ARC-funded projects. These direct effects only include jobs at the sites served directly by the ARC-funded infrastructure and public works investments. In addition, it is estimated that another 25,341 jobs were created away from the project sites by indirect effects on off-site suppliers and induced effects on consumer re-spending of additional worker incomes. These indirect and induced effects follow as a consequence of the directly created new jobs. All of these new jobs (both direct and indirect/induced effects) were created because of the projects.

Retained Jobs. Another 9,580 existing jobs were directly retained or saved as a result of the ARC-funded projects. It is reasonable to assume, based on project application data, that those directly affected jobs would most likely have been lost without the projects. The extent of their indirect effects on supplier businesses and induced effects on consumer-serving businesses is less clear; those businesses pre-dated the projects' that were implemented. If the projects had not been implemented with ARC funding, the directly affected businesses may have responded by closing or by relocating, or they may have survived in their current locations by adjusting products and services for other markets. If we assume that all of the business activity associated with indirect (supplier) and induced (consumer) sales would indeed have disappeared, then it is reasonable to add indirect and induced effects associated with the retained jobs. While that is a distinct possibility, this study adopted a more conservative approach that counted additional indirect and induced effects based on new jobs, but not any additional indirect and induced effects based on retained jobs.

Total Jobs. The estimated total number of job impacts of the ARC-funded sample projects was 43,136. This estimate includes direct new jobs, and indirect and induced new jobs. It does not include the retained jobs, or estimates of the multiplier effects for retained jobs. It also does not include construction job years for housing and rehabilitation work. The total impact can be broken down by project type, as follows:

- 22,815 total jobs created from 21 industrial park projects (average of 1,086 each);
- 2,583 jobs created from 12 industrial site projects (average of 123 each);
- 1,357 total jobs created from 5 business incubator projects (average of 271 each);
- 636 jobs created from 3 access road projects (average of 212 each);
- 15,515 jobs created from 51 water/sewer projects (average of 304 each, or 485 each if calculated using only the 32 economic development projects in this classification) and;
- 230 jobs created from 8 telecommunications projects (average of 29 each)

Table 3.3 Total Overall Jobs Impacts by Project Type, Area Rating and State					
	No. of Projects	Retained Jobs	Direct New Jobs	Indirect & Induced jobs	Direct, Indirect & Induced Jobs
Project Type					
Access Road	3	1,185	200	436	636
Business Incubator	5	115	688	669	1,357
*Industrial Park	21	968	8,812	14,003	22,815
Industrial Site	12	152	1,001	1,582	2,583
Telecommunications	8	0	128	102	230
Water/Sewer	51	7,160	6,966	8,549	15,515
Housing Development	4	0	0	0	0
Total	104	9,580	17,795	25,341	43,136
Area Rating (pre-project)					
Multi-County with 1+ Distressed County	8	350	726	396	1,122
Multi-County with No Distressed County	3	0	225	334	559
*Single Competitive	5	1,300	5,940	8,735	14,675
Single Distressed	36	718	2,457	3,687	6,144
Single Transitional	52	7,212	8,447	12,189	20,636
Total	104	9,580	17,795	25,341	43,136
State					
*Alabama	9	353	4,999	4,172	9,171
Georgia	8	69	620	674	1,294
Kentucky	19	660	1,425	1,126	2,551
Maryland	6	1,666	285	249	534
Mississippi	9	150	1,670	3,383	5,053
North Carolina	9	2,100	806	820	1,626
New York	5	1,657	105	216	321
Ohio	7	46	347	382	729
Pennsylvania	10	764	2,309	6,459	8,768
South Carolina	2	1,800	1,705	2,272	3,977
Tennessee	11	40	1,918	3,252	5,170
Virginia	3	100	320	148	468
West Virginia	6	175	1,286	2,188	3,474
Total	104	9,580	17,795	25,341	43,136

* Includes 4,040 direct jobs from Huntsville (AL) Research Park .

Impacts on Areas of Economic Distress. The ARC projects in this evaluation are concentrated in distressed and transitional jurisdictions. These are the ARC counties experiencing the greatest extent of poverty in Appalachia, as described

in section 2.4. Ninety-nine of the 104 projects evaluated were in distressed or transitional counties, and generated the following impacts:

- 44 projects in distressed counties created 7,266 new jobs (direct, indirect and induced) and supported the retention of 1,068 jobs; [iii] and
- 55 projects in transitional counties created 21,195 jobs (direct, indirect and induced) and supported the retention of an additional 7,212 jobs [iv]

These numbers reflect differences in the average size and scale of the projects, and not necessarily project success. A full breakdown of the job impacts is shown in Table 3.3 on the previous page. Table 3.3 also shows that average job creation was relatively greater for the projects in transitional areas than for the projects in fully distressed counties, and greater again for projects in more competitive counties. That reflects a combination of three factors:

- Attracting business is harder in the more distressed counties; hence the average number of jobs created per project is smaller in those areas; and
- 21 of the 26 community and housing development projects were in the distressed counties and were aimed at public health providing housing rather than immediate economic development.
- Localized multiplier impacts are higher in areas with more developed economies than in areas of greater economic distress. This is because more local establishments are available in stronger economies to be business suppliers and to attract consumer spending.

3.4 Personal Income: Direct, Indirect and Induced Effects

Additional Income. While the impacts of economic development projects are often tracked in terms of job creation, the most tangible benefit to people in the target areas comes from the enhancement of their incomes. Another advantage of measuring program impact in terms of personal income is that the income measure reflects differences between the creation of high-paying jobs and the creation of low-paying jobs. Because counties in which these projects occurred were characterized by high unemployment and low-income levels, it is reasonable to assume that essentially all of the additional income created (directly or indirectly) by these projects flows to existing residents of the county.

Measurement. The estimates of direct effects on retained wages (from saved jobs at existing businesses) and on new income (from new jobs attracted) came from interviews with local officials, and were supplemented when necessary with

average wage data from the U.S. Bureau of Labor Statistics. The estimates of indirect and induced effects on personal income came from the IMPLAN model.

Overall Results. Table 3.4 shows a breakdown of the retained wages as well as the new (direct) wage income and indirect and induced income impacts, by project type, county classification and state. Overall, the 100 projects in this evaluation (excluding the four housing development projects) led to \$1.3 billion dollars of new wages annually, of which \$639 million are from jobs directly attributable to ARC projects; \$693 million are attributable to additional business spending (indirect) and consumer spending (induced) generated by projects.

Of these impacts, direct jobs from the 78 economic development projects generated \$634 in annual wages and an additional \$692 million from indirect and induced effects. In addition, these economic development projects helped to directly retain \$325 million in existing wages for threatened jobs in the ARC region. Industrial park projects led to more than half of the new wages, while water and sewer projects were responsible for more than 70% of retained personal income.

As with jobs, wage impacts are disproportionately seen in transitional and competitive counties. The proportion of personal income in distressed counties of Appalachia is 19% of direct impacts of new jobs and 16% of impacts when factoring in indirect and induced effects. As discussed above, distressed regions have smaller economies than either transitional or competitive counties, and therefore have fewer opportunities to benefit by indirect and induced spin-off impacts of business-to-business sales and consumer spending. Overall, 45% of direct wage impacts from new jobs are in transitional counties, and 37% are in competitive counties. After indirect and induced impacts are factored, the share of total personal income in competitive counties rises to 39% and remains at 45% in transitional counties. Roughly 77% of retained wages are in transitional counties.

Wage Levels. The new jobs directly generated by these ARC-funded projects were primarily industrial rather than commercial or service jobs. Average wages are about \$36,000 for direct jobs; wages derived from indirect and induced impacts pay an average of \$27,000. Data did not distinguish levels of part-time and full-time jobs, or benefits packages, if any, associated with these jobs. As found in the evaluation of ARC programs in 2000, however, local interviews reveal a clear consensus that the ARC-funded projects had indeed broadened available job opportunities and provided desirable types of jobs.

Table 3.4 Total Overall Personal Income Impacts					
Project Type	No. of Projects	Income from Retained Jobs	Direct Income	Indirect/Induced Income	Direct, Indirect & Induced Income
Access Road	3	\$49,980,899	\$7,666,122	\$12,009,189	\$19,675,311
Business Incubator	5	\$2,425,439	\$15,403,157	\$15,497,914	\$30,901,070
Housing Development	4	\$0	\$0	\$0	\$0
*Industrial Park	21	\$27,180,890	\$329,205,192	\$403,202,608	\$732,407,800
Industrial Site	12	\$4,339,482	\$29,905,609	\$39,652,508	\$69,558,117
Telecommunications	8	\$0	\$2,577,679	\$2,178,604	\$4,756,284
Water/Sewer	51	\$241,304,313	\$254,017,375	\$220,523,916	\$474,541,293
Total	104	\$325,231,023	\$638,775,134	\$693,064,739	\$1,331,839,875
Area Rating (pre-project)					
Multi-County with 1+ Distressed County	8	\$18,333,153	\$32,550,525	\$9,265,954	\$41,816,479
Multi-County with No Distressed County	3	\$0	\$8,422,808	\$8,745,840	\$17,168,648
*Single Competitive	5	\$36,113,090	\$233,951,301	\$283,697,239	\$517,648,539
Single Distressed	36	\$19,789,666	\$87,170,042	\$80,611,568	\$167,781,608
Single Transitional	52	\$250,995,114	\$276,680,458	\$310,744,138	\$587,424,601
Total	104	\$325,231,023	\$638,775,134	\$693,064,739	\$1,331,839,875
State					
*Alabama	9	\$9,589,021	\$189,280,909	\$152,442,708	\$341,723,619
Georgia	8	\$1,128,419	\$19,912,557	\$16,593,807	\$36,506,365
Kentucky	19	\$27,200,568	\$65,296,165	\$22,670,969	\$87,967,134
Maryland	6	\$69,503,190	\$6,577,520	\$7,761,135	\$14,338,655
Mississippi	9	\$5,314,310	\$58,210,662	\$96,771,836	\$154,982,497
North Carolina	9	\$60,177,101	\$20,013,491	\$19,392,254	\$39,405,745
New York	5	\$62,171,853	\$4,065,290	\$6,384,966	\$10,450,257
Ohio	7	\$1,486,184	\$9,640,784	\$7,923,434	\$17,564,218
Pennsylvania	10	\$20,760,732	\$93,637,808	\$183,338,089	\$276,975,897
South Carolina	2	\$58,180,889	\$58,342,080	\$52,293,193	\$110,635,272
Tennessee	11	\$1,021,488	\$59,749,557	\$72,089,644	\$131,839,201
Virginia	3	\$1,906,919	\$6,102,140	\$4,040,038	\$10,142,178
West Virginia	6	\$6,790,349	\$47,946,171	\$51,362,666	\$99,308,837
Total	104	\$325,231,023	\$638,775,134	\$693,064,739	\$1,331,839,875

* Includes 4,040 direct jobs \$155.3 million direct income from Huntsville (AL) Research Park .

3.5 Effects on Public and Private Investment

Overview. ARC does not fully fund any infrastructure or public works projects. Rather, ARC participates in projects which also have some other federal funding assistance. The other federal funding is predominantly from the Economic Development Administration, Rural Development of the U.S. Department of Agriculture, the U.S. Department of Housing and Urban Development, or the Federal Highway Administration of the U.S. Department of Transportation. Most of these other federal programs also require some state or local matching funds. This section reviews such funding patterns in two parts. First, the mix of public funding is described. Then the leveraging of private sector funding is analyzed.

Public Funding Mix. Because of the typical mix of public funding in ARC projects, ARC cannot take full credit for the economic impacts of any of its projects. It can, however, take credit for helping to leverage other federal, state, and local funds, as well as private funds. Overall, ARC funding for these projects totaled \$29.4 million, which is 17% of the total public cost for these projects (\$172.7 million). Other federal funding averaged 20% of project cost, while states invested an average of 18%, and local funding averaged 45% of the total.

Viewed another way, each dollar of ARC investment helped to make possible a package of \$4.87 in other public funding, adding up to \$5.87 of total public funding. A full breakdown of the public funding by project type, area distress level, and state is shown in Table 3.5.

Overall, the ARC portion of total public funding was:

- 32% of all public funding for access road projects;
- 22% of all funding for business incubator projects;
- 14% of all public funding for industrial park projects;
- 20% of all public funding for industrial site projects;
- 37% of all public funding for telecommunications projects;
- 17% of all public funding for water/sewer projects serving business sites (14% for projects classified as “economic development” and 27% for “community development” projects); and
- 8% of all public funding for housing development.

The ARC portion of the total mix of public funding was 18% for projects in distressed counties, 18% for projects in transitional areas and 8% in competitive areas. All together, these figures show that ARC funding has played a relatively larger role in those areas that are most in need, and in basic infrastructure

projects critical to households and business operations, such as water, sewer, roadways and telecommunication services.

Table 3-5. Total Public Investment Made						
Project Type	No. of Projects	ARC \$	Federal \$	State \$	Local \$	Total Public \$
Access Road	3	\$599,100	\$0	\$900,000	\$383,538	\$1,882,638
Business Incubator	5	\$1,777,500	\$2,552,588	\$30,000	\$3,704,521	\$8,064,609
Housing Development	4	\$633,848	\$3,950,352	\$1,464,791	\$1,796,051	\$7,845,042
*Industrial Park	21	\$6,106,020	\$8,458,241	\$6,542,029	\$22,354,341	\$43,460,632
Industrial Site	12	\$3,329,843	\$288,000	\$1,143,000	\$12,279,530	\$17,040,373
Telecommunications	8	\$1,345,759	\$1,000,000	\$196,712	\$1,061,663	\$3,604,133
Water/Sewer	51	\$15,621,266	\$18,148,900	\$21,221,320	\$35,851,378	\$90,842,864
Total	104	\$29,413,336	\$34,398,081	\$31,497,852	\$77,431,021	\$172,740,290
<u>Area Rating (pre-project)</u>						
Multi-County with 1+ Distressed County	8	\$3,035,665	\$6,969,947	\$6,977,568	\$5,092,604	\$22,075,784
Multi-County with No Distressed County	3	\$646,971	\$0	\$43,139	\$720,826	\$1,410,936
*Single Competitive	5	\$1,073,251	\$500,000	\$1,242,400	\$11,282,725	\$14,098,376
Single Distressed	36	\$11,005,667	\$11,344,118	\$14,700,464	\$19,727,848	\$56,778,098
Single Transitional	52	\$13,651,781	\$15,584,016	\$8,534,281	\$40,607,018	\$78,377,096
Total	104	\$29,413,336	\$34,398,081	\$31,497,852	\$77,431,021	\$172,740,290
<u>State</u>						
*Alabama	9	\$1,805,085	\$1,030,000	\$550,000	\$7,425,333	\$10,810,418
Georgia	8	\$1,826,112	\$579,348	\$1,118,305	\$3,420,320	\$6,944,085
Kentucky	19	\$5,815,568	\$15,699,952	\$13,525,738	\$9,348,373	\$44,389,631
Maryland	6	\$1,764,971	\$600,000	\$336,139	\$2,678,118	\$5,379,228
Mississippi	9	\$1,857,537	\$0	\$496,212	\$10,809,534	\$13,163,283
North Carolina	9	\$1,584,289	\$2,000,000	\$1,517,583	\$3,680,602	\$8,782,474
New York	5	\$900,000	\$1,305,200	\$1,100,000	\$1,603,886	\$4,909,086
Ohio	7	\$2,300,000	\$3,785,363	\$2,090,345	\$5,152,299	\$13,328,007
Pennsylvania	10	\$1,650,134	\$2,675,000	\$1,790,700	\$10,333,075	\$16,448,909
South Carolina	2	\$1,500,000	\$2,746,500	\$0	\$8,999,700	\$13,246,200
Tennessee	11	\$3,563,496	\$1,700,600	\$1,320,000	\$9,784,144	\$16,368,240
Virginia	3	\$1,035,000	\$0	\$1,480,000	\$673,268	\$3,188,268
West Virginia	6	\$3,811,144	\$2,276,118	\$6,172,830	\$3,522,370	\$15,782,462
Total	104	\$29,413,336	\$34,398,081	\$31,497,852	\$77,431,021	\$172,740,290

Private Investment Leveraged. Of the 78 economic development projects, 27 were initiated with records of commitments for private sector investment. The related private sector investment from these 27 projects at the time of project application was \$319 million. An additional \$68 million was anticipated for a

single community development water and sewer project. Local interviews and data collection conducted for this project showed that these projects actually engendered significantly larger private investment at project sites than projected. Direct investment for new or renovated buildings and other business facilities totaled \$942 million for the 27 economic development projects, nearly three times the initial projections, with an additional \$5 million for the community development water and sewer project. In total, ARC projects leveraged \$948 million in direct private investment compared to original project commitments of \$387 million, and also generated an additional \$756 million of indirect private sector impacts. When including both direct and indirect impacts, private sector investment leveraged by this sample of ARC projects includes almost \$1.7 billion for economic development projects and \$7 million dollars for community development projects. Details of the private investment are shown in Table 3.6. The column, "Anticipated Private Commitments" shows the levels of private investment projected at the time of application, while the three columns that follow, "Actual Direct Investments, Actual Direct Private Investment [and] Indirect Private Investment, report private sector contributions leveraged by ARC funding.

The corresponding level of public funding for these 78 economic development projects was \$22.5 million of ARC funds and \$143 million of total public funds. Thus, there was \$11.86 of private investment for each dollar of total public funding.

It is notable that these private sector leveraging rates vary dramatically among types of projects for at least two reasons. First, the nature of various project types causes relatively large variations in the amount of permanent private investment. In some cases, such as roadways, housing and business incubator facilities, there is not substantial permanent private investment. On the other hand, there is substantial private investment associated with industrial parks and water and sewer projects targeted for economic development.

Second, the variation in the maturity and timeline of projects affects the amount of private investment. For example, private investment may not have had time to follow the development of publicly financed access roads.

Table 3.6 Private Investment Leveraged (In \$000's)						
Project Type	ARC Funding \$	Total Public Funding \$	***Anticipated Private Commitments	Actual Direct Private Investment	Indirect Private Investment	Total Private Investment
Access Road	\$599.1	\$1,882.6	\$0.0	\$0.0	\$0.0	\$0.0
Business Incubator	\$1,777.5	\$8,064.6	\$0.0	\$0.0	\$0.0	\$0.0
Housing Development	\$633.8	\$7,845.0	\$0.0	\$0.0	\$0.0	\$0.0
**Industrial Park	\$6,106.0	\$43,460.6	\$193,700.0	\$604,450.0	\$526,947.7	\$1,131,397.7
Industrial Site	\$3,329.8	\$17,040.4	\$54,400.0	\$87,741.2	\$111,073.0	\$198,814.3
Telecommunications	\$1,345.8	\$3,604.1	\$6,015.0	\$6,000.0	\$1,168.6	\$7,168.6
Water/Sewer	\$15,621.3	\$90,842.9	\$132,900.0	\$248,600.0	\$116,447.4	\$365,047.4
Total	\$29,413.3	\$172,740.3	\$387,015.0	\$946,791.2	\$755,636.6	\$1,702,427.9
Area Rating (pre-project)						
Multi-County with 1+ Distressed County	\$3,035.7	\$22,075.8	\$2,000.0	\$0.0	\$0.0	\$0.0
Multi-County with No Distressed County	\$647.0	\$1,410.9	\$3,500.0	\$120,000.0	\$30,978.3	\$150,978.3
**Single Competitive	\$1,073.3	\$14,098.4	\$126,800.0	\$537,800.0	\$437,638.8	\$975,438.8
Single Distressed	\$11,005.7	\$56,778.1	\$10,400.0	\$63,275.0	\$83,702.5	\$146,977.5
Single Transitional	\$13,651.8	\$78,377.1	\$244,315.0	\$225,716.2	\$203,317.0	\$429,033.3
Total	\$29,413.3	\$172,740.3	\$387,015.0	\$946,791.2	\$755,636.6	\$1,702,427.9
State						
**Alabama	\$1,805.1	\$10,810.4	\$151,400.0	\$618,500.0	\$480,603.2	\$1,099,103.2
Georgia	\$1,826.1	\$6,944.1	\$120,500.0	\$162,000.0	\$62,774.6	\$224,774.6
Kentucky	\$5,815.6	\$44,389.6	\$0.0	\$0.0	\$0.0	\$0.0
Maryland	\$1,765.0	\$5,379.2	\$2,500.0	\$2,500.0	\$3,311.5	\$5,811.5
Mississippi	\$1,857.5	\$13,163.3	\$3,200.0	\$3,200.0	\$6,744.9	\$9,944.9
North Carolina	\$1,584.3	\$8,782.5	\$9,500.0	\$10,100.0	\$10,698.0	\$20,798.0
New York	\$900.0	\$4,909.1	\$0.0	\$0.0	\$0.0	\$0.0
Ohio	\$2,300.0	\$13,328.0	\$7,600.0	\$8,741.2	\$5,623.8	\$14,365.0
Pennsylvania	\$1,650.1	\$16,448.9	\$53,515.0	\$67,275.0	\$95,506.9	\$162,781.9
South Carolina	\$1,500.0	\$13,246.2	\$0.0	\$0.0	\$0.0	\$0.0
Tennessee	\$3,563.5	\$16,368.2	\$36,800.0	\$71,400.0	\$86,435.9	\$157,835.9
Virginia	\$1,035.0	\$3,188.3	\$0.0	\$0.0	\$0.0	\$0.0
West Virginia	\$3,811.1	\$15,782.5	\$2,000.0	\$3,075.0	\$3,937.7	\$7,012.7
Total	\$29,413.3	\$172,740.3	\$387,015.0	\$946,791.2	\$755,636.6	\$1,702,427.9

* Table does not include \$90 million in retained private investment documented from interviews.

** Includes \$525 million direct and \$423 million indirect private investment from Huntsville (AL) Research Park .

*** Anticipated Private Investment refers to private investments anticipated at time of application

Second, the variation in the maturity and timeline of projects affects the amount of private investment. For example, private investment may not have had time to follow the development of publicly financed access roads.

3.6 Effects on Tax Revenues

Tax revenues can be affected by economic development in several distinct ways:

Table 3.7 Additional Tax Revenues Generated				
Project Type	No. of Projects	State/Local Sales Tax Revenue	Local Property Tax Revenue	State Income Tax Revenue
Access Road	3	\$239,647	\$1,000,000	\$201,062
Business Incubator	5	\$333,687	\$0	\$397,381
Housing Development	4	\$0	\$11,563	\$0
Industrial Park	21	\$8,270,268	\$8,745,557	\$6,442,191
Industrial Site	12	\$842,393	\$445,738	\$563,349
Telecommunications	8	\$57,604	\$48,480	\$68,714
Water/Sewer	51	\$6,808,989	\$3,950,409	\$5,589,097
TOTAL	104	\$16,552,588	\$14,201,747	\$13,261,794
<u>Area Rating (pre-project)</u>				
Multi-County with 1+ Distressed County	8	\$667,497	\$45,601	\$1,015,636
Multi-County with No Distressed County	3	\$225,122	\$1,388,640	\$216,637
Single Competitive	5	\$5,529,272	\$8,461,726	\$4,888,389
Single Distressed	36	\$2,061,635	\$186,085	\$2,280,329
Single Transitional	52	\$8,069,062	\$4,119,695	\$4,860,803
TOTAL	104	\$16,552,588	\$14,201,747	\$13,261,794
<u>State</u>				
Alabama	9	\$4,852,491	\$10,582,575	\$3,540,270
Georgia	8	\$532,215	\$1,784,946	\$512,156
Kentucky	19	\$1,432,156	\$11,563	\$2,097,942
Maryland	6	\$80,826	\$21,623	\$247,293
Mississippi	9	\$2,032,287	\$123,557	\$868,944
North Carolina	9	\$469,583	\$81,098	\$600,631
New York	5	\$106,774	\$1,000,000	\$169,459
Ohio	7	\$250,295	\$12,075	\$329,188
Pennsylvania	10	\$1,804,594	\$4,022	\$2,338,665
South Carolina	2	\$1,452,902	\$0	\$1,246,877
Tennessee	11	\$2,404,467	\$528,250	\$48,049
Virginia	3	\$87,416	\$0	\$167,406
West Virginia	6	\$1,046,582	\$52,038	\$1,094,914
TOTAL	104	\$16,552,588	\$14,201,747	\$13,261,794

* Includes \$8.3 million tax revenue from the Huntsville (AL) Research Park .

- The additional private investment can lead to increased local property tax revenues;
- The additional wages can lead to additional state income tax revenue;
- The re-spending of wages on consumer purchases can also lead to additional state and local sales tax revenues; and
- The additional business income can lead to additional business income tax revenues.

Results. The estimated project impacts on annual tax collections are as follows:

- State income tax revenue of \$13.3 million;
- State/local sales tax revenue of \$16.6 million; and
- Local property tax revenue of \$14.2 million.

A breakdown of the tax revenue impacts by project type, area classification, and state is shown in Table 3.7. The differences among states in sales and income taxes primarily reflect the levels of personal income impact, as well as differences in average sales and income tax rates among states. In addition, the differences in property tax impacts reflect the degree of local tax exemption offered as part of the public incentive package to attract some businesses. Home areas of twenty projects in this evaluation also extended some form of tax abatements or tax incentives to private sector users. Most often, tax breaks are in the form of property tax abatements, given to projects locating in low-income and high unemployment areas targeted by states for economic development. The values of these tax breaks are not presented in Table 3.7, but are noted in the electronic Appendix H.

3.7 Benefit/Cost Analysis

Measurement Approach. The purpose of ARC project funding for infrastructure and public works projects is to invest federal funds to targeted local projects in order to promote improvements to the economic development and quality of life for areas that are considered to be economically troubled (classified as either distressed or transitional). In the parlance of benefit/cost analysis, the focus of this funding is to bring about desired distributional impacts. In this sense, if a business is attracted to invest in and locate activities in a depressed area, then it is a desired benefit even if that business activity was attracted from elsewhere in the United States (presumably in a less depressed area).

Given the desire to attract business activity, “success” can be measured in terms of jobs, income, or private investment. There is no single benefit/cost ratio that is directly applicable. Rather, it is useful to assess the returns on investment for the economic development projects in terms of several measures:

- Public cost per job created;
- Private sector investment leverage (ratio of private investment per public dollar); and
- Personal income created per public dollar spent.

For community development and housing development projects, the primary impacts are the provision of a basic quality of life through access to quality housing, and community water and sewer service with associated public health improvements. Local stakeholder interviews were conducted to assess how the residential public works projects affected the communities, but the results are qualitative rather than quantitative benefit/costs measures.

To assess the impacts associated with economic development (non-residential) projects, two perspectives were used for analysis:

1. ARC investments were compared with actual results for the entire project in which the investment was made. This type of ratio is commonly used in program evaluations. ARC is only one of several public investment sources used in a project financing package, however. As a result, this type of ratio is accurate only if all of the project results depended exclusively on the ARC funding, and none would have occurred without it.
2. To correct for this problem, investment ratios were also developed that compared the total public funding with actual results, and credit is assigned to ARC based on its share of total public investment. This method delivers a much better understanding of actual return on public investment, and eliminates the common problem of “double dipping” among the claims of partnering programs in development projects.

Investment Impacts of Projects. The effectiveness of ARC in leveraging private investments, and generating jobs and personal income are summarized in Table 3.8. This table is presented in three parts. First it shows results for all projects. It then shows the results for the 78 economic development projects (Section 3.8-1), followed by the 22 community development projects (Section 3.8-2). Given the objectives of each set of projects, it is not surprising that economic development projects produce significantly greater results than those focused on basic services for communities. Water and sewer projects, and housing projects, however, are often funded with broader purposes than local economic development. These include basic health and quality of life objectives, which will be discussed in Chapters 4 and 5.

Table 3.8 Ratio of Total Results per Public Dollar for all Projects			
	Project Impact	Ratio per ARC\$	Ratio per Public\$
Total Private Investment (including indirect)	\$1,702,427,863 <i>**(\$754.2 Million)</i>	58 : 1 (26:1)	10 : 1 (4.4:1)
Jobs	Project Impact	ARC\$ per job	Public\$ per job
New Direct Jobs	17,795	\$1,653	\$9,707
New Total Jobs	43,136	\$682	\$4,005
Total New and Retained Jobs	52,716	\$558	\$3,277
Income	Project Impact	Ratio per ARC\$	Ratio per Public\$
Direct Income	\$638,775,134	22 : 1	3.7 : 1
Total New Income	\$1,331,839,875	45 : 1	7.7 : 1

Table 3.8-1 Economic Development Projects			
	Project Impact	Ratio per ARC\$	Ratio per Public\$
Total Private Investment (including indirect)	\$1,695,010,391 <i>**(\$746.7 Million)</i>	75 : 1 (33:1)	12 : 1 (5:1)
Jobs	Project Impact	ARC\$ per job	Public\$ per job
New Direct Jobs	17,645	\$1,274	\$8,102
New Total Jobs	42,911	\$524	\$3,331
Total New and Retained Jobs	54,491	\$412	\$2,623
Income	Project Impact	Ratio per ARC\$	Ratio per Public\$
Direct Income	\$634,443,857	28 : 1	4.4 : 1
Total New Income	\$1,326,171,298	59 : 1	9.3 : 1

Table 3.8-2 Community Development Projects			
	Project Impact	Ratio per ARC\$	Ratio per Public\$
Total Private Investment (including indirect)	\$7,417,472	1.2 : 1	0.3 : 1
Projects that Generated Economic Impacts		15:1	8:1
Averages for Two Projects that Generated Jobs			
Jobs	Project Impact	ARC\$ per job	Public\$ per job
New Direct Jobs *	150	\$3,203	\$6,441
New Total Jobs	225	\$2,135	\$4,294

* Excludes 75 hospital jobs added following replacement of the Jackson Water Storage Tank in Jackson, Kentucky due to ambiguous causality between the project and new jobs. This project is listed in the "community development" category and is located in a single distressed-county. Exclusion is consistent throughout tables.

**The \$754.2 million in Table 3.8 and the \$746.7 million in Table 3.8.1 reflect total Private Investment minus the disproportionately high investment for the Huntsville (AL) Research Park. Summaries of jobs and income include the large impacts from the Research Park.

Note: "Total" jobs and "total" income include indirect and induced spin-off effects.

Table 3.9-1 below separates the value of economic development investments and community development projects.

Table 3.8 presents results in three columns:

- The first column shows the project results in terms of private investment, jobs, and income.
- The second column shows results comparing total impacts with ARC dollars spent. As previously noted, this comparison is most useful if it is assumed that the project results would not occur without the ARC funding.
- The third column shows results comparing total impacts with total public dollars spent. Since the ARC funding is almost always accompanied by additional public funding for other aspects of the project, the total public dollars are always greater than the ARC dollars alone. (This is not true of the limited ARC planning and feasibility grants.)

The measure of total public dollars combines ARC funds, and other federal funds, state funds, and local public funds, treating them all as one package of funding. The resulting ratio thus represents the “average impact” of public funding for these projects. This measure is most useful when it is recognized that the marginal impact of the ARC dollars cannot be accurately distinguished from the marginal impact of other public dollars invested in these projects.

These results demonstrate the following:

Private Investment Stimulated. Overall, \$58 of private investment was leveraged for every dollar of ARC investment; \$10 was leveraged for each public sector dollar regardless of source. For the 78 economic development projects, the ratio of private sector to ARC investments was \$75 to \$1, and the private sector invested \$12 for each dollar that came from either a federal, state or local public sector source. These public sector projects are designed to enhance regions’ attractiveness for business development and thereby attract private investment.

Community development projects, on the other hand, are designed to improve local quality of life for residents. For these projects, economic development is a secondary but often obtainable goal. For community development projects, \$1.18 of private investment has been documented for every ARC dollar invested. When all public sector investment is considered, \$.34 of private funds has been invested per public dollar as of these project reviews. However, if just the two community development projects that have generated jobs are examined, the ratio of private investment is \$15 for each ARC dollar, and \$8 of private investment was generated for each dollar of public funds.

Job Creation Rate. Overall, the economic development projects studied here cost \$3,331 per new job created, including indirect and induced job creation. If jobs saved are also counted the average cost drops to \$2,623 per job (new and retained). For ARC, each new job cost \$524 of Commission funds and \$412 when including retained jobs.

Personal Income. The new jobs for economic development projects led to increased personal income for residents of the affected counties. The ratio was approximately \$9.28 of *annual* personal income to \$1 of a *one-time* public funding investment for economic development projects. The ratio of annual personal income to ARC investment was about \$59 for every one-time dollar invested by the Commission.

Table 3.9 shows how the leveraging of public dollars differs by type of project and by project goal. This is shown in terms of ratios per ARC investment and ratios per total public investment for (1) all projects, (2) economic development projects and (3) community development projects, though investment per job is only relevant for Water and Sewer projects in this classification.

The analysis is useful as a presentation of alternative perspectives on viewing ARC investment impact by broad project objectives. Not unexpectedly, economic development projects show more robust private sector leveraging, and a significantly lower cost of jobs per ARC and overall public sector investment than found for community development projects. Among economic development projects, leveraging impacts are highest for Industrial Park projects, followed by Industrial Site, and Water and Sewer projects. For community development projects, measurable economic development impacts were found only for Water and Sewer projects, where private investment was attracted though the primary objective of these projects was “households served.”

Table 3.9 Results per Public Dollar by Project Type								
Project Type – All Projects	ARC \$	ARC % of Public\$	Public Dollars per New Job		Public Dollars per New + Retained Jobs		Private Dollars (including indirect) per Public Dollar	
			Using ARC\$	Using Public\$	Using ARC\$	Using Public\$	Using ARC\$	Using Public\$
			Access Road	\$599,100	32%	\$2,996	\$9,413	\$329
Business Incubator	\$1,777,500	22%	\$2,584	\$11,722	\$1,208	\$5,479	\$0	\$0
Housing Development	\$633,848	8%	\$0	\$0	\$0	\$0	\$0	\$0
*Industrial Park	\$6,106,020	14%	\$693	\$4,932	\$257	\$1,827	\$185	\$26
Industrial Site	\$3,329,843	20%	\$3,327	\$17,023	\$1,217	\$6,230	\$60	\$12
Telecommunications	\$1,345,759	37%	\$10,514	\$28,157	\$5,851	\$15,670	\$5	\$2
Water/Sewer	\$15,621,266	17%	\$2,243	\$13,041	\$689	\$4,006	\$23	\$4
Total	\$29,413,336	17%	\$1,653	\$9,707	\$558	\$3,277	\$58	\$10

* Includes 4,040 direct jobs from the from Huntsville (AL) Research Park.

Impacts of direct private investment are \$32 per dollar of ARC funding and \$5.5 per public dollar

Table 3.9-1 Breakdown of Results per Public Dollar by Project Type for Economic Development, Community Development and Housing Development Projects								
Table 3.9-1 Breakdown of Results per Public Dollar by Project Type for Economic Development, Community Development and Housing Development Projects	ARC \$	ARC% of Public\$	Public Dollars per Direct New Job		Public Dollars per All New + Retained Jobs		Private Dollars (including indirect) per Public Dollar	
			Using ARC\$	Using Public\$	Using ARC\$	Using Public\$	Using ARC\$	Using Public\$
			Economic Development Projects					
Business Incubator	\$1,777,500	22%	\$2,584	\$11,722	\$1,208	\$5,479	\$0	\$0
*Industrial Park	\$6,106,020	14%	\$693	\$4,932	\$257	\$1,827	\$185	\$26
Industrial Site	\$3,329,843	20%	\$3,327	\$17,023	\$1,217	\$6,230	\$60	\$12
Telecommunications	\$808,297	28%	\$6,315	\$22,553	\$3,514	\$12,551	\$9	\$2
Water/Sewer	\$9,854,795	14%	\$1,446	\$10,214	\$439	\$3,101	\$36	\$5
Access Road	\$599,100	32%	\$2,996	\$9,413	\$329	\$1,034	\$0.00	\$0.00
Total Economic Development Projects	\$22,475,556	16%	\$1,274	\$8,102	\$428	\$2,723	\$75	\$12
Community Development Projects								
Telecommunications	\$537,461	75%	N/A	N/A	N/A	N/A	\$0.00	\$0.00
Water/Sewer	\$5,766,471	27%	\$38,443	\$141,484	\$25,629	\$94,323	\$1.29	\$0.35
Total Community Development Projects	\$6,303,932	29%	\$42,026	\$146,266	\$28,017	\$97,511	\$1.18	\$0.34

* Includes 4,040 direct jobs from the from Huntsville (AL) Research Park.

Impacts of direct private investments generated by economic development projects are \$32 per dollar of ARC funding and \$5.5 per public dollar

Impacts of direct private investment attributed to community development projects are \$.79 per dollar of ARC funding and \$.29 per public dollar

Breakdown of Overall Results for All Projects. Table 3.10 shows the ratios of total results for all 104 projects by state and by the area rating of economic distress when the project was approved. The breakdown also reflects differences by project type. In looking at the state-by-state listing, it is important to keep in mind that (1) project objectives (economic, community or housing development), (2) project mix (industrial park, industrial site, access road, telecommunications, business incubator and housing), and (3) economic status of project areas (distressed, transitional and competitive) drive outcomes. Rates of income creation as well as private sector leverage tended to be higher for industrial parks, industrial sites and economic development portion of water/sewer projects than other projects, whether they are economic or community development initiatives. In addition, impacts are more dynamic in competitive counties than in transitional counties, and are stronger in transitional counties than in distressed counties. This latter finding reflects that the difficulty of job creation increases with the intractability of poverty.

Table 3.10 Results per Total Public Dollars by Place of Project				
Area Rating	Public\$ per Direct Jobs	Public\$ per Total + Retained Jobs	Total Income per Public \$	Private Investment per Public \$
Multi-County with 1+ Distressed County	\$30,407	\$14,997	\$1.89	\$0.00
Multi-County with No Distressed County	\$6,271	\$2,524	\$12.17	\$107.01
*Single Competitive	\$2,373	\$883	\$36.72	\$69.19
Single Distressed	\$23,109	\$8,274	\$2.96	\$2.59
Single Transitional	\$9,279	\$2,814	\$7.49	\$5.47
Total	\$9,707	\$3,277	\$7.71	\$9.86
State				
*AL	\$2,163	\$1,135	\$31.61	\$101.67
GA	\$11,200	\$5,095	\$5.26	\$32.37
KY	\$31,151	\$13,824	\$1.98	\$0.00
MD	\$18,874	\$2,445	\$2.67	\$1.08
MS	\$7,882	\$2,530	\$11.77	\$0.76
NC	\$10,896	\$2,357	\$4.49	\$2.37
NY	\$46,753	\$2,482	\$2.13	\$0.00
OH	\$38,409	\$17,197	\$1.32	\$1.08
PA	\$7,124	\$1,726	\$16.84	\$9.90
SC	\$7,769	\$2,293	\$8.35	\$0.00
TN	\$8,534	\$3,142	\$8.05	\$9.64
VA	\$9,963	\$5,613	\$3.18	\$0.00
WV	\$12,273	\$4,325	\$6.29	\$0.44
Total	\$9,707	\$3,277	\$7.71	\$9.86

* Includes 4,040 direct jobs from the from Huntsville (AL) Research Park .

Importance of ARC Support. The core question in any evaluation of economic development programs is to determine the extent to which outcomes can be related to the programs being examined. The discussion above relates outcomes in terms of ARC dollars and the portfolio of public investments by federal, state and local agencies in combination with ARC. We asked interviewees to rate the importance of ARC investments for making the projects in their counties possible, and to determine how much of the impact can be attributed to the Commission. Multiple interviews were conducted for many projects in this evaluation. Interviewees included project proponents; local public and private sector economic and community development leaders not directly connected with projects; and staff of sponsoring organizations who replaced initial project proponents and therefore do not have a personal or job related reason to defend past projects. Overall, interviews validated the following:

- ARC support made 73% of all projects possible, including 76% of economic development, 68% of community development projects, and all housing projects;

Project Type	Total New Jobs	Jobs Attributable to ARC Involvement	Percent Attributable to ARC
Access Road	636	636	100%
Business Incubator	1,357	1,001	74%
Industrial Park	22,815	22,299	98%
Industrial Site	2,583	1,992	77%
Telecommunications	230	101	44%
Water/Sewer	14,508	5,603	39%
Total	42,129	31,632	75%

Interviewees answered "don't know" for projects including 1,007 jobs.
Totals include new direct, indirect and induced jobs

- 87% of interviewees for economic development projects said that the projects improved local quality of life; and
- 92% of community development and housing development respondents also said that these projects improved local quality of life.

From the "people on the ground" in communities where ARC projects were implemented, the implication of these findings are that 75% of project related new jobs would not have occurred without ARC intervention. As Table 3-11 shows (previous page), reliance on ARC appears strongest for jobs generated from industrial park and access roads, and weakest for telecommunications and water and sewer projects.

Though interviewees indicate 31,632 new jobs in Appalachia can be attributed to ARC projects, this is an undercount. Interviews indicate that six additional projects, accounting for an additional 7,288 jobs were facilitated due to ARC. Although interviewees said that these projects would have happened anyway, they noted that they would have been delayed for years; further, it is possible that the economic benefits now seen would still be incubating. Of projects not counted in Table 3-11:

- 3 water and sewer projects would have happened without ARC. Two would have been delayed (and therefore resulting economic development would have been delayed);

- 2 industrial parks were developed more quickly with ARC support than would otherwise have been possible. Interviews from one of these projects indicated that the delay would have been 5-10 years;
- Interviewees concerning a business incubator said that without ARC there would have been construction delays, resulting in lost contracts and slower economic development in the area; and
- Interviewees concerning an industrial site reported that development of the site would have been more difficult if ARC support were not available.

If the jobs generated from projects that faced long-term delays without ARC support are added to the totals in Table 3-11, then 92% of all new project related jobs are attributable to ARC according to local economic developers, including 100% of jobs generated by incubator and industrial site projects, 99% from industrial park projects and 80% from water and sewer development.

Notes

[i] These ARC projects have been successfully completed but the actual developments have not yet been implemented.

[ii] Of the 51 water and sewer projects in this evaluation, 32 are classified as “economic development and 19 are classified as “community development.”

[iii] For this report, multi-county projects with at least one distressed county are counted as “distressed.”

[iv] All multi-county projects with no distressed county were “transitional” at the time of application.