

#### 4. Evaluation of Impacts by Project Type

This section provides an analysis of how projected results compare to actual results for the major types of projects: industrial park, business incubator, access roads, water/sewer service, telecommunications and housing. As noted earlier, the first three categories were considered to be classic economic development projects. Water-sewer and telecommunications projects were divided among economic development and residential development projects, although virtually all residential projects (aside from housing) also demonstrate some level of direct or indirect economic development impact. [i]

The discussion examines the outcomes for the 78 projects classified in the “economic development” category including all industrial park, business incubator, and access road projects, as well as 32 of 53 water and sewer projects, and five of the eight telecommunications projects. (Non-economic projects in these categories are treated separately, as are housing projects.) To create a balanced view of ARC investments, the analysis was developed along a dual track:

First, ARC investments were compared with actual results for the entire project in which the investment was made. This methodology is commonly used in program evaluations, including many at the state and federal level. But each public program investment in a development project is commonly one piece of a larger package. Thus, it is difficult to unambiguously attribute the proper share of the impacts, and the tendency is often to “claim” credit for total impacts for each piece of the investment portfolio sponsored by various agencies.

To develop a more accurate view of the specific ARC funding impact, investment ratios were also developed which limited the ARC “share” of a given impact to that portion of public investment provided. 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. This method is referred to as the “ARC Credit/Share” method elsewhere in the report.

On a more subjective level, the reality probably lies somewhere in. While the Full Credit method exaggerates the importance of any agencies credit share, the ARC Share approach likely understates it. With that in mind, the importance of stakeholder assessments of the criticality of ARC investments to projects (detailed in Section 3.7) should not be underestimated, including the finding that interviewees felt that ARC support made 73% of all projects possible.

This section also provides examples of qualitative objectives and outcomes of projects that were common among project types. The examples are meant to be illustrative, not exhaustive. These illustrations often relied on the extensive

interview process developed with local sponsoring agencies, user firms, and other development or governmental stakeholders involved in the application and implementation process. The interviews provided context for the raw projection and impact of each project, and facilitated the identification of common themes among projects.

#### 4.1 Water/Sewer Projects

ARC invested in a variety of water and sewer projects, ranging from sewer lines for specific industrial users to water and sewer system development targeted at un-served and under-served residential communities. In addition, there were a variety of water and sewer improvements designed to impact both business and residential development, including industrial parks.

Fifty-one water and sewer projects (49 percent of the total) accounted for 53 percent of the total ARC investment reflected in the sample. Thus, water and sewer projects tended on average to be slightly larger than the average sample project. Of the 53 projects in this classification, 32 had at least partial significant economic development objectives (i.e., were not purely residential in conception)

Table 4.1 Water & Sewer Projects: Aggregate Projections and Results			
	Projected	Actual	Difference to Date
New Businesses Served	226	322	96
Businesses Retained	89	91	2
Jobs Created	3,636	6,966	3,330
Jobs Retained	7,858	7,160	-698
Households Served	5,493	7,035	1,542
HH Served (non-planning projects)	5,237	7,035	1,798

As Table 4.1 indicates, water and sewer projects performed very well, meeting or exceeding aggregate projections in every case except for a shortfall in retained jobs. Projections for new businesses, jobs, and households served were exceeded by substantial margins. 42% more new businesses were served than originally projected, and 92% more new jobs were created. 28% more households were served than anticipated.

Because of the integrated economic development and residential nature of many water-sewer projects, it is difficult to accurately pull out measures such as cost per job used to assess other classifications; If the per job cost is higher, but a

substantial number of residences are served, is there an offset? This is a policy issue beyond the scope of this project.

In the project sample pool, 19 of the water-sewer projects were assessed to be strictly residential, while the other 32 were in part or whole economic development oriented. Table 4.2 breaks out results of these two types of project foci, barring overlapping results and yielding a better picture of how the primary objectives were satisfied. Since many of the projects overlapped residential and economic objectives and results, these are imperfect, subjective classifications. However, by analyzing the investment results of the water and sewer projects in three parts -- overall, and within the residential and economic development sub-categories, we hope to provide a more realistic perspective on ARC return on investment.

<b>Table 4.2 Water &amp; Sewer Projects: Residential and ED-based Projects and Results</b>			
	Projected	Actual	Difference to Date
<b>Residential (19)</b>			
Households Served	5,041	4,574	-467 *
HH Served (non-planning projects)	4,785	4,574	-211 **
<b>Economic Development (32)</b>			
New Businesses Served	217	313	96
Businesses Retained	81	83	2
Jobs Created	3,276	6,816	3,540
Jobs Retained	7,858	7,160	-698

Note: Projections and Results do not sum to table 4.1 due to sub-category screening

\* The shortfall is largely due to a single project which has not performed as projected to date

\*\* One planning-only project projected 256 new jobs

After segregating the water-sewer projects by residential and economic development-focus, the major differences in outcomes are two-fold:

- Actual new jobs created now are now 208% of the number of new jobs projected
- The outcome of households served is reversed. Projections now exceed actual households served, indicating that economic development projects with ancillary residential outcomes are more effective (or may simply tend to downplay outcome expectations of what are considered secondary project impacts).

As shown in Table 4.3, aggregate results for the economic development project sub-group of water-sewer projects show that ARC investment per job was \$1,446, and \$10,214 by the ARC share calculation method. Investment for newly created and retained jobs was about half in each category. Costs per job remained relatively low but increased significantly when the costs and results of all 51 projects were included for the water-sewer group as a whole.

Since economic development-focused water-sewer projects performed so well in ancillary services provided to residents, the cost per household under the full credit calculation method was actually lower when all projects (not just residentially-based projects). However, when the ARC share calculation was used, residential-only project were more cost effective serving households with water and sewer (\$4,640 per household) than was the total water-sewer project group (\$7,658). The difference is due to the smaller percentage of ARC investment in the economic development projects, and hence the smaller “claim” on results.

<b>Table 4.3 Water &amp; Sewer Projects: Residential and ED-based Projects and Results</b>		
	<b>Calculation Method</b>	
	<b>Full Credit (\$)</b>	<b>ARC Share (\$)</b>
<b>Residential (19 projects)</b>		
Cost per Household Served	1,557	4,640
<b>Economic Development (32 projects)</b>		
New Businesses Served	31,485	207,432
All Businesses Served	24,886	164,192
Jobs Created	1,446	10,214
All Jobs Created or Retained	689	4,006
<b>All Projects (51)</b>		
Cost per Household Served	1,387	7,658
New Businesses Served	48,513	267,834
All Businesses Served	37,824	208,820
Jobs Created	2,243	13,041
All Jobs Created or Retained	1,106	6,105

Of the 51 water-sewer projects, forty met or exceeded economic and residential projections, 27 of 32 economic development projects in the classification (84%) satisfied projections, while 68% of the residential projects fared as well. (28% of the economic development projects exceeded projections, compared to 21% of the residential projects.) Among the economic development projects that experienced shortfalls, two (Watkins Glen Second Street-NY and Andrews Wastewater Treatment Plant-NC) were recently completed only in 2005. The

third (County Line Industrial Park-AL) was completed in 2002; its outcomes shortfall is apparently due to properties sold as a result of the project improvements but which have yet to be built upon. Residential projects experiencing shortfalls have more varied end-date time frames. One had not made outcome projections. There was no discernible geographic pattern to projects which did not, as of yet, satisfy their outcome projections.

Local projects in several states tended to group around an economic development or residential focus. All six projects in Alabama, all seven in North Carolina and all three in New York were economic development-oriented. Both water-sewer projects in Oh and both in VA were residential. Other states like Kentucky (four ED and seven residential) split the focus of their projects.

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 trends and situations in which water and sewer projects generated other qualitative outcomes not readily measured by the usual performance measurements.

It is worth remembering the very basic needs (taken for granted almost everywhere else) that traditional residential water-sewer projects address in Appalachian areas:

- At least three projects were designed in part to bring potable water and fire protection to schools (Reform Water System Improvements-AL; Breathitt County Water Line-KY; Carrs Fork/ Littcarr Water Extension-KY).
- Four other projects were addressed to basic needs of fresh water for communities which did not have water clean enough to drink or do laundry (Lick Creek/Mingo County Water-WV; Slate Creek Water-VA; Stoney Fork/Red Bird/Saylor Hollow Water-KY; Whitley County Water-KY)
- Other residential projects analyzed their experiences as a positive step toward broader community revitalization:
- The Salt Lick Sewer Collection project (KY) was understood by stakeholders as a step toward business development over and above the almost 500 residences served. Credit for development of a new school and private investment in a new bank were directly attributed to the project, which was also seen as a vehicle that improved regional cooperation.
- Another project (Whitley County Water-KY) experienced lower than anticipated bids, and used the in-place funding to extend the scope of the project, increasing the number of households served by 15% with the original funding.

Interviews with stakeholders from the economic development-based projects in the water-sewer classification indicated a number of interesting commonalities:

At least seven of the economic development sewer-water project were primarily concerned with servicing a single larger bird-in-hand business, and did for a total of over 3,300 new and retained jobs. Six of the seven met or exceeded job projections, suggesting again that the bird-in-hand project type is a significant success indicator (Taylorsville Industrial Water-NC; Icard Water Improvement-NC; Big Flats Sewer Improvement-NY; Dushore Borough/ Cherry Township Water Extension-PA; Valley Head Sewer System-AL; Upper Potomoc River Commission Sewage Treatment-MD). The seventh (Andrews Wastewater Treatment-NC) fell short of projections due to the closure of a large apparel manufacturer. However, the project managed to serve other businesses and impact over 600 new and retained jobs in other firms, making the ARC share of cost per job for that project just a little over \$5,000.

Three projects significantly exceeded new jobs projections by helping to attract unanticipated business through infrastructure improvements. Together these projects had projected 410 new jobs created, while reported results included 1,825 new jobs created. These included the Brasleton Water Expansion-GA (a new chicken processing plant and tripled population since 2000); the Brushfork Sewer Project-WV (attracting a 300-job telecommunications firm); and the Northeast MS Regional Water Supply Facilities Improvement-MS, which attracted businesses employing up to 300 workers to the North Lee Industrial Park.

Two KY areas reported very positive results from prison-related projects (Paintsville/Honey Branch Wastewater; McCreary County Prison Infrastructure) including the creation of 800 jobs and the retention of another 250. Both areas reported related spin-off business development, including restaurants, fuel and convenience stores, hotel development and an increase in airport activity near Paintsville.

Significant, broader development spin-offs resulting from projects originally focused on service to industrial businesses were also related by stakeholders in at least four additional project areas, including Pickens County 18 Mile Creek Sewer-SC; Dawsonville Water System Improvements-GA; Elkin Sewer Extension-NC; and Gaffney/Clary Wastewater Treatment Plant-SC.

- The Gaffney project was industrially focused but realized broad retail and educational impacts, including an expansion of the local community college.
- The Pickens County project far exceeded its job creation goals, including 850 new high quality jobs as well as unforeseen restaurant and hotel development.

- The Dawsonville project spurred development of a new high school, restaurants and helped the tourism community.
- On a reduced budget, the Elkin project served the businesses and created the jobs it set out to assist, and also set the stage for new community college development.

In addition:

- The need for future telecommunications projects was expressed (unsolicited) by interviewees from four of the 32 economic-development-based projects.
- Representatives from nine projects were unable to confirm budgeted dollars (six from ED projects and three residential), while another three ED project representatives were unable to confirm whether or not the projects had resulted in private investment. One project did not establish original outcome projections.
- In many cases, local project sponsors sold their results short by not closely tracking ancillary development, including residential and retail development resulting from projects which were primarily industrial in conception, or economic development results from projects which had a primary residential or community focus. In general, lack of resources were held responsible for this lack by interviewees; incentives built into the program may have resulted in better impact tracking and reporting.

#### **4.2 Industrial Park Projects**

Depending on the needs of a specific project, ARC industrial park investments will cover almost any aspect of site development, utility infrastructure, paving or building construction, or rehabilitation for multiple users.

Twenty-one industrial park projects (20 percent of the total evaluated project pool) accounted for 21 percent of the total ARC investment reflected in the sample. Thus, industrial park project grants were very slightly larger (by about \$8,000) than the average sample project.

As Table 4.4 indicates, industrial park projects performed quite modestly in aggregate, at least to date. It is, however, important to remember that industrial parks tend to be speculative, and that development and marketing take considerable time. In this sample, only four projects have had five or more years to germinate. Eleven were not completed before 2003 and seven had only two years to develop. The retained job projections are on the mark, and indirect jobs

produced are far above projections, even at this relatively early date. These results fall notably short of the industrial park projects reviewed in the 2000 evaluation, but, as a group, they are much less mature as well. The vast majority of earlier park projects were more than five years old at the time of the original evaluation.

Despite unmet projections and the development time frame, however, the return to date on industrial park projects is impressive. Using the absolute method, one new job has been created for each \$693 invested by ARC. Even more important, using the “ARC Share” method, only \$4,932 was invested for each job created.

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 examples where industrial park projects generated other qualitative outcomes not readily measured by the traditional performance measurements, including:

- Providing higher quality jobs and income than were usual in project areas (Browder Switch Industrial Park-TN; Macedonia [now Roane] Industrial Park-TN; Washington County Industrial Park-TN).
- Doubling as incubator efforts or where projects helped pinpoint the need for startup financing (Upper Kanawha Valley-WV; Victory Road Business Park-PA; Cambria Iron Works Complex-PA).

<b>Table 4.4 Industrial Park Projects (21): Aggregate Projections and Results</b>			
	Projected	Actual	Difference to Date
Businesses Served	80	57	-23
Businesses Retained	0	1	1
Jobs Created	14,125	8,812	-5,313
Jobs Retained	1,068	968	-100
Indirect Jobs	n/a	14,003	n/a
Households Served	3,000	3,000	0

- Making substantial improvements to residential areas as well as the direct economic development project objectives (Tompkinsville Industrial Park-KY; Morehead Industrial Park-KY).
- Stimulating and feeding from cluster development; (National Printing Innovation Center and Upper Kanawha Valley Industrial Park-WV; the Fuel Cell Technology Center and Logan-Hocking Industrial Park-OH).

- Focusing on brownfield reuse and development. (Cambria Iron Works Complex-PA).
- Confirming that a bird in hand was the single most consistent indicator of project success to date. It was clear from the interviews that the best results from larger park development projects are achieved by beginning with a bird-in-hand (Greenville Hardin-TN; Huntsville Research Park-AL; Coaldale Business Site-PA; Monroe Industrial Park-PA; Washington County Industrial Park-TN). Projects that began with a bird-in-hand tended to succeed while others tended not to (although this was certainly not always the case). Once bird-in-hand development begins, speculative development becomes realistic and possible (Macedonia [now Roane] Industrial Park-TN).

In addition a significant number of interviewees:

- Pointed out demand for broadband access development as critical to further business investment in their areas (Morehead Industrial Park-KY; Logan-Hocking Industrial Park-OH; Monroe Industrial Park-OH; Macedonia [now Roane] Industrial Park-TN; Morehead Industrial Park-KY). This envisioned future project focus was at least as pervasive as expressions of interest regarding more traditional infrastructure needs.
- Demonstrated spotty record keeping, poor access to project files or incomplete projections and results. This often resulted from staff turnover issues, and was apparent in at least five of the 21 projects in this classification.

### **4.3 Industrial Sites**

The twelve industrial site projects in the sample received \$3,329,843 in ARC investment, for an average project cost of just over \$277,000, very close to the average sample project cost of \$282,280. Four of the projects closed in 2001 or earlier; three closed in 2002, one in 2003 and four as late as 2004. Later projects, in particular, are likely to report results that are lower than eventual impacts.

While the industrial site projects out-performed projections for businesses served, businesses retained and jobs retained, the number of jobs created was, at the time of the evaluation, less than 50% of the aggregate projection. However, 1,000 jobs of the shortfall from projections emanates from the Fayette County PA planning project, which began with first stage environmental plans for three sites as the start of a broad, long term site development strategy. Although only one firm has been located on the sites to date, that investment has included

a private sector commitment of \$51 million. It is still anticipated that the more robust job projections will come to fruition.

Table 4.5 Industrial Site Projects (12): Aggregate Projections and Results			
	Projected	Actual	Difference to Date
Businesses Served	13	16	3
Businesses Retained	7	8	1
Jobs Created	2,265	1,001	-1,264 *
without planning projects	1,265	1,001	-264
Jobs Retained	130	152	22
Indirect Jobs	n/a	1,582	n/a
Households Served	292	200	-92

\* Includes one pure planning project that projected 1,000 new jobs

Having said that, it is still somewhat disappointing to note that half of the industrial site projects report results for jobs created that fall below projections. Site projects with shortfalls are spread among large and smaller projects, and cover the range of time periods since the projects were closed.

As result, ARC investment figures do not demonstrate the same level of return in this classification as some others. Using the full credit method, \$3,327 in ARC funds was required for each job. However, using the proportional methodology, each job required an ARC investment of \$17,023. Naturally, these figures will be reduced dramatically if the projects develop over time, especially the Fayette County (PA) site plans.

Nevertheless these projects created jobs (both new and retained) at a very efficient clip. One note: The relatively large average size of firms created by these projects (135 employees) suggests a focus on large firms that likely did not emanate from the project area. Smaller investments in locally controlled firms might also be in order, considering the findings on mature firm growth and entrepreneurial activity levels in Section 6.

- Of the twelve projects, six completely met or exceeded goals (Cumberland Rolling Mill Infrastructure-MD; Johnson City Utility Line-TN; Endless Mountains Industrial Building-PA; Hocking County infrastructure-OH; Fort Payne Distribution Center-AL; Grundy County Industrial Building-TN). Three substantially attained projected goals (Monroe County Industrial Building-MS; Jenkins Industrial Site-KY; Rock Springs Industrial Park-GA); and two (in addition to the Fayette PA planning project) have not yet approached their projected job creation or businesses served goals (Central Garrett Industrial Park-MD; Hardy County Industrial Building-WV).

- Interviewees for two projects could not confirm whether or not there had been private investment as part of, or resulting from, the project.
- Five of the twelve projects had made no initial projections for “businesses served”. Two of the partially attained projects failed to make prior projections for the number of businesses to be created or served.

Because of the similarity in focus (and resulting ambiguities in classification selections) it also makes sense to look at the outcomes of industrial site and industrial park projects as one:

<b>Table 4.6 Aggregated Industrial Park &amp; Site Projects (33): Projections and Results</b>		
Per:	Calculation Method	
	Full Credit	ARC Share
Jobs Created	\$962	\$6,159
Jobs Created and Retained	\$863	\$5,529

As discussed earlier, a variety of reasons resulted in jobs shortfalls, including a planning-only project, the timing of this evaluation relative to development timeframes and, we suspect, some overly optimistic application projections.

Despite those shortfalls, the combined industrial park and site investment per job created was just over \$6,000, for jobs which several interviewees enthusiastically described as very high quality relative to others in their project areas.

#### **4.4 Business Incubator Projects**

ARC investments in business incubators primarily include the development of buildings suitable for multi-enterprise business start-up purposes. [ii] Five business incubator projects (five percent of the total) accounted for six percent of the total ARC investment reflected in the database. Thus, business incubator project grants tended to be about \$73,000 (26%) larger than the average sample project. Larger projects create additional demands on return data, a factor that intensifies among incubator-based firms, which tend toward conservative startup employment.

As Table 4.7 indicates, incubator projects met or exceeded aggregate projections in every case. Actual newly created jobs created exceeded projections by 71%.

Table 4.7 Incubator Projects (5): Aggregate Projections and Results			
	Projected	Actual	Difference to Date
Businesses Served	52	55	3
Jobs Created	403	688	285
Indirect Jobs	n/a	669	n/a

What is impressive about the results to-date of incubator projects is that four of the five were completed only in 2004-2005. In other words, the actual results reported have been developed in 1-2 years, much more accelerated than might be anticipated. The apparent demand and rapid success of this entrepreneurship service underscores findings about gaps in startup activity that (as discussed in Section 6) are consistent in both the 2000 review as well as the current one. With a high level of assurance we point to this remark from the earlier study:

The entrepreneurial vitality analysis suggests overwhelmingly that ARC's focus on entrepreneurship is right on the mark, since the Region fares poorly in start-up activity measures relative to U.S. patterns. Notably, start-up activity and performance appear slightly better, on the whole, among project areas that developed incubator projects.

ARC incubator job (and business) investments also appear to be efficient, especially given the slow ramp up nature of the program and the short development time frame since project completion. Using the "full credit" method, there was one job created for every \$2,584 invested by ARC. By the same method, \$32,318 was invested for each new business served. By the proportional method, new incubator jobs required an investment of \$11,722, and each newly created business a heftier \$146,629.

Table 4.8 presents a mixed picture of startup activity in the incubator project areas. It needs to be emphasized that incubators rarely demonstrate measurable area results in the short term, and that these incubators, in particular, have had precious little time to develop. [ii]

What is most notable about these startup activity rates (two in distressed counties and two at-risk) is that in every case there was a clearly identified (if intuited) need for the project; activity indices had dipped and a focus on entrepreneurial activity was in order. In four of the cases, the clearly positive

impact of the incubator (as shown in jobs created and businesses served results) have not had sufficient time to spread through the projects area, or in some cases, show up in the measurements. In the single longer-term project, in VA, the startup activity index has moved significantly back up toward US levels since project completion in 2001. As a matter of correspondence, (not necessarily causality) it's worth noting that the same three-county project area has moved from a designation of multi-county with 1+ distressed county to no distressed counties.

Table 4.8 Incubator Project Areas: Trailing Startup Activity (US=1.00)					
	Startup Index Rates				Project Completion
	1998-2000	2000-2002	2002-2004	2005	
Colbert, AL	0.95	0.73	0.73	0.72	2005
Kemper, MS	0.91	0.55	0.23	0.00	2004
Athens, OH	0.68	0.65	0.71	0.60	2004
Fayette, PA	0.64	0.55	0.52	0.52	2005
Lee-Scott-Wise VA	0.86	0.58	0.71	0.72	2001

\* Two decimal indices show relation to US startup activity rates, where US=1.00 and 0.90, for example, reflects 10% below the US rate.

In addition to these quantitative outcomes, the interviews conducted with economic development officials and various community leaders in each community served by the projects identified some important issues among even this small number of projects:

- Four of the five incubator projects reported results well over projections (new businesses served, jobs created or both), including two projects completed in 2004 and one in 2005. This finding, perhaps more than any other, expresses the region's thirst for startup assistance as a tool geared toward increased entrepreneurial vitality.
- Projects which already reported fulfillment of goals included two distressed counties (Athens, OH and Kemper, MS) and two more classified as at-risk (Fayette, PA and Colbert, AL).
- One of the projects (in an at-risk county, the Shoals Entrepreneurial Center in Colbert AL) involved a second expansion of an existing incubator. Another, the Kemper County Incubator, also involved an expansion of an existing incubator.
- Interviews for two of the five projects indicated deficiencies in record-keeping, reporting and/or development of original projections.

- One project reported a distinctly higher job quality from the incubator project than normally seen in the area (OH University Innovation Center in Athens, OH).

#### 4.5 Access Road Projects

The sample included only three Access Road projects, largely due to the additional housing and telecommunications categories in this evaluation round. Access road projects funded both access to specific industrial user sites and access to multi-user industrial parks. In each of the three cases, the project was designed to serve multiple businesses. The three projects (three percent of the total) accounted for two percent of the total ARC investment reflected in the sample. Thus, industrial access road project investments were on average \$83,000 (29%) smaller than the average sample project.

As Table 4.9 suggests, industrial access road projects performed well in the business served categories, as well as new jobs created. Actual retained jobs fell far below projections, but this appears to be due mainly to an industry cyclical downturn, rather than any specific local conditions. (The firm in question remained in the area but cut its work force substantially.)

Table 4.9 Access Road Projects (3): Aggregate Projections and Results				
	Projected		Actual	Difference to Date
Businesses Served	1		2	1
Businesses Retained	10		14	4
Jobs Created	198		200	2
Jobs Retained	1,651		1,185	-466
Indirect Jobs	n/a		436	n/a

ARC investments in access road projects paid off with significant leveraging rates. Since the nature of access road projects is often to improve conditions for existing businesses, it is worth looking at both new and retained jobs in light of investment.

By the full credit method, one job was created for each \$2,996 of ARC investment; the investment was \$9,413 figured by the proportional method. Similarly, each job required an investment of \$329 (or \$1,034 by the proportional method) when including both new and retained jobs.

Interviews probing the three access road project revealed some correspondence with other industrially-related classifications:

- Bird-in-hand projects were most successful (Prescott Avenue Industrial Access Road in Chemung, NY), Improvements to existing occupied sites with additional space spurred new and unanticipated business location (Louisville Winston County Access Road-MS).
- One project designed mainly for a bird-in-hand customer fell short in its original objective due to an industry downturn, but service to a second industry (wineries) spurred an unanticipated boost in area tourism and likely, economic diversification efforts (Hammondsport Industrial Access Road-NY).
- One project area was unable to confirm project funding from existing records.

#### **4.6 Telecommunications**

Before beginning the review of telecommunications projects, it is worth mentioning that an unusual number of stakeholders representing industrial park, industrial site, incubator and other economic development projects spontaneously expressed the desire for telecommunications enhancements, or telecommunications project investments, in their areas. Those thoughts seem particularly important in the context of the clear lines that can be drawn between some of the telecommunications projects discussed here and enhanced area business operations. We suggest some future tie-in between traditional and Telecommunications projects in the conclusions to this report (Section 7).

Telecommunications, a new project category, was represented by 8 projects in the sample. Of these, five were judged to have had primary or critical economic development impact projections.

As a group, the telecommunications projects accounted for an ARC investment of \$1,345,579, or 5% of the total sample pool investment. The eight projects themselves were 8% of the pool. The average telecommunications project investment was \$168,220 or 41% smaller than the average sample pool project investment.

Unfortunately, the economic development-based project with the largest ARC investment had to be excluded from the results calculations because no projections had been developed prior to implementation, and, no results had been collected. One of the two non-economic development-based projects were also excluded for projection purposes, since no household impacts were either projected or reported.

As Table 4.10 reflects, the ED-based telecommunications projects exceeded projections for both the numbers of business served and jobs created. The 96 jobs created shown in the table is understated, because one project sponsor (which accounts for 15% of the businesses served) did not track job creation or retention. Note the relatively large number of households also served (600), in this case by a single project. (The other ED-based projects did not track households served, although they were, in fact, served in some cases.)

<b>Table 4.10 ED-Based Telecommunications Projects (5): Projections and Results</b>					
	Projected		Actual		Difference to Date
Businesses Served	53		163		110
Jobs Created	81		96*		15
Households Served	600		600		0
<b>Non-ED project (1)</b>					
Households Served	1000		1000		0

\* sums four projects; one did not collect jobs data; non-ED projects created another 32 jobs (total 128).

Of the eight telecommunications projects, three have already met their goal levels for businesses served, job created or retained and households served. Three have exceeded their goals. One, completed in 2005, has satisfied residential but not business objectives; and one never established any real goals.

The ED-based projects received \$500,977 in ARC investments (37% of the total telecommunications investment). This works out to a “full ARC credit” cost of \$3,073 per job created, and a proportional share investment of \$15,338. (The per-job investment rises to \$8,420 if the excluded project is folded into the investment total.) This also works out to a cost of \$383 per household by the full credit method, and \$3,165 by the proportional method, using data from only the two projects that had household projections and results.

When the data for households served (connected) includes both ED-based and the non-ED project with results data, the total of 1600 households served works out to \$393/household using the full credit method and \$1513 when the proportional calculation is applied.

Interviews with project stakeholders also indicated that:

- The projects themselves focused on a variety of extremely creative efforts, including re-use of an older industrial building for telecenter operations (Blue Ridge Telecenter Development-NC); tele-radiology development that allows

rural x-rays to be transmitted anywhere in the world (Hancock County Picture Archiving-TN); distance learning access (Western MD Regional Video Switched Network-MD) and two projects targeted toward startup enterprise services (Epworth Broadband Initiative-GA; Garrett Information Center-MD).

- Four projects met or exceeded goals on an extremely short timeline (projects closed in 2004 or 2005), including Hancock County Picture Archiving-TN; Blue Ridge Telecenter-NC; NC Mutual Endeavor-NC; CANA-PA; Another closed in 2005 and has already largely met both residential and businesses objectives and as well (Epworth Broadband Initiative-GA).
- Follow-up investigation of private funding and development impacts of the projects were not rigorously undertaken in at least two areas (in addition to the third which had not established goals).

#### **4.7 Housing**

The second of the two new categories in this evaluation was housing projects. These projects focused directly (solely) on residential housing development, as opposed to other project classifications which sometimes included ancillary housing impacts or benefits to residential households.

The four housing projects included in the sample (and all housing projects in the closed pool from which they were selected) were located in the state of Kentucky. In all, the projects were designed to create 210 new residences and to-date fell just short of the goal, reporting 200. All were closed in time for final construction impacts to be reasonably reported. One of the projects invested in a transitional housing shelter which also served as a broader-based community center.

As a matter of investment, the housing projects required \$3,669 of ARC investment by the full credit calculation method, but \$39,725 by the proportional credit method. The latter figure will no doubt be the source of some discussion as to the value of the investment. As part of that discussion, it would be worth examining in depth the Safe Harbor Transitional Housing and community center project in Wheelwright, KY. This project created 20 residential units (of a smaller, transitional nature than any others) while assisting the development of a community center and centralized services that received what can only be described as rave reviews by stakeholders. The relative cost of that investment was \$1,120 per unit by the full credit methodology, and \$3,745 by the proportional method. This was a small project, and certainly not easily replicated elsewhere, but the lessons of multi-function investment with a strong housing component should not be lost.

There are two ways to look at this data. The first option looks primarily at the numbers. Given this, there is a very wide range of per unit investment costs -- from \$3,745 to \$85,391. Despite the variance, these are (for the most part) known costs with known results, unlike many economic development investments. (The project with the highest per unit ARC investment, Irvine Downtown, benefited from a significant increase in ARC funding from the original application request.) The wide fluctuations in costs suggest the need for tighter policies regarding desirable per unit costs. The positive outcomes for the multi-unit housing also suggest the need for some policy guidance regarding the desirability, and fiscal trade-offs, of various types of housing investments.

Table 4.11 shows the detail of all four housing projects in the sample, reflective of this first ARC effort.

Table 4.11 Housing Projects (4): Return on Investment					
	Housing Units		Investment per Unit		
	Projected	Actual	Full Credit	Proportional Credit	
Clifty Heights Elderly Rental Housing	10	10	4,000	48,917	
Safe Harbor Transitional Housing (in community center)	20	20	1,120	3,745	
Fed. of Appalachian Housing Enterprises (low income housing)	150	140	3,082	33,709	
Irvine Downtown Project (elderly housing)	30	30	4,667	85,391	
Total	200	200	3,169	39,225	

The other perspective is more one of economic development. In the same way that roads and sewer lines developed for industrial purposes can also spur housing development as an ancillary impact, it's also clear from this set of projects that housing development can also generate or contribute to other developments and services worth considering. For example, the Safe Harbor Transitional Housing project clearly served as an anchor for centralization of services and expanded use of the Wheelwright community center. By the accounts of interviewees, it also enhanced conditions for downtown development and had a direct impact on the retail situation downtown (through the housing and expansion of community center services that attracted more people into town). The Irvine Downtown Elderly Housing project was given direct credit by stakeholders for sparking downtown revitalization. (Perhaps coincidentally, both of these projects involved multi-unit housing types.) If these important indirect impacts are to be considered in the funding process, they should be recognized and, if possible tasked with quantifiable goals.

Only four housing projects were included in the sample, but based on stakeholder interviews and reported data, the results, including broader impacts, were impressive:

- Three of the four projects satisfied projected outcomes. The fourth (Federation of Appalachian Housing Enterprises-KY) fulfilled 93% of its objectives, but also cut originally funded costs by 42%.
- Two projects involved traditional new construction housing and did well. Two others, however, took more creative approaches. Safe Harbor Transitional Housing project in KY, renovated a portion of a community facility to meet local needs for transitional housing. The Irvine Downtown Project-KY applied funds to acquire and rehabilitate three downtown buildings as low income senior housing which sparked private downtown investment (not originally projected).
- At least two of the projects resulted in significant and largely unanticipated community or economic development activity. The Clifty Heights Elderly Rental project (KY) sparked the development of a Boy's Club, Girl's Club and a Domestic Abuse Violence Center, as well as a second effort in a nearby area modeled on the project. The Irvine Downtown project triggered other downtown revitalization and an estimated additional \$600,000 in local spending reported by local businesses, as well as the rehabilitation of a downtown grocery store, movie theatre and dry cleaner.

#### 4.8 Efficiency Summary

Before leaving this section on project results, it's worth taking a look at the relative return on investment of various project classifications, keeping in mind that projects reviewed are a sample at a given point in time.

Table 4.12 Return on New Job Investment by Project Type		
Project Type	Calculation Method	
	Full Credit (\$) New Jobs	ARC Share (\$) New Jobs
Access Road	2,996	9,413
Incubator	2,584	11,722
Industrial Park	693	4,932
Telecommunications	*6,315	*22,553
Industrial Site	3,327	17,023
Water/Sewer	1,446	10,214

\* Cost per job elevated by one non-reporting ED project.

All project types are within reasonable and accepted cost parameters for new jobs when using the ARC share calculation method, and certainly even more so by the full credit method. In general there is a clear efficiency to utilizing projects that serve multiple firms, as most except industrial site project are likely to do. Additionally, however, it's worth noting the job creation costs of incubators, whose primary service purpose is to nurture enterprises early in their formation, often with the understanding that meaningful job creation would come down the road. For that reason, and because of the stark problems of entrepreneurship faced by large segment of the Region, the solid new job investment of incubators is specifically noted.

#### Notes

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[i] There is overlap in the practical purpose of these projects, since part of the ARC's role is to satisfy funding gaps which other programs cannot. Thus, the same basic investment decision methodology might fund site preparation in one case, rehab of an older industrial building in the next, an industrial access road in a third, and a sewer line to an industrial park in a fourth--all depending on the specific project and funding gaps it may face. Nevertheless, a discussion of various project classifications is useful as a means of exploring statistical and more subjective impacts as well.

[ii] For a detailed explanation of the startup activity index, please see Chapter 6.3. For immediate purposes, however, it is probably enough to know that the index compares national and local entrepreneurial activity rates, using a US benchmark of 1.00. Index scores below 1.00 are below the national average by the corresponding percentage.