

North Carolina Rural Economic Development Center, Inc.
Raleigh, NC

The Local E-Government Utilization Project (LEG-UP),
a targeted, multi-phase effort to bring e-government
to all counties and municipal governments in the state

1.0 Project Purpose

Problem Overview

E-government is the application of information and communication technology to transform the efficiency, effectiveness, transparency and accountability of informational and transactional exchanges within government, between governments and government agencies at federal, state, and local levels and with citizens and businesses; and to empower citizens through access and use of information. Recent world events and economic downturns are conspiring to increase the demand for government services and responsiveness even as the fiscal resources and conventional capacity available to respond decline. It is critical to be able to ensure delivery of vital communications and secure information in a real time, dispersed manner to and through governments at all levels. Broadband telecommunications offer the best solution to growing the cost-effective, reliable ready-response capabilities that are needed to support the economic and physical security of rural regions.

Reflective of the chasm of digital connectedness that separates urban and rural populations is the real disparity in the ability of rural and urban governments to acquire and utilize the Internet to deliver services and direct vital information to rural citizens and businesses. And, as the technology continues to evolve and mature, the gap will only widen, making it less and less possible for rural communities to capitalize on the opportunities resident in digital communications to enhance the economic competitiveness of existing industry or to attract prospective firms to the regions. Economic and cultural factors contribute equally to the relatively latent adoption of broadband technologies in rural regions. In a classic conundrum wherein supply deficiencies result from inadequate demand that is in turn exacerbated by limited supply options, many rural areas are clearly in need of an external stimulus to get past this circular hurdle. Indeed, nothing short of a cultural shift is needed to get unconnected populations thinking in terms of Internet-based operations that characterize the New Economy. E-government can be the catalytic change agent needed to bridge these regions to the future, introducing Internet applications that may be most immediately relevant to local users, in a non-radical context that will ease adoption of broadband technologies

A Documented Need for Assistance in NC

The Rural Internet Access Authority (RIAA)¹ was established by the NC General Assembly to address head-on the serious structural, social, and cultural impediments that limit Internet access and utilization in the state's 85 rural counties. These counties epitomize the critical need for systemic change that the Internet can deliver: traditional manufacturing jobs are hemorrhaging at the rate of almost 12,000 a year in textiles alone in counties where more than 27 percent of workers have less than a high school education. The Internet, and the educational, health, commerce, and government opportunities it can deliver to rural populations is the single most promising hope for these regions. Yet the results of a recently completed analysis of Internet access and usage among NC's municipal and county governments by the Center for Public Technology (CPT) presents a most distressing picture², particularly among the first and second tiers of most economically distressed counties (see Appendix 1). Only 21 percent of 151 Tier 1 and 2 cities and towns have an official municipal web site, and only 12 percent of that figure (or

¹ Visit www.e-nc.org for information on the spectrum of connectivity development programs lead by the RIAA

² UNC School of Government's Center for Public Technology (CPT) March 2002.

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three percent of the total) have transaction-type applications on their sites. A related metric points to another serious problem: more than half of NC's 100 counties have no IT strategic plan and/or planning personnel. There exists a dramatic need for local planning capacity and the need for user-friendly IT planning methodology that can be utilized by individuals with limited IT experience. As documented by the CPT study, these governments lack the funds, the training, and the technology infrastructure needed to support connectivity in their service areas and are not prepared to play the leadership role required of them if their citizens are to have hope for a better future. By partnering with the RIAA, TOP can provide 55 local and county governments with the incentives and funding for getting on-line as a pragmatic and workable approach to stimulating demand for broadband Internet services among the citizens and small businesses in NC's rural counties. The value of this partnership will be highly leveraged by the RIAA's innovative and comprehensive grassroots approach to technology diffusion that can be a model for connectivity in rural communities throughout the US and beyond.

The Proposed RIAA solution

Countering this picture of what is not is what could be. Studies at every level on the digital divide abound with support for the critical importance of demand generation to solving the access equity problem³. In NC, the RIAA is addressing this demand generation issue head-on through a unique and innovative grassroots approach to building capacity, the *e-communities initiative*. Through this structure all of the state's 85 rural counties are developing plans and proposals that will capture their prioritized goals for economic development through connectivity. These plans will be in place by May 1, 2002. What better agent to lead and support the local transition to connectivity than local governments, which along with leaders from other sectors in the community have just analyzed specific local needs and opportunities that can be addressed through enhanced connectivity (see www.e-nc.org, and Appendix 2).

The proposed Local E-Government Utilization Project, or LEG-UP, has been designed as a targeted, multi-phase effort that encompasses elements of infrastructure and application development, information technology investment decision modeling and training, portal development, and applications training, as well as implementation and evaluation to bring e-government to all counties and municipal governments in the state. These efforts will be undertaken in partnership with the NC League of Municipalities, the NC Association of County Commissioners, the NC Rural Economic Development Center, and the University of North Carolina's Center for Public Technology. Three primary milestone activities are proposed to be accomplished over a thirty-month period:

- 1) Develop, test and train 55 local/county governments in their use a set of web-based IT metrics tools that can assist government managers in selecting and implementing new IT to improve the delivery of public services;
- 2) Assist NC local/county governments to develop broadband-based effective, affordable and sustainable websites as a platform for local e-government and regional collaborations;
- 3) Assist NC local/county governments to obtain and deliver interactive, transactional electronic applications that meet needs and further goals of their communities.

³ For example, see "Broadband – Bringing Home the Bits" by the Computer Science and Telecommunications Board of the National Research Council (2002) National Academy Press, Washington, DC

A detailed schedule of phased, inter-related activities forms the action plan to reach these milestones (see Appendix 5). Multiple partner organizations will work in concert to these end points, foremost among which are the 20 local and county governments that comprise the Year 1 pilot group and the 35 additional governments that will benefit from the refined iteration of the project during years 2 and 3. The RIAA will be responsible for the overall coordination of the project and for the dissemination of results. A qualified external evaluator (to be determined) will provide the objective assessment that will validate the process and its impacts.

2.0 Innovation

Innovation is all about change, and LEG-UP is designed to be a change agent on several levels in the 55 rural governments targeted through this effort. LEG-UP is unique among state-level connectivity initiatives in both the grassroots approach being taken and the care given at the outset to every phase of the effort to ensure diffusion of knowledge generated. It is possible that such a broad and grassroots driven connectivity effort represents true innovation in rural technology adoption practices. Empirical evidence extracted from previous TOP projects has suggested that interventions imposed on communities have limited success compared to those that originate within the community. The RIAA takes this insight as truth, and has based LEG-UP and other key aspects of its organizational design on the grass-roots development model.

Specifically, LEG-UP is a comprehensive strategy to bring local rural governments into the broadband service arena through a staged process designed to build competency in both the use of the technology and in the decision framework that will inform future applications and technology investments made by communities as they mature in their connectivity needs. This project also presents an interesting opportunity to build local investment decision capacity that could potentially be extended to other decision areas beyond the information technology arena.

Research on e-government to date does not appear to have focused on local, small governments as the unit of analysis, a fact that places greater potential value on this initiative's ability to generate new and useful knowledge that is relevant to multiple state and federal connectivity programs. The unique character of the larger e-communities initiative that supports LEG-UP affords an opportunity to effectively gauge the effectiveness of the LEG-UP intervention relative to a control group of other e-communities that do not participate in LEG-UP. Finally, a number of off-the-shelf e-government portal packages and applications are under development by various vendors. LEG-UP presents opportunities to test these packages in the small government context and determine the extent to which their purported utility actually translates into the development of novel or improved local government services or operations. Off-the-shelf software packages have a direct impact on the capability of local governments to offer cost effective, sustainable e-government services.

3.0 Diffusion Potential

The RIAA's e-community model has as both a strategic and operational goal the creation of a network of public-private partnerships that facilitate the extension and utilization of broadband access to all North Carolinians. LEG-UP will provide a practical means of achieving those goals. A bedrock premise underpinning all efforts that flow from this broader e-community initiative is that as best practices and new models are identified, prototyped and evaluated the results will be shared in a timely and comprehensive manner with the full complement of rural counties that

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constitute this evolving statewide network. The following formal and informal structures are in place to facilitate this diffusion of information and practices:

- Ready information exchange supported by the RIAA's e-community List-Serv
- Regularly scheduled training sessions and information forums rotating through centralized strategic locations across the state.
- Strategic partnerships with the NC League of Municipalities, the NC Association of County Commissioners, and the Center for Public Technology that have committed to promoting participation in LEG-Up among their respective memberships and to ensuring that the results are shared broadly among local/county governments in NC and beyond.
- Shared regional technology transfer facilities in the form of four geographically-dispersed RIAA Telecenters facilitate training opportunities.
- TechForce – a cadre of high school and community college students who are part of a locally-based, statewide volunteer organization established by the RIAA to provide technical connectivity and access support.

To the RIAA, technology diffusion is a two-way effort. Just as we acknowledge the value of experiences and best practices taken from regular scans of connectivity endeavors underway elsewhere, we embrace the responsibility to share our experiences, successes, and lessons learned with communities beyond our borders. The RIAA engages professional, technical and communications experts to ensure that its content rich website (www.e-nc.org) and other formal outreach efforts reach the largest possible audience in a timely and message-effective manner. This commitment to diffusion is further supported by an organizational structure that emphasizes the value of outreach/communication via standing and active advisory committees in those areas.

The RIAA has been instrumental in the formation of local connectivity support organizations (e.g., the NC Consortium of ISP Providers), and regularly presents projects at national connectivity, economic and rural development forums, including those sponsored by the following organizations: Southern Technology Council/Southern Growth Policies Board, State Science and Technology Institute, Duke University Institute of Public Policy, National Council of State Governments, National Conference of State Legislators, Science and Technology Institute of the States, and the National Governors Association. RIAA staff members hold leadership positions in national and state organizations that allow a forum from which the proposed LEG-UP initiative and other RIAA programs can be shared, including the National Academy of Public Administration, the Rural Telecommunications Conference, and the Strategic Computing Program of the Harvard School of Local Government. The RIAA works with and through a variety of intergovernmental efforts, such as partnerships with the Appalachian Regional Commission on connectivity projects in western NC. The relationships represented by these linkages and the potential they afford to broadcast the results of LEG-UP presents a very real opportunity to leverage the returns on investing in this project and to effectively extend the benefits of LEG-UP throughout the United States.

Finally, the same e-communities network structure that nestles and distinguishes LEG-UP from connectivity efforts funded by TOP, EDA and other agencies serves to make it relevant to application in other states and regions. LEG-UP has been designed with the goal of transferring knowledge gained and best practices identified to all of the more than 400 municipalities and 93 counties that constitute NC's broader e-communities network, in a geographically dispersed and

economically distressed context that is common to common to less advantaged communities everywhere what we proposed to do, and how we intend to go about it are fully replicable outside of NC.

4.0 Project Feasibility

A narrative description of the immature state of technology deployed in municipal and county governments was noted in the problem overview beginning on page 1. The RIAA e-communities project will enable us to create the public-private partnerships that will allow us to work through the e-communities leadership, government and business structures to achieve success with these pilot government projects. The State of North Carolina has for more than 20 years insisted that software and hardware and applications systems need to be developed and/or purchased in a nonproprietary manner that systems developed should be designed to be interoperable. The Information Resources Management Commission of the State of North Carolina was the first state in the country to sign off on a statewide architecture. www.irm.state.nc.us/irmmain.htm. Currently, the state has a number of e-government projects — mostly labeled ecommerce — that address the following: credit card use; electronic data interchange; electronic forms; employee portal; statewide public key infrastructure; and a state portal. To date, these activities do not involve local and county governments.

Local and county governments are not considered within the budget domain of the State of North Carolina. The state has never offered any financial assistance for IT to local and county governments for applications development or for Internet service applications, nor are funds provided to pay for network services. Local and county governments must fend for their own selves. Their associations also do not have the funding capabilities to provide these above mentioned services. The state does allow local governments, for a fee, to connect to its statewide public switched backbone. To be able to fund their use of that backbone and to develop their e-government web sites and applications local governments must be able to collectively scale their efforts.

The National League of Cities and the Minnesota League of Cities have created web design projects that can be utilized by local cities: 1)“Totally Web Government” a collaboration among the National League of Cities, IBM, State Municipal Leagues, and the National Associations of Counties; and 2)“GovOffice WebCreator”, a collaboration among the International City/County Management Associations the League of Minnesota Cities, other states municipal league, Avenet, and Microsoft. A systematic review of these two projects has been undertaken by the League of Municipalities in our state; neither of them has been found to offer a real cost effective critical path to web enabled government for NC cities, towns and counties.

Working with the League and the county governments we would expect to review and develop a standardized directory of off-the-shelf software that will provide a pathway to e-government. At the same time, the project will be working to develop with personnel from these local/county governments broadband-based effective, affordable and sustainable websites as a platform for e-government and regional collaborations. Twenty pilot sites would work with the project team to define the network interfaces, the enterprise IT platforms and regional applications that would enable them to more effectively evergreen the process of maintaining their web sites and their e-government platforms in a cost effective environment. A manual of the processes and steps to

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follow to achieve the e-government platforms will be developed to use in training with the remaining 35 LEG-UP local/county governments.

One interim step the project would take is to jump start the movement of local citizens to trialing e-government. RIAA would contract with state government to allow small cities to work off a secure server on the State's network. Until the local/county government web sites are designed and implemented, this could move citizens of the pilot governments into an e-commerce e-government opportunity. Online payment sites, as noted above, would move us forward. The problem requires a multifaceted attack and education must be a key component of these efforts. RIAA's work on digital literacy training in rural areas would provide the capacity skills for citizens to use these websites and e-government applications. Citizen pressure for expanded connectivity will be brought by e-educated citizens involved in the e-communities effort in NC.

Project Management

Transforming local governments is not just a technology issue but also the effort must have a focus on organization and strategy. LEG-UP project management would have two of the best in this arena. Kevin Fitzgerald, the Principal Investigator on the IT Business Decision Methodology Model and Training program, is the interim director of the Center for Public Technologies at the School of Government at UNC-Chapel Hill. His background extends to being an executive of a large city government in NC as well as Director of the NC's Social Services Division. Jane Patterson serves as Executive Director of the RIAA. For more than 25 years, she has worked in the information technology field in government, industry and the education sectors. She has deployed networks and applications and designed state information technology infrastructures and organizations. Patterson has also received the National Academy of Public Administration's Alliance for Redesigning Government Public Innovator Award for her efforts in working to apply computer and information technology processes to redesigning the work of government. (See Appendix 3)

Technical Support

Charlie Clark has more than 35 years experience with telephony networks and most recently served as manager of broadband services for BellSouth. Dan McAuley has previous US Air Force experience in desktop technologies and applications, as well as enterprise networks experience within the State of North Carolina's Department of Transportation. Charles Stanback has more than 35 years in the information technology industry, most of that with IBM Corporation. Stanback has extensive experience in working with local governments in development of networks and network applications. Shaheen Bandukwala has staffed the RIAA e-community initiative and will provide logistical support for LEG-UP. Contributing to the CPT training and evaluation functions will be Shannon Schelin and Mary Brown. Additional support will come from Dr. Lee Mandell, V.P. Research and Information Technology at the NC League of Municipalities. We would also expect to name a technical advisory committee to work with LEG-UP. (See Appendix 3 for resumes of key RIAA staff and contractors.)

5.0 Community Involvement

The RIAA has established a number of partnerships that will contribute directly to the success of LEG-UP, including the following: (see Appendix 4 for representative letters of support and commitment)

Local (Municipal and County) Governments: Individual local rural governments and the communities they represent strongly support the purposes of the LEG-UP proposal and will be integral partners in every aspect of LEG-UP. Indeed, this project is an outgrowth of perceived connectivity priorities identified by the individual communities as part of the process they undertook to develop a broader connectivity plan. Communities will be actively engaged in determining the nature of the content developed for their website portals and in the designation of specific e-government applications that will be incorporated into their transactional applications phase. Involvement of the broader community is critical to the full success of the effort in that e-government applications are only of value if they succeed in attracting usage. A model program for securing the interest and involvement of the broader community in the success of this e-government effort was implemented by the RIAA and its e-community champions in each county through a formal public engagement process that was successfully employed to secure the necessary level of local involvement in the e-community planning effort. Guidelines for a successful public engagement process are available on the www.e-nc.org website as will be any materials developed as a result of LEG-UP.

Center for Public Technology (CPT) [Institute of Government at the University of NC at Chapel Hill]: CPT will have a critical role in the development of the IT business decision methodology and in conducting the associated training modules for local governments. CPT will take the lead in identifying particularly compelling implications from LEG-UP that may be of interest more broadly beyond the participating governments.

NC League of Municipalities and the NC Association of County Commissioners: These two distinct groups will actively promote the LEG-UP grant program among their respective memberships to ensure an adequate number of high quality applications are received by the RIAA. Both groups have agreed to provide in-kind support to the various CPT training programs scheduled throughout the project period.

NC Rural Economic Development Center: The Rural Center, a non-profit economic development organization that has received 15 years of continuous funding from the NC General Assembly, provides administrative support to the RIAA in all of its initiatives. LEG-UP will be conducted under the joint auspices of the RIAA and the Rural Center to deliver broadband connectivity to the 85 rural NC counties served by both organizations.

6.0 Evaluation

LEG-UP will include two forms of evaluation and outcomes measurement.

Process Evaluation on-going process evaluation will provide internal checks-and-balances to maintain efficient and effective practices. The process evaluation will focus on the work of the IT investment model and the development of local government websites, in terms of data accuracy and integrity, as well as ease of comprehension for the end user. In addition, local governments will be evaluated to determine if the newly-designed investment model enhances their ability to select appropriate and successful projects and initiatives. Finally, a sample of the community will be surveyed to determine if the local government website provides accurate, timely information and reduces the interaction costs (time, energy, travel, etc.) of conducting business with government. In all three areas of process evaluation, the manner of data collection will involve needs assessment of the current status of each component (hereafter referred to as

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the baseline), followed by a series of post-tests administered to random samples every quarter. All of the data collected will be analyzed and maintained in SPSS, a statistical package for social sciences that is also portable to Excel for more general accessibility and use. Frequencies and trending will be used to establish the causal path between the baseline data and the post-tests. However, for the annual and final reports, some cross-tabulations and regressions may be performed to further highlight the intricacies of the project. In addition to the annual and final reports, a series of white papers stressing the findings of the process evaluation will be compiled and presented to the various stakeholders on a semi-annual basis

Impact Evaluation – LEG-UP will also require an impact evaluation to determine the results of the project on the lives of the citizens across NC. One of the central longitudinal measures of this impact will be to determine if tax dollars have been wisely invested in appropriate technology projects. This measure will include the success rate of the selected projects, the amount of budget and time overrun required to complete the project, and the real cost savings associated with the new technology. The impact evaluation will also measure the effect of LEG-UP's on the ability members of a community to locate and receive online government services. The impact evaluation will focus on the outcomes of the citizens' use of the local government websites, as well as impact on citizen investment, in terms of tax dollars, to sustainable, applicable technology projects. The impact evaluation will consist of a needs assessment, or baseline, followed by a series of post-tests. The ability to access government information online, the ability to use the information to gain services, and the ability to identify areas of need and adequately address those needs will be measured, as well as the impact of the technology investments on the lives of citizens. LEG-UP is based upon the knowledge, skills, and professional norms associated with electronic government and community capacity building. The project also recognizes the unique opportunities of the Internet to strengthen communities and enhance individual access to government services. By focusing on distributed knowledge and self-sufficiency, LEG-UP supports individual, family, and community development. It also takes the opportunity to recognize and ameliorate areas of need and potential gaps in service, in order to foster complete governmental services to all areas of NC. It is evident that one of the most critical components of evaluation will be to provide local and state policy makers with data about the status of local governments and their citizens in NC. Clearly defined and statistically significant gaps in access and coverage will provide the needed incentive to mobilize information technology resources in areas of need.

The impact evaluation will involve baseline data collection and a series of post-tests, administered annually throughout the project lifecycle, with data analyzed and maintained in SPSS. Frequencies and trending will be used to establish the causal path between the baseline data and the post-tests; however, for the annual and final reports, some cross-tabulations and regressions may be performed to further highlight the intricacies of the project. The results of the impact evaluation will also be specifically linked to the defined outcomes. The outcome measurements will occur at the end of each fiscal year and be included in the annual reports. All reports, on the impact or process evaluation, will be made available to the general public via www.e-NC.org, or upon request.

