

# The Value of a Comprehensive Texas Information and Referral Network

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## Executive Summary

Researchers with the Center for the Study of Human Resources, a policy research and evaluation unit of the University of Texas at Austin's Lyndon B. Johnson School of Public Affairs, have prepared a benefit/cost analysis of the proposed comprehensive Texas Health and Human Services Information & Referral Network under contract with the Health and Human Services Commission (HHSC). The analysis will assist HHSC and other policymakers who will decide the State's role and level of commitment regarding the implementation of a comprehensive, public/private I&R Network statewide. Developing such a Network is an idea that has been a priority of the Texas Legislature since at least the early 1990s, in part as a response to the highly fragmented and duplicative environment in which information and referral for health and human services has been operating for decades.

The proposed comprehensive I&R Network builds upon the current network of Community Information Centers (CICs) by developing the following features:

- A network of 25 Area Information Centers (or AICs) that would coordinate CIC services and provide services throughout Texas.
- A statewide automated information warehouse comprised of standardized, electronic health and human services data provided by the AICs and the CICs.
- A central website, administered by I&R Network staff, serving individual Texans as well as state and local institutions, including AICs, CICs, and local health and human services providers.
- A 211 Single Number System (SNS) for health and human services information based on call redirect/routing technology over the existing TexAn long-distance telephone system.

## Methods

Total costs, benefits and the resulting net value have been estimated using standard methodologies for the comprehensive I&R system as a whole over a 10-year period (SFYs 2000-2009) from three key perspectives:

- *Participants*, including individuals, families, employers & providers;
- *Government*; and
- *Society*, the sum of *Participants* and *Government*, netting out taxes and transfers.

The benefits, costs, and net value—benefits less costs—of the I&R system are expressed as present values adjusted by 2.0 percent and 3.5 percent discount rates.

## **Benefits**

- The present value of I&R Network benefits for society as a whole is conservatively estimated to range from \$83.7 million to more than \$90.2 million.

About two-thirds of all benefits accrue to *Participants*. Individuals and their families save time and effort time by more effectively searching for and accessing a variety of health and human services. Employers realize productivity gains as employees spend less time on or off-the-job seeking services. Public and private providers capture savings resulting from reduced numbers of inappropriate referrals and misdirected calls, as well as improved planning, management and marketing capacity, among other benefits. About one-thirds of all benefits accrue to *Government*. The range of potential benefits from the State’s perspective encompasses three categories: ancillary services, cost avoidance, and benefit savings.

Many less tangible benefits are excluded from these estimates. Unmeasured benefits include earlier intervention or even prevention in such areas as, youth adjudication services, drug and alcohol abuse, family violence, and many other areas of social services, including law enforcement. If only one life were saved each year as a result of the 1.4-2 million I&R calls projected annually, another \$25 million to \$37 million in (discounted) benefits would result, even under conservative valuation strategies.

## **Costs**

- The cost to *Society* is estimated to be between \$73.2 million and \$78.3 million.

*Participants* will likely bear one-third of these costs, while State government will account for the remaining two-thirds. The largest shares of both *Participant* and *Government* costs are comprised of the shared public/private expenses incurred with the call response function of the AICs. The total direct cost to the State of Texas for implementing and operating the comprehensive statewide I&R Network is expected to range from \$49.5 million to \$52.6 million over the ten-year period.

## Net Value

- The net present value to *Society* of the comprehensive statewide I&R Network over the ten-year period of analysis is expected to range from almost \$11 million to \$12 million.

This is the crucial figure for benefit/cost analysis. *Participants* alone realize positive net benefits from the I&R Network ranging from \$32.4 million to \$34.7 million. *Government*, which is adopting the catalytic role in organizing, implementing and operating the I&R Network, as well as shouldering most of the costs, not surprisingly incurs net costs on balance, ranging from just under \$22 million to almost \$23 million over the ten-year period.

## Policy Implications

Key policy implications flow from these conclusions.

- Based on a conservative tabulation of expected costs and benefits associated with the comprehensive statewide I&R Network, Texas would be advised to proceed with the investment. *Society* will likely reap positive net benefits from this investment.
- As a classic example of what economists refer to as a public good, investing in an I&R Network is a sensible choice, despite net governmental costs.
- Benefits are likely to increase over time, while costs may tend to decrease.

Public sector support for the I&R Network is a rational response to ongoing and anticipated changes in our social structures and practices of governing institutions. The State of Texas has an opportunity to structure a market-based approach to I&R services that is responsive to ongoing trends in demographics, the economy and technology.

## **I. Overview and Background**

Twenty, ten or even a mere five years ago, a family seeking health, human or many related services in Texas would have encountered a very confusing landscape of agencies and potential service providers to which they might have turned for assistance.<sup>1</sup> Service provision was fragmented and often duplicative. Even finding out whom to call, or which number to call for help was confusing at best. Agencies collected and maintained their own data about service availability, rarely sharing it with their partner agencies in a form or frequency which might be useful to others.

Human service and other agencies often mounted their own efforts to make their services and information about them more accessible, for example by providing toll-free 800 numbers. As the complex problems facing families—and facing the various caseworkers and employer-based groups attempting to assist them—became increasingly recognized, local providers and organizations such as the United Way, began to take notice, pushing for more structured information and referral systems. The Texas Legislature also took decisive action.

The 72<sup>nd</sup> Texas Legislature officially created the Texas Information and Referral (I&R) Network in 1991 as part of the new Health and Human Services Commission (HHSC), appropriating funds to support the creation of a network of local entities to serve as “first points of contact.” Through the end of State Fiscal Year (SFY) 1997, the I&R Network had grown to include 100 affiliated community information centers (or CICs), ranging from Area Agencies on Aging (AAA) to United Ways to County Judges’ offices, reaching 90 percent of the population in fully 139 of the state’s 254 counties. To be sure, considerable service fragmentation remains and coordination could always stand to be improved. Yet, progress clearly has been made in providing “customers” with better access to information on health and human services in communities around the state.

The I&R Network has steadily expanded its scope and capacity and is now beginning a new stage in its development as a comprehensive statewide I&R service. This more recent phase began in 1996 with the appointment of a new I&R Network

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<sup>1</sup> For example, see: Texas Senate State Affairs Committee (1981), and Texas Health and Human Services Coordinating Council (1989).

director and staff based at the Texas Health and Human Services Commission (HHSC). In 1997 the 75<sup>th</sup> Texas Legislature passed HB 2596 mandating the design and planning of an internet-based I&R system which would also reduce duplicative toll-free numbers that currently provide patchwork coverage throughout the state for health and human services information. To assist them with this task the Texas I&R Network staff subsequently established the I&R Network Task Force and the State Agency Workgroup.

Some of the proposals resulting from the I&R Network's planning efforts include creating:

- A network of 25 Area Information Centers (or AICs) encompassing the current set of CICs operating around the state. AICs would eventually provide services statewide.
- A centralized health and human services automated information warehouse, regularly updated with standardized electronic data from both the AICs and the CICs.
- A central website to access regional information, administered by state I&R Network staff, serving individual Texans as well as state and local institutions, including AICs, CICs, and local health and human services providers.
- A 211 Single Number System (SNS) for health and human services information based on call redirect/routing technology over the existing TexAn long-distance telephone system.

Taken together, the automated information center, the website, the AICs and the 211 SNS within the Texas I&R Network for health and human services, when added to the existing network of community centers, constitute what is referred to here as the *comprehensive* Texas I&R Network. For the following discussion, the system without the 211 SNS component is referred to simply as the *automated* Texas I&R Network.

The Network is currently enlisting entities to serve as AICs and plans to roll-out the network incrementally over a three-year period beginning in September 1999, starting with the major metropolitan areas. This comprehensive I&R Network builds upon efforts already underway in communities around the state; it has *not* created a free-standing network from scratch or attempted to fully fund its operations with state dollars. Current I&R operators include United Way organizations, Area Agencies on Aging, Community Councils, and several other entities serving substate and county areas.

The I&R Network, in collaboration with the United Way of Texas and the Texas Alliance for Information and Referral Systems (TAIRS), is also part of a national petition

before the Federal Communications Commission (FCC) to dedicate 211 as the single *national* telephone access number for health and human services. The timing of this petition is significant for the I&R Network, given the strong and growing state interest in public/private partnerships represented by initiatives such as the Texas Integrated Eligibility System (TIES), the Texas Department of Human Services' (DHS) Texas Works initiative and the expected devolution of responsibility for and privatization of many human services from the federal to the state and local level.<sup>2</sup> Most of these initiatives are expected to increase the demand for information on health and human services availability in the coming years, many of them quite dramatically. If the SNS component is not implemented in Texas, the state retains the option to implement the automated I&R Network.

In July 1998, HHSC contracted with the Center for the Study of Human Resources ("the Center"), a research entity of The University of Texas at Austin's Lyndon B. Johnson School of Public Affairs, to conduct a benefit/cost analysis of the proposed comprehensive I&R system, including the SNS. This analysis is intended to provide an objective assessment of I&R Network benefits and costs. The report will assist HHSC and other state policymakers in their decision making regarding the implementation of a comprehensive, public/private I&R Network statewide.

## **Organization of Text**

Section II of this report presents and briefly explains the framework for the benefit/cost analysis, including its key parameters. Section III examines the costs of developing and implementing the comprehensive I&R Network in Texas, including the 211 SNS. Section IV outlines the benefits, both tangible and intangible, associated with the I&R Network. Section V discusses estimates of the *net present value* of the comprehensive Texas I&R Network, discounting both benefits and costs to present values. Section VI concludes the report, reviewing major conclusions and their implications and outlining future issues that may affect I&R benefits and costs. Appendix A offers a more detailed explanation of the framework for the benefit/cost analysis, the various assumptions underlying the analysis and the data sources used for this research.

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<sup>2</sup> For example, see: Maxwell (1997); Nathan (1996); Gallagher et al. (1998); and Center for Public Policy Priorities (1997).

## II . Benefit/Cost Analysis Framework

Benefit/cost analysis quantifies the benefits and costs associated with a particular action to the extent possible and presents them in a form policymakers can use to assess whether or not to proceed with a particular intervention or set of interventions. Such decisions rest squarely with policymakers, whether legislators, governors or agency administrators. Benefit/cost analysis merely provides more objective information to support their decisions. Policymakers may decide to proceed in the face of negative results, especially where some of the more important anticipated benefits could not be readily quantified.

The methods and techniques of benefit/cost analysis are well developed and relatively standardized (e.g., Boardman et al. 1996, Gramlich 1990). Such analysis has been applied effectively to a host of public and private actions, both proposed and ongoing, ranging from highway expansions and biometric imaging to many different education, job training and related interventions.<sup>3</sup> This section briefly describes the methods used in this analysis, as well as some of the key parameters which underlie it.

### Methods

Analyzing the benefits and costs associated with the comprehensive Texas I&R Network system is inherently a prospective, or *ex ante*, exercise. While the proposed budget for the comprehensive I&R system is known, it has not been formally adopted by the Texas Legislature. Nor have any of these expenditures yet been made. Likewise, none of the expected benefits of this more comprehensive system have accrued to any of the relevant parties. A prospective analysis carries with it greater risk, due primarily to the uncertainty associated with both expected future benefits and costs. The analysis thus stands on the reasonableness of its approach.

Texas I&R Network benefits and costs have been estimated using standard methodologies, based on information provided by HHSC staff, health and human services agency staff, and local I&R network collaborators, as well as on insights gained from the

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<sup>3</sup> For examples of the latter two, see: Schexnayder et al. (1997), King et al. (1994) and O'Shea et al. (1996).

literature and experts in health and human services I&R delivery. The key figure of interest for benefit/cost analysis is the estimated total net benefit to society, expressed in terms of discounted present values. Other things being equal, policymakers should pursue those interventions which maximize net societal benefits, that is, those for which the present value of societal benefits minus societal costs is greatest. However, since state funding plays a significant and pivotal role in developing and operating the comprehensive I&R Network, this analysis also emphasizes the returns to society associated with state government's investment.

While the Texas I&R Network is being implemented in phases, analyzing these in a cumbersome tiered analysis as discrete stages in the process, each with their own costs and benefits, has been foregone in favor of a more integrated approach for several reasons. The key to understanding the comprehensive Texas I&R Network and its potential value is that its components—including the AICs, the statewide data center and the central website, *along with* the 211 SNS component—are expected by the I&R staff and health and human services practitioners around the state (and the nation) to yield benefits jointly as part of a more comprehensive whole. The AICs and associated elements take data which currently resides within a large and diverse array of providers and community information centers (CICs) across the state and *transform it into useful information* about health and human services which then can be accessed by various parties. But, it is the addition of the 211 number which allows the I&R network effort to ultimately bear fruit. The SNS greatly enhances the community's awareness of and access to the network's information and services, and even supports far broader marketing of each community's services. Therefore, total estimated costs, the range of estimated benefits and resulting net value estimates are offered for the comprehensive I&R system as a whole. Additionally, researchers identified and estimated the value of the benefits and costs of a comprehensive I&R Network that accrue along three key perspectives, i.e., Participants, Government and Society.

Nonetheless, I&R costs that accrue to the state government of Texas are identified and presented for the somewhat discrete scenarios of the initiative. Center researchers first estimated costs to the State of Texas for implementing and operating the centralized I&R data bank, the website, the AICs, i.e., the automated I&R Network. Next, researchers identified the additional State costs for introducing the 211 SNS component.



Collectively these two sums represent the estimated cost to the State for the comprehensive I&R Network.

Tables 1 and 2, provided at the end of this section, identify the broad range of potential I&R network benefits that may accrue to various stakeholders. Benefit entries in these tables are based on extensive discussions with Texas I&R Network staff and substate collaborators, as well as a review of the I&R literature. As noted below, values were assigned to those benefits and costs for which defensible strategies and formulas could be operationalized. Many of the less tangible, but still significant, benefits of the I&R network elude quantification with conventional methodologies. Ultimately, the net value, benefits less costs, of the I&R Network was estimated statewide, expressed in terms of discounted present values.

## **Key Parameters**

Key parameters underlying the I&R Network benefit/cost analysis are as follows:

*Perspectives.* Three primary perspectives for gauging both benefits and costs are relevant for this analysis:

- *Participants*, including individuals and families, employers, and local I&R centers, as well as health and human services providers;
- *Government*, primarily state and local, but including federal, as well (to the degree that federal funds are commingled with state and local funds in service delivery configurations); and
- *Society* as a whole, which is the sum of participants and government, net of any taxes and transfers between them.

The first perspective concerns direct “participants” in the I&R system, including individuals, families and even employers seeking health and human services information or affected by its use, as well as those entities providing it. The second perspective is government (or sometimes “taxpayers”), those financing the development, implementation and operations of the system. Emphasis has been placed on *state government’s* perspective in this analysis, since the Texas appropriations process is a primary focus of the analysis. Finally, in addition to participants and government, the analysis is also concerned with the net benefits to society as a whole.

***Time Period.*** A ten-year time period has been selected for analysis, encompassing State Fiscal Years (SFYs) 2000 through 2009, a period beginning in September 1999 and ending in August 2009. The ten-year frame is somewhat arbitrary; there are arguments for using both shorter and longer periods. The brief lifespan of communications technology might dictate using a shorter period (e.g., five years). However, a longer period (e.g., fifteen or twenty years), a span sufficiently long for more of the benefits to be realized, may be worth examining as well. The ten-year period is used here as a practical compromise.

The three-year period SFY 2000-2002 constitutes the *implementation phase* of the comprehensive I&R Network during which the AICs and the SNS are being developed and implemented. Development, implementation and some operations costs will be incurred during this phase. While some of the benefits from the comprehensive I&R system are expected to begin accruing during this period, the system will become fully operational in SFYs 2003-SFY 2009. Most of the expected benefits will accrue during this latter period, the *operational phase*.

In fact, the Texas I&R Network has already incurred some developmental and operating costs in the period SFY 1992-SFY 1999. However, costs incurred during this period have been modest, since they largely built upon the existing efforts of private non-profit I&R provider organizations around the state. Moreover, benefits from this early version of the I&R network were accruing as well. Both are ignored in the current analysis. This is tantamount to assuming that costs and benefits accruing during the SFY 1992-1999 period were completely offsetting.

***Discount Rates.*** Since benefits and costs from operating the comprehensive I&R system will accrue over a lengthy period of time and are expected to vary in magnitude from year to year, it is necessary to discount both in order to render them comparable. Discounting benefits and costs in this way takes into account the fact the people value current dollars more than they do those same dollars in some future year. Discounting allows benefits and costs to be compared appropriately in net present value terms.

There are two leading choices for discount rates to use with general public investments like the comprehensive Texas I&R Network.<sup>4</sup> First, Congressional Budget Office (CBO) guidelines call for using a rate of 2 percent as an estimate of the real yield

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<sup>4</sup> Boardman et al. (1996:175-177).

on Treasury debt.<sup>5</sup> Second, General Accounting Office (GAO) guidelines would apply a rate approximating the expected average yield on Treasury debt maturing between one year and the life of the proposed project (i.e., ten years), minus the forecast rate of inflation; a 3.5 percent rate has been designated for this.<sup>6</sup> Both discount rates are utilized here to provide a *range* of estimated net benefits for Texas policymakers to consider. Policymakers who take a more conservative view of future benefits and costs may wish to rely on the net benefit estimates utilizing the higher discount rate. Others may prefer to rely on net benefit estimates relying on the lower discount rate.

**Valuation Formulas.** A series of formulas were developed by Center researchers to estimate key benefits and costs across stakeholders/perspectives.<sup>7</sup> A principal driver for most of these formulas, as well as for the implementation and operation budgets prepared by state I&R Network staff, is *projected call volumes*. Throughout the three-year implementation period and first full year of operations (SFY 2003), benefit/cost estimates based on call volume use proportional shares of the projected number of calls (just over 1.4 million) for a particular year.<sup>8</sup> Thereafter, call volumes were assumed to increase annually, until call volume reached the equivalent of ten percent of the State's population in SFY 2005, or slightly more than 2 million calls statewide.

**Quantifiable v. Non-Quantifiable Benefits and Costs.** Ideally, all relevant benefits and costs associated with the comprehensive Texas I&R Network would be both known and quantifiable, so that they could be factored into the analysis and considered by policymakers. In fact, this is rarely the case in any benefit/cost analysis. Instead, as often happens with prospective public investments, much more is known and measurable for the costs than the benefits. This clearly applies to the analysis of the comprehensive Texas I&R system.

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<sup>5</sup> Following Lyon (1990), Boardman et al. (1996) actually suggest using a rate of 2 percent *plus* 2 percent (i.e., 4 percent) for projects with net benefits expected to be *positively* correlated with gross national product (GNP) and 2 percent *less* 2 percent (i.e., 0 percent) for those with net benefits *negatively* correlated with GNP. Lacking unclear expectations for either a positive or negative correlation of net benefits with national income, a discount rate of 2 percent is used.

<sup>6</sup> The average yield on 10-year Treasury bills (now 4.27 percent), less the expected rate of increase in the gross domestic product deflator for the next decade (assume 2 percent, based on the most recent five years and prevailing concerns of *deflation*), would result in a discount rate of only 2.27 percent, a rate only marginally different from the 2 percent CBO figure. To offer policymakers a range of discount rates, a 3.5 percent rate is used as an alternative.

<sup>7</sup> Details concerning methodological approaches, valuation formulas and related issues are contained in Appendix A.

<sup>8</sup> Texas Telecommunications Policy Institute (TTPI), September 1998.

To address this problem, Center researchers first developed as complete a list of benefits as possible, relying both on the available research,<sup>9</sup> as well as on extended discussions with those directly involved in the Texas I&R Network. This effort resulted in a long list of expected I&R benefits for participants (individuals and their families, employers and providers), for government and for society as a whole (Tables 1 and 2 at the end of this section). Researchers then scrutinized this list of possible benefits thoroughly, identifying and setting aside those whose connection to the Network's operations were either too indirect, too imprecise or too ambiguous. Benefits which appeared to be attributable to I&R operations but which could not be easily quantified were retained but placed "below the line" for consideration once all of the possible approaches to quantification were exhausted.

In addition, several scenarios are provided in which some of the more significant and substantial benefits from the comprehensive I&R Network are discussed, along with their implied influence on the net value of the Network. For example, while controlled experiments of the impact on lives saved from having access to and using I&R services have not been conducted, anecdotal evidence from human service and I&R field staff suggests that such results are quite likely, if infrequent. Standard estimates of the net present value of a single life saved now range from \$2.5 to \$3.7 million (in 1998 dollars), relying only on the *low* end of the standard range.<sup>10</sup>

Even when the net present value of measurable costs slightly exceed those of measurable benefits, a public investment may still be desired by policymakers. Benefit/cost analysis is inherently only a tool which is limited by what can be measured. Policymakers must make the ultimate decision to invest or not based on intangible, as well as tangible net benefits.

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<sup>9</sup> There have been few studies of the actual benefits and costs of I&R networks, either in the United States or elsewhere. For the most part, existing studies were helpful in tallying the list of expected benefits but not in their measurement or quantification.

<sup>10</sup> Boardman et al. (1996) indicates a range of \$0.7 million to \$15 million for the discounted present value of a life saved in after-tax 1985 dollars.



**Table 1: Continued**

<p><b>GOVERNMENT</b> <b>State and Local</b></p>	<p>Enhanced visibility (marketing) for I&amp;R system statewide.</p> <p>Reduced I&amp;R burden for local/state agency staff, particularly misdirected calls, leads to cost avoidance.</p> <p>Improved delivery of core services through redirection of I&amp;R staff effort to service provision.</p> <p>Redirection of clients to more appropriate services. More effective matching of services with needs by type and location.</p> <p>Improved planning information based on more extensive monitoring of comprehensive demand for services.</p> <p>Preclusion of public assistance by timely connection with appropriate intervening services.</p> <p>Public sector assistance with transition to market-based social- and self-sufficiency.</p> <p>Broad communication network for public dissemination of information about changes in state/local programs.</p>
<p><b>SOCIETY</b></p>	<p>Better and more efficient response to human needs, effectively helping to improve the general quality of life.</p> <p>Increased social capital/civic engagement.</p> <p>Provides structured opportunities for networking among stakeholders, including citizens, public sector and community-based health and human services.</p> <p>Reinforces social safety net.</p>



**Table 2: Continued**

<b>SOCIETY</b>	<p>Better and more efficient response to human needs, effectively helping to improve the general quality of life.</p> <p>Enhanced social capital/civic engagement.</p> <p>Structured opportunities for networking among stakeholders, including citizens, public sector and community-based health and human services..</p> <p>Reinforces social safety net.</p>
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### III . Major I&R Network Costs

The Texas I&R Network has been conceived as a cost-sharing partnership that combines state and community-based resources to provide a valued public service. Since the State is providing new resources to build upon ongoing, community-based I&R efforts, the analysis first presents estimates of direct State costs for implementing and institutionalizing the I&R Network, followed by estimates of the costs to participants, government and society for the comprehensive I&R network.

#### State Costs

Two scenarios are presented for State cost estimates, based on budgets prepared by state I&R staff. The first identifies the costs of institutionalizing the AICs, the statewide data bank and the central website—what has been termed the *automated* I&R Network. The second scenario presents the additional costs of introducing and supporting the SNS component for the Texas I&R Network. The two scenarios provide legislators and administrators information about funding levels recommended by I&R staff, and options in the event that the national 211 SNS application is rejected or delayed. The two scenarios are later combined in an estimate of government’s total costs of the *comprehensive* I&R Network.

***State Automated I&R Network Costs.*** The state will spend approximately \$1.8 million over the three-year implementation period for introducing the automated I&R system, and another \$4.4 million for operating the system for the subsequent seven-year period for a total estimated cost of approximately \$6.2 million over the ten-year period of analysis. Adjusting ten-year costs to net present value yields estimated costs of \$5.2 to \$5.7 million at the 3.5 percent and 2.0 percent discount rates, respectively. As Table 3 indicates, the largest costs items for the State are professional fees and services for providing technical assistance to the AICs, followed by State staff salaries and fringe benefits. Together these account for approximately 83 percent of total State costs.

**Table 3: Estimated State Costs for the Automated Texas I&R Network**

	SFY 00	SFY 01	SFY 02	SFY 03-09	Total
Salaries & Benefits (4.5 FTE)	\$203,266	\$203,266	\$203,266	\$1,502,385	\$2,112,182
Professional fees and services	\$291,000	\$291,000	\$291,000	\$2,163,376	\$3,036,376
Training and memberships	\$5,000	\$5,000	\$5,000	\$37,171	\$52,171
Travel	\$26,486	\$26,486	\$26,486	\$196,904	\$276,362
Capital Outlay (Computers)	\$50,000	\$50,000	\$50,000	\$371,714	\$521,714
Communications and utilities	\$600	\$600	\$600	\$4,461	\$6,261
Other expenditures	\$16,870	\$16,870	\$16,870	\$125,416	\$176,026
TOTAL	\$593,222	\$593,222	\$593,222	\$4,401,428	\$6,181,094

**State 211 SNS Costs.** The State will spend approximately \$14.9 million implementing the SNS component and an additional \$36.1 million operating the system for the subsequent seven-year period, for a total estimated cost of almost \$51 million. Adjusting to net present value yields 10-year estimated costs of \$44.2 million to \$46.9 million at the 3.5 percent and 2.0 percent discount rates, respectively.

Clearly, the largest single cost item is the funding to support the I&R Centers (AICs); the call-response network alone accounts for more than eighty percent of estimated State 211 SNS costs.<sup>11</sup> Communications and utilities charges are comprised primarily of TexAn line charges for the call rebounding system. Capital Outlay consists of a one-time line translation charge that will occur during the phased implementation period.

The SNS component also includes a marketing budget of nearly \$0.9 million during the implementation phase, an additional \$1.3 million during the first full year of operations (SFY 03), and a total of \$3.3 million over the entire ten-year period. I&R Network staff emphasize that a full marketing effort is needed to deliver a clear message about SNS and I&R service functions statewide. Marketing is particularly necessary to help the public distinguish clearly between the purpose and services of 211 and those of

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<sup>11</sup> The I&R Center estimate is based on the assumption that the state will provide 75 percent of the call-answering resources through the first full year of operations (SFY 03). Thereafter, the state will reduce support by five percent a year until a 50/50 percent match is achieved in SFY 08.

the 911 police emergency system. State marketing funds are expected to *supplement* ongoing I&R marketing efforts at the local level.

**Table 4: Additional Estimated State Costs for the 211 SNS Component**

	SFY 00	SFY 01	SFY 02	SFY 03-09	Total
Salaries & Benefits (1.5 FTE)	\$56,263	\$56,263	\$56,263	\$415,356	\$584,144
Marketing	\$80,000	\$290,000	\$505,000	\$2,450,000	\$3,325,000
Training and evaluation	\$31,000	\$40,000	\$39,000	\$323,391	\$433,391
I&R Centers	\$2,250,000	\$4,050,000	\$5,550,000	\$29,315,211	\$41,165,211
Travel	\$3,500	\$3,500	\$3,500	\$26,020	\$36,520
Communications and utilities	\$241,400	\$355,568	\$481,908	\$3,550,355	\$4,629,231
Capital Outlay (Line Translation)	\$350,000	\$300,000	\$150,000	\$0	\$800,000
<b>TOTAL</b>	<b>\$3,012,163</b>	<b>\$5,095,331</b>	<b>\$6,785,671</b>	<b>\$36,080,333</b>	<b>\$50,973,497</b>

**State Comprehensive I&R Network Costs.** The State will spend an estimated \$16.7 million over the three-year implementation period and nearly \$40.5 million operating the system for the subsequent seven-year period, for a total estimated cost of approximately \$57.2 million. Adjusting total costs over the ten-year period to net present value yields estimated costs ranging from \$49.5 million to \$52.6 million, depending on the discount rate.

**Table 5: Estimated State Costs for the Comprehensive I&R Network**

	SFY 00	SFY 01	SFY 02	SFY 03-09	10-Yr Total
Automated Network Undiscounted	\$593,222	\$593,222	\$593,222	\$4,401,428	\$6,181,094
2% Discount Rate	\$593,222	\$581,590	\$570,186	\$3,905,475	\$5,650,473
3.5 % Discount Rate	\$593,222	\$573,161	\$553,779	\$3,521,798	\$5,241,960
Single Number Component Undiscounted	\$3,012,163	\$5,095,331	\$6,785,671	\$36,080,333	\$50,973,497
2% Discount Rate	\$3,012,163	\$4,995,422	\$6,522,175	\$32,392,274	\$46,922,034
3.5 % Discount Rate	\$3,012,163	\$4,923,025	\$6,334,496	\$29,945,609	\$44,215,293
Comprehensive Network Undiscounted	\$3,605,385	\$5,688,553	\$7,378,893	\$40,481,761	\$57,154,591
2% Discount Rate	\$3,605,385	\$5,577,012	\$7,092,361	\$36,297,749	\$52,572,507
3.5 % Discount Rate	\$3,605,385	\$5,496,186	\$6,888,275	\$33,525,205	\$49,515,051

## Comprehensive I&R Network Estimated Costs

Comprehensive I&R Network costs are ultimately comprised of user and provider costs. Texas I&R Network costs include:

- The costs to individuals who access and use the system
- The I&R provision costs of local health and human services providers, CICs and the proposed AICs
- The I&R costs of state and local government HHS agencies
- State costs for implementing and operating the data collection subsystem (i.e., AICs, the statewide information bank and website) and the service delivery/response subsystem (the AICs and SNS structure).

It would be a daunting, if not impossible, task to estimate the total cost of I&R provision for health and human services in Texas, one which exceeds the boundaries of this analysis. Survey and sampling techniques could reveal estimates of I&R efforts statewide. Budget analysis and time/effort studies could also be designed to estimate the costs of I&R to local, regional and statewide providers of I&R in both the public and private sector. As mentioned earlier, *ex ante* analysis of projected state costs is also fraught with challenges. Nevertheless, it is possible to assess some marginal costs of the comprehensive I&R network, as well as marginal cost-savings.<sup>12</sup> The latter are appropriately classified as benefits in this analysis.

Table 6 presents the estimated costs of the comprehensive I&R Network. Roughly two-thirds of the costs are borne by the State and one-third by participants.<sup>13</sup> As reflected in the proposed I&R Network budget, costs for the AICs, automated data, the

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<sup>12</sup> Appendix A contains further discussion about cost valuation approaches selected for this report.

<sup>13</sup> Additional costs associated with I&R development have not been tabulated. The development phase will end with the 9/1/99, the SFY 2000 implementation date. At that future date, a \$2 million grant from the Texas Planning Council for Developmental Disabilities initiated in 1991 will expire. The grant is the major source of funding for the I&R Network development and between January 1996 and September 1999, I&R Network will have expended \$980,000 from the grant. This may include not only I&R state costs, but also consultant fees and other expenses (travel, meetings, equipment, publications, etc.).

An additional \$75,000 grant was provided by the Texas Workforce Commission to upgrade technical capacity of the AICs. I&R staff report that HHSC has provided no funds from its budget. Furthermore, The Center assumes that existing state resources were diverted for state agency staff (who serve on committees or otherwise contributed to the development phase) and that CIC and I&R collaborators also contributed to the development phase.

central website and SNS build upon the ongoing efforts of CICs, and are paid primarily by the State. State expenditures serve as the catalyst for the I&R Network statewide.

**Table 6: Comprehensive Texas I&R Network: Ten-Year Estimated Total Costs**

	<b>Participants</b>	<b>Government</b>	<b>Society</b>
Undiscounted	\$28,882,645	\$57,154,591	\$86,037,236
2.0% Discount Rate	\$25,708,714	\$52,572,507	\$78,281,222
3.5% Discount Rate	\$24,176,064	\$49,515,051	\$73,150,272

**Participants.** Participant costs are comprised primarily of \$28.3 million in estimated AIC costs related to increased call volumes; this costs represents the 25 percent share that I&R staff estimate will be borne by AICs.<sup>14</sup> Discounted to present value, estimated I&R costs to participants would range from \$24.2 million to \$25.7 million depending on the discount rate. State staff anticipate that potential system efficiencies, as well as cost-sharing with institutional users of I&R services in the future will help defray AIC service delivery costs.<sup>15</sup> The remaining \$0.5 million is based on anticipated costs accruing to individuals who are reliant upon public telephones and must pay to access the I&R system.<sup>16</sup>

**Government.** As previously noted, State government will spend an estimated \$57.2 million implementing and operating the comprehensive I&R Network over the ten-year period. This converts to between \$49.5 and \$52.6 million depending on the discount rate used. No additional costs to local government have been identified.

**Society.** Total costs to society for a comprehensive I&R network are thus estimated at slightly more than \$86 million over the ten-year period. This is equivalent to \$73.2 million to \$78.3 million at the higher and lower discount rates, respectively.

<sup>14</sup> This is largely a projected diversion of existing I&R/CIC resources.

<sup>15</sup> Method of finance discussions are beyond the scope of the present analysis. Note that private, for-profit entities that regularly use I&R services could be assessed a fee for those services. Similarly, state agencies that realize cost-avoidance as a result of the I&R network could redirect administrative resources to support the I&R system.

<sup>16</sup> Center researchers assume that 1 of 20 callers who use pay phones would pay \$1.00 in toll charges for a 4 minute phone call and the remaining 19 would spend \$0.35 per call.

## IV . Major I&R Network Benefits

The AICs, the statewide data center, the website and SNS within the comprehensive Texas Information and Referral Network for health and human services yields an array of benefits across the key perspectives. Values for some of the major benefits have been estimated and are presented in this section. Equally important are those benefits which could not be measured easily, given the nature of the benefit, the absence of supportive data, and time and resource constraints of this analysis. Brief discussions of these nonquantifiable benefits are provided below. As with the comprehensive I&R Network costs, benefits through savings and cost avoidance accrue directly and indirectly to a range of actors who use the system. Beneficiaries include individuals and families, local health and human service and I&R providers, employers, and state and local government agencies.

### Comprehensive I&R Network Estimated Benefits

As Table 7 indicates, the comprehensive I&R Network yields benefits to participants, government and society during the first ten years following initial implementation. Two-thirds of estimated I&R Network benefits accrue to participants, and approximately one-third to governments.

**Table 7: Comprehensive Texas I&R Network:  
Ten-Year Estimated Total Benefits**

	<b>Participants</b>	<b>Government</b>	<b>Society</b>
Undiscounted	\$67,052,537	\$33,060,482	\$100,113,019
2.0% Discount Rate	\$60,432,298	\$29,803,475	\$90,235,773
3.5% Discount Rate	\$56,957,367	\$27,656,969	\$83,726,417

**Participants.** Participants who benefit include individuals/families, local I&R providers and employers. Benefits to these participants of \$67.1 million have been estimated over the initial ten-year period implementing and operating the comprehensive I&R Network. In discounted present value terms, benefits would range from \$57 million to \$60.4 million at the higher and lower discount rate, respectively.

The largest share (almost 53 percent) of these benefits—an undiscounted \$35.5 million over the ten-year period—accrues to individuals and families who save time and effort identifying and gaining access to appropriate services.<sup>17</sup> Local I&R providers realize benefits associated with efficiencies captured by the comprehensive Network of approximately \$30.3 million for the same period. This latter estimate includes cost avoidance through inappropriate referrals, misdirected phone calls, opportunities for improved planning and program management from using the standardized I&R database, and more effective marketing of services, particularly that which enhances volunteer recruitment. Employer benefits, very conservatively estimated at only \$1.2 million, are associated with improved workplace productivity. Employees may spend less time at work or away from work seeking information concerning and access to health and human services.<sup>18</sup>

Other less tangible benefits include bolstering physical and emotional human well-being through I&R services. Timely and accurate information regarding available resources, assistance with prioritizing and identifying elements of problem clusters, and even the simple comfort of another concerned human voice are unmeasured benefits commonly cited by I&R professionals. Though no one can measure accurately the benefits that may accrue from timely intervention, few would argue that such benefits do not exist. Given the difficulty involved in attributing any such savings to the I&R Network, estimates for these benefits have not been attempted here despite their potential value. As mentioned earlier in this report, the impact on lives saved from having access to I&R services is also cited anecdotally. I&R field staff suggest that such results are quite likely, if infrequent. For illustrative purposes, it is worth noting only one saved life each year (resulting from the 1.4 to 2 million calls projected annually) would yield an estimated benefit of \$25 to \$37 million (in 1998 dollars) over the ten-year period. This estimate relies only on the low end of the accepted range for the value of a human life.<sup>19</sup>

Employers also may realize future benefits from the I&R Network by referring employees for education, job training, income enhancement and various support services. For example, through access to information about the Earned Income Tax Credit (EITC),

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<sup>17</sup> See Appendix A.

<sup>18</sup> Survey results presented in a recent newspaper column indicated that 81 percent of the executives polled cited “resource referrals” as a valuable benefit to offer employees with dependent-care needs. (AAS, October, 1998).

<sup>19</sup> For more on estimating the value of human life, see the discussion in Boardman et al. (1996).

employers can help workers subsidize their wages. English-language classes or child care assistance—services that may enhance productivity and promote retention—might also be located and accessed more readily through the I&R Network. For-profit entities (e.g., home health care providers) might also benefit through access to information for ancillary client services.

**Government.** State and local governments are conservatively estimated to receive benefits from a comprehensive I&R Network valued at approximately \$33.1 million over the ten-year period. This amounts to \$29.8 million dollars at the 2.0 percent discount rate and \$27.7 million dollars at the 3.5 percent discount rate. These benefits to government are arguably quite low, and in fact may more accurately indicate the *direction* than the amount of future benefits/savings, given the conservative nature of the valuation strategies used as noted in the following discussion.

The range of potential benefits from government’s perspective encompasses three categories: ancillary services, cost avoidance, and benefit savings. Ancillary services refer to events in which public health and human services staff assist clients with services outside of their agencies’ core area. For example, a juvenile probation officer may help a young ward locate a youth employment and training opportunity, or an employment services case manager may help a client locate utilities assistance. CICs now regularly receive calls for such ancillary support from state agency staff. One likely AIC entity reports that nearly 50 percent of their referrals now originate with government agencies.

Ancillary service benefits imply improved service delivery for the agency. These benefits are measured as a function of the time saved gathering information about external resources and providing such information to clients. A conservative estimate of the benefits associated with ancillary services is around \$7.2 million over the ten-year period.

Estimates of government cost avoidance are tied to misdirected phone calls and inappropriate applications for service. Agencies realize savings if customers direct I&R calls to AICs, rather than their offices. Allowing for only a small share of projected call volume (given the large volume of all government I&R calls), government agencies could avoid an estimated \$15.8 million in costs handling misdirected calls; almost two-



thirds of this amount could be saved by local governments currently operating 911 systems.<sup>20</sup>

Intake avoidance refers to events in which access to I&R helped users obtain services and precluded the need to complete an application for public services. For example, according to Texas Department of Human Services (DHS) reports, 30-40 percent of Food Stamp applicants each month are denied benefits; access to the I&R Network may divert some of these applications resulting in saved time for agency staff. The forthcoming Texas Integrated Eligibility System (TIES) will similarly conserve resources by referring callers to the I&R Network prior to completing the application and eligibility certification process. The Texas Works initiative within the Texas DHS is another current initiative which would derive benefits from the I&R Network. Texas Works steers potential applicants to a resource area to seek out alternative means of meeting their personal and family needs through social services in order to avoid their going on the public assistance rolls. Cost avoidance through unnecessary intake is conservatively estimated at \$4.0 million over the ten-year period.<sup>21</sup> The Texas I&R Network could also generate benefits savings when clients are redirected to other services, prior to certification for government benefits. Researchers estimate that potential savings *from TANF benefits alone* would conservatively generate \$6.0 million in federal and state government savings over the ten-year period.<sup>22</sup>

Again, these benefits probably indicate the direction of savings more than actual amounts. This analysis has not addressed several other sources of benefits. For example, law enforcement is an area that is likely to benefit enormously from operating the comprehensive I&R Network. Community policing initiatives require that patrol officers have access to information regarding a broad spectrum of human needs, not all of which are emergency ones. Efficiencies may be captured in several ways, including direct access to AIC databases, easier communication of 211, non-emergency referrals and reduced need for preparing hard-copy local resource guides. Moreover, as a recent

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<sup>20</sup> Calls avoided by government agencies are valued at \$2.77 per call, the very low unit cost reported by the Gulf Coast United Way's telephone helpline, except for the 911 calls which are valued at \$11.21/call.

<sup>21</sup> Intake cost is valued at 0.5 hr of a DHS eligibility specialist's time calculated as a function of their hourly wage; this is only \$5.97. Actual total costs per intake are much higher. For example, intake at the Texas Department of Mental Health and Mental Retardation is estimated to range from \$60 to \$350 per client. Increasing the estimated intake cost in the valuation formula even modestly would dramatically enlarge the magnitude of governmental benefits.

<sup>22</sup> While these would constitute savings to government, they actually represent transfers from taxpayers to participants and would, thus, be netted out of any overall benefits to society as a whole.

state report on gangs and juvenile justice concludes, timely intervention through front-end services makes sense not only in fiscal terms, but also in the health and well-being of Texas communities.<sup>23</sup> The comprehensive Texas I&R Network facilitates the requisite collaboration between law enforcement, schools, providers and residents to ensure the success of these community-based approaches.

***Society.*** Society will reap undiscounted benefits estimated at just over \$100 million from implementing the comprehensive I&R Network over the ten-year period. Discounting to present values yields estimated benefit to society of \$83.7 million to \$90.2 million depending on the discount rate used. Estimated societal benefits are the sum of participant and government benefits, net of any taxes or transfers. These benefits do not include estimates of the value of social capital that human interaction through the I&R Network may establish and support. Nor do these estimates suggest the quality of life that improved responsiveness to human needs may generate and sustain. Again, such benefits elude measurement, but are recognized and realized within communities across the State.

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<sup>23</sup> Texas Senate Interim Committee on Gangs and Juvenile Justice (1998).

## V . Net Value of the Comprehensive I&R Network

As indicated in Table 8, researchers estimate that the comprehensive I&R Network requires government expenditures to realize positive net values for participants and society.

**Table 8: Comprehensive Texas I&R Network:  
Ten-Year Estimated Total Net Value**

	<b>Participants</b>	<b>Government</b>	<b>Society</b>
I&R Network Costs	\$28,882,645	\$57,154,591	\$86,037,236
I&R Network Benefits	\$67,052,537	\$33,060,482	\$100,113,019
Net Value, Undiscounted	\$38,169,892	(\$24,094,109)	\$14,075,783
2.0% Discount Rate	\$34,723,584	(\$22,769,032)	\$11,954,552
3.5% Discount Rate	\$32,434,227	(\$21,986,936)	\$10,804,665

### **Comprehensive Texas I&R Network Estimated Net Value**

**Participants.** The I&R Network is estimated to have a positive net value for participants of \$38.2 million (undiscounted) over the ten-year implementation and operation period. This converts to \$34.7 million dollars at the lower discount rate and \$32.4 million dollars at the higher discount rate. Once again, these estimated net benefits exclude a number of important but difficult to quantify benefits.

**Government.** The I&R Network is also estimated to have a negative value for government of around \$24.1 million over the same ten-year period. Discounted to present value, this amounts to approximately \$22.8 million at the 2.0 percent discount rate and \$22.0 million at the 3.5 percent discount rate. The Center's estimation of governmental benefits tends to be very, possibly overly, conservative in nature.

**Society.** The I&R Network will yield an estimated positive net value of \$14.1 million for society over the ten-year period, even utilizing very conservative valuation strategies. Discounted to net present values, the net value would fall between \$10.8 million and \$12.0 million over this period. From the vantage point of benefit/cost analysis, this positive net benefit for society is the most important figure.

## VI . Conclusions, Implications and Future Issues

### Major Conclusions

This analysis has attempted to measure the major benefits and costs associated with implementing and operating a comprehensive statewide I&R Network in Texas over the next ten years, including incorporating a 211 single-number with which to access it. Developing such a system is an idea that has been a priority of the Texas Legislature since at least the early 1990s, in part as a response to the highly fragmented environment in which health and human services have been operating for decades.

This analysis has been limited by time and resource constraints to some extent. An even greater limitation has been that many of what are felt by professionals in the field of health and human services to be major benefits accruing from an I&R Network, are virtually impossible to quantify or to make tangible. Examples of these include cost savings due to earlier intervention or even prevention in such areas as youth adjudication, drug and alcohol abuse, and other areas, as well as actually saving human lives. The estimates presented here only hint at such savings and suggest the effects their inclusion might have on the net value of the proposed I&R system. Since such effects have not been definitively measured and documented through scientific studies, the Center has stopped short of incorporating these benefits into the analysis. Even so, the single most important figure—i.e., the net present value of societal benefits—turned out to be definitively positive in this benefit/cost analysis of the proposed comprehensive Texas I&R Network system. Major conclusions resulting from this analysis are outlined briefly below.

***I&R Network Costs.*** Ultimately, implementing and operating a comprehensive statewide I&R network in Texas over the ten-year period from SFY 2000 through SFY 2009 will result in costs for those directly participating in the system (e.g., individuals and their families, I&R centers, HHS providers), for state government and for society as a whole. The comprehensive I&R system as analyzed encompasses both the automated I&R Network (e.g., the Area Information Centers, the electronic database, and the website), and the 211 SNS component. The discounted present value of the total societal

cost of this network, depending upon the discount rate used, is estimated to be between \$73.2 million and \$78.3 million. Participants will likely bear one-third of these costs, while state government will account for the remaining two-thirds.

The total direct cost to the State of Texas for implementing and operating the comprehensive statewide I&R network, expressed in terms of present value, is expected to range from \$49.5 million to \$52.6 million as currently budgeted. The largest components of State cost are the costs of operating the I&R Centers with the SNS component (approximately 71 percent of the total), followed distantly by the costs of communications and utilities (8 percent). The costs of marketing, professional fees and services to support the Centers, and State I&R staff salaries and benefits, each account for much less than 6 percent of the total. State expenditures can be best viewed as the *catalyst* for implementing and operating the comprehensive I&R Network in Texas.

***I&R Network Benefits.*** A number of tangible, as well as intangible, benefits are expected to result from implementing and operating this network over the ten-year period of analysis. For society as a whole, the present value of these benefits is conservatively estimated to range from \$83.7 million to more than \$90.2 million depending on the discount rate used. In contrast to the distribution of the costs of the I&R network, most of its benefits (around two-thirds) are expected to accrue to those participating directly in the system. *Individuals and their families* will save on the time spent searching for and attempting to access various health and human services. *Employers* can increase human capital and realize productivity gains through increased work efforts. *Public and private providers* will experience considerable cost savings resulting from reduced numbers of inappropriate referrals and misdirected calls, as well as improved planning, management and marketing capacity, among other benefits.

It is also important to point out some of the benefits which have been cited frequently in the I&R literature and by professionals as some of the most important products of instituting a comprehensive I&R network; these have *not* been factored into the present analysis. These include cost savings due to earlier intervention or even prevention in such areas as youth services, chemical dependencies, and many other areas of social services, as well as the value of human lives saved. If such benefits could be definitively measured and factored into the calculations, the benefit amounts would increase substantially. As noted in section IV, if only one life were saved each year as a

result of the 1.4-2 million I&R calls projected annually, another \$25 million to \$37 million in (discounted) benefits would result, even under conservative valuation strategies.

*Net Value of the Comprehensive I&R Network.* As the adjusted difference between benefits and costs, the net present value to society of implementing and operating the comprehensive statewide I&R network over the ten-year period of analysis is expected to range from almost \$11 million to \$12 million. This is the crucial figure for benefit/cost analysis. Participants alone realize positive net benefits from the I&R network ranging from \$32.4 million to \$34.7 million. Government, which is adopting the catalytic role in organizing, implementing and operating the I&R network, as well as shouldering most of the costs, not surprisingly incurs net costs on balance, ranging from just under \$22 million to almost \$23 million.

Based on the public good realized by the I&R networks (a benefit described aptly in the existing literature), this distribution of net benefits and costs is neither surprising or inappropriate. Government bears net costs, but allows society as a whole, including direct network participants, to reap substantial net benefits. Moreover, many of the key benefits which remain intangible or unmeasurable to date would accrue to governments. More complete capture of such benefits might well make the net cost figure for government less negative and possibly even suggest a net positive outcome.

## **Policy Implications**

A number of key policy implications flow from these conclusions. First, based on a conservative tabulation of expected tangible costs and benefits associated with the comprehensive statewide I&R system, Texas would be advised to proceed with the investment. This analysis indicates that society will likely reap positive net benefits from this investment. Second, as a classic example of what economists refer to as a public good, investing in an I&R network is a sensible choice, despite net governmental costs. Moreover, as the following discussion suggests, benefits are likely to increase over time, while costs may tend to decrease.

Public sector support for the I&R Network is a rational response to ongoing and anticipated changes in our social structures and practices of governing institutions. Additionally, to more equitably distribute costs and to minimize the net cost to the state

of the I&R network, state policymakers may want to explore institutional user fees or cost-sharing mechanisms across state agencies which benefit from I&R services.

## **Future Issues**

Tabulating the tangible benefits and costs associated with implementing and operating a comprehensive statewide I&R network from today's vantage point is admittedly subject to constraints. In fact, in critical areas, including demographics, telecommunications and computer technology, and public services, this is a period of significant and rapid change. Developments in these areas alone, as well as on any number of other fronts, including most notably labor markets and the economy, are likely to have a dramatic impact on the estimates presented here. A discussion of few key issues likely to have a substantial impact upon the benefits and costs associated with the proposed comprehensive Texas I&R Network system in the near future follows.

***Demographic Trends.*** The more dependent sectors of the population—the young and the very old—will be more effectively served by the I&R Network. The Texas population is aging and along with aging come increasingly complex health and long-term care problems, particularly for the very old (i.e., those 80 years of age and over). As the aging process occurs, there are going to be increasing demands placed on state and local I&R networks to provide the requisite information services. At the same time, the share of children living in poverty has grown in recent years, and is higher in Texas than the national average. Moreover, aging and child poverty are occurring in a world of blended families and working two-parent, as well as single-parent families. The burdens of finding out about and arranging for services increasingly fall upon families whose time and energies for doing so may be already stretched thin. Although it could be argued that substantial services are available, service gaps and I&R needs are also regularly identified in sources used for this report. Where services follow demand, benefits are also derived for individuals, families, employers, governments and society as a whole.

***Public Services.*** Dramatic changes are occurring in the structure and ethos of public services. TIES and Texas Works represent the types of program adjustments that certainly will reap future benefit from the Texas I&R Network. Perhaps more important than these visible manifestations of change, are the socio-philosophical changes driving them. At least two predominating processes are at work in the health and human services

arena: devolution of program responsibility from federal to state and local arenas, and a renewed emphasis on personal responsibility for economic and social well-being. These projects and processes are also associated with accelerated interest in the privatization of public services which is addressed in final comments to this report.

*TIES Implementation.* The Texas Integrated Eligibility System, a.k.a. TIES, proposes to integrate (and possibly privatize) the enrollment and service delivery processes for multiple health, human service, and workforce programs. This automated eligibility determination, single-state system is marketed as a means to increase program efficiencies by reducing fraud, eliminating duplicated paperwork, streamlining services for clients and eventually reducing service delivery costs.

As of April, 1998, the TIES workgroup had identified more than 30 programs from the Department of Human Services, Department of Health, and Texas Workforce Commission as appropriate to the “scope” of the project. TDH programs include Family Planning, Medicaid Service Delivery, Texas Health Steps (EPSDT), and WIC, among others. DHS programs include Medicaid Eligibility and AFDC Related Medicaid, Food Stamps, and TANF. At TWC, proposed program integration includes Child Care and Development, Employment Services, Food Stamp E&T, and JOBS/Choices.

Baseline costs for eligibility determination and enrollment across these three agencies has been estimated at just under \$460 million, 95 percent of which accrues to DHS.<sup>24</sup> Consequently, the fiscal implications of interaction between TIES and the I&R Network could be enormous. The extent to which I&R referrals will preclude processing of applications in the TIES system or will provide services that are ancillary to core state services, will result in significant cost savings and systemic efficiencies for the State of Texas. Although several issues pertinent to TIES remain—these include staffing, governance and location/housing issues, public vs. private service delivery, costs/funding and other transitional/ implementation issues—policymakers and administrators should closely scrutinize the relationship between the two emerging systems.

*Texas Works Initiative.* The Texas Works initiative at the Department of Human Services offers additional “partnering” opportunities with the I&R Network. Since November 1997, DHS has been placing greater demands on individuals and families seeking assistance from DHS to locate and secure their own help through the Texas

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<sup>24</sup> TIES Interagency Management Team (July, 1998).



Works project, whether in the form of jobs, housing, temporary income support or other areas. Individuals going to local DHS offices are now being referred to “resource areas” where they can use directories or make phone inquiries in order to locate work or assistance that will alleviate the need to seek additional help from the government. As this initiative proceeds—and especially as time-limits for welfare benefits become more pervasive and effective—the demand for services provided by I&R network are likely to increase. Again, the relation between the I&R Network and Texas Works should be monitored.

*Personal Responsibility.* Increasingly, government is shifting the locus of responsibility, especially those related to health and human services, to individuals and families. This trend is quite strong in Texas. It is exemplified by the Texas Works initiative, as well as the Personal Responsibility Agreements which are signed as a precondition to public assistance through DHS. It is further reinforced by the Family Pathfinders initiative launched by the Texas Comptroller’s Office, and any number of other efforts, all of which place a premium on individual and family actions to help themselves without direct governmental assistance. I&R networks are likely to become an increasingly vital support to these efforts over time.

*Devolution.* The nation is in a period of widespread devolution, especially in the area of health and human services, but also in workforce development and education.<sup>25</sup> Not only are Congress and the President shifting authority, responsibility and financing of key services from the federal government to the states (so-called “first-order” devolution), but states are further shifting them to local governments and to a broad array of for-profit and non-profit providers as well (“second-order) devolution). Devolution is both widespread and quite strong as such trends go. As these services are increasingly shifted to lower and lower levels of government and even to non-governmental organizations (NGOs), and as greater emphasis is placed on personal responsibility, the value of easily accessible, accurate information on various health and human services is only going to increase.

*Technological Advance.* Over the past few decades, the real cost of electronic devices and communications generally has plummeted. In 1984, personal computers were new to the market and, with a price tag of around \$3,000-\$4,000 (in 1984 prices),

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<sup>25</sup> Again, for more on devolution and its expected effects see Nathan (1996) and others.

came with little memory and speeds which would be unthinkable slow by current standards. Today, many personal computers cost less than \$1,000, feature gigabytes of memory and run at speeds approaching 300 megahertz. In real terms, the price of a personal computer has fallen by as much as 80 percent, even *without* adjusting for the quantum leaps in quality which have occurred. Similar trends in telecommunications are likely to lead to dramatic reductions in the cost of operating the I&R Network with a 211 number system over time.

## **Final Comments**

In sum, Texas can expect growing demands on and benefits from operating the comprehensive I&R system statewide, as well as shrinking costs due to technological advances. These trends can be expected to result in increased *net* benefits from the I&R system over time, even if the intangible rewards remain so.

Lastly, whatever the quantifiable net value of the comprehensive Texas I&R Network including a single number system, there is another overarching benefit to consider: the value of a better informed *market* for human services. It is clear that many public services will be candidates for privatization over the next few years. Many of these services— e.g., corrections, child support collections, workforce development, human services, health care—have already been privatized to varying degrees. Privatization in whatever manner raises issues which policymakers must address. Yet, whether the services are fully or partly privatized, most will be increasingly subjected to market forces or feel the application of market-like mechanisms.

Increasing ready access to information concerning service options and choices will foster the operations of markets in the areas affected and lead to improvements in the efficient allocation and production of the affected services. Providing such information is not likely to be done by the private sector in the absence of public funding and support. Where basic information services are taken on by private for-profit entities, absent strong regulation, there will be a tendency for information to be biased. Therefore, it appears incumbent upon the public sector to take decisive action in support of efficient markets for health and human services.

## References

- Aksin, O.Z. and Harker, P.T. (1997). *Staffing an Inbound Call Center*. Paris, FR: A working paper in the INSEAD working paper series.
- Association of Community Information Centres in Ontario. (1996). *The Case for Using Community Information Centres as Part of the Information Infrastructure of the Ontario Government*. Submitted proposal.
- Boardman, A.E., Greenberg, D.H., Vining, A.R., and Weimer, D.L. (1996). *Cost-Benefit Analysis: Concepts and Practices*. New Jersey: Simon & Schuster.
- Center for Public Policy Priorities (1997). *DEVOLUTION: An Interactive Forum Concerning the Impact on Texas Communities*, Boerne, TX: A Conference jointly sponsored by the Ford Foundation. September .
- Engelbrecht, H. (1998). "A Communication Perspective on the International Information System," *Information Economics and Policy* 10, pp. 359-367.
- Ernst & Young and Manifest Communications, Inc. (1991). *Review of Access to Human Services Information*. Ontario, CA. Ministry of Culture, Tourism and Recreation. December.
- Feeney, M., & Grieves, M., eds. (1994) *The Value and Impact of Information*. London: Bowker Saur.
- Fried, B.J., Johnsen, M.C., Starrett, B.E., Calloway, M.O., & Morrissey, J. P. (1998). "An Empirical Assessment of Rural Community Support Networks for Individuals with Severe Mental Disorders," *Community Mental Health* 34(1), pp. 39-56.
- Gallagher, J.J., M. Gallagher, K. Perese, S. Schreiber, and K. Watson. (1998). *One Year After Federal Welfare Reform: A Description of State Temporary Assistance for Needy Families (TANF) Decisions as of October 1997*. Washington, D.C.: The Urban Institute, Occasional Paper Number 6.
- Gramlich, E.M. (1990). *A Guide to Benefit-Cost Analysis*. Englewood Cliffs, NJ: Prentice Hall.
- Greene, J. and Whitmore, B. (1986). *An Evaluation of the Day Care and Child Development Council's Information and Referral Service: Synthesis of Findings and Program Recommendations*. Prepared for the Day Care and Child Development Council of Tompkins County.
- Hirshleifer, J. (1971). "The Private and Social Value of Information and the Reward to Inventive Activity." *American Economic Review* 61(4), pp. 561-574.

- Hirshleifer, J. (1973). "Economics of Information: Where Are We in the Theory of Information?" *American Economic Review* 63(2), pp. 31-39.
- Holcomb, P.A., Seefeldt, K.S., Trutko, J., & Barnow, B. (1993). *One Stop Shopping Service Intergration: Major Dimensions, Key Characteristics and Impediments to Implementation*. Washington, D.C: U.S. Department of Labor.
- King, C. T., D. T. Schexnayder, J. A. Olson, D. P. O'Shea, D. T. Pan, R. A. Roche, and R. D. Trunkey. (1994). *Texas JOBS Program Evaluation: Final Report*. Austin: Center for the Study of Human Resources, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin. March. Especially, chapter VII.
- Kochen, M., & Donohue, J.C., eds. (1976). *Information for the Community*. Chicago: American Library Association.
- Lyon, R.M. (1990). "Federal Discount Rate Policy, the Shadow Price of Capital and Challenges for Reform," *Journal of Environmental Economics and Management* 18(2), pp. 29-50.
- Mason, R.M., & Creps, J.E., eds. (1981). *Information Services: Economics, Management, and Technology*. Boulder, Colorado: Westview Press.
- Maxwell, T. A. (1997). "Welfare Reform and Information Management: Rewiring the Human Service System," *Rockefeller Reports*, Albany, New York: The Nelson A. Rockefeller Institute of Government, State University of New York. December 5.
- McMindes, D., Rocha, K.A., Sim, S.C., & Treviso, P. (1998). *United Way's First Call for Help: Program Evaluation*. Austin: Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin.
- Nathan, R. P. (1996). "The 'Devolution Revolution:' An Overview," *Rockefeller Institute Bulletin*, Albany, New York: The Nelson A. Rockefeller Institute of Government, State University of New York.
- Neef, D. (1998). *The Knowledge Economy: Resources for the Knowledge-based Economy*. Boston: Butterworth-Heinemann.
- O'Connell, M. and Warrens, L. (1997). "Operator, Can you Please Give Me the Number for Atlanta, Georgia?" *The Regionalist* 2(4), pp. 39-41.
- O'Shea, D. P., and Norris, D. (1996). *Texas Food Stamp E&T /JOBS Conformance Demonstration Evaluation: Cost Analysis Final Report*. Austin: Center for the Study of Human Resources, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin.
- Rees, A. (1966). "Labor Economics: Effects of More Knowledge. Information Networks in Labor Markets." *American Economic Review* 56(1/2) , pp. 559-566.

- Schexnayder, D. T., J. A. Olson, D. P. O'Shea, D. Norris, D. Schroeder, and C. T. King. (1997). *Lone Star Image System Evaluation: Final Report*. Austin: Center for the Study of Human Resources, Lyndon B. Johnson School of Public Affairs, The University of Texas at Austin. August.
- Senauer, B., Kinsey, J.K., and Roe, T. (1984). "The Cost of Inaccurate Consumer Information: The case of EPA gas mileage," *Journal of Consumer Affairs* 18(2), pp. 193-212.
- Sexton, R.J. (1981). "Welfare Loss from Inaccurate Information: An Economic Model with Application to Food Labels," *Journal of Consumer Affairs* 15(2), pp. 214-231.
- Stigler, G.J. (1961). "The Economics of Information." *Journal of Political Economy* 69(3), pp. 213-225.
- Taylor, R.S. (1986). *Value-added Processes in Information Systems*. New Jersey: Ablex Publishing.
- Texas Health and Human Services Coordinating Council. (1989). *Health and Human Services in Texas: A Reference Guide*, Austin: THHSC.
- Texas Senate Interim Committee on Gangs and Juvenile Justice. (1998). *Thinking Outside the Box: Summary Report*. Austin, TX.
- Texas Senate State Affairs Committee. (1981). *Holes in the Patchwork*. Austin: TLC.
- Texas Information and Referral Network. (1998). *Conceptual System Design and Development Plan*. Draft Document, April.
- Texas Telecommunications Policy Institute. (1998). "Texas 211:" *Implementing a Toll-Free Electronic Information and Referral Telephone Service in Texas*. Report to the Texas Health and Human Services Commission and the Texas Information and Referral Network, September.
- TIES Interagency Management Team. (1998). *Texas Integrated Eligibility and Services Project: House Bill 2777 Plan*. Austin, TX. July.
- United Way of the Texas Gulf Coast. (1994). *Evaluation of Community and Agency Support Services and Community Initiatives*. Houston, TX: Report to Evaluation Task Force.
- United Way of Metropolitan Atlanta. (1998). *Information Packet, 1998 AIRS Conference*. Atlanta, GA.
- \_\_\_\_\_. (1998). *United Way 211: Monthly follow-up reports*. Atlanta, GA. February.
- \_\_\_\_\_. (1998). *United Way 211: Monthly statistical reports*. Atlanta, GA. February.

## **Appendix A**

### **Technical Attachment**



# The Value of a Comprehensive Texas Information and Referral Network:

## Technical Attachment

### Introduction

This document accompanies the benefit/cost analysis of the proposed Texas I&R Network prepared by the Center for the Study of Human Resources (CHR) at the LBJ School of Public Affairs of the University of Texas-Austin for the Texas Health and Human Services Commission (HHSC). It provides technical documentation concerning assumptions, procedures and calculations applied in the benefit/cost analysis.

From the State government perspective, researchers estimate the:

- State costs for the *automated* I&R Network
- Additional costs for supporting the 211-Single Number System (SNS) system
- State costs for the *comprehensive* I&R Network

From the perspective of Participants, Government and Society, researchers estimate the:

- Benefits of a comprehensive I&R Network
- Costs of a comprehensive I&R Network
- Net value of a comprehensive I&R Network

Several sources of benefits and costs have been identified. The proposed I&R Network includes:

- A network of 25 Area Information Centers (or AICs) encompassing the current set of Community Information Centers (CICs) operating around the state. AICs would eventually provide services statewide.
- A statewide automated information warehouse comprised of standardized, electronic health and human services data provided by the AICs and the CICs.
- A central website, administered by state I&R Network staff, serving individual Texans as well as state and local institutions, including AICs, CICs, and local health and human services providers.
- A 211 Single Number System (SNS) for health and human services information based on call redirect/routing technology over the existing TexAn long-distance telephone system.

The automated information center, the website, the AICs and the 211 SNS within the Texas I&R Network for health and human services constitute the *comprehensive* Texas I&R Network. The system without the 211 SNS component constitute the *automated* Texas I&R Network. Texas I&R Network staff at the Health and Human



Services Commission provided separate proposed budgets for implementing and operating (1) the automated network and (2) the SNS. CHR staff used these as the basis for state cost estimates.

## Methods

The methods and techniques of benefit/cost analysis are well developed and relatively standardized.<sup>26</sup> The pertinent feature of this analysis is that it is an *ex ante* exercise, i.e., none of the implementation and operating costs or benefits have been realized. The proposed budget for the comprehensive I&R Network is an estimate prepared by I&R Network staff; it has not been formally adopted by the Texas Legislature and none of these expenditures have yet been made. Similarly, potential benefits and costs to participants, government and society have not accrued.

To proceed, researchers identified a detailed list of potential benefits and costs, and subsequently developed valuation formulas to estimate those for which quantification seemed reasonable. Potential benefits and costs were identified based on information provided by HHSC staff, health and human services agency staff, and local I&R network collaborators, as well as on insights gained from the literature and experts in health and human services I&R delivery. CHR eliminated benefits and costs deemed marginal and likely to cancel each other in accord with the “pragmatic algebra” recommended by Benjamin Franklin more than two centuries ago.<sup>27</sup> Researchers then selected those benefits and costs which could reasonably be quantified. Researchers also identified those effects for which a valuation strategy was not deemed appropriate, but which nonetheless should be included in the more generalized discussion, e.g., the potential value of a human life saved. Valuation approaches are presented later in this text.

Researchers also selected parameters for the analysis and a few fundamental assumptions. Key parameters include perspectives, time frames, discount rates, and phone call volumes.

**Perspectives.** Three primary perspectives for gauging both benefits and costs are relevant for this analysis:

- *Participants*, including individuals and families, employers, and local I&R centers, as well as health and human services providers;
- *Government*, primarily state and local, but including federal, as well (to the degree that federal funds are commingled with state and local funds in service delivery configurations); and

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<sup>26</sup> See Boardman, A.E., Greenberg, D.H., Vining, A.R., and Weimer, D.L., *Cost-Benefit Analysis: Concepts and Practices*, (New Jersey: Simon & Schuster, 1996); and Gramlich, Edward M., *A Guide to Benefit-Cost Analysis*, 2<sup>nd</sup> ed., (Englewood Cliffs, NJ: Prentice Hall, 1990).

<sup>27</sup> “Letter to Joseph Priestly,” in Mott and Jorgenson, *Benjamin Franklin: Representative Selections*, (New York: American Book Company, 1936), cited in Boardman et al, op.cit., page 1.

- *Society* as a whole, which is the sum of participants and government, net of any taxes and transfers between them.

**Time Frames.** A ten-year time period has been selected for analysis, encompassing State Fiscal Year (SFY) 2000 through SFY 2009. The three-year period SFY 2000-2002 constitutes the *implementation phase* of the I&R Network. Development, implementation and some operations costs will be incurred during this phase. The system will become fully operational in SFY 2003-SFY 2009, the *operational phase*. Most of the expected benefits will accrue during this latter period.

It should be noted that, the Texas I&R Network has already incurred some developmental and operating costs in the period SFY 1992-SFY 1999. However, costs incurred during this period have been modest, since they largely built upon the existing efforts of private non-profit I&R provider organizations around the state. Moreover, benefits from this early version of the I&R network were accruing as well. Both are ignored in the current analysis. This is tantamount to assuming that costs and benefits accruing during the SFY 1992-1999 period were completely offsetting

**Discount Rates.** There are two leading choices for discount rates to use with general public investments like the comprehensive Texas I&R Network.<sup>28</sup> First, Congressional Budget Office (CBO) guidelines call for using a rate of 2 percent as an estimate of the real yield on Treasury debt.<sup>29</sup> Second, General Accounting Office (GAO) guidelines would apply a rate approximating the expected average yield on Treasury debt maturing between one year and the life of the proposed project (i.e., ten years), minus the forecast rate of inflation; a 3.5 percent rate has been designated for this.<sup>30</sup> Both discount rates are utilized here to provide a *range* of estimated net benefits for Texas policymakers to consider.

**Phone Call Volumes.** A principal driver for most of the valuation formulas, as well as for the implementation and operation budgets prepared by state I&R Network staff, is *projected call volumes*. Throughout the three-year implementation period and first full year of operations (SFY 2003), benefit/cost estimates based on call volume use proportional shares of the 1,415,000 projected by the end of the implementation period.<sup>31</sup> Network staff plan a phased implementation of the 25 AICs: 8 the first year, 9 the second

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<sup>28</sup> Boardman et al. (1996:175-177).

<sup>29</sup> Boardman et al. (1996) actually suggest using a rate of 2 percent *plus* 2 percent (i.e., 4 percent) for projects with net benefits expected to be *positively* correlated with gross national product (GNP) and 2 percent *less* 2 percent (i.e., 0 percent) for those with net benefits *negatively* correlated with GNP. Lacking unclear expectations for either a positive or negative correlation of net benefits with national income, a discount rate of 2 percent is used.

<sup>30</sup> The average yield on 10-year Treasury bills (now 4.27 percent), less the expected rate of increase in the gross domestic product deflator for the next decade (assume 2 percent, based on the most recent five years and prevailing concerns of *deflation*), would result in a discount rate of only 2.27 percent, a rate only marginally different from the 2 percent CBO figure. To offer policymakers a range of discount rates, a 3.5 percent rate is used as an alternative.

<sup>31</sup> Projected call volumes are found in Texas Telecommunications Policy Institute (TTPI), *Texas 211: Implementing a Toll-Free Electronic Information and Referral Telephone Service in Texas*. Report to the Texas Health and Human Services Commission and the Texas Information and Referral Network, September 1998.

year and the last 8 the third year. Phone volumes have been adjusted accordingly; 32 percent of the increase is assumed in the first year, 68 percent is assumed in the second and 100 percent is assumed by the third year. Thereafter, call volumes are assumed to increase annually, until call volume reached the equivalent of 10 percent of the state population in SFY 2005 (or more than 2 million total calls).<sup>32</sup> To arrive at the 1,415,000 call volume initially, state I&R staff estimated that baseline call volume would increase 50 percent over the implementation period.

To further refine the estimates in some instances, researchers also differentiated effects of the automated I&R network and the ancillary effects associated with the addition of the 211 SNS components. To do so, researchers apportioned 20 percentage points of the estimated increase in call volume to the I&R network without SNS and 30 percentage points to the SNS. The twenty percentage point increase includes the 10 percent of the population captured in the geographic expansion of the I&R network and 10 percent attracted through service expansion stimulated by network features (e.g., quality, timely information, basic eligibility screening, and accurate referrals). The thirty percentage point increase in volume associated with the SNS component corresponds to the first-year growth experienced after the introduction of SNS in the Atlanta metropolitan area, a growth rate that TIRN staff factored into its call volume projections.

**Assumptions.** CHR also posits certain assumptions about the Texas I&R Network, namely that:

- The technological and structural features of the I&R Network have been determined, and that the proposed state budget for introducing and initially operating that system has been reasonably estimated.
- The statewide I&R data files and website will successfully be structured and maintained to provide the most timely and comprehensive information to users (the general public, AIC/CIC state and substate staff, and other human service professionals).
- The availability of resources among human services providers will be deemed sufficient to meet potential client needs prior to making a referral for services. Moreover, individuals/families will only be referred to services for which they appear to be basically eligible.

If these latter two assumptions prove false, many potential benefits of the SNS system will be undermined.

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<sup>32</sup> 1,415,000 is equivalent to approximately 7 percent of the state population in SFY 2003. One option available to CHR researchers was to increase call volume as a function of population growth from that point on. Because of an increasing demographic dependency ratio (growing population shares of young and elderly), the public sector trends toward personal and community responsibility, programmatic devolution and restructuring, e.g., local career centers and TIES, and changes in labor market changes, particularly concerning wages, benefits, and employment tenure patterns, researchers anticipate that increased shares of the Texas population will have cause to contact a comprehensive health and human services network in outlying years. As a result, researchers chose to increase call volume at a rate faster than the population growth, but capped volume at the equivalent of 10 percent of the population

## Benefit/Cost Analysis

Benefit/costs examines the area between expenses incurred by operating a statewide I&R system and the perceived benefits to the individual clients & families, the local providers, CICs and AICs, state and local government, and society. CHR estimated costs and benefits that accrue to stakeholders in these groupings, and estimated the net benefit/costs of the comprehensive Texas I&R Network. Estimates were adjusted to net present value using the 2.0 percent and 3.5 percent discount rates.

**State Costs.** CHR researchers projected ten-year total implementation and operational costs based upon proposed four-year budgets prepared by I&R Network staff. Researchers prepared separate cost estimates for the automated network, the additional costs for introducing the SNS component and the comprehensive network.

Table A-1 presents annual total state costs for the automated network during discrete phases and across the ten-year implementation and operational period. CHR slightly modified the I&R budget by including an estimate of the cost of fringe benefits to the estimated cost of salaries provided by I&R staff. The fringe benefit estimate was calculated as a function of 14.15 percent of the salaries plus a flat cost of \$4,478 per FTE position. Researchers increased all category estimates by a rate of two percent a year to account for inflation, after the first full year of operation (SFY 2003).

Table A-2 presents annual total state costs for the SNS component alone during discrete phases and across the ten-year implementation and operational period. As in the previous table, CHR slightly modified the I&R budget by including an estimate of the cost of fringe benefits to the estimated cost of salaries provided by I&R staff. The fringe benefit estimate was calculated as a function of 14.15 percent of the salaries plus a flat cost of \$4,478 per FTE position. Researchers increased all category estimates by a rate of two percent a year to account for inflation, after the first full year of operation (SFY 2003).

I&R Center costs in Table A-3 also represent the joint public/private funding structure of the Network. TIRN staff estimate that the costs of responding to phone call volumes at the local level will be \$3 million in the first year and increase with volume to \$7.4 million at the end of the implementation period. The cost/benefit analysis assumes that the local providers absorb 25 percent of that cost for the first three years. After the first full year of operation (SFY 2003), the State shifts an additional 5 percent of costs to the local providers, each year for five years, resulting in a 50/50 share of costs by year nine (SFY 2008). Moreover, in year four and afterward, costs are adjusted by an estimated 1.7 percent annual population increase—not call volume—assuming that operating efficiencies are generated by the comprehensive Network.

Table A-3 combines Tables A-1 and A-2 and applies the 2 percent and 3.5 percent discount rates to the separate and collective sums during discrete phases and across the ten-year implementation and operational period.

**Comprehensive Network Costs.** Comprehensive I&R Network costs are ultimately comprised of user and provider costs. Texas I&R Network costs include:

- The costs to individuals who access and use the system
- The I&R provision costs of local health and human services providers, CICs and the proposed AICs
- The I&R costs of state and local government HHS agencies
- State costs for implementing and operating the data collection subsystem (i.e., AICs, the statewide information bank and website) and the service delivery/response subsystem (the AICs and SNS structure).

Table A-4 reveals the specific costs which CHR researchers have valued for this analysis. Participant costs are comprised primarily of estimated AIC costs related to increased call volumes and to a lesser extent by cost of telephone charges borne by individuals and families without home phone lines to access the system

*Individual/Family Costs.* These estimates are a function of phone call volume shares, the proportion of Texas households without a home phone line and public telephone phone costs to the user without access to a home phone line in the currently- and newly-served substate areas.

Pay phone charges are estimated as a local charge (\$.35) or a long distance charge (\$1.00). The long distance charged is based on the rate of \$.25 per minute for a four minute phone call, the same average minute unit used by TIRN staff for the TexAn call cost estimate. Researchers further assumed that one in twenty pay phone users would pay long distance charges. Therefore the average cost per call is \$.3825.

$$\text{Cost per call} = [(19 \times .35) + (1 \times 1.0)] \div 20 \text{ or } \$.3825$$

The projected phone call volume was adjusted by .087 percent, since 91.3 percent of the households in Texas have home phone lines. Costs for the automated and ancillary SNS scenarios were then calculated using the proportionate shares of phone call volumes across the ten year-period.

*Information and Referral Center Costs.* TIRN staff estimate that the cost of responding to increased phone volume at the local provider level will be a shared cost. Based on the cost-sharing formula described above, local I&R centers will increase their shares of costs from 25 percent to 50 percent during the operational phase.

*Government Costs.* Government cost are the same State cost identified in Table A-3 for the comprehensive I&R Network. No estimated cost increases for federal or local governments have been estimated.

**Comprehensive Network Benefits.** I&R Network benefits accrue across an array of actors. Benefits engage elements of cost savings, cost avoidance and cost shifting. Two-thirds of the benefits accrue to participants. Table A-5 provides details of the benefits calculated for this analysis.

*Individual/Family Benefits.* Individuals and families will save time and effort identifying and gaining access to appropriate services. To represent this benefit, CHR assumes that the small shares of callers will save 40 minutes and drive five fewer miles to acquire services. Researchers valued the time saved at the average weekly wage for the State of Texas: at \$13.92 per hour in 1997, 40 minutes time is valued at \$9.28 per hour. Five miles driving is valued at the State vehicle reimbursement rate of \$.28 per mile or \$1.40. The combined per caller saving is \$10.68. Researchers assumed that 5.0 percent of the baseline call volume, 10.0 percent of the automated call volume and 10.0 percent of the SNS-associated call volume would realize this benefit.

*Information and Referral Center Benefits.* Local I&R providers realize benefits associated with cost avoidance through inappropriate referrals, misdirected phone calls, opportunities for improved planning and program management from using the standardized I&R database, and more effective marketing of services, particularly that which enhances volunteer recruitment.

The benefit of enhanced capacity for volunteer recruitment has been estimated as a function of phone call volume, shares related to volunteerism, volunteer hours and the value of those hours as a portion of the average weekly wage rate. Researchers estimated that 0.5 percent of the call volume associated with the automated system and an additional 0.5 percent of the calls associated with SNS would yield a volunteer who commits twelve hours per year, valued at \$13.92 per hour.

Researchers valued increased management and planning capacity as a 5.0 percent share of the total costs of staffing and operating the local phone response system, i.e., \$3 million in year one, accelerating to \$7.4 million at the end of the implementation period, and thereafter increasing at the same rate as the estimated population growth of 1.7 percent.

Cost avoidance through misdirected phone calls has been estimated as a function of phone call volume, estimated shares misdirected and the cost of handling misdirected phone calls. Researchers estimated the cost of handling a call at \$2.77, the average cost estimate per call provided by the Houston AIC. Researchers estimated that a 5.0 percent share of calls to the automated Network and a 2.5 percent share of the present call volume would be associated with inappropriately directed calls to local I&R providers.

*Employer Benefits.* Employer benefits are associated with improved workplace productivity. Employees may spend less time at work or away from work seeking information concerning and access to health and human services. Benefits are estimated as a function of phone call volume, estimated shares associated with work-based calls, and the value of the productivity lost. Researchers estimated that a 3.3 percent share of calls to the automated Network and a 1.66 percent share of the present call volume would be associated with work-related calls. CHR assumed that a typical work-place caller may

make 2.5 phone calls at 4 minutes each. This suggests 10 minutes lost productivity valued at the hourly share of the average weekly wage rate of \$13.92 which represents a potential savings of \$2.32 per call to the employer.

*Government Benefits.* The range of potential benefits from government's perspective encompasses three categories: ancillary services, cost avoidance, and benefit savings.

Ancillary services refer to events in which public health and human services staff assist clients with services outside of their agencies' core area. Ancillary service benefits imply improved service delivery for the agency. These benefits are measured as a function of call volume shares and the value of the staff time saved gathering information about external resources and providing such information to clients. Staff time is valued at \$1.30 in the calculation. This is equivalent to 5 minutes of wages and benefits for median state Social Services worker I-II in 1997. CHR researchers estimated that 10.0 percent of the calls to the current I&R system, 25.0 percent of the projected calls to the automated system and 10.0 percent of the projected calls to the system with the SNS component could be attributed to calls for ancillary services for state and local government agencies.

Estimates of government cost avoidance are tied to misdirected phone calls and inappropriate applications for service. The benefits of the misdirected calls to government agencies are measured as a function of call volume shares and the cost of handling the phone call. Government calls are valued at \$2.77 per call, the very low unit cost reported by the Gulf Coast United Way's telephone helpline, except for the 911 calls which are valued at \$11.21 per call.

Researchers estimated that 5.0 percent of the projected calls to the comprehensive I&R Network could represent misdirected calls to the 911 emergency lines and that the benefit would accrue primarily to local government entities.

State agencies realize savings if customers direct I&R calls to AICs, rather than their offices. Anecdotal information suggests that one-third (200,000) of 600,000 phone calls annually received by the Texas Department of Regulatory Services (DPRS) are misdirected. Researchers estimated that one-fourth (50,000) of these would be incrementally absorbed by the comprehensive Network during the implementation phase, thereafter increasing by the projected annual population growth rate of 1.7 percent. Researchers also estimated that 10.0 percent of the projected calls to the comprehensive I&R Network could represent misdirected calls to all other state agencies.

Intake avoidance refers to events in which access to I&R helped users obtain services and precluded the need to complete an application for public services. The benefits of the intake avoidance to all government agencies are measured as a function of call volume shares and the cost of estimated cost of intake. Researchers estimated that 5.0 percent of the calls to the current I&R system, 1.0 percent of the projected calls to the automated system and 1.0 percent of the projected calls to the system with the SNS component could be attributed to calls from individuals who may have otherwise applied for public assistance. Intake cost is valued at 0.5 hr of a DHS eligibility specialist's time

calculated as a function of their median hourly wage in 1997; this is only \$5.97. Actual total costs per intake are much higher. For example, intake at the Texas Department of Mental Health and Mental Retardation is estimated to range from \$60 to \$350 per client.

The Texas I&R Network could also generate benefits savings when clients are redirected to other services, prior to certification for government benefits. Researchers estimated these savings for TANF cash assistance only as a function of phone call shares and average monthly benefits. Assuming that only a small share of those that were redirected from intake would have qualified for benefits, researchers estimated that .075 percent of the projected calls to the automated system and .175 percent of the projected calls to the system with the SNS component could be attributed to calls from individuals who would have otherwise qualified for cash assistance. The calculation uses monthly benefits of \$153.41, the average family grant in February, 1998.

**Net Value of the Comprehensive I&R Network.** The net value of the I&R Network is the difference between benefits and cost as shown in Table A-6. Discount rates were calculated using standard procedures.



**Table A-1: Estimated State Costs for the Automated Texas I&R Network**

	<b>SFY 00</b>	<b>SFY 01</b>	<b>SFY 02</b>	<b>SFY 03-09</b>	<b>Total</b>
Salaries & Benefits (4.5 FTE)	\$203,266	\$203,266	\$203,266	\$1,502,385	\$2,112,182
Professional fees and services	\$291,000	\$291,000	\$291,000	\$2,163,376	\$3,036,376
Training and memberships	\$5,000	\$5,000	\$5,000	\$37,171	\$52,171
Travel	\$26,486	\$26,486	\$26,486	\$196,904	\$276,362
Capital Outlay (Computers)	\$50,000	\$50,000	\$50,000	\$371,714	\$521,714
Communications and utilities	\$600	\$600	\$600	\$4,461	\$6,261
Other expenditures	\$16,870	\$16,870	\$16,870	\$125,416	\$176,026
<b>TOTAL</b>	<b>\$593,222</b>	<b>\$593,222</b>	<b>\$593,222</b>	<b>\$4,401,428</b>	<b>\$6,181,094</b>

**Table A-2: Additional Estimated State Costs for the 211 SNS Component**

	<b>SFY 00</b>	<b>SFY 01</b>	<b>SFY 02</b>	<b>SFY 03-09</b>	<b>Total</b>
Salaries & Benefits (1.5 FTE)	\$56,263	\$56,263	\$56,263	\$415,356	\$584,144
Marketing	\$80,000	\$290,000	\$505,000	\$2,450,000	\$3,325,000
Training and evaluation	\$31,000	\$40,000	\$39,000	\$323,391	\$433,391
I&R Centers	\$2,250,000	\$4,050,000	\$5,550,000	\$29,315,211	\$41,165,211
Travel	\$3,500	\$3,500	\$3,500	\$26,020	\$36,520
Communications and utilities	\$241,400	\$355,568	\$481,908	\$3,550,355	\$4,629,231
Capital Outlay (Line Translation)	\$350,000	\$300,000	\$150,000	\$0	\$800,000
<b>TOTAL</b>	<b>\$3,012,163</b>	<b>\$5,095,331</b>	<b>\$6,785,671</b>	<b>\$36,080,333</b>	<b>\$50,973,497</b>

**Table A-3: Estimated State Costs for the Comprehensive I&R Network**

	<b>SFY 00</b>	<b>SFY 01</b>	<b>SFY 02</b>	<b>SFY 03-09</b>	<b>10-Yr Total</b>
Automated Network					
Undiscounted	\$593,222	\$593,222	\$593,222	\$4,401,428	\$6,181,094
2% Discount Rate	\$593,222	\$581,590	\$570,186	\$3,905,475	\$5,650,473
3.5 % Discount Rate	\$593,222	\$573,161	\$553,779	\$3,521,798	\$5,241,960
Single Number Component					
Undiscounted	\$3,012,163	\$5,095,331	\$6,785,671	\$36,080,333	\$50,973,497
2% Discount Rate	\$3,012,163	\$4,995,422	\$6,522,175	\$32,392,274	\$46,922,034
3.5 % Discount Rate	\$3,012,163	\$4,923,025	\$6,334,496	\$29,945,609	\$44,215,293
Comprehensive Network					
Undiscounted	\$3,605,385	\$5,688,553	\$7,378,893	\$40,481,761	\$57,154,591
2% Discount Rate	\$3,605,385	\$5,577,012	\$7,092,361	\$36,297,749	\$52,572,507
3.5 % Discount Rate	\$3,605,385	\$5,496,186	\$6,888,275	\$33,525,205	\$49,515,051



**Table A-6: Comprehensive Texas I&R Network:  
Ten-Year Estimated Total Net Value**

	<b>Participants</b>	<b>Government</b>	<b>Society</b>
I&R Network Costs	\$28,882,645	\$57,154,591	\$86,037,236
I&R Network Benefits	\$67,052,537	\$33,060,482	\$100,113,019
Net Value, Undiscounted	\$38,169,892	(\$24,094,109)	\$14,075,783
2.0% Discount Rate	\$34,723,584	(\$22,769,032)	\$11,954,552
3.5% Discount Rate	\$32,434,227	(\$21,986,936)	\$10,804,665