Office of the
Legislative Fiscal Analyst

FY 2001 Budget Recommendations

Joint Appropriations Subcommittee for
Capital Facilities and Administrative Services

State-wide Information Technology Review

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1.0 Summary: Statewide Information Technology Review

Information Technology has become an integral part of efficient and accurate governance. In FY 1999, IT accounted for 2.4 percent of the State of Utah's budget. Recognizing the growing impact of information technology on state services, the Executive Appropriations Committee has resolved that the Capital Facilities and Administrative Services Subcommittee will specifically address major issues related to technology

Upon referral of the Capital Facilities and Administrative Services Appropriations Subcommittee, all recommendations in this document shall be forwarded to presiding Appropriations Subcommittees for further consideration.

Beyond the "Bubble"

FY 2001 marks the end of significant one-time state investment in information technology. Over the two previous years, the State has successfully remedied the "Y2K Bug" and updated its motor vehicle registration and delinquent tax collection systems. These projects alone represented an investment "bubble" of nearly $18 million in FY 1999 and $12 million in FY 2000. Correcting for that bubble the Analyst's recommendation for IT investment in FY 2001, prior to compensation increases, is slightly higher than each of the previous two years at $143 million. The recommendation is 3.3% higher than pre-bubble FY 1998 actual expenditures.

IT will produce measurable financial returns

Utah's past investment in information technology has begun to generate tangible financial returns. The State realized almost $10 million in increased revenue over the past year due to its new delinquent tax collection program. Productivity improvements in Corrections, Human Services, Courts, and Transportation, among others, allow those agencies to address backlogs and more quickly provide service to constituents.

For the coming year, the Office of the Legislative Fiscal Analyst has recommended a number of operational changes that affect information technology spending. In total, these changes and the above mentioned efficiencies represent a funding reduction of $375,400. Offsetting the reductions, the Analyst recommends $2.1 million for 800 MHz public safety radio conversion.

See Figure 1.1 on the following page for detailed information technology budgets by agency and expenditure category.

Figure 1.1: Estimated Statewide Information Technology Budget, FY 2001

Agencies	FY 2001 Base	FY 2001 Changes	FY 2001 Total
Administrative Services	$7,430,600	$2,140,800	$9,571,400
Agriculture	369,600		369,600
Alchoholic Beverage Control	1,340,700		1,340,700
Attorney General	688,900	25,400	714,300
Board of Pardons and Parole	149,400		149,400
Career Services Review Board	2,300		2,300
Commerce	1,547,400		1,547,400
Community & Economic Development	1,630,300		1,630,300
Corrections	4,258,500		4,258,500
Courts	4,731,100		4,731,100
Environmental Quality	1,476,400	8,500	1,484,900
Financial Institutions	126,700		126,700
Governor's Office	1,248,200		1,248,200
Health	8,948,800		8,948,800
Health Policy Commission	35,500		35,500
Higher Education	16,664,100	(265,000)	16,399,100
Human Resource Management	1,114,800		1,114,800
Human Services	18,646,200		18,646,200
Insurance	450,200		450,200
Labor Commission	936,800		936,800
Legislature	705,200		705,200
National Guard	76,000		76,000
Natural Resources	3,130,100		3,130,100
Outside Reporting Agencies	6,513,500		6,513,500
Public Education	4,214,500		4,214,500
Public Safety	6,393,900	(27,700)	6,366,200
Public Service Commission	67,500		67,500
School & Inst. Trust Lands	691,800	20,000	711,800
State Auditor	43,700		43,700
State Treasurer	92,800	10,000	102,800
Tax Commission	14,369,300		14,369,300
Transportation	6,800,100	(146,600)	6,653,500
Workforce Services	25,083,500		25,083,500
Youth Corrections	979,300		979,300
Total	$140,957,700	$1,765,400	$142,723,100
Expenditures			
Personal Services	$41,033,500		$41,033,500
In-State Travel	79,900		79,900
Out of State Travel	103,500		103,500
Current Expense	3,481,000	(265,000)	3,216,000
DP Current Expense	66,563,900	(110,400)	66,453,500
DP Capital Outlay	8,854,000		8,854,000
Capital Outlay	1,063,800		1,063,800
Other Charges/Pass Thru	19,778,100	2,140,800	21,918,900
Total	$140,957,700	$1,765,400	$142,723,100

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2.0 Issues: Statewide Information Technology Review

2.1 800 Megahertz Public Safety Radio Conversion

Due to Federal reallocation of radio spectrum, state and local entities are undertaking a joint venture to provide public safety radio service along the Wasatch Front. The venture is coordinated by the Utah Communications Agency Network and funded by service fees charged to member agencies. To support these fees as well as purchase new radios to operate on the system, the Analyst recommends, under conditions set forth in recommended intent language on page 9, an additional $2,140,800 from the General Fund.

General Fund $534,900
General Fund, One-time...1,605,900

2.2 Department of Public Safety Sub-grant to Utah Communications Agency Network

The Utah Department of Public Safety has secured Federal grants to cover a portion of infrastructure costs related to 800 MHz public safety radio conversion (see above and section 3.1). In the past these grants have been passed-through to the Utah Communications Agency Network without Legislative action. The Analyst recommends, under conditions set forth in draft intent language on page 10, Legislative allocation of $5,000,000 in FY 2000 Federal funds for 800 MHz conversion.

Federal Funds $5,000,000

2.3 Tax Commission UTAX Project

The Utah State Tax Commission's effort to update its tax systems– dubbed UTAX – is currently on hold due to contractor performance concerns. The Analyst thus recommends no new resources for UTAX in FY 2001 as well as reporting requirements set forth in draft intent language on page 13.

2.4 Corrections Offender Tracking System

The Department of Corrections Administration Division has implemented a department-wide management information system that streamlines processing of inmates from pre-sentence investigation through parole, and will directly interface with Courts, Public Safety, and other primary stakeholders. The Offender Tracking System (O-Track) successfully replicates the functionality of Corrections previous system, offers significant managerial enhancements, and has been sold to two other states. The Analyst recommends authorization of $200,000 in carry-forward balances to support completion of ongoing modules, as detailed in proposed intent language on page 15.

Non-lapsing Balances...$200,000

2.5 Potential Priorities List Items

The following items are not included in the Analyst's recommendation for funding previously allocated by the Executive Appropriations Committee. However, should additional funding become available, the Legislature may wish to consider these projects.

Digital Television Conversion (Priorities List)

Under the Federal Telecommunications Act of 1996, television broadcasters, including public television stations, are required to transition from analog to digital signal transmission (D-TV) by 2006. The Analyst recommends adding $2,566,100 from the Uniform School Fund to the additional funding priorities list for continued transition of both KUED channel seven and KULC channel nine from analog to digital broadcasting.

Information Technology Innovation Program (Priorities List)

State appropriations cycles regularly lag information technology development cycles. House Bill 67 proposes and Information Technology Innovation Program to address this disconnect. The Analyst recommends adding $1,000,000 from the General Fund to the additional funding priorities list for the IT Innovation Program, under conditions set forth in recommended intent language on page 18.

2.6 Other Information Technology Projects

Commerce Licensing and Enforcement System

The Analyst recommends transfer of $330,000 in Commerce Service Funds from Finance – Mandated to Commerce for the completion of Commerce's Licensing and Enforcement System, a project originally funded with Y2K money. See page 19 for further discussion.

Insurance COSMOS Program

The Analyst recommends that the Insurance Department continue to use its existing system until it has depreciated further and until complete investment analysis is performed on COSMOS. See page 19 for further discussion.

Note: Budget adjustments referred by the Capital Facilities and Administrative Services Appropriations Subcommittee will be reflected in individual agency budgets as approved by appropriations subcommittees with jurisdiction over such budgets.

3.0 Projects: Statewide Information Technology Review

3.1 800 Megahertz Public Safety Radio Conversion

Recommendation   The Analyst recommends providing $1,605,900 in FY 2001 one-time General Fund resources to purchase 1016 additional public safety and law enforcement radios tuned to the 800 MHz frequency band. In addition, the Analyst recommends a $645,500 ongoing allocation from the General Fund (+$534,900 from FY 2000) to cover service fees charged by the Utah Communications Agency Network (UCAN) for use of its trunked radio system. The Analyst further recommends that new funding be appropriated to the Department of Administrative Services, Division of Finance to be allocated by the State's Chief Information Officer and Director of Information Technology Services.

Financing	FY 1999 Actual	FY 2000 Estimated	FY 2001 Analyst	Est/Analyst Difference
General Fund	$110,600	$110,600	$645,500	$534,900
General Fund, One-time	1,376,400		1,605,900	1,605,900
Transp Fund, One-time	453,300			
Dedicated Credits			18,000	18,000
Beginning Non-lapsing		1,660,500		(1,660,500)
Closing Non-lapsing	(1,660,500)			
Total	$279,800	$1,771,100	$2,269,400	$498,300
Expenditures				
Current Expense	$279,800	$1,771,100	$128,600	($1,642,500)
Other Charges/Pass Thru			2,140,800	2,140,800
Total	$279,800	$1,771,100	$2,269,400	$498,300

Note: FY 1999, FY 2000 and FY 2001 base funding is appropriated to each individual agency. New FY 2001 General Funds will be appropriated to Finance - Mandated.

When combined with resources provided in previous years, the recommended level will allow state agencies to purchase the number of radios and consoles envisioned in years one and two of a three year implementation plan as well as pay service fees beginning in July, 2000 (see table on following page). Funding provided to the Department of Transportation in FY 1999 alone is sufficient to purchase 234 radios as well as pay one year of the UCAN service fee on those units.

Purpose   As a result of Federal Communications Commission policy to reallocate public safety radio spectrum, the *Utah Communication Agency Network 800 MHz System* act (House Bill 187, 1997 General Session) created the quasi-governmental Utah Communications Agency Network (UCAN). UCAN's mission is to construct and operate a new public safety radio system in the 800 MHz frequency band. State, local, and private public safety organizations will use the new system in place of current radios operating in the 150 MHz and 450 MHz bands.

According to UCAN's master plan, phase one of the network will cover Davis, Morgan, Salt Lake, Summit, Tooele, Utah, Wasatch, and Weber counties, thus serving about 80 percent of the state's population. Local entities in each of the above mentioned counties will use the network. UCAN's network will interconnect with that of Salt Lake City, which has opted to build a separate network. Network infrastructure, not including radios and dispatch consoles, will be built under contract with Motorola, and financed with $11 million in Federal grants as well as bonding provided by Zion's Bank. Debt will be repaid with monthly service fees of $30 per radio for State agencies and about $17.50 per radio for local governments and private operations.

FY 2000 is year two of a three-year implementation

The State has agreed to a three-year implementation schedule to support phase one, having funded about 30% of the needed radios and all of the required consoles in FY 1999 and FY 2000. FY 2001 funding would purchase another 30% of the radios, leaving 40% for funding in future budgets.

Comparison of Anticipated Costs and Recommended Funding				
Costs	**Number of Radios**	**Capital Costs**	**1 Year Service**	**Total**
Finance - Mandated	1016	$1,605,900	$365,800	$1,971,700
Corrections	348	549,500	125,100	674,600
Facilities Mgt.*	50	79,000	18,000	97,000
DNR Wildlife Resources	98	155,600	35,400	191,000
DNR Parks & Rec	91	143,800	32,700	176,500
DPS Comp Emerg Mgt	22	34,800	7,900	42,700
DPS Highway Patrol	218	345,200	78,600	423,800
Public Safety Consoles		289,700		289,700
Transportation	234	369,200	84,100	453,300
Total	2077	$3,572,700	$747,600	$4,320,300
Cumulative Appropriations	**FY 1999 Appropriated**	**FY 2000 Base**	**FY 2001 Analyst**	**Total**
Finance - Mandated			$2,140,800	$2,140,800
Corrections	$486,500	$63,000	63,000	612,500
Facilities Mgt.*	79,000		18,000	97,000
DNR Wildlife Resources	144,200	11,400	11,400	167,000
DNR Parks & Rec	133,200	10,600	10,600	154,400
DPS Comp Emerg Mgt	34,800	4,000	4,000	42,800
DPS Highway Patrol	319,600	21,600	21,600	362,800
Public Safety Consoles	289,700			289,700
Transportation	453,300			453,300
Total	$1,940,300	$110,600	$2,269,400	$4,320,300

*Funding for DFCM service fees to be derived from dedicated credits revenue.

Delays in negotiation with local governments has pushed the system's inservice date, planned for July, 1999, to at least January, and possibly July, of 2000.

Intent Language   The following intent language was included in the *Supplemental Appropriations Act* (Senate Bill 1, 1999 General Session):

> *"It is the intent of the Legislature that funds provided for 800 MHz Conversion in FY 1999 be nonlapsing and that those funds not used to pay service charges be used to purchase radio equipment."*

At the writing of this document, the Utah Communications Agency Network had not begun operations, and therefore had not begun charging users. The Department of Natural Resources reported having purchased no radios. The Department of Corrections purchased 175 radios for $426,600 and retained $122,900 for payment of service fees. The Department of Public Safety spent $289,700 on consoles, but had not yet purchased radios.

For FY 2001, the Analyst recommends the following intent language:

> *It is the intent of the Legislature that funds provided for 800 MHz Conversion be allocated among State agencies by the Chief Information Officer in consultation with the Director of Information Technology Services according to the following criteria:*
>
> 1. *New ongoing funds shall be distributed to agencies such that total ongoing resources for each agency are sufficient to pay annual service fees on radios purchased with prior year appropriations;*
>
> 2. *One-time and remaining new ongoing funds shall be distributed to agencies for purchase of additional radios and payment of annual service fees.*

3.2 Department of Public Safety Sub-grant to Utah Communications Agency Network

Recommendation The Analyst recommends authorization of $5,000,000 in FY 2000 Federal funds to support 800 MHz public safety radio conversion.

Financing	FY 1999 Actual	FY 2000 Authorized	FY 2000 Supplemental	FY 2000 Revised
Federal Funds			$5,000,000	$5,000,000
Total	$0	$0	$5,000,000	$5,000,000
Expenditures				
Other Charges/Pass Thru			$5,000,000	$5,000,000
Total	$0	$0	$5,000,000	$5,000,000

Purpose Over the past three years the Department of Public Safety has secured grants for the conversion of public safety radio from the U.S. Department of Justice. In previous years, the Department has then passed this money through to the Utah Communications Agency Network without Legislative action.

An audit of UCAN performed by State Auditor Austin Johnson noted that, while UCAN receives a Federal Grant, free office space, and free legal council through the State, UCAN is "exempt from state oversight statutes." The audit also points to vague management policies for which the State may be liable. In a January 13, 2000 letter to the Analyst, the Auditor requested the Analyst "break out all pass-through appropriations from all state agencies to the Utah Communications Agency Network" in state budget documents.

Accordingly, the Analyst recommends the following intent language for inclusion with the authorization of Federal funds:

> *It is the intent of the Legislature that the Utah Department of Public Safety shall not release Federal grant funds to the Utah Communications Agency Network until each of the following conditions is met:*

> 1. *The Department and UCAN sign a subrecipient grant agreement in accordance with Federal guidelines;*

> 2. *The Utah Communications Agency Network develops "budgetary procedures, accounting, procurement, and personnel policies substantially similar to those from which they have been exempted" (UCA 63C-7-210) as determined by the State Auditor under UCA 63C-7-211(2) and reported to the Executive Appropriations Committee and Information Technology Commission.*

3.3 Utah State Tax Commission UTAX Project

Recommendation　　The Analyst recommends no additional funding for the UTAX system. The Analyst is concerned with delays, cost increases, and returns associated with the system. Further, the Analyst recommends that the Tax Commission use efficiency savings to fund enhancements to the Motor Vehicle system requested by local governments.

Financing	FY 1999 Actual	FY 2000 Estimated	FY 2001 Analyst	Est/Analyst Difference
General Fund, One-time	$2,000,000			
Dedicated Credits - GO B(	15,650,000	7,000,000		(7,000,000)
Beginning Nonlapsing	3,560,600	9,835,800	11,527,800	1,692,000
Closing Nonlapsing	(9,835,800)	(11,527,800)	(9,527,800)	2,000,000
Total	$11,374,800	$5,308,000	$2,000,000	($3,308,000)
Expenditures				
DP Capital Outlay	$11,374,800	$5,308,000	$2,000,000	($3,308,000)
Total	$11,374,800	$5,308,000	$2,000,000	($3,308,000)

Purpose　　The Utah State Tax Commission currently operates four separate computerized tax systems that do not effectively communicate with one another. UTAX, a new system procured from American Management Systems (AMS), would integrate the state's tax systems, allowing the commission to more efficiently collect delinquent taxes, more readily identify vehicles for law enforcement purposes, and more easily reconcile ledgers and maintain audit trails. UTAX consists of a delinquent collections module known as Computer Assisted Collections System for Government (CACSG), a motor vehicle tax system for vehicle registration and titling (MVA), and an integrated tracking system for all tax types known as ADVANTAGE Revenue.

CACS-G collections have fallen-off　　Module 1, the Computer Aided Collection System for Government (CACS-G) was implemented in March, 1998 at a cost of $7.4 million. Since its inception, the Tax Commission has collected $9.8 million more in delinquent taxes than was projected without CACS-G. While the inception of CACS-G correlates with the overall increase in collections, no evidence exists that it was caused by CACS-G. Further, in the first fiscal quarter of FY 2000, collections were nearly $2 million below what was forecast without CACS-G, thus Tax cannot project a clear upward collection trend.

MVA is behind schedule and will require upgrades　　Module 2, the Motor Vehicle Registration System (MVA), originally scheduled for completion in October, 1999, is currently three to six months behind schedule due to poor contractor performance. The Tax Commission expects it to be operational in the Summer of 2000. It is projected to cost $12.9 million for functionality included in the original contract. However, the Tax Commission has informed the Legislature that Counties have requested further functionality in MVA at a cost of about one-half million dollars.

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The Analyst recommends that Tax use operational efficiencies to cover the cost of added MVA functionality.

ADVR has been indefinitely postponed after costing $3.6 million

Module 3, ADVANTAGE Revenue, was scheduled for completion in early 2001 at a cost of $19.7 million. However, due to delays and problems experienced by other states using the system, Tax has decided to delay implementation of ADVANTAGE Revenue indefinitely. About $3.6 million has been spent on "functional fit" and "implementation" planning for ADVANTAGE Revenue to date.

$7 million in bonding authority could be used for other purposes

A total of $34.5 million (plus carry-forward balances) has been authorized for UTAX to date. Of that amount, $31.4 million is from General Obligations Bonds. For FY 2000, the Legislature authorized $7 million in bonding for UTAX. These bonds will not be issued in FY 2000, and, as such, the Legislature may choose to redirect the bonds without increasing overall bonding authority for the current year. However, this amount is likely to be required in future years if Tax is to complete UTAX. Of the outstanding bond authority, Tax had $2.2 million in cash available for expenditure at the beginning of FY 2000.

In addition to bonding proceeds, the Tax Commission has received $3.3 million in General Fund appropriations. It has also received authority to carry forward any unexpended year-end balances for use on UTAX. At the beginning of FY 2000, Tax had a $7,619,800 beginning nonlapsing balance. Tax estimates that it will carry-forward $4,527,800 into FY 2001. Of that amount, $2,527,800 will remain available at the end of FY 2001 for use on ADVR or its alternative.

Intent Language

The Annual Appropriations Act (House Bill 1, 1999 General Session) contained the following intent language in Item 96:

> *It is the intent of the Legislature that the Utah State Tax Commission carry forward year end balances during the term of the UTAX project, for costs directly related to UTAX, and that FY 2000 funding availability is contingent upon the Utah State Tax Commission demonstrating to the Executive Appropriations Committee three consecutive months of observed positive net monthly benefits for all tax types when compared with agreed upon benchmark revenue projections as a result of the Computer Assisted Collections System for Government module.*

As mentioned above, the Tax Commission will carry forward $4.5 million into FY 2001. In May, 1999, the Commission reported three consecutive months of positive net monthly benefits related to UTAX. In fact, Tax experienced five months of positive net benefits for all tax types combined before experiencing a quarter of negative net benefits beginning in July, 1999.

> *It is the intent of the Legislature to appropriate funding to the Tax Commission for the UTAX project for the collection of out-sourced accounts receivables. The Appropriation will be limited to the amount of funds recovered, not to exceed $6,600,000.*

The Tax Commission has not requested, nor does the Analyst recommend, an appropriation from out-sourced accounts receivable for UTAX in FY 2001.

> *It is the intent of the Legislature that the Utah Tax Commission shall continue to track additional revenues that are a result of the modernization of tax and motor vehicle systems and related processes (UTAX). The amount of these additional revenues shall be reported to the Legislative Fiscal Analyst, the Governor's Office of Planning and Budget, and the Division of Finance on a quarterly basis.*

The UTAX Executive Review Committee continues to meet on a quarterly basis to discuss the status of UTAX. The Analyst recommends that this intent language be included again in the appropriations act for FY 2001.

Due to concerns regarding ADVANTAGE Revenue, the Analyst recommends that the following intent language be included in the 2000 Appropriations Act:

> *It is the intent of the Legislature that the Utah State Tax Commission report to the Executive Appropriations Committee before expending further resources in pursuit of ADVANTAGE Revenue or its alternative.*

3.4 Corrections Offender Tracking System

Recommendation   The Analyst recommends authorization of $200,000 in carry-forward balances to support completion of the Offender Tracking System.

Financing	FY 1999 Actual	FY 2000 Estimated	FY 2001 Analyst	Est/Analyst Difference
General Fund	$400,000			
General Fund, One-time	900,000			
Dedicated Credits		1,050,000		(1,050,000)
Other Sources	60,000	621,400		(621,400)
Beginning Non-lapsing	200,000	135,900	247,800	111,900
Closing Non-lapsing	(135,900)	(47,800)		47,800
Total	$1,424,100	$1,759,500	$247,800	($1,511,700)
Expenditures				
DP Capital Outlay	$1,424,100	$1,759,500	$247,800	($1,511,700)
Total	$1,424,100	$1,759,500	$247,800	($1,511,700)

Purpose   The Department of Corrections has developed a system that streamlines processing of inmates from pre-sentence investigation through parole, and will directly interface with Courts, Public Safety, and other primary stakeholders. The Offender Tracking System (O-Track) has replaced Corrections' former system, the Offender Based Statistical Comparison Information System (OBSCIS), at a cost of more than $5 million plus in-house labor.

O-TRACK successfully replaced existing non-compliant system   Corrections has completed O-Track modules that are required for "all day to day operations", including parolee tracking (F-Track), sex offenders tracking (I-Track), Offender Management, and Offender Accounting. It implemented these modules prior to December 31, 1999 so that it could discontinue using its Y2K non-compliant Wang computer system. The Department has effectively replaced and replicated all functions provided by the old system, as well as provided significant additional features. By the end of Fiscal Year 2000 the Department will substantially complete further enhancement, including Case Management and Biometrics interfaces.

No investment analysis on enhancements   Corrections is anticipating further augmentation of O-Track in future years. However, as of the writing of this document, the Department has not provided investment analyses for such enhancements. The Analyst's recommendation is therefore intended to complete development of modules already underway.

Other funding sources exist for further enhancements   The Analyst encourages Corrections to seek enhancement funding from Federal grants and other funding sources. As an example, the Commission on Criminal and Juvenile Justice has announced that 10% of all future Byrne Funds (approximately $4.5 million per year) will be dedicated to law enforcement technology. Corrections has received these funds for O-Track in the past, and should pursue them for future enhancements.

In addition to these outside funding sources, Corrections should see productivity improvements due to management modules not originally planned for O-Track, but already added at the request of users. These resources, as well, could be funneled into O-Track development upon the initiative of Corrections management.

Intent Language

As authorized by UCA 63-38-8.1, the Analyst recommends the following intent language be included with the appropriations item authorizing carry-forward balances for the Department of Corrections:

> *It is the intent of the Legislature that O-Track systems development shall take priority over all other projects for allocation of carry-forward balances authorized in the Division of Administration.*

3.5 Potential Priority List Items:

The following items are not included in the Analyst's recommendation for funding previously allocated by the Executive Appropriations Committee. However, should additional funding become available, the Legislature may wish to consider these projects.

3.5.1   Utah Education Network Digital Television Conversion (Priorities List)

Recommendation   The Analyst recommends adding $2,566,000 from the Uniform School Fund to the additional funding priorities list for the transition of both KUED channel seven and KULC channel nine from analog to digital broadcasting.

Financing	FY 1999 Actual	FY 2000 Estimated	FY 2001 Analyst	Est/Analyst Difference
Uniform School Fund, One-time			$2,566,000	$2,566,000
Dedicated Credits		1,875,600		(1,875,600)
Total	$0	$1,875,600	$2,566,000	$690,400
Expenditures				
Current Expense		$1,875,600	$2,566,000	$690,400
Total	$0	$1,875,600	$2,566,000	$690,400

Purpose   Under the Federal Telecommunications Act of 1996, television broadcasters, including public television stations, are required to transition from analog to digital signal transmission (D-TV) by 2003. To that end, Utah's public television stations, KUED-7 and KULC-9, have joined forces with commercial broadcasters in the state to form DTV of Utah, a consortium that has constructed a common digital transmission site on Farnsworth Peak.

The total cost of the transition for both stations, including production equipment and programming, will be more than $15 million. UEN has proposed to finance $11 million of the total with private philanthropy, federal funds, and base budgets, and is seeking the remaining $4 million in state funding over two years. The state's contribution would finance new transmission equipment.

However, as digital transmission allows more information to be carried on the same amount of bandwidth, perhaps only one of the State's stations need be converted.

With DTV, one station does the work of four   DTV will allow the Utah Education Network to "multicast" - or broadcast the equivalent of four standard definition programs on a single frequency. Any one or all four of those programs could be replaced by a "datacast" carrying text, sound, graphics, or personal computer content. Alternatively, UEN could broadcast increased definition programming. It could also transmit some combination of multiple programs, data, and increased definition.

The industry standard for "high-definition" would require a similar amount of bandwidth as about three standard definition programs. Given this standard, UEN could broadcast a high definition program at the same time they broadcast standard definition content. For example, high-definition evening entertainment from PBS could show at the same time as a distance learning course – the functional equivalent of what is currently shown on Channels 7 and 9 combined.

Washington, D.C. based consulting group Forrester Research predicts that 80 percent of the digital television market will consist of standard definition programming by 2008, with high-definition TV reserved for premium events such as sports and movies.

Converting only one channel saves money

Given increased capacity and evolving standards, UEN could broadcast both sets of current programming with a single frequency, potentially saving as much as $409,000 in FY 2001 and $1,558,400 in FY 2002.

Should the Legislature choose to support conversion of only one channel, the other frequency would lapse to the Federal Communications Commission. The State would thus lose broadcast capacity that was originally allocated at no cost. Further, UEN would likely lose about $1 million per year in operating grants from the Federal government.

3.5.2 Information Technology Innovation Program (Priorities List)

Recommendation

The Analyst recommends adding $1,000,000 from the General Fund to the additional funding priorities list to support information technology innovation across state government.

Financing	FY 1999 Actual	FY 2000 Estimated	FY 2001 Analyst	Est/Analyst Difference
General Fund, One-time			$1,000,000	$1,000,000
Total	$0	$0	$1,000,000	$1,000,000
Expenditures				
Other Charges/Pass Thru			$1,000,000	$1,000,000
Total	$0	$0	$1,000,000	$1,000,000

Purpose

While Legislative appropriations action occurs only once per year in a normal year, the product cycle for high-tech goods is on average less than nine months. With the advent of the Internet, technology development time is ever quickening. Without the ability to respond to market changes, state technology managers often find themselves unable to take advantage of new technologies before they become obsolete.

The *Information Technology Infrastructure Innovation Program* act (House Bill 167, 2000 General Session) proposes creation of a mechanism that would allow nimble response to changing technology. It would authorize the CIO to provide grants to agencies for technology innovation projects that clearly provide return on investment, cost savings, or other measurable benefits to the State.

The Analyst supports this concept in theory, but is concerned about accountability of benefits. Information Technology projects are currently subject to twice-annual planning reviews, legislative oversight, and investment analysis through the CIO's Risk Value Assessment Model. Yet, taxpayers and their elected representatives rarely realize the return promised by technology innovation.

Intent Language

The Analyst recommends the following intent language to address concerns regarding benefits accountability:

> *It is the intent of the Legislature that the Chief Information Officer shall report to the Executive Appropriations Committee and the Information Technology Commission specific cost and benefit measures for each grant recipient prior to releasing funds provided for the Information Technology Innovation Program.*

3.6 Other Information Technology Projects

Commerce Licensing and Enforcement System

The Department of Commerce is nearing completion of a new Licensing and Enforcement System (LES) that will automate many of its processes and facilitate professional license renewal over the Internet. The Department received a $330,000 allocation from the Year 2000 Conversion program for this project in FY 1999.

However, LES is delayed beyond its original completion target of June, 1999. While the project's delay will have no impact on its total cost, final payment will not take place until after January 1, 2000.

The Analyst, therefore, recommends transfer of $330,000 in Commerce Service Funds from Finance – Mandated to Commerce.

Insurance Department COSMOS System

The Insurance Department has requested funding for a new system that would allow it to transition to an e-commerce environment for processing regulatory transactions. The Department implemented a new case management system last year that would be replaced by COSMOS. It requests, however, that rather than paying for modifications to its existing system, it be authorized to replace that system.

The Analyst recommends that the Insurance Department continue to use its current system for another year until the system has depreciated further and until complete investment analysis is performed on COSMOS.

4.0 Additional Information

4.1 Funding History

Agencies	FY 1997 Actual	FY 1998 Actual	FY 1999 Actual	FY 2000 Estimated	FY 2001 Analyst
Administrative Services	$7,894,600	$8,361,100	$11,582,600	$12,858,100	$9,571,400
Agriculture	463,800	414,100	479,800	521,000	369,600
Alchoholic Beverage Control	970,100	2,087,800	1,809,700	1,336,900	1,340,700
Attorney General	794,200	1,220,700	1,379,300	606,000	714,300
Board of Pardons and Parole	160,600	132,100	134,500	148,800	149,400
Career Services Review Board	8,200	2,100	2,100	2,100	2,300
Commerce	1,122,700	1,509,300	1,347,200	1,567,100	1,547,400
Community & Economic Development	2,367,000	2,686,800	1,873,400	1,894,300	1,630,300
Corrections	5,514,600	6,091,300	6,358,900	4,819,700	4,258,500
Courts	4,806,800	5,482,000	5,598,800	5,012,100	4,731,100
Environmental Quality	1,232,400	1,726,100	1,787,400	2,055,400	1,484,900
Financial Institutions	105,700	116,400	275,100	126,700	126,700
Governor's Office	681,000	1,178,800	1,273,900	1,476,700	1,248,200
Health	9,289,500	10,071,600	9,222,000	9,025,000	8,948,800
Health Policy Commission	5,100	13,600	33,000	32,500	35,500
Higher Education	13,240,400	4,150,000	15,736,800	18,340,700	16,399,100
Human Resource Management	1,087,500	1,160,600	1,062,400	1,165,900	1,114,800
Human Services	19,725,700	22,395,300	26,310,400	20,319,800	18,646,200
Insurance	421,900	515,300	448,200	453,100	450,200
Labor Commission	816,800	838,200	776,900	932,800	936,800
Legislature	496,500	170,200	192,600	526,400	705,200
National Guard	57,500	106,200	78,700	67,500	76,000
Natural Resources	2,629,500	3,192,800	3,076,500	3,575,700	3,130,100
Outside Reporting Agencies	5,022,300	5,172,400	5,879,300	6,474,200	6,513,500
Public Education	5,302,000	4,558,900	4,450,300	4,263,500	4,214,500
Public Safety	5,215,900	6,232,900	6,228,200	7,171,600	6,366,200
Public Service Commission	66,700	49,600	89,000	67,500	67,500
School & Inst. Trust Lands	749,000	889,700	657,300	696,200	711,800
State Auditor	166,100	105,900	117,600	184,600	43,700
State Treasurer	70,400	138,300	76,500	156,700	102,800
Tax Commission	8,712,900	20,687,900	21,476,900	15,107,300	14,369,300
Transportation	6,725,300	6,759,300	6,627,300	7,825,700	6,653,500
Workforce Services	14,728,700	17,647,900	22,259,900	25,029,600	25,083,500
Youth Corrections	452,900	1,059,800	1,305,700	978,700	979,300
Total	$121,104,300	$136,925,000	$160,008,200	$154,819,900	$142,723,100
% Change		13.1%	16.9%	-3.2%	-7.8%
Expenditures					
Personal Services	$34,930,700	$36,698,300	$42,573,800	$41,415,300	$41,033,500
In-State Travel	79,400	90,300	297,400	80,700	79,900
Out of State Travel	89,300	74,000	96,500	111,400	103,500
Current Expense	2,218,200	4,743,600	10,801,400	4,082,200	3,216,000
DP Current Expense	59,977,900	70,477,800	81,460,300	76,865,900	66,453,500
DP Capital Outlay	5,074,900	17,246,800	16,489,800	10,201,400	8,854,000
Capital Outlay	407,800	342,100	2,393,600	448,800	1,063,800
Other Charges/Pass Thru	18,326,100	7,252,100	5,895,400	21,614,200	21,918,900
Total	$121,104,300	$136,925,000	$160,008,200	$154,819,900	$142,723,100

4.2 Glossary of Information Technology Terminology

Analog A signal transmission in which voltage varies continuously with time as a representation of a physical quantity.

Applications A software program designed to enable end users to carry-out a specific task or function. Word processors, spreadsheets, graphics programs, and data managers are examples of applications.

Architecture The manner or structure in which hardware or software is constructed. An architecture defines how a system or program is structured, how various components and parts interact, as well as what protocols and interfaces are used for communications and cooperation between modules and components.

Asynchronous Characterized by not having a constant time interval between successive bits, characters, or events. Transmission generally uses one start and one stop bit for character element synchronization (often called start-stop transmission).

ATM **Asynchronous Transfer Mode:** A transfer mode in which the information is organized into cells. It is asynchronous in the sense that the recurrence of cells depends on the required or instantaneous bit rate. Statistical and deterministic values may also be used to qualify the transfer mode, e.g., the information can be framed within SONET frames or unframed.

Backbone Network A high-speed transmission facility, or an arrangement of such facilities, designed to interconnect lower-speed distribution channels or clusters of dispersed user devices.

Bandwidth The range of frequencies of bit rates that can pass over a given circuit. The bandwidth determines the rate at which information can be transmitted through the circuit. The greater the bandwidth, the more information can be sent through the circuit in a given period of time.

BIOS **Basic Input/Output System**: The I/O component of the IBM PC operating system that defines the interface between the operating system and the outside world. Accurate imitation of the IBM PC BIOS is the key to compatibility for clone vendors.

BIPS **Billion Instructions Per Second**: An approximate figure to denote a computer's raw processing power.

B-ISDN **Broadband-Integrated Services Digital Network**: A high-speed (greater than ISDN primary rate), asynchronous time-division multiplexed transmission facility, or an arrangement of such facilities, designed to provide a wide range of audio, video and data applications in the same network.

Bit/Byte The smallest unit of information used in data processing. It has two possible states, usually called "O" and "I." Bit is a contraction of words "binary digit." A group of eight bits handled as a logical unit.

Broadband	The description for an analog circuit providing greater bandwidth than a voice-grade telephone line, I.e., operating at a bandwidth of 20KHz or higher. Broadband channels are used for many communications, radio and television broadcasting and some local-area networks. In the digital domain, speeds exceed ISDN primary rate. Also called wideband.
CAD/CAM	**Computer-aided Design/Computer-aided Manufacturing**: Interactive graphic programs which automate the methodologies of drafting and design layouts. A few programs are successful enough that it is difficult to justify designing the layouts manually (examples: integrated circuits and printed circuit boards).
CD-ROM	**Compact Disk-Read-Only Memory:** Optical storage based on the same technology and media used for audio CDS.
Client/Server Architecture - Client/Server Model	A concept of application deployment that functionally supports the notion of "application execution" as dispatchable units of work that is assigned to a network of servers (resources) that respond to the initiating client. Client/server embodies the general concepts of cooperative processing, distributed processing and networked processing. File print servers represent a crude form of the client/server model. In the full implementation, the client's server model provides a data processing and networking environment that offers:

 ‣ Hardware, software and network platform independence (i.e., transparency);
 ‣ Application delivery to an intelligent workstation (although an X-terminal-like device may suffice in some environments);
 ‣ A consistency of the user interface to the networked system (i.e., operational similarity; and Physical topology flexibility.

Compression	The application of any of several techniques that reduce the number of bits required to represent information in data transmission or storage, thereby conserving bandwidth and/or memory.
CPU	**Central Processing Unit**: The portion of a computer system that performs computations and contains the memory. It does not include peripherals such as tape, disk and terminals.
DASD	**Direct Access Storage Device**: DASD is a general term typically referring to a magnetic disk storage device. Like a very large hard drive.
Digital	A signal transmission technique in which data is conveyed by pulses of electromagnetic energy in a discrete (i.e., on/off) coded pattern representing, for example, bits in a data stream.

DSL   **Digital Subscriber Line:** A broadband transmission media offered by telecommunications companies on existing twisted-pair copper telephone lines. Offers 1.544 Mbps speed within 3 miles of telephone companies central office.

Fiber Optics   A high-bandwidth transmission media technology that uses light as a digital information carrier. Fiber telephone transmission media to carry hundreds of thousands of voice circuits. Fiber-optics cables (light guides) are a direct replacement for conventional coaxial cables and wire pairs. The glass-based transmission facilities occupy far less physical volume for an equivalent transmission capacity, which is a major advantage in crowed ducts, and the fibers are immune to electrical interference. In addition, cable manufacturing, installation and maintenance costs are lower.

File Server   A designated location containing files available to all users connected to a LAN. In some LANs, a microcomputer is designated as the file server, while in others a computer with a large disk drive and specialized software acts as the file server. Some file servers can also offer other resources such as gateways and protocol conversion.

Frame Relay   A system that is connected through different dynamic paths in a "cloud" to other computers in a network.

Gateway   A physical or logical network station that interconnects two otherwise incompatible networks, network nodes, subnetworks, or devices. Gateways perform protocol-conversion operations across a wide spectrum of communications functions or layers.

Hub   A device that connects computers together on a local area network.

LAN   **Local Area Network:** User and operated data transmission facility connecting a number of communicating devices (e.g., computers, terminals, word processors, printers and mass storage units) within a single building or campus of buildings. Examples are Ethernet and IBM's Token-Ring Network.

Mainframe   A computer system with a configuration price over $700,000. The configuration price includes the minimum set of peripherals sufficient to IPL the operating system.

MHz   **Megahertz:** A measure of electromagnetic frequency equal to one million cycles per second.

Multiplexer   A device that combines input from two or more terminals, computer ports or other multiplexers, and transmits the combined data stream over a single high-speed channel. At the receiving end, the high-speed channel is demultiplexed, either by another multiplexer or by software.

PBX   **Private Branch Exchange:** A telephone switch located on a customer's premises that primarily establishes voice-grade circuits (over tie lines to a telephone company central office) between individual users and the public-switched telephone network. The PBX also provides switching within the customer premises local area, and usually offers numerous enhanced features, including least-cost routing and call-detail recording.

Ring   A network topology in which stations are connected to one another in a closed logical circle, with access to the medium passing sequentially from one station to the next by means of polling from a master station, or by passing an access token from one station to another. Also, called a loop.

Router   A device that performs a function similar to a local or remote bride. It connects networks together.

Server   1. A processing environment that services the needs of an end-user or application community; may also refer to the software which runs on the server. Typically, a server will not include any direct end-user access to that processing environment, instead using logic within each user environment (such as a workstation to intercept requests to the operating system and transmit them to the common server for processing. To the application, all requests will appear to be processed locally (within the environment). Servers typically use more powerful processors because there is a "many to few" relationship between the community using the server and the server processing environment.

                   2. A system or program that is requested to perform some activities by "client" systems or programs to allow it to accomplish specific tasks.

STAR   A network topology in which each station is connected only to a central station by a point-to-point link and communicates with all other stations through the central station.

Synchronization The function that ensures specific activities occur at the same point in time in two or more nodes. Typically performed by the operating system environment, synchronization is usually associated with updates to data files or databases; it is used to ensure all physical writing of information to the storage media occurs at the same point to avoid the possibility of one medium being updated, while the other is not due to a failure.

Synchronous   The description for transmission with a constant time interval between successive bits, characters or events. Synchronous transmission uses no redundant information to identify the beginning and end of characters, and thus is faster and more efficient than asynchronous transmission, which uses start and stop bits. The timing is achieved by transmitting sync characters before data; usually synchronization can be achieved in two or three character times.

T1	Digital carrier facility used to transmit digital signals at 1.544 MBPs using 24-channel pulse code modulation.
T2	A digital carrier facility used to transmit digital signals at 6.312 Mbps.
T3	A digital carrier facility used to transmit digital signals at 44.74 Mbps.
Token Ring	A local-area network access mechanism and topology in which all stations actively attached to the bus listen for a broadcast token or supervisory frame. It uses a ring-shaped layout and token-passing access method to carry data from device to device.
Topology	The logical or physical arrangement of stations on a network in relation to one another. Examples include bus, ring, star, and tree.
Twisted Pair	Two insulated wires twisted together and usually unshielded, (not covered with an outer metallic shield).
UNIX	A family of operating systems known for their relative hardware independence and portable applications interface; a time-sharing operating system widely used in technical and scientific computing applications.
WAN	**Wide-Area Network:** A user voice/data transmission facility connecting geographically dispersed sites via long-haul networking facilities.
X-25	An older standard of communicating from client-type computers with a mainframe.