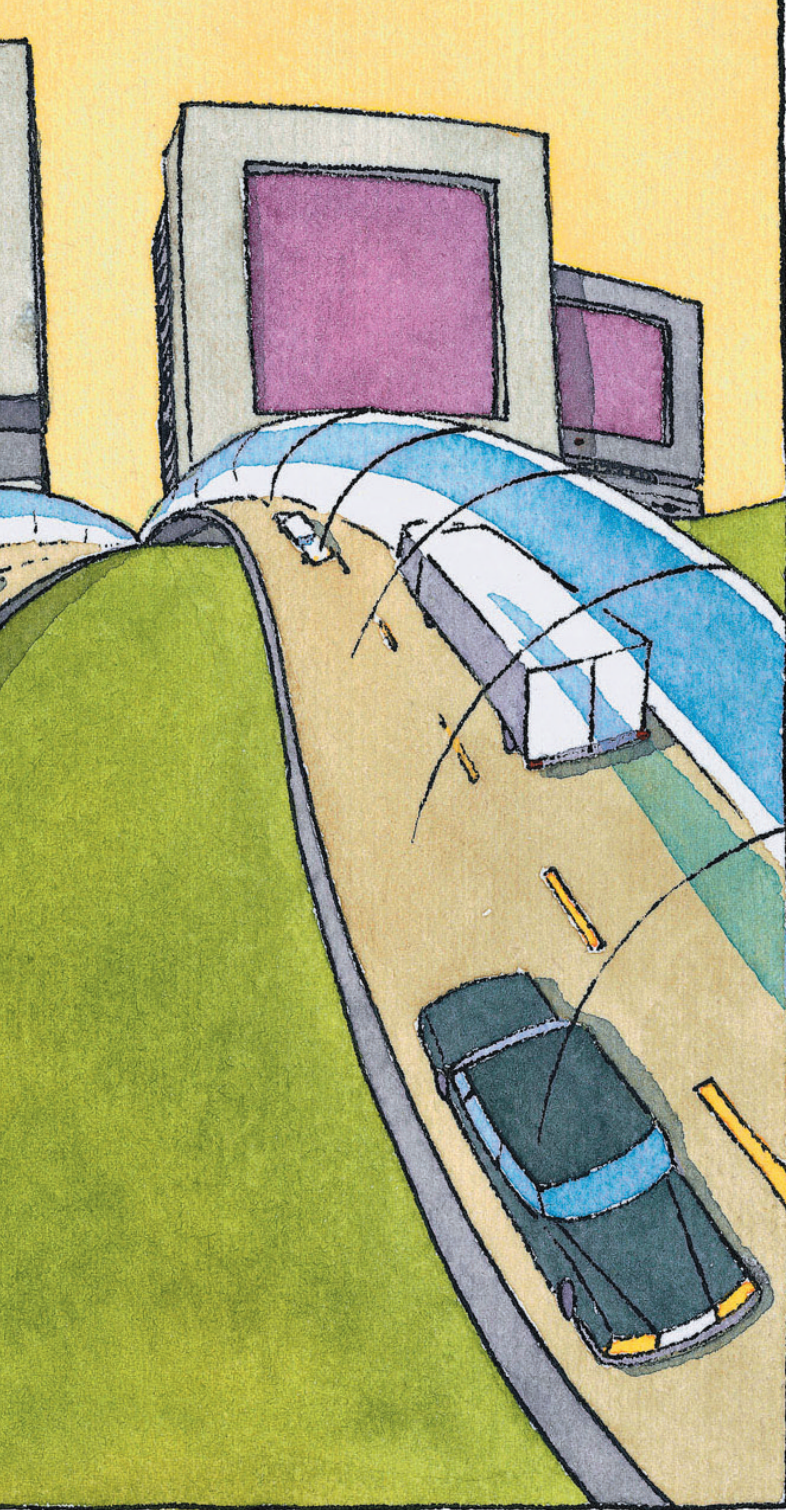


**BY GREG CANALLY  
AND BRUCE NEITSCH**

*Editor's note: Each year GFOA bestows its prestigious Award for Excellence in recognition of outstanding contributions to the practice of government finance and management. This article describes a 2005 winning entry in the Accounting, Auditing, and Financial Reporting category.*

**P**hysical infrastructure and facilities are the backbone of government operations. Failure to invest in needed capital assets or maintain existing assets will impair a government's ability to provide the services constituents demand and can undermine quality of life and economic growth. As such, managing public infrastructure and facilities is one of the most important and challenging activities local governments engage in. To do so effectively requires the right systems and tools. This article describes how the City of Austin enhanced its capital planning and management capabilities through the use of technology.



# Using Technology to Enhance Capital Planning and Budgeting

## Austin's eCAPRIS Project Reporting and Information System

### CAPITAL PLANNING IN AUSTIN

Austin is the state capital of Texas. With more than 640,000 residents, it is the fourth-largest city in the state and the 16th-largest city in the U.S. Austin's vision is "To be the most livable city in the country." In addition to providing general government services — public safety, recreation and culture, health services, etc. — the city also owns and operates an electric utility, a water utility, a drainage utility, a convention center, solid waste service, and an international airport.

The budget office manages the city's capital improvement program, which involves all departments that undertake capital projects as part of their mission and operations. Austin spends approximately \$550 million per year on capital projects. The program is funded by a combination of bonds, cash, and grants.

Each spring, in accordance with the city charter, the budget office, working with each of the departments, prepares a five-year capital improvement program plan for review by the Planning Commission. This plan details spending, appropriation, and fund-

ing needs for every planned or ongoing project, as well as project descriptions and locations. The first year of the CIP becomes the draft for the proposed capital budget, which is presented to the City Council in June of each year. The City Council adopts the annual capital budget, along with the operating budget, in September. The city prepares a quarterly status report on benchmarked capital projects that includes schedules, spending, and status.

## A CITYWIDE CIP SYSTEM

In 1997, Austin began its largest-ever annexation, encompassing an area of 15,000 acres and 30,000 people. The city's water/wastewater utility — Austin Water Utility — faced the challenge of inventorying and, where necessary, repairing and upgrading infrastructure, per each annexation area's service plan. It quickly became clear that the utility's existing processes for financial management and project management for capital improvement projects needed to be integrated to ensure that the annexation work was completed on time and on budget. To meet this challenge, Austin Water Utility created the City of Austin Project Reporting System (CAPRIS). This system was an immediate success in the utility's finance and project management divisions, and served as the basis for a Web-based Intranet system (eCAPRIS) that was adopted citywide in 2000.

Before eCAPRIS, each city department had its own internal system for project management and for financial tracking of each of the projects. The budget office used a Microsoft Access database to compile each department's capital requests into the citywide CIP. The departments submitted marked-up pages from the previous year's CIP, along with new capital requests, which were then entered into the database by budget office staff to produce the new CIP.

In the mid-1990s, Austin Water Utility recognized the need for an automated solution to improve the tracking and management of its capital program, the largest in the city. The utility prepared a report that highlighted the benefits of using a management information system to track and monitor capital expenditures and cash flow projections. At the time, the utility was managing its capital program on a handful of Excel spreadsheets that were distributed among department financial managers and then forwarded to others who verified the numbers and added additional project information. Not only was this a laborious process, but it often resulted in incorrect data.

Using internal resources, Austin Water Utility created PIRTS — the Project Information Reporting and Tracking System. This Microsoft Access database with a VBA user interface provided financial and cash flow information for capital projects, but offered no project

management tools. After using PIRTS for about a year, the utility recognized the limitations of the system and designed a more robust system in anticipation of the 1997 annexations.

The City of Austin Project Reporting Information System, or CAPRIS, had many of the tools the utility was looking for in an automated solution. Similar to PIRTS, the system used an Access database to store CIP project and financial information. The front-end user interface was deployed to desktop computers in the water and public works departments, thus providing simultaneous access by multiple users. Financial data was downloaded from the city's financial system and then uploaded to CAPRIS on a regular basis, allowing managers to review up-to-date CIP financial information.

By 1999 CAPRIS had been deployed to more than 100 desktop computers in the water and public works departments. As the system grew in popularity, numbers of users, and store of information, it quickly reached the limitations of the technology used to develop it. The processing of reports and viewing of screens became very slow because of the Access database, which had grown to be more than 100 MB in size. The database had to be transferred to the network in its entirety for all updates made by the users. Changes or fixes to the system became troublesome, because they required a separate re-deployment and installation to each and every desktop computer. In spite of the mounting difficulties, CAPRIS provided much of the information needed by Austin Water Utility, which came to rely on the system as the primary management tool for its capital program overall and, most importantly, for the 1997 annexation program.

In the spring of 2000, Austin Water Utility made a presentation to the city manager and the CIP Corporate Committee on CAPRIS and its capabilities. At the time, the city was struggling with how to more efficiently capture and report citywide capital projects information and produce the annual capital improvements plan. Impressed with the capabilities of the CAPRIS system, the city manager directed the budget office's development team to proceed with the development of a Web-based system that would be easily accessible by all city departments — *within 12 months*.

To meet this aggressive schedule, the city enlisted the assistance of a consulting firm that had been working on Austin Water Utility's annexation program. With city staff and consultants working side by side on design and programming, eCAPRIS was rolled out for citywide use in February 2001.

A key to the success of the new system was an interdepartmental review of the city's CIP process. The budget office coordinated a multi-departmental team consisting of project managers and financial managers to assess the current CIP process and to recommend

changes. The budget office then coordinated with the eCAPRIS development team to ensure that the system was built around the new CIP process. This new process called for the standardization of capital planning and management throughout the organization.

## SYSTEM FEATURES

eCAPRIS facilitates the effective and efficient management of all aspects of capital projects across city departments. It is a “home-grown” Intranet application designed to promote consistent standards of information compilation and storage within the CIP process. It makes project information accessible to city staff using intuitive design coupled with a flexible architecture that promotes sustainability. The system is integrated with the city’s financial, human resources, and geographic information systems, and is accessed by city users through a Web browser, which greatly simplifies system setup and administration. Below is a summary of the system’s major features, as illustrated in Exhibit 1.

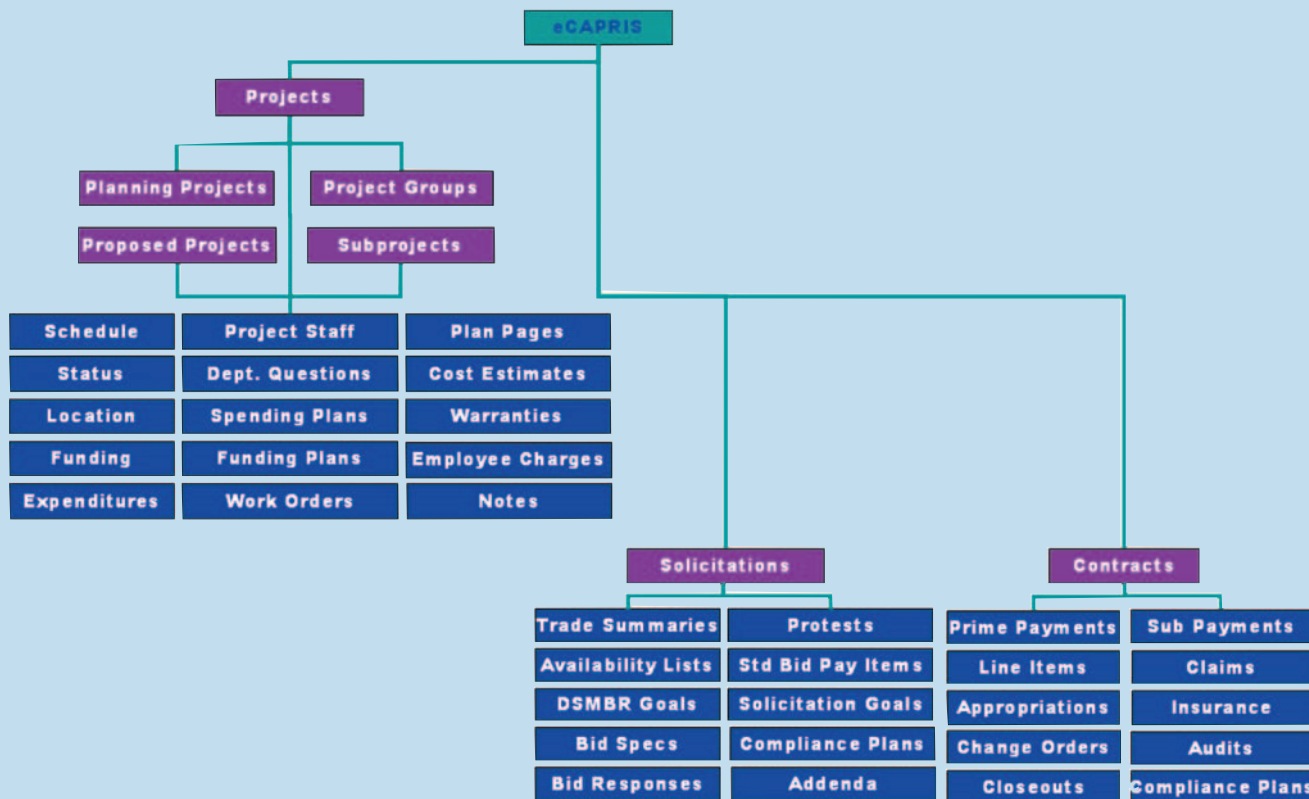
■ *Active / Planned Projects* – The system allows for two types of projects: active and planned. Active projects are ongoing projects with approved funding, while planned projects are those

that may be approved and funded for future years. Both project types have the same tracking elements.

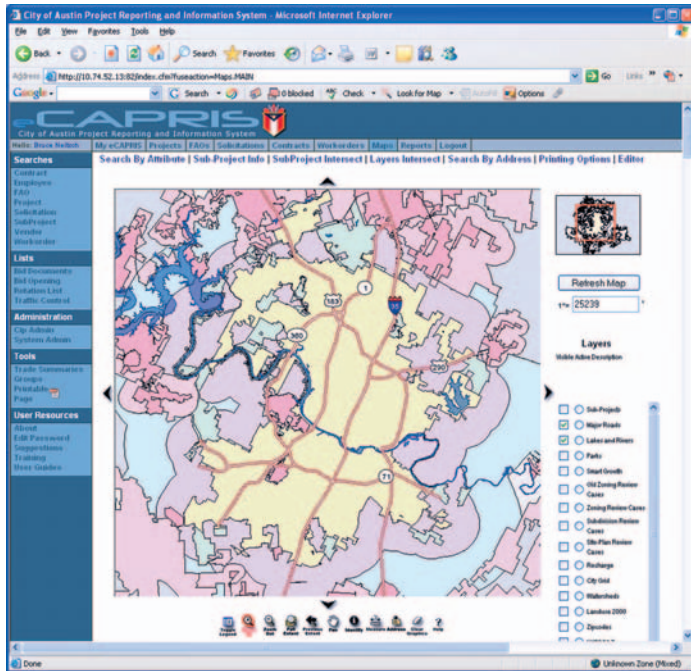
- *Cost Estimation* – A project budget is established for each project using standard cost elements.
- *Financial Monitoring* – Project managers enter spending plans (i.e., cash flows) to request funding, which financial managers use to generate funding needs and plans.
- *Project Scheduling* – A high-level work breakdown structure is provided for development of the schedule for each project. To maintain strict accountability for schedule changes, the schedule can only be modified under certain conditions. All projects use standardized project phases and milestones to ensure consistent reporting.
- *Status Reporting* – On a monthly basis, project managers provide project status reports; this information is stored historically and is available to all users.

The eCAPRIS application also includes a module for the solicitations and contracts associated with projects. Citywide processes for issuing RFQs and RFPs for professional services, as well as bids for

**Exhibit 1: eCAPRIS Functionality**



## Exhibit 2: GIS Intelligent Mapping



construction and monitoring participation by minority, disadvantaged, and small businesses, are incorporated into the software. Likewise, once a contract has been awarded, eCAPRIS provides information to support compliance, payment, and change orders.

All information gathered by the system is readily available to users through pre-formatted reports. In addition to the more than 100 criteria-based reports, custom reports can also be generated according to the needs of project managers, financial managers, department directors, and city management.

A particularly valuable tool is the GIS interface that allows employees to define and analyze CIP project areas by location. All projects are “mapped” within the eCAPRIS application by project managers. This process integrates citywide GIS information with project information, giving the city a powerful tool for interdepartmental project planning and communication, not to mention a convenient and effective means for answering questions from the City Council, management, and citizens in a timely manner. Exhibit 2 shows what the GIS interface looks like within eCAPRIS.

### SYSTEM BENEFITS

The eCAPRIS system has generated a wide range of quantitative and qualitative benefits to the city. Consider the following:

**Increased Responsiveness to Council and Citizen Requests.** The Web-based interface, with its point and click sim-

licity, permits users throughout the city to receive a City Council or citizen request for information, access the system, and quickly retrieve status information on projects citywide. The GIS map-based interface is particularly useful in helping users focus on a particular section of the city and visualize the extent of capital projects.

**Less Staff Time Required to Compile the CIP Plan.** The production of the CIP plan has been entirely automated, such that once information has been entered into eCAPRIS and validated by project managers, department managers, and the budget office, the system generates a single formatted report in excess of 500 pages for the annual CIP plan.

**Improved Interdepartmental Communication.** The information entered into eCAPRIS is available to all users in “real time.” Each department can monitor the system for new projects and status changes, and anticipate where projects may overlap. This improved coordination leads to real cost savings for the city.

**Elimination of Multiple Entries into Different Systems.** The administrative burden for CIP management has been significantly reduced. Duplicate systems and offline reporting tools have been eliminated. Project managers now spend more time managing their project portfolios and less time keying in data or otherwise duplicating work effort.

**Reduced Gap between Projections and Actuals.** With improved information access and tools that improve project management practices, the city has closed the gap between planned and actual project performance.

**Uniformity of CIP Management Processes.** The eCAPRIS system has reinforced a consistent methodology for project management, which streamlines communication among departments and individual project managers. This also allows new managers to be brought on board much more quickly.

**Accountability at Appropriate Organization Levels.** The system incorporates a limited, yet carefully designed set of checks to ensure that the right people maintain project information, keep it up to date, and provide explanations when project status changes. The system thus supports a basic level of accountability for all project managers.

**Real-Time Performance Measurement.** Through tight integration with the city’s financial system, the eCAPRIS system provides timely information on project actual expenditures, schedule performance, and contract status. This near-real-time performance measurement and reporting gives managers extra time to formulate actions to address financial or scheduling issues.

**Improved Accuracy of CIP-Related Data.** With a single system, consistent practices, and automated data management features, the eCAPRIS system gives all city departments an information resource they can rely on.

### TECHNOLOGY ARCHITECTURE

The eCAPRIS system is fully integrated with the city's other core applications, as shown in Exhibit 3. Data from the financial system, human resource system, vendor registration system, and GIS system is delivered nightly to eCAPRIS, ensuring that users have current information. Also included in this nightly "data dump" is a verification and reconciliation process.

eCAPRIS was developed using Macromedia Web development products, and the application is available citywide via Microsoft Internet Explorer. eCAPRIS data is stored in an Oracle 9i database, while reports are generated using Crystal Reports 8.5. The budget office's Web development team, which includes four programmers, is responsible for all aspects of the system.

### MOVING FORWARD

Now entering its fifth year of citywide use, eCAPRIS has proven to be an indispensable tool for the entire organization. Most recently, the city used the system to conduct a needs assessment

in preparation for a 2006 bond election. eCAPRIS' citywide acceptance owes itself to the system's flexibility and user friendliness. Designed and maintained by city staff, eCAPRIS has been able to meet the evolving needs of the City of Austin. Looking to the future, the city is positioned to use eCAPRIS as a platform for further enhancements to the CIP process. |

**GREG CANALLY** is budget officer for the City of Austin, Texas. Before joining the city, he worked as a project manager/economist for HDR Engineering, working with all levels of government to implement water planning solutions. Canally holds a bachelor's degree in economics from Villanova University and a master's degree in economics from the University of Texas at Austin.

**BRUCE NEITSCH** is programmer analyst supervisor for the Budget Office of the City of Austin, Texas. While working for the Austin Water Utility, he played a key role in the development of both the Project Information Reporting and Tracking System and eCAPRIS. Neitsch holds a bachelor's degree in computer information systems from Texas State University.

To receive a demo CD of eCAPRIS, please contact Bruce Neitsch, programmer analyst supervisor, City of Austin Budget Office, (512) 974- 7915.

**Exhibit 3: eCAPRIS Integration**

