# Lower Cost Alternatives for Construction Advertising

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# Abstract

Construction advertising at the University of Missouri has evolved from a manual system emphasizing mail and newspaper advertisements to a largely automated system emphasizing use of faxes, web pages and email announcements.  A contractor database interfaced with sophisticated faxing software is the core of the system.   Web pages and an email announcement list supplement this core.  Most of the relevant software is open source, "free" software available at no cost to the University.  This system produces more timely and more effective results with less labor and at less cost to the University.

# The University of Missouri

The University of Missouri is the oldest and largest publicly supported university in the state, with campuses at Columbia, Kansas City, Rolla and Saint Louis.   It is a land-grant university and Missouri's only public research and doctoral-level institution.  The University employs 7,200 faculty and 16,000 staff.  Total enrollment is 63,000 students, of which 75% are undergraduates and 25% are graduate or professional students.  University Health Care is a major provider of health care to the state.

The replacement value of University buildings is estimated at $4.6 billion.  Major construction totaled $167 million in fiscal year 2006, of which $101 million was new construction.

Construction is administered by the campuses, with assistance from a system office.

## Statement of the Problem

Advertisement costs are a minor part of individual project costs, but across the University's entire construction program they represent a significant annual expenditure. Newspaper advertising is particularly expensive, but University and industry experience suggest that direct solicitations are more effective.  By relying on current technology and freely available software, the University can produce very cost effective direct solicitations by fax and by email.  These direct solicitations are supplemented by a web presence which the campuses share to provide a statewide resource for contractors seeking University work. Persuading policy makers to implement new procedures is a significant part of the process.

## Design

The present system is a cooperative effort of the campuses, the system office, and the University's official "webmaster."  It represents an evolutionary development over several years, with fairly gradual changes in technology and procedures.  As such, it represents a path which other institutions could emulate at their own pace and with a minimum of disruption.  For example, an institution can continue its existing procedures while

experimenting with faxing ads.  Initially, student labor can be used to help build a database of

interested contractors and manually enter fax numbers.  As time and resources permit, the

institution can invest in an automated fax server which can be fed directly from the database

without manual intervention.  By using inexpensive hardware and free software, an institution

can avoid adding costs to existing procedures.  As confidence in the new system grows,

policy makers can be persuaded to relax requirements for more costly alternatives such as

newspaper advertising.

## Implementation

Prompted by contractor complaints about redundant and incomplete mailings, the

University began automating direct solicitations by mail over twenty years ago.  A mainframe

database was used to identify potential contractors for a project.  The system's main output

was in the form of computer generated form letters which were manually stuffed into

envelopes and sent by U.S. Mail.  By the early 1990's, the database was hosted on personal

computers, and the primary output was a unique list of fax numbers for each project.  Student

labor was used to enter the numbers into a standard fax machine.

In the mid 1990's, the database was transferred to a Linux server built from a retired

workstation.  The open source database mySQL was chosen to house the data.  This

database server is free to the University.   A web page built with the free programming

language PHP and served up by the free Apache web server allows users to select

categories of contractors for a given by project by checking items from a menu.  The web

page then generates a script which is passed to a fax server running under Linux on another

retired workstation.  The free and open source HylaFax package is responsible for sending

the faxes.  HylaFax combines the fax numbers generated by the web page with the text of

advertisements which have been saved on the Linux server from Windows workstations using open source Samba software.  The HylaFax server drives two modems connected to ordinary campus lines.  It can send a fax approximately once every 30 seconds, so that a typical run of 300 faxes takes two and one half hours.  Phone charges typically run from $2.00 to $12.00 depending upon the number of contractors contacted for a given project.

Approximately five years ago, the University supplemented direct solicitations with an internet mailing list driven by the Mailman package, which is commonly available for free with most Linux distributions.  Interested parties can subscribe and unsubscribe using a web page, or an email interface.  Advertisements are submitted by mailing them to the public address for the mailing list.  In the interest of avoiding spam and other clutter, all postings to the list are approved by staff in the system office before being forwarded to the list.

In the last two years, the campuses and the system office have cooperated with University's official "webmaster" to produce a "Construction Bid Announcement Center."   This provides one location where contractors can identify University work, order project documents, and view contract Addenda.

Go to  http://www.umsystem.edu/ums/departments/fa/management/facilities/bids/ to

see the Construction Bid Announcement Center.

## Benefits

The system has reduced newspaper advertising cost by $200,000 annually.   The

major offsetting expense has been less than $4,000 annually for less than 5% of a senior

computing position to develop and maintain the system.  The savings are returned to projects

for the purchase of additional construction goods and services.  Less staff time is used

processing newspaper advertisements and billings, allowing campus and system staff to

devote more time to more important uses.  Campus administrators are pleased with the

results of more targeted direct solicitations.  Contractors appreciate receiving timely and direct

notification of projects that interest them without the clutter of advertisements for work that

does not interest them.