

Community Technical Assistance Center

Student Consultant, George Davis

Community Partners, Alida Baker and Shelley Harnett

I. Consulting Situation

“As a non-profit corporation, our goal is to develop strong communities by providing technical assistance to neighborhood groups, tenant councils, community-based organizations and community development corporations in Southwestern Pennsylvania.” – CTAC Mission

About the Organization

Headquartered at 901 Western Ave on the North Side, the Community Technical Assistance Center is a non-profit that provides services to other non-profits. Their philosophy is that social goals are best promoted through small, community-sized organizations that can see very tangibly the impacts of their efforts. The organizations they assist are mostly neighborhood based: local business councils or community development programs. Although most of their efforts are within Allegheny County, their events and services are open to a wider regional community.

“Technical Assistance” includes training in support functions, incorporation, finances, personnel management, and grant writing, as well as assistance in planning and implementing specific projects. Training is accomplished in several ways: publishing small fliers, holding free training seminars, 1-on-1 consultations with groups seeking assistance, and referrals of non-profit-friendly consultants and businesses. In addition, CTAC may take on special projects on a case-by-case basis which further their mission, such as the baseline data project discussed further on.

CTAC employs a staff of 3 Community Development Specialists (Alida Baker, Shelley Harnett, and Majorie Howard), the Office/Program coordinator Diane Smith, and the Executive Director Mark T. Fatla, esq. The 18-member CTAC Board of Directors meets monthly to govern the organization. CTAC’s annual budget is approximately \$400 thousand. This budget handles salaries, office space and equipment (including a conference room they rent out), publications, travel expenses, and yearly technology upgrades.

The Current Technology Situation

Technology plays a large roll in CTAC’s current operations. They maintain a website – www.ctaconline.org -- for public reference. They also use e-mail extensively for internal and external communications, as well as word processing and desktop publishing design. Several members of the staff use Outlook and palm pilots to manage their personal schedule. They’ve shied away so far from using PowerPoint or similar presentation software in order to retain an interactive feel to their presentations, but their responsibilities are expanding to include presentations to larger groups which will demand computer-based presentations.

Each employee at CTAC has their own computer, with email at the ctaonline.org domain. Microsoft Office programs are used for most day to day tasks. The computers vary in specifications: 3 are new 1.5 and 2 ghz Dells running Windows XP, 2 others are p2-200’s running Windows ME. For guests, there’s a single K6 processor based computer running Windows ME. The computers are networked to allow file and printer sharing, as well as sharing of a single DSL subscription through a local ISP. There’s also a switchboard with a fax/modem line and phone services. Recently, CTAC agreed to participate in a

project involving surveying building uses and condition for a number of neighborhoods around Pittsburgh. The contract provided for a fleet of 10 Palm brand PDAs, which Shelley has loaded with Neighborhood Survey Pro software. More information about this project is given in the following section, and a detailed technical overview is attached as Appendix A.

CTAC's technology management consists primarily of "fearless user" methodology. Alida Baker and Shelley Harnett aggressively manage their own technology needs. For more complex troubleshooting, the group depends on IT contractor John Boles, who originally set up and maintained all of their networks and telecommunications work. Their long-term technology plan currently consists of budgeted funds to handle maintenance and upgrade two desktop computers per year.

The Consulting Situation

The consultant, Alida Baker and Shelley Harnett were able to identify 2 major projects which could benefit from an analysis of how information technology could be applied.

Opportunity 1 : Technology Purchasing Plan Revision

Although much of CTAC's work takes the form of off-site meetings and presentations, the organization currently owns no laptops. Several staff members use Palm handhelds efficiently to organize daily tasks and contacts, but this does not provide a medium for delivering presentations or demonstrating use of technology (such as accounting software), objectives which are essential to CTAC's mission. The current technology purchasing plan calls for replacing / upgrading two of the organizations desktops yearly, a focus that does not take into account the need to purchase new types of equipment such as laptops or the need to upgrade aspects other than the raw computing power of the machines (such as larger monitors to reduce eyestrain, which has become a problem). Having a revised technology plan that allows the same funds to be allocated to these new categories will help the organization not only in the immediate acquisition of laptops and ergonomic equipment, but in planning future purchases crucial to their mission.

The consultant and community partner determined that a series of meetings discussing the organization's needs and ways of making purchases to fill them would be the best way to work towards the revised technology plan. The consultant's task was to ensure that, as the new purchasing plan is developed, the community partner learned to effectively identify needed equipment, assess what level of age and quality of equipment is suitable to the task, and compare prices to make the best selection. The process included the following steps:

1. Brainstorming to create a list of technological needs
2. Researching to find what purchasable solutions exist to these problems
3. Looking at reviews / comparisons to find which solutions provide a reasonable price-point for an organization with limited technology funds.
4. Comparing different sources of equipment, including used markets (e.g. cmu.misc.market, pgh.forsale), leasing plans (e.g. Dell), or retail purchase. Compare on the basis of price, reliability, and support plan. Discuss pitfalls of each purchase method.
5. Creating a written summary of the process, to be potentially included as part of CTAC's yearly technology purchase plan (which must be approved by the Center's executive board).

The document generated can be referenced as Appendix A to this document.

Expected Outcomes:

- CP will have determined the sorts of technologies available and soon-to-be available that support their mission (both directly, such as laptops, or indirectly, such as more ergonomic desktop interfaces)
- CP will be proficient with existing resources to compare types of equipment that may be new to her (reviews, etc.) and is able to identify the level of technology (price / age) that is optimal for her goal and funding.
- CP will be informed of a variety of purchasing models (new/used/lease) and their benefits and disadvantages.
- A written policy will have been created for the organization that extends the purchasing criteria and methods currently used for desktops to include new types of technology.

Overall Sustainability Plan:

Finding a remote computing solution should make the staff much more effective at off-site tasks. Large presentations at conventions often demand a PowerPoint-style presentation and computer-based presentations can add professionalism to meetings with funding bodies or partners. This will assist several currently planned projects, including the baseline data delivery project discussed below, by allowing CTAC staff to demonstrate technology use directly at a client organization's site. In the long term, the refined purchasing plan will extend CTAC's capacity to incorporate new technologies to their projects.

Opportunity 2 : Baseline Data Project

CTAC recently undertook a project to collect data from each of the neighborhoods in Pittsburgh detailing how each building and plot of land is used in a neighborhood's business district. The data serves as a basis of comparison to identify future success or failure of community projects. The data was collected using Palm systems and a software product called Neighborhood Survey Pro, which generates Access databases. CTAC's mission does not include maintaining this data, so they're seeking to deliver it to the community organizations they serve in a form that could actually be useful. Significantly more information about the Baseline Data Project is included in the Technical Analysis document generated in step 6 of the work process. The document is included with this report as Appendix A.

The consulting task was to aide CTAC in the process of planning and possibly implementing a solution to the distribution problem. The solution was to be sustainable and expandable, since similar projects will be undertaken in the future. It should take into account the technological limitations of the client organizations. The consultant and community partner determined that it was best to break the project up into several self-contained steps, each with sustainable outcomes. The steps included the following:

1. Analyzing the current state of the data. What was its usability to an end-user? How easy would it be to design forms and reports around it? How much does the database currently match CTAC's own conception of the data?
2. Analyzing possible options to restructure and reformat database. Should a new schema be implemented that will be easier to code for / use? Will the conversion from one schema to another be reproducible if Neighborhood Survey Pro is used again?
3. With CP, implementing the decided changes.
4. Analyzing of possible interface methods. Should a web-based interface be produced? Are a series of forms and reports sufficient?
5. Analyzing of what resources can CTAC devote to this project. Is hiring someone to create an interface price-feasible, or should we rely on the staff's existing access expertise. Can the solution be accomplished by CP and consultant within the consulting term?

6. Designing a work-plan detailing what features the interface will have and how it will be accomplished.

Expected Outcomes:

- The CP would have a written plan for an understanding of how to structure or restructure a database to contain neighborhood data, and how to convert from NSP's format to this format
- The CP would have a written plan describing the type of interface that will be generated for this database, and how it will be delivered to the community (including necessary training).
- The CP would gain an understanding of technologies and design techniques that can be used for data intensive projects like this in the future.
- Progress would be accomplished towards preparing the data for delivery.

Overall Sustainability Plan:

CTAC's mission does not revolve around data survey projects, but they are recognizing these surveys as an increasingly important tool towards accomplishing their main objective of making sure that community organizations are using effective development strategies to develop the area. Community organizations can use this data not only for self-assessment, but in applying for grants. If CTAC succeeds in creating a format and methodology by which neighborhood organizations can survey their neighborhood's properties, it will have completed an invaluable service to the groups it consults with. Completion of a work plan to make the survey data more accessible will push CTAC towards this goal.

II. Outcomes and Recommendations

Analysis of Outcomes

There were two main projects in the scope of work:

1. Review of CTAC's technology purchasing plan, and
2. Review of use of Information Technology in CTAC's ongoing Baseline Data Project

The scope and intended outcomes of the work plan changed over time, affecting the outcomes. Detailed discussion follows.

Outcome 1: A written policy has been developed informing CTAC's technology purchasing plans.

Early in the process, the consultant and CP identified the organization's lack of laptops as a major area where technology could increase capacity. The need to demonstrate technology, give presentations, and conduct work offsite is not met by the organizations current technology resources, and the current technology plan does not take steps to alleviate this need. A document supporting changes to the technology plan that allows the same funds to be allocated to these new categories will help the organization not only in the immediate acquisition of laptops and ergonomic equipment, but in planning future purchases crucial to their mission.

Results and Outcomes

- Ms. Baker and Ms. Harnett, and the consultant documented brainstormed new uses for technology in CTAC, which could serve as a starting point for future plans.
- The consultant and Ms. Baker identified several on-line resources through which to conduct technology purchase, and documented their key features:
 - www.dell.com : High quality products, warranty-supported service for laptop purchase or leasing.
 - www.ebay.com : Low cost used or wholesale gear from small vendors, using an auction transaction system
 - www.techsoup.com : Special offers of software and hardware for non-profit organizations
 - cmu.misc.market : local university classifieds system used commonly for selling hardware.
- The consultant and partners created a document outlining important considerations in the purchasing process for laptops (which is the most immediate need of the organization). The document discusses the needs and uses for laptop technology (justification), the specific technical elements to be required in purchasing a laptop in the near future (specification), and an outline of different methods for purchasing, in the frame of a comparison between on-line offers. The document can be viewed as Appendix A.

Outcome Evidence

The community partners have discussed the need for purchasing plan revision with the organization's chief executive, and have used the document as evidence that a thorough plan has been thought out. The document may be used in presenting the case to CTAC's board of directors, which meets monthly and has the power to allocate the necessary budget.

Evidence of Expanded Capacity / Sustainability

Since expressing interest and justifying the purchase of a laptop, CTAC has actually managed to secure the donation of a used laptop. This should make it much easier for the community partners to accomplish their objectives and implement new projects outside their office environment. Because the plan documents the process, it should be reusable over multiple cycles to identify and purchase new technology.

Recommendation

The consultant recommends that brainstorming about technology become a part of the purchasing process in the future. In addition to upgrading current equipment, the community partners should examine new technology options when it comes time to make purchasing decisions. When considering technology acquisitions in the future, the community partners can make use of the following resource chart.

Resources

Website URL

<http://www.techsoup.com>

<http://www.dell.com>

<http://www.compaq.com>

<http://www.gateway.com>

<http://www.toshiba.com>

Cmu.misc.market

Cmu.misc.market.comuters

Pgh.forsale

Accessible through:

<http://groups.google.com>

<http://www.ebay.com>

Appendix A

Description:

Site with community building and special offers on software and equipment for non-profit organizations.

Sites for well-trusted vendors of new PC laptop equipment, with warranty, leasing services and more. (There are of course many more than this!)

Newsgroup with classifieds listings – often for computers or other technology – local to Pittsburgh. No guarantee of trust, but excellent prices frequently on used goods.

Auction site with limited escrow accountability for some sellers, good source of used or wholesale technology.

Document generated by consultant and CP to aide purchasing process.

Outcome 2: Planning for technological development in the Baseline Data Project

CTAC's Baseline Data Project seeks to help community organizations evaluate their progress by conducting surveys which can be used to compare the original state of a neighborhood to its state after projects. This sort of data is useful in informing policies and making grant applications. CTAC has already compiled a database including surveys from 13 different neighborhoods, conducted using a program, Neighborhood Survey Pro, which allows data to be collected on Palm PDAs and transferred to a Microsoft Access database. The original goal of our work was to find a way to disseminate this data to neighborhood organizations, so that CTAC would no longer have to maintain it. However, throughout our process we discovered two confounding factors:

1. Interest is growing in this sort of data, so that it may be increasingly important for CTAC to collect and collate this data in the future.
2. Neighborhood Survey Pro has limitations that will make it an increasingly un-viable method of gathering survey data.

We decided that in the long term the application and database should be remodeled to fit CTAC's needs. This created a need for careful planning and examination of several very different information system options. As a result, the workplan morphed from an objective of setting up a sustainable solution to a smaller problem to the objective of creating the blueprint for a sustainable solution to a larger one. During the process, some bugs in the current technology were resolved. But more work will be necessary in the future to reach a truly sustainable solution. Details of the plan for this work can be found in appendix B, the technical analysis generated by the consultant and CP.

Results and Outcomes:

- The consultant and Shelley Harnett created a new Access form which could be used to report on and modify data in the current Neighborhood Survey Pro database. The form was designed to be useful and usable to neighborhood organizations requesting the data.

- The consultant and Shelley Harnett created a series of Access macros and queries which could be used to add and populate fields in several database tables. The additional is needed in order to deliver the data to City offices CTAC has obligations to.
- The consultant gave a demonstration to both partners of different database-design techniques (centralized vs. hierarchical table relationships) and how they could affect the usability of CTAC's database.
- The consultant and partner created a document describing the problems with the Neighborhood Survey Pro system, and outlining the requirements and technical specifications of a new database structure that could make CTAC's technical activities in this sector more productive and sustainable. The document recommends and supports the use of an alternate product, but leaves the door open for future versions of NSP or other software to be used to accomplish the goals. It's available as Appendix B to this report.

Outcome Evidence

The outcomes in this process consisted primarily of important decisions that had to be made with informed research. Identifying the limitations of NSP and the capabilities of an alternate software package is a step that had to be taken to ensure the feasibility and sustainability of future steps in the project. The discoveries made in the process are clearly outlined in the document, and can save substantial effort in continuing the project.

Evidence of Expanded Capacity / Sustainability

The additional 5 forms, 3 macros and 5 queries created by the consultant and partner will increase CTAC's capacity to complete its current objectives within the Baseline Data Project. The document described above provides an outline for continuing work on this project, which could continue to add efficiency to CTAC's projects in the future. The community partner has stated that a less tangible increase in capacity has occurred in the form of increased Access skills in CTAC staff and real decisions made in the direction this project will be taken in the future.

Recommendation

With a number of deadlines drawing near, CTAC is being forced to make compromises between the sustainability of this project and meeting immediate objectives. In situations like this, the temptation is often to leave the functional system in place rather than upgrading. However, this can lead to significant efforts – which become more and more difficult, not easier! – in adapting the system to future needs. Since the plan described in the generated document (Appendix B) is outside the job description and available time of CTAC's current staff, the consultant recommends that CTAC make use of additional student groups or other consulting solutions to implement the plan. Several possible contacts are listed below.

Resources

<http://www.studentaffairs.cmu.edu/career/>

Carnegie Mellon University Career Center.
On the left hand side there is a link titled
“Information for Employers”. From here the
community partners could obtain all the
information necessary to hire a student from
Carnegie Mellon University to help with the
project.

<http://www.hr.duq.edu/>

Duquesne University Office of Human Resource
Management

<http://www.hr.pitt.edu/contact.htm>

From here a person could obtain information about
how to hire a student from Duquesne University.
University of Pittsburgh Office of Human
Resources – Contact Page

This page contains the contact information for the
University of Pittsburgh Office of Human
Resources. Any one of the phone numbers listed
could be contacted to obtain information on how to
hire a student from the University of Pittsburgh to
help with the online database.

Design document generated by consultant and CP
outlining system alternatives.

Appendix B

Other Recommendations

Recommendation 1: Implement a Centralized Backup System

The consultant recommends that CTAC develop a policy for backing up data used by each of the staff memberships at CTAC. A simple cd-rom burner and a spindle of disks should be sufficient for the vast majority of the data. The peer-to-peer network, combined with a policy of where to save important files on the network, could facilitate collecting data onto a disk. CTAC staff should meet to determine a directory structure and method of sharing using the existing network which will make it easy to select files to backup on a regular basis. (Doing this could also significantly streamline communication between staff by knowing shared locations for documents!)

Consideration for how to minimize risk of loss in the large databases used for the baseline survey project may have to happen separately. Perhaps the data should be backed up once after collection, or on a more infrequent basis than other outputs of CTAC.

Source

While making an initial survey of the technical environment at CTAC, the lack of a backup system became one of the primary concerns discussed. IT Consultant Jon Boles, who set up CTAC’s network and telecommunications, suggested that he had hopes to install a sort of tape backup system combined with software to do backups on a regular basis. This led to continued discussion of what the most simple inexpensive way would be to back up CTAC’s core data in order to avoid disasters.

Rationale

CTAC is becoming increasingly reliant on information technology to do its work. Staff members generate all documents and publications on computer, maintain contacts through emails, and have projects like the baseline data survey that utilize large amounts of data. A hard disk failure could set an individual staff member back considerably, and could make it difficult to fulfill obligations in contracts and grants CTAC agrees to. The cost (in time and funds) of maintaining weekly (or even monthly) backups is well worth it to avoid a expensive loss of time. The absence of a backup system should be considered a loss-of-capacity waiting to happen.

Resources

CTAC's current IT contractor, Jon Boles, could certainly help set up the system. Alternatively, local university contacts could be used to help set up the system (see resources listed in the second section above). CD burners and CD's can be acquired through any of the purchasing sites listed in the analysis of work item 1.

<http://www.novastor.com> offers internet backup services, utilizing internet connections to provide automated backups. CTAC could consider this as an alternative possibility, although internet connections are sometimes unreliable, and the solution depends on the integrity of the hosting company.

Recommendation 2: Investigate novel computer-based presentation methods.

One of the justifications for CTAC to consider acquiring a laptop or laptops was the potential to give increasing numbers of offsite presentations using computers. Although a simple PowerPoint slideshow can add some level of professionalism, the consultant recommends that CTAC may want to employ additional techniques to enliven their presentations. This might take the form of additional software that adds interactive capabilities to PowerPoint presentations, or it might take the form of reading about tips and tricks utilizing the current resources. Additionally, CTAC will want to draw on their current presentation skills and think of how best to adapt those to an electronic environment.

Source / Rationale

While discussing the benefits of laptop usage with the community partners, the issue rose that CTAC wanted to participate and present in larger seminars that demanded computer-based presentations. Ms. Harnett indicated misgivings that PowerPoint presentations tend to be dull, "read-what's-on-the-screen" affairs. In contrast, CTAC's current presentation style involves group dynamics and interactions, with a lot of drawing done on the fly using newsprint and presentation boards. The consultant feels that it's possible to reconcile the situation taking the best of both methods: the portability and document qualities of a PowerPoint presentation with the interactivity and liveliness of a drawn presentation given to a small group of people.

Resources

As mentioned above, the most important resource will of course be CTAC's own expertise and creativity. It will be important to identify the aspects they like most about their current presentation methods and experiment with different ways of replicating that situation using computer technology. Perhaps a drawing tablet could allow a PowerPoint slide to act as a sketchpad, or the insertion of even low quality digital photographs could make a presentation more accessible.

In addition, there are a number of web sites and books dedicated to giving good electronic presentations in a variety of circumstances:

<http://www.microsoft.com/office/powerpoint/default.asp>

Microsoft's own website devoted to PowerPoint includes both support and tips and tricks for good presentations.

<http://www.powerpointers.com/index.asp>

Powerpointers serves as both a guide site and a store for Powerpoint add-ons.

[Microsoft PowerPoint Version 2002 Step by Step](#) -- by Perspection Inc

Amazon lists a number of books serving PowerPoint users. Each of these combine technical information with hints about making good presentations.

[PowerPoint® 2002 For Dummies®](#) -- by Doug Lowe (Author); Paperback

[Special Edition Using Microsoft Powerpoint 2002](#) -- by Patrice-Anne Rutledge, et al; Paperback

<http://www.office3d.com/>

Office3d.com markets animation tools for powerpoint that CTAC may or may not find useful.

<http://208.183.128.8/tutorials/pptinteract.pdf>

Connie Campbell has created a tutorial for making PowerPoint slides interactive.

Additionally, many local colleges give inexpensive courses on presentation software and techniques, that might be useful in bringing staff that's unfamiliar with PowerPoint up to speed.

Appendix A : Laptop Purchasing Guidelines

George Davis, Student Consultant

Alida Baker, Community Partner

Recommended Specifications:

Cutting-edge computing equipment always comes at a premium cost. Since CTAC relies on laptops primarily for office tasks and not heavy computation, it can save a great deal of money by purchasing a second-generation laptop. The following specifications constituted a reasonable system at the time of writing (March, 2003):

- **Processor :** Minimum Pentium 3 800 mHz / Athlon 1 GHz
Maximum Pentium 4 1.5 GHz / Athlon 1.8 GHz
Avoid seemingly good deals on Celeron processors – they actually perform very slowly for the price
- **RAM:** Minimum 128 megabytes, Maximum 256 . If purchasing on the low end, make sure there is room for expansion, since CTAC’s database work in the future may demand more RAM.
- **Network Access:** Bundled / Built in Modem and Ethernet access. 802.11 Wireless Ethernet Card
- **Screen :** 13.8” Minimum – Screen size is a *major* issue in ergonomics and usability. Also, test the screen to see how well it handles glare in common situations.
- **Bundled Software :** The laptop should run Windows XP in order to utilize CTAC’s existing network and application library.

Purchasing Methodology:

There are many options besides major vendors by which to purchase laptops. It may be worth considering used merchandise, auctioned equipment, or offers made exclusively to non-profits. The table below lists several such resources. In each case it is important to consider several major factors:

- Source accountability. Will you be able to track down the seller if there’s a problem with the equipment? Is the seller accountable enough that they could not afford to rip off people on a regular basis?
- Option to preview. Can you try out the product in advance to make sure it fits your needs and is in working condition?
- Service program. What sort of troubleshooting services do you receive with the product? What’s the duration of the warranty? You can expect some maintenance issues, and may have to pay an IT consultant for help if there is no warranty / tech support. When evaluating this, keep in mind that even if a laptop is functional in 5 years, it might not be useful. Warranties should take into account the future obsolescence of your machine.

Resources:

Website URL

<http://www.techsoup.com>

<http://www.dell.com>

<http://www.compaq.com>

<http://www.gateway.com>

<http://www.toshiba.com>

Cmu.misc.market

Cmu.misc.market.computers

Pgh.forsale

Accessible through:

<http://groups.google.com>

<http://www.ebay.com>

Description:

Site with community building and special offers on software and equipment for non-profit organizations.

Sites for well-trusted vendors of new PC laptop equipment, with warranty, leasing services and more. (There are of course many more than this!)

Newsgroup with classifieds listings – often for computers or other technology – local to Pittsburgh. No guarantee of trust, but excellent prices frequently on used goods.

Auction site with limited escrow accountability for some sellers, good source of used or wholesale technology.

Comparison of Current Laptop Deals

Model	Dell Inspiron 2650	Gateway 400s Series	thchan@andrew.cmu.edu	cycledell@andrew.cmu.edu
Source	http://www.dell.com	http://www.gateway.com	cmu.misc.market	cmu.misc.market
Relevant Features	1.8 GHz Pentium 4 256 Megs Ram 14.1" Screen 30 GB HD Integrated modem / Ethernet Wireless Ethernet Card Windows XP Home Wordperfect Suite DVD Drive (Extra for cd-rw)	2.4GHz Pentium 4 256MB DDR SDRAM 30GB HD CD-RW / DVD Windows XP Home Microsoft® Works Suite 15" XGA TFT Active Matrix	500 mHz Pentium 3 128 Megs RAM 20 GB HD Dell	hp, pavilion N5490 1 GHz pentium 3, 30 GB hard drive 256 RAM 4X DVD-CDRW drive 56k modem, ethernet wireless internet card, nylon carrying case, windows xp upgrade
Support	1 Year Mail-In Service	1 Year Warranty	Use your own	Use your own
Issues To Consider	Dependable, sue-able company. No lease option, financing at \$32 / mo.	Dependable, sue-able company. Skip over cheaper models available w/ Celeron – Celerons are a bad value.	Would need to check out first. How big is monitor? Any issues? thchan sells a lot of stuff on the board, does he salvage parts from each? Lowest end usable.	1 Year old, any performance issues? Does it still have warranty?
Price	\$973 (after \$150 rebate)	\$1400	Make an offer (\$4-500 ?)	Make an offer (\$600-700)

Appendix B: Technical Analysis / Design Recommendations for Baseline Data Project

George Davis, Student Consultant
Shelley Harnett, Community Partner

The Baseline Data Project

CTAC is currently involved in a grant-funded project to assist area neighborhood organizations in gathering what's referred to as Baseline Survey Data. The purpose of this data is to provide a baseline against which community groups can judge whether their projects have succeeded. This data can also help prove eligibility for programs designed to assist neighborhood revitalization efforts (such as the recent Historic Main Streets designation).

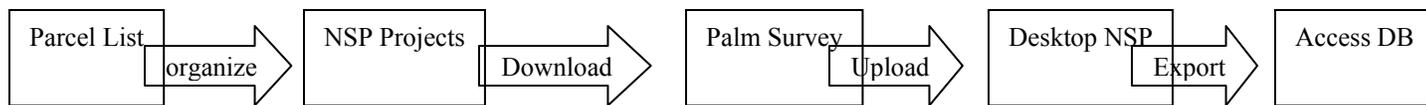
The data builds on data provided by city and county sources recording owners and estimated values of properties on each parcel of land around the city. It augments this by allowing surveyors to make an assessment of the property's current condition, add photographs and and record all current uses (businesses, residences, etc.) of the property.

CTAC's Objectives

- CTAC has developed a technical solution for gathering and collating this sort of data (described in depth below). It wants to carry out projects to train community groups to use this system to record data on their own neighborhood
- CTAC has grant obligations to return this data to certain city offices in a format they can use for their own studies.
- Ultimately, this data should be returned to the community organizations. CTAC does not wish to have an archival or maintenance role in the project. It wants to put the data in such a format and provide an interface that it can be used by a wide variety of organizations to better assess their own projects
- It has become apparent that these sorts of data and the process for gathering it have many uses in the community development Arena. CTAC wants the system to be able to track data on a variety of projects over time, to assess changes from one year to another.
- Other technologies can be used to extend the use of this data. Recently, CTAC has been using neighborhood survey data to generate color-coded maps using neighborhood survey data. The data should be kept in a format that allows this kind of augmentation.

The Current System

Currently, CTAC utilizes a piece of software developed by the Enterprise foundation (<http://www.enterprisefoundation.org>) called Neighborhood Survey Pro. NSP is being specifically designed to carry out this sort of research. It consists of two programs, one which runs on a desktop PC and one which runs on a Palm handheld. The intended process of conducting a survey is as follows:



1. The desktop software helps organize existing county data (lists of parcels and addresses to be surveyed) into lists called Projects. *In theory* one project could be used for neighborhood, or for one neighborhood in a particular year, so that a series of projects could be retained tracking different neighborhoods over time.
2. NSP’s desktop program downloads Housing property data (a list of parcels and addresses to be surveyed) onto the Palm handheld (only downloaded data can be surveyed in the field).
3. The Palm program provides a series of convenient forms that can be used when surveying parcels to record hard-coded fields of survey data. Community groups go door-to door, assessing land and buildings and filling in data using the Palms.
4. Data recorded on the palm is transferred back into the NSP desktop application, which provides an elementary series of reports that display and print the data.

CTAC has augmented NSP’s intended process with the following steps:

5. NSP exports an “archive” in the form of a Microsoft Access Database, composed of many tables recording survey data (conditions, uses, and accessories, indexed primarily by project and parcel number), plus additional log information and information internal to the NSP software.
6. CTAC staff trims off tables with superfluous information, and adds a form which allows editing and reporting of the surveyed data.

In its current form, the process has the following problems:

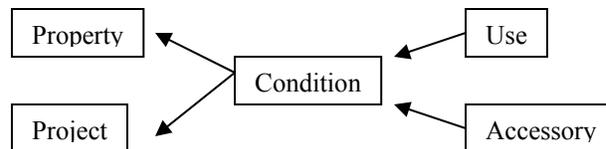
- There is no current documentation for the use of NSP. A document has been written by CTAC as part of a separate consulting project which trains community partners to use the palm software, but the technical details of the desktop application are unknown.
- NSP’s project system does not work as expected, and cannot be used to track property condition over time.
- NSP’s data transfer to Access is one-way. Any changes made on the desktop cannot be synchronized to the Palm, meaning that the Palm cannot be used to add data after any work has been done on the desktop.
- The schema behind NSP’s access database is not hierarchical: rather than having a clear system of keys and relations describing the many-to-one and one-to-one relations in the database, almost all tables are indexed by the combination of project number and parcel. This structure makes any editing task, not to mention writing interface code for the database difficult.

Proposed Modifications

In order to make a system that allows for the growth CTAC wants for this project, it may be necessary to redesign this system significantly. DDH Software creates an application called HanDBase

(<http://www.ddhsoftware.com/handbase/>) which provides a much more robust conduit between Access databases and Palm based survey forms. HandDBase could be used to implement the survey front-end to a redesigned database that better fits CTAC's needs. HandDBase has an inexpensive license cost (\$30), and an arrangement could doubtless be reached with the vendors for a discount on license to use the software on multiple Palms.

The new database should be based around CTAC's conception of the data rather than a specific, linear survey plan.



- The most fundamental unit of one of these surveys is a **property**, a parcel of land with an owner, as recorded by Allegheny County. There is a set of static data – owner address, property assessments in different years, etc. – associated with each property, which are indexed by *parcel*. This data is the result of combining data from county and city. In NSP, the tables combined at *tbl_properties* and *<Neighborhood> Unique County 1*
- CTAC assists **projects** which involve taking surveys on some subset of its property data. Projects can be used to subdivide neighborhoods and years. Put another way, a project is a set of survey data conducted on one set of properties in one year.
- A project is essentially a collection of **conditions**, assessments made by surveyors on one property in one year. These include evaluations of the state of the property, photographs of the property, and more.
- When recording condition information, surveyors may find that at this time the parcel is utilized for one or more **uses**. Data is recorded about the qualitative nature of the use and the person or organization behind it. Many or no uses are associated with a single condition.
- Surveyors also record data about **accessories** beyond the main building occupying a given parcel, such as garages, parking lots, and sheds. Additional condition info is recorded regarding the state of each accessory. Many or no accessories are associated with a single condition.

Each of these concepts should coincide with an Access table, a HandDBase table, and a HandDBase form. HandDBase does not have the capacity to organize multiple tables into a database, but tables and forms can be linked together according to a hierarchy like the one described above, and synchronized within a single Access database file that has the appropriate relationships defined.

It will be fairly easy to create a series of queries in Access to convert existing data to the new format. There is a single case of tables being merged (static property data), and the replacement of centralized indexing (by parcel and project), with hierarchical indexing according to the diagram. With the data in this format, it should be an intuitive process to create forms allowing for the manipulation and reporting of gathered data. The hierarchical structure will also facilitate the addition of new fields or entire survey elements in the future if CTAC decides to conduct new types of surveys.

The technical steps needed to implement the new system are the following:

1. Generate Access database tables, including all necessary survey fields and defined relationships.

2. Create HanDBase tables matching the Access tables, including linking the necessary fields, and establish the conduit between the two.
3. Create HanDBase forms for each table, with appropriate linkages, to facilitate easy entry of survey data.
4. Create interface forms allowing editing to be accomplished on PC after survey data has been updated.
5. Create documentation to assist in training community organizations on entering data with new form layout.
6. (As needed) Convert existing survey data into the new format by creating projects for each survey conducted so far.

Many of these steps could be completed in parallel by a team of knowledgeable individuals with a variety of skills. For this reason, the consultant highly recommends the use of local university student project groups (such as CMU's MISM teams) to complete the process.