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To: Board of Trustees
Carthage Public Library

Re: Constructions options

This report was written by Fred Schlipf and then edited and expanded by Mark Misselhorn.

Summary

The Board of Trustees of the Carthage Public Library is faced with a difficult decision. The space it currently occupies, the first floor of a historic late 19th century two-story brick building, is far too small to meet the community's needs for library service. The building also has a number of structural and functional problems.

The library has four general options:

1. Remodel the second story of the building to enable it to be used for library purposes, adding necessary staircase and elevator.
2. Expand the first floor by constructing an addition on the south.
3. Obtain and remodel another old structure and convert it to library purposes.
4. Build a new library building on a new site.

Our conclusion, outlined in detail below, is that the most economical and functional solution is to start over with a new building designed as a library.

Planning a library building involves first listing the spaces needed and then testing various building options against the list, to see how closely each option can come to providing the needed spaces. Doing things the opposite way—starting with a building and then seeing what will fit—usually leads to a building that fails to meet the library's space needs. The question should always be, “Where can we fit this necessary space?” rather than, “Here's an unused space; what could we put there?”

In preparation for planning library spaces, the board and staff and consultant prepared ***A Building Program for the Carthage Public Library***, which lists the necessary spaces in the building.

The **Program** is probably somewhat too large, as most programs are when they are first written, and some features will almost certainly be removed or cut in size. The **Program** specifies a single story building of 12,900 square feet, but a more suitable size for Carthage is probably about 10,000 square feet.

If the library remains in the current building or moves to another remodeled two-story building, it will probably require an extra 1,000 or 2,000 extra square feet for staircases, elevator, and working around situations where the planners need to take extra space to avoid dividing individual sections of the library between two floors.

Library structural needs

Here is a quick summary of the architectural needs of public libraries up to about 30,000 square feet.

1. **Single story building constructed on a concrete slab**, with no basement or second story. Floors need a large number of electrical outlets to serve the many computers owned by libraries and brought there by users.

Basements in libraries tend to cause problems with moisture and often lead to main floors that are not strong enough to carry the weight of books. Mark notes that basements of over 1,000 square feet require elevator access, even if they are used only for mechanical equipment or storage.

Second stories greatly increase costs of construction and operation. In single story buildings, all the heavy weight of books can be born on concrete slabs on the ground, while in two story buildings the second floor has to be engineered to hold massive weights in midair. Two story libraries also require more staff to operate.
2. **Ceilings a minimum of ten feet high**, to allow clearance for shelving and space to reflect light off ceilings. Ceilings lower than ten feet also feel uncomfortable in large rooms like libraries.
3. **Single entrances**, in locations convenient for both pedestrians and drivers.
4. **Ease of staff supervision**. Staff at a single service desk need to be able to supervise the entire library. Any design that requires additional staffed desks means permanent expenditures for the library. Since staffing is about two-thirds of the cost of library operations, adding extra desks involves a significant increase in operating costs.
5. **Ease of staff supervision requires open floor plans with no partitions not required to meet library needs**. In particular, in a library the size of Carthage's, except for study rooms, **the staff service desk, adult department, young adult department, and children's department must occupy a single room**. Service desks need to face library entrances, so staff on duty can see who is entering and leaving the building. Staff at single service desks need line-of-sight supervision of the entire library.
6. **Ease of public movement through the building**. Users should find all functions close and conveniently located. They should not have to (for example) walk through the children's department in order to get to the adult department.

7. **Ability to use meeting rooms when the rest of the library is closed.** This requires floor plans that include entry foyers, with the foyers providing separate access to the meeting rooms, restrooms, and main library rooms.
8. **Full compliance with building codes, particularly accessibility codes.** A library on a single level is easy to make accessible. Steps, ramps and elevators introduce problems for users. Elevators are extremely expensive to install and require annual maintenance contracts.
9. **Convenient parking.** Parking can be on-site or on the street in front of the library. In general, parking lots tend to be about the same size as the library building.
10. **Large, flat sites.** Most planners begin by assuming a library site should be four times the size of the original building. This provides space for a parking lot the size of the library, a similar amount of space for long-term building and parking lot expansion, plus space for driveways, sidewalks, setbacks, and landscaping. It leaves space for daylight on all four sides of the library. Libraries can be fitted onto smaller sites, but these always involve compromises, including protected off-site parking.
11. **Space for windows on all four sides of the library, to provide essential natural light.** Libraries do not do well butted against other buildings.
12. **Maximum long-term flexibility of space use.** Because library needs change as the decades pass, libraries need the maximum ability to relocate functions. To provide this flexibility, libraries need wide-open floor spaces, all-purpose lighting, large numbers of electrical outlets, movable service desks, and no partitions not required to meet library functional needs.
13. **Typically, libraries that meet these criteria tend to have floorplans that are fairly square.** A 10,000-square-foot library, for example, tends to work best if it is a building about 100 by 100 feet.

About the current library building

The Carthage Public Library occupies a late 19th century building. It has the advantages of an historic exterior and a location on the courthouse square.

But it also has a number of very major problems:

- **Far too many small spaces.** The main floor is cut up by inherited bank vaults, which leave the main floor of the building with a strange wasp-waist arrangement. The second story consists of a maze of small rooms, virtually none of which meets any of the library's needs. For the building to work well, the bank vaults and second story partitions will need to be removed, and even then the library will be awkwardly long and narrow.
- **Two stories.** A library in a town the size of Carthage works far better if it is a single-story building. To meet building codes while staying in the current building, the library will need to add an elevator and an extra staircase at substantial expense. Two-story buildings are expensive to supervise, for staff must be located on both floors at times when a single staffed desk would be adequate. Two floors can also lead to situations where individual sections of the library end up being split between two floors.
- **Long, narrow floors.** While most satisfactory libraries are fairly square, the building occupied by the Carthage library is shaped more like a tunnel. If any expansion is undertaken, the library will be even more long and skinny. People enter the library at its narrow end and then walk through various service spaces. Long, narrow floors result in awkward arrangement of furnishings. And they make it hard for staff to assist users and to keep an eye on the library.
- **Bad connections between the two floors.** At the moment, the only connection between the two floors is a strange staircase from an exterior door on the sidewalk that leads to the library's second floor and to an apartment in a building to the east. Since taking over the building, the library has added a small door connecting a first floor front room of the library to the staircase, but the second story completely fails to meet relevant building codes.

At the far rear end of the library, a small and inadequate elevator connects the first and second floors. Converting the second floor to library space will require adding at least one more staircase and a new elevator, at a minimum cost of perhaps \$200,000. In addition, the library will be faced with permanent extra costs to staff the second floor and to maintain the elevator. Both of these costs could be avoided in a new, single-story structure.

If the library adds an elevator and staircase at the south end of the building (where the inadequate existing elevator is now located) the new elevator will be in an extremely awkward location. Elevators need to be located near library entrances, so that people who need to use the second floor can ride upward as soon as they enter the building. If the elevator is at the far south end of the current building, people who need to use spaces on the north end of the second floor will have to walk the entire length of the building twice.

- **Inadequate space.** Even with the second floor in use, the current building is too small to meet the library's space needs as identified in the *Building Program*. There is space at the rear (south) of the library's site, but expanding the building in that direction would make it even more tunnel-shaped than it is now. Access to any new spaces would also be substantially blocked by both the elevator and the new stairs, making any new spaces remote and essentially impossible to incorporate into the rest of the library. And the cost per square foot for extra space would be very high.
- **Ancient structure.** The building occupied by the library is about 125 years old. In the 12 years it has been in the building, the library has spent a great deal of money strengthening floors, repairing the roof, repairing brickwork, replacing windows, etc., and there is no reason to expect these costs will not continue.
- **Limited natural light.** The east wall of the library butts directly against the wall of the adjacent building. For all practical purposes, only the north and west walls of the library can provide space for windows.
- **Inadequate emergency exits.** Mark indicates that the addition of new south stairs and elevator would allow the building to meet fire codes.
- **No good place for a meeting room.** The library badly needs a large room for meetings, programs, and other events. In all libraries, the best place for rooms of this kind is directly inside the main entrance, but this arrangement would be impossible with the current building.

An alternative location in another recycled building

It may be possible that Carthage has an existing building that could be converted to a library, but it would have to be available at little or no cost. Some libraries have made use of solidly built modern retail spaces with concrete floors and sufficiently high ceilings—basically big box stores. Even with modern buildings, remodeling can be well over half the cost of new construction, for libraries need to retrofit restrooms, wiring, lighting, additional windows, and other expensive features. If the building's HVAC system is 20 years old, the library can be faced with extremely expensive upgrades and replacements.

I've been involved in the conversion of retail spaces to libraries, but most times we evaluated this option we discarded it as too awkward and too expensive. (I wrote the original building program in 2000. I was not consulted about the move to the current bank building, and I would have argued strongly against it.)

An alternative new building

Constructing a new public library of between 10,000 and 12,000 square feet is a reasonably straightforward undertaking for an architect with wide experience in library design. Mark Misselhorn has designed a number of very successful library buildings in this general size range and I am convinced he could do an outstanding job for the community of Carthage.

By constructing a new building, the library can have the interior spaces it needs in the juxtaposition it needs.

New construction will cost more than remodeling the existing building, but the result will be a library that functions far better, will be much less expensive to operate, and will not continue to decay as the years pass.

Most libraries try to acquire sites that are about four times the programmed building size. In the case of the Carthage library, this would mean reasonably level site of about an acre. The general logic for this size is:

Library building	11,000
Off street parking	11,000 (parking lots are usually the size of libraries)
Expansion space	11,000 (adding 50% to the library and the parking lot)
Setbacks and access	11,000 (sidewalks, driveways, landscaping, access to natural light, etc.)
Total	44,000 square feet

If no sites of sufficient size are available, the library could save building site space by attempting to provide adequate on-street parking. However, access to the building would probably be more difficult and a sufficient number of spaces might not be available. The library could eliminate expansion space, although if the population of Carthage grows, the library could find itself in a building that cannot be expanded. Finally, the library could build almost to the lot lines, eliminating space for driveways, sidewalks, plantings, outdoor seating, etc. Building to the lot lines can also leave no way for natural light to reach the library windows, which are typically located on all four sides of library buildings.

While a one-acre site may be too expensive, it seems to me that anything less than half an acre may be getting too tight.

Another site issue affecting Carthage is the lack of level land. Building a library on a sloping site is far more difficult than building on level land and generally a very bad idea.

Recommendations

The only reasonable solution appears to be the construction of a new library on a new site.

The library could continue to operate out of its current location while it is seeking a site and money for construction of a new building. Since it owns the current building, it may be able to continue operating from its current location at fairly modest cost, as long as no new problems arise. However, because the building is very old, continuing expenditures due to decay seem likely to occur, potentially making delays expensive.

Spending any more money on the current building by adding an elevator or attempting to convert the second floor to library purposes appears to be a matter of throwing good money after bad. The cost of modifications would be surprisingly high. The resulting building would be too small. Functions would probably be divided awkwardly between the two floors. And operating costs would be much higher than with a new building.

The first step in constructing a new library will be locating a workable site. Ideally, this means an acre of level land, with all library functions to be located on site. If this is impossible, a minimum of a half-acre of level land with shared access to publically-owned parking that by legal agreement cannot be converted to another use.

The existing building program seems large for a community the size of Carthage. If the board desires, I can work with the director to reduce the size of the program, charging my standard rates.