

Memo

To: Ramsey EDA
From: Michael Mulrooney
CC: Kurt Ulrich, Patrick Brama
Date: 10/3/2012
Re: Data Center Evaluation at Old City Hall Site

I have been asked to provide input on the potential fiscal impact of two development options for the Old City Hall site. The options include developing the site as a data center or to continue with a pattern of housing consistent with surrounding land uses. Below is a description of what data centers are and their economic impact. This report will provide the EDA with a comparison between the two alternative types of development if they were to develop at the city hall property.

History

Data centers have their roots in the huge computer rooms of the early ages of the computing industry. Early computer systems were complex to operate and maintain, and required a special environment in which to operate. Also, a single mainframe required a great deal of power, and had to be cooled to avoid overheating. Security was important – computers were expensive, and were often used for military purposes. Basic design guidelines for controlling access to the computer room were therefore devised.

During the boom of the microcomputer industry, and especially during the 1980s, computers started to be deployed everywhere, in many cases with little or no care about operating requirements. However, as information technology (IT) operations started to grow in complexity, companies grew aware of the need to control IT resources. With the advent of client-server computing, during the 1990s, microcomputers (now called "servers") started to find their places in the old computer rooms. The availability of inexpensive networking equipment, coupled with new standards for network structured cabling, made it possible to use a hierarchical design that put the servers in a specific room inside the company. The use of the term "data center," as applied to specially designed computer rooms, started to gain popular recognition about this time.

The boom of data centers came during the dot-com bubble. Companies needed fast Internet connectivity and nonstop operation to deploy systems and establish a presence on the Internet. Installing such equipment was not viable for many smaller companies. Many companies started building very large facilities, called Internet data centers (IDCs), which provide businesses with a range of solutions for systems deployment and operation. New technologies and practices were designed to handle the scale and the operational requirements of such large-scale operations. These practices eventually migrated toward the private data centers, and were adopted largely because of their practical results.

With an increase in the uptake of cloud computing, business and government organizations are scrutinizing data centers to a higher degree in areas such as security, availability, environmental impact and adherence to standards. Standard Documents from accredited professional groups, such as the Telecommunications Industry Association, specify the requirements for data center design. Well-known operational metrics for data center availability can be used to evaluate the business impact of a disruption. There is still a lot of development being done in operation practice, and also in environmentally friendly data center design. Data centers are typically very expensive to build and maintain.

Requirements for Data Centers

IT operations are a crucial aspect of most organizational operations. One of the main concerns is business continuity; companies rely on their information systems to run their operations. If a system becomes unavailable, company operations may be impaired or stopped completely. It is necessary to provide a reliable infrastructure for IT operations, in order to minimize any chance of disruption. Information security is also a concern, and for this reason a data center has to offer a secure environment which minimizes the chances of a security breach. A data center must therefore keep high standards for assuring the integrity and functionality of its hosted computer environment. This is accomplished through redundancy of both fiber optic cables and power, which includes emergency backup power generation.

Organizations are experiencing rapid IT growth but their data centers are aging. Industry research company International Data Corporation (IDC) puts the average age of a data center at nine-years-old. Gartner, another research company, says data centers older than seven years are obsolete. In May 2011, data center research organization Uptime Institute, reported that 36 percent of the large companies it surveyed expect to exhaust IT capacity within the next 18 months.

Site selection

Aspects such as proximity to available power grids, telecommunications infrastructure, networking services, transportation lines and emergency services can affect costs, risk, security and other factors to be taken into consideration for data center design. Location affects data center design also because the climatic conditions dictate what cooling technologies should be deployed. In turn this impacts uptime and the costs associated with cooling. For example, the topology and the cost of managing a data center in a warm, humid climate will vary greatly from managing one in a cool, dry climate.

Energy Use

Energy use is a central issue for data centers. Power draw for data centers ranges from a few kW for a rack of servers in a closet to several tens of MW for large facilities. Some facilities have power densities more than 100 times that of a typical office building. For higher power density facilities, electricity costs are a dominant operating expense and account for over 10% of the total cost of ownership of a data center. By 2012 the cost of power for the data center is expected to exceed the cost of the original capital investment.

Recent Minnesota Major Data Center Successes

Recent data center activity in Minnesota includes the following projects:

Company	City	Date	Square Feet	Investment
United Health Group	Chaska	2010	250,000 sf	\$250 million
Thomson Reuters	Eagan	2007	50,000 sf	\$140 million
Target	Elk River	2007	161,300 sf	\$125 million
United Health Group	Elk River	2007	237,000 sf	\$125 million
Unisys	Eagan	2007	130,000 sf	*
Iron Gate Solutions	Woodbury	2010	80,000 sf	*

Old City Hall Site as a Data Center

The site under consideration as a location for a data center in Ramsey is the old city hall site. This site is 20.86 acres in size and has many of the attributes companies look for in a data center site. Given the size of the site it is possible to construct a facility of approximately 250,000 or more square feet depending upon building design and parking requirements. Based on existing data centers, facilities of this type have an estimated market value of approximately \$120 per square foot bringing the total EMV for a 250,000 square foot facility to \$30 million. The commercial industrial property tax impact from a project of this size would approach an estimated \$1,190,000 annually. The City of Ramsey's share of the commercial industrial property taxes would be approximately \$268,000 annually.

Old City Hall Site as Housing

The Old City Hall site could also be used for housing. Based on common densities and surrounding land uses the potential exists to develop approximately 60 to 80 homes on the site. Based on current average estimated market values housing on this site would yield approximately \$15 million to \$20 million in estimated market value with corresponding property tax revenue of approximately \$150,000 to \$200,000 annually. The City of Ramsey's share of this fiscal impact is estimated to be approximately \$35,000 to \$50,000 annually.

The scope of this analysis has been limited to estimated revenue generated by the two alternative land uses. The city may also want to conduct additional research to determine the net impact after analyzing the costs associated with the differing land use development options.