City of Detroit

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11 September 2008

HONORABLE CITY COUNCIL

RE: Belle Isle Aquarium

Per Your Honorable Body's request at the July 24th Council discussion on the Belle Isle Zoo and Aquarium, a copy of the October 30, 2002 City Planning Commission "aquarium report" is attached for re-circulation and further review.

Additionally, planning and historic staff of the City Planning Commission/Historic Designation Advisory Board are finalizing a joint report on the aquarium for your consideration in the very near future.

Respectfully submitted,

Marcell R. Todd, Jr., Director

Attachment

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October 30, 2002

HONORABLE CITY COUNCIL

RE: Survey on how aquariums are being used as development tools in other cities (DEPARTMENTAL REPORT)

On Wednesday, March 27, 2002, Council Member Sharon McPhail submitted a memorandum requesting a report that surveys how aquariums are being used as development tools in other cities, financing mechanisms, operation support mechanisms, and the successes and failures of these facilities. A copy of a **New York Times** article, "*Debt is Closing Denver's 3-Year Aquarium*," was included with this request (see Attachment A).

Construction of an aquarium is a process that should be preceded by thorough research resulting in a clear understanding about the financing, operations, availability of resources, impact, and sustainability of the end product. The following report contains information on the history of aquarium development, financing, factors that contribute to their overall success/failure, a survey and analysis of 33 U.S. aquariums, case studies, and an overall analysis of all aquarium research findings. The situation in Denver related to Ocean Journey Aquarium will also be analyzed.

Aquarium Development in the U.S. – An Overview

Freestanding aquarium development premiered in the US with the development of the Aquarium for Wildlife Conservation (New York Aquarium) in Brooklyn, NY in 1896. Belle Isle Aquarium (the nation's oldest freshwater public aquarium) in Detroit and Waikiki Aquarium in O'ahu, Hawaii, followed suit in 1904. Since that time, about thirty-five aquariums have been developed at various times and places across the country. The latest, the Great Lakes Aquarium, was opened on July 29, 2000. Additionally, according to the American Zoo and Aquarium Association (AZA), aquariums are currently being planned in approximately 33 areas across the nation, including Atlanta, GA, New Bedford, MA, North Little Rock, AK, Tucson, AZ, and Syracuse, NY. According to the AZA, Detroit has proposed an aquarium as a component of its waterfront revitalization,

which Dr. Ron Kagan, Director of Detroit Zoological Institute, would like to see open by 2006. The AZA currently lists 36 accredited and 11 unaffiliated aquariums.

In addition to the new construction of aquariums, a number of already well-established aquariums have proposed or are implementing expansion plans. The National Aquarium in Baltimore has announced a $61.8 million, 65,400 square foot, seven-year expansion and renovation program. The Aquarium of the Pacific in Long Beach is applying for federal grant money to cover conceptual expansion plans, while the Seattle Aquarium is planning to demolish its existing 68,000 square foot building and construct a new 160,000 square foot aquarium.

Financing Aquariums

Economics

Securing the necessary funding for the planning, construction, operations and capital improvements of aquariums is an essential component to the overall success or lack thereof of such institutions. Aquarium finance is complicated by the fact that there are usually multiple budget authorities to which a single institution reports. For example, in larger facilities, animal care is typically assigned to the institution's budget. Maintenance and repair, however, are sometimes the responsibility of the park district (local or regional) in which the facility is owned, while development operations (membership, gift shops, etc.) are often the responsibility of a private society.

All aquariums rely in varying degrees on admission fees, taxpayers, donations, and grants as means of support. Since the majority of aquariums are publicly owned and operated by nonprofit corporations, public subsidies have historically constituted a major source of support. But, as the economy slows down and municipalities seek ways to increase revenues and cut costs, it has become increasingly difficult to justify municipal support of such ventures that often carry huge debt loads. Many aquariums receive at least partial support for operations or capital improvements through local taxation, and general obligation bonds.

In response to the decrease in donations during the 1980's and the uncertainty of government support, most aquariums have become more dependent on commercial revenue over time. A large portion of the revenue stream is drawn from attendance, which is projected on an annual basis. However, aquariums have not set admission prices to maximize profits for various reasons, including the goals of remaining accessible to low income individuals and families, and drawing repeat visitors. Thus, a Catch 22 situation occurs: aquariums rely upon attendance as a source of revenue, often tied to debt service, but do not set the price of the same to maximize profit. In the instance of Ocean Journey, a prohibitively high price of admission needed to cover expenses contributed to a lack of repeat business. As a result of the economics of admission fees, aquariums must also rely on other sources of revenue/income.

In addition to admissions, other revenue and support generators include memberships, concessions, gift shop sales, events, and contributions and grants. There was a substantial

decrease in the percentage of revenue derived from donations between the late 1970's and 1980's.[1] With more recent aquariums, however, contributions and donations have constituted major sources of support. Because private donations and public subsidies have decreased, the pressure on aquariums to find new revenue sources has increased. This is what has led to the new and expanded commercial activities of these institutions, which has included everything from selling stuffed animals and t-shirts to leasing space for private events. As an example, for the seven-month operating period ending December 31, 2000 at the South Carolina Aquarium, admissions accounted for 54% of revenue, gift shop sales - 18%, contributions and grants – 13%, and memberships 11% of all revenue received.

Trends

The **New York Times** article, dated March 24, 2002, paints the picture that local units of government are denying requests to support these somewhat declining institutions and that aquariums are losing favor as economic development tools. While it is true that the City of Denver decided not to provide financial support for Ocean Journey, cities like Tampa and Duluth have recently taken up the financial slack for their respective aquariums when the institutions were unable to made bond/debt payments. Additionally, cities like Seattle and Atlanta are investing significant time and financing into aquarium development plans and, while some aquariums are experiencing decline, no U.S. aquarium has ever shut down.

Examples of how other aquariums have financed their facilities include: total funding from local Parks/Recreation Departments, a combination of public subsidies and contributions/donations, public-private partnerships, and private ventures. Utilizing these measures in a more innovated manner, newer aquariums include traditional and non-traditional means of financing. More specific examples include the following:

- The cost of the new aquarium planned to replace the existing Seattle Aquarium would be paid by the city, private donations to the Society that will manage the facility ($100 million), revenue bonds ($40 million), and contributions from the county, state and the federal government ($36 million).
- North Little Rock is considering issuing tax-free bonds to the developer of the aquarium or creating a Tax Increment Financing District (TIF) that would divert new property taxes into infrastructure improvements. Beyond encouraging the development with tax tools, the city would not be an investor or landlord in the project.
- The Pittsburgh Zoo & Aquarium is supported by the Allegheny Regional Asset District (ARAD), which provides 30% of the annual operating budget (from a 1% increase in regional sales tax); ARAD also participated in the original financing.
- The Great Lakes Aquarium was financed by $16 million in state bonds, $11 million in City grants and loans, and $7 million in private donations.
- Ocean Journey was financed through a $7 million loan from Denver Community Development Block Grant (CDBG) funds.
- The City of Newport spent $10 million to acquire a site, prepare it and pour the concrete pad for the aquarium and must provide parking facilities. Under the original arrangement,

[1] Cain. Louis P., and Dennis A. Meritt Jr. (1998), "The growing Commercialism of Zoos and Aquariums" *Journal of Policy Analysis and Management*

the city was to get $1 million annually from the aquarium, though an adjacent development, Newport on the Levee, recently bought out the city's obligation for approximately $12 million.

Thus, it is clear that there are a number of financing mechanisms and partnerships that could be utilized to support aquarium construction, operation and improvement plans.

Ocean Journey

Much attention was drawn to Denver's Ocean Journey when, prior to filing for Chapter 11 reorganization, it announced that it would close on April 2, 2002. The decision to close the $93 million aquarium was necessitated after defaulting on its debt, lack of enough cash to continue operating, and the overall failure to find additional financial support to cover its $63 million debt load. Prior to filing for Chapter 11, the aquarium requested that the City bail the aquarium out, but the prospect of adding $57 million in bond debt to the city's rolls was too much for Denver Mayor Webb. The city currently contributes approximately $1 million annually in operating costs, not enough to pay the approximately $3 million in operating costs needed.

Ocean Journey opened in 1999 and attracted 912,000 visitors in its first six months. In its first full year of operations (2000), it attracted more than one million visitors, the only year that its attendance projection was met. In 2001, attendance decreased to 742,554 visitors, thus making the facility $10 million short in ticket revenue and causing its owners to default on bond payments. Also during 2001, operating revenue dropped 38% from $13.9 million to $8.6 million. It is clear that the facility's low numbers did not generate enough revenue for the aquarium to pay its debt. Ocean Journey owes $57 million to private bondholders and $6 million to the City of Denver.

Currently, monthly attendance continues to fall short of projections made in the Chapter 11 bankruptcy filing, though Ocean Journey officials say ticket sales generate enough cash to sustain operations while the debt is renegotiated. Ocean Journey is a classic example of what can happen when such institutions rely heavily upon high attendance to support operations and pay debt service.

Factors that Contribute to the Overall Success/Failure of Aquariums

Though financing is one of, if not the most, important factors in the success/failure of aquariums, there are a number of other factors that weigh heavily in the sustainability of these institutions. Location, management, ability to attract tourists/marketing, educational/research programs, exhibits, volunteers, design, and community support all play an important role.

Location

As with any other development, the right project in the wrong location can prove to be detrimental. Most aquariums in the country are situated on the waterfronts of their respective cities and a few are noted for sparking further revitalization of otherwise declining waterfronts. Though aquariums have worked on waterfronts, it should be noted that the planning and development of any aquarium should be strategically placed,

whether it be to serve as an anchor for future development or to complement existing development. The success of the Monterey Bay Aquarium (CA) is often credited to its location. The aquarium is situated at the end of Cannery Row, which is a historic waterfront district popular among tourists for its souvenir shops, restaurants and galleries.

Other aquariums, notably Ocean Journey and the New Jersey State Aquarium in Camden, were built to serve as anchors for economic development. Ocean Journey is located far from Denver's cultural district in an area that city officials hoped would develop into a mixed-use entertainment and retail site; that hope has yet to materialize. New Jersey State Aquarium has also struggled due to its location. Located across the Delaware River from Philadelphia, the aquarium was built to attract other development to what used to be an industrial area, rather than as in integral piece of a coordinated redevelopment plan. The fact that that development did not occur at the same time as the aquarium was built is noted as the reason behind the initial low attendance rates. That development has now begun to take place and many credit the aquarium with creating the environment that made the other projects possible because of the visitor base it established.

One word of caution from Ms. Ann Glumac, Executive Director of the Great Lakes Aquarium, is choosing location with care. The Great Lakes Aquarium is situated on the Duluth, MN waterfront in close proximity to the Convention Center and major tourist attractions, but is at the end of a long block of other developments. Ms. Glumac advised that being situated at the end of a long block does not work well for aquariums because of the need to attract a continuous flow of people.

Management

There are a variety of administrative structures, closely correlated to financing, for aquariums. Some of the more common governance structures include: zoological parks department, independent commissions, public authority/special tax districts, and lease agreements with private organizations.

In instances where a local or state zoological parks department is involved, the sole purpose is to manage the aquarium, which is administered separately from other park and recreation programs. An example of such a model would be the North Carolina Aquariums, which are owned and managed by the North Carolina Department of Environment & Natural Resources.

Independent commissions are governed by a board of citizens appointed by elected officials and who serve without compensation. Such governed aquariums operate apart from other local government departments, and report directly to the Mayor and City Council or the County Commission. One distinction of this model is that most are not financially independent and must annually request funds and obtain approval for major projects from the local jurisdictions involved. The Audubon Aquarium of the Americas in New Orleans is an example of this governance model.

Public authorities/special tax districts are established by, but operate independently of, local jurisdictions. Such aquariums are usually supported through a special tax levy

rather than a budget allocation by the local government, and are generally governed by a combination of elected officials and their appointees. The Pittsburgh Zoo & Aquarium is an example of this model.

The use of lease agreements with private or non-profit organizations is the model most widely exercised with aquariums. Aquariums utilizing this model are operated by a local zoo society or other non-profit entity, subject to the terms established through a lease, trust agreement, or city ordinance. Although the aquarium facility is being managed by another entity, the municipality continues to exercise oversight and fund operations. Local government representation is usually specified in the lease agreement. In addition to the Belle Isle Aquarium, other examples of this model include Clearwater Marine Aquarium and the South Carolina Aquarium.

Other governance and ownership models include those aquariums that are privately owned and operated as profit-making entities. Examples include UnderWater World aquariums in San Francisco and Minneapolis, Dallas World Aquarium, Newport Aquarium, Rainforest Moody Gardens, Inc. in Galveston, TX, and Sea Life Park in Hawaii.

Ability to Attract Tourists/Marketing

Many liken visitation to zoos to that of aquariums. It should be noted, however, that there is a stark contrast. According to the AZA, zoos tend to get 80 percent of their visitation from locals, or people who live within a 50-mile radius, and only 20 percent from tourists. Aquariums, however, are just the opposite: 20 percent of an aquarium's visitation is from locals and 80 percent is from tourists.

Some sources indicate that this is because aquariums are marketed as tourist destinations. Aquariums have recently begun to pursue more aggressive marketing strategies, including advertisements in magazines and on the Internet. Sometimes aquariums are marketed more outside of their local area. More often than are zoos, aquariums tend to be in areas with businesses, shops and restaurants downtown where tourists are also more likely to be. Also according to the AZA, when something like the events of September 11, 2001 happens and people stop traveling, attendance at many aquariums drops sharply, causing a lot of institutions to re-focus their marketing and public relations efforts locally.

Out of a sample of fourteen aquariums, the highest market penetration, which is a measure of how well exposed an offering is to the possible buyers in a market place calculated by combining the metropolitan population and the visitor market, is 28 percent (Monterey Bay Aquarium), and the lowest is 3 percent (Florida Aquarium & New Jersey State Aquarium). Of the sampled aquariums, the average market penetration is approximately 9 percent. Mike Morey, head of Morey & Associates, a market research firm that specializes in cultural institutions, said other cities have found aquariums draw new tourists and dollars to an area. Additionally, aquariums make a region's tourism pie "bigger because it's something new."[2] According to another market research firm with a

[2] Byczkowski, John J. "Aquarium aims to make profit and help region" *The Cincinnati Enquirer*, Sunday. March 14, 1999

specialty in tourism, aquariums are outstanding compliments to other attractions in the area; the more potential attractions people have to visit, the more likely they are to stay, rent another hotel room and have a greater economic impact.

Educational Programs

The initial purpose of aquariums has been further enhanced by goals of species preservation and education. Teachers expressed interest in using aquariums as a community classroom and began to request educational activities such as tours and classes. Aquarium visitors often arrive curious and inquisitive about particular animals and desire answers from the people who take care of the animals and know them best. Thus, aquarium visits have become golden opportunities for focused teaching.[3] To facilitate research, aquarium laboratories have been expanded. To provide education, classrooms have been constructed, teachers hired, and in some cases, curriculums written.

School programs continue to grow and improve as aquariums form special partnerships with schools and school districts, generating a significant amount of school-related visits annually. Many of the education programs are also revenue generating. Some education programs are self-supporting through fees to the individual or group, or are funded by education related grants to cover associated costs. Education/school is also a significant attendance category. For example, in 2000, education/school accounted for 22.3% of the total attendance at the South Carolina Aquarium. Additionally, education/school also represents a notable portion of aquarium expenses. In 2000 at the South Carolina Aquarium, education was 7 percent of all expenses and in 2001, at the Florida Aquarium, educational programs accounted for 18 percent of total expenses.

Exhibits

Exhibits are the main attraction of aquariums. Until recently, visitors were satisfied with displays of local or native species in decorative tanks. As technology advanced and visitors grew more inquisitive and eager for interaction, aquariums shifted from the typical tank displays to more lively, colorful, and interactive exhibits.

Some aquariums made their mark through marketing collections of native fish and other species that may have created a specific appeal. Recently, however, aquariums have implemented a wider variety of exhibits to appeal to a broader and larger visitor base. One example is the New Jersey State Aquarium. When the Aquarium first opened, its focus was on New Jersey-area fish, which tend to be brown and colorless. In 1995, however, the Aquarium reduced the number of New Jersey exhibits and replaced them with Caribbean fish. According to the Aquarium's Executive Director, this change redefined the image of the aquarium. Additionally, the Aquarium now changes exhibits on a regular basis.

Changing exhibits is an often-cited ingredient in the success of aquariums. In order to increase attendance, Ocean Journey has introduced more interactive and changing

[3] Carr, Bruce L. "Conservation Education in Zoos and Aquariums", American Zoo and Aquarium Association

exhibits. John Zendt, General Manager of Rainforest at Moody Gardens and Brian DuVall, president and CEO of New Jersey State Aquarium, both indicated the importance of traveling exhibits. In addition to the permanent galleries that many aquariums have become known for, special exhibits should be groundbreaking, news making, or otherwise worthy of return visits

Examples of new and interesting exhibits include Open Ocean Touch Tanks and/or Pools, Enchanted Seas (Oregon Coast) and Seahorse Symphony (Shedd), and Seahorses: Beyond Imagination (National Aquarium) which include seahorses, sea dragons and other mystical and often unseen sea creatures; Beyond Green (Audubon Aquarium), an interactive exhibit of 25 different species of frogs from across the world; Mysteries of the Deep (Monterey Bay), the world's largest living collection of deep sea animals; and Jellies: Living Art (Monterey Bay), which includes jellies never previously exhibited in North America. Exhibits can also be educational, like the Vanishing Wildlife exhibit at Monterey Bay, which allows visitors to interact with the animals that inhabit the ocean while learning about the dangers each group of animals faces and to educate on what can be done to help protect those animals.

Volunteers

Volunteers are very vital to successful aquarium operations. Volunteers are essential because they often provide much-needed support at no literal cost. Because aquariums are institutions that have high fixed costs, the implementation of cost-cutting measures is always welcome. It is common for some of the salaried positions in aquariums to be matched by non-salaried counterparts. For example, though there are salaried animal feeders, tour guides, and accountants, there could additionally be volunteer feeders, accountants, tour guides, etc. According to our information, the annual dollar value of the time donated by volunteers – even when calculated at the minimum wage - can easily total up to $100,000 annually! To further make the case for the significance of volunteers, it should be noted that all of the aquariums included in our research reported reliance upon a number of volunteers.

Design

The actual design of an aquarium facility is an essential component of its success. Visitors should be drawn to the complete aquarium experience, and the design has a lot to do with creating that experience. Features such as acrylic tunnels, waterfalls and other design elements that provide for a more interactive experience are preferred. To portray the significance of the design, it should be noted that a significant portion of pre-development costs for an aquarium are designated for design. Aquariums such as the South Carolina Aquarium, Monterey Bay Aquarium, and the Shedd Aquarium have received honors and awards for their design.

Community support

As with any development project, community support and buy-in are essential. Aquarium plans should be widely supported by and inclusive of the communities they will immediately serve and impact. Especially because aquariums are so reliant upon donations and memberships, which largely come from the surrounding community,

support is even more important. Additionally, the community is a factor in total attendance and is often the population targeted for repeat visitation. In the locations that have significant climate changes, causing peak and off-peak seasons, reliance upon community attendance is important during the times when tourists are less likely to visit due to weather conditions.

Survey of U.S. Aquariums

This study of aquariums included information on 33 aquariums across the county. With the exception of three, all of the aquariums are accredited by the AZA. The specific information obtained on these aquariums include: year opened, annual operating budget, full-time employees, volunteers, size of site (acres), square footage of the facility, admission fees, attendance figure for 2000, ownership, and ancillary businesses. All of the aforementioned data was compiled in a spreadsheet (please see attachment B for the data), for which an analysis is provided below.

The data shows that there has been a continuous pattern of development of aquariums over time. As previously stated, the first aquarium opened in 1896, with the next two following in 1904. There were nine aquariums built prior to 1970, six built during the 1970's, four built during the 1980's, eleven built in the 1990's, and three built since 2000. Six of the eleven aquariums built between 1990-1999 were built during the first half of the decade. Because three aquariums have been built since 2000 and at least five are in the pipeline, we can assume that this pattern of development will continue throughout the period from 2000-2009.

The average annual operating budget for aquariums included in the study is $8,727,854. The smallest annual operating budget is $340,000 and the largest is $41,742,292. The majority of aquarium annual budgets are between $1 million and $10.9 million. In most instances, the larger the size of the aquarium facility, the larger the annual budget.

The average number of full-time employees (FTE) is ninety-six. The smallest full-time aquarium staff is 3 people, and the largest is 310. The average number of active volunteers is 311. The smallest number of active volunteers is three, while the largest is 817. The survey clearly shows that every aquarium needs full time employees as well as volunteers to operate. The number of paid personnel of all the aquariums surveyed appears to reflect the size of their operation. Though not specified in this study, most aquariums also employ a number of part-time staff that are essential to daily operations.

The average size of aquarium sites is 19 acres. The smallest site is one acre and the largest is 298 acres. These figures vary widely because some aquarium facilities sit alone on a site, while others are located within larger parks or natural settings that complement the aquarium, such as the North Carolina Aquariums and the New York Aquarium. Additionally, some of the existing facilities comprise only a portion of the total site as many aquarium sites contain space for future expansion.

The average square footage of aquariums studied is 99,599. The smallest aquarium facility in the study is 4,000 square feet, while the largest is 400,000 square feet. Eighteen aquariums are less than 100,000 square feet and thirteen are over 100,000 square feet. Many of the aquariums were constructed at their current size, while others have recently undergone expansions. Some of the aquariums that have recently expanded include the North Carolina Aquariums, the Virginia Marine Science Museum, and the Waikiki Aquarium.

Adult admission fees of aquariums in the study range from $3 to $24, with an average of $10.95. Admission fees for seniors and children (excluding school groups) average $8.35 and $6.34, respectively. At two of the aquariums, Atlantis Marine World and Dallas World Aquarium, the state sales tax is added to the ticket price of admission. All of the aquariums also have separate pricing for group admissions, which is not accounted for in the data.

Annual attendance figures for 2000 range from 4,000 at the Cold Spring Hatchery & Aquarium in New York, to 1,830,076 at Monterey Bay Aquarium in California. The average 2000 attendance for the 29 facilities for which data was available was 711,213. Two of the aquariums, Atlantis Marine World & South Carolina Aquarium, opened in 2000, so their respective attendance figures for that year were representative of six-month and seven-month operating periods instead of a full year. It should also be noted that all of the aquariums annually admit a number of people free of charge, which is not accounted for among this data which reflects paid attendance only.

The aquariums exhibit a variety of governance models. The survey indicates that 21 of the aquariums are operated by non-profit organizations and 15 are operated by government-related organizations, which include city and state agencies and universities. Some of the aquariums reflect the model that includes a combination of public and non-profit entities, which has also been discussed elsewhere in this report.

The survey indicates that aquariums cannot successfully exist in isolation. Aquariums are best suited when they are strategically included as part of a more comprehensive redevelopment package. Many of the aquariums surveyed have ancillary developments, though data in this category was not obtained for sixteen aquariums. Many ancillary businesses include, but are not limited to, business districts, recreation centers, IMAX Theatres, nature trails, museums, various types of retail, conference/convention facilities, and hotels. As was previously indicated, businesses and cultural or tourist attractions in the immediate vicinity of aquariums are directly related to the success of the aquariums.

Case Study Summary and Analysis

To provide a more in-depth analysis, CPC staff looked at four aquariums as case studies. The case study aquariums are: New England Aquarium (Boston, MA), New Jersey State Aquarium (Camden, NJ), South Carolina Aquarium (Charleston, SC), and Tennessee Aquarium (Chattanooga, TN). These aquariums were selected due to their respective successes and impacts on the local economies within which they are located. Detailed

information on history, operations, and financing for each facility can be found in Attachment C.

The case study aquariums were built between 1969 and 2000. The New England Aquarium is the oldest, and was expanded in 1997. New Jersey State Aquarium and Tennessee Aquarium were built in 1992, while the South Carolina Aquarium is the newest facility included in the case study.

All four of the aquariums are located along waterfronts. The New England Aquarium is situated on a 2.1-acre wharf, while New Jersey State Aquarium is ideally located on Wiggins Waterfront Park. South Carolina Aquarium and Tennessee Aquarium also took advantage of riverfront locations. The location of these aquariums is in stark contrast to the site of Denver's Ocean Journey, which was developed in isolation from a riverfront and surrounded by 16.8 acres of undeveloped land near Denver's Mile High Stadium.

All four aquariums studied are operated by private non-profit organizations. New Jersey State Aquarium was funded by the State with $52 million but is leased for $1 annually to its non-profit operator. The private non-profit organizations are self-supporting, relying primarily on earned income and private donations for operations. The private, non-profit organization status gives the aquariums a unique opportunity to conduct private fundraising, the ability to seek grants for various operational aspects, and to fund research as in the case of New Jersey State Aquarium whose staff traveled around the world to learn about aquarium business procedures.

The modern aquarium provides a full range of activities for its visitors. There should be a variety of events and activities for visitors to choose from. It is not enough to simply watch the animals. The four aquariums analyzed as case studies clearly indicate that activities galore for aquarium patrons, such as IMAX ® Theaters, gift shops, retail stores, various kinds of entertainment, bookstores, food services, and camps, all contribute to creating the total interactive experience that visitors desire.

All the aquariums studied are located in proximity to ancillary developments. The Tennessee Aquarium for example, is located near over 100 retail shops, restaurants, a hotel, new minor league baseball stadium, and Hunter Museum to name a few. New England Aquarium, New Jersey State Aquarium, and South Carolina Aquarium all boast proximity to a number of hotels, restaurants, and cultural attractions, which support large volumes of visitors beyond the individual aquarium facilities. Proximity to other attractions further contributes to the economic impact by making the entire area a destination where families and individuals can spend an entire day.

Changing exhibits and unique exhibit galleries attract more local market visitors as well as tourists. They also encourage repeat visitors. All four of the case study aquariums have a distinct exhibit that they are known for, while also hosting several changing exhibits throughout the year. Interactive displays located throughout the aquarium facilities, including toddler exhibits, education centers, discovery labs and education stations add to the total visitor experience.

Educational programs have become an integral part of aquarium operations. The case study aquariums have well-organized educational programs. Tennessee Aquarium has become an important learning institution for 1,250,000 school children. New Jersey State Aquarium, on the other hand, has the signature Camden Aquarium Urban Science Enrichment (CAUSE) program that provides stimulating science activities. The new Jersey Aquarium also a sponsors a traveling outreach program (TrOutreach) that visits schools, daycare centers, camps, and other youth-oriented destinations throughout the community. Other widely used education programs include teacher workshops, classroom lessons and online teaching units. Aquariums have become a medium for conservation for animal species that may otherwise become extinct. The Tennessee Aquarium scientists, for example, launched a program to save endangered sturgeon and then released them to their native Tennessee habitat.

Of special interest to this study is how aquariums have contributed to the economy and helped to spur development in their respective locations. The four aquariums in this study have contributed significantly to the economy of the areas where they are located. The Tennessee Aquarium became a catalyst that spurred the rebirth of the city, creating over 150 local full-time jobs. The economic impact of South Carolina Aquariums is expected to exceed $550 million during their first five years of operation. In New Jersey, the aquarium has been credited for luring additional development due to a strong visitor base.

Analysis

As evidenced from the information previously set forth in this report, there are a number of lessons to be learned and steps that should be taken or avoided in preparation for development of an aquarium. In this section, we will identify what has and has not worked, based on our research on aquariums across the United States.

- **Obtain realistic market and feasibility studies.**

As is the case with most developments, aquarium development is preceded by complete market and feasibility studies. Specifically, these studies will determine the market for an aquarium. Additionally, they will describe the market and describe what should be done to penetrate that market. Factors that will be considered include, but are not limited to: competition, tourist market, resident market, and metropolitan population. The market study will also project attendance rates, which is very critical. The feasibility study will determine if the development of an aquarium is feasible and will describe what should be done to make the development feasible, including costs, design elements, and location.

These studies set the tone for aquarium development. In our research, a number of aquarium executive directors have advised that, often times, the information presented in these studies is misleading. Market studies usually conclude that the projects are well advised to proceed. However, because of the importance of accurate attendance projections, aquarium directors have advised to proceed with caution, specifically related to attendance projections. In Minnesota, for example, city officials have recently appointed a task force to examine the Great Lakes Aquarium's struggles, including the task of finding ways to ensure that the aquarium obtains accurate attendance and revenue

projections, which have not matched what was projected in the market study. The executive director of Great Lakes Aquarium, Ann Glumac, advised that market study projections have been a problem for most aquariums that have opened within the past five years.

- **Base attendance projections and related income streams on the stabilized attendance.**

Because attendance figures play such an important role in the financial stability of aquariums, it is important to be realistic about income, expenses and attendance. Attendance figures are closely tied to aquarium income, which is a major component of an aquarium's total budget. As with most budgets, expenses are matched to income. Thus, far-fetched income projections are what lead to operation deficits, as has been the case with many aquariums. Thus, it is important to rely upon what will most likely be the stabilized attendance – attendance after 3-5 years as opposed to initial attendance figures, in projecting income.

Of the two most recently built aquariums, Great Lakes and South Carolina, neither has met the first year attendance figures projected by their respective market studies. Actual attendance at the Great Lakes Aquarium has been almost less than half of what was projected for its first two years of operation. Additionally, the only year that Ocean Journey met attendance projections was 2000; attendance previous to and following that period were below projections. Thus, relying upon the stabilized attendance, which provides a more realistic picture of attendance, will result in a more realistic match for income and expenses, which will be essential when debt-service is calculated as an expense.

- **Open the aquarium with little or no debt.**

With respect to aquarium financing, our research supports the conclusion that opening with little or no debt is critical in the success of aquariums. Because aquarium's fixed operation costs are relatively high, adding the additional burden of paying debt service can be problematic. Much like Ocean Journey, which opened with a $63 million debt load, 10% of the Great Lakes Aquarium's monthly budget is reserved for paying debt service. Projected income at both institutions and most aquariums is based on an assumption of what attendance will be. Thus, when attendance falls short, making income less than projected, debt service payments and/or other operational cost obligations are neglected. Such has been the case with Florida Aquarium, which was financed with $84 million in revenue bonds. When the aquarium was unable to make its debt payments, the City, through which the bonds were issued, took over and made the payment. Additionally, with respect to the Great Lakes Aquarium, the City and the Duluth Convention and Visitors Bureau paid the aquarium's $238,000 city-backed bond payment in February after aquarium revenue fell about 34% below projections last year. Additionally, with Ocean Journey, inability to make debt payments has resulted in the filing of a Chapter 11 bankruptcy. The South Carolina Aquarium, on the other hand, raised a significant amount of private funds through an aggressive fundraising campaign, prior to the opening of the aquarium. As a result, the aquarium opened with very little

debt, though a credit line was secured with a consortium of four local banks to cover the timing of fundraising pledges.

Some of the measures that could be taken to avoid opening with huge debt loads include: initiate aggressive fundraising campaigns prior to the actual opening of the aquarium, the goal of which would be to secure as much money as possible for pre-development, construction and at least one year of operations; utilize private dollars in the form of donations and contributions from the community, including corporations; secure grants for those parts of the aquarium for which special funding opportunities are available, including exhibits, species preservation and some of the animal facilities; or create an endowment fund for future expenses. The Oregon Coast Aquarium, for example, is preparing to implement an endowment fund and, prior to opening, $14 million in financing was secured through bond anticipation notes which were refunded and converted into long-term debt. The Oregon Coast Aquarium has the distinction of being one of ten aquariums in the country that is self-supporting.

- **Build the aquarium in a location that is both accessible and attractive to tourists.**

Because 80% of aquarium visitors tend to be tourists, it is important to locate aquariums in areas that will either draw new tourists or simply attract tourists from other attractions in the immediate area. Most tourists will be looking for a total experience, so situating an aquarium in the midst of retail, restaurants, other cultural attractions and entertainment venues is often ideal. Mr. Morey, of Morey & Associates, indicates that aquariums are not mass-market attractions. They tend to attract a higher demographic than other cultural institutions; 20 percent of adult attendees have graduate degrees, and 15 percent have household incomes above $100,000. This proves that aquariums draw visitors who have money to spend in the areas in which they visit.

One of the main reasons that Ocean Journey has not reached a level of success is the fact that the aquarium was built in an industrial area in the city, surrounded by vacant land and far from other cultural attractions. It was hoped that the aquarium would create the stimulus for future mixed-use entertainment and retail development in that area, but it was unable to do so. The site is not in close proximity to other tourist attractions and fails to create a tourist friendly atmosphere.

- **Devise a creative, yet realistic financing plan.**

As is evidenced in our research, financing is a critical component of aquarium success. Most of the problems associated with aquariums are closely tied to financing. In addition to opening with little or no debt, it is essential to strategically plan for capital improvements, budget shortfalls, expense increases and debt service payments. There are a number of options with respect to financing, including public subsidies, public-private partnerships, and private financing. All financing options should be thoroughly explored and the plan that best fits a specific project should be selected.

Identification of revenue sources should be a key component of this plan. Although all aquariums rely in varying degrees upon admission fees and donations for support, there are a number of additional revenue sources, including gift shops, facility rentals,

restaurants or coffee shops, and memberships, which have all proven to be successful income generators for aquariums. Because there are peak and off peak seasons at aquariums, especially in places that have weather variations, having a solid stream of income improves the likelihood that a surplus will be created during the peak seasons to support the fixed costs during the off- peak season, when traditional revenue sources, like admission fees, are likely to decrease.

The plan should also consider locations that have financing advantages. Location in a Tax Increment Financing (TIF) district, or on a brownfield site, or other areas that have tax advantages should also be given careful consideration. The most recently developed aquarium, Newport Aquarium in KY, is a good example. In addition to getting a public subsidy under the Kentucky Tourism Development Act, the aquarium can get a refund of state sales taxes generated of up to $7.5 million over 10 years, which covers 25 percent of the building's $30 million cost, and makes the project more feasible.

- **Select the most effective ownership/management model.**

As evidenced in our research, there are a number of ownership and management models from which aquariums may select. Since nonprofit corporations manage the majority of the aquariums studied, it could be concluded that this is the most effective model. Some of the benefits of nonprofit management include exemption from paying taxes because of their educational goals and the ability to secure grants and other tax-deductible contributions. One of the downsides of nonprofit management is the Internal Revenue Service (IRS) restriction on the use of surplus revenue. There are examples of facilities that are owned by public government agencies but managed by a nonprofit, the specifics of which are put forth in a lease agreement. There are also examples of aquariums that are both owned and managed by nonprofit organizations.

The strategic selection of an aquarium executive director or president/CEO is also important. Aquarium directors/presidents are responsible for a large task. They are expected to oversee the daily operations, secure and maintain the financial security of the institution, plan for the future, implement aggressive marketing campaigns, establish a positive public image, and maintain strong community relations. Traditional aquarium directors have risen through the ranks of marine sciences, while some of the new aquarium directors have backgrounds in finance. Currently, one of the most notable aquarium directors is Oregon Coast Aquariums' Phyllis Bell, who prior to coming to the aquarium, spent a decade using her financial expertise for a division of Federated Department stores in Memphis.

- **Aquariums should be more than pretty buildings; they should provide positive interaction with their natural surroundings.**

A number of the aquariums studied are situated along waterfronts, which seems to be a natural environment for aquarium development. Because aquarium visitors are looking for the total aquarium experience, the more interactive the facility, the better. Many of the aquariums provide interaction with the waterfronts, from extending exhibits over the water or underwater, to providing touch tanks and pools outside of the buildings. Additional methods for providing natural interactions include parks, nature trails,

boardwalks and observation decks. Both the building design and exhibit design contribute to the interactive aquarium experience. Though a landmark design may draw visitors to the aquarium, a dull, non-interactive facility will not be successful in attracting repeat visitors, which are essential to attendance figures.

- **Aggressively market the aquarium.**

The marketing of aquariums adds significantly to their level of success. Though most aquarium visitors tend to be tourists, it is important to market to the resident population as well. Ideally, aquariums are attractive to both residents and tourists. Some examples of marketing campaigns that have served to increase aquarium attendance include cross-marketing with other attractions, discount admission tickets for a group of nearby attractions, and partnering with the metropolitan convention and tourist organization for targeted marketing campaigns.

Additionally, marketing the total area within which the aquarium is located is also a possibility. The Camden Waterfront Marketing Bureau for example, markets all of the attractions along the waterfront. As a result of this strategy, all of the Camden waterfront attractions have reported attendance increases this year, and the number of total visitors to the area has increased in double digits. Estimated attendance is 2.2 million visitors this year, up from 1.2 million two years ago.

According to Jim Bowen, vice president of a private nonprofit development agency in Chattanooga, aquarium exit surveys show that people want to go to the next aquarium. As long as they are done well and not just duplicates of one another, they will draw people. Thus, people must know what is unique and exciting about any new aquarium; the best way to inform them is through marketing.

- **Aquarium development should be a component of a coordinated redevelopment/development plan.**

Aquariums have been planned as both anchors for economic development and complements to existing development. Our research concludes that aquariums work better when a visitor base at the specific location has already been established or the aquarium is developed simultaneously with other attractions. In Camden, for example, the feasibility study for the aquarium called for simultaneous commercial development in the area where the aquarium was to be located. This did not happen, and attendance figures during the first few years were low, causing financial complications for the institution. About 6-8 years after the aquarium opened, other attractions began coming to the area. Now, ten years since the opening of the aquarium, 2001 was the first year the aquarium finished the year with a surplus. Mr. DuVall, the aquarium president, notes that the additional development has helped attendance greatly. He also notes, however, that one of the positive results of the aquarium being the first development on the waterfront is that it has established itself as the premiere attraction, attracting a significant number of all visitors to the Camden Waterfront.

In Boston, however, the tourist base was established previous to the development of the aquarium, which followed museums and other cultural and historical attractions. While

the aquarium has served to spark additional development and is one of the aquarium success stories, it is important to note that the New England Aquarium captures only 10 percent of all visitors to the Inner Harbor.

Conclusion

City Planning Commission staff's research supports the notion that aquariums can be successfully used as economic development tools. It is safe to conclude that aquarium development could possibly help in revitalizing the riverfront and the city. Detroit may possess some of the advantages necessary for the development of a new aquarium on the riverfront, such as lack of competition, a coordinated redevelopment plan, and supportive natural surroundings. However, it should be noted that aquarium development is not a guaranteed success, but rather a chancy proposition, and should be pursued with caution. There is no magic formula for successful aquarium development, though aquarium directors have indicated that a good facility, a good location, strong management, and changing exhibits all contribute to success.

Government and private entities spend millions of dollars on feasibility/market studies of aquariums before embarking on such projects. In addition to considering all of the factors identified and analyzed in this report, a market study and a feasibility study should be commenced prior to making the final decision as to how an aquarium could fit into the overall scheme of riverfront revitalization in the City of Detroit.

Respectfully submitted,

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ATTACHMENT A

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The New York Times ON THE WEB

March 24, 2002

Debt Is Closing Denver's 3-Year-Old Aquarium

By THE NEW YORK TIMES

DENVER, March 22 — Ocean Journey, awash in debt, has announced plans to close after less than three years in business. Industry experts said it would be the first accredited aquarium to close in the country. Others continue to struggle.

Ocean Journey has begun to search for new homes for 3 Sumatran tigers, 2 sea otters and 8,000 other fish and animals, even as the founders and employees hold out hope for a benefactor to rescue it.

"We're working awfully hard on trying to find a white knight out there to make this last-ditch effort," the chief executive, Doug Townsend, said.

The decision to close the $93 million aquarium on April 2 was made after failed efforts to find new financial support, including a bailout from the City of Denver.

"You can't make lemonade out of this lemon," Mayor Wellington Webb said after the city backed out. In a statement this week, Mr. Webb said, "It was difficult to justify using public tax dollars to save a private venture that carried $63 million in debt, particularly while the city is making its own budget adjustments as a result of the slowing economy."

Ocean Journey attracted 912,000 visitors in its first six months, in 1999, and more than one million in 2000, putting the attendance figure in the top 10 among the nation's aquariums. The aquarium had relied on attracting 1.1 million visitors a year to make debt payments, and its owners had promised not to ask for taxpayer support for 10 years. But when attendance dipped, to 742,554 visitors last year, the aquarium was $10 million short in ticket revenue and the owners defaulted on bond payments and sought taxpayer help and new benefactors.

From Valdez, Alaska, to Albuquerque to Camden, N.J., many cities have begun to include aquariums in their plans for downtown, bay or riverfront redevelopment. The American Zoo and Aquarium Association in Silver Spring, Md., lists 36 accredited aquariums. It has a list of 11 unaffiliated aquariums and 31 in development. All aquariums rely in varying degrees on admission fees, taxpayers, donations and grants.

Ocean Journey, 1,000 miles from the nearest ocean, is like other aquariums that opened in the 1990's, with exhibitions on aquatic life in a nearby river or lake

plus a touch of the tropics.

The aquarium, on the bank of the Platte, includes a tour of a mock Colorado River with native trout and otters and messages about conservation. A mock flash food, with a splash zone, crashes through red rocks and then into the Sea of Cortez, where the river empties out and stingrays and brightly colored fish swim by. An Indonesian River Journey includes the three rare tigers and abundant rain forest mist.

Some aquariums, like the 72-year-old Shedd in Chicago, have laid off employees because of the recession and a decline in tourism after Sept. 11. The $84 million Florida Aquarium, which opened in 1995 in Tampa, changed from a nonprofit corporation to a public-private entity in 1996 and is now in the black, officials said.

The $52 million Camden aquarium had 1.2 million visitors its opening year, 1992, but that has dropped and it now hovers around 500,000. Officials fault a lack of nearby development. Aquariums are hybrids, often called "edutainment." City Councilwoman Susan Barnes-Gelt of Denver suggested that the country might have too many.

"The boom years have passed," Ms. Barnes-Gelt said. "And when you think of core cultural values, do you think of an aquarium? I think of the symphony, the art museum, the ballet and the zoo."

In some ways, Ocean Journey's plan to close has been good. Since the announcement, the lines at the entrance extend down the sidewalk.

"It wasn't here for very long," said Eric Lumsden Jr., 11, who brought his father for a first-time visit. "It's like in the middle of the country, and there's no ocean here. I'll miss it. I liked the sharks."

-accreditation

- role of local govt. agencies

- new aq under development in Atl, GA near Atlantic Station being funded by Home Depot Co-founder, Bernie Marcus Jeffrey Swanson w/b CEO