Onondaga County Aquarium Feasibility Study

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Prepared for:
Onondaga County

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF TABLES (continued)

LIST OF TABLES (continued)

LIST OF FIGURES

LIST OF FIGURES (continued)

LIST OF FIGURES (continued)

LIST OF FIGURES (continued)

EXECUTIVE SUMMARY

This report evaluates the opportunity to develop a major new aquarium in the Inner Harbor area of Syracuse, New York. The project concept, attendance and operating potential, economic impacts and community benefits are summarized below.

Aquarium Size, Site and Development Concept

The attendance analysis and aquarium industry data informed the assumed "right size" for the Onondaga County Aquarium at 80,000 SF with 600,000 gallons of water. In addition, outside areas would be used for additional exhibits and visitor experiences, visitor access, open space café and event seating. Key features of this prototypical building program would include permanent and changing exhibits, with signature animal displays and experiences that are highly repeatable and fresh, outdoor, and public open space that contributes to longer stays and deeper visitor engagement, education program and community event spaces, visitor amenities and other supportive spaces. Because a specific site has not been secured, the analysis has assumed a "generic waterfront site" in the Inner Harbor Area that would meet the siting requirements of a major aquarium and could serve to advance the legacy goal of revitalizing the Syracuse Inner Harbor.

Attendance and Operating Potential

The Onondaga County Aquarium has the potential to operate successfully over time based on the current facility plans, proposed facility size, visitor experiences and programs and the preliminary operating plan. The Onondaga County Aquarium's success will also depend on first rate marketing, education programs and operations, a robust staff and active corps of volunteers and members. Diversified and creative sources of revenue and sound fiscal management will assist the Onondaga County Aquarium to sustain its operations and achieve its potential for economic impacts and community benefits. The operating analysis indicates:

- **Attendance Potential -** The stable year attendance potential for the Onondaga County Aquarium ranges from 400,000 to 570,000, with a mid-range of 490,000.
- **Ticket Pricing** - The adult ticket price is assumed at $21.95, with discounts offered for seniors, children, students, military, and others.
- **Market Segments** - An estimated 50 percent of visitors are drawn from the Resident Market and 50 percent of visitors drawn from the Tourist Market.
- **Revenue Potential** - The stable year earned revenue potential for the Onondaga County Aquarium is $10.4 million in current dollar value. Earned revenue would be supplemented by a variety of non-earned or contributed revenues such as gifts, grants, endowment proceeds and gifts-in-kind that are assumed at $1.6 million. Total revenue potential is therefore estimated at $12.0 million.

- **Personnel –** The illustrative staff plan contains a total of 80 full time and 44 part time positions, and 20 seasonal positions for a total of 107 full time equivalent (FTE) employees. The estimated salary budget for these personnel is $6.2 million including an estimated average taxes and fringe rate of 25 percent of total salaries. Staff would be supplemented by the active involvement of a dedicated and well-trained volunteer corps.
- **Operating Costs** - Total operating expenses at the Onondaga County Aquarium are estimated at $11.3 million in current value of the dollar in a stable year of operation, including a 3% capital reserve allowance to cover major non-recurring expenses for mechanical, electrical, and plumbing repairs and maintenance contracts.
- **Net Operating Income** – Based on the stable year revenue potential and operating cost analysis, the aquarium has the potential to generate approximately $735,000 in net operating income in current dollar value.
- **Long-Term Performance** - Over a 10-year period, the aquarium is projected to generate aggregate NOI of $10 million.

Alternative Scenarios and Sensitivity Testing

Mid-range attendance potential is the base planning scenario for three sensitivity analyses created for comparison to the base planning scenario. The Contributed revenue assumption is held steady in each scenario, so that the focus of the analysis is on earned revenues and operating expenses.

- **Lower Range Attendance Scenario.** Even at attendance at 85 percent of the mid-range attendance creates good opportunities to have positive net operating income given the assumed $1.6 million in annual contributed revenue. This would require a somewhat reduced operating profile but would still provide substantial community benefits and positive economic impacts.
- **Higher Range Attendance.** With 15% above mid-range attendance the Onondaga County Aquarium could generate substantial net operating income that would allow more education programs and events and also, funds would be available for reinvestment to sustain the aquarium facilities and finances over time.
- **Smaller Aquarium.** A smaller aquarium would face the risk of insufficient market drawing power, particularly for tourists and repeat visitation. This scenario shows that even at its mid-range attendance profile for the smaller aquarium, a much higher ratio of contributed revenues would be needed, and there would be greater financial risk of not achieving its mid-range attendance potential.

Economic and Fiscal Impacts from Onondaga County Aquarium Operations

The economic and fiscal impacts due to the ongoing operations of Onondaga County Aquarium are evaluated for the "local" Onondaga County economy, and the "regional" State of New York economy. Aquarium operations and visitor spending associated with a visit generate direct economic benefits and create "multiplier" economic activity as money is re-spent in the local and state economies. The economic and fiscal impacts are presented for a stable year of operations in current value of the dollar.

- **Local Economy: Onondaga County Economic Impacts** – As the multiplier effect works its way through the local economy, the net direct economic activity due to the operations of Onondaga County Aquarium will generate a total estimated direct, indirect, and induced impacts of $51.9 million in expenditures, of which $16.0 million represents wages and salaries supporting 423 total jobs in Onondaga County. Employment includes full-time and part-time jobs.
- **Regional Economy: New York Economic Impacts** – For the regional economy, the direct economic activity due to the operations of Onondaga County Aquarium will generate total estimated direct, indirect, and induced impacts of $43.6 million in expenditures, of which $14.1 million represent wages and salaries supporting 359 total jobs in the State. At the Statewide level, these impacts include the effects on jobs and economic activity inside and outside of Onondaga County. NOTES: The lower economic impacts for the State of New York are attributable to a lower percent of direct spending that is net new compared to the local economy. <u>The local and state-wide impacts are not additive</u>.
- **Fiscal Revenues** – Sales, hotel, and income taxes to local and state government due to operations of the aquarium generates an estimated total annual fiscal revenue potential of $796,000 to Onondaga County and $1.6 million to the State of New York.

Qualitative Assessment of Economic Impacts

The community and economic development benefits of the new Onondaga County Aquarium may have the most profound and long-lasting impacts on the community.

- **Expansion of the Visitor Economy and Infrastructure** – Onondaga County Aquarium will support the regional tourism economy and infrastructure. Onondaga County Aquarium will be a high-quality leisure-time destination in Syracuse that attracts new visitors and extends the stays of other visitors. The aquarium will be a high-profile and iconic attraction that will enhance the profile of the County and be highly imageable for marketing campaigns. When combined with other recreational offerings and events sponsored in Onondaga County, Onondaga County Aquarium significantly increases the "critical mass" of visitor attractions to support local businesses and improve the visitor profile of Syracuse and its tourism economy.
- **Waterfront Revitalization and Spillover Real Estate Value –** Onondaga County Aquarium will be a new spark for Inner Harbor redevelopment and overall urban

revitalization. Like other projects of this type, Onondaga County Aquarium will enhance the marketability and value of real estate in surrounding areas that is of compatible land use.

- **Tax Revenues** – The tax revenues generated by Onondaga County Aquarium will support the variety of purposes which the hotel and sales taxes are targeted to, thus enhancing Onondaga County's economic development.
- **New Educational Opportunities** – Onondaga County Aquarium will provide education services for students in Onondaga County and beyond. These educational benefits will lead to greater stewardship of the natural environment and advancement of science-based application in a real world, practical setting. For many residents, the education opportunities at Onondaga County Aquarium greatly enrich their lives.
- **Environmental and Species Conservation** – Aquariums have established important roles in habitat conservation and restoration as well as species survival activities. Given the substantial advances that have been made in Onondaga County in these areas, the proposed aquarium could become a vital advocate for continued environmental protection and remediation; and in supporting wildlife conservation efforts.
- **Enhance Onondaga County Brand** – The Onondaga County Aquarium would become an iconic institution within Onondaga County and add substantially to its "brand" as a destination and a great place to live, work and recreate. It would be a community asset that employers could reference for attracting and retaining workers; and that economic development officials could use in positioning the community as attractive for relocating and expanding companies.
- **Ongoing Publicity for the County** - As leaders in education and conservation, aquariums are frequently featured in popular publications and online. Typically, these are very positive stories, but they are also extremely relevant given current societal priorities.
- **Contribute to Quality of Life** – The aquarium will create attractive volunteering opportunities and overall will enhance Onondaga County and Syracuse as a place to live, work and recreate, thus improving all aspects of the local economy and community.

Section I
INTRODUCTION AND ASSUMPTIONS

For over fifty years, major public aquariums have been leaders in educating the public on environmental and aquatic related topics. They are an important resource for area schools and have taken on major roles in conservation of aquatic species and habitats as well as related research. From an economic development perspective, major aquariums are typically among the highest profile public attractions in their area and are major tourism draws. Economic impact studies undertaken for various aquariums have demonstrated not only direct and indirect economic impacts, job creation and fiscal revenues, but also quality-of-life benefits that are cited in their locales as among the most important benefits created by the aquarium. Not-for-profit aquariums have been especially successful in creating these conservation, education, and economic development benefits in that they are the core of the institution's mission. They are well positioned to successfully provide these benefits in that they typically own their facilities free-and clear and they can direct substantial portions of their revenues toward delivering public benefits. Aquariums often receive in-kind and grant support from local, state and federal agencies and they all receive private and foundation contributions and grants that are directed to their education, conservation, and research programs. Thus, many major public aquariums in the United States are owned and operated by not-for profit entities or are operated in partnership by public owners of the aquarium and not-for profit operating organizations.

This report evaluates the opportunity to develop a major new aquarium in the Inner Harbor area of Syracuse. The study includes: a review of the aquarium industry including benchmarking of development, attendance, revenue, personnel, and operations experience; location and area analysis; resident and tourism market study; initial evaluation of physical scale, concept and development costs; calculation of potential attendance, revenue, personnel and operations; financial pro formas and economic impacts analysis.

In preparing this report, the following assumptions were made. This study is qualified in its entirety by these assumptions.

1. The size and design of the Onondaga County Aquarium will serve to create a high quality, stimulating attraction with broad-based audience appeal and a distinctive image. The Onondaga County Aquarium will be a unique attraction in the region and the nation. This distinction will give it further visibility as a "must-see" attraction. The entrances to the site will be highly visible and well signed.
2. The facility will be competently and effectively managed. An aggressive promotional campaign will be developed and implemented. This program will be targeted to prime visitor markets. The admission price for the elements of the facility will be consistent with the entertainment and educational value offered, and with current attraction admissions prices for other comparable aquariums.
3. This report does not include or consider changes in economic conditions such as a major recession or major environmental problems that would negatively affect operations and visitation.
4. Every reasonable effort has been made in order that the data contained in this study reflect the most accurate and timely information possible and it is believed to be reliable. This study is based on estimates, assumptions and other information developed by ConsultEcon, Inc. from its independent research efforts, general knowledge of the industry, and consultations with the client. No responsibility is assumed for inaccuracies in reporting by the client, its agents and representatives, or any other data source used in the preparation of this study. No warranty or representation is made that any of the projected values or results contained in this study will actually be achieved. There will usually be differences between forecasted or projected results and actual results because events and circumstances usually do not occur as expected. Other factors not considered in the study may influence actual results.
5. This report may not be used for any purpose other than that for which it was prepared. Possession of this report does not carry with it the right of publication. This report will be presented to third parties in its entirety or the executive summary, and no abstracting of the report will be made without first obtaining permission of ConsultEcon, Inc., which consent will not be unreasonably withheld.
6. This report was prepared during July through September 2021. It represents data available at that time.

Section II
AQUARIUM INDUSTRY TRENDS

This section provides an overview of the aquarium industry and current aquarium trends. Examples of aquariums. Later in this report, benchmark and case study information on aquariums of similar scale, market, and attendance characteristics is provided to inform the evaluation of the potential of the proposed Onondaga County Aquarium

Aquarium Development Experience

Over the last five decades, public aquariums have become an established educational and entertainment attraction type, bringing substantial economic and quality of life benefits to the areas in which they have been developed. The New England Aquarium, developed in the late 1960's in Boston was the first of the "modern" urban aquariums. It utilized a multidisciplinary design approach integrating live exhibits with museum exhibits, along with dramatic interior architecture. Perhaps most important, the New England Aquarium demonstrated a concept that created a year-round destination attraction as well as an educational institution. The economic benefits were substantial. The aquarium emerged as a catalyst for downtown waterfront revitalization, attracting substantial numbers of tourists to Boston, as well as visitors from the city and region. The project stimulated additional real estate development on the waterfront that, prior to this project, was a neglected area of the city.

Following the success of the New England Aquarium, several U.S. cities began building aquariums both as urban developments and as tourist attractions to stimulate local economies. In the late 1970's, the concept was refined with the development of the National Aquarium in Baltimore. This was a larger and even more dramatic aquarium than the New England Aquarium, offered an even greater mix of animals with a greater emphasis on simulating natural habitats to bring wild places and whole ecosystems to its visitors, places they wouldn't otherwise visit. Again, a major institution was created, offering both recreation and education year-round, and likewise stimulating other downtown waterfront

revitalization. The market acceptance of these facilities was very strong in both Boston and Baltimore, and they became established as among the leading visitor attractions in their areas. Both aquariums were fundamental to the successful redevelopment of formerly blighted waterfront areas. In the early 1980's additional major new aquariums were developed; most notably, the Monterey Bay Aquarium. The Monterey Bay Aquarium also was central to the revitalization of a historic district, but it highlighted that a major aquarium could be successfully operated in an area with a moderately sized local market. This aquarium has been able to attract substantial visitation from the San Francisco Bay area and beyond and is now a key anchor attraction for a robust tourism industry along the Monterey Peninsula.

In the 1990's other new not-for-profit aquariums opened including Newport, OR, Long Beach, CA, Chattanooga, TN, New Orleans, LA, Camden, NJ, Corpus Christi, TX, Long Beach, CA and Tampa, FL. There were also major expansions of existing aquariums such as the Shedd Aquarium. Since then, aquariums including the Georgia Aquarium, Loveland Living Planet Aquarium, Greater Cleveland Aquarium, Oklahoma Aquarium, and South Carolina Aquarium have opened. These and many other aquariums of varying size, governance, and market sizes have demonstrated that aquariums can be important catalysts for community revitalization, expansion of the tourism economy, and that they bring education, conservation, and positive quality of life benefits to residents of their region.

Overall, aquariums continue to be proposed, planned, and constructed in many places throughout the world and in the U.S. The U.S. market has an especially strong array of not-for-profit public aquariums. Currently there are over 100 aquariums in the U.S. with many zoos also offering full aquarium experiences. Most major U.S. cities and tourism destinations now have public aquariums. The continued and long-term public market acceptance and repeat visitation patterns to aquariums, along with technical advances in aquarium tank and life support systems, have fostered the proliferation of smaller aquariums in smaller cities and smaller tourist destinations and in commercial settings such as shopping centers. Most aquariums have a record of strong attendance and operating results. Examples of major new aquariums / expansions include:

- The Mississippi Aquarium in Gulfport opened August 29, 2020. It has 80,000 square feet (SF) on a 5.8-acre site with over 1 million gallons of water in its displays. It has 12 major exhibits featuring over 200 species of fish and 50 species of native plants. The development budget was $93 million of which $14.5 million was land purchase by the City of Gulfport. Attendance has been hampered by the COVID pandemic, but when conditions improved earlier this year, attendance increased.
- The Seattle Aquarium is planning a 50,000 SF Ocean Pavilion expansion adjacent to its existing 116,000 SF facility. A 325,000-gallon tank with 6-foot-long sharks and 6-foot-wide sting rays native to the South Pacific will be the main draw of the new pavilion. The total cost is estimated at $113 million. The planned opening of the expansion is in 2023.
- The Odysea Aquarium Scottsdale opened September 2016. The building spans over 200,000 SF and its tanks hold more than 2 million gallons of water. The building construction cost was reported at $52.5 million and fit-out and soft costs reportedly increased total development cost to over $100 million. There are over 6,000 animals and 370 different species in over 65 exhibits. Odysea Aquarium is part of a $175 million entertainment complex called Arizona Boardwalk that is partially completed on 35 acres near Scottsdale leased from the Salt River Pima-Maricopa Indian Community.
- Ripley's Canada Aquarium is a 135,000 SF aquarium with more than 1.5 million gallons of water that opened 2013. This is a for-profit aquarium is located at the base of the CN Tower and close to major Toronto attractions. Its 780,000 gallon shark tank is the centerpiece of the $C130 million aquarium (including $C11 million incentive contribution from the Province of Ontario). It averaged 2 million annual visitors in its first five years of operations.

Aquariums are a well-known attraction type, generally with high levels of visitation, with high repeat visitation. Aquarium audiences have high expectations that their experience will be "fresh" and that new reasons to visit will be offered. While most aquariums focus on saltwater habitats, some aquariums have successfully interpreted their unique, local marine or freshwater stories, which helps them to be especially interesting for local tourists and residents. Other aquariums offer a mix of "exotic" environments and species and compare them to the local environment and species. The technology and exhibit techniques of aquariums have improved substantially in recent past decades. Advanced life support systems; improved husbandry techniques; larger, unobstructed acrylic panels and tunnels for better viewing; and other improvements have become standard in modern aquariums. However, as technological advances have improved and enhanced the visitor experience,

visitor expectations have also risen. Today, the beauty of marine life and environments is combined in aquariums with strong educational content and commitment to conservation in the messages to visitors and in direct conservation and research programs that address a wide variety of topics, such as species survival and habitat restoration, both on-site and in the field. Aquariums can achieve success in various market contexts given the right size, quality program content, competitive pricing, strategic marketing programs, conservation and research initiatives and a sustainable operating model.

Market Performance of Aquariums

Aquariums have generally enjoyed a high degree of market success in a variety of market types. The market sizes, product qualities, location, pricing policies and local competition vary among aquariums. Aquarium performance is based on the interplay of a variety of economic sustainability factors:

1. **A Good Location and Site** - Visibility, accessibility, adequate parking and an attractive site are all critical to project success. Good views from the site, supportive nearby land uses and strong connections to the water are also important determinants of the quality of a site for this public use.
2. **A Critical Mass of Attraction Elements** - The aquarium (often augmented by nearby visitor attractions) must offer sufficient content to draw residents from nearby and on longer day trips, and to attract visitation from tourists to the area. Some aquariums that have struggled for attendance have not had supportive attractions, nearby visitor amenities and infrastructure.
3. **A Strong Thematic Focus** - The new generation of aquariums have tended to focus their exhibit program to create a comprehensive "story line" that is much more than the sum of its individual exhibits.
4. **The Length of Stay/Attraction Content** - A length of stay and quality of aquarium content must be commensurate with ticket price.
5. **Outstanding Exhibits and Programs** - New aquarium technologies and interpretive techniques are available for the next generation of aquariums to achieve these requirements and goals.
6. **Serves Residents and Visitors** - Aquariums rely on both resident and tourist markets. The location, program and marketing must address both major audience groups and must be sensitive to the unique characteristics of these markets.

7. **A Broad Audience Mix** - Exhibits and interpretation that appeal to a wide audience are needed. The audience varies in age and education, level of interest in scientific detail and in expectation for an entertainment versus learning experience.
8. **Offers Multiple Visit Opportunities** - An aquarium must develop a pattern of repeat visitation in its resident markets (and even in its travel markets if possible). Changing exhibit galleries, special programs and events, and attractive membership options are ways to build the repeat visit audience.
9. **Offers Opportunities to Spend and to Relax** - The aquarium must ensure that all its visitors' needs are fulfilled including opportunities to purchase a souvenir, have a light meal or snack, and have a place to sit and rest during the visit.
10. **Established on a Sound Financial Basis** - An aquarium must be established on a sound financial basis for it to have adequate resources to accomplish the success factors above, and to achieve its goals of education and benefits to conservation in an entertaining environment. The sources of revenue for aquariums typically comprise the following:

    Earned Revenues:
    - Admissions
    - Memberships
    - Retail
    - Food Service
    - Special Events and Facility Rentals
    - Programs
    - Miscellaneous (i.e. stroller and locker rentals, donation boxes, traveling exhibits rentals, parking, audio tour rentals)

    Private, non-profit aquariums, and some for-profit aquariums, have the potential for substantial non-earned revenue which generally comprises between 10 and 30 percent of total revenue.

    Non-Earned Revenues:
    - Donations
    - Gifts In-Kind
    - Corporate Memberships and/or Sponsorships
    - Educational Programs
    - Research Grants
    - Interest on Operating and Replacement Reserve Account Balances
    - Endowment Proceeds
    - Other

Notably, over the past few decades, aquariums, like other attractions, have focused on increasing their earned revenue potential by adding such activities as unique interactive programs, facility rentals and educational programs on and off-site.

Section III
SITE SELECTION AND EVALUATION

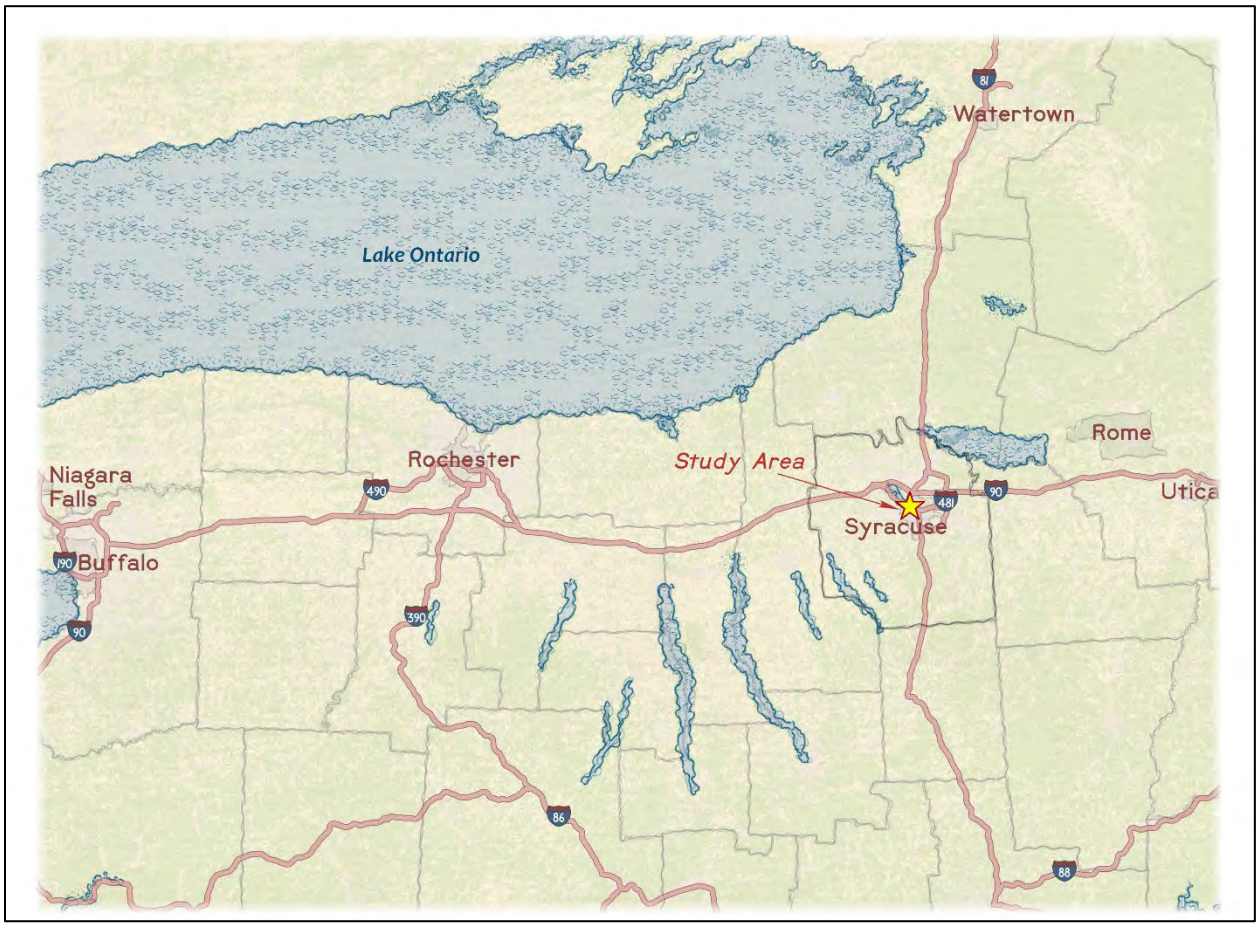
While no site has been secured for the proposed Onondaga County Aquarium, this report section provides an overview of regional location considerations and evaluates opportunities in the Inner Harbor that has been targeted by Onondaga County for possible location of a public aquarium. Other areas south of Lake Onondaga were considered in this planning process, but they do not meet the criteria needed for a destination major public aquarium.

Site Selection and Evaluation

Regional Context

At the crossroads of the strategic north south highway corridor connecting Ontario, Canada to New York and Pennsylvania and the east west corridor linking Boston to Buffalo and points west, Syracuse's Inner Harbor presents an easily accessible opportunity to for visitors to come to Onondaga County and explore its many assets and attractions. With virtually immediate access to the interstate highway system including the New York State Thruway (1-90), I-690, I-81 and I-481, there are approximately 4.5 million people living within about 2 hour drive from the Inner Harbor area. In addition to Onondaga County, the Finger Lakes region and nearby counties, the Inner Harbor is readily accessible for visitors from Watertown, Fort Drum and the Utica-Rome area as well as Buffalo, Rochester, Binghamton and other upstate New York, Northern Pennsylvania and southern Ontario metropolitan areas. **Figure III-1** provides the location and highway context of Syracuse for a destination attraction that will be unique in the region.

Figure III-1
Regional Context Map
Onondaga County Aquarium

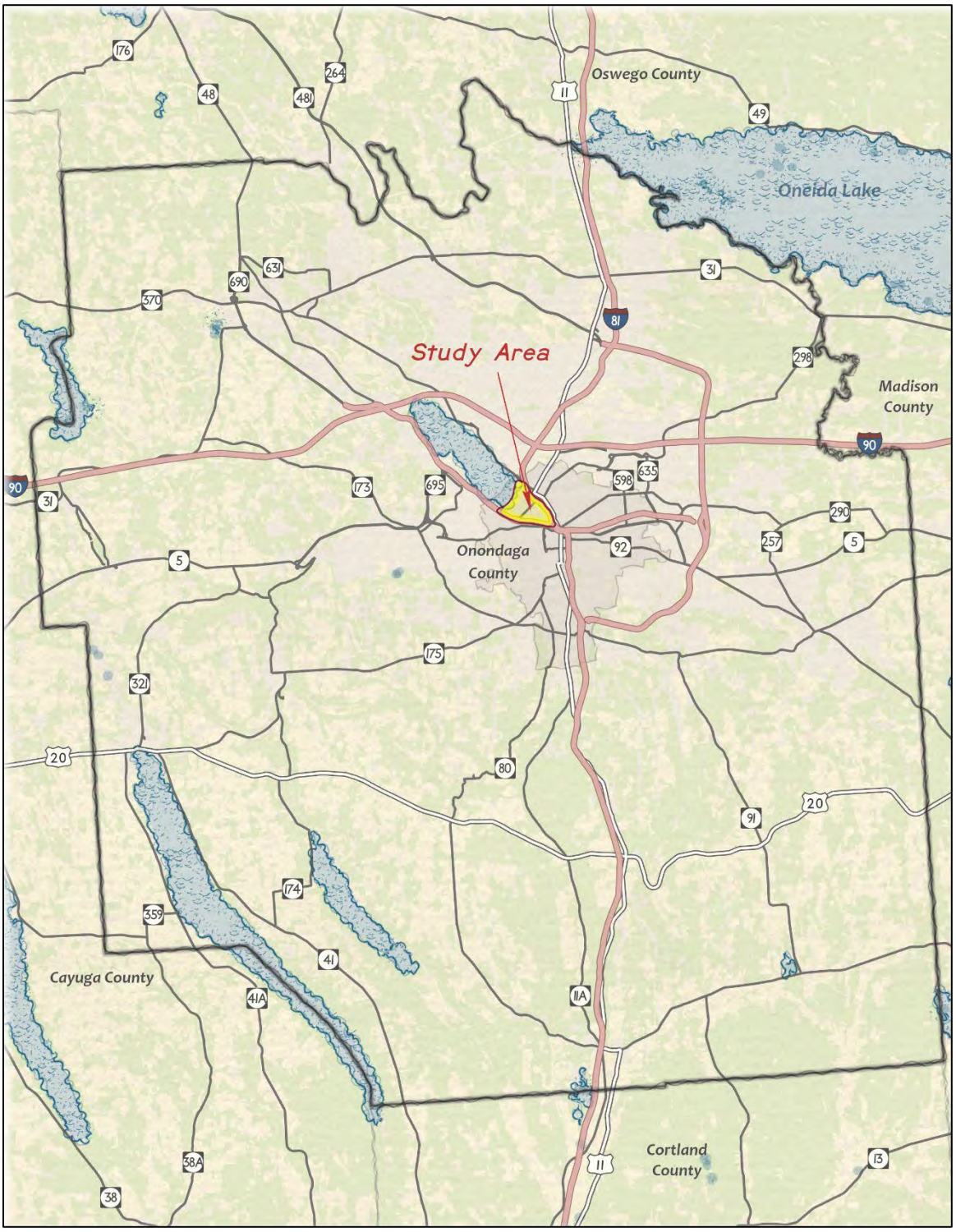


Source: Behan Planning and Design

County Context

Bounded to the north by Oneida Lake, the Oneida River and the Oswego River and to the southwest by Skaneateles Lake, the county is blessed with abundant water resources as shown in **Figure III-2**. Onondaga Lake as the natural centerpiece of the county is of great importance to county residents.

Figure III-2
County Context Map
Onondaga County Aquarium



Source: Behan Planning and Design

Once considered the most polluted lake in the nation, Onondaga Lake has been transforming into a source of pride and optimism for local residents and an economic driver for the region[1]. The cleanup, together with upgrades made by Onondaga County to its wastewater treatment plant and the County's Save the Rain program, has resulted in the best lake water quality in more than 100 years[2].

The communities in the county range from the more rural towns and villages in the southern part of the county like Lafayette, Tully, Fabius and Pompey and the more urbanized communities located near Syracuse and Manlius and Fayetteville to the east, and in the northern county area such as Liverpool, Baldwinsville, Clay and Camillus. With a population base of over 460,000 persons (U.S. Census Bureau), Onondaga County is the third most populous county in New York State outside of the New York Metropolitan area.

Urban Context

A transformation is steadily taking place along the shores of Onondaga Lake and extending along Onondaga Creek and in the old industrial districts of the city. Former brownfield and Superfund sites are being cleaned up; and new public and private investment has had increasingly significant impacts on the local economy. Among the catalyst projects for this transformation are the revitalization of the old industrial complex at Franklin Square which is immediately south of the project area and Destiny USA at the northern end. Initiated decades ago, these projects set the stage for the continued redevelopment of the study area including a new proposed aquarium. **Figure III-3** shows the urban context of the study area.

[1] https://www.npr.org/2012/07/31/157413747/americas-most-polluted-lake-finally-comes-clean
[2] www.lakecleanup.com

Figure III-3
City Context Map
Onondaga County Aquarium

Source: Behan Planning and Design

Franklin Square in the 1980's was a sprawling complex of largely vacant industrial buildings. Named for the former Franklin Automobile Company, Franklin Square provides good examples of rectangular multi-storied forms, which became the basic physical configuration for early factory buildings. These buildings, which feature large interior spaces necessary to house heavy machinery, are ideal for conversion to apartments and offices. The redevelopment of Plum Court, Mission Landing, the Hurbson Building, Bridgewater Place, and the Lofts at Franklin Square (in the historic O. M. Edwards Building) are examples of adaptive re-use in the Franklin Square area (2010 Syracuse Housing Plan).

Destiny USA was built on the site of a petroleum products storage facility. This area along the lake and Inner Harbor had so many large petroleum storage tanks covering the landscape it was nicknamed "oil city" by the locals. Originally envisioned by prominent real estate developer Robert Congel in the late 1980's as "a retail, residential, recreation, preservation and light-industrial district, stretching from Onondaga Lake to downtown," the Carousel Center multi-level mall, opened in 1990 and later underwent major expansions and renamed Destiny USA in 2012. This facility is one of the most visited attractions in upstate New York.[3] With the COVID pandemic, it has been negatively affected as an indoor entertainment, shopping and dining destination. This study assumes that in coming years it will be economically revitalized.

A series of investments by the city and the county in upgrading the lakefront area infrastructure and development of public amenities has been coupled with several large private investments in the Inner Harbor area. One of the more significant recent investments along the lakefront includes the county's development of the St. Joseph's Health Amphitheater at Lakeview, which was constructed on a capped industrial waste site. This 80,000 square foot performance venue provides seating for 17,500 under cover and on the lawn.

[3] https://www.syracuse.com/vintage/2017/07/flashback_robert_congel_announces_plans_for_oil_city_mall.html

Two of the early concepts to make the lakefront area more people-friendly were the Onondaga Creekwalk and the Loop the Lake Trail. Both of these visionary projects are approaching full completion. The Creekwalk connects city neighborhoods to Onondaga Lake, following the course of the creek as much as possible. The walk connects Kirk Park on Syracuse's South Side, downstream through downtown at Armory Square, and then on to Onondaga Lake. Similarly, the Loop the Lake Trail is planned as a shared-use path that will provide a bicycle and pedestrian corridor around the entire lake. Connecting to these two trails is the larger Empire State Trail, completed in 2020 that connects Buffalo to Albany, then south to New York City and north to the Canadian Border. This trail network is an important addition to the recreational assets of the Inner Harbor area.

Other public improvements and investments to the Inner Harbor, in addition to extensive dredging of the waterway, include the development of an overlook platform, amphitheater, and a sand beach volleyball court at the southern end of the harbor. At the southeastern harbor terminus, improvements included upgrading, the harbor piers and building the harbormaster's station. Private investment includes development of Aloft hotel and Iron Pier residential complex that includes ground floor retail/dining/entertainment space. Along the Inner Harbor, there remain extensive areas of vacant land that would be considered suitable candidate sites for development of an aquarium facility.

Regional Serving Institutions and Attractions

Syracuse benefits from its role as host to many important institutions and regional attractions. Among these are higher education institutions including Syracuse University, SUNY College of Environmental Science and Forestry, and LeMoyne College and Onondaga Community College and medical institutions including Upstate Medical Center, Crouse Hospital and St. Joseph's Health. Some of the other major regional attractions and destinations include NBT Bank Stadium, the New York State Fairgrounds, Rosamond Gifford Zoo, Onondaga County War Memorial, The Crouse Hinds Theater, The Landmark Theater, The Everson Museum and other museums.

Syracuse Neighborhoods

Importantly, Syracuse is also comprised of a mosaic of neighborhoods, each with its own unique history and identity. These neighborhoods often were settled as home to ethnic/immigrant groups who frequently resided in areas concentrated with people with similar heritage. Cultural, religious and education institutions along with neighborhood parks became the centerpieces of local life. While these tight-knit patterns have become loosened over time as the economy has transitioned from a pedestrian/neighborhood based lifestyle, many of these neighborhoods still present tangible evidence of this character and those qualities are often part of the current attraction of these neighborhoods to new residents and visitors. In addition to attending major events and visiting regional attractions and destinations, visitors to the city, in particular, those interested in a diverse set of experiences, can explore these neighborhoods and enjoy their unique, "neighborhood-scale" attractions—in particular the unique bars and restaurants.

Site Selection and Evaluation

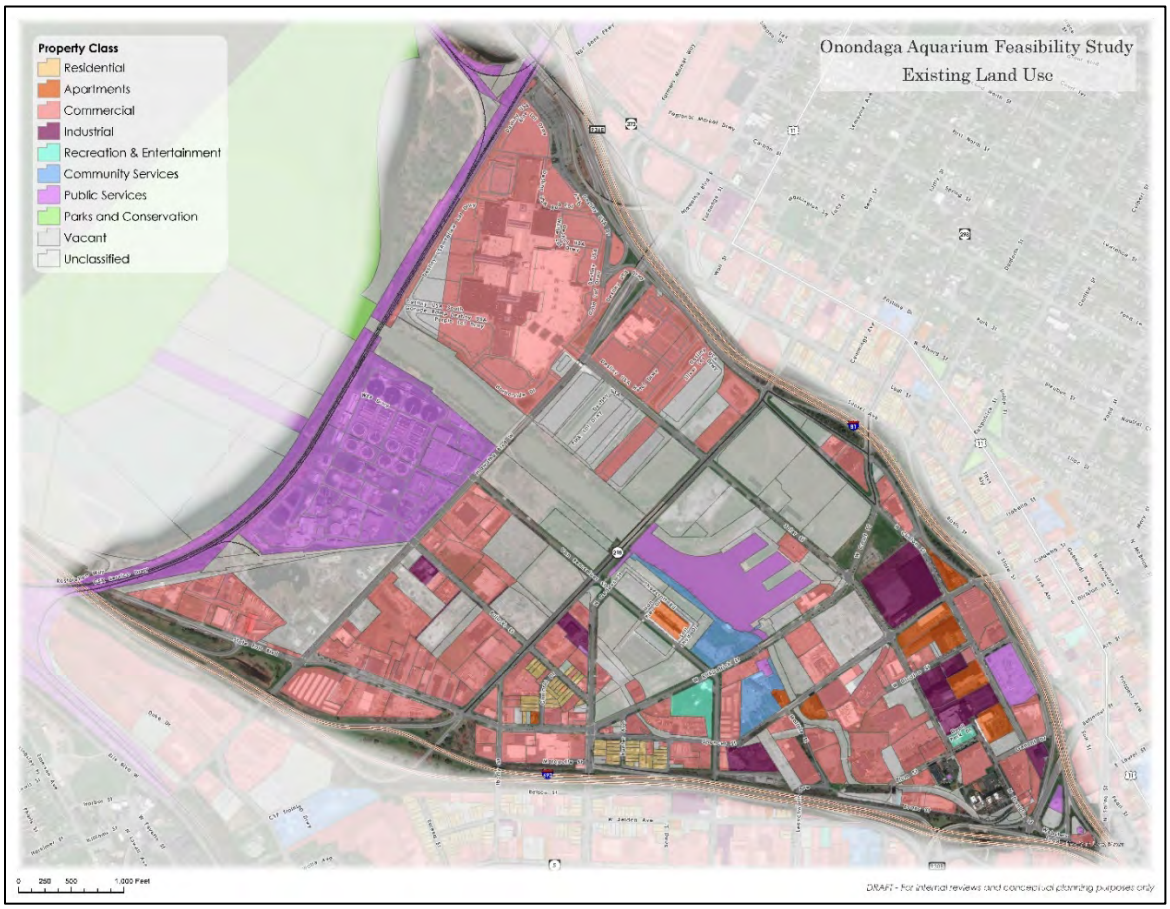
Onondaga County has focused on the Syracuse Inner Harbor area as a location for an aquarium development. As discussed below, a location in the Inner Harbor would be an ideal location for an aquarium attraction. This study process also evaluated the nearby former Roth Steel site, but it is not considered a good fit for location of an aquarium. Data in **Appendix A** provides an evaluation of the former Roth Steel site.

Within the Inner Harbor, this study is flexible in terms of exact parcel configuration and location, as there are extensive vacant lands in that area; and land availability and detailed physical analysis are not within the scope of this study. Therefore a "generic" Inner Harbor site is evaluated in this study. However various overall existing conditions were assessed for the Syracuse Inner Harbor and Lakefront area. These assessments provide context for an Inner Harbor location. (The land use and environmental features maps below focus on the area between I-81, I-690 and the railroad corridor.)

Land Use Pattern

Figure III-4 provides a summary of land uses by type in the study area.

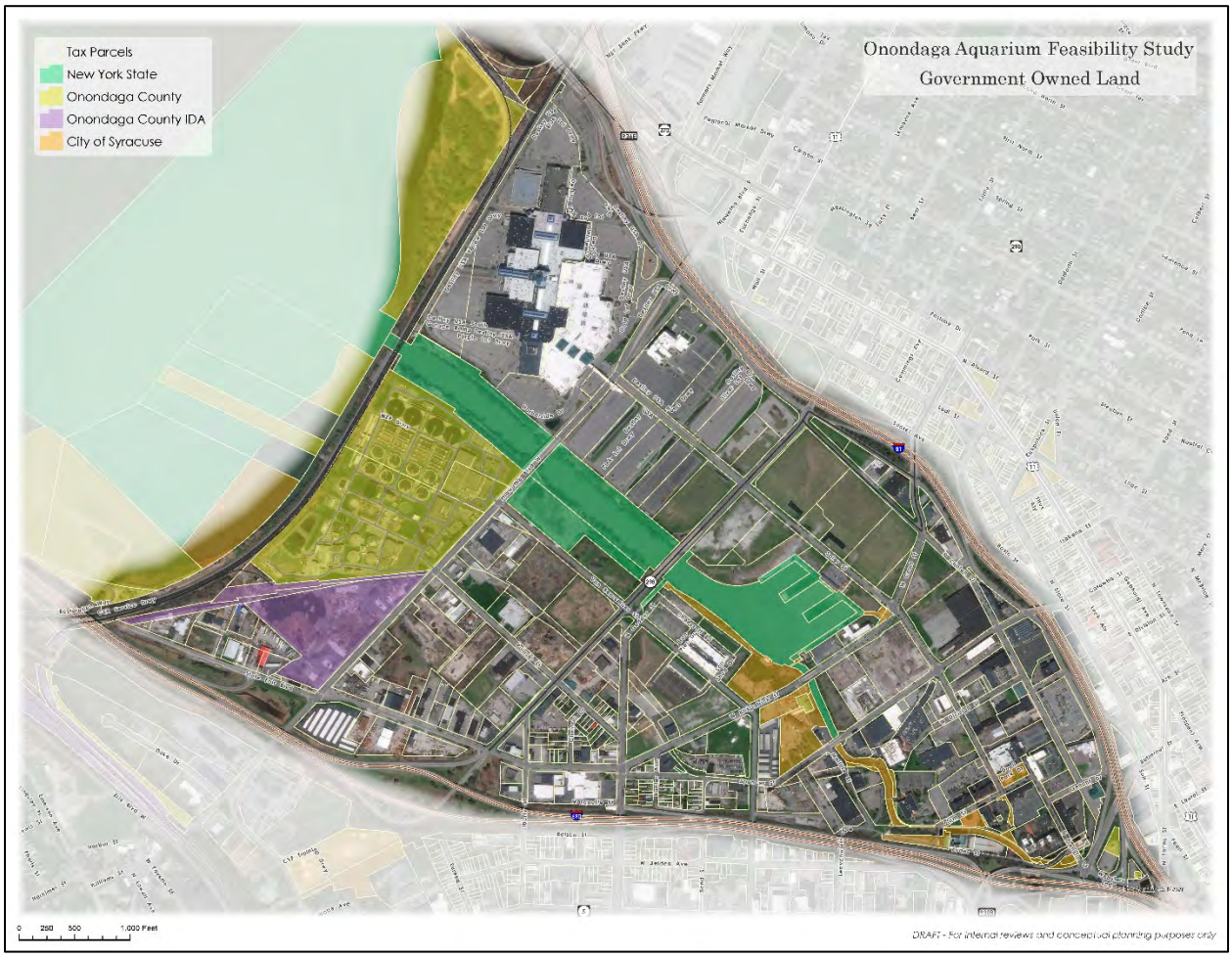
Figure III-4
Existing Land Use Pattern
Onondaga County Aquarium



Source: Behan Planning and Design

Figure III-5 shows government owned land. Note the Inner Harbor area has NY State ownership. Private property surrounds the NY State owned Inner Harbor shoreline. Moving forward, addressing ownership as well as individual site conditions for sites within the Inner Harbor Area will be needed to advance project planning.

Figure III-5
Government Owned Land
Onondaga County Aquarium



Source: Behan Planning and Design

Inner Harbor Development Context

The vacant land around the Inner Harbor is ripe for redevelopment, and an aquarium project could serve as a catalyst to support existing complementary development and to help stimulate further investment toward a long-held city and county goal of creating successful tourism and mixed-use development in the Inner Harbor area.

Ultimately, this kind of revitalization could create an interconnected infill development linking to Franklin Square, which has stood out as an excellent example of adaptive reuse of historic structures. The brick and stone buildings in Franklin Square are complemented with the brick sidewalks and granite curbs, decorative streetlights and generous street tree plantings and site landscaping that present a pedestrian-friendly streetscape. Franklin Square is an excellent example of neighborhood revitalization and adaptive reuse of historic structures as shown in **Figure III-6**.

Figure III-6
Franklin Square

Source: Behan Planning and Design

Source: Behan Planning and Design

Flood Risk and Wetlands

Figure III-7 provides a map of environmental constraint for the study area that are related to flood risk and wetlands.

Figure III-7
Environmental Constraints
Onondaga County Aquarium

Source: Behan Planning and Design

The Onondaga Creek and Onondaga Lake both flood surrounding area in 100 year and 500 year storms. As potential host location for the aquarium, an Inner Harbor site and the surrounding property uses present excellent prospects for infill development. From a physical development perspective, most of the Inner Harbor area is located above the 100-year floodplain. For those limited portions of a site located in the floodplain, the

development plan would need to address that constraint through proper design/mitigation.

Future Needed Additional Study Area Reviews

The entirety of this area is within an archaeologically sensitive area as designated by NYS Office of Parks, Recreation and Historic Preservation. This designation recognizes that further review for potential presence of important archaeologic resources would need to be included in latter phases of site development planning. Similarly, further specific site evaluation would be needed to assess the potential for the presence of endangered species as approximately half of this larger study area has been noted as potential habitat for species listed as threatened or endangered. Finally, any potential site would have to be tested for any site-specific contaminations or other site conditions.

Summary Site Evaluation and Recommendation

A waterfront location along the Inner Harbor offers several adjacent complementary uses and is recommended for the potential to develop the Onondaga County Aquarium. The Inner Harbor area has been identified in local planning studies as appropriate for mixed use and tourism attractions. Specifically, Syracuse's Inner Harbor provides several advantages including:

- Advances long-held city land use and development goals of making the Inner Harbor a people-oriented destination. Thus, providing an anchor investment and attraction to bolster year-round vitality and economic activity.
- Continues the interconnected "placemaking" from the Inner Harbor to Franklin Square and eventually to downtown Syracuse.
- Offers existing and potential complementary facilities including, among others the destination retail/entertainment complex at Destiny USA, nearby hotels and existing and planned mixed use developments and other major regional attractions located around the Onondaga Lakefront area which would contribute beneficially to visitation and an enriched visitor experience.
- Provides water access and a water related setting for an aquarium.
- Presents an opportunity for consolidated and shared parking including on-street parking and structural parking facilities.

- Supports convenient access, with the nearby highway access and grid street pattern offering good vehicular access possibilities and excellent potential for enhanced transit, pedestrian and bicycle transportation options.
- An aquarium is appropriate for the long term vision of the Inner Harbor. "*Dense development here (Inner Harbor) will draw more people to the area and a broad array of uses will draw people at all times of day."*[4]

[4] Source: Syracuse Land Use & Development Plan 2040

Section IV
MARKET ANALYSIS

This section reviews the market context for the proposed Onondaga County Aquarium. It includes a definition of the resident market, discussion of its population trends and demographics, and a review of the tourist market and local attractions.

RESIDENT MARKET

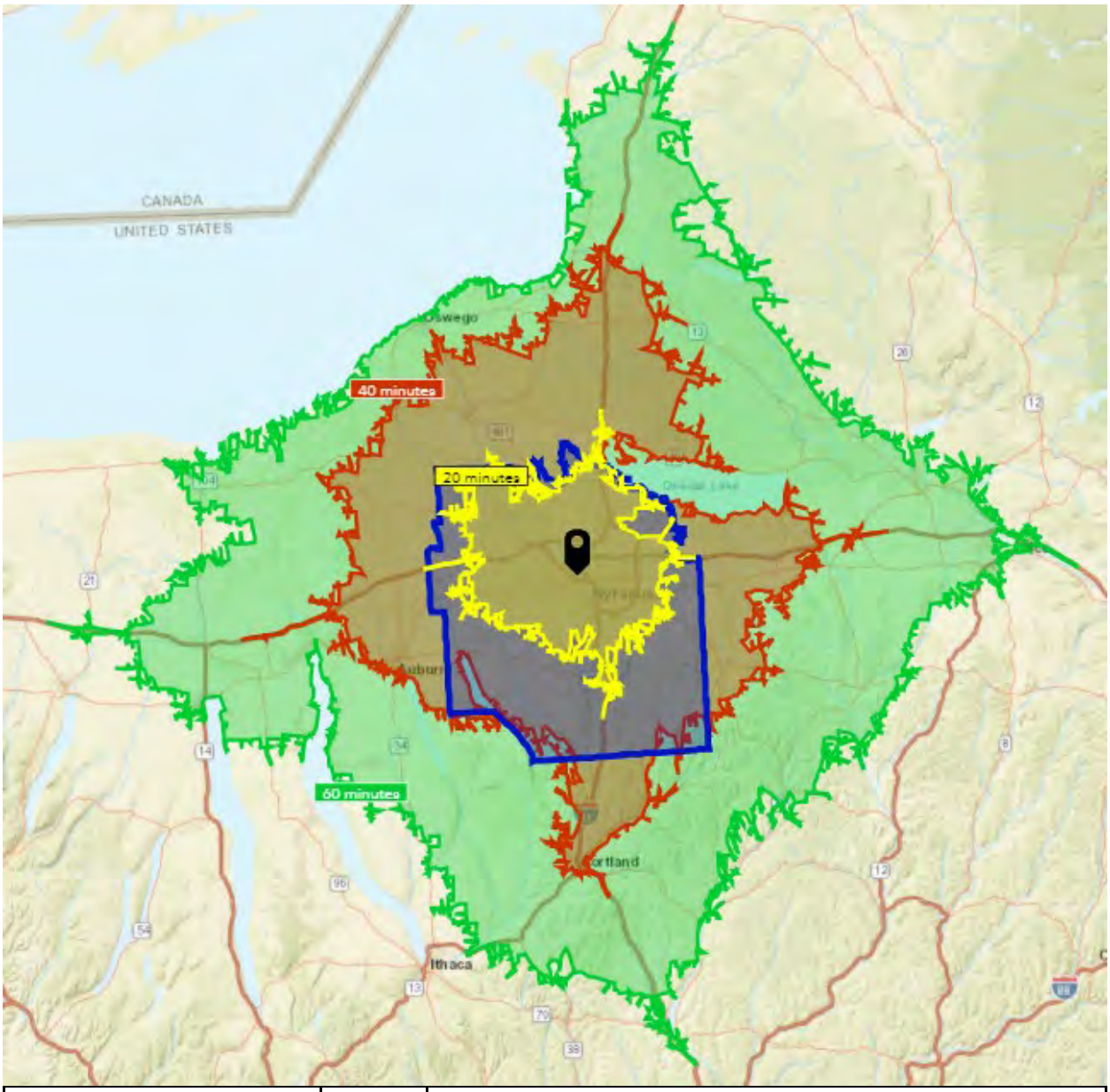
The Resident Market Area for an attraction like the Onondaga County Aquarium is defined as the area from which residents would visit as a primary purpose or as an important part of a day trip. Based on the experience of visitor attractions nationally, a "gravity model" approach is used to define the Resident Market Area. That is, those people residing closer to the Onondaga County Aquarium would be more likely to visit than those living farther from the site. Visitors from beyond the defined Resident Market Area are considered to be part of the "tourist" market.

For this analysis, the Resident Market Area is defined as the area within a 60-minute drive time of the preferred Inner Harbor location for the Onondaga County Aquarium, and is further segmented as follows:

- The **Primary Market Area –** The area within a 0- to 20-minute drive time from the proposed site;
- The **Secondary Market Area –** The area within Onondaga County less the area within a 20-minute drive time of the site;
- The **Tertiary Market Area –** The area within a 40-minute drive time of the site less Onondaga County; and
- The **Quaternary Market Area –** The area within a 40- to 60-minute drive time of the site.

Figure IV-1 shows the proposed location of the Onondaga County Aquarium within the defined Resident Market Area and delineates the above-defined market segments.

Figure IV-1
Map of the Resident Market Area
Onondaga County Aquarium



Market Area	Color	Definition
Primary Market Area		0- to 20-Minute Drive Time
Secondary Market Area		Onondaga County Less 0- to 20-Minute Drive Time
Tertiary Market Area		40-Minute Drive Time Less Onondaga County
Quaternary Market Area		40- to 60-Minute Drive Time

Source: ESRI and ConsultEcon, Inc.

The following tables provide detailed characteristics of the population of the Resident Market Area. For comparison purposes, similar data are included for the State of New York and the U.S. as a whole.

Population

Data in **Table IV-1** show the population trends in the Resident Market Area, based on the 2010 census population, population estimates for 2021 and population projections for 2026. (Note: The Census Bureau has not yet provided a release of full 2020 Census data; therefore, 2021 estimates and 2026 projections reflect 2010 Census data as a baseline.) The Resident Market Area has an estimated population of just over 1.0 million in 2021. This population is projected to decrease by 1.4 percent by 2026, compared to projected growth in state and national populations during the same period.[5] The largest concentrations of residents in the Resident Market Area are concentrated in the Primary and Quaternary segments, with approximately 40 percent of the defined resident market population in the Primary Market Area, and an estimated 37 percent in the Quaternary Market Area, which includes the nearby cities of Utica, Rome, and Oswego and reaches into the outskirts of Ithaca and Watertown.

[5] While population projections are not available, newly released 2020 County level population data indicates that Onondaga County grew 2 percent in the last decade, but that 11 surrounding counties that are partially in the 60 minute drive time collectively had a 1.5 percent decrease in population for the decade.

Table IV-1
Resident Market Area Population Trend, 2010, 2021, 2026

	2010	2021	2026	Percent Change, 2021 to 2026
Primary Market Area (Total 20-Minute Drive)	406,985	406,263	402,056	-1.0%
Secondary Market Area (Onondaga County, Less 20-Minute Drive)	60,041	60,722	60,339	-0.6%
Tertiary Market Area (40-Minute Drive, Less Onondaga County)	182,257	179,298	175,161	-2.3%
Quaternary Market Area (60-Minute Drive, Less 40-Minute Drive)	377,174	373,765	368,313	-1.5%
Total Resident Market (60-Minute Drive)	**1,026,457**	**1,020,048**	**1,005,869**	**-1.4%**
Onondaga County	*467,026*	*466,985*	*462,395*	*-1.0%*
State of New York	*19,378,102*	*19,625,500*	*19,678,859*	*0.3%*
United States	*308,745,500*	*333,934,100*	*345,887,500*	*3.6%*

Source: U.S. Census Bureau, Census 2010 Data; Esri forecasts for 2021 and 2026; and ConsultEcon, Inc.

Age Profile

As an attraction primarily focused on recreation and education, the Onondaga County Aquarium has broad appeal to multiple age segments, including school-age children and families with children. Data in **Table IV-2** show the median age and age groups for the population living within the Resident Market Area. The median age in the Resident Market Area is slightly older than that of the state, and of the U.S. as a whole. The Primary Market Area has the youngest median age within the total resident market population, with the large number of undergraduate and graduate students at Syracuse University (SU) and other institutions lowering the average age.

Table IV-2
Resident Market Area Age Profile, 2021

	Median Age	0 to 17	18 to 24	25 to 34	35 to 54	55 +
Primary Market Area	39.2	20.8%	10.8%	13.3%	23.6%	31.5%
Secondary Market Area	46.1	19.7%	7.1%	10.0%	24.5%	38.7%
Tertiary Market Area	42.6	19.6%	8.6%	12.9%	24.6%	34.2%
Quaternary Market Area	41.3	19.3%	10.4%	13.0%	23.2%	34.1%
Total Resident Market Area	**41.0**	**20.0%**	**10.0%**	**12.9%**	**23.7%**	**33.4%**
Onondaga County	*40.1*	*20.6%*	*10.3%*	*12.8%*	*23.7%*	*32.5%*
State of New York	*39.6*	*20.4%*	*9.0%*	*14.4%*	*25.2%*	*31.0%*
United States	*38.3*	*21.9%*	*9.0%*	*14.0%*	*24.8%*	*30.2%*

Source: ESRI and ConsultEcon, Inc.

Note: Median ages for for the Secondary, Teriary and Quaternary Markets are calculated based on weighted averages.

School-Age Population

School-age children are an important segment of visitation to attractions like the Onondaga County Aquarium, both as a part of school groups and together with their families. School groups are an important component of visitation, particularly during off-peak periods and on weekdays when general visitation numbers are lower. Families with children are frequent visitors to this type of facility, as parents seek educational and entertaining family outings. In addition, visits to the aquarium by children in school groups can result in word-of-mouth advertising to friends and family. This in turn leads to both repeat visitation and new visitation.

Data in **Table IV-3** provide a detailed breakdown by age category of the population of school-age children living within the Resident Market Area. There were 152,000 school-age children (ages 5 to 17) in the Resident Market Area in 2021. The population of school-age children in the resident market is projected to decrease slightly by 2026, which is a trend that is echoed to an even greater degree in the State.

Table IV-3
Resident Market Area School-Age Children, 2021 and 2026

Market Area	Estimated 2021	Projected 2026	Percent Change, 2021 to 2026
Primary Market Area			
Ages 5 - 10 (Pre K through Grade 5)	27,107	26,338	-2.8%
Ages 11 - 13 (Grades 6 to 8)	14,014	13,490	-3.7%
Ages 14 - 17 (Grades 9 to 12)	21,576	20,920	-3.0%
Subtotal, Primary Market Area	**62,697**	**60,748**	**-3.1%**
Secondary Market Area			
Ages 5 - 10 (Pre K through Grade 5)	3,944	3,845	-2.5%
Ages 11 - 13 (Grades 6 to 8)	2,314	2,147	-7.2%
Ages 14 - 17 (Grades 9 to 12)	3,048	2,786	-8.6%
Subtotal, Secondary Market Area	**9,306**	**8,777**	**-5.7%**
Tertiary Market Area			
Ages 5 - 10 (Pre K through Grade 5)	11,633	11,253	-3.3%
Ages 11 - 13 (Grades 6 to 8)	6,112	5,961	-2.5%
Ages 14 - 17 (Grades 9 to 12)	8,269	8,106	-2.0%
Subtotal, Tertiary Market Area	**26,015**	**25,320**	**-2.7%**
Quaternary Market Area			
Ages 5 - 10 (Pre K through Grade 5)	22,794	22,293	-2.2%
Ages 11 - 13 (Grades 6 to 8)	11,798	11,698	-0.8%
Ages 14 - 17 (Grades 9 to 12)	19,543	19,465	-0.4%
Subtotal, Quaternary Market Area	**54,134**	**53,457**	**-1.3%**
Total Resident Market Area			
Ages 5 - 10 (Pre K through Grade 5)	65,479	63,729	-2.7%
Ages 11 - 13 (Grades 6 to 8)	34,238	33,296	-2.7%
Ages 14 - 17 (Grades 9 to 12)	52,436	51,277	-2.2%
Total, Resident Market Area	**152,152**	**148,302**	**-2.5%**
State of New York			
Ages 5 - 10 (Pre K through Grade 5)	*1,310,484*	*1,251,500*	*-4.5%*
Ages 11 - 13 (Grades 6 to 8)	*690,944*	*648,884*	*-6.1%*
Ages 14 - 17 (Grades 9 to 12)	*961,827*	*919,610*	*-4.4%*
Total, State of New York	***2,963,255***	***2,819,994***	***-4.8%***

Note: Estimates for age cohorts are derived using calculations that assume even distribution of population over each year. These age breakdowns are for calendar years. In reality, the age breaks between school years are typically on the half-year, however, these are considered to be reasonable estimates.

Sources: ESRI and ConsultEcon, Inc.

Educational Attainment

Educational attainment is correlated with attendance at visitor attractions – numerous national consumer surveys over the years have found that respondents with higher educational attainment are more interested, as a group, in such attractions.

Data in **Table IV-4** show the highest level of educational attainment for the adult population over 25 years old in the Resident Market Area. Approximately 62.7 percent of the adult population have educational attainment above high school graduation. This level of educational attainment is comparable to that in the State of New York (62.3%) and the U.S. as a whole (62.0%).

Table IV-4
Resident Market Area Adult (25+) Educational Attainment, 2021

Market Area	No High School Diploma	High School Diploma / Alternative Credential	Some College	Associate's Degree	Bachelor's Degree	Graduate / Professional Degree
Primary Market Area	8.8%	25.5%	17.5%	11.9%	20.5%	15.8%
Secondary Market Area	4.4%	21.1%	14.6%	12.6%	24.1%	23.1%
Tertiary Market Area	9.6%	34.5%	18.2%	13.8%	14.4%	9.5%
Quaternary Market Area	3.4%	35.8%	19.3%	13.7%	15.8%	12.0%
Total Resident Market Area	**6.8%**	**30.5%**	**18.1%**	**12.9%**	**18.0%**	**13.8%**
Onondaga County	*8.2%*	*24.9%*	*17.1%*	*12.0%*	*21.0%*	*16.8%*
State of New York	*12.1%*	*25.6%*	*15.1%*	*8.9%*	*21.5%*	*16.8%*
United States	*11.1%*	*26.9%*	*19.8%*	*8.7%*	*20.6%*	*13.0%*

Note: Percentages reflect the highest level of education attainment reached by adult populations (Age 25 and older) in the Resident Market Areas.

Sources: ESRI and ConsultEcon, Inc.

Household Characteristics

An analysis of households in the Resident Market Area is helpful to determine household sizes and make-up with regards to potential families and children available to visit the Onondaga County Aquarium. Larger household sizes often reflect the presence of children in the household. Data in **Table IV-5** show characteristics of households within the Resident Market Area for the Aquarium. The average household size of 2.37 persons in the Resident Market Area is slightly lower than that of the state and of the U.S. as a whole. The percentage of households comprised of "families" is 61.4 percent, slightly lower than that of the state and the country. This percentage is higher in the Secondary Market Area, with more than 70 percent of households comprised of families.

Table IV-5
Resident Market Area Household Profile, 2021

	Estimated Number of Households	Estimated Number of Family Households [1/]	Percent of Families to Total Households	Average Household Size
Primary Market Area	166,463	97,509	58.6%	2.34
Secondary Market Area	24,244	17,141	70.7%	2.50
Tertiary Market Area	72,445	45,906	63.4%	2.40
Quaternary Market Area	146,853	91,091	62.0%	2.37
Total Resident Market Area	**410,005**	**251,647**	**61.4%**	**2.37**
Onondaga County	*190,707*	*114,650*	*60.1%*	*2.36*
State of New York	*7,482,516*	*4,658,440*	*62.3%*	*2.55*
United States	*126,470,675*	*82,824,624*	*65.5%*	*2.58*

1/ Family Households are defined by ESRI as households in which one or more persons in the household are related to the head of household by birth, marriage, or adoption.

Source: ESRI and ConsultEcon, Inc.

Note: Household sizes for the Secondary, Tertiary and Quaternary Markets are calculated based on weighted averages.

Household Income

Higher incomes are associated with visitation to recreational and educational attractions such as Onondaga County Aquarium, both with regard to the availability of disposable income, transportation and leisure time as well as the desire to visit, as higher incomes frequently reflect higher educational attainment. Data in **Table IV-6** show household income distribution in the Resident Market Area for the Aquarium. Median household income in the Resident Market Area at $59,000 is lower than New York State and the U.S. as a whole.[6/] Secondary Market Area households have the highest incomes compared to the other market areas. This profile indicates that care should be taken in planning ticket price ranges to be affordable to a wide range of households in the Resident Market Area.

[6] Median household income data reflect gross income, and do not account for personal tax and non-tax payments such as personal income taxes and personal contributions to social insurance. Further, the cost of living in a given area affects disposable income.

Table IV-6
Resident Market Area Household Income Profile, 2021

	Median Household Income	Less than $25,000	$25,000-$49,999	$50,000-$74,999	$75,000-$99,999	$100,000+
Primary Market Area	$57,637	21.8%	21.1%	17.9%	13.3%	25.8%
Secondary Market Area	$80,095	11.7%	15.2%	16.1%	14.1%	42.8%
Tertiary Market Area	$58,138	20.6%	21.9%	18.0%	14.0%	25.6%
Quaternary Market Area	$58,138	19.9%	22.2%	19.1%	14.1%	24.6%
Total Resident Market Area	**$59,130**	**20.3%**	**21.3%**	**18.3%**	**13.8%**	**26.4%**
Onondaga County	***$60,492***	***20.6%***	***20.3%***	***17.7%***	***13.4%***	***28.0%***
State of New York	***$72,042***	***18.8%***	***17.4%***	***15.1%***	***11.8%***	***36.8%***
United States	***$64,730***	***18.0%***	***20.3%***	***17.3%***	***12.8%***	***31.5%***

Source: ESRI and ConsultEcon, Inc.

Note: Median Household Incomes for the Secondary, Tertiary and Quaternary Markets are calculated based on weighted averages.

RESIDENT MARKET SUMMARY

The proposed Onondaga County Aquarium has the potential to be an important attraction for residents of the Syracuse area. The following are key population trends and demographic characteristics in the Resident Market Area, defined as the area within a 60-minute drive of the preferred Inner Harbor site:

- The Resident Market Area population was just over 1.0 million in 2021, with 40 percent of the population living within the Primary Market Area. The population is projected to decrease by 1.4 percent between 2021 and 2026.
- The median age in the Resident Market Area was 41.0, slightly older than that of New York State and of the U.S. as a whole. In the Primary Market Area, the median age was 39.2, reflecting the presence of university students in the area.
- There were 152,000 school-age children (ages 5 to 17) in the Resident Market Area in 2021. The population of school-age children is projected to decrease slightly over the period between 2021 and 2026, which is a trend that tracks with the state as a whole.
- Approximately 62.7 percent of the population in the overall Resident Market Area had educational attainment above high school graduation. This level of educational attainment is comparable to that in the State of New York (62.3%) and the U.S. as a whole (62.0%).

- The average household size in the Resident Market Area was 2.37 persons, slightly lower than that of the state and the United States. The percentage of households comprised of "families" is 61.4 percent, slightly lower than that of the state and the country.
- The median household income in the Resident Market Area was $59,000, which is lower than that of the state and the U.S. as a whole, indicating that care should be taken in planning ticket price ranges to be affordable to a wide range of households in the Resident Market Area.

TOURIST MARKETS

Following is a review of the characteristics of the tourist markets available to the proposed Onondaga County Aquarium; the tourism market is defined as travelers to Onondaga County. The Onondaga County market segments are defined and profiled to inform the analysis of visitation potential and future operating scenarios. Visitors include those traveling on both day and overnight trips to the county; and visitors are segmented by leisure and business travel purposes.

Syracuse and Onondaga County Tourism Context

Syracuse and Onondaga County are mature tourism destinations, with a long history of tourism reaching back to the 19th century. For the drive market, most visitors have repeat visitation patterns to the city and county as a whole. A new indoor attraction like an aquarium could generate interest for new visitors to the area in addition to increased repeat visitation from the region.

Visit Syracuse is the official convention and visitor's bureau for Onondaga County, serving as an affiliate of the county's official Tourism Promotion Agency (TPA). The organization plays an important role in promoting Syracuse and the county as destinations for leisure and business visitors in order to grow the area's tourism industry and generate economic development in the area.

Onondaga County's location in central New York, infrastructure, and amenities provide a strong base for regional tourism. It's tourism advantages include:

- **Central Location and Regional Significance** – The County is centrally located to several tourism regions, including the Finger Lakes, the Thousand Islands, the Adirondacks, and the Central New York/Leatherstocking region. Syracuse serves as an urban center and starting or stopping point for tours at the eastern edge of the Finger Lakes region in addition to drawing visitors from across the regional areas for their regular shopping, performing arts and entertainment, and special events.
- **Transportation Infrastructure** – Syracuse is well-connected through ground, rail, and air transportation. An estimated population of 60 million people lived within a 5-hour drive in 2020 (shown in **Figure IV-2**), reaching major cities in each direction – Boston, New York City, Philadelphia, Cleveland, Toronto, Ottawa, and Montreal.

With a growing and renewed interest in traveling more locally, Onondaga County is well situated to continue to promote to and draw audiences from these metropolitan markets as well as the many smaller communities within that 5-hour drive time area and beyond.

Figure IV-2
Map of 5-Hour Drive Time Area from Onondaga County

Source: ESRI

Other tourism advantages include:

- **Major University** – Syracuse University, a private research university with annual undergraduate and graduate enrollment of over 22,000 students, brings in 84 percent of its students from outside of Central New York and plays a significant role in the character of the city and county. Syracuse University estimates that students and their families generate approximately $148 million in tourism impacts for the region annually between sporting events at the Carrier Dome and other student and campus events.
- **Existing Tourism Drivers** – Several area attractions draw visitors from outside of the county. These include: Destiny USA, one of the largest malls in the country; the Rosamond Gifford Zoo, open year-round with a new 20,000 square foot animal health center set to open; the New York State Fair and Fairgrounds, 18-days long in August 2021; NBT Bank Stadium, home to the AAA minor league Syracuse Mets baseball team; and, the St. Joseph's Health Amphitheater and other performing arts venues, and downtown attractions like Armory Square, the Museum of Science and Technology (MOST), and the Everson Museum of Art.
- **Natural and Outdoor Amenities** – Outdoor recreation opportunities are found throughout the county, including Clark Reservation State Park, Green Lakes State Park, and the Onondaga County Parks System, which operates 14 unique parks (including the Rosamond Gifford Zoo). Onondaga Lake Park is a centerpiece of the park system, including eastern and western shore walking and biking trails, passive and active park spaces, boat and fishing access, as well as the St. Joseph's Health Amphitheater.
- **Business and Convention Travel** – The medical and education industries are prominent in Syracuse, drawing business travelers to the county, along with other emerging industries, such as high-tech and film. Conventions, meetings, and trade shows are also held at venues such as the Oncenter Convention Center and the State Fairgrounds drawing local, regional, and national attendees.

Tourism Impacts

Tourism is a core component of Onondaga County's economy, with total visitor spending of $922.3 million in the county in 2019. This represents about 28 percent of visitor spending in the Finger Lakes region as a whole and about 5 percent of total visitor spending in Upstate New York (New York State less New York City and Long Island). Visitor spending resulted in nearly 17,000 jobs and $67.5 million in local tax income in Onondaga County in 2019.

Hotels and Hotel Rooms

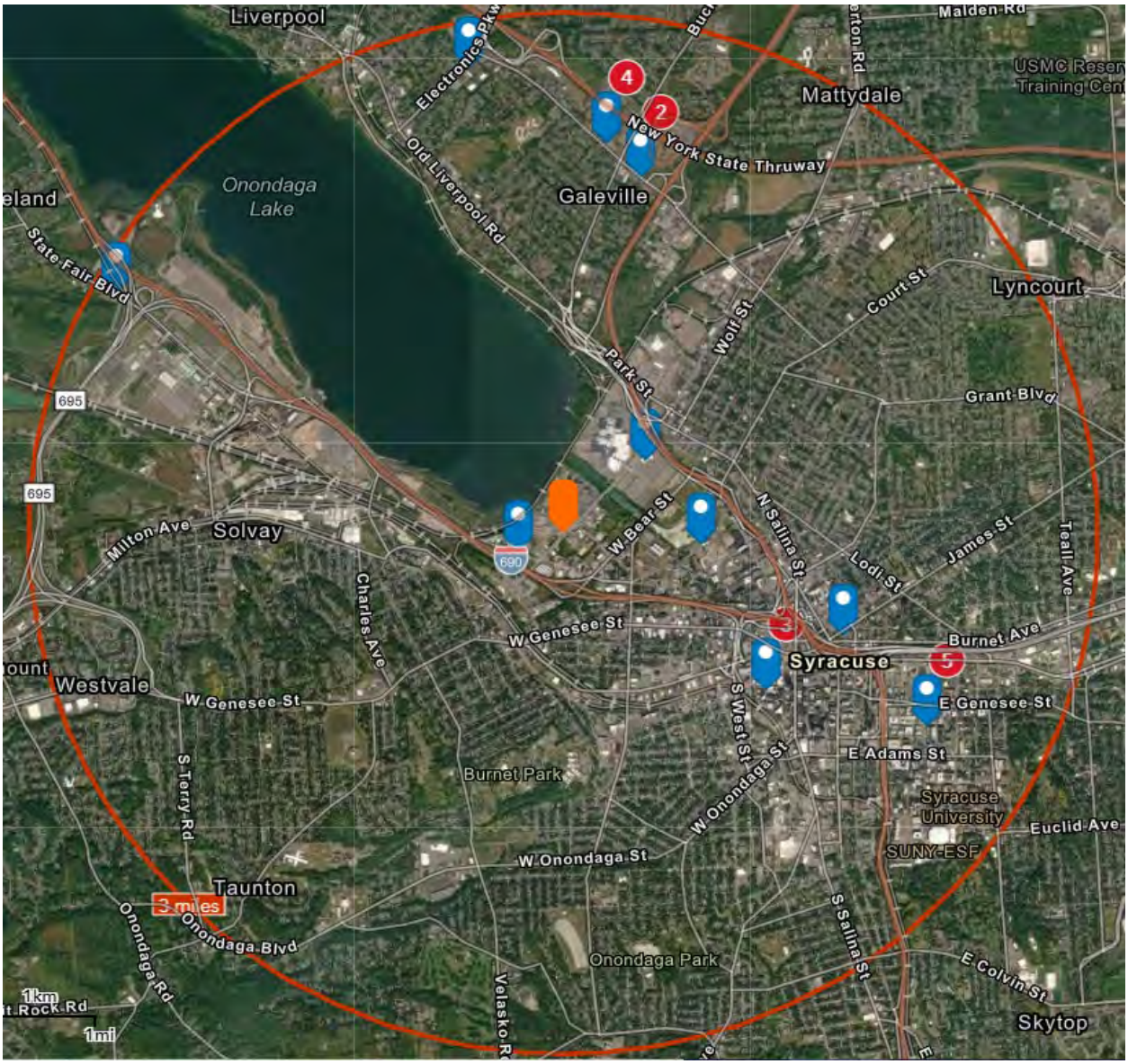
Onondaga County has an inventory of 82 hotels with 21 of those located within a 3-mile radius of the Inner Harbor/Lakefront area, shown in **Table IV-7** and **Figure IV-3**. Three of these hotels are in the Inner Harbor/Lakefront area themselves, and there are concentrations of hotels in the downtown area, near Syracuse University, and around the I-90 and I-81 interchange. There were about 2,500 rooms in the 3-mile radius, making up about 35% of the 7,300 total rooms in the county. In addition, there were about 2,500 homes listed as vacant for seasonal, recreational, or occasional use on the 2010 Census in Onondaga County, with about 140 of those located within a 3-mile radius of the Inner Harbor/Lakefront area. Airbnb lists 300+ stays in the county, with about 115 of those in the immediate area.

Table IV-7
Onondaga County Hotel Inventory

Name	Location	Number of Rooms
Hotels within 3-Miles of Inner Harbor/Lakefront Area (21 properties)		
Marriott Syracuse Downtown	Syracuse, NY	315
Collegian Hotel & Suites	Syracuse, NY	157
Hampton Inn & Suites Syracuse North Airport Area	Syracuse, NY	124
Homewood Suites by Hilton Syracuse/Liverpool	Liverpool, NY	102
Courtyard by Marriott Syracuse Downtown at Armory Square	Syracuse, NY	102
Residence Inn Syracuse Downtown at Armory Square	Syracuse, NY	78
Aloft Syracuse Inner Harbor	Syracuse, NY	134
Embassy Suites by Hilton Syracuse DestinyUSA	Syracuse, NY	209
Maplewood Suites Extended Stay - Syracuse	Liverpool, NY	137
Comfort Inn & Suites	Liverpool, NY	76
Jefferson Clinton Hotel	Syracuse, NY	68
Tru By Hilton Syracuse North Airport Area	Liverpool, NY	93
Super 8 by Wyndham Liverpool/Syracuse North Airport	Liverpool, NY	99
Rodeway Inn & Suites	Liverpool, NY	80
Quality Inn & Suites Downtown	Syracuse, NY	49
State Fair Motel	Syracuse, NY	24
Hotel Skyler Syracuse, Tapestry Collection by Hilton	Syracuse, NY	58
Best Western The Inn at the Fairgrounds	Syracuse, NY	47
Crowne Plaza Syracuse	Syracuse, NY	279
Parkview Hotel	Syracuse, NY	83
Sheraton Syracuse University Hotel & Conference Center	Syracuse, NY	237
Subtotal - Hotels within 3-Miles of Inner Harbor/Lakefront Area		**2,551**
Remaining Hotels in Onondaga County (61 properties)		**4,741**
Total - All Hotels in Onondaga County		**7,292**

Sources: Visit Syracuse and ConsultEcon, Inc.

Figure IV-3
Map of Hotels Within a 3-Mile Drive of the Inner Harbor / Lakefront Area



Sources: ESRI and ConsultEcon, Inc.

Data in **Table IV-8** show the average annual occupancy, average daily rate (ADR), and revenue per available room (RevPAR) for Syracuse and other comparative geographic regions. Syracuse had occupancy of 55.7 percent in 2019, with an ADR of $104.21 and RevPAR of $58.00. These figures are lower than the averages in Albany, Buffalo, and Rochester, as well as state and national averages.

Table IV-8
Occupancy, ADR, and RevPAR for Syracuse and Comparative Geographies, 2018 – 2019

	Occupancy (%)		ADR ($)		RevPAR ($)	
	2018	2019	2018	2019	2018	2019
Syracuse, NY	57.5%	55.7%	$103.04	$104.21	$59.21	$58.00
Albany, NY	*60.4%*	*61.1%*	*$118.79*	*$119.70*	*$71.72*	*$73.14*
Buffalo, NY	*61.5%*	*61.6%*	*$108.38*	*$107.59*	*$66.69*	*$66.22*
Rochester, NY	*58.6%*	*61.6%*	*$105.27*	*$107.27*	*$61.68*	*$66.06*
New York State	*74.7%*	*74.2%*	*$205.98*	*$203.32*	*$153.85*	*$150.80*
United States	*66.2%*	*66.1%*	*$129.83*	*$131.21*	*$85.96*	*$86.76*

Sources: STR, Visit Syracuse, and ConsultEcon, Inc.

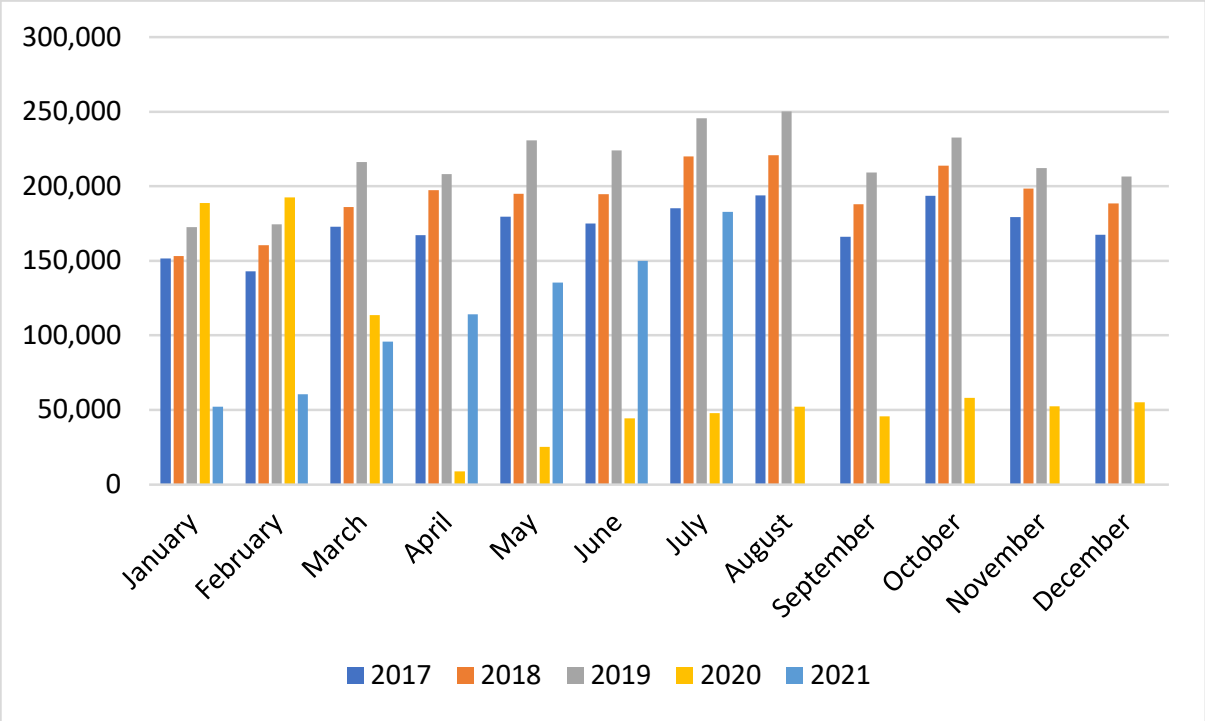
Transportation

Syracuse and Onondaga County are well connected by ground, rail, and air transportation. Syracuse is located at the intersection of Interstates 90 (transcontinental east-west highway) and 81 (north-south route from the Canadian border in the Thousand Islands region to Tennessee) and is also intersected by Interstates 690 and 481, U.S. Highways 11 and 20, and several state highways. The well-connected road network in Syracuse makes it easily accessible from all major cities in the Northeast.

The William F. Walsh Regional Transportation Center, located just north of Destiny USA and the Inner Harbor/Lakefront area, serves as an Amtrak transit station on three train services – the *Empire* Service (Multiple daily trips from New York City through Albany, Syracuse, and Buffalo to Niagara Falls), the *Maple Leaf* Service (Daily trip from New York City through Albany, Syracuse, Buffalo, and Niagara Falls to Toronto), and the *Lake Shore Limited* Service (Daily Trip from Chicago, through South Bend, Cleveland, Buffalo, and Syracuse to Albany, continuing to either New York City or Boston). Syracuse saw 132,000 Amtrak passengers in 2019, making it the sixth busiest station in New York. The Regional Transportation Center also serves three intercity bus lines – Greyhound, MegaBus, and Trailways – and one local bus service, Centro.

Syracuse Hancock International Airport (SYR) is located north of the city off I-81 and served nearly 2.6 million passengers in 2019, a number that has been steadily growing over time. The airport currently serves six airlines and offers 23 year-round non-stop flights, with a seventh airline and four new direct flights coming in November 2021. **Figure IV-4** shows the seasonality of airport passenger volume from 2017 to 2021, demonstrating how in the first months of 2020 before the global pandemic, passenger volume was continuing to increase on a year-over-year basis. The airport is undergoing a new master plan study to plan for growth needs over the next 20 years, with plans for increased capacity in the form of new airlines, new flight routes, and increased flight volume in both the immediate and long-term future. In the next two years, the airport will construct a new parking facility, new amenities, and a new Federal Inspection Station that will allow for the airport to accommodate international flights.

Figure IV-4
Air Passenger Volume at Hancock International Airport (SYR) by Month, 2017 to 2021



Source: Syracuse Hancock International Airport and ConsultEcon, Inc.

Visit Syracuse 2019 Survey – Visitor Characteristics

Visit Syracuse compiled surveys of over 10,000 visitors from all segments that describe characteristics of visitors to Onondaga County, including their origins, length of stay, trip purpose, repeat visits, type of lodging used, travel parties, seasonality, and popular activities and attractions. The results of the report ***Visit Syracuse Onondaga County, NY Travel Market Research*** can be used to gain insights to the tourist market in Onondaga County. Note that this is a pre-COVID survey. Key findings of the report are summarized below, but the overall report was important input to the study.

- **Visitor Origins** – The top five feeder markets for Onondaga County are Ottawa (2020 Metro Area population of 1.4 million), New York City (2021 Metro Area population of 19.4 million), Toronto (2020 Metro Area population of 6.6 million), Buffalo (2021 Metro Area population of 1.1 million), and Montreal (2020 Metro Area population of 4.4 million). The county also receives a high number of regional visitors from the surrounding counties.
- **Length of Stay** – About one-third of domestic respondents to the survey and one-quarter of international respondents were on day trips to Onondaga County. The true volume of day trip visitors to the county is likely much higher than these figures would suggest, as the surveys did not capture the high number of regional visitors who come into the county on a repeat basis for their routine shopping, entertainment, and business purposes. Overnight visitors often come on weekend trips (2.5 nights and 1.5 nights on average for domestic and international visitors, respectively) and or stay overnight as a part of a longer road trip.
- **Trip Purpose** – For domestic day trip visitors and both international day trip and overnight visitors, the most common purpose for visiting Onondaga County was for shopping, showing the draw of Destiny USA. For domestic visitors on overnight trips, the most common reason for visiting the county was to see friends and relatives in the area. Other trip purposes listed by survey respondents include visiting the Rosamond Gifford Zoo, attending a festival, concert, or event, and passing through as a part of a longer trip.
- **Repeat Visitation** – The majority of visitors surveyed visit Onondaga County between two and five times per year. This is a positive indicator for an attraction such as the potential Onondaga County Aquarium as it provides more opportunities for a visitor to make time to visit.
- **Type of Lodging** – For domestic overnight visitors to the county, about half reported staying in hotels while the other half reported staying with friends or family. For international overnight visitors, about 90 percent stayed in hotels while the remainder stayed with friends or family. In general, when travelers visit friends or family their hosts are likely to entertain them by bringing them to attractions or events that are unique or exciting to them as residents.

- **Travel Parties** – Visitors to Onondaga County on day trips, both from domestic and international origins, are more likely to have children in their travel party than those on overnight trips. This indicates that while Syracuse draws families from the regional area, most travel parties from longer distances are made up of adults – such as college students and their parents, visitors to the nearby wine trails, and those traveling on business, among others. The average travel party size for those surveyed was about three visitors for day trip visitor groups and between two and three visitors for overnight visitor groups.
- **Seasonality** – Visitation to Onondaga County tends to be higher in the spring and summer months and lower in the cold winter months. This seasonality has more impact on outdoor attractions than indoor ones. College and professional sports games follow typical seasonal patterns, and popular events like the state fair, indoor and outdoor concerts, and college-related events like orientation and graduation cause spikes in attendance at specific times of the year.
- **Popular Activities and Attractions** – For all visitor groups (domestic and international day trips and overnight trips) the two most frequent activities while in Onondaga County were shopping and dining, with the most popular attraction being Destiny USA. Other common activities included visiting friends and relatives, driving and sightseeing, attending events like concerts, live performances, and sports games, visiting the zoo and other parks, visiting colleges or universities, and going hiking. Aside from Destiny USA, other popular attractions included the New York State Fairgrounds, Syracuse University, Onondaga Lake Park, and Rosamond Gifford Zoo. A full summary of local attractions in Onondaga County will be provided later in this report.

Business and Convention Travel

While leisure visitors are a primary target market for an attraction like the potential Onondaga County Aquarium, those who visit the county for business meetings or conventions are also an important group to consider, as they may have spare time on their trip to visit an attraction, either on their own, as a part of a group excursion, or for breakout events held at attraction event venues. The most prominent industries in Syracuse and the county are education, medicine, and a growing technology sector. There is also an emerging film market in Syracuse, with Visit Syracuse's Film Office generating $22 million in the region in 2014, their first year of operations. State and local tax incentive programs have spurred this development and Visit Syracuse is focusing on expanding their soundstage and qualified production facility space, capturing a new clientele through marketing efforts, and workforce development and diversification.

Table IV-9 shows a summary of conventions, meetings, and events in Onondaga County in 2018 and 2019. The county saw a27.2 percent increase in the economic impact of such events from 2018 to 2019, with more than four times the number of attendees. The potential Onondaga County Aquarium could serve as an event rental space for meetings, events, and convention related events, and should work with Visit Syracuse to coordinate and promote such rentals.

Table IV-9
Conventions, Meetings, & Events in Onondaga County, 2018 – 2019

	2018	2019	Percent Change
Conventions, Meetings, & Events	115	135	17.4%
Attendance	11,989	48,419	303.9%
Total Room Nights	33,619	54,995	63.6%
Average Attendance per Event	*104*	*359*	*244.0%*
Average Room Nights per Event	*292*	*407*	*39.3%*
Economic Impact	$32,725,844	$41,631,545	27.2%

Note: 2018 data excludes United States Bowling Congress.

Sources: Visit Syracuse and ConsultEcon, Inc.

Future Growth

Onondaga County has a mature tourism market in that there is high regional awareness and visitation to the County and well-established infrastructure to support tourism, including lodging, transportation, and dining. In coming years, plans from Onondaga County and its supportive groups, such as Visit Syracuse, stand to improve and grow the travel and tourism market:

- The expansion of Syracuse Hancock International Airport, including additional airlines, flight capacity, amenities, and the ability to host international flights, will assist in establishing the Syracuse and Central New York as tourism destinations.
- The Syracuse arts community is growing and attracting a higher level of musical and theater productions, including venues like The Red House and the historic Landmark Theater, which is undergoing renovations in order to host more productions and nationally traveling shows. The St. Joseph's Health Amphitheater,

opened in 2015, and has brought larger and more frequent musical events to the county, drawing from a wider regional and out-of-state audience.

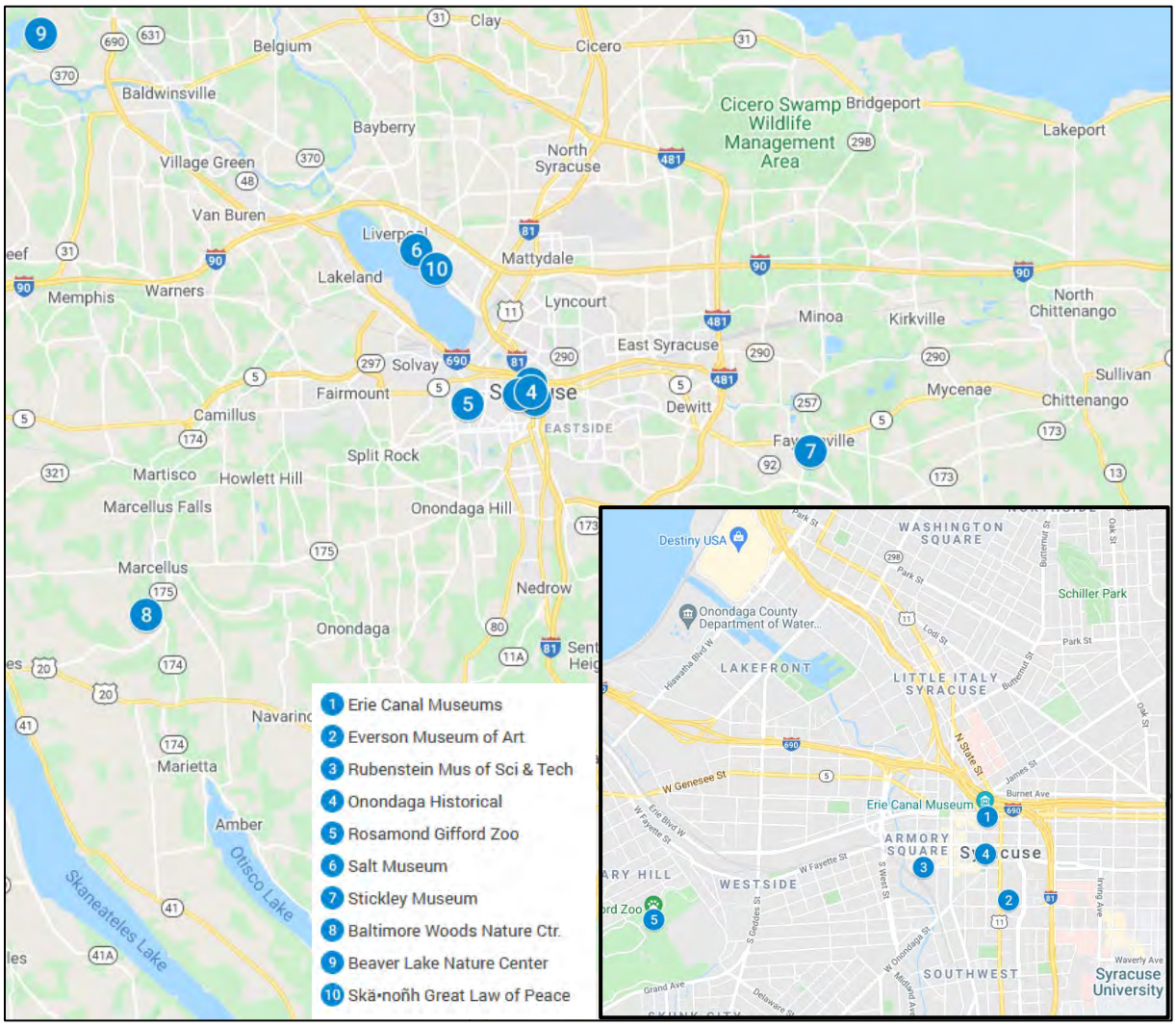
- The New York State Fair is 10 days in duration and brings overnight visitors multiple day stays in the county.
- The county has completed a feasibility study for a potential new soccer and lacrosse Sports Complex in Onondaga County. Such a facility such as this one would attract traveling youth sports teams and tournaments, including both players and their families, from across the wider region.
- The East Shore and West Shore Trails at Onondaga Lake Park are planned to be fully connected within the next two to three years to form a full-circle Loop the Lake Trail, promoting recreation and visitation to the park. This completed trail would round the southern portion of the lake, in the Inner Harbor/Lakefront neighborhood of Syracuse.
- The Interstate 81 project and its associated construction and redevelopment work will improve accessibility and visibility to the urban core of Onondaga County.
- Plans are underway for two rapid bus lines crossing in downtown Syracuse – including one from the William F. Walsh Regional Transportation Center to University Hill, running through Franklin Square and down Solar Street in the Inner Harbor/Lakefront neighborhood. Improved transportation infrastructure would increase accessibility to attractions along the bus routes.

LOCAL ATTRACTIONS

Onondaga County and the City of Syracuse's existing tourism attractions provide a foundation for the area as a regional entertainment center. Destiny USA is the county's largest tourism driver and is located in the Inner Harbor/Lakefront neighborhood. The New York State Fair brings over a million annual visitors to the county in late August annually and Rosamond Gifford Zoo also brings over 330,000 annual visitors, with a local audience that is very supportive and excited about animals and conservation. Syracuse attractions regularly draw audiences from an hour's drive time and further for shows and events, including Syracuse University events and Orange sporting events, minor league hockey and baseball games, and concerts and other performances at venues of varying sizes. Visitors coming into the county to shop, for a show or game, or to attend a special event are often interested in additional activities for themselves and their families, extending their stay in the county and therefore increasing the economic impacts from tourism.

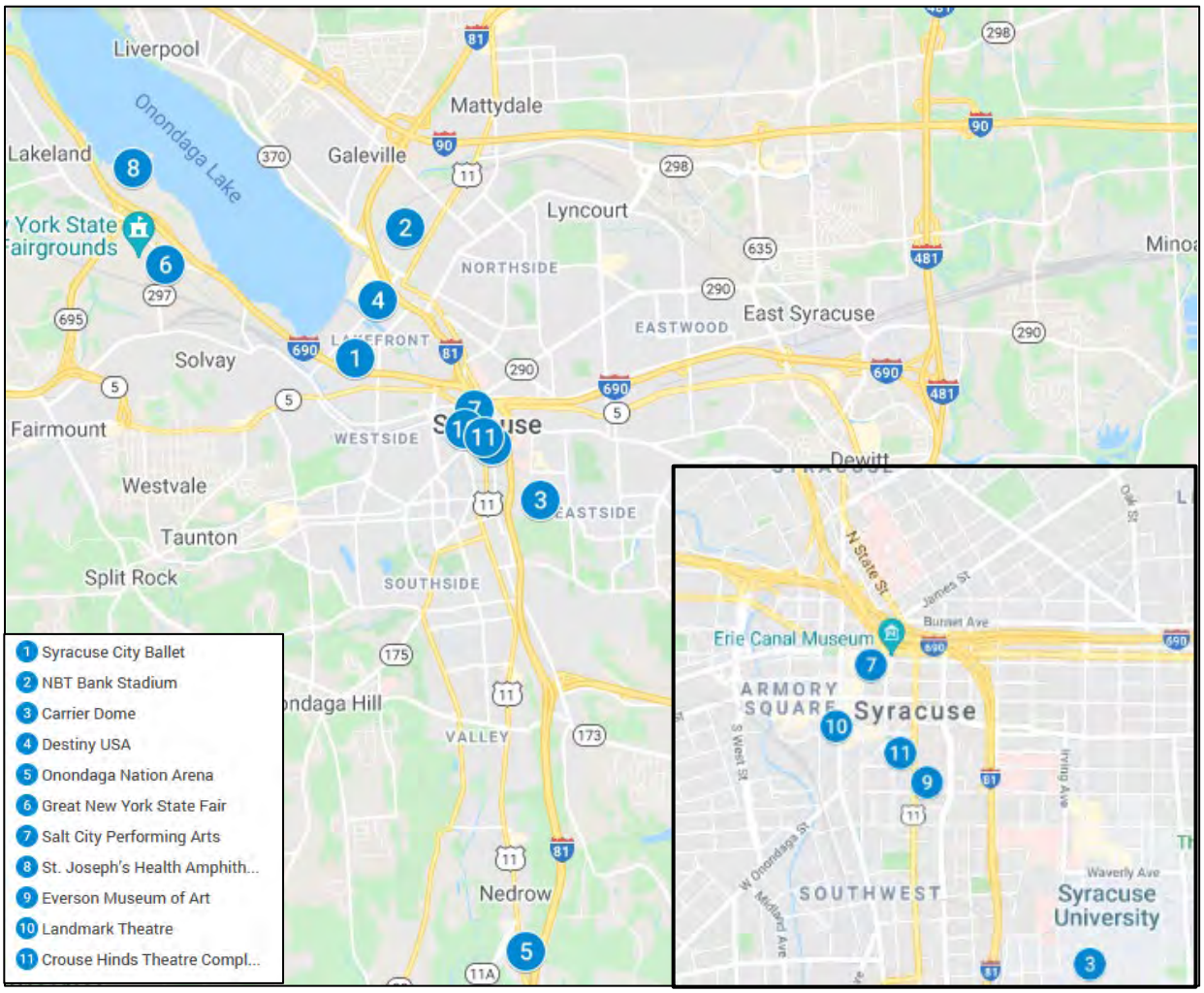
Figure IV-5 provides the location context of selected Onondaga County museums and nature centers, and **Figure IV-6** provides the location context of selected Syracuse public venues/sports & performing arts venues. A number of the attractions are located in the central area of Syracuse. This agglomeration of visitor attractions and activity tends to concentrate visitors in the area near Inner Harbor and provides a supportive context for the proposed Onondaga County Aquarium.

Figure IV-5
Onondaga County Local Attractions – Museums & Nature Centers



Source: Onondaga County CVB, Google Maps and ConsultEcon, Inc.

Figure IV-6
Onondaga County/Syracuse Public Venues/Sports & Performing Arts



Source: Onondaga County CVB, Google Maps and ConsultEcon, Inc.

Following are summaries of some of the high-profile attractions in Syracuse and Onondaga County. These attractions all draw visitors from beyond the local market and contribute substantial visitor spending and overnight visits to the county, which have a much higher economic impact on the county than close-in day trip visits.

Note that the following attractions have been negatively impacted by the COVID pandemic, and the performance measures included in their descriptions are pre-COVID. This analysis assumes that the attractions will have recovered as a popular tourism draws before the proposed Onondaga County Aquarium is opened.

- **Destiny USA** is the largest shopping mall in New York. At 2.4 million square feet and six-stories tall, the mall is the largest LEED Gold certified retail commercial building in the world. The mall is a primary trip purpose for many visitors to Onondaga County, drawing shoppers from across Upstate New York and from Canada, (cross-border shopping is popular due to comparable exchange and tax rates) and reports 26 million annual visitors[7] to its over 270 tenants, including outlets, restaurants, entertainment, and a New York State Welcome Center.
- **The New York State Fair**, established in 1841, has been held at the Syracuse fairgrounds since 1890. The fair brought 1.3 million total visitors during the 13-day event in 2019, including nearly 150,000 visitors in one day, an all-time single day record for the fair[8]. (Note that there are repeat visitors within the total visitation.) Visitors come from across the state to experience the fair's food, music, rides, exhibits, and events. The State Fair expanded to 18-days in 2021. Other events held at the fairgrounds include the Syracuse Nationals Classic Car Show, equine events, trade shows, and conventions throughout the remainder of the year.
- **Syracuse University (SU)** is a private research university with a total student body of over 22,000 students drawing from across the country and from international origins. The university was founded in 1831 and is known for its architecture, sports medicine, communication, journalism, and public affairs programs, among others, and the Syracuse Orange nationally successful sports teams. Visitors to campus include sports fans, potential students on tours (SU received 45,000 applications for the 2020 to 2021 school year, its highest number to date), visiting scholars and attendees to campus events, and parents and families of students and alumni for official and unofficial gatherings, often surrounding football game weekends.
- **Other Higher Education Institutions** include LeMoyne College and Onondaga Community College which draw visitation from prospective students, graduation attendees and other university functions and programs.

[7] https://www.destinyusa.com/
[8] New York State Fair.

- The **SU Carrier Dome** is the home of the Syracuse University Orange football, basketball, and lacrosse teams, which have large regional fan bases. Students, Orange fans, and fans from the opposing teams attend sporting events at the Dome, including seven annual football games (25,000 average tickets per game), 20 men's basketball games (20,000 average tickets), 15 women's basketball games (550 average tickets), 8 men's lacrosse games (2,500 average tickets), and 10 women's lacrosse games (750 average tickets), totaling to over 600,000 annual spectators. The Dome is also a major event facility for varied audiences in the Central New York region and as far as Rochester and Albany, hosting one or two large stadium-sized concerts each year (average of 35,000 tickets), the touring entertainment event Monster Jam[9] (about 38,000 attendees), state-level high school sporting events, and student events including the large Martin Luther King Jr. Day Celebration.

- **The Oncenter** includes three venues in Syracuse – the **Nicholas J. Pirro Convention Center**, hosting local, regional, and national conventions, weddings, galas, and trade shows; the **Upstate Medical Arena at the Oncenter War Memorial**, a 6,000-seat arena that hosts the Syracuse Crunch AHL Hockey Team and also hosts concerts and family events like Disney on Ice and Cirque du Soleil; and the **theaters at the John H. Mulroy Civic Center**, including the Crouse-Hinds Theater and the Carrier Theater, hosting performances like the Syracuse Opera, Syracuse Ballet, the National Broadway Famous Artists Series, national comedians and concerts, community events, and children's theater productions. Syracuse Crunch hockey games, of which there are 38 in the regular season, typically have total attendance of about 180,000 spectators. These are primarily from the local area (70% from Onondaga County) and about 42,000 tickets are sold annually for 6 to 8 concerts at the arena (60% from Onondaga County for concerts and events). The Oncenter sold a total of more than 370,000 tickets in 2019 across all three of its venues, including concerts and hockey games.

- **NBT Bank Stadium** is home to the Syracuse Mets minor league baseball team. A$25 million renovation was completed in 2021. The team plays 70 home games from April to September, resulting in 3,000 to 4,000 hotel rooms annually, and is very family oriented in its marketing and offerings. The team drew 327,000 spectators in 2019, with the most popular games including Little League Night, which draws 10,000 visitors from a wider regional audience, and Education Days, which teach baseball as education to school groups from the region on field trips to a total of 15,000 students and chaperones between two days. Other events held at the stadium include festivals, high school baseball games, and the Syracuse Marathon.

[9] https://www.monsterjam.com/en-US

- **Onondaga Lake Park** encompasses Onondaga Lake (4.6 square miles), with its southern shores in Syracuse's former industrial zone and its eastern shores in the Village of Liverpool. The lake is currently almost entirely surrounded by two walking and biking trails – the West Shore Trail and the East Shore Trail – which will be connected with additional trails within the next 1 to 3 years to form the 12-mile Loop the Lake Trail. The trails also connect to the Empire State Trail, a statewide trail network with branches starting in Buffalo, Manhattan and at the Canadian border north of Plattsburgh that meet in Albany, and the Syracuse City Creekwalk, which follows Onondaga Creek from Armory Square to the shores of Onondaga Lake. Both of these trails travel along the Syracuse Inner Harbor. The St. Joseph's Health Amphitheater is on the western shores of the lake and the eastern shores include a marina and boat launch, passive and active recreation space, and small visitor facilities like the Ska-nonh Center and the Salt Museum. The Park, including the amphitheater, saw nearly 2.0 million visitors in 2019, including more than 50,000 cars for the Lights on the Lake holiday event.
- The **Onondaga County Parks** system includes 15 parks and hoisted 3.1 million visitors in 2019, each with their own agenda targeted activities including boating, fishing, fishing tournaments, snowshoeing, cross country skiing, kayaking, biking, camping, and event rentals. The system includes Onondaga Lake Park (the "Central Park of Central New York"), Beaver Lake Nature Center, Carpenter's Brook Fish Hatchery, Highland Forest Park, Jamesville Beach Park, Oneida Shores Park, Pratt's Falls Park, Rosamond Gifford Zoo, and NBT Bank Stadium. The climate in Central New York impacts visitation to the parks, with more than one-third of annual park visits happening in July and August and only six percent of all visits from January through March. The most popular parks are Onondaga Lake Park (including the St. Joseph's Health Amphitheater), the Rosamond Gifford Zoo, and NBT Bank Stadium.
- **St. Joseph's Health Amphitheater at Lakeview** is a large outdoor concert venue with a capacity of 17,500 including 5,000 reserved seats and lawn seating. The amphitheater looks out over Onondaga Lake and was built over rehabilitated industrial landfills, opening in 2015. In 2019 there were 20 shows, ranging from smaller family events to larger rock and country concerts, with an average of 8,800 tickets per show and nearly 180,000 tickets total. The next full concert season in 2022 is planned to extend to 25 to 30 shows. Syracuse is a secondary concert market for many tours, with most shows falling from Sunday through Thursday nights, and about two-thirds of concertgoers are from outside of Onondaga County (including regional visitors from New York, Pennsylvania, and Massachusetts as well as SU students from out of state).
- The **Rosamond Gifford Zoo at Burnet Park** is open year-round and is accredited by the Association of Zoos and Aquariums (AZA). The zoo is home to more than 700

animals, including major exhibits with elephants and penguins and a small indoor aquarium with a giant pacific octopus, jellyfish, tropical fish, and rare and endangered reptiles and amphibians from around the world. On site amenities include a café, two food kiosks, a gift shop, and a banquet facility. There is an active calendar of events both during and after zoo hours for the local community. The zoo saw annual attendance of about 330,000 visitors in 2019, with nearly 70 percent of those visitors coming in the five months from April through August. A new 20,000 square foot veterinary medical center will open at the zoo in September 2021, bringing in additional veterinary students and professionals and increasing education at and interest in the zoo.

There is an opportunity for the Onondaga County Aquarium as a large, indoor, year-round attraction to have a strong impact on county visitation, extending visitor length of stay and generating additional overnight stays.

Section V
EVALUATION OF COMPARABLE FACILITIES

This section provides benchmark data relevant to the analysis of the market and operating opportunity of the proposed Onondaga County Aquarium. Benchmarking the new aquarium against existing aquariums informs the analysis of the operating potential of the new aquarium. First, information on key characteristics of a set of fifteen benchmark aquariums are presented, then a smaller set of six of the benchmark aquariums are further analyzed as case studies.

Benchmark Aquariums

Data in **Table V-1** provide information on the location, market characteristics, facilities, operations, and prices at the benchmark aquariums. Data in **Table V-2** provide comparison of selected characteristics for benchmarked factors such as per square foot, per full time equivalent employee (FTE) and per attendee to gain additional insights into the performance of comparable aquariums. Note that a qualitative evaluation of the level of tourism activity in the locations is included. The high activity areas are regional vacation destinations; medium activity areas draw from a wide region but largely for events, shopping and "long weekends" and high activity areas draw mostly visiting friends and relatives and for events and shopping.

Table V-1
Benchmark Aquarium's Scale and Market Characteristics

Name	Location	Year Opened	Total Square Footage	Total Gallons	Full-Time Equivalent Employees (FTE) 1/	60-Minute Drive-time Pop 2021	60-minute Drive Median HH Income 2021	Tourism Activity High/ Medium/ Low	2019 Annual Attendance	Member-ships	Adult Ticket	Senior Ticket	Child Ticket	Family Member-ship	Governance
Aquarium of Niagara	Niagara Falls, NY	1965	32,000	176,000	42	1,121,621	$58,315	High	306,000	816	$19.95	$17.95	$14.95	$95.00	Nonprofit
Audubon Aquarium of the Americas	New Orleans, LA	1990	168,104	1,000,000	194	1,195,886	$54,347	High	687,818	31,155	$29.95	$24.95	$24.95	$220.00	Nonprofit
The Florida Aquarium	Tampa FL	1995	250,000	1,000,000	201	3,874,483	$58,443	High	810,000	13,101	$27.45	$24.70	$23.45 2/	$175.00	Nonprofit
Living Planet Aquarium	Draper, UT	2014	136,000	500,000	132	2,602,134	$80,223	Low	800,000	NA	$20.95	$17.95	$15.95	$189.95	Nonprofit
Maritime Aquarium at Norwalk	Norwalk, CT	1988	140,000	249,610	88	5,221,117	$68,262	Low	493,938	8,250	$28.95	$24.95	$19.95	$190.00	Nonprofit
Mystic Aquarium	Mystic, CT	1973	141,500	2,369,600	187	1,595,373	$70,537	Medium	719,000	12,297	$27.99	$24.49	$20.74 2/	$205.00	Nonprofit
Newport Aquarium	Newport, KY	1999	125,000	1,000,000	182	2,394,769	$66,810	Medium	853,000	54,000	$22.99	$22.99	$14.99 2/	$195.96 2/	For Profit
North Carolina Aquarium at Fort Fisher	Fort Fisher, NC	1976	93,000	455,000	68	369,615	$58,301	High	482,079	18,408	$12.95	$11.95	$10.95	$89.00	State Govt. / Support Org.
Oklahoma Aquarium	Jenks, OK	2003	72,000	NA	122	1,124,700	$56,536	Low	341,909	NA	$18.95	$14.95	$14.95	$150.00	City Govt. / Support Org.
Oregon Coast Aquarium	Newport, OR	1992	110,000	1,800,000	92	59,689	$53,685	Medium	435,734	5,825	$24.95	$19.95	$14.95	$150.00	Nonprofit
Seattle Aquarium	Seattle, WA	1977	115,518	841,000	131	3,680,260	$93,352	High	865,309	10,872	$29.95	$29.95	$20.95	$179.00	Nonprofit
South Carolina Aquarium	Charleston, SC	2000	93,000	750,000	122	787,565	$69,774	High	471,183	8,925	$29.95	$29.95	$22.95	$189.00	Nonprofit
Tennessee Aquarium	Chattanooga, TN	1992	195,000	1,150,000	235	1,005,886	$52,813	High	769,100	11,800	$34.95	$34.95	$21.95	$175.00	Nonprofit
Texas State Aquarium	Corpus Christi, TX	1990	173,600	1,200,000	199	555,544	$54,028	High	546,496	6,500	$36.95	$34.95	$26.95	$269.95	Nonprofit
Virginia Aquarium	Virginia Beach, VA	1986	129,289	800,000	130	1,426,793	$66,468	High	640,231	8,894	$24.95	$22.95	$19.95	$150.00	City Govt. / Support Org.
Average			*131,601*	*949,372*	*141*	*1,801,029*	$64,126		*614,786*	*14,680*	$26.12	$23.84	$19.24	$174.86	
Median			*129,289*	*920,500*	*131*	*1,195,886*	$58,443		*640,231*	*10,872*	$27.45	$24.49	$19.95	$179.00	
Onondaga County Aquarium	*Syracuse NY*		*80,000*	*600,000*		*1,005,000*	*$59,130*	Medium							

Source: Facilities listed; Aquarium and Zoo Association (AZA); U.S. Census Bureau, Census 2010 Data; Esri forecasts for 2021 and 2026; and ConsultEcon, Inc.

1/ Full-time equivalent (FTE) is calculated using number of full-time employees, plus "1/2" for part-time.

2/ Ticket pricing at Florida, Mystic & Newport Aquariums vary daily - these rates are based on a week day, 2 weeks in advance. Newport Aq. Does not do "family" memberships; but "annual passes" - with individual pricing; this rate is based on pricing for 2 adults; 2 children.

Table V-2
Cross Tabs of Benchmark Aquarium's Scale and Market Characteristics

Name	Location	Gallons Per SF	SF Per FTE	FTE Per Gallon	Population per SF	Attendance per Population (Capture Rate)	Attendees Per SF	Attendees Per Gallon	Population Per Member-ship	Percent Discount Adult to Senior	Percent Discount Adult to Child	SF Per Avg. Ticket Price (all)
Aquarium of Niagara	Niagara Falls, NY	5.5	762	4,190	35.1	0.27	9.56	1.74	1,375	-10.0%	-25.1%	1,816
Audubon Aquarium of the Americas	New Orleans, LA	5.9	869	5,168	7.1	0.58	4.09	0.69	38	-16.7%	-16.7%	6,316
The Florida Aquarium	Tampa FL	4.0	1,247	4,988	15.5	0.21	3.24	0.81	296	-10.0%	-14.6%	9,921
Living Planet Aquarium	Draper, UT	3.7	1,030	3,788	19.1	0.31	5.88	1.60	NA	-14.3%	-23.9%	7,438
Maritime Aquarium at Norwalk	Norwalk, CT	1.8	1,600	2,853	37.3	0.09	3.53	1.98	633	-13.8%	-31.1%	5,687
Mystic Aquarium	Mystic, CT	16.7	759	12,706	11.3	0.45	5.08	0.30	130	-12.5%	-25.9%	5,798
Newport Aquarium	Newport, KY	8.0	687	5,495	19.2	0.36	6.82	0.85	44	0.0%	-34.8%	6,151
North Carolina Aquarium at Fort Fisher	Fort Fisher, NC	4.9	1,368	6,691	4.0	1.30	5.18	1.06	20	-7.7%	-15.4%	7,782
Oklahoma Aquarium	Jenks, OK	NA	593	NA	15.6	0.30	4.75	NA	NA	-21.1%	-21.1%	4,422
Oregon Coast Aquarium	Newport, OR	16.4	1,202	19,672	0.5	7.30	3.96	0.24	10	-20.0%	-40.1%	5,514
Seattle Aquarium	Seattle, WA	7.3	885	6,444	31.9	0.24	7.49	1.03	339	0.0%	-30.1%	4,286
South Carolina Aquarium	Charleston, SC	8.1	765	6,173	8.5	0.60	5.07	0.63	88	0.0%	-23.4%	3,368
Tennessee Aquarium	Chattanooga, TN	5.9	832	4,904	5.2	0.76	3.94	0.67	85	0.0%	-37.2%	6,369
Texas State Aquarium	Corpus Christi, TX	6.9	875	6,045	3.2	0.98	3.15	0.46	85	-5.4%	-27.1%	5,269
Virginia Aquarium	Virginia Beach, VA	6.2	998	6,178	11.0	0.45	4.95	0.80	160	-8.0%	-20.0%	5,717
Average		7.2	931	6,719	13.7	0.34	4.67	0.65	123	-8.7%	-26.4%	5,705
Median		7.1	991	7,054	9.2	0.54	4.95	0.70	110	-10.8%	-27.3%	5,395
Onondaga County Aquarium	*Syracuse NY*	7.5			12.6							

Source: Facilities listed; Aquarium and Zoo Association (AZA); U.S. Census Bureau, Census 2010 Data; Esri forecasts for 2021 and 2026; and ConsultEcon, Inc.

Aquarium Case Studies

Case studies were prepared for six aquariums that, as a whole, represent characteristics that provide guidance in evaluating the market and operating opportunity of the proposed Onondaga County Aquarium. These are:

- Living Planet Aquarium
- Oklahoma Aquarium
- South Carolina Aquarium
- Tennessee Aquarium
- Texas State Aquarium
- Virginia Aquarium

Descriptions and images of the case studies are provided in **Appendix B.** Data in **Table V-3** provide descriptions and operating and financial characteristics for the six case study aquariums. Data in **Table V-4** through **Table V-8** are a series of analytic tables related to the case study aquarium attendance and operating data. Analyses include that evaluates percent to total, per attendee, per square foot, and per FTE (Full Time Equivalent Employee). These data and analyses were used in the attendance potential and operating potential analyses to make estimates of potential performance and later in the study to check the resulting operating profile of the proposed Onondaga County Aquarium using the case studies.

Table V-3
Case Study Aquarium's Operating and Financial Data

Name	Living Planet Aquarium	Oklahoma Aquarium	South Carolina Aquarium	Tennessee Aquarium	Texas State Aquarium	Virginia Aquarium - Total	Virginia Aquarium - City	Virginia Aquarium - Foundation
Location	**Draper, UT**	**Jenks, OK**	**Charleston, SC**	**Chattanooga, TN**	**Corpus Christi, TX**	**Virginia Beach, VA**		
Factors								
Total Square Footage	136,000	72,000	93,000	195,000	173,600	129,289		
Total Gallons	500,000	NA	750,000	1,150,000	1,200,000	800,000		
Full-Time Equivalent Employees (FTE) [1/]	132	122	122	235	199	130		
2019 Annual Attendance	800,000	341,909	471,183	769,100	546,496	640,231		
Fiscal Year	2017	2019	2019	2019	2019	2019		
Earned & Contributed Revenues [2/]								
Fees / Tickets	$6,395,505	$4,207,664	$6,847,621	$15,999,105	$10,071,119	$7,365,622	$6,997,341	$368,281
Memberships	1,597,973	498,213	1,353,575	2,264,012		1,108,541	1,108,541	
Ancillary Sales				5,591,652	3,038,005			
Visitor / Education Programs					3,096,441	972,572		972,572
Facility Rentals & Programs				1,564,135	810,871			
Facility Use & Concessions						938,680		938,680
Catering & Birthday	758,168	314,761						
Concessions			660,442					
Food Service (net)	106,962							
Gross Gift Shop						1,607,847	1,607,847	
Net Gift Shop	521,603	223,164						
Events	123,926		495,673					
Programs			80,399					
Miscellaneous	117,126	75,069	128,483					
Fundraising					1,351,787			
Corporate Memberships	33,225							
Investment Income	10,645	150,227				274,862		274,862
Support						1,882,975	94,149	1,788,826
Grants	1,885,246		154,370					
Contributions	370,700		4,559,054	1,768,161				
Fundraising Events	103,820		327,873	204,295				
Other Income	67,979							
Total Revenue	**$12,092,878**	**$5,469,098**	**$14,607,490**	**$27,391,360**	**$18,368,223**	**$14,151,099**	**$9,807,878**	**$4,343,221**
Earned Revenue	$9,621,263	$5,318,871	$9,566,193	$25,418,904	$17,016,436	$11,993,262	$9,713,729	$2,279,533
Fundraising & Support	$2,471,615	$150,227	$5,041,297	$1,972,456	$1,351,787	$2,157,837	$94,149	$2,063,688

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-3 (Continued)
Case Study Aquarium's Operating and Financial Data

Name	Living Planet Aquarium	Oklahoma Aquarium	South Carolina Aquarium	Tennessee Aquarium	Texas State Aquarium	Virginia Aquarium - Total	Virginia Aquarium - City	Virginia Aquarium - Foundation
Operating Expenses [2/]								
Salaries, wages and benefits	$4,983,065	$2,211,619	$7,707,572	$11,876,363	$8,068,197			
Cost of Ancillary Sales				1,644,595				
Sold					$729,126	$1,112,376	$1,112,376	$0
Guest & Member Services						1,096,644	1,096,644	
Education /Programs	46,702		143,111	394,546		1,749,455	874,728	874,728
Administrative / Misc.	608,611		524,143	683,617		1,305,458	1,174,912	130,546
Professional services	97,682	222,263	79,509					
Marketing	773,826		714,273	1,688,263	1,079,975	1,356,898	1,356,898	
Aquarium Operations					4,340,483			
Experiences	155,183		273,888			4,841,881	3,147,223	1,694,658
Occupancy	940,959		673,351					
Insurance	65,156	119,827	155,408					
Repairs and maintenance	394,314	230,409	427,600	730,221	114,195			
Materials and supplies		522,852	116,320	1,261,026				
Contract services	99,476	292,074		2,216,224				
LSS	555,680							
Utilities	388,732	666,448		1,650,495				
Miscellaneous / Other		77,616	140,711	697,256				
Research & Conservation						1,579,612	789,806	789,806
Fundraising	59,260		124,853	411,472		511,892		511,892
charges	468,351	589,586	350,290	726,102	702,049			
Total Expenses	**$9,636,997**	**$4,932,694**	**$11,431,029**	**$23,980,180**	**$15,034,025**	**$13,554,216**	**$9,552,586**	**$4,001,630**
Net Revenue	**$2,455,881**	**$536,404**	**$3,176,461**	**$3,411,180**	**$3,334,198**	**$596,883**	**$255,291**	**$341,592**
Net on Earned Revenue	**($15,734)**	**$386,177**	**($1,864,836)**	**$1,438,724**	**$1,982,411**	**($1,560,954)**	**$161,143**	**($1,722,097)**

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-4
Case Study Aquarium Selected Revenue and Expense Data Analysis

Location	Average of Case Studies	Median of Case Studies	Living Planet Aquarium Draper, UT	Oklahoma Aquarium Jenks, OK	South Carolina Aquarium Charleston, SC	Tennessee Aquarium Chattanooga, TN	Texas State Aquarium Corpus Christi, TX	Virginia Aquarium - Total Virginia Beach, VA
Factors								
Total Square Footage	133,148	132,645	136,000	72,000	93,000	195,000	173,600	129,289
Total Gallons	880,000	800,000	500,000	NA	750,000	1,150,000	1,200,000	800,000
Full-Time Equivalent Employees (FTE) [1/]	156	131	132	122	122	235	199	130
2019 Annual Attendance	594,820	593,364	800,000	341,909	471,183	769,100	546,496	640,231
Fiscal Year			2017	2019	2019	2019	2019	2019
Selected Revenue and Expense Ratios								
Fees / Tickets	57.0%	53.9%	52.9%	76.9%	46.9%	58.4%	54.8%	52.0%
Memberships	7.9%	8.7%	13.2%	9.1%	9.3%	8.3%	0.0%	7.8%
Total Ancillary Sales	20.5%	19.2%	13.5%	11.2%	9.3%	26.1%	37.8%	24.9%
Earned Revenue	85.4%	88.7%	79.6%	97.3%	65.5%	92.8%	92.6%	84.8%
Fundraising & Support	14.6%	11.3%	20.4%	2.7%	34.5%	7.2%	7.4%	15.2%
Operating Expenses [2/]								
Salaries, wages and benefits	53.4%	51.7%	51.7%	44.8%	67.4%	49.5%	53.7%	
Administrative / Professional Services	4.0%	4.5%	7.3%	4.5%	5.3%	2.9%	0.0%	
Marketing	7.1%	7.1%	8.0%		6.2%	7.0%	7.2%	
Aquarium Operations Related	27.7%	27.3%	27.0%	38.7%	15.6%	27.3%	29.6%	
Fundraising	0.7%	0.6%	0.6%	0.0%	1.1%	1.7%	0.0%	
Interest expense / fiscal charges	5.5%	8.7%	4.9%	12.0%	3.1%	3.0%	4.7%	
Other	3.0%	0.0%	0.5%	0.0%	1.3%	8.5%	4.8%	
	101.4%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Net Revenue	20.1%	22.2%	25.5%	10.9%	27.8%	14.2%	22.2%	
Net on Earned Revenue	2.1%	6.0%	-0.2%	7.8%	-16.3%	6.0%	13.2%	

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017. Virginia Aquarium data is not included in expense analysis as it is not presented in a functional expense format but rather a departmental format.

REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-5
Case Study Aquarium's Operating and Financial Data Percent to Total Analysis

Location	Average of Aquariums	Weighted Average of Aquariums	Living Planet Aquarium Draper, UT	Oklahoma Aquarium Jenks, OK	South Carolina Aquarium Charleston, SC	Tennessee Aquarium Chattanooga, TN	Texas State Aquarium Corpus Christi, TX	Virginia Aquarium - Total Virginia Beach, VA	Virginia Aquarium - City	Virginia Aquarium - Foundation
Factors										
Total Square Footage	133,148		136,000	72,000	93,000	195,000	173,600	129,289		
Total Gallons	880,000		500,000	NA	750,000	1,150,000	1,200,000	800,000		
Full-Time Equivalent Employees (FTE) [1/]	156		132	122	122	235	199	130		
2019 Annual Attendance	594,820		800,000	341,909	471,183	769,100	546,496	640,231		
Fiscal Year			2017	2019	2019	2019	2019	2019		
Earned & Contributed Revenues [2/]										
Fees / Tickets	57.0%	55.3%	52.9%	76.9%	46.9%	58.4%	54.8%	52.0%	71.3%	8.5%
Memberships	7.9%	7.4%	13.2%	9.1%	9.3%	8.3%	0.0%	7.8%	11.3%	0.0%
Ancillary Sales	6.2%	9.4%	0.0%	0.0%	0.0%	20.4%	16.5%	0.0%	0.0%	0.0%
Visitor / Education Programs	4.0%	4.4%	0.0%	0.0%	0.0%	0.0%	16.9%	6.9%	0.0%	22.4%
Facility Rentals & Programs	1.7%	2.6%	0.0%	0.0%	0.0%	5.7%	4.4%	0.0%	0.0%	0.0%
Facility Use & Concessions	1.1%	1.0%	0.0%	0.0%	0.0%	0.0%	0.0%	6.6%	0.0%	21.6%
Catering & Birthday	2.0%	1.2%	6.3%	5.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Concessions	0.8%	0.7%	0.0%	0.0%	4.5%	0.0%	0.0%	0.0%	0.0%	0.0%
Food Service (net)	0.1%	0.1%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Gross Gift Shop	1.9%	1.7%	0.0%	0.0%	0.0%	0.0%	0.0%	11.4%	16.4%	0.0%
Net Gift Shop	1.4%	0.8%	4.3%	4.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Events	0.7%	0.7%	1.0%	0.0%	3.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Programs	0.1%	0.1%	0.0%	0.0%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%
Miscellaneous	0.5%	0.3%	1.0%	1.4%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Fundraising	1.2%	1.5%	0.0%	0.0%	0.0%	0.0%	7.4%	0.0%	0.0%	0.0%
Corporate Memberships	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Investment Income	0.8%	0.5%	0.1%	2.7%	0.0%	0.0%	0.0%	1.9%	0.0%	6.3%
Contributions Grants & Support	2.2%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	13.3%	1.0%	41.2%
Grants	2.8%	2.2%	15.6%	0.0%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%
Contributions	6.8%	7.3%	3.1%	0.0%	31.2%	6.5%	0.0%	0.0%	0.0%	0.0%
Fundraising Events	0.6%	0.7%	0.9%	0.0%	2.2%	0.7%	0.0%	0.0%	0.0%	0.0%
Other Income	0.1%	0.1%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Total Revenue	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**
Earned Revenue	85.4%	85.7%	79.6%	97.3%	65.5%	92.8%	92.6%	84.8%	99.0%	52.5%
Fundraising & Support	14.6%	14.3%	20.4%	2.7%	34.5%	7.2%	7.4%	15.2%	1.0%	47.5%

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-5 (Continued)
Case Study Aquarium's Operating and Financial Data Percent to Total Analysis

	Average of Aquariums	Weighted Average of Aquariums	Living Planet Aquarium	Oklahoma Aquarium	South Carolina Aquarium	Tennessee Aquarium	Texas State Aquarium	Virginia Aquarium - Total	Virginia Aquarium - City	Virginia Aquarium - Foundation
Operating Expenses [2/]										
Salaries, wages and benefits	44.5%	44.4%	51.7%	44.8%	67.4%	49.5%	53.7%	0.0%	0.0%	0.0%
Cost of Ancillary Sales	1.1%	2.1%	0.0%	0.0%	0.0%	6.9%	0.0%	0.0%	0.0%	0.0%
Merchandising /Cost of Good Sold	2.2%	2.3%	0.0%	0.0%	0.0%	0.0%	4.8%	8.2%	11.6%	0.0%
Guest & Member Services	1.3%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%	8.1%	11.5%	0.0%
Education /Programs	2.7%	3.0%	0.5%	0.0%	1.3%	1.6%	0.0%	12.9%	9.2%	21.9%
Administrative / Misc.	3.9%	4.0%	6.3%	0.0%	4.6%	2.9%	0.0%	9.6%	12.3%	3.3%
Professional services	1.0%	0.5%	1.0%	4.5%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%
Marketing	6.4%	7.1%	8.0%	0.0%	6.2%	7.0%	7.2%	10.0%	14.2%	0.0%
Aquarium Operations	4.8%	5.5%	0.0%	0.0%	0.0%	0.0%	28.9%	0.0%	0.0%	0.0%
Husbandry / Exhibits & Experiences	6.6%	6.7%	1.6%	0.0%	2.4%	0.0%	0.0%	35.7%	32.9%	42.3%
Occupancy	2.6%	2.1%	9.8%	0.0%	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%
Insurance	0.7%	0.4%	0.7%	2.4%	1.4%	0.0%	0.0%	0.0%	0.0%	0.0%
Repairs and maintenance	2.7%	2.4%	4.1%	4.7%	3.7%	3.0%	0.8%	0.0%	0.0%	0.0%
Materials and supplies	2.8%	2.4%	0.0%	10.6%	1.0%	5.3%	0.0%	0.0%	0.0%	0.0%
Contract services	2.7%	3.3%	1.0%	5.9%	0.0%	9.2%	0.0%	0.0%	0.0%	0.0%
LSS	1.0%	0.7%	5.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Utilities	4.1%	3.4%	4.0%	13.5%	0.0%	6.9%	0.0%	0.0%	0.0%	0.0%
Miscellaneous / Other	1.0%	1.2%	0.0%	1.6%	1.2%	2.9%	0.0%	0.0%	0.0%	0.0%
Research & Conservation	1.9%	2.0%	0.0%	0.0%	0.0%	0.0%	0.0%	11.7%	8.3%	19.7%
Fundraising	1.2%	1.4%	0.6%	0.0%	1.1%	1.7%	0.0%	3.8%	0.0%	12.8%
Interest expense / fiscal charges	4.6%	3.6%	4.9%	12.0%	3.1%	3.0%	4.7%	0.0%	0.0%	0.0%
Total Expenses	100.0%	100.0%	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**
Net Revenue as % of Expenses	17.5%	17.2%	25.5%	10.9%	27.8%	14.2%	22.2%	4.4%	2.7%	8.5%
Net Revenue as % of Earned Rev.	-0.2%	0.5%	-0.2%	7.8%	-16.3%	6.0%	13.2%	-11.5%	1.7%	-43.0%

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-6
Case Study Aquarium's Per Attendee Operating and Financial Data

Per Attendee Revenue and Expenses	Average of Aquariums	Weighted Average of Aquariums	Median of Case Studies	Living Planet Aquarium	Oklahoma Aquarium	South Carolina Aquarium	Tennessee Aquarium	Texas State Aquarium	Virginia Aquarium - Total Virginia
Location				**Draper, UT**	**Jenks, OK**	**Charleston, SC**	**Chattanooga, TN**	**Corpus Christi, TX**	**Beach, VA**
Factors									
Total Square Footage	133,148		132,645	136,000	72,000	93,000	195,000	173,600	129,289
Total Gallons	880,000		800,000	500,000	NA	750,000	1,150,000	1,200,000	800,000
Full-Time Equivalent Employees (FTE) [1/]	156		131	132	122	122	235	199	130
2019 Annual Attendance	594,820		593,364	800,000	341,909	471,183	769,100	546,496	640,231
Fiscal Year				2017	2019	2019	2019	2019	2019
Earned & Contributed Revenues [2/]									
Fees / Tickets	$14.26	$14.26	$13.42	$7.99	$12.31	$14.53	$20.80	$18.43	$11.50
Memberships	1.83	1.91	1.86	2.00	1.46	2.87	2.94	-	1.73
Ancillary Sales	2.14	2.42	-	-	-	-	7.27	5.56	-
Visitor / Education Programs	1.20	1.14	-	-	-	-	-	5.67	1.52
Facility Rentals & Programs	0.59	0.67	-	-	-	-	2.03	1.48	-
Facility Use & Concessions	0.24	0.26	-	-	-	-	-	-	1.47
Catering & Birthday	0.31	0.30	-	0.95	0.92	-	-	-	-
Concessions	0.23	0.19	-	-	-	1.40	-	-	-
Food Service (net)	0.02	0.03	-	0.13	-	-	-	-	-
Gross Gift Shop	0.42	0.45	-	-	-	-	-	-	2.51
Net Gift Shop	0.22	0.21	-	0.65	0.65	-	-	-	-
Events	0.20	0.17	-	0.15	-	1.05	-	-	-
Programs	0.03	0.02	-	-	-	0.17	-	-	-
Miscellaneous	0.11	0.09	0.07	0.15	0.22	0.27	-	-	-
Fundraising	0.41	0.38	-	-	-	-	-	2.47	-
Corporate Memberships	0.01	0.01	-	0.04	-	-	-	-	-
Investment Income	0.15	0.12	0.01	0.01	0.44	-	-	-	0.43
Contributions Grants & Support	0.49	0.53	-	-	-	-	-	-	2.94
Grants	0.45	0.57	-	2.36	-	0.33	-	-	-
Contributions	2.07	1.88	0.23	0.46	-	9.68	2.30	-	-
Fundraising Events	0.18	0.18	0.06	0.13	-	0.70	0.27	-	-
Other Income	0.01	0.02	-	0.08	-	-	-	-	-
Total Revenue	**$25.57**	**$25.80**	**$26.55**	**$15.12**	**$16.00**	**$31.00**	**$35.61**	**$33.61**	**$22.10**
Earned Revenue	$21.80	$22.12	$19.52	$12.03	$15.56	$20.30	$33.05	$31.14	$18.73
Fundraising & Support	$3.77	$3.68	$2.83	$3.09	$0.44	$10.70	$2.56	$2.47	$3.37

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-6 (Continued)
Case Study Aquarium's Operating and Financial Data Percent to Total Analysis

Per Attendee Revenue and Expenses	Average of Aquariums	Weighted Average of Aquariums	Median of Case Studies	Living Planet Aquarium	Oklahoma Aquarium	South Carolina Aquarium	Tennessee Aquarium	Texas State Aquarium	Virginia Aquarium - Total
Operating Expenses [2/]									
Salaries, wages and benefits	$9.88	$9.76	$10.62	$6.23	$6.47	$16.36	$15.44	$14.76	$0.00
Cost of Ancillary Sales	$0.36	$0.46	$0.00	$0.00	$0.00	$0.00	$2.14	$0.00	$0.00
Merchandising /Cost of Good Sold	$0.51	$0.52	$0.00	$0.00	$0.00	$0.00	$0.00	$1.33	$1.74
Guest & Member Services	$0.29	$0.31	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$1.71
Education /Programs	$0.60	$0.65	$0.18	$0.06	$0.00	$0.30	$0.51	$0.00	$2.73
Administrative / Misc.	$0.80	$0.87	$0.82	$0.76	$0.00	$1.11	$0.89	$0.00	$2.04
Professional services	$0.16	$0.11	$0.06	$0.12	$0.65	$0.17	$0.00	$0.00	$0.00
Marketing	$1.46	$1.57	$1.75	$0.97	$0.00	$1.52	$2.20	$1.98	$2.12
Aquarium Operations	$1.32	$1.22	$0.00	$0.00	$0.00	$0.00	$0.00	$7.94	$0.00
Husbandry / Exhibits & Experiences	$1.39	$1.48	$0.10	$0.19	$0.00	$0.58	$0.00	$0.00	$7.56
Occupancy	$0.43	$0.45	$0.00	$1.18	$0.00	$1.43	$0.00	$0.00	$0.00
Insurance	$0.13	$0.10	$0.04	$0.08	$0.35	$0.33	$0.00	$0.00	$0.00
Repairs and maintenance	$0.54	$0.53	$0.58	$0.49	$0.67	$0.91	$0.95	$0.21	$0.00
Materials and supplies	$0.57	$0.53	$0.12	$0.00	$1.53	$0.25	$1.64	$0.00	$0.00
Contract services	$0.64	$0.73	$0.06	$0.12	$0.85	$0.00	$2.88	$0.00	$0.00
LSS	$0.12	$0.16	$0.00	$0.69	$0.00	$0.00	$0.00	$0.00	$0.00
Utilities	$0.76	$0.76	$0.24	$0.49	$1.95	$0.00	$2.15	$0.00	$0.00
Miscellaneous / Other	$0.24	$0.26	$0.11	$0.00	$0.23	$0.30	$0.91	$0.00	$0.00
Research & Conservation	$0.41	$0.44	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$2.47
Fundraising	$0.28	$0.31	$0.17	$0.07	$0.00	$0.26	$0.54	$0.00	$0.80
Interest expense / fiscal charges	$0.88	$0.79	$0.84	$0.59	$1.72	$0.74	$0.94	$1.28	$0.00
Total Expenses	**$21.77**	**$22.01**	**$22.72**	**$12.05**	**$14.43**	**$24.26**	**$31.18**	**$27.51**	**$21.17**
Net Revenue	$0.64	$3.79	$0.18	$3.07	$0.11	$0.28	$0.14	$0.22	$0.04
Net on Earned Revenue	($0.00)	$0.10	$0.02	($0.02)	$0.08	($0.16)	$0.06	$0.13	($0.12)

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-7
Case Study Aquarium's Operating and Financial Data
Case Study Aquarium's Operating and Financial Data Per Square Foot Analysis

Per Square Foot Revenue and Expenses Location	Average of Aquariums	Weighted Average of Aquariums	Median of Aquariums	Living Planet Aquarium Draper, UT	Oklahoma Aquarium Jenks, OK	South Carolina Aquarium Charleston, SC	Tennessee Aquarium Chattanooga, TN	Texas State Aquarium Corpus Christi, TX	Virginia Aquarium - Total Virginia Beach, VA
Factors									
Total Square Footage	133,148		132,645	136,000	72,000	93,000	195,000	173,600	129,289
Total Gallons	880,000		800,000	500,000	NA	750,000	1,150,000	1,200,000	800,000
Full-Time Equivalent Employees (FTE) [1/]	156		131	132	122	122	235	199	130
2019 Annual Attendance	594,820		593,364	800,000	341,909	471,183	769,100	546,496	640,231
Fiscal Year				2017	2019	2019	2019	2019	2019
Earned & Contributed Revenues [2/]									
Fees / Tickets	$62.69	$63.70	$58.23	$47.03	$58.44	$73.63	$82.05	$58.01	$56.97
Memberships	8.90	8.54	10.09	11.75	6.92	14.55	11.61	-	8.57
Ancillary Sales	7.70	10.80	-	-	-	-	28.68	17.50	-
Visitor / Education Programs	4.23	5.09	-	-	-	-	-	17.84	7.52
Facility Rentals & Programs	2.12	2.97	-	-	-	-	8.02	4.67	-
Facility Use & Concessions	1.21	1.17	-	-	-	-	-	-	7.26
Catering & Birthday	1.66	1.34	-	5.57	4.37	-	-	-	-
Concessions	1.18	0.83	-	-	-	7.10	-	-	-
Food Service (net)	0.13	0.13	-	0.79	-	-	-	-	-
Gross Gift Shop	2.07	2.01	-	-	-	-	-	-	12.44
Net Gift Shop	1.16	0.93	-	3.84	3.10	-	-	-	-
Events	1.04	0.78	-	0.91	-	5.33	-	-	-
Programs	0.14	0.10	-	-	-	0.86	-	-	-
Miscellaneous	0.55	0.40	0.43	0.86	1.04	1.38	-	-	-
Fundraising	1.30	1.69	-	-	-	-	-	7.79	-
Corporate Memberships	0.04	0.04	-	0.24	-	-	-	-	-
Investment Income	0.72	0.55	0.04	0.08	2.09	-	-	-	2.13
Contributions Grants & Support	2.43	2.36	-	-	-	-	-	-	14.56
Grants	2.59	2.55	-	13.86	-	1.66	-	-	-
Contributions	10.14	8.38	1.36	2.73	-	49.02	9.07	-	-
Fundraising Events	0.89	0.80	0.38	0.76	-	3.53	1.05	-	-
Other Income	0.08	0.09	-	0.50	-	-	-	-	-
Total Revenue	**$112.95**	**$115.26**	**$107.63**	**$88.92**	**$75.96**	**$157.07**	**$140.47**	**$105.81**	**$109.45**
Earned Revenue	$94.77	$98.81	$95.39	$70.74	$73.87	$102.86	$130.35	$98.02	$92.76
Fundraising & Support	$18.18	$16.45	$13.40	$18.17	$2.09	$54.21	$10.12	$7.79	$16.69

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-7 (Continued)
Case Study Aquarium's Operating and Financial Data
Case Study Aquarium's Operating and Financial Data Per Square Foot Analysis

Per Square Foot Revenue and Expenses	Average of Aquariums	Weighted Average of Aquariums	Median of Aquariums	Living Planet Aquarium	Oklahoma Aquarium	South Carolina Aquarium	Tennessee Aquarium	Texas State Aquarium	Virginia Aquarium - Total
Operating Expenses [2/]									
Salaries, wages and benefits	$42.94	$43.62	$41.56	$36.64	$30.72	$82.88	$60.90	$46.48	$0.00
Cost of Ancillary Sales	1.41	2.06	-	-	-	-	8.43	-	-
Merchandising /Cost of Good Sold	2.13	2.31	-	-	-	-	-	4.20	8.60
Guest & Member Services	1.41	1.37	-	-	-	-	-	-	8.48
Education /Programs	2.91	2.92	0.94	0.34	-	1.54	2.02	-	13.53
Administrative / Misc.	3.95	3.91	3.99	4.48	-	5.64	3.51	-	10.10
Professional services	0.78	0.50	0.36	0.72	3.09	0.85	-	-	-
Marketing	6.46	7.03	6.95	5.69	-	7.68	8.66	6.22	10.50
Aquarium Operations	4.17	5.43	-	-	-	-	-	25.00	-
Husbandry / Exhibits & Experiences	6.92	6.60	0.57	1.14	-	2.95	-	-	37.45
Occupancy	2.36	2.02	-	6.92	-	7.24	-	-	-
Insurance	0.64	0.43	0.24	0.48	1.66	1.67	-	-	-
Repairs and maintenance	2.52	2.37	3.05	2.90	3.20	4.60	3.74	0.66	-
Materials and supplies	2.50	2.38	0.63	-	7.26	1.25	6.47	-	-
Contract services	2.69	3.26	0.37	0.73	4.06	-	11.37	-	-
LSS	0.68	0.70	-	4.09	-	-	-	-	-
Utilities	3.43	3.39	1.43	2.86	9.26	-	8.46	-	-
Miscellaneous / Other	1.03	1.15	0.54	-	1.08	1.51	3.58	-	-
Research & Conservation	2.04	1.98	-	-	-	-	-	-	12.22
Fundraising	1.31	1.39	0.89	0.44	-	1.34	2.11	-	3.96
Interest expense / fiscal charges	3.86	3.55	3.75	3.44	8.19	3.77	3.72	4.04	-
Total Expenses	**$96.12**	**$98.35**	**$95.72**	**$70.86**	**$68.51**	**$122.91**	**$122.98**	**$86.60**	**$104.84**
Net Revenue	$3.14	$16.91	$0.18	$18.06	$0.11	$0.28	$0.14	$0.22	$0.04
Net on Earned Revenue	($1.35)	$0.46	$2.62	($0.12)	$5.36	($20.05)	$7.38	$11.42	($12.07)

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-8
Case Study Aquarium's Operating and Financial Data
Case Study Aquarium's Operating and Financial Data Per Full Time Equivalent Employee (FTE) Analysis

Per Full Time Equivalent Employee (FTE) Revenue and Expenses Location	Average of Aquariums	Weighted Average of Aquariums	Median of Aquariums	Living Planet Aquarium Draper, UT	Oklahoma Aquarium Jenks, OK	South Carolina Aquarium Charleston, SC	Tennessee Aquarium Chattanooga, TN	Texas State Aquarium Corpus Christi, TX	Virginia Aquarium - Total Virginia Beach, VA
Factors									
Total Square Footage	133,148		132,645	136,000	72,000	93,000	195,000	173,600	129,289
Total Gallons	880,000		800,000	500,000	NA	750,000	1,150,000	1,200,000	800,000
Full-Time Equivalent Employees (FTE) [1/]	156		131	132	122	122	235	199	130
2019 Annual Attendance	594,820		593,364	800,000	341,909	471,183	769,100	546,496	640,231
Fiscal Year				2017	2019	2019	2019	2019	2019
Earned & Contributed Revenues [2/]									
Fees / Tickets	$52,547	$54,279	$53,548	$48,451	$34,631	$56,359	$68,226	$50,736	$56,877
Memberships	7,594	7,277	9,107	12,106	4,101	11,141	9,655	-	8,560
Ancillary Sales	6,525	9,205	-	-	-	-	23,845	15,305	-
Visitor / Education Programs	3,852	4,340	-	-	-	-	-	15,599	7,510
Facility Rentals & Programs	1,793	2,533	-	-	-	-	6,670	4,085	-
Facility Use & Concessions	1,208	1,001	-	-	-	-	-	-	7,248
Catering & Birthday	1,389	1,144	-	5,744	2,591	-	-	-	-
Concessions	906	704	-	-	-	5,436	-	-	-
Food Service (net)	135	114	-	810	-	-	-	-	-
Gross Gift Shop	2,069	1,715	-	-	-	-	-	-	12,416
Net Gift Shop	965	794	-	3,952	1,837	-	-	-	-
Events	836	661	-	939	-	4,080	-	-	-
Programs	110	86	-	-	-	662	-	-	-
Miscellaneous	427	342	309	887	618	1,057	-	-	-
Fundraising	1,135	1,442	-	-	-	-	-	6,810	-
Corporate Memberships	42	35	-	252	-	-	-	-	-
Investment Income	573	465	40	81	1,236	-	-	-	2,122
Contributions Grants & Support	2,423	2,009	-	-	-	-	-	-	14,540
Grants	2,592	2,176	-	14,282	-	1,271	-	-	-
Contributions	7,979	7,144	1,404	2,808	-	37,523	7,540	-	-
Fundraising Events	726	678	393	787	-	2,699	871	-	-
Other Income	86	73	-	515	-	-	-	-	-
Total Revenue	**$95,912**	**$98,219**	**$100,905**	**$91,613**	**$45,013**	**$120,226**	**$116,808**	**$92,535**	**$109,275**
Earned Revenue	$80,355	$84,197	$82,230	$72,888	$43,777	$78,734	$108,396	$85,725	$92,612
Fundraising & Support	$15,556	$14,022	$12,537	$18,724	$1,236	$41,492	$8,411	$6,810	$16,663

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Table V-8 (Continued)
Case Study Aquarium's Operating and Financial Data
Case Study Aquarium's Operating and Financial Data Per Full Time Equivalent Employee (FTE) Analysis

Per Full Time Equivalent Employee (FTE) Revenue and Expenses	Average of Aquariums	Weighted Average of Aquariums	Median of Aquariums	Living Planet Aquarium	Oklahoma Aquarium	South Carolina Aquarium	Tennessee Aquarium	Texas State Aquarium	Virginia Aquarium - Total
Operating Expenses [2/]									
Salaries, wages and benefits	$35,114	$37,170	$39,198	$37,750	$18,203	$63,437	$50,645	$40,646	$0
Cost of Ancillary Sales	1,169	1,754	-	-	-	-	7,013	-	-
Merchandising /Cost of Good Sold	2,044	1,964	-	-	-	-	-	3,673	8,590
Guest & Member Services	1,411	1,170	-	-	-	-	-	-	8,468
Education /Programs	2,787	2,489	766	354	-	1,178	1,682	-	13,509
Administrative / Misc.	3,653	3,330	3,615	4,611	-	4,314	2,915	-	10,081
Professional services	537	426	327	740	1,829	654	-	-	-
Marketing	5,810	5,987	5,871	5,862	-	5,879	7,199	5,441	10,478
Aquarium Operations	3,644	4,630	-	-	-	-	-	21,866	-
Husbandry / Exhibits & Experiences	6,803	5,622	588	1,176	-	2,254	-	-	37,389
Occupancy	2,112	1,722	-	7,128	-	5,542	-	-	-
Insurance	460	363	247	494	986	1,279	-	-	-
Repairs and maintenance	2,015	2,023	2,442	2,987	1,896	3,519	3,114	575	-
Materials and supplies	1,773	2,027	479	-	4,303	957	5,378	-	-
Contract services	2,101	2,782	377	754	2,404	-	9,451	-	-
LSS	702	593	-	4,210	-	-	-	-	-
Utilities	2,578	2,886	1,472	2,945	5,485	-	7,038	-	-
Miscellaneous / Other	795	977	319	-	639	1,158	2,973	-	-
Research & Conservation	2,033	1,685	-	-	-	-	-	-	12,198
Fundraising	1,197	1,181	738	449	-	1,028	1,755	-	3,953
Interest expense / fiscal charges	2,986	3,025	3,317	3,548	4,853	2,883	3,096	3,537	-
Total Expenses	**$81,726**	**$83,807**	**$84,910**	**$73,008**	**$40,598**	**$94,083**	**$102,261**	**$75,738**	**$104,666**
Net Revenue	$14,186	$14,412	$15,672	$18,605	$4,415	$26,144	$14,547	$16,797	$4,609
Net on Earned Revenue	($1,370)	$390	$1,530	($119)	$3,178	($15,348)	$6,135	$9,987	($12,054)

1/ FTE is calculated as all full time workers and part-time workers at half-time employment.

2/ All data is for 2019 except Living Planet Aquarium financial data is for 2017.

Sources: Individual aquariums cited; AZA Member Data Report; Oklahoma Aquarium, JENKS AQUARIUM AUTHORITY ANNUAL FINANCIAL STATEMENTS AND INDEPENDENT AUDITOR'S REPORT FOR THE FISCAL YEAR ENDED JUNE 30, 2019; Loveland Living Planet Aquarium, 2017 P&L; Tennessee Aquarium, Report on Financial Statements, Year ending Dec. 31, 2019; Texas State Aquarium, 2019 annual report; Virginia Aquarium, 2019 annual report; South Carolina Aquarium, Annual Report, 2019; Tennessee Aquarium, Report on Financial Statements For the year ended December 31, 2019; and ConsultEcon, Inc.

Overview of Comparable and Case Study Aquarium Findings

Following is discussion of findings from the fifteen benchmark aquariums and six case studies.

Aquarium Size and Program

Aquarium size and program content are important determinants of the market potential of new or expanding aquariums. Sufficient program content is needed to persuade tourists and residents to allocate their time and money for a visit. The aquarium program must be of sufficient quality to create a pattern of repeat visitation. The facility must be able to accommodate peak-period visitation, yet not be so large that it is uneconomical to build and operate. The facility size and program must respond to the market potential of its location, and to the trade-offs that their promoters make in balancing visitation levels against capital and operating costs.

Market Characteristics

Aquariums draw from both resident and tourist markets. The fifteen benchmark aquariums range in population within a 60-minute drive time.

Market Capture Rates

The experience of modern aquariums shows that the size of their market capture or "penetration" rates, are somewhat inversely related to the size of their markets. Aquariums in smaller markets typically capture a larger percentage of available residents and tourists compared to larger market areas.

Segmenting market penetration into the relative performances of the resident market and tourist market is a more meaningful analysis that compares the attendance from the resident market to the size of the resident market, and the attendance from the tourist market to the size of the tourist market. Based on data from visitor surveys some aquariums in smaller markets have achieved local resident market penetration rates of 10 to 40 percent, while aquariums located in areas with large populations tend to have somewhat lower market penetration rates. Tourist market penetration rates can range from 3 to 15 percent or more.

As with resident markets, the rate of market penetration depends on the size of the available markets, admission pricing, and the capacity of the project to attract visitors.

Earned Revenues:

Major sources of earned revenues include:

- Admissions
- Memberships
- Upcharges and special experiences (behind the scenes tours, eco boat tours, animal encounters etc.)
- Programs
- Retail
- Food Service
- Special Events and Facility Rentals
- Miscellaneous (i.e. stroller and locker rentals, fish feeding, donation boxes)

Aquarium Admission Fees

An important determinant of attendance and of the financial performance of an aquarium is admission price. Aquarium admission prices vary considerably depending upon a range of factors. Ticket pricing is determined by the length of stay and experiences offered as well as the relative pricing in the local market. Tourist areas generally have higher pricing. Overall, factors that influence pricing include:

- Program content/project size
- Cost of living in the area
- Orientation to tourist versus resident markets
- Public versus private orientation, and the extent of government support
- Visitation/price trade-off targets by management
- Size of the market
- Presence/absence of other visitor attractions in the area
- Age and cost of improvements

In some cases, aquarium admission tickets are combined with other on-site attractions, such as large format theaters, behind-the-scenes tours; animal interactions, sponsored nature tours and related activities, combination tickets are sold at a discount to induce the purchase of tickets to both attractions.

Non-Earned Revenues:

Private, non-profit aquariums, and some for-profit aquariums, have the potential for non-earned revenue which can in general comprise between 0 and 50 percent of total revenue. Non-earned sources can include:

- Donations
- Government support
- Gifts In-Kind
- Corporate Memberships and/or Sponsorships
- Educational Programs
- Research Grants
- Interest on Operating and Replacement Reserve Account Balances
- Endowment Proceeds
- Other

Operations

Salaries, wages, and benefits typically represent 50 to 60 percent of operating expenses and aquarium operations such as utilities, maintenance and insurance represent 20 to 30 percent of operating expenses. The per SF operations cost for the case studies range from $70 to $120 per SF, and averaged $95 per SF. Per attendee operating expenses average $22 for the case study aquariums.

Summary

While there are established market metrics and operating profiles that the benchmarks and case study aquariums generally operate within, each individual aquarium has unique circumstances, markets, facilities and operating strategies that shape their operating profile.

There are clearly varying market and operating strategies that have established successful aquariums as economically sustainable institutions that are vital to their communities.

Section VI

ATTENDANCE POTENTIAL AND INDICATED AQUARIUM SCALE

This section is an assessment of the preliminary attendance potential of the proposed Onondaga County Aquarium. This analysis will require refinement as the project moves into later programming, design, and implementation phases.

Aquariums' Market Performance

Aquariums appeal to a wide variety of demographic profiles and levels of knowledge about aquatic environments. They are popular with children, young adults, adults, and seniors. They are popular with area residents and tourists. Aquariums are enjoyed by people with deep interest in marine ecosystems and the environment and by those who mainly enjoy the beauty and visceral experiences offered. Aquariums work well for school groups as there is much to learn. Students really enjoy the experience so that the quality of the learning experience is enhanced. Aquariums are highly repeatable experiences and have high membership rates because each visit offers a somewhat different experience, and their conservation messages are well received by visitors. It is an important finding of our research over the last four decades that aquariums can achieve success in various market contexts given quality program content, competitive pricing, strategic marketing programs and a sustainable operating model.

Aquariums are a well-known attraction type that most visitors have visited in the past. While aquariums offer a highly repeatable experience, there are high expectations by the audience that the experience will be "fresh" and that new reasons to visit will be offered. Thus, high-quality programs and events, animal encounters, and changing exhibit programs are essential to aquarium long-term success. Some aquariums have successfully interpreted their unique, local marine or freshwater stories, becoming a "must-see" destination in their respective markets as a visit to the aquarium becomes part of the tourists' experience in learning about the place they are visiting. Also needed are "exotic" and "spectacular" aquatic experiences as will be discussed in subsequent report chapters.

Proposed Onondaga County Aquarium Attendance and Operating Assumptions

As a visitor attraction and aquarium, the proposed Onondaga County Aquarium would operate under the norms of such facilities nationally, adjusted for local conditions. Project assumptions relating to the facility and market for the proposed new aquarium are as follows:

- The Onondaga County Aquarium will be well designed and constructed. It will be of a scale in size and in quality to be recognized nationally as a facility of excellence. Based on the benchmark experience of other aquariums in similarly sized markets, this operations analysis assumes a high-quality facility with approximately 80,000 square feet of both indoor space plus outdoor areas and 600,000 gallons of water volume.[10]
- The Onondaga County Aquarium will include entertaining and educational exhibits and programs. Each year the Aquarium is assumed to offer a new, changing exhibit. Changing exhibits are essential to attracting new visitors and repeat visitation.
- The Onondaga County Aquarium will be in the Inner Harbor District of Syracuse.
- The proposed Onondaga County Aquarium will be open year-round, seven days a week with potential for longer operating hours during peak season. The facility and site will be used for special events and cultural activities after hours to promote community support and generate additional income when they do not disrupt regular visitation.
- The Onondaga County Aquarium will be well managed and will have the appropriate staff and management infrastructure to support a project of this nature. The structure, its exhibits, finishes, mechanical equipment and support systems will be well maintained to minimize insurance risks and unexpected repair and maintenance expenditures. Maintaining the exhibits in excellent condition is essential to customer satisfaction.
- The Onondaga County Aquarium will build a compelling organizational vision, with strong and distinguished advisors and staff, and the project will have a strong base of community support. The project will also be managed to provide dynamic and effective educational programs and dramatic and continually evolving new exhibits.
- Onondaga County Aquarium's ticket prices as included herein will be commensurate with the experience and value offered. Educational groups will be invited to visit at discounted prices and will receive a worthwhile and enjoyable educational experience.

[10] See Section VII for detailed physical size and aquarium concept analyses.

- The Onondaga County Aquarium will develop an aggressive marketing program to achieve and maintain attendance and continually attract new visitors. Community outreach will be a cornerstone of the programming effort.

Preliminary Market Potential of the Onondaga County Aquarium

Data in **Tables VI-1** detailed analyses of the preliminary market potential of the Onondaga County Aquarium. The stable year attendance potential for the Onondaga County Aquarium ranges from 400,000 to 570,000, with a mid-range of 490,000. An estimated 50 percent of visitors are from the Resident Market and 50 percent of visitors from the Tourist Market. Due to excitement and anticipation for the project, opening year attendance can be 10 or 20 percent above stable year levels.

Table VI-1
Visitation Potential Estimates
Onondaga County Aquarium

		Market Capture Rates		Attendance Range			Percent to Mid Range to Total Attendance
RESIDENT MARKET	Estimated 2026 Population	Low	High	Low Range Attendance	Mid Range Attendance	High Range Attendance	
Primary Market Area (Total 20-Minute Drive)	402,000	30.0%	40.0%	120,600	140,700	160,800	29%
Secondary Market Area (Onondaga County, Less 20-Minute Drive)	60,000	25.0%	35.0%	15,000	18,000	21,000	4%
Tertiary Market Area (40-Minute Drive, Less Onondaga County)	175,000	18.0%	25.0%	31,500	37,625	43,750	8%
Quaternary Market Area (60-Minute Drive, Less 40-Minute Drive)	368,000	10.0%	15.0%	36,800	46,000	55,200	9%
Total Resident Market (60-Minute Drive)	**1,005,000**	**20.3%**	**27.9%**	**203,900**	**242,325**	**280,750**	**50%**
TOURIST MARKET		Low	High	Low Range Attendance	Mid Range Attendance	High Range Attendance	
Tourist Market as a Percent of Total		49.0%	51.0%	195,904	244,057	292,209	50%
Total Stabilized Visitation Range				399,804	486,382	572,959	100%
Rounded Stabilized Visitation [1/]				**400,000**	**490,000**	**570,000**	

1/ Rounded to nearest 10,000.
Source: ESRI and ConsultEcon, Inc.

10 Year Attendance Trend

Data in **Table VI-2** show an estimated 10-year visitation trend, with an early year surge and visitation subsequently moving toward stabilized visitation in year 3. Attendance is assumed to grow half a percent in each year subsequent. For most new public attractions, admissions typically surge at project opening due to excitement and anticipation in the community. Programs, events and facility rental activity conversely tends to ramp up over time to stable operations.

Table VI-2
10 Year Attendance Potential Trends
Onondaga County Aquarium

	YEAR 1	YEAR 2	Stable Year [1/ 2/] YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
Percentage of Stabilized Attendance Potential	120%	110%	100%	100.5%	101.0%	101.5%	102.0%	102.5%	103.0%	103.5%
Mid Range Visitation	**588,000**	**539,000**	**490,000**	**492,450**	**494,900**	**497,350**	**499,800**	**502,250**	**504,700**	**507,150**
Low Range Visitation	480,000	440,000	400,000	402,000	404,000	406,000	408,000	410,000	412,000	414,000
High Range Visitation	684,000	627,000	570,000	572,850	575,700	578,550	581,400	584,250	587,100	589,950

1/ Year 3 represents a stabilized year of attendance.

2/ Assumes 1% growth rate annually after stable Year 3, assuming changing exhibits each year.

Source: ConsultEcon, Inc.

Attendance Seasonality

Data in **Table VI-3** show an estimate of the seasonal pattern of attendance at Onondaga County Aquarium.

Table VI-3
Attendance Seasonality Estimates
Onondaga County Aquarium

	Low-Range Attendance		Mid-Range Attendance		High-Range Attendance	
	Percent to Total	Monthly	Percent to Total	Monthly	Percent to Total	Monthly
January	6%	24,000	6%	29,400	6%	34,200
February	6%	24,000	6%	29,400	6%	34,200
March	7%	28,000	7%	34,300	7%	39,900
April	8%	32,000	8%	39,200	8%	45,600
May	10%	40,000	10%	49,000	10%	57,000
June	10%	40,000	10%	49,000	10%	57,000
July	13%	52,000	13%	63,700	13%	74,100
August	11%	44,000	11%	53,900	11%	62,700
September	8%	32,000	8%	39,200	8%	45,600
October	9%	36,000	9%	44,100	9%	51,300
November	6%	24,000	6%	29,400	6%	34,200
December	6%	24,000	6%	29,400	6%	34,200
Total	**100%**	**400,000**	**100%**	**490,000**	**100%**	**570,000**

Source: ConsultEcon, Inc.

Attendance Mix and Pricing

Data in **Table IV-4** show assumed ticket and membership prices by type to calculate the average ticket revenue per capita and the average membership revenue per membership in a stable year of operations. The assumed adult ticket price is $21.95, and the assumed family membership price is $175.

Table VI-4
Admissions Mix and Membership Analysis in
2021 Dollars in a Mid-Range Stable Year
Onondaga County Aquarium

Per Capita Ticket Revenue	% to Total Attendance	Attendance By Type	Ticket Price	Achieved Portion of Admissions Per Capita	Percent of Achieved Per Capita Subtotal
Adult	32.0%	156,800	$21.95	$7.02	48.7%
Senior/Military/Student	12.0%	58,800	$19.95	$2.39	16.6%
Children (3-12)	23.0%	112,700	$16.95	$3.90	27.1%
Student Group	11.0%	53,900	$9.95	$1.09	7.6%
Members / Annual Pass Holders	14.0%	68,600	$0.00	$0.00	0.0%
Facility Rentals and Special Events	3.0%	14,700	$0.00	$0.00	0.0%
Other Free/Complimentary [1/]	5.0%	24,500	$0.00	$0.00	0.0%
Subtotal	**100.0%**	**490,000**		**$14.41**	**100.0%**
Discounts as a percent of achieved per capita ticket revenue 10%				($1.44)	
Total				**$12.97**	

Memberships Estimates	Total
No. of Member Attendances	68,600
Attendances per Membership	12
Est. Total Memberships	**5,720**
Avg Membership Revenue	$171
Membership Revenue Potential	$978,120

Membership Types	Percent to Total	Estimated Number of Memberships	Avg. Price By Type
Individual	3.0%	172	$65
Dual	10.0%	572	$120
Family	84.0%	4,805	$175
Supporter [2/]	3.0%	172	$350
Total	**100.0%**	**5,721**	**$171.46**
Rounded:		**5,720**	**$171.00**

1/ Includes complimentary tickets, children under three years old, VIP, corporate membership visits, etc.

2/ There would likely be several categories of supportive memberships with fees ranging from an estimated $250 to $500.

Source: ConsultEcon, Inc.

Summary

The stable year attendance potential for the Onondaga County Aquarium ranges from 400,000 to 570,000, with a mid-range of 490,000. Due to excitement and anticipation for the project, opening year attendance can be 20 percent or more above stable year levels. The aquarium attendance and operations will stabilize after 3 or 4 years. The adult ticket price is assumed at $21.95, with discounts offered for seniors, children, students, military, and others. An estimated 50 percent of visitors are drawn from the Resident Market and 50 percent of visitors drawn from the Tourist Market.

Section VII

PHYSICAL PLANNING AND CONCEPT DEVELOPMENT

This section includes, for the proposed Onondaga County Aquarium, an evaluation of physical planning parameters, including warranted aquarium size, aquarium water volume and initial concept development.

Facility Size

The high day facility sizing analysis is based on the mid-range attendance potential. Data in **Table VII-1** helps to establish the preliminary physical planning parameters for the project. The average length of in-facility stay assumed at 1.5 to 2 hours. To support the mid-range attendance level, the physical planning parameters are:

- Visitor parking demand of 300 to 345 spaces during peak periods, with lower demand during most of the year. (This parking could be accommodated on site or within easy walking distance).
- Range of public circulation space of 21,400 SF to 24,500 SF
- Total high day facility size range of 64,200 SF to 85,700 SF

This analysis and aquarium industry data informed the assumed "right size" for the Onondaga County Aquarium at this site is to 80,000 SF and 600,000 gallons of water volume. This project scale has the potential to become a destination and regional serving aquarium. In addition, outside areas would be used for additional exhibits and visitor experiences, visitor access, open space café and event seating.

Table VII-1
High Day Facility Sizing Parameters in Stabilized Year
Onondaga County Aquarium

	Low-Range Attendance	Mid-Range Attendance		High-Range Attendance
Stable Year Visitation [1/]	400,000	490,000		570,000
High Month as Percent of Visitation	13%	13%		13%
High Month Attendance	52,000	63,700		74,100
High Week at 24% of High Month	12,480	15,288		17,784
High Day at 20% in High Week	2,496	3,058		3,557
Length of Stay / Percent In-House Population	**1.5 Hour Stay - 28%**	**1.5 Hour Stay - 28%**	**2 Hour Stay - 32%**	**1.5 Hour Stay - 28%**
In-House Population at Peak Hour	699	856	978	996
Visitor Peak Hour Parking Demand [2/]	232	285	325	331
Public Space Sizing at 25 SF/Attendee				
Range of Public Circulation Space	17,472 SF	21,400 SF	24,500 SF	24,900 SF
Facility Sizing [3/]	**3.0 Times**	**3.0 Times**	**3.5 Times**	**3.0 Times**
Total Facility Size Range	52,400 SF	64,200 SF	85,750 SF	74,700 SF

1/ Early year attendance may be 15 percent higher or more.

2/ Based on 95 percent auto usage during high attendance periods, an average of 3.0 persons per vehicle, plus 5% turnover requirement. Does not include staff or volunteer parking.

3/ Broad planning parameters are used to test facility sizing, estimating that there will be 2x as much back of house and supportive space as there will be public circulation space. Supportive and non-circulation spaces include exhibit footprint, offices, life support systems, storage and so forth.

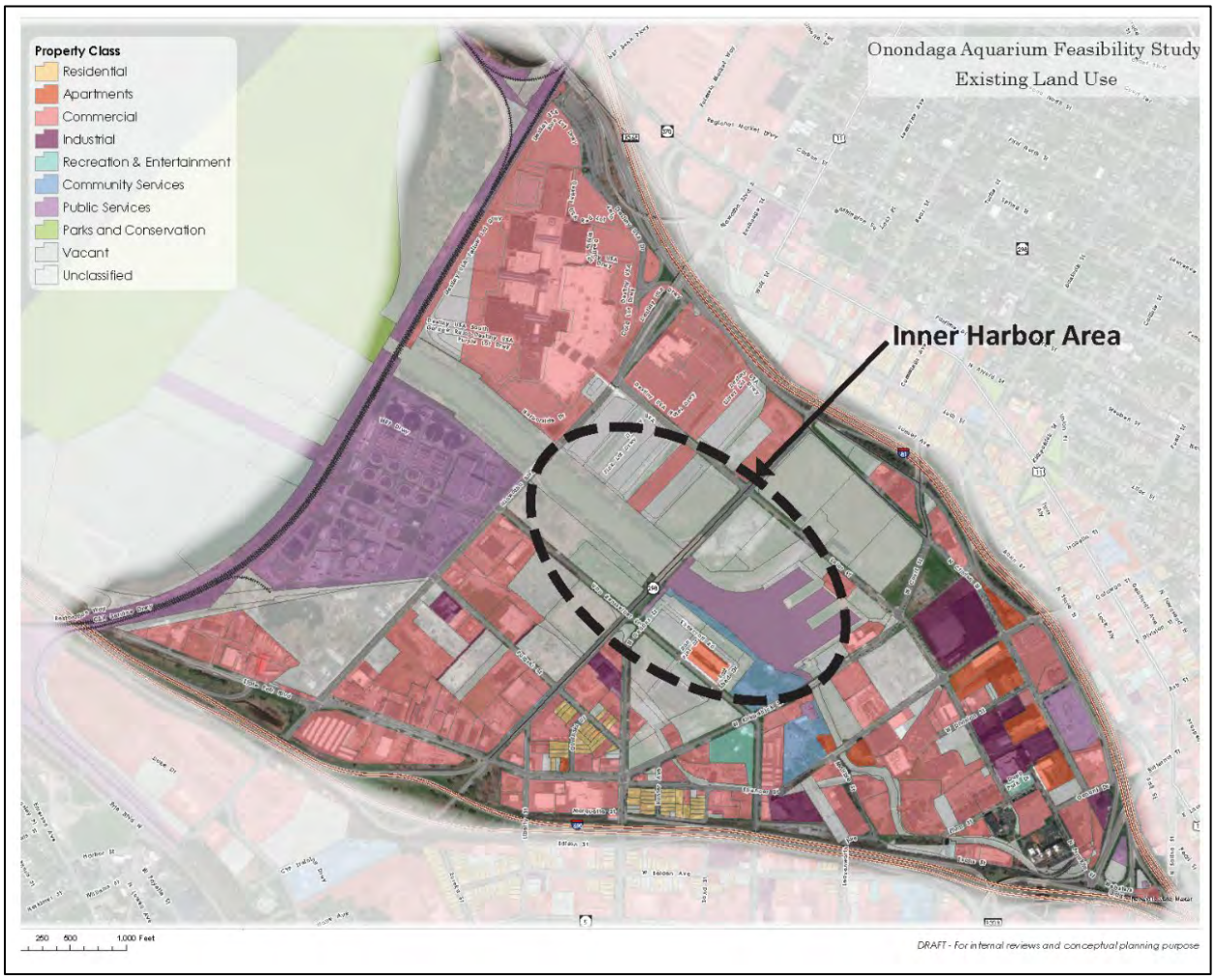
Source: ConsultEcon, Inc.

Site Conceptual Visualization

Because a specific site has not been secured, the analysis has assumed a "generic waterfront site" in the Inner Harbor Area that would meet the siting requirements of a major aquarium and could serve to advance the legacy goal of revitalizing the Syracuse Inner Harbor. The "generic" site would be developed at a to-be-determined location in the Inner Harbor Area, as identified in **Figure VII-1**. The purpose of the generic site is for proof-of-concept from an overall economic feasibility perspective. Given the availability of land and the excellent accessibility of the Inner Harbor to local, regional, and interstate

highway networks, there are few physical constraints to site development other than site control. Figure VII-1 shows the existing land use patterns in the Inner Harbor.

Figure VII-1
Existing Land Use Pattern Around the Inner Harbor Area



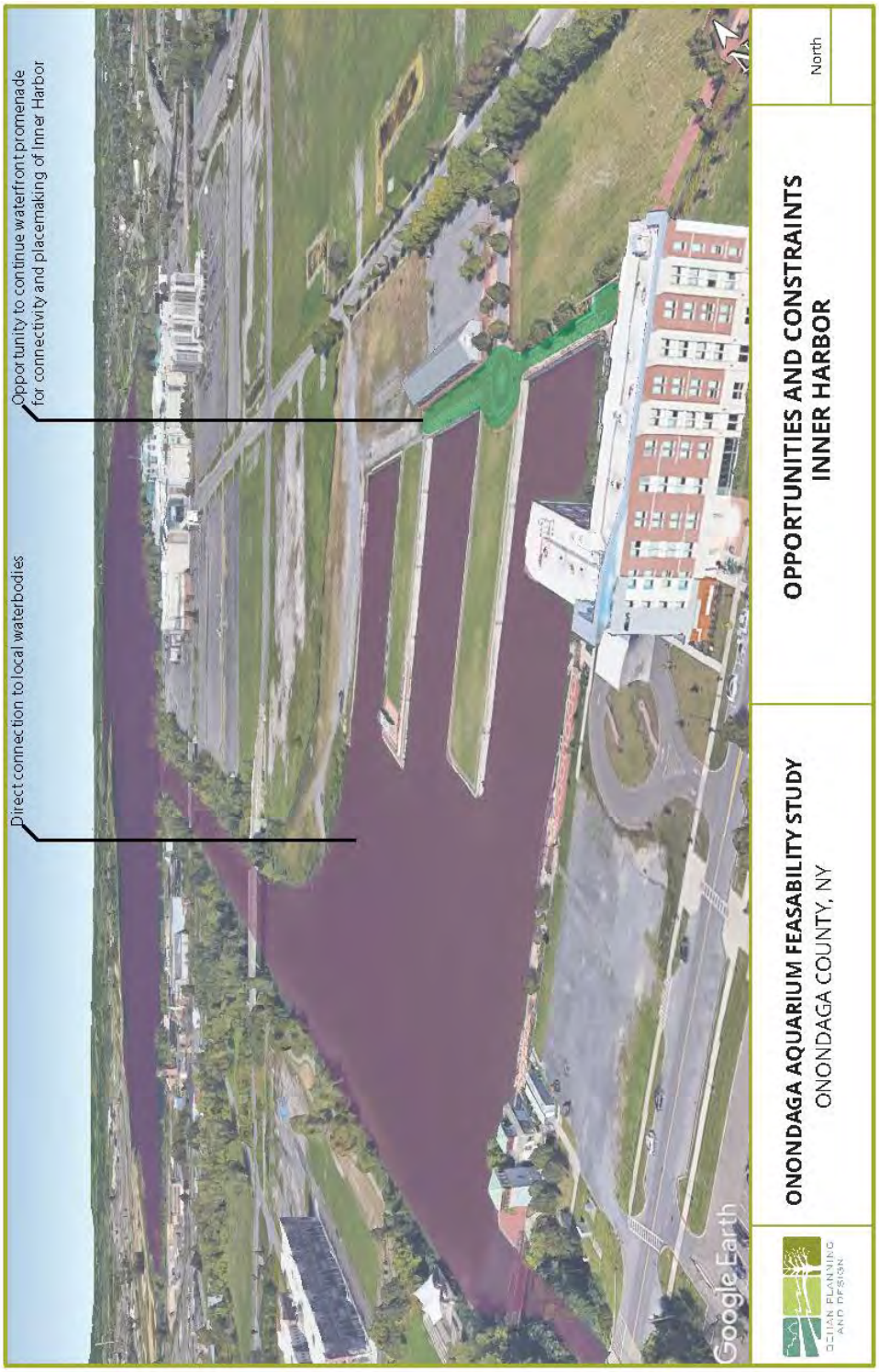
Source: Behan Planning and Design

The consulting team has established the initial physical planning parameters for the aquarium project. Total land area for the project is approximately 4 acres which could support aquarium development of approximately 80,000 square feet. For planning purposes, a building footprint of approximately 70,000 square feet is shown on the site program plans with an additional 10,000 square feet of second story or upper-level space for a total building square footage of approximately 80,000 square feet. (Note, depending on the site size a

single-story aquarium could be developed) Exterior public spaces and pedestrian and vehicular access and parking would create additional site space requirements.

A preferred site along the Syracuse Inner Harbor could have direct access to the water, tying conceptual and exotic exhibits inside the aquarium to local water issues and recreation through waterside activity. **Figure VII-2** provides an evaluation of some of the opportunities and constraints in the Inner Harbor area.

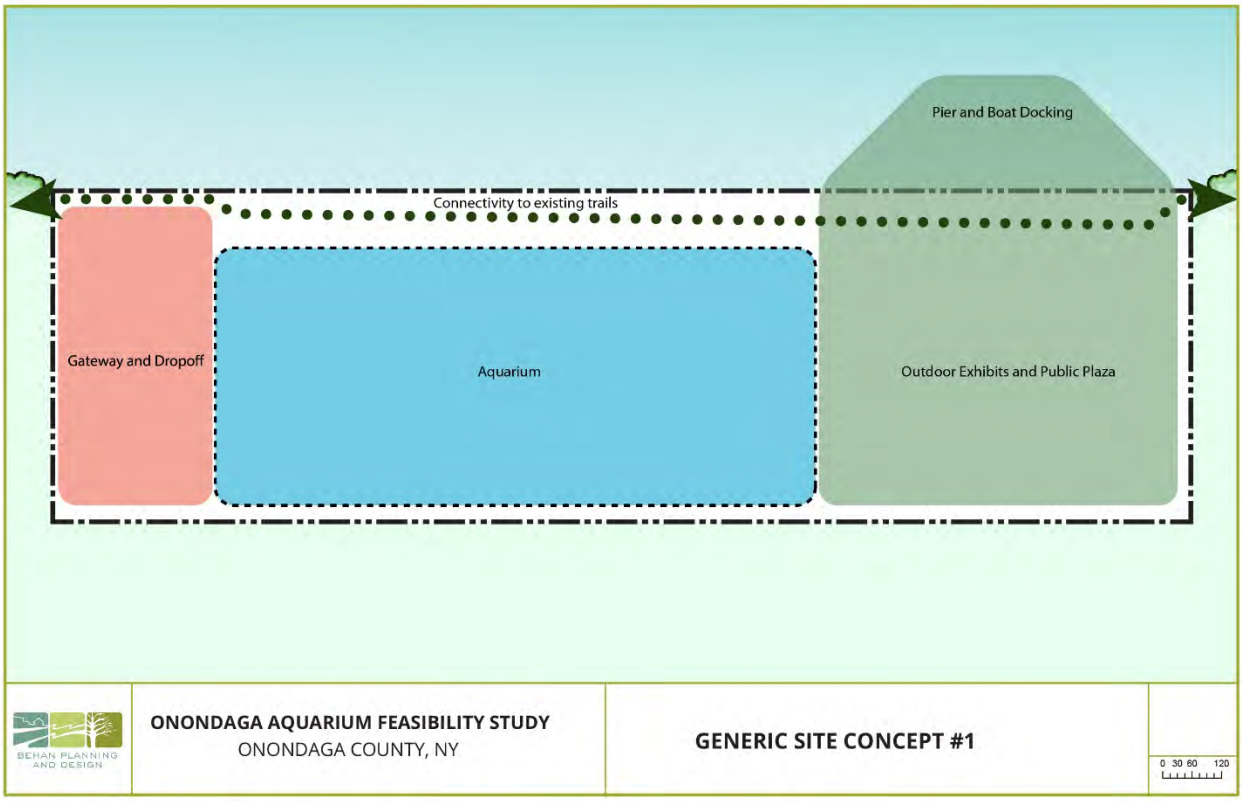
Figure VII-2
Opportunities and Constraints Inner Harbor
Onondaga County Aquarium



Source: Behan Planning and Design

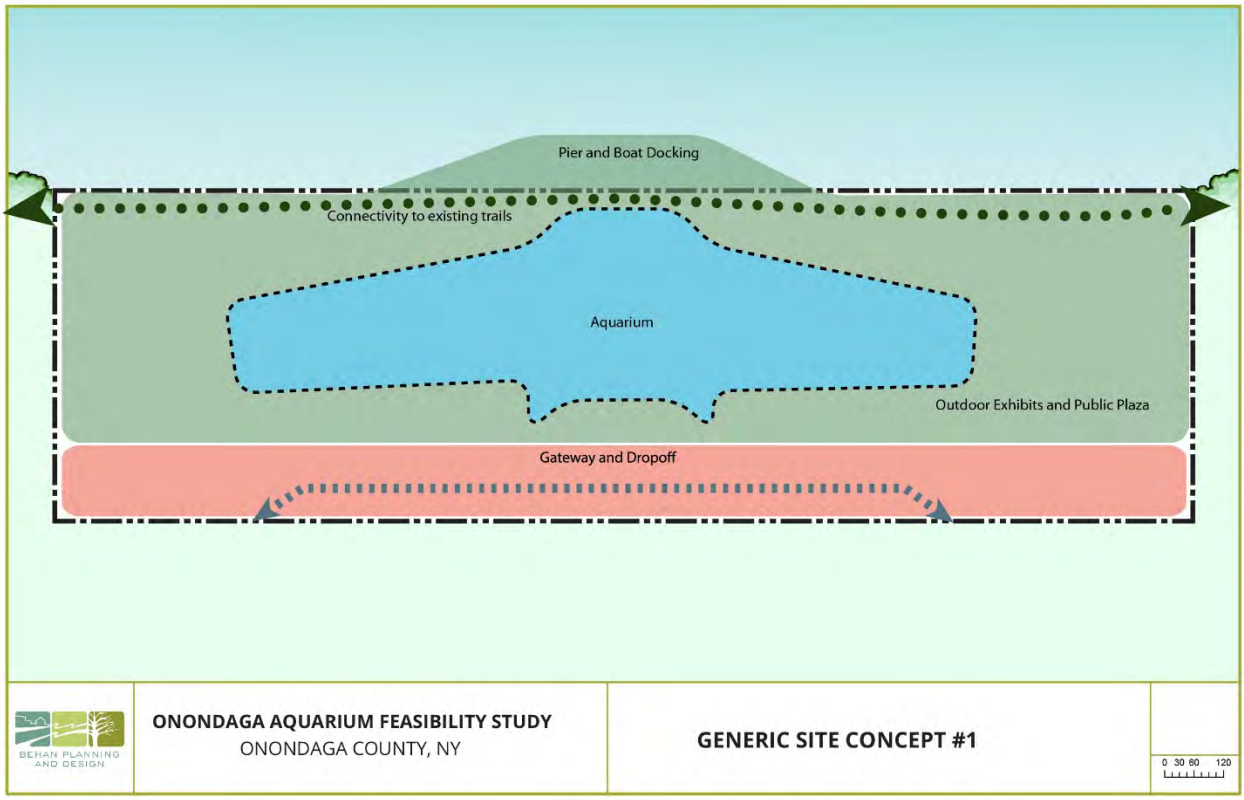
Many parcels in the Inner Harbor would accommodate an aquarium and necessary additional site features. **Figures VII-3** General Site Concept 1 and **Figures VII-4** General Site Concept 2 show potential layouts on an approximately four-acre parcel with an aquarium footprint of 70,000 square feet and as noted an assumed 10,000 SF second level. (There is also potential for upper level visitor/event spaces and multi-level/expanded height tanks and exhibit spaces). Parking to support the aquarium use is assumed to be accommodated in nearby lots with common parking facilities and development of on-street parking in the adjacent neighborhood.

Figure VII-3
General Site Concept 1
Onondaga County Aquarium



Source: Behan Planning and Design

Figure VII-4
General Site Concept 2
Onondaga County Aquarium



Source: Behan Planning and Design

Precedent imagery of specific site features can be found in **Appendix C**.

CONCEPT DEVELOPMENT

Precedent Aquarium Buildings and Campuses, Exhibits and Visitor Experiences

Developing a sustainable aquarium includes location on a site with excellent access, visibility, site size, parking opportunities and mutually supportive adjacent and nearby uses. Further, connections to a water body have proven to be essential for aquariums except locations such as Arizona and Utah where there are few if any available sites in an urban area with such water access / adjacency. Many aquariums benefit greatly from a campus-like setting. Some major aquariums centrally located in urban settings (Ex. New England Aquarium in Boston, National Aquarium in Baltimore, Newport Aquarium) are stand-alone, but most other major aquariums have campus type locations.

From a facilities perspective includes the right scale aquarium building, an attractive design, where possible an outdoor extension of the visitor experience and aquarium campus, and a compelling visitor experience. Following are examples of these components of sustainable aquariums.

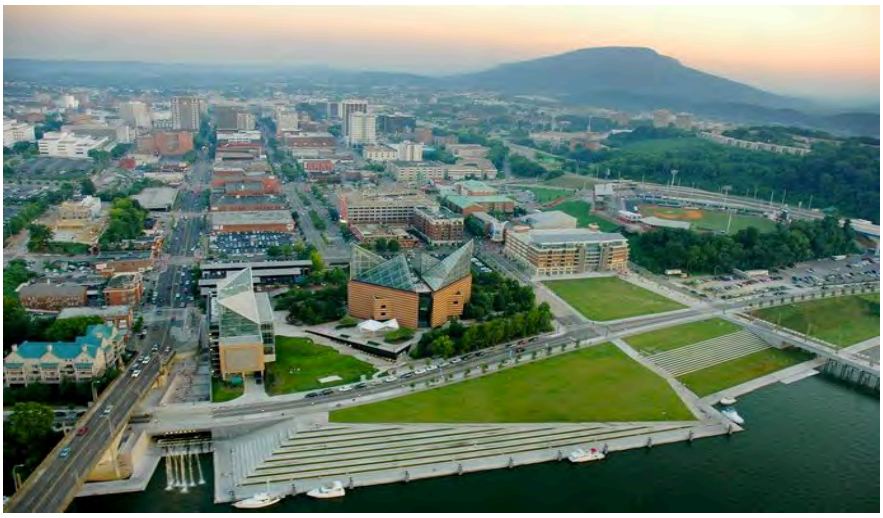
Physical Setting and Aquarium Architecture

The physical setting of an aquarium is essential to setting the tone for aquarium visitors and for offering outdoor as well as indoor experiences. Aquarium architecture itself can range from dramatic iconic buildings to relatively unadorned structures. The choice of architectural style and emphasis depends on factors such as the following:

- Site visibility
- The setting and adjacent uses
- Extent that the aquarium is intended as a public icon
- Extent that the aquarium will be an anchor in a revitalized district
- The capital budget available for architectural statement in addition to the most important factor in market success – the quantity and quality of exhibits and public spaces

Following are examples show the range of architectural design and campus settings of U.S. aquariums.

Figure VII-5
Tennessee Aquarium



Original Freshwater Aquarium

Ocean Journey Expansion

Source: Tennessee Aquarium

Figure VII-6
Loveland Living Planet Aquarium

New Aquarium Sculptural Feature

Source: Google Earth; Utah Public Radio; ABC4 Utah

Figure VII-7
Texas State Aquarium

Source: Texas State Aquarium

Figure VII-8
Oklahoma Aquarium

Source: Hotels.com

Source: GS Helms& Associates

Figure VII-9
South Carolina Aquarium

Source: South Carolina Aquarium

Aquarium Experiences

Major public aquariums offer a variety of experiences. Following is a summary of components of which most major aquariums include most or all:

- Generous lobby and public spaces that can double as event spaces, frontage for visitor amenities and can accommodate large group arrivals.
- Major guest experiences such as ocean tanks, coral reef tanks and walk-through tunnels. These are highlights of a visit, and often they are within major gathering spaces that can accommodate large numbers of visitors.
- Themed viewing areas where the public viewing area is an important component of the visitor experience and draw.
- Artistic presentations and immersive exhibitions that showcase the beauty of aquatic life and environments.
- Exhibits focused on the aquarium's local area – for many aquariums these include freshwater habitat exhibits while others show exotic freshwater environments.
- In addition to fish, aquariums also display and interpret a variety of avian, mammal, reptile and other species that help to reflect overall habitats and add interest for visitors. Often these are charismatic species that become ambassadors for wildlife conservation – and the aquarium.
- Touch tanks have become visit highlights for aquarium visitors of all ages and are a standard component of aquarium offerings.
- While large tanks and sweeping views are major audience attractors, often, more visitor time is spent focusing on small, secretive, and unusual species in focused exhibits and jewel tanks.
- While aquariums appeal to all ages, increasingly, additional exhibits and play areas for children are being included at aquariums to serve families and to foster repeat visitation.
- Where physically feasible adding outdoor experiences enhances visitor experiences and provides positive habitats for visitors. These areas also increase visitor capacity for the busiest days.
- Behind the Scenes Experiences are extremely popular and often generate add-on fees as well as in-depth educational experiences.
- Docent talks and interactive experiences with aquarium animals enhance public understanding of conservation issues and are highlights of a visit. These can also generate add-on revenues.
- Up-charge experiences vary between aquariums. Some offer theater presentations and nature cruises and boat tours; while others charge high prices for encounters with charismatic species and swim-in-the-tank experiences.

- In recent years and with advancing LSS (Life Support System) and tank technologies, changing exhibits have become more technically feasible and affordable. These have taken on more significant roles for aquariums in their repeat attendance patterns, membership development and as subjects for aquarium marketing.
- Education programs have taken on a much bigger role for aquariums over the years. School groups as well as families and adults are demanding such programs, and donors and grantors require them to earn their contributions.
- Visitor amenities are critical to audience ratings and market success. Most attractions have improved their offerings and aquariums have generally followed this trend.
- In fulfillment of their missions, many aquariums are leaders in their areas in wildlife rescue and rehabilitation, conservation programs and research.

Following are images of some of the types of experiences aquariums offer their audiences.

Figure VII-10
Aquarium Tunnel Exhibit

Aquarium Tunnel Exhibit. Source: Virginia Aquarium

Figure VII-11
Aquarium Lobbies

Lobby, Source: Texas State Aquarium

Lobby, Tennessee Aquarium

Lobby, Oregon Coast Aquarium

Lobby, South Carolina, Source: Eskew, Dumez + Ripple

Figure VII-12
Ocean Tanks

Ocean Tank at Texas State Aquarium, source: 101 Corpus Christi.com

Tennessee Aquarium Ocean Tank
Source: Tennessee Aquarium

Figure VII-13
Coral Reef Tanks

Coral Reef at WOW Source: World of Wildlife

Source: Texas State Aquarium

Figure VII-14
Walk-Through Tunnels

Shark Tunnel at Adventure Aquarium Source: Adventure Aquarium


Loveland Living Planet Aquarium Source: The Salt Lake Tribune

Figure VII-15
Themed Viewing Areas

Ocean Journey at Tennessee Aquarium Source: touristsecrets.com

Figure VII-16
Artistic Presentations

Jellies Exhibit at Monterey Bay Aquarium photo credit Photo: Jon Snyder/Wired.com

Figure VII-17
Freshwater Exhibits

Mississippi River Museum & Aquarium, Source: ConsultEcon, Inc.

Great Lakes - Isle Royale
Source: Great Lakes Aquarium

The Amazon Rainforest at WOW
Source: Wonders or Wildlife

Figure VII-18
Charismatic Species

River Otters at Seattle Aquarium Source: Seattle Aquarium

Sea turtles at Texas State Aquarium Source: Visit Coastal Bend

Figure VII-19
Touch Tanks

Shark & Ray Touch Tank at Maritime Aquarium Source: YouTube

Source: OdySea Aquarium

Figure VII-20
Focus Exhibits

Global Connections Gallery, Source: Great Lakes Aquarium

Jiggle a Jelly at Jellyfish Lab, Source: Maritime Aquarium

Life on the Reef, Source: Living Planet Aquarium

Figure VII-21
Family and Children's Exhibits and Play Areas

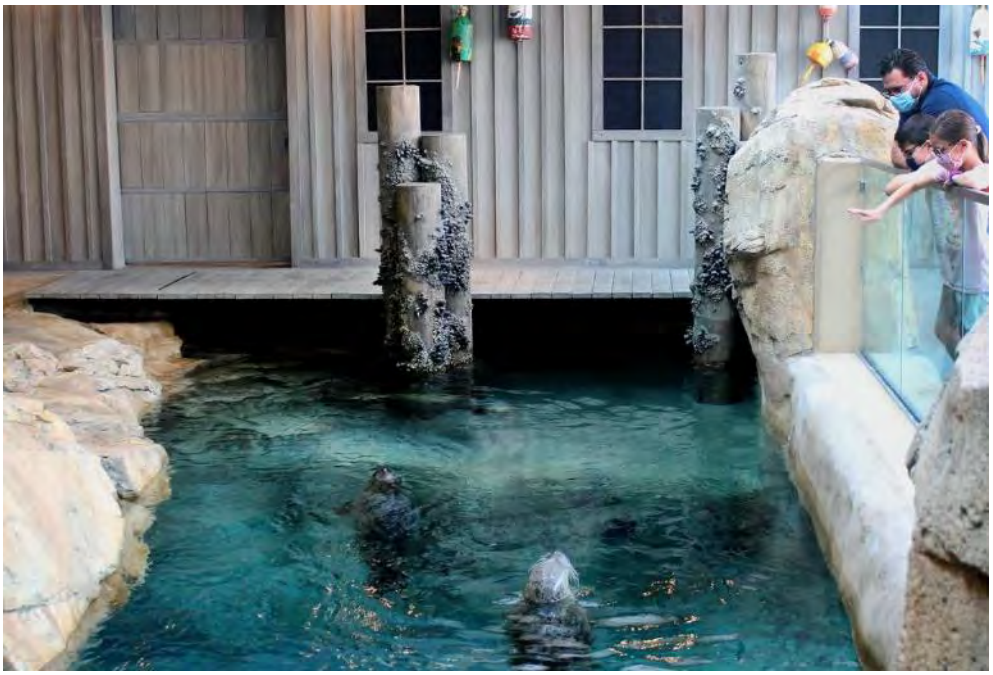
Champ Lane "Early Learning" Exhibit/Area, Source: ECHO

Water Play Area, Source: Texas State Aquarium

Plaza Play Area, Source: Tennessee Aquarium

Georgia Aquarium Aquanaut Adventure Family Discovery Zone, Source: Georgia Aquarium

Figure VII-22
Outdoor Experiences



Seal Habitat Source: Maritime Aquarium

Wetlands Walk, Source: National Mississippi River Museum & Aquarium and ConsultEcon

Figure VII-23
Behind the Scenes Experiences

Behind the Scenes Programming at Audubon Aq. Of the Americas, Source: Audubon Nature Institute

Behind the Scenes Tour, Source: Mystic Aquarium

Behind the scenes, Source: Tennessee Aquarium

Figure VII-24
Docent Talks, Demonstrations

River Journey at Tennessee Aquarium, Source: Tennessee Aquarium

Barred Owl Interaction, Source: Tennessee Aquarium

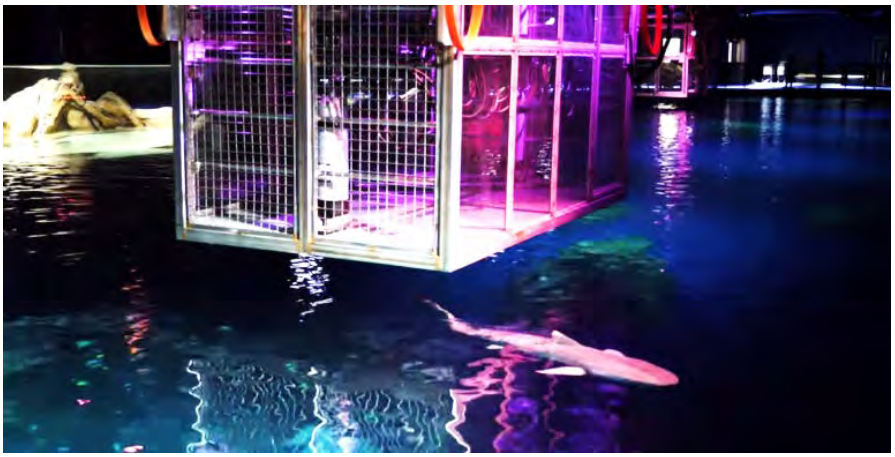
Figure VII-25
Interactive Experiences

Sea lion Encounter Source: New England Aquarium

Animal interactions, Source: Texas State Aquarium

Animal Encounters, Source: Georgia Aquarium

Figure VII-26
Up Charge Experiences

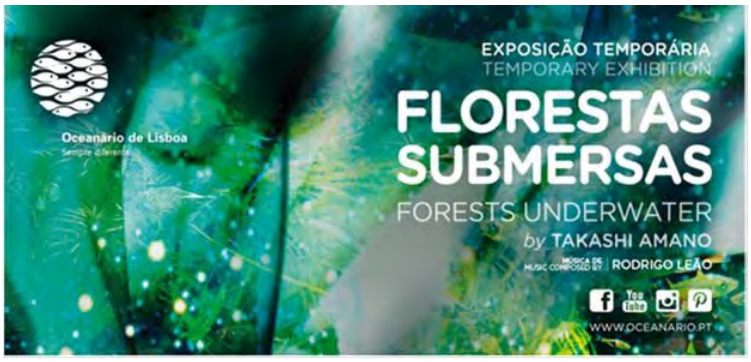


Shark Cage Dive, Source: Georgia Aquarium

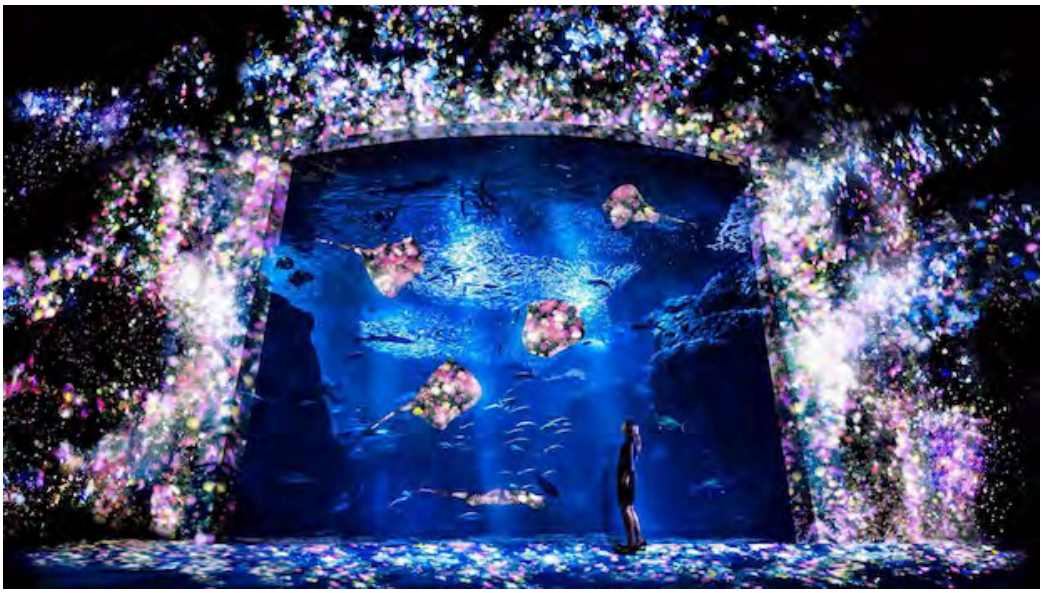
4-D Theater, Source: Maritime Aquarium

River Gorge Explorer, Source: Tennessee Aquarium

Figure VII-27
Changing Exhibits



Forests Underwater, Source: Oceanário de Lisboa and ConsultEcon, Inc.



"Blooming Flowers" projection directly on aquarium tanks, Enoshima Aquarium, Fujisawa, Japan

Figure VII-28
Education Programs

Teen Learning Lab Source: Shedd Aquarium

Critter Corner, Source Great Lakes Aquarium

After School Explorers, Source National Aquarium in Baltimore

Activity Sheets, Source: New York Aquarium

Figure VII-29
Visitor Amenities

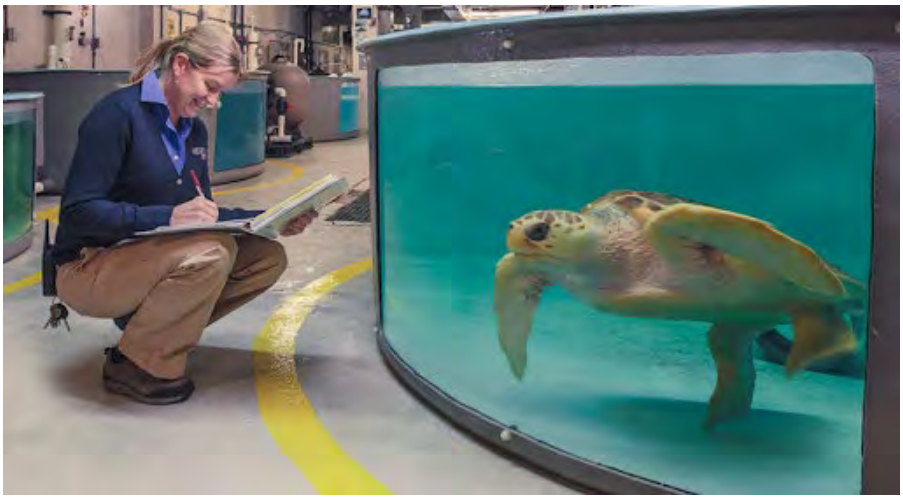
Gift Shop, Source: Mystic Aquarium

Lobby Venue for Catered Events, Source: Tennessee Aquarium

Deep Ocean Café, Source: Shedd Aquarium

Deep Ocean Café, Source: Shedd Aquarium

Figure VII-30
Wildlife Rescue and Rehabilitation



South Carolina Aquarium Source: Post and Courier

Common Mure Chicks rescue: Source: Oregon Coast Aquarium

Animal Rescue Program Source: Mystic Aquarium

Figure VII-31
Conservation Programs and Research

Invasive Species Exhibit at ECHO, Source ECHO:

AZA Member Conservation Activities, Source: AZA

Horseshoe Crab Culture Lab at Maritime Aquarium Source: Maritime Aquarium

Prototypical Building Program

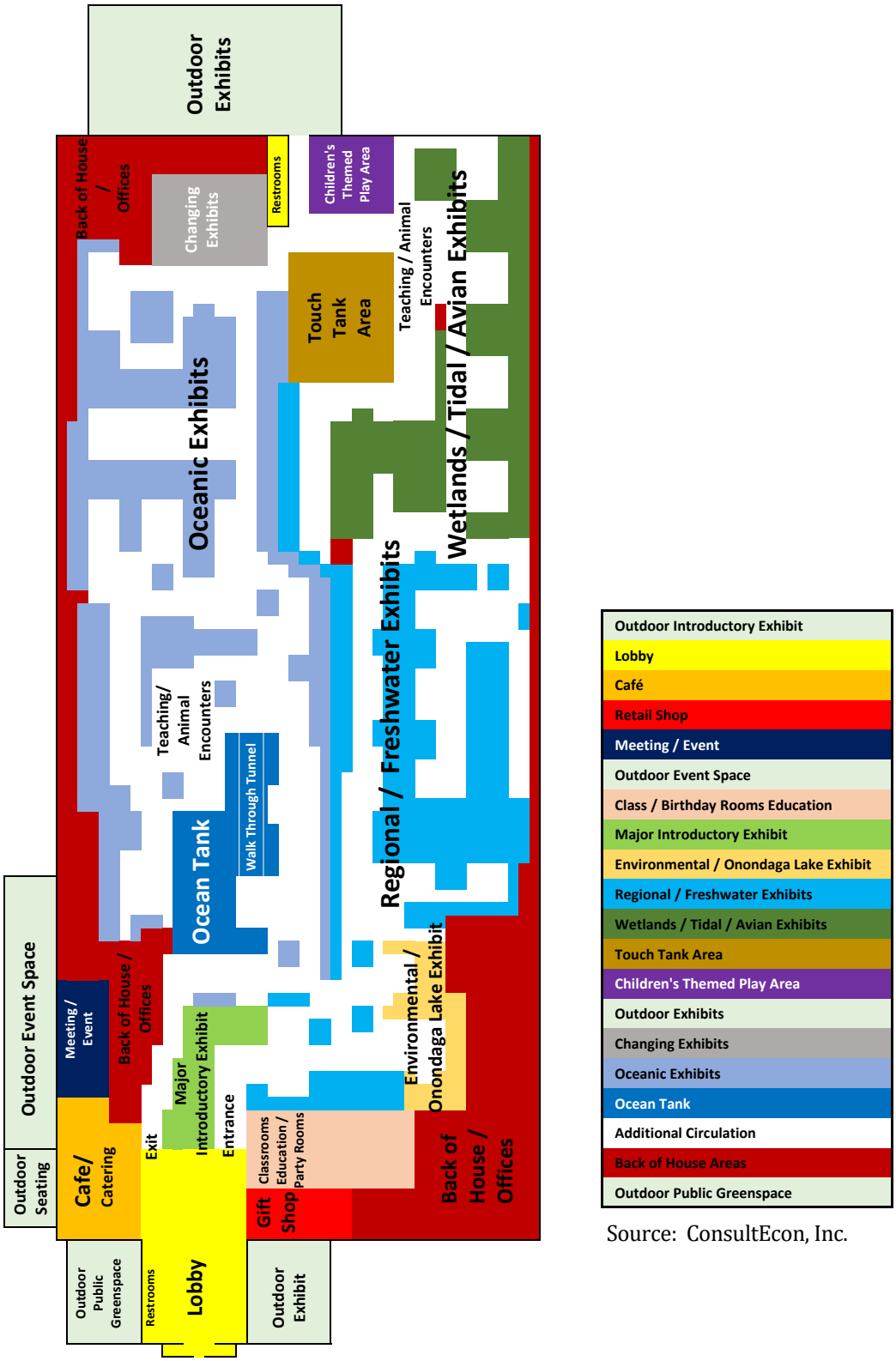
Key features of the prototypical building program would include:

- **Permanent and Changing Exhibits** - Freshwater and saltwater exhibits, including open water ocean tank, global and regional conservation and environmental themes, wetlands, tidal and avian environments, touch tanks, children's themed play area, and changing exhibits.
- **Outdoor and Public Space** - Interactive and experiential exhibits, program presentation areas, waterside activities, such as nature cruises and boat tours, requires boat launch. Publicly accessible greenspace provides for a new trail link for the Inner Harbor trail system.
- **Education and Community Spaces** - Dedicated education classrooms to support school and other group activity and facility rental space for birthday parties and other private social and corporate receptions, meetings, and events.
- **Visitor Entrance and Amenities** - Multi-functional lobby space that can accommodate regular and group admissions, café and retail, as well as special events, meetings, and facility rentals during off hours.
- **Supportive Spaces** encompass additional circulation space and public amenities (restrooms, seating, vending, etc.), Life Support Systems (LSS), animal care areas, and other back of house administrative, building operations, exhibit and other storage, loading and unloading spaces.

Prototypical Aquarium Layout

Figure VII-32 provides a prototypical aquarium layout for the Onondaga County Aquarium based on the prototypical building program and General Site Concept 1 as shown in Figure VII-3. While this layout is for illustrative purposes only, it illustrates the categories of building spaces (and associated exterior areas) and the typical space adjacencies in modern aquariums. The building program and the prototypical aquarium layout herein would be superseded in an aquarium design process.

Figure VII-32
Onondaga County Aquarium Prototypical Aquarium Layout



Source: ConsultEcon, Inc.

Summary

This analysis and aquarium industry data informed the assumed "right size" for the Onondaga County Aquarium at this site to be 80,000 SF with 600,000 gallons of water volume. In addition, outside areas would be used for additional exhibits and visitor experiences, visitor access, open space café and event seating. Because a specific site has not been secured, the analysis has assumed a "generic waterfront site" in the Inner Harbor Area that would meet the siting requirements of a major aquarium and could serve to advance the legacy goal of revitalizing the Syracuse Inner Harbor. Key features of the prototypical building program would include permanent and changing exhibits, with signature animal displays and experiences that are highly repeatable and fresh, education program and community event spaces, visitor amenities and other supportive spaces; and outdoor and public open spaces that contribute to longer stays and deeper visitor engagement,

Section VIII

DEVELOPMENT COST PARAMETERS

Following is an analysis of the components of aquarium development, a benchmark analysis of the cost of developing new aquariums or major expansions, and the potential capital cost of the proposed Onondaga County Aquarium. This includes discussion of the aquarium development cost categories and aquarium development cost drivers.

Aquarium Development Cost Categories

The development costs for an aquarium typically include:

- Administration
  - Strategic planning
  - Feasibility analysis
  - Fundraising and financing
  - Interpretive, education and conservation planning
  - Business planning
  - Legal
  - Marketing
  - Project management/owner's representation
- Land Acquisition and Preparation
  - Land cost
  - Permitting
  - Site preparation and infrastructure
- Design
  - Architecture
  - Engineering
  - Exhibit Design
- Building Construction and Fit-Out
  - Furniture, Fixtures & Equipment
  - Habitat (imitation rocks, trees, corals, etc.)
  - Acrylic Panels
  - Life Support Systems
  - Animal Collections and Food
  - Dry Exhibits and panels
  - Artwork
- Pre-Opening Organization Development
  - Staff Recruitment and Training

  - Marketing and Fundraising
  - Education and Conservation Programs
  - Management Information Systems/Ticketing Systems
  - Gift Shop Merchandise
  - Food Services
  - Concessionaires, Sponsorships and Partnerships
  - Aquarium building operations, utilities, insurance prior to opening

- Contingency Funds
  - Owner changes
  - Building reserves
  - Organization ramp-up
  - Operational reserves

Aquarium Development Cost Drivers

Overall, the construction and development costs for public aquariums are based in whole, or in part, on the following factors:

- Location and site conditions
- Land and acquisition costs
- Requirements for site infrastructure and parking
- Project size and scale
- Multi-story versus single story
- Project design (balance iconic architecture with efficient and functional building and site design)
- Program of spaces content (ratio more and less expensive space types)
- Exhibit content and complexity
- Size of market and local construction costs
- Extent of required organization ramp-up
- Financing (if any)
- Support of local governments / authorities / utilities

An analysis of 12 new aquarium and major expansion projects completed over the past 30 years, provided in **Table VIII-1,** indicate that development costs per square foot (SF) including hard and soft costs have typically ranged from $600 to $1,500 corrected for

inflation. Costs vary based on individual aquarium development locations and circumstances. Design and soft costs can typically be between 30 to 40 percent of the construction costs. Pre-opening organization ramp-up can add an additional 5 to 10 percent of total costs.

Table VIII-1
Analysis of Construction Cost of Selected Aquariums
Onondaga County Aquarium

Name	Location	Expansion	Year Opened	Reported Total Square Footage	Total Gallons	Original Construction Cost [1/]	Estimated Construction Cost in 2021 Dollars [2/]	Estimated Construction Cost Per SF in 2021 Dollars	Notes
Texas State Aquarium Phase 1	Corpus Christi, TX	New Aquarium	1990	43,000	NA	$31,600,000	$83,141,000	$1,934	Aquarium has expanded substantially since this first phase.
Tennessee Aquarium	Chattanooga, TN	New Aquarium	1992	130,000	400,000	45,000,000	121,216,000	$932	First major freshwater aquarium.
Virginia Aquarium	Virginia Beach, VA	Expansion	1996	88,000	NA	32,800,000	77,309,000	$879	Expansion tripled aquarium size.
South Carolina Aquarium	Charleston, SC	New Aquarium	2000	93,000	750,000	69,000,000	141,933,000	$1,526	68% public funds, 32% Private gifts & donations.
Tennessee Aquarium	Chattanooga, TN	Expansion	2005	65,000	750,000	30,000,000	40,405,000	$622	Focus on exhibits in a separate building - first saltwater exhibits at Tennessee Aquarium.
SEA LIFE Charlotte-Concord Aquarium	Charlotte, NC	New Aquarium	2013	30,000	165,000	10,000,000	13,260,000	$442	For profit aquarium developed within a major mall space.
Living Planet Aquarium	Draper, UT	New Aquarium	2014	136,000	500,000	24,000,000	30,597,000	$225	Construction Cost only, many exhibits were moved from old location and installed by volunteers. Does not include pre-opening and organization ramp-up.
Texas State Aquarium- Caribbean Journey	Corpus Christi, TX	Expansion	2017	71,000	NA	58,000,000	65,618,000	$924	Includes 4D Theater, outdoor attractions and refurbishment of some existing area.
Odysea Aquarium	Scottsdale, AZ	New Aquarium	2017	200,000	2,000,000	100,000,000	113,135,000	$566	52% construction, 48% building fit out, soft costs and start up costs.
Point Defiance Zoo & Aquarium	Tacoma, WA	Expansion	2018	35,000	280,000	51,600,000	55,440,000	$1,584	This expansion is called the Pacific Seas Aquarium.
Mississippi Aquarium	Gulfport, MS	New Aquarium	2020	80,000	1,000,000	79,000,000	77,073,000	$963	55% construction costs, 45% design and soft costs. Land cost of $14.5 million in addition.
Seattle Aquarium	Seattle, WA	Expansion	2021	50,000	NA	113,000,000	113,000,000	$2,260	53% private, 47% city, County, State and Federal sources. Earthquake construction standard and challenging waterfront site add to construction costs.
Average				*85,083*	*730,625*	*$53,666,667*	*$77,677,250*	*$1,071*	
Weighted Average								*$913*	
Median				*75,500*	*625,000*	*$48,300,000*	*$77,191,000*	*$928*	

1/ Care must be used in translating these data to probable future costs as the reported development budgets include a variety of inputs to aquarium development; some are more inclusive of total costs than others; also the localities of the construction projects, site conditions and the particular architectural complexity as well as the nature of the exhibits can create substantial differences in project cost. Also note that the cost of various components of aquarium development have changed over time.
2/ Construction costs are adjusted to current dollar value based on CONSTRUCTION ANALYTICS Construction Inflation Index
Source: Aquarium and Zoo Association (AZA); Individual aquariums, CONSTRUCTION ANALYTICS *Construction Inflation Index Tables,* and ConsultEcon, Inc.

Summary

Based on the history of development cost of aquariums and an assessment of the proposed site and area conditions for the Onondaga County Aquarium a preliminary range of development cost in current value of the dollar has been prepared. This does not include site acquisition or environmental remediation and/or any endowment. For planning purposes, a reasonable per square foot allowance of $900 to $1,100 per SF the Onondaga County Aquarium is recommended. A mid-range of $1,000 per SF is used in this report.

Section IX

OPERATIONAL STRUCTURE

Following is a review of various aquarium ownership and operating profiles and recommendations for the operating profile of an Onondaga County Aquarium.

Publicly Developed, Owned and Operated Aquarium

This is a (typically older) governance model in which municipalities develop, and fully operate a live-animal facility such as an aquarium. Historically most zoos and early generation aquariums had this governance structure. There are still some zoos that are principally government operated with limited "friends" support groups; but in recent decades many municipal / county operated zoos and aquariums have changed their governance structure to public-private partnerships. Following are examples of this format in which government operates all or virtually all operations.

- **Cabrillo Marine Aquarium** is owned operated by the City of Los Angeles Department of Recreation and Parks. The non-profit, Friends of the Cabrillo Marine Aquarium 'provide support and resources to Cabrillo Marine Aquarium in its mission' including operating the gift shop. The original one-story, 23,000 square feet features indoor and outdoor exhibit spaces, an auditorium, wet laboratories and offices. In 2000 a phased two-story expansion of 21,000 square feet houses wet labs, offices, and the Moore Research Library.
- **Point Defiance Zoo & Aquarium** (PDZA), owned and operated by Metro Parks Tacoma, is a 29 acre zoo and includes two aquariums: the Pacific Seas Aquarium and South Pacific Aquarium. The Zoo Society "supports the mission of PDZA by providing financial and in-kind resources for the zoo's recreation, education and conservation programs, its animal collections, and its permanent and temporary exhibitions."
- **North Carolina Aquariums** is a state owned and operated system of three public aquariums located in Kure Beach, Roanoke Island and Pine Knoll Shores. All are operated by the Aquariums Division of the North Carolina Department of Natural and Cultural Resources. All three aquariums are supported by the North Carolina Aquarium Society. The Society generates revenue from gift shops, membership, and concessions, and focuses on grant acquisition and private fundraising. These efforts enable the Society to work closely with Aquarium leaders to plan new projects, exhibits and programs that otherwise might not be possible with limited state funds.

Characteristics of operations under this structure may include one or more of the following:

- This operating format requires staff to develop the needed autonomy, flexibility and nimbleness found in independent aquarium operations. The issues government-operated aquariums face include: government capital and operating budgets and personnel pay scales that do not match industry standards and the needs of a public attraction; the need for rapid and efficient response for new initiatives and the capacity to adapt quickly to current conditions; and the authority within the aquarium organization to change pricing, marketing, vendor contracting and related business activities.
- Accounting formats and personnel categories used for government entities often do not correspond to the specialized categories of aquariums.
- Purchasing is sometimes done from centralized government departments that do not have the expertise and/or supply channels needed for the specialized needs of aquariums.
- Personnel compensation packages that government entities can offer often do not match the market rates and formats of private sector aquariums, this can make recruiting of specialized personnel challenging.
- In some jurisdictions, key operating decisions such as ticket pricing, admission categories, marketing and overall operating budget are established outside of the purview of the aquarium direct leadership. This can create sub-optimum outcomes related to market and operating performance.
- In some jurisdictions, all or some revenues from aquarium operations are sent directly to jurisdiction coffers, and in parallel, the aquariums receive annual operating expense budgets. This approach negatively affects the operating model substantially by removing incentives to maximize revenues for internal use. It tends to encourage the expenditure of budgeted funds by end of fiscal year, whether it's the optimum use or not (compared to holding for future or alternative use). Also, the aquarium may be subject to budget cuts unrelated to their internal performance, but rather based on the jurisdiction's overall financial situation.
- All government operated aquariums profiled have a not-for-profit support or "friends" group to solicit grants and gifts for aquarium capital projects, education, conservation and other activities.

For Profit Aquariums

In this approach, an aquarium is developed and operated by a for-profit operator. As a for-profit entity, the development costs and the ongoing operating costs are funded through operations. Examples of private for-profit aquariums include:

- **Sea Life Aquariums and Attractions** operated by Merlin Entertainments Group operates at over 70 locations worldwide including 10 in the U.S. The U.S. sites are small aquariums (typically in the 30,000 SF range) focused on a young audience. These are in major metro areas and typically located in shopping malls and within or adjacent to or combined with larger attractions such as LEGOLAND. Another private operator with a similar approach is SeaQuest.
- **Aquarium of Myrtle Beach SC, Ripley's Aquarium of the Smokies** and **Ripley's Aquarium of Canada** in Toronto are large aquariums owned and operated by Ripley Entertainment Inc. Aquarium of Myrtle Beach is located within Broadway at the Beach entertainment and dining complex which is a popular attraction in the Myrtle Beach tourism destination area. Ripley's Aquarium of the Smokies is adjacent to numerous attractions in Gatlinburg, the gateway to the Great Smoky Mountain National Park which attracts over 12 million annual visitors – double the next most visited - Grand Canyon National Park. Ripley's Aquarium of Canada is located at the base of the CN Tower which attracts 1.5 million visitors annually and is a landmark attraction in the center of the large Toronto metropolitan area.
- **Odysea Aquarium** in Scottsdale, AZ (part of the Phoenix Metro Area) was privately developed as part of a destination entertainment complex that also includes Ripley's' Believe it or Not, Butterfly Wonderland, Pangea Land of the Dinosaurs interactive attractions and a mix of food, shopping and entertainment offerings. This destination offers a critical mass of attractions in a large and rapidly growing metro area.
- **Long Island Aquarium** opened in 2000 with an original cost of $15 million and a $24 million expansion. The aquarium also houses the not-for-profit Riverhead Foundation for Marine Research and Preservation. The complex includes the aquarium but also the "Sea Star Grand Ballroom," a Hyatt Hotel and a 120 slip marina.
- **Adventure Aquarium** is in Camden, NJ across the Delaware River from Philadelphia and adjacent to the areas' largest regional outdoor performing arts center and the USS New Jersey, a WWII battleship museum. The aquarium is owned by the State of New Jersey and leased to operator Herschend Family Entertainment Corporation of Atlanta. Herschend also operates **Newport Aquarium** in Newport KY, across the Ohio River from Cincinnati. It is located within the Newport on Levee multi-level retail entertainment destination.

- **Marineland of Florida, SeaWorld Orlando, SeaWorld Orlando San Diego** and **Miami Seaquarium** are large campus marine attractions aquariums in major tourism areas. These compete with theme parks as destination attractions.

Characteristics of markets and impacts of for-profit aquariums include:

Full Scale For-Profit Aquariums:

- Typically located in large metro areas and/or in major tourism destination areas
- Audience focus is both resident and tourist markets for adults and families
- The large for-profit aquarium typically dominates the area market for aquariums
- They typically are not designed as architectural centerpieces of their areas, or as cornerstones of economic revitalization
- They often incorporate education and conservation programs and activities to their offerings. These can be done within their for-profit model; but typically an allied not-for-profit organization undertakes these activities. These activities are typically not at levels associated with non-profit and public sector aquariums.
- These aquariums have significant economic impacts

Small Scale For-Profit Aquariums:

- Resident market: large to mid-size metro area
- Tourism market: both destination and non-destination areas
- The audience focus is largely the resident market especially families with younger children
- Competitive context: small for-profit aquariums are sometimes located in markets with other aquarium(s)
- Economic impacts: moderate impacts due to their focus on resident markets and in general they have moderate attendance and operating budgets

Privately Developed and Operated Not-For Profit Aquariums

Many of the largest and most successful aquariums were developed as initiatives of the private sector as not-for profit organizations with missions to advance the quality of life for area residents, meet education and conservation goals and to serve as economic development catalysts. Many aquariums are successfully operate based on this model, including both large and mid-size aquariums. Many not-for-profit aquariums receive substantial contributions by government entities for their original capital costs and some receive annual governmental

contributions for operations. Examples of privately developed and operated not-for profit aquariums include:

- **Loveland Living Planet Aquarium** opened at its current location in Draper in 2014. Over the previous fourteen years it had begun as a demonstration exhibit in Salt Lake City, then, an interim aquarium in a refurbished Sandy, UT department store before the purpose-built aquarium opened. Private funds accounted for 90% of development costs and government funds accounted for the remaining 10%. As a not-for-profit aquarium, the aquarium generates about 80% of revenue from earned revenue sources, 5% from gifts and grants and 15% from government sources. Based on its substantial market success, it is undertaking a major expansion phase to include the Rio Tinto Plaza with iconic sculpture from band U2 world tour, and a Science Learning and Event Center.
- **Tennessee Aquarium,** in Chattanooga on the bank of the Tennessee River, has been central to the city's riverfront revitalization with associated private and public real estate and economic development. The 130,000 SF all-freshwater nonprofit aquarium opened in 1992 and was privately funded by individuals, corporations, and foundations. Funds allocated by the state for the project were used to develop the plaza surrounding the facility. The aquarium added a 3D IMAX theater in 1996. In 2005, a major expansion Ocean Journey opened with a focus on saltwater exhibits. Over 95% of revenues are from earned sources or through sponsorships, with the remaining 5% from private contributions and a small amount due to government grants.
- **Texas State Aquarium** opened its first exhibit to the public in 1990 after more than 20 years of fundraising, planning, and building. The Texas State Aquarium was founded as a not-for-profit organization focused on the species in Gulf of Mexico and the Caribbean Sea. In 2017 the Caribbean Journey expansion opened, doubling the aquarium's size and adding new exhibits, including a 400,000-gallon shark exhibit, a jungle aviary, and a 4D Theater. Despite its name, Texas State Aquarium receives no state funding.

Characteristics of these aquariums include:

- Aquarium developments typically require more time for implementation than other development projects and require creating a sponsoring organization for initial planning and fundraising, developing widespread community support, and undertaking a capital campaign. Progress often advances in a stop and stop fashion as support for the project expands and solidifies incrementally.
- the project through different political administrations and economic phases.
- Many non-profit aquariums have expanded over time as community support grows and the value of the aquarium is proven to the community. Expansion and reinvestment in publicly owned aquariums can be challenging if the aquarium has to compete for scarce public funding.

Public-Private Partnership

The primary difference between privately developed and operated not-for profit aquariums and those operated as public-private partnerships is the public ownership of the land and building / exhibits; but also the more active role the government entity may play in building and site operations and sometimes in ongoing funding for operations. Examples of privately developed and operated not-for profit aquariums include:

- **Oklahoma Aquarium** opened in 2003 in Jenks, a suburb of Tulsa. It has 90,000 SF and 500,000 gallons of aquarium tanks. The Oklahoma Aquarium is run through a public-private partnership between the City of Jenks and the Oklahoma Aquarium Foundation. It had attendance of 342,000 in 2018. The City of Jenks contributes about 7 percent of needed operating costs. The aquarium also receives part of its funding through a one-cent county sales tax. In addition, the state legislature has authorized a specialty Oklahoma Aquarium license plate option with some of the fees going to support the facility.
- **The Virginia Aquarium and Marine Science Center** is a public-private partnership between the City of Virginia Beach and the Virginia Aquarium Foundation. The City is the main operating entity, and owns the aquarium buildings and grounds, providing utilities, building maintenance, and landscape services. The Foundation, on the other hand, raises funds for operations, program development, and capital improvements. The foundation also owns the exhibits and the animals and conducts educational programming in support of the Aquarium's conservation-through-education mission. The original 41,500-square-foot facility opened in 1986. In 1996, the Aquarium tripled the size of the original facility to 120,000 square feet (800,000 gallons), added 45 acres of land, two buildings, and a nature trail over Owl Creek Marsh. Based on a 2011master plan, the city developed an aerial adventure park with a private concessionaire and is currently renovating the Marsh Pavilion to re-open in 2021.
- **South Carolina Aquarium** opened in 2000 on the historic Charleston Harbor. The 93,000 square foot Aquarium building is owned by the City of Charleston but managed and operated by the South Carolina Aquarium, Inc., a private 501(c) (3) non-profit organization, under a sub-lease agreement with the City of Charleston (since the site is owned by the National Park Service and leased to the City). The original $69 million cost was funded with 68 percent government derived funds and 32 percent private donations. Direct government funding in early years of operation was typically 20 percent of total revenue. More recently the government funding for operations has decreased.

Characteristics of these aquariums include:

- Government funding for an aquarium in these "mid-size" metro areas has allowed their development when private capital fundraising may have been too challenging a "lift" for the private sector.
- Publicly developed aquariums can be developed more expeditiously if targeted and adequate capital funding is available.
- Expansion and reinvestment in publicly owned aquariums can be challenging as the aquarium competes for scarce public funding.
- Operational fundraising in the private sector can be successful when the purposes are clearly articulated and focus on education, conservation and reinvestment in the facility. Public sector funding then focuses on aquarium operations and maintenance.
- Publicly developed and owned aquariums with operations by an existing private sector aquarium operator can offer the benefits of both the public and private sector aquariums and their respective characteristics.
- A challenge for this public-private partnership for the government sector is to create and advance a private sector partner.

Summary

Several governance and operating models have resulted in successful and sustainable aquariums in the U.S. over the past decades. Operating models include for-profit owned and operated, publicly owned and operated, privately not-for-profit owned and operated, and public-private partnerships. The choice of governance and operating model depends on the community's objectives, market opportunity and resources available. Based on these criteria, a public-private partnership is viewed as a good fit for the Onondaga County Aquarium.

Section X

OPERATING POTENTIAL

This section reviews the operating and financial potential of the proposed Onondaga County Aquarium under mid-range attendance potential. This includes earned revenue potential, assumed contributed revenues, personnel plan, operating expenses and net operating income potential. Also included are alternative operating analyses for lower and higher attendance scenarios and a scenario assuming a smaller aquarium were to be developed.

Operating Assumptions

Data in **Table X-1** summarize key assumptions for stable year and multi-year financial analysis. Additional assumptions include:

- This analysis and aquarium industry data informed the assumed "right-size" for the Onondaga County Aquarium 1s to 80,000 SF and 600,000 gallons of water volume.
- The purposed Onondaga County Aquarium will have a third party operator.
- Midrange attendance of 490,000 annually and the attendance mix presented in Section VII in a stable year is used for base operating scenario. Opening year attendance is assumed at 20% above stable year levels.
- A land lease of $1 per year is assumed in this analysis like other not-for-profit aquariums that have public land support, and are community-based, educational in nature and serve both resident and tourist markets.
- This analysis does not include land costs, depreciation, bond or mortgage payments, or management fees.

Table X-1
Operating Assumptions in Stabilized Year Mid-Range in 2021 Dollars
Onondaga County Aquarium

General			
Aquarium Attendance Potential	490,000		
Attendance Growth Factor	0.5%		Every year after stabilized year
Aquarium Square Footage	80,000		Estimated
Water Volume in Gallons	600,000		Assumption
Inflation	2.0%		Annually
Ticket Prices and Assumptions			
Adult Ticket	$21.95		
Per Capita Admissions Revenue	$12.97		
Ticket Price Increase Every Other Year	5%		
Memberships			
Number of Memberships in Stable Year	5,720		
Average number of visits per membership	12		
Average Membership Fee	$171		
Ticket & Membership Price Rate of Increase	5%	Every other year	
Retail Sales			
Per Capita Retail Spending	$3.00	Per visitor	
Outside Sales as a % of Visitor Sales	5%		From non-aquarium visitors, website + events
Cost of Goods Sold	50.0%		
Café Net Revenue			Assumed to be operated by outside vendor
Per Capita Café Spending	$3.00		
Owner's Share of Gross Café Sales	15%		
Miscellaneous and Outdoor Programming Revenue	$2.00	Per visitor	Includes Camps, "Behind the Scenes" tours, Animal Encounters, Kayak and nature boat tours and other paid programming / upcharges.
Facility Rentals			Major, Minor and Birthday Parties
Major Rentals Per Year	52		
Target Attendance in Stable Year	5,200	100	Avg. attendees per event
Average Net Revenue	$3,000		Per rental to the Aquarium
Minor Rentals Per Year	50		
Target Attendance in Stable Year	2,500	50	Avg. attendees per event
Average Net Revenue	$1,250		Per rental
Birthday Parties Per Year	250		
Target Attendance in Stable Year	6,250	25	Avg. attendees per event
Average Net Party Revenue	$350		
Year 1 Ramp up to full Facility Rental Activity	75%	Year 1	Of Stable Year Rentals Activity
Year 2 Ramp up to full Facility Rental Activity	90%	Year 2	Of Stable Year Rentals Activity
Contributed Revenue Assumption, Stable years	15%	of Earned Revenues	*Represents potential revenue from grants, gifts, fundraising events, and endowment proceeds, if an endowment is developed.*
Contributed Revenue Assumption - Years 1 & 2	12%		

Source: ConsultEcon, Inc.

Revenue Potential

Earned revenues of the Onondaga County Aquarium will be derived mainly from admission ticket sales and facility rental revenue, as shown by data in **Table X-2**. The stable year earned revenue potential for the Onondaga County Aquarium is $10.4 million in current dollar value. Earned revenue would be supplemented by a variety of non-earned revenues such as gifts, grants, endowment proceeds and gifts-in-kind.

Table X-2
Preliminary Revenue Potential Estimate in a Stable Year in 2021 Dollars
Onondaga County Aquarium

Attendance	Stable Year Current Dollar Value	Percent to Total
Total Attendance	490,000	
Earned Revenues		
Admission Revenue	$6,403,062	53%
Membership	986,628	8%
Gross Retail	1,543,500	13%
Net Café Revenue	220,500	2%
Net Facility Rental Revenue	306,000	3%
Net Programming and upcharge Revenue	980,000	8%
Total Earned Revenue	**$10,439,690**	**87%**
Contributed Revenues		
Contributed Revenues [1/]	**$1,565,953**	**13%**
Total Revenues	**$12,005,643**	**100%**
Rounded ($000)	**$12,006,000**	

1/ This analysis focuses on Earned Revenues. Contributed revenue, or "non-earned" revenue, tends to be part of all aquarium operations. Sources and amounts of Contributed Revenue can vary widely and could include grants, corporate sponsorships, annual gifts, gifts-in-kind of goods and services, fundraising events, endowment proceeds, and government support. The ratio of Contributed Revenues assumed in this analysis is typical for aquariums of this scale and governance.

Source: ConsultEcon, Inc.

Operating Expenses

The operating expense estimates for the Onondaga County Aquarium were prepared to reflect the proposed aquarium size, mid-range attendance and assumptions regarding the optimal programs, exhibits and educational experiences to be offered. The expenses reflect a tightly operated project with a "bottom line" orientation. Inputs to the operating expenses analyses include the experience of comparable facilities and the proposed "metrics" of the facility – its size, program and attendance potential.

Personnel Costs

Data in **Table X-3** show an illustrative personnel schedule with positions by department and salary levels based on occupational and industry salary surveys. There are a total of 80 full time and 44 part time positions, and 20 seasonal positions for a total of 107 full time equivalent employees. This operating plan is geared toward active involvement of a dedicated and well-trained volunteer corps that supplements staff. Included are assumptions regarding volunteer staff to undertake many important assignments in events, programs, visitor services, education and curation. The estimated salary budget for these personnel is planned at $6.2 million including an estimated average taxes and fringe rate of 30 percent of total salaries. The salaries assumed in this analysis are prototypical for the industry and are not meant to set the compensation for a position.

Table X-3
Proposed Personnel Plan in Current Dollars
Onondaga County Aquarium

Position	Annual Salaries (FTE)	Part-Time Seasonal (Peak Season) Salaries	Number of Full Time Positions	Number of Part Time Positions	Number of Peak Season Positions	Number of Full-Time Positions Filled by Volunteers	Total Salary Budget
Administration & Finance							
Executive Director / CEO	$175,000		1				$175,000
Chief Financial Officer	110,000		1				$110,000
Human Resources Coordinator / Payroll	60,000		1				$60,000
Bookkeeper / Accounts Payable Administrator	45,000		2				$90,000
Receptionist/Administrative Asst.	35,000		1				$35,000
Marketing, Development, Membership and Facility Rentals							
Development Director	110,000		1				$110,000
Development Assistant	40,000		1				$40,000
Marketing Manager	70,000		1				$70,000
Social Media & Web Site Coordinator	55,000		1				$55,000
Membership Coordinator	45,000		1				$45,000
Grant Writer	60,000		1				$60,000
Marketing Assistant	42,000		3			2	$126,000
Facility Rentals Coordinators 1/	40,000		2	6		2	$200,000
Visitor Services and Education Programs							
Manager Education Programs / School Groups	65,000		1				$65,000
Visitor Services & Education Assistant	42,000		1				$42,000
Educators	48,000		2	3		4	$168,000
Volunteers and Visitor Services Coordinator (Personnel, Training & Volunteers)	45,000		1				$45,000
School Group / Community Programs Coordinator	40,000		1	1			$60,000
Visitor Assistants	34,000		6	10		6	$374,000
Visitor Assistants/Security (Peak Season Interns)		7,500			6	4	$45,000
Retail / Admissions							
Museum Store Manager / Buyer	65,000		1				$65,000
Assistant Store Manager	42,000		2				$84,000
Admissions Manager	50,000		1				$50,000
Admissions Coordinator	36,000		2				$72,000
Cashiers - Admissions/Retail	30,000		6	14			$390,000
Cashiers - Admissions/Retail (Peak Season)		7,500			10		$75,000
Animal Husbandry, Exhibits and Facility Operations 2/							
General Curator & LSS Director	90,000		1				$90,000
Assistant Curator	75,000		1				$75,000
Senior Aquarists	65,000		8				$520,000
Aquarists / Biologists/ Divers	45,000		15			2	$675,000
Biologists/Aquarists (Interns)		8,500			4		$34,000
Exhibit Manager / AV Specialist	70,000		1	2			$140,000
Animal Husbandry, Exhibits and Facility Operations 2/							
Plant Manager	80,000		1				$80,000
Assistant Plant Manager	55,000		1				$55,000
Administrative Assistant	38,000		1				$38,000
Building and Life Support Systems Engineer	75,000		1				$75,000
Assistant LSS Engineer	50,000		1	1			$75,000
Technology Coordinator	55,000		1	1			$82,500
Lead Security Guard	38,000		1				$38,000
Security Guards	30,000		2	3			$105,000
Building Manager	50,000		1				$50,000
Custodians	30,000		3	3			$135,000
Total			80	44	20	20	$4,978,500
Fringe & Benefits (@ 25% of Total Salaries)							$1,244,625
Total Salaries & Benefits Budget							**$6,223,125**
Total Full Time Equivalent Positions (FTE'S)							**107.00**
Total Positions Supplemented by Volunteers							**20.00**

NOTES: Part Time Employees Calculated at 50% FTE, Summer workers at 25% FTE.
Visitor Assistants and Cashiers paid positions can be supplemented by Volunteers.

1/ The Facility Rental Coordinators share day and evening rentals.

2/ The Animal Husbandry staff will depend on the species and number of specimens planned for the Onondaga Aquarium.

Source: ConsultEcon.

Total Operating Costs

As shown by data in **Table X-4**, total operating expenses at the Onondaga County Aquarium are estimated at $11.3 million in current value of the dollar in a stable year of operation. In addition to personnel, individual expense items include: utilities, repairs and maintenance, curatorial and animal collections, seawater additives for saltwater tanks, Life support systems, insurance; supplies and materials; advertising, printing and publications; exhibit reinvestment and maintenance; events and programs; administrative and miscellaneous and contingency. Also included in the operating budget are capital reserves to cover major non-recurring expenses for mechanical, electrical, and plumbing repairs and maintenance contracts at 3 percent of total annual operating expenses.

Table X-4
Stable Year Operating Expenses in Current Dollars
Onondaga County Aquarium

Project Parameters			**Factors**	
Aquarium Interior Square Footage	80,000			
Gallons of Water	600,000			
Mid-Range Annual Attendance	490,000			
Employees (FTE's)	107.0		See Personnel Schedule	
Detailed Budgetary Analysis	**Amount**	**Factor**	Note	**% to Total**
Salaries (FTE, PTE)	$4,978,500		See Personnel Schedule	44.2%
Overhead and Benefits [1/]	1,244,625	25%	Of Salaries	11.0%
Retail Cost of Goods (COGS) Sold	771,750	50%	Of Gross Retail Sales	6.8%
Land Lease Assumption	1		$1 per Year	0.0%
Professional / Contract Services	107,000	$1,000	Per FTE	0.9%
Administrative Expenses [2/]	240,750	$2,250	Per FTE	2.1%
Special Events	100,000		Budgeted	0.9%
Telecommunications/ Technology/ Website	133,750	$1,250	Per FTE	1.2%
Education Programs	245,000	$0.50	Per Attendee	2.2%
Printing & Publications	122,500	$0.25	Per Attendee	1.1%
Advertising and Promotion	735,000	$1.50	Per Attendee	6.5%
Aquarium Animal Food [3/]	240,000	$0.40	Per Gallon	2.1%
Aquarium Animal Collections/ Care [3/]	300,000	$0.50	Per Gallon	2.7%
Exhibit Reinvestment / Changing Exhibits	245,000	$0.50	Per Attendee	2.2%
Insurance	120,000	$1.50	Per SF	1.1%
Building, Maintenance, Landscaping & Supplies	400,000	$5.00	Per SF	3.5%
Utilities	640,000	$8.00	Per SF	5.7%
Dept. Misc. & Discretionary	318,716	3%	of Total Operating Costs	2.8%
Subtotal Operating Expenses	**$10,942,592**			**97.1%**
Capital Reserves	$328,000	3%	of Total Operating Costs	2.9%
Total Operating Expenses	**$11,270,592**			**100.0%**
Operating Benchmarks				
Operating Expense Per Square Foot	*$141*			
Operating Expense Per Attendee	*$23*			
Operating Expense Per FTE	*$105,333*			

1/ See personnel table.
2/ Includes Dues & Subscriptions, Office Supplies, Professional Travel, Postage & Shipping, uniforms, Volunteer Costs, Equipment Rental and other Administrative costs.
3/ Animal food and collections care expenses will ultimately depend on the type of the collection and species but are assumed to be both local and from differing saltwater and freshwater habitats.

Source: ConsultEcon, Inc.

Net Operating Income Summary

As shown in **Table X-5**, In a stable year (Year 3) of operations, net operating income is $735,000 in current value of the dollar after operating expenses are deducted from earned revenue and contributed revenue.

Table X-5
Preliminary Net Operating Net Operating Income Potential Summary
Onondaga County Aquarium

	Stable Year	
Attendance	490,000	
Revenue	**Current Dollar Value**	**Percent of Expenses**
Earned Revenue	$10,440,000	93%
Contributed Revenue Assumption [1/]	$1,566,000	14%
Total Revenue	**$12,006,000**	**107%**
Operating Expenses	**$11,271,000**	**100%**
Net Operating Income After Contributed Revenues	**$735,000**	**7%**

NOTE: Year 1 is in 2021 dollars. All figures rounded to nearest 1,000

1/ Contributed revenue, or "non-earned" revenue, are part of all aquarium operations. Sources and amounts of Contributed Revenue can vary widely and could include grants, corporate sponsorships, annual gifts, gifts-in-kind of goods and services, fundraising events, endowment proceeds, and government support.

Source: ConsultEcon, Inc.

10 Year Performance

The 10-year mid-range attendance trend and stable year financial analysis is evaluated over a period of 10 years. Year 1 is in current 2021 value of the dollar and future estimates are inflated at an assumed 2 percent annually. Data in **Table X-6 through X-9** provide the 10-year financial analysis potential for the proposed aquarium. In a stable year (Year 3) of operations, net operating income is $735,000 in current value of the dollar after operating expenses are deducted from earned revenue and contributed revenue. Future net operating income is presented as future dollars. Over the 10-year period, the aquarium will generate over $10 million in net operating revenue.

Table X-6
Attendance and Visitor Spending Assumptions at Mid-Range Attendance Potential
Onondaga County Aquarium

% to Total Attendance	YEAR 1	YEAR 2	Stable Year YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10
Percentage of Attendance By Type										
Adult	33.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%	32.0%
Senior/Military/Student	13.0%	12.5%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%	12.0%
Children (3-12)	25.0%	24.5%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%	23.0%
Student Group	8.0%	9.5%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%	11.0%
Members / Annual Pass Holders	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%	14.0%
Facility Rentals and Special Events	2.0%	2.5%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Other Free/Complimentary	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Attendance By Type										
Adult	194,040	172,480	156,800	157,584	158,368	159,152	159,936	160,720	161,504	162,288
Senior/Military/Student	76,440	67,375	58,800	59,094	59,388	59,682	59,976	60,270	60,564	60,858
Children (3-12)	147,000	132,055	112,700	113,264	113,827	114,391	114,954	115,518	116,081	116,645
Student Group	47,040	51,205	53,900	54,170	54,439	54,709	54,978	55,248	55,517	55,787
Members / Annual Pass Holders	82,320	75,460	68,600	68,943	69,286	69,629	69,972	70,315	70,658	71,001
Facility Rentals and Special Events	11,760	13,475	14,700	14,774	14,847	14,921	14,994	15,068	15,141	15,215
Other Free/Complimentary	29,400	26,950	24,500	24,623	24,745	24,868	24,990	25,113	25,235	25,358
Total	**588,000**	**539,000**	**490,000**	**492,450**	**494,900**	**497,350**	**499,800**	**502,250**	**504,700**	**507,150**
Number of Memberships	**6,860**	**6,288**	**5,717**	**5,745**	**5,774**	**5,802**	**5,831**	**5,860**	**5,888**	**5,917**
Ticket Prices and Achieved Per Capita Ticket Revenue [1/]										
Adult	$21.95	$21.95	$23.00	$23.00	$24.20	$24.20	$25.40	$25.40	$26.70	$26.70
Senior/Military/Student	$19.95	$19.95	$20.90	$20.90	$21.90	$21.90	$23.00	$23.00	$24.20	$24.20
Children (3-12)	$16.95	$16.95	$17.80	$17.80	$18.70	$18.70	$19.60	$19.60	$20.60	$20.60
Student Group	$9.95	$9.95	$10.40	$10.40	$10.90	$10.90	$11.40	$11.40	$12.00	$12.00
Members / Annual Pass Holders	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Facility Rentals and Special Events	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Other Free/Complimentary	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Per Capita (Non Members)	**$14.87**	**$14.62**	**$15.11**	**$15.11**	**$15.87**	**$15.87**	**$16.65**	**$16.65**	**$17.51**	**$17.51**
Less Coupons & Discounts	*($1.49)*	*($1.46)*	*($1.51)*	*($1.51)*	*($1.59)*	*($1.59)*	*($1.67)*	*($1.67)*	*($1.75)*	*($1.75)*
Net Per Capita Ticket Rev.	**$13.38**	**$13.15**	**$13.60**	**$13.60**	**$14.28**	**$14.28**	**$14.99**	**$14.99**	**$15.76**	**$15.76**
Average Membership Revenue [1/]	**$171.00**	**$171.00**	**$179.55**	**$179.55**	**$188.53**	**$188.53**	**$197.95**	**$197.95**	**$207.85**	**$207.85**
Per Capita Retail/Food Sales [2/]										
Retail Sales Per Capita	$3.00	$3.06	$3.12	$3.18	$3.25	$3.31	$3.38	$3.45	$3.51	$3.59
Café Sales Per Capita	$3.00	$3.06	$3.12	$3.18	$3.25	$3.31	$3.38	$3.45	$3.51	$3.59
Misc. Sales Per Capita	$2.00	$2.04	$2.08	$2.12	$2.16	$2.21	$2.25	$2.30	$2.34	$2.39

NOTE: Year 1 is in 2021 dollars.

1/ Ticket prices and membership prices assumed to increase every other year by 5%. Ticket prices shown are estimates and may not reflect actual ticket prices set due to rounding.

2/ Assumed to increase each year by the rate of inflation.

Source: ConsultEcon, Inc.

Table X-7
Preliminary Revenue Potential Estimate at Stabilized Mid-Range Attendance
Onondaga County Aquarium

	Stable Year										Stable Year Current
Attendance	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**	**YEAR 7**	**YEAR 8**	**YEAR 9**	**YEAR 10**	**Dollar Value**
Total Attendance	588,000	539,000	490,000	492,450	494,900	497,350	499,800	502,250	504,700	507,150	490,000
Earned Revenues											
Admission Revenue	$7,869,469	$7,090,100	$6,661,746	$6,695,055	$7,069,548	$7,104,545	$7,489,503	$7,526,216	$7,951,750	$7,990,351	$6,403,062
Membership	1,173,060	1,075,248	1,026,487	1,031,515	1,088,558	1,093,837	1,154,269	1,160,010	1,223,830	1,229,858	986,628
Gross Retail	1,852,200	1,731,807	1,605,857	1,646,164	1,687,441	1,729,711	1,772,996	1,817,321	1,862,710	1,909,187	1,543,500
Net Café Revenue	264,600	247,401	229,408	235,166	241,063	247,102	253,285	259,617	266,101	272,741	220,500
Net Facility Rental Revenue	229,500	280,908	318,362	297,404	304,705	310,799	185,254	190,969	196,839	207,946	306,000
Net Programming and Upcharge Revenue	1,176,000	1,099,560	1,019,592	1,045,184	1,071,391	1,098,229	1,125,712	1,153,855	1,182,673	1,212,182	980,000
Total Earned Revenue	**$12,564,829**	**$11,525,024**	**$10,861,453**	**$10,950,488**	**$11,462,706**	**$11,584,222**	**$11,981,019**	**$12,107,988**	**$12,683,904**	**$12,822,266**	**$10,439,690**
Contributed Revenues											
Contributed Revenues [1/]	**$1,507,779**	**$1,383,003**	**$1,629,218**	**$1,642,573**	**$1,719,406**	**$1,737,633**	**$1,797,153**	**$1,816,198**	**$1,902,586**	**$1,923,340**	**$1,565,953**
Total Revenues	**$14,072,608**	**$12,908,027**	**$12,490,671**	**$12,593,061**	**$13,182,112**	**$13,321,856**	**$13,778,172**	**$13,924,186**	**$14,586,489**	**$14,745,605**	**$12,005,643**

NOTE: Year 1 is in current, 2021 dollars.

1/ This analysis focuses on Earned Revenues. Contributed revenue, or "non-earned" revenue, tends to be part of all aquarium operations. Sources and amounts of Contributed Revenue can vary widely and could include grants, corporate sponsorships, annual gifts, gifts-in-kind of goods and services, fundraising events, endowment proceeds, and government support.

Source: ConsultEcon, Inc.

Table X-8
Operating Expenses in Mid-Range Attendance Potential Scenario
Onondaga County Aquarium

	Stable Year										Stable Year Current
Operating Expenses	**YEAR 1**	**YEAR 2**	**YEAR 3**	**YEAR 4**	**YEAR 5**	**YEAR 6**	**YEAR 7**	**YEAR 8**	**YEAR 9**	**YEAR 10**	**Dollar Value**
Personnel Salaries (FTE, PTE)	$4,978,500	$5,078,070	$5,179,631	$5,283,224	$5,388,889	$5,496,666	$5,606,600	$5,718,732	$5,833,106	$5,949,768	$4,978,500
Benefits	1,244,625	1,269,518	1,294,908	1,320,806	1,347,222	1,374,167	1,401,650	1,429,683	1,458,277	1,487,442	1,244,625
Retail Cost of Goods (COGS) Sold	926,100	865,904	802,929	823,082	843,721	864,855	886,498	908,661	931,355	954,594	771,750
Land Lease Assumption	1	1	1	1	1	1	1	1	1	1	1
Professional Services	107,000	109,140	111,323	113,549	115,820	118,137	120,499	122,909	125,368	127,875	107,000
Administrative Expenses	240,750	245,565	250,476	255,486	260,596	265,807	271,124	276,546	282,077	287,719	240,750
Development Costs & Events	100,000	102,000	104,040	106,121	108,243	110,408	112,616	114,869	117,166	119,509	100,000
Telecommunications / Website	133,750	136,425	139,154	141,937	144,775	147,671	150,624	153,637	156,709	159,844	133,750
Education Programs	294,000	274,890	254,898	261,296	267,848	274,557	281,428	288,464	295,668	303,046	245,000
Printing & Publications	147,000	137,445	127,449	130,648	133,924	137,279	140,714	144,232	147,834	151,523	122,500
Advertising	882,000	824,670	764,694	783,888	803,544	823,672	844,284	865,391	887,005	909,137	735,000
Aquarium Animal Food	240,000	244,800	249,696	254,690	259,784	264,979	270,279	275,685	281,198	286,822	240,000
Aquarium Animal Collections	300,000	306,000	312,120	318,362	324,730	331,224	337,849	344,606	351,498	358,528	300,000
Exhibit Reinvestment / Changing Exhibit	294,000	274,890	254,898	261,296	267,848	274,557	281,428	288,464	295,668	303,046	245,000
Insurance	120,000	122,400	124,848	127,345	129,892	132,490	135,139	137,842	140,599	143,411	120,000
Building Maintenance & Supplies	400,000	408,000	416,160	424,483	432,973	441,632	450,465	459,474	468,664	478,037	400,000
Utilities	640,000	652,800	665,856	679,173	692,757	706,612	720,744	735,159	749,862	764,859	640,000
Dept. Misc. & Discretionary	331,432	331,576	331,592	338,562	345,677	352,941	360,358	367,931	375,662	383,555	318,716
Early Year Operations Factor [1/]	568,958	341,523									
Total Operating Expenses	**$11,948,116**	**$11,725,615**	**$11,384,673**	**$11,623,949**	**$11,868,241**	**$12,117,656**	**$12,372,300**	**$12,632,283**	**$12,897,717**	**$13,168,714**	**$10,942,592**
Capital Reserves [2/]	$358,443	$351,768	$341,540	$348,718	$356,047	$363,530	$371,169	$378,968	$386,931	$395,061	$328,000
Total Operating Costs	**$12,306,559**	**$12,077,384**	**$11,726,213**	**$11,972,667**	**$12,224,289**	**$12,481,186**	**$12,743,469**	**$13,011,252**	**$13,284,648**	**$13,563,776**	**$11,270,592**

NOTE: Year 1 is in current 2021 dollars.

1/ In Years 1 and 2 when attendance is higher than stable year, a factor of +5% and +3%, respectively, have been added to accommodate more than stable year attendance.

2/ Capital Reserves include funds for changing exhibits, equipment replacement and minor capital building improvements.

Source: ConsultEcon, Inc.

Table X-9
Preliminary 10 YR Net Operating Net Operating Income Potential Summary
Onondaga County Aquarium

	YEAR 1	YEAR 2	Stable Year YEAR 3	YEAR 4	YEAR 5	YEAR 6	YEAR 7	YEAR 8	YEAR 9	YEAR 10	Stable Year	
Attendance	588,000	539,000	490,000	492,450	494,900	497,350	499,800	502,250	504,700	507,150	490,000	
Revenue											**Current Dollar Value**	**Percent of Expenses**
Earned Revenue	$12,565,000	$11,525,000	$10,861,000	$10,950,000	$11,463,000	$11,584,000	$11,981,000	$12,108,000	$12,684,000	$12,822,000	$10,440,000	93%
Contributed Revenue Assumption [2/]	$1,508,000	$1,383,000	$1,629,000	$1,643,000	$1,719,000	$1,738,000	$1,797,000	$1,816,000	$1,903,000	$1,923,000	$1,566,000	14%
Total Revenue	**$14,073,000**	**$12,908,000**	**$12,490,000**	**$12,593,000**	**$13,182,000**	**$13,322,000**	**$13,778,000**	**$13,924,000**	**$14,587,000**	**$14,745,000**	**$12,006,000**	**107%**
Operating Expenses [1/]	**$12,307,000**	**$12,077,000**	**$11,726,000**	**$11,973,000**	**$12,224,000**	**$12,481,000**	**$12,743,000**	**$13,011,000**	**$13,285,000**	**$13,564,000**	**$11,271,000**	**100%**
Net Operating Income After Contributed Revenues	**$1,766,000**	**$831,000**	**$764,000**	**$620,000**	**$958,000**	**$841,000**	**$1,035,000**	**$913,000**	**$1,302,000**	**$1,181,000**	**$735,000**	**7%**

NOTE: Year 1 is in 2021 dollars. All figures rounded to nearest 1,000

1/ Does not include any land lease payment beyond $1 per year, as land cost is yet to be determined.

2/ Contributed revenue, or "non-earned" revenue, are part of all aquarium operations. Sources and amounts of Contributed Revenue can vary widely and could include grants, corporate sponsorships, annual gifts, gifts-in-kind of goods and services, fundraising events, endowment proceeds, and government support.

Source: ConsultEcon, Inc.

Sensitivity Analyses

The operating analysis that uses the mid-range attendance potential is the base planning scenario for the sensitivity analysis. Three additional scenarios were created for comparison to the base planning scenario.

- **Lower Range Attendance Scenario** – This scenario uses a 15% lower attendance than the base mid-range attendance scenario as the basis of its operations and net operating income analysis. The size of the aquarium and ticket prices are the same as the base scenario. The contributed revenue assumption is also held constant to the base scenario. Lower attendance, admissions, and other sources of earned revenue would require reductions in staff headcount and operating expenses. Net operating income would be modest, or there would be a need for increased contributed revenue.
- **Higher Range Attendance Scenario** – This scenario uses 15% higher attendance than the base mid-range attendance scenario as the basis of its operations and net operating income analysis. The size of the aquarium and ticket prices are the same as the base scenario. The contributed revenue assumption is also held constant to the base scenario. The higher attendance and increased programming, marketing and related factors to achieve higher attendance would create the requirement for increased staff headcount and higher operating budgets than in the base scenario. Further, this scenario indicates the opportunity to need lower amounts of contributed revenues. In practice, the aquarium would still target similar or even higher contributed revenues in order to expand its conservation, education and programming activities as well as generating funds for long term reinvestment in the aquarium campus.

- **Smaller Facility Scenario** – This scenario assumes a smaller facility size and fewer gallons of exhibit water. Attendance potential and ticket and membership prices are reduced to account for the reduced visitor experience in the smaller facility. The contributed revenue assumption is held constant to the base scenario. As in the lower attendance scenario, there are reductions in admissions and other sources of earned revenue which in turn require reductions in staff headcount and operating expenses. Staff cuts are deeper in more departments than the low range attendance scenario due to a smaller curatorial and facility department. Net operating income would be modest, and there might greater reliance on contributed revenue.

Data in **Table X-10** show the key assumptions and operative profile for the base case planning scenario (which is presented throughout this report's attendance, operating and economic impacts analyses) and the alternative scenarios described above. Note that the Contributed revenue assumption is held steady in each scenario, so that the focus of the analysis is on earned revenues and operating expenses estimated for the scenarios.

Table X-10
Comparison of Stable Year Operating Profiles
for Alternative Attendance and Development
Onondaga County Aquarium

	Base Mid-Range Attendance Scenario	Alternative Scenarios		
		Lower Attendance Scenario	Higher Attendance Scenario	Smaller Facility, Mid-Range Attendance Scenario 1/
Facility Size	80,000	80,000	80,000	65,000
Gallons	600,000	600,000	600,000	500,000
Full Time Equivalent Staff	107.0	99.0	113.0	90.0
Annual Attendance	490,000	416,500	563,500	401,800
Change from Baseline Mid-Range Attendance		-15%	15%	-18%
Adult Ticket Price	$21.95	$21.95	$21.95	$18.95
Admissions Revenue per Capita	$12.97	$12.97	$12.97	$11.17
Scenario Analyses Results				
Earned Revenue	$10,439,690	$8,874,000	$11,959,648	$7,544,975
Contributed Revenue	1,565,953	1,565,953	1,565,953	1,565,953
Total Revenue	**$12,005,643**	**$10,439,953**	**$13,525,602**	**$9,110,928**
Operating Expenses	$11,270,592	$10,423,326	$12,076,787	$9,247,719
Net Operating Income	**$735,051**	**$16,627**	**$1,448,815**	**($136,791)**
Earned Revenue as Percent of Expenses	***92.6%***	***85.1%***	***99.0%***	***81.6%***

1/ The mid-range attendance for a smaller facility is lower than the mid-range attendance potential for the base facility size.

Source: ConsultEcon, Inc.

Following are observations regarding the scenarios:

- **Lower Range Attendance.** Even at attendance at 85 percent of the mid-range attendance, the Onondaga County Aquarium would have good opportunities to have positive net operating income given the assumed $1.6 million in annual contributed revenue. This would require a somewhat reduced operating profile but would still provide substantial community benefits and positive economic impacts.
- **Higher Range Attendance.** With such market success, the Onondaga County Aquarium could generate substantial net operating income that would allow more education programs and events and also funds would be available for reinvestment to sustain the aquarium facilities and finances over time.

- **Smaller Aquarium.** A smaller aquarium would face the risk of insufficient market drawing power, particularly for tourists and repeat visitation. This scenario shows that even at its mid-range attendance profile for the smaller aquarium, a higher ratio of contributed revenues may well be needed; and there would be greater financial risk of not achieving its mid-range attendance potential.

Summary

The Onondaga County Aquarium has the potential to operate successfully over time based on the current facility plans, proposed visitor experiences and programs and this operating plan. The Onondaga County Aquarium's success will also depend on first rate marketing, education programs and operations, a robust staff and active corps of volunteers and members. Diversified and creative sources of revenue and sound fiscal management will assist the Onondaga County Aquarium to sustain its operations.

Section XI

ECONOMIC IMPACTS

This economic impact evaluation includes impacts associated with the Onondaga County Aquarium operations to the local economy of Onondaga County and the regional economy of the State of New York (the "State"). This analysis includes:

- Direct economic impacts from the stable year of operations of the Onondaga County Aquarium including personnel and expenditures for operations as inputs to the economic impacts analysis;
- Direct economic impacts from visitor spending patterns associated with a visit to Onondaga County Aquarium by type (food service, retail, overnight accommodations, etc.) and by resident and non-resident segments as inputs to the economic impacts analysis;
- Multiplier effects from direct spending by visitors associated with a visit to the Onondaga County Aquarium to provide an estimate of total annual economic impacts (direct, indirect and induced);
- Estimate of total annual direct sales, hotel, and income taxes due to direct visitor spending, as well as selected tax revenues due to multiplier effects; and,
- An evaluation of the qualitative benefits to Syracuse, Onondaga County and the State as a whole.

OVERVIEW OF ECONOMIC IMPACTS AND METHODOLOGY

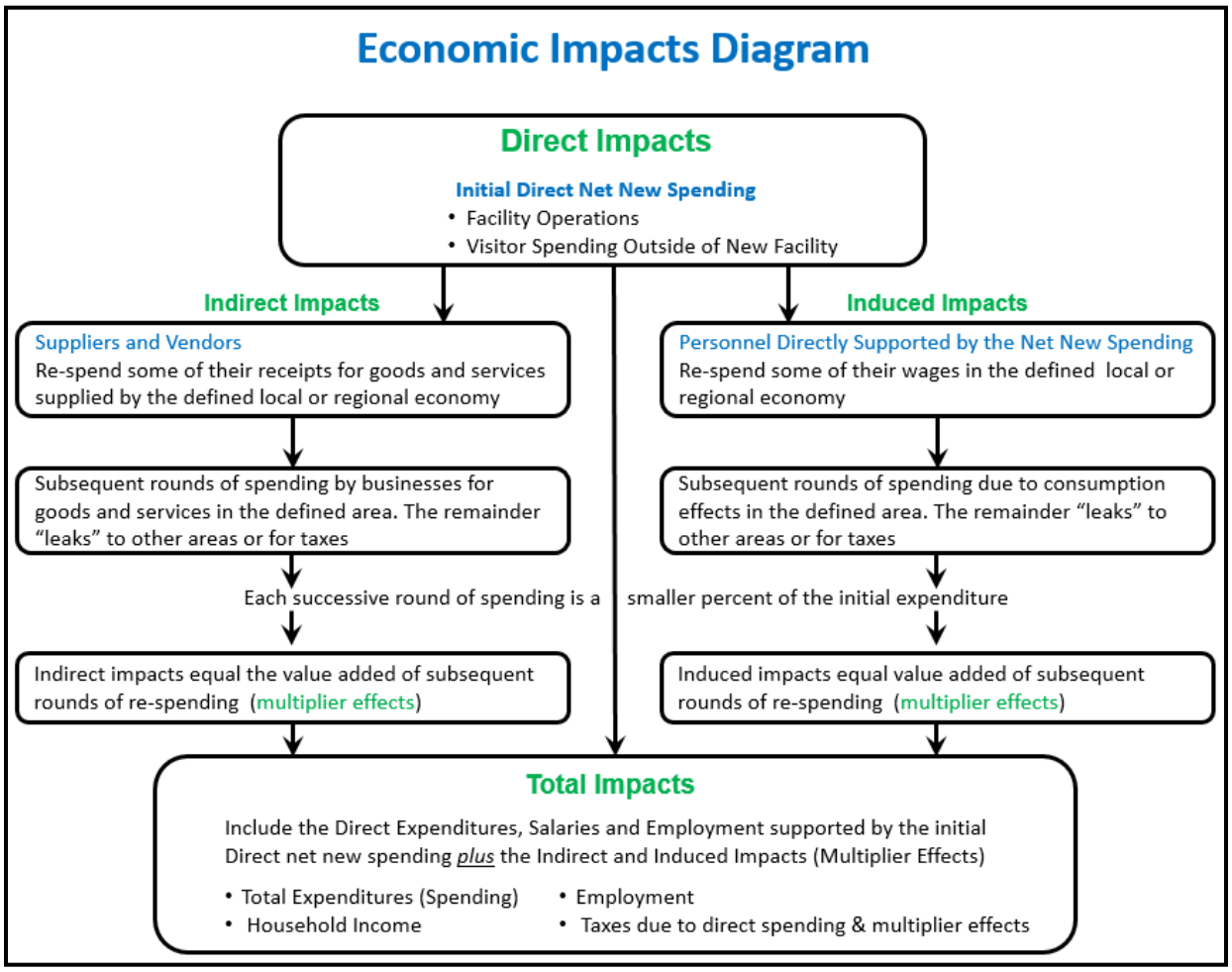
Economic impact is the measure of net new economic activity that will occur in a defined geographic region (i.e. state or county) as a result of the operation of the aquarium. Net new activity excludes any activity associated with the project that would replace other economic activity in the area.

Direct economic impacts are a result of the initial spending or investment, while the multiplier effect (indirect and induced economic activity) is a result of the recirculation of the initial direct spending within the defined geographic region. As the direct spending due to the operation of the Onondaga County Aquarium flows to local businesses, the money is, in turn, re-spent by the businesses for personnel, business expenses, and the costs of goods sold that originate in the local economy. The portion of operations spending for wages and

salaries (employment) is also in turn re-spent by the employees for housing, retail, services, and other categories in the local economy. Subsequent rounds of spending occur, with the total effect on an area's economy of the initial round of new direct spending estimated through a "multiplier" analysis. The U.S. Department of Commerce's Bureau of Economic Analysis provides mathematical factors for discrete geographies for an array of spending types that result in an estimate of total economic impacts from new spending due to an economic unit.

For the purposes of this analysis, Onondaga County are defined as the local economy and the State of New York as the regional economy. The analysis focuses on direct net new spending and total impacts (direct and multiplier effects) for the local and regional economies as defined. Economic impacts have been modeled and calculated using economic multipliers from a customized computer run of the RIMS II Input-Output Model to the specific impact areas (Onondaga County and the State of New York) analyzed in this analysis. Multiplier impacts include direct, indirect, and induced economic activity. Categories of measurement include expenditures, earnings, and employment. Note that "induced impacts" are those impacts (expenditures) made by employees directly supported by the Onondaga County Aquarium or other direct spending due to Onondaga County Aquarium, whereas "indirect impacts" are those created through the purchase of goods and services made by suppliers to Onondaga County Aquarium and other direct suppliers to businesses that support off-site visitor spending. **Figure XI-1** depicts the flow of spending due to the Onondaga County Aquarium in the Onondaga County and New York economies.

Figure XI-1
Diagram of Economic Impacts Expenditures and Employment Flows



Source: ConsultEcon, Inc.

Direct Expenditures

The economic impacts resulting from operating expenditures of the Onondaga County Aquarium is based on the following direct economic expenditures in the local (Onondaga County) and regional (State of New York) economies:

- **Direct Operational Spending by Onondaga County Aquarium** – Onondaga County Aquarium plays an active role in the local economy and creates jobs for residents. Onondaga County Aquarium expenditures include salaries and wages of its employees as well as operating costs such as utilities, marketing, supplies and materials, professional services, and printed materials, among many others. Direct expenditures by visitors at the aquarium are recognized in the economic impacts

analysis through the aquarium's stable year annual operating budget a based on midrange attendance, as detailed in **Section X**.

- **Visitor Spending in the Local Economy** – As the Onondaga County Aquarium attracts visitors from resident and visitor markets, it will form a stream of economic benefits to the local and regional economies. A large portion of spending by visitors to Onondaga County Aquarium is net new direct economic activity to the local area and the State. Given the scale of proposed facilities and unique offerings, the Onondaga County Aquarium helps to attract new visitors to the county who would otherwise not visit, contributes to longer stays in the area, and helping to retain leisure expenditures of residents and tourists that may otherwise be made elsewhere. As a visitor experience, it is planned to be a primary activity of its visitors on the day of their visit.

  In addition to the on-site spending at Onondaga County Aquarium (for admissions and gifts, for example), visitors also spend on goods and services offsite at other dining, retail, and entertainment establishments adjacent and nearby in conjunction with their day or overnight trip. Associated off-site spending on the day of their visit to the Onondaga County Aquarium includes overnight accommodations for some, food and beverage, transportation, and retail purchases, as well as other entertainment, recreational, and cultural activities. In this regard, Onondaga County Aquarium serves as a facilitator of the local economy by providing a destination for residents and visitors that supports business activity.

  For the purposes of this study, it is assumed that only a portion of day and overnight trip visitors' spending on the day of their visit to the Onondaga County Aquarium is attributable to the presence of the facility. This assumption is based on the experience of the tourism industry that visitor's travel to a location based on the activities offered and the quality of the experience. Thus, if the Onondaga County Aquarium constitutes a half day of the overnight visitor's activities, that ratio of their daily spending is also attributable to Onondaga County Aquarium. For day trippers to the Onondaga County Aquarium, it is assumed that it is a destination trip, and that much of the spending is attributable to the Onondaga County Aquarium.

Visitation by Type of Trip

Aquarium visitors are distributed by type of trip based on their market segment, as show by data in **Table XI-1**. County residents (Primary and Secondary Market Areas combined) are assumed be day trip visitors while tourist market visitors are assumed to be half day tripper and half overnight visitors. Two thirds of overnight visitors are assumed to stay in commercial accommodations. The number of day trippers is reduced by the number of students in school groups, which would not have any associated off-site spending.

Table XI-1
Estimated Distribution of Mid-Range Attendance by Type of Trip
Onondaga County Aquarium

	Mid Range Attendance (Rounded)	Type of Trip: Day Trip	Overnight Trip with Paid Accommodations	Overnight Trip at a Private Home	Total
Attendance Distribution by % to Total Attendance		***Percent Type of Trip to Attendance by Market Segment***			
Primary Market Area	141,747	100%	0%	0%	100%
Secondary Market Area	18,134	100%	0%	0%	100%
Tertiary Market Area	37,905	97%	1%	2%	100%
Quaternary Market Area	46,342	94%	2%	4%	100%
Tourist Market	245,872	50%	30%	20%	100%
Total	**490,000**				
		Attendance by Type of Trip by Market			
Primary Market Area		141,747	-	-	141,747
Secondary Market Area		18,134	-	-	18,134
Tertiary Market Area		36,768	379	758	37,905
Quaternary Market Area		43,562	927	1,854	46,342
Tourist Market		122,936	73,762	49,174	245,872
Total		**363,146**	**75,068**	**51,786**	**490,000**
Less Student Visitation		***53,900***			***53,900***
Total Non-Student Visitation		**309,246**	**75,068**	**51,786**	**436,100**

Source: ConsultEcon, Inc.

Visitation and Spending by Type of Trip

Data in **Table XI-2** provide analysis of onsite and offsite spending nu category (i.e., lodging, meals, etc.) based attendance and spending profiles for different types of trips to the aquarium. Spending estimates are based on visitor survey data provided by Visit Syracuse and adjusted to account for aquarium visitor onsite spending and offsite spending patterns that vary from destination visitors.

Table XI-2
Calculation of Offsite Spending Attributed to the Aquarium Visit by Category by Type of Trip
Onondaga County Aquarium

Category of Spending [1/]	Onsite Spending	Type of Trip: Day Trip	Type of Trip: Overnight Trip with Paid Accommodations	Type of Trip: Overnight Trip at a Private Home	Total
		Daily Per Person Off-Site Spending by Category Attributed to the Aquarium Visit			
Lodging [2/]		$0.00	$26.00	$0.00	
Meals [3/]	$3.00	$10.50	$16.50	$16.50	
Shopping [4/]	$3.00	$15.25	$15.50	$15.50	
Recreational/ Attractions/Events [4/]	$12.97	$5.78	$7.53	$7.53	
Local Transportation [3/]		$7.00	$7.00	$7.00	
Total		**$38.53**	**$72.53**	**$46.53**	
Mid-Range Attendance		**309,246**	**75,068**	**51,786**	**436,100**
Percent to Total		***71%***	***17%***	***12%***	
		Total Off Site Spending by Category			
Lodging		$0	$1,951,757	$0	$1,951,757
Meals		3,247,085	1,238,615	854,473	5,340,173
Shopping		4,716,005	1,163,547	802,687	6,682,238
Recreational/ Attractions/Events		1,787,474	565,266	389,955	2,742,696
Local Transportation		2,164,723	525,473	362,504	3,052,700
Total		**$11,915,287**	**$5,444,658**	**$2,409,618**	**$19,769,563**
Percent to Total		***60%***	***28%***	***12%***	

1/ Day and overnight trip spending for meals, shopping, recreational/attractions/events, and local transportation are based on the average of category domestic day and overnight trip spending from 2019 Visit Syracuse traveler survey, and adjusted for onsite per capita spending. Only a portion of this "average spending" is included in this analysis as noted below.

2/ Lodging category is based on 2019 annual average daily rate of $104 from STR. Assumes 2 persons per room and 50% of overnight trip spending is attributed to an aquarium visit.

3/ 50% of day trip 50% of overnight trip spending is attributed to an aquarium visit.

4/ 25% of day trip 50% of overnight trip spending is attributed to an aquarium visit.

Source: ConsultEcon, Inc.

Share of Spending in Onondaga County and New York

Data in **Table XI-3** presents how much of onsite and off-site visitor spending is expended in Onondaga County and New York State. Most direct spending is expended in county and in state.

Table XI-3
Estimated Distribution of Offsite Spending in Onondaga County and New York State
Onondaga County Aquarium

Industry	Total Direct Spending	Percent in Onondaga County	Potential New Spending in Onondaga County	Percent in New York State	Potential New Spending in New York State
Onondaga Aquarium [1/]	$10,498,842	90%	$9,448,958	95%	$9,973,900
Off-Site Spending					
Lodging	$1,951,757	95%	$1,854,169	100%	$1,951,757
Meals	$5,340,173	95%	$5,073,164	100%	$5,340,173
Shopping	$6,682,238	95%	$6,348,127	100%	$6,682,238
Recreational/ Attractions /Events	$2,742,696	95%	$2,605,561	100%	$2,742,696
Local Transportation	$3,052,700	90%	$2,747,430	100%	$3,052,700
Total	**$30,268,406**		**$28,077,408**		**$29,743,464**

1/ Stable year operating estimate, less cost of goods sold.

Source: ConsultEcon, Inc.

Multiplier Effects and Total Economic Impacts

The economic and fiscal impacts due to the ongoing operations of Onondaga County Aquarium are evaluated for the "local" economy, Onondaga County, and the "regional" economy, the State of New York. The aquarium operations and visitor spending associated with a visit generate direct economic benefits and create "multiplier" economic activity as money is re-spent in the local and state economies. The economic and fiscal impacts of Onondaga County Aquarium are presented in a stable year of operations in current value of the dollar.

- **Local Economy: Onondaga County Economic Impacts** – As the multiplier effect works its way through the local economy, the net direct economic activity due to the operations of Onondaga County Aquarium will generate a total estimated direct, indirect, and induced impacts of $51.9 million in expenditures, of which $16.0 million represents wages and salaries supporting 423 total jobs in Onondaga County. Employment includes full-time and part-time jobs. Data in **Table XI-4** show the detailed analysis of the county economic impacts.
- **Regional Economy: New York Economic Impacts** – For the regional economy, the direct economic activity due to the operations of Onondaga County Aquarium will generate total estimated direct, indirect, and induced impacts of $43.6 million in expenditures, of which $14.1 million represent wages and salaries supporting 359 total jobs in the State. At the Statewide level, these impacts include the effects on jobs and economic activity inside and outside of Onondaga County. NOTES: The lower economic impacts for the State of New York are attributable to a lower percent of direct spending that is net new compared to the local economy. The local and state-wide impacts are not additive. Data in **Table XI-5** show the detailed analysis of state economic impacts.

Table XI-4
Estimated Economic Impacts on the Economy of Onondaga County in a Stabilized Year
Onondaga County Aquarium

	Estimated Total Spending	Total Spending Adjusted to Retail Margin	Estimated Percent Net New to Onondaga County	Estimated Net New Spending in Onondaga County	Estimated Net New Spending in Onondaga County Adjusted to Retail Margin
Estimated Potential Direct Spending In Onondaga County					
Onondaga Aquarium	$9,448,958	$9,448,958	100%	$9,448,958	$9,448,958
Lodging	1,854,169	1,854,169	90%	1,668,752	1,668,752
Meals (Retail Margin 75%)	5,073,164	3,804,873	60%	3,043,898	2,282,924
Shopping (Retail Margin 50%)	6,348,127	3,174,063	60%	3,808,876	1,904,438
Recreational/Attractions/Events	2,605,561	2,605,561	60%	1,563,337	1,563,337
Local Transportation	2,747,430	2,747,430	60%	1,648,458	1,648,458
Total Spending	**$28,077,408**	**$23,635,054**		**$21,182,279**	**$18,516,866**

Economic Impacts - Onondaga County, New York		***Multipliers*** [1/]		
Total Indirect & Induced	**Expenditures**	**Earnings**	**Employment** [2/]	
Museums, historical sites, zoos, and parks	1.6631	0.4036	9.998	
Lodging	1.6544	0.4275	9.3532	
Meals	1.7441	0.4812	14.963	
Shopping	1.6555	0.4631	12.2588	
Recreational/Attractions/Events	1.5852	0.4204	16.9781	
Local Transportation	1.6055	0.4111	15.8741	
Estimated Economic Impacts	**Expenditures**	**Earnings**	**Employment**	
Onondaga Aquarium	$15,714,562	$3,813,599	89	
Lodging	2,760,783	713,391	15	
Meals	3,981,647	1,098,543	32	
Shopping	3,152,797	881,945	22	
Recreational/Attractions/Events	2,478,201	657,227	25	
Local Transportation	2,646,599	677,681	25	
Total	$30,734,590	$7,842,387	208	
Plus Net New Direct Effects				
Onondaga Aquarium	$9,448,958	$4,978,500	124	Full and part time positions
Lodging	1,668,752	431,209	9	
Meals	3,043,898	839,816	24	
Shopping	3,808,876	1,065,473	27	
Recreational/Attractions/Events	1,563,337	414,602	16	
Local Transportation	1,648,458	422,100	16	
Total Direct	$21,182,279	$8,151,699	215	
Total Direct, Indirect & Induced	**$51,916,869**	**$15,994,086**	**423**	
Rounded to Nearest $1,000 (except Employment)	**$51,917,000**	**$15,994,000**	**423**	

1/ Multipliers are from a custom run of the Bureau of Economic Analysis' RIMS II Input-Output Model. This model uses multipliers from Tables 1.5 and 2.5 according to the item. Accommodations uses the Accommodation multipliers (Item 61) Food & Beverage uses the Food services and drinking places (Item 62); Retail uses the General Merchandise Stores Multipliers (Item 452000); Entertainment and other uses the Other Amusement and recreation industries multipliers (Item 713900); Parks and Recreation operations use the Museums, Historical Sites, Zoos, and Parks Multipliers (Item 712000).

2/ In jobs per million dollars of expenditures. Jobs per million factored to July 2021 value from the 2019 average value. RIMS II employment multipliers are factored at the 2021 value of the dollar. Employment includes a mix of full-time and part-time employment.

All estimates are in current dollars. The economic model includes rounding that is reflected in individual results, factors and totals.

Source: ConsultEcon, Inc.

Table XI-5
Estimated Economic Impacts on the Economy of State of New York in a Stabilized Year
Onondaga County Aquarium

	Estimated Total Spending	Total Spending Adjusted to Retail Margin	Estimated Percent Net New to New York	Estimated Net New Spending in New York	Estimated Net New Spending in New York Adjusted to Retail Margin
Estimated Potential Direct Spending In New York State					
Onondaga Aquarium	$9,973,900	$9,973,900	100%	$9,973,900	$9,973,900
Lodging	1,951,757	1,951,757	50%	975,878	975,878
Meals (Retail Margin 75%)	5,340,173	4,005,130	30%	1,602,052	1,201,539
Shopping (Retail Margin 50%)	6,682,238	3,341,119	30%	2,004,672	1,002,336
Recreational/Attractions/Events	2,742,696	2,742,696	30%	822,809	822,809
Local Transportation	3,052,700	3,052,700	30%	915,810	915,810
Total Spending	**$29,743,464**	**$25,067,301**		**$16,295,121**	**$14,892,272**

Economic Impacts - New York		***Multipliers*** [1/]		
Total Indirect & Induced	**Expenditures**	**Earnings**	**Employment** [2/]	
Museums, historical sites, zoos, and parks	1.8336	0.4682	11.4808	
Lodging	1.8371	0.5026	10.9573	
Meals	1.9319	0.5739	17.5626	
Shopping	1.8539	0.5431	14.0581	
Recreational/Attractions/Events	1.6468	0.4604	18.2649	
Local Transportation	1.795	0.5496	21.2229	
Estimated Economic Impacts	**Expenditures**	**Earnings**	**Employment**	
Onondaga Aquarium	$18,288,143	$4,669,780	108	
Lodging	1,792,786	490,476	10	
Meals	2,321,253	689,563	20	
Shopping	1,858,230	544,369	13	
Recreational/Attractions/Events	1,355,001	378,821	14	
Local Transportation	1,643,879	503,329	18	
Total	$27,259,293	$7,276,338	183	
Plus Net New Direct Effects				
Onondaga Aquarium	$9,973,900	$4,978,500	124	Full and part time positions
Lodging	975,878	266,984	5	
Meals	1,602,052	475,914	14	
Shopping	2,004,672	587,269	14	
Recreational/Attractions/Events	822,809	230,035	9	
Local Transportation	915,810	280,406	10	
Total Direct	$16,295,121	$6,819,107	176	
Total Direct, Indirect & Induced	**$43,554,413**	**$14,095,446**	**359**	
Rounded to Nearest $1,000 (except Employment)	**$43,554,000**	**$14,095,000**	**359**	

1/ Multipliers are from a custom run of the Bureau of Economic Analysis' RIMS II Input-Output Model. This model uses multipliers from Tables 1.5 and 2.5 according to the item. Accommodations uses the Accommodation multipliers (Item 61) Food & Beverage uses the Food services and drinking places (Item 62); Retail uses the General Merchandise Stores Multipliers (Item 452000); Entertainment and other uses the Other Amusement and recreation industries multipliers (Item 713900); Parks and Recreation operations use the Museums, Historical Sites, Zoos, and Parks Multipliers (Item 712000).

2/ In jobs per million dollars of expenditures. Jobs per million factored to July 2021 value from the 2019 average value. RIMS II employment multipliers are factored at the 2021 value of the dollar. Employment includes a mix of full-time and part-time employment.

All estimates are in current dollars. The economic model includes rounding that is reflected in individual results, factors and totals.

Source: ConsultEcon, Inc.

Fiscal Revenue Generation

Onondaga County Aquarium's operation and associated economic impacts generate taxes for state and local government. Fiscal revenue impacts in selected tax categories generated include the following:

Onondaga County

- Sales and Use Tax 4%
- Occupancy Tax 7%

State of New York

- Sales and Use Tax 4%
- Income Tax 6.29% (estimated marginal tax rate)

Data in **Table XI-6** show estimated net new tax revenue generation based on the analysis of the economic impacts. Sales, hotel, and income taxes to local and state government due to operations of the aquarium generates an estimated total annual fiscal revenue potential of $796,000 to Onondaga County and $1.6 million to the State of New York. Some of these taxes may be due to spending by residents of the County and State respectively that replaces taxable spending that might otherwise occur in in these taxing jurisdictions. However, as a major and unique attraction, it is likely that much of the County resident's taxable spending would be net new and retain spending in-county. The support for overall growth in the tourism economy would likely more than compensate for such direct "replacement spending" and the resulting fiscal revenues.

Table XI-6
Estimated Potential Net New Tax Revenue Generation in Selected Categories
Onondaga County Aquarium

	Onondaga County Sales Tax	Onondaga County Occupancy Tax	New York State Sales Tax	New York State Income Tax
Tax Rate [1/]	4.0%	7.0%	4.0%	6.29%
Sales Taxes Generated By Direct Visitor Expenditures [2/]				
Accommodations	$74,167	$129,792	$78,070	
Meals	$202,927		$213,607	
Retail	$253,925		$267,290	
Total Direct Taxes	**$660,810**		**$558,967**	
Indirect Taxes Generated by Net New Wages and Salaries of Directly Supported Employment [3/]				
Income Taxes				$457,367
Sales Tax [4/]	$78,256		$78,584	
Indirect Taxes Generated by Net New Employee Wages and Salaries due to Multiplier Effects				
Income Taxes				$428,627
Sales Tax [5/]	$56,465		$65,463	
Total Indirect Taxes	**$134,721**		**$1,030,042**	
Total County Tax Revenue Generation (Rounded to $000)	**$796,000**			
Total State Tax Revenue Generation (Rounded to $000)			**$1,589,000**	

1/ New York State's average effective income tax rate for 2019 was estimated at 6.29 percent. Source: New York State Department of Taxation and Finance and U.S. Census Bureau.

2/ See Table XI-3 for spending by Jurisdiction. Some of the taxes generated would be from by Onondaga County residents (And New York State residents in the case of State taxes). Note that these expenditures by residents of these jurisdictions would displace taxable spending elsewhere in the jurisdiction, and therefore the "net new" taxes generated by direct visitor expenditures would be somewhat lower than the total taxes generated.

3/ See Table XI-4 for County estimated net new indirect and induced employment salaries and Table XI-5 for State estimated net new indirect and induced employment salaries

4/ See Table XI-4 for County estimated net new directly supported employment salaries and Table XI-5 for State estimated net new directly supported employment salaries

5/ Based on 40% of income spent on retail goods and services, of which 75% is in taxable categories. Directly supported employment personal sales taxable expenditures estimated at 80% in Onondaga County with 10% elsewhere in New York (90% total in the State of New York). Other direct, indirect and induced employee (multiplier effects) taxable expenditures estimated at 60% in Onondaga County with 20% elsewhere in New York (80% total in the State of New York).

Note: All estimates are in current dollars. The economic model includes rounding that is reflected in individual results, factors and totals.

Source: ConsultEcon, Inc.

Summary of Economic Impacts due to Aquarium Operations

The summary of stable year economic and fiscal impacts is shown by data in **Tables XI-7**.

Table XI-7
Summary of Estimated Economic Impacts of the Proposed Onondaga County Aquarium on the Onondaga County and New York Economies Under a Mid-Range Attendance Scenario in a Stabilized Year

Direct Expenditures - (Rounded to $000)	Total Net New Spending In Onondaga County	Total Net New Spending In State of New York
Distribution of Potential Net New Direct Spending		
Onondaga Aquarium	$9,449,000	$9,974,000
Lodging	1,669,000	976,000
Meals	3,044,000	1,602,000
Shopping	3,809,000	2,005,000
Recreational/Attractions/Events	1,563,000	823,000
Local Transportation	1,648,000	916,000
Total Net New Spending	**$21,182,000**	**$16,296,000**
Direct Employment	**215**	**176**

Total Direct, Indirect and Induced Effects of Aquarium-Related Spending

Expenditures, Earnings and Employment on the Geographic Areas Evaluated [1/]

Total Economic Impacts	Total Spending In Onondaga County	Total Spending In State of New York
Expenditures	$51,917,000	$43,554,000
Earnings	$15,994,000	$14,095,000
Employment [2/]	423	359

Fiscal Benefits - Selected Tax Revenue Generation (Rounded to $000)

	Total Spending In Onondaga County	Total Spending In State of New York
Sales Taxes Generated By Direct Visitor Expenditures [3/]	$660,810	$558,967
Indirect Sales and Income Taxes Generated by Directly Supported Employee Wages and Salaries	$78,256	$535,951
Indirect Sales and Income Taxes Generated by Other Multiplier Effect Employee Wages and Salaries	$56,465	$494,090
Total Tax Revenue Generation (Rounded to $000)	**$796,000**	**$1,589,000**

1/ At the statewide level, the economic impact effects overlap the support of jobs and economic activity within and outside of Onondaga County. The economic impacts for Onondaga County and State of New York are NOT additive.

2/ Employment includes full-time and part-time jobs.

3/ See Table XI-3 for spending by Jurisdiction. Some of the taxes generated would be from by Onondaga County residents (And New York State residents in the case of State taxes). Note that these expenditures by residents of these jurisdictions would displace taxable spending elsewhere in the jurisdiction, and therefore the "net new" taxes generated by direct visitor expenditures would be somewhat lower than the total taxes generated.

Note: The economic model includes rounding that is reflected in individual results, factors and totals.

Source: ConsultEcon, Inc.

Economic and Fiscal Impacts from Onondaga County Aquarium Construction

The one-time economic and fiscal impacts due to the construction of the Onondaga County Aquarium are evaluated for both Onondaga County and the State of New York. Direct construction spending creates direct and "multiplier" economic activity as money is re-spent and re-circulated in the state economy. Preliminary development costs for an 80,000 SF aquarium at $1,000 per SF total $80 million. It should be noted that costs do not include site acquisition, demolition, and other potential soft costs, nor are they escalated to account for contingencies and inflation.

- **Local Economy: Onondaga County Construction Impacts -** Based on 40% of the construction expenditures and 20% of the A&E expenditures made in Onondaga County and economic multipliers for the construction and A&E industries, the total one-time direct, indirect, and induced economic impacts of construction in the Onondaga County is estimated at $63.2 million in the current value of the dollar. Direct, indirect, and induced employment is estimated at 274 person years of employment during the construction period (which may span multiple years) and total salaries and wages of $20.8 million. Data in **Table XI-8** summarize the calculation of direct impacts and their multiplier effects in Onondaga County.
- **Regional Economy: State of New York Construction Impacts -** Based on 80% of the construction expenditures and 75% of the A&E expenditures made in New York and economic multipliers for the construction and A&E industries, the total one-time direct, indirect, and induced economic impacts of construction in the State of New York is estimated at $178.8 million in the current value of the dollar. Direct, indirect, and induced employment is estimated at 906 person years of employment during the construction period (which may span multiple years) and total salaries and wages of $65.5 million. These jobs have the potential to generate an estimated one-time $4.1 million in state income taxes during the construction period and as the economic impacts play out in the state economy. Data in **Table XI-9** summarize the calculation of direct impacts and their multiplier effects in New York State.

Table XI-8
Estimated Development Period Impacts to Onondaga County
Due to the Development of the Onondaga County Aquarium

	Construction & Fit Out	Architecture & Engineering & Soft Costs	Total
Estimated Preliminary Development Related Expenditures [1/]	$52,000,000	$28,000,000	$80,000,000
Percent of Expenditures within Onondaga County	40%	20%	
Development Related Expenditures in Onondaga County	$20,800,000	$5,600,000	$26,400,000
Estimated Average Annual Industry Wages [2/]	$74,077	$106,994	
Direct Person-Years of Employment [3/]	90	31	121

	Multipliers [4/]		
Applicable Multipliers, Onondaga County	Expenditures	Earnings	Person-Years of Employment [5/]
Construction	1.4163	0.3948	6.1843
Architectural, engineering, and related services	1.3181	0.4735	6.0651
Indirect and Induced Impacts in Onondaga County by Project Component			
Construction	$29,459,040	$8,211,840	121
Architecture & Design	$7,381,360	$2,651,600	32
	Total Direct, Indirect & Induced [6/]		
Impacts in Onondaga County	Expenditures	Earnings	Person-Years of Employment [7/]
Total Indirect and Induced Impacts	$36,840,400	$10,863,440	153
Total Direct Impacts	$26,400,000	$9,983,753	121
Estimated Total Economic Impacts	**$63,240,400**	**$20,847,193**	**274**
Rounded	***$63,200,000***	***$20,800,000***	***274***

1/ Magnitude of scale cost estimate including building construction and A&E costs. Development costs associated with land acquisition are to be determined and therefore not included in this analysis. Source: ConsultEcon, Inc.

2/ Wages are annualized based on Q4 2020 average weekly wage for NAICS 231 Construction of Buildings and NAICS 5413 A&E Services in Onondaga County. Source: U.S. Bureau of Labor Statistics.

3/ Assumes 40% of Construction and 75% of A&E expenditures are wages and salaries. All workers are assumed to have 25% overhead costs in addition to the annualized salary.

4/ Multipliers from a custom run of the Bureau of Economic Analysis' RIMS II Input-Output Model.

5/ In jobs per million dollars of expenditures, multipliers are based on the 2019 value of the dollar, with jobs per million factored with CPI to July 2021 from 2019 average value.

6/ The total effects shown include the direct, indirect and induced spending in New York for the development of the Onondaga Aquarium.

7/ Direct employment impacts are construction industry jobs, A&E jobs. Indirect and induced employment impacts includes full time and part time jobs at a ratio similar to the mix of the economy as a whole. These are person-years of employment.

Note: All estimates are in current dollars. The economic model includes rounding that is reflected in individual results, factors and totals.

Source: ConsultEcon, Inc.

Table XI-9
Estimated One-time Development Period Impacts to the State of New York Due to the Development of the Onondaga County Aquarium

	Construction & Fit Out	Architecture & Engineering & Soft Costs	Total
Estimated Preliminary Development Related Expenditures [1/]	$52,000,000	$28,000,000	$80,000,000
Estimated Percent of Expenditures within the State of New York	80%	75%	
Development Related Expenditures in the State of New York	$41,600,000	$21,000,000	$62,600,000
Estimated Average Annual Industry Wages [2/]	$74,077	$106,994	
Direct Person-Years of Employment [3/]	180	118	298
		Multipliers [4/]	
Applicable Multipliers, State of New York	Expenditures	Earnings	Person-Years of Employment [5/]
Construction	1.8289	0.6223	10.5403
Architectural, engineering, and related services	1.912	0.6506	9.8444
Indirect and Induced Impacts in the State of New York By Project Component			
Construction	$76,082,240	$25,887,680	413
Architecture & Design	$40,152,000	$13,662,600	195
	Total Direct, Indirect & Induced [6/]		
Impacts in the State of New York	Expenditures	Earnings	Person-Years of Employment [7/]
Total Indirect and Induced Impacts	$116,234,240	$39,550,280	608
Total Direct Impacts	$62,600,000	$25,959,176	298
Estimated Total Economic Impacts	**$178,834,240**	**$65,509,456**	**906**
Rounded	***$178,800,000***	***$65,500,000***	***906***
Estimated State Income Tax Revenue from Total Direct, Indirect, and Induced Construction Period Earnings [9/]		**$4,118,000**	

1/ Magnitude of scale cost estimate including building construction and A&E costs. Development costs associated with land acquisition are to be determined and therefore not included in this analysis. Source: ConsultEcon, Inc.

2/ Wages are annualized based on Q4 2020 average weekly wage for NAICS 231 Construction of Buildings and NAICS 5413 A&E Services in Onondaga County. Source: U.S. Bureau of Labor Statistics.

3/ Assumes 40% of Construction and 75% of A&E expenditures are wages and salaries. All workers are assumed to have 25% overhead costs in addition to the annualized salary.

4/ Multipliers from a custom run of the Bureau of Economic Analysis' RIMS II Input-Output Model.

5/ In jobs per million dollars of expenditures, multipliers are based on the 2019 value of the dollar, with jobs per million factored with CPI to July 2021 from 2019 average value.

6/ The total effects shown include the direct, indirect and induced spending in New York for the development of the Onondaga Aquarium.

7/ Direct employment impacts are construction industry jobs, A&E jobs. Indirect and induced employment impacts includes full time and part time jobs at a ratio similar to the mix of the economy as a whole. These are person-years of employment.

8/ Estimated as the total direct, indirect, and induced construction period earnings multiplied by the New York State's average effective tax rate for 2019, which was estimated at 6.29 percent. Source: New York State Department of Taxation and Finance.

Note: All estimates are in current dollars. The economic model includes rounding that is reflected in individual results, factors and totals.

Source: ConsultEcon, Inc.

Qualitative Assessment of Economic Impacts

The community and economic development benefits of the proposed Onondaga County Aquarium may have the most profound and long-lasting impacts on the community.

- **Expansion of the Visitor Economy and Infrastructure** – Onondaga County Aquarium will support the regional tourism economy and infrastructure. Onondaga County Aquarium will be a high-quality leisure-time destination in Syracuse that attracts new visitors and extends the stays of other visitors. The aquarium will be a high-profile and iconic attraction that will enhance the profile of the County and be highly imageable for marketing campaigns. When combined with other recreational offerings and events sponsored in Onondaga County, Onondaga County Aquarium significantly increases the "critical mass" of visitor attractions to support local businesses and improve the visitor profile of Syracuse and its tourism economy.
- **Waterfront Revitalization and Spillover Real Estate Value –** Onondaga County Aquarium will be a new spark for Inner Harbor redevelopment and overall urban revitalization. Like other projects of this type, Onondaga County Aquarium will enhance the marketability and value of real estate in surrounding areas that is of compatible land use.
- **Tax Revenues** – The tax revenues generated by Onondaga County Aquarium will support the variety of purposes which the hotel and sales taxes are targeted to, thus enhancing Onondaga County's economic development.
- **New Educational Opportunities** – Onondaga County Aquarium will provide education services for students in Onondaga County and beyond. These educational benefits will lead to greater stewardship of the natural environment and advancement of science-based application in a real world, practical setting. For many residents, the education opportunities at Onondaga County Aquarium greatly enrich their lives.
- **Environmental and Species Conservation** – Aquariums have established important roles in habitat conservation and restoration as well as species survival activities. Given the substantial advances that have been made in Onondaga County in these areas, the proposed aquarium could become a vital advocate for continued environmental protection and remediation; and in supporting wildlife conservation efforts.
- **Enhance Onondaga County Brand** – The Onondaga County Aquarium would become an iconic institution within Onondaga County and add substantially to its "brand" as a destination and a great place to live, work and recreate. It would be a community asset that employers could reference for attracting and retaining workers; and that economic development officials could use in positioning the community as attractive for relocating and expanding companies.
- **Ongoing Publicity for the County** - As leaders in education and conservation, aquariums are frequently featured in popular publications and online. Typically,

these are very positive stories, but they are also extremely relevant given current societal priorities.

- **Contribute to Quality of Life** – The aquarium will create attractive volunteering opportunities and overall will enhance Onondaga County and Syracuse as a place to live, work and recreate, thus improving all aspects of the local economy and community.

Section XII
WARRANTED DEVELOPMENT COST

This report section offers insights to the potential costs and returns to the County and its residents of investing in a public aquarium. It includes a recap of project costs, summary of investment return indicators, qualitative community benefits, and discussion of the tradeoffs of alternate project scales.

Targeted Aquarium Development Scale and Cost

This study evaluates an aquarium concept of an 80,000 square foot aquarium with 600,000 gallons of aquarium water plus supportive exterior spaces. A conceptual cost in current value of the dollar is $80 million.[11] This project scale and investment was determined based on:

- Attendance potential based on available resident and tourist markets
- An Inner Harbor site
- The experience of aquariums nationally
- The scale needed to achieve Onondaga County's economic and community development goals

Decades of aquarium operating experience in other metro areas indicate that this project scale is sufficient to become a major destination attraction and to meet economic and community development goals.

Investment Return Indicators

As discussed in Section IX, public aquariums that are mission driven, and offer economic development, education and conservation and community quality of life benefits, as are targeted for the Onondaga County Aquarium, are typically operated by not-for-profit or government organization.[12] Other communities have developed economically sustainable aquarium organizations without relying on their profitability paying for their original

[11] See Section VIII Development Cost Parameters
[12] These could be private not-for-profit, government operated or public-private partnerships.

development cost. Therefore, evaluation strictly on financial return on investment is not appropriate in the case of the proposed Onondaga County Aquarium. Measures of fiscal revenue generation and economic impacts provide a more appropriate framework for project evaluation. The qualitative benefits to the community are also important factors to communities developing aquariums. Data in **Table XII-1** provide potential benefits including financial returns, fiscal impacts, and economic impacts in comparison to the assumed initial $80 million investment.

Qualitative Assessment of Economic Benefits

The community and economic development benefits of the proposed Onondaga County Aquarium may have the most profound and long-lasting impacts on the community. See **Section XI** for discussion of these benefits.

- Expansion of the visitor economy and infrastructure.
- Expand the tourism economy.
- Waterfront revitalization and spillover real estate value.
- New educational opportunities.
- Attractive volunteering opportunities
- Environmental and species conservation.
- Enhance Onondaga County brand.
- Ongoing publicity for the county.
- Contribute to quality of life.

Table XII-1
Investment Return Indicators
Onondaga County Aquarium

Investment - Conceptual Capital Cost [1/]	**$80,000,000**		
Type of Returns to Onondaga County	**Annual Return On Investment By Type**		**Percent Annual Return On Investment By Type**
Financial Returns			
Annual Net Operating Income [2/]	**$735,000**		**0.9%**
Fiscal Impact Returns due to Annual Operations [3/]			
Direct Sales Taxes Generated	$661,000	0	0.8%
Indirect Sales Taxes Generated	$135,000		0.2%
Total Sales Taxes Generated	**$796,000**		**1.0%**
Economic Impacts due to Annual Operations [3/]			
Direct Net New Economic Activity	$21,182,000		26.5%
Indirect and Induced Net New Economic Activity	$30,735,000		38.4%
Total Economic Impacts	**$51,917,000**		**64.9%**
Employment Impacts due to Annual Operations [3/]	**Employment**		**Employment Per Million Investment**
Direct New Employment	215		2.69
Indirect and Induced New Employment	208		2.60
Total New Employment	**423**		**5.29**

1/ For Conceptual Capital Cost, see Section VIII.

2/ In aquarium operations, net operating income is typically reinvested in the aquarium in the form of additional community benefit programs, such as education and conservation, new exhibits and experiences that sustain and build audiences, facility maintenance and upgrades over time, and a financial reserve for unexpected events such as recessions or pandemics. The Net Operating Income potential lowers the risk to Onondaga County of such responsibilities in the future.

3/ For Economic Impacts see Table IX-7.

Source: ConsultEcon, Inc.

Tradeoffs in Aquarium Scale and Costs

As an alternative to the aquarium concept in this report, the aquarium could be built at a smaller or larger scale with corresponding decreases and increases in initial capital costs and ongoing operating costs. Based on the available market characteristics and the national aquarium experience, the following is an assessment of the outcomes of smaller and larger scale aquariums .

- **Smaller Scale Aquarium:** A smaller scale aquarium would not have the length of stay or visitor experience to draw tourists and to develop in the resident market sufficient repeat visitation patterns and annual memberships. These would limit revenues, operations and economic, fiscal and community benefits, with the strong possibility that the ratio of project benefits to initial investment would be lower than at the proposed scale for the Onondaga County Aquarium.

- **Larger Scale Aquarium:** A larger scale aquarium would likely have an enhanced visitor experience and longer length of stay. Thus, creating the opportunity to develop higher visitation patterns. In turn these would create higher levels of community benefits. However, given the scale of available tourist and resident markets, the experience of the aquarium industry indicates that there would be diminishing returns on the marginal investments beyond this report's aquarium concept scale. Thus, the higher project cost would be more challenging for the community to finance and the ratio of benefits to investment would be lower.

If the decision is made to develop a public aquarium and a site is secured, the aquarium concept will need be revisited in the next phase of planning and design to refine the scale, experiences offered, operating concept and project cost. However, the aquarium concept in this report provides a guidepost for subsequent planning phases.

Summary

Public aquariums are major investments that have a strong track record of being catalysts for economic and community development; as well as leaders in conservation education and in environmental and species conservation. New direct and indirect jobs, additional economic activity and new fiscal revenues will grow the Onondaga County economy. However, the community and economic development benefits of the proposed Onondaga County Aquarium may have the most profound and long-lasting impacts on the community.

- Expansion of the visitor economy and infrastructure.
- Expand the tourism economy.
- Enhance Onondaga County brand.
- Ongoing publicity for the county.
- Waterfront revitalization and spillover real estate value.
- New educational opportunities.
- Attractive volunteering opportunities
- Environmental and species conservation.
- Contribute to quality of life.

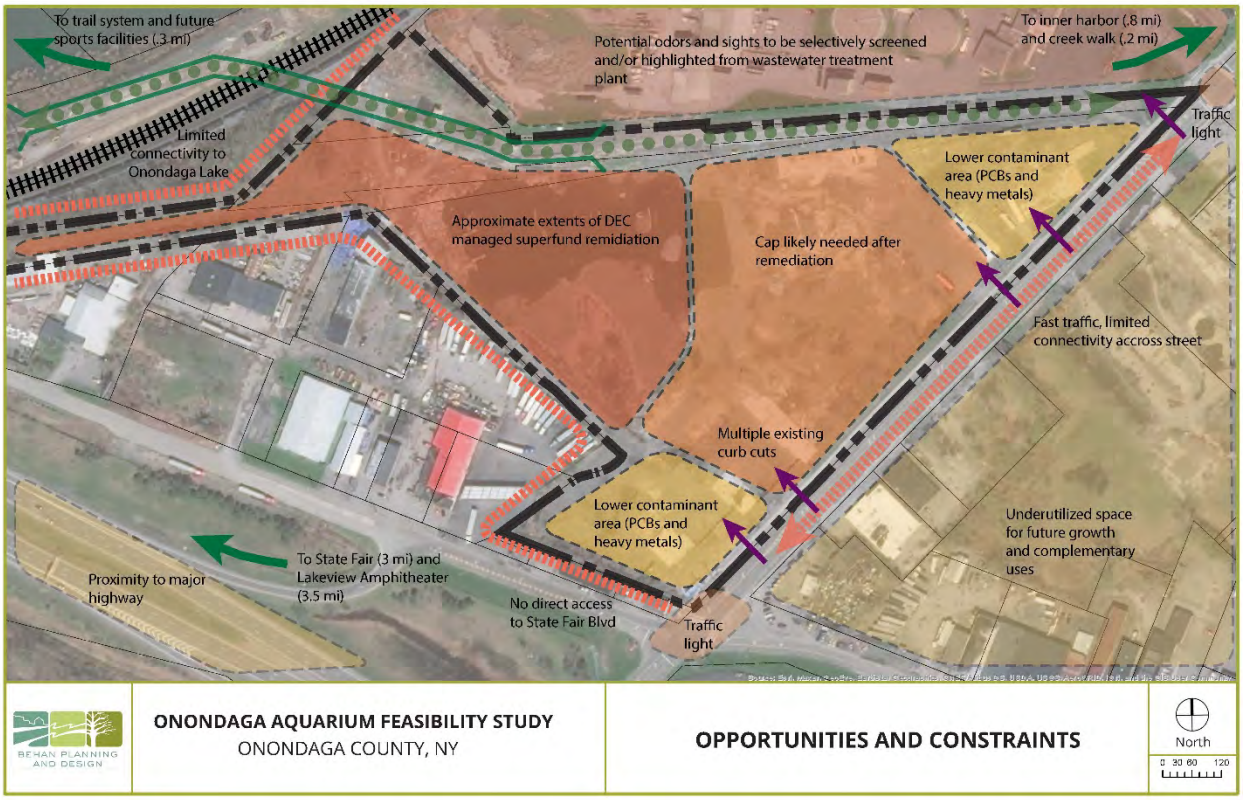
APPENDIX A
EVALUATION OF THE FORMER ROTH STEEL SITE

Former Roth Steel Site (Alternate Site).

As an alternate to a proposed Inner Harbor site, the former Roth Steel site was evaluated for the opportunity it presents as a location for the Onondaga County Aquarium. Developed as primarily and industrial corridor with motor vehicle-oriented commercial uses, the environs of the Roth site present a challenge in terms of transformation into more of a tourism-oriented setting. The Onondaga County Wastewater Treatment Facility and the rail corridor form the northern border of the site. Neither of these uses are considered advantageous. The existing land uses adjacent to the Roth Steel site would not be considered ideal complements to an aquarium facility.

Figure A-1 provides an evaluation of site opportunities and constraints. From a site opportunities perspective, following are considerations. The wastewater treatment plant could offer an enhanced environmental education theme to the aquarium focusing on environmental stewardship and water treatment science and technology. Advanced odor control improvements would be of parallel importance. The rail corridor is a barrier to potential direct access to the lakefront and the iconic new bicycle and pedestrian bridge over the tracks is an excellent mitigation measure to that access constraint. The new bridge also offers great views of the Roth site and the lakefront area. However, the lack of adjacency to the water shed is a highly negative factor, and the lack of visibility to the site and lack of views from the site are substantial negative factors.

Figure A-1
Former Roth Steel Site Opportunities and Constraints
Onondaga County Aquarium

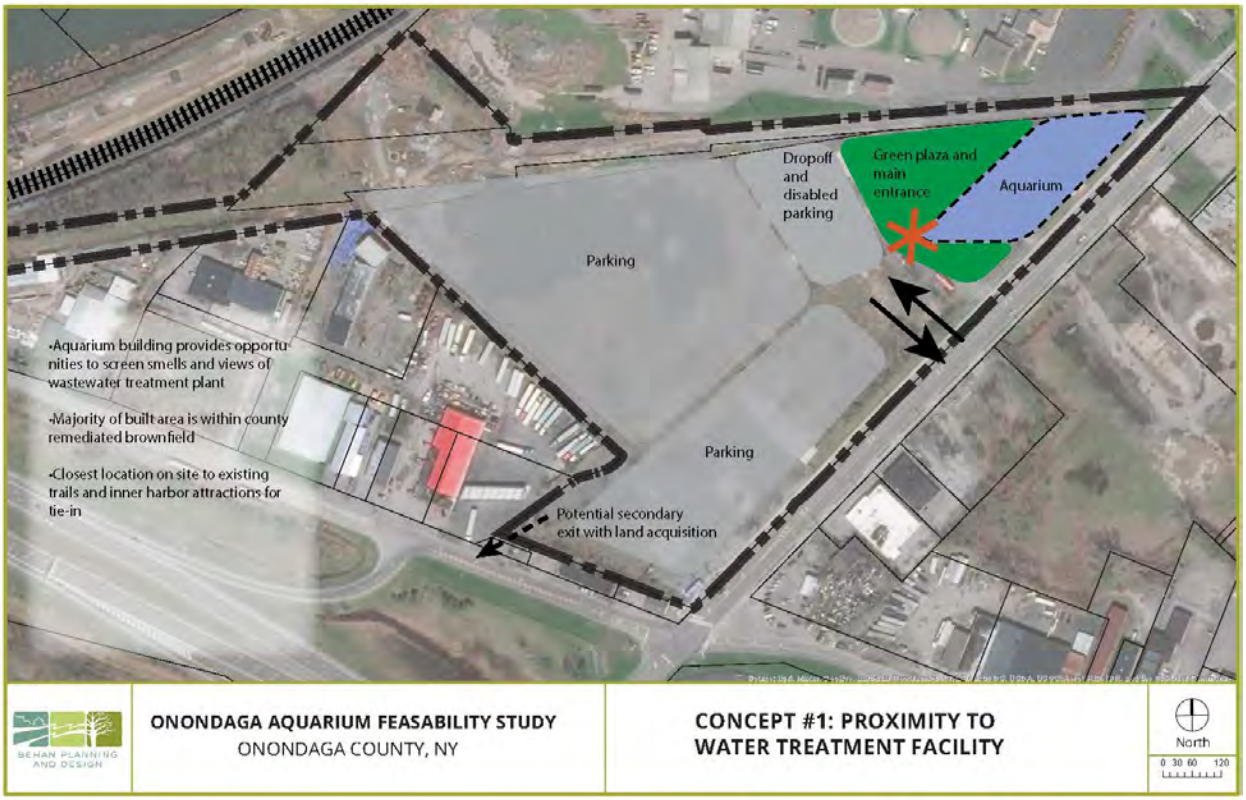


Source: Behan Planning and Design

As potential host location for the aquarium, the former Roth Steel Site and the surrounding property uses have significant limitations related to brownfield/Superfund constraints that will likely dictate how the site can be laid out, increase the chances of project delays, and reduce the overall desirability of the site. Otherwise, the site offers good vehicular access and the new pedestrian-bicycle bridge adjacent to the site provides an excellent connection to the Loop the Lake trail system.

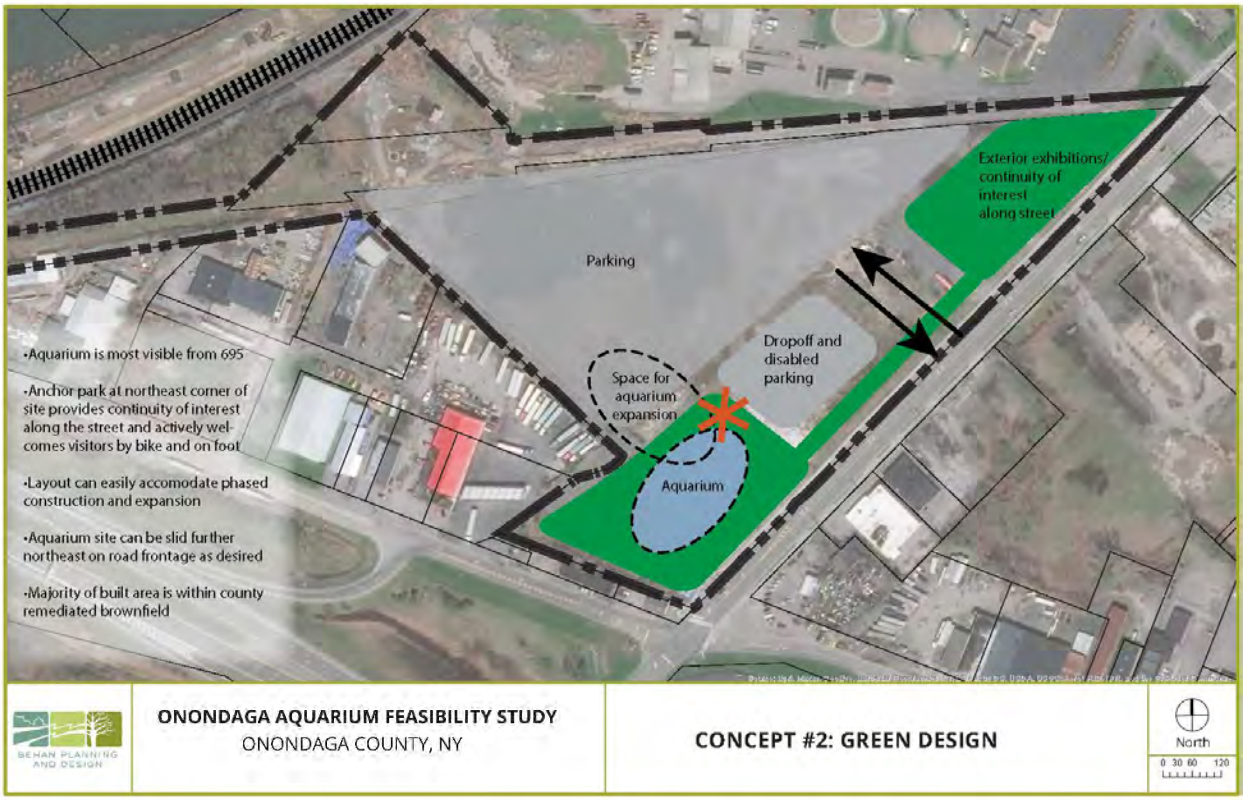
Three site plan concepts (Concepts #1, #2, and #3) were examined for their suitability for siting an aquarium and supplementary facilities and are shown in **Figures A-2** through **A-4.**

Figure A-2
Concept #1 Proximity to Water Treatment Facility
Onondaga County Aquarium



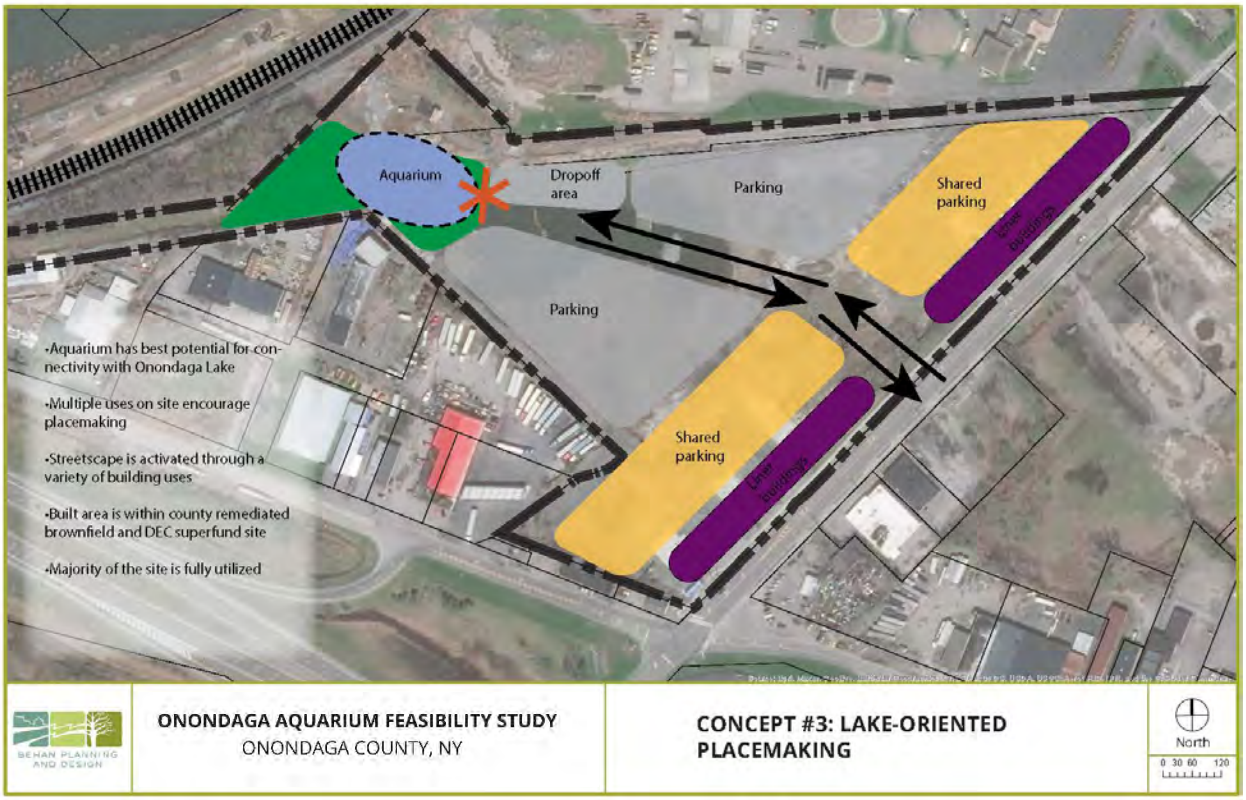
Source: Behan Planning and Design

Figure A-3
Concept #2 Green Design
Onondaga County Aquarium



Source: Behan Planning and Design

Figure A-4
Concept #3 Lake-Oriented Placemaking
Onondaga County Aquarium



Source: Behan Planning and Design

In general, while the former Roth Steel site has adequate size and access to support development for an aquarium as a regional attraction, the surrounding land use context is more highway-oriented, industrial and the presence of the wastewater treatment facility creates challenges. These existing uses are not considered as ideal adjacent or reasonable complements to an aquarium development as regional, nature-based tourism destination. The former Roth Steel site would not attract nearly the attendance that an Inner Harbor site would. Any potential aquarium development at the Roth Steel site would have to be developed and operated on that understanding.

APPENDIX B

COMPARABLE AQUARIUM CASE STUDIES

The following case studies profile six comparable aquariums for the Onondaga County Aquarium study:

1. Loveland Living Planet Aquarium, Draper, UT
2. Oklahoma Aquarium, Jenks, OK
3. South Carolina Aquarium, Charleston, SC
4. Tennessee Aquarium, Chattanooga, TN
5. Texas State Aquarium, Corpus Christi, TX
6. Virginia Aquarium & Marine Science Center, Virginia Beach, VA

1. Loveland Living Planet Aquarium, Draper, Utah

Table B-1
Loveland Living Planet Aquarium, Draper, Utah

General Information:	
Name	Loveland Living Planet Aquarium
Location	Draper, UT, about 20 miles south of Salt Lake City
Description	The Loveland Living Planet Aquarium is home to 4,000 animals representing 650 species, with animal habitat exhibits including Deep Sea Lab, Discover Utah, Expedition Asia, Journey to South America, Ocean Explorer, and the Penguin Research Station. Other facilities at the aquarium include the Reef Café, two ballrooms and other meeting spaces, a 4D theater, and the Tuki's Island Play & Party Center. In addition to educational programs for school field trips and other group visitors, the aquarium operates three outreach programs – the Rainforest Van, the Utah Waters Van, and the Ecosystems Van for 2nd, 4th, and 6th graders, respectively, which were specifically designed to meet state education standards.
Total Square Footage	136,000 (0.2 SF per Attendee)
Total Gallons	500,000 (0.6 Gallons per Attendee)
Operational Structure	Private Non-Profit (Living Planet Aquarium)
2019 Annual Attendance	800,000
2018 Number of Memberships	Data not available
Ticket Pricing	Adult – $20.95 Senior – $17.95 Child – $15.95 Family Membership – $189.95
Full-Time Equivalent Employees (FTE)	132
Market Size and Characteristics:	
60-Minute Drive Time Population, 2021	2.6 million
Ratio of Annual Attendance to 60-Minute Drive Time Population	31%
Tourist Market Context	Low Tourism Activity
Financial Performance:	
Fiscal Year/Source	2017 Profit and Loss Statement
Revenue Types	Earned Revenue – $9,620,000 (79.6%) Fundraising and Support – $2,470,000 (20.4%) Total Revenue – $12,090,000 (100.0%)
Earned Revenue Sources	Fees / Tickets – 52.9% Memberships – 13.2% Catering & Birthdays – 6.3% Gift Shop (Net) – 4.3% Events – 1.0% Miscellaneous – 1.0% Food Service (Net) – 0.9%
Other Revenue Sources	Grants – 15.6% Contributions – 3.1% Fundraising Events – 0.9% Other Income – 0.6% Corporate Memberships – 0.3% Investment Income – 0.1%

Table B-1 (cont.)
Loveland Living Planet Aquarium, Draper, UT

Operating Expenses	$9,640,000
Development Costs:	Total cost of $24 million (Link) How Brent Anderson Founded the Loveland Living Planet Aquarium (Link)
Website:	https://thelivingplanet.com/

Figure B-1
Loveland Living Planet Aquarium
Original Aquarium Exterior Photos

Source: Google Earth; Utah Public Radio; ABC4 Utah

Rio Tinto Kennecott Plaza EECO.

EECO stands for Ecosystem Exploration Craft & Observatory. In its former life, it was the stage for U2's renowned 360° Tour, one of the largest traveling stages in rock history, and now has a permanent home at Loveland Living Planet Aquarium. Installed in July 2020.

Figure B-2
Loveland Living Planet Aquarium Map

Source: Loveland Living Planet Aquarium

Figure B-3
Loveland Living Planet Aquarium
Interior Photos

Source: Loveland Living Planet Aquarium and The Salt Lake Tribune

Figure B-4
Loveland Living Planet Aquarium
Artist's Depiction of Planned Science Learning Center

Source: Loveland Living Planet Aquarium

2. Oklahoma Aquarium, Jenks Oklahoma

Table B-2
Oklahoma Aquarium, Jenks Oklahoma

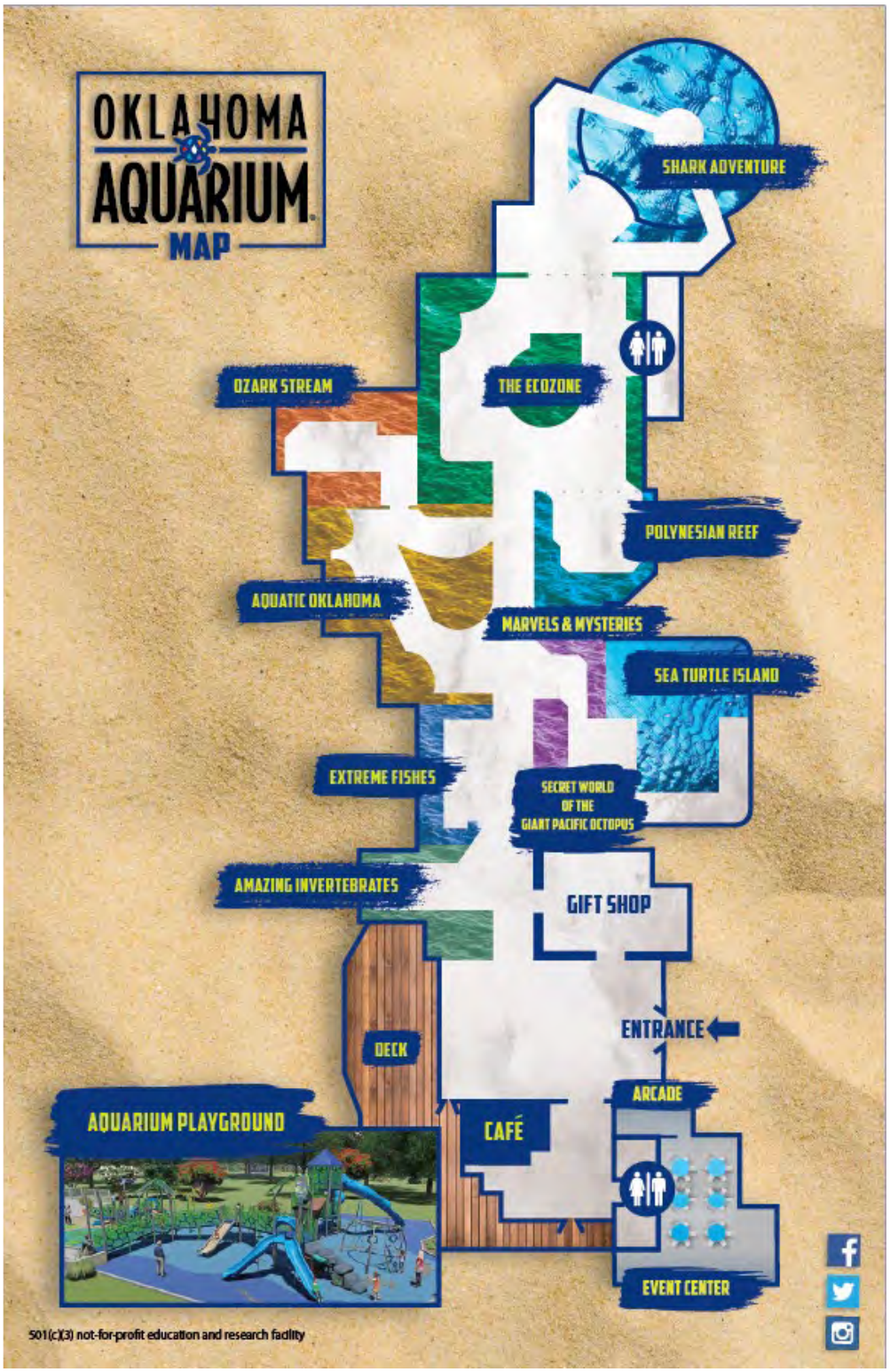
General Information:	
Name	Oklahoma Aquarium
Location	Jenks, OK, suburb of Tulsa, on the banks of the Arkansas River
Description	The Oklahoma Aquarium is home to 10,000 animals from 500 species, with exhibits/habitats including Aquatic Oklahoma, Amazing Invertebrates, EcoZone, Extreme Amazon, Extreme Fishes, Marvels & Mysteries, Ozark Stream, Polynesian Reef, Sea Turtle Islands, and the Shark Adventure, housing the world's largest collection of bull sharks. Other facilities include a gift shop, arcade, event center, café, outdoor deck and playground. The aquarium offers field trips and group tours as a part of its educational programming.
Total Square Footage	72,000 (0.2 SF per Attendee)
Total Gallons	Data not available
Operational Structure	Public (City of Jenks Aquarium Authority) with Private Non-Profit Partner (Oklahoma Aquarium Foundation)
2019 Annual Attendance	342,000
2018 Number of Memberships	Data not available
Ticket Pricing	Adult – $18.95 Senior – $14.95 Child – $14.95 Family Membership – $150.00
Full-Time Equivalent Employees (FTE)	122
Market Size and Characteristics:	
60-Minute Drive Time Population, 2021	1.1 million
Ratio of Annual Attendance to 60-Minute Drive Time Population	30%
Tourist Market Context	Low Tourism Activity
Financial Performance:	
Fiscal Year/Source	2019, 2019-2020 Financial Statements for Jenks Aquarium Authority
Revenue Types	Earned Revenue – $5,320,000 (97.3%) Fundraising and Support – $150,000 (2.7%) Total Revenue – $5,470,000 (100.0%)
Earned Revenue Sources	Fees / Tickets – 76.9% Memberships – 9.1% Catering & Birthday – 5.8% Gift Shop (Net) –4.1% Miscellaneous – 1.4%
Other Revenue Sources	Investment Income – 2.7%
Operating Expenses	$4,930,000
Development Costs:	Data not available
Website:	https://www.okaquarium.org/

Figure B-5
Oklahoma Aquarium Exterior Pictures

Source: Hotels.com

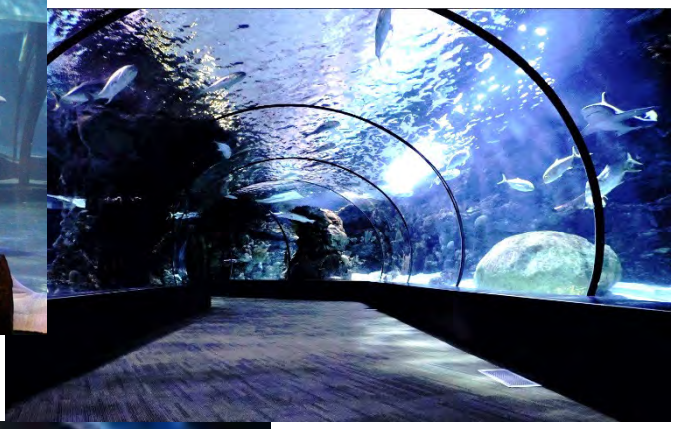
GS Helms& Associates

Figure B-6
Oklahoma Aquarium Map



Source: Oklahoma Aquarium

Figure B-7
Oklahoma Aquarium Interior Pictures

Source: Jenks Chamber of Commerce; DiscoverTulsa.net; Wedding Spot; Flickr.com

3. South Carolina Aquarium, Charleston, South Carolina

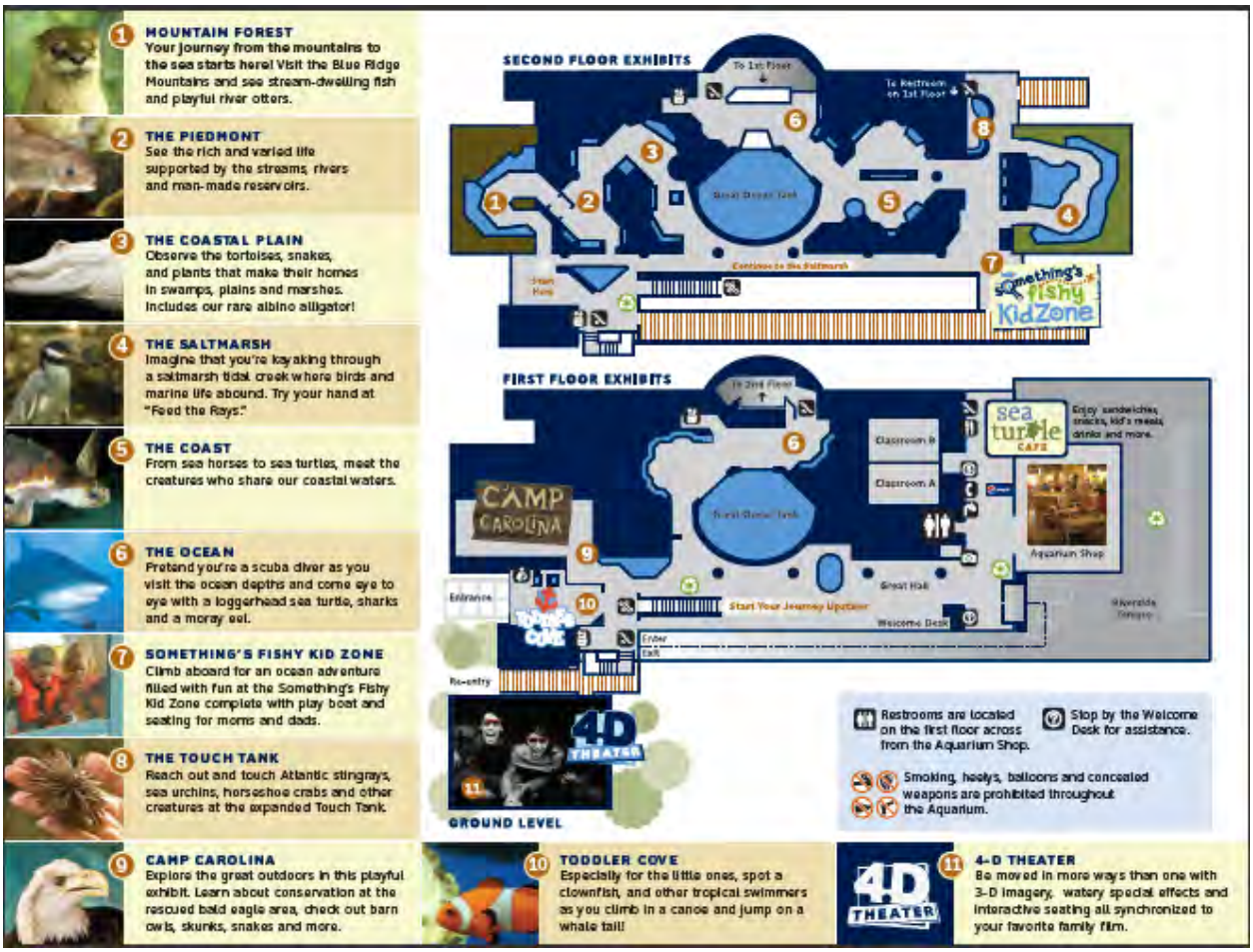
Table B-3
South Carolina Aquarium, Charleston, South Carolina

General Information:	
Name	South Carolina Aquarium
Location	Charleston, SC, on the historic harbor
Description	The South Carolina Aquarium is home to 5,000 animals within several habitats – the Mountain Forest, Piedmont, Trading Post, Coastal Plain, Kids Coast, Saltmarsh Aviary, Touch Tank, Coast, Ocean, Carolina Seas, Shallows, and Backyard Habitat. Other facilities at the aquarium include the Zucker Family Sea Turtle Recovery Center, Sea Turtle Café, the Aquarium Shop, classrooms and meeting spaces, and the 4D Theater. Educational programs include high school internships, field trips, group tours, public lectures, and outreach programs.
Total Square Footage	93,000 (0.2 SF per Attendee)
Total Gallons	750,000 (1.6 Gallons per Attendee)
Operational Structure	Private Non-Profit (South Carolina Aquarium)
2019 Annual Attendance	471,000
2018 Number of Memberships	8,925
Ticket Pricing	Adult – $29.95 Senior – $29.95 Child – $22.95 Family Membership – $179.00
Full-Time Equivalent Employees (FTE)	122
Market Size and Characteristics:	
60-Minute Drive Time Population, 2021	789,000
Ratio of Annual Attendance to 60-Minute Drive Time Population	60%
Tourist Market Context	High Tourism Activity
Financial Performance:	
Fiscal Year/Source	2019 Annual Report
Revenue Types	Earned Revenue – $9,570,000 (65.5%) Fundraising and Support – $5,040,000 (34.5%) Total Revenue – $14,610,000(100.0%)
Earned Revenue Sources	Fees / Tickets – 46.9% Memberships – 9.3% Concessions – 4.5% Events – 3.4% Miscellaneous – 0.9% Programs – 0.6%
Other Revenue Sources	Contributions – 31.2% Fundraising Events – 2.2% Grants – 1.1%
Operating Expenses	$11,430,000
Development Costs:	$69 million in original construction cost, $69 million renovation in 2011. https://wach.com/news/local/south-carolina-aquarium-could-get-more-interactive#:~:text=The%20price%20of%20the%20renovations,over%20the%20next%2010%20years.
Website:	https://scaquarium.org/

Figure B-8
South Carolina Aquarium
Exterior Photos

Source: South Carolina Aquarium

Figure B-9
South Carolina Aquarium Map



Source: South Carolina Aquarium

Figure B-10
South Carolina Aquarium
Interior Photos

Source: South Carolina Aquarium and Google Maps

4. Tennessee Aquarium, Chattanooga, Tennessee

Table B-4
Tennessee Aquarium, Chattanooga, Tennessee

General Information:	
Name	Tennessee Aquarium
Location	Chattanooga, TN, on downtown riverfront
Description	The Tennessee Aquarium is home to 12,000 animals from 800 species between its two primary themes – River Journey (exhibits include Discovery Hall, Delta Country, River Giants, Rivers of the World, Turtles of the World, Appalachian Cove Forest, and Tennessee River) and Ocean Journey (exhibits including Tropical Cove, Penguin's Rock, Secret Reef, Boneless Beauties, and Island Life). Other facilities at the aquarium include a 3D Theater, gift shops, and a concession Stand. Summer camps, outreach programs, group tours, and field trips make up educational programming at the aquarium.
Total Square Footage	195,000 (0.3 SF per Attendee)
Total Gallons	1,150,000 (1.5 Gallons per Attendee)
Operational Structure	Private Non-Profit (Tennessee Aquarium)
2019 Annual Attendance	769,000
2018 Number of Memberships	11,800
Ticket Pricing	Adult – $34.95 Senior – $34.95 Child – $21.95 Family Membership – $175.00
Full-Time Equivalent Employees (FTE)	235
Market Size and Characteristics:	
60-Minute Drive Time Population, 2021	1.0 million
Ratio of Annual Attendance to 60-Minute Drive Time Population	76%
Tourist Market Context	High Tourism Activity
Financial Performance:	
Fiscal Year/Source	2019 Financial Statements
Revenue Types	Earned Revenue – $25,420,000 (92.8%) Fundraising and Support – $1,970,000 (7.2%) Total Revenue – $27,390,000 (100.0%)
Earned Revenue Sources	Fees / Tickets – 58.4% Memberships – 8.3% Ancillary Sales – 20.4% Facility Rentals & Programs – 5.7%
Other Revenue Sources	Contributions – 6.5% Fundraising Events – 0.7%
Operating Expenses	$23,980,000
Development Costs:	$30 million original construction cost in 1992, $30 million expansion project in 2005 https://sah-archipedia.org/buildings/TN-01-065-0063
Website:	https://tnaqua.org/

Figure B-11
Tennessee Aquarium along the Waterfront

Source: Tennessee Aquarium

Figure B-12
Tennessee Aquarium Map

Source: Tennessee Aquarium

Figure B-13
Tennessee Aquarium
Interior Photos

Source: Chattanooga Free Times Press

5. Texas State Aquarium, Corpus Christi, Texas

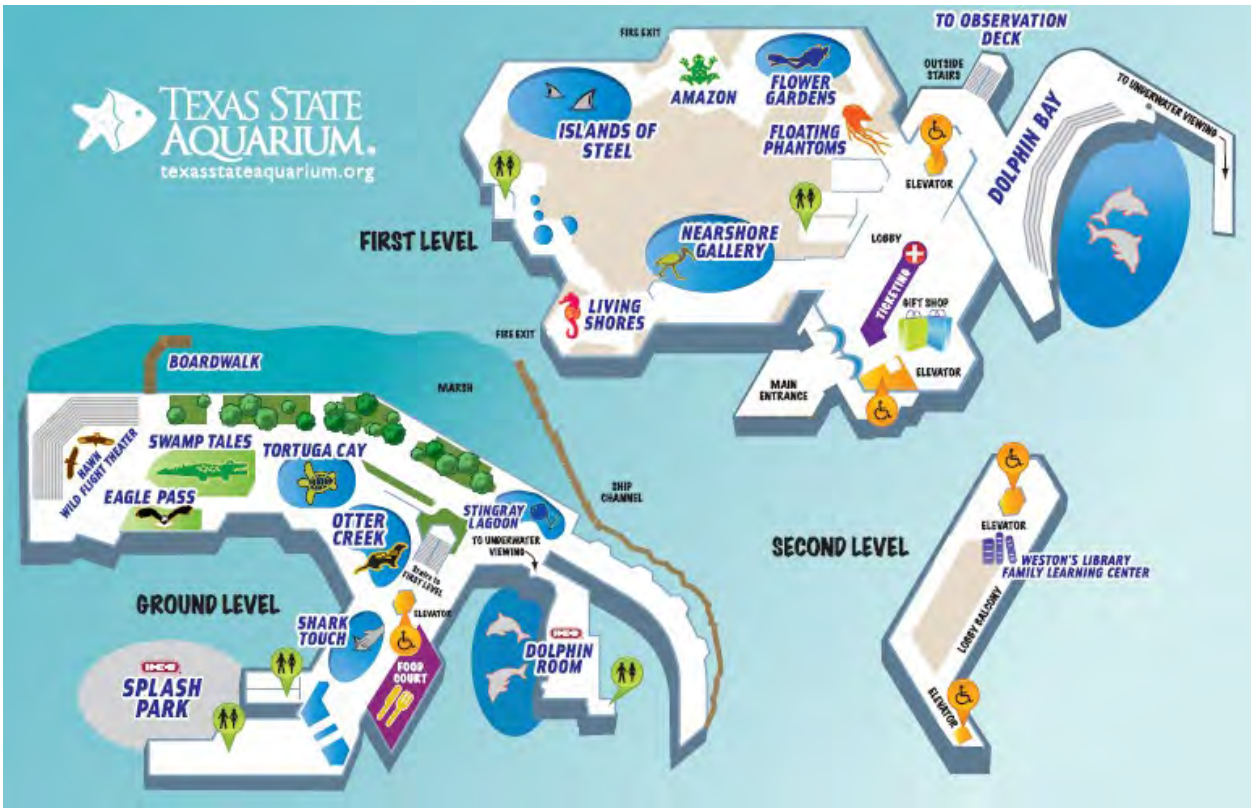
Table B-5
Texas State Aquarium, Corpus Christi, Texas

General Information:	
Name	Texas State Aquarium
Location	Corpus Christi, TX, at the entrance of the Corpus Christi Ship Channel/Port of Corpus Christi
Description	The Texas State Aquarium includes exhibits such as Blue Hole, Coral Reef, Jungle, Caribbean Sea, Dolphin Bay, Aquatic Nursery, Stingray Lagoon, Saving Sharks, Islands of Steel, Tentacles, Swamp Tales, Nearshore, Living Shores, Wild Flight Theater, Flower Gardens, Eagle Pass, Otter Creek, and Tortuga Cay. Aquarium facilities include a gift shop, splash park, Café Aqua, Pepsi Shoreline Grill, the Whataburger 4D Theater, and the new Port of Corpus Christi Center for Wildlife Rescue, to open in 2022. Educational programs include onsite programs, field trips, and teacher development workshops.
Total Square Footage	173,600 (0.3 SF per Attendee)
Total Gallons	1,200,000 (2.2 Gallons per Attendee)
Operational Structure	Private Non-Profit (Texas State Aquarium)
2019 Annual Attendance	546,000
2018 Number of Memberships	6,500
Ticket Pricing	Adult – $36.95 Senior – $34.95 Child – $26.95 Family Membership – $269.95
Full-Time Equivalent Employees (FTE)	199
Market Size and Characteristics:	
60-Minute Drive Time Population, 2021	556,000
Ratio of Annual Attendance to 60-Minute Drive Time Population	98%
Tourist Market Context	High Tourism Activity
Financial Performance:	
Fiscal Year/Source	2019 Annual Report
Revenue Types	Earned Revenue – $17,020,000 (92.6%) Fundraising and Support – $1,350,000 (7.4%) Total Revenue – $18,370,000 (100.0%)
Earned Revenue Sources	Fees / Tickets – 54.8% Ancillary Sales – 16.5% Visitor / Education Programs – 16.9% Facility Rentals & Programs – 4.4%
Other Revenue Sources	Fundraising – 7.4%
Operating Expenses	$15,030,000
Development Costs:	Original construction cost unknown, $58 million expansion project to open Caribbean Journey in 2017 https://www.texasstateaquarium.org/texas-state-aquarium-announces-caribbean-journey-grand-opening-may-13/
Website:	https://www.texasstateaquarium.org/

Figure B-14
Texas State Aquarium
Exterior Photos

Source: Texas State Aquarium and KRIS

Figure B-15
Texas State Aquarium Map



Source: Texas State Aquarium

Figure B-16
Texas State Aquarium
Interior Photos

Source: Google Maps and Texas State Aquarium

Figure B-17
Texas State Aquarium
Outdoor Dolphin Exhibit

Source: Texas State Aquarium

Figure B-18
Texas State Aquarium
Architect Rendering of Expansion

Texas State Aquarium plans expansion

An architect's rendering of the new Wildlife Rescue Center proposed for property between the Texas State Aquarium and the USS Lexington Museum by the Bay on North Beach in Corpus Christi. Illustration courtesy of Texas State Aquarium

6. Virginia Aquarium & Marine Science Center, Virginia Beach, Virginia

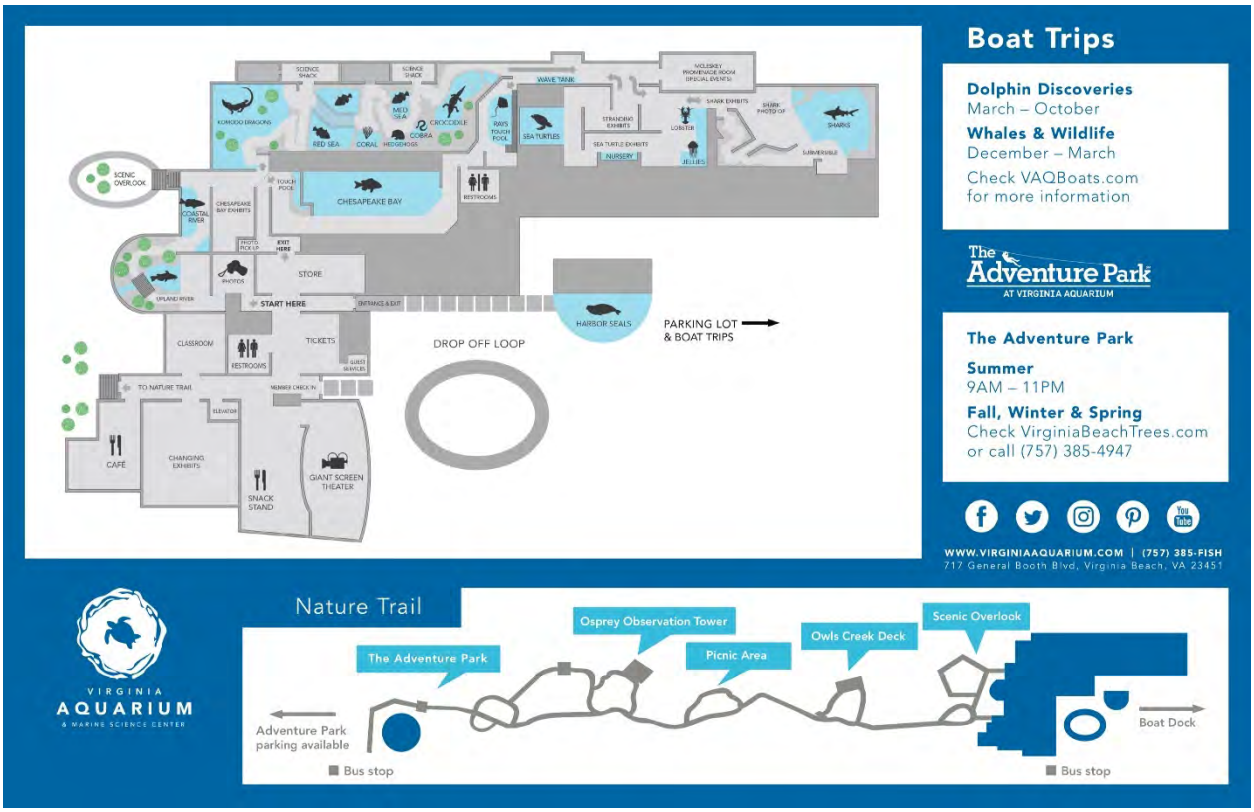
Table B-6
Virginia Aquarium & Marine Science Center, Virginia Beach, Virginia

General Information:	
Name	Virginia Aquarium & Marine Science Center
Location	Virginia Beach, VA, on Owl Creek south of downtown
Description	The Virginia Aquarium is home to thousands of animals and about 300 species living in a variety of habitats, including Harbor Seals, Komodo Dragons, the Red Sea Tunnel, Tomistoma Crocodiles, the Light Tower Aquarium, the Norfolk Canyon Aquarium, the Ray Touch Pool, and the Chesapeake Bay Aquarium. Facilities at the aquarium include Osprey Café, the outdoor Adventure Park, classrooms, event spaces, the man-made Oyster Reef in Owl Creek, and a short nature trail along Owl Creek that leads to the South Building, closed for renovation. Educational programs include toddler programs, outreach programs, educational kits, scout trips, field trips, boat tours, and summer camps.
Total Square Footage	129,000 (0.2 SF per Attendee)
Total Gallons	800,000 (1.2 Gallons per Attendee)
Operational Structure	Public (City of Virginia Beach) with Private Non-Profit Partner (Virginia Aquarium)
2019 Annual Attendance	640,000
2018 Number of Memberships	8,894
Ticket Pricing	Adult – $24.95 Senior – $22.95 Child – $19.95 Family Membership – $150.00
Full-Time Equivalent Employees (FTE)	130
Market Size and Characteristics:	
60-Minute Drive Time Population, 2021	1.4 million
Ratio of Annual Attendance to 60-Minute Drive Time Population	45%
Tourist Market Context	High Tourism Activity
Financial Performance:	
Fiscal Year/Source	2019 Annual Report
Revenue Types	Earned Revenue – $11,990,000 (84.8%) Fundraising and Support – $2,160,000 (15.2%) Total Revenue – $14,150,000 (100.0%)
Earned Revenue Sources	Fees / Tickets – 52.0% Memberships – 7.8% Visitor / Education Programs – 6.9% Facility Use & Concessions – 6.6% Gift Shop Sales – 11.4%
Other Revenue Sources	Investment Income – 1.9% Contributions, Grants & Support – 13.3%
Operating Expenses	City Operating Expenses – $9,550,000 Foundation Operating Expenses – $4,000,000 Total Operating Expenses – $13,550,000
Development Costs:	Data not available
Website:	https://www.virginiaaquarium.com/Pages/default.aspx

Figure B-19
Virginia Aquarium and Marine Science Center
Exterior Photos

Source: Virginia Aquarium and Google Maps

Figure B-20
Virginia Aquarium and Marine Science Center
Map



Source: Virginia Aquarium

Figure B-21
Virginia Aquarium and Marine Science Center
Interior Photos

Source: Virginia Aquarium and Visit Virginia Beach Wedding Wire

APPENDIX C

PRECEDENT IMAGERY RELEVANT TO SITE FEATURES

Figure C-1
Drop-Off Area Examples

https://www.flickr.com/photos/wallyg/15536630710

https://commons.wikimedia.org/wiki/File:Entrance_to_the_Blue_Planet_Aquarium,_Ellesmere_Port.jpg

Figure C-2
Waterfront Promenade Examples

https://www.flickr.com/photos/25802865@N08/8323117393

https://www.flickr.com/photos/urbanophile/21694190371

https://commons.wikimedia.org/wiki/File:The_Chicago_Riverwalk.jpg

https://www.flickr.com/photos/deeproot/27330110634

https://www.flickr.com/photos/deeproot/27329542833

https://www.flickr.com/photos/22711505@N05/51391242626

https://pixabay.com/photos/harbor-quay-restaurants-5908703/

https://www.flickr.com/photos/egfocus/6307976671

Figure C-3
Docking Examples

https://commons.wikimedia.org/wiki/File:Chiswick_wharf.jpg

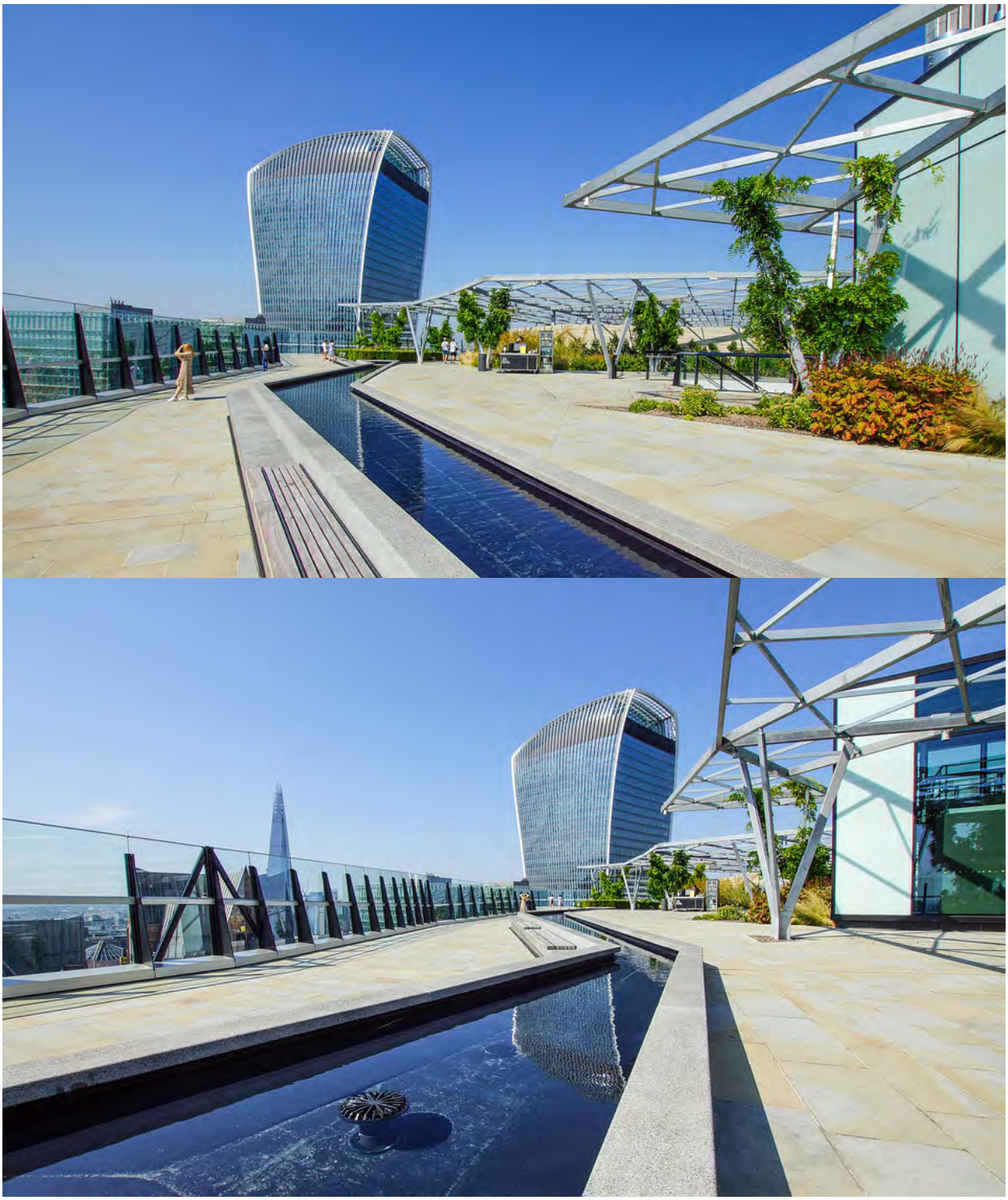
Figure C-4
Outdoor Exhibit Examples

https://commons.wikimedia.org/wiki/File:Brontosaurus_at_TCMI_by_Volkan_Yuksel_7-11-09_DSC02702_PN_24387230_cs.jpg

https://www.flickr.com/photos/ucumari/482359366/

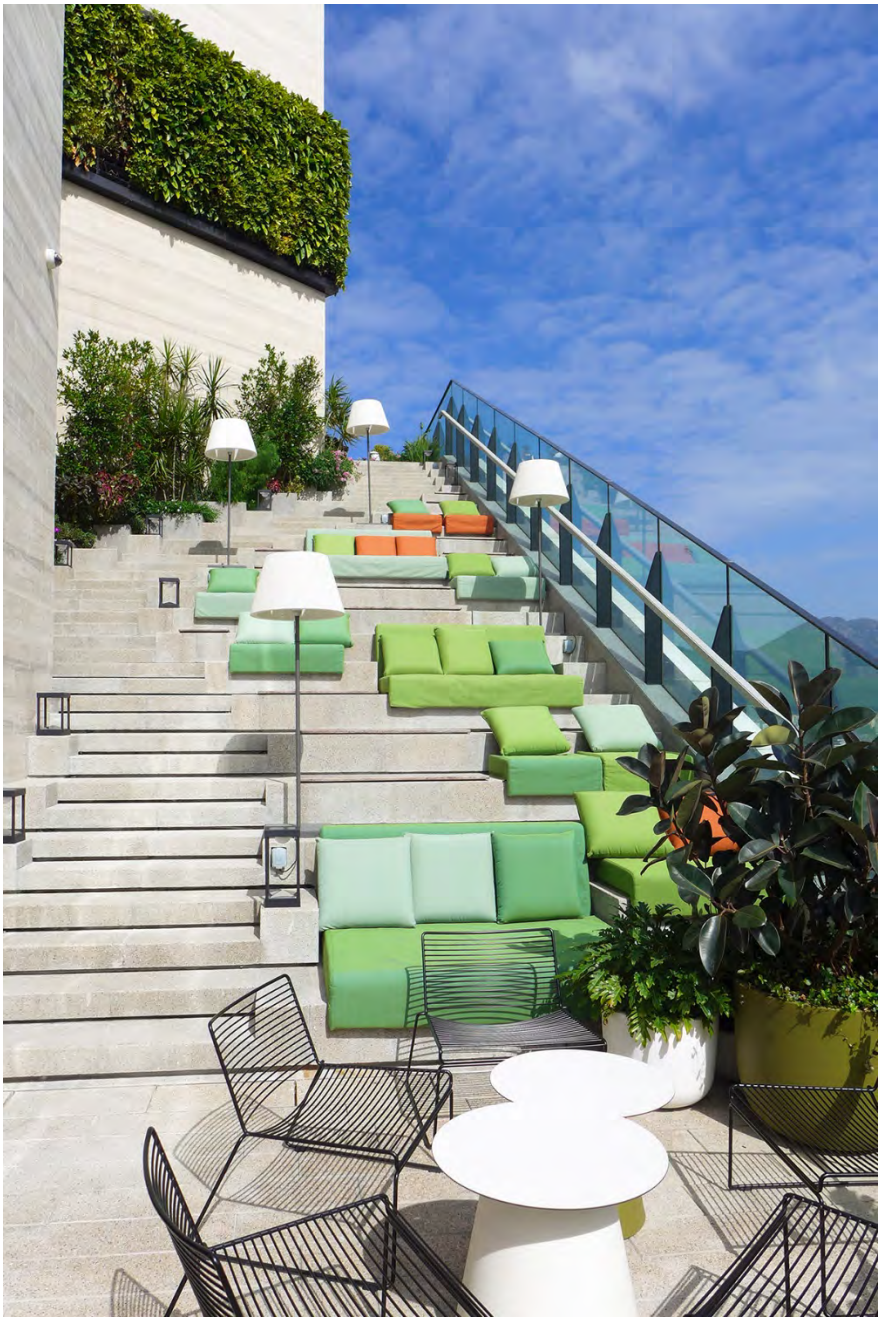
https://www.flickr.com/photos/wallyg/15547345529

Figure C-5
Green Roof Examples



https://www.maxpixel.net/London-Grossbritanien-City-Rooftop-Garden-Green-4816072
https://www.maxpixel.net/Rooftop-London-Green-Garden-Grossbritanien-City-4816071

https://commons.wikimedia.org/wiki/File:Austin_public_library_rooftop_garden.jpg



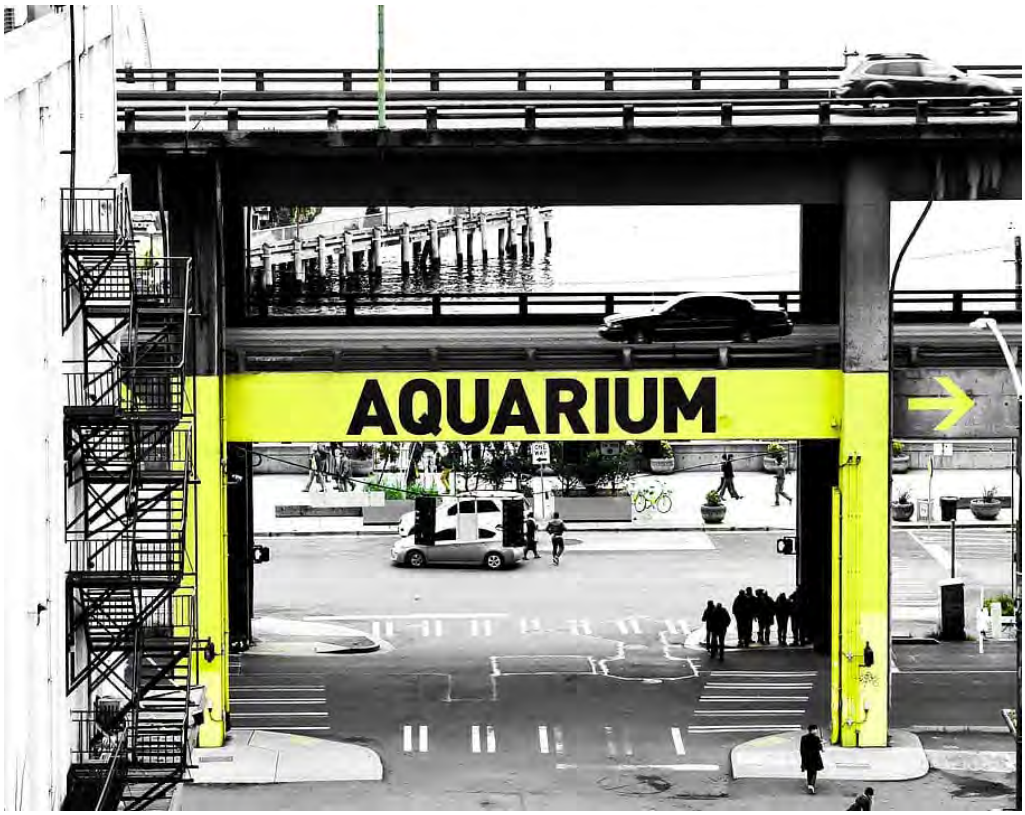
https://commons.wikimedia.org/wiki/File:SKYPARK_Rooftop_garden_SKY_Stairs_201711.jpg

Figure C-6
Gateway Examples

https://www.flickr.com/photos/wallyg/702013476

https://commons.m.wikimedia.org/wiki/File:2008-05-17_Coney_Island,_Long_Island_033_Coney_Island,_Boardwalk,_New_York_Aquarium_(2677927883).jpg

Figure C-7
Placemaking Examples



https://www.piqsels.com/en/public-domain-photo-oluiu

https://www.geograph.org.uk/photo/6280153