| | | |
|---|---|---|
| ST. CHARLES SINCE 1834 | **AGENDA ITEM EXECUTIVE SUMMARY** | Agenda Item number: 4b |
| | Title: | Presentation of the Active River Project Economic Impact Analysis |
| | Presenter: | Rita Tungare<br>Tom Hazinski, HVS |

| | | |
|---|---|---|
| Meeting: Planning & Development Committee | Date: April 8, 2019 | |
| Proposed Cost: N/A | Budgeted Amount: N/A | Not Budgeted: ☐ |

**Executive Summary** (*if not budgeted please explain*)**:**

HVS- Convention, Sports & Entertainment Facilities Consulting conducted an Economic Impact Analysis for the Fox River Corridor Master Plan, with a focus on the improvements identified for the Active River Park (the area north of Main Street and south of the railroad bridge).

On February 11, 2019, a City Council Workshop was held to review the progress on the report. At the workshop, HVS presented economic and demographic data and information on comparable case studies that was used to generate demand and attendance forecasts based on the Active River Park plan.

The attached report utilized the demand and attendance forecasts presented in February to generate the economic impact analysis. The following are the new sections that the Committee members have not seen previously:

- Chapter 1: Introduction and Executive Summary (now complete)
- Chapter 7: Economic Impact Analysis
- Chapter 8: Cost Benefit Analysis

In March, an earlier draft was presented to the Plan Commission as background information for the Downtown Comprehensive Plan amendment that will look at land use and development opportunities for blocks adjacent to the River Park location. Information on the Comprehensive Plan update is posted here: https://www.stcharlesil.gov/projects/downtown-comprehensive-plan-update

**Attachments** (*please list*)**:**
Active River Project Economic Impact Analysis

**Recommendation**
HVS will present the report. No specific action is necessary; however in the spirit of providing direction for staff regarding next steps, the Committee may wish to comment on the following:

- Does the Committee wish to deliberate further at a subsequent Committee meeting?
- There has been suggestion that a “partner” might be necessary for the City to commit to the project. Is there an interest in continuing to pursue the project as a City-led initiative?
- Is other information necessary to reach a conclusion regarding whether to move forward with engineering of the project? (For example, more detailed cost estimates broken down by feature or improvement)

ECONOMIC IMPACT ANALYSIS

# Active River Project

ST. CHARLES, ILLINOIS


**SUBMITTED TO:**

Ms. Rita Tungare
City of Saint Charles
2 East Main Street Street
Saint Charles, Illinois, 60174
rtungare@stcharlesil.gov
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**PREPARED BY:**

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April 2, 2019

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Singapore

Ms. Rita Tungare
City of Saint Charles
2 East Main Street Street
Saint Charles, Illinois, 60174
rtungare@stcharlesil.gov

Re: Active River Project
St. Charles

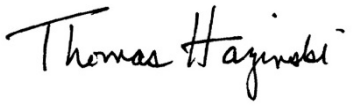
Dear Ms. Tungare:

Attached you will find our Economic Impact Analysis of proposed tourism attractions in the Active River Project in St. Charles.

We certify that we have no undisclosed interest in the property, and our employment and compensation are not contingent upon our findings. This study is subject to the comments made throughout this report and to all assumptions and limiting conditions set forth herein.

It has been a pleasure working with you. We look forward to hearing your comments.

Sincerely,
HVS Convention, Sports & Entertainment
Facilities Consulting



Thomas A Hazinski, MPP
Managing Director

Anthony Davis
Project Manager

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# 1. Introduction and Executive Summary

**Nature of the Assignment**

City of St. Charles engaged HVS Convention, Sports & Entertainment Facilities Consulting ("HVS") to conduct an Economic Impact Analysis of the proposed Active River Project in St. Charles. The Active River Project would relocate a dam on the Fox River, create recreational whitewater channels on the river, and add other recreational amenities in downtown St. Charles. The purpose of this study is to estimate the increase in economic activity and fiscal impacts of the proposed Active River Project.

**Methodology**

HVS performed the following tasks:

1. Thomas Hazinski traveled to St. Charles on October 30, 2018 to do a site inspection and interview representatives from the City of St. Charles regarding the building program and location for the proposed tourism attractions,
2. Analyzed the economic and demographic data that indicate whether, and the extent to which, the local market area supports the proposed development,
3. Researched other existing and proposed artificial channel whitewater parks in the U.S.,
4. Reviewed the building program proposed in the WBK Engineering feasibility study done in June 2017,
5. Reviewed and analyzed historical event, attendance, and financial operations data for the St. Charles Park District,
6. Researched participation trends for kayaking, whitewater rafting, and paddle boarding, the primary activities at one of the proposed attractions,
7. Prepared event demand and visitation forecasts based on the implementation of the proposed project.
8. Projected the economic impact generated by the increased visitation and spending in downtown St. Charles caused by the development of the tourism attractions, and
9. Projected the potential increase in tax collections and property values related to the Active River Project.

10. Prepared a cost benefit analysis comparing the costs of construction and operation of the Active River Project with the quantifiable economic impacts and unquantifiable benefits to St. Charles.

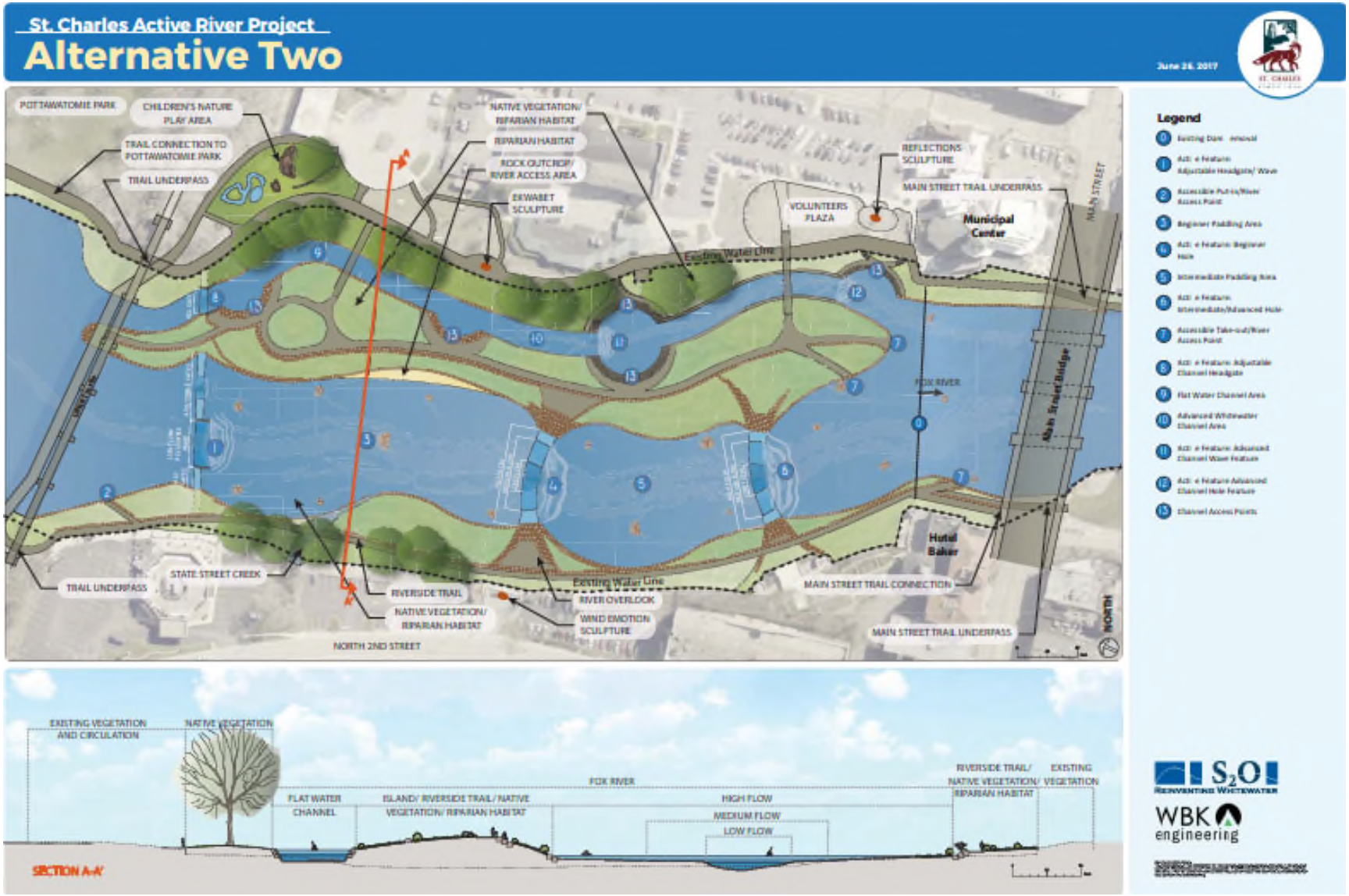
HVS collected and analyzed all information contained in this report. HVS sought out reliable sources and deemed information obtained from third parties to be accurate.

## Description of Proposed Project

The proposed attractions would be along the Fox River in downtown St. Charles, Illinois. The site runs along the east bank of the river, from the railroad trestle to the Main Street bridge. Proposed attractions include whitewater recreation channels, a zip line, improved trail connectivity in downtown, and a children's play area.

The following figure shows a two-channel design for the attractions which is described in more detail in in Appendix B.

**FIGURE 1-1**
**SITE LAYOUT FOR ST. CHARLES TOURISM ATTRACTIONS- TWO CHANNEL SCENARIO**




Source: WBK Engineering

## Building Program Recommendations

The Active River Project would be comprised of the following.

- Replace the existing dam in downtown St. Charles with whitewater and recreational channels, separated by a man-made island that is accessible by pedestrian bridges.
- A zip line connecting the east and west banks of the Fox River, which would run above the river and be operated and managed by a professional staff to ensure the safety of participants.
- Improved trail connectivity through downtown St. Charles, which would increase the number of hikers, bikers, and walkers passing through downtown. A riverside path that runs under Main Street would connect the riverfront park to other parks in St. Charles.
- A play area for children that offers a space to interact with natural play elements.
- Adequate support spaces, including a large changing area for whitewater and recreational channel users, adequate shelters to protect users from adverse elements, an equipment rental outlet, picnic areas, viewing areas, and park pavilions.

To verify the suitability and capacity of the proposed site to accommodate a riverfront park, HVS investigated the site layouts of the comparable parks with tourism attractions. They are mapped and annotated in Appendix B of this report.

The proposed attractions would allow St. Charles to stand out as a whitewater destination, as well as a riverfront park. Given that the design of the whitewater channel and the support facilities would be of high-quality, whitewater users should be attracted from up to five hours away. The presence of the zip line, the recreation channel, and the improved trail connectivity should attract more visitors from within a 30-minute drive time.

## Market Area Analysis

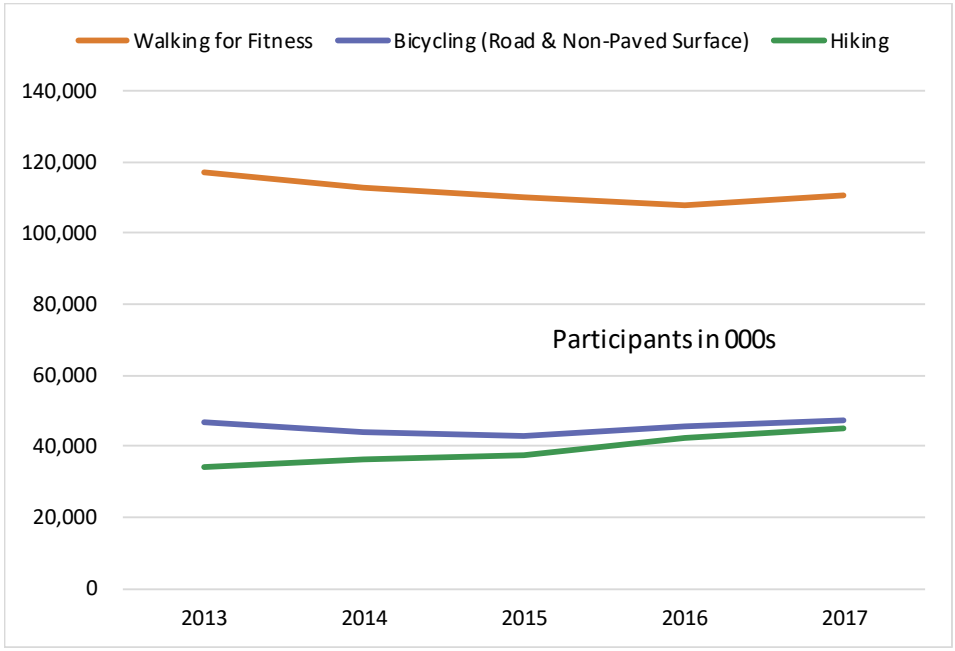
The City of St. Charles enjoys a stable economy characterized by above average per capita income and well-diversified employment. Above average growth in the surrounding drive-time markets also indicates strong potential for visitation to the proposed recreation amenities. Visitor infrastructure, including cultural and entertainment attractions, parking, and lodging, is well developed and continues to improve with public initiatives and private development. The St. Charles economy and tourism amenities are clearly able to support increased visitation and provide a strong source of local and out-of-town demand. As a recreation destination, St.

Charles has good access and is a well-regarded tourism destination in the Chicago metro area.

## Participation Trends

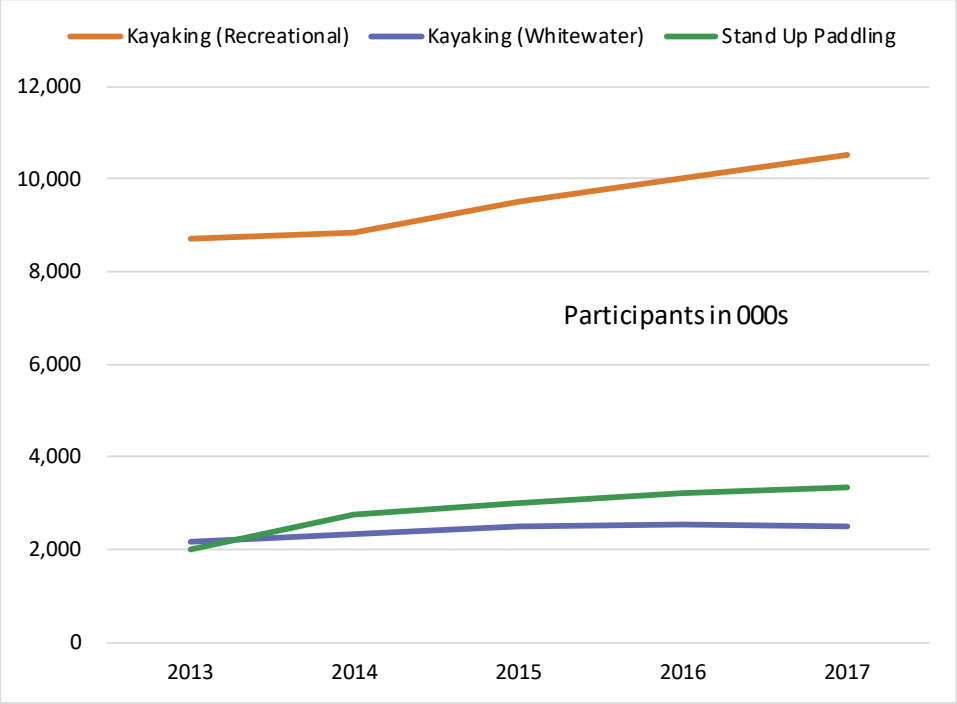
HVS researched participation trends in the three land-based recreation activities (walking for fitness, biking, and hiking) and three water activities (whitewater kayaking, recreational kayaking, and stand-up paddling). HVS relied on two recent surveys, a 2018 survey of outdoor sports participation conducted by the Outdoor Foundation and the Sports & Fitness Industry Association and a 2015 survey of paddle sport participation also conducted by the Outdoor Foundation in association with the Coleman Company. The following figures provide a summary of total U.S. participation in six outdoor activities over the past five years.

**FIGURE 1-2**
**PARTICIPATION IN LAND-BASED RECREATION**




Source: Outdoor Recreation Participation Topline Report 2018

**FIGURE 1-3**
**PARTICIPATION IN WATER-BASED RECREATION**

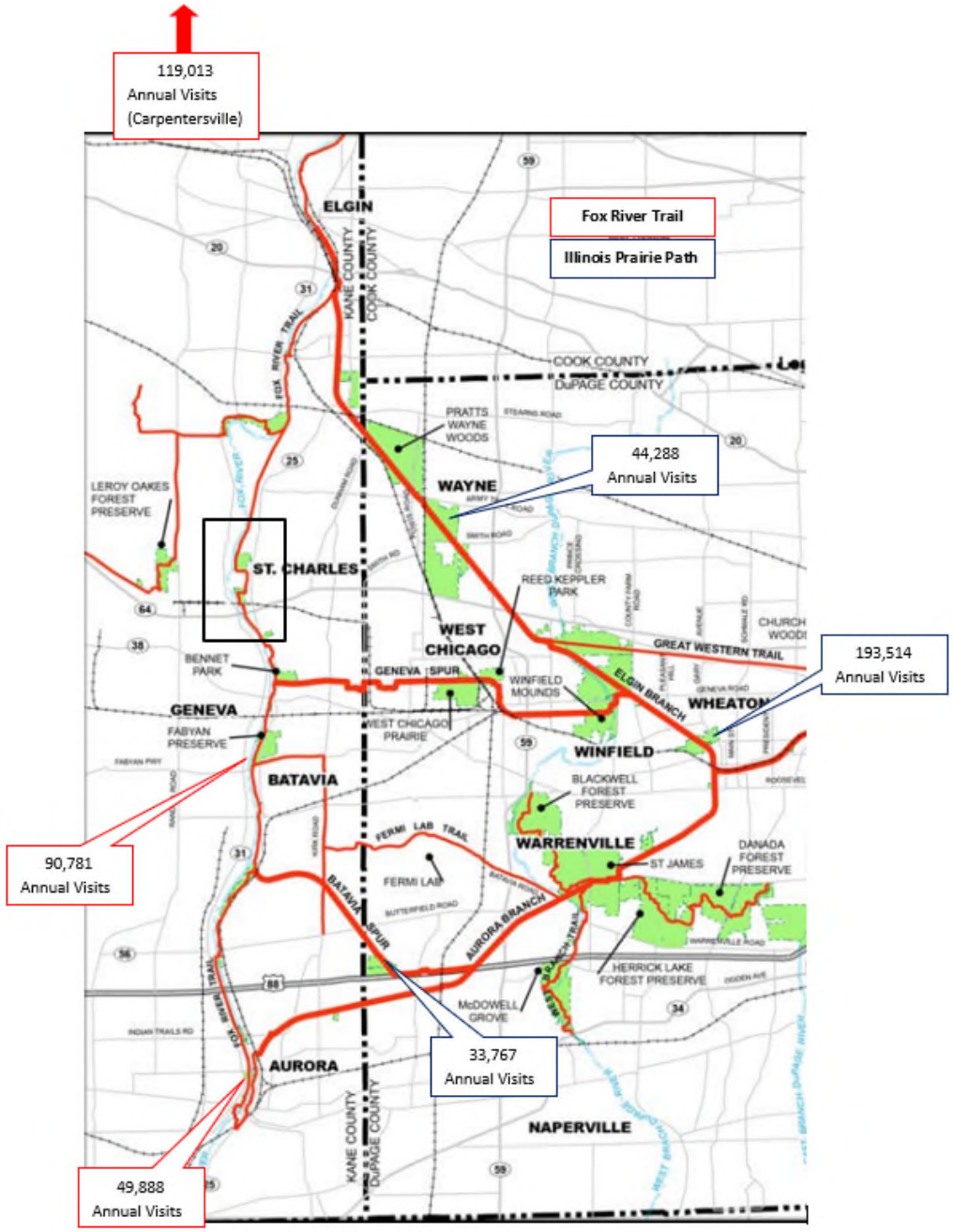



Source: Outdoor Recreation Participation Topline Report 2018

With around 40 million participants, hiking and biking have had growing participation with compound annual growth rates of around 5.5% and 2.5% respectively. Walking for fitness has significantly higher participation (around 100 million) but has experienced declines in participation over the last five years. Although they have fewer annual participants, water-based recreation activities are all experiencing growth. Recreational and whitewater kayaking are growing at 5% to 6% annually and stand up paddling is enjoying a 19% annual growth rate.

Illinois trail utilization data and surveys provided a basis for projections of the impact the proposed attractions would have on annual visits to St. Charles by trail users. During the summers of 2012 and 2013, Trails for Illinois tallied trail traffic using infrared sensors along non-motorized paths throughout Illinois, including the Fox River Trail and the Illinois Prairie Path. The organization simultaneously conducted a survey or path users. The figure below shows and amounts of utilization at various points along the trails.

**FIGURE 1-4**
**ESTIMATED TRAIL VISITS ALONG FOX RIVER AND PRAIRIE PATH**




Source: Trails for Illinois, Making Trails Count Surveys

Illinoisans make beneficial use of their trail systems for recreation, fitness, and nature enjoyment. Improved connectivity of paths through downtown St. Charles and to the regional trail systems should increase visitation to the City.

## Comparable Tourism Attractions

To evaluate proposed building program and the future performance of the proposed attraction in St. Charles, HVS researched comparable existing and planned riverfront parks with tourism attractions throughout the U.S. The figure below lists those parks.

**FIGURE 1-5**
**COMPARABLE DESTINATIONS AND PARKS**

| Comparable Riverfront Parks | City | State |
|---|---|---|
| Bicentennial Riverfront Park | Yorkville | IL |
| Boise Greenbelt | Boise | ID |
| Charles City Riverfront Park | Charles City | IA |
| Chattahoochee RiverWalk | Columbus | GA |
| Confluence Park | Denver | CO |
| East Bank Trail | South Bend | IN |
| Falls Park on the Reedy | Greenville | SC |
| Wasau River District | Wausau | WI |

The amenities and features available in each park are shown in the figure below. Case studies of each park are included at the end of the report in Appendix A. The case studies include discussion of activities at the parks, their operations, the funding, and the impact on development in the area.

**FIGURE 1-6**
**COMPARABLE DESTINATION FEATURES**

| Comparable Destination | Year Opened/ Restored | Riverwalk Length (miles) | Connected to Hiking/ Biking | Splash Pad/ Playgrounds | Whitewater | Zip Lines | Viewing Bridge |
|---|---|---|---|---|---|---|---|
| Bicentennial Riverfront Park | 2010 | 0.2 | | ✓ | ✓ | | ✓ |
| Chattahoochee RiverWalk | 1992 | 15 | ✓ | ✓ | ✓ | ✓ | |
| Confluence Park | 2017 | 18 | ✓ | | ✓ | | ✓ |
| Falls Park on the Reedy | 2004 | 22 | ✓ | | | | ✓ |
| Boise Greenbelt | 1967 | 25 | ✓ | ✓ | ✓ | | ✓ |
| Wausau River District | 1974 | 2.2 | | | ✓ | | ✓ |
| Charles City Riverfront Park | 2011 | 0.5 | | | ✓ | | ✓ |
| East Bank Trail | 1984 | 12 | ✓ | ✓ | ✓ | | ✓ |

HVS used Esri Business Analyst Online ("Esri") to compare the suitability of St. Charles as a tourism destination to competitive cities. Using Esri data, HVS ranked the destinations in the comparable venue set on six indicators of destination quality and six indicators of riverfront park use, as well as a cost index.

To assess the relative strength of each destination, HVS calculated a score for each area's ranking within the criteria. Destination quality criteria were weighted to reflect their importance to park users. The figure below shows the aggregate weighted scores of each destination.

**FIGURE 1-7**
**COMPARABLE DESTINATION SCORES**

| City | Weighted Destination Score |
|---|---|
| Denver, CO | 0.752 |
| Boise, ID | 0.505 |
| **St. Charles, IL** | **0.483** |
| Yorkville, IL | 0.454 |
| Greenville, SC | 0.297 |
| South Bend, IN | 0.285 |
| Wausau, WI | 0.283 |
| Columbus, GA | 0.221 |
| Charles City, IA | 0.182 |

St. Charles ranks third among comparable set. Its favorable ranking is due to high median income and sport participation rates in the nearby population.

## Demand and Visitation

The City of St. Charles and the St. Charles Park District provided HVS with a summary of the number of events and total attendance that occurred downtown or along the existing riverfront parks in 2018. We supplemented this information with other interviews and market research. HVS based demand projections on the completion of the park in January 1, 2024 and demand stabilization on January 1, 2027.

The figure below breaks out projections by type of use.

**FIGURE 1-8**
**SUMMARY OF DEMAND**

| | Historical Year | Base Year | Opening | | | Stabilized |
|---|---|---|---|---|---|---|
| | 2018 | 2019 | 2024 | 2025 | 2026 | 2027 |
| **Activity** (Number of Weeks or Events) | | | | | | |
| Whitewater Channel | 0 | 0 | 30 | 30 | 30 | 30 |
| Recreation Channel | 0 | 0 | 30 | 30 | 30 | 30 |
| Zip Line/Ropes Course | 0 | 0 | 30 | 30 | 30 | 30 |
| Other Boating | 30 | 30 | 30 | 30 | 30 | 30 |
| Fishing | 30 | 30 | 30 | 30 | 30 | 30 |
| Parks/Playgrounds | 52 | 52 | 52 | 52 | 52 | 52 |
| Trails | 52 | 52 | 52 | 52 | 52 | 52 |
| River Competitions * | 2 | 2 | 3 | 3 | 4 | 5 |
| Festivals/Events * | 8 | 8 | 8 | 9 | 9 | 10 |
| **Total** | 174 | 174 | 265 | 266 | 267 | 269 |
| * Number of events and not number of weeks available | | | | | | |
| **Visitors** | | | | | | |
| Whitewater Channel | 0 | 0 | 16,000 | 15,000 | 15,000 | 14,000 |
| Recreation Channel | 0 | 0 | 11,000 | 10,250 | 7,000 | 7,000 |
| Zip Line/Ropes Course | 0 | 0 | 10,000 | 9,500 | 9,250 | 9,000 |
| Other Boating | 200 | 210 | 280 | 330 | 360 | 360 |
| Fishing | 50 | 50 | 80 | 100 | 110 | 120 |
| Parks/Playgrounds | 1,400 | 1,400 | 2,700 | 2,500 | 2,340 | 2,340 |
| Trails | 800 | 800 | 1,100 | 1,275 | 1,450 | 1,560 |
| River Competitions | 200 | 200 | 600 | 600 | 800 | 1,000 |
| Festivals/Events | 181,200 | 181,200 | 181,200 | 203,850 | 203,850 | 226,500 |
| **Total** | 183,850 | 183,860 | 222,960 | 243,405 | 240,160 | 261,880 |

The number of events is counted in weeks that activity would be available except for river competitions and festivals, which are counted as events. Total and average visitation figures represent individual attendees.

## Whitewater Channel

**Whitewater Channel—**Due to weather constraints, the whitewater channel will be accessible for 30 weeks of the year. Approximately 700 canoe and kayak enthusiasts could use the park per available weekend.

Estimates of demand at three comparable whitewater venues provided a basis for an analysis of market penetration or capture of the area population. Based on annual visits to these parks we estimated the market penetration of the population within four drive-time distances.

The figure below summarizes this market penetration analysis.

**FIGURE 1-9**
**COMPARABLE WHITEWATER DEMAND**

| | Population 18+ | Part. % | Potential Users | Capture % | Visits per Year | Annual Visits |
|---|---|---|---|---|---|---|
| **South Bend, IN** | | | | | | |
| 15 min | 136,506 | 6.69% | 9,127 | 20% | 3 | 5,476 |
| 15-30 min | 157,569 | 7.12% | 11,218 | 10% | 2 | 2,244 |
| 30-60 min | 491,881 | 6.94% | 34,141 | 1% | 1 | 341 |
| 1-5 hours | 33,213,653 | 6.95% | 2,307,067 | 0.1% | 1 | 2,307 |
| | | | | | | 10,368 |
| **Wausau, WI** | | | | | | |
| 15 min | 50,109 | 7.25% | 3,632 | 10% | 2 | 726 |
| 15-30 min | 49,507 | 7.61% | 3,767 | 5% | 1 | 188 |
| 30-60 min | 174,534 | 7.50% | 13,094 | 0.5% | 1 | 65 |
| 1-5 hours | 16,180,980 | 7.03% | 1,137,179 | 0.1% | 1 | 682 |
| | | | | | | 1,663 |
| **Columbus, GA** | | | | | | |
| 15 min | 142,710 | 5.76% | 8,217 | 45% | 6 | 22,186 |
| 15-30 min | 99,284 | 6.23% | 6,184 | 30% | 4 | 7,421 |
| 30-60 min | 234,212 | 6.34% | 14,859 | 10% | 2 | 2,972 |
| 1-5 hours | 17,612,570 | 6.26% | 1,102,231 | 0.2% | 1 | 2,204 |
| | | | | | | 34,784 |

Source: Esri

The locations, amenities, and schedule of operations, of the three comparable parks cause a wide variance in the level of visitation and the origin of visitors. None-the-less, each provides insight into the potential participation of area populations in whitewater activities.

- The East Race Waterway in South Bend is operated by the city during the summer months and requires lifeguards and full staffing. Users pay for each use of the artificial whitewater channel.

- The Wausau Whitewater Park is open for a few weekends a year. A dam must be opened to allow water to flow through the park, and an energy company must be reimbursed for the lost revenue. When in operation, the park has hosted multiple national competitions.

- The whitewater feature on the Chattahoochee Riverwalk is much larger than either of the other two parks, and the flow of water is controlled

through the rapids via a dam, which enables beginners and advanced users to use the same runs at various times.

Application of similar market penetration rates to the populations surrounding St. Charles generates a projection of the potential users and annual visits for the whitewater feature. See the figure below.

**FIGURE 1-10**
**ST. CHARLES WHITEWATER DEMAND**

| Drive Time | Population 18+ | Part. % | Potential Users | Capture % | Visits per Year | Annual Visits |
|---|---|---|---|---|---|---|
| 15 min | 126,815 | 8.43% | 10,688 | 25% | 3 | 8,016 |
| 15-30 min | 638,252 | 6.99% | 44,635 | 10% | 2 | 8,927 |
| 30-60 min | 2,603,939 | 8.43% | 219,461 | 1.5% | 1 | 3,292 |
| 1-5 hours | 21,948,576 | 6.98% | 1,531,722 | 0.1% | 1 | 1,532 |
| | | | | | | 21,767 |

Source: Esri

The whitewater feature in St. Charles will be most like the Chattahoochee RiverWalk in Columbus, Georgia. HVS projects that the whitewater elements will attract approximately 22,000 annual visits, 700 users per weekend during 30 weeks per year. Half of those users will be advanced enough to use the whitewater channel exclusively. We expect whitewater use will be high initially as there is a novelty effect with whitewater parks.

Recreation Channel

**Recreation Channel**—Recreation channel users include stand-up paddleboarders, canoe and kayakers, and beginning whitewater canoe and kayakers. We expect recreational channel initial use will be higher than stabilized annual use due to a novelty effect.

HVS projects that 350 canoe and kayakers will use the recreation channel per weekend and that 90 stand-up paddleboarders will use the recreation channel. We projected a paddleboard participation rate of 1.2% based on the 2018 outdoor recreation report from the Outdoor Foundation. The figure below shows the estimates of paddleboarder visitation.

**FIGURE 1-11**
**ST. CHARLES STAND-UP PADDLEBOARD DEMAND**

| | Population 18+ | Part. % | Potential Users | Capture % | Visits per Year | Annual Visits |
|---|---|---|---|---|---|---|
| 15 min | 126,815 | 1.20% | 1,522 | 14% | 5 | 1,065 |
| 15-30 min | 638,252 | 1.20% | 7,659 | 7% | 3 | 1,494 |
| 30-60 min | 2,603,939 | 1.20% | 31,247 | 1% | 1 | 156 |
| | | | | | | 2,715 |

## Other Attractions

**Zip Line**— A zip line across the river would operate for 30 weeks a year, or as long as staffing is financially feasible. It is likely that seasonal summer employees will need to be hired to work the zip line. The zip line at the Chattahoochee RiverWalk is used approximately 15,000 times a year, this was adjusted downward due to the reduced scale of the riverfront park in St. Charles and the reduced size of the zip line. Due to a novelty effect, zip line demand will initially be higher than stabilized demand.

**Other Boating**—Other boating users include powerboat users who would use the river during 30 weeks of the year. Data on boat rentals and launches tracked by the St. Charles Park District provided a basis for the estimate of users. Park District staff indicated that the boat launches were popular and HVS expects the number of boating users to increase once the park is opened.

**Fishing**—Based on conversations with the Greater St. Charles CVB, the Park District, and other stakeholders, we estimate 30 weeks of utilization. The number of people fishing is likely to grow as the dam removal would improve the riparian habitat will increase biodiversity, improve the ecology of the Fox River, and increase fish populations.

**Parks & Playgrounds**—Based on conversations with the St. Charles Park District, we estimate year-round utilization, which includes pavilion rentals and regular users. HVS expects the number of parks and playground users to increase as park connectivity is improved and the children's natural play area is installed.

**Trails—**Hikers following the Great Western Trail and Fox River Trail will pass through St. Charles year-round. HVS used trail survey data to track the current number of hikers going through St. Charles and expects that number to increase as trail connectivity is improved.

**River Competitions**—Rowing and canoe competitions currently hosted on the Fox River attract competitors and spectators from a wide area. The addition of a

whitewater channel would allow for slalom or freestyle whitewater competitions. Leaders of the St. Charles Canoe Club indicated that approximately 200 people attend the current competitions and HVS expects that number to increase as the riverfront becomes more pedestrian and spectator friendly.

**Festivals & Events—**A variety of holiday events occur in St. Charles such as Scarecrow Fest, St. Charles Live, the Fine Arts Festival, and Holiday Homecoming. The St. Charles Park District provided attendance data and expects average attendance to continue at historic levels, as the number of festivals increases. The Illinois Whitewater Festival, currently held in Yorkville, may move to St. Charles and other whitewater events may also relocate.

## Economic and Fiscal Impact

HVS identified the new direct spending that would occur in the local economy due to the construction and operation of the Active River Project. HVS used the IMPLAN input-output model to estimate indirect and induced impacts as well as jobs created by the direct spending.

Direct spending estimates include only new spending that originates from outside of St. Charles. Spending by attendees who live within the market area is a transfer of income from one sector of the area's economy to another. Therefore, this analysis does not count spending by local residents as a new economic impact.

HVS also estimated the fiscal impact caused by the new spending in St. Charles. This includes revenue from local sales, alcohol, lodging, and gas taxes, as well as an estimate of increased property tax collections caused by potential redevelopment in downtown St. Charles. The City identified 150 land parcels that may be affected by the Active River Project and possibly redeveloped. Of those 150, HVS identified 38 parcels that are currently underutilized and would benefit the most from redevelopment.

Using data from the Kane County Assessor's Office, HVS calculated the average market value per acre of 67 highly utilized parcels, 25 privately owned underutilized parcels, and 13 municipally owned underutilized parcels. Substituting the highly utilized market value per acre for the 38 total underutilized parcels gives an estimate of the increase in market values in downtown. See the figures below.

**FIGURE 1-12**
**CHANGE IN MARKET VALUE BY PARCEL TYPE (IN 2017 DOLLARS)**

| | Fully Utilized Parcels | Underutilized Parcels | |
|---|---|---|---|
| | | (Privately Owned) | (Municipally Owned) |
| Number of Parcels | 67 | 25 | 13 |
| Size (Acres) | 14.44 | 9.35 | 5.92 |
| **Current Market Value** | | | |
| Total | $40,971,842 | $12,478,000 | na |
| Per Acre | 936,337 | 936,000 | na |
| **Projected Market Value** | | | |
| Total | $40,971,842 | $26,526,000 | $16,795,000 |
| Per Acre | 2,837,385 | 2,837,000 | 2,837,000 |
| **Increase in Market Value** | | | |
| Total | $0 | $14,048,000 | $16,795,000 |
| Per Acre | 0 | 1,901,000 | 2,837,000 |

| Current Parcel Ownership | Increase in Market Value |
|---|---|
| Privately Owned | $14,048,000 |
| Municipally Owned | 16,795,000 |
| **Total** | $30,843,000 |

If redeveloped, underutilized parcels that are currently privately owned could increase in value by $14 million. Certain parcels that are currently municipally owned could be converted to private uses and assigned a market value of $16.8 million. Combined, market values of underutilized parcels could be approximately $30.8 million.

HVS calculated the potential increase in property taxes collection caused by redevelopment of the underutilized parcels. See the figure below.

**FIGURE 1-13**
**TOTAL CHANGE IN PROPERTY TAXES COLLECTED (IN 2017 DOLLARS)**

| | Fully Utilized Parcels | Underutilized Parcels | |
|---|---|---|---|
| | | (Privately Owned) | (Municipally Owned) |
| Size (Acres) | 14.44 | 9.35 | 5.92 |
| **2017 Taxes** | | | |
| Total | $1,297,000 | $395,000 | na |
| Per Acre | 90,000 | 42,241 | na |
| **Projected Taxes Per Acre** | | | |
| Total | $1,297,000 | $841,500 | $533,000 |
| Per Acre | 90,000 | 90,000 | 90,000 |
| **Increase in Taxes Collected** | | | |
| Total | $0 | $446,500 | $533,000 |
| Per Acre | 0 | 47,759 | 90,000 |

| Current Parcel Ownership | Increase in Tax Collections |
|---|---|
| Private Owned | $447,000 |
| Municipally Owned | 533,000 |
| **Total** | $980,000 |

| District | 2017 Tax Rate | Increase in Collections |
|---|---|---|
| School District 303 | 5.347% | $541,000 |
| St. Charles Downtown Revitalization District 1B | 0.900% | $91,000 |
| St. Charles City | 0.846% | $86,000 |
| St. Charles Park District | 0.633% | $64,000 |
| Elgin College 509 | 0.500% | $51,000 |
| Kane County | 0.402% | $41,000 |
| St. Charles Downtown Revitalization District 1A | 0.400% | $41,000 |
| St. Charles Library | 0.334% | $34,000 |
| Kane Forest Preserve | 0.166% | $17,000 |
| St. Charles Road Improvements | 0.091% | $9,000 |
| St. Charles Township | 0.044% | $4,000 |
| St. Charles Cemetary | 0.016% | $2,000 |
| **Total*** | 9.68% | $981,000 |

*The total differs from the collections in previous figure due to rounding

Sources: Kane County Assessor and HVS

If fully developed, the underutilized parcels could increase total property tax collections by approximately $980,000.

The figure below presents the potential economic and fiscal impacts of new spending related to the development of the Active River Project. The fiscal impact includes revenue from local sales, alcohol, lodging, and gas taxes, as well as the estimated increase in property tax collections. All dollar figures are in the current year (2019).

**FIGURE 1-14**
**POTENTIAL ECONOMIC IMPACTS**
**IN A STABILIZED YEAR**

| Summary of Impacts* | |
|---|---|
| Economic Impact (thousands) | $1,282.4 |
| Fiscal Impact (thousands) | $1,001 |
| Jobs | 15 |

*In a stabilized year.

The body of this report provides a detailed explanation of data sources, projections, and assumptions. To gain a full understanding of our analysis, we recommend that this report be read in its entirety.

## Cost Benefit Analysis

This cost benefit analysis considers the costs of building and operating the Active River Project with the quantifiable economic impact, as well as other unquantifiable benefits, such as an improved resident experience, making downtown into a destination, a reduction in the floodplain area, and environmental impacts.

The following table shows the timing of the quantifiable costs and impacts of the Active River Project over 28 years: one year of planning, two years of construction, and 25 years of operation. The figure also provides an estimate of the present value of the costs and impacts based on a 5% discount rate. Costs and impacts have been inflated to current year dollars.

**FIGURE 1-15**
**SUMMARY OF QUANTIFIABLE COSTS AND IMPACTS OVER 25 YEARS**

| Year | Discount Factor | Costs (Thousands) | | Impacts (Thousands) | |
|---|---|---|---|---|---|
| | | Value* | Discounted Value | Value** | Discounted Value |
| 2020 | 1.00 | $0 | $0 | $0 | $0 |
| 2021 | 0.95 | 12,662 | 12,059 | 0 | 0 |
| 2022 | 0.91 | 13,042 | 11,829 | 0 | 0 |
| 2023 | 0.86 | 20 | 17 | 1,514 | 1,308 |
| 2024 | 0.82 | 20 | 17 | 1,559 | 1,283 |
| 2025 | 0.78 | 21 | 16 | 1,601 | 1,254 |
| 2026 | 0.75 | 21 | 16 | 1,591 | 1,187 |
| 2027 | 0.71 | 22 | 16 | 1,577 | 1,121 |
| 2028 | 0.68 | 23 | 15 | 1,624 | 1,100 |
| 2029 | 0.64 | 23 | 15 | 1,673 | 1,079 |
| 2030 | 0.61 | 24 | 15 | 1,723 | 1,058 |
| 2031 | 0.58 | 25 | 15 | 1,775 | 1,038 |
| 2032 | 0.56 | 26 | 14 | 1,828 | 1,018 |
| 2033 | 0.53 | 26 | 14 | 1,883 | 999 |
| 2034 | 0.51 | 27 | 14 | 1,940 | 980 |
| 2035 | 0.48 | 28 | 13 | 1,998 | 961 |
| 2036 | 0.46 | 29 | 13 | 2,058 | 943 |
| 2037 | 0.44 | 30 | 13 | 2,120 | 925 |
| 2038 | 0.42 | 31 | 13 | 2,183 | 907 |
| 2039 | 0.40 | 32 | 12 | 2,249 | 890 |
| 2040 | 0.38 | 33 | 12 | 2,316 | 873 |
| 2041 | 0.36 | 33 | 12 | 2,386 | 856 |
| 2042 | 0.34 | 34 | 12 | 2,457 | 840 |
| 2043 | 0.33 | 36 | 12 | 2,531 | 824 |
| 2044 | 0.31 | 37 | 11 | 2,607 | 808 |
| 2045 | 0.30 | 38 | 11 | 2,685 | 793 |
| 2046 | 0.28 | 39 | 11 | 2,766 | 778 |
| 2047 | 0.27 | 40 | 11 | 2,849 | 763 |
| **Present Value** | | | $24,229 | | $24,584 |

**Construction and operating costs inflated to current year dollars.*
***Annual economic impacts inflated to current year dollars.*

The present value of the combined capital and operating costs over a 28-year period is approximately $24.2 million and the present value of the economic impacts is approximately $24.5 million. This table only shows the quantifiable impacts of the Active River Project and does not include any unquantifiable impacts the project would have.

The unquantifiable impacts include improving the resident experience, making downtown more of a destination, reducing the floodplain, and the environmental

benefit from removal of the dam. Residents and visitors will both benefit from expanded recreation opportunities in a way that cannot be quantified. The enjoyment, wellness, and social interactions generated by the Active River Project may be the most significant benefit to the investment. Downtown St. Charles will also benefit from a central attraction that is unique to the Fox Valley that also attracts a younger population to contribute to a more active and energetic downtown.

The project will also shrink the size of the floodplain in downtown, requiring fewer property and business owners to purchase mandatory flood insurance, which will increase property values and make redevelopment of these properties more practical and economical. Finally, the cleanliness and biodiversity of the Fox River will be improved by removing the dam and replacing it with smaller drop structures.

The Active River Project is a "public good." Consequently, its return on investment should also be measured by the social benefits it provides. HVS has quantified the new spending and fiscal impact the project will generate. We have estimated the capital and ongoing operating costs. Yet consideration of the social benefits that are not quantifiable may offer the most compelling reason to pursue the Active River Project.

# 2. Project Description

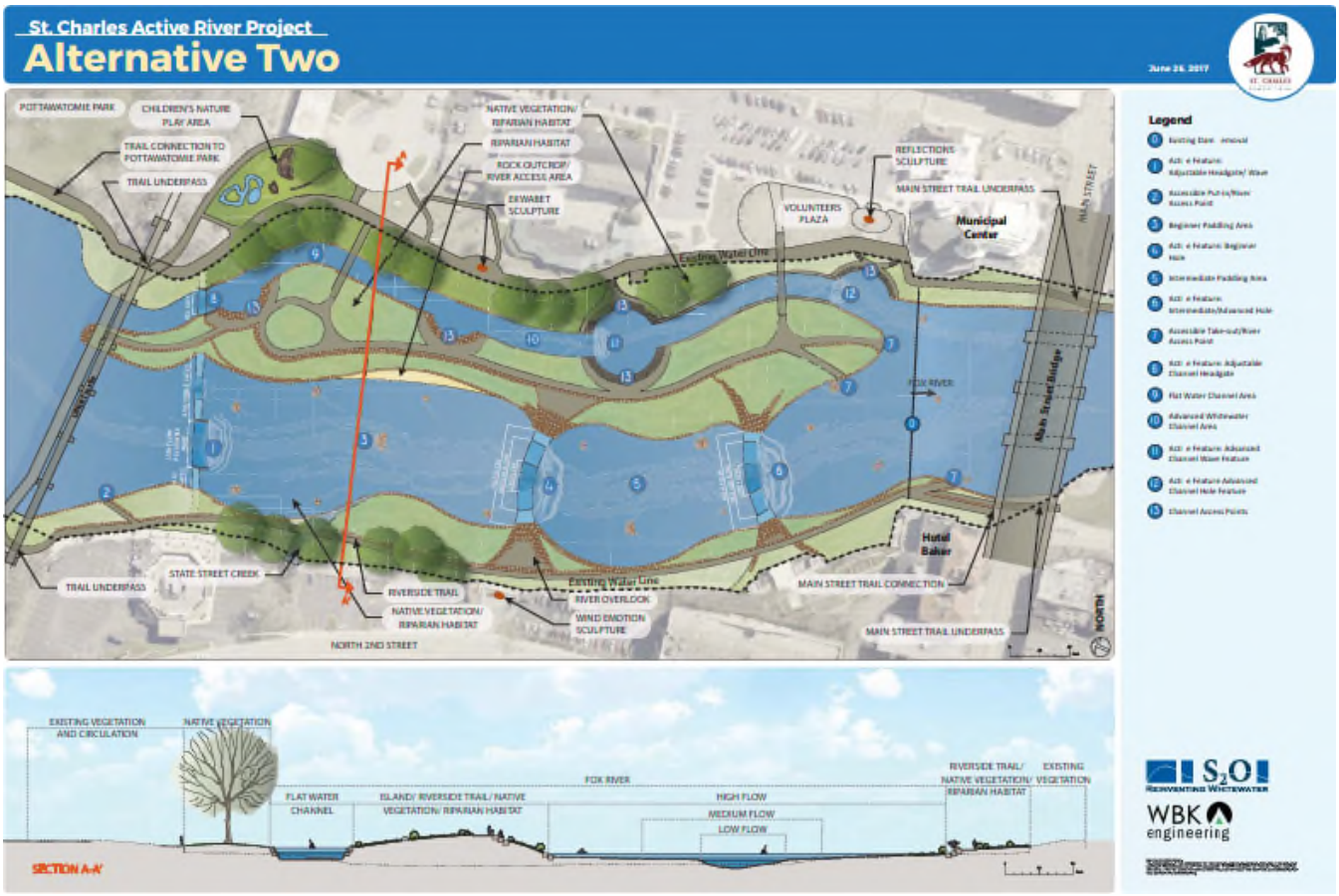
In a feasibility study dated June of 2017, WBK Engineering provided three building program options for a riverfront development in St. Charles called the Active River Park, a recommended concept from the Fox River Corridor Master Plan 2015 update. The WBK Engineering feasibility study can be found in Appendix C. HVS discussed the building program with representatives of WBK Engineering and inspected the proposed development site. The purposes of the building program are to improve the river and riverfront area of St. Charles, provide recreational amenities for residents and visitors, improve the safety of the river, and to encourage adjacent land development.

## Whitewater

WBK Engineering found that the current low-head dam is dangerous, river use just above the dam is restricted, and the dam is an impediment to fish passage and other species in the Fox River. WBK produced two dam removal and replacement designs. One design features a single recreational channel and the other design uses two channels: one for recreation and a smaller channel for whitewater. The channels are separated by a man-made island that would be accessible by pedestrian bridges.

HVS evaluated the demand and attendance for the two-channel park. The one-channel option would attract fewer recreational users than the two-channel options because of the lack of the whitewater attraction and its novelty. Although more expensive, the two-channel option would attract more visitors from outside the local area.

**ST. CHARLES ACTIVE RIVER PROJECT - OPTION 2**




Source: WBK Engineering

Appendix B shows three building program alternatives. Alternatives two and three are two-channel options. Although these options have some minor differences, they would have similar demand and attendance. The HVS analysis in this report would apply to both of these two-channel alternatives.

Whitewater users and instructors with the American Canoe Association ("ACA") emphasized that the quality of the whitewater is crucial to attracting users from outside St. Charles. A high-quality whitewater design, such as the design in Charles City, Iowa attracts users from a five hour drive time. The attractions must provide a challenging whitewater experience. A less challenging design would not attract users who are willing to travel long distances. As an example, the recently built whitewater park in Yorkville is less popular than Charles City, despite being more accessible. Charles City has a dedicated whitewater channel, while Yorkville, combines a whitewater and bypass channel into a single element.

The support facilities are also important to a whitewater park. Adequate shelter from the elements and changing areas are necessary as the park will be open in adverse weather and users will need places to take cover and change out of wet clothing. Clear entry and exit access points to the channels need to be connected to each other by pedestrian paths. HVS recommends St. Charles work closely with the ACA and Chicago Whitewater Association, and other whitewater groups, during the design process. For the purposes of this study, we assume the whitewater elements and support facilities will adequately address user preferences.

The whitewater community is small and close-knit, and many users rely on social media and word-of-mouth to judge the quality of a whitewater facility and its support elements. A good design that is well supported would be well-received in the community and would gain popularity throughout the Midwest.

### Recreation Channel

Separated from the whitewater channel by a man-made island, the recreational channel will be larger and broken up by three smaller drop structures. These drop structures would create small whitewater waves and currents. But, most of the channel water would be smooth and designed for beginning kayaking and canoeing, stand-up paddleboarders, and other boating.

The recreational channel would be most popular among users from the local area who are interested in recreational use of the river. These users would likely be families who would use multiple features of the park such as the recreational channel, pavilion, expanded shoreline, and children's play area. The proximity of the whitewater channel may induce recreational users to try the more challenging whitewater channel and foster growth in whitewater kayaking participation.

Users who do not own equipment, like kayaks, stand-up paddleboards, paddles, life vests, helmets, or canoes will require a shop or facility for equipment rental. Most advanced whitewater users own their own equipment, but beginners and those using the recreational channel will likely need an equipment rental outlet.

### Zip Line

A zip line running across both channels of the Fox River was considered as part of the building program. The Chattahoochee RiverWalk is the only comparable destination that features a zip line and it attracts approximately 15,000 users a year. However, the Fox River is smaller than the Chattahoochee and the zip line would need to be supported by other park elements. Users from outside of the local area are unlikely to travel more than 30 minutes solely to use a single zip line.

The zip line would also have to be operated and managed by trained staff to ensure user safety and proper equipment use and would require land to be set aside on either side of the Fox River to build connections for the zip line. Despite these challenges, the zip line would be an attraction that is unique to St. Charles.

**Trail Connectivity**

Increasing the connectivity of trails like the Fox River Trail and the Great Western Trail to the riverfront would increase the flow of hikers, walkers, and bikers through St. Charles and use of the trails and paths along the riverfront. Currently the riverfront walking path is broken into segments by the Main Street bridge and other construction, which requires users to cross the river at various points to stay on the path. Easier pedestrian access along the riverfront would augment the trail systems in the area and improve connectivity with other parks in St. Charles.

**Children's Nature Play Area**

Located near the railroad trestle bridge and trail underpass, a children's nature play area would offer natural elements, but function like a playground. While it would not by itself induce tourist visitation, it would offer families from St. Charles a reason to spend time in the park and enhance the overall visitor experience.

**Support Spaces**

In addition to the whitewater support spaces, additional shelters, picnic areas, pavilions and parking will be necessary. The increased attendance will require more parking, especially for whitewater users who travel long distances. Pavilion rentals are also popular, especially in Pottawatomie Park, and HVS expects demand for pavilions in the riverfront park would be nearly as high. Shelters will be necessary to protect park users from adverse weather, and picnic areas will provide viewing areas for both the recreational and whitewater channels, as well as the zip line.

**Comparable Venue Layouts**

To verify the suitability and capacity of the proposed site to accommodate a riverfront park with whitewater, HVS investigated the site layouts of the comparable parks discussed in Chapter 4. The parks are listed below.

**FIGURE 2-1**
**COMPARABLE RIVERFRONT PARKS**

| Comparable Riverfront Parks | City | State |
|---|---|---|
| Wausau River District | Wausau | WI |
| Boise Greenbelt | Boise | ID |
| Charles City Riverfront Park | Charles City | IA |
| Chattahoochee RiverWalk | Columbus | GA |
| Confluence Park | Denver | CO |
| East Bank Trail | South Bend | IN |
| Falls Park on the Reedy | Greenville | SC |
| Bicentennial Riverfront Park | Yorkville | IL |

The images can be found in Appendix B and indicate that the building program described would cause the proposed attractions in St. Charles to stand out as a whitewater destination, as well as a riverfront park. Given that the design of the whitewater channel and the support facilities is high-quality, whitewater users

should be attracted from up to five hours away. The presence of the zip line, the recreation channel, and the improved trail connectivity should attract more visitors from within a 30-minute drive time.

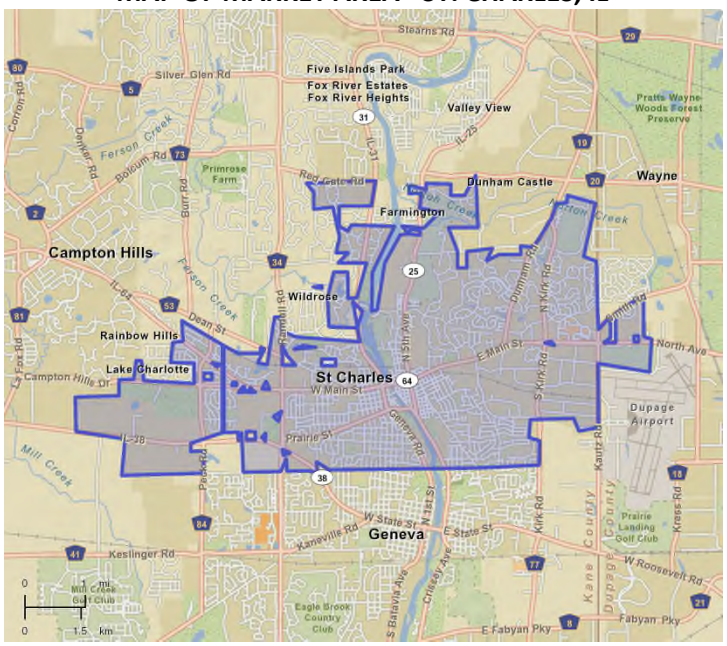
# 3. Market Area Overview

This market area analysis reviews economic and demographic data that describe the overall condition of the local economy in St. Charles. HVS used characteristics of the area economy and trends that indicate growth or decline to forecast the performance of the proposed Active River Project in downtown St. Charles. HVS analyzed the following indicators: population, income, sales, employment, hotel supply, and other tourist attractions and events.

## Market Area Definition

The primary market area for recreational and cultural attractions consists of the geographical region that offers transportation access, lodging, and other amenities to users of the attractions. For the purposes of this study, HVS defined the primary market area as the City of St. Charles, the majority of which is in Kane County. A small eastern portion of the City is in Dupage County. The following map shows the City boundaries.

**MAP OF MARKET AREA - ST. CHARLES, IL**



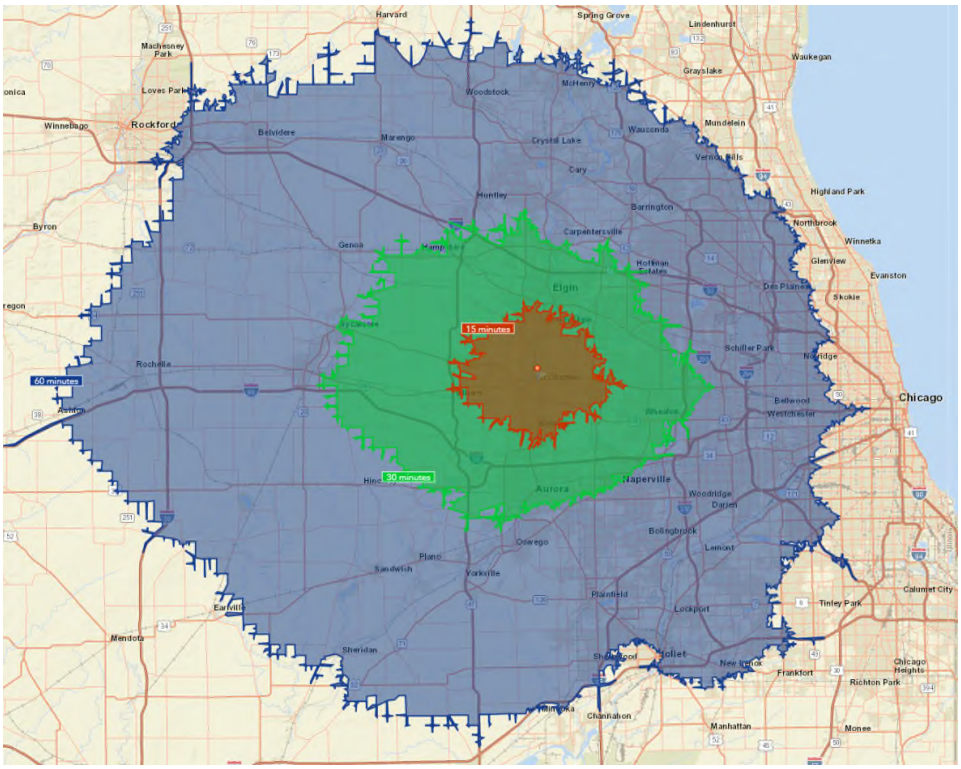

Source: Esri

Located 25 miles west of downtown Chicago, St. Charles was settled in 1834 along the banks of the Fox River. As local proprietors established a variety of businesses,

the town's population grew steadily fueled by European immigration and transportation improvements creating easier access to Chicago and other cities. Today, St. Charles is home to 34,000 residents and over 2,000 businesses, including manufacturers and service providers in a variety of industries. Its vibrant downtown offers residential, retail, dining, and entertainment establishments along with public green space and recreation amenities.

Recreational attractions regularly draw users from an area beyond the limits of the immediate local market. While some visitors and event attendees would arrive from greater distances, we define the market for frequent users as those living within a 60-minute drive of the Active River Project. While some features, such as the proposed whitewater park, would attract visitors from this market, some amenities would receive more frequent visitation from residents. We have also analyzed the 15- and 30-minute drive time markets, to account for the variety in the proposed attractions within the Active River Project. As shown in the following figure, the 60-minute drive time encompasses much of the Chicago metropolitan area, reaching Rockford, Illinois to the west and Joliet, Illinois to the south.

**DRIVE TIME MAP**




Source: Esri

## Population and Income

HVS relied on Esri Business Analyst Online ("Esri") to analyze demographics of populations within the City of St. Charles and the 15-minute, 30-minute, and 60-minute drive times. Esri is a well-regarded forecasting service that applies GIS technology to produce extensive demographic, consumer spending, and business data analyses. Esri employs a sophisticated location-based model to forecast economic and demographic trends. Esri bases historical statistics on U.S. census data, the American Community Survey, and other primary research.

The size of the resident population surrounding a recreation amenity indicates demand potential for all types of users, including recreation participants, sightseers, and event spectators. Income levels affect the ability of a market to support recreation amenities because more frequent participants tend to be from households with higher levels of disposable income. A healthy and diversified economy not only provides employment and disposable income for a market's residents, it helps to insulate an area from economic downturns that could negatively affect facility demand. Trends in median household income directly relate to the capacity of area residents to participate in activities. Income levels also provide a benchmark for the quality of public and private services and attractions that are necessary to attract out-of-town visitors to competitions and demonstration events.

The following figure presents population and median household income statistics for the market areas, the state and the entire U.S.

**FIGURE 3-1**
**POPULATION DEMOGRAPHICS**

| Market / Drive time | Population | | | Median Household Income ($) | | |
|---|---|---|---|---|---|---|
| | 2018 | 2023 | Annual Growth Rate | 2018 | 2023 | Annual Growth Rate |
| St .Charles City | 33,607 | 34,036 | 0.25% | 93,383 | 101,963 | 1.77% |
| 15-minute | 169,559 | 173,218 | 0.43% | 100,218 | 105,417 | 1.02% |
| 30-minute | 1,023,502 | 1,046,010 | 0.44% | 81,672 | 87,286 | 1.34% |
| 60-minute | 4,420,308 | 4,483,644 | 0.28% | 78,355 | 83,759 | 1.34% |
| Illinois | | | 0.10% | 61,255 | 67,499 | 1.96% |
| United States | | | 0.83% | 58,100 | 65,727 | 2.50% |

Source:Esri

With a population of approximately 34,000 residents, the City of St. Charles is growing faster than the State of Illinois, but slower than surrounding markets. Approximately one million people live within a 30-minute drive and 4.4 million live within a one-hour drive.

In the fifteen, thirty, and sixty-minute drive times, median household income is well above state and national averages. The highest median income is found within a 15-minute drive of St. Charles with median incomes decreasing as drive times increase.

## Age Distribution

A market's age distribution can be a decisive factor in determining potential visitation and event participation and can provide insight into the types of events and attractions that the market will support. A market with strong youth and teen populations suggests a stronger demand for family-oriented programming and higher participation rates in amateur sports programs. A younger population is a positive indicator of sports and recreation facility demand. The following figure presents the population distribution by age for each of the drive time market areas.

**FIGURE 3-2**
**POPULATION AGE DISTRIBUTION**

| Age Range | Market (Drive-time) | Percentage of Population |
|---|---|---|
| 0-9 | St. Charles | 12.7% |
| | 15 | 12.6% |
| | 30 | 13.7% |
| | 60 | 12.7% |
| 10-24 | St. Charles | 19.0% |
| | 15 | 20.4% |
| | 30 | 20.1% |
| | 60 | 19.5% |
| 25-44 | St. Charles | 25.3% |
| | 15 | 24.5% |
| | 30 | 27.7% |
| | 60 | 26.4% |
| 45-64 | St. Charles | 28.5% |
| | 15 | 29.1% |
| | 30 | 25.8% |
| | 60 | 26.5% |
| Over 64 | St. Charles | 16.5% |
| | 15 | 13.4% |
| | 30 | 12.7% |
| | 60 | 14.8% |

Source: Esri

The median age for the entire U.S. population is 38.3 years. The City of St. Charles has a slightly older population with a median age of 40.9 years. The 30-minute drive time market has a younger population with an average age of 37.6 years.

The market age range analysis indicates a relatively consistent age distribution across drive time markets. Minor variances in age distribution and the median age of the markets would not produce material impacts on visitation and participation rates.

## Recreation Spending and Participation

Retail spending patterns indicate a market's ability to generate revenues through activity fees, rentals, and purchases. The following figure presents the annual spending index for the rental and retail segments which would contribute to the operating revenue of the proposed recreation attractions. The Spending Potential Index ("SPI") is household-based and represents the amount spent for a product or service relative to a national average of 100.

**FIGURE 3-3**
**MARKET PROPENSITY TO SPEND ON RECREATION**

| Market / Drive time | Recreation / Entertainment Fees | Boat Rental Fees | Water Sports Equipment Purchases |
|---|---|---|---|
| **Annual Spending per Household** | | | |
| St. Charles City | $1,075.36 | $31.94 | $10.78 |
| 15-minute | 1,112.18 | 32.60 | 11.13 |
| 30-minute | 917.16 | 27.33 | 9.08 |
| 60-minute | 892.94 | 25.99 | 8.36 |
| **Spending Potential Index *** | | | |
| St. Charles City | 157 | 159 | 165 |
| 15-minute | 163 | 162 | 170 |
| 30-minute | 134 | 136 | 139 |
| 60-minute | 131 | 129 | 128 |

* An SPI of 100 indicates the national average for annual household spending.
Source: Esri

The relative affluence and income stability of the resident population translates into a greater propensity to spend on recreation fees, boat rentals, and equipment purchases. The highest spending per households is by 170,00 residents living within a 15-minute drive of the proposed attractions in downtown St. Charles. Although lower, household spending by the 30- and 60-minute drive time markets is also well above the national average.

An analysis of recreation participation in the market provides a direct assessment of demand potential for the proposed attractions and activities. Esri tracks the number of adults that participate is specific activities at least one time during the past year. The following figure provides a summary of these results for St. Charles and the drive time markets.

**FIGURE 3-4**
**MARKET PROPENSITY TO SPEND ON RECREATION**

| Market / Drive time | Canoeing/ Kayaking | Walking for Fitness | Fishing (fresh water) | Bicycling (road) | Hiking |
|---|---|---|---|---|---|
| **Number of Adults** | | | | | |
| St. Charles City | 2,251 | 7,918 | 3,019 | 3,436 | 4,303 |
| 15-minute | 10,688 | 38,266 | 14,413 | 6,698 | 20,223 |
| 30-minute | 53,503 | 205,853 | 76,064 | 89,377 | 108,106 |
| 60-minute | 233,645 | 912,874 | 327,744 | 383,536 | 467,031 |
| **Percentage of Population** | | | | | |
| St. Charles City | 8.6% | 30.2% | 11.5% | 13.1% | 16.4% |
| 15-minute | 8.4% | 30.2% | 11.4% | 13.0% | 15.9% |
| 30-minute | 7.0% | 27.3% | 9.9% | 11.7% | 14.1% |
| 60-minute | 6.9% | 27.1% | 9.7% | 11.4% | 13.9% |
| **Market Potential Index*** | | | | | |
| St. Charles City | 130 | 124 | 100 | 129 | 135 |
| 15-minute | 128 | 124 | 99 | 128 | 132 |
| 30-minute | 106 | 112 | 86 | 115 | 117 |
| 60-minute | 105 | 112 | 85 | 112 | 114 |

* An MPI of 100 indicates the average participation percentage rate in the U.S.
Source: Esri

Within a 60-minute drive time of downtown St. Charles, over 230,000 people, approximately 7% of the population, have participated in canoeing or kayaking in the past year. Except for fresh water fishing, the surrounding markets have participation rates above the national average for all activities. Participation rates tend to be higher for populations within the City of St. Charles and the 15-minute drive time than for the 30- and 60-minute drive time markets.

## Education and Employment

The characteristics of an area's workforce indicates the overall stability of the income levels of the resident population. Areas with higher education levels and a predominance of professional occupations in a variety of industries tend to respond to and recover from economic shocks more readily than those that rely on employment from a single sector, such as manufacturing. The following figures present a comparison of educational attainment and employment by occupation for the City of St. Charles, the drive time markets, the state of Illinois, and the U.S.

**FIGURE 3-5**
**HIGHEST LEVEL OF EDUCATIONAL ATTAINMENT**

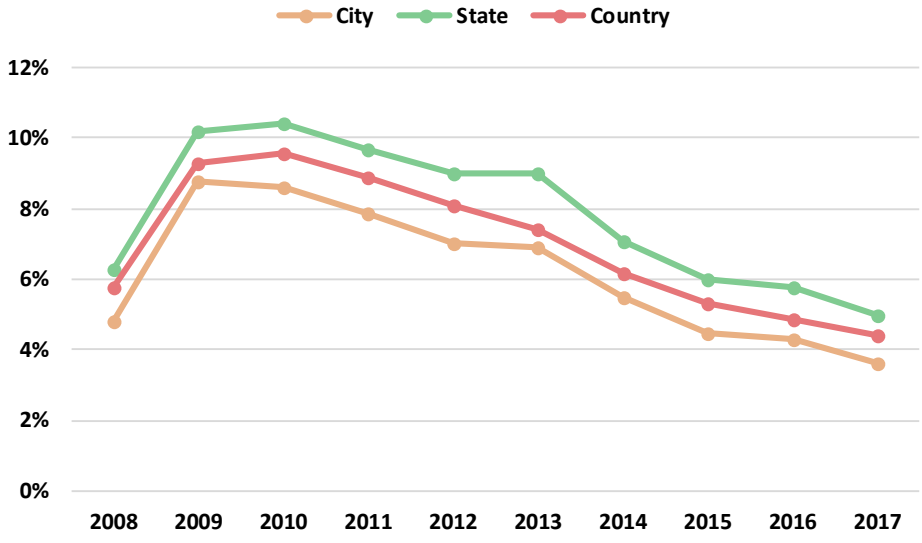
| | St. Charles City | 15-minute | 30-minute | 60-minute | Illinois | U.S. |
|---|---|---|---|---|---|---|
| No HS Diploma | 6.6% | 6.6% | 11.9% | 9.9% | 10.9% | 12.3% |
| HS Graduate | 18.3% | 19.3% | 20.6% | 22.2% | 25.6% | 27.0% |
| Some College | 21.3% | 19.3% | 19.8% | 20.2% | 21.1% | 20.5% |
| Bachelor's/Associate's Degree | 36.3% | 37.5% | 33.3% | 32.6% | 29.2% | 27.1% |
| Graduate/Professional Degree | 17.5% | 17.4% | 14.4% | 15.1% | 13.3% | 12.2% |

Source: Esri

The City of St. Charles has a relatively high percentage of adults who have earned a post-secondary degree. The 30- and 60-minute drive time markets also reflect a greater percentage of residents with a college degree as compared to state and national averages.

Unemployment statistics provide a measure of the health of the local economy and comparisons with state and national trends. The following table presents historical unemployment rates for the City of St. Charles, the state of Illinois and the US as a whole.

**FIGURE 3-6**
**UNEMPLOYMENT DATA**



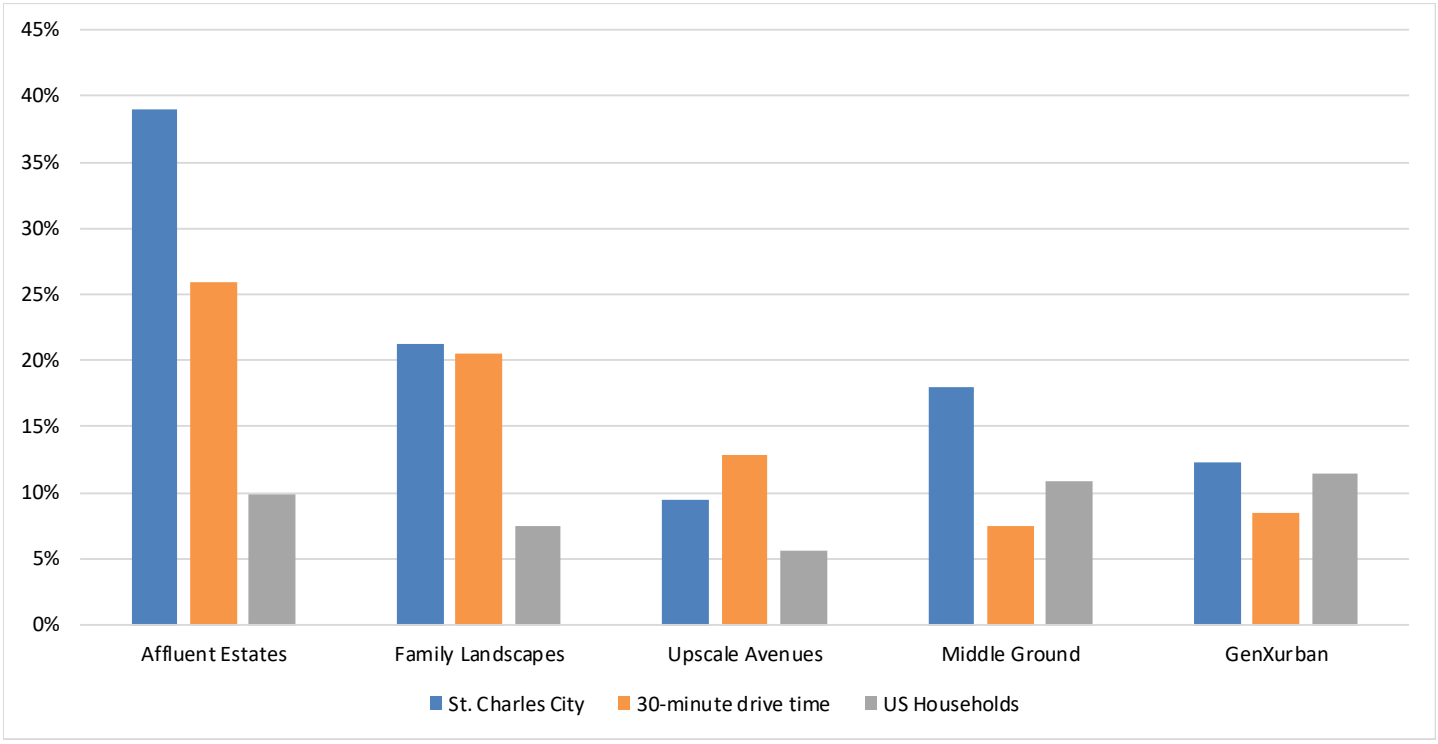

Source: Bureau of Labor Statistics

Historically, the St. Charles unemployment rate tracked below state and national averages. Like the rest of the country, the population in St. Charles experienced a spike in unemployment in 2009, peaking at around 8.8%. This spike was less pronounced than in much of the country and recovered along with the national economy. Local unemployment has fallen below pre-recession levels.

## Tapestry Segments

Tapestry segmentation provides detailed descriptions of U.S. neighborhoods. In total, residential areas are divided into 67 distinct tapestry segments and 16 Life Mode groups based on socioeconomic and demographic composition. The following figure presents the seven most abundant life mode groups found in the City of St. Charles and in the population within a 30-minute drive of the downtown. Data for the U.S. populations as a whole is provided for reference. Details regarding the characteristics of each Life Mode group follow.

**FIGURE 3-7**
**TOP TAPESTRY SEGMENTS – ST. CHARLES AND 30-MINUTE DRIVE TIME MARKET**




Source: Esri

**FIGURE 3-8**
**TAPESTRY SEGMENTATION – GROUP CHARACTERISTICS**

| Life Mode Group | Tapestry Segments | Characteristics |
|---|---|---|
| Affluent Estates | Top Ties, Professional Pride, Boomburgs, Savvy Suburbanites, Exurbanites | Established wealth, expect quality, homeowners, active in communities, active in sports, Travelers |
| Family Landscapes | Soccer Moms, Home Improvement, Middelburg | Successful young families, homeowners, dual income, sports & recreation enthusiasts |
| Upscale Avenues | Urban Chic, Pleasantville, Pacific Heights, Enterprising Professionals | Prosperous married couples, homeowners, married with older children, active in fitness pursuits |
| Middle Ground | City Lights, Emerald City, Bright Young Professionals, Front Porches, Old & Newcomers | Millennials, mix of single/married and renters/homeowners, college educated, night life |
| GenXurban | Comfortable Empty Nesters, In Style, Pars & Rec, Rustbelt Traditions | Middle age with fewer kids, some retired, homeowners, more passive recreation |

Source: Esri

Around 60% of households in St. Charles and 45% of households in the 30-minute-drive time market are in the Affluent Estates or Family Landscapes groups. Both groups are active in sports and recreation and have the financial means to participate in fee-based activities and events. Nearly 20% of St. Charles households are in the Middle Ground group, characterized by college educated millennials.

## Business and Industry

Located on the Fox River, downtown St. Charles embraces this natural amenity with walkways and parks along the riverbanks. On both sides of the Fox River, local merchants own and operate independent retail establishments, including apparel, antiques, jewelry, and sporting goods. Over 30 restaurants, ranging from casual to fine dining, are located throughout the downtown, including several along the river with outdoor patios. Other establishments include cultural attractions, professional services, salons, repair shops, and places of worship. Downtown businesses are supported by convenient and free public parking lots and decks.

The area surrounding, St. Charles market has a thriving corporate community with approximately 2,400 business establishments employing nearly 31,000 people. The following figures summarize business employment in St. Charles and the major employers in the City.

**FIGURE 3-9**
**MAJOR EMPLOYERS**

| Firm | Number of Employees |
|---|---|
| St. Charles Community School District | 1,689 |
| RR Donnelley & Sons | 795 |
| Omron Automotive | 709 |
| Smithfield Foods | 315 |
| City of St. Charles | 300 |
| Jewel/Osco | 275 |
| Pheasant Run Resort | 252 |
| Dopaco Inc | 191 |
| Dukane Corporation | 190 |
| System Sensor | 140 |

Source: City of St. Charles CAFR, 2017-18

St. Charles has many large employers in a variety of industries, including manufacturing. Retail trade and services also make up a significant portion of jobs in St. Charles. Overall, this business and employment analysis indicate a strong and stable corporate presence that provides sources of demand for St. Charles recreational and cultural amenities.

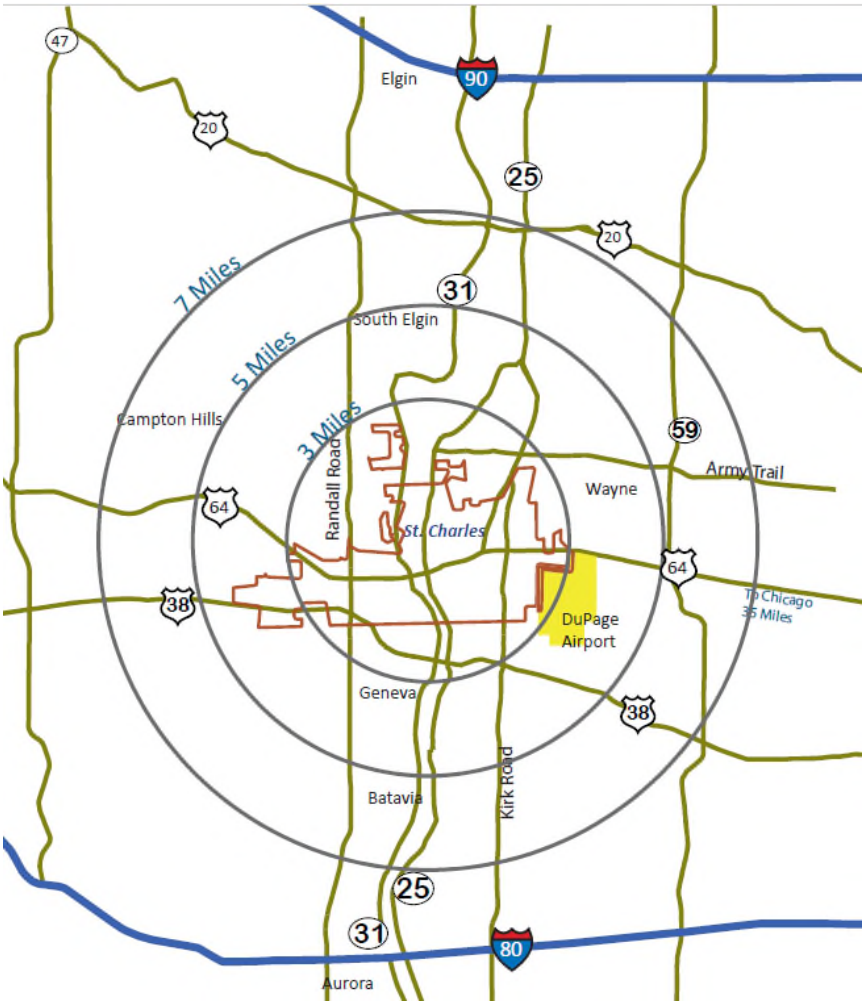
## Access and Transportation

St. Charles benefits from excellent transportation infrastructure. Downtown St. Charles is directly served by three state highways, IL 64 runs east-west, connecting St. Charles to Chicago. IL 25 and IL 31 run north-south and connect to Elgin, Aurora, and other cities along the Fox River. Interstates 88 and 90 are approximately 7.5 and 9 miles from St. Charles, respectively.

The Union Pacific West Line provides regional rail service with a station in nearby Geneva, approximately 1.5 miles south of St. Charles. Dupage Airport is located along the eastern border of St. Charles, while the nearest commercial airport, O'Hare International Airport, is 20 miles northeast.

The following figure provides a map of major regional transportation routes.

**FIGURE 3-10**
**REGIONAL TRANSPORTATION MAP**

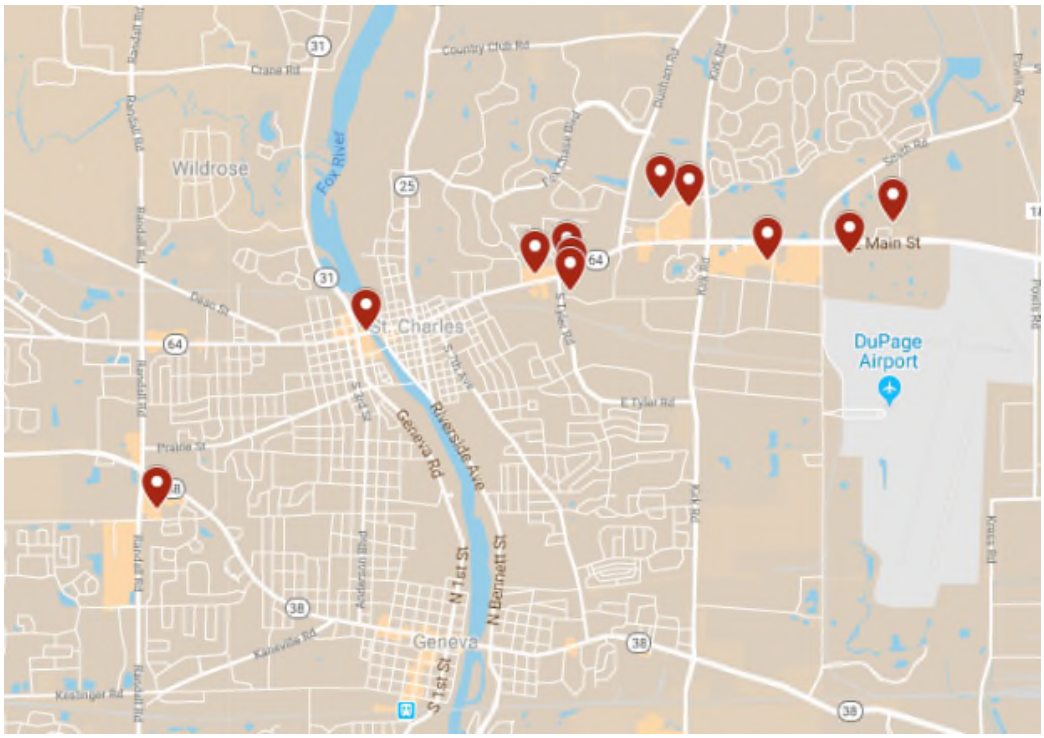



Source: City of St. Charles

## Lodging Supply

A popular leisure and meeting destination, S.t Charles' overnight tourism is supported by approximately 1,200 hotel rooms, including Pheasant Run, a full-service resort. The ability to attract out-of-town visitors using recreation amenities and attending events depends in part on the availability of nearby hotel rooms within a reasonable driving distance. As shown on the map below, eleven hotel properties are primarily located along IL 64 in St. Charles.

**FIGURE 3-11**
**HOTELS WITHIN ST. CHARLES**




Source: STR, Google Maps

The figure below shows the STR data collected on the 11 hotels within St. Charles.

**FIGURE 3-12**
**PROXIMATE LODGING SUPPLY BY SIZE**

| Size (Number of Guest Rooms) | Number of Properties | Number of Guest Rooms |
|---|---|---|
| 50 to 99 | 7 | 523 |
| 100 to 199 | 3 | 364 |
| 200 and over | 1 | 293 |
| Total | 11 | 1,180 |

Source: STR

Of the 11 properties within St. Charles, most properties have less than 100 guest rooms. The largest hotel is the 293-room Pheasant Run Resort which features a full-service spa, 18-hole golf course, and 80,000 square feet of meeting function space. The number of proximate guest rooms should be able to accommodate the demand created by regular use of the proposed development. But, if large competitions or

other events occur simultaneously, hotel availability would be limited, causing participants and spectators to book outside of St. Charles.

The quality of the hotels also indicates the market's ability to accommodate visitors. The following figure summarizes the lodging supply by chain scale, which is a measure of hotel quality.

**FIGURE 3-13**
**PROXIMATE LODGING SUPPLY BY SERVICE LEVEL**

| Chain Scale | Number of Properties | Number of Guest Rooms |
|---|---|---|
| Upscale | 2 | 241 |
| Upper Midscale | 3 | 267 |
| Midscale | 2 | 175 |
| Economy | 2 | 150 |
| Independent | 2 | 347 |
| Total | 11 | 1,180 |

Source: STR

The hotels near downtown St. Charles include a variety of hotel products ranging from economy to upscale properties. Approximately 683 guest rooms, or 58% of the proximate hotel room supply, are in midscale through upscale properties typically favored by leisure travelers. Independent properties include the Pheasant Run Resort and the historic 54-room Hotel Baker.

## Attractions and Events

Greater St. Charles benefits from several attractions and events which make the market attractive to residents as well as visitors who arrive for both day visits and overnight stays.

In addition to its retail and dining establishments, downtown St. Charles offers various entertainment, recreation, and cultural attractions.

- **Arcada Theatre and Club Arcada—**The historic Arcada Theatre is a 900-seat live music venue that hosts over 50 performances each year, ranging from rock and pop to big band and the blues. Club Arcada, located on the third floor of the Arcada Theatre is a speakeasy and restaurant modeled after those operating during the 1920s. It also hosts a variety of live performances.

- **St. Charles History Museum—**Located in downtown St. Charles, the St. Charles History Museum features rotating exhibits on the history of St. Charles. The Museum also contains historical archives available for inspection by appointment.

- **Pottawatomie Park and Community Center—**Just north of downtown and along the Fox River, Pottawatomie Park offers multiple recreational activities, including a nine-hole golf course, miniature golf, sand volleyball, tennis, swimming, hiking trails, and fishing. The Pottawatomie Community Center houses an adult activity center, basketball courts, and a native plant demonstration garden.

- **St. Charles Paddlewheel Riverboats—**Pottawatomie Park is also home to two old-fashioned, paddlewheel riverboats which are available for daily sightseeing tours and private evening charters along the Fox River during warm weather months.

- **Steel Beam Theatre—**Formed in 1999, the Steel Beam Theatre is a non-profit organization dedicated to high quality theatrical entertainment, training and arts awareness to the Fox Valley community. This boutique venue features live performances of contemporary productions in an intimate, historic setting.

- **Hotel Baker—**Built in 1928, Hotel Baker is on the National Register of Historic Places. This riverside hotel features 54 elegant guest rooms, the unique oval-shaped Rainbow Room with an illuminated dance floor, several meeting rooms and a traditional English rose garden.

Over 100 festivals, concerts, and other events in St. Charles attract residents and visitor each year.

- **Scarecrow Fest—**Scarecrow Fest, four-time winner of the "Top 100 Events in North America", began over 25 years ago. The event features the display of over 150 had-crafted scarecrows, live entertainment, an arts and crafts show, a carnival, and a petting zoo.

- **Fox Valley Marathon—**The Fox Valley Marathon offers three races, including a Boston Marathon qualifier for experienced runners, a half marathon suitable for beginners, and a Fall Final 20 training event. All races start and end in downtown St. Charles, winding their way through the neighboring communities of Geneva, Aurora, and Batavia.

- **Kane County Flea Market—**One weekend a month from March through December, hundreds of dealers from throughout the country sell jewelry, art, furniture, books, and antiques to the thousands of visitors at the Kane County Fairgrounds on the western edge of St. Charles.

- **St. Charles Jazz Weekend—**Running for four days in September, the St. Charles Jazz Weekend features dozens of live jazz acts in various downtown St. Charles venues.

- **STC Live—**Every Wednesday and Friday from June through September features live, free entertainment in a variety of venues throughout St. Charles.

- **St. Patrick's Parade—**The annual St. Patrick's Parade is a family tradition in Downtown St. Charles, featuring floats and marching bands.

## Conclusion

The City of St. Charles enjoys a stable economy characterized by an above average per capita income level and a well-diversified employment base. The St. Charles economy is further supported by above average growth in the surrounding drive-time markets, which make up the potential visitor market for the proposed recreation amenities. Visitor infrastructure, including cultural and entertainment attractions, parking, and lodging, is well developed and continues to improve with the major downtown initiative and independent development. The local St. Charles economy and tourism amenities are clearly able to support increased visitation and provide a strong source of local and out-of-town demand. As a recreation destination, St. Charles has good access and is a well-regarded tourism destination in the Chicago metro area.

# 4. Participation Trends

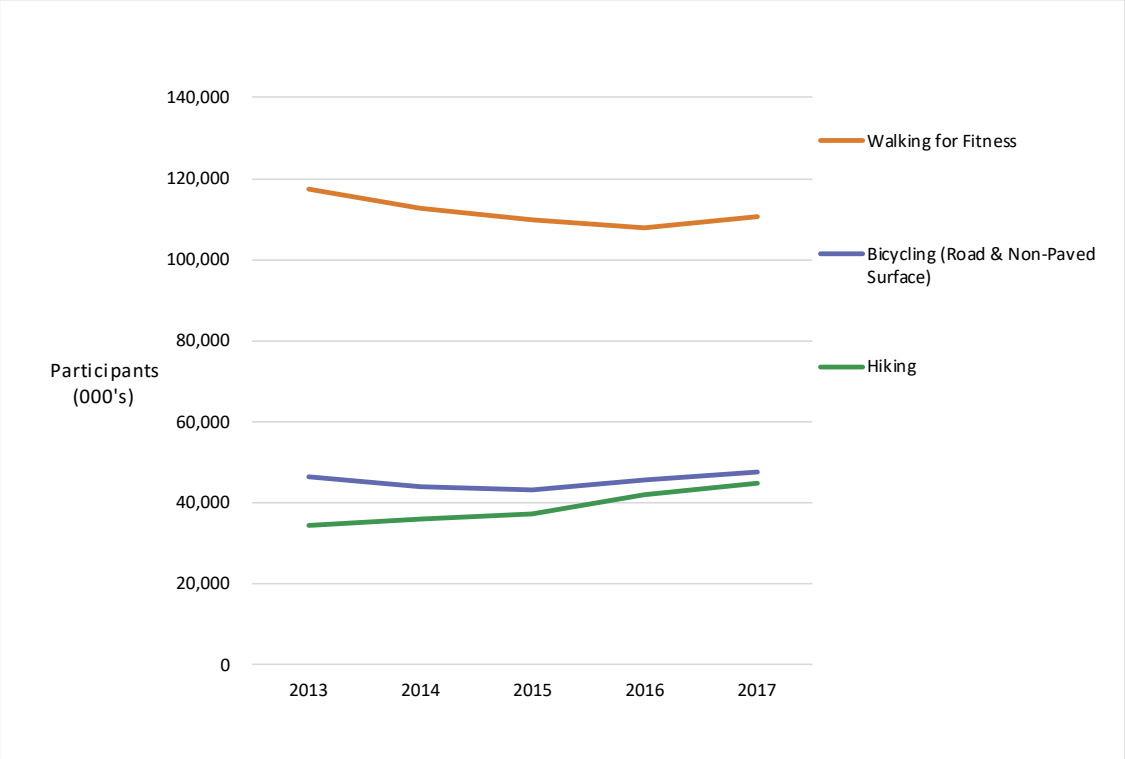
In this section, HVS presents an analysis of national and regional trends in outdoor sports and activities participation. This trends analysis provides background information necessary to assess the potential demand for the Active River Project.

## Outdoor Sports Participation

HVS researched national participation trends for the primary activities that would take place at the proposed attractions along the Fox River in downtown St. Charles. We used two recent surveys, a 2018 survey of outdoor sports participation conducted by the Outdoor Foundation and the Sports & Fitness Industry Association and a 2015 survey of paddle sport participation also conducted by the Outdoor Foundation in association with the Coleman Company.

The following figures provide a summary of total U.S. participation in six outdoor activities over the past five years. Participation was defined as having participated in an activity at least once in a year.

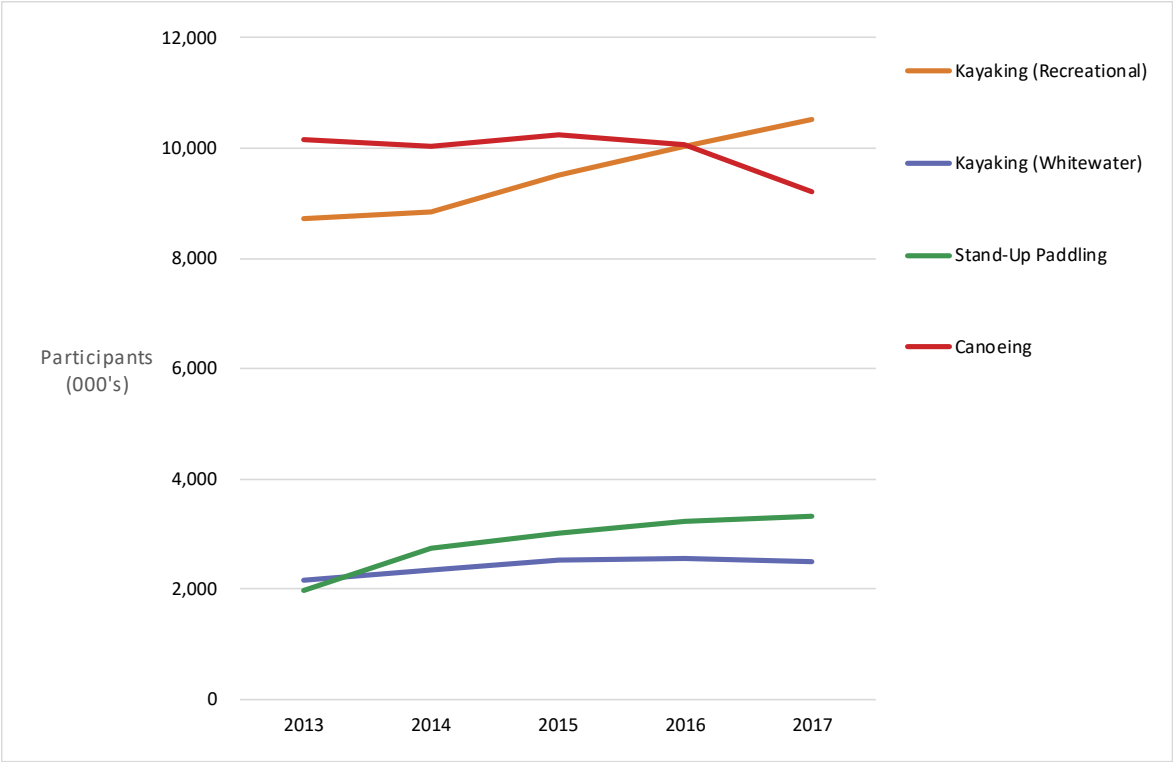
**FIGURE 4-1**
**PARTICIPATION IN LAND-BASED RECREATION**




Source: Outdoor Recreation Participation Topline Report 2018

Each with around 40 million participants, hiking and biking participation has grown at compound annual growth rates of around 5.5% and 2.5% respectively. Walking for fitness has significantly higher participation (around 100 million) but has experienced declines in participation over the last five years.

**FIGURE 4-2**
**PARTICIPATION IN WATER-BASED RECREATION**




Source: Outdoor Recreation Participation Topline Report 2018

Although water-based recreation activities have fewer participants, recreational kayaking, whitewater kayaking, and stand-up paddling are all experiencing growth. Recreational and whitewater kayaking are growing at 5% to 6% annually and stand-up paddling is enjoying a 19% annual growth rate.

## Paddle Sports Participation

The Outdoor Foundation provides data on paddle sports, including canoeing, kayaking, rafting, and stand-up paddling. The Outdoor Foundation estimates the following.

- Paddle sports attract 21.7 million participants and nearly 216 million annual outings,
- Recreational kayaking attracts over 10.5 million annual participants.
- 2.4 million people participate in whitewater kayaking.
- On average, kayakers make a total of eight annual outings.

- Stand-up paddling attracts around 3.4 million annual participants.
- On average, stand-up paddlers make a total of five annual outings.

People who participate in paddle sports also take part in a variety of other outdoor and indoor recreational activities. The following figure provides a list of the most popular crossover activities for paddlers.

**FIGURE 4-3**
**MOST POPULAR OTHER ACTIVITIES FOR PADDLERS**

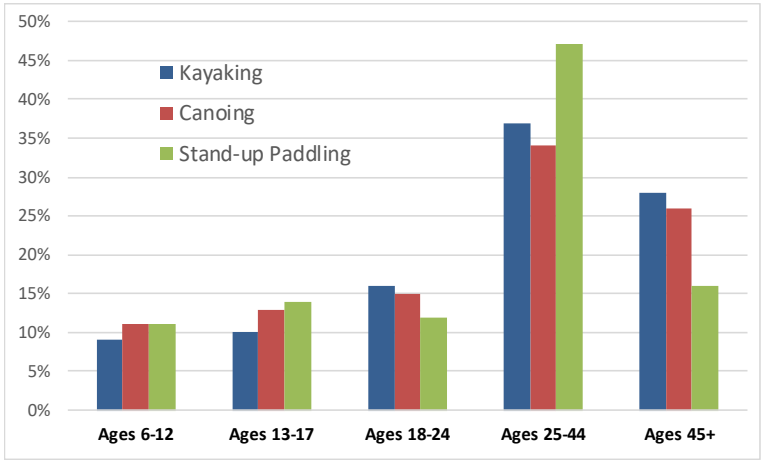
| Activity | % of Paddlers |
|---|---|
| Walking for fitness | 51% |
| Hiking | 42% |
| Running/jogging | 39% |
| Bicycling | 37% |
| Camping | 35% |
| Bowling | 35% |
| Freshwater fishing | 35% |
| Treadmill | 31% |
| Lifting weights | 29% |
| Swimming | 27% |

Source: Outdoor Foundation 2015 Special Report on Paddle Sports

Approximately half of all paddlers participate in fitness walking. Other aerobic activities, including hiking, running, and bicycling are also popular, which suggests that the various land-based activities planned along the Fox River would also appeal to paddlers.

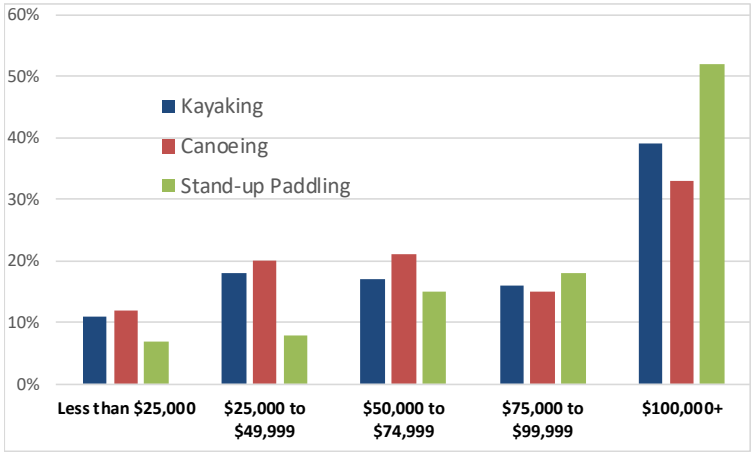
The following figures provide an overview of the age and income of participants in kayaking and stand-up paddling.

**FIGURE 4-4**
**PARTICIPATION BY AGE**




Source: Outdoor Foundation 2015 Special Report on Paddle Sports

**FIGURE 4-5**
**PARTICIPATION BY HOUSEHOLD INCOME LEVEL**

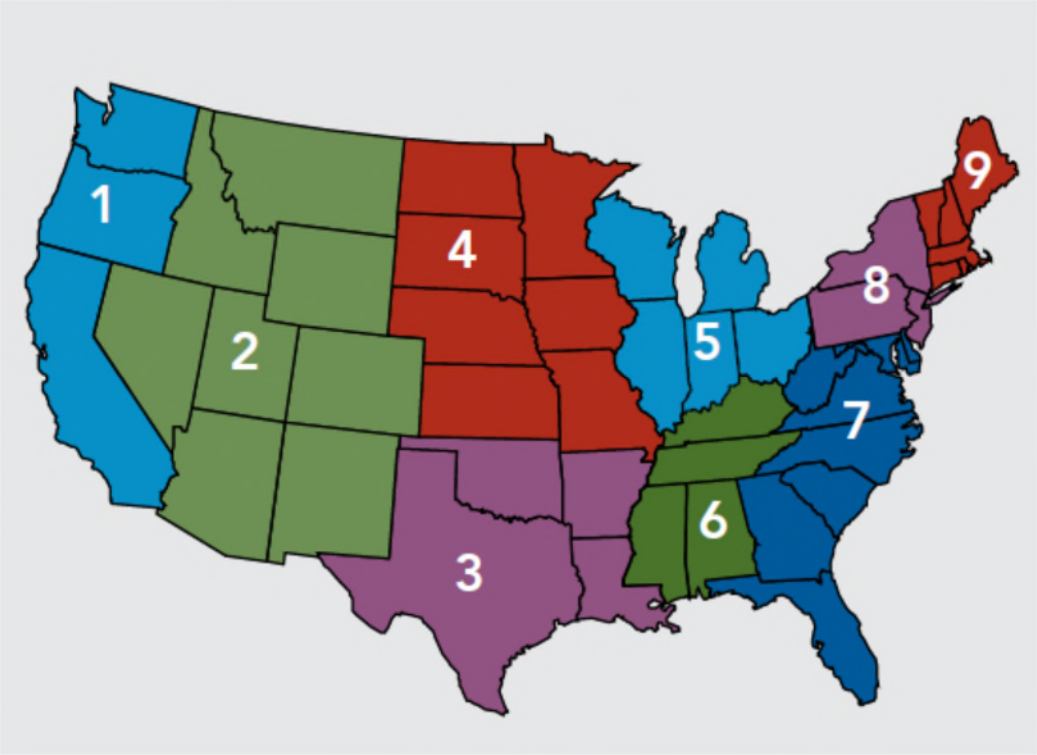



Source: Outdoor Foundation 2015 Special Report on Paddle Sports

The demographics among paddle sports are relatively consistent, and participants tend to be young adults with household incomes above $100,000. Kayaking and canoeing attract a higher percentage of older adults and have a broader appeal across age and income levels.

An Outdoor Foundation survey segmented paddle sport participation into nine regions across the U.S. The following figure maps these regions.

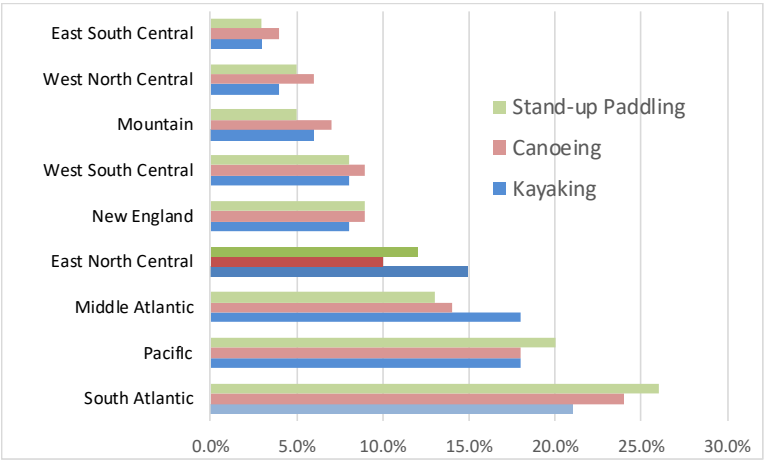
**FIGURE 4-6**
**MAP OF PADDLE SPORTS GEOGRAPHIC REGIONS**




Illinois is in Region 5, the East North Central Region, along with four other states in the central U.S., Wisconsin, Indiana, Ohio, and Michigan. On the map above, the East North Central region is highlighted in light blue.

The following figures present the percentage of activity participants in each region.

**FIGURE 4-7**
**PARTICIPATION BY REGION**




Source: Outdoor Foundation 2015 Special Report on Paddle Sports

While 24% participation in the East North Central region is in the mid-rage of participation rates, this region has the most canoers, around 2.4 million participants. The South Atlantic and Pacific regions have the largest percentage of participants in kayaking and stand-up paddling. The East North Central Region makes up 15% of kayakers, 12% of stand-up paddlers. This region has approximately 1.5 million kayakers and 400,000 stand-up paddlers.

## Illinois Trail Estimate Annual Visits

Connections to the Fox River Trail and the Illinois Prairie Path are key components of the proposed riverfront development. These trails would provide pedestrian and bike access and a source of potential visitors. During the summers of 2012 and 2013, Trails for Illinois counted the number of trail users with infrared sensors along non-motorized paths throughout Illinois, including the Fox River Trail and the Illinois Prairie Path. The organization simultaneously conducted a survey or path users. Survey data was sent to the University of Illinois at Urbana Champaign Office of Recreation and Park Resources for statistical analysis. Trails for Illinois published results and findings in two separate "Making Trails Count" publications.

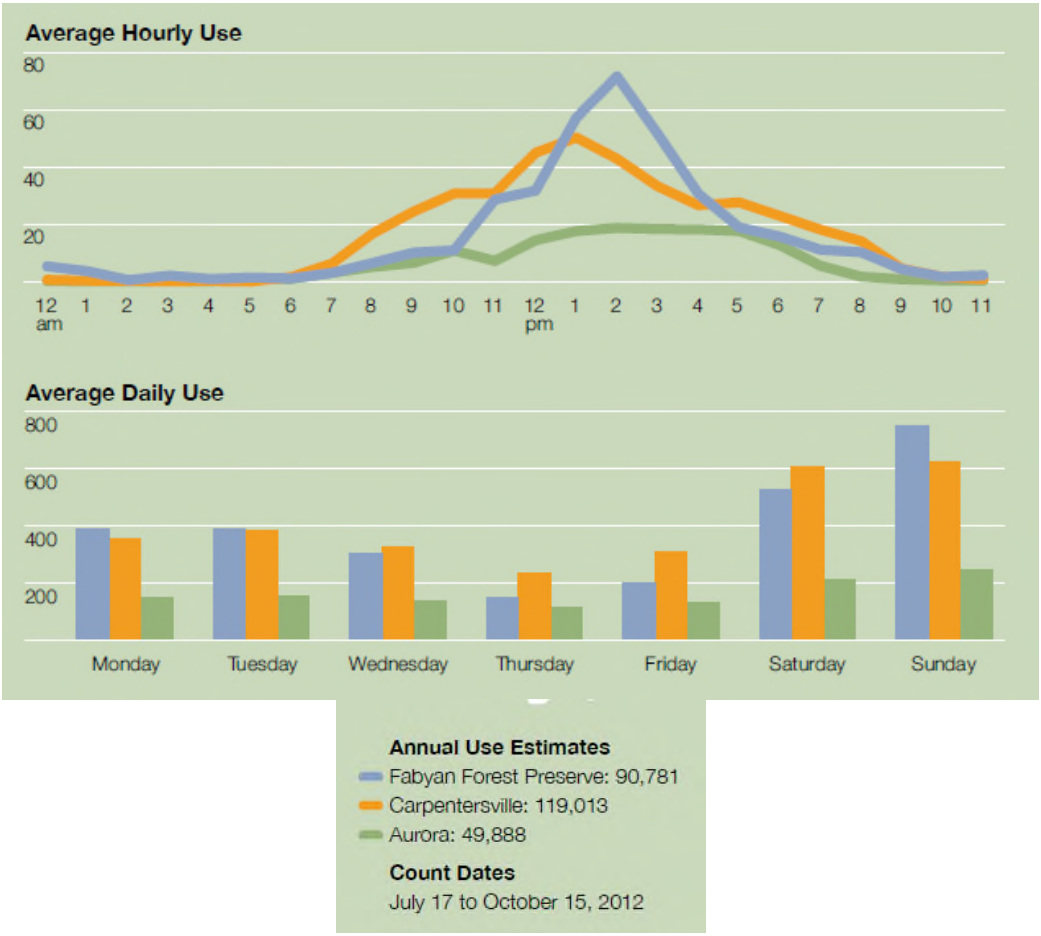
The Fox River Trails runs through downtown St. Charles, and the Illinois Prairie Path has branches that run north and south of St. Charles. These branches connect to the Fox River Trail near Elgin to the north, and in Geneva and Aurora to the south. The following map identifies the approximate location of the infrared sensors closest to St. Charles and shows the estimated annual visits.

**FIGURE 4-8**
**ESTIMATED TRAIL VISITS ALONG FOX RIVER AND PRAIRIE PATH**


Source: Trails for Illinois, Making Trails Count Surveys

The Fox River Trail runs for approximately 30 miles along the Fox River from Aurora to Carpentersville, Illinois. The Fabyan Forest Preserve, approximately four miles south of downtown St. Charles has around 91,000 annual visits. The far south portion of the Fox River Trail in Aurora attracts around 50,000 visits, while the northern edge has around 120,000 visits. The following figure highlights the average hourly use and the average daily use of each location.

**FIGURE 4-9**
**AVERAGE HOURLY AND DAILY USE OF THE FOX RIVER TRAIL**



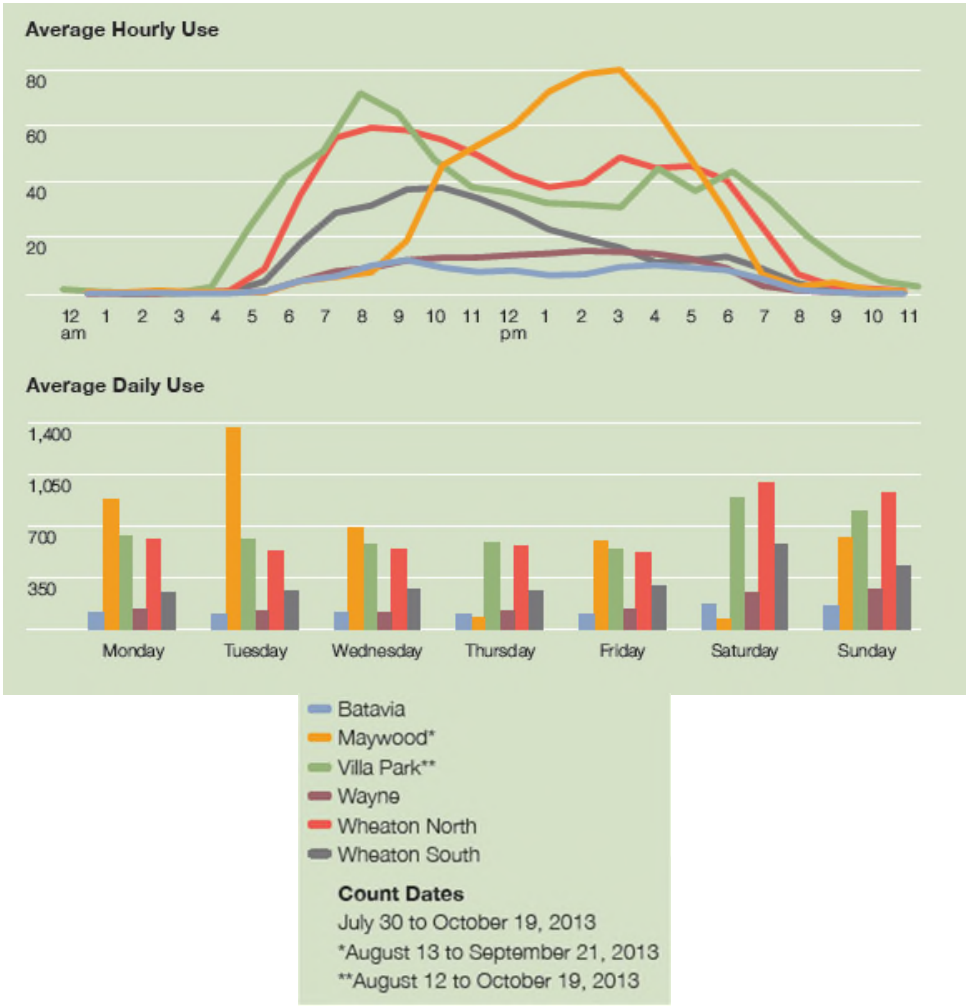

Source: Trails for Illinois, Making Trails Count Surveys

The most popular times for Fox River trail use are on weekends and during the afternoon.

The Illinois Prairie Path runs for 61 miles over five branches throughout Chicago's western suburbs. For this analysis, HVS reviewed use data from the count

locations closest to St. Charles, the Elgin and Aurora Branches. The Batavia Spur has around 34,000 annual visits while the Elgin Branch in Wayne has around 44,000 visits. A site in north Wheaton has significantly higher visitation with around 194,000 visits. The following figure highlights the average hourly use and the average daily use of each location, including sites along the main spur east of the limits of the map shown above.

**FIGURE 4-10**
**AVERAGE HOURLY AND DAILY USE OF THE ILLINOIS PRAIRIE PATH**



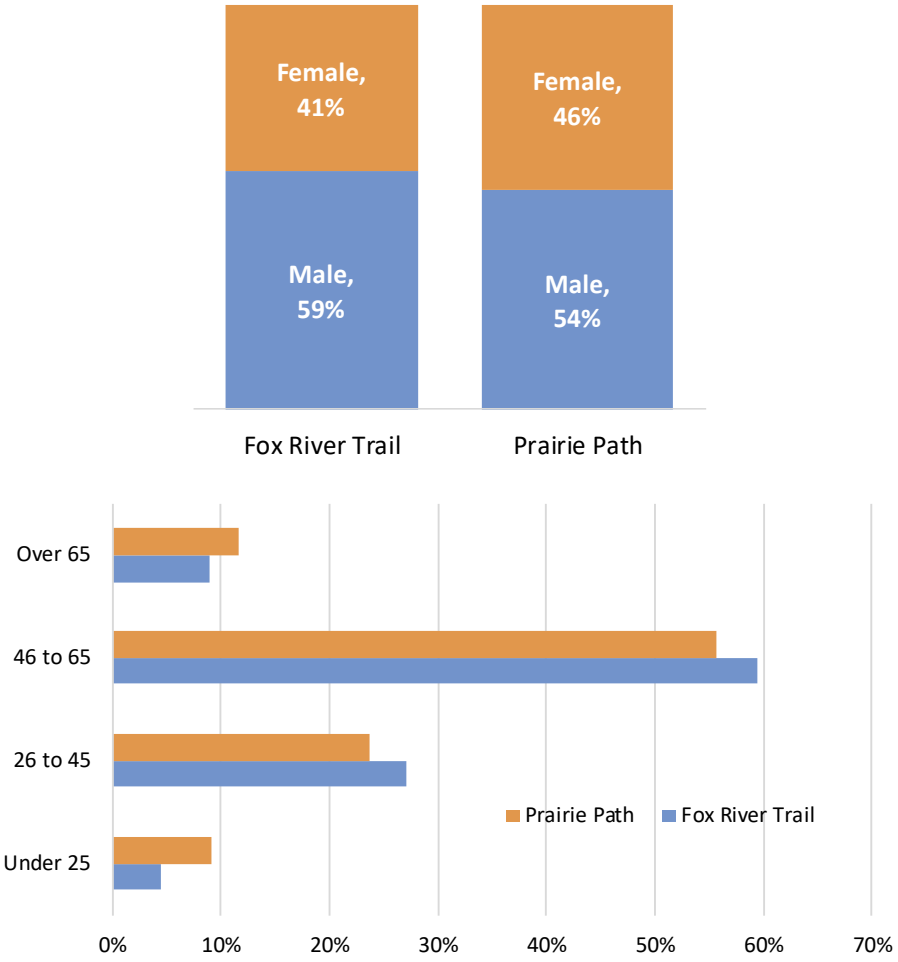

Source: Trails for Illinois, Making Trails Count Surveys

Paths along the eastern portions of the Prairie Path are used by daily commuters and have significantly higher use than more western sections. Daily use is mixed as trails are popular on both week days and weekends.

## Illinois Trail User Survey Results

Volunteers conducted surveys of trail users to identify a demographic profile and other information on trail users and activities. The following figures summarize these results for Fox River Trail and Prairie Path users.

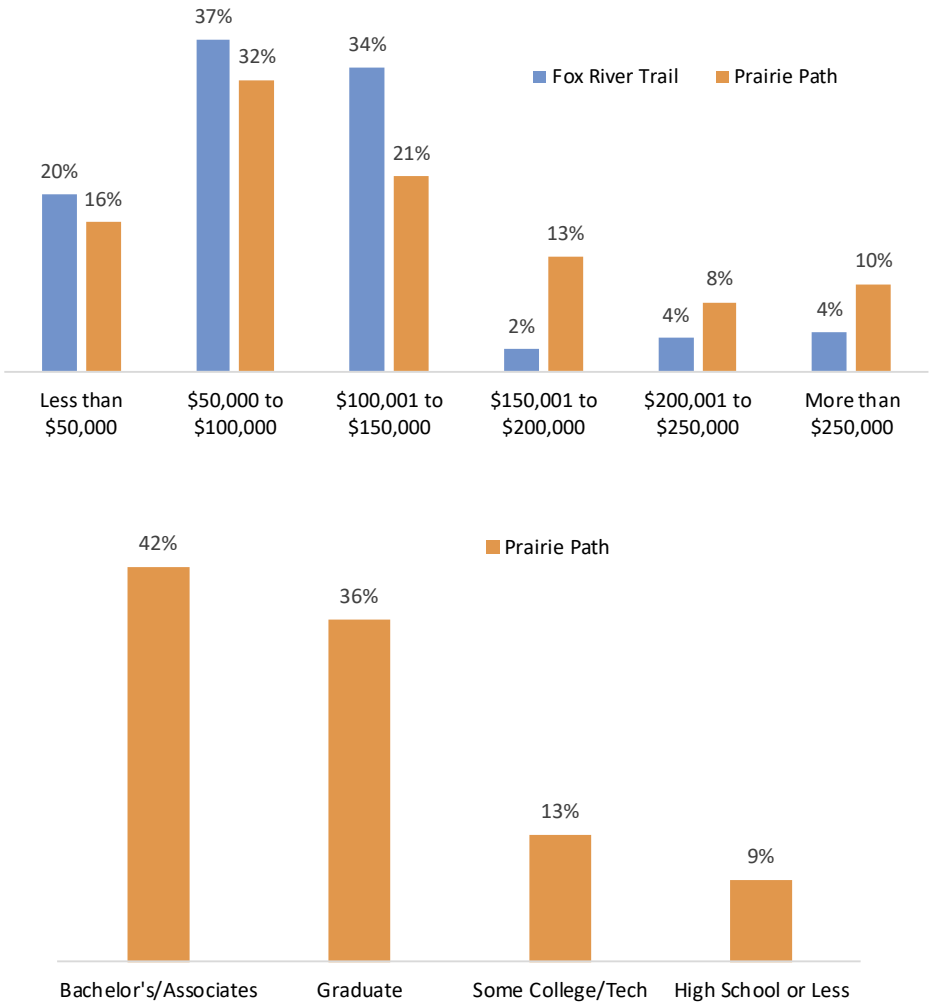
**FIGURE 4-11**
**TRAIL USER GENDER AND AGE**




Source: Trails for Illinois, Making Trails Count Surveys

Trail users are predominantly male and over half are in the 46 to 65 age group.

**FIGURE 4-12**
**TRAIL USER INCOME AND EDUCATION LEVEL**

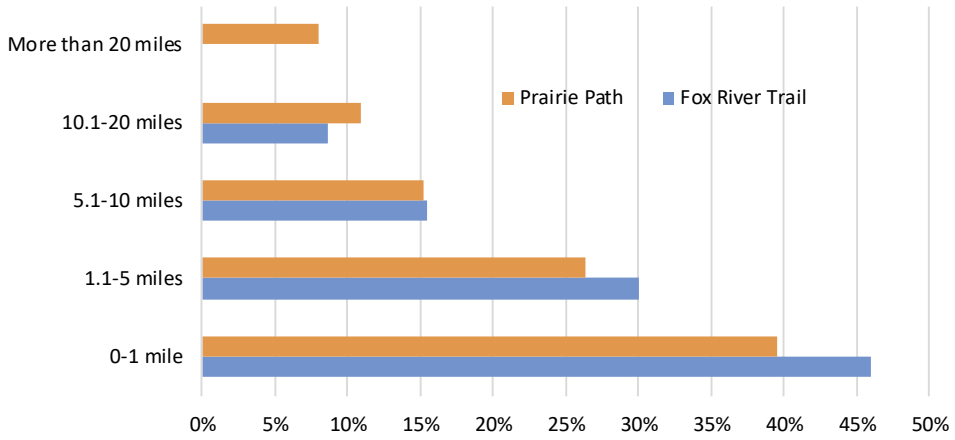



Source: Trails for Illinois, Making Trails Count Surveys

Most Fox River Trail users earn between $50,000 and $150,000 annually. While also true for the Prairie Path, there are a higher percentage of Prairie Path users that earn more than $150,000. While education information is not available for the Fox River Trail, Prairie Path users are predominantly college graduates.

The figure below shows the distance traveled to reach the trails.

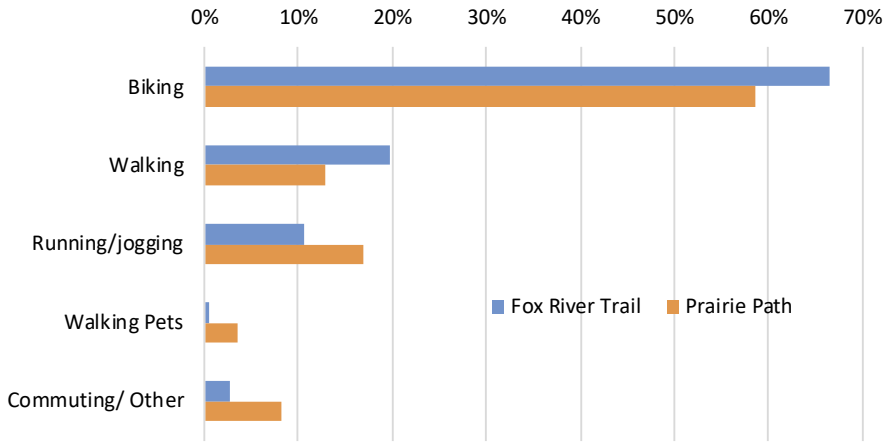
**FIGURE 4-13**
**DISTANCE TRAVELED TO REACH TRAIL**




Source: Trails for Illinois, Making Trails Count Surveys

The percentage of users decreases as their distance to reach the trail increases. The greatest percentage of users arrive from within one mile. Around 8% of Prairie Path users travel more than 20 miles. The figure below shows the types of recreational uses of the trails.

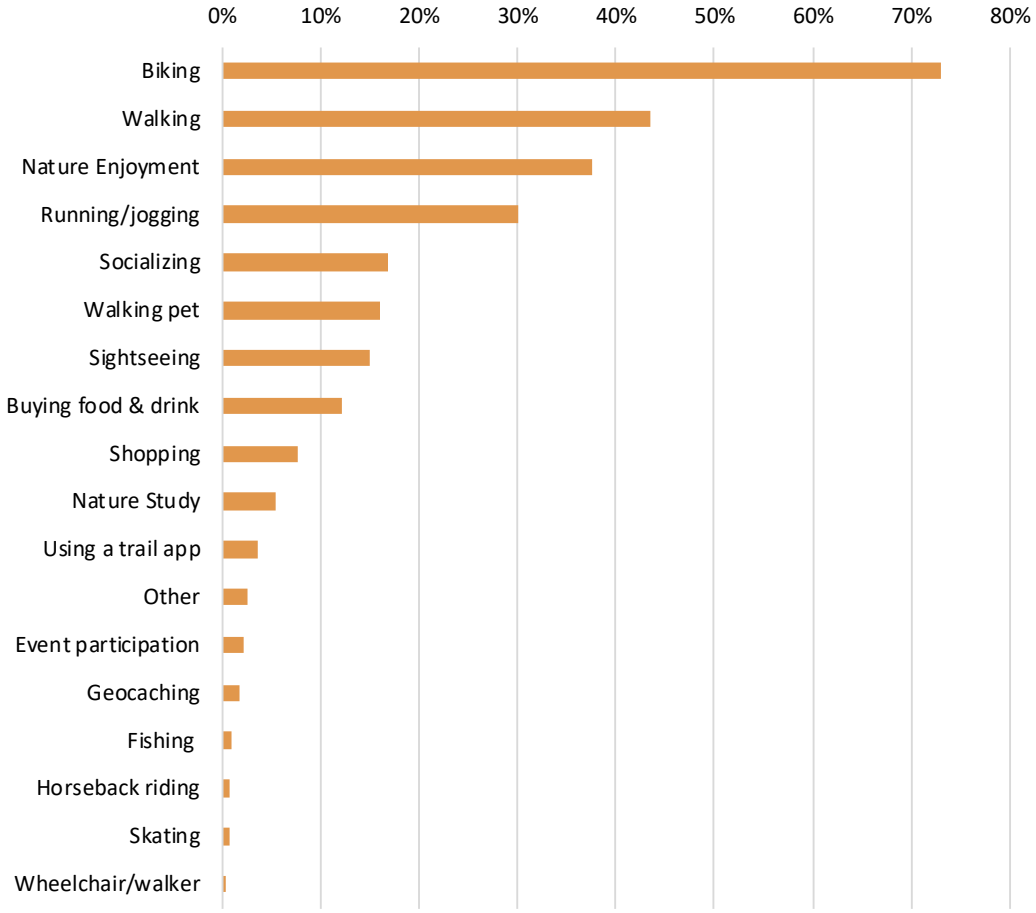
**FIGURE 4-14**
**PRIMARY TRAIL USES**




Source: Trails for Illinois, Making Trails Count Surveys

Bicyclist make up more than half of the trail users with walkers and joggers making up another 30%.

**FIGURE 4-15**
**ALL TRAIL ACTIVITIES**

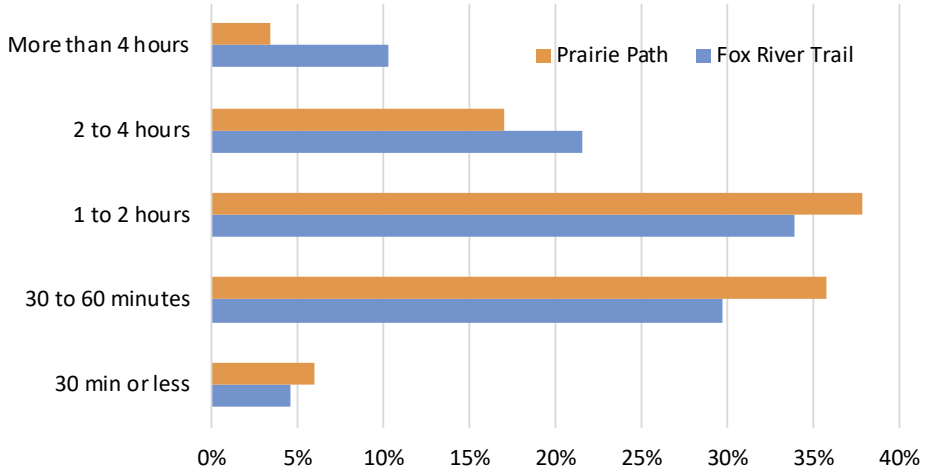



Source: Trails for Illinois, Making Trails Count Surveys

When Prairie Path users were asked to indicate all trail activities in which they participate, they identified over 15 distinct activities.

The figure below shows the estimated average amount of time spent on the trails per visit.

**FIGURE 4-16**
**TIME SPENT ON TRAIL**




Source: Trails for Illinois, Making Trails Count Surveys

Most trail users spend between 30 minutes and two hours on the trail. Around 10% of Fox River Trail users are on the trail for more than four hours.

The survey asked Prairie Path users to state the frequency of their trail use during each of the four seasons. The following figure summarizes this data.

**FIGURE 4-17**
**SEASONAL USE DAYS – ILLINOIS PRAIRIE PATH**

| | Summer | Fall | Spring | Winter |
|---|---|---|---|---|
| 0 days | 4% | 14% | 13% | 45% |
| 1 to 10 days | 24% | 26% | 25% | 25% |
| 11 to 20 days | 17% | 20% | 15% | 12% |
| 20 to 30 days | 15% | 11% | 14% | 7% |
| More than 30 days | 41% | 29% | 32% | 12% |

Source: Trails for Illinois, Making Trails Count Surveys

Trails are used year-round with a significant percentage of users making more than 30 visits in the summer, fall, and spring.

## Conclusions and Implications for Proposed Fox River Corridor

Overall participation in paddle sports is growing. Illinois and surrounding states contain a significant percentage of active participants. The demographic composition and income levels of participants are relatively high in the populations of St. Charles and surrounding communities. Because of its proximity to Chicago and other large population centers, the Active River Project should attract greater visitation than similar facilities in other markets.

Illinoisans make good use of their trail systems for recreation, fitness, and nature enjoyment. Improved connectivity of paths through downtown St. Charles and to regional trail systems should increase visitation to the City.

# 5. Comparable Destinations

This analysis of comparable destinations provides a basis for assessing a proposed building program and forecasting demand. HVS compared the amenities, building programs, and characteristics of the markets relevant to the success of the Active River Project.

Recreational park and whitewater users select where they want to go based on a wide-range of criteria. These factors include the proximity and features of the park, the quality of the whitewater, restaurant and lodging supply, the economic and demographic profile of the community, and overall destination appeal.

HVS analyzed eight attractions and riverfront parks, seven of which feature an element for whitewater users. HVS analyzed the comparable destinations listed in the figure below.

**FIGURE 5-1**
**COMPARABLE DESTINATIONS AND PARKS**

| Comparable Riverfront Parks | City | State |
|---|---|---|
| Bicentennial Riverfront Park | Yorkville | IL |
| Boise Greenbelt | Boise | ID |
| Charles City Riverfront Park | Charles City | IA |
| Chattahoochee RiverWalk | Columbus | GA |
| Confluence Park | Denver | CO |
| East Bank Trail | South Bend | IN |
| Falls Park on the Reedy | Greenville | SC |
| Wasau River District | Wausau | WI |

The amenities and features available in each park are shown in the figure below. Detailed case studies for each park are included at the end of the report in appendix A. The case studies include discussion of activities at the parks, their operations, the funding, and the impact on development in the area.

**FIGURE 5-2**
**COMPARABLE DESTINATION FEATURES**

| Comparable Destination | Location | Year Opened/ Restored | Riverwalk Length (miles) | Connected to Hiking/ Biking | Splash Pad/ Playgrounds | Whitewater | Zip Lines |
|---|---|---|---|---|---|---|---|
| Boise Greenbelt | Boise, ID | 1967 | 25 | ✓ | ✓ | ✓ | |
| Wausau River District | Wasau, WI | 1974 | 2.2 | | | ✓ | |
| East Bank Trail | South Bend, IN | 1984 | 12 | ✓ | ✓ | ✓ | |
| Chattahoochee RiverWalk | Columbus, GA | 1992 | 15 | ✓ | ✓ | ✓ | ✓ |
| Falls Park on the Reedy | Greenville, SC | 2004 | 22 | ✓ | | | |
| Bicentennial Riverfront Park | Yorkville, IL | 2010 | 0.2 | | ✓ | ✓ | |
| Charles City Riverfront Park | Charles City, IA | 2011 | 0.5 | | | ✓ | |
| Confluence Park | Denver, CO | 2017 | 18 | ✓ | | ✓ | |

Source: Respective Venues

## Destination Analysis

The availability of city and park amenities that support visitation and the overall success of the attractions play important roles in recreational and whitewater user decisions. To assess the suitability of a city for the attractions, we defined the destination as the area within the city limits because users will likely travel by car or bicycle and be able to access lodging, retail, and restaurants throughout the city. To assess the suitability of a city's population to use the proposed attractions, we used a 30-minute and 300-minute drive time from the city. Recreational park users will come from the local area and whitewater users from further distances due to the limited number of whitewater parks in the Midwest.

HVS used Esri Business Analyst Online ("Esri") to compare the suitability of the competitive cities as destinations for whitewater and riverfront recreation activities.

Using Esri data, HVS ranked the destinations in the comparable venues on six indicators of destination quality and six indicators of riverfront park use.

- Total Daytime Population— The size of the local area population provides evidence of a community's ability to support public services and visitor amenities, and potential demand for local events.

- 2018 Median Household Income—Median household income provides an overall measure of community's well-being. It indicates the quality of the surrounding neighborhood.

- Storefront Businesses—A sum of the number of Food and Beverage Stores, Clothing and Accessory Stores, Sports, Hobby and Music stores, General Merchandise and Miscellaneous stores. This indicates the presence of retail

shopping, grocery and liquor stores and other destination attractions for visitors.

- Food Service & Drinking Businesses—The number of food service and drinking businesses measures the presence of restaurants, bars and other outlets that support local and tourism visitation.

- Arts, Entertainment & Recreation Businesses —Arts, entertainment and recreation business enhance the quality and attractiveness of a destination.

- Hotel and Lodging Businesses—The quality and proximity of hotel supply represents one of the most important selection factors for those who intend to spend at least one night in St. Charles, as the lodging availability dictates their ability to do so.

- Participation in Mountain Biking (%)—The participation rate for mountain biking in the last twelve months indicates how popular mountain biking is and how many mountain bike users may use the park.

- Participation in Road Biking (%)—The participation rate for road biking in the last twelve months indicates how popular road biking is and how many people may bike to the destination.

- Participation in Freshwater Fishing (%)—The participation rate for fishing in the last twelve months indicates how many people may use the park to fish.

- Participation in Hiking (%)—The participation rate for hiking in the last twelve months indicates how popular hiking is and how many hikers may go through St. Charles on the connected trails.

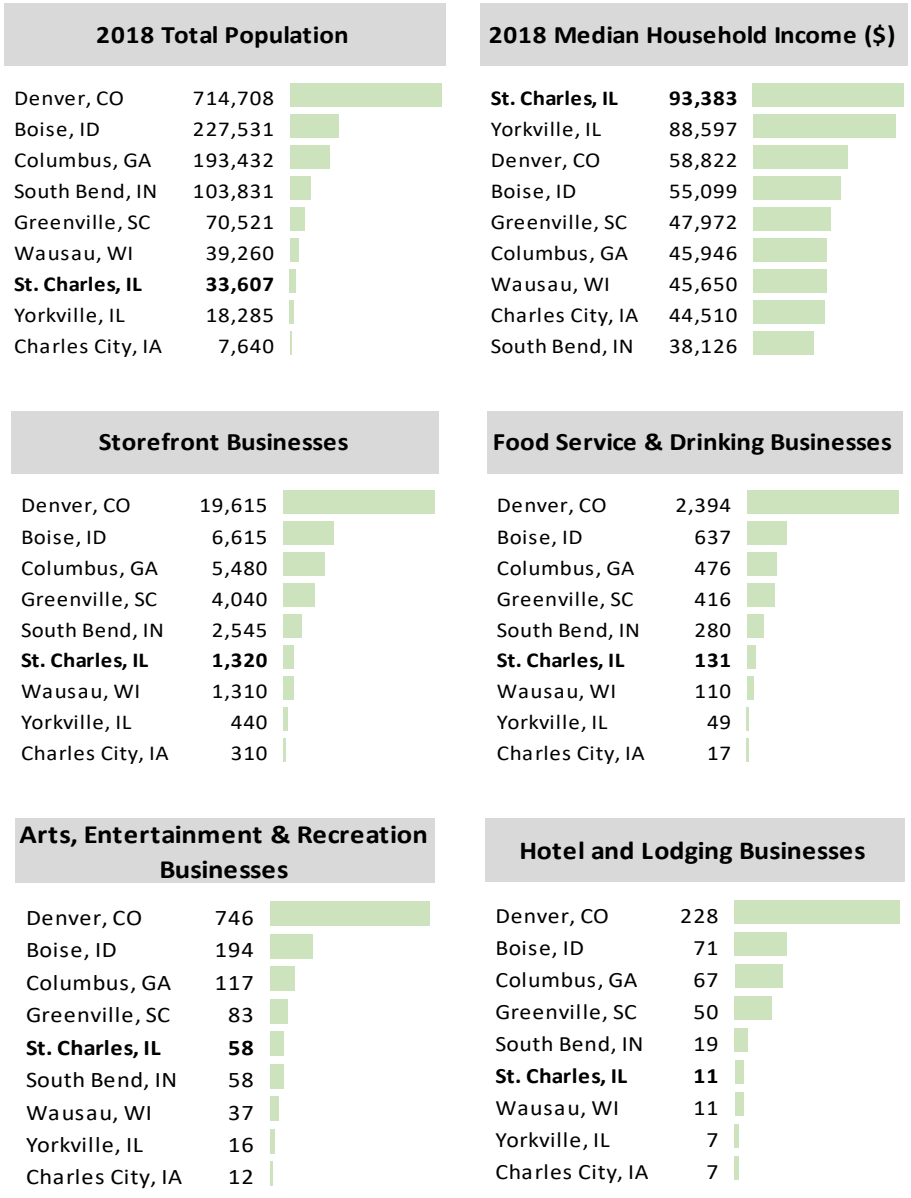
- Participation in Walking for Exercise (%)—The participation rate for walking for exercise in the last twelve months indicates how popular walking is and how many people may walk through the park for exercise.

- Participation in Canoeing/ Kayaking (%)—The participation rate for canoeing and kayaking in the last twelve months indicates how popular canoeing and kayaking is and how many people may canoe or kayak in the recreational or whitewater channels.

The figures below rank St. Charles among the set of comparable venue cities on each of the criteria described above. The participation rates come from a 30-minute drive

time of the city and the participation rate for canoeing and kayaking comes from a 300-minute drive time from the city. All other criteria are taken on a city-wide basis.

**FIGURE 5-3**
**COMPARABLE DESTINATION ANALYSIS**



| Participation in Mountain Biking (%) | |
|---|---|
| Yorkville, IL | 4.74% |
| **St. Charles, IL** | **4.68%** |
| Denver, CO | 4.67% |
| Boise, ID | 4.46% |
| South Bend, IN | 3.74% |
| Greenville, SC | 3.66% |
| Columbus, GA | 3.64% |
| Wausau, WI | 3.55% |
| Charles City, IA | 3.27% |

| Participation in Road Biking (%) | |
|---|---|
| **St. Charles, IL** | **11.65%** |
| Yorkville, IL | 11.41% |
| Denver, CO | 11.20% |
| Boise, ID | 11.17% |
| South Bend, IN | 9.80% |
| Charles City, IA | 9.65% |
| Wausau, WI | 9.51% |
| Greenville, SC | 9.11% |
| Columbus, GA | 9.00% |

| Participation in Freshwater Fishing (%) | |
|---|---|
| Charles City, IA | 17.91% |
| Wausau, WI | 14.69% |
| Greenville, SC | 13.88% |
| South Bend, IN | 13.47% |
| Boise, ID | 12.64% |
| Columbus, GA | 12.27% |
| Yorkville, IL | 11.35% |
| **St. Charles, IL** | **9.97%** |
| Denver, CO | 9.92% |

| Participation in Hiking (%) | |
|---|---|
| **St. Charles, IL** | **14.12%** |
| Denver, CO | 13.99% |
| Yorkville, IL | 13.82% |
| Boise, ID | 13.41% |
| Greenville, SC | 11.34% |
| Wausau, WI | 10.92% |
| South Bend, IN | 10.81% |
| Columbus, GA | 10.67% |
| Charles City, IA | 8.72% |

| Participation in Walking for Exercise (%) | |
|---|---|
| **St. Charles, IL** | **27.32%** |
| Yorkville, IL | 26.80% |
| Boise, ID | 26.56% |
| Denver, CO | 26.06% |
| Wausau, WI | 24.37% |
| Charles City, IA | 24.14% |
| Greenville, SC | 24.03% |
| South Bend, IN | 23.49% |
| Columbus, GA | 21.82% |

| *Participation in Canoeing/ Kayaking (%) | |
|---|---|
| **St. Charles, IL** | **7.22%** |
| Yorkville, IL | 7.17% |
| Boise, ID | 7.02% |
| Denver, CO | 6.99% |
| Wausau, WI | 6.99% |
| South Bend, IN | 6.95% |
| Greenville, SC | 6.72% |
| Charles City, IA | 6.32% |
| Columbus, GA | 6.26% |

Source: Esri

## Summary of Destination Indicators

While St. Charles has a smaller population than most of the comparable cities, it benefits from its proximity to the Chicago metro area. The population is nearly twice the size of Yorkville and is only slightly smaller than the population of Wausau. St. Charles has the highest median household income, well above all cities besides Yorkville, and a middling number of businesses, but consistently more than Yorkville, Wausau, and Charles City.

The sport participation rates are strong- fishing and mountain biking are the only categories where St. Charles did not have the highest participation rate among the comparable set in the last twelve months, and the participation rate for mountain biking is the second highest among the comparable set.

## Destination Ranking

To assess the relative strength of each destination, HVS calculated a score for each area's ranking within the criteria. Destination quality criteria were weighted to reflect their importance to park users.

Besides the twelve Esri categories discussed above, a cost index was included as a criterion to calculate the aggregate ranking of cities. The cost index is from the Bureau of Economic Analysis and uses the Regional Price Parity (RPP) statistic. RPP is based on a combination of price quotas from the Consumer Price Index and rent data from the American Community Survey. It provides a general indication of the cost of goods and services in that destination along with the cost of food, lodging, and entertainment.

Each criterion was weighted based on its influence on park attendance and use. The median household income, population, and participation in kayaking and canoeing were weighted the highest (5). Larger populations and those with more disposable income are more likely to spend and spend more on recreation and activities, such as hiking, stand-up paddle boarding, and whitewater kayaking and canoeing. The participation rate for canoeing and kayaking was weighted high (5) because whitewater is the main attraction and having a local population to reliably use the whitewater is important.

The mountain and road biking participation rates were weighted low (2) because these uses are not directly related to the riverfront development and the trails. The cost index is also weighted low (2) because whitewater users are not very price sensitive. If a whitewater park is of sufficient quality, users will be willing to go to the park and spend slightly more on food or lodging.

## FIGURE 5-4
## RANK ON ALL DESTINATION CRITERIA

| Weight (1 to 5) | 2 | 3 | 3 | 3 | 4 | 4 | 2 | 2 | 4 | 5 | 5 | 5 | 2 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| City | Hotel and Lodging Businesses | Food Service & Drinking Businesses | Arts, Entertainment & Recreation Businesses | Storefront Businesses | 2018 Total Population | 2018 Median Household Income ($) | Participation in Mountain Biking (%) | Participation in Road Biking (%) | Participation in Freshwater Fishing (%) | Participation in Hiking (%) | Participation in Walking for Exercise (%) | Participation in Canoeing/ Kayaking (%) | Cost Index | Weighted Destination Score |
| Denver, CO | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.37 | 0.95 | 0.83 | 0.00 | 0.98 | 0.77 | 0.76 | 0.00 | 0.746 |
| Boise, ID | 0.29 | 0.26 | 0.25 | 0.33 | 0.31 | 0.31 | 0.81 | 0.82 | 0.34 | 0.87 | 0.86 | 0.79 | 0.61 | 0.511 |
| **St. Charles, IL** | **0.02** | **0.05** | **0.06** | **0.05** | **0.04** | **1.00** | **0.96** | **1.00** | **0.01** | **1.00** | **1.00** | **1.00** | **0.11** | **0.495** |
| Yorkville, IL | 0.00 | 0.01 | 0.01 | 0.01 | 0.02 | 0.91 | 1.00 | 0.91 | 0.18 | 0.94 | 0.91 | 0.95 | 0.11 | 0.466 |
| Greenville, SC | 0.19 | 0.17 | 0.10 | 0.19 | 0.09 | 0.18 | 0.27 | 0.04 | 0.50 | 0.49 | 0.40 | 0.48 | 0.94 | 0.300 |
| South Bend, IN | 0.05 | 0.11 | 0.06 | 0.12 | 0.14 | 0.00 | 0.32 | 0.30 | 0.44 | 0.39 | 0.30 | 0.72 | 1.00 | 0.291 |
| Wausau, WI | 0.02 | 0.04 | 0.03 | 0.05 | 0.04 | 0.14 | 0.19 | 0.19 | 0.60 | 0.41 | 0.46 | 0.76 | 0.84 | 0.290 |
| Columbus, GA | 0.27 | 0.19 | 0.14 | 0.27 | 0.26 | 0.14 | 0.25 | 0.00 | 0.29 | 0.36 | 0.00 | 0.00 | 0.96 | 0.220 |
| Charles City, IA | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.12 | 0.00 | 0.25 | 1.00 | 0.00 | 0.42 | 0.06 | 0.81 | 0.187 |

## Conclusions and Implications for St. Charles

St. Charles scores third-highest in the aggregate destination score, only behind two state capitals. The participation rates are high for almost every activity and while the city-wide measures do not look impressive, they are skewed by Denver being included in the set. Yorkville scores slightly below St. Charles, but there is some overlap in 30-minute and 5-hour drive times, so the participation rates will be similar. St. Charles also scores above Yorkville in the citywide categories. As a destination, and especially for the proposed attractions of whitewater, St. Charles scores well relative to the comparable set.

# 6. Demand and Attendance Projections

HVS based demand projections for the proposed Active River Project on the following research and analysis:

- The building program presented in Section 2,
- Historical demand for riverfront activities,
- Industry data and trends reports,
- Key market and economic indicators outlined in Section 3,
- Comparable venue program and demand data,
- Interviews with whitewater venue users and operators, and
- Discussions with representatives from the Greater St. Charles Convention & Visitors Bureau, St. Charles Park District, and the city of St. Charles.

In developing the demand projections, HVS assumes that the building program described in this report is completed by January 1, 2024. HVS estimates that event demand would stabilize in the third year of operation—calendar year 2027.

For the purpose of this analysis, demand projections include events which would take place at the Riverfront Park, as well as in the adjacent downtown area of St. Charles. The projections also include park attendees, which are broken down by their principal use of the Active River Project.

## Historical Demand

The City of St. Charles and the St. Charles Park District provided HVS with a summary of the number of events and total attendance that occurred downtown or along the existing riverfront parks in 2018. This was supplemented with other interviews, market research, and industry trends. The following figure summarizes the events and estimated attendance for the past year.

**FIGURE 6-1**
**2018 SUMMARY OF DEMAND HISTORY**

| Event Type | Number | Unit |
|---|---|---|
| **Events** | | |
| Other Boating | 30 | Active Weeks |
| Fishing | 30 | Active Weeks |
| Parks & Playgrounds | 52 | Active Weeks |
| Trails | 52 | Active Weeks |
| River Competitions | 2 | Events |
| Festivals & Events | 8 | Events |
| **Total** | 174 | |
| **Visitors** | | |
| Other Boating | 200 | Per Week |
| Fishing | 50 | Per Week |
| Parks & Playgrounds | 1,400 | Per Week |
| Trails | 800 | Per Week |
| River Competitions | 200 | Per Event |
| Festivals & Events | 181,200 | Per Event |
| **Total** | 183,850 | |

All events except for river competitions and festivals & events are counted in active weeks. Boaters and people fishing use the river approximately 30 weeks of the year. Parks, playgrounds, and trails are used year-round. St. Charles hosts two annual rowing and canoe competitions on the river and eight downtown festivals, including Scarecrow Fest, St. Charles Live, and July 4th weekend.

The estimated number of visitors is based on event attendance data, interviews with Park District representatives, and other market research. We based other boating and parks and playground attendance on the number of boat launches and rentals from Pottawatomie Park, as well as the number of pavilion rentals per year. We relied on the "Making Trails Count" user survey of Illinois Prairie Path and Fox River Trail users in 2012 and 2013 to estimate the number of trail visitors. River competition attendance estimates are based on conversations with the St. Charles Canoe Club. Festival and event attendance is based on data from the Greater St. Charles Convention & Visitors Bureau.

## Demand Projections

The proposed attractions would allow downtown and riverfront utilization to grow by increasing the types and number of potential users. In developing demand projections, HVS considered the following:

- The riverfront park would be built to the Alternative Two or Three scenario specifications as shown in the WBK engineering feasibility study. These

alternatives have separate recreational and whitewater channels. (See Appendix B.)

- A zip line would run across the river, over both the recreational and whitewater channels and would be properly staffed and managed.

- The whitewater course would be properly constructed and maintained with adequate support structures and changing areas for users, and would be able to host small whitewater competitions.

- The riverfront trail would connect under Main Street and would connect to other St. Charles parks, as well as the Great Western Trail and Fox River Trail.

- The riverfront park would be completed by January 1, 2024.

The number of events are counted in weeks that activity is available except for river competitions and festivals and events. Total and average attendance figures represent individual attendees.

The figure below breaks out projections by type of use.

**FIGURE 6-2**
**SUMMARY OF DEMAND PROJECTIONS**

| | Base Year | Opening | | | Stabilized |
|---|---|---|---|---|---|
| | 2019 | 2024 | 2025 | 2026 | 2027 |
| **Activity** (Number of Weeks or Events) | | | | | |
| Whitewater Channel | 0 | 30 | 30 | 30 | 30 |
| Recreation Channel | 0 | 30 | 30 | 30 | 30 |
| Zip Line | 0 | 30 | 30 | 30 | 30 |
| Other Boating | 30 | 30 | 30 | 30 | 30 |
| Fishing | 30 | 30 | 30 | 30 | 30 |
| Parks & Playgrounds | 52 | 52 | 52 | 52 | 52 |
| Trails | 52 | 52 | 52 | 52 | 52 |
| River Competitions * | 2 | 3 | 3 | 4 | 5 |
| Festivals & Events * | 8 | 8 | 9 | 9 | 10 |
| **Total** | 174 | 265 | 266 | 267 | 269 |
| **Visitors** | | | | | |
| Whitewater Channel | 0 | 16,000 | 15,000 | 15,000 | 14,000 |
| Recreation Channel | 0 | 11,000 | 10,250 | 8,500 | 7,000 |
| Zip Line | 0 | 10,000 | 9,500 | 9,250 | 9,000 |
| Other Boating | 210 | 280 | 330 | 360 | 360 |
| Fishing | 50 | 80 | 100 | 110 | 120 |
| Parks & Playgrounds | 1,400 | 2,700 | 2,500 | 2,340 | 2,340 |
| Trails | 800 | 1,100 | 1,275 | 1,450 | 1,560 |
| River Competitions | 200 | 600 | 600 | 800 | 1,000 |
| Festivals & Events | 181,200 | 181,200 | 203,850 | 203,850 | 226,500 |
| **Total** | 183,860 | 222,960 | 243,405 | 241,660 | 261,880 |
| **Occupied Room Nights** | | | | | |
| Whitewater Channel | 0 | 800 | 750 | 750 | 500 |
| **Total** | 0 | 800 | 750 | 750 | 500 |

*Number of events.

HVS estimates that incremental event demand for the whitewater channel, the recreational channel and the zip lines experience a novelty effect and trend slightly downward following the opening of the park. Other sources of demand will grow as the Active River Project gains notoriety or the number of events increase. For the purposes of this study, we assume demand will stabilize in 2027.

## Whitewater Channel Projections

**Whitewater Channel—**Due to weather constraints, the whitewater channel will be accessible for 30 weeks of the year. Approximately 700 canoe and kayak enthusiasts could use the park per available weekend, based on a penetration analysis of the St. Charles area and comparable whitewater demand below.

Estimates of demand at three comparable whitewater venues provided a basis for an analysis of market penetration. These venues are in South Bend, IN, Columbus GA, and Wausau, WI. Based on annual visits to these parks we estimated the market capture of the population within four drive-time distances.

The figure below summarizes this market capture analysis.

**FIGURE 6-3**
**COMPARABLE WHITEWATER DEMAND**

| | Population 18+ | Part. % | Potential Users | Capture % | Visits per Year | Annual Visits |
|---|---|---|---|---|---|---|
| **South Bend, IN** | | | | | | |
| 15 min | 136,506 | 6.69% | 9,127 | 20% | 3 | 5,476 |
| 15-30 min | 157,569 | 7.12% | 11,218 | 10% | 2 | 2,244 |
| 30-60 min | 491,881 | 6.94% | 34,141 | 1% | 1 | 341 |
| 1-5 hours | 33,213,653 | 6.95% | 2,307,067 | 0.1% | 1 | 2,307 |
| | | | | | | 10,368 |
| **Wausau, WI** | | | | | | |
| 15 min | 50,109 | 7.25% | 3,632 | 10% | 2 | 726 |
| 15-30 min | 49,507 | 7.61% | 3,767 | 5% | 1 | 188 |
| 30-60 min | 174,534 | 7.50% | 13,094 | 0.5% | 1 | 65 |
| 1-5 hours | 16,180,980 | 7.03% | 1,137,179 | 0.1% | 1 | 682 |
| | | | | | | 1,663 |
| **Columbus, GA** | | | | | | |
| 15 min | 142,710 | 5.76% | 8,217 | 45% | 6 | 22,186 |
| 15-30 min | 99,284 | 6.23% | 6,184 | 30% | 4 | 7,421 |
| 30-60 min | 234,212 | 6.34% | 14,859 | 10% | 2 | 2,972 |
| 1-5 hours | 17,612,570 | 6.26% | 1,102,231 | 0.2% | 1 | 2,204 |
| | | | | | | 34,784 |

Source: Esri

The three comparable parks offer different operating models, resulting in different parameters for capture percent and visits per year.

- The East Race Waterway in South Bend is operated by the city during the summer months and requires lifeguards and full staffing, as users pay each use of the artificial whitewater channel.

- The Wausau Whitewater Park is open for a few weekends a year. A dam must be opened to allow water to flow through the park, and an energy

company must be reimbursed for the lost revenue. When in operation, the park has hosted multiple national competitions.

- The whitewater feature on the Chattahoochee Riverwalk is much larger than either of the other two parks, and the flow of water is controlled through the rapids via a dam, which enables beginners and advanced users to use the same runs at different times.

Application of similar market penetration and capture rates to the populations surrounding St. Charles generates a projection of the potential users and annual visits for the whitewater feature. See the figure below.

**FIGURE 6-6**
**ST. CHARLES WHITEWATER DEMAND**

| | Population 18+ | Part. % | Potential Users | Capture % | Visits per Year | Annual Visits |
|---|---|---|---|---|---|---|
| 15 min | 126,815 | 8.43% | 10,688 | 25% | 3 | 8,016 |
| 15-30 min | 638,252 | 6.99% | 44,635 | 10% | 2 | 8,927 |
| 30-60 min | 2,603,939 | 8.43% | 219,461 | 1.5% | 1 | 3,292 |
| 1-5 hours | 21,948,576 | 6.98% | 1,531,722 | 0.1% | 1 | 1,532 |
| | | | | | | 21,767 |

Source: Esri

The whitewater feature in St. Charles will be most like the Chattahoochee RiverWalk in Columbus, GA, but will have to compete with Bicentennial Park in Yorkville, which is why the projected capture percentage for the areas under a 30-minute drive are lower than in Columbus. The whitewater channel itself will be smaller than the whitewater element in Columbus. HVS projects that the whitewater elements will attract approximately 22,000 annual visits, approximately 700 users per weekend during 30 weeks per year. Half of those users will be advanced enough to use the whitewater channel exclusively. We expect whitewater use will be high initially as there is a novelty effect with whitewater parks.

**Recreation Channel**—Recreation channel users include stand-up paddleboarders, canoe and kayakers, and beginning whitewater canoe and kayakers. We expect recreational channel initial use will be higher than stabilized annual use due to a novelty effect.

HVS projects that 350 canoe and kayakers will use the recreation channel per weekend and that 90 stand-up paddleboarders will use the recreation channel. We projected a paddleboard participation rate of 1.2% based on the 2018 outdoor recreation report from the Outdoor Foundation. The figure below shows the estimates of paddleboarder visitation.

**FIGURE 6-4**
**ST. CHARLES STAND-UP PADDLEBOARD DEMAND**

| | Population 18+ | Part. % | Potential Users | Capture % | Visits per Year | Annual Visits |
|---|---|---|---|---|---|---|
| 15 min | 126,815 | 1.20% | 1,522 | 14% | 5 | 1,065 |
| 15-30 min | 638,252 | 1.20% | 7,659 | 7% | 3 | 1,494 |
| 30-60 min | 2,603,939 | 1.20% | 31,247 | 1% | 1 | 156 |
| | | | | | | 2,715 |

Source: Esri

**Zip Line**— A zip line across the river would operate for 30 weeks a year, or as long as staffing is financially feasible. It is likely that seasonal summer employees will need to be hired to work the zip line, and once the seasonal labor leaves, employing enough staff to operate the zip line may not be financially feasible. The zip line at the Chattahoochee RiverWalk is used approximately 15,000 times a year, this was adjusted downward due to the reduced scale of the riverfront park in St. Charles and the reduced size of the zip line. Due to a novelty effect, zip line demand will initially be higher than stabilized demand.

**Other Boating**—Other boating users include powerboat users who would use the river during 30 weeks of the year. Data on boat rentals and launches tracked by the St. Charles Park District provided a basis for the estimate of users. Park District staff indicated that the boat launches were popular and HVS expects the number of boating users to increase once the park is opened.

**Fishing**—Based on conversations with the Greater St. Charles CVB, the Park District, and other stakeholders, we estimate 30 weeks of utilization. The number of people fishing is likely to grow as the dam removal would improve the riparian habitat will increase biodiversity, improve the ecology of the Fox River, and increase fish populations.

**Parks & Playgrounds**—Based on conversations with the St. Charles Park District, we estimate year-round utilization, which includes pavilion rentals and regular users. HVS expects the number of parks and playground users to increase as park connectivity is improved and the children's natural play area is installed.

**Trails—**Hikers following the Great Western Trail and Fox River Trail will pass through St. Charles year-round. HVS used trail survey data to track the current number of hikers going through St. Charles and expects that number to increase as trail connectivity is improved.

**River Competitions**—Rowing and canoe competitions currently hosted on the Fox River attract competitors and spectators from a wide area. The addition of a

whitewater channel would allow for slalom or freestyle whitewater competitions, depending on the quality and type of course construction. Leaders of the St. Charles Canoe Club indicated that approximately 200 people attend the current competitions and HVS expects that number to increase as the riverfront becomes more pedestrian and spectator friendly.

**Festivals & Events—**A variety of holiday events occur in St. Charles such as Scarecrow Fest, St. Charles Live, the Fine Arts Festival, and Holiday Homecoming. The St. Charles CVB and Downtown St. Charles Partnership provided attendance data and expects average attendance to continue at historic levels, as the number of festivals increases. The Illinois Whitewater Festival, currently held in Yorkville, may move to St. Charles and other whitewater events may also relocate.

# 7. Economic Impact Analysis

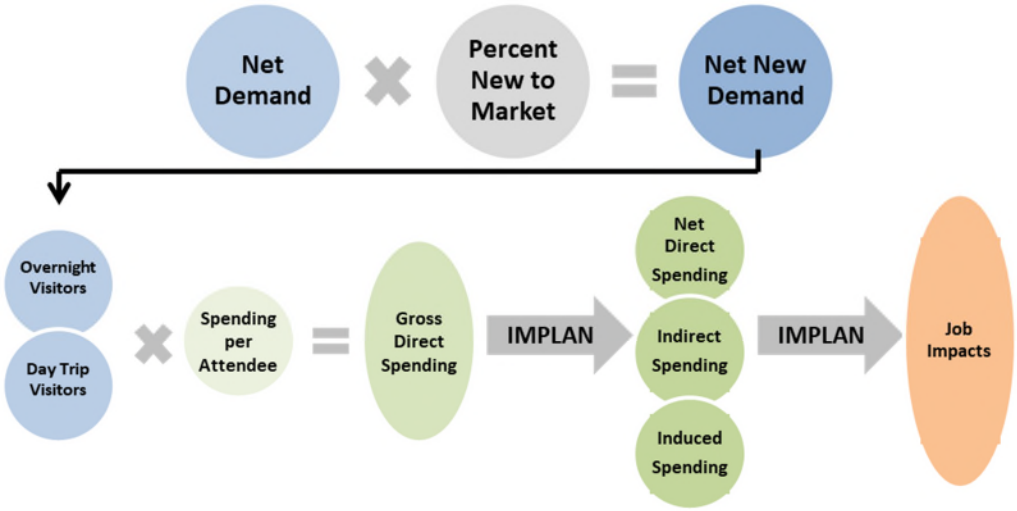
Based on the demand projections presented in this report, HVS identified the new spending that would occur in the local economy due to the proposed development of the Active River Project. HVS estimated the amounts of income and employment that new visitors, users, and competitors would generate in St. Charles, IL.

The Active River Project could be an important contributor to the revitalization in downtown St. Charles. Improvements to the riverfront would increase land values and could stimulate the development of under used land. HVS estimated the potential change in land values and the amounts of new property tax revenues that could be generated by downtown redevelopment. It is not possible to quantify the extent to which downtown redevelopment activity would be directly attributable to the Active River Project.

## Methodology

The figure below illustrates our method for estimating spending impacts.

**FIGURE 7-1**
**METHODOLOGY FOR ECONOMIC IMPACT**



HVS estimated future visitation for each of the components of the Active River Project. The percent of visitors that come from outside the market area (net new demand) would be new to the City of St. Charles. Using survey results and other sources of information, we estimated spending per visitor or attendee to calculate gross direct spending or income imported into the market. Gross direct spending provides the inputs into the IMPLAN model of the local area economy.

## Direct, Indirect, and Induced Spending

Spending falls into three categories:

- **Direct spending** includes the new spending of visitors. For example, a visitor's expenditure on a restaurant meal is a direct spending impact. Direct spending includes only new spending that originates from outside the area. Spending by visitors who live within the market area is a transfer of income from one sector of the area's economy to another; therefore, this analysis does not count spending by local residents as a new economic impact.
- **Indirect spending** follows from the business spending resulting from the initial direct spending. For example, a visitor's direct expenditure on a restaurant meal causes the restaurant to purchase food and other items from suppliers. The portion of these restaurant purchases that remain within the city of St. Charles count as indirect impacts.
- **Induced spending** reflects the change in local consumption due to the personal spending by employees whose incomes change from direct and indirect spending. For example, a waiter at a local restaurant may have more personal income as a result of a visitor dining at the restaurant. The amount of the increased income that the waiter spends in the local economy is an induced impact.

HVS used the IMPLAN input-output model of the local economy to estimate indirect and induced spending. The sum of direct, indirect, and induced spending estimates make up the total estimated spending impact of the Active River Project. Some refer to indirect and induced impacts as multiplier effects. The relationship between direct spending and the multiplier effects vary based upon the specific size and characteristics of a local area's economy.

## Sources of Direct Spending

HVS identified six sources of new direct spending:

- **Overnight Whitewater Visitors**: Whitewater channel users who require overnight lodging in a St. Charles hotel. Overnight whitewater hotel spending includes spending on meals, groceries, gas, shopping, lodging, and recreation and entertainment. Spending on equipment purchase or rental is not included because overnight whitewater users typically bring their own equipment.

- **Overnight Whitewater Campers**: Whitewater channel users who choose to camp instead of staying in a hotel in St. Charles. Our research shows that approximately half of overnight whitewater users prefer camping to a hotel. Overnight whitewater camper spending patterns are the same as overnight whitewater visitors except for hotel spending.
- **Whitewater Day-Trippers**: Visitors to the whitewater channel who do not require paid lodging. Day-trippers who come to St. Charles for the whitewater typically spend money on meals, shopping, gas, groceries, recreation and entertainment while in town. Spending on equipment purchase or rental is not included.
- **Recreational Channel Day-Trippers**: Recreational channel users who do not require paid lodging. Day-trippers who come to St. Charles for the recreation channel typically spend money on meals, shopping, gas, groceries, recreation and entertainment while in town. Spending on equipment is included because these users are unlikely to bring their own equipment.
- **Shore Day-Trippers:** Shore users include zip line and playground users, river competition and festival attendees, and boaters and fishermen. They typically spend on meals, shopping, and recreation and entertainment.
- **Trail Users:** Trail users pass through St. Charles on the Fox River Trail or Great Western Trail. They typically spend on meals, shopping, gas, and recreation and entertainment.

Estimation of new spending of each of these sources involves three sets of assumptions: 1) the number of new visitors to the market, 2) the geographic location of their spending, and 3) the amounts typically spent by each of the sources.

## New Visitors

HVS estimated the percentage of each visitor type that would come from outside the market rather than from the local area. The spending estimates only include new visitor spending because non-residents import income, whereas residents transfer income already in the market area.

- Overnight Whitewater Visitors – HVS estimates that 95% of overnight whitewater visitors, staying in hotels or camping, come from outside St. Charles. Some overnight visitors may stay with friends and family or outside the market.
- Whitewater Day-Trippers – HVS estimates that 95% of day trip whitewater visitors come from outside St. Charles.

- Recreational Channel Day-Trippers – Based on the share of population within a 30-minute drive-time, HVS estimates that 33% of daytrip visitation will be new to St. Charles. .

- Shore Day-Trippers: – Based the share of population within a 30-minute drive-time, HVS estimates 33% of daytrip visitation will be new to St. Charles.

- Daytrip Trail: HVS estimates 25% of trail users will be new to St. Charles.

The product of the visitor forecasts and the percent of demand new to the market yields an estimate of the sources of impact shown in the table below. That is:

*Overnight Whitewater Visitors X Percent New = New Overnight Stays*

*Whitewater Day-Trippers X Percent New = New Whitewater Daytrips*

*Recreational Channel Day-Trippers X Percent New = New Recreational Channel Trips*

*Shore Day-Trippers X Percent New = New Shore Daytrips*

*Trail Users X Percent New = New Trail Daytrips*

The figure below shows the annual number of new visitors to St. Charles that generate new spending.

**FIGURE 7-2**
**SUMMARY OF NEW ANNUAL VISITATION**

| Demand Type | Overnight Whitewater Visitors | Overnight Whitewater Campers | Whitewater Day-Trippers | Recreational Channel Day-Trippers | Shore Day-Trippers | Trail Users |
|---|---|---|---|---|---|---|
| Whitewater Channel | 240 | 240 | 12,900 | 0 | 0 | 0 |
| Recreation Channel | 0 | 0 | 0 | 2,300 | 0 | 0 |
| Zip Line | 0 | 0 | 0 | 0 | 3,000 | 0 |
| Other Boating | 0 | 0 | 0 | 0 | 50 | 0 |
| Fishing | 0 | 0 | 0 | 0 | 20 | 0 |
| Parks & Playgrounds | 0 | 0 | 0 | 0 | 300 | 0 |
| Trails | 0 | 0 | 0 | 0 | 0 | 200 |
| River Competitions | 0 | 0 | 0 | 0 | 300 | 0 |
| Festivals & Events | 0 | 0 | 0 | 0 | 14,900 | 0 |
| Total | 240 | 240 | 12,900 | 2,300 | 18,570 | 200 |

## Spending Parameters

Delegates, attendees, event organizers, and exhibitors spend locally on lodging, meals, local transportation, facility rentals, vendor services, meeting room rentals, equipment rentals, and other goods and services.

To estimate the spending for overnight and day trip visitors, HVS used the results of several whitewater tourism spending data sources.

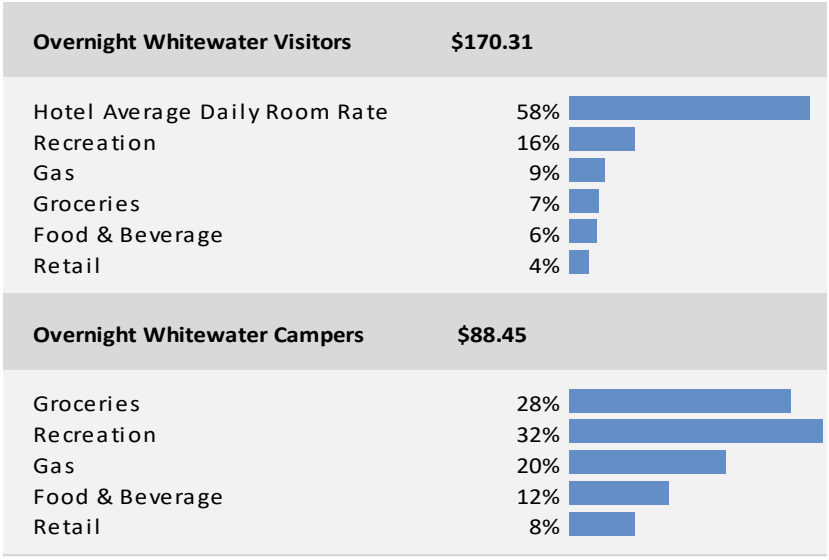
- A whitewater spending survey conducted in 2011 by the University of Idaho at Kelly's Whitewater Park in Cascade, ID. This quantitative survey includes 243 whitewater participants and generated daily, per-person spending estimates.

- A spending survey by Trails for Illinois in 2012, which asked 789 trail users about their spending while using the trails.

- The Corporate Travel Index ("CTI") used to adjust spending levels in national surveys to Chicago area spending levels.

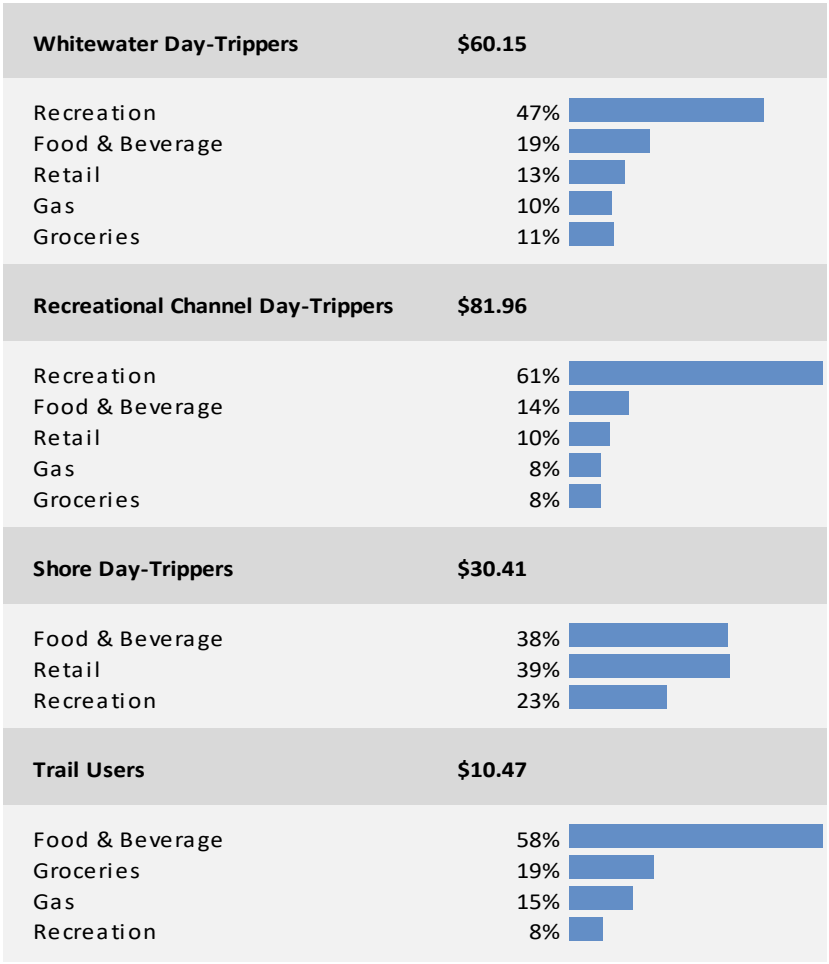
All spending parameters are stated as the daily spending by individual overnight visitors and day-trippers in 2019 dollars. The following figures present the direct spending estimates for each spending category.

**FIGURE 7-3**
**OVERNIGHT WHITEWATER SPENDING**




Sources: 2011 Economic Impact of Kelly's Whitewater Park in Cascade, ID, Trails for Illinois 2013

**FIGURE 7-4**
**DAYTRIP SPENDING**




Sources: 2011 Economic Impact of Kelly's Whitewater Park in Cascade, ID, Trails for Illinois 2013

## Gross Direct Spending

HVS applied the previous sources of spending impacts and spending parameters to estimate gross direct spending for a stabilized year. See the figure below.

**FIGURE 7-5**
**GROSS DIRECT SPENDING**

| Visitor Type | Number of New Visitors | | | Daily Spending | | Total Spending (Thousands) |
|---|---|---|---|---|---|---|
| **Overnight Whitewater Visitors** = | 240 | overnight visitors | x | $170.31 | = | $40.9 |
| **Overnight Whitewater Campers** = | 240 | overnight visitors | x | 88.45 | = | $21.2 |
| **Whitewater Day-Trippers** = | 12,900 | daytrip visitors | x | 60.15 | = | $775.9 |
| **Recreational Channel Day-Trippers** = | 2,300 | daytrip visitors | x | 81.96 | = | $188.5 |
| **Shore Day-Trippers** = | 18,570 | daytrip visitors | x | 30.41 | = | $564.8 |
| **Trail Users** = | 200 | daytrip visitors | x | 10.47 | = | $2.1 |
| | | | | **Total Gross Direct Spending** | = | $1,593 |

## IMPLAN Impact Modeling

HVS uses the IMPLAN input-output model to estimate indirect and induced spending and employment impacts. IMPLAN is a nationally recognized model developed at the University of Minnesota and commonly used to estimate economic impacts. An input-output model generally describes the commodities and income that normally flow through the various sectors of a given economy. The indirect and induced spending and employment effects represent the estimated changes in the flow of income, goods, and services caused by the estimated direct spending. The IMPLAN model accounts for the specific characteristics of the local area economy and estimates the share of indirect and induced spending that it would retain.

HVS categorized new direct expenditures into spending categories that we provide inputs into the IMPLAN model. Specifically, the IMPLAN model relies on spending categories defined by the U.S. Census according to the North American Industry Classification System ("NAICS"). Because the spending data from the spending surveys used by HVS do not match the NAICS spending categories, HVS translates the spending categories into the NAICS spending categories that most closely match.

## Annual Net Direct Spending

Not all of the gross direct spending counts as an economic impact because some of the spending does not generate income within the market . HVS adjusts gross direct spending to account for income that leaks out of the local economy by estimating retail margins and local purchase parentages. As a result, the realized direct spending ("net direct spending") is lower than the gross direct spending in the market area.

## Retail Margins

Spending at retailers creates a smaller economic impact compared to spending in other industries. Retailers add value equal to the margin or price increase of the good above the original price paid to obtain the good. The IMPLAN model is product based, so HVS uses IMPLAN margin numbers to account for the discrepancy between retail purchaser prices and producer prices.

### Local Purchase Percentage

To accurately measure spending impacts, HVS counts spending on products and services located in the market area. Some of the direct spending demand in the market area cannot be accommodated. For example, an event organizer may need to buy novelty items for all attendees but find that the market area does not produce these items. This effect occurs for direct, indirect, and induced spending. HVS uses the IMPLAN SAM model values to track the percentage of a good purchased within the market area.

### Indirect and Induced Spending

The relationship between direct spending and the multiplier effects can vary based on the specific size and characteristics of a local area's economy. HVS enters the gross direct spending estimate into the IMPLAN input output model of the local economy to estimate the net direct, indirect and induced spending. HVS obtained the most recent available data from IMPLAN for the City of St. Charles, IL.

The following figures present the output of the IMPLAN model–the net new direct, indirect, and induced economic impacts and that are attributable to the proposed Active River Project. HVS also used IMPLAN to estimate the jobs created based on the direct, indirect, and induced spending estimates.

### Annual Net Spending Impacts

The figure below shows the annual net direct, indirect and induced spending generated for St. Charles.

**FIGURE 7-6**
**ANNUAL SPENDING ESTIMATES**

| Type of Spending | Thousands |
|---|---|
| Net Direct | $775.2 |
| Indirect | 175.2 |
| Induced | 332.0 |
| **Total** | $1,282.4 |

### Employment Impacts

HVS calculated the full-time equivalent jobs supported by the spending in each economic sector. The figure below summarizes the results.

**FIGURE 7-7**
**EMPLOYMENT IMPACT IN A STABILIZED YEAR**

| Full-Time Equivalent Jobs | City of St. Charles |
|---|---|
| Direct | 12 |
| Indirect | 1 |
| Induced | 2 |
| **Total Permanent Jobs** | 15 |

By a stabilized year of operation, the project would support approximately 15 permanent full-time equivalent jobs throughout the St. Charles economy.

## Development Impacts

By creating an attractive riverfront environment, the public investment in the Active River Project could encourage private investment in land development in downtown St. Charles. Projects in Columbus, GA, Greenville, SC, and Boise, ID have all shown a positive impact on development, but vary in scope and the timing of development. HVS estimated the increases in property values and City and Park District property tax revenues that could result from such private investment. HVS focused on the area outlined in the figure below.

**FIGURE 7-8**
**DOWNTOWN AREA STUDIED**


The study area includes land on both sides of the Fox River.

- The east bank, west of 2nd Avenue and south of Pottawatomie Park.

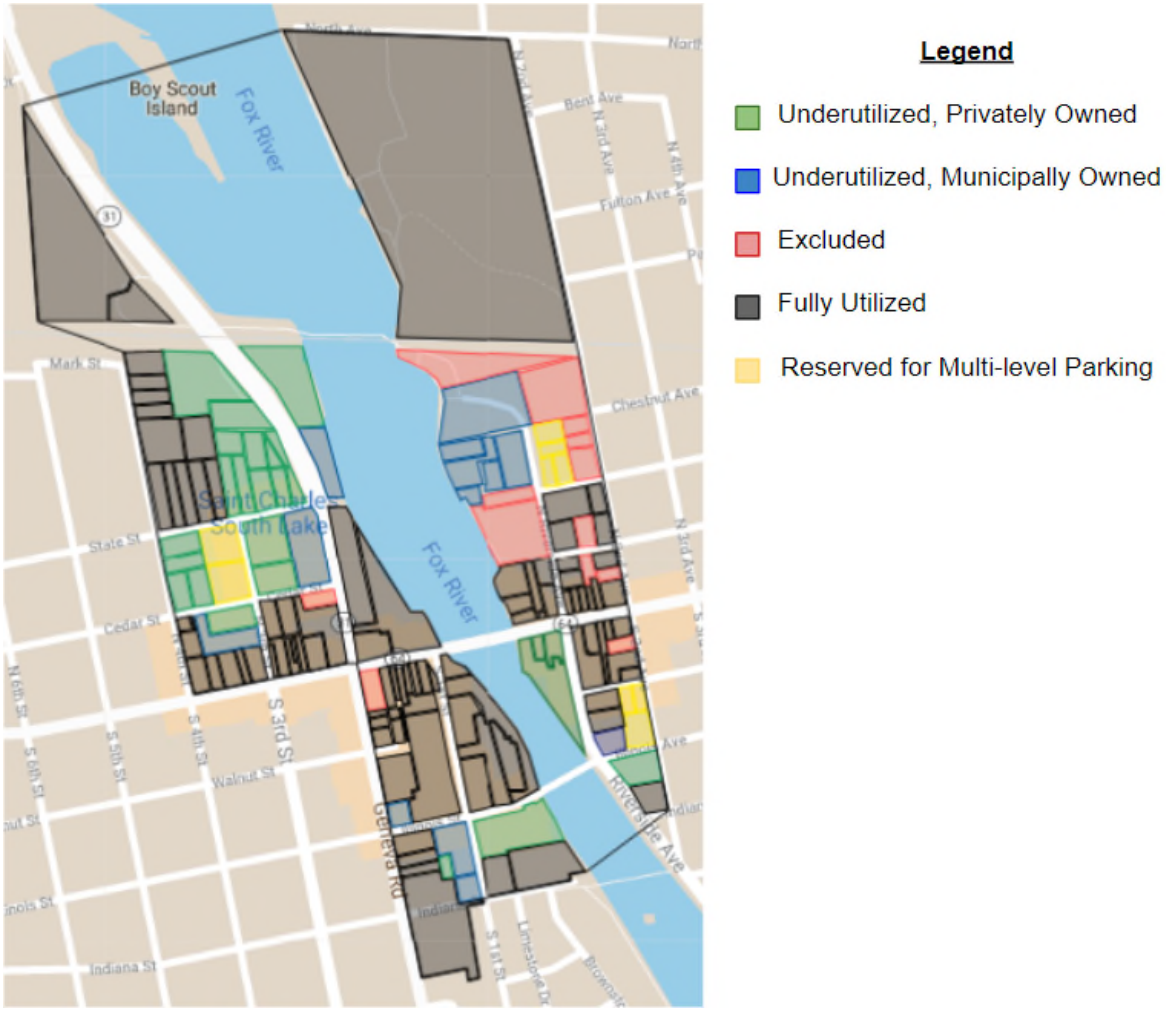
- The west bank and north of Main Street, and east of North 4th Street.
- The west bank and south of Main Street, east of Geneva Road and north of Indiana Street.

## Existing Land Uses

Using the Kane County Assessor's office, HVS collected data on property values and tax collections over the past four years on 150 parcels within the study area. The City of St. Charles identified 92 parcels as fully developed and 58 parcels that may have potential for redevelopment. We classified each of the 58 parcels as underutilized, potential sites for parking structures, or excluded them from the study. Twenty parcels were excluded from the analysis because they are too small or isolated to make redevelopment feasible or because they are expected to remain publicly owned. We considered a parcel as underutilized if it was undeveloped, used for surface parking, or if improvements on the site had outlived their useful life.

The figure below identifies 1) fully developed parcels, 2) underutilized parcels that are privately owned, 3) underutilized parcels that are municipally owned, 4) excluded parcels, and 5) potential sites for parking structures.

**FIGURE 7-9**
**CLASSIFICATION OF PARCELS IN THE STUDY AREA**




The figure below summarizes the land uses and sizes of all 150 parcels and breaks out the 38 underutilized parcels.

**FIGURE 7-10**
**PARCEL SUMMARY**

| Primary Parcel Use | Total Parcels | Total Area (acres) | % of Total Area | Underutilized Parcels | Underutilized Area (acres) | % of Total Underutilized Area |
|---|---|---|---|---|---|---|
| Municipal | 13 | 9.08 | 14% | 3 | 0.98 | 6% |
| Parks | 6 | 19.06 | 30% | 1 | 0.14 | 1% |
| Retail/Restaurant | 47 | 10.92 | 17% | 6 | 4.86 | 32% |
| Mixed use | 13 | 4.07 | 6% | 4 | 0.61 | 4% |
| Office | 9 | 2.41 | 4% | 4 | 1.37 | 9% |
| Industrial | 5 | 2.07 | 3% | 0 | 0.00 | 0% |
| Residential | 16 | 3.70 | 6% | 3 | 0.63 | 4% |
| Parking | 38 | 12.35 | 19% | 15 | 6.39 | 42% |
| Vacant land | 3 | 0.37 | 1% | 2 | 0.29 | 2% |
| **Total** | **150** | **64.03** | | **38** | **15.27** | |

Source: Kane County Assessor

Fifteen of the underutilized parcels are currently used for surface parking and cover 42% of the underutilized area. Six parcels with restaurants and retail development account for 32% of the total underutilized area.

The figure below shows the estimated market value of the 150 parcels identified by parcel use for the last four years. HVS assumed that the equalized assessed values were 33% of market value.

**FIGURE 7-11**
**ESTIMATES OF MARKET VALUE**

| Primary Parcel Use | 2014 | 2015 | 2016 | 2017 |
|---|---|---|---|---|
| Retail/Restaurant | $26,877,000 | $28,353,000 | $28,467,000 | $29,838,000 |
| Mixed use | 8,367,000 | 7,533,000 | 7,713,000 | 8,298,000 |
| Office | 7,884,000 | 7,785,000 | 7,824,000 | 8,109,000 |
| Industrial | 1,878,000 | 1,881,000 | 1,902,000 | 1,971,000 |
| Residential | 7,023,000 | 7,071,000 | 7,266,000 | 4,932,000 |
| Parking | 1,896,000 | 1,893,000 | 2,205,000 | 1,974,000 |
| Vacant land | 162,000 | 162,000 | 165,000 | 171,000 |
| **Total** | $54,087,000 | $54,678,000 | $55,542,000 | $55,293,000 |

Sources: Kane County Assessor and HVS

Market values remained mostly flat over the last four years. Retail and restaurants represent approximately half of all market value in the study area. Municipally owned parcels and parks are not included in this figure because they have no

assessed value. While their value as public lands could increase due to new visitation generated by the Active River Project, we have not placed a current market value on these parcels.

## Potential Changes in Land Values

To estimate the potential increase in property tax collections from development spurred by the Active River Project, HVS calculated the market and taxable values, and the taxes paid, for three types of parcels: the 67 fully utilized parcels that had an assessed value in 2017, 25 privately owned underutilized parcels that had an assessed value in 2017, and 13 underutilized parcels that are municipally owned and have no previous assessed value. HVS assumes the 13 municipally owned lots would be available for private development based on conversations with the City of St. Charles. The figure below shows the values and taxes collected for the fully utilized and underutilized parcels.

**FIGURE 7-12**
**MARKET VALUES, TAXABLE VALUES AND PROPERTY TAXES**

| Value | Fully Utilized Parcels | Underutilized Parcels (Privately Owned) | Underutilized Parcels (Municipally Owned) |
|---|---|---|---|
| Number of Parcels | 67 | 25 | 13 |
| Size (Acres) | 14.44 | 9.35 | 5.92 |
| **Market Value** | | | |
| Total | $40,971,842 | $12,478,311 | 0 |
| Per Acre | $2,837,385 | $1,334,579 | 0 |
| **Taxable Value** | | | |
| Total | $13,520,708 | $4,159,437 | 0 |
| Per Acre | $936,337 | $444,860 | 0 |
| **Property Taxes Collected** | | | |
| Total | $1,296,624 | $394,954 | 0 |
| Per Acre | $89,794 | $42,241 | 0 |

Sources: Kane County Assessor and HVS

Substituting the fully utilized average market value per acre for the underutilized average market value per acre for the 38 total underutilized parcels provides a projection of the increase in market value in downtown St. Charles that could be caused by redevelopment. The following figures show the change in total market value for each of the three types of parcels.

**FIGURE 7-13**
**CHANGE IN MARKET VALUE BY PARCEL TYPE (IN 2017 DOLLARS)**

| | Fully Utilized Parcels | Underutilized Parcels | |
|---|---|---|---|
| | | (Privately Owned) | (Municipally Owned) |
| Number of Parcels | 67 | 25 | 13 |
| Size (Acres) | 14.44 | 9.35 | 5.92 |
| **Current Market Value** | | | |
| Total | $40,971,842 | $12,478,000 | na |
| Per Acre | 2,837,385 | 1,334,545 | na |
| **Projected Market Value** | | | |
| Total | $40,971,842 | $26,526,000 | $16,795,000 |
| Per Acre | 2,837,385 | 2,837,000 | 2,837,000 |
| **Increase in Market Value** | | | |
| Total | $0 | $14,048,000 | $16,795,000 |
| Per Acre | 0 | 1,502,455 | 2,837,000 |

| Current Parcel Ownership | Increase in Market Value |
|---|---|
| Privately Owned | $14,048,000 |
| Municipally Owned | 16,795,000 |
| **Total** | $30,843,000 |

If redeveloped, underutilized parcels that are currently privately owned could increase in value by $14 million. Certain parcels that are currently municipally owned could be converted to private uses and assigned a market value of $16.8 million. Combined, market values of underutilized parcels could be approximately $31 million.

HVS calculated the potential increase in property taxes collection caused by redevelopment of the underutilized parcels. See the figure below.

**FIGURE 7-14**
**TOTAL CHANGE IN PROPERTY TAXES COLLECTED (IN 2017 DOLLARS)**

| | Fully Utilized Parcels | Underutilized Parcels | |
|---|---|---|---|
| | | (Privately Owned) | (Municipally Owned) |
| Size (Acres) | 14.44 | 9.35 | 5.92 |
| **2017 Taxes** | | | |
| Total | $1,297,000 | $395,000 | na |
| Per Acre | 90,000 | 42,241 | na |
| **Projected Taxes Per Acre** | | | |
| Total | $1,297,000 | $841,500 | $533,000 |
| Per Acre | 90,000 | 90,000 | 90,000 |
| **Increase in Taxes Collected** | | | |
| Total | $0 | $446,500 | $533,000 |
| Per Acre | 0 | 47,759 | 90,000 |

| Current Parcel Ownership | Increase in Tax Collections |
|---|---|
| Private Owned | $447,000 |
| Municipally Owned | 533,000 |
| **Total** | $980,000 |

HVS projects that Active River Project could potentially increase total property tax collections by approximately $980,000.

Twelve taxing bodies collect property tax revenue in downtown St. Charles. The following figure breaks out the total property tax collections by taxing district and projects the increase in collections for each district.

**FIGURE 7-15**
**CHANGE IN TAX COLLECTIONS BY TAXING DISTRICT**

| District | 2017 Tax Rate | Increase in Collections |
|---|---|---|
| School District 303 | 5.347% | $541,000 |
| St. Charles Downtown Revitalization District 1B | 0.900% | $91,000 |
| St. Charles City | 0.846% | $86,000 |
| St. Charles Park District | 0.633% | $64,000 |
| Elgin College 509 | 0.500% | $51,000 |
| Kane County | 0.402% | $41,000 |
| St. Charles Downtown Revitalization District 1A | 0.400% | $41,000 |
| St. Charles Library | 0.334% | $34,000 |
| Kane Forest Preserve | 0.166% | $17,000 |
| St. Charles Road Improvements | 0.091% | $9,000 |
| St. Charles Township | 0.044% | $4,000 |
| St. Charles Cemetary | 0.016% | $2,000 |
| **Total*** | 9.68% | $981,000 |

*The total differs from the collections in previous figure due to rounding

Sources: Kane County Assessor and HVS

The local school district would benefit the most from the increased property tax collections and the City and Park District combined would earn approximately $150,000 annually in additional revenue. The two downtown revitalization districts do not apply to every parcel and the increase in collections was adjusted proportionate to the acreage within each parcel. The creation of a TIF district within the study area would modify the distribution of property tax collections by district.

The following figure shows the market value of the 150 parcels in 2017, broken out by current parcel use, as well as the projected market value after development spurred by the Active River Project has occurred.

**FIGURE 7-16**
**MARKET VALUE PROJECTION**

| Primary Parcel Use | 2017 | Projected |
|---|---|---|
| Municipal | $0 | $2,780,000 |
| Parks | 0 | 397,000 |
| Retail/Restaurant | 29,838,000 | 35,803,000 |
| Mixed use | 8,298,000 | 9,460,000 |
| Office | 8,109,000 | 8,992,000 |
| Industrial | 1,971,000 | 1,970,000 |
| Residential | 4,932,000 | 6,208,000 |
| Parking | 1,974,000 | 19,560,000 |
| Vacant land | 171,000 | 965,000 |
| **Total** | $55,293,000 | $86,135,000 |

Sources: Kane County Assessor and HVS

HVS projects the total market value would increase approximately $30 million from 2017 levels after the completion of the Active River Project.

## Fiscal Impacts

Fiscal impacts are the public sector share of the economic impacts generated by tax collections on new spending. The previously discussed spending estimates provide a basis for estimating potential tax revenue, as certain existing St. Charles taxes would apply to some of the spending.

The IMPLAN analysis generates net-direct, indirect, and induced outputs, which fall into various NAICS categories. HVS determined which taxes would apply to which category of output. HVS then used the appropriate tax rates to estimate the amount of tax revenue.

HVS applied effective tax rates to each relevant category of IMPLAN outputs resulting in annual tax revenue estimates from each tax source. See the following figures.

**FIGURE 7-17**
**SUMMARY OF FISCAL IMPACTS**

| Tax Category | Tax Base | Effective Tax Rate | Estimated Tax Revenue |
|---|---|---|---|
| **Local Sales & Use Tax** | $1,024,962 | 1.00% | $10,200 |
| **Home Rule Sales Tax** | 975,762 | 1.00% | $9,800 |
| **Alcohol Tax** | 24,576 | 3.00% | $700 |
| **Local Fuel Tax Rate** | 5,540 | 0.85% | $50 |
| **Hotel/ Motel Tax** | 276 | 6.00% | $20 |
| | | **Total** | $21,000 |

Sources: IMPLAN, City of St. Charles, and HVS

New visitation would generate an estimated $21,000 in annual tax revenue, most of which is generated by local sales and use taxes.

## Summary

The following figure summarizes recurring annual economic and fiscal impacts in a stabilized year.

**FIGURE 7-18**
**SUMMARY OF ECONOMIC AND FISCAL IMPACTS**

| Summary of Impacts* | |
|---|---|
| Economic Impact (thousands) | $1,282.4 |
| Fiscal Impact (thousands) | $1,001 |
| Jobs | 15 |

*In a stabilized year.

These economic and fiscal impact estimates are subject to the assumptions and limiting conditions described throughout the report. Numerous assumptions about future events and circumstances form the basis for these estimates. Although we consider these assumptions reasonable, we cannot provide assurances that the project will achieve the forecasted results. Actual events and circumstances are likely to differ from the assumptions in this report and some of those differences may be material. The readers should consider these estimates as a mid-point in a range or potential outcomes.

# 8. Cost Benefit Analysis

HVS performed a cost benefit analysis on the development of the Active River Project using the WBK Engineering Feasibility Study, information from the St. Charles Park District, information on the operations of comparable riverfront destinations, and a WBK Engineering figure projecting the proposed reduction in the floodplain due to the Active River Park.

We considered the following quantifiable items in the analysis:

- The estimated cost of construction for the two-channel park design,
- The estimated cost of building a zip line that runs across the river,
- The estimated cost of maintaining the two channels, the zip line, and the additional park space.

This cost benefit analysis considers the costs of building and operating the Active River Project with the quantifiable economic impact, as well as other unquantifiable benefits, such as an improved resident experience, making downtown into a destination, a reduction in the floodplain area, and environmental impacts.

## Construction Costs

The WBK Engineering Feasibility Study estimated the total cost of construction, including contingencies and soft costs for the Active River Project, except for the zipline, at between $20 and $22 million.

HVS collected data on the construction of four comparable zip lines to form an estimate for St. Charles. The comparable zip lines, their location, cost, and length are listed in the figure below.

**FIGURE 8-1**
**COMPARABLE ZIP LINE COST**

| Name | Location | Length | Cost (Inflated) | Cost Per Foot |
|---|---|---|---|---|
| Go Ape! | Rockville, MD | 2,000 | $609,000 | $305 |
| Hunter Mountain Resort | Hunter, NY | 3,880 | 1,218,000 | 314 |
| Zipline Eco-Tour | Santa Catalina, CA | 3,671 | 1,218,000 | 332 |
| Chattahoochee RiverWalk | Columbus, GA | 2,000 | 975,000 | 487.5 |
| **Average** | | | | *$360* |

Source: Hotel Online, Columbus Ledger-Enquirer

Based on comparable zip lines, HVS estimates it will cost $360 per foot to build the zip line in St. Charles.

The exact length of the zip line, and the location of the two platforms, is highly dependent on the layout of the Active River Project and outlying development. The zip line should be long enough to entertain users and create repeat customers, but short enough to fit within the park area between the railroad trestle and the Main Street Bridge. HVS found that a length of 750 feet would fit comfortably within the site and would still interest users. This would create a zip line of 1,500 feet total, as users would zip line across the river and back. The image below shows a potential location for the two platforms and zip line, to illustrate how a 750-foot zip line would fit on the site.

**FIGURE 8-2**
**POTENTIAL ZIP LINE LOCATION**

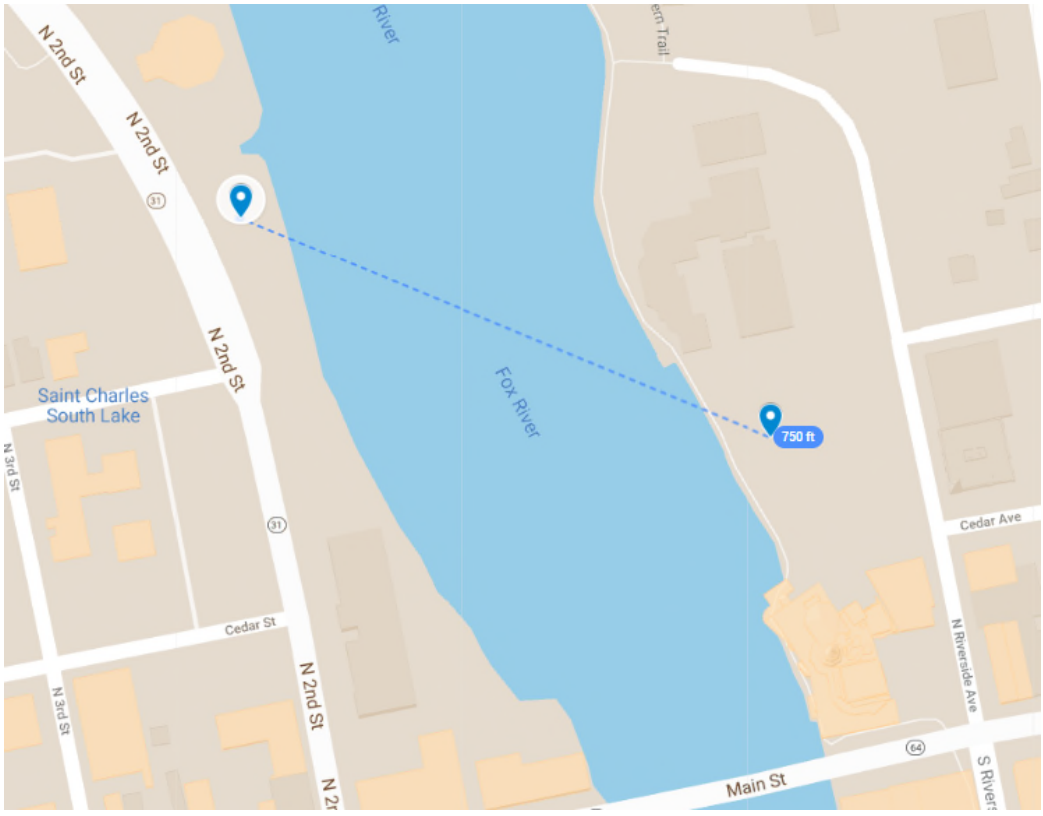


**FIGURE 8-3**
**ESTIMATED ZIPLINE CONSTRUCTION COST**

| Item | | Value |
|---|---|---|
| Projected Length (feet) | | 1,500 |
| Cost Per Foot | x | $360 |
| Total Cost | | $540,000 |

HVS estimates that a zip line would cost $540,000 to build.

The estimated total construction costs of the Active River Project, including the zip line, range from $20.5 to $22.5 million.

## Whitewater and Recreational Channel Operations

HVS assumes the whitewater and recreational channels would operate like a park, with no charge for use, no active staffing or lifeguards, and open access to all users. Every comparable whitewater destination that uses a natural flow and a natural channel operates this way, with users assuming some level of risk. This operating model maximizes the number of users and increases the economic impact by attracting users from outside the area.

The Park District currently rents kayaks and pedal boats in Pottawatomie Park. At this time, it is unclear whether the Park District would be interested in providing equipment for whitewater or recreational channel users. It would require investing in whitewater kayaks, inflatable innertubes, paddleboards, helmets, oars, and lifejackets, as well as investing in staff to provide instruction and training in the proper use of equipment.

The Marge Cline Whitewater Park in Yorkville, Illinois worked with a local equipment outfitter, "The Yak Shack", to provide equipment for users. The City of Yorkville provided a physical structure adjacent to the whitewater park for the Yak Shack in return for renting equipment to park users. Provision of equipment through a third-party outfitter near or adjacent to the destination is used at other comparable destinations in Columbus, GA and Charles City, IA. HVS recommends that the City of St. Charles work with a third-party outfitter to provide equipment to both types of channel users.

Assuming the City of St. Charles follows the operating model outlined above, the operating cost of the whitewater and recreational channels will be limited to their maintenance. This includes keeping the channels free of debris and inspecting the channels for any damage. The following figure presents the projected maintenance costs of the whitewater and recreational channels. It is based on conversations with

the Boise Parks and Recreation staff as well as a feasibility study of three whitewater parks in New York performed by S2o Design and Engineering in 2015.

**FIGURE 8-4**
**ANNUAL WHITEWATER AND RECREATIONAL CHANNEL OPERATING COSTS**

| Item | Maintenance Cost |
|---|---|
| Whitewater Channel | $9,000 |
| Recreational Channel | 3,000 |
| **Total** | $12,000 |

Source: St. Lawrence County Whitewater Park Feasibility Analysis, Boise Parks Department

It will cost $12,000 annually to hire divers to clear any debris from and to inspect the channels for any damage. Maintenance and inspection are usually done once a year.

## Zip Line Operations

HVS recommends that a third-party company be contracted to build, maintain, and operate the zip line. Zip lines are a niche industry and their operation can be complex. A third-party company would bring a level of expertise and familiarity with zip lines that the city could not match. The zip line in Columbus, GA is operated by Whitewater Express, which also rents whitewater equipment to river users.

To demonstrate the feasibility of operating a zip line, HVS provided projections of the potential operating revenue and expense. HVS made the following assumptions and used the following parameters to evaluate the operation of the zip line:

- It would run from two elevated platforms on either side of the Fox River, approximately 750 feet apart,
- Users would pay for a ticket to ride across the river and back,
- Six staff members would be required to operate the zip line at a time: two on each platform to send and receive users, one selling tickets, and one teaching users how to safely operate their equipment,
- It would be open for twelve hours per day on weekends and eight hours per day during the week for 64 hours of operation total each week,
- Tickets would cost at least $30 for adults and $20 for kids
- One third of all equipment provided would have to be replaced each year due to regular wear and tear, and

- Inspections by the construction company or a third-party inspector would occur annually.

Based on these assumptions and parameters, conversations with zip line operators, and using a report on zip line operations performed by the North Carolina Department of Labor for the North Carolina Legislature in 2016, HVS formed the following annual operating revenue and expense estimates for the zip line.

**FIGURE 8-5**
**ZIP LINE OPERATING REVENUE**

| User Type | Number of Annual Users | Cost of Ticket | Total Revenue |
|---|---|---|---|
| Adult | 6,300 | $30 | $189,000 |
| Child | 2,700 | 20 | 54,000 |
| **Total** | 9,000 | | $243,000 |

Source: HVS Projections

**FIGURE 8-6**
**ZIP LINE OPERATING EXPENSE**

| Operating Expenses | | Cost | Source |
|---|---|---|---|
| **Staff** | | | |
| Employees | | 6 | |
| Hours Per Week | | 64 | |
| Weeks Per Season | | 31 | * One week of training included |
| Average Hourly Wage | x | $15.5 | |
| Sub-total | | $185,000 | |
| Maintenance | | $4,500 | 1% of construction costs |
| Inspection | | $3,000 | North Carolina Report |
| Insurance | | $20,000 | North Carolina Report |
| Gear Replacement | + | $3,000 | Zip Line Operators |
| **Total** | | $216,000 | |

Source: Zip Line Operators, North Carolina DOL Report, HVS Projections

**FIGURE 8-7**
**ZIP LINE OPERATION SUMMARY**

| Item | Value |
|---|---|
| Revenue | $243,000 |
| Expenses | 216,000 |
| Operating Profit | **$27,000** |

Source: HVS Projections

Based on the assumptions made and parameters used, HVS projects that a company could make at least $27,000 annually operating the zip line as part of the Active River Project.

It is feasible for a third-party company to operate the zip line based on the parameters established. HVS recommends the city pursue this method of operation due to the seasonality of the zip line and the highly specific knowledge and equipment required.

## Other Park Operations

Other aspects of the Active River Project include improved trail connectivity, a children's natural play area, and increased shore area. These aspects will need to be maintained by the Park District. The Park District provided HVS with the average cost of park maintenance per acre in St. Charles. HVS based the estimated size of the added park land on the two-channel alternatives detailed in the WBK Feasibility Study.

**FIGURE 8-8**
**PARK MAINTENANCE COST**

| Item | | Value |
|---|---|---|
| Cost Per Acre | | $1,690 |
| Park Size (Acres) | x | 3.5 |
| Maintenance Cost | | $6,000 |

Source: St. Charles Park District

HVS estimates that the Active River Project will increase park maintenance costs by approximately $6,000.

## Economic Impact

HVS also considered the economic impact that each park element would generate. The zip-line is the only feature of the Active River Park that could generate revenue, and the amount of revenue generated would depend upon the agreement with the third-party operating company. HVS did not include any revenue from the zip line in the cost benefit analysis due to the third party operation.

The gross direct spending calculations from chapter 7 were used to calculate the percentage of the economic impact attributable to each feature in the Active River Project. The figure below shows the percentage of gross direct spending that is attributable to each element. Visitors who were not drawn by a specific feature of the Active River Project were labelled as "Other." This includes visitation for fishing, other boating, river competitions, and festivals and events.

**FIGURE 8-9**
**ANNUAL ECONOMIC IMPACT BY FEATURE**

| Visitor Type | Annual New Users | Total Gross Direct Spending (Thousands) | Percentage of Total Direct Spending | | Total Economic Impact (Thousands) | | Share of Economic Impact (Thousands) |
|---|---|---|---|---|---|---|---|
| Whitewater Channel | 13,380 | $838.0 | 52.6% | x | $1,282.4 | = | $674.4 |
| Recreation Channel | 2,300 | 188.5 | 11.8% | x | " | = | 151.7 |
| Zip Line | 3,000 | 91.2 | 5.7% | x | " | = | 73.4 |
| Park | 300 | 9.1 | 0.6% | x | " | = | 7.3 |
| Trail Connectivity | 200 | 2.1 | 0.1% | x | " | = | 1.7 |
| Other* | 15,270 | 464.4 | 29.1% | x | " | = | 373.8 |
| **Total** | 34,450 | $1,593 | 100% | | | | $1,282 |

*Includes visitation from fishing, other boating, river competitions, and festivals and events

The whitewater channel generates over 50% of the total economic impact. The recreation channel has the next highest annual impact at 12%.

The following table shows the timing of the quantifiable costs and impacts of the Active River Project over 28 years: one year of planning, two years of construction, and 25 years of operation. The figure also provides an estimate of the present value of the costs and impacts based on a 5% discount rate and uses inflated dollar amounts.

**FIGURE 8-10**
**SUMMARY OF QUANTIFIABLE COSTS AND IMPACTS OVER 25 YEARS**

| Year | Discount Factor | Costs (Thousands) | | Impacts (Thousands) | |
|---|---|---|---|---|---|
| | | Value* | Discounted Value | Value** | Discounted Value |
| 2020 | 1.00 | $0 | $0 | $0 | $0 |
| 2021 | 0.95 | 12,662 | 12,059 | 0 | 0 |
| 2022 | 0.91 | 13,042 | 11,829 | 0 | 0 |
| 2023 | 0.86 | 20 | 17 | 1,514 | 1,308 |
| 2024 | 0.82 | 20 | 17 | 1,559 | 1,283 |
| 2025 | 0.78 | 21 | 16 | 1,601 | 1,254 |
| 2026 | 0.75 | 21 | 16 | 1,591 | 1,187 |
| 2027 | 0.71 | 22 | 16 | 1,577 | 1,121 |
| 2028 | 0.68 | 23 | 15 | 1,624 | 1,100 |
| 2029 | 0.64 | 23 | 15 | 1,673 | 1,079 |
| 2030 | 0.61 | 24 | 15 | 1,723 | 1,058 |
| 2031 | 0.58 | 25 | 15 | 1,775 | 1,038 |
| 2032 | 0.56 | 26 | 14 | 1,828 | 1,018 |
| 2033 | 0.53 | 26 | 14 | 1,883 | 999 |
| 2034 | 0.51 | 27 | 14 | 1,940 | 980 |
| 2035 | 0.48 | 28 | 13 | 1,998 | 961 |
| 2036 | 0.46 | 29 | 13 | 2,058 | 943 |
| 2037 | 0.44 | 30 | 13 | 2,120 | 925 |
| 2038 | 0.42 | 31 | 13 | 2,183 | 907 |
| 2039 | 0.40 | 32 | 12 | 2,249 | 890 |
| 2040 | 0.38 | 33 | 12 | 2,316 | 873 |
| 2041 | 0.36 | 33 | 12 | 2,386 | 856 |
| 2042 | 0.34 | 34 | 12 | 2,457 | 840 |
| 2043 | 0.33 | 36 | 12 | 2,531 | 824 |
| 2044 | 0.31 | 37 | 11 | 2,607 | 808 |
| 2045 | 0.30 | 38 | 11 | 2,685 | 793 |
| 2046 | 0.28 | 39 | 11 | 2,766 | 778 |
| 2047 | 0.27 | 40 | 11 | 2,849 | 763 |
| **Present Value** | | | $24,229 | | $24,584 |

**Construction and operating costs inflated to current year dollars.*
***Annual economic impacts inflated to current year dollars.*

The present value of the combined capital and operating costs over a 28-year period is approximately $24 million and the present value of the economic impacts is approximately $24.5 million. This table only shows the quantifiable impacts of the Active River Project and does not include any unquantifiable impacts the project would have.

**Unquantifiable Impacts**

The following portion of the cost benefit analysis describes the unquantifiable impacts the Active River Project will have on St. Charles. The impacts considered include the improvements to the resident experience, the improvements to downtown St. Charles as a destination, the reduction of the size of the floodplain, and the benefit to the environment.

**Resident Experience**

The time of residents and visitors has value. But access to the Active River Project is free and no price of admission is available to quantify the value of the resident and visitor recreational experience. The enjoyment, wellness, and social interactions generated by the Active River Project may be the most significant benefit to the investment. The experience the Active River Project offers is not easily replicable in the Chicago metro area. Consequently, most of the social benefit generated by the project will be new.

**Downtown Destination**

The construction of the Active River Project would create a central attraction in downtown that would set St. Charles apart from other cities in the Fox River Valley. It would give St. Charles a unique advantage over other cities like Geneva, Batavia, Aurora, and Elgin. Other Fox Valley cities only make use of the river as a passive attraction with the Fox River Trail running along the riverfront and some small riverfront parks in the downtown areas. The proposed use of the river in St. Charles is active. The most similar attraction is in the Marge Cline Whitewater Park in Yorkville, but the design of the whitewater there is unpopular with users and the downtown area is much less developed than St. Charles.

The Active River Project could also help attract a younger population to St. Charles. Based on participation trends, the Active River Project will be predominantly used by people ages 25-44. This age group generally prefers to live in urban areas with entertainment and recreational activities close at hand and may not consider living in or visiting St. Charles. Adding the Active River Project will provide new recreational activities and will improve other existing recreational options, like fishing and hiking. These new and improved recreational options should attract younger people to reside in St. Charles and will contribute to an active and energetic downtown.

**Floodplain Reduction**

The Active River Project will decrease the size of the floodplain adjacent to the Fox River. WBK Engineering compared the size of the current floodplain and roughly estimated the potential remaining floodplain after the Active River project is completed. The chart showing both floodplains can be found in Appendix D. While this chart estimates the magnitude of the reduced floodplain area, it is not possible to assess the impacts on a parcel by parcel basis.

HVS could not quantify the benefits of the reduced size of the flood plain, however some business or property owners would no longer be required to purchase flood

insurance. All regulated or insured lenders require flood insurance on mortgaged properties in areas at high risk of flooding, such as the floodplain along the Fox River in St. Charles. The current costs of flood insurance and the savings will vary based on proximity to the river and the type of structure.

Property values should also increase along the riverfront due to the reduced floodplain. Due to the flood insurance requirement and increased risk of flooding, property values are lower for comparable structures inside of a floodplain than outside one. Property values for structures and parcels that are no longer in a floodplain, or are further away from one, should go up as the cost of insurance and risk are reduced. It is unclear exactly how much property values will increase due to the floodplain reduction.

Redevelopment of property within a floodplain can be complex and often more costly due to the need to raise or construct floodproof structures, and/or provide compensatory storage for lost floodplain volume. With these regulatory restrictions removed or reduced, redevelopment of these properties will be more practical and economical.

## Environmental Impacts

Removing the dam in St. Charles should increase the amount of fish habitat as well as improve the biodiversity and cleanliness of the river. Dams block fish from moving further upriver and fish ladders only alleviate the problem to an extent. Removing the dam and replacing it with two channels with minor drop structures will make it easier for fish to move upriver and will increase the amount of habitat accessible. This will increase the diversity and volume of fish in the river, and in turn should improve fishing.

## Conclusion

The Active River Project is a "public good." Consequently, its return on investment should be measured by the social benefits it provides. HVS has quantified the new spending and fiscal impact the project will generate. We have estimated the capital and ongoing operating costs. Yet consideration of the social benefits that are not quantifiable may offer the most compelling reason to pursue the Active River Project.

# 9. Statement of Assumptions and Limiting Conditions

1. This report is to be used in whole and not in part.
2. All information, financial operating statements, estimates, and opinions obtained from parties not employed by HVS are assumed to be true and correct. We can assume no liability resulting from misinformation.
3. The proposed facility is assumed to be in full compliance with all applicable federal, state, local, and private codes, laws, consents, licenses, and regulations (including a liquor license where appropriate), and that all licenses, permits, certificates, franchises, and so forth can be freely renewed or transferred to a purchaser.
4. We are not required to give testimony or attendance in court by reason of this analysis without previous arrangements, and only when our standard per-diem fees and travel costs are paid prior to the appearance.
5. If the reader is making a fiduciary or individual investment decision and has any questions concerning the material presented in this report, it is recommended that the reader contact us.
6. We take no responsibility for any events or circumstances that take place subsequent to the date of our report.
7. The quality of a facility's on-site management has a direct effect on a property's economic performance. The demand and financial forecasts presented in this analysis assume responsible ownership and competent management. Any departure from this assumption may have a significant impact on the projected operating results.
8. The impact analysis presented in this report is based upon assumptions, estimates, and evaluations of the market conditions in the local and national economy, which may be subject to sharp rises and declines. Over the projection period considered in our analysis, wages and other operating expenses may increase or decrease due to market volatility and economic forces outside the control of the hotel's management.
9. We do not warrant that our estimates will be attained, but they have been developed on the basis of information obtained during the course of our market research and are intended to reflect reasonable expectations.
10. Many of the figures presented in this report were generated using sophisticated computer models that make calculations based on numbers

carried out to three or more decimal places. In the interest of simplicity, most numbers have been rounded. Thus, these figures may be subject to small rounding errors.

11. It is agreed that our liability to the client is limited to the amount of the fee paid as liquidated damages. Our responsibility is limited to the client, and use of this report by third parties shall be solely at the risk of the client and/or third parties. The use of this report is also subject to the terms and conditions set forth in our engagement letter with the client.

12. Although this analysis employs various mathematical calculations, the final estimates are subjective and may be influenced by our experience and other factors not specifically set forth in this report.

13. HVS, is not a municipal advisor and HVS is not subject to the fiduciary duty set forth in section 15B(c)(1) of the Act (15 U.S.C. 78o-4(c)(1)) with respect to the municipal financial product or issuance of municipal securities. The reader is advised that any actual issuance of debt would be done under the advice of its bond counsel and financial advisors. Financial advisor would provide advice concerning the specific structure, timing, expected interest cost, and risk associated with any government loan or bond issue. Potential investors should not rely on representations made in this report with respect to the issuance of municipal debt.

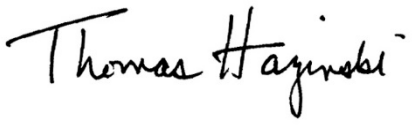
14. This report was prepared by HVS Convention, Sports & Entertainment Facilities Consulting. All opinions, recommendations, and conclusions expressed during the course of this assignment are rendered by the staff of this organization, as employees, rather than as individuals.

15. This report is set forth as an impact study of the proposed subject project; this is not an appraisal report.

# 10. Certification

The undersigned hereby certify that, to the best of our knowledge and belief:

1. the statements of fact presented in this report are true and correct;
2. the reported analyses, opinions, and conclusions are limited only by the reported assumptions and limiting conditions, and are our personal, impartial, and unbiased professional analyses, opinions, and conclusions;
3. we have no present or prospective financial or personal interest with respect to the parties involved;
4. HVS is not a municipal advisor and is not subject to the fiduciary duty set forth in section 15B(c)(1) of the Act (15 U.S.C. 78o-4(c)(1)) with respect to the municipal financial product or issuance of municipal securities;
5. we have no bias with respect to the subject of this report or to the parties involved with this assignment;
6. our engagement in this assignment was not contingent upon developing or reporting predetermined results;
7. our compensation for completing this assignment is not contingent upon the development or reporting of a predetermined result that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal;
8. Thomas A Hazinski, MPP and Anthony Davis personally inspected the area described in this report.



Thomas Hazinski
Managing Director

Anthony Davis
Associate

# A. Appendix A - Comparable Destination Case Studies

# Chattahoochee RiverWalk
# Columbus ,GA

## Overview and Activities

With its initial phase completed in 1992, the 22-mile Chattahoochee RiverWalk connects North Columbus, GA to Fort Benning. The RiverWalk was built in phases as a recreation destination for residents and visitors, offering improved boating, fishing, and river access.

The RiverWalk features a 2.5-mile-long stretch of whitewater, a zip line across the river, historical markers, and geocaches along its route. Opened in 2013, the whitewater features class I to class V rapids that can be adjusted based on the amount of water released from an upriver dam. The zip line offered runs across the river and connects to a high ropes course in neighboring Phenix City, AL.

## Operation

The RiverWalk is maintained by the City of Columbus and is open daily from 6:00am to 9:00pm. Admission is free. Uptown Columbus Inc., a nonprofit company manages the whitewater course through agreements with Columbus and Phenix City. Commercial operators offer river rafting tours, zip lining, boating, freestyle kayaking, and stand up paddle boarding, but experienced paddlers can also bring their own equipment and use the river on their own.

## Funding

Initial phase was fund by $20 million in Columbus Water Works bonds and $2 million from other local corporations. In March 1993, the Columbus voters approved a 1% sales tax to fund the rest of the project. A $20 million federal grants and private donations have helped offset remaining costs.

## Impacts on the Community

Construction of the RiverWalk alleviated a decades-old combined sewer overflow problem in downtown Columbus. The RiverWalk path was once a service road for the sewage line, and the riverfront, a former dumping ground in need of cleanup. Private developers have since renovated multiple former factories, turning them into condos and office spaces. In addition to the quality of life and recreation benefits to Columbus residents, the RiverWalk and whitewater park have been catalysts for business and activity in downtown. Reports suggest a 50% increase in gross receipts since 2013 and the addition of 70 new downtown businesses.

# Falls Park on the Reedy
# Greenville, SC

## Overview and Activities

Falls Park on the Reedy is a 32-acre park along the Reedy River in the middle of Greenville, SC. In 2002, the Camperdown Bridge, which obscured the view of the falls, was removed. By 2004, a $13.5 million initiative had transformed the area into a park. Liberty Bridge, a 350-foot, award-winning pedestrian bridge runs over the park, offering views of the 40-foot waterfalls for which the park is named.

In addition to walking paths, public gardens and river access, Falls Park contains an outdoor amphitheater and multiple public art installations. The park also connects to the 20-mile Swamp Rabbit Trail, offering access to other nearby parks and green spaces.

## Operation

The City of Greenville Parks and Recreation department maintains the park and its assets. A partnership between the City, Furman University and the Carolina Foothills Garden Club, the Falls Park Endowment collects charitable donations dedicated to the education programs and park amenities not covered by the City's annual operating budget. It is also a source of short-term emergency funds when the City is unable to maintain the park to its intended level of quality.

## Funding

The development of Falls Park and Liberty Bridge was provided by the local hospitality tax. Private and corporate donations to the Falls Park Endowment help fund ongoing programs, public art, and beautification efforts. The endowment currently exceeds $2.6 million.

## Impacts on the Community

A collaborative effort between City, University, and nonprofit forces has cleaned up a formerly polluted river and exposed a formerly hidden natural asset, while creating a public park with regional appeal. Falls Park has helped revitalize the City's West End and has become a centerpiece of downtown Greenville, often called the City's "outdoor living room".

Falls Park and Liberty Bridge directly sparked the $65 million River Place development. Completed in 2005, it is the City's largest public-private partnership and includes condominiums, offices, retail stores, artist studios, restaurants, and a hotel. Since 2004, nearly 20 related development projects have occurred or are planned, totaling just under $550 million. Private projects include a baseball stadium, a recreation center, hotels, office, and residential development. Property tax collections have more than tripled. The boost to tourism in Greenville is also apparent with downtown hotel occupancy rates reaching 78%.

# Confluence Park
# Denver, CO

## Overview and Activities

At the intersection of Cherry Creek and the South Platte River, Confluence Park is an urban park in Denver's Lower Downtown ("LoDo") neighborhood. Original redevelopment of the former warehouse district took place in the late 1980s with the construction of a riverfront plaza. In 2015, the city began a renovation project. The improved and ADA compliant pathways, trails, and park areas reopened in 2017. The renovation was a part of the River Vision project, a bigger City initiative to clean up all parks along the river.

Biking and hiking trails connect to the Riverfront Park trail system, grassy areas, and river overlooks. Other park activities include fishing, kayaking, tubing, and swimming. A whitewater kayak course runs along the eastern edge of the South Platte River. The park is near other Denver attractions, including the Pepsi Center, the Elitch Gardens Theme Park, the Children's Museum, and the Aquarium.

## Operation

Denver Parks and Recreation maintains Confluence Park and its assets. Commercial operators offer paddle sport and bike rentals, kayak lessons, and outfitting. Experienced paddlers can also bring their own equipment and use the river on their own.

## Funding

The City of Denver funded Confluence Park's redevelopment as a Parks and Recreation capital project. The original $5 million budget grew to $9.3 million due to unexpected environmental cleanup which also stalled the project for several months. The additional $4.3 million was funded by a combination of ski resort inventive payments, and environmental fund, and a park projects fund.

## Impacts on the Community

The first wave of redevelopment in the late 1980s and 1990s followed the original development of park and plaza. The former industrial site transformed into a destination for outdoor recreation and public gathering. In addition to the public attractions noted above, private development included and R.E.I. flagship store and adjacent townhouse, apartment, and loft developments. To date, around $70 million in improvements in and adjacent to the river have attracted roughly $10 billion in reinvestment. The City of Denver is seeking opportunities to further encourage the development of active and livable neighborhoods surrounding Confluence Park with a variety of residential, commercial entertainment uses through zoning modifications.

# East Bank Trail and East Race Waterway
# South Bend, IN

## Overview and Activities

The East Bank Trail runs for 1.7 miles along the St. Joseph River and East Race Waterway in downtown South Bend, Indiana. It was one of the first "rail trails" in Indiana, where railroad lines were paved over to make walkable paths and connects to a larger trail system in and around South Bend, including the Northside Trail and the River Walk Trail, which lead to neighboring Mishawaka.

The majority of the East Bank Trail runs along the St. Joseph River, but a portion runs along the East Race Waterway, a 1900-foot-long man-made canal with whitewater rapids and features. The East Race was the first man-made white-water rafting course in North America, opening in 1984. Other activities include stand up paddle boarding, canoeing, rafting, and fishing. South Bend is also considering a zip line running above the East Race to take participants back to the start of the course.

In 2015, South Bend installed River Lights, a public art display comprised on interactive lighting displays that illuminate the St. Joseph River, Century Center convention center, and nearby bridges.

## Operation

South Bend Venues, Parks, and Arts department maintains the paths and parks along the river as well as the East Race Waterway. Users of the East Race must pay per trip down the rapids and the course is only open on weekends during the summer. The water level and obstacles can be adjusted to increase or decrease the difficulty of the whitewater. As a man-made channel, East Race requires lifeguards be present along the course.

## Funding

The City of South Bend constructed the East Race Waterway in 1984. One million dollars in grant money combined with a $3.5 million bond issue to fund the development.

## Impacts on the Community

The recreation benefits of the East Bank Trail and East Race Waterway are enjoyed by residents and tourists alike. South Bend's Department of Community Investment estimates that $78 million in economic development has occurred in the area in the 34 years since the East Race opened. The former industrial area has transformed into a neighborhood of condominiums, townhomes, restaurants, retail shops, and office buildings. Notable private development includes the AM General Headquarters, Memorial Epworth Hospital, the historic Commerce Center, and multiple residential developments. Private developers have announced several other projects, including high rise office and residential developments.

# Boise River Greenbelt and Boise Whitewater Park
# Boise, ID

## Overview and Activities

The Greenbelt in Boise, Idaho is a 25-mile pathway the runs through the city, along the Boise River, starting at Lucky Peak Dam and ending in Garden City, ID. The Greenbelt was started in 1967, and in 1971 the City of Boise passed an ordinance that required all structures and parking areas be set back 70 feet from the Boise River, ensuring room for the trail to be built. Due to the ordinance, there is limited development along the Greenbelt and it is used more as a means of transportation than a tourist or recreational attraction.

Phase 1 of the Boise Whitewater Park opened in 2012. It replaced an irrigation dam with a multi-function dam with three wave shapers that can be controlled individually. These wave shapers create a singular wave for kayakers and surfers to use year-round. The second phase is half-mile run currently under construction and will open in 2019. It will include three sections for active and passive recreation, "play waves", a slalom course, and improved river access. Along with improvements to the Greenbelt, phase two improvements will provide additional opportunities for fishing, kayaking, stand-up paddle boarding, surfing, swimming, hiking, and biking.

## Operation

Boise Parks and Recreation manages and maintains the Greenbelt and whitewater park. The whitewater park is open year-round with wave schedules varying by season and water flow rates. Commercial businesses offer equipment rentals, lessons, and retail shops along the river.

## Funding

The $3.6 million phase one whitewater park development was funded by the City of Boise, the Albertson Foundation, and other private donations generated by the volunteer organizations, Friends of the Park. The Albertson Foundation announced a $3.5 million grant for phase 2 in 2016 which the City will match. By 2019, $25 million in riverfront improvement will be completed, including riverbank rehabilitation and park amenities.

## Impacts on the Community

Urban renewal is a major goal along the river. Historically, the area was highly industrial, but an extensive restoration project brought the area back to life with 107 acres of parks, 63 acres of water and 2 miles of river frontage. Boise Mayor, Dave Bieter has said, "The Boise River Park is already helping to redefine Boise and downtown's west end in profound ways. With the generosity of the Albertson Family Foundation, we will continue to build on the park's success by creating a uniquely Boise recreation experience, while spurring further investment in a neighborhood with extraordinary potential." The project has also been a boon to local outdoor recreation, restaurant, and retail businesses.

# Wausau River District and Whitewater Park
# Wausau, WI

## Overview and Activities

The River District is the economic and historic center of Wausau, Wisconsin. It was established to promote the economic vitality and historic preservation of Wausau, especially along the Wisconsin River, which runs through the city. The River District is focused on residential and business development, as well as creating a memorable sense of place within the River District.

Just upriver of the River District, the Wisconsin River is split by a series of islands that have been turned in to parks by the City. On the east side of the islands is Wausau Whitewater Park, a channel that was used when the river threatened to flood the area. The first full length race at the Wausau Whitewater Park occurred in 1979, and a new dam was installed in 1989, which allowed water flow into the channel to be controlled. The course has been updated and improved and currently is 1,750 feet long with numerous vantage points for spectators to view competitions. The Whitewater Park has hosted US Team Trials, five World Cups, and numerous international competitions since its construction.

## Operation

The Wausau Kayak and Canoe Corporation ("WKCC") is a nonprofit organization operates the whitewater park. On-shore parks and improvements are maintained by the City of Wausau. The dam is owned and operated by the Wisconsin Public Service Corp. When in operation, the whitewater operator pays the utility for the electricity that is not produced as specified in a joint use agreement. The whitewater course is operational around every third weekend from May through September for events and public use.

## Funding

WKKC launched a fundraising campaign shortly after is creation in 1987. Course improvements have been ongoing with occasional support from the City of Wausau and the Marathon County Parks Department. The Wausau Community Development Authority acquired property at the north end of the course allowing for construction of a permanent starting dock. A new viewing area was completed in 2011 through a partnership of the City, Parks, and the WKKC.

## Impacts on the Community

The Wausau Whitewater Park is a nationally recognized whitewater course Experienced paddlers from throughout the U.S. and abroad for events, training, and clinics, generating significant spending impacts at local hotels and restaurants. WKCC estimates an annual economic impact of around $3 million.

# Bicentennial Riverfront Park & Marge Cline Whitewater Park
# Yorkville, IL

## Overview and Activities

Bicentennial Riverfront Park is located along the Fox River in Yorkville, Illinois. It features a playground, fishing pier, and three picnic shelters that can be rented by users.

The park is also home to the Marge Cline Whitewater Course, a 1,100-foot-long bypass chute that features class I and II rapids. It was constructed after the Glen D. Palmer dam was remodeled in 2006. The dam shape was altered to make it safer, a fish ladder was added, and the bypass channel was added, including the whitewater park. The whitewater park is separated from the dam by a man-made island that runs the length of the channel and is attached to the riverfront park by a pedestrian bridge. The park hosts the Illinois Whitewater Festival, which includes a cardboard regatta, slalom competitions, and boater cross races.

## Operation

Yorkville Parks and Recreation manages and maintains Riverfront Park and the whitewater course. Commercial operators offer equipment rentals.

## Funding

The City of Yorkville spent approximately $10 million dredging the Fox River and adding boulders to create the course as a safe passage around a dam.

## Impacts on the Community

The whitewater course's draw of visitors has translated into several new businesses opening in Yorkville's downtown, including restaurants and coffee and ice cream shops to cater to both out-of-towners and locals.

# Riverfront Park & Charles City Whitewater
# Charles City, IA

## Overview and Activities

Along the Cedar River, Charles City Whitewater Park opened in 2011. The course features three manmade drop and pool features along the 1,200-foot course in the heart of downtown Charles City. The park is suitable for paddlers of various skill levels and is open year-round to kayakers, stand-up paddle boarders, canoers, and tubers. Fishing is also a popular river activity. Charles City host an annual whitewater games event attracting competitive kayakers and stand-up paddlers. It will also hold the Iowa Games' whitewater slalom event.

The whitewater park is flanked by parks and commercial establishments. Adjacent Riverfront park offers a stone amphitheater, naturalized play area, a disc golf course, picnic shelters, a labyrinth, public art, and hiking and biking trails.

## Operation

Charles City Whitewater is owned and maintained by the Charles City government.

## Funding

Construction of the park cost approximately $1 million and received funding from the Iowa Department of Natural Resources as well as private donations.

## Impacts on the Community

City officials have estimated the annual economic impact of the park is $746,000, peaking in the summer months and some visitors have come from as far away as California to use the whitewater. Charles City was the first city in Iowa to replace a low head dam with a whitewater park. Four other Iowa cities are following the example and replacing their dams with whitewater parks.

# B. Appendix B - Comparable Park Layouts

The following annotated aerial photos provide information on park layouts, design, and features. The scale of these aerial photos is inconsistent because park sizes vary greatly.

**FIGURE B-1**
**BICENTENNIAL RIVERFRONT PARK, YORKVILLE, IL**

**FIGURE B-2**
**BOISE GREENBELT, BOISE, ID**

**FIGURE B-3**
**CHARLES CITY RIVERFRONT PARK, CHARLES CITY, IA**

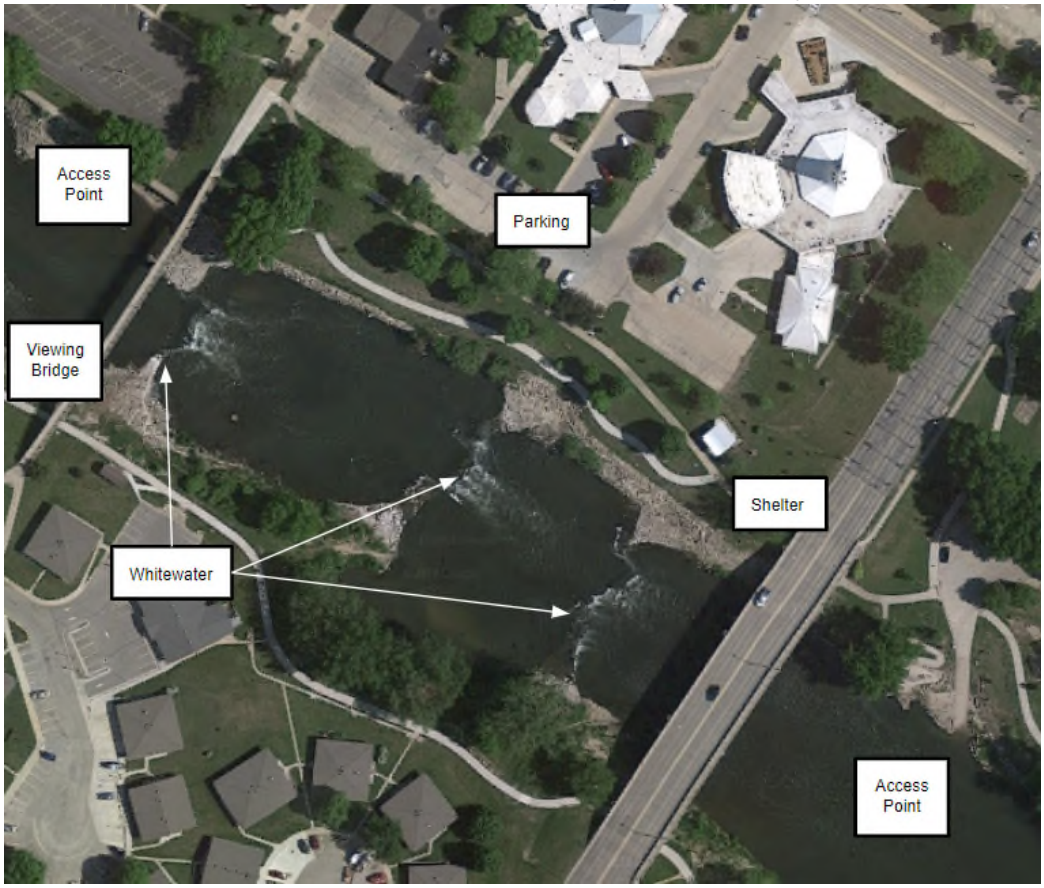


**FIGURE B-4**
**CHATTAHOOCHEE RIVERWALK, COLUMBUS, GA**

**FIGURE B-5**
**CONFLUENCE PARK, DENVER, CO**

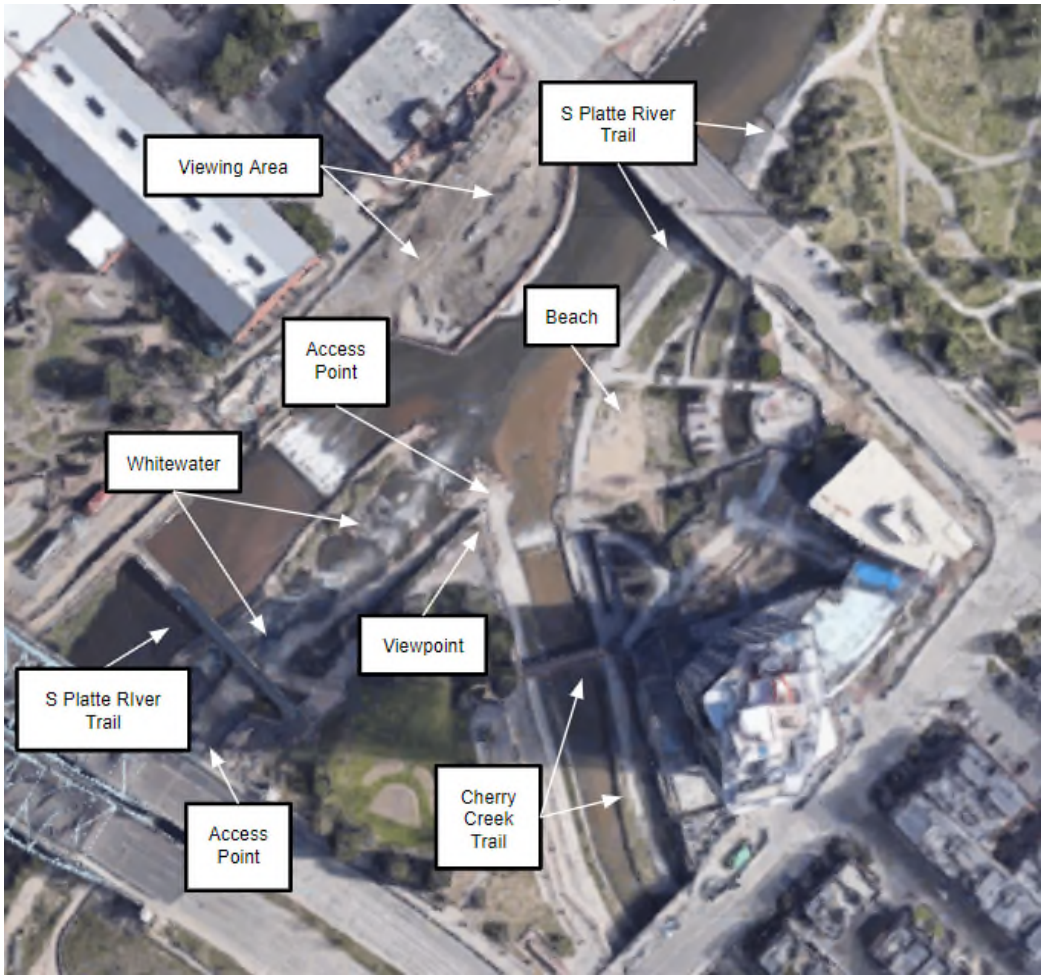


**FIGURE B-6**
**EAST BANK TRAIL, SOUTH BEND, IN**

**FIGURE B-7**
**FALLS PARK ON THE REEDY, GREENVILLE, SC**

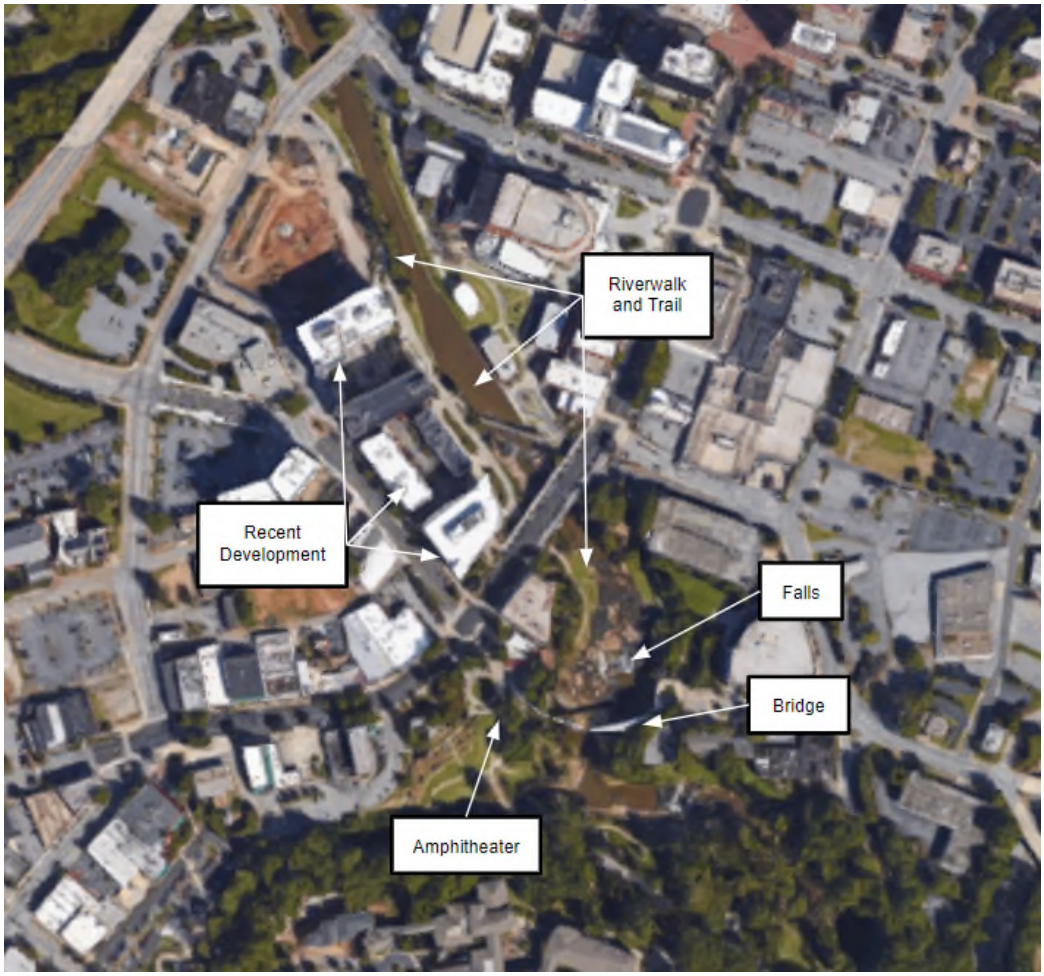


**FIGURE B-8**
**WAUSAU RIVER DISTRICT, WAUSAU, WI**

# C. Appendix C - WBK Engineering Feasibility Study

# St. Charles Active River Park

## Project Summary June 16, 2017

### Purpose and Scope

In 2015 the City of St. Charles, the St. Charles Park District and the River Corridor Foundation of St. Charles jointly updated the Fox River Corridor Master Plan intending to provide a strategic framework to enhance the Fox River as a resource for the community from an environmental, recreational and economic development perspectives. The Master Plan provides guidance for public and private investment / projects along the Fox River in St. Charles and recognizes the importance of connectivity of the river and adjacent land uses.

The City has engaged WBK to investigate alternatives to accomplish the objectives of the Master Plan with a focus on the section of the Fox River between Main Street and the Union Pacific Railroad (UPRR) trestle. This section of the Fox River is approximately 1100 feet long and includes the St. Charles – Fox River dam. The St. Charles dam is 300 feet long with a crest elevation of approximately 684. Mean daily flows can be approximated at 1200 cubic feet/second (cfs). Normal pool elevation is approximately elevation 686. Based on the best available records the dam is owned by the Illinois Department of Natural Resources.

The purpose of this study is determine qualitatively if dam modification appears feasible and to develop a set of concept alternatives that accomplish the objectives of the River Corridor Foundation of St. Charles Master Plan without significant / adverse impact to existing recreational uses of the river. This concept study phase will conclude by identifying significant challenges and opportunities created by proposed concept alternatives, as scoping items for future evaluation and engineering.

### Existing River / Dam Conditions

Two significant existing challenges exist within the study area of the Fox River; public safety and ecological impacts of the existing St. Charles dam. Public safety concerns with low head dams are well known and documented and including an evaluation of the St. Charles dam in the 2007 Run-of-the –River studies by the Illinois Capital Development Board. Uses of the river are restricted adjacent to the St. Charles dam. Flooding of IL 31 upstream of the St. Charles dam occurs when water levels in the Fox River rise and has traffic impacts. Approximately 820 feet of IL 31 adjacent to the project limits and upstream of the St. Charles dam lies within the 100 year floodplain of the Fox River. Additionally, the dam is a recognized impediment to fish passage and other species who make their home in and around the Fox River. The lack of fish biodiversity in certain segments of the Fox River as a result of dams is well documented and resulted in the advocacy for dam removal or modification to facilitate the restoration of riparian ecosystems. The development of alternatives consider these challenges and seek to improve safety and the Fox River ecosystem.

## Opportunities

### Water Recreation

Public activity on the water of the Fox River between Main Street and Pottawatomie Park is less than the activity occurring both north and south of the project limits. Direct access to the water is limited within the study area and the study area can be considered underutilized from a recreational perspective. Opportunities involve improved connectivity on the water and access to the water form trails and adjacent land uses. The Fox River serves as a recreational water resource and also as an attraction and backdrop to many land activities including walking, running, bicycling and many other Park District activities. Potential enhancement of water recreation includes improved kayaking, canoeing, and fishing with potential for competitive kayaking and recreational surfing among other water based activities. The project provides an opportunity to better connect Potawatomie Park and the many existing water activities to downtown St. Charles businesses and customers. The Hotel Baker and Municipal Building are historic and significant land uses adjacent to the river with existing river access. We believe opportunities to provide enhanced access to the River and river trail / amenities will appeal to a broader segment of business patrons including potential for boat dock facilities within the pool at or north of the project limits.

### Land Based

If a project such as this is implemented we believe significant land use opportunities exist adjacent to the Fox River within the study limits. Opportunities include the relocation of the Police Station on the east side of the river and potential reduction in floodplain limits west of IL 31. Although the extent of floodplain reduction west of IL 31 is uncertain at this concept phase, any reduction together with the proximity to a significant recreational destination is expected to enhance intrinsic land value and encourage evaluation of current land uses. We expect the rekindling of commercial interest to synergize with the river improvements to enhance the downtown business climate for all businesses along and near the Fox River, including Salerno's, Hotel Baker, Century Corners, Third Street and Main Street businesses.

Walking trails – Perhaps the most significant improvement opportunity to enhance recreation and the St. Charles' downtown business district lies with land connections via trails and pathways adjacent to the Fox River. Although an existing Riverwalk exists along the east bank of the river, it is not continuous across Main Street and ends at the Municipal Building / Main Street creating a less than desirable interface for cyclists and pedestrians. Although access from the study area to Pottawatomie Park is provided, access is not obvious nor comfortable when busy. An opportunity exists to improve this condition and perhaps provide a visible gateway from downtown St. Charles to Pottawatomie Park. Although the project limits end at Main Street, the project has potential to safely and easily facilitate pedestrians and bicyclists along the Fox River and to a future riverwalk extension under Main Street. There is also potential to directly connect Main Street to the west bank Riverwalk at First Street further strengthening the commercial / recreational connection. Finally, a west bank Riverwalk has potential to extend north of the UPRR trestle to Boy Scout Island. If accomplished this connection would link Boy Scout Island to Potawatomie Park and to the proposed improvements within the study limits.

### Ecological / Cultural

The ability of the project to improve the biodiversity of plants and animals within the study area and adjacent segments of the Fox River is a noteworthy opportunity for the community. We expect fish passage to be significantly improved as a result of the project. We propose to introduce native plants within the study area and adjacent areas to create habitat for fish and other riparian species such as turtles, mussels and birds. Public education of the river ecology can be accomplished through signage and collaboration with Park District and School District activities.

The St. Charles community is proud of its heritage and through historic preservation sustains the memories and stories of past civic leaders and community efforts. Although this project seeks to create a new beginning for this segment of the Fox River, respecting the adjacent historic architecture, incorporating existing art elements and preserving the story of the dam itself can all be incorporated into the project. In addition, an opportunity to expand an understanding of the pre-settlement community and culture can be incorporated into recreational, landscape and other elements of the project.

## Alternative River Park Concepts

The project team initiated development of alternatives by starting with the concept sketches in the Fox River Corridor Master Plan. We considered of a wide range of variations including modifying the existing dam, relocation of the dam, discussion on the extent of the study limits and consideration of multi-channel alternatives. We evaluated project elements against project goals, existing challenges and potential opportunities. We have developed three alternatives which we believe significantly improve public safety, enhance fish passage and provide recreational and economic development opportunities. While evaluating alternatives we sought to strike a balance between various interests to minimize impacts while providing benefit in accordance with project objectives.

Two primary concepts developed from our evaluation, primarily as a result the physical slope of the river across the study area. A single channel configuration achieves water "connectivity" and creates additional riverbank area for walking trails and riverbank amenities. The dual channel configurations expands the single channel concept to create a variety of paddling / water experiences by varying the slope of each channel. The island area is necessary to facilitate varying channel slopes and also creates a point of interest and facilitates enhanced access to the water. From these concepts we developed a total of three feasible alternatives; one single channel and two dual channel configurations. The alternatives are best depicted on three exhibits attached to this summary. A narrative overview of the alternative is provided hereafter:

- All concepts maintain the pool north of the UPRR trestle and have no adverse impact on 100 year flood elevations and will not result in sediment accumulation adjacent to Potawatomie Park.

- All concepts remove the dam in its entirety due to the proximity to Main Street and the adjacent walls of the Municipal Center and Hotel Baker.

- All concepts change the river profile from a single six foot drop at the existing dam to a series of three cascade drop structures across the length of the project. This serves to improve public safety and facilitate fish passage through this section of the river.

- All concepts include an upstream gated control structure with potential to reduce upstream flood elevations, to facilitate sediment transport and to support the existing recreational purposes. The type of gate and configuration is beyond the scope of this study however the Fox River has several gated structures / types between the Chain O Lakes and Dayton.

- All concepts narrow the width of the river from the existing pool condition to create additional riverbank to enhance access / use of the river and improve safety.

- The dual channel configurations have a "Primary" channel; depicted along the west bank of the area and an "Active" channel; depicted along the east bank of the area. This arrangement is reflective of the private land ownership along the west bank seeking to create activity on publicly owned land along the east bank. It also facilitates the confluence of State Street Creek at the west Bank of the river.

- The "active" channel in both dual channel alternatives have, in the terminology of paddle sports, a flatwater segment and a steep / whitewater segment. The primary difference between the dual channel alternatives is the location of the steeper segment being either closer to Pottawatomie Park or closer to Main Street.

Based on information gathered in accordance with the scope of this study we find these three alternatives feasible. It is noted that further study is necessary to define these preliminary concepts and to fully and better understand impacts, costs and schedule. In addition, other alternatives or variations of these alternatives may provide additional benefit or ability to mitigate impacts and may be developed or selected in the subsequent preliminary design phase of the project.

## Other Similar / Recent Projects

It is useful to compare the project concepts developed to previously constructed projects providing similar functions. Accordingly, a comparison of the St. Charles Active River Park study area was made to the Glen Palmer Dam modification /Marge Cline Whitewater Park, both on the Fox River in Yorkville, IL. This comparison validates the feasibility of a river park concept in St. Charles. The projects are similar from several aspects including: both projects are on the Fox River, the length and elevation differentials are similar at each dam locations, the Glen palmer Dam project was recently completed (2011) and the Glen Palmer Dam project resulted in agreements between the Illinois Department of Natural Resources (IDNR) and Yorkville for maintenance of the whitewater park. This comparison is made solely to validate the feasibility of a River Park in St. Charles through the similarities in river segments. However, there is no

comparison relative to the adjacent land uses including Potawatomie Park, Hotel Baker, Main Street and adjacent commercial districts.

## Regulation

Construction of a project in the Fox River involves a complex regulatory framework that involves public agencies and will also involve private landowner rights. The scope of this study was limited to review and engagement with the Illinois Department of Natural Resources – Office of Water Resources - Northeastern Illinois Regulatory Section (IDNR). Although a majority of the public regulation is under IDNR's authority the following list of regulatory compliance is recognized for consideration in the preliminary design phase of the project.

- The following regulation is under the authority of IDNR:
  - Public Body of water regulated under IAC 3704 rules
  - Dam Safety including construction, removal and operation under IAC 3702 rules
  - Floodway Construction NE IL under IAC 3708 rules

- The following regulation is under the authority of the United States Army Corps of Engineers Chicago District Regulatory Branch:
  - Federal jurisdiction is through the Section 10 Public Waters – River & Harbors Act.
  - Wetland fringe United States Army Corps of Engineers (USACE) jurisdiction under Section 404 of the Clean Water Act

- Regulation under the authority of the Illinois Environmental Protection Agency (IEPA) includes:
  - In river work may be subject to either IEPA Section 401 Water Quality Certification and/or the more stringent IEPA Bureau of Water Anti-degradation rules.

The project team introduced the three alternatives presented herein to IDNR for review and preliminary comment. No regulatory issue was identified that would render the project infeasible nor was a "fatal flaw" identified. In general, IDNR felt the project was feasible from their regulatory perspective. There are regulatory conditions and constraints that will require compliance, however, there is no regulatory conditions identified that we can find at this time to render the project infeasible.

The following regulatory issues need to be resolved or clarified:

- Riparian rights of private land parcels immediately adjacent to the Fox River. These owners have the rights of use and access and public access at these 3 parcels requiring legal review separate from the IDNR process.

- Creation of land within the limits of the river by means of fill will need to be publically owned. This may also give rise to a license to use / operate.

- IDNR is not likely to take ownership of new structures within the river (i.e. upstream control structure / gates) so a public entity willing to commit to ownership and maintenance will be required. We are assuming at this point that the City of St. Charles or the St. Charles Park District would need to fill that role.

- Signage / setback requirements at upstream control structure / gates.

- In-river work restrictions to protect threatened and endangered species. Of primary concern in this area of the Fox River is protecting the breeding habitat and season for the Greater River Red Horse.

It was clear based on our meeting that the type and scope of this project is not typical for IDNR to process. Coordination between sections and workgroups is necessary to coordinate all of IDNR authority and concerns. Although the IDNR-OWR Northeastern Illinois Regulatory Section identified themselves as the coordinating section for IDNR, a well-defined process and schedule could not be provided. Identify a permitting process & schedule with all regulatory agencies and a legal review of riparian rights is warranted in the preliminary design phase of the project.

## Construction

The following outline is intended to demonstrate the feasibility of construction and generate an understanding of challenges and timeframes for construction of the project. It is based on a dual channel alternative. We envision the project to span at least two construction seasons and consist of multiple phases. One scenario includes the following major elements and phases:

1. Establish and set a temporary water control structure upstream just south of the UPRR trestle. This structure will serve to maintain he recreational pool north of the project location throughout construction.

2. Remove the existing dam to the elevation of the river bed. Dam abutments may remain pending structural evaluation of adjacent properties / structures.

3. Construct the south portion of the west (primary) channel and two intermediate cascade drop structures. A temporary A-frame structure can be erected parallel to the river to dewater the work area. Construct the south half of a concrete cutoff wall separating the two channels (The exact length of the cutoff wall is uncertain and the term “half” is used as an approximation). It is

anticipated this would be located in the core of the island and facilitate construction of the two intermediate cascade drop structures. The phase will not include State Street creek and will route the Creek north and around the A-frame elements.

4. Construct the north portion of the west (primary) channel and the upstream control structure. Provide A-frame cofferdams from the cutoff wall to the temporary water control structure at the upstream end of the project. Re-route State Street Creek through the recently completed phase. Modify the temporary water control structure as necessary to accommodate the new phase. Complete the north half of the cutoff wall from the prior phase to the north end of the project. Construct the permanent upstream control structure. Install control gates, mechanical and electrical elements including temporary controls.

   End Year 1

5. Construct the east (active) channel. Modify the temporary water control structure as necessary to accommodate the new phase, perhaps remove the west half. Provide A-frame cofferdams from the cutoff wall to the temporary water control structure at the upstream end of the project. Construct the active channel head control structure and active channel features.

6. Complete the pedestrian connection to the UPRR pedestrian bridge and east bank walk / bikeway improvements. Modify the temporary water control structure to accommodate this phase.

7. Perform final filling, shaping and “tuning” of river elements.

8. Install bridges and hardscape elements on the island.

9. Install final gate controls and island electrical elements.

10. Construct ancillary plan items and support features.

11. Perform restoration of all disturbed areas including final plantings and landscaping.

## Process / Schedule

The process to design and engineer a dam modification / removal project typically includes two phases; preliminary design and preparation of final construction documents. Based on our findings and the need for further refinement, resolution and definition we believe this standard approach to be appropriate. The preliminary and final construction design phases would include:

- Preliminary Design

  - Design development of two concepts (~20% design)
  - Field Investigations
    - Sediment depth and constituents
    - Bathymetric survey
    - Rock coring/testing
  - Meetings with all regulatory agencies
  - Refine cost estimates and schedule
  - Identify required field investigations
  - Identify and affirm funding sources
  - Legal evaluation of project
  - Public participation
  - Preliminary Design Report

- Go/No-Go Milestone
  - Select preferred alternative
  - Confirm funding sources
  - Continue communication with regulatory agencies & regulatory changes

- Final Construction Documents
  - Final design development of preferred alternative
  - Final construction Plans, specifications, and contract documents
  - Final construction estimate and schedule / sequencing
  - Permitting and regulatory submittals
  - Legal requirements
    - Intergovernmental agreements
    - Easements / land rights

- Bidding including major equipment procurement & construction services procurement

- Construction Services

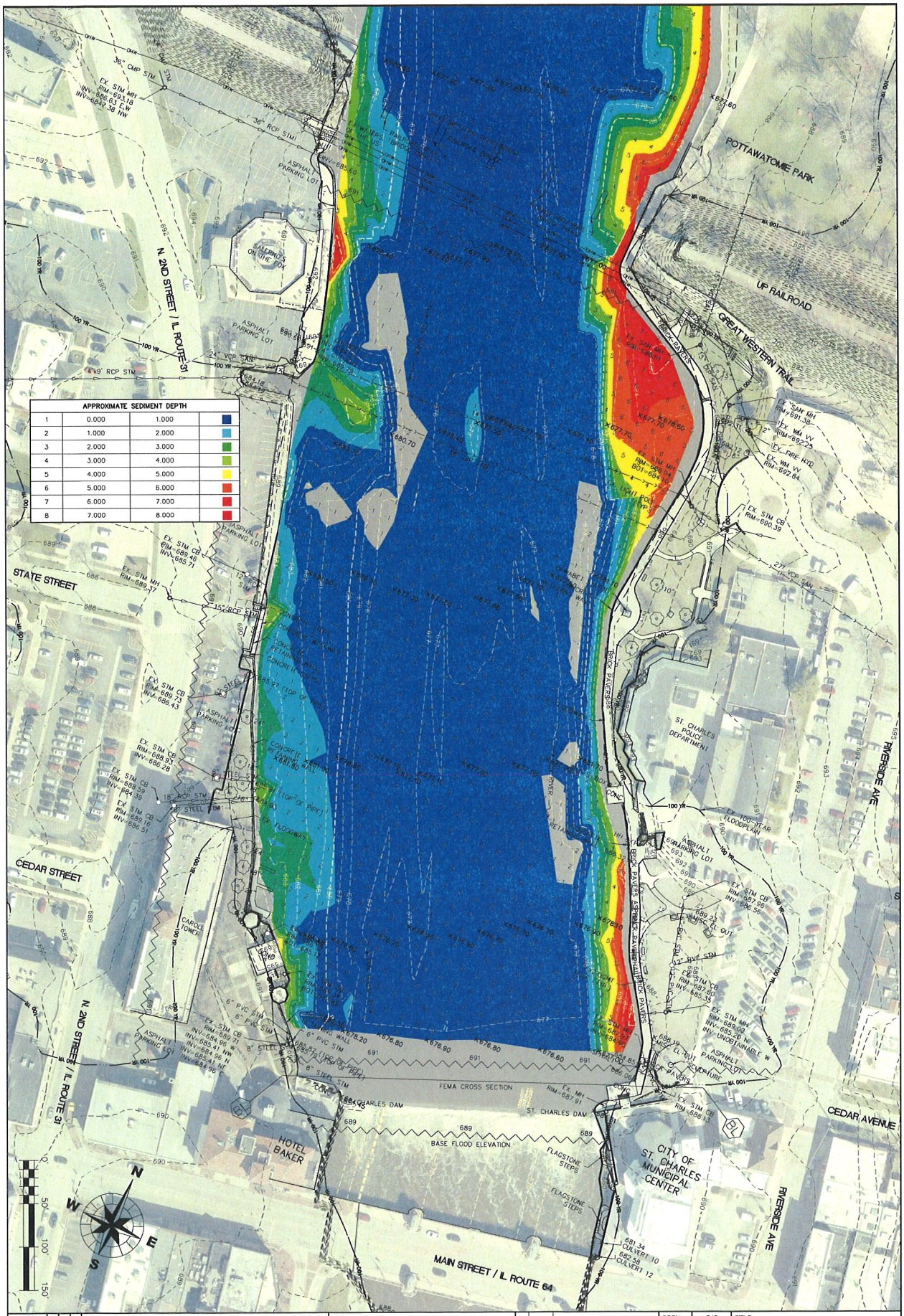
The project schedule for completion of preliminary and final design should be anticipated to be three years from authorization to proceed. This schedule could vary depending on project scope, sponsor agency interest is alternatives and regulatory requirements or changes. As noted previously, the project schedule for construction is anticipated to be two years. Procurement of a significant mechanical elements (i.e. gates) could be initiated prior to completion of final design to allow for manufacturing lead time if necessary.

## Costs

Concept level costs for the project have been developed based on the dual channel alternative and the construction phasing and sequencing noted herein. The goal of this task is to provide order of magnitude funding requirements. The feasibility of achieving the funding level required may be judged based on other projects the City has invested public funds in the recent past. These include Wastewater Treatment Plant Improvements, Red Gate Bridge and the First Street Redevelopment. No two projects of this magnitude are alike or have similar funding sources. Construction costs, without contingencies and soft costs, are estimated in the range of $15 to $16 Million. With contingencies and soft costs the total project costs range from $20 to $22 Million.

## Conclusion

Based on the team's understanding of existing conditions, the scope of proposed alternatives, regulatory requirements and stakeholder interests we believe the development of a successful River Park improvement project in St. Charles between Main Street and Potawatomie Park is feasible and will accomplish the objectives of the Fox River Corridor Master Plan. If public agencies desire to pursue these concepts, the next logical step is to develop a detailed preliminary design scope of services and to verify funding availability for preliminary engineering. This step would include public participation, regulatory agency coordination and legal review of project requirements.

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| SHEET: 1 OF 1 | DRAWING NO.: EC1 | DATE: 09/07/2017 | PROJECT NO.: 160271 |

WBK engineering

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| DSGN. | GJC |
| DWN. | EAM |
| CHKD. | GJC |
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TITLE:
**RIVER PARK CONCEPT FEASIBILITY**
**EXISTING CONDITIONS/ SEDIMENT DEPTHS**

# St. Charles Active River Project

## Alternative One

WBK engineering

S2O REINVENTING WHITEWATER

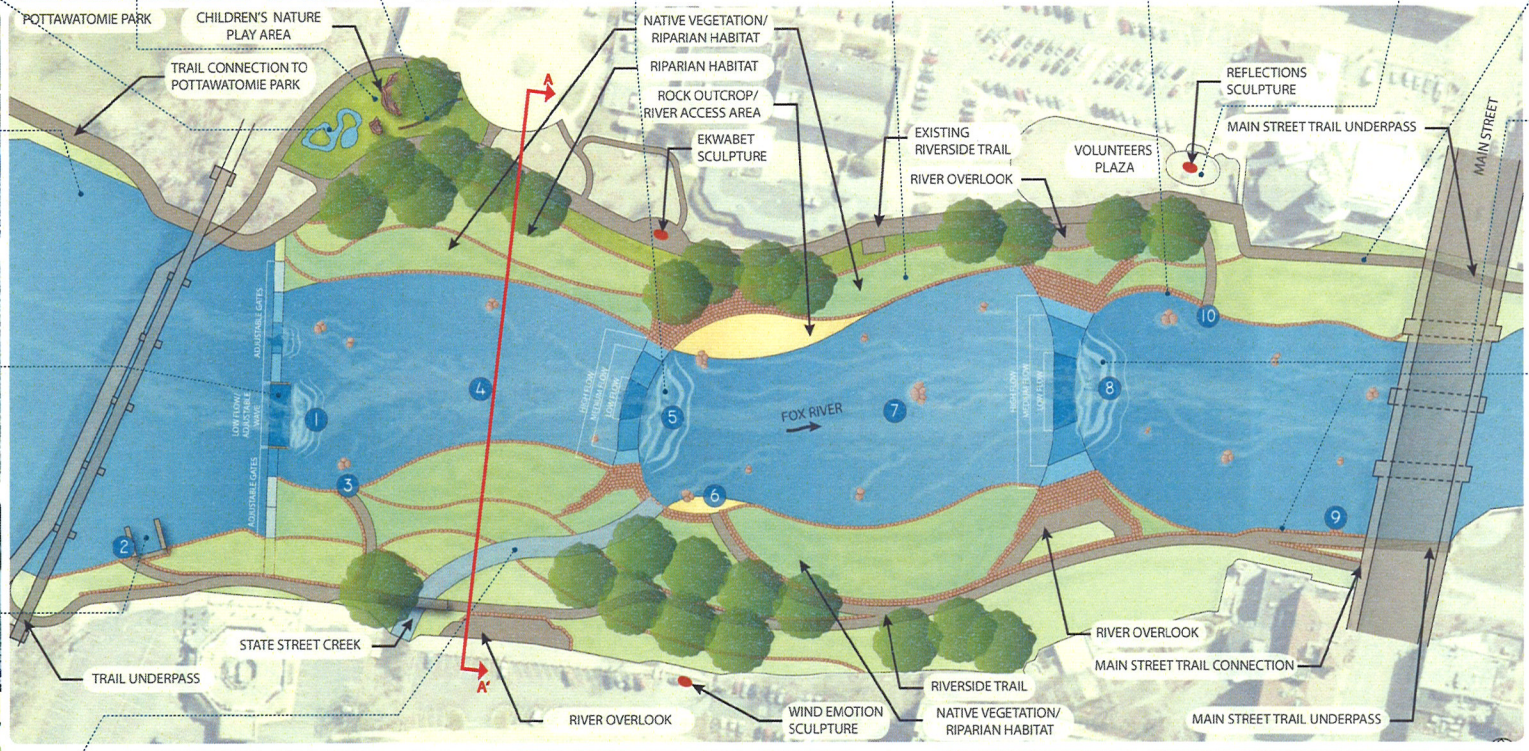
June 26, 2017

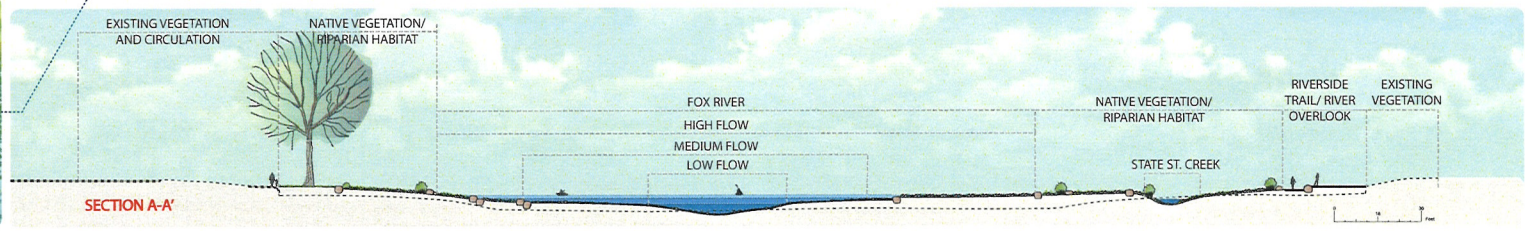
ST. CHARLES SINCE 1834







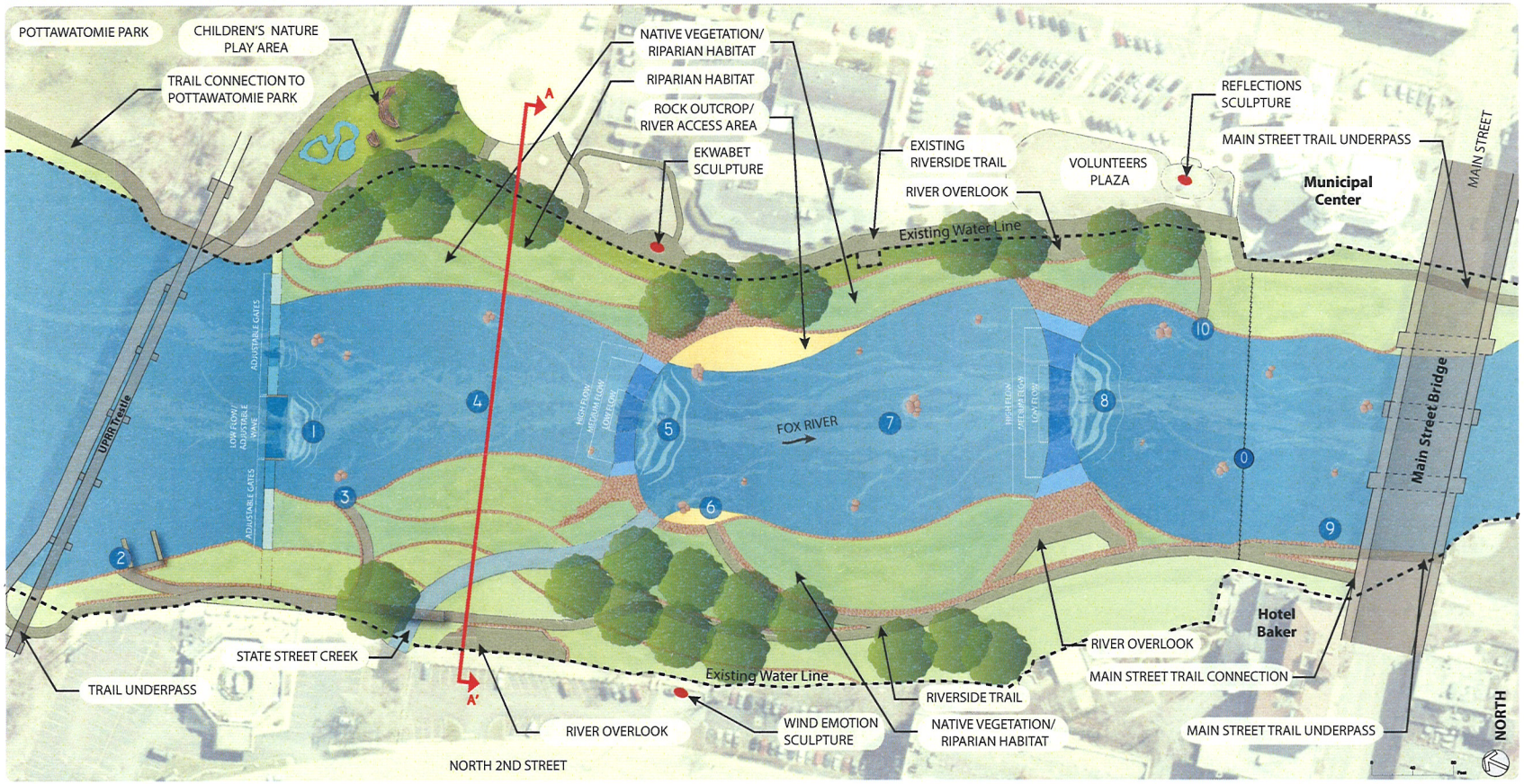

### Legend

1. Acti e Feature: Adjustable Headgate/ Wave
2. Accessible River Access Point/Boat Dock
3. Accessible Put-in
4. Beginner Paddling Area
5. Acti e Feature: Beginner Hole
6. Accessible River Access Point/rock Outcrop
7. Intermediate Paddling Area
8. Acti e Feature: Intermediate/ Advanced Hole
9. River Access Point
10. Accessible Take-out/ River Access Point

St. Charles Active River Project

# Alternative One

June 26, 2017




## Legend

0. Existing Dam emoval
1. Acti e Feature: Adjustable Headgate/ Wave
2. Accessible River Access Point/Boat Dock
3. Accessible Put-in
4. Beginner Paddling Area
5. Acti e Feature: Beginner Hole
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7. Intermediate Paddling Area
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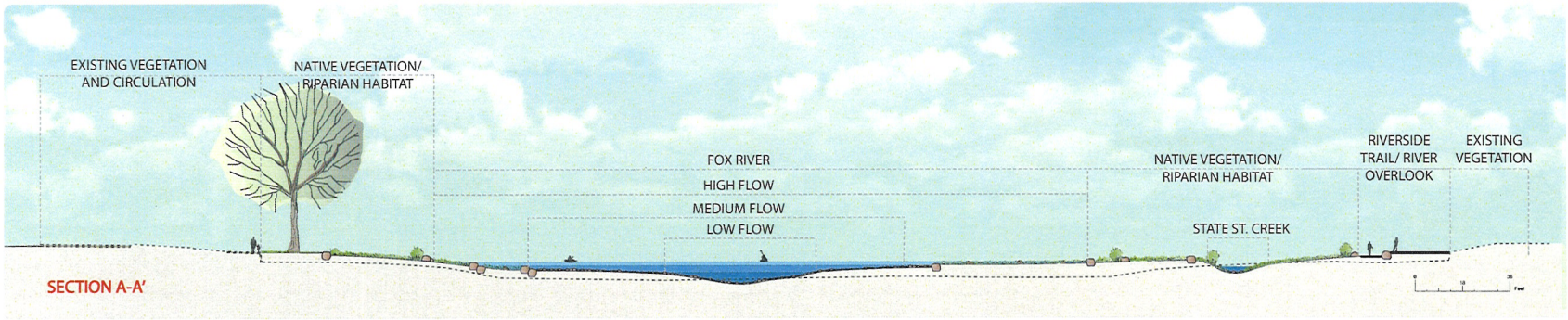


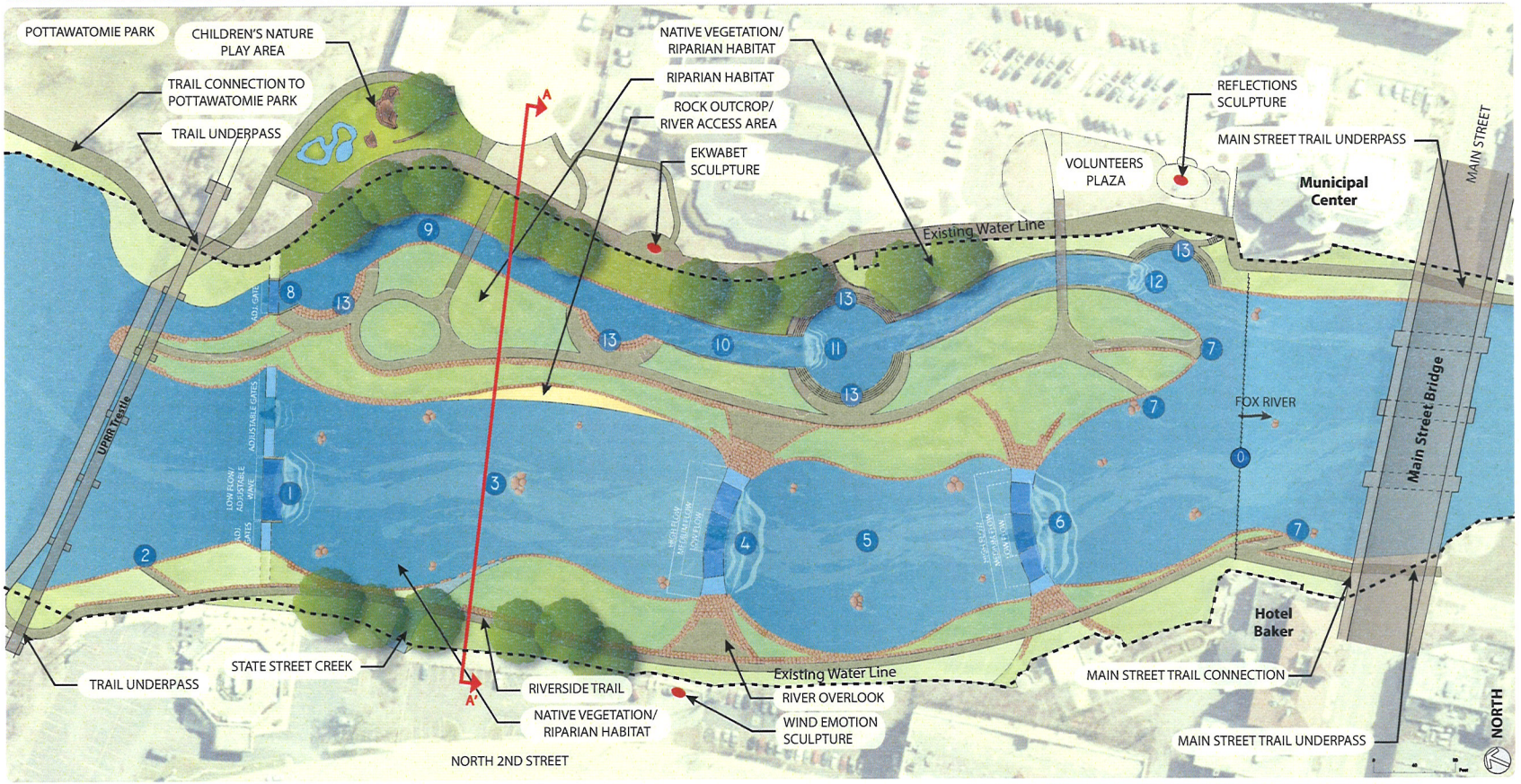

S2O Reinventing Whitewater

WBK engineering

St. Charles Active River Project

# Alternative Two

June 26, 2017




## Legend

0. Existing Dam emoval
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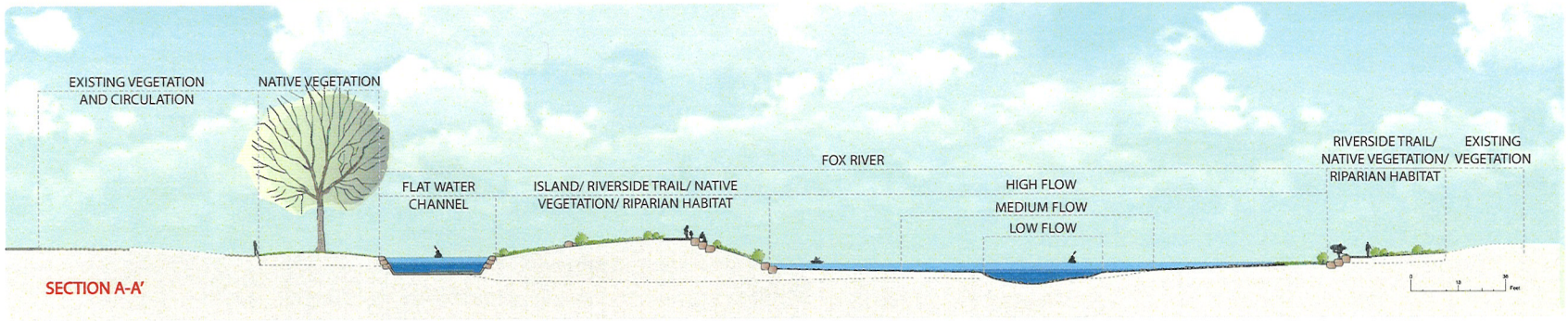
2. Accessible Put-in/River Access Point
3. Beginner Paddling Area
4. Acti e Feature: Beginner Hole
5. Intermediate Paddling Area
6. Acti e Feature: Intermediate/Advanced Hole
7. Accessible Take-out/River Access Point
8. Acti e Feature: Adjustable Channel Headgate
9. Flat Water Channel Area
10. Advanced Whitewater Channel Area
11. Acti e Feature: Advanced Channel Wave Feature
12. Acti e Feature Advanced Channel Hole Feature
13. Channel Access Points

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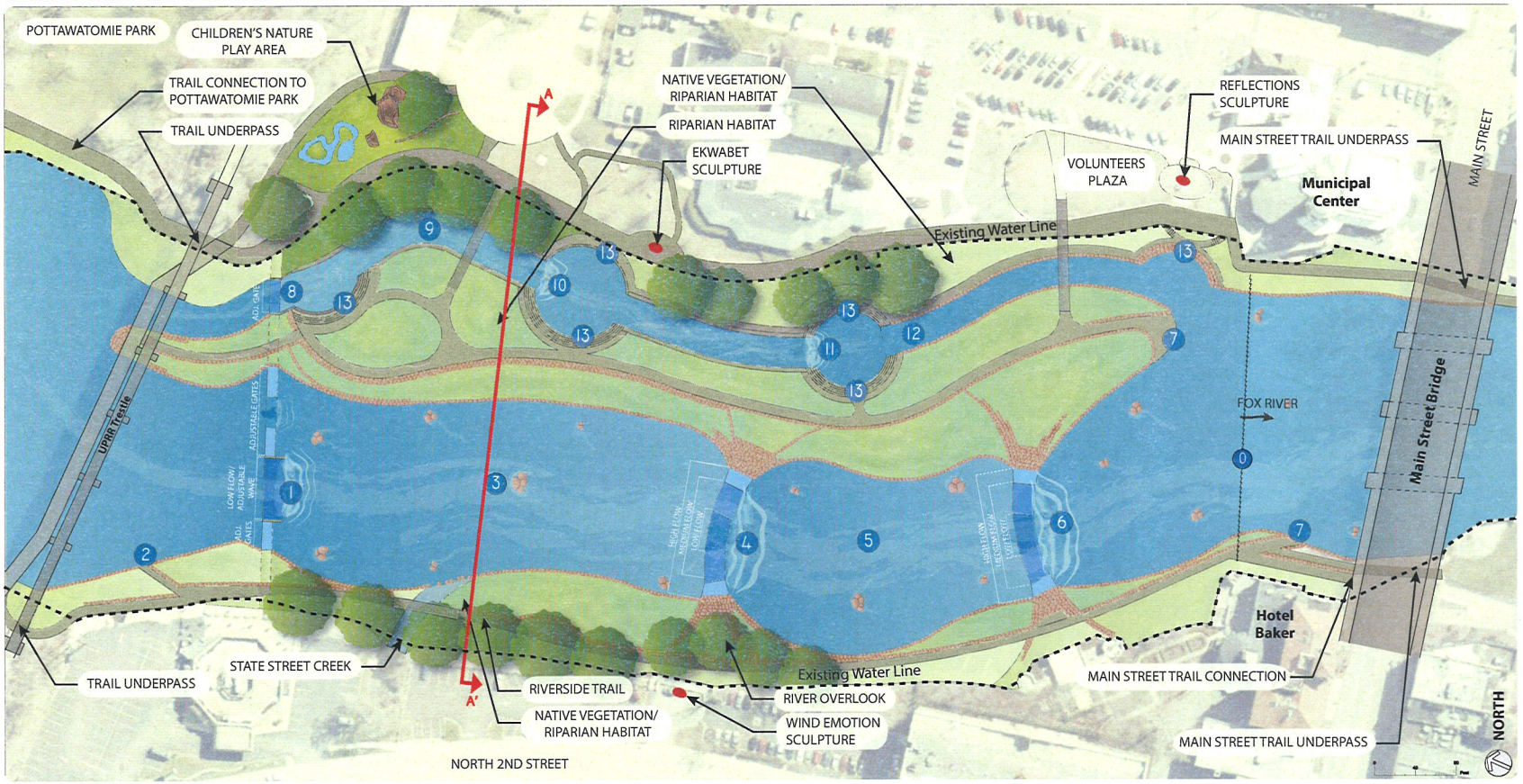
WBK engineering

St. Charles Active River Project

# Alternative Three

June 26, 2017




## Legend

0. Existing Dam emoval
1. Acti e Feature: Adjustable Headgate/ Wave
2. Accessible Put-in/River Access Point
3. Beginner Paddling Area
4. Acti e Feature: Beginner Hole
5. Intermediate Paddling Area
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11. Acti e Feature: Advanced Channel Wave Feature
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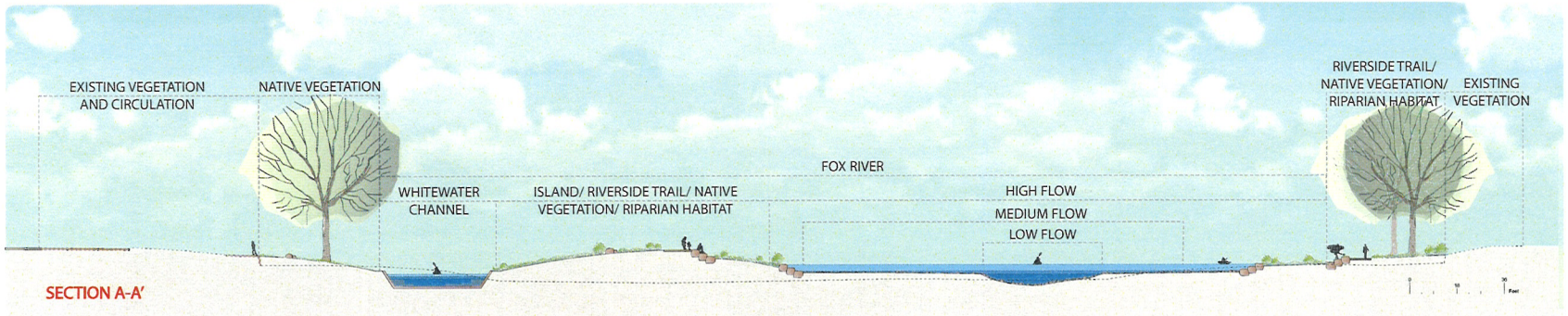


S2O1 Reinventing Whitewater

WBK engineering

# D. Appendix D - WBK Engineering Floodplain Comparison

TITLE: ST CHARLES ACTIVE RIVER
FLOODPLAIN COMPARISON

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| DSGN. | <DSG> |
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| CHKD. | <CHK> |
| SCALE: 1" = 60' | |

| NO. | DATE | NATURE OF REVISION |
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| | | Floodplain Comparison |

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PROJECT NO. 160271
DATE 04-24-2017
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