

## I. SCOPE OF WORK.

- A. The Contractor must complete a comprehensive study of the social, physical, and managerial attributes of Indian Lake through the use of observations and statistically valid survey methods and produce models projecting the potential impact of an increase in available boat mooring structures on users' recreation experience. For the purposes of this study, a "recreation experience" is the psychological and physiological response to participating in a particular recreation activity and setting. A recreation experience is comprised of mental and/or emotional responses as well as exposure to sensory phenomena including but not limited to the following:
1. Sights- Litter Trees, Wildlife and/or Natural Spaces.
  2. Sounds- Engine Noise, Loud Music Families Laughing and Playing, and/or Birds
  3. Smells- Exhaust Fumes, Outdoor Grilling, and/or Stagnant and Potentially Rancid Waters
  4. Equilibrium and Tactile Contacts- Wave Action and Chop Resulting From Boat Wake or Winds, Water Temperatures, Beach Sand, Smooth or Splintering Dock Planks and/or Facility Handles and Railings
  5. Perception of Safety and Convenience- Generally Friendly Interactions of Common Conflicts with Other Lake and Facility Users, Presence of Law Enforcement or Safety Staff, Response Time to Incidents, Adequate Facilities to Accommodate Various Recreational Activities, Availability of Restrooms and Food Services.
  6. Quality of Desired Experience- Ability to Engage in Desired Activities; Relaxation, Watersports, Wildlife Viewing, Family or Social Time, Fishing, Photography.
- B. Prior to initiating the study, the Contractor will be required to meet with the Agency to discuss the project details. This pre-initiation meeting will be conducted not less than two weeks prior to the commencement of project activities.
- C. Phase I of the project will require the establishment of baselines. The Contractor will be required to utilize existing studies, visitor & resident surveys (limited to lake users, park visitors, local residents, and businesses or individuals with a direct relationship to the lake), and conduct necessary research to establish the following baselines:
- D. Social Attribute Baselines:  
Ascertain current visitor use patterns including:
1. The typical number of boaters on a summer weekday, summer weekend, summer holiday, shoulder season weekday, shoulder season weekend, shoulder season holiday and determine if there is significant variance in the types of boating activities based on time of day, day of week, atypical visitation (such as a special event or holiday weekend), meteorological season and/or hunting and fishing seasons.
  2. The type of recreational activity visitors are engaged in while visiting such as fishing, paddling, pleasure boating. Skiing or tubing, wildlife viewing or photography, and any other relevant observable water-based recreation.
  3. The type of recreational vessel being operated or utilized for the activity including ski boats, bass boats, pontoon boats, jon boats, canoes or kayaks, paddleboards, sailboards, pedal boats, or any other type of recreational vessel.
- E. Evaluate Social Components Using Both Qualitative and Quantitative Methods:
1. Qualitative evaluation must be conducted and may utilize web-based surveys, mail-in surveys, in person interviews, or any other valid method approved by the Agency and shall require the contractor to compile the following information:
    - i. Establish current visitor & resident high value characteristics of the lake / park in relationship to use patterns considering the visitors' perception of the quality of the boating experience,

- ii. Feeling or perception of safety,
  - iii. attain relaxation,
  - iv. enjoy the presence of wildlife (successful fishing, wildlife viewing, etc.),
  - v. have adequate access facilities (launch ramps including parking area, courtesy docks, etc.),
  - vi. experience access to adequate land-based facilities (restrooms, food, playgrounds, etc.),
  - vii. the reason for terminating a boating excursion (planned to come in at that time, unable to continue to enjoy boating experience because of increase in boaters or change in users / activities, behavior of other boaters, no fish to catch, weather, etc.).
2. Quantitative evaluations must be conducted and may utilize web-based surveys, mail-in surveys, in person interviews, or any other valid method approved by the Agency and shall require the contractor to compile the following information:
- i. percent of “extremely” or “very” satisfied visitors,
  - ii. percent of “extremely” dissatisfied visitors,
  - iii. percent of visitors who would like to visit the area again,
  - iv. percent of visitors who would recommend visiting the area,
  - v. percent of boating accidents per number of boat launches / boating occurrences,
  - vi. percent of emergency medical responses per number of recreation groups,
  - vii. percent of verbal or physical conflicts per number of boat launches / boating occurrences,
  - viii. percent of noise disturbances per number of recreation groups,
  - ix. percent of visitors / residents perceiving “extreme” or “very high” crowding (in relationship to number / type of boaters as well as season, weekday, and holiday influence during the occurrence),
  - x. percent of repeat visitors indicating the resource is “extremely” or “very” adversely effected since a previous visit,
  - xi. percent of residents indicating the resource is “extremely” or “very” adversely effected,
  - xii. percent of visitors / residents complaining about the same specific issue.
- F. Determine what current visitors & residents feel disrupts the quality of recreation experience in relationship to use patterns by examining the role of noise, water quality, crowding, user conflict, litter / pollution, condition of facilities, and other identified factors.
- G. Physical Attribute Baselines:
- 1. correlate user activity and resulting resource pressure with ecological attributes:
  - 2. quantitative measures are to be used to determine increases in turbidity / decreases in water quality in relationship to use patterns and /or user pressure, and to determine if, and the extent of, the impact of boater activity on aquatic diversity, fish population & health, and quality of habitat.
  - 3. evaluates the impact of recreational boating activity on adjacent public and private lands:

4. aerial photography, traditional surveys, lidar technology, or any other Agency approved scientific methods may be employed to examine changes to the shorelines and waterfront facilities, structures, or attributes resulting from recreational boating activities.

H. Managerial Attribute Baselines:

1. evaluates and quantify user impacts on the facility and resource:
  2. correlates the number of damage reports and maintenance-repair orders with user pressure
  3. assesses and evaluate the severity and expense associated with recorded damage reports and maintenance-repair orders
  4. document the occurrences of reasonable launch / retrieval time periods (should not exceed 30 minutes from assuming place in queue)
  5. determines the number of rule violations or other unlawful activities (such as parking in the grass) that result from user pressure or lack of adequate facilities
- I. Data collection for Phase I of the project shall commence no later than March 15, 2022 and not terminate prior to October 15, 2022.
- J. The Contractor may negotiate with the Agency to utilize staff, equipment, and/or facilities to aid in data collection efforts (e.g., Agency owned and operated watercraft to convey Contractor personnel to collect water samples, use of facility visitor information kiosks or displays for the placement and distribution of questionnaires, etc.)
- K. The Contractor will provide the Agency with status reports each month throughout the data collection period, and preliminary data may be requested by the Agency at any time to be included with the monthly status reports.
- L. A full data summary and initial review of project activities will be presented to the Agency midway through the data collection timeframe; this initial review and data summary will be due to the Agency no later than July 25, 2022.
- M. Upon completion of the data collection phase, and no later than November 10, 2022, the Contractor shall provide the Agency with an electronic copy of all raw data in a format compatible with Microsoft Excel or Access.
- N. Phase II of the project will require the development of projections. The Contractor will utilize baseline information in combination with academic research, legitimate published or accredited professional social, scientific, environmental, economic, or engineering studies to project or produce models demonstrating anticipated impacts on user experiences, resource and facility issues, as well as ecological effects. Such projections or models shall include, at a minimum, the following components based on the incremental increase of recreational boat docking structures at the lake:
1. Projections Regarding the Boater Experience:
    - i. Determine the likelihood of increase or decrease and severity of user conflicts and examine the potential impact on user behavior (including an assessment of a shift or increase in various boat types and boating activities),
    - ii. demonstrate how visitor use patterns may be influenced by perceptions of over-crowding and if the increase in docking facilities is likely to result in on-water over-crowding, present evidence detailing any anticipated trends in boating safety and potential boating accidents,
    - iii. show how the potential increase in boat docking structures may cause any change in boaters' quality of experience or other impact on waterway users desired activities.
  2. Projections Regarding Existing Facilities and Resources:
    - i. Based on any changes to the projected number of users, show any anticipated fiscal impacts that would become necessary to continue maintaining public facilities,
    - ii. establish likely projected needs for facility expansion or new construction of additional amenities,

- iii. identify areas where additional personnel would be necessary to maintain adequate facilities and services,
  - iv. estimate the potential need for additional medical or law enforcement deployments.
3. Projections Regarding Ecological Resources Water Quality:
- i. Ascertain how changes to the projected number of waterway users may increase, decrease, or sustain typical occurrences of harmful algal blooms, impact turbidity and any disturbance of sediment (and potential to release harmful / toxic substances currently contained in sediment layers),
  - ii. show the potential difference in occurrences of oil or fuel slicks as well as litter, and/or other pollutants,
  - iii. illustrate consequences related to the possible disturbance or destruction of fish spawning habitats and / or loss of aquatic species diversity, present projections related to the potential disruption of waterfowl and other wildlife
  - iv. produce forecasts related to future shoreline erosion or degradation.
4. Monthly project status reports will continue to be required during Phase II.
- O. Phase III of the project is the establishment of inland waterway carrying capacity guidance for Indian Lake.
1. Compile and analyze all data to determine the current degree of lake capacity
- i. Consider recreational water use impacts on water quality, quality of recreation experience, shoreline and/or land vulnerability, resilience of wildlife, and facility capacity as well as durability or deterioration.
  - ii. Utilize compiled data to determine degree of lake capacity in relationship to time of day, day of week, and season
  - iii. Prepare and provide an analysis of current recreation experiences, availability of facilities and related local opportunities presenting a self-limiting influence on capacity
- P. Establish and graphically illustrate user capacities and evaluate the quality of recreation experience for lake and area facility users incorporating all of the following components for mixed-use recreation experiences:
- 1. Seasonal
    - i. Shoulder season weekdays
    - ii. Shoulder season weekend days
    - iii. Shoulder season holidays
  - 2. Time of day
  - 3. Type of use (paddling, fishing, cruising, skiing / tubing, wildlife viewing, etc.)
  - 4. User segment (full-time residents, seasonal residents and seasonal dock holders, and transient visitors)

Determine if Indian Lake serves as a recreation experience niche within the region.

Monthly project status reports will continue to be required during Phase III.

Q. Phase IV of the project will require the Contractor to prepare a full report and presentation for Agency leadership. Safety, recreation experience, conservation of resource, protection of private property, sustainability of local economies.

1. Develop, prepare, and present projections and models of anticipated impacts on users' recreational experience, regional water-based recreational opportunities, ecological and water quality effects, budget and personnel costs, modifications of facility maintenance or expansion requirements built on the potential increase in permanent boat mooring structures
  - i. Final project products, including the full study report and all data along with the required multi-media presentation, are to be provided to the Agency.
  - ii. All data will be provided to the Agency in an electronic format compatible with either Microsoft Excel or Access.
  - iii. The additional requisite live presentation conducted by the Contractor for Agency staff and any Agency-invited interested parties is to be provided and recorded and must include a question-and-answer component.
  - iv. The recorded presentation is to be delivered to the Agency.

DRAFT