



Agenda Item - 1.

**Staff Report**

City Council Study Session Meeting  
July 15, 2019



*Visionary Leadership, Effective Governance and Proactive Regional Collaboration*



*Beautiful, Desirable, Safe and Environmentally Responsible City*



*Financially Sustainable Government Providing Excellence in City Services*

**Subject:** Standley Lake Boating Taskforce Update

**Prepared By:** Jason Genck, Parks, Recreation and Libraries Director  
Rod Larsen, Open Space Manager

**Summary Statement:**

- On March 19, 2019, the decision was made by the City Manager to immediately and indefinitely end the use of trailered boats on Standley Lake due to increasing concerns of Zebra and Quagga mussel (ZQM) infestations.
- That decision led to the formation of the Standley Lake Boating Taskforce (SLBT) with the purpose of evaluating options of restoring trailered boats to Standley Lake without compromising the quality of water.
- This report is an update on the SLBT and related efforts.
- Based on the current evaluation of tagging solutions, opening Standley Lake to trailered boats in 2019 is unlikely and continues to be dependent on identifying a solution that does not compromise water quality.
- Current efforts are focused on developing a suitable tagging system based on a global positioning satellite (GPS) based monitoring and locking system.
- This report is for City Council information only and requires no action by City Council.

**Background Information:**

The SLBT is chaired by a member of the Parks, Recreation, Libraries and Open Space Advisory Board (PRLOSAB) and is made up of four additional members that represent the power boating, kayaking, boat dealer, and non-boating communities. These taskforce members were chosen by the PRLOSAB based on an online questionnaire. All members of the SLBT agreed to a memorandum of understanding regarding the charter for the SLBT; that outlines the vision, purpose, objectives, points of agreement, group membership, operating principles, as well as roles and responsibilities for the taskforce.

An SLBT website, <https://www.cityofwestminster.us/boating/standleylakeboatingtaskforce>, was created to host taskforce related information and actions while providing a portal for public communication. Meetings are recorded and posted on the website along with all meeting agendas, meeting notes, timely updates, documents from Friends of Standley Lake (FoSL), and possible solutions directed to City Staff, handouts from Staff, reports to City Council, and tagging protocol updates. Staff is aware of inaccurate information that may be circulating and, at times, directed to City Council at public meetings. Staff continues to address misinformation while directing any person seeking information to the SLBT website for the most accurate and timely updates.

The SLBT's first meeting was on April 23rd and the taskforce has met six times since. All meetings were open to the public. Many of the meetings focused on examining the efficacy of the proposals and suggestions by the FoSL, most notably a proposal by the FOSL to change the current aquatic nuisance species (ANS) program at Standley Lake called tagging 2.0. The proposal details a new boat tagging system along with additional, preventative measures intended to make bypassing the tagging system more difficult and easily detectable. Several hands-on tagging demonstrations by both Staff and FoSL ensued at these meetings along with a demonstration at

a local boat shop. The SLBT also invited experts, most notably Dr. Chris Holdren, an expert in ZQM issues; and Elizabeth Brown, Colorado Parks and Wildlife ANS Coordinator, to share information relevant to the ANS issue.

The SLBT suggested at an early meeting that a sub-committee be formed to focus on only tagging options for the new ANS program. The tagging sub-committee was formed, with the Standley Lake Operations Coordinator acting as the chair, along with several members of the FoSL group. The sub-committee met four times investigating tagging options, identifying pros and cons, and researching new tagging techniques.

After much evaluation from the SLBT and sub-committee, four of the five SLBT members stated that they did not endorse the FoSL's proposed Tagging 2.0 proposal at this time due to concerns that it does not protect the water quality at Standley Lake adequately from an ANS infestation. Based on the current evaluation of tagging solutions, opening Standley Lake to trailered boats in 2019 is unlikely and continues to be dependent on identifying a solution that does not compromise water quality.

Staff performed extensive research looking at new tagging systems that may be more effective and reliable than the Tagging 2.0 proposal. During the last SLBT meeting held on June 27th, the Standley Lake Operations Coordinator delivered a power point presentation on a proposed multi-layered approach featuring the NoKe global positioning system (GPS) and lock system, an improved tag option and an enhanced cable and swage option that includes the FoSL's recommended through-hull protection. The NoKe system is a keyless locking mechanism that uses GPS to record every location the lock is opened, thereby giving Staff an accurate record of where and when the boat was used prior to coming to Standley Lake. This presentation is included as an attachment. At the end of the meeting, the SLBT decided to move forward with more research and vetting on this system.

Although no future SLBT meeting date was scheduled at this time, the tagging sub-committee agreed to continue meeting regularly to assist in identifying a suitable tagging solution. To share progress and communicate with the SLBT and the public, Staff agreed to provide weekly updates, beginning Monday, July 8, 2019, to the SLBT and post them on the City's website. The updates will continue until a solution and timeline are finalized.

Based on the presentation and discussions from the June 27th SLBT meeting, Staff will continue to work on a plan exploring the potential of restoring trailered boats to Standley Lake in 2020 without compromising the quality of water. This work will be significant, through the end of 2019, and will include finalizing further logistics of the new tagging program and vetting through several City departments.

Since the announcement of the trailered boat restrictions, Staff has tracked public comments regarding the issue using Nextdoor, Facebook, e-mails, and phone calls. The majority of the initial comments were from members of the boating community opposing the ban. Recently, there have been comments from Westminster citizens who support the ban with the intent of protecting the City's water source. To date, as Staff's best estimate, 574 comments have been tracked with 335 opposing the boating ban, 168 supporting the boating ban, and 71 neutral.

It should be noted that the threat of ANS to the state of Colorado remains very high. The Colorado State Invasive Species Specialist reported intercepting four boats last month at three different locations across Colorado that were carrying live mussels. The introduction of invasive mussels would cause significant and potentially catastrophic impacts to the drinking water, environment, and recreation opportunities on Standley Lake. With this in mind Staff continues to work to protect this important resource through a thoughtful and robust boating program evaluation process.

Through its efforts the City is demonstrating a commitment to conserve resources and support sustainable natural resource behaviors adhering to the Beautiful, Desirable, Safe, and Environmentally Responsible City Strategic Plan goal. Protecting Standley Lake water and recreational resources is sound financial practice that reduces the potential for significant future budgetary needs is in line with the Financially Sustainable Government Providing Excellence in City Services goal. The long-term protection of the City's critical water resources and providing responsible recreational opportunities meets the Visionary Leadership, Effective Governance, and Proactive Regional Collaboration goal.

Respectfully submitted,

*Donald M. Tripp*

Donald M. Tripp  
City Manager

**ATTACHMENTS:**

Description	Upload Date	Type
<u><a href="#">Attachment A: Noke Tagging System Presentation</a></u>	7/3/2019	Attachment

# ANS Security Program

Aquatic Nuisance Species Protection Program



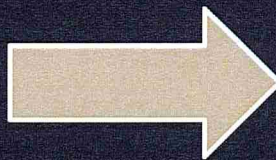
Standley Lake Regional Park

# ANS Security Program

*Trailer boats are immediately and indefinitely banned on Standley Lake due to increasing concerns of zebra and quagga mussel infestation. A recent review of the policies and methods used to prevent an infestation found decontamination is not fully effective for many trailer boats. Boat launch data for 2018 also found multiple instances of Standley Lake boaters deliberately bypassing protective measures.*

## Proposed Recommendations

One Boat/One Lake  
GPS Monitoring  
Geo-fencing  
Padlock & Chain  
More Rigorous/Secure Tagging System  
(e.g. Tagging 2.0)  
Through-Hull Tagging  
Utilize State WID Application  
Increased Penalties



**What is the goal?**

**Proposed Solutions (so far)**

**Cable & Swage**

**Nokē**

**Security Tags**

**Implementation (TBD)**

# Goals

***Restore trailered boating on Standley Lake without compromising water quality.***

**The focus should be on “100% controlled”. This means that *any* “hack” or manipulation to the tagging system of the future boating program should be easily and immediately identifiable by trained staff.**

*Further considerations:*

- Quantity of boats/process management = many boats passing through the program on a daily basis mandates an easily identifiable system in place
- Customer Service = tag program should support customer’s understanding of our expectations and provide reliable method for customers to comply (as even “false positives” will require a non-negotiable 35-day quarantine)

“...the protection of water quality shall continue to be the top priority and, under this agreement, the Cities have the right to terminate any recreation activity if it impacts water quality” - 1994 IGA

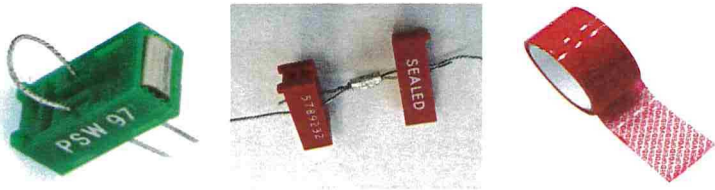
# Proposed Solutions

The City of Westminster instituted the “Standley Lake Boating Taskforce” (SLBT) to review and propose solutions to possible restored boating at SLRP.

In addition, a “Tagging Sub-Committee” was formed to vet “Tagging 2.0” as well as additional recommended options proposed by the public as well as the “Friends of Standley Lake” (FoSL).

## Tagging 2.0 (FoSL)

Tagging 2.0 utilized the same components that were utilized previously with the addition of aluminum swages and and/or adhesives and tapes for additional “layers of protection”.



***Staff has successfully “hacked” and “rebuilt” the tag, swage and wire making it extremely difficult to detect. In addition, all tested security (evidence) tape has not withstood outdoor elemental pressures.***

## ANS Security Program Options (SO FAR)

Staff supports seeking more robust, layered, easily auditable, technology driven solutions where “100% controlled” can be achieved and any “hacking” can be easily identifiable. Ideas currently being vetted include:

- **Cable System**
- **Nokē Lock Systems**
- **RFID Tags**
- **I-Seal (NIC)**
- **Quickseal XLP-B**
- **Secure XP**

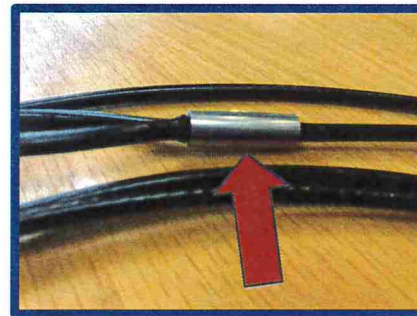
# Cable & Swage

Swaging is a common application of cold working, a method of plastically deforming metal in a controlled fashion at room temperature to create new geometry and stronger, harder material in the affected area. When used to apply fittings to stranded cables, the cable end is inserted into the swage shank. The shank is then cold-formed around the cable. **In the swaging process, the material of the swage fitting literally flows into the cable interstices, forming a mechanical lock between the two components.**



## STRENGTH & SECURITY

- Six strand, braided steel cable.
- Serialized unique identifier on each cable.
- Cold pressed steel swage. Impossible to remove without cutting and removing unique identifiers (2 layers).
- All products are traced using a strictly enforced protocol giving every product a pedigree and providing piece of mind.



# Nokē

**Nokē is combining innovation with technology to create purposeful, stronger, smarter, sustainable, physical security solutions.**

**Integrated, smart locking access control automates key management and audit trails.**



## POSSIBLE SOLUTIONS PROVIDED BY Nokē

### **SECURE**

Crafted with rugged materials, rigorously tested, and certified, the Nokē HD+ Padlocks are made to provide maximum security.

### **DURABLE**

Industrial strength body (baron-hardened steel) & intelligent core. Designed for harsh environmental conditions (-40°f to 165°f).

### **GPS TRACKING**

Complete visibility as to who, when, and where locks are being accessed.

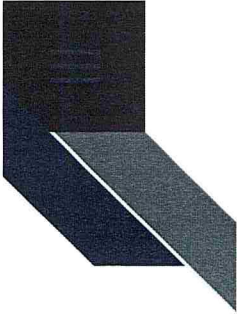
### **GEO-FENCING**

Disallow lock access and lock opening outside of Standley Lake Regional Park.

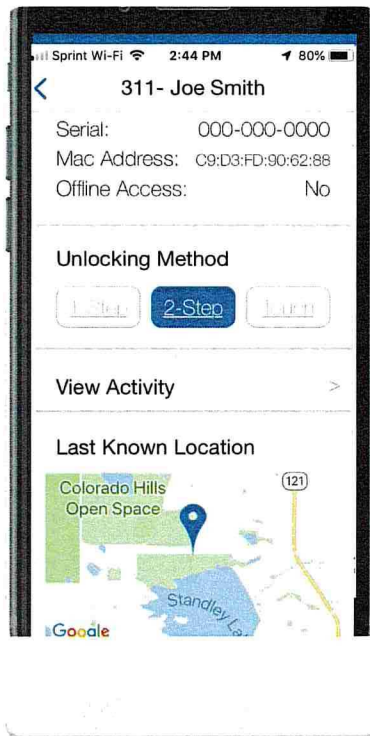
### **REPORTING & AUDITS**

Reporting capabilities provide an opportunity to audit, analyze, track and share lock access information.









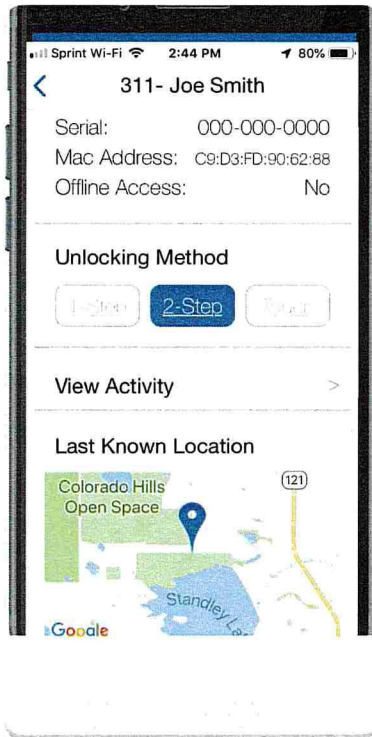
*Spotlight on mobile application*



## MOBILE APPLICATION

-  **Keyless** - City issued iPhones are the “key”.
-  **Last Known Location** - Application displays last location of the lock when last opened.
-  **GPS** - GPS enabled lock provides information on lock location in real-time.
-  **Geo-fencing** (Available in 2020) - Disallow opening of lock outside of Standley Lake Regional Park.
-  **Users/User Groups** - Access only granted to staff that has been listed as a user and assigned to a user group.
-  **Scheduling** - Access scheduling insures that locks can only be opened during specific operational time frames.

*Spotlight on mobile application cont.*



## SECURITY



Bluetooth 4.0 Security (smart encryption technology)



Cryptographic Key Protocol - Keys are assigned based on permission levels and used to encrypt all communication to and from the lock



End To End Encryption - Double-secured transmissions using end-to-end 128-bit AES encryption








Custom Security Layer - Additional custom-built encryption protocol prevents Bluetooth replay attacks



*Spotlight on desktop application*

The Nokē web portal is accessed from a desktop computer and allows staff to view and control where, when, and by whom locks are being used from anywhere in the world.

## MANAGE USERS/LOCKS

-  Create individual users and user groups.
-  Customize access permissions.
-  Send notifications.
-  See and manage user and group activity.
-  Set up schedules (example - locks can not be activated between 9:00 p.m. and 6:00 a.m.).

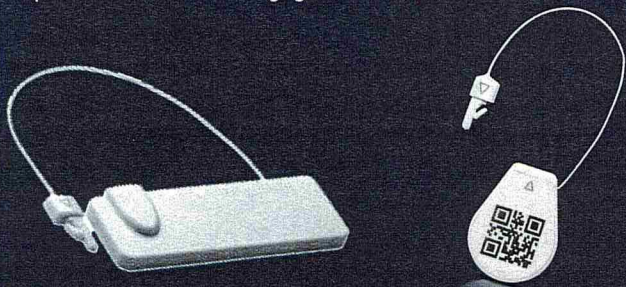


## TRACK DATA

-  View lock activity and receive alerts in real time.
-  Track locks and create geo-fences.
-  Monitor and manage audit trails.
-  See all active locks.

# RFID Tags

RFID Tags are small objects that contain a chip and an antenna for wireless identification of the objects they are attached to (or embedded in) with the help of an RFID reader. Unlike barcode technology, RFID tags do not require line of sight from the tag to the reader and support read/write functionality. Most RFID tags are passive, which means they work maintenance-free, without battery power, for many years.



**In addition to the Nokē lock, a secondary tag would be utilized to further bolster protection and security.**

## **ADDED SECURITY**

Seal Tag edTamper are tamper evident passive contactless UHF transponders allowing detection of their seal status via RFID. Visualizing the tag is not necessary to identify broken seals.

The edTamper tags-provide a digital notification if a sealed tag has been compromised to quickly scan sealed items for integrity.

**Once secure, the loop cannot be opened without breaking the wire.**

Each uniquely encoded Seal Tag RFID unit attaches anywhere a cable tie can be used, providing visual evidence when that seal is broken. Being waterproof, they have high resistance to aggressive liquids, UV rays, and temperature extremes. Thermoplastic polyurethane (TPU) housings tolerate repeated bending or torsion. Bright colors provide excellent contrast for optical identification when laser engraved or embossed with logos, barcodes or text. Highly rugged on-metal options exist as well

# I-Seal (NIC)

NIC is a recognized leader in the security seal industry. Our seals are the most tamper resistant and versatile available. Manufactured from D Calibre (TM) polycarbonate and stainless steel, the QUICKSEAL can endure extreme weather conditions, including long-term exposure to sunlight.

Moreover, with a six-inch adjustable wire, the QUICKSEAL fits virtually all sealing applications in a vast range of industries, including utilities, government (DOD, DOE, nuclear safeguards), and oil & gas.



## EASE OF USE

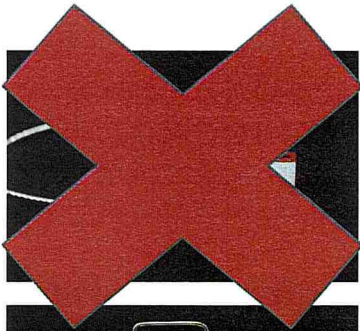
The i-Seal is a patent-pending, ergonomic, high-security seal that vastly surpasses its predecessors. Tools are not required to install the seal.

The i-Seal's locking mechanism is known as the proven leader in security seals. **The i-Seal incorporates features that make it impossible to tamper with the locking mechanism without destroying the seal.** The seal is also the first of its kind to have its locking mechanism permanently molded into the plastic body. The seal's locking mechanism with the wire will leave no evidence.

## QUALITY CONTROL TAB

The i-Seal is the first seal of its type to have a quality control tab that can be used to facilitate the tracking of groups of seals.

# Other Possibilities



The **QUICKSEALXLP-Bs** locking mechanism has been tested by the Los Alamos National Laboratory and is recommended (from among 150 seals tested) for use by the United States Department of Defense and Department of Energy.

The QUICKSEALXLP-B is **designed to withstand the most aggressive attacks on security seals including muriatic acid and other methods.**



The **Secure XP** prevents two prevalent forms of tampering on traditional padlock seals. The first form of tampering comes in the form of “PreTampering” when most padlock type seals are in the open position. This means the anchor shaped wire is crimped and this crimp prevents the seal from locking once the wire is inserted into the seal. The second form of tampering comes from the use of muriatic acid. This attack dissolves the wire allowing a new wire to be inserted. Both these forms of tampering leave no signs of tampering.

# Layered Protection

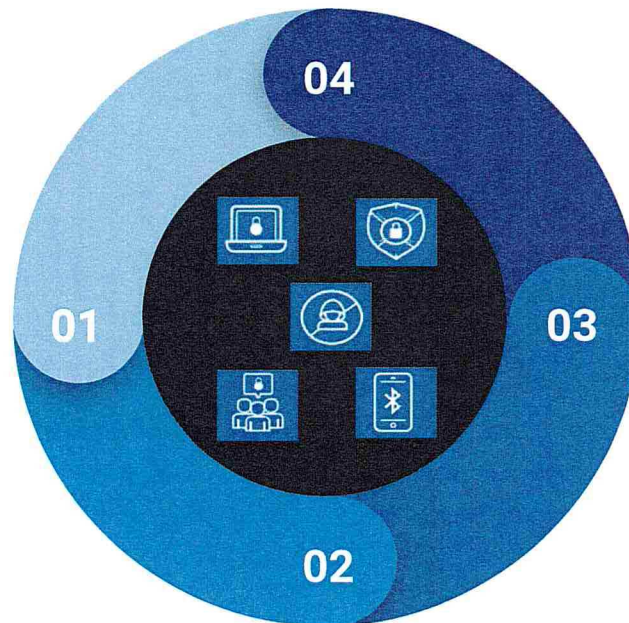
Utilizing multiple “tools” and methodologies serve to strengthen the ANS security program significantly.

## Cable/Swage:

Through-hull application with a highly secure steel cable and swage, serialized identifiers.

## Nokē:

Lock system provides GPS tracking, geo-fencing, real-time alerts and audit reporting capabilities.



## RFID (or Similar):

Secondary tag applied for additional security while addressing potential “false-positives” ( if a malfunction occurs within the primary lock system).

## State WID Data Application:

Utilization of State WID application to determine potential launches on other monitored water-bodies.

# ANS Security

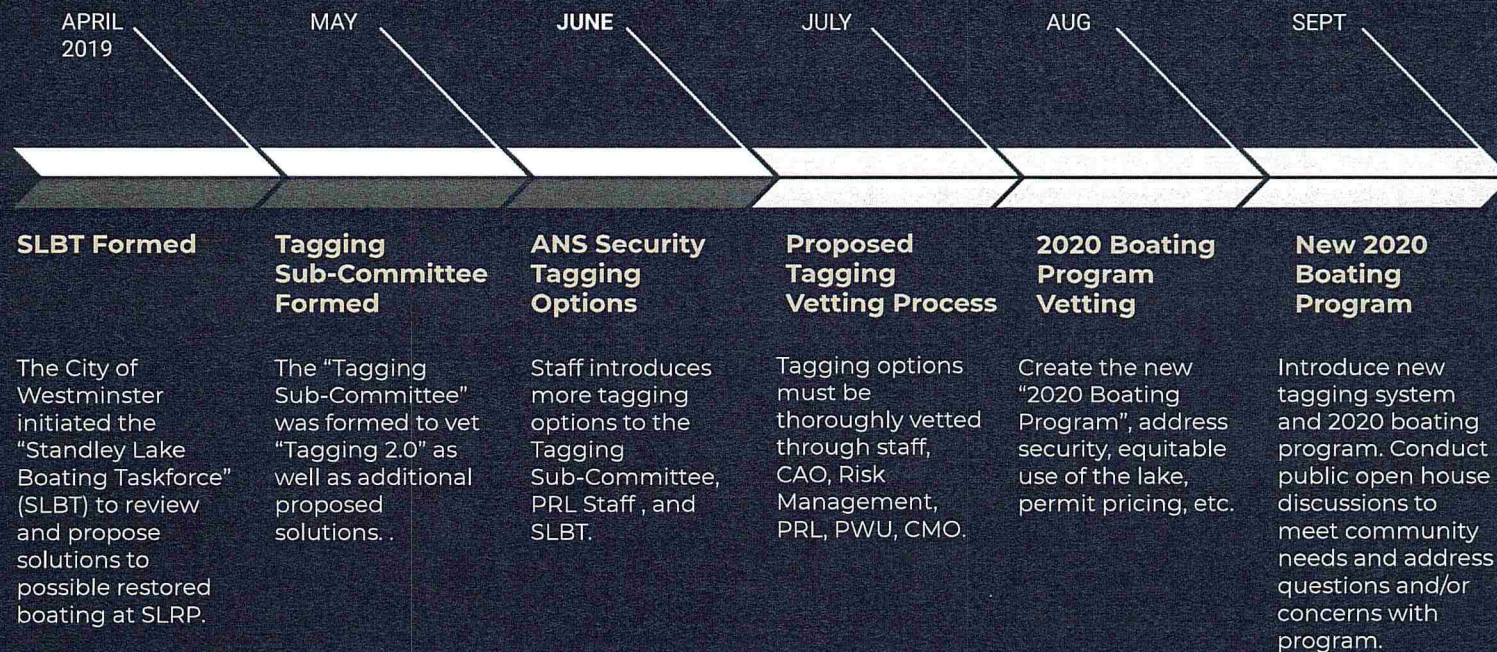
The proposed solutions **DO NOT** meet all of the recommended criteria offered by staff, the public, the SLBT and the FoSL. Additional solutions are currently being sought and vetted by the Tagging Sub-Committee and staff.



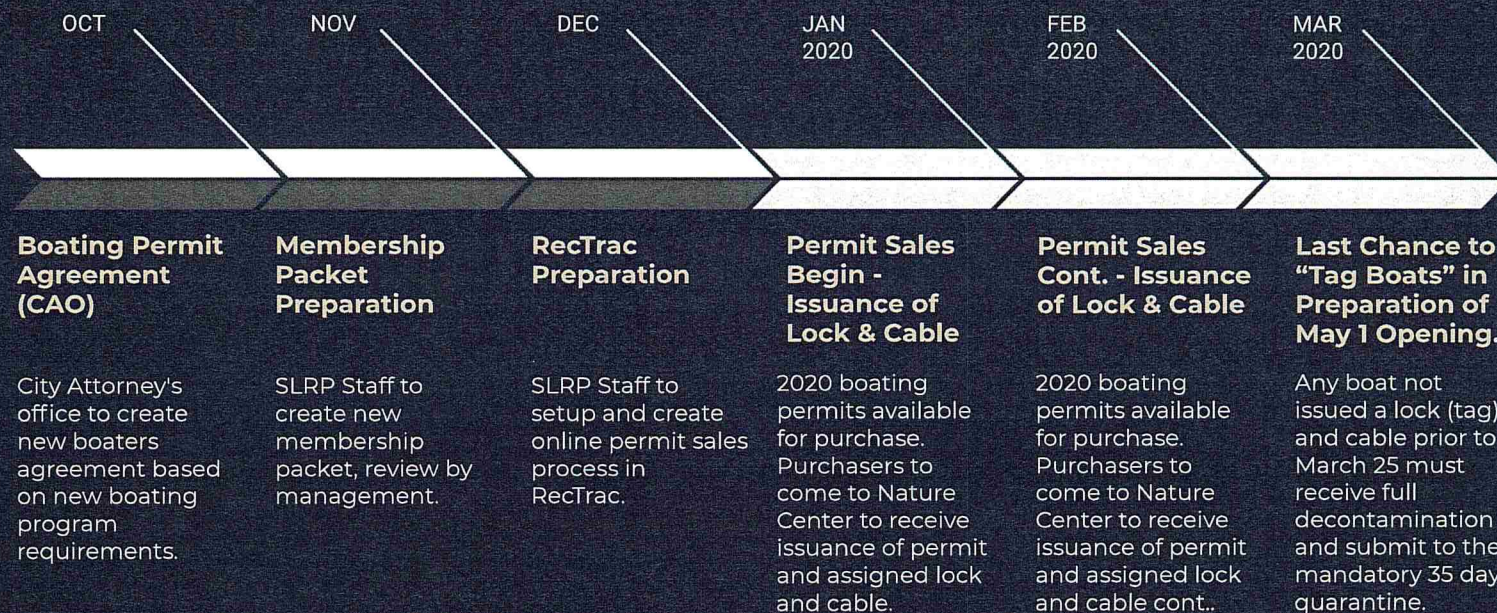
- One Boat/One Lake
- GPS Monitoring
- Geo-fencing
- Padlock & Chain (or Cable) - **IN PROGRESS**
- More Rigorous/Secure Tagging System - **IN PROGRESS**
- Through-Hull Tagging
- Utilize State WID Application
- Increased Penalties



# Tentative Target Implementation



# Tentative Target Implementation Cont.



# Thank you!

Please let me know if you have any questions or would like a demonstration.

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Direct Line: (303) 658-2792

**PROTECT THE LAKES YOU LOVE.**

STOP ZEBRA MUSSELS  CLEAN, DRAIN AND DRY



**STOP AQUATIC  
HITCHHIKERS!™**

