

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

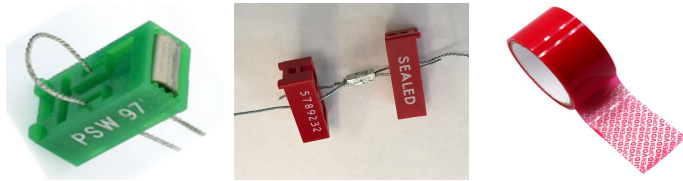
Proposed Solutions

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/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**

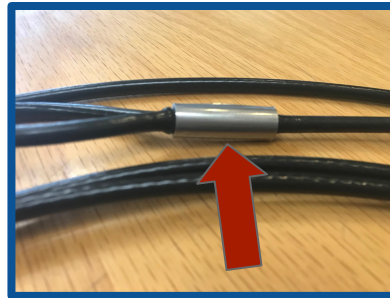
Cable & Swage

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.

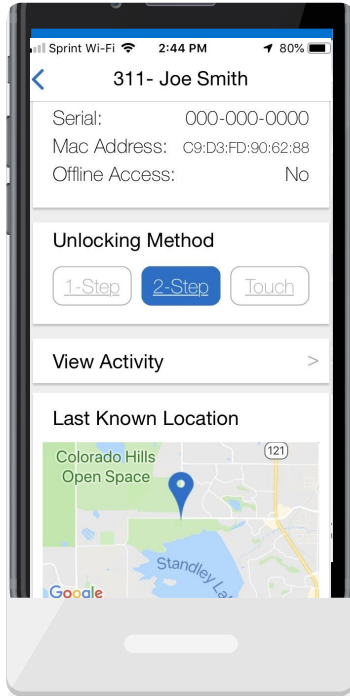
GEO-FENCING

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.

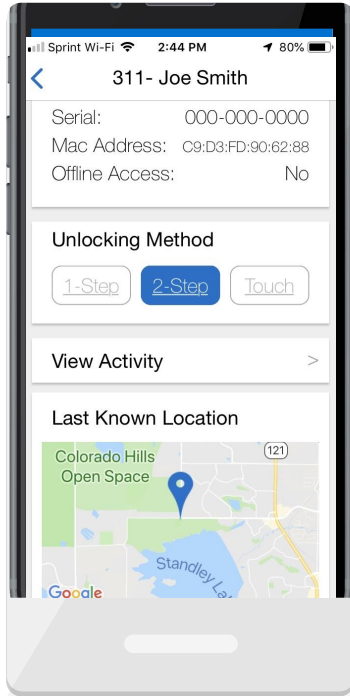


Users/User Groups - Access only granted to staff that has been listed as a user and assigned to a user group.



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 active 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.



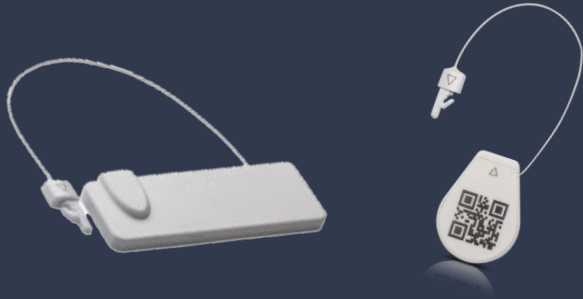
Monitor and manage audit trails.



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 DuPont 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 opening mechanism is known as the i-Seal, the proven leader in security seals. **The i-Seal incorporates features that make it impossible to tamper with the opening mechanism without destroying the seal.** The i-Seal is also the first of its kind to have its opening mechanism permanently molded into the plastic body. The i-Seal's opening 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

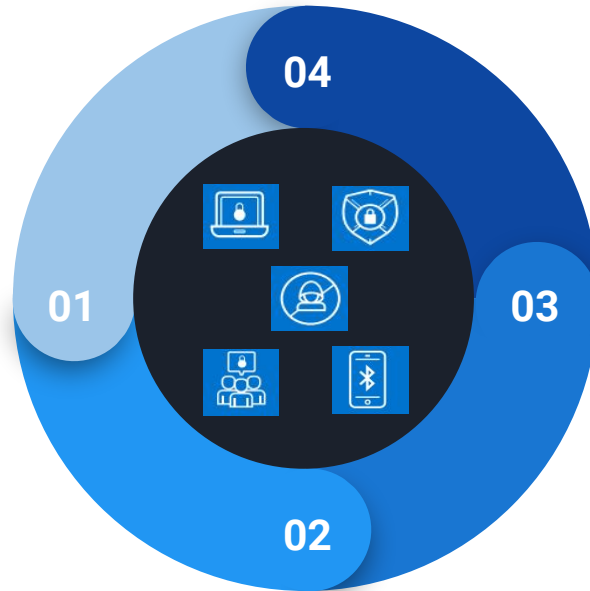
Utilizing multiple “tools” and methodologies serve to strengthen the ANS security program significantly.

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.

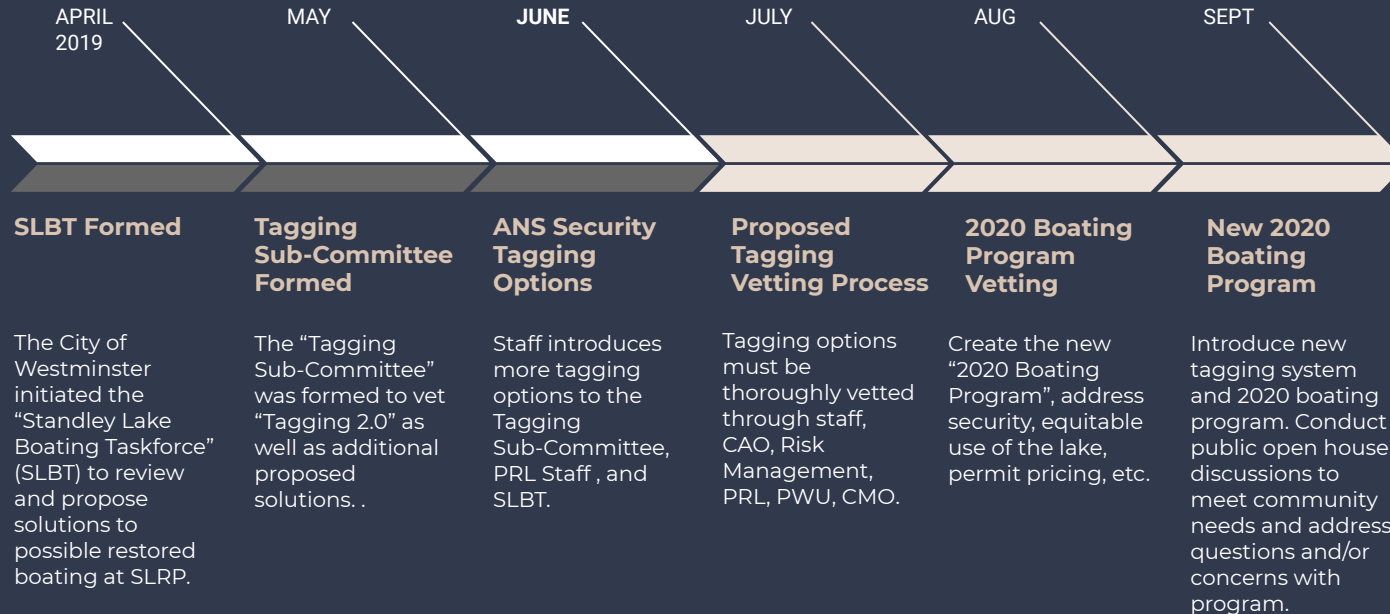
ANS Security

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.

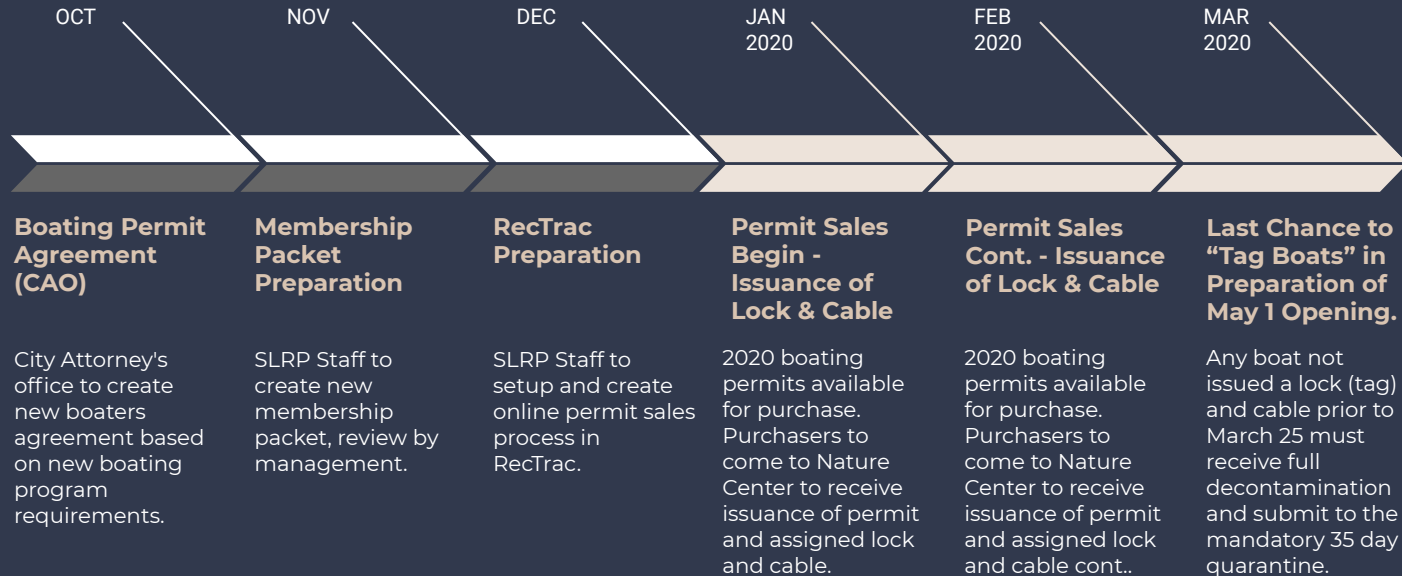


- One Boat/One Lake
- GPS Monitoring
- Geo-fencing
- Padlock & Chain (or Cable) - **IN PROGRESS**
- More Rigorous/Secure Tagging System - **IN PROGRESS**
- Through-Hull Tagging
- Utilize State WID Application
- Increased Penalties

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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