



FEBRUARY 23, 2019

REPORT OF THE ID PASS POLICY COMMITTEE
RECOMMENDATIONS TO THE MASTHOPE MOUNTAIN COMMUNITY
BOARD OF DIRECTORS

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Report of the ID Pass Policy Committee

Recommendations to the Masthope Mountain Community Board of Directors

Executive Summary

The Board of Directors of the Masthope Mountain Community created the ID Pass Policy Committee during its board meeting on October 27, 2018, with the purpose of providing recommendations and guidance for an overhaul of the existing ID Pass Policy.

This Executive Summary lists the Guiding Principles and the Recommendations the Committee decided on. Details on the work of the Committee, rationale for Recommendations and underlying data are found in the rest of the document.

Guiding Principles

1. Commitment to family orientation
2. No grandfathering
3. Apply ID Pass Policies uniformly to all types of owners
4. Simplification
5. Continuous improvement

Independent Recommendations

The Committee has taken great care to position each and every recommendation as a stand-alone recommendation with no interdependencies. While the Committee encourages the Board to adopt all recommendations for a comprehensive update of the current ID Pass Policy, the independent nature of the recommendations also allows selective implementation and/or staggered implementation over time.

Recommendations for Owner Passes

Recommendation 1: Owner ID Passes are issued to deeded designated property owners and their immediate family.

Recommendation 2: Designated immediate family members are defined as

- The grandparents of the designated property owner
- The parents of the designated property owner
- The designated property owner and their spouse
- The children of the designated property owner and their spouse
- The grandchildren of the designated property owner

Recommendation 3: If the deeded owner of a property is an organization, such as a trust, a corporation, LLC or anything other than a natural person, that organization must specify a natural person who becomes the designated property owner.

Recommendation 4: Designated immediate family members will be given a maximum of 6 (six) ID Passes.

Recommendation 5: Designated immediate family members can obtain additional ID Passes for an annual fee, up to a maximum of 6 (six) additional passes.

Recommendation 6: Each lot will continue to receive 4 (four) guest passes. Guest passes can only be used by one guest per day and cannot be shared during the day.

Recommendation 7: All ID Pass Policies, new and existing, and specifically recommendations 4, 5, and 6, shall apply to all properties in the community. Specifically, the grandfathering rule in effect for community members with rights prior to May 22, 2004, is recommended to be revoked.

Recommendation 8: All ID Pass Policies, new and existing, and specifically recommendations 4, 5, and 6, shall apply to all undesigned deeded property owners as defined in the current set of rules.

Recommendation 9: The existing rules for property owner day passes were examined and should not be changed.

Recommendations for Renter Passes

Recommendation 10: Renter ID Passes should continue to be differentiated between long-term and short-term leases (no change to existing rule).

Recommendation 11: Leases up to 180 days are considered short-term leases. Leases for 181 days and longer are considered long-term leases.

Recommendation 12: All renters must use the compactor for trash removal. A compactor ID Pass needs to be given out for all leases. The compactor ID should be configured so it is usable for all adult renters named on the lease.

Recommendation 13: While a property is being leased, the property owner passes continue to be deactivated (no change to existing rule).

Recommendation 14: Each renter will be given an ID Pass. If a renter is not interested in the use of the amenities, the ID Pass is a simple non-picture ID. If a renter is interested in the use of the amenities, they will be given a picture ID Pass. The section on ID Pass Technology has information on how technology can be used to reduce additional burden for the office.

Recommendation 15: If renters are interested in the use of the amenities, a daily amenity access fee will be charged per property rented. The amenity access fee will be collected at the time of registration in conjunction with the current administration fee. The monetary value of the daily amenity access fee shall be determined using market and demand data available for the Masthope area.

Recommendation 16: The maximum number of renter ID Passes for a given lease is 12, including the compactor ID Pass, independent of whether these are picture ID Passes (with amenity access) or non-picture ID Passes (without amenity access). No additional daily passes for renters are allowed.

Recommendation 17: Renters in a long-term lease will be issued ID Passes under the rules in effect for property owners. Specifically, the recommended rules for family lineage and allocated / additional ID Passes apply. The amenity access fee does not apply for long-term renters.

Recommendations for ID Pass Administration

Recommendation 18: All property owner ID Passes should be deactivated after a period of inactivity or non-use.

Recommendations for ID Pass Technology

Recommendation 19: Current scanners shall be upgraded to scanners that allow for picture verification of each user being scanned. Attendants shall be able to assign a picture to non-picture ID passes at the point of scanning to prevent multiple users sharing the same card. This temporary picture would be assigned to the pass for one day.

Recommendation 20: Current ID card technology shall be upgraded from barcodes to RFID (radio frequency identification) or multi-technology (RFID, magnetic strip, bar code). RFID is a more secure technology and has greater future uses than the current simple barcode cards.

Recommendation 21: Upgrade the current set of Masthope ID systems with database technology that would enable better tracking, analytics, and advanced reporting of all data sets. This includes the replication or backup of the data using cloud services.

Recommendations for Implementation and Communication

Recommendation 22: The recommendations by the Committee should be implemented no later than May 1, 2020, which marks the beginning of the 2020-2021 Fiscal Year of the association.

Recommendation 23: We recommend to have a town hall meeting scheduled for the beginning of April so that the information on the findings and recommendations of the Committee can be brought to the membership.

ID Pass Policy Committee

Rationale

Masthope Mountain Community is a thriving restricted deed association in the town of Lackawaxen, Pike County, Pennsylvania, offering deeded property owners and their families a range of facilities and amenities. The access to these amenities is largely controlled through ID Passes, and the rules and regulations of assigning these ID Passes are detailed in various policies specified in the Rules and Regulations Handbook of the community (the "ID Pass Policy").

The last major overhaul of the ID Pass Policy was made effective during the May 22, 2004, meeting of the Board of Directors. In the 14+ years since, the community has seen substantial growth, with a commensurate higher usage load for the existing amenities. Several amenities, such as the pool and the beach facilities are seen as overcrowded, especially during specific, high usage holidays, such as Memorial Day, 4th of July week, or Labor Day. At the same time, the economic advantage to the property owner of renting out properties with the included use of Masthope amenities has begun to shift from a simple cost offset for property owners to using improved lots as income generating properties with frequent, short-term rentals. Very often, these rentals are brokered through agencies such as AirBnB, local realtors and others, underlining the profit generating aspect of these rentals. Finally, there is a noticeable interest in ownership by legal entities such as LLCs, corporations, and trusts, for which current assumptions of family lineage and ID Pass assignment are insufficiently defined.

In order to address these issues and to make recommendations for the update and overhaul of existing ID Pass Policy regulations, the Board of Directors established an ad-hoc committee of property owners during its October 27, 2018, BOD meeting (the "Committee").

Members of the Committee and Mission

The members of the Committee were appointed by the Board of Directors via the following motion:

MOTION 03:10:27:18

**Whereas it is necessary to create a committee to address our current ID Pass Policy
Therefore, be it resolved that the Masthope Mountain Community Board of Directors
approves Gerhard Buhler as the committee chair, and Tom Brown, Anthony Lopinto,
John Schulken, Tim Schmeier, Rose Perrotti, Jerry Ferraiuolo and Kristine Paronich as
committee members.**

FIRST: MICHELE TORRE

SECOND: ED MCCLARY

MOTION PASSES: FOR 10, AGAINST 0

The mission statement of the Committee was defined as:

The ID Pass committee will provide recommendations to the Board of Directors for updates to the Masthope ID Pass policy. This will include recommendations and consideration of different lot ownership (by individuals, families, non-family owners, trusts, companies; legal persons vs natural persons), number of IDs per lot, flex models for free and purchased ID Passes, owner vs renter IDs, and updates to the pass technology.

Work Sessions

The Committee performed its work in several work sessions. Each work session was dedicated to focus areas within the ID Pass Policy, and incremental Committee decisions voted on to define the recommendations to the Board of Directors. The calendar of the Committee was as follows:

Kickoff Meeting	November 11, 2018	General direction, legal guidance
Work Session I	November 17, 2018	Focus: Types of passes
Work Session II	December 1, 2018	Focus: Types of ownership
Work Session III	December 8, 2018	Focus: Family lineage
Work Session IV	December 16, 2018	Focus: Number of passes
Work Session V	December 29, 2018	Focus: Renters
Work Session VI	January 6, 2019	Focus: Renters, Flex Models
Work Session VII	January 13, 2019	Focus: Test scenarios
Work Session VIII	January 27, 2019	Focus: Day Passes, Summary report
Combined Session I	February 9, 2019	Combined session with Amenities Policy Committee. Focus: IDs and Amenity Access for Renters
Work Session IX	February 16, 2019	Focus: Technology, Implementation, Communication

ID Pass Data

The Committee tried as much as possible to use available data sources in order to understand the current ID Pass usage. Of importance were two sources in particular, the registry of ID Passes assigned to properties maintained by the POC Office, and the data set of scanned ID Passes for each amenity, in order to gauge amenity usage.

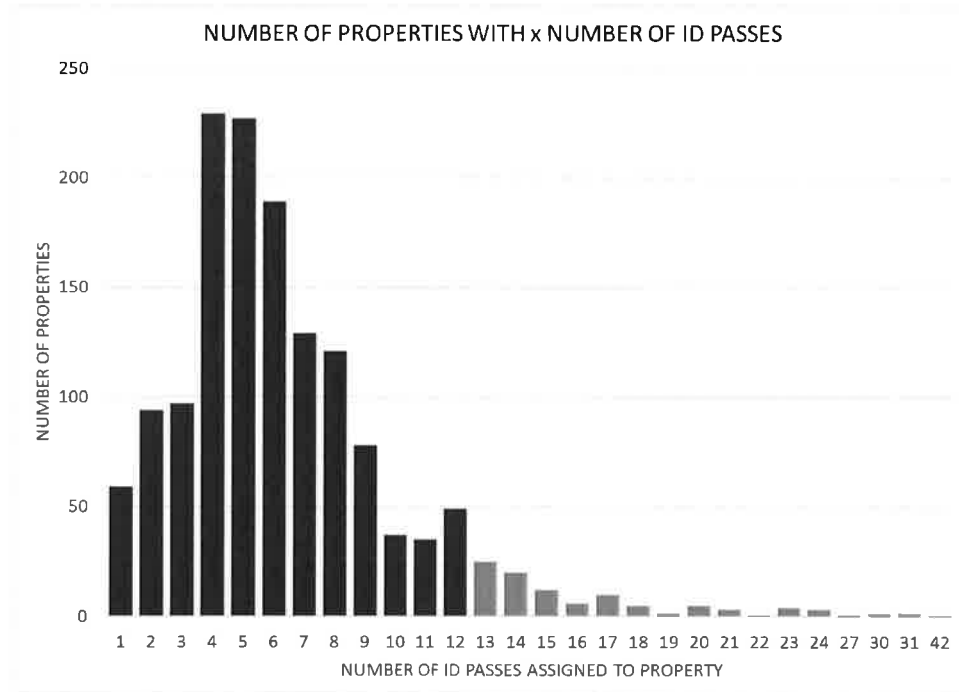


Figure 1 - Number of Properties With x Number of Assigned Passes

ID Passes in Circulation

Figure 1 shows the distribution of owner ID Passes. The figure displays the number of properties with x number of owner ID Passes assigned. The data is current as of end October 2018.

As the distribution shows, there are a total of 9358 owner passes in circulation today. Highlighted in orange in this distribution are 102 properties, with a total of 1719 owner passes, which are “grandfathered” to have more than the currently allowed maximum of 12 passes assigned. This grandfathering was put in effect with the last major revision of the ID Pass Policy in 2004. The maximum number of passes assigned to a property in this distribution is 42.

The average of the total distribution is at 6.5 passes per property, including all grandfathered properties. For the distribution up to and including the currently allowed maximum of 12 passes, the average is at 5.7 passes per property.

ID Pass in Active Use – 2018 Data January to October

Figure 2 shows how many of the in-circulation passes have been actively used, defined here as a pass that was scanned at any of the Masthope amenities. Those amenities include the pool, beach, boats, miniature

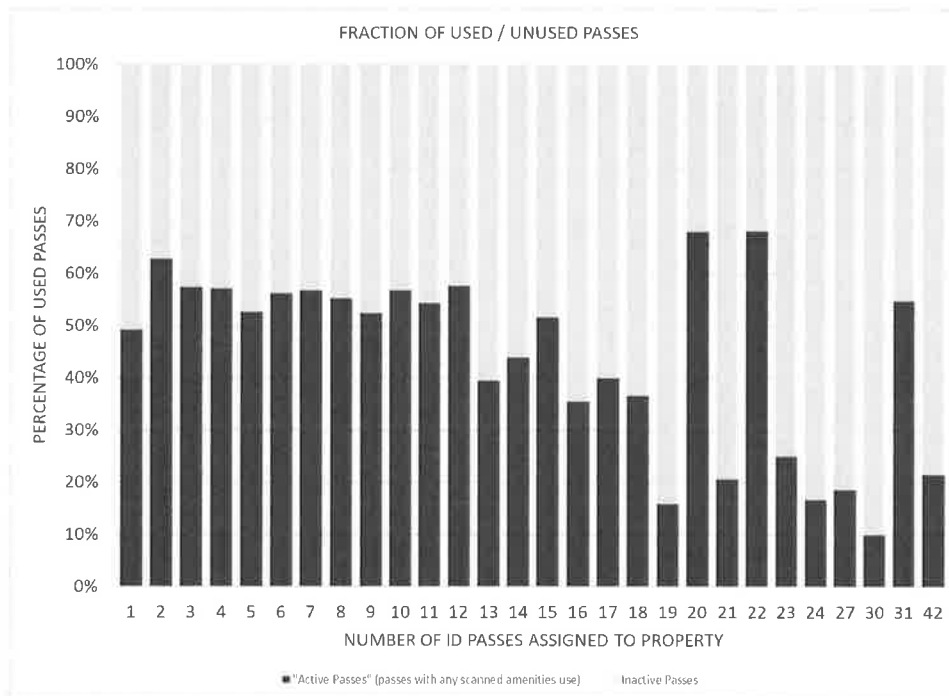


Figure 2 - Percentage of ID Passes used vs ID Passes assigned

golf, compactor, horse stables and fitness center. Not included are ski, court sports, activities center and a few others.

The chart shows that on average only 53% of all passes which are in circulation are actively being used. The average for the total distribution of passes is 3.4 passes being used, including all grandfathered properties. For the distribution up to and including the currently allowed maximum of 12 passes, the average is at 3.2 passes being used.

Amenity Use Date – 2013 to 2018

A separate data set was obtained through the work done previously by Masthope’s *Strategic & Facility Planning Committee*. The data set provided scanned ID Pass information for key amenities within Masthope, and allowed insights into amenity use by owners, guests, and renters. This data set was helpful to understand the use of several high-demand amenities, such as the community pool and the beach, both of which are space limited and tend to be overcrowded during key holidays such as Memorial Day,

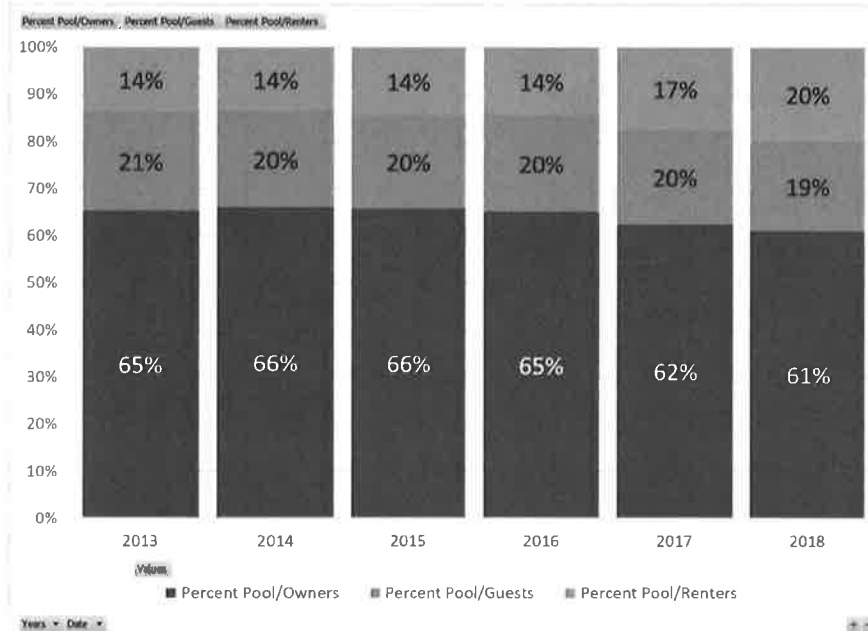


Figure 3 - Relative pool usage for property owners, guests, and renters, 2013-2018

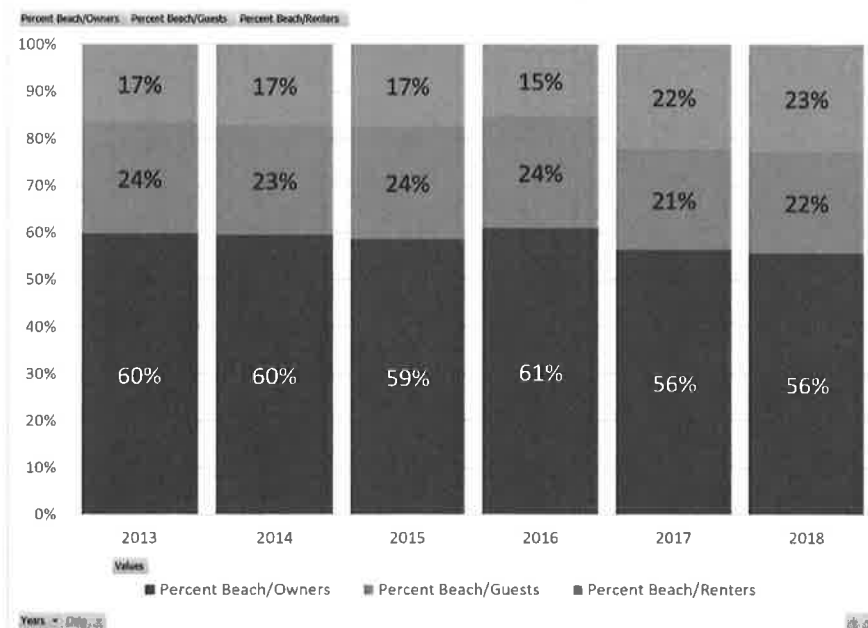


Figure 4 - Relative beach usage for property owners, guests, and renters, 2013-2018

Labor Day, and Independence Day weekends. The Committee observed that due to technical issues the data set is not complete since no winter data were recorded and even the summer data for 2017 had several days in August missing.

Figure 3 and Figure 4 provide insights for the relative proportion of pool and beach use for property owners, guests, and renters as measured by the scanned ID Passes. Due to rounding, not all bars in the chart add up to 100%. Both charts indicate that within a few percent, the usage of these amenities by guests and by renters combined is about 40% of the total. The charts also indicate that there is a trend towards higher amenity usage by renters for 2017 and 2018.

Rental Activity 2014 – 2018

Another data set available to the Committee showed the number and duration of leases and the number of renters per rental property. The useful data sets spanned the years 2014 through October of 2018 (there were also some 2013 data points, but they were incomplete).

Figure 5 and Figure 6 show the trendline of number of leases over five years (2014 to October 2018) and a Pareto analysis of the number of leases per rental property in the same period of time. Figure 5 demonstrates that the number of properties available for rent increased from around 110 to slightly over 120 in that period, while the number of leases increased from 491 in 2014 to 777 in 2018 (up to and including October). On average, this means that in 2018, there were about 6 leases per rental property.

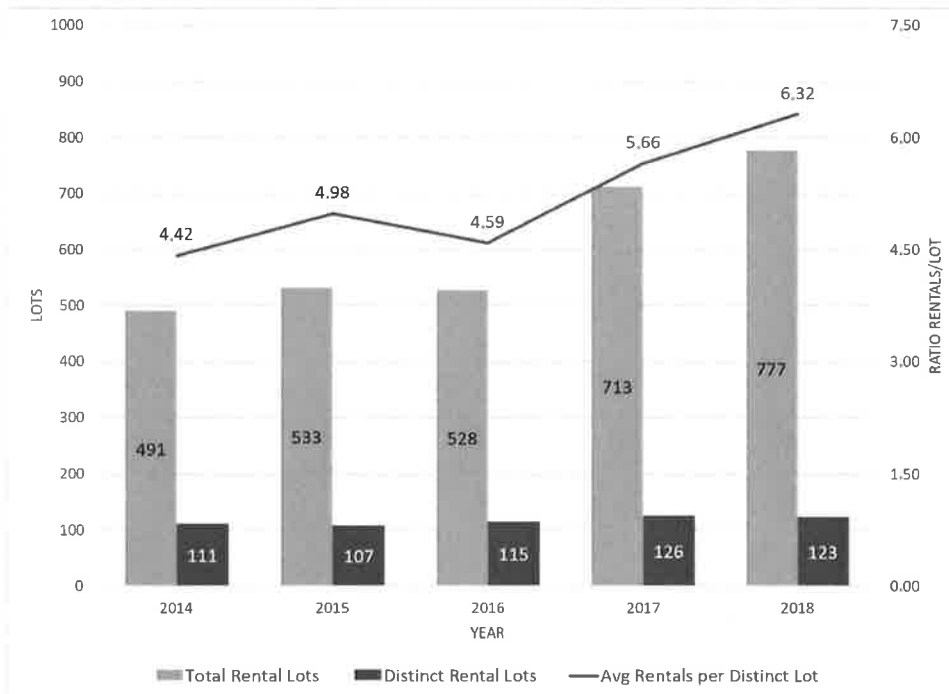


Figure 5 - Distinct rental lots (red), Leases (green), and ratio leases/lots for 2014-2018

However, these averages present only part of the picture. As Figure 6 shows, the number of leases per property varies greatly. Figure 6 is a Pareto distribution of the number of leases per property, with different colors representing different years from 2014 to October 2018. The distribution has been filtered for properties with more than 20 leases in that time period, representing 40 properties. This analysis

shows that a very small number of rental properties contribute the majority of rentals and the issuance of renter ID Passes in the community.

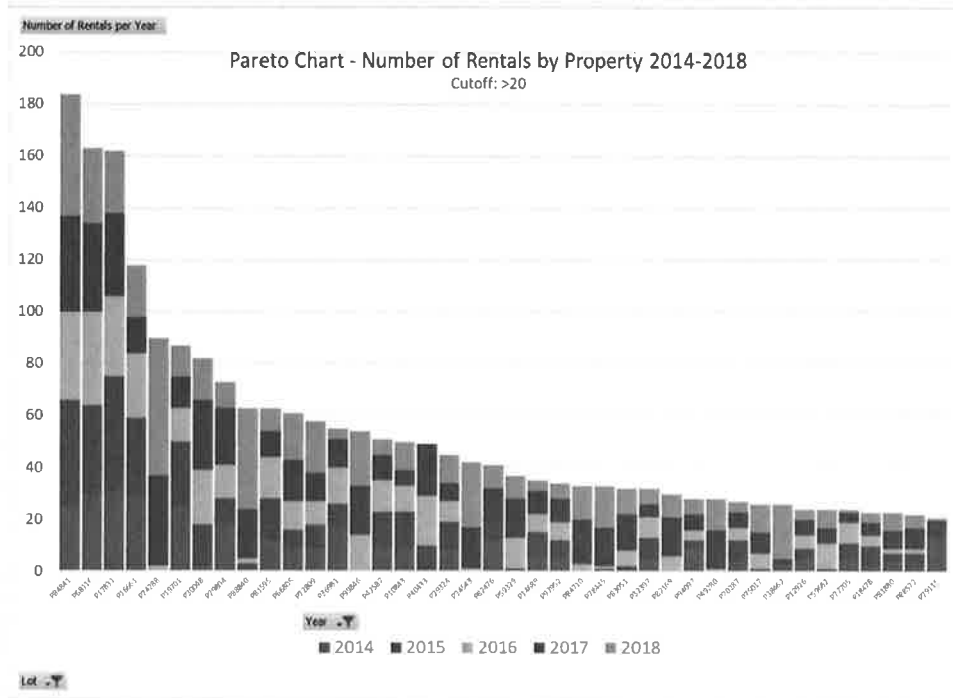


Figure 6 - Number of leases per rental property (Filtered at > 20)

Recommendations

Guiding Principles

The Committee agreed on several principles to guide the recommendations:

1. **Commitment to family orientation:** Masthope’s governing documents (Declaration, Bylaws, and Rules & Regulations) and its Strategic Plan emphasize the family orientation of the community. The ID Pass Policy should as much as possible and practicable support this basic orientation.
2. **No grandfathering:** In the past, policy changes have at times been implemented through grandfathering of existing rules. While this makes the implementation of policy changes more amenable, it has the potential to create different classes or tiers of community membership which violates the single class of membership stipulation of the Declaration. This is particularly pronounced if the duration of grandfathering clauses extends for long periods of time. It should be pointed out that a position against grandfathering does not preclude the phasing in of policy changes.
3. **Apply ID Pass Policies uniformly to all types of owners:** In the current ID Pass Policies, legal persons such as corporations, LLCs, Trusts, etc. are treated differently from natural persons. While the Committee realizes that a distinction is needed for other parts of rules and regulations, such as voting, representation, etc., we agreed that ID Pass Policies should apply the same way across all types of property ownership.
4. **Simplification:** The Committee agreed that its recommendations to the Board should simplify the ID Pass Policy, with the goal of uniform rules and few to no exceptions.

5. **Continuous improvement:** The Committee's goal is to provide the Board with recommendations that are data driven and allow solid ID Pass management for the foreseeable future, but not longer. Rules need to be revisited and adapted to changing conditions on a regular basis.

Focus

The complete set of rules and regulations concerning ID Passes are contained in Masthope's Property Owner's Handbook. The Committee did not attempt a complete rewrite of all ID Pass policies, but rather focused on specific areas important to the Committee's mission. Existing rules and regulations outside of these focus areas (e.g., in good standing requirements, age regulations, different forms of identification, liability for owners, guests, and renters, etc.) should carry forward unchanged.

Independent Recommendations

The Committee has taken great care to position each and every recommendation as a stand-alone recommendation with no interdependencies. While the Committee encourages the Board to adopt all recommendations for a comprehensive update of the current ID Pass Policy, the independent nature of the recommendations also allows selective implementation and/or staggered implementation over time.

Owner Passes

The Committee is making the following recommendations:

Family Lineage:

Recommendation 1: Owner ID Passes are issued to deeded designated property owners and their immediate family.

Recommendation 2: Designated immediate family members are defined as

- The grandparents of the designated property owner
- The parents of the designated property owner
- The designated property owner and their spouse
- The children of the designated property owner and their spouse
- The grandchildren of the designated property owner

Recommendation 3: If the deeded owner of a property is an organization, such as a trust, a corporation, LLC or anything other than a natural person, that organization must specify a natural person who becomes the designated property owner.

Committee explanation of change compared to existing policy

These recommendations are made to ensure uniform treatment of property owners independent of whether they are natural or legal persons. The recommendations also streamline the number of eligible immediate family generations from currently seven to five. Great grandparents and great grandchildren have been removed.

Note: These recommendations are not meant to change the existing rules for membership eligibility of domestic partners or significant others as currently identified in Masthope's rules and regulations.

Number of Owner Passes

Recommendation 4: Designated immediate family members will be given a maximum of 6 (six) ID Passes.

Recommendation 5: Designated immediate family members can obtain additional ID Passes for an annual fee, up to a maximum of 6 (six) additional passes.

Recommendation 6: Each lot will continue to receive 4 (four) guest passes. Guest passes can only be used by one guest per day and cannot be shared during the day.

Recommendation 7: All ID Pass Policies, new and existing, and specifically recommendations 4, 5, and 6, shall apply to all properties in the community. Specifically, the grandfathering rule in effect for community members with rights prior to May 22, 2004, is recommended to be revoked.

The current rules specifically address ownership scenarios where more than one owner is listed on the deed. The handbook refers to these additional deeded owners as “undesigned deeded property owners”, and they all pay full annual dues per current regulations.

Recommendation 8: All ID Pass Policies, new and existing, and specifically recommendations 4, 5, and 6, shall apply to all undesigned deeded property owners as defined in the current set of rules.

Recommendation 9: The existing rules for property owner day passes were examined and should not be changed.

Committee explanation of change compared to existing policy

These recommendations are essential for the goal to make the total number of in-circulation passes more manageable. The recommendations achieve the following purpose:

- The current maximum number of ID Passes per designated immediate family is 20 (12 allocated passes, plus a maximum of 4 purchased passes, plus 4 guest passes, in short, a 12-4-4 model). The recommendations reduce the maximum number to 16 (6 allocated passes, plus a maximum of 6 purchased passes, plus 4 guest passes, in short, a 6-6-4 model). This helps reduce the overall number of ID Passes in circulation, but remains consistent with the data showing an average of about 6 passes per property allocated and a 53% on average usage rate.
- The recommendations increase the demand driven portion of the ID Passes per property by increasing the number of purchasable passes from 4 to 6. Additional flexibility is given through the option of purchasing day passes under existing rules. The value of property owner day passes should be examined periodically and the cost adjusted appropriately.
- Ending the grandfathering rule of 2004 ensures uniform treatment of all property owners in line with the Covenants.

Renter Passes

The term “renter” is used here for any person who is participating in a lease. As illustration, a family with two parents and two children would consist of four renters. The Committee is making the following recommendations:

Recommendation 10: Renter ID Passes should continue to be differentiated between long-term and short-term leases (no change to existing rule).

Recommendation 11: Leases up to 180 days are considered short-term leases. Leases for 181 days and longer are considered long-term leases.

Recommendation 12: All renters must use the compactor for trash removal. A compactor ID Pass needs to be given out for all leases. The compactor ID should be configured so it is usable for all adult renters named on the lease.

Recommendation 13: While a property is being leased, the property owner passes continue to be deactivated (no change to existing rule).

Short-term Leases

The Committee's recommendations on renter ID Passes and correlated amenities use were discussed and aligned with the Amenities Policy Committee, which had been chartered at the same time as the ID Pass Policy Committee. In a combined work session of both committees on February 16, 2019, a consensus for renter ID Passes and Amenity Access fees was reached.

Recommendation 14: Each renter will be given an ID Pass. If a renter is not interested in the use of the amenities, the ID Pass is a simple non-picture ID. If a renter is interested in the use of the amenities, they will be given a picture ID Pass. The section on ID Pass Technology has information on how technology can be used to reduce additional burden for the office.

Recommendation 15: If renters are interested in the use of the amenities, a daily amenity access fee will be charged per property rented. The amenity access fee will be collected at the time of registration in conjunction with the current administration fee. The monetary value of the daily amenity access fee shall be determined using market and demand data available for the Masthope area.

Recommendation 16: The maximum number of renter ID Passes for a given lease is 12, including the compactor ID Pass, independent of whether these are picture ID Passes (with amenity access) or non-picture ID Passes (without amenity access). No additional daily passes for renters are allowed.

Long-term Leases

Recommendation 17: Renters in a long-term lease will be issued ID Passes under the rules in effect for property owners. Specifically, the recommended rules for family lineage and allocated / additional ID Passes apply. The amenity access fee does not apply for long-term renters.

Committee explanation of change compared to existing policy

These recommendations are intended to ensure that the interests of the community are preserved under lease agreements. The recommendations achieve the following purpose:

- The compactor use is currently limited to only one renter on the lease. The recommendation is designed to allow greater flexibility and better compliance with compactor rules.
- The maximum number of passes currently allowed on a lease is 12 (up to 8 rental passes with the option to purchase up to 4 more passes). The recommendation leaves the maximum number of passes at that level.

- The recommendations leave the usage of amenities for a fee to the discretion of the renter.
- The introduction of renter picture ID Passes provides better monitoring and control of amenity usage.
- The Committee recognizes that the implementation of issuing renter picture ID passes will be challenging under current office conditions. However, there are technology and process solutions available which can be used to reduce the effort associated with issuing picture passes (see section on ID Pass Technology).

Scenarios

The following table provides sample scenarios which illustrate how the Committee’s recommendations would apply in the management and administration of ID Passes going forward.

Table 1: Scenarios for ID Pass Recommendations

Scenario	Context	Property Owner	Passes issued	ID Pass Policy Recommendations
1	Deeded owner and spouse with three children with improved property	Single Deeded Owner	2+3=5	5 Passes, included with property ownership
2	Deeded owner and spouse with 2 adult children and their spouses, frequently entertaining 2 grandchildren	Single Deeded Owner	2+2+2+2=8	Two possible solutions, up to decision by owner: 1. 6 Passes, included with property ownership, plus 2 flex passes purchased 2. 6 Passes as above plus guest pass usage
3A	Two married deeded owners, with improved property. They pay 2 sets of dues. One owner has 3 children, the other has 1.	Two deeded owners	2+3=5 2+1=3	Owner 1: 5 Passes, included with property ownership Owner 2: 3 Passes, included with property ownership
3B	Two married deeded owners with improved property. They pay 2 sets of dues. One owner has 5 children, the other has 3.	Two deeded owners	2+5=7 2+3=5	Owner 1: 6 Passes, included with property ownership, plus 1 flex pass purchased, or, use of guest pass. Owner 2: 5 Passes, included with property ownership
4	Deeded owner and spouse with two adult children with spouses. For estate planning purposes they transfer deed into trust.	Single Deeded Owner → Trust	2+2+2=6	Before trust: 6 Passes, included with property ownership. After trust: no change for passes, but now the trust is owner with one family member designated as the primary owner.
5	Deeded owner and spouse on improved property and have a total of 8 passes. They decide to rent their house for short-term / weekend rentals only.	Single deeded owner	8	Since they have 8 passes, they would have had 6 Passes, included with property ownership, plus 2 flex passes purchased. When house is rented, all 8 passes get deactivated, and Renter Passes get issued. If the renters decide on

Scenario	Context	Property Owner	Passes issued	ID Pass Policy Recommendations
				amenity usage, the passes will be Photo IDs, otherwise not.
6	Two married deeded owners with improved property. They pay 2 sets of dues They have 4 and 8 passes, respectively. They decide to rent out their home for short-term rentals only.	Two deeded owners	4 8	Owner 1: 4 Passes, included with property ownership. Owner 2: 6 Passes, included with property ownership, plus 2 flex passes purchased. When house is rented, all 4+8 passes get deactivated, and Renter Passes get issued. If the renters decide on amenity usage, the passes will be Photo IDs, otherwise not.
7	Property owner and spouse own three improved properties. They transfer deed for two properties to an LLC they jointly own, and then rent out both homes, one long-term, and one short-term.	Couple → Couple + LLC	?	Assume no other family members. Before LLC: 3*2 Passes, included with property ownership. After LLC: 2 Passes, included with non-LLC property ownership. LT rental property will get maximum of 2 rentals in 12 months period processed and Renter Passes issued under the rules for property owners. ST rental property will get Renter Passes issued. If the renters decide on amenity usage, the passes will be Photo IDs, otherwise not.
8	A corporation owns an improved property. Usage of the property is part of bonus package they give to employees who they want to give special recognition.	Corporation	8	Any "legal entity" such as a corporation or a trust needs to name a Designated Owner (for administrative matters, voting, etc.) Other than that, this scenario is not different from a rental scenario and is treated accordingly.

If appropriate and / or useful, this table of scenarios could be built out and maintained, and could be used as a tool for office staff.

ID Pass Administration

Recommendation 18: All property owner ID Passes should be deactivated after a period of inactivity or non-use.

Committee explanation of change compared to existing policy

This recommendation is intended to help keep the number of active, in-circulation cards at a current level. A reasonable period of inactivity before deactivation could be set at 2 years and adjusted as needed.

ID Pass Technology

Access Management

Masthope ID cards contain a unique barcode and are issued to community members and renters. Access to the majority of Masthope's amenities is controlled by an employee scanning the unique barcode on a Masthope ID card with a handheld scanner. This creates a record of amenity usage by the cardholder. Each evening the scanners are connected to the network and the records are downloaded. Each morning, the current member status is uploaded to the scanners.

Currently the cards are scanned with hand held scanners. The scanner provides an audible alert if the card is valid and access is permitted. Cards are scanned in the following locations:

- POC and Ski Offices
- Pool (front entrance)
- Fitness Center
- Stables
- Lake Front Entrance, Boat Ramp, Boat Rental
- Mini Golf
- Compactor

Owners are identified by the attendant confirming the picture on the pass matches the person presenting the card. Guest and renter cards do not have pictures on them. Because there is no picture, and the current policy allows the same card to be scanned multiple times in a day, there is a flaw in the current system that allows guest passes and renter passes to be used by multiple people on the same day.

Providing temporary picture ID Passes to renters and/or guests who are using Masthope's amenities would overwhelm the office capacity of available staff and facility floor space. However, there are technology solutions available. Access management scanners can take temporary pictures at the amenity so the administrative burden is spread across time, facilities, and personnel. Depending on the software capabilities, this temporary picture would be saved either locally in the scanner or centrally at the server, and each time the pass was scanned, the picture would show on the scanner so the guest/renter could be verified.

It should also be noted that current scanners are running software that is no longer supported by Microsoft or upgradable.

Figure 7 shows the current scanner type used at Masthope. Figure 8 shows a type of scanner with integrated camera allowing pictures to be taken and to be associated with non-picture ID Passes.

Recommendation 19: Current scanners shall be upgraded to scanners that allow for picture verification of each user being scanned. Attendants shall be able to assign a picture to non-picture ID passes at the point of scanning to prevent multiple users sharing the same card. This temporary picture would be assigned to the pass for one day.

Recommendation 20: Current ID card technology shall be upgraded from barcodes to RFID (radio frequency identification) or multi-technology (RFID, magnetic strip, bar code). RFID is a more secure technology and has greater future uses than the current simple barcode cards.



Figure 7 - Current Scanner used at Masthope



Figure 8 - Type of proposed scanner showing picture ID

Given the number of technology options available, a separate, smaller committee should be established to present pricing and recommendations to the board. Ski management and Summit management should be included in these discussions because newer, multi-technology cards will allow the passes to be used for other purposes. For example, RFID technology could be used on the ski slopes for lift ticket verification, and magnetic strip technology could be used at the Summit and Marketplace for point of sales.

Data Collection and Reporting

Currently, records generated by the scanners are stored in a database that can provide information on the scans. However, there is no easy to use or intuitive user interface to generate reports from the data set. Data is presented in a raw format and significant manipulations are required before the data is useful. Furthermore, in reviewing the data, there were multiple instances where the data was corrupt or missing with no indication of the reason why.

Even for the work involved in producing this report, the Committee found it very challenging to get access to meaningful data sets and reports, and to get these reports in a reasonable time. This does not reflect on the staff who put a lot of time and effort into providing the data. It reflects on the fact that Masthope is overdue for a modernization of its data collection and reporting systems.

One particular problem surfaced through the fact that there is no easy way to “anonymize” data sets so that general usage snapshots and trending information can be generated without disclosing personally identifiable information. Using current technology, generating anonymized data sets is a manual process, open to user mistakes.

There are at least three distinct and independent software solutions currently being used at Masthope:

1. An HOA software solution (TOPS) for tracking dues, owners, and lots
2. The Masthope ID card creation and printing software
3. The amenity usage handheld scanner technology

Problematically, none of these systems are integrated or share information. The retrieval of information, both across and sometimes within these individual platforms is difficult, and requires manual intervention. Without the ability to retrieve this information quickly and reliably, the creation of data dashboards, conducting What-If studies, creating trendlines, or providing support for other activities such as budgeting or forecasting, is very difficult. Masthope cannot learn from its own data set or use it to plan for the future.

Some simple questions which cannot currently be answered without manual data aggregation by POC staff are:

- How many times were cards that are registered to a given property scanned at a certain time and/or amenity?
- What is the long-term trend of usage at an amenity like the pool during the summer?
- How often are passes rescanned at the same amenity within a given time period?

Industry best practice would be to expose the records from all these sources in a central database and replicate the raw data in the cloud. By exposing these records in a database, analysis of usage data becomes much easier and questions like those listed above become easily answerable.

Since some of the systems in current use provide highly proprietary solutions, vendors should be consulted on how the setup of a central database can be accomplished with minimum cost and overhead.

Recommendation 21: Upgrade the current set of Masthope ID systems with database technology that would enable better tracking, analytics, and advanced reporting of all data sets. This includes the replication or backup of the data using cloud services.

Implementation and Communication

Recommendation 22: The recommendations by the Committee should be implemented no later than May 1, 2020, which marks the beginning of the 2020-2021 Fiscal Year of the association.

Recommendation 23: We recommend to have a town hall meeting scheduled for the beginning of April so that the information on the findings and recommendations of the Committee can be brought to the membership.

Committee comments about implementation and communication of our recommendations

Many of the Committee's recommendations can be implemented by the Board immediately through changing the Masthope handbook of rules and regulations. Other recommendations will take longer to implement. For example, changing technologies requires an implementation plan, a budget, quotes from vendors etc. This does not mean that it has to take a long time, and we feel strongly that everything we have proposed can be completely implemented by May 2020.

End of Report
