

Review of Operations and Complaints

June 27 – September 30, 2019
at East Hampton Airport (HTO)

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July 2020



Agenda

- Analysis Overview
- Review of 2019 Implementation Period Operations
- Review of 2019 Implementation Period Complaints
- Discussion

Analysis Overview

Analysis Overview

- Collected most recently available complaint and operations data associated with HTO for 2019 Implementation Period (June 27, 2019 - September 30, 2019)
 - HTO Operations data collected from Vector Noise and Operations Management System(VNOMS)
 - Complaint data collected from PlaneNoise and Air Noise Report
 - **New:** Includes complaints transmitted to PlaneNoise from Airnoise.io system
 - Data sources are consistent with prior analysis conducted by HMMH at HTO for 2015-2018 Implementation Periods
- Evaluate 2019 HTO complaints and operations trends against 2015-2018 Implementation Periods

Review of 2019 Implementation Period Operations

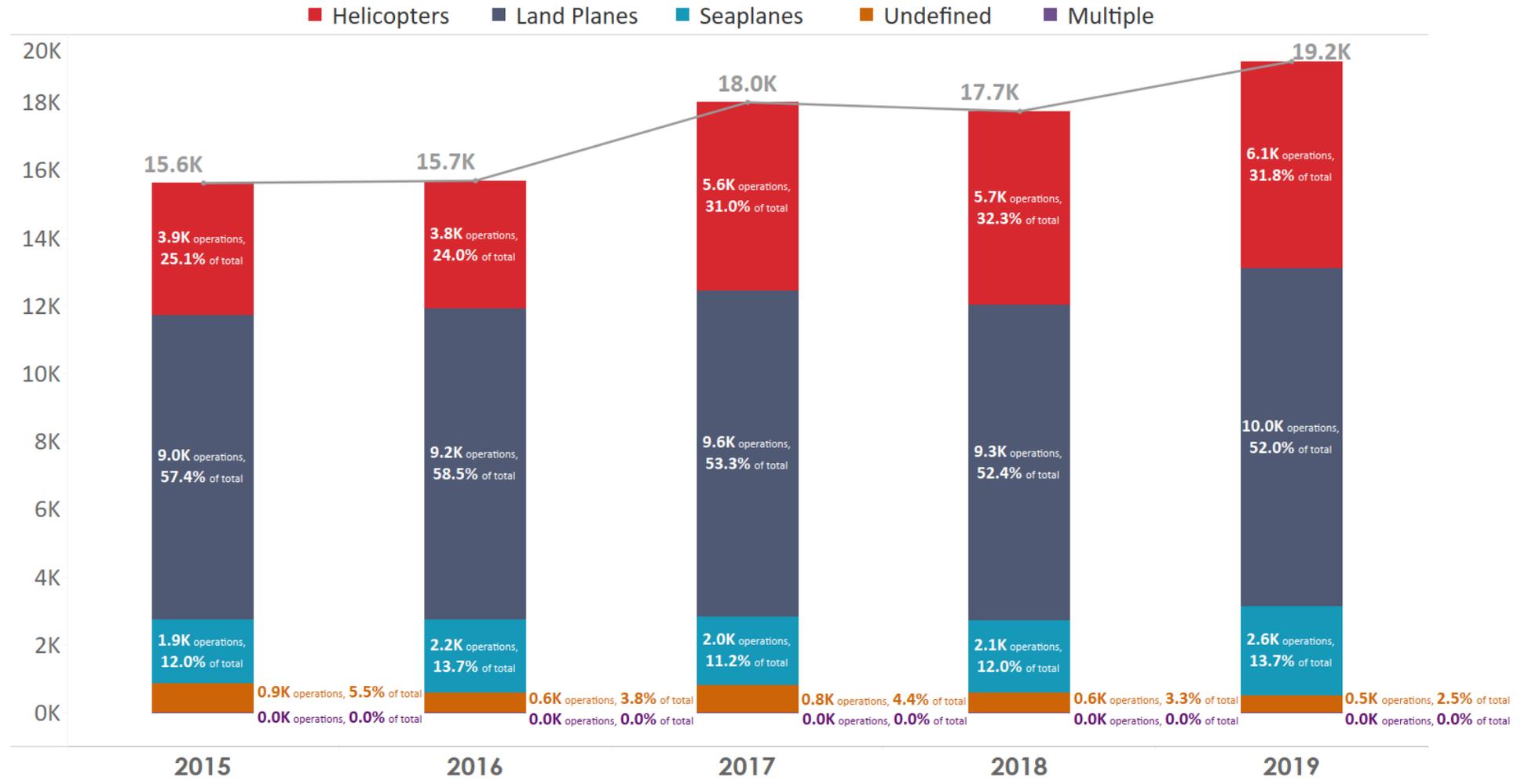
Operations Top-Level Observations: 2019 Compared to 2018 Implementation Period

- Comparison between 2019 and 2018 Implementation Periods:
 - Overall activity increased by 1,472 operations (+8%)
 - Helicopter activity increased by 377 operations (+7%)
 - Land Plane activity increased by 687 operations (+7%)
 - Seaplane activity increased by 500 operations (+23%)
 - Undefined activity decreased by 92 operations (-16%)
- 2019 Operations continued to follow patterns from 2018 and 2017 which deviate from the intent of the 2015 and 2016 restrictions
 - Total operations continue to shift into the prior nighttime curfew hours
 - “Noisy” aircraft operations continued to shift out of daytime hours into prior restricted nighttime curfew and extended curfew hours

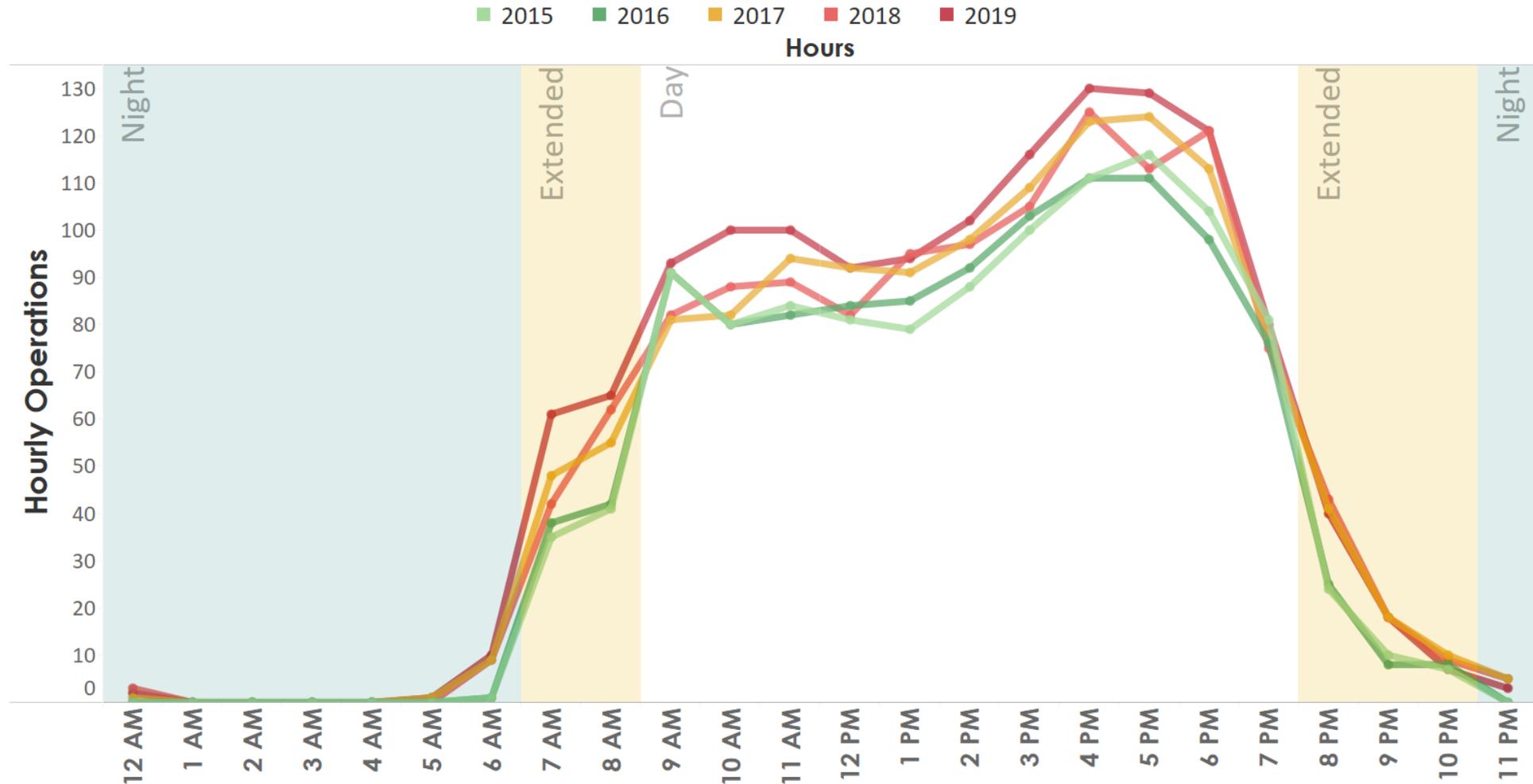
Operations Top-Level Observations: 2019 Compared to 2015 Implementation Period

- Comparison between 2019 and 2015 Implementation Periods:
 - Overall activity increased by 3,589 operations (+23%)
 - Helicopter activity increased by 2,190 operations (+56%)
 - Land Plane activity increased by 1,027 operations (+11%)
 - Seaplane activity increased by 746 operations (+40%)
 - Undefined activity decreased by 374 operations (-43%)
- Between 2019 and 2015 overall operations continued to increase, with the largest increases occurring among Helicopters and Seaplanes

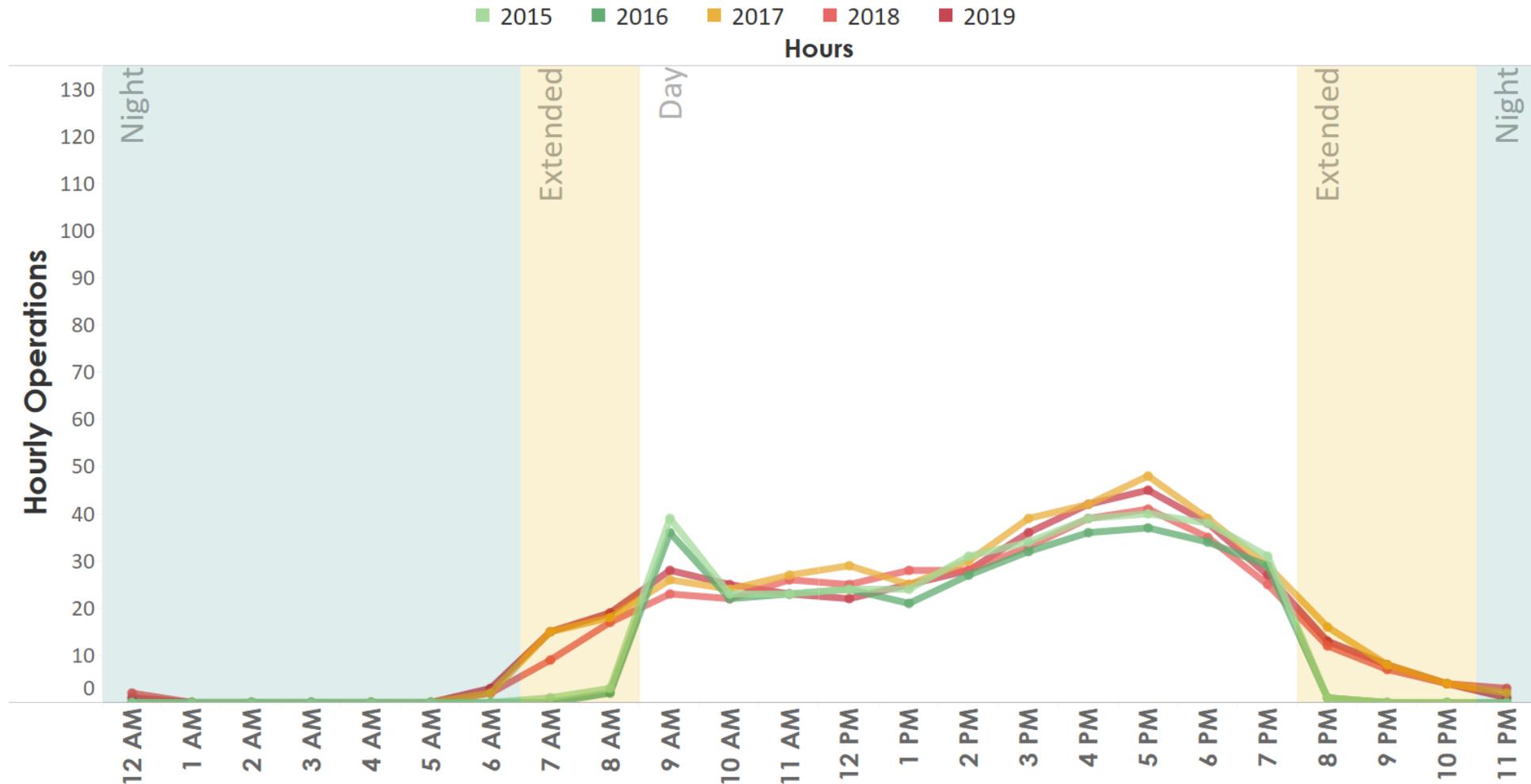
Total Operations and Operations by Fleet Mix: 2015-2019 Implementation Periods



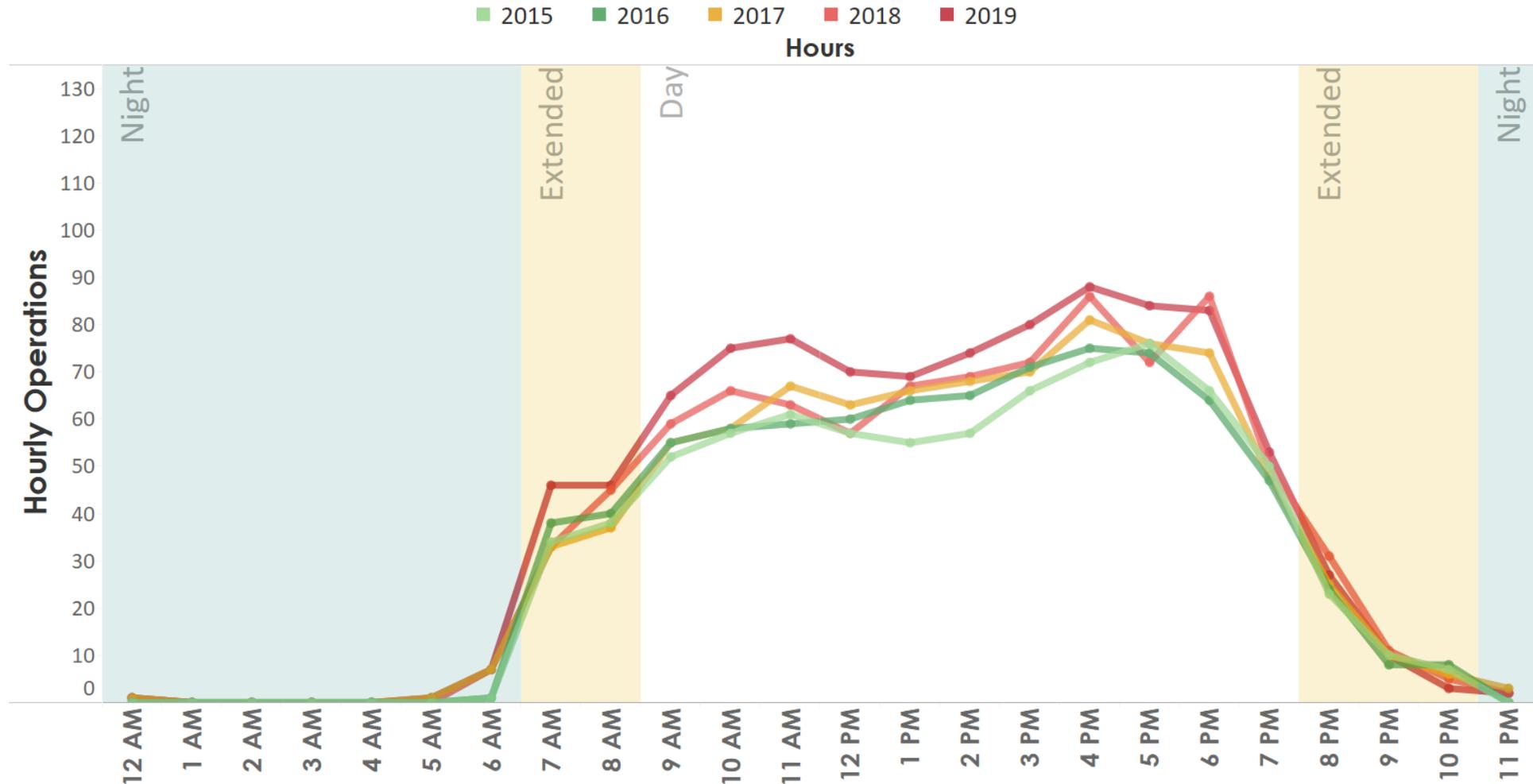
Total Average Weekly Operations per-Hour: 2015-2019 Implementation Periods



Average “Noisy” Weekly Operations per-Hour: 2015-2019 Implementation Periods



Average "Other" Weekly Operations per-Hour: 2015-2019 Implementation Periods



Operations Fleet Mix Top Level Observations: 2019 Compared to 2018 Implementation Period

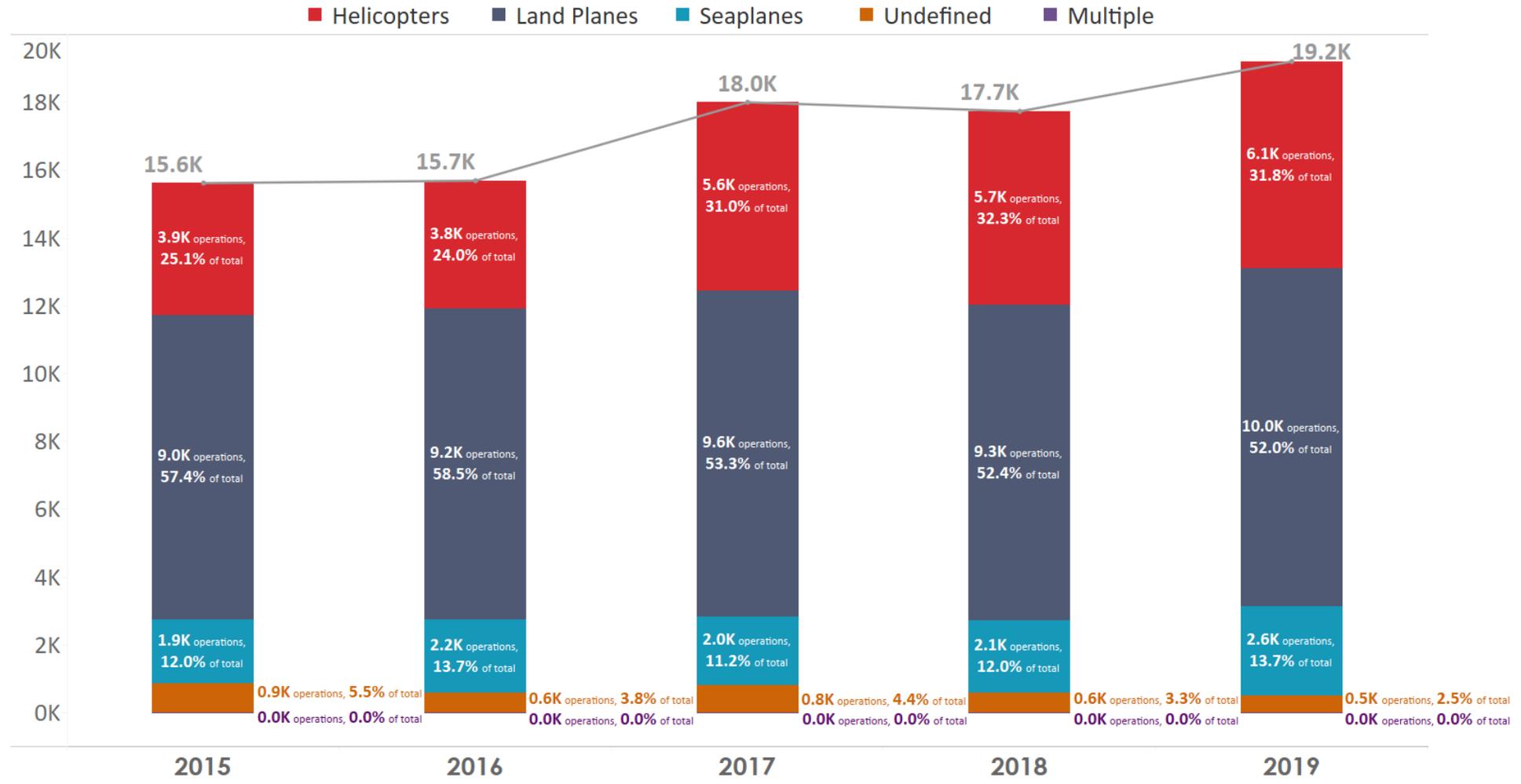
- General 2019 Implementation Period fleet mix observations
 - Land planes were the largest category of aircraft operating at HTO with of 52% (9,986) of all aircraft operations
 - Helicopters were the second largest category with 32% (6,106) of all aircraft operations
 - Seaplanes were the third largest category with 14% (2,628) of all operations
 - Undefined aircraft represented the remaining 3% (489) of all operations
- Comparison to 2018 Implementation period operations fleet mix
 - The percentage of Land Planes in the fleet remained constant
 - The percentage of Helicopters in the fleet decreased by less than 1%
 - The percentage of Seaplanes in the fleet increased by 2%
 - The percentage of Undefined aircraft in the fleet decreased by 1%
- The 2019 Implementation Period operations fleet mix at HTO appears to be largely the same as in 2018



Operations Fleet Mix Top Level Observations: 2019 Compared to 2015 Implementation Period

- Comparison between 2019 and 2015 Implementation Periods:
 - The percentage of Land Planes in the fleet decreased by 5%
 - The percentage of Helicopters in the fleet increased by 7%
 - The percentage of Seaplanes in the fleet increased by 2%
 - The percentage of Undefined aircraft in the fleet decreased by 3%
- Overall, between 2015 and 2019 the fleet mix shifted away from Land Planes toward Helicopters and Seaplanes

Total Operations and Operations by Fleet Mix: 2015-2019 Implementation Periods



Review of 2019 Implementation Period Complaints

HTO Complaint Reporting Systems: PlaneNoise

- Town has been under contract since 2012
- Commercial Product
- All complaints are address based, and tracks complaints associated with HTO and Montauk (MTP) airport
- Utilizes a combination of web, e-mail, fax, mobile app, and phone portals for complaint entry
- New: Complaints from the Airnoise.io system began to be transmitted to the Town through the PlaneNoise system on July 23, 2019 and are included in our 2019 analysis
- There were 43 complaints associated with MTP filed during the 2019 Summer Implementation Period

A screenshot of the "Airport Noise Complaint Form" for the Town of East Hampton. The form is titled "Airport Noise Complaint Form" and includes sections for "Your Information" and "Complaint Information". The "Your Information" section has fields for First Name, Last Name, Phone, and Email. The "Complaint Information" section has fields for Noise Event - Date, Noise Event - Time, a radio button for "Did the noise event occur at your current location?", a dropdown for "Airport", and a "Type of Complaint" section with checkboxes for Excessive Noise, Low Altitude, Hovering, Frequency, Excessive Vibration, and Too Early or Late. A "Filing Your Complaint" sidebar on the right provides instructions on how to file a complaint, including using a complaint box, mobile app, voicemail, or email.

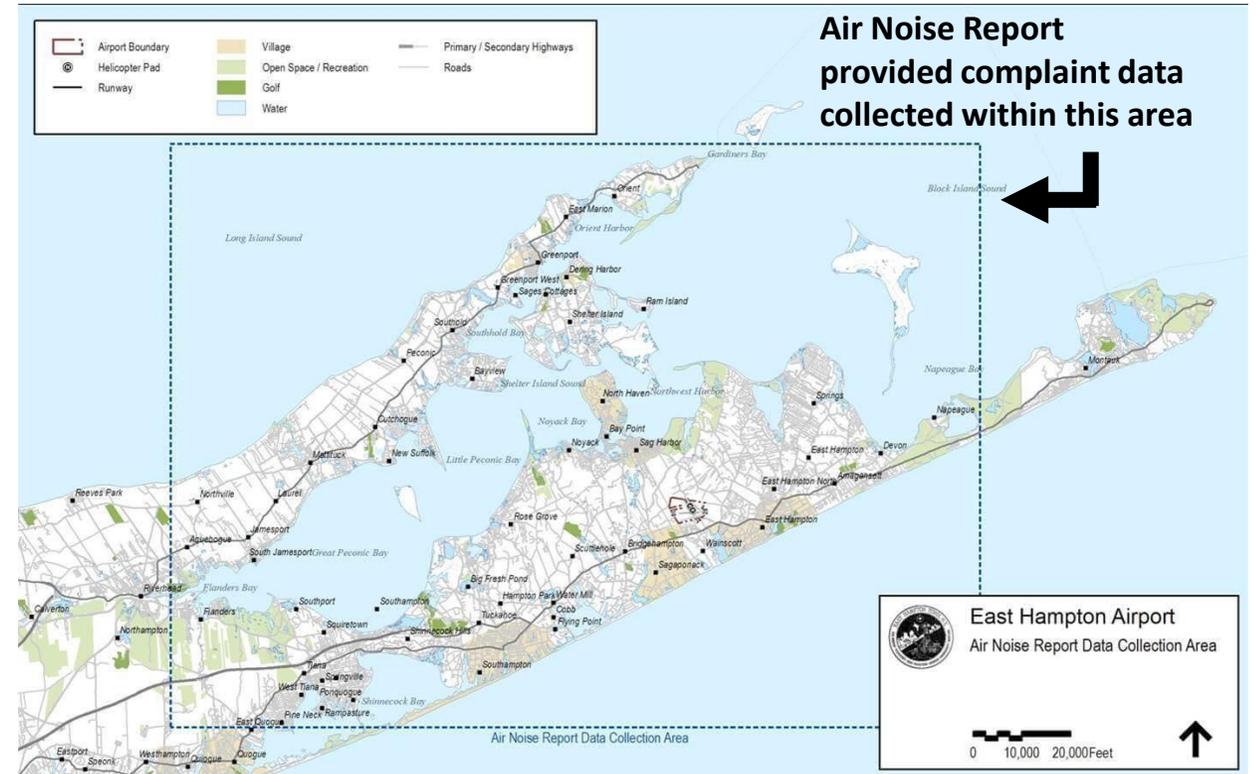
HTO Complaint Reporting System: Airnoise.io

- Airnoise.io is a system used at many airports across the country that allows users to file aircraft noise complaints
- Is not maintained by the Town and not commercially available for sale to airport operators
- Requires account to file complaints and may involve a monthly subscription fee for users (if filing more than 30 complaints a month or using complaint button)
- Supports use of web portal, SMS, or a complaint button
- Identifies closest aircraft utilizing Automatic Dependent Surveillance Broadcast (ADS-B) technology, if possible, to user address associated with user filing complaint at time complaint is filed
- Complaints from the Airnoise.io system are received by the Town through transmittal to the PlaneNoise complaint system
- Airnoise.io complaints began to be transmitted to PlaneNoise on July 23, 2019 and are included in our 2019 analysis with PlaneNoise complaints



HTO Complaint Reporting Systems: Air Noise Report

- Became fully operational in late June of 2016
- Utilizes a web portal for complaint entry
- Complaints can be filed based on:
 - location of an aircraft using Automatic Dependent Surveillance Broadcast (ADS-B) or Mode-S technology (Mapped Complaints)
 - Address (Manual Complaints)
- Operated and maintained by NYC resident concerned about helicopter noise
- Not commercially available for sale



Categorizing Operations Responsible for Complaints

- The PlaneNoise, Airnoise.io, and Air Noise Report complaint entry methods do not provide consistent bases for categorizing fixed-wing aircraft
- Air Noise Report does not support a multiple aircraft complaint

Aircraft Type Category	PlaneNoise and Airnoise.io Complaints	Air Noise Report Complaints	
		Manual	Mapped
Helicopter	Helicopter	Helicopter	ANR mapped complaints require complainant to identify a specific aircraft operation, which permits identification of the <i>exact</i> aircraft type, including “noisy” and “other” types
Fixed-Wing	Jet	N/A	
	Prop	N/A	
	N/A	Small Airplane	
	N/A	Large Airplane	
	Seaplane	Seaplane	
Undefined Type	Unknown	Unsure	<i>Applies when tail number not listed in any source</i>
Multiple Aircraft	Multiple	<i>Not supported</i>	<i>Not supported</i>



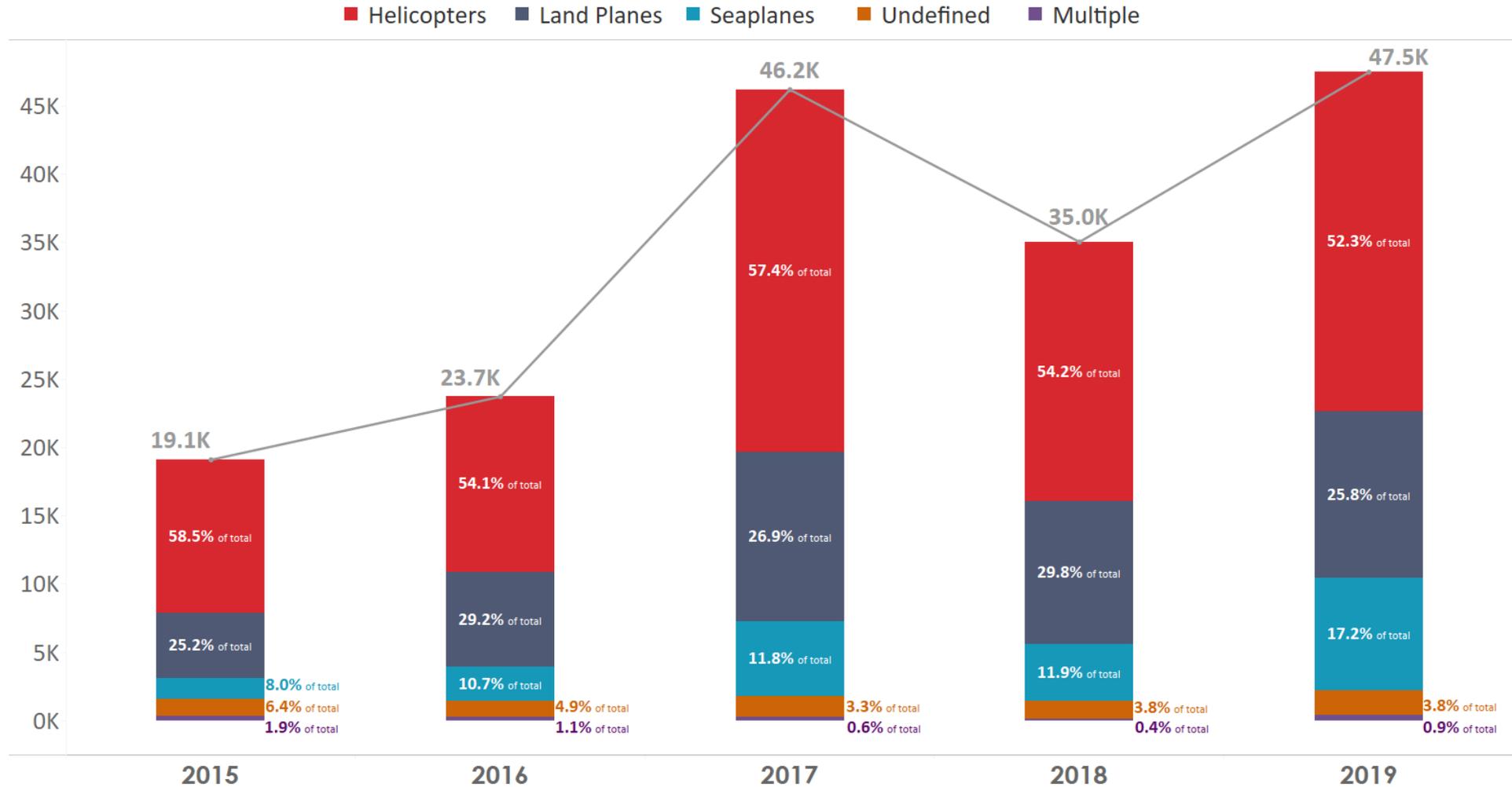
Complaints Top-Level Observations: 2019 Compared to 2018 Implementation Period

- Comparison of 2019 and 2018 Implementation Periods
 - Overall complaints increased by 11,691 (+33%)
 - Helicopter complaints increased by 5,830 (+31%)
 - Land Plane complaints increased by 1,780 (+17%)
 - Seaplane complaints increased by 4,032 (+97%)
 - Multiple aircraft complaints increased by 283 (+218%)
 - Undefined aircraft complaints decreased by 234 (-18%)

Complaints Top-Level Observations: 2019 Compared to 2015 Implementation Period

- Comparison between 2019 and 2015 Implementation Periods:
 - Overall complaints increased by 27,631 (+145%)
 - Helicopter complaints increased by 13,631 (+122%)
 - Land Plane complaints increased by 7,426 (+154%)
 - Seaplane complaints increased by 6,656 (+435%)
 - Multiple aircraft complaints increased by 52 (+14%)
 - Undefined complaints decreased by 134 (-11%)
- As with operations, overall complaints between 2019 and 2015 continued to increase, with the largest increases occurring among Helicopters and Seaplanes

Total Complaints and Complaints by Fleet Mix: 2015-2019 Implementation Periods



Complaints by Fleet Mix Top Level Observations: 2019 Compared to 2018 Implementation Period

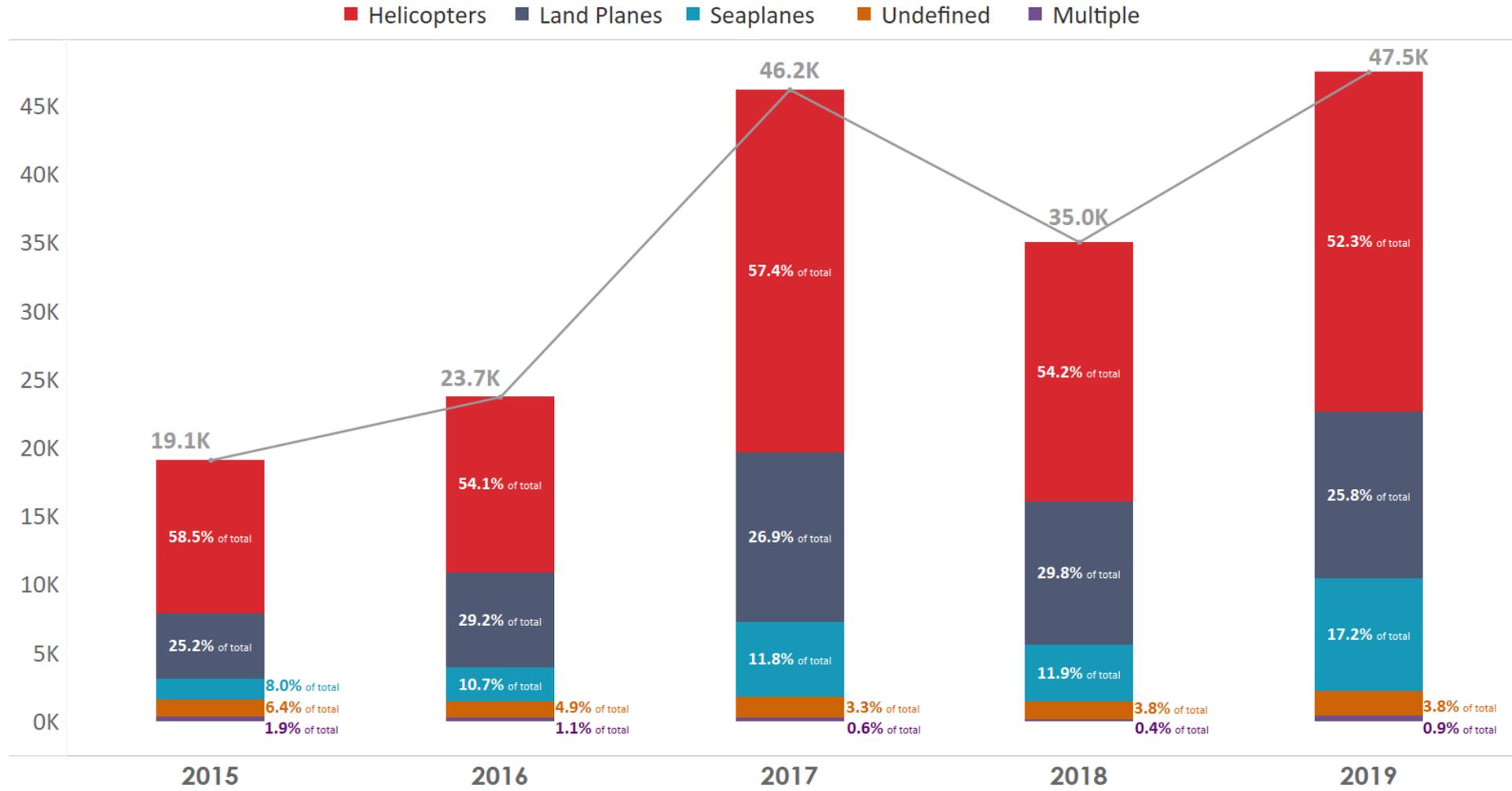
- General 2019 Implementation Period fleet mix complaint observations
 - Helicopters were the most complained about category of aircraft at HTO with of 53% (24,813) of complaints
 - Landplanes were the second largest category, with 26% (12,236) of complaints
 - Seaplanes were the third largest category with 18% (8,185) of complaints
 - Multiple and Undefined aircraft represented the remaining 3% (1,496) of all complaints
- Comparison to 2018 Implementation Period complaints
 - The percentage of complaints about Helicopters decreased by 1%
 - The percentage of complaints about Land Planes decreased by 4%
 - The percentage of complaints about Seaplanes increased by 6%
 - The percentage of complaints about Undefined and Multiple aircraft decreased by 1%
- 2019 Implementation Period complaints shifted toward operations associated with Seaplane aircraft and away from the other types



Complaints by Fleet Mix Top Level Observations: 2019 Compared to 2015 Implementation Period

- Comparison between 2019 and 2015 Implementation Periods:
 - The percentage of complaints about Helicopters decreased by 6%
 - The percentage of complaints about Land Planes increased by 1%
 - The percentage of complaints about Seaplanes increased by 10%
 - The percentage of complaints about Undefined and Multiple aircraft decreased by 5%
- Between 2019 and 2015, complaints shifted primarily toward operations associated with Seaplane aircraft
 - Slight increase toward Land Planes
 - Shift in complaints away from Helicopters, Multiple, and Undefined aircraft

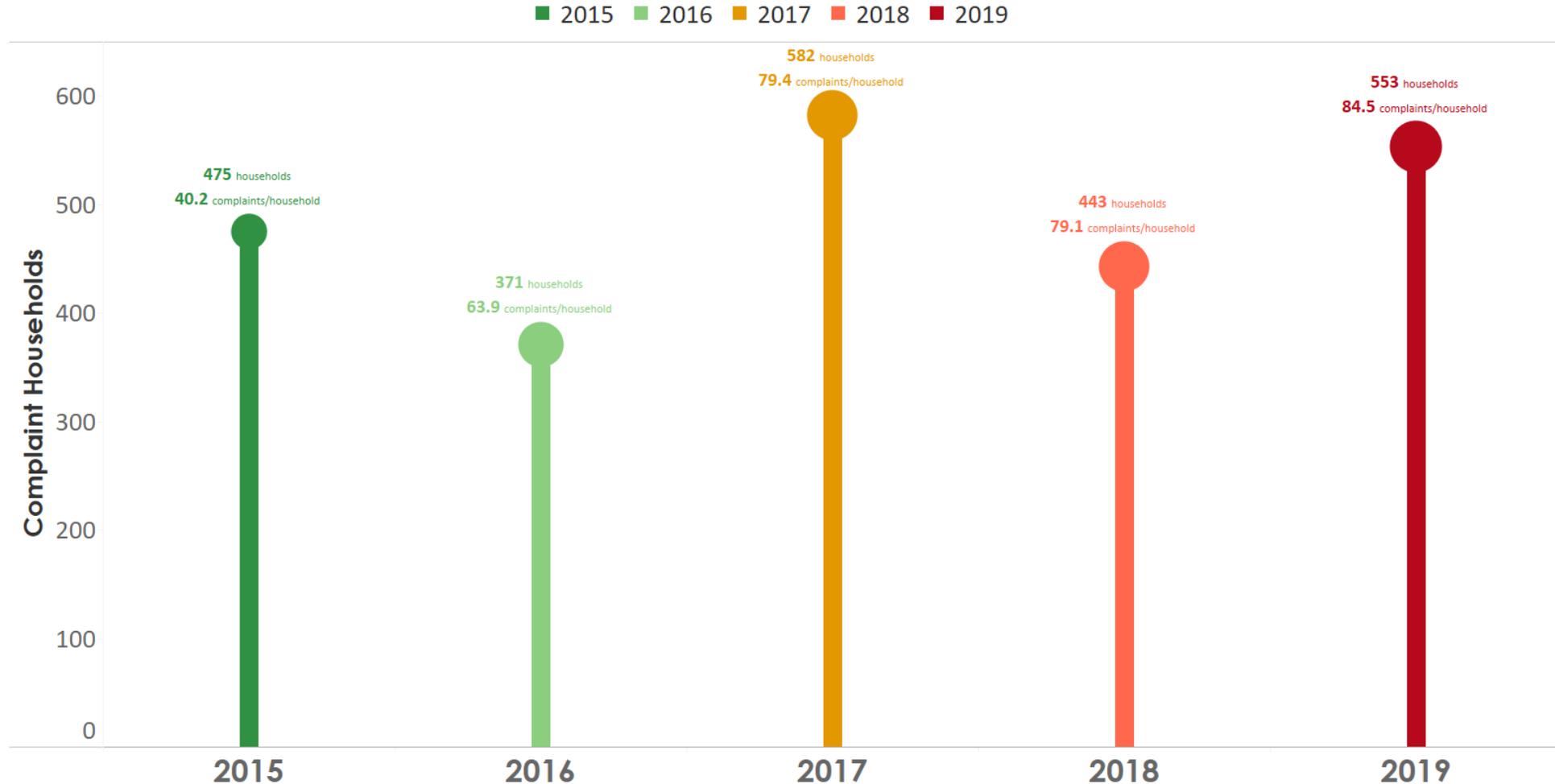
Total Complaints and Complaints by Fleet Mix: 2015-2019 Implementation Periods



HTO Address-based Complaint Analysis: 2015-2019 Implementation Periods

- Only some HTO complaints contain address/household information
 - All PlaneNoise complaints (including Airnoise.io) – anonymized address latitude and longitude
 - Air Noise Report Manual complaints – anonymized address latitude and longitude
- Other HTO complaints do not contain address information
 - Air Noise Report Mapped complaints
 - Latitude and longitude of aircraft location when complaint is filed
 - No address information is provided when a complaint is filed
- Air Noise Report Mapped complaints were omitted from this analysis as a specific address/household could not be identified for each complaint

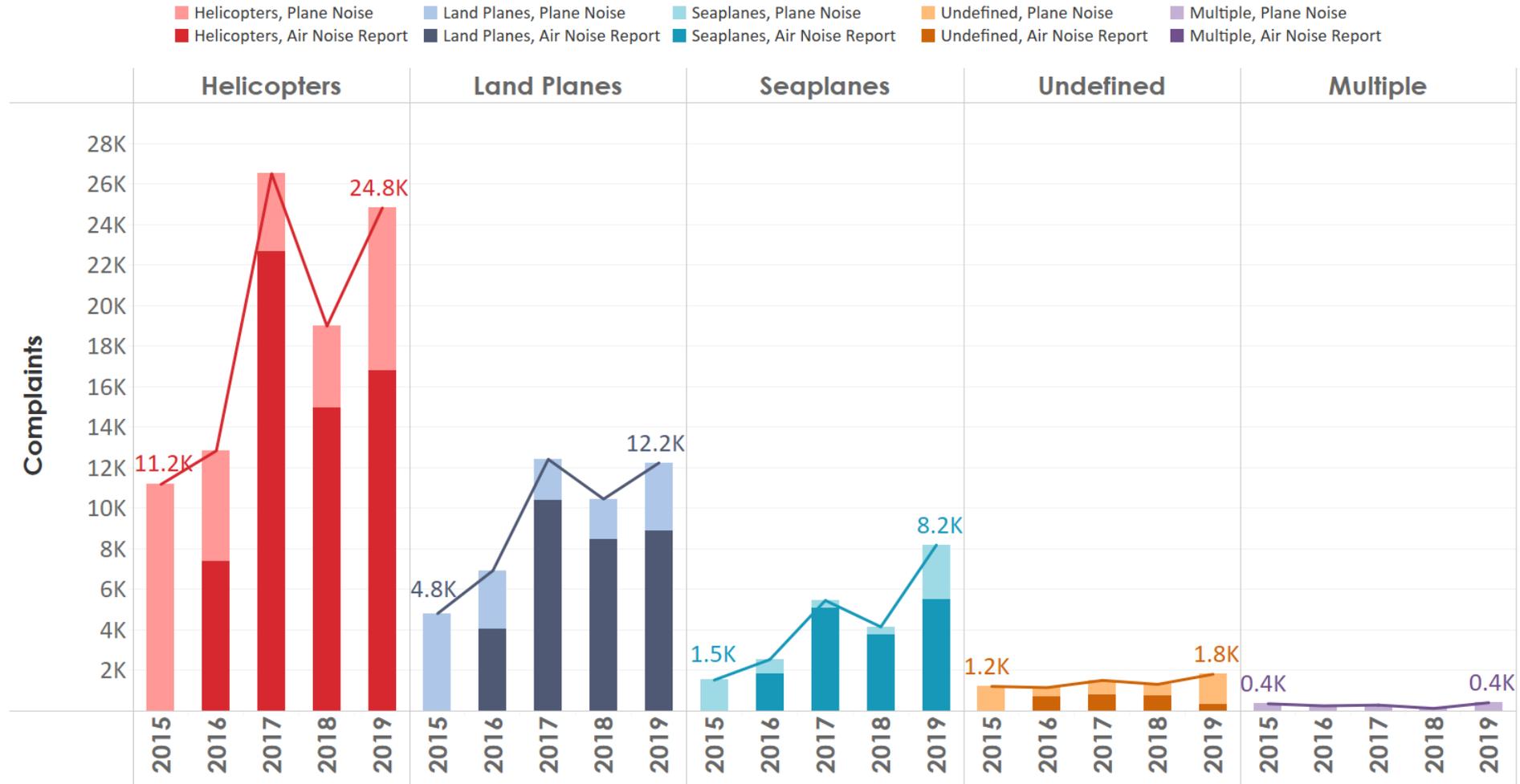
Unique Households Filing Complaints: 2015-2019 Implementation Periods



Complaint Method of Reporting Top Level Observations

- General 2019 Implementation Period method of reporting observations
 - 67% (31,538) of all complaints were filed through Air Noise Report
 - 33% (15,192) of all complaints were filed through PlaneNoise
 - Of all PlaneNoise complaints, 7% (3,358) were received through Airnoise.io
 - Remaining 93% (11,834) of PlaneNoise complaints were received through the PlaneNoise HTO hotline, e-mail, mobile, or webform methods
- Air Noise Report continued to remain the primary method of reporting complaints as has been the case since the system became operational in 2016

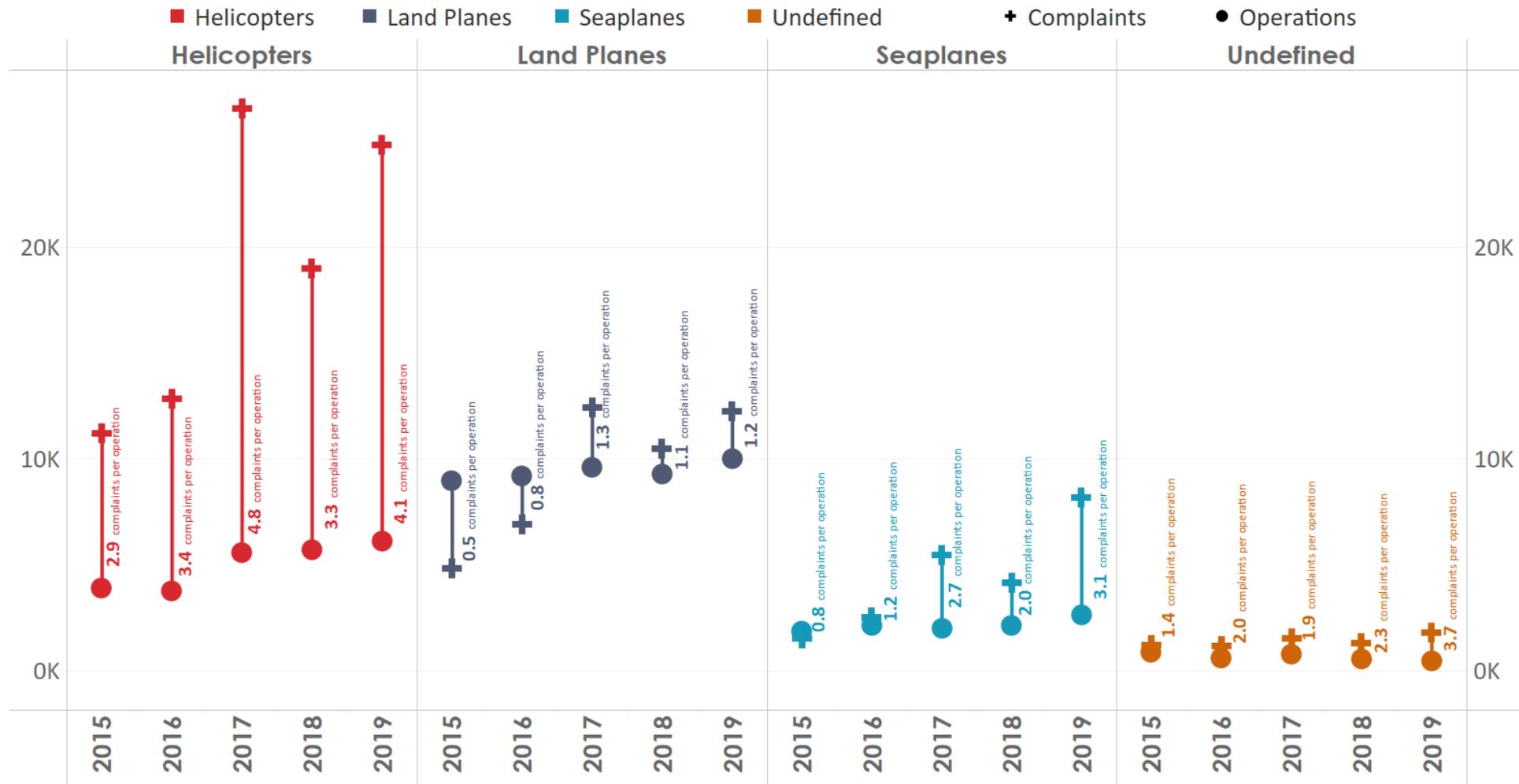
Percentage of Complaints by Reporting System: 2015-2019 Implementation Periods



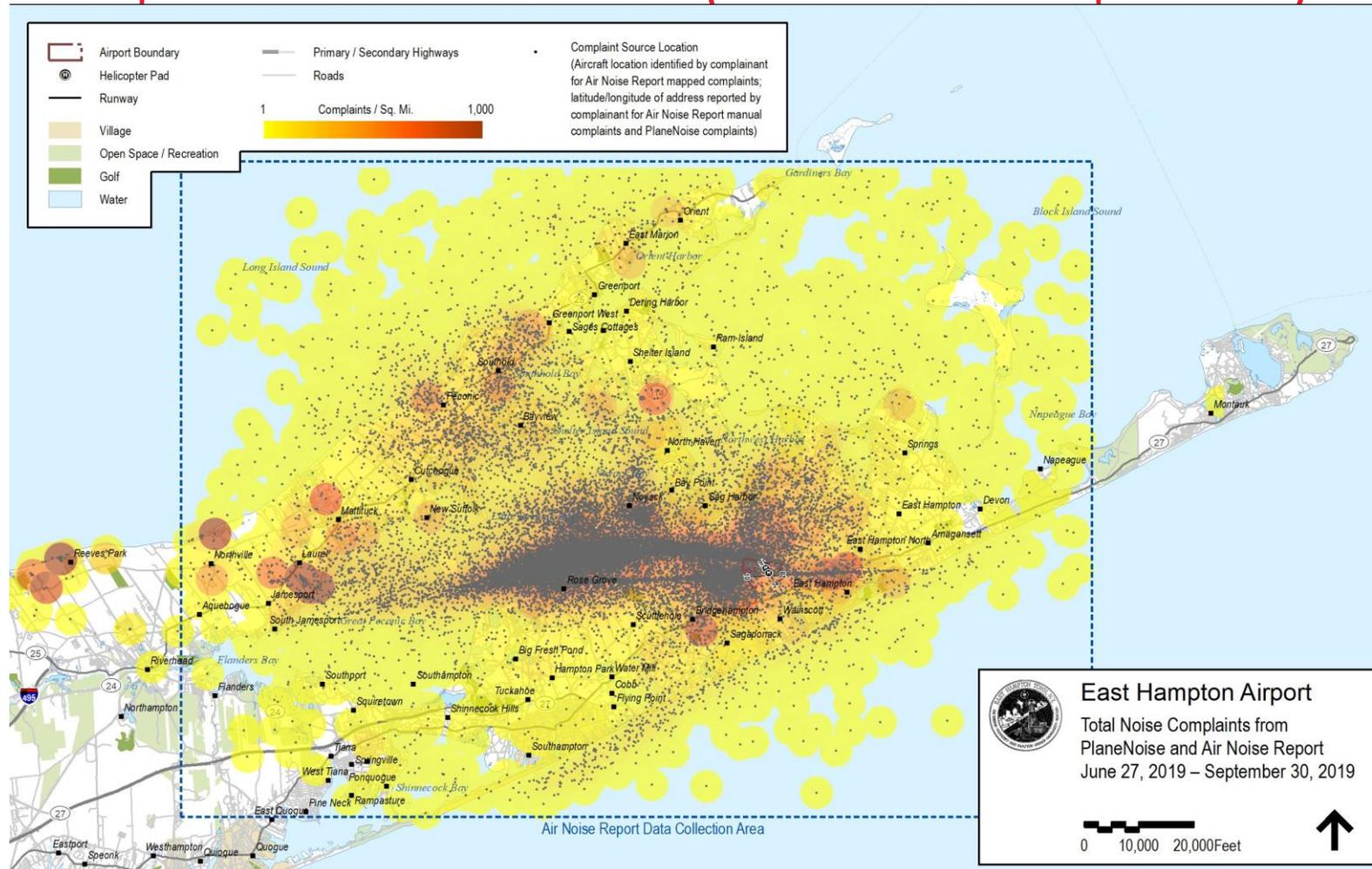
Complaints Compared to Operations

- General 2019 Implementation Period complaints compared to operations
 - Helicopters had the most complaints per operation (4.1 complaints per operation)
 - Undefined aircraft had the second most complaints per operation (3.7 complaints per operation)
 - This is largely due to the low number of complaints and operations associated with undefined aircraft
 - Seaplanes had the third most complaints per operation (3.1 complaints per operation)
 - Land Planes had the least complaints per operation (1.2 complaints per operation)
- Excluding Undefined aircraft, Helicopters and Seaplanes generated the most complaints on a per operation basis
- Compared to the 2015 Implementation Period, the number of complaints per operation have largely shifted toward Helicopters and Seaplanes

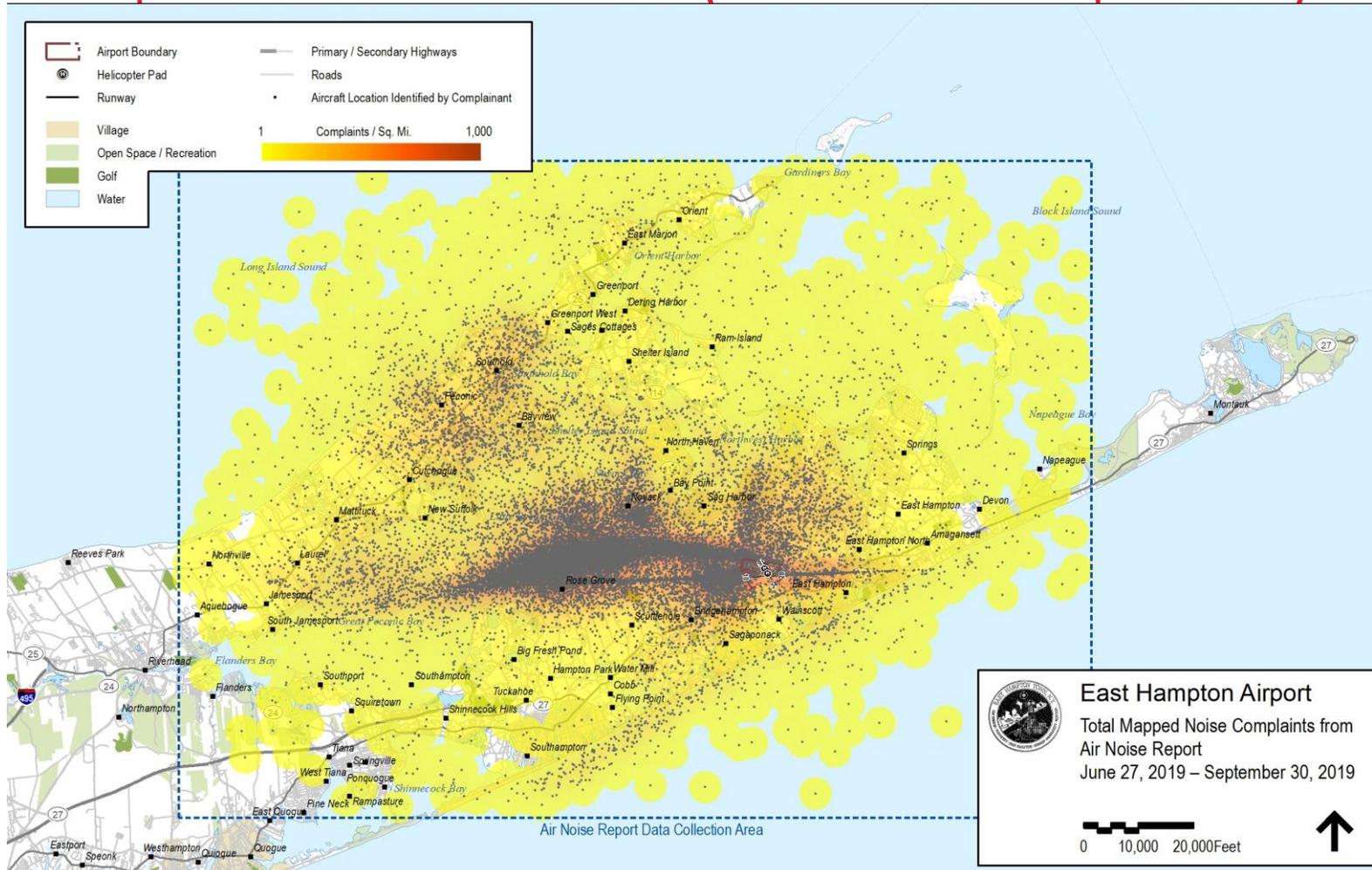
Complaints per Operation: 2015-2019 Implementation Periods



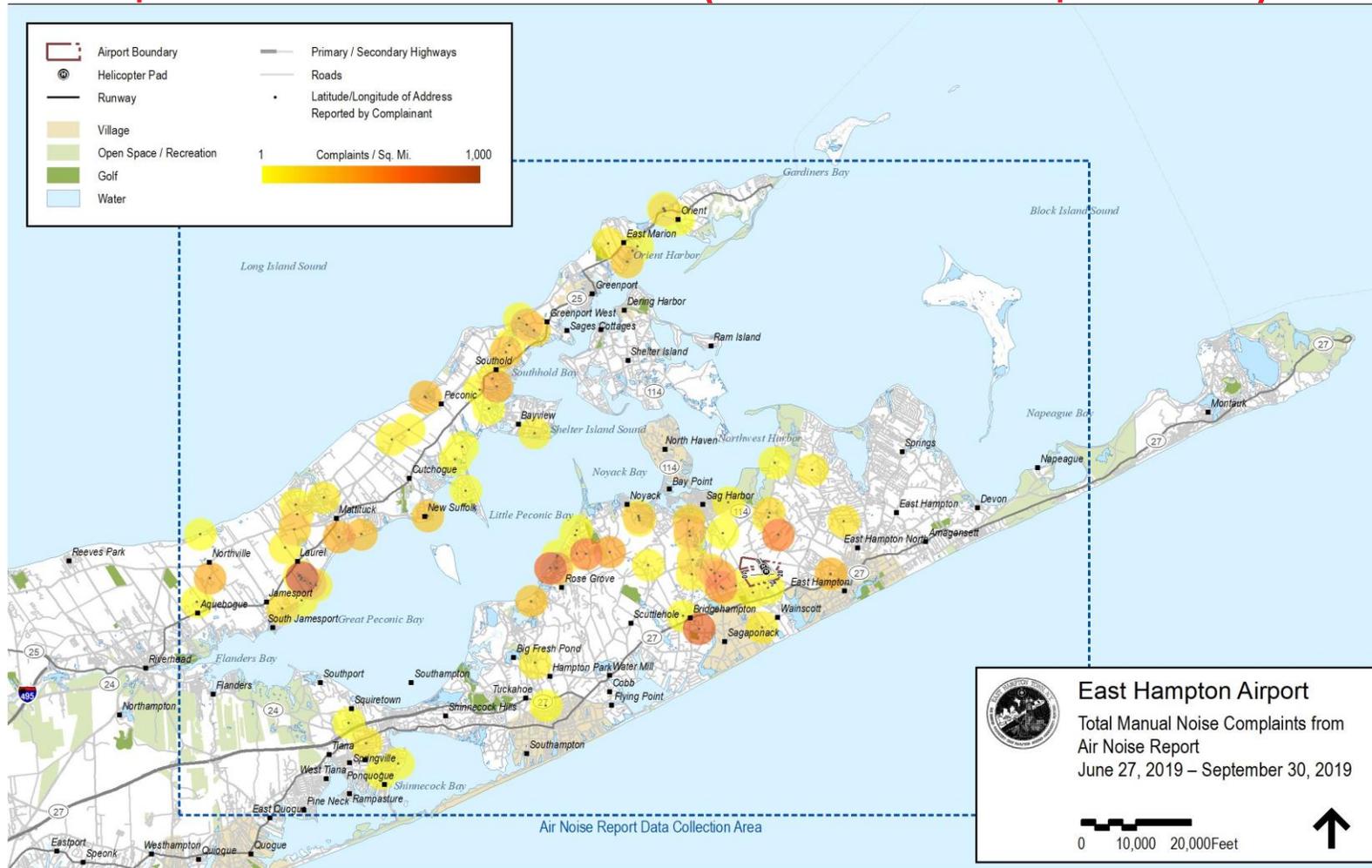
All Complaints from PlaneNoise and Air Noise Report June 27 - September 30, 2019 (46,730 Complaints)



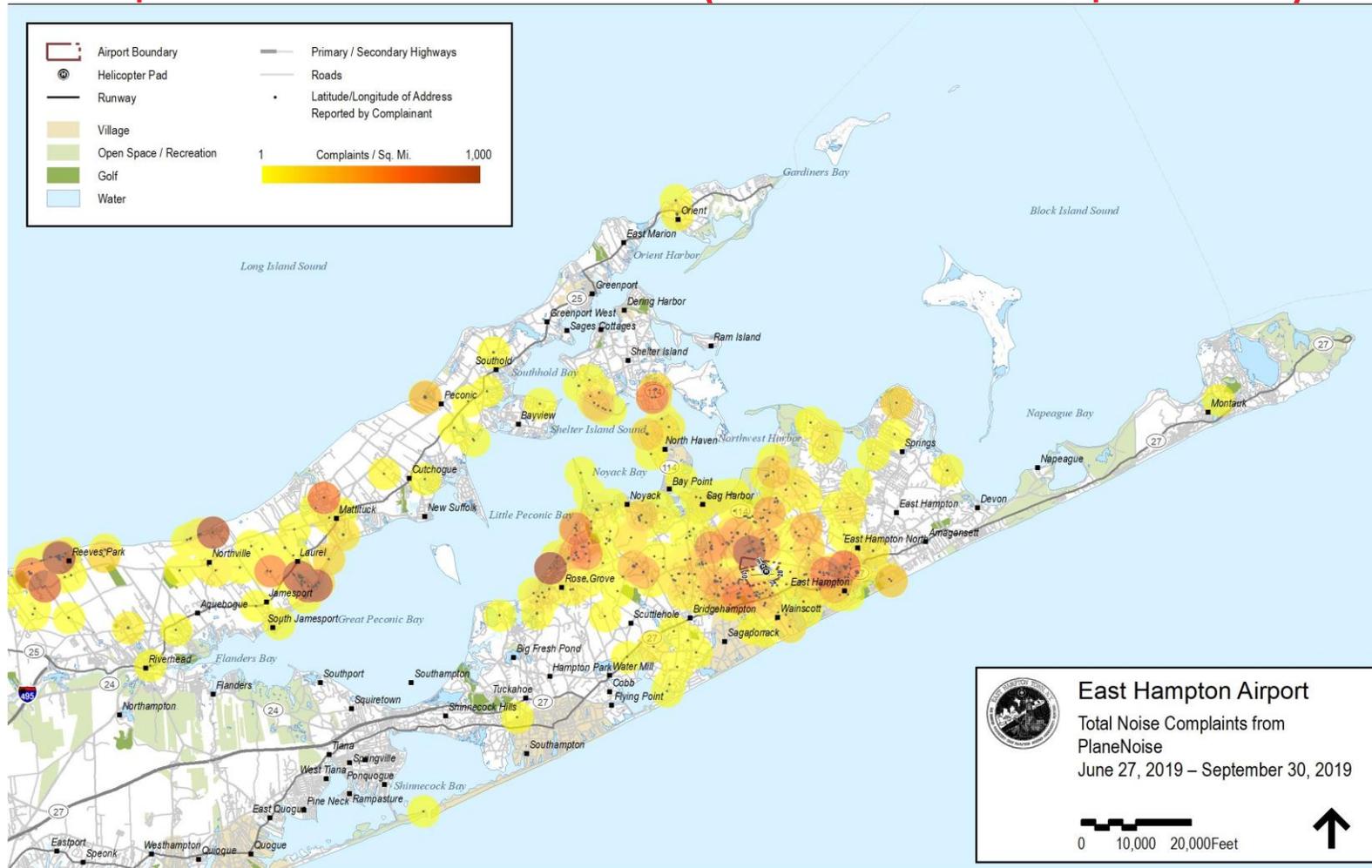
All "Mapped" Complaints from Air Noise Report June 27 - September 30, 2019 (26,243 Complaints)



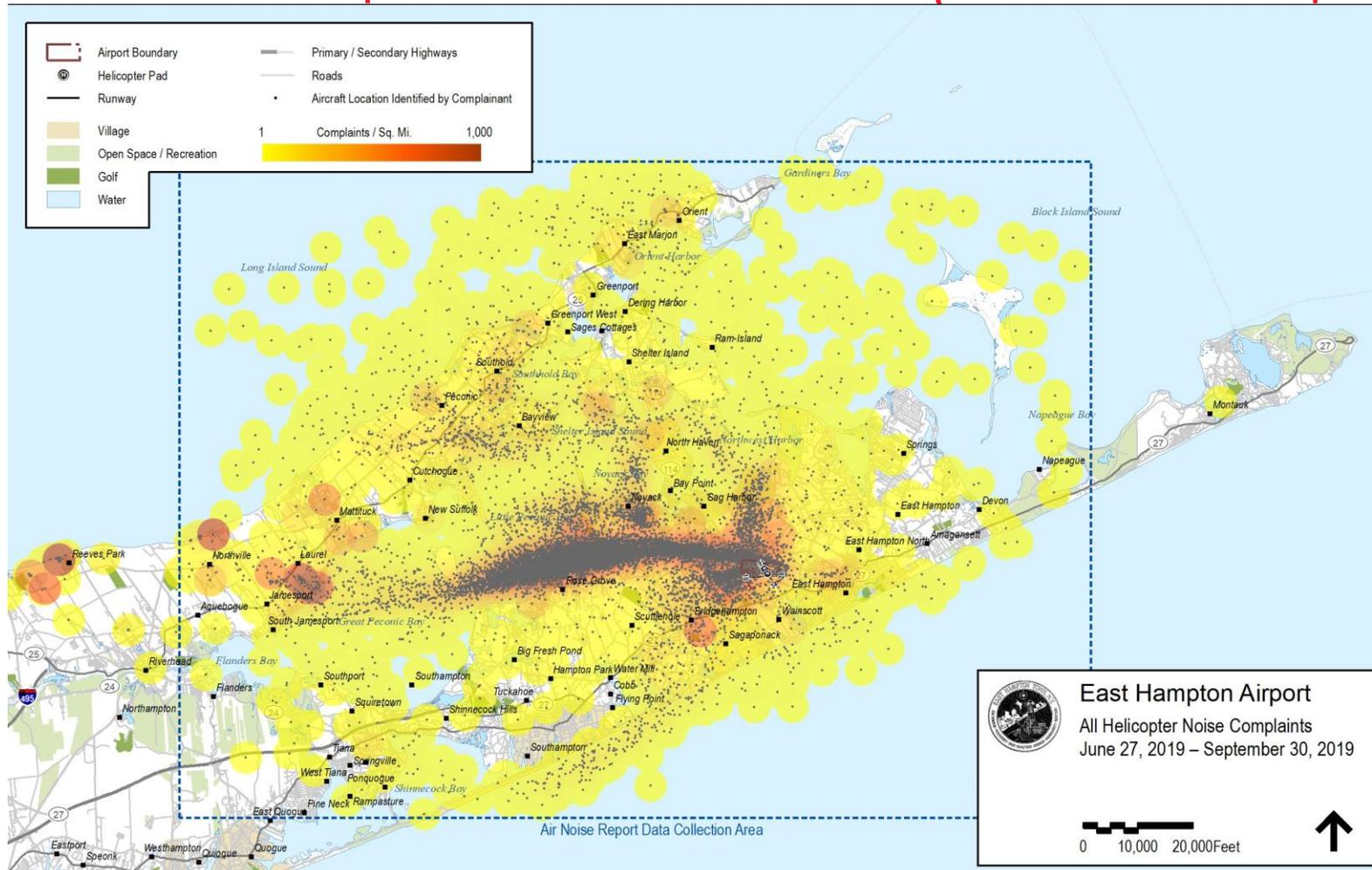
All "Manual" Complaints from Air Noise Report June 27 - September 30, 2019 (5,295 Complaints)



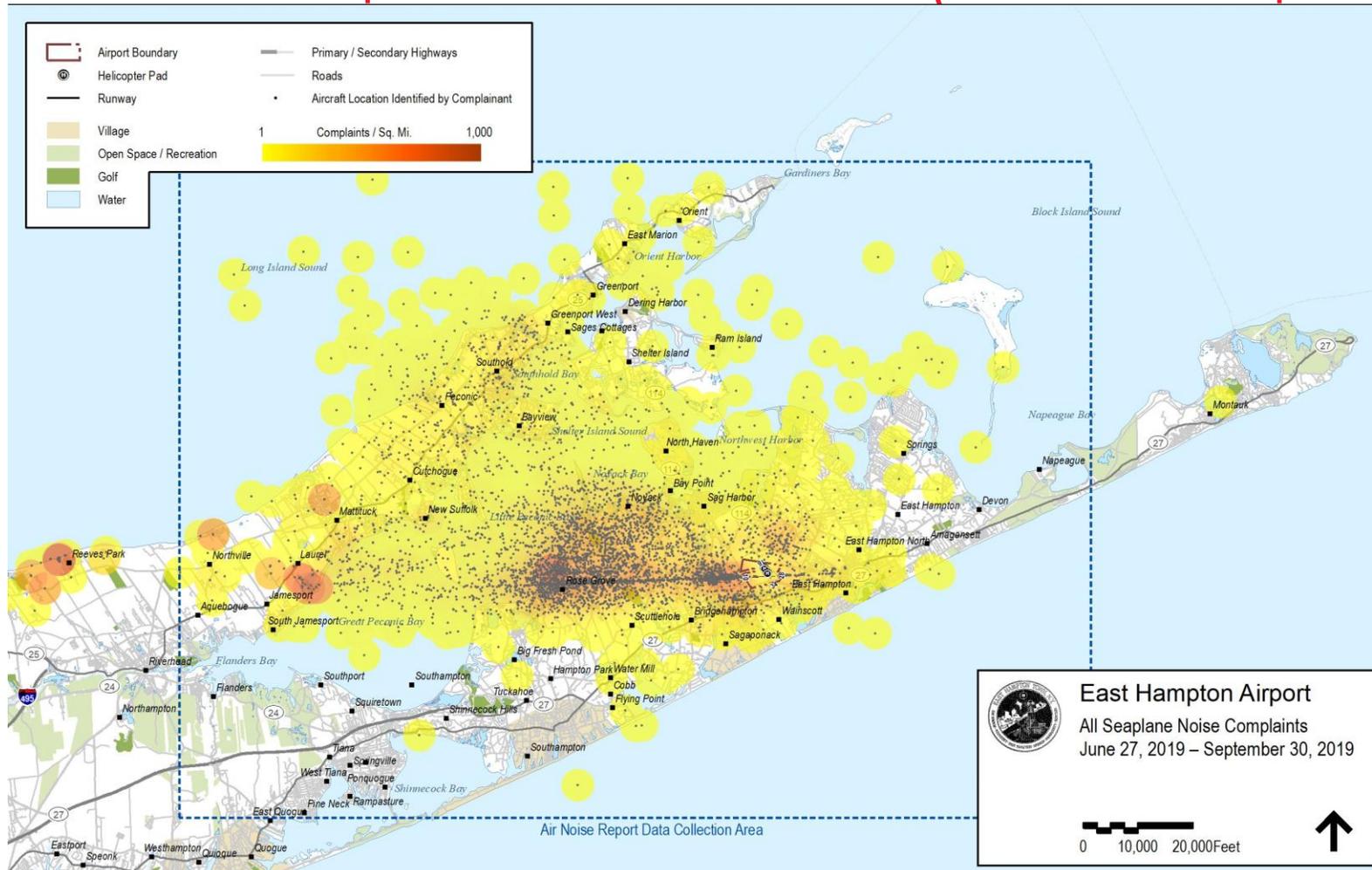
All Complaints from PlaneNoise June 27 - September 30, 2019 (15,192 Complaints)



All Helicopter Complaints from PlaneNoise and Air Noise Report June 27 - September 30, 2019 (24,813 complaints)



All Seaplane Complaints from PlaneNoise and Air Noise Report June 27 - September 30, 2019 (8,185 complaints)



Complaint by Aircraft Type Analysis Overview

- Only Air Noise Report Mapped and PlaneNoise complaints transmitted from Airnoise.io contain specific aircraft type information
 - Non-Airnoise.io PlaneNoise and Air Noise Report manual complaints allow for a selection of an aircraft category, but specific aircraft types are not provided
 - Air Noise Report Mapped and PlaneNoise complaints transmitted from Airnoise.io utilize aircraft ADS-B and MODE S information (if equipped) to identify specific aircraft type and registration based on publicly available FAA data
 - Air Noise Report Mapped and PlaneNoise complaints transmitted from Airnoise.io aircraft type and registration data allows for matching with the Vector system to HTO operations
- This analysis examines the helicopter and fixed-wing aircraft types and registrations with the highest numbers of complaints with the actual number of operations performed by these aircraft based on aircraft registration and type data at HTO for the 2019 Implementation Period

Complaint by Aircraft Type Analysis Observations

- The Sikorsky S76 helicopter (a “noisy” helicopter) was the aircraft type that led to the most complaints (7,048)
 - S76s performed the second most operations (2,365) of any aircraft model
- The Cessna Caravan C208 seaplane (not in the “noisy” category) was the aircraft model that led to the second most complaints (5,768)
 - C208s performed the most operations (2,527)
- The Bell 407 (an “other” helicopter) was the aircraft model that led to the third most complaints (4,284)
 - B407s performed the third most operations (1,556)
- The 2019 data continues to confirm that complaints are a function of aircraft noisiness and frequency of operation

Discussion

Appendix: History of Operational Restrictions at HTO and Helpful Definitions

April 7, 2015 Problem Statement

- Noise from aircraft operating at HTO disturbs many residents of the East End of Long Island
- Residents find helicopters more disturbing than any category of fixed-wing aircraft
- Disturbance caused by all types of aircraft is most significant when operations are (1) most frequent and (2) in evening, night, and early morning hours

History of Operational Restrictions

- Three restrictions enacted in April 2015
 - Nighttime Curfew. All aircraft, all year from 11 PM – 7 AM
 - Extended Curfew. “Noisy” aircraft, all year from 8 PM – 9 AM
 - One-Trip-Per-Week Limit. “Noisy” aircraft during the summer season (May-September)
 - Restrictions not immediately implemented due to litigation
- Two curfews implemented on July 2, 2015
 - This is the basis for analysis of the “Implementation Period,” from the Thursday before July 4 weekend to the end of the summer season on September 30
- All restrictions enjoined by federal appellate court in November 2016
- Restrictions not in effect since November 2016

Helpful Definitions

- “Noisy aircraft”: Aircraft with 91.0 EPNdB or higher published approach level
- “Implementation period”: Thursday before July 4 – September 30
 - This date range is based on initial implementation curfews in 2015
 - July 2 – September 30, 2015
 - June 30 – September 30, 2016
 - June 29 – September 30, 2017
 - June 28 – September 30, 2018
 - June 27 – September 30, 2019
- “Nighttime curfew”: Prohibit all aircraft operations year-round 11 PM – 7 AM enjoined in November 2016
- “Extended curfew”: Prohibit noisy aircraft year-round 8 PM – 9 AM (adds 8 – 11 PM and 7 – 9 AM evening and morning hours to nighttime curfew hours) enjoined in November 2016
- “Land planes”: Fixed-wing aircraft that land on runways and cannot land on water
- “Seaplanes”: Fixed-wing aircraft that can land on water and (in most cases) on land



Appendix: Additional 2019 Implementation Period HTO Operations Tables

Operations Data: 2015-2019 Implementation Period Comparisons

Implementation Period Operations Comparisons					
Aircraft Category	2015 Operations	2016 Operations	2017 Operations	2018 Operations	2019 Operations
Helicopters	3,916	3,770	5,577	5,729	6,106
Land Planes	8,959	9,173	9,604	9,299	9,986
Seaplanes	1,882	2,155	2,023	2,128	2,628
Multiple	0	0	0	0	0
Undefined	863	593	799	581	489
Grand Total	15,620	15,691	18,003	17,737	19,209

Implementation Period Operation Changes										
Aircraft Category	2015-2016 Numerical Change	2015-2016 Percentage Change	2016-2017 Numerical Change	2016-2017 Percentage Change	2017-2018 Numerical Change	2017-2018 Percentage Change	2018-2019 Numerical Change	2018-2019 Percentage Change	2015-2019 Numerical Change	2015-2019 Percentage Change
Helicopter	-146	-4%	1,802	48%	152	3%	377	7%	2,190	56%
Land Planes	214	2%	483	5%	-305	-3%	687	7%	1,027	11%
Seaplanes	273	15%	-131	-6%	105	5%	500	23%	746	40%
Multiple	0	0%	0	0%	0	0%	0	0%	0	0%
Undefined	-270	-31%	319	54%	-218	-27%	-92	-16%	-374	-43%
Grand Total	71	0%	2,473	16%	-266	-1%	1,472	8%	3,589	23%



Operations Data: 2015-2019 Implementation Periods by Fleet Mix Percentage

Implementation Period Operations Comparison					
Aircraft Category	2015 Operations	2016 Operations	2017 Operations	2018 Operations	2019 Operations
Helicopters	3,916	3,770	5,577	5,729	6,106
Land Planes	8,959	9,173	9,604	9,299	9,986
Seaplanes	1,882	2,155	2,023	2,128	2,628
Multiple	0	0	0	0	0
Undefined	863	593	799	581	489
Grand Total	15,620	15,691	18,003	17,737	19,209

Implementation Period Operations Change by Percentage of Fleet Mix										
Aircraft Category	2015 Percentage of Operations	2016 Percentage of Operations	2017 Percentage of Operations	2018 Percentage of Operations	2019 Percentage of Operations	2015-2016 Percentage of Operations Change	2016-2017 Percentage of Operations Change	2017-2018 Percentage of Operations Change	2018-2019 Percentage of Operations Change	2015-2019 Percentage of Operations Change
Helicopter	25%	24%	31%	32%	32%	-1%	7%	1%	-1%	7%
Land Planes	57%	58%	53%	52%	52%	1%	-5%	-1%	0%	-5%
Seaplanes	12%	14%	11%	12%	14%	2%	-3%	1%	2%	2%
Multiple	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Undefined	6%	4%	4%	3%	3%	-2%	0%	-1%	-1%	-3%
Grand Total	100%	100%	100%	100%	100%	n/a	n/a	n/a	n/a	n/a



Appendix: Additional 2019 Implementation Period HTO Complaint Tables and Graphics

Complaint Data: 2015-2019 Implementation Period Comparisons

Implementation Period Complaint Comparisons					
Aircraft Category	2015 Complaints	2016 Complaints	2017 Complaints	2018 Complaints	2019 Complaints
Helicopters	11,182	12,837	26,502	18,983	24,813
Land Planes	4,810	6,927	12,417	10,456	12,236
Seaplanes	1,529	2,540	5,456	4,153	8,185
Multiple	361	257	297	130	413
Undefined	1,217	1,157	1,513	1,317	1,083
Grand Total	19,099	23,718	46,185	35,039	46,730

Implementation Period Complaint Percentage Changes										
Aircraft Category	2015-2016 Numerical Change	2015-2016 Percentage Change	2016-2017 Numerical Change	2016-2017 Percentage Change	2017-2018 Numerical Change	2017-2018 Percentage Change	2018-2019 Numerical Change	2018-2019 Percentage Change	2015-2019 Numerical Change	2015-2019 Percentage Change
Helicopter	1,655	15%	13,665	106%	-7,519	-28%	5,830	31%	13,631	122%
Land Planes	2,117	44%	5,490	79%	-1,961	-16%	1,780	17%	7,426	154%
Seaplanes	1,011	66%	2,916	115%	-1,303	-24%	4,032	97%	6,656	435%
Multiple	-104	-29%	40	16%	-167	-56%	283	218%	52	14%
Undefined	-60	-5%	356	31%	-196	-13%	-234	-18%	-134	-11%
Grand Total	4,619	24%	22,467	95%	-11,146	-24%	11,691	33%	27,631	145%



Complaint Data: 2015-2019 Implementation Periods by Fleet Mix Percentage

Implementation Period Complaint Comparisons					
Aircraft Category	2015 Complaints	2016 Complaints	2017 Complaints	2018 Complaints	2019 Complaints
Helicopters	11,182	12,837	26,502	18,983	24,813
Land Planes	4,810	6,927	12,417	10,456	12,236
Seaplanes	1,529	2,540	5,456	4,153	8,185
Multiple	361	257	297	130	413
Undefined	1,217	1,157	1,513	1,317	1,083
Grand Total	19,099	23,718	46,185	35,039	46,730

Implementation Period Complaints by Percentage of Fleet Mix										
Aircraft Category	2015 Percentage of Complaints	2016 Percentage of Complaints	2017 Percentage of Complaints	2018 Percentage of Complaints	2019 Percentage of Complaints	2015-2016 Percentage of Complaints Change	2016-2017 Percentage of Complaints Change	2017-2018 Percentage of Complaints Change	2018-2019 Percentage of Complaints Change	2015-2019 Percentage of Complaints Change
Helicopter	59%	54%	57%	54%	53%	-5%	3%	-3%	-1%	-6%
Land Planes	25%	29%	27%	30%	26%	4%	-2%	3%	-4%	1%
Seaplanes	8%	11%	12%	12%	18%	3%	1%	0%	6%	10%
Multiple	2%	1%	1%	0%	1%	-1%	0%	-1%	1%	-1%
Undefined	6%	5%	3%	4%	2%	-1%	-2%	1%	-2%	-4%
Grand Total	100%	100%	100%	100%	100%	n/a	n/a	n/a	n/a	n/a



Complaint Data by Method of Reporting: 2015-2019 Implementation Periods

Implementation Period Complaints by Method of Reporting											
Complaint System	Method of Reporting	2015 Complaints	2016 Complaints	2017 Complaints	2018 Complaints	2019 Complaints	2015 Complaint Percentage	2016 Complaint Percentage	2017 Complaint Percentage	2018 Complaint Percentage	2019 Complaint Percentage
PlaneNoise	Hotline	N/A	3,190	1,578	1,401	1,503	N/A	13%	3%	4%	3%
	Fax		1	0	0	0		0%	0%	0%	0%
	Mobile App		0	0	2,922	7,544		0%	0%	8%	16%
	Manual		1,247	607	269	71		5%	1%	1%	0%
	Email		514	231	91	835		2%	0%	0%	2%
	Airnoise.io		N/A	N/A	N/A	3,358		N/A	N/A	N/A	7%
	Webform		4,802	4,831	2421	1,881		20%	10%	7%	4%
	PlaneNoise Total		19,099	9,754	7,247	7,115		15,192	100%	40%	15%
Air Noise Report	Manual	N/A	4,678	10,069	5,536	5,295	N/A	20%	22%	16%	11%
	Mapped		9,286	28,869	22,388	26,243		39%	63%	64%	56%
	Air Noise Report Total	N/A	13,964	38,938	27,924	31,538	N/A	59%	84%	80%	67%
Grand Total		19,099	23,718	46,185	35,039	46,730	100%	100%	100%	100%	100%

Note(s): Curfews were in effect in 2015 and 2016

PlaneNoise “manual” complaints are multiple listed dates/times from hotline and webform complaints that PlaneNoise manually enters into the system.

Air Noise Report “manual” complaints are those that complainants manually entered via the webform.

Complaint method of reporting not analyzed for 2015 as all complaints originated from the PlaneNoise system.



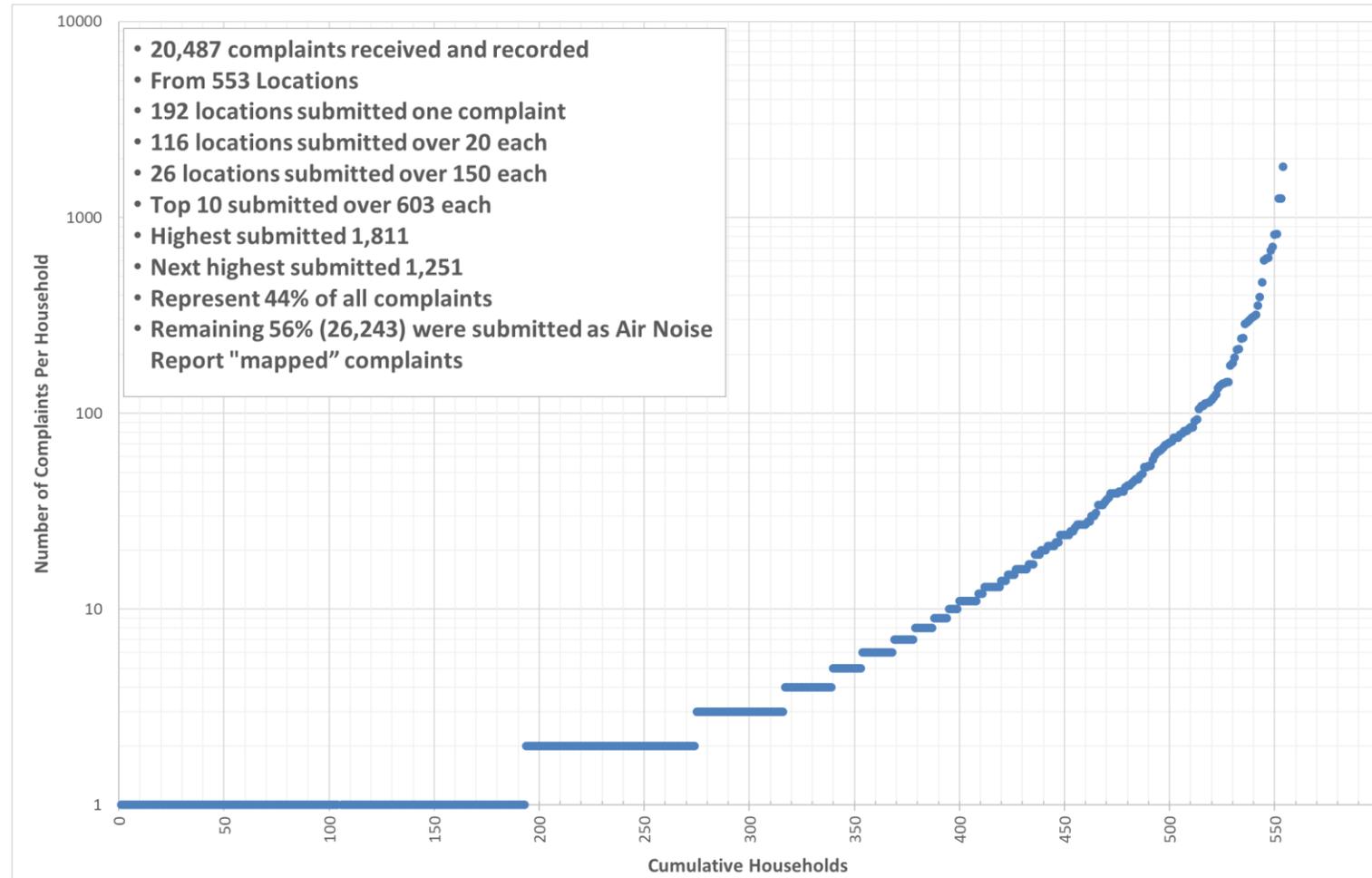
Complaint Data by Complaint System and Aircraft Category: 2015 - 2019 Implementation Periods

Implementation Period Complaints by Complaint System															
Aircraft Category	PlaneNoise Complaints					Air Noise Report Complaints					Total Complaints				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Helicopters	11,182	5,449	3,833	4,041	8,009	N/A	7,388	22,669	14,942	16,804	11,182	12,837	26,502	18,983	24,813
Land Planes	4,810	2,885	2,037	1,980	3,364	N/A	4,042	10,380	8,476	8,872	4,810	6,927	12,417	10,456	12,236
Seaplanes	1,529	718	375	396	2,674	N/A	1,822	5,081	3,757	5,511	1,529	2,540	5,456	4,153	8,185
Multiple	361	257	297	130	413	N/A	N/A	N/A	N/A	N/A	361	257	297	130	413
Undefined	1,217	445	705	568	732	N/A	712	808	749	351	1,217	1,157	1,513	1,317	1,083
Grand Total	19,099	9,754	7,247	7,115	15,192	N/A	13,964	38,938	27,924	31,538	19,099	23,718	46,185	35,039	46,730

Implementation Period Complaints by Complaint System										
Aircraft Category	PlaneNoise Percentage of Total Complaints					Air Noise Report Percentage of Total Complaints				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
Helicopters	59%	23%	8%	12%	17%	0%	31%	49%	43%	35%
Land Planes	25%	12%	4%	6%	7%	0%	17%	22%	24%	19%
Seaplanes	8%	3%	1%	1%	6%	0%	8%	11%	11%	12%
Multiple	2%	1%	1%	0%	1%	0%	N/A	N/A	N/A	N/A
Undefined	6%	2%	2%	2%	2%	0%	3%	2%	2%	2%
Grand Total	100%	41%	16%	20%	33%	0%	59%	84%	80%	80%



Complaints Per Household: 2019 Implementation Period



Appendix:
2019 Implementation Period Air Noise Report
Mapped and Airnoise.io Complaint Aircraft
Type and Registration Operations and
Complaint Tables

Top 20 Helicopter Types Associated with Air Noise Report Mapped and Airnoise.io Complaints: 2019 Implementation Period

Helicopter Category	Helicopter Type	Air Noise Report Mapped and Airnoise.io Complaints Filed for Helicopter Type (63% of Total Complaints)	HTO Operations Associated with Helicopter Type, from Vector (100% of Operations)
Noisy Helicopter	S76	7,048	2,365
Other Helicopter	B407	4,284	1,556
Noisy Helicopter	A139	721	358
Noisy Helicopter	B430	705	251
Noisy Helicopter	AS65	535	276
Noisy Helicopter	AS55	512	324
Other Helicopter	EC30	460	181
Noisy Helicopter	S92	421	107
Noisy Helicopter	B427	240	118
Other Helicopter	R66	219	70
Other Helicopter	R44	207	59
Noisy Helicopter	AS50	186	72
Noisy Helicopter	EC55	176	63
Other Helicopter	B06	123	46
Noisy Helicopter	A109	119	182
Noisy Helicopter	BK17	75	24
Noisy Helicopter	B429	71	15
Noisy Helicopter	EC35	11	1
Other Helicopter	EC45	7	Note
Other Helicopter	R22	7	Note
Total		16,127	6,068



Top 20 Fixed-Wing Aircraft Types Associated with Air Noise Report Mapped and Airnoise.io Complaints: 2019 Implementation Period

Aircraft Category	Aircraft Type	Air Noise Report Mapped and Airnoise.io Complaints Filed for Aircraft Type (63% of Total Complaints)	HTO Operations Associated with Aircraft Type, from Vector (100% of Operations)
Seaplane	C208	5,768	2,527
Prop	SR22	734	875
Prop	C172	596	930
Prop	PC12	456	878
Prop	PA34	343	463
Prop	C182	324	216
Noisy Jet	C680	305	486
Other Jet	CL30	304	353
Other Jet	E55P	296	451
Prop	P28A	285	516
Prop	B350	209	347
Seaplane	KODI	187	67
Noisy Jet	C56X	179	302
Prop	BE36	137	142
Prop	PA31	132	160
Prop	PA32	130	124
Prop	BE58	127	257
Prop	C208	123	56
Prop	SR20	109	158
Other Jet	GLEX	107	69
Total		10,851	9,377



Top 20 Individual Helicopters Associated with Air Noise Report Mapped and Airnoise.io Complaints: 2019 Implementation Period

Helicopter Category	Helicopter Type	Aircraft #	Air Noise Report Mapped and Airnoise.io Complaints Filed Against an Individual Helicopter (63% of Total Complaints)	HTO Operations Associated with That individual Helicopter, from Vector (100% of Operations)
Noisy Helicopter	S76	1	980	246
Noisy Helicopter	S76	2	899	249
Other Helicopter	B407	3	662	241
Other Helicopter	B407	4	656	215
Other Helicopter	B407	5	638	217
Noisy Helicopter	S76	6	630	191
Other Helicopter	B407	7	623	214
Noisy Helicopter	S76	8	617	171
Noisy Helicopter	S76	9	598	176
Noisy Helicopter	S76	10	520	138
Other Helicopter	B407	11	457	122
Noisy Helicopter	S92	12	421	107
Noisy Helicopter	AS65	13	388	198
Noisy Helicopter	S76	14	384	149
Noisy Helicopter	S76	15	361	144
Noisy Helicopter	S76	16	356	166
Other Helicopter	B407	17	351	111
Noisy Helicopter	A139	18	340	111
Other Helicopter	B407	19	330	93
Noisy Helicopter	S76	20	325	204
Total			10,536	3,463



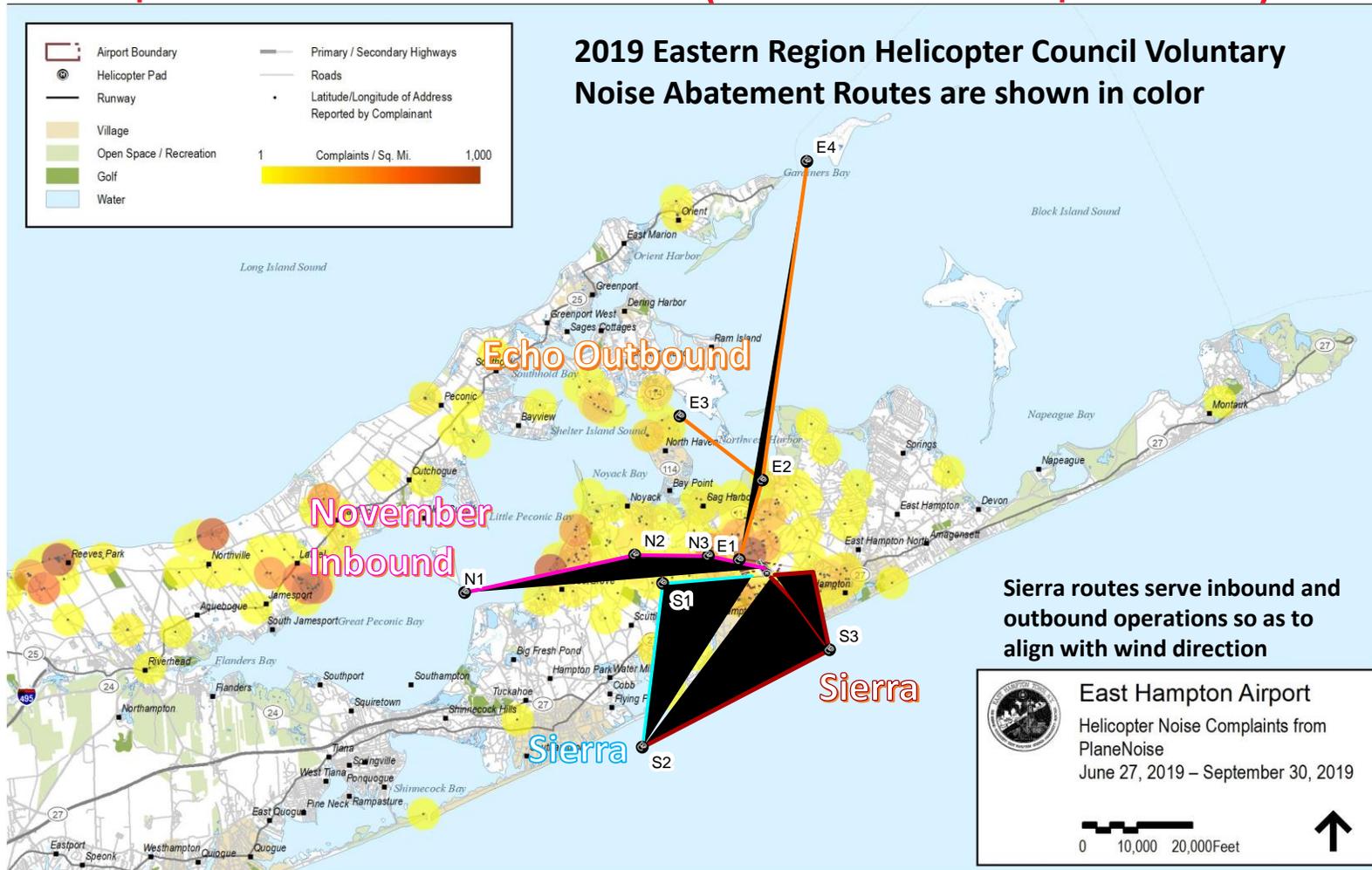
Top 20 Individual Fixed-Wing Aircraft Associated with Air Noise Report Mapped and Airnoise.io Complaints: 2019 Implementation Period

Aircraft Category	Aircraft Type	Aircraft #	Air Noise Report Mapped and Airnoise.io Complaints Filed Against an individual Aircraft (63% of Total Complaints)	HTO Operations Associated with that Individual Aircraft, from Vector (100% of Operations)
Seaplane	C208	1	910	354
Seaplane	C208	2	832	336
Seaplane	C208	3	672	256
Seaplane	C208	4	458	184
Seaplane	C208	5	409	187
Seaplane	C208	6	400	175
Seaplane	C208	7	380	139
Seaplane	C208	8	246	106
Seaplane	C208	9	245	102
Seaplane	C208	10	217	141
Seaplane	C208	11	207	213
Seaplane	C208	12	191	80
Seaplane	KODI	13	187	67
Seaplane	C208	14	139	38
Prop	C172	15	135	312
Prop	C208	16	122	52
Seaplane	C208	17	112	43
Seaplane	C208	18	110	42
Prop	PA34	19	106	138
Prop	PA34	20	88	125
Total			6,166	3,090

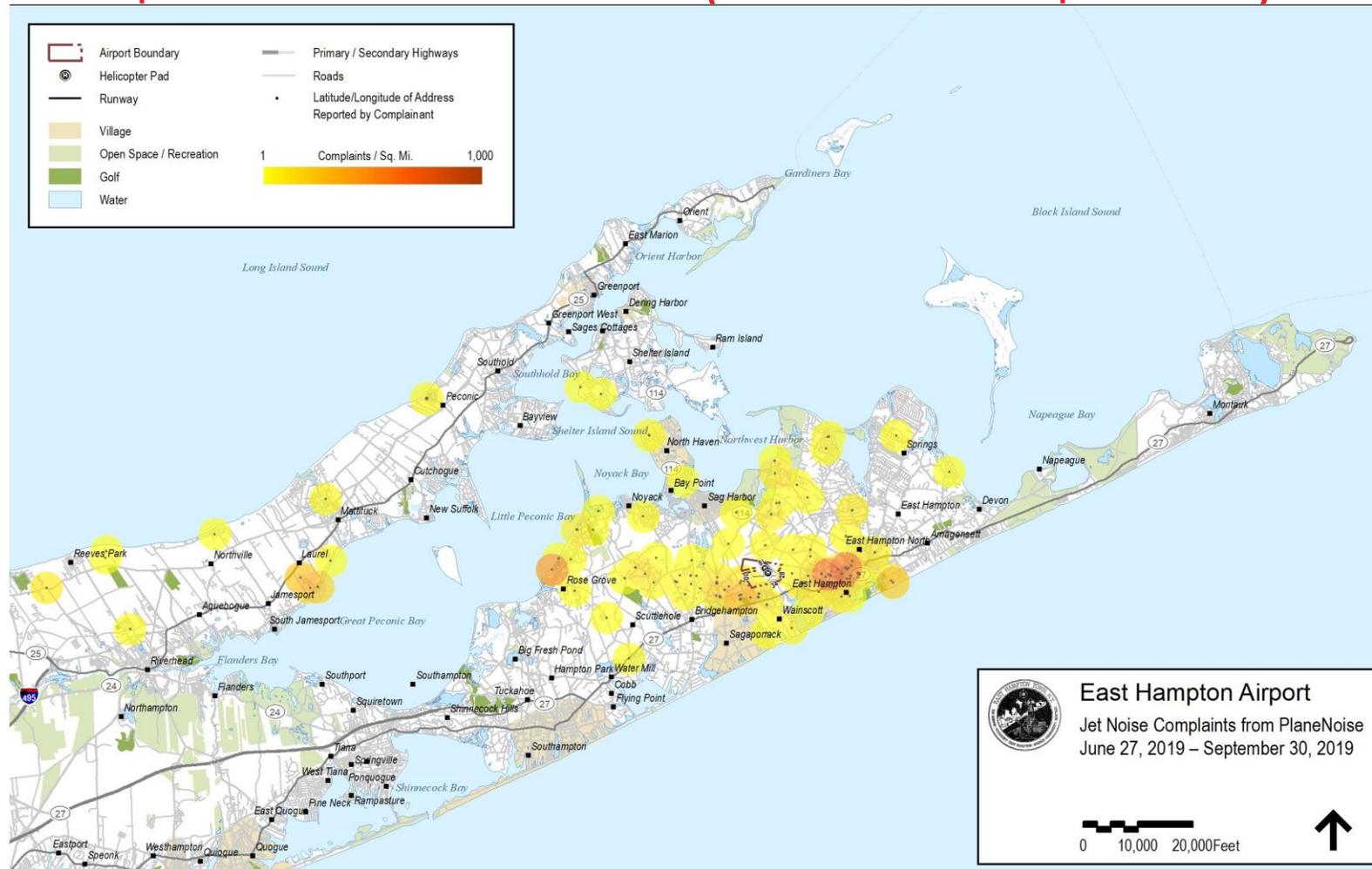


Appendix: Additional 2019 Implementation Period Maps of Geographic Distributions of Complaints

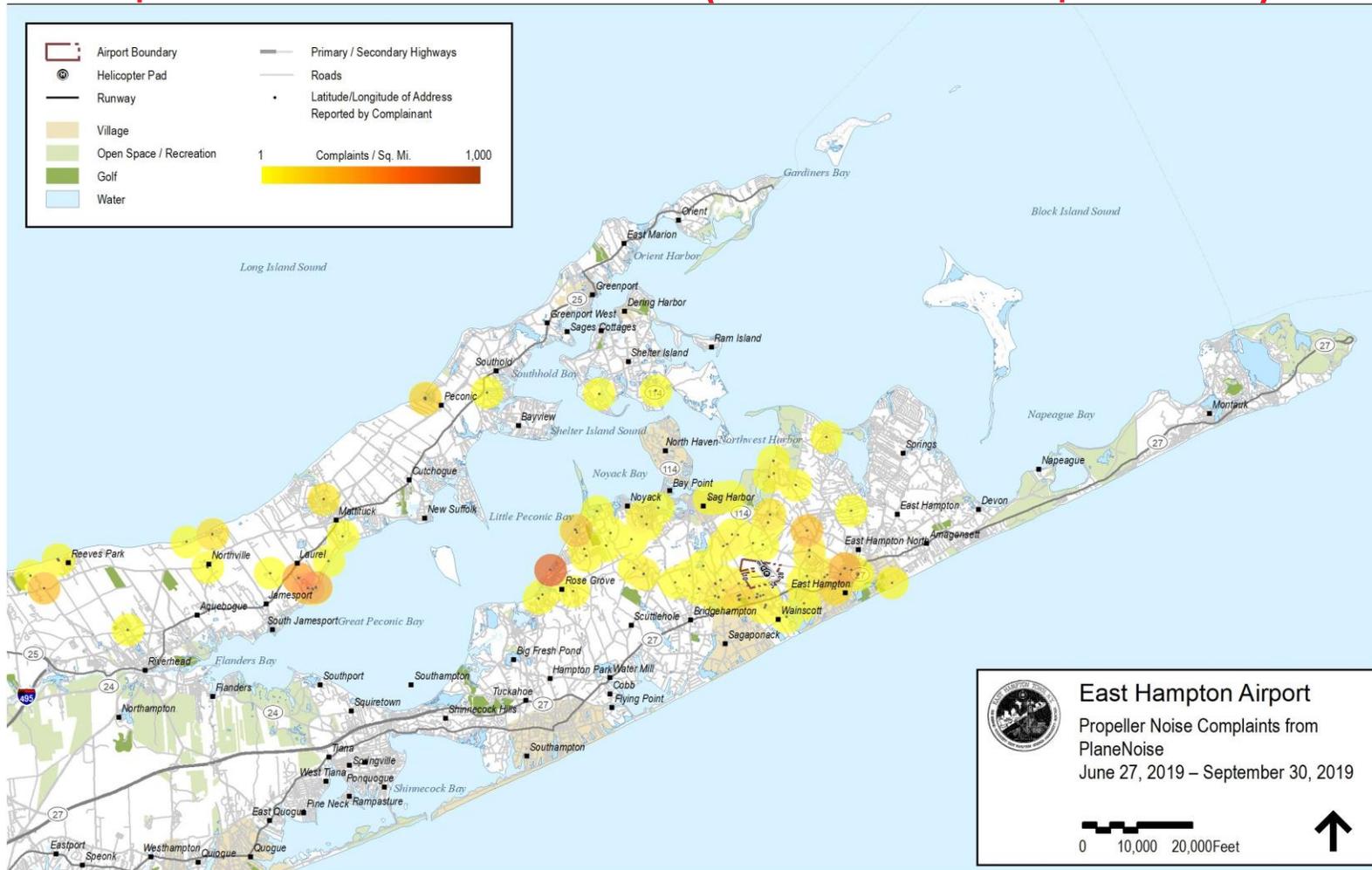
Helicopter Complaints from PlaneNoise June 27 - September 30, 2019 (8,009 Complaints)



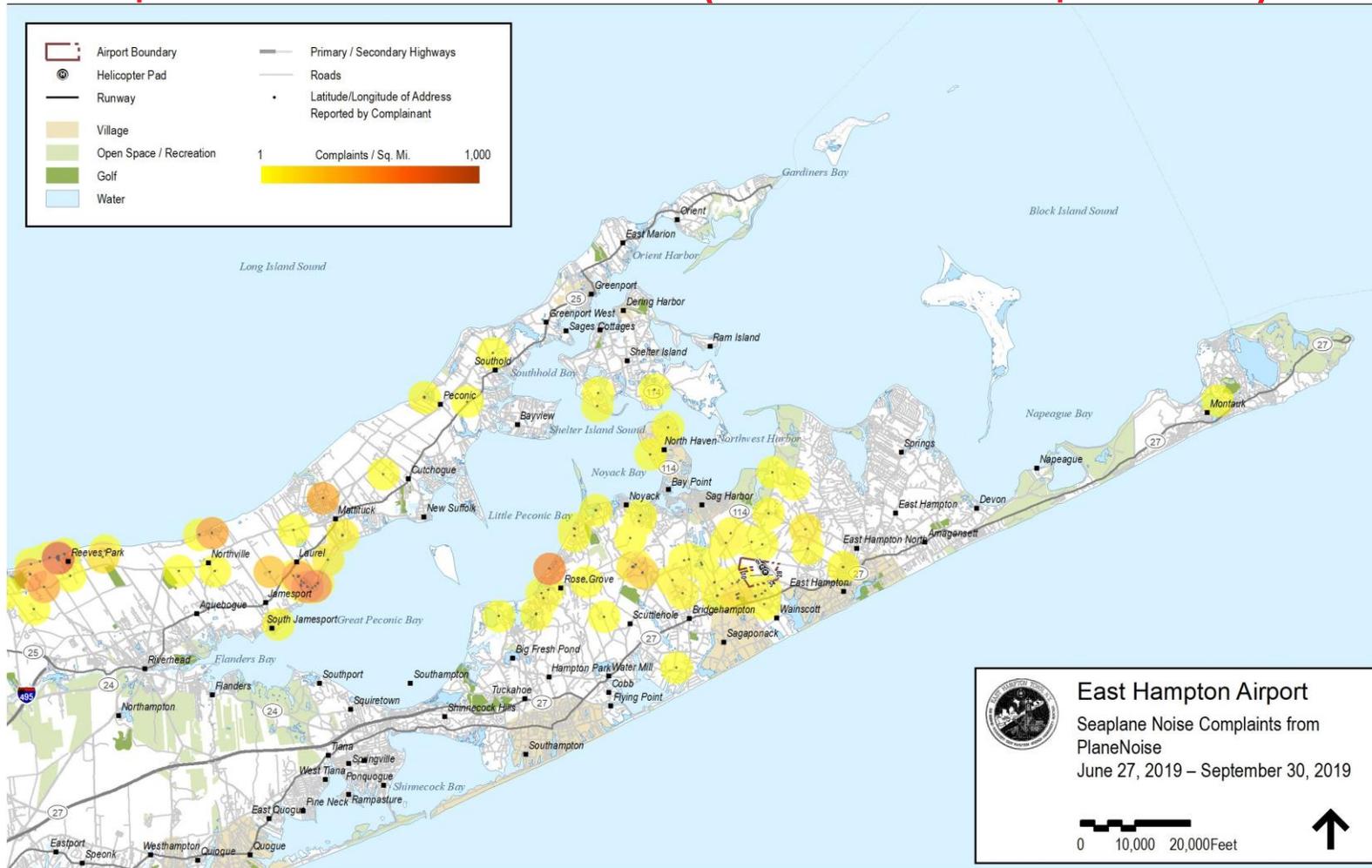
Jet Complaints from PlaneNoise June 27 - September 30, 2019 (1,499 Complaints)



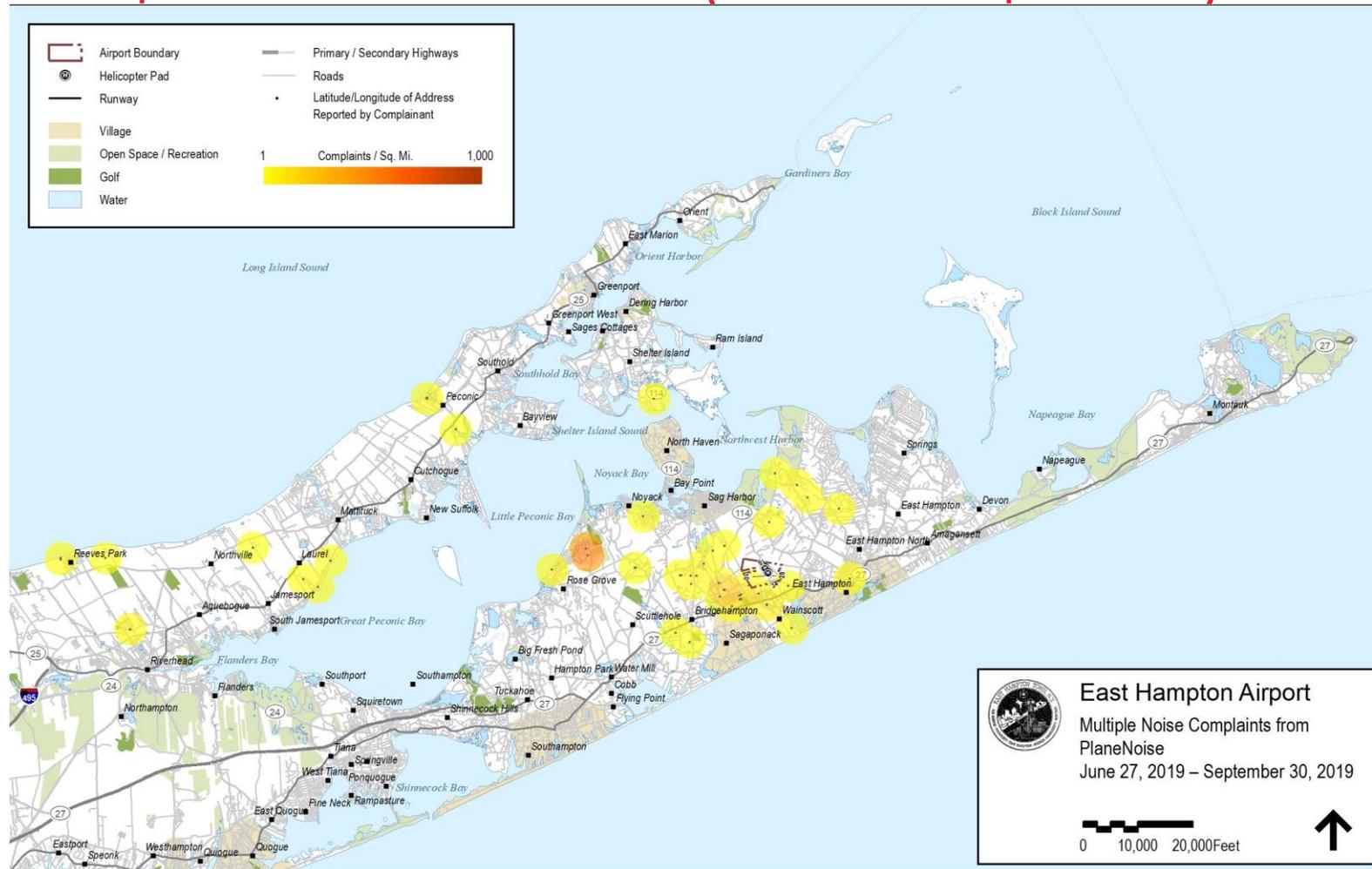
Propeller Complaints from PlaneNoise June 27 - September 30, 2019 (1,865 Complaints)



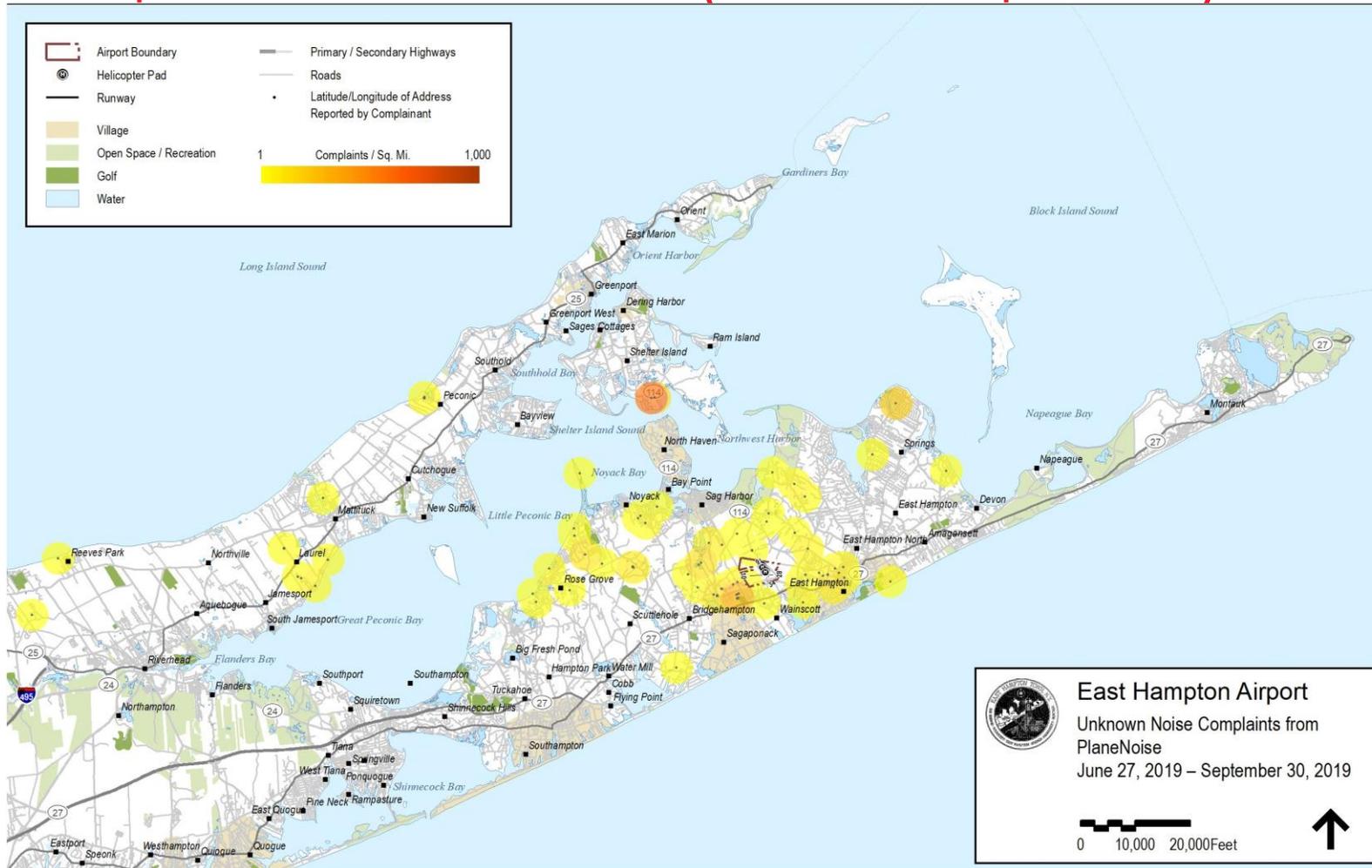
Seaplane Complaints from PlaneNoise June 27 - September 30, 2019 (2,674 Complaints)



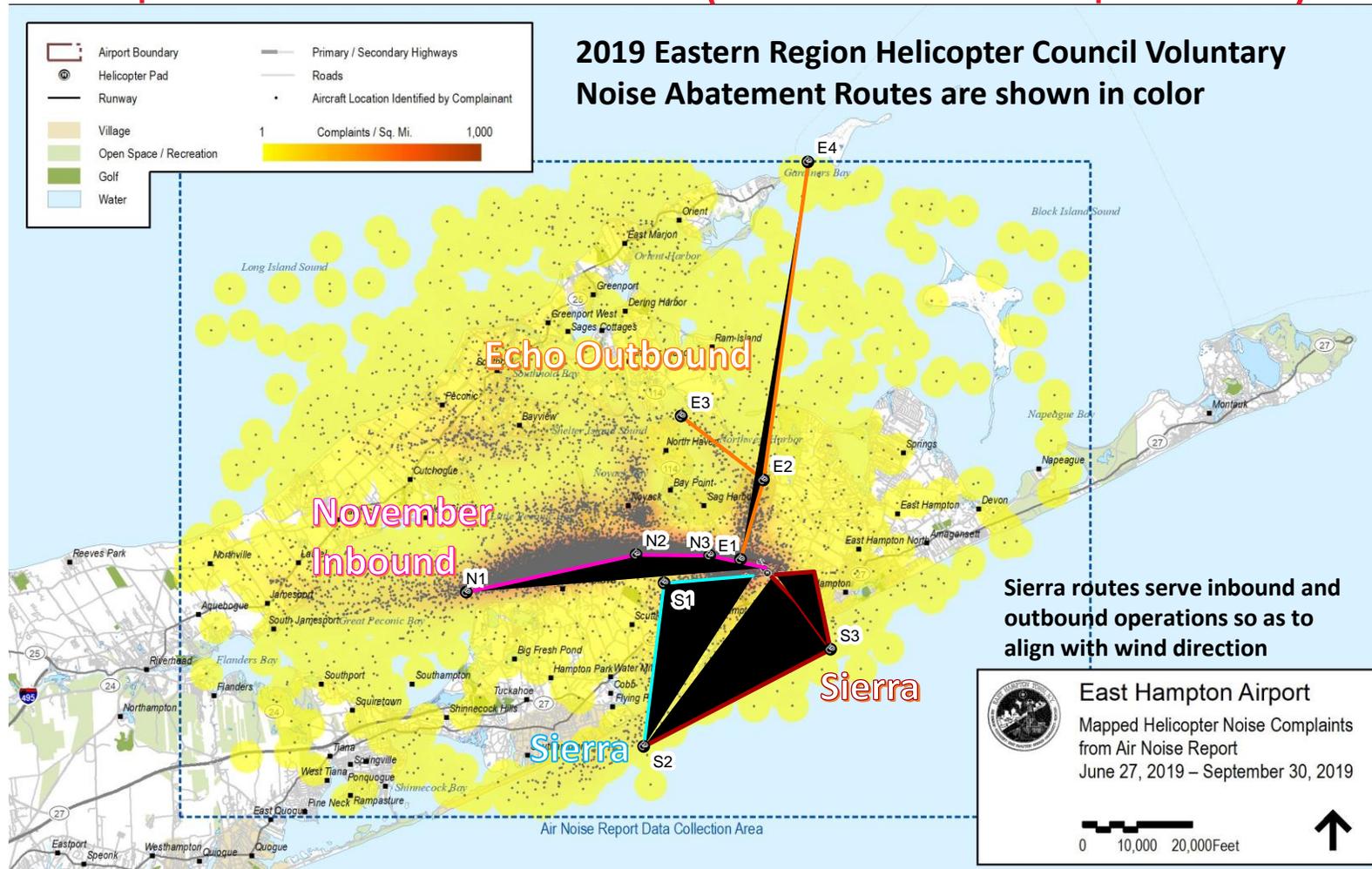
Multiple Aircraft Complaints from PlaneNoise June 27 - September 30, 2019 (413 Complaints)



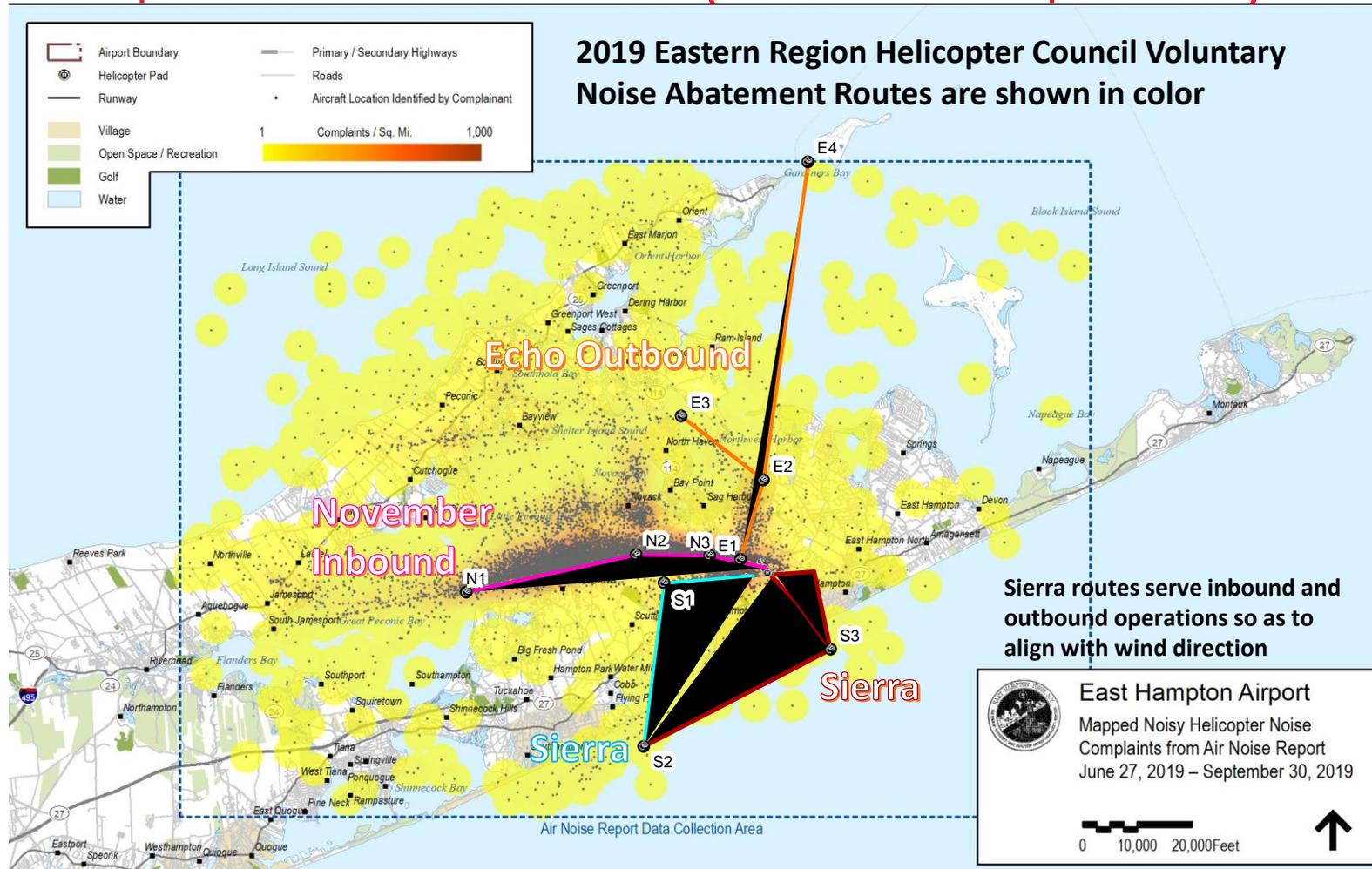
Unknown Aircraft Complaints from PlaneNoise June 27 - September 30, 2019 (732 Complaints)



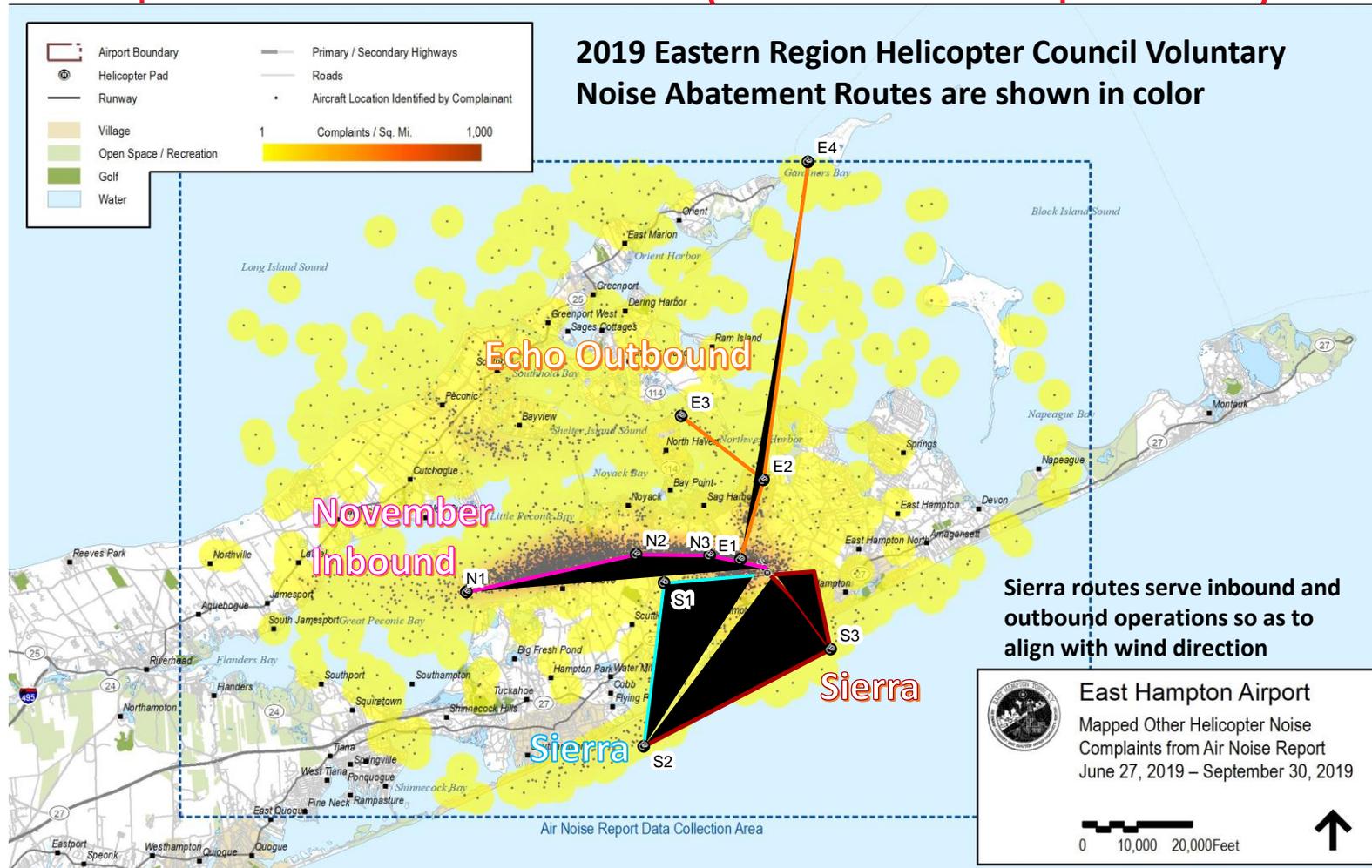
Mapped Helicopter Complaints from Air Noise Report June 27 - September 30, 2019 (14,405 Complaints)



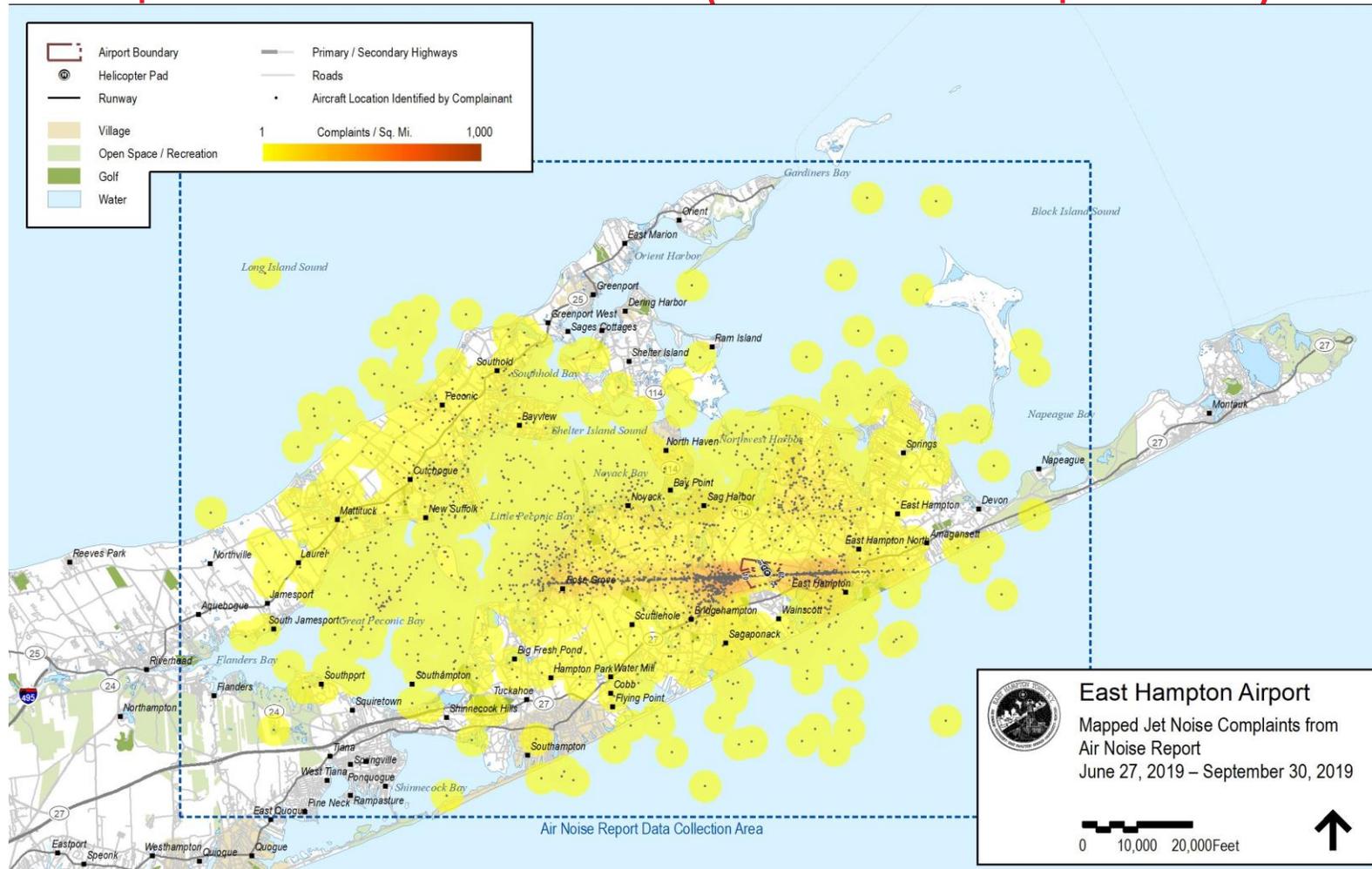
Mapped “Noisy” Helicopter Complaints from Air Noise Report June 27 - September 30, 2019 (9,716 complaints)



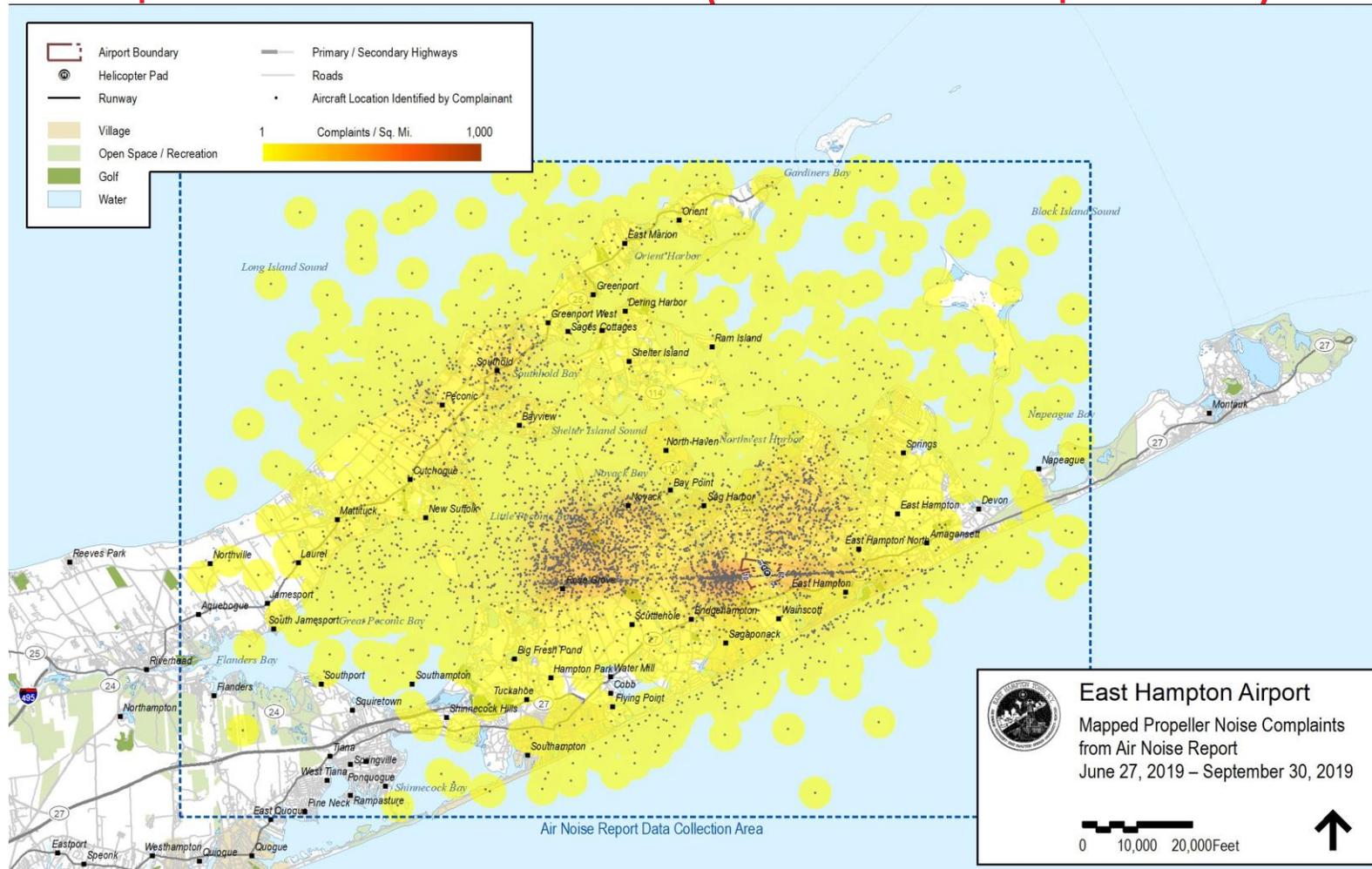
Mapped "Other" Helicopter Complaints from Air Noise Report June 27 - September 30, 2019 (4,689 Complaints)



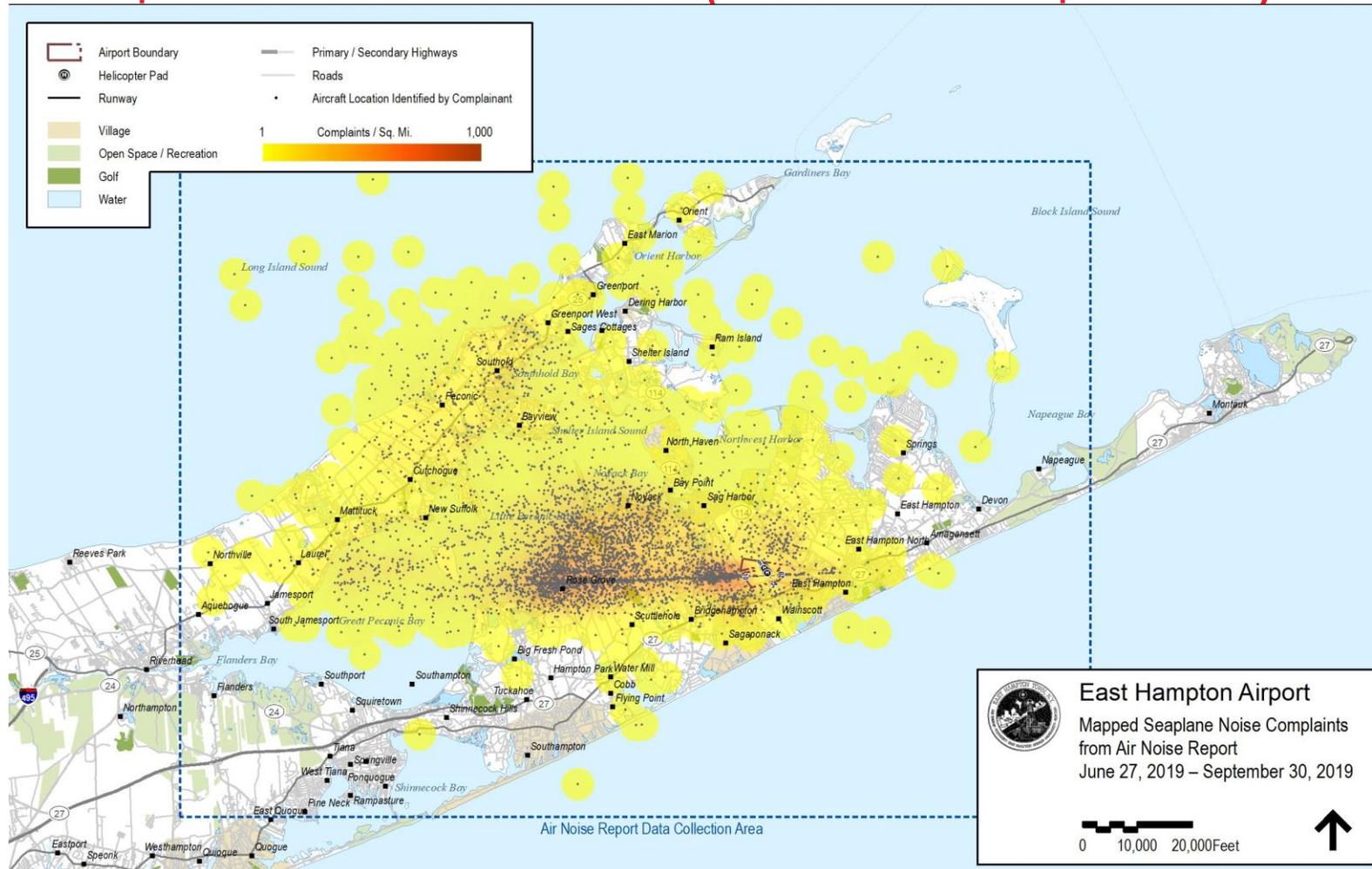
Mapped Jet Complaints from Air Noise Report June 27 - September 30, 2019 (2,120 Complaints)



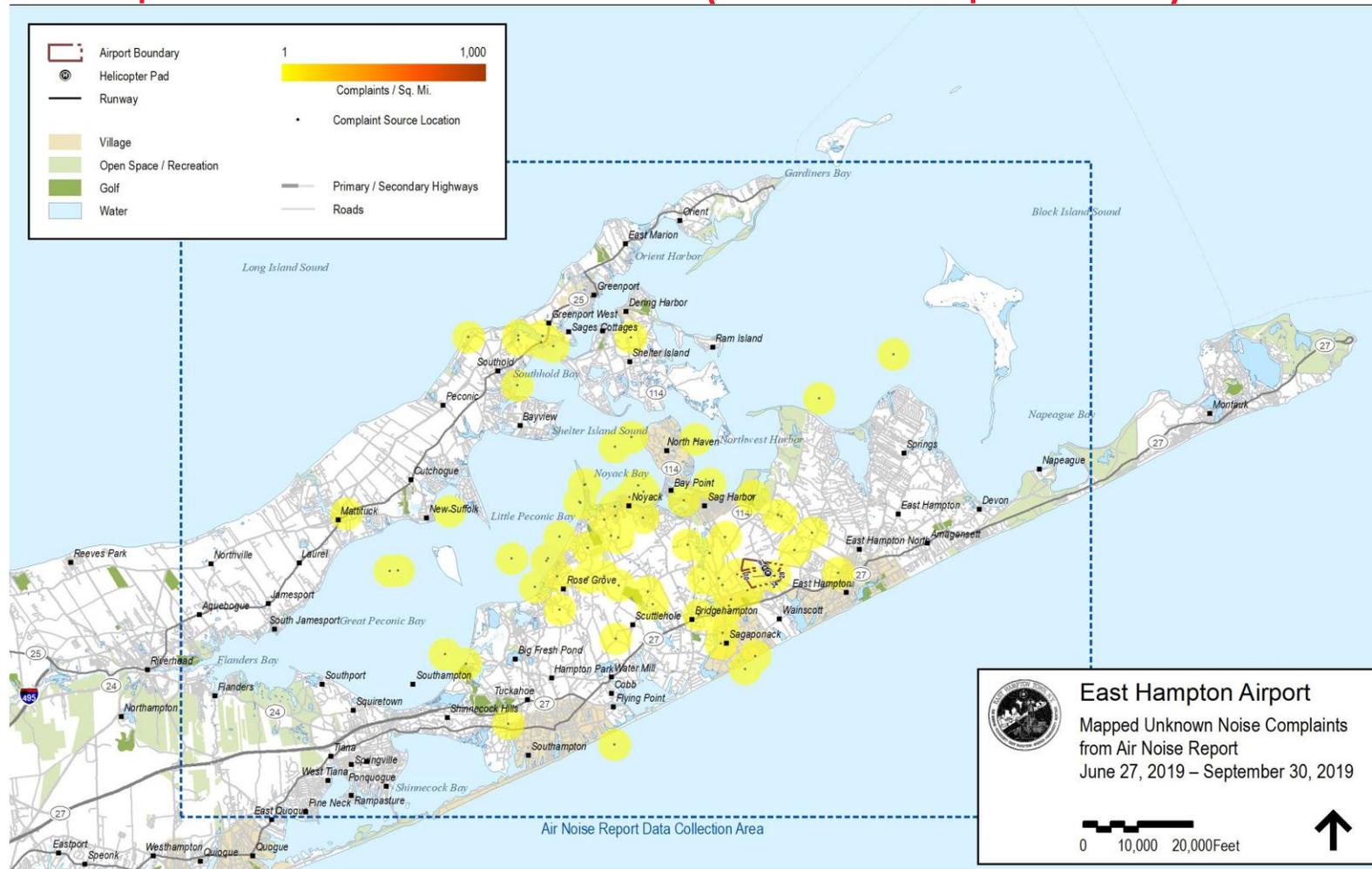
Mapped Propeller Aircraft Complaints from Air Noise Report June 27 - September 30, 2019 (4,584 Complaints)



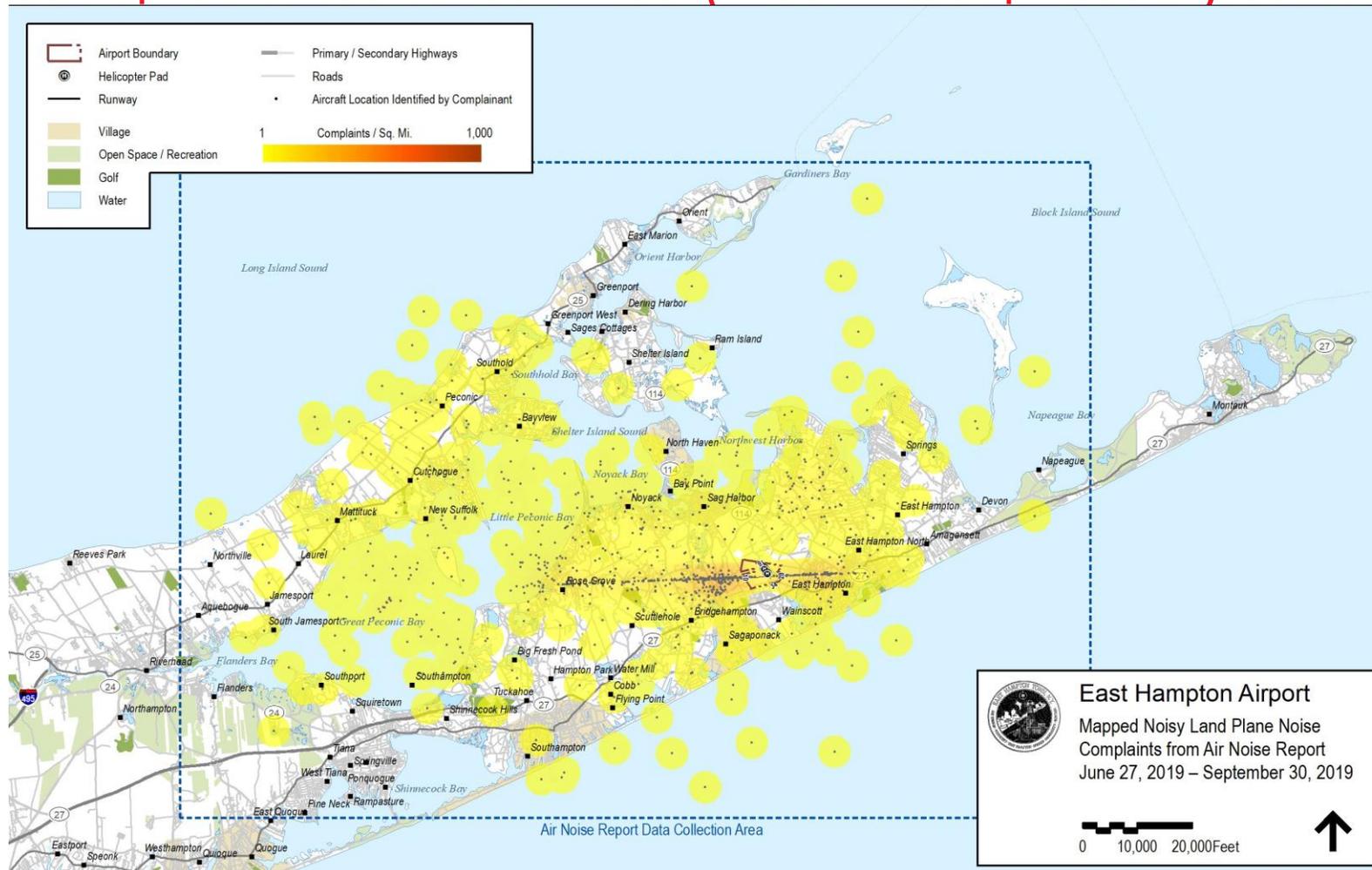
Mapped Seaplane Complaints from Air Noise Report June 27 - September 30, 2019 (5,055 Complaints)



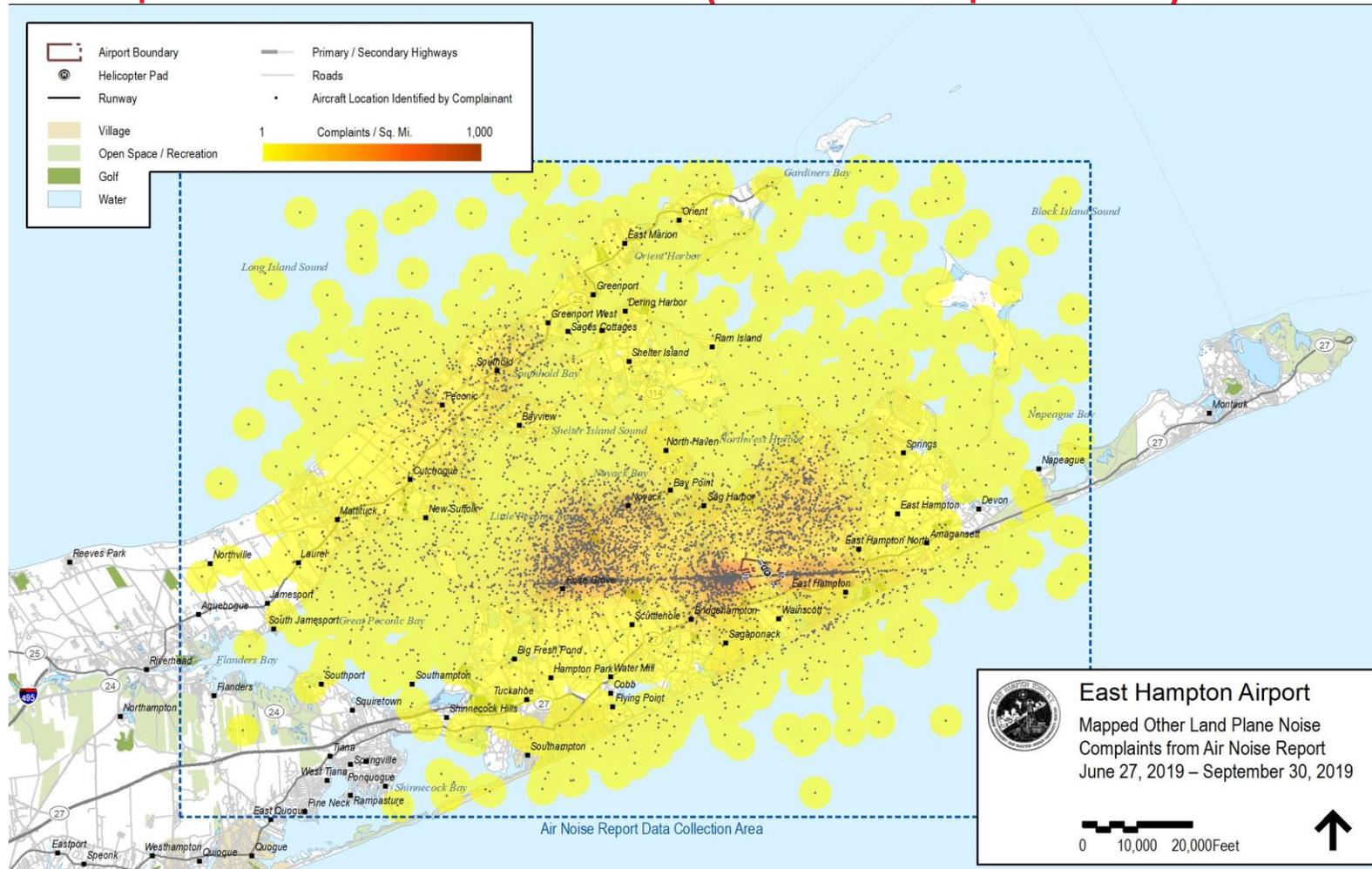
Mapped Unknown Aircraft Complaints from Air Noise Report June 27 - September 30, 2019 (79 Complaints)



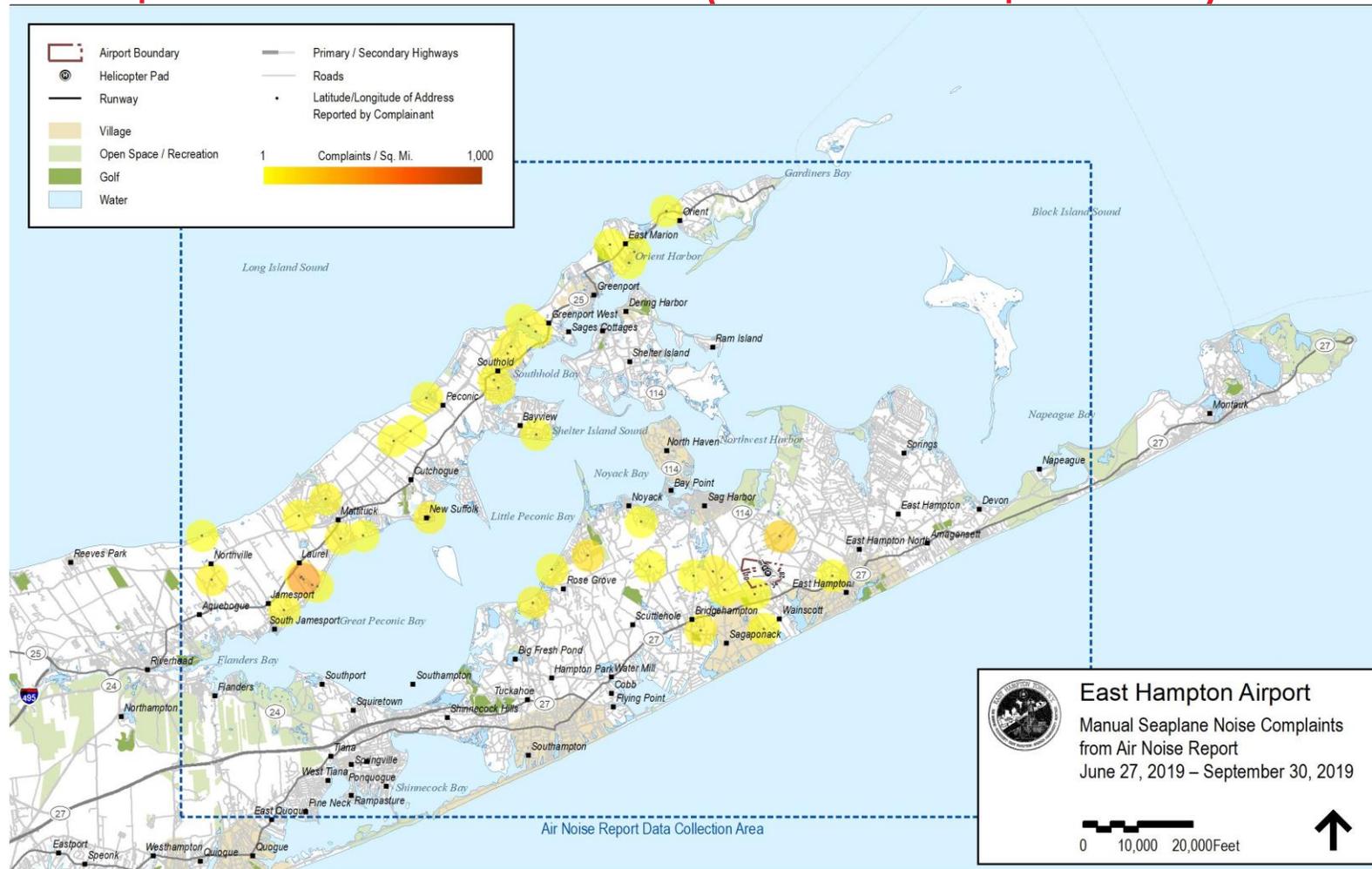
Mapped “Noisy” Land Plane Complaints from Air Noise Report June 27 - September 30, 2019 (896 Complaints)



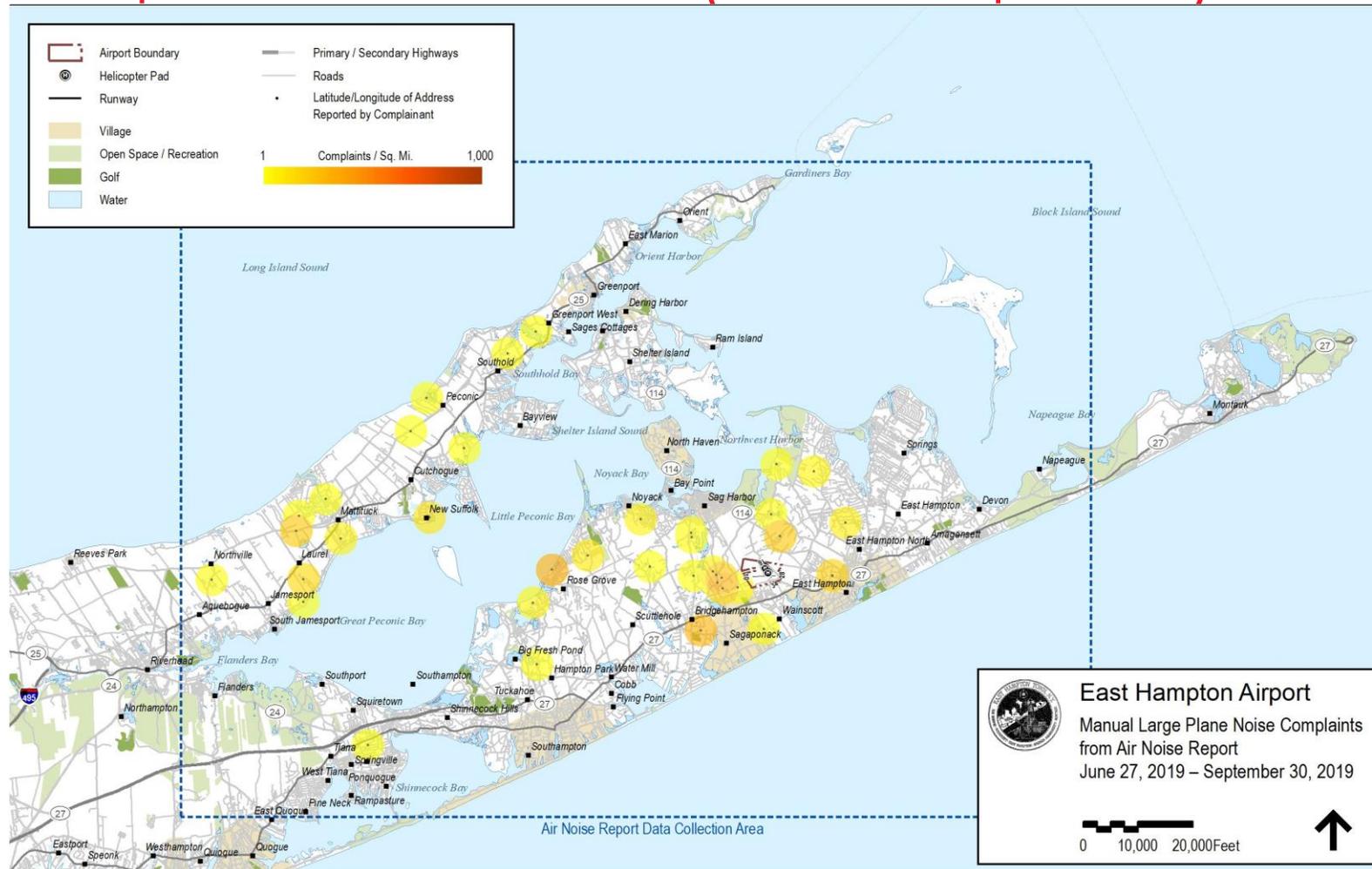
Mapped Other Land Plane Complaints from Air Noise Report June 27 - September 30, 2019 (79 Complaints)



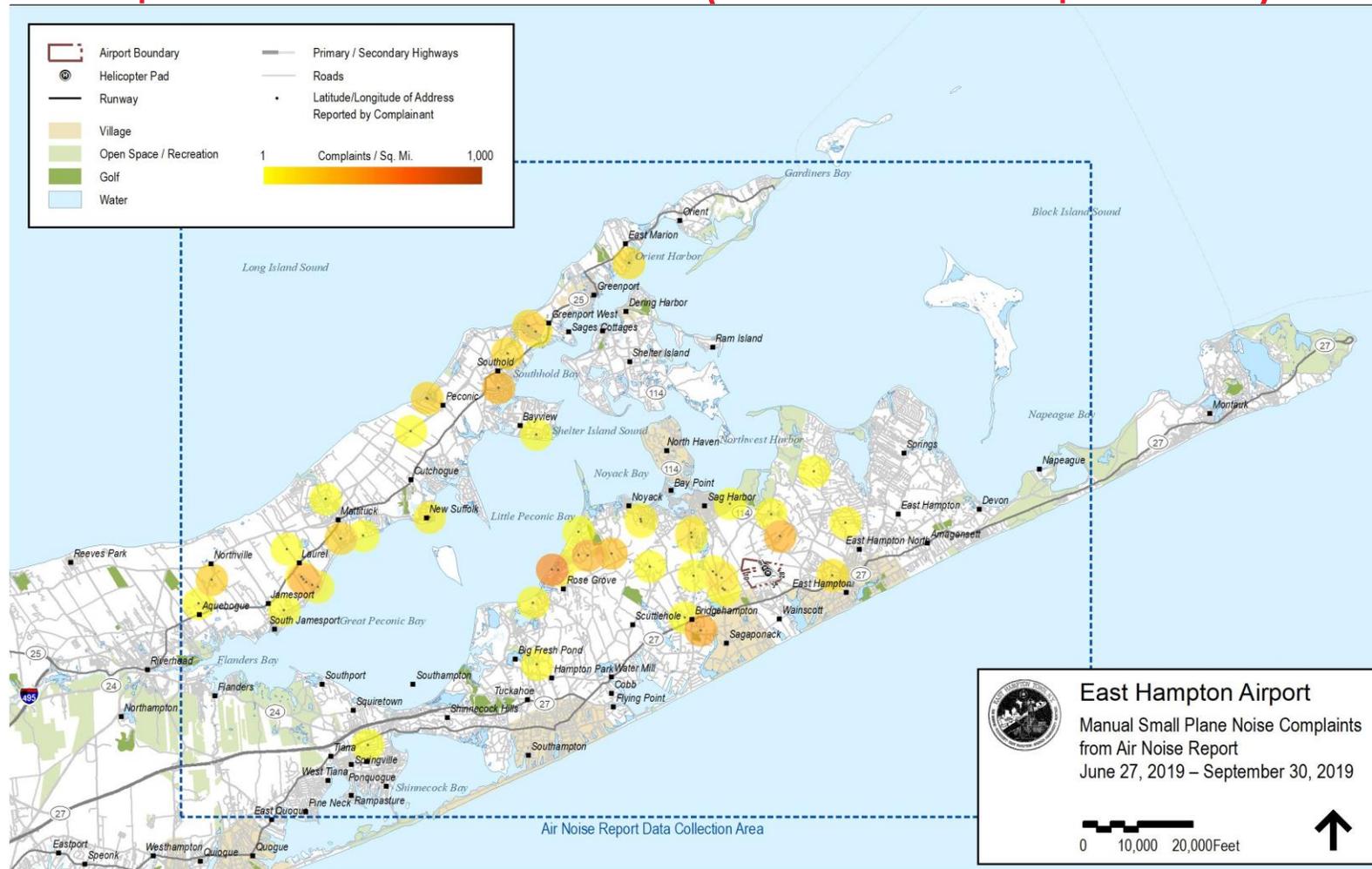
Manual Seaplane Complaints from Air Noise Report June 27 - September 30, 2019 (456 Complaints)



Manual Large Plane Complaints from Air Noise Report June 27 - September 30, 2019 (638 complaints)



Manual Small Plane Complaints from Air Noise Report June 27 - September 30, 2019 (1,530 Complaints)



Manual Unsure Aircraft Complaints from Air Noise Report June 27 - September 30, 2019 (272 Complaints)

