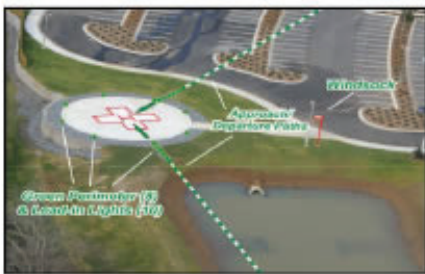


# Heliport Safety Survey



**October 2011**

Survey designed and conducted by the National EMS Pilots Association

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## FORWARD

### Survey Background

This report is a summary of the results of a survey conducted by the National EMS Pilots Association (NEMSPA) of active helicopter pilots within the United States with the intent to help the helicopter industry and the federal agencies that have oversight of this industry to better understand the current state of the nation's heliport infrastructure and to formulate future standards, best practices and policies based on the end user, the helicopter pilots.

NEMSPA recognizes that as with all surveys there are always opportunities to improve the question set and in some cases the data gathered raises more questions than it answers, this survey is no different. Over time NEMSPA will refine those areas where there is no clear cut answer or ambiguity appears to exist. There is however several areas where a definitive pilot opinion can be ascertained and NEMSPA will endeavor to communicate that information clearly to the appropriate government and industry entities accordingly in due course.

The acronym SMS has become a buzzword in the field of aviation safety. The concept of a Safety Management System has spread throughout the aviation industry, and many transport providers operating under Part 135 of the Federal Aviation Regulations (FAR) are preparing to get their organizations on board the SMS train in anticipation of proposed federal regulations that will make a formal Safety Management System mandatory for them in a manner similar to their counterparts flying under FAR Part 121.

So, what does this have to do with National EMS Pilots Association's Heliport Safety Survey?

The concept of a Safety Management *System* entails a suite of elements that work together to accomplish a common goal. In this case, the goal is accident-free helicopter air transport operations in a low-risk environment. The system includes hard elements such as training, practices, protocols, publications, reporting systems, risk management processes, auditing, etc., and soft elements such as cultural climate monitoring and a Just Culture reaction to adverse incidents and to various kinds of employee misbehavior.

A Safety Management System primarily addresses the myriad of influences *within* an organization that can have an impact on where safety fits in each team member's internal hierarchy of priorities. But, each individual organization is a finite system that operates within a larger system with many external elements that are not under the direct control of the organization. The National Airspace System, the activities of competing operators, Federal, State and Local regulations, the lack of accurate weather reporting resources, national economic pressures, and the design and maintenance of heliports are all examples of external elements that can influence the safety, risk exposure and liability exposure of all helicopter operators.

### The Heliport Safety Survey and FAA Advisory Circular 150/5390-2C

This survey's focus on the current state and future development of heliports has both a general and an immediate motivation. It was motivated generally by a desire to recognize and mitigate hazards associated with helicopter operations at heliports which pilots may face every day. A more immediate motivation is the draft of the proposed revision of the FAA Advisory Circular on heliport design and safety, Advisory Circular (AC) 150/5390-2C. This AC will have a powerful influence on how standards are applied to this important element of the nationwide helicopter transport infrastructure. Since any effort to improve the design and integration of heliport operations into the broader activities of helicopter operations must start with a clear picture of the current state of these facilities, NEMSPA

## NEMSPA Heliport Safety Survey

conducted this survey to gather the perspective of those with the most intimate knowledge of heliports: the nation's helicopter pilots. This survey represents the views of a broad cross-section of helicopter pilots who use a variety of different sorts of heliports.

This present analysis will present the aggregate data gathered from all helicopter pilots who responded to the survey. NEMPA will follow up in the first quarter of 2012 with a specific analysis of those survey elements of interest to the air medical transport industry. Other sub-domains of helicopter operations can extract and analyze the data that pertains specifically to their operations. For example, by filtering the data on the responses to question #1, the responses can be analyzed specifically in terms of any of the types of helicopter operations illustrated in Table 1.

Agriculture	Military
Air Medical	Offshore
Corporate	Private
Electronic News Gathering	Search And Rescue
Fire	Seismic
Government	Tours/ Sightseeing
Instruction/Training	Utility/ Power Lines
Law Enforcement	Other
Long Line	

**Table 1**

By filtering on Question #2, interested persons can view the responses as they apply to a specific state in the United States.

The bulk of the questions pertain to the views of helicopter pilots regarding their preferences on heliport design and their perceptions regarding the safety and risk exposure of heliports in their areas of operation in terms of both design and management.

The final question of the survey was an open response comment box soliciting individual opinions on how the safety of heliport operations might be improved. General comments, as well as specific comments gathered on questions: 6, 8, 9, 10, 11 and 17, have been formatted for presentation in Appendices A through G. For legal reasons, where a specific heliport facility had been identified by a survey respondent, NEMSPA felt it more appropriate to identify those organizations mentioned within comments by the identifier "XYZ" and to delete any specific reference to the location of the facility.

The number of respondents (N) for the survey was 1,314.

Total number of comments published in the Appendices was 1,038.

Below is the most recent data available as to the total number of helicopter pilots currently in the United States, which was provided by the FAA AFS 400 Division:

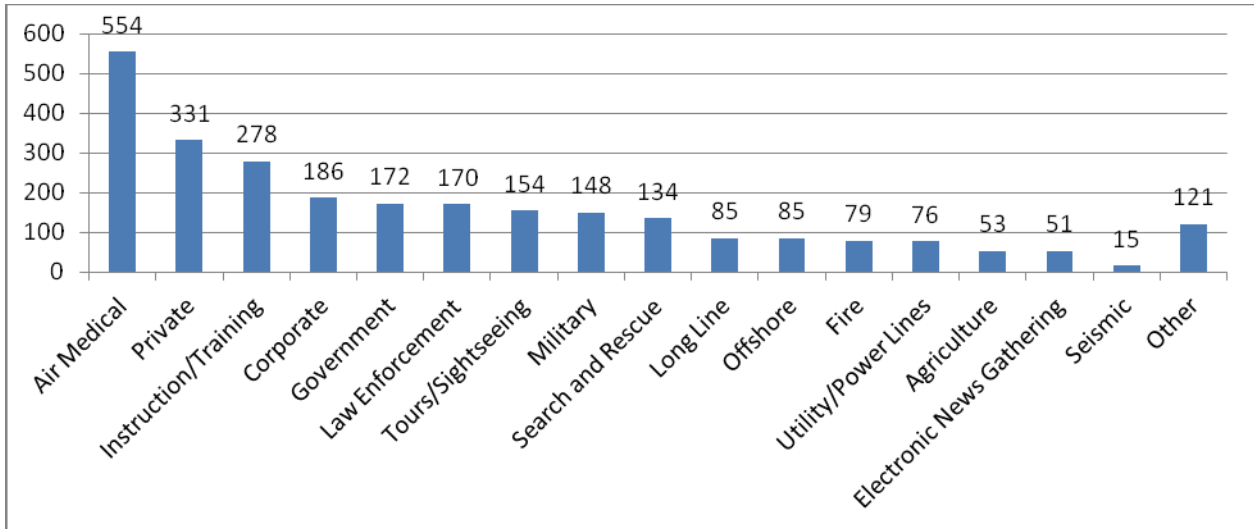
### Active airman with Helicopter Rating

- Private 7,161
- Commercial 23,868
- ATP 15,078

Active = "Valid Medical; no means to ascertain whether they are actively flying at this time.

## Survey Results

**Question #1. Indicate the type of helicopter flight operations that you are currently involved in. (Select all that apply)**



Remarks: In the graph above, the order of responses has been changed to reflect the order of the number of respondents from the various domains of helicopter operations, with the exception of "Other", which is presented last. Note that this should not be taken as a reflection of the proportion of pilots operating in these different domains. This survey was sponsored and promoted by the National EMS Pilots Association, with the support of the major professional associations that comprise the nationwide air medical transport industry. For that reason, the number of respondents from the air medical industry may be disproportionate as compared to the other domains represented in the survey.

**Question #2. States in which you normally operate: (Select all that apply)**

California (CA)	190	Indiana (IN)	53
Texas (TX)	179	Nevada (NV)	51
Florida (FL)	176	New Mexico (NM)	51
Pennsylvania (PA)	141	Oklahoma (OK)	51
New York (NY)	122	Michigan (MI)	49
Virginia (VA)	111	Mississippi (MS)	49
Alabama (AL)	102	Arkansas (AR)	43
New Jersey (NJ)	98	Iowa (IA)	43
Arizona (AZ)	93	South Carolina (SC)	44
Georgia (GA)	92	Kansas (KS)	40
Louisiana (LA)	89	New Hampshire (NH)	39
Maryland (MD)	84	Wisconsin (WI)	40
North Carolina (NC)	84	Utah (UT)	38
Washington (WA)	79	Alaska (AK)	37
Ohio (OH)	77	Vermont (VT)	37
Missouri (MO)	73	Minnesota (MN)	34
Illinois (IL)	69	Montana (MT)	31
Tennessee (TN)	70	Rhode Island (RI)	31
Connecticut (CT)	67	Nebraska (NE)	30
Oregon (OR)	66	Wyoming (WY)	30
West Virginia (WV)	62	All States	28
Colorado (CO)	61	Hawaii (HI)	23
Kentucky (KY)	60	Maine (ME)	22
Massachusetts (MA)	56	South Dakota (SD)	19
Delaware (DE)	55	North Dakota (ND)	11
Idaho (ID)	54		

Remarks: As in the previous question, the order of the responses has been modified to represent the relative number of pilots from each state that participated in the survey.

**Question #3.**

What are your current hours of total helicopter pilot in command time?		
Answer Options	Response Percent	Response Count
<500	13.2%	174
500 - 1,500	12.4%	163
1,500 - 5,000	32.1%	422
5,000 - 10,000	29.9%	393
>10,000	12.3%	162

**Question #4.**

What is the highest helicopter rating that you currently hold?		
Answer Options	Response Percent	Response Count
Private	8.4%	110
Commercial	64.1%	842
ATP	27.5%	362

**Question #5.**

On an annual basis, at how many different heliport locations do you generally operate?		
Answer Options	Response Percent	Response Count
<10	40.2%	528
10-25	28.6%	376
25-50	19.6%	257
50-100	7.5%	98
>100	4.2%	55

**Question #6.**

In your geographical area of operation, who has oversight of heliport design, construction, licensing and safety? (Select all that apply)		
Answer Options	Response Percent	Response Count
State DOT	38.7%	509
City	18.7%	246
Local Municipality	23.4%	308
No One	8.8%	115
Unknown	40.4%	531
Other: (Refer to Appendix: B)	12.4%	163

**Question #7.**

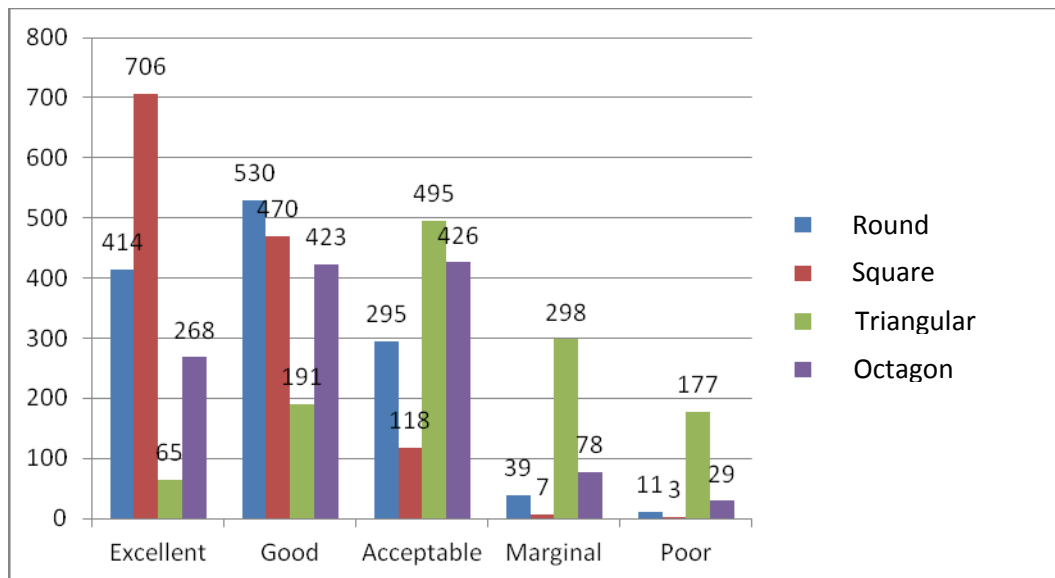
Have you as a pilot ever read or reviewed the FAA/DOT Advisory Circular 150/5390-2B on heliport design?		
Answer Options	Response Percent	Response Count
Yes	54.3%	714
No	45.7%	600



**Question #8.**

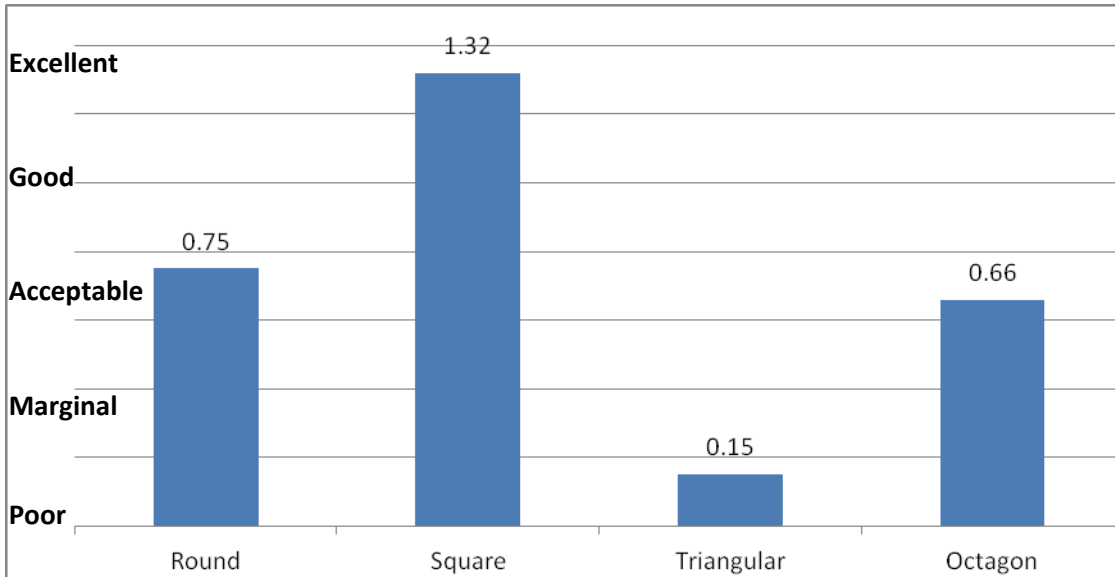
From a safety and usability standpoint which type of heliport do you prefer?		
Answer Options	Response Percent	Response Count
Elevated	25.3%	332
Ground based	34.6%	455
Indifferent - for no particular reason	28.5%	374
Indifferent - for multiple reasons	11.6%	153
Comments: <i>(Refer to Appendix: C)</i>		163

**Question #9. Based on your experience, from a safety and usability standpoint, rate your preference of the following heliport shapes.**



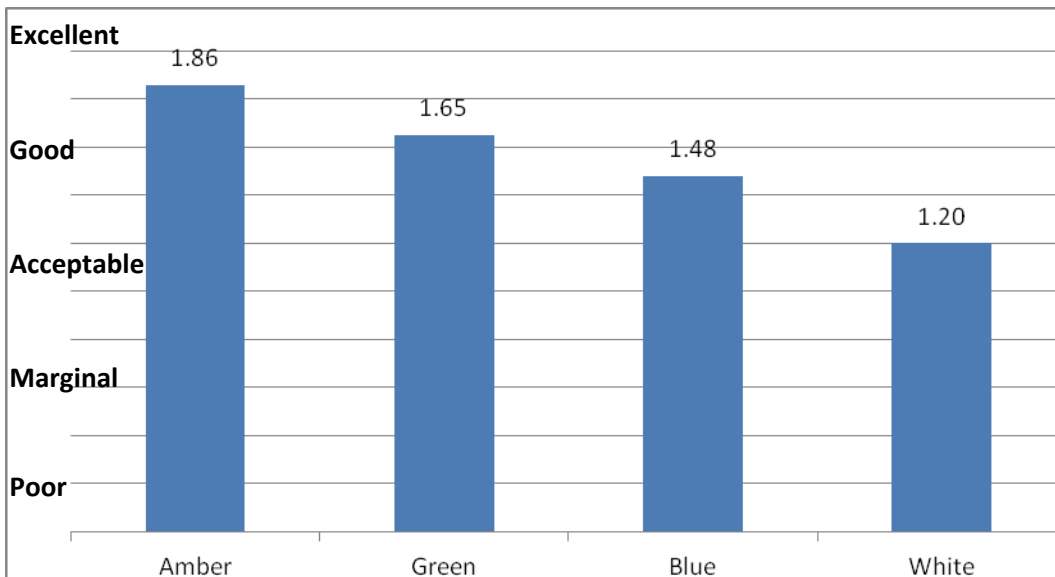
Comments: *(Refer to Appendix: D)*

**Question #10. Based on your experience rate the shapes listed for visual cues for judging closure rate, attitude, altitude and angle of approach?**



Remark: The structure of this question resulted in an inverse relationship between the value of the responses and order of the choices from most positive to most negative. In the graph above, the average response of each choice was subtracted from a value of 3 to result in a more logical representation of the responses. Comments: *(Refer to Appendix: E)*

**Question #11. Based on your experience, rank your preference of heliport lighting color for the Touchdown and Lift-off Area (TLOF).**



Remark: The graph for this question was generated in the same manner and for the same reason as in Question #10. Comments: *(Refer to Appendix: F)*

**Question #12.**

Over the past 12 months, how many hours of night vision goggle time have you logged?		
Answer Options	Response Percent	Response Count
None	54.6%	718
Between 1 and 10 hours	4.1%	54
Between 10 and 25 hours	7.5%	99
Between 25 and 50 hours	14.0%	184
Between 50 and 100 hours	13.9%	183
Greater than 100 hours	5.8%	76

Remark: The responses to Question #1 suggests that the relatively high percentage of pilots using NVG's (45.4%) is most likely due to the high number of EMS, government, and law enforcement pilots who participated in the survey.

**Question #13.**

When conducting an NVG approach to a heliport, at what point do you generally de-goggle on the approach?			
Answer Options	Response Percent	Response Count	Percent of only NVG pilots
During the high reconnaissance	2.1%	27	3.95%
Once established on final approach	3.4%	45	6.58%
On short final	3.8%	50	7.31%
Not until touchdown on the heliport	22.8%	299	43.71%
Varies	20.0%	263	38.45%
N/A	47.9%	630	

Remark: With a large number of NVG pilots preferring to remain goggled until touchdown, NVG compatibility of heliport lighting may be an important safety consideration.

**Question #14.**

During the past 12 months, how many times have you experienced issues with heliport or obstruction lighting not being visible through the NVGs?			
Answer Options	Response Percent	Response Count	Percent of only NVG pilots
Never	19.1%	251	40.61%
Between 1 and 5	15.1%	199	32.20%
Between 5 and 10	6.0%	79	12.78%
Greater than 10	6.8%	89	14.40%
N/A	53.0%	696	

**Question #15.**

<b>Generally speaking, when landing on an elevated heliport where do you prefer to land in relationship to the Touchdown and Lift-Off (TLOF) area?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
In the center of the heliports TLOF.	46.9%	616
Forward towards one side, so as to allow better access to the tail rotor area for post flight and preflight actions.	16.4%	215
Aft towards the back half to avoid tail rotor / stinger contact with possible protruding lighting installations.	3.8%	50
Positioned so as to allow enough room for crew / passengers to pass in front of helicopter's nose.	18.8%	247
Towards one side or the other to facilitate loading and unloading.	14.2%	186

**Question#16.**

<b>Out of all of the heliports that you frequent, how many have a functional Notice To Airman (NOTAM) for public use, or a hazard reporting system for private use heliports?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
All	4.0%	53
More than 75%	4.8%	63
Between 50% and 75%	4.4%	58
Between 25% and 50%	6.7%	88
Less than 25%	22.2%	292
None	22.0%	289
Unknown	35.8%	471

**Question #17.**

<b>In your experience is there a functional up-to-date national data base, either in print or online, for heliports that is both accurate and inclusive for flight planning purposes?</b>		
<b>Answer Options</b>	<b>Response Percent</b>	<b>Response Count</b>
Yes	10.2%	134
No	48.0%	631
Unknown	41.8%	549

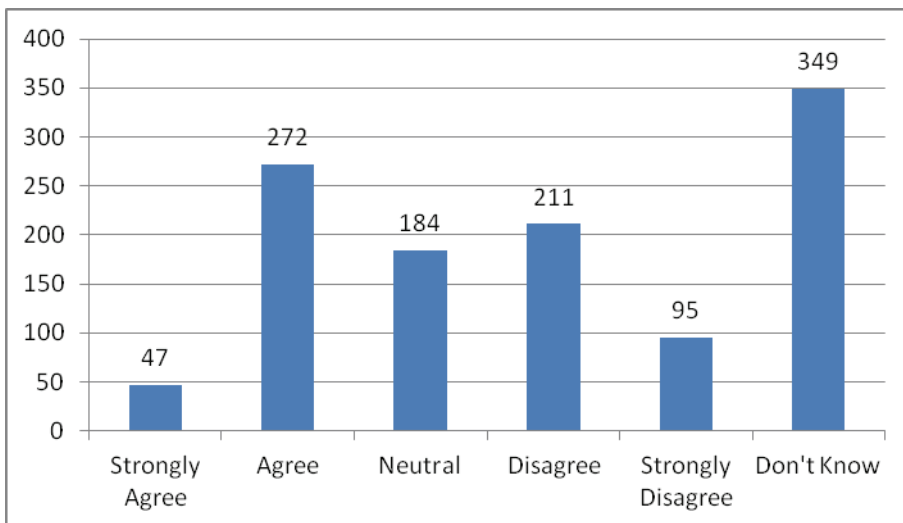
**Question #18.**

Over the past five years how many incidents have occurred at a heliport in your area which involved personal injury or property damage?			Response Percent	Response Count
None	None		67.2%	883
1-2	1-2		21.6%	284
2-4	2-4		7.8%	102
4-6	4-6		1.9%	25
6-8	6-8		0.5%	6
>8	>8		1.1%	14
Comments:				107

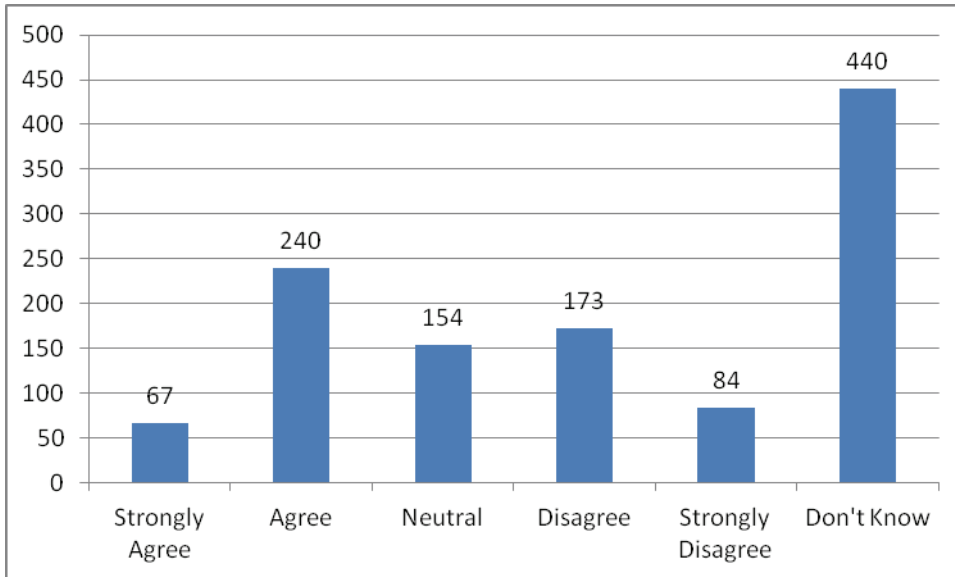
**Question #19.**

Over the past five years how many incidents have occurred at a heliport in your area which involved aircraft damage?			Response Percent	Response Count
None			59.5%	782
1-2			28.5%	374
2-4			7.8%	102
4-6			2.3%	30
6-8			0.7%	9
>8			1.3%	17
Comments:				89

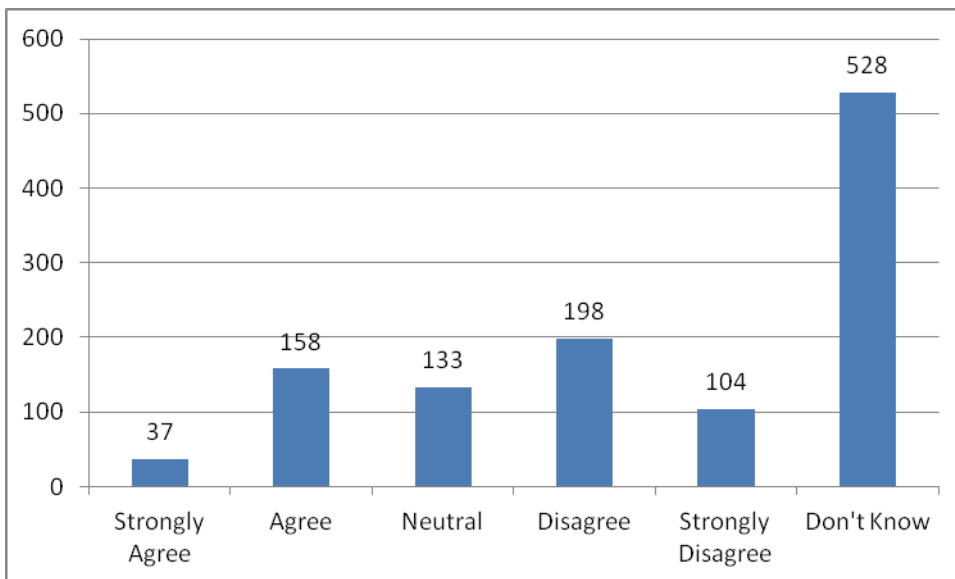
**Question #20. All of the heliports that are in the area that I operate generally meet or exceed the current guidelines in the FAA/DOT Advisory Circular 150/5390-2B.**



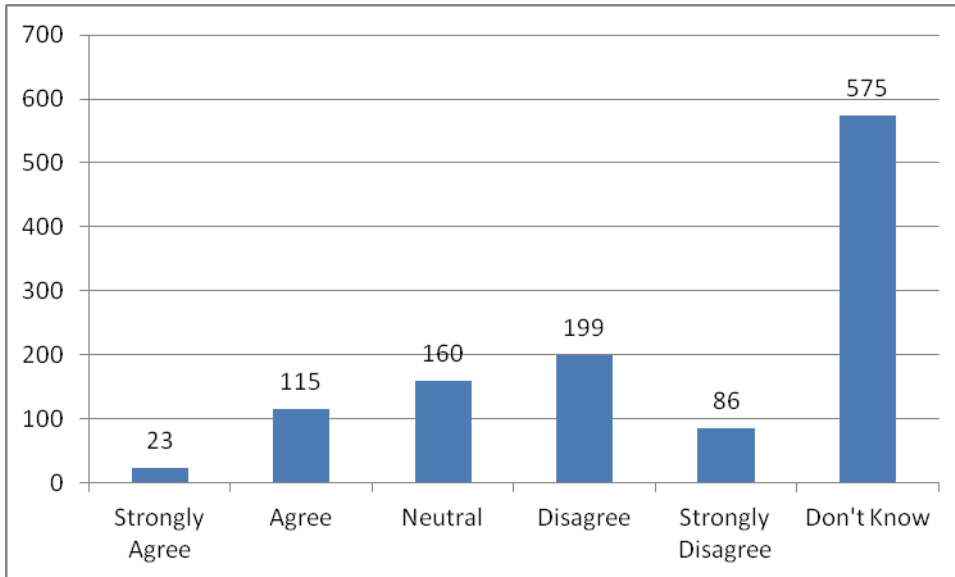
**Question #21. All of the heliports that are in the area that I operate are appropriately licensed by the state DOT or the authority having jurisdiction.**



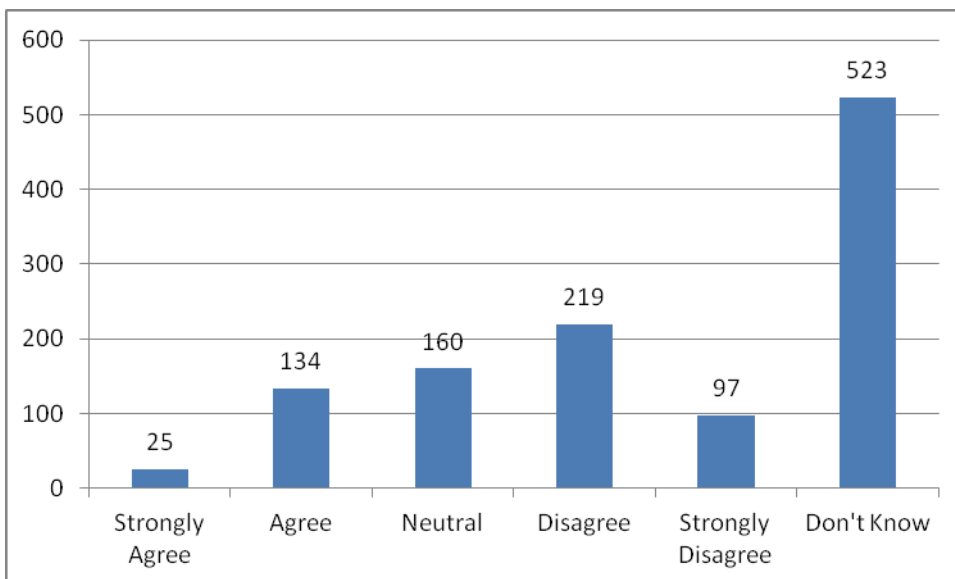
**Question #22. All of the heliports that are in the area that I operate are inspected at least on an annual basis.**



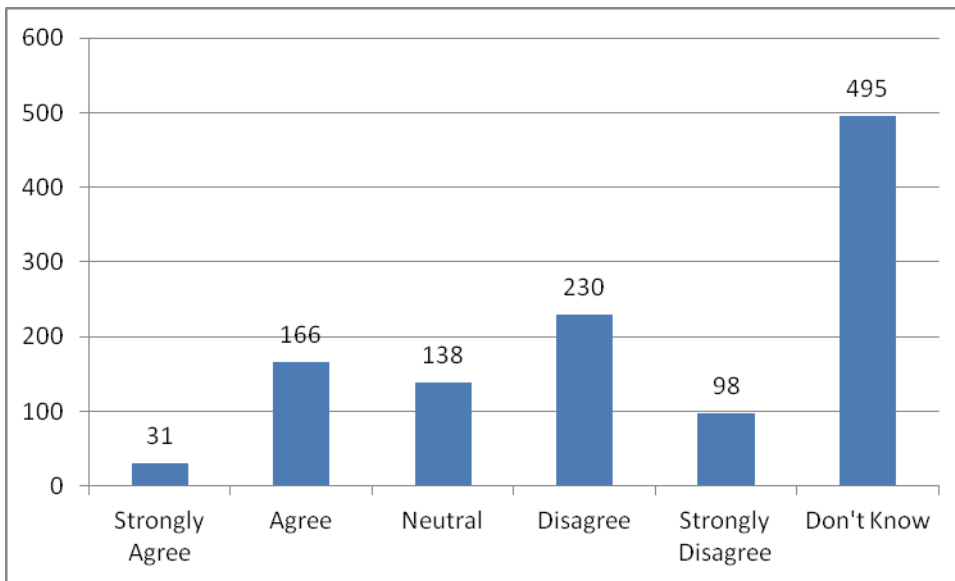
**Question #23. All of the heliports that are in the area that I service meet or exceed the guidelines of the National Fire Protection Associations NFPA-418 "Standard for Heliports".**



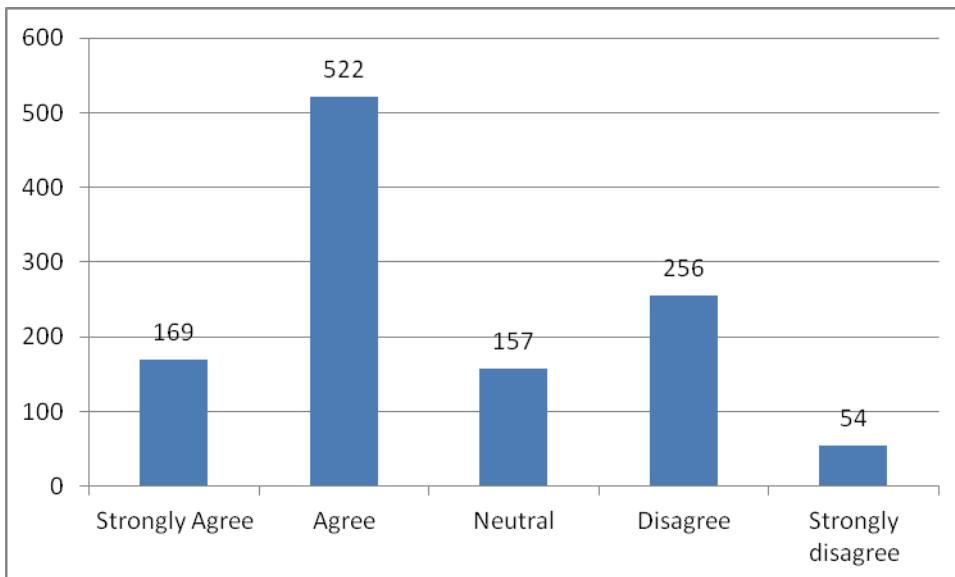
**Question #24. All of the heliports that are in the area where I operate have a published heliport safety and emergency action plan in place.**



**Question #25. All staff and personnel associated with the heliports in the area where I operate complete some form of heliport emergency training or equivalent on an initial and recurring annual basis.**

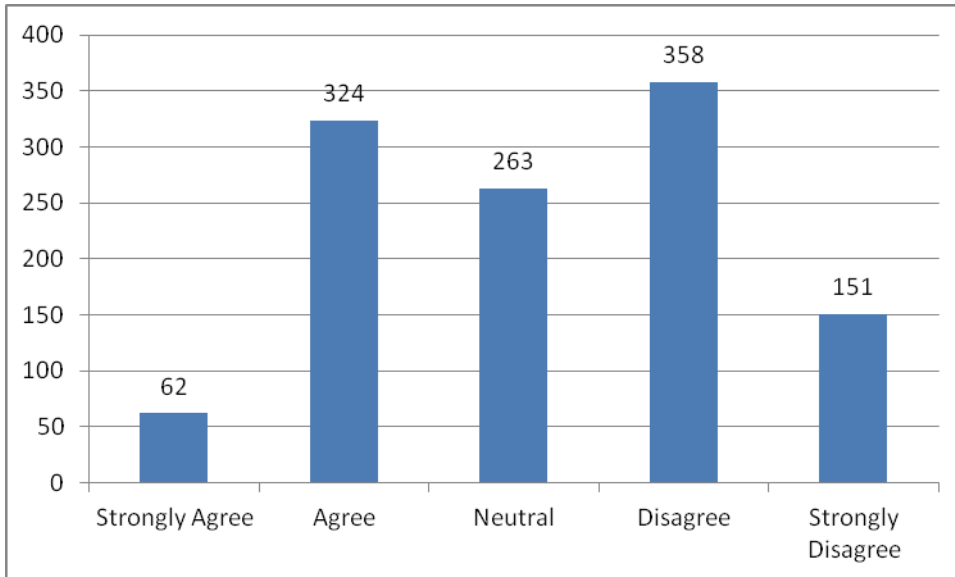


**Question #26. All of the heliports that are in the area where I operate have a functional windsock which is appropriately located for accurate wind readings.**

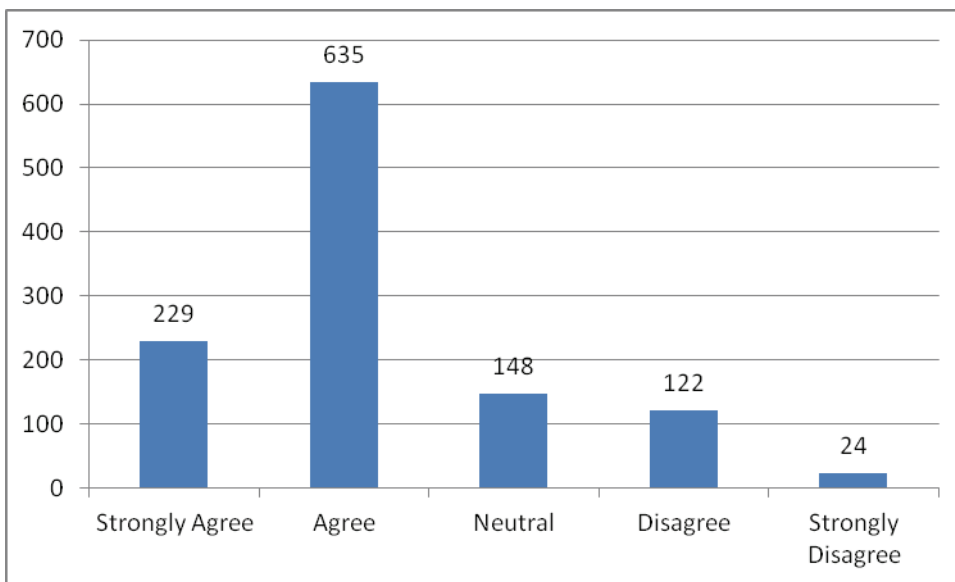




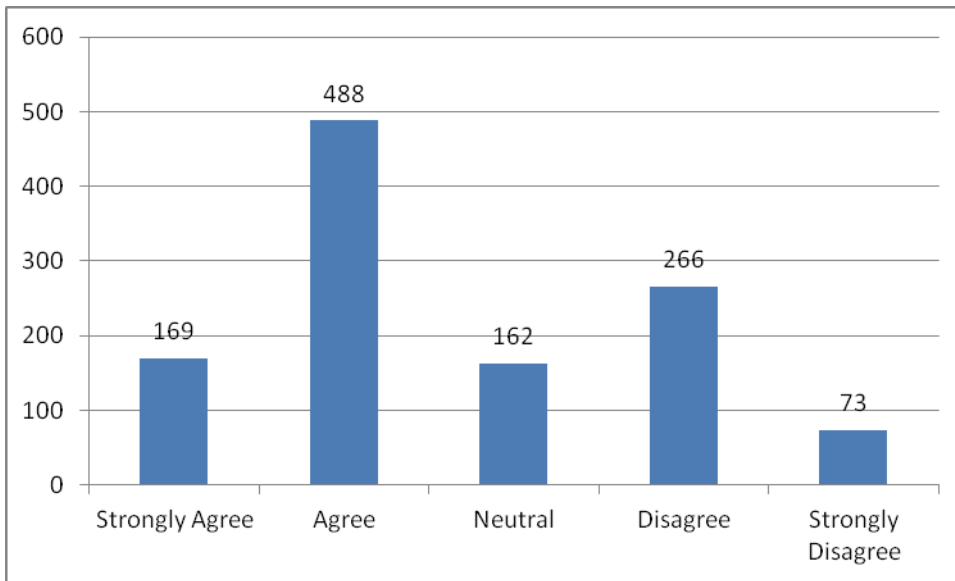
**Question #27. All of the heliports that are in the area where I operate are of a low risk nature. (low risk meaning that they offer a safe environment equivalent to that of an airport)**



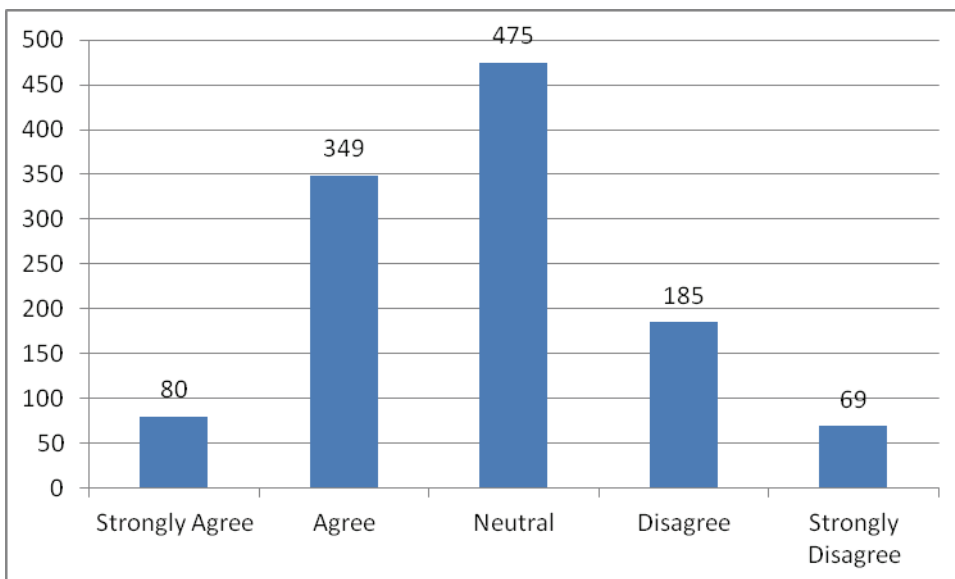
**Question #28. All of the heliports that are in the area that I operate are large enough for the equipment that I fly.**



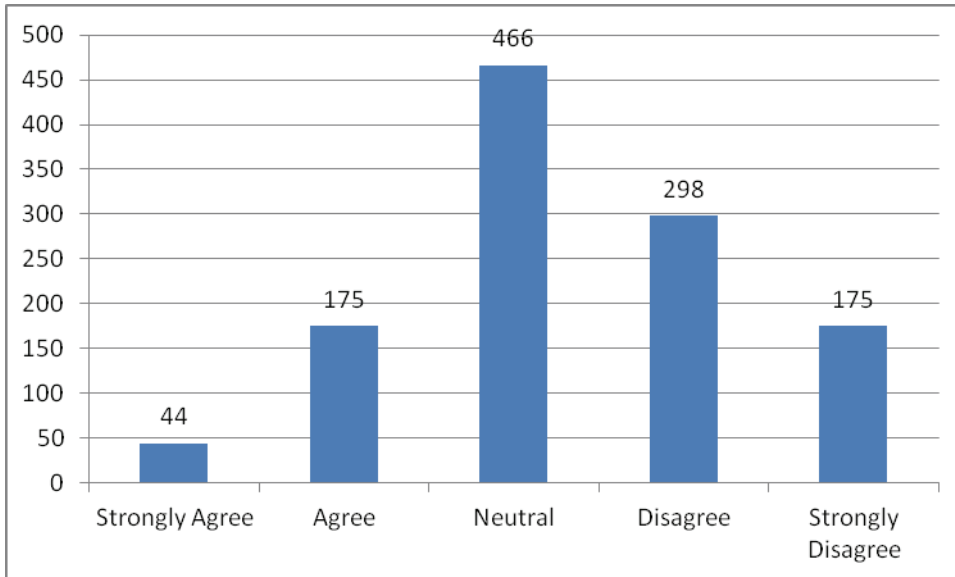
**Question #29. Vegetation encroachment is not a problem at the heliports that I service.**



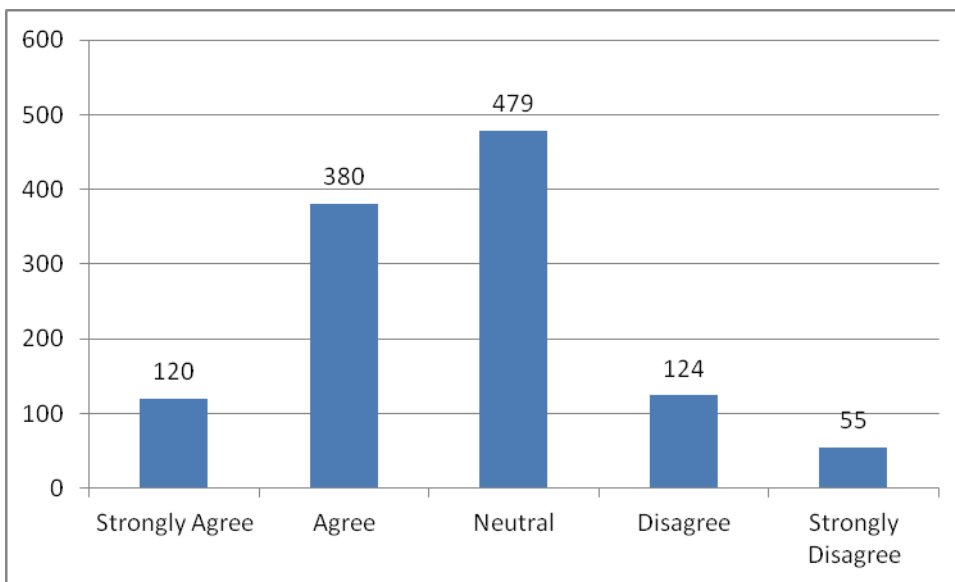
**Question #30. Any concerns that I have ever voiced regarding safety at a heliport have been appropriately addressed and corrected in a timely manner by the owner, manager or custodian of the heliport.**



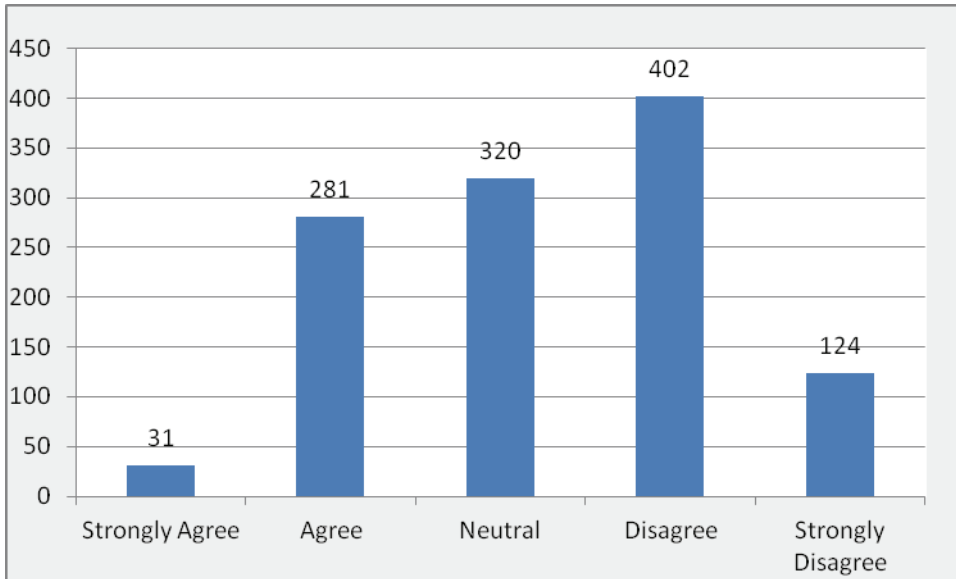
**Question #31. My opinion as a helicopter pilot has always been taken into consideration during the design and construction phase of a heliport in my area.**



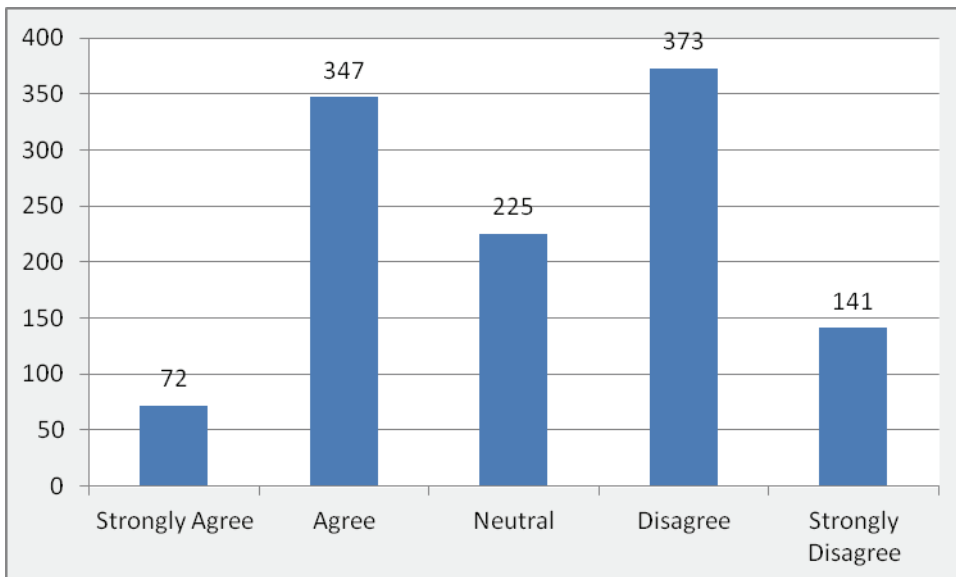
**Question #32. Any heliport related concerns that I have brought to the attention of my company have always been investigated and acted upon in a timely manner.**



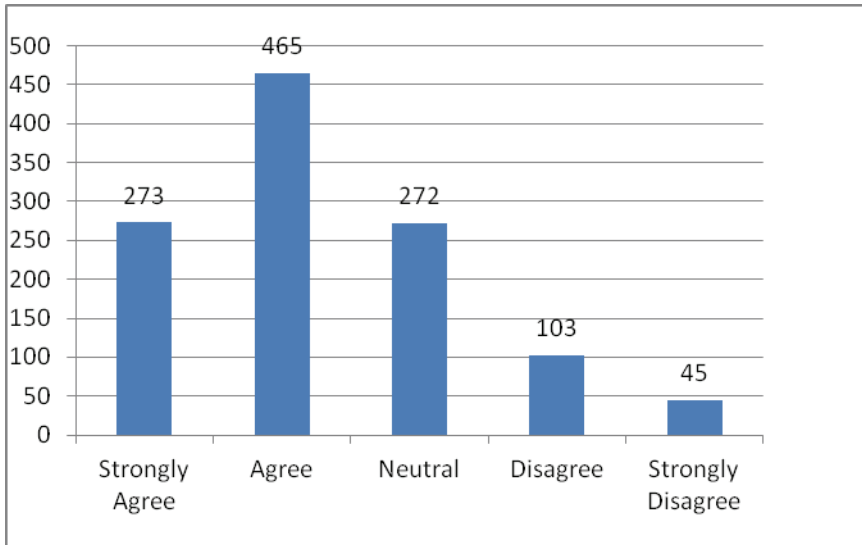
**Question #33. All of the heliports that are in the area where I operate are designed in such a fashion as to minimize the impact of most helicopter performance limitations.**



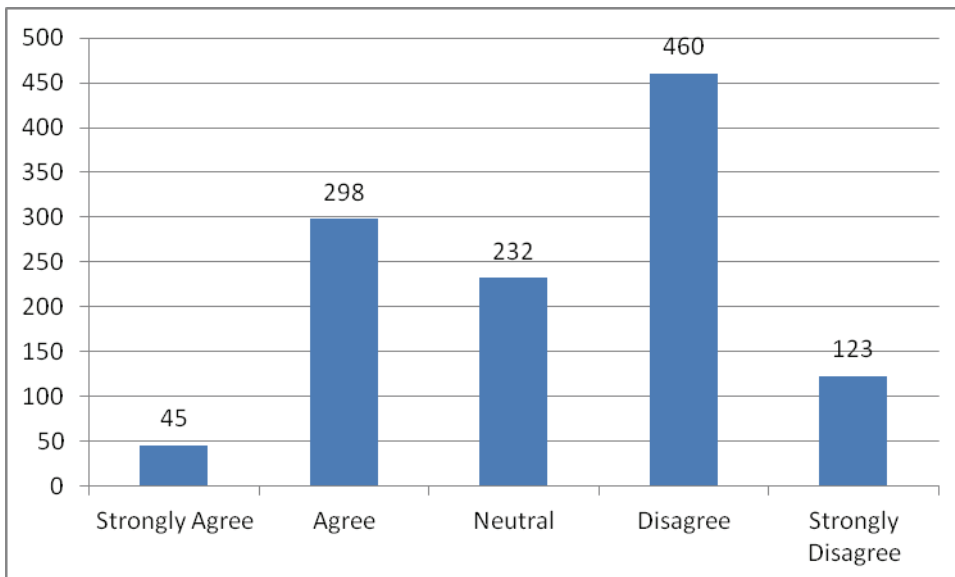
**Question #34. I have never experienced any significant aircraft controllability issues at heliports in the area where I operate due to unexpected wind flow patterns or induced wake turbulence caused by improper heliport placement in relationship to the surrounding environment.**



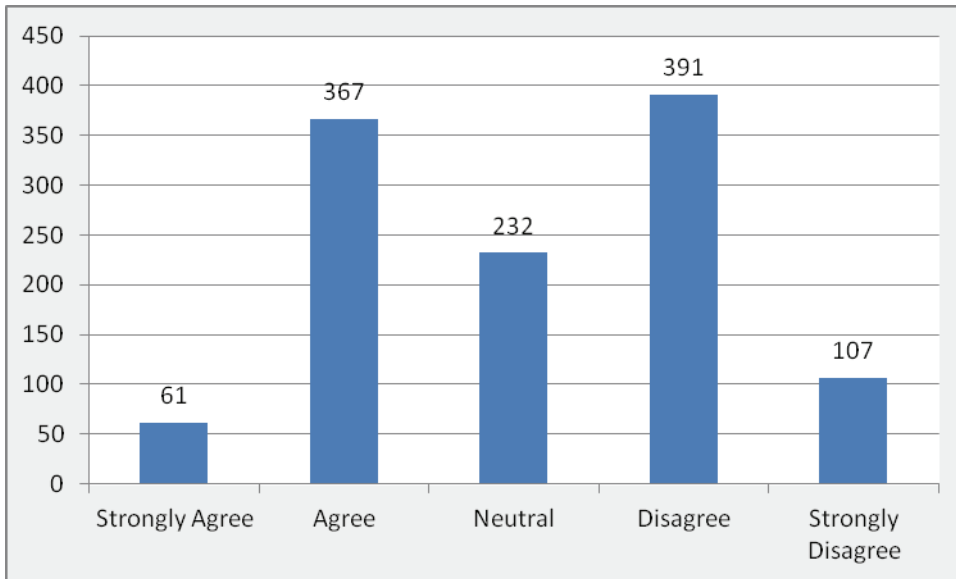
**Question #35. Competition has never played a role in whether or not to utilize a heliport that I or another pilot deemed to be of too high risk or unsafe.**



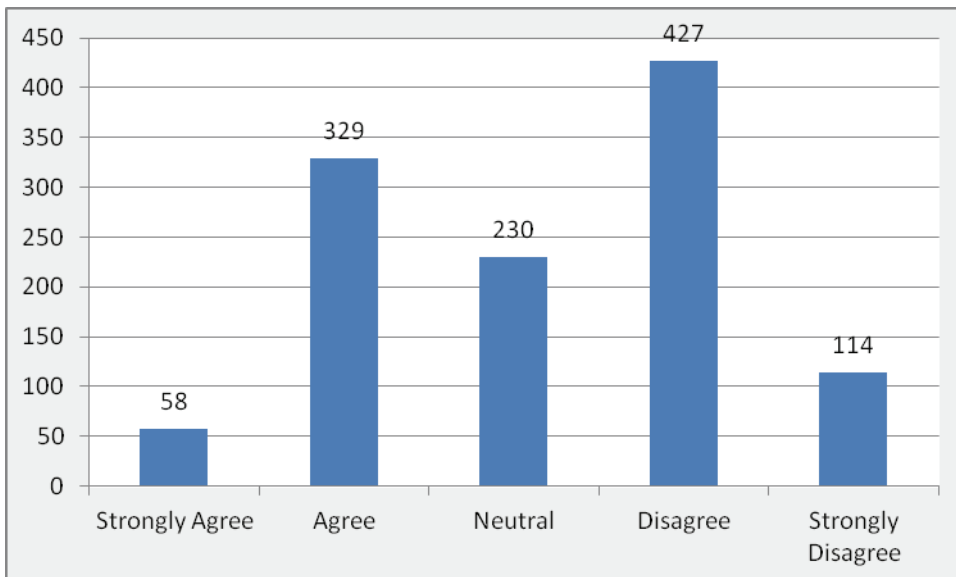
**Question #36. All of the heliports that are in the area where I operate are free of hazardous obstructions to navigation within the surrounding operational area.**



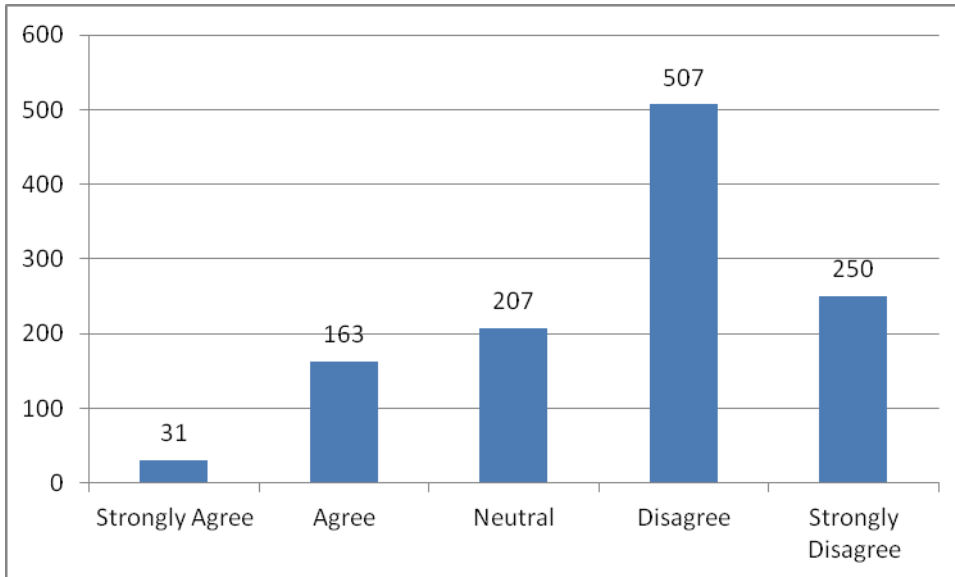
**Question #37. All of the heliports that are in the area where I operate have a Touchdown and Lift-off Area (TLOF) and Final Approach and Takeoff Area (FATO) which are free of any hazard that may catch the helicopter's skid or impact the helicopter's tail rotor.**



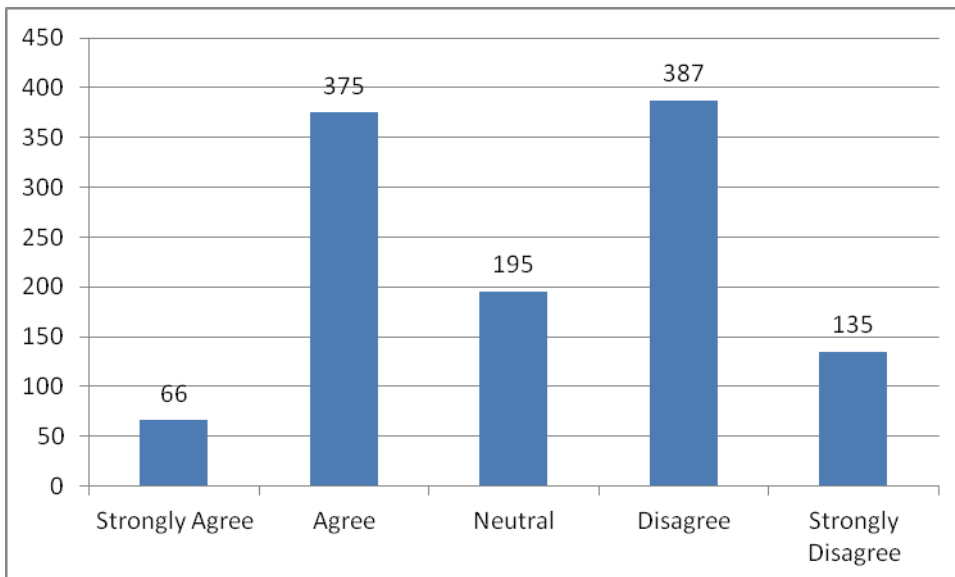
**Question #38. All of the heliports that are in the area where I operate have at least two clear unobstructed approach and departure paths.**



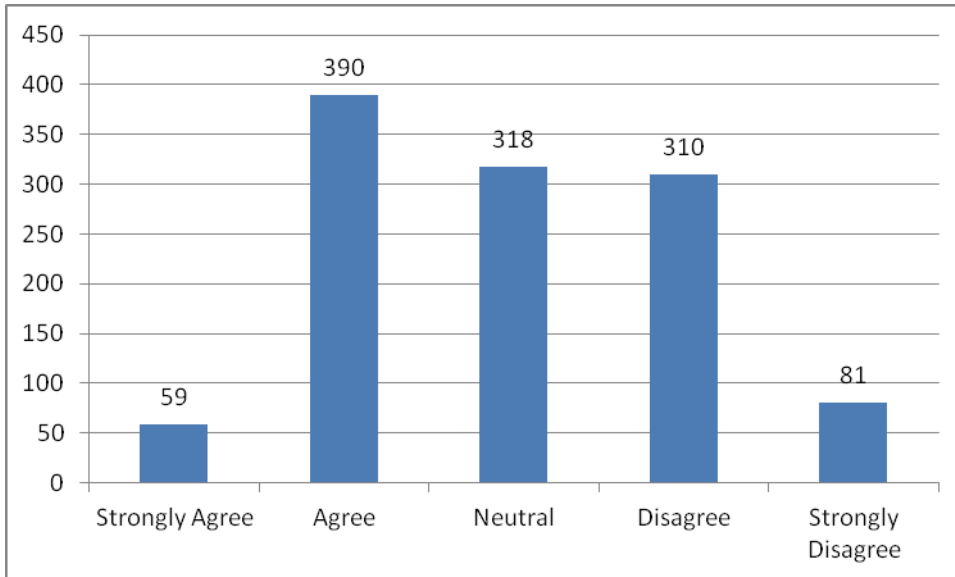
**Question #39. In my opinion having only one clear unobstructed approach and departure path into and out of a heliport does not present any safety or operational issues.**



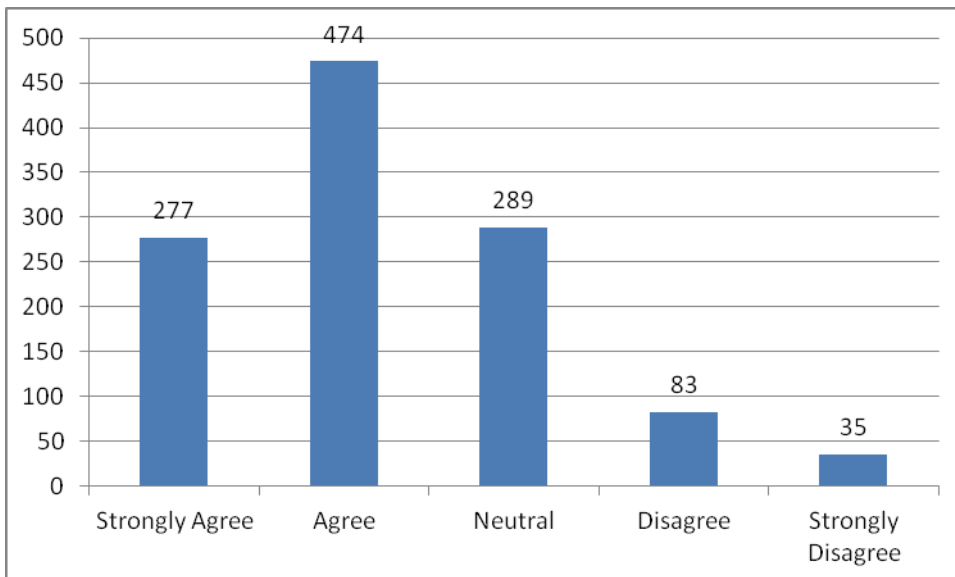
**Question #40. None of the heliports that are in the area where I operate require a vertical approach or departure due to an excessive number of obstructions or hazards surrounding the heliport environment.**



**Question #41. None of the heliports in my area of operations present any unnecessary or unacceptable risks.**

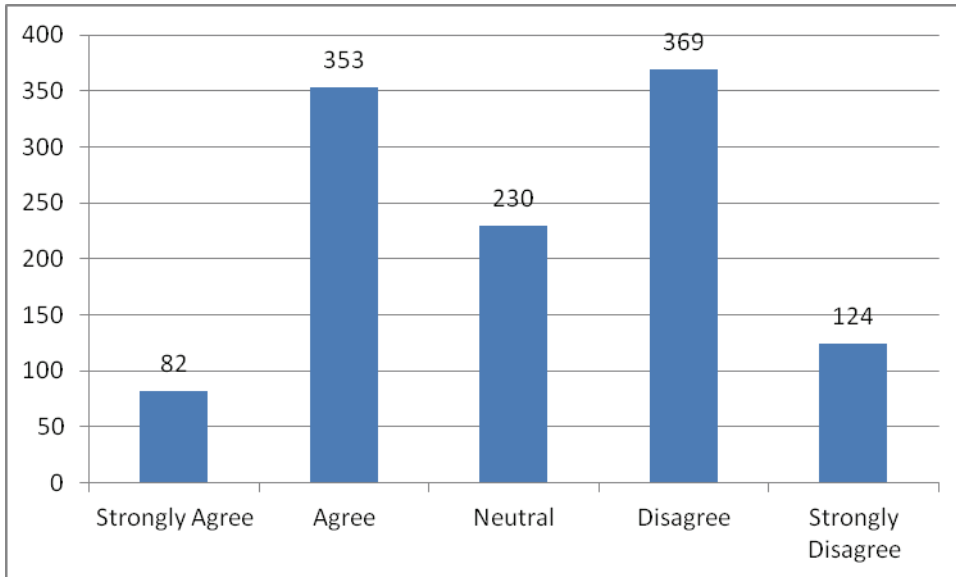


**Question #42. On those occasions that I declined to land at a heliport because I felt that it was unsafe or beyond the capabilities of my aircraft, there has never been any pressure to continue or fear of reprisal.**





**Question #43. All of the heliports that are in the area where I operate have appropriate security measures in place to keep the public at a safe distance from the heliport.**



**Question #44. Please list any additional comments or suggestions that you as a helicopter pilot feel should be addressed to improve heliport safety and operations? (See Appendix: A)**

**APPENDIX A: Heliport Survey General Comments:**

1. Some High DA heliports at Hospitals are marginal but that is the design of the hospital and surrounding environment.
2. If the landing area is to be at a small hospital, the area should be elevated if possible as most areas to place a heliport are minimal and these places like to "pretty them up" as well with plants and or fence close to the pad area. This is from previous experience a few years ago and have not encountered such locations as of yet.
3. Very few public use heliports. Only one in the Los Angeles area, which is at KLAX and is slated to be closed by upper LAWA management. That will leave not one single public use heliport anywhere in greater Los Angeles. Even if KLAX stays open, there is not one single public use heliport anywhere in So California that is not at an airport.
4. Yes, Leave the FAA out of it....
5. Hospital Helipads should have some sort of flashing beacon capabilities so they can be easily located for helicopters needing to use the facility but pilots not familiar with the area. Helipads which require a steep approach due to obstacles near the pad should use a VASI system to help guide the angle of decent for obstruction clearance. Helipads with preferred routes should utilize REILS to show the approach routes via pilot operated on Heli Pad Freq. ALL Heli pads should be NVG compatible!! Use of LED lighting should be prohibited at helipads; they are too bright and are not NVG compatible.
6. NYC heliports - poor design, poor maintenance and very busy with very poor frequency distribution.
7. The US could implement the ICAO Annex 14 Vol II requirements as a baseline in the USA.
8. Include military use considerations.
9. Lack of security is a huge issue at outlying hospitals. Hospital personnel do not seem to be adequately (or recurrently) trained to account for all possible risks.
10. The guy that sets up new pads in my area has never asked any of the users for input and the hospitals have all had to make changes after the pad was in service, because of it. A user of the pad should be consulted in the design phase, or an experienced pilot with current knowledge of the user needs and requirements.
11. "All of the heliports in the area" is a hard qualification. In many small rural hospitals/clinics only have a painted H in a parking lot for a designated pad. Some not even that, just a designated landing area.
12. My pilots, as regular procedure, recon established helicopter decks just as they would improvised landing zones, evaluating deck clear, wind, bystander threat, etc., and elect landing accordingly.
13. Ground based heliports should have fence security and a control person to observe safe landing or call 911 as necessary when a helicopter is know to be arriving.
  - 1.) 24-hour monitored (by a controlling dispatcher) security cameras should be required for very busy heliports.
  - 2.) There should be loading light (bright spot lights) rules (on/off, direction pointing, etc.) to protect night vision.
  - 3.) Where there are major obstacles surrounding "hub" medical facility helipads there should be guidelines for lighting the preferred corridor(s) of approach/departure.
  - 4.) There should be 3 categories of helipads - not all can be as obstacle free or as lighted or as controlled as an airport.
14. Get rid of the legalese in the rules or come out with a plain language version so that compliance is harder than interpretation.

15. "The biggest problem is the perceived pressure to fly when it is unsafe to do so. Mgt. might say the final decision is up to the pilot, but they make it clear between the lines that you need to make them money. They always wave the safety flag, but once you bring up something that you think is unsafe, you have a target on your back."
16. A couple of the locations we use have heliport lighting that is at least 18 inches high and it would be possible for the tail stinger to strike the light under some conditions. I elect to land forward at that location which results in a landing closer to the building than I would normally conduct. I don't know why some heliports are designed with lighting on small poles, it just doesn't make sense and a careless pilot could hook a skid or a tail stinger on one or even a tail rotor in some situations.
17. National register or database shared between operators. A published landing zone register, see the UK CAA publication! "Helicopter Landing Sites: Three booklets of helicopter landing sites are published spirally bound, they each contain detailed multi-colored graphics and associated information for selected sites." see: <http://www.mod.uk/DefenceInternet/AboutDefence/WhatWeDo/SecurityandIntelligence/DIS/ICG/No1AeroNauticalInformationDocumentsUnitno1Aidu.htm>
18. Private use helipads should also be subject to FAA/DOT/State Govt. oversight .By calling their heliports private use, many hospitals get away with criminal negligence. It is a tribute to the pilots' skills that thousands of arrivals and departures take place across the country every day ,routinely, into and out of unacceptable heliports.
19. Vendors are reluctant to bring up unsafe or questionable helipads. I suspect it is that they don't want to cause undue expense or concern to the customer. Also, the attitude that they have always done it this way is what seems to be the rule. Helipads, inspections, TLOF's... are a joke in the EMS community. I suppose that the seriousness of a poor helipad is equated to an offsite scene call in which circumstances are not as favorable as a hospital helipad.
20. I do not believe this survey will do any more than be incorporated as recommended practice, which will be ignored by heliport operators.
21. I fly in Southern California, and there seems to be very little standardization in the design, placement and construction requirements for hospital helipads. Many are very well designed and placed, but several are extremely poorly designed. There is one in particular that is in a notoriously windy location, but the helipad itself is situated at ground level in the middle of three 5 to 10 story buildings, so wind patterns are always gusty and erratic. Additionally, there is only one way in and one way out. The pad itself is beautiful, but the placement makes it an un-necessary risk when the winds are blowing. I've seen several pads that require vertical takeoffs and landings due to surrounding trees, buildings and other obstructions. Many hospitals provide little or no helipad security, which is why I feel elevated pads are best. They keep the general public away from my helicopter and out of harms' way when taking off or landing. Standardization and oversight by the FAA would go a long way towards improving safety at hospital helipads.
22. Some of the facilities that we land at have intermittent security personnel to watch for intruders. This is due to staffing issues. There are not enough personnel dedicated to watch the landing area due to hospital funding. It means that we as an operator have to be very watchful and deliberate to keeping people away.
23. Our company doesn't complain about hospital helipad safety issues as that might effect our business relationship with them. I think that is prevalent throughout the industry!
24. Perhaps addressing the liability issue with the owners of helipads will make them realize the responsibility for making the pads secure, with clear areas, and appropriate approach and departure paths. Also I have seen one consultant at my base location who was really not qualified based on the unsafe recommendations he made, (examples are too tall perimeter lights which created a hazard while hovering around the pad and location of things like hoses and electrical outlets to close to operating helos) establish some kind of qualification to be an adequate "consultant".
25. While construction is being done in proximity to the helipads, keep materials far from them.

26. I would like to see better markings for parking positions showing where the nose or the tail should be (if applicable)
27. "I was sent by my chief pilot to attend a hospital design meeting focusing on helipad design. I made recommendations to remove existing power lines that were in the departure path. I was told that it would cost \$300,000 to relocate the lines and helipad was installed and the power lines are still there. The helipad design was done using the design circular as far as physical aspects, but departure and arrival routes were ignored or overlooked. Also our company keeps its own List of NOTAM style information which can be requested prior to landing by asking our dispatch for an LZ brief. The information exists, just not a national system. We land at numerous hospitals that do not have licensed helipads, why are they not licensed? It seems that nobody goes to the hard ones.
28. I complained often about a helipad that had jersey barriers to keep vehicle traffic off the LZ surface, the barriers redirected our downwash back up into our rotors causing a lot of instability and increased the workload dramatically. The helipad was closed but only after the decking it was on started to show signs of fatigue. I would say 90% of the lights around the helipads were in place before NVG's, so its pure luck that we can see any of them with goggles in use. I scan with goggles and under the goggles to make sure I do not miss any. Also noise sensitive requests are unsafe and place stress on pilots operating to/from helipads where they should only consider safety. Wind speed/direction, obstructions, etc."
29. Many of my answers above relate to rural hospital helipads; I am not clear whether for purposes of this survey they would be considered "heliports."
30. Some heliports end up being a Hover in" due to obstacles and wires. In many cases, local communities do not have the funds to bury wires on approach / departure paths. Many times heliports are constructed with no hazards, then they build nearby structures and don't take into consideration that there are helicopter operations nearby.
31. An active and current helicopter pilot should be used during the planning process for all helipads. Certification is one thing, but many new pads are not as safe as they look on paper or from the ground. Minor changes based on the opinion of an active helicopter pilot's opinion would make any pad safer.
32. Size, Always make them large enough for 2 acft. If one breaks after landing (ie. over torque) you don't want to create pressure for a pilot to takeoff with a know discrepancy because the EMS pad is fouled. The Coast Guard has done this a couple of times.
33. Locally, successful hospitals sometimes put ZERO dollars into upgrading helipads from the current wires-enclosed helipads or helipads in the middle of a parking lot, surrounded by wires and light stanchions. I believe some of these "heliports" are accidents waiting to happen. We continue to use them day after day, sometimes several times a day. Who inspects and authorizes public use of these heliports? Local, financially-vested entities. I truly believe that the FAA, or DOT should have some sort of inspection/shut-down authority for these heliports. And if it's a matter of money, then perhaps a legitimate, "get-this-done-by-this-date" action should bring legal proceedings for or against this entity. How much does a hospital make (\$\$) off of two or three patients? Certainly, if the helipad were to be shut down - HOW MUCH WOULD THEY LOSE??? Given that answer, I am sure every hospital in the country would have sound-activated lights if that's required within 6 months.
34. "Pilot controlled lighting would be great! Don't allow hospitals to deny access to other helicopter programs.
35. We need more Heliports (public) in the Los Angeles area. The only real Public use heliport is at LAX. Access to Downtown Helipads needs to be opened for an increase in air commerce.
36. My only suggestion is to have new and up to date rotating beacons to aid in identification and navigation, some of the beacons I've seen are old school, faded lenses, weak lights etc,...
37. Continue to consider Instrument Approach Procedures using GNSS type approaches.
38. Rewrite the AC for today's helicopters with Cat A performance and small foot print. It would not hurt to put it in plain, short and sweet, English too.

39. Hospitals construct helipads without consulting the FAA or the pilots.
40. Green perimeter lighting for a helipad makes it virtually invisible under Night Vision Goggles.
41. Helipads are not airports and we cannot expect small hospitals or communities to treat them as such. If this should occur many communities will be without air ambulance service. Helicopters are designed to land at locations with an approach and departure path limited compared to a runway. Aircraft may have to do vertical takeoffs/landings, this is where aircraft performance comes into play and the pilot ensuring the aircraft has the performance/capabilities for that specific site.
42. In California, they get around heliport licenses, by designating the landing area as an ELS, without necessarily complying with those legal requirements either. The hospital and companies like ABC & XYZ then deny culpability for this oversight.
43. Most of the helipads I land at are overseen by hospitals...the majority of them have only 1 approach/departure route.
44. Keep the government out of it. Anything it touches turns into a soup sandwich!
45. My operations area is in Puerto Rico
46. Many of the elevated heliports are not appropriately marked with the max weight capacity authorized. Those that are, do not have the ability to handle weights above 12,000 lbs.
47. Some of our more rural hospitals have us land at high schools, on the grass out front of the building, in a nearby field, etc. None of these have lights, socks or markings, but they don't really have any obstructions either. Some of our hospitals have very vertical approaches due to trees...lots and lots of trees in this state. Several of our regularly visited hospitals have just one approach/departure route due to obstacles, the general no-over-flight-of-the-hospital guideline, and trees/wires. Many have zero built in security (i.e. fence, pad, bushes) but there are always a few firefighters or security guards who keep crowds at bay.
48. All heliports should be available on all GPS mobile aviation apps.
49. Elevated heliports at hospitals are costly so most hospitals build ground level pads with the only consideration being how close they can get it to the ER entrance.
50. Place a radius limit on future building construction within X of a roof top helipad which will effect the approach path or local winds.
51. Good questionnaire. Hope you publish the raw results as well as the commentary.
52. Building designers, architects , and owners of high rise offices need to focus on including MORE area for helicopters to be included in the planning of their structures for emergencies. A great number of older buildings have multiple antennas, obstructions and towers in areas that should a problem arise no thought has been given to escape options.
53. Non-elevated pads should contain some sort of barrier to prevent personnel from walking in and around the helicopter during operations. One security guard is not enough at a busy hospital.
54. Recommended to both JACCO in 2001 and CAMTS in 2004, 2006 and 2009 that they establish and enforce a standard for helipads. The FAA's response to some questions were that they are private property and don't require a standard. This was done at several locations throughout the US.
55. The vast majority of my landings are in places where most EMS operators won't land, so almost any heliport is a luxury.
56. The vertical flight community needs to demand another ELVIRA conference to update the 'ten most wanted' operational considerations with the FAA.
57. You left out Washington, DC, the biggest prize of them all.

58. I feel that way too often a heliports design and placement comes last in the design and engineering of a facility, when it should be placed much higher in the safety priority. Far too often it seems the heliport was simply placed wherever there was room left over and not actually planned into the design stage of the project.
59. All heliports should be designed to make an approach/departure from any direction.
60. State DOT should put out a book of Hospital LZs so every EMS Base is standard with
61. Hospital Directory books with Photos for Safety. MN does not have such a book.
62. As of recently, I've noticed significant improvements on the newer hospital helipads, especially trauma/level I facilities. Many other helipads continue to degrade without proper funding for repair.
63. Indianapolis Downtown Heliport has numerous objects presenting hazards to skid and tail rotors including windsock and AWOS equipment mounting pole, approach lighting mounting poles, etc. These objects should be relocated or imbedded in the ground for a safer environment for hovering.
64. I have always felt that there is a disconnect between helipad design criteria and helicopter operations. A large part of my career has been spent operating helicopters, both large and small, from unimproved areas with no formal heliport structure. The idea that it is impossible to operate helicopters safely without all the requirements "recommended" in the existing AC let alone the new one and NFPA-418 is, I think, flawed at best. It seems to me that there is a move afoot to drive helicopter operations to heliports that meet some uninformed institution's ideas of being safe and in the process compromising the very unique capabilities of helicopters that make them the amazingly capable tools that they are. A sad day indeed.
65. Numerous hospitals in NC have no helipad and pilots are required to land in areas that do not meet FAR 135 requirements for wind indication or lighting.
66. Most if not all of the helipads are private use. The facilities have generally been willing to fix things we didn't like.
67. The government DOES NOT need to further regulate heliports. They will only F#\$% UP an already good situation!
68. Passenger loading and unloading before engine shutdown and/or rotors still turning.
69. New Advisory Circulars should encourage the use of ground taxi for wheel-equipped helicopters to reduce turbulence on other helicopters, reduce noise & FOD, and improve safety.
70. All hospital based heliports should have a rotating beacon operational at night. Illinois mandates this, Missouri does not. Big help especially if you're not familiar with the area.
71. My survey response may be biased due to the location in Alaska. Many "heliports" are not formal heliports yet function as the EMS/local heliport. Some are grandfathered in as a heliport just because the helicopter landed there in the past before there was a designated area. There may be different issues with the heliports in Alaska that may not apply to city heliports. A separate Alaska Heliport Directory showing hazards and layout would be an excellent guide for Alaska helicopter pilots operating into the more common remote Alaska "heliports".
72. Nobody listens to the pilots, the design is based on money. The hospitals in Portland refuse to listen to the advice given by pilots with regards to security and obstacle issues. We will wait for an incident to occur before action is taken.
73. There should be more input from the pilots when designing and building a heliport. Not just the contractor who won the bid.
74. My pet peeve is lighting. Don't know who decided to have light green pad lights, but in my opinion they are not as good as amber. They don't stand out in the maze of other lights like amber does. And we certainly don't need super bright flood lights on or above the pad.

75. More input from a aviator when designing a heliport.
76. Too many surface based helipads don't have the necessary security to keep people or animals off the pads.
77. A good helipad cost money. I would like to see more rooftop pads or large ground pads with multi approach paths in ground lighting and no poles, fences, bushes, etc etc around the pad. Look at George Town Hospital pad in D.C. where there has been three helicopters parked there at one time. Look at Farmville Hospital VA with large trees right next to the pad and pedestrians coming and going to their cars.
78. Appropriate fencing/FOD screens to protect the public e.g. NYC helipads attract people who watch helicopters but are unaware of potential FOD injuries.
79. Landing areas need to be flat. Often there is slop or swale in Alaska
80. Better communication of the information in the AC regarding heliport construction / operation to municipalities.
81. No asphalt heliports/established landing/touchdown areas!!!
82. None
83. The only new problem that has been showing itself lately is when a new pad is built (ground level) too much emphasis is being placed on noise abatement and not safety of the landing area. People are more worried about the public rather than the helicopter and it's crew. There needs to be some kind of middle ground.
84. Advisory Circulars are "advisory". Until there is some regulatory emphasis requiring at least minimum standards, things aren't going to change much.
85. As an EMS pilot I routinely have to fly into heliports that have only one approach and departure path that limits operations due to wind direction, pads with obstructions, pads that are not licensed, pads that require long vertical descents into, pads that have noise restrictions sanctioned by the FAA that require using a poor/sometimes unsafe approach, pads poorly lit, and pads that are completely unsecure and allow public access. Most hospitals feel that anywhere they can put an H is acceptable. If I don't fly into these spots, the competition will and I would potentially lose my job. Most hospitals have no concept of safety, performance, and security. No one from my company to the FAA seems to care until there is an incident. Most pads I fly into have at least one or two faults with them; some are very hazardous to operate out of. There are at least two pads I fly into that are in areas without security or fire support inside of parks that are used by the public. The list of pads with problems (hazards, limited approach/departure, no security) is longer than the pads that meet everything described. To name a few: *XYZ Hospital-1, (Location deleted)* has an FAA approved noise abatement procedure that takes the helicopter over the hospital with numerous antenna on the roof when there are acceptable steep approach routes without 100 foot vertical descent. *XYZ Hospital-2, (Location deleted)* had a landing area smaller than what we could accept for a "scene" landing, is full of obstacles, and has limited approach and departure paths. *XYZ Hospital-3* usually has one or two of three windsocks without socks and is a difficult approach due to it's location. *XYZ Hospital-4, (Location deleted)*, lands in a public park without anyone attending or securing the LZ; *XYZ Hospital-2* (again) has no lights, uses barely visible strobes; *XYZ Hospital-5, (Location deleted)* has one approach and departure path that is becoming overgrown by the trees that haven't been trimmed in excess of 10 years, and has obstructions near the pad; *XYZ Hospital-6, (Location deleted)* lands at a National Guard Armory without any support; *XYZ LZ, (Location deleted)* hospital lands at an abandoned ... parking lot between 50 foot light standards; *XYZ Hospital7, (Location deleted)* has numerous cracks on the pad, limited approach/departure options, and they have lighting that is a hazard to the tail; *(Location deleted)* Heliport in ... has green lights that have faded to amber and are indistinguishable from the surrounding lights; these are just examples of the hazards we face daily. That there are so few incidents is a credit to the piloting skills of the EMS community and a testament to dumb luck.
86. Approach zones should include slope info.

87. Illinois has an outstanding heliport program in place, just about all that I have been to are top notch. Missouri is on the other side of the spectrum, there seems to be little thought or approval process to designate a place a heliport/helipad
88. Hospital heliports seem to always be an afterthought rather than a planned design. Just because operations can be conducted at some of these facilities does not mean that they could not be safer if some effort went into the design. No regulatory teeth allow this practice to continue.
89. Better charts.
90. My employer is going to great lengths to transform its fleet from twin to single engine helicopters for the obvious cost saving benefits despite the fact that EMS ops so typically force pilots to operate in the hazardous zone of the height/velocity charts. The FAA has ignored this situation so long that the Operators believe they have tacit approval to operate routinely in this unwise and unsafe manner.
91. #32. "Any heliport related concerns that I have brought to the attention of my company have always been investigated and acted upon in a timely manner?" Investigated? yes. Acted upon? Only if it didn't inconvenience or annoy a customer. #41. "None of the heliports in my area of operations present any unnecessary or unacceptable risks?" None of the heliports I use - why would I use one that presents unnecessary or unacceptable risks?
92. Hospital heliports are an afterthought. Hospitals should be required to have their heliports inspected by a helicopter pilot and an aircraft in all wind conditions. FAA should employ helicopter pilots that have flown helicopters in the environment they are inspecting, not airline pilots that were given a rating.
93. Some hospitals refuse to install an improved heliport. Denial that they need a heliport results in operator landing in streets, parking lots, and parks.
94. All this feces was for Heliports and not where we do business. It is a total waste of time for me. We do not use the big downtown "heliports" Get a grip!
95. I'm an AG- pilot. Most time I land on trucks to reload chemical. The pads are just big enough to put the skids of my helicopter on.
96. Let the FAA regulate and certify all public use heliports.
97. Pilots should have the legal authority to close ANY heliport that presents an unacceptable risk. Most times our recommendations are ignored by hospital administration with a "too expensive" excuse, and company managers are more interested in keeping hospital administrators happy than listening to "pesky pilots".
98. Many helistops (for there are very few heliports) in our area have no security, no fencing, no signage to warn the public, no windsock, no fire extinguisher and demand a vertical approach/departure. Newer ones have shown significant improvement and one hospital even solicited our input as to what factors should be taken into consideration when constructing the pad (we referred them to the AC)... but they failed to implement even some of the most basic considerations, save for obstruction lighting which they did very well. We need to be careful what we wish for though. Sure, better standardization and more safety features would be great, but how bad is the risk and how much do we have to stand to lose or gain if we demand federal oversight of every location that a helicopter lands? We might unduly limit the number of places from which we can operate. After all... if we can land in a farmer's field without any markings, lights, etc... a helistop is generally safer and a step up from an unimproved site!
99. Unless I land in a big city, often there are no security. I have to guard the A/C while the crew is getting the patient.
100. XYZ Street Heliport (*Location deleted*) in my opinion is an accident waiting to happen. They could use a pier in a T formation much like the Downtown Heliport for ingress and egress.
101. Heliport design must be based for aircraft needs not building or architecture needs. A vast majority of the time the structure was constructed after the fact, leading (in my opinion) to many small concessions which when added together with the other various operational complexities creates limited margins of safety.



102. Thanks for the interest.
103. Do it safe, do it low cost and minimal regulation.
104. Heliports always seem to be an afterthought in all aspects, including where they are placed, their size, construction and operational budget, maintenance, safety and security. The public perception is that "helicopters can do anything". We as pilots are also guilty of furthering this perception by accepting unnecessary risks in getting into and out of these heliports.
105. The FAA needs to take a more active role in making hospital helo landing pads safer. With respect to enforcing safe obstacle clearance, zone size, and clear approach & departure lanes.
106. Will this survey actually make any difference that can be tangibly measured?
107. Safety and emergency response training should be required for anyone working at a heliport.
108. Never landed at a public heliport, only private hospital owned pads, or owned by County Govt.
109. Individual Pilot skills could effect how safe a pilot feels landing at some LZ's.
110. Construction after heliports have been built, without consideration of existing approach /departure paths, are a major problem, especially in large metro areas.
111. Many landing places I am required to operate into and out of are not heliports, but landing zones picked by area First Responders and are used on a normal recurring basis.
112. NO pad should be designed or constructed without a panel of pilots being involved and consulted.
113. A certain person in my Company feels he needs to get involved in area's that he has no expertise in. He is a non-aviation manager getting involved in heliport design and aviation regulations.
114. Particularly Hospital based heliports, prior to approval for operations, shall be inspected by FAA Helicopter flight experienced Pilot/Inspector.
115. I'm a private pilot working on my commercial rating. I operate out of KBKL. I'm NOT a working HEMS pilot.
116. Some of the smaller hospitals in the area don't have the proper personnel to assist in the security.
117. The FAA certification of Hospital Heliports depends entirely on WHO was the FAA guy doing the inspection and how powerful was the Hospital that owned the heliport, or how powerful and vocal was the local political authority. The FAA's guidance on Heliport standards is on the order of "that would be nicer... or that would be desirable", but the FAA, as an agency, doesn't have the cajones to stand up to the Hospitals or to the local political authority. SOMEBODY needs to 'force' a standard on our industry. The current very wide variation in Hospital helipads is pathetic. Especially at small town Hospitals where eventually somebody is going to get killed.
118. There are NO heliports in my area so all the questions listed above don't apply - AT ALL - These questions are a loaded question system to prove the OBAMA BS administration system to kill general administration.
119. To what use will THIS survey be put? Will a compilation of answer/data be published like the survey itself? We are very impressed at the perceptiveness of this survey's questions! Well done, folks. Now. Let's see what is done with the info. . . . .
120. We have many issues with "Noise Abatement Approaches" which are unsafe due to wind and approach path, but it's more important to "fly neighborly" than use safe approach/departure routes.
121. Can't think of anything
122. Elevated heliports are generally much better at providing obstruction clearance for takeoffs and landings while minimizing or eliminating the approach/departure "rotor wash" hazard even though fences may keep people away from the hover/landing area./touchdown area.

123. Question #4 I believe, should include the rating of CFI & CFII - They are a higher rating than ATP...Especially in helicopters. Thanks Blair
124. "Weather reporting stations installed when no airport weather reporting is available (by telephone) within 20 miles; A standardized use of 123.025 nationwide when a heliport lies beyond 10 miles from the nearest airport CTAF/Tower/Unicom"
125. Some copter pilots don't fully understand LTE and what causes it so any heliport design needs to help these newbie's. Designs need to address safe entry and safe exits to avoid LTE.
126. I've raised safety issues about hospital heliports many times through the years, and my company always defers to what my program manager (an MD) wants, which is to continue status quo.
127. Hospitals tend to place a helipad as an after thought with no regard to safety of the helipad.
128. Much more public heliports in various useful locations. Like anywhere their is a parking garage, or parking for say 150 cars!
129. Not all the heliports in my area have heliport identifying lighting.
130. "This survey is clearly designed to address NEMSPA's agenda. The first page leaves out a lot of important criteria, the second page is too categorical in the use of ""all"" or ""none"" statements. For instance, if I operate at multiple helicopter landing areas and only one fails the test, I have to ""strongly disagree"" that ""all"" meet the question's criteria. Such an answer indicates a systemic problem which doesn't exist. Some of the questions about reprisals and management responses to concerns have nothing to do with the design of a heliport. I wish you would be more open about your motivations, and how you intend to use the results of this survey. In sum, it's a flawed survey. You should have consulted an academic or scientific organization if you wanted true results. Instead, it appears a political tool. I am seriously concerned about safety and heliports, that's why I'm filling out the survey. I just think you could have done a better job at neutrality or explained the partisan perspective you're trying to support."
131. Keep dogs off airports, or restrict their movements.
132. I'm in the military stationed at Ft. Rucker, AL so I'm not much help in addressing concerns at non military installations.
133. About 70% of the heliports I fly into are great. The rest are acceptable with minimal risk and options for alternates if weather or winds prevent a safe landing.
134. More education for operations at smaller airports where the feeling is that helicopters and small aircraft don't mix.
135. I would like to see low cost weather reporting at all hospital helipads to better facilitate preflight planning and future instrument approaches.
136. There should be some oversight of heliports. The FAA in our area does not have the authority to help us with safety concerns because the hospital helipads are private property.
137. I am a low time private helicopter pilot and I do have a commercial single and multi engine instrument rating. There were several, if not the majority, of the questions on this survey that did not pertain to the flying of a private pilot. All of the heliports that I have operated in and out of have been private residences, most of which conform to the standards of both the FAA and the NH Commission of Aeronautics. I don't have a lot of experience at night landing at heliports with lighting, but I will say that with the spot light on my helicopter I can see my LZ's just fine.
138. Though I only hold a private ticket, part of my job is unloading patients off the local EMS helicopters. The regulation side for once the chopper gets skids down is pretty much absent in not only emergency (crash/hard landing) training but also security for the area especially in urban/hospital environments.
139. Many times we use airports for landing and need to interact with aircraft traffic. Uncontrolled airports offer the greatest challenge.

140. I'm more bush pilot than city pilot, so my LZ's are usually rough in nature. It would not be appropriate, or perhaps even wise to push for unilaterally uniform heliport standards when such ops are required. However, in publically accessible urban areas, I agree, simply for the sake of public safety, there should be at least a minimum standard for clear approaches and TLOF size, in case of last minute bad weather landings.
141. I see more IFR operations coming to hospital and public use heliports. Criteria for approach lights and vertical guidance lighting should be included based on helicopter flight characteristics.
142. The problem I see is that there is no designated agency to oversee the standards as set forth in the above mentioned AC. The FAA is supposed to oversee this in MO but a lot of times those people don't even know what is in the AC and when they find something they allow a "variation". What it comes down to is the pilot critiquing it and a lot of them don't want to make waves. So there we have it. Some of these heliports have been used for several years and it is difficult for a "new" person to come along and straighten it out.
143. Some of these heliports are located in urban areas and the cost to bring them to the standard in the AC would be very high.
144. Some of my answers were based on the fact that much of my flying was in and out of unimproved areas. Also I have not flown commercially for over 2 years
145. #20. I have not read the FAA/DOT Circular/Advisory on heliports but, I strongly suspect that some, particularly ground based heliports I land at, do not meet requirements. #20 - 43 get to the crux of the issues w/ heliports. Try landing on the XYZ-1 or XYZ-2 Hospital of (*Location deleted*) helipads in a strong north/northwesterly wind. Hang on and, watch that torque, mister.
146. At least two clear app. and dep.
147. All of my helicopter flying is in and out of small airports that cater to small fixed wing aircraft primarily. Many of these questions are not related to the type of flying I do.
148. We may not need runways, but clear approach/departure paths would be nice. You know, the kind that also provide a safety area to set down upon departure if something goes amiss.
149. FAA regulations (and helipad requirements) should NOT be mandated to follow NFPA recommendations.
150. Noise abatement procedures should and are always at pilot discretion especially during elevated pad approaches, as the winds can be a challenge.
151. Pilots should be made aware that landing on the "H" is often not a safe option. I pointed this out to a new pilot recently after landing and noting that his tail -thankfully high and short - was over vegetation.
152. Keep lighting flat to ground level.
153. Should be standardized and placed in the AIM.
154. I feel my company does a good job of investigating heliport issues. They can't force a hospital to spend money to improve a pad or even clear obstructions on the approach or departure. Customer relations can be a tricky business.
155. Regarding Question 16, I land in the center and forward to allow access to the rear-loading clamshell doors (this was not one of the choices).
156. We don't need any more regulations. Stop it now.
157. Q31 is so important. At my local heliport, people that have no knowledge of helicopter operations are making planning decisions about the location of obstructions (buildings and towers) without input from the pilots that operate in and out of the heliport. In my opinion, this will get someone hurt.
158. Question 15 depends on the heliport. All of the answers would be yes depending on the size, obstructions, egress, etc.

159. Often I have suggested to management especially as they redesign their facilities the need for an aviator to be present in planning. Too often designs are completed and construction begun with no aviator input and little regard to helicopter and pilot limitations. Heliport location remains largely either an afterthought without concern or if planned given minimal consideration to practicality.
160. For me lighting, a windsock and enough online info is the most important. Sometimes online graphics of the approach and the set up to create situational awareness (pictures) could be an great advantage.
161. "This survey information should be handled very carefully and as written can provide minimal conclusive evidence. Many of the questions were ambiguous and did not address the huge problem of hospitals without heliports, that meet the guidelines within the heliport advisory circular, calling for patients to be picked up or delivered to their facilities. If a hospital receives or refers patients by helicopter it should be mandatory that they have an "approved" heliport. We as an industry (air medical) seem to be afraid to make heliports a requirement for fear of restricting revenue. As a matter of fact this should be a part of any medical training curriculum at the EMT, paramedic, nurse or physician level. In my further opinion there should be more "musts" and less "mays" in the advisory circular and much of it should be regulatory. Heliport guidelines should be in the Architect/Engineer design/construction handbook for hospital development and while it's been a while since I reviewed those documents I believe it is still not."
162. All hospital heliports should have to follow some sort of FAA guidelines, but we need to apply common sense and not over plan the helipads, keep it simple.
163. Get the FSDOs to hire Helicopter Pilots for Helicopter Operations and not some numb nuts Fixed Wing ASI or worse yet an Avionics Inspector!!!
164. Allowing more new heliports and helipads to be built in safer locations is the fastest way to improve operational safety. Heliport sighting and permitting must become the pre-emptive authority of FAA, not State DOTs or Municipalities, who are hostile to aviation interests, have minimal knowledge or understanding of helicopter issues and aviation requirements and are politically motivated only by noise complaints from residents. As long as local governments control the location of heliports, operational safety will be at high risk.
165. Pad lighting
166. Most of the heliports I operate out of are "backwoods", unimproved areas, not professionally designed and constructed heliports.
167. I just wish there were more public heliports in the San Francisco Bay Area.
168. It should be required that anyone building a heliport to be utilized for public use or EMS have an experienced commercial helicopter pilot as a consultant for the entire project, from design through construction. Consultants who are only fixed wing rated don't have a true understanding of what a helicopters performance requirements and limitations are. In my opinion this would reduce hazards, and enhance safety for both day and night operations.
169. Using terms like ALL and NEVER are totally useless in surveys. This is a bogus survey, poor job!
170. #43. Some heliports only have a fence as a barrier to not enter during helo operations but would not prevent a security incident from occurring.
171. There is a great deal of inertia not to improve medical heliports. It comes directly from hospitals involved due to money considerations.
172. Limited need for heliport usage. Occasional at best.
173. These hospitals seem to always put the helipad in the worst area due to trees, light posts, parking lots etc. There's one that has 50 ft palm trees around it. You have to approach and depart vertically. Most are not designed with A/C performance in mind. Always in the shaded area of the height velocity chart, to avoid obstacles. It's tough at times in 115 degree heat and no wind.

174. Good survey, thanks for the hard work.
175. "Parking spaces between helicopters should allow at least 10 feet between rotor diameters of each Helicopter. The safest heliports have a separate Takeoff and Landing area and taxi lines to the parking areas. Rooftop heliports are acceptable if the helicopter is twin engine and has the ability to takeoff and land to the rooftop in the event of an engine failure or continue the takeoff if the engine fails just after moving forward off the building. The safest heliports are on the ground with sufficient area to land or takeoff in the event of an engine failure."
176. Need a lot of work.....
177. Develop and enforce a simple, safe and consistent standard to heliport design.
178. The current trend of placing windsocks very close to edge of helipad is a hazard. They should be nearby, but not at helipad. In some cases, multiple lit windsocks at various levels are beneficial. Many are not lit or poorly lit. In addition, the trend of floodlights, aimed up into the pilot's eyes are a hazard. Surface flood lights should be aimed to illuminate the surface, but not shine into the cockpit.
179. Read the advisory circular the go look at ANY helipad. NONE meet the guidance. Nothing will change until the word ADVISORY is removed.
180. "One of my pet peeves is the lack of a bathroom at hospital heliports. I've been to a great many brand new very well designed high dollar roof top hospital heliports and each case the pilot has to go several floors away a long distance down halls to wash hands or go 10-100. Several of these heliports have trauma rooms just inside the door but no bathroom. Also at many heliports the pilot is expected to stay near the heliport so as to move the helicopter in the event the pad is needed by another helicopter. A nearby helipad has been repainted and had new LED lighting installed but the LED lights are not visible with NVG, Now there is no money to replace the lights. Thanks good survey."
181. All ground based heliports should have a fence. It will not prevent someone from accessing, but it is a deterrent.
182. Your survey is essential to our industry. Thank you.
183. Glide slope indicators that protect obstacle clearance would be great for night operations.
184. Many of the "Heliports" at which I've had to land, fall far short of the FAA AC Guidelines as far as design is concerned. Most of these are pretty old pads which have been around for thirty years or possibly longer. I believe these older pads need to be updated and upgraded, and I think the institutions which own and operate these pads should be required to do this. During design consult with a helicopter pilot who is going to land and takeoff from the helipad. Prohibit the use of green helipad lights since they are invisible when using NVGs
185. Question #15 is bogus. Landing to drop and pickup or landing to shutdown. 2 separate issues with different answers.
186. Certification of Heliports, in my opinion, should be no different than that of a civil airport. Hospital based pads specifically operate as "private" facilities, even though they serve a very public need.
187. Helipad design and safety in Missouri is non-existent. Hospitals build it where it's the most convenient for them and unobtrusive. Local pilots should be consulted.
188. Blinding lights at, around, and near.
189. It seems that heliports are place as an afterthought in areas that are "left over". For instance a fire department put in a helipad to EMS and LE use in a rural area. The intent was good, but it was placed in an area that was dug out to construct the roadway placing rotor height about chest high when you walk up. To top it off, it was built directly under power lines requiring a vertical descent to an area next to the pad, then side stepping toward rising terrain. I will not use this pad.

190. Heliport safety is never going to be magically granted by a regulation of circular. Safety is everyone's job and it must be tempered by experience. If a pilot feels that an operation is truly unsafe and that individual does not pose the fortitude to exercise their duty as pilot in command that individual is going to be involved in an accident. Good luck with your survey, I'm sure you will learn a lot of things that have already been learned. There are no new accidents only new faces.
191. A VASI system designed for helicopters in and out of helipads with obstructions for night use would be a great asset.
192. A lot of helistops used for night ops are not properly lighted or are using the wrong color lights. One in particular uses taxiway recessed lighting which you cannot see until you are on short final! In the last 10 years no one has made any corrections to any helistops even with repeated comments and corrective recommendations!
193. Operational and functional wind socks and beacons at hospitals. Standardize perimeter lighting for night operations.
194. Heliports and helipads are different things.
195. As a military SAR / Medevac pilot, there have been occasions I have been unable to land at a hospital pad due to hospital based HEMS, forcing a landing at local airport with patient being transported via ground.
196. Heliports around my area of operation never get re-inspected once they are on line. Some are 25 years old and surrounded by buildings, power lines and trees. Lots of dangerous hover holes out here because of a lack of oversight from anyone.
197. I don't need a runway to land a helicopter. I sometimes land at sites (not heliports) where coming straight up and down is the only way in. It is not preferred, a helipad should have at least one clear path for departure. Having Two increases usability, but I wouldn't say safety. It may keep some reckless pilots out of trouble for a little while, but a prudent pilot knows when he can't go in or out of a one-way helipad and is no better or worse off. I started to read the new AC, about 30 minutes later I was so discussed I threw it away.
198. The issue of fences surrounding the heliport. Pros and cons, heights.
199. No need for "touchdown/position circle" marking. For hospital helipads, Minimum TLOF=20'x20' / Minimum FATO=TLOF+30' / Minimum Safety Area=FATO+10'. TLOF must be flat and clear. FATO or Safety Area can have <8" lighting or flush lighting. All hospital heliports should be licensed by States (as applicable), registered with FAA and charted. Hospitals should have staff that know, understand and enforce helipad standards. Bi-annual inspections, paid by hospital, should be done by FSDO or State DOT. Patient destination heliports should meet requirements of AC for heliport design. Requiring Fire Code standards is stupid. More importantly, we need an adequate clear area (TLOF+FATO+ Safety) for the physical footprint of the aircraft and one clear path in/out. For SE operations, need an area (e.g. green space) along the approach/departure path adequate for emergency landing in the event of engine malfunction. Especially true for elevated helipads in urban environment.
200. Get the local idiots out of the mix. They restrict the use, local epa. dot. mayors & political hacks have no clue.
201. Removal of obstructions on approach and heliport.
202. Some heliports need to be elevated somewhat above barriers, like wire, poles, light fixtures, etc.
203. Cal DOT should NOT be in charge of heliports and design and safety. They have NO idea what they are doing and never consult any of the pilots.

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- End of Appendix A -

**APPENDIX B: Question #6:**

**In your geographical area of operation, who has oversight of heliport design, construction, licensing and safety?  
(Select all that apply) / (Other)**

**Note: The comments for this question have been sorted alphabetically in order to better illustrate the number of times that an organization was cited as an entity with heliport oversight.**

**Comments:**

1. Air Methods, Air Life, Fire District ... it depends on where
2. Air[ort Authority
3. All states
4. Business
5. Cal Trans
6. Cal Trans. and the FAA Heliport Design Guide
7. Camarillo, Oxnard, Santa Paula, LAX
8. CBP Homeland Security
9. Certainly isn't the FAA!
10. Coast guard
11. Company
12. Company
13. Company
14. Company
15. Company owned
16. County
17. County
18. Customer - the oil production company
19. Depends on financing.
20. Developer
21. Different agencies in different places, no consistency
22. Director of airport
23. DOD
24. DOD
25. Engineering consulting firm
26. FAA
27. FAA
28. FAA
29. FAA
30. FAA
31. FAA
32. FAA
33. FAA
34. FAA
35. FAA
36. FAA
37. FAA
38. FAA
39. FAA
40. FAA
41. FAA
42. FAA
43. FAA
44. FAA
45. FAA

46. FAA
47. FAA
48. FAA
49. FAA
50. FAA
51. FAA & NTSB
52. FAA (Maybe?)
53. FAA (Myself-I am a FAA ASI)
54. FAA branch in Kansas city
55. FAA FSDO
56. FAA Regulations
57. FAA, US Navy
58. FAA/Hospital leadership
59. FEC to my knowledge
60. Federal
61. Federal
62. Federal
63. Federal
64. Federal Government
65. Federal Government
66. Federal Government (NPS)
67. Federal Govt/Military
68. Federal UFC
69. Feds
70. Feds
71. Fire control
72. Fire Department NFPA
73. FL Army National Guard
74. Forest Service and National Park
75. Government
76. Government agency
77. Helicopter safety advisory committee HSAC Gulf of Mexico
78. Hospital
79. Hospital
80. Hospital
81. Hospital
82. Hospital
83. Hospital
84. Hospital
85. Hospital
86. Hospital
87. Hospital
88. Hospital Admin.
89. Hospital building the helipad.
90. Hospital owned helipads
91. Hospital(s)
92. Hospitals
93. Hospitals
94. Hospitals
95. Hospitals
96. Hospitals
97. Hospitals
98. Hospitals



99. Hospitals don't seem to take aviation into account when designing where to put the helipad
100. HSAC
101. Indian Reservation in cooperation with the FAA
102. Individual hospitals with FAA approval
103. Insurance company
104. Las Vegas FSDO
105. Local & FAA
106. Local airport authority
107. Local Government Idiots (EPA, City, County, State)
108. Military
109. Military
110. Military
111. Military
112. Military
113. Military
114. Military
115. Military
116. Military
117. Military
118. Military
119. Military
120. MILITARY
121. Military
122. Military
123. N/A
124. National Guard Bureau
125. National Park Service
126. NH Aeronautics Commission
127. NO ONE
128. NOBODY seems to be watching
129. Offshore Oil Companies
130. OGP
131. Oil companies, State and local Gov.
132. Owner
133. Owner/Operator
134. 1Personal
135. Port Authority
136. Port Authority or NY
137. Private
138. Private
139. Private
140. Private companies
141. Private company
142. Private Corporations
143. Private landowners
144. Private ownership
145. Private, NPS
146. Privately built
147. Privately owned
148. Some have FAA specifications
149. State Bureau of Aeronautics
150. State Park Authority

151. States in area have aviation administrations but they refuse to get involved in design, construction, licensing, and safety of private-use heliports. Even though air medical helicopters are providing a service to paying public under part 135 the hospital heliports are considered privately owned with zero oversight. States in region don't license heliports but they license elevators and escalators.
  152. States regulate, municipalities do it through zoning, have to meet all the Govt. regs
  153. The Corp. that operates the remote site.
  154. The owner of the helipad
  155. Typically fly in to hospitals. Our Base was designed by the local municipality
  156. US Army
  157. US Forest Service
  158. US Government
  159. US Government
  160. US Military
  161. US Military
  162. US Military/Govt.
  163. USCG
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- End of Appendix B-

**APPENDIX C: Question #8:****From a safety and usability standpoint which type of heliport do you prefer?****Comments:**

1. I don't like the idea of the public having access to my aircraft if I enter the hospital to assist the crew.
2. Greatly depends on obstacles around.
3. Elevated in the general sense of the word. elevated only enough to maintain security and clearance from obstacles and bystanders.
4. As long as it meets size & weight criteria
5. Depends on situation required for use.
6. Too many variables at play to determine a general preference. I've been to several elevated pads that were significantly more risky than ground based pads, and vice versa.
7. Normally fewer obstacles and typically, better fly away options when you're higher above the ground.
8. Elevated is just more "secure". Each one is unique and has their own problems/advantages.
9. I particularly appreciated elevated helicopter decks when we used twin engine equipment, which we flew to Category A performance standards, since departure from the surface normally provided decision height or better right away. But even with single engine equipment, I like the security that elevated decks provide.
10. Safest and more secure than ground based.
11. The type of heliport should be based on the location and accessibility.
12. Elevated is great from a safety stand point. Throwing dirt and dust into people is less of a concern. People walking up to the helicopter who are not suppose be there, are not much of a concern. A lot of the ground based pads you go to are ones that the hospital had left over. Obstacles and people are a constant worry. I've come out before and had a car parked next to my helicopter, because security had to go use the bathroom.
13. Depends more on obstacles, security, lighting, size and condition than whether it is elevated or on the ground.
14. Depends on local conditions (wind, population, access, space available, convenience, etc)
15. "To me, this is the safest because you don't have to worry about someone walking into your LZ while you are landing and the winds are more predictable. It is also better if you are loaded close to max."
16. Prefer elevated provided it is designed properly.
17. Located at an airport
18. Better Security!
19. Some elevated are better designed than some ground, and vica-versa.
20. Clear, shallow approach path without obstacles, and safety from onlookers/traffic. Pads that don't require OGE power or Max performance takeoffs.
21. Better security, usually fewer obstacles, only bad when it gets really windy due to all sorts of vortices and up/down drafts.
22. I prefer elevated because of the additional obstacle clearance.
23. Quality of the heliport is more important than whether it is elevated or ground level, although elevated does give a greater chance for security.

24. As long as it is safe and has some method of security I'm OK. There are numerous pads that don't offer these features that we regularly use.
25. I prefer ground based, if obstructions are not an issue.
26. Flying into downtown I definitely prefer elevated. Somewhere on a busy airport ground based is fine. For sight seeing spots I would prefer elevated since it helps stay away from others.
27. It depends on where it is. At an airport, ground level is fine. On it's own, elevated is good, because it keeps you above most low obstructions, and keeps people and animals away.
28. The heliports I've used are put where they need to be. I as a pilot need to be able to flight plan and figure out if I'm capable to land there or not.
29. They seem to locate pads by power lines and towers.
30. Elevated pads have less chance of damaging nearby vehicles or injuring people on the grounds.
31. Depends on obstacles and prevailing winds.
32. Many hospital heliports at ground level have poor security measures.
33. I find that it is heliport dependent. Some rooftops are great, some ground based are not, and visa versa.
34. I have only used ground-based heliports.
35. Winds are steady and somewhat predictable. Fewer obstacles like wires, poles, trees, and other landscaping.
36. Makes pedestrians notice when walking onto the pad.
37. Less Obstructions
38. Better for security, safety
39. Elevation to minimize approach and departure obstructions.
40. It depends on the location, surrounding obstacles and terrain.
41. This depends on approach angles, associated hazards, wind issues, etc.
42. Depends on the location of the hospital and the surrounding area.
43. Elevated pads are typically set above the obstacles (towers, buildings wires, etc.)
44. Because of the nature of our work, I feel safer on a roof top pad, away from vehicles and pedestrians.
45. Obstacles and approach / departure path clearance are important for both elevated and ground level.
46. Safety
47. Rooftop is away from cars, people, and parking lots, but gets varying wind effects from the structure it's built on. Ground tends to get more complaints and draws bystanders a bit too close. Pros and cons to both, indifferent. Just happy to have a refuel hose on whatever pad I base out of.
48. Often times it seems like the location and construction of hospital helipads are an afterthought with close in obstacles, cars parked right up to the helipad and zero thought given to ingress/egress routes.
49. As long as approach and departure directions allow for "into" wind operations...and yes, I really mean that I do not care about noise abatement.
50. All serve their purposes. Key is clearance in the area, proper signage, windsock, etc.
51. dictated by location, use and conditions.

52. Having a ground based system allows for less opportunity to have something go wrong, i.e. restricted landing direction, canyon type approaches to a pad above the ground, minimizing wind and rotor wash problems.
53. About to start a safety program which checks out company Heliports at Plants, Dams, and company building.
54. EMS- Most ground based pads are usually a steep approach due to obstacles (Parking lot lights, Building). In addition, the ground based pads are easy access for pedestrians leaving the helicopter unsecure if waiting on med crew and patient.
55. Ground based avoids pinnacle operations problems, but sometimes elevated eliminates nearby obstructions.
56. In urban areas elevated - less risk to others and more secure for aircraft.
57. There are benefits to both. Winds on an elevated pad can create problems, but the ability to transition to OEI flight is enhanced.
58. Elevated are better in urban settings, ground based for sparse or rural settings.
59. As long as it is designed well.
60. I am not indifferent; off shore elevated are best and on shore a runway or fly way is best.
61. safety reasons pro/cons
62. Many ground based heliports have too many hazards surrounding them or are located in very busy/public locations with pedestrian/vehicle traffic in close proximity.
63. Roof Top departures are the most dangerous because it puts the crew in a critical airspeed regime for a few moments, and usually there are few available forced landing areas except for filled parking lots.
64. Although elevated helipads offer better isolation from civilian persons and property.
65. location and application determine which is safest and most useable
66. Elevated offers avoidance of obstacles and reduces adverse wind effects and often allows freedom of approach route. Ground-based offers safety and sanctuary of emergency landing opportunity and access for fire/crash rescue.
67. From a purely aviation based operational perspective, if the heliport is of a suitable size, I have no preference.
68. Depends on obstacles and ingress/egress.
69. Ease of repair when the helo breaks. Which in my organization seems to be a lot.
70. Elevated heliports provide for safer unloading of patients along with safer operations around buildings
71. Depends on design, location, and surrounding obstacles.
72. Elevated or rooftop heliports generally have fewer obstacles
73. Prefer rejected takeoff (land-back) areas
74. Depends on whether it is located within tall buildings or in remote locations.
75. I always like a place where I can put the tail rotor out of reach from the customers...hang it over the edge.
76. It should be appropriate to the site. Safety should always be the first priority.
77. I keep my helicopter at home and have my own unpublished Heliport. It does comply with FAA/DOT recommendations.
78. They are more secured.
79. Pros and cons for both.

80. Elevated as in rooftop pads adds security for the aircraft and much less danger to pedestrians.
81. Ground based with approaches and departures over water, such as NY City heliports (Wall Street/Downtown is best example).
82. In congested areas with lots of obstacles, I would rather operate above those obstacles at a roof-top helipad. If obstacles and traffic congestion are not an issue, ground based is certainly safer.
83. Usually tend to be more accessible with larger areas for maneuvering.
84. More likely to be above unannounced pedestrian traffic and vehicles, despite wires and building structure.
85. Hazards are generally fewer as are performance issues.
86. Reduced noise signatures and confined areas.
87. Ground based preferred, except when obstacles, congestion, geographic interference makes approaches and departures safer from elevated port.
88. Define approach gradients (slopes)
89. Ground based heliports are rarely arranged in accordance with the FAA AC and have plenty of obstructions.
90. "Safety - elevated / Usability - ground based"
91. for security of passersby and vehicle control.
92. Elevated for occasional FLIGHT ops, but ground-based for a base of flight ops and for MAINTENANCE ops.
93. Elevated that allows wind to pass underneath less turbulence.
94. Well constructed, ground or elevated are OK. Poorly planned and constructed, ground or elevated, suck!
95. Obstacle clearance is the most important factor.
96. It really depends on weather, design, surrounding structures, etc...
97. Ground, If not surrounded by the oldest and tallest trees and power lines in the city.
98. To many factors to influence either solely elevated or ground based options
99. Usually less obstacles and easier flight path. Most Elevated pads have multiple obstructions limiting approaches to include new hospital construction as well as large fans increasing the turbulence.
100. The heliport should be constructed to be safe, hold the weight of the helicopters that use it and constructed without any unneeded government regulation.
101. Ground based offers fewer mechanical turbulence issues, usually, but also has the worst security issues.
102. Both types have potential hazards, so for a given location, one may be preferred over another.
103. If no surrounding obstructions
104. In EMS, crowd control on ground bases helipads is always more difficult. That is not to say that ground based helipads can not be used safely, it just takes more planning in layout. Secondly if loaded heavy, it is easier to takeoff from a elevated pad versus a ground pad that might require a max performance takeoff.
105. Less chance of damage from rotor wash or interference from ground vehicles with elevated.
106. Each type can be suitable depending on a variety of factors, including obstructions, approach/departure paths, size, lighting and wind factors.
107. The majority of most elevated pads have been dangerously designed and its obvious that no pilots were consulted during the design and construction phase of these pads!!!!!!
108. "Ground for ambulance access. Elevated for security."

109. Ground based ensures you can remain on or above the Height Velocity Curve.
110. Usually better references during approach to a ground based helipad, also more options for an engine failure...
111. Both have their advantages, and drawbacks
112. For reasons of obstacles, prevailing winds etc.
113. They both have their hazards. Some elevated have fewer obvious hazards but require better power management, etc.
114. All depends on pad and surrounding environment
115. There is a need for both, depending on the facility served by the heliport.
116. Typically has fewer obstacles and presents less of a hazard to local inhabitants.
117. Depends on surrounding terrain
118. Ground pads at hospitals often require maximum power takeoffs and restrict your access in and out. However, elevated pads are becoming just as restrictive with hospital construction.
119. Maximizes distances under main rotors and separation from tail-rotor meat-slicers; better viz. in/out; better wind conditions, usually; possibly better auto-rotation from lower altitudes, immediately after T/O.
120. There are good elevated heliports and bad ground heliports, and vice versa. It's totally dependent on evaluating that particular heliport for obstacles, approach paths and departure paths.
121. I am indifferent since more often than not, many general aviation airports do not accommodate helicopters and/or have a heliport.
122. Both have their pitfalls and advantages.
123. It all depends on the immediate surroundings, of course.
124. Elevated heliports significantly reduce the danger to bystanders and the probability of striking an object - e.g. fence especially for confined helipads.
125. My general requirements are that there is good entry and exit routes that will provide me a safe landing if an emergency should arise.
126. Elevated heliports are more susceptible to updrafts, downwind and crosswind landings due to rooftop obstructions and noise abatement approaches. Also they are more dangerous for crews due to lack of perimeter fencing.
127. Ground-based pads usually present us with more security issues.
128. Landing at an elevated pad just opens up too many dangerous variables (winds, mechanical turbulence, OGE Power)
129. Security
130. I operate to mostly ground-based, from grassy areas to paved squares to riverside piers and barges to federally-funded NYC heliport and airports or all kinds, in charter and fractional ops currently
131. Elevated/ground rarely major concern
132. I feel that a rooftop pad with a breezeway for air flow is the safest and most secure
133. Known obstacles are main considerations prefer to operate from airports.
134. Each has it's pro/con depending on D/N, WX, Ground conditions...etc.
135. Ground based are acceptable if proper fencing surrounds the landing area. This is not the case in most of the area heliports.

136. For surrounding obstacles and wire clearance, elevated is preferred, though most add their own antennas and obstructions. For power loss/emergency, the greater issue with elevated sites is urban congestion below; usually nowhere to go, while ground based at least has a parking lot or some grass.
137. Depends on obstructions, prevailing winds, noise sensitive locations & available aircraft performance
138. Improved fly away capability if any drop down height is needed.
139. No experience with any other
140. This is what I am used to and therefore more comfortable with the ground based heliport.
141. I think this answer will be based primarily on an operators experience, and/or comfort factor associated with elevated platforms...
142. By "elevated" and "heliport" I assume we are talking about elevated helipads.... If an EMS aircraft is not available and a military unit conducts a self-MEDEVAC/CASEVAC, some of our platforms (H-60s, H-47s) are too large/heavy for standard hospital pads (especially rooftops). I much prefer a ground based helipad with plenty of room around it so that even if the pad is built for a 206, I can use it.
143. Usually less obstacles and pedestrians.
144. From a purely aviation perspective I probably prefer ground based. However, from a security perspective, I much prefer an elevated/rooftop heliport.
145. If they are built to the standard in the above mentioned advisory circular I have no preference.
146. Very situational and dependent on the associated environment.
147. Easier to check tail rotor prior to flight.
148. Given the geographical differences between heliports, each one has it's own unique benefits.
149. Hospital roof pads are more secure.
150. They each have unique challenges.
151. Depends on surrounding obstructions and weather conditions. More thought is usually given to design in elevated pads. Many ground pads at hospitals are placed without regard to obstructions in the flight path or ingress and egress paths. Such as very small pads placed at ground level within a group of buildings and electrical lines.
152. Winds make elevated heliport landings difficult to impossible depending on many variables.
153. Across the US there are many types of heliports, most of which are built the way they are because that was the only space available.
154. Ground based with a clear and protected approach/departure path.
155. Security and in some cases transportation from the heliport to the hospital entrance are challenges we often face. Elevated heliports usually result in no security issues and better transportation plans in place.
156. Elevated Heliports are easier to control personal around the aircraft to prevent people from walking into the tail rotor or under the tail boom. Also there is less dirt and debris kicked up by rotor wash.
157. Tail rotor issues.
158. Less turbulence from structures
159. depends on the situation
160. easier approach
161. The type of heliport design and construction should be predicated upon the safety and usability factors for a given location (i.e., a ground based heliport may be impractical and unsafe in certain given locations due to



- obstacles and cultural considerations, but safer and more practical in other locations). Don't sacrifice safety and usability for rigid standardization.
162. Normally 360 degree access and larger than ground based platforms.
  163. Generally less in the way of potential hazards if we stay AGL.
  164. Elevated heliports may provide better obstacle clearance, but ground-based ones are less prone to wind-related dangers.
  165. Depends on design.
  166. Helicopters are designed for flexibility and the ability to safely operate in all environments.
  167. As long as heliport is free of obstructions with good approach/departure paths in all wind conditions.
  168. I have not had the opportunity to use many heliports, but would like the chance.
  169. depends on approaches and obstacles
  170. Ground based with plenty of room for an approach from 280-300 degrees of space and not right next to the building.
  171. With no raised lighting. Flush lighting.
  172. Free of obstructions is of utmost importance.
  173. Elevated pads tend to be safer from an operating point of view and keeps onlookers away, and trash from getting blown around.
  174. Whatever conforms to ease of access and safest possible operation.
  175. Higher offers better go-around, and fewer poles and wires on approach/departure.
  176. Usually less obstacles and security.
  177. Elevated pads provide better security, less chance of bystanders getting injured or property damage occurring. They generally have more clear approach and departure paths.
  178. Most ground based require very steep approaches. Elevated pads are normally collocated with some form of structure (elevator shafts) and consequently are often wind hazards for landing aircraft.
  179. As long as the heliport is safe to utilize with proper ingress and egress locations, I have no problem with it.
  180. each location has unique advantages & disadvantages.
  181. Each type has its good and bad points. Ground based are too easily accessed by unauthorized persons, while elevated (rooftop) pads have an added safety concern with winds, up and down drafts, and overall available power in the aircraft.
  182. Either type, constructed appropriately and IAW with AC's for construction and clearances for arrival and departure paths, provides adequate safety and usability. The choice, to me, isn't about which type based on safety and usability; rather, it is about using either type that is NOT constructed IAW with current standards. Given a choice, I would prefer to use either type constructed properly IAW current standards, including properly sized and surfaced FATO's and arrival and departure path clearances, over either type simply designated as a heliport regardless of design standards or lack thereof.
  183. Above many obstacles.
  184. Obstacle clearance is paramount.....especially IFR departures because the pilot has sole responsibility for avoidance!
  185. In my experience, elevated pads have consistently offered the greatest security and flexibility in operational terms. Naturally, they have their own intrinsic shortcomings, but they are minimal.

186. Ground based heliports allow helicopters to operate with less power owing to the extended ability to use ground effect - if the pilot can use a normal takeoff profile, as opposed to more of a maximum performance takeoff, as one often requires on an elevated platform.
187. Elevated keeps you clear of trees and wires. Also usually provides for better approach and takeoff paths.
188. Too many helipads are surrounded by wires, light standards and large trees.
189. Elevated pads are acceptable when there aren't a bunch of taller buildings around them.
190. The helipad has to be the highest point for it to be safe.
191. Depends on the size of the aircraft and location of the heliport--other considerations are passengers, aircraft preflight/post flight, prefer ground based (for proper pre and post flights)
192. Heliports are built where they are needed.
193. Elevated, especially at hospitals, removes the aircraft from close proximity to automobile traffic. Most ground based pads have auto traffic issues.
194. Ground based pad's are normally associated with multiple obstructions. i.e. fences, cars, trees, power lines.
195. Dependent on location i.e.: city, downtown, airport, off airport.
196. Every heliport has its pros and cons, as pilots we learn to deal with each heliport by asking other pilots or charts for the port, its a learning curve so there all fun.
197. Depends on location, I would rather have an elevated pad in a metro area to prevent steeper approaches in the summer, and I like ground based in other areas if the approach can be made closer to a normal angle.
198. As a pilot with a safety background I prefer a ground level heliport. Typically the areas are larger, afford a fueling area and provide easy access by emergency personnel should the need arise.
199. Rooftops on buildings keep aircraft above many hazards.
200. Safer for others
201. This option was chosen for security reasons only.
202. All Heliports seem to have obstacles, restrictions and require diligence in their use.
203. Elevated or surface depends on surroundings.
204. Open area, clear of most obstructions.
205. Obstructions to wind on elevated pads can be worse than obstructions on ground pads that are almost always obstructed. No near obstructions so wind can be stabile.
206. Elevated because they offer a more secure, and thus safer, location.
207. Never landed on a certified raised heliport. Just landing areas built out in the field for utility work, and airports of course.
208. If ground based are behind or between buildings wind a factor. If elevated need approach and departure paths clear into wind.
209. Ground based must have a personnel deterrent (e.g. low fence) and no vehicle parking within 100'.
210. After its built (any type) The local idiots want to close it down/NIMBY. Its a losing battle.
211. Secured elevated pads keep untrained onlookers at a safe distance from the aircraft and rotor blades. The same cannot be said for even secured ground-level pads. People are unpredictable, and the best way to control the LZ is to put the aircraft out of "reach" of the general public.
212. Could be ground elevated, just not in a hole. so you can get above the barriers before you run into OGE power issues.

213. Varies. Some elevated are better. Some ground based are better.

214. Security

215. I prefer ground based. That being said, I prefer secured, maintained heliports to enhance safety.

216. Normally free of obstructions to flight.

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**- End of Appendix C-**

**APPENDIX D: Question # 9:**

**Based on your experience, from a safety and usability standpoint, rate your preference of the following heliport shapes.**

**Comments:**

1. I have had excellent, good, acceptable, marginal, and poor experiences with all shapes of heliports. No one particular shape stands out as better than another shape.
2. San Francisco, Ca has NO heliports, anything would be an intelligent improvement.
3. I have no preference on the shape of the heliport.
4. have not ever landed on triangular or octagonal pads .
5. I find the triangle least preferable because many pilots will automatically line up with one of the three corners - and this may not be the best landing profile.
6. In addition to lighting, painting preferred landing direction would be beneficial.
7. Can be any shape if the dimensions are adequate for ensuring clearance.
8. "H" most important.
9. A circle most closely matches the area used by a helicopter and allows for all wind directions.
10. Depends more on obstacles, security, lighting, size and condition than shape.
11. As long as there is rotor clearance all are good.
12. Not many triangular in my area.
13. Bigger is better, no matter the shape.
14. Safety and usability are based on the location, lighting and obstacle clearance. Not so much on the shape of the pad itself.
15. Not familiar with triangular.
16. Heliport shape makes no difference to me.
17. I think the shape is the least of the concerns, what does it really matter as long as it provides a safe area for helo ops.
18. Have never operated off of a Triangular Deck.
19. I never experienced a triangular helipad, but it is intriguing from the standpoint of identifying but size would make it a poorer choice than round or rectangle.
20. Shape has little to do with safety.
21. If you know what you are doing it does not matter much. A long running area is preferred in case of the need for an aborted take off or landing.
22. Never landed at a triangular or octagonal one before.
23. Shape makes no difference as long as they are large enough to accommodate the aircraft and leave crews enough space to move around the pad. They should have at least a two helipad parking area (minimum) at hospitals, or have an alternate pad.
24. Squares provide a better reference of forward and aft drift.
25. I have not seen a triangular helipad.
26. Shape does not matter to me.

27. Not really much difference.
28. Have not landed on triangle or octagon.
29. By square, I mean rectangular. a "Fly-Way" format creates more opportunities for zero-exposure take-offs and landings.
30. In all cases, helipads should be at least twice the size of main rotor blades (100'x100' at least).
31. A heliport can consist of multiple parking areas but usually one takeoff and landing area so this question is ambiguous.
32. Totally depends on the size of the pad.
33. Any heliport is better than no heliport. All shapes are fine.
34. I don't believe shape matter so much as size.
35. Squares are easier to land multiple aircraft, which tends to happen often here...we each take a corner. All shapes are fine.
36. Can't really speak from experience of landing in the different shaped heliports other than round and square ones. Placement based on careful planning determines how safe a heliport really is.
37. I think size has more impact on safety and usability than shape.
38. Depends on the size, clearance in area, signage, windsock. Shape is virtually immaterial.
39. Varies with location.
40. Square and octagonal allows for better landing direction planning and alignment.
41. I'm in a learning state which I will know what is best in time.
42. The pad size, surface condition, and markings are more important than overall shape.
43. As long as both skids are level when I come down.
44. The square provides a visual cue of drift or banking that the round or octagon doesn't, triangular is more difficult to judge altitude.
45. Heliports that offer clear areas free of obstacles, to arrive and depart what ever the shape.
46. Shape not a significant factor in safety.
47. Triangular and square offer less options for tail-wheel equipped aircraft alignment depending on platform size.
48. Having straight edges, especially aligned with primary approach paths, aids in visual references during approach and hover on the pads. This is especially true during Night Vision Goggle operations.
49. Triangular heliports need to be large enough to contain the dimensions of the aircraft being used, if they are, no problem, if they are not, I don't like them.
50. Not so much as shape but size of the heliport is the most important.
51. Poor question, has no affect on operations.
52. depends more on the size and the obstacles.
53. No real preference.
54. No knowledge of triangle or octagon.
55. Like square with room for second aircraft
56. Flat surface.

57. If the size is large enough, shape is irrelevant. The main issue is enough maneuver space for ground personnel so they don't step off the pad while working around the aircraft.
58. Easier to manage congestion.
59. I don't think shape is much of a difference. It mainly matters approach, departure, obstacles, etc.
60. Define approach gradients (slopes)
61. Shape has little relevance other can recognition from the air.
62. These answers based upon adequate size of touchdown area being large enough to adequately accommodate the machine you are flying.
63. Doesn't matter. The planning and construction matter.
64. After spending 10 years landing on small ships in the US Navy I can deal with any heliport.
65. Does not matter.
66. Triangles usually are more for indicating a spot to land on, but may lull people on the ground into thinking that they can approach but just stay outside of the triangle area... if large enough they would be okay, but usually they are small.
67. It's not the shape of the pad but what's around it. Power lines, trees, light polls, pad right next to the building.
68. Triangles limit number ingress/egress paths.
69. Size is the most important. Some shapes add for greater clearance and allow for different directions for parking.
70. Should be big enough to hold two helicopters, just incase one will not start and you need to land another one to fix it.
71. I've never had an issue with shape. Size and approach/departure paths are the priority for me.
72. The shape does not matter as long as the helicopter will fit.
73. As a helicopter pilot, shape isn't a concern. More about size being large enough to accommodate the aircraft safely.
74. More about size than shape.
75. The only shape I have ever dealt with is square. The ratings on other shapes are pure speculation.
76. Even though a helicopter can land facing in any direction (suggesting a circular heliport shape would be best), landing parallel to two sides of a square feels somehow more comforting psychologically.
77. Haven't landed to Triangular or Octagon pads.
78. Any size that's big enough.
79. I do not see the shape having anything to do with safety and usability...it is the structures and parking lots that surround them.
80. The shape is completely immaterial.
81. Area with more specific winds might require different shapes to help guide the pilot.
82. Triangle only seems to provide one entry/exit and could cause LTE.
83. Haven't flown to a triangle or octagon. In my experience, shape doesn't matter.
84. Possible need room for more than one Helicopter on the pad.
85. It is all about the approach path.

86. Safety, usability? Pretty vague terms, I can't think of how the shape would affect that except as below and in other considerations not covered here.
87. Triangular shows direction of approach.
88. Lighting is very important as well--especially night-vision goggle-compatible lighting
89. Rectangle with long axis aligned with predominate winds for the geographic location
90. I don't know the difference that shapes would make in helicopter operations.
91. Shape not as important as adequate area is.
92. With proper consideration just about any shape is acceptable.
93. Shape is less important than size and markings for both weight no go areas.
94. Two strips that fit my skids will do in calm conditions, but the more area the better for maximum safety.
95. If they are built to the established standards in the above advisory circular they are all great.
96. No exposure to triangular or octagonal.
97. Shape irrelevant. What stands around (obstruction) matters more.
98. "Square shaped heliports allow for the helicopter to be positioned diagonally within the pad.
99. I do not have experience with triangular or octagonal pads.
100. Honestly it doesn't matter to me, most of my landing is to off airport areas so I rarely land in something with the same shape ever.
101. The shape counts less than the size and obstructions.
102. Shape is not a concern.
103. Round or any design that is similar works the best because of the rotor system and the way it is designed.
104. Don't believe a triangular pad would work well for moving patients on and off the helicopter. More so if a small hospital was in charge. Helipads are usually an afterthought.
105. Although it really doesn't matter; I'm just used to round and square ones.
106. No preference
107. The painted surface design is very important for depth perception and rate of closure.
108. The shape of the pad does not matter if it is large enough and clear enough for safe approach, landing and egress.
109. Of course the size of the shapes is a factor. I like the "rounder" shapes because they form more of a uniform area for tail rotor clearance.
110. Should have a fence on the outer perimeter for security.
111. I've very limited experience with triangular or octagon shaped pads. I think round provide a more synonymous or compatible perception associated with the rotor disk but from a safety or usability standpoint no real difference provided the center point is clearly identified.
112. Helicopter empennage and instrument support structures obscure the shape of the helipad from the pilot at close range. Horizontal and fore/aft guidance lines within the shape are the only markings visible at touchdown. Location matters more than shape. Clearance from obstructions, trees, and power lines is far more important than shape. A flat, open, grassy hayfield with clear visibility on approach and departure is better than a paved surface of any shape situated among tall obstructions and rising terrain.
113. shape not as important as obstructions surrounding the heliport.

114. The most important are the obstructions.
115. None
116. It does not matter.
117. Large enough to accommodate two shutdown aircraft.
118. Size, over shape is more important.
119. Shape of what? TLOF, FATO, general area???
120. Really? Shape? What about markings, lighting and clear areas?
121. They all are acceptable based on obstacle clearance.
122. based on day time use only
123. A square gives more usable area to load and off load patients, as well as more maneuvering options for the pilot.
124. Square pads allow four parking direction options to optimize tail rotor safety and allow for safe start up and shut down in various wind directions.
125. size is important, not shape
126. Triangular seems to have too many restrictions for approach and/or departure.
127. Right angle corners maximize surface available on larger pads.
128. I really cant see how it would matter. I'm used to a circle marked in the grass.
129. I don't care, better than in the dirt or snow
130. Its not so much the shape ,but the location of hazards.
131. Shape does not matter so long as the pad is large enough and clear of obstacles (surrounding walls, protruding light fixtures, etc.).

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**- End of Appendix D-**



**APPENDIX E: Question #10:**

**Based on your experience rate the shapes listed for visual cues for judging closure rate, attitude, altitude and angle of approach?**

**Comments:**

1. No preference.
2. Not sure how shape has effect on these things.
3. In addition to lighting, painting preferred landing direction would be beneficial.
4. Hopefully no PIC is using the helipad itself as the primary cue for all these elements. Thus, in my opinion, shape is of little significance in this regard.
5. I use visual clues from the entire area, not just the shape of the pad.
6. Depends more on obstacles, security, lighting, size and condition than shape.
7. Visual cues are not strictly dependant on the shape of the helipad, but with the visual cues surrounding the helipad altogether. What is hardest is a large surface with no visual definitions, such as a solid color deck on a night landing when the edge of the helipad provides no further definitions (elevated, even if only slightly). A pilot needs some indication of lateral drift and height closure when only a few feet off the pad.
8. I think it depends more on the surrounding environment.
9. Heliport shape makes no difference to me.
10. Maybe round with a painted triangle would be the ticket. However, they all have to be the same size to judge any of the above. There is a lot more to this such as landmarks, slope of pad, secondary target to look at during approach. Land 10 times away from an airport and you know what I mean.
11. I do not see where shape should be used for visual clues.
12. Shape makes no difference, it's the terrain and visual cues around the pad that makes the difference.
13. I believe a triangular shaped helipad would assist with judging closure rates, etc.
14. I don't think that the shape of the helipad has much, if anything, to do with closure rates, etc. This seems like a really dumb question that wasn't written by a pilot.
15. Have never landed on a triangular or octagon helipad.
16. A rectangular shape provides the best depth perception options.
17. Closure rate is best realized by object while on final approach.
18. I've rarely landed to a triangle or octagon, so they are more difficult only for lack of proliferation?
19. Shape has no impact on visual cues.
20. Again: depends on the size, clearance in area, signage, and windsock. Shape is virtually immaterial.
21. Don't know at this time.
22. The pads are usually obscured by external lighting. The cues gathered from other sources (cars, lights, buildings..) are better than using the pad and its markings for determining rates of descents and closure.
23. If you can see one you can see'm all
24. I find that the shapes have little affect on judging these cues.
25. Its not the shape of the heliport its the markings that I use and the surrounding area for closure.
26. Square heliports seem to be easier for the mind to judge rate of closure, clearances etc.

27. shape not as significant as highlighting the shape to stand out for visual cues.
28. I think a helicopter pilot should be able to judge closure rate, attitude, altitude and angle of approach independent of the shape of the final landing area.
29. As long as the circular dimensions are used Size conformity matter for judging closure rates.
30. I don't really think the shape matters that much.
31. Completely irrelevant question. Who the hell made these up??
32. By using the overall surrounding environment to listed parameters, I do not rely solely on the shape of the heliport to determine these visual cues.
33. No knowledge of triangle or octagon.
34. Most of my visual cues comes from what's around the pad.
35. No difference
36. The person who wrote this obviously never landed a helicopter.
37. Does not matter
38. No preference-- lights and other factors are more important than shape.
39. A good pilot can land on them all.
40. Shape of pad has no effect but position of pad does e.g. Roof top or ground.
41. Haven't landed to Triangular or Octagon pads.
42. The shape is completely immaterial.
43. The shape of the heliport does not affect visual cues, rather the relative size and other objects in the vicinity. The shape is significant when there is a specific approach azimuth which must be used. Where the helipad appears in the pilot's field of view is the primary factor for the visual cues not the shape of the helipad.
44. Round will not provide the same visual cues needed for judgment of closure.
45. Shape doesn't matter.
46. I would say a landing area with four angular edges would be easier to judge.
47. Height/distance from a visual perception consideration. Never used a triangular or octagon.
48. As long as there are markings for center.
49. Daytime none are of great concern at night lights must be distinguishable from surrounding lights.
50. Depends on normal approach, steep approach, etc.
51. I've seen these shapes in different sizes, and without having a known size or way to judge it prior to approach, you can get a nasty surprise in finding out your closure was too fast when you finally realize it is smaller than anticipated - regardless of shape. But when size is known in advance, these shapes are easier to judge closer rate.
52. I find that the area around the heliport provides better cues. I had the luxury of light guided approach and glide path information at our private heliports.
53. Square gives you a better feel as to where the edges are and better orientation as to where to position the aircraft for loading and off loading.
54. different shapes do not adversely affect my approaches, for me anyway.
55. Shape irrelevant. Surrounding environment is more important.

56. I do not have experience with triangular or octagonal pads.
57. Doesn't matter to me, all I care is if the actual pad is clear of obstructions and it has a good safe approach to the pad.
58. Triangular would require less options on your approach path for judging cues.
59. I don't think that the shape of the pad makes any difference at all given all other visual cues available.
60. Equilateral shapes provide for a clearer sight picture and appear distinct during different types of approaches such as shallow, normal, steep, and pinnacle.
61. Again very limited experience with triangular or octagon shaped heliports. I do believe the shape has much less effect on the visual cues for judging the above than the heliport surroundings, colors or whether ground based or elevated.
62. Helicopter empennage and instrument support structures obscure the shape of the helipad from the pilot at close range. Horizontal and fore/aft guidance lines within the shape are the only markings visible at touchdown.
63. Surrounding ground more important than shape.
64. VASIs would be helpful without being too sophisticated. "Again, what are you asking about. Pad markings??"
65. I do not see a difference in the shape of the pad with regard to these concerns.
66. Same as above question: "Really? Shape? What about markings, lighting and clear areas?"
67. Again, it depends on the area, (city, country, trees, lights etc).
68. The shape of the area has nothing to do with the visual cues as stated. A pilot will use many things to judge these approach criteria, including the heliport itself.
69. I use references further out to judge rate of closure, windscreen position for angle, and RADOUT for altitude.
70. If you require a shape to determine these aspects of flight perhaps you are not cut out to fly helicopters.
71. No Comment
72. I really cant see how it would matter. I'm used to a circle marked in the grass.
73. Color is more the clue, dark pads tend to lose depth perception and surrounding area void of contrast will hinder the pads true location.
74. Never had any issues except with triangular shaped pads.

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- End of Appendix E-

**APPENDIX F: Question # 11:**

**Based on your experience, rank your preference of heliport lighting color for the Touchdown and Lift-off Area (TLOF).**

**Comments:**

1. Should be NVG compatible.
2. Blue and green tend to completely disappear when using NVG's (Rock Springs, Wy is a good example).
3. NVG compatibility.
4. Not much experience lights.
5. Blue and Green are easy to see, non distracting and are NVG compatible whereas Amber and White are not NVG friendly. It is always good to have lights which will allow pilots to have both options for LTOA.
6. In areas with many light sources; I would like to see a pilot controlled lighting system which can be activated and cause the touchdown area lights to flash for a few seconds - improving the pilots ability to find the touchdown area at night. I would prefer green lights because it would not be confused with blue (taxi lights) or white lights.
7. using a combination may differentiate from surrounding lights. Use of NVG compatible lighting is critical, as well as intensity.
8. White tends to be too bright. Blue/Green tends to not work well with goggles.
9. Blue and Green are hard to see at night and nearly impossible to see with NVG. Helipad lights are for finding the pad, not for the actual landing, so make them visible!
10. Depends on the surrounding lights of the neighborhood and if NVDs are used.
11. Lights must be visible when using NVGs.
12. NVG compatible lighting should now be required for all new heliport lighting and should be usable for non NVG use as well.
13. We use night vision goggles so blue and green are out. Prefer red for obstructions and amber for pad so that it is easy to distinguish the two.
14. Blue and green don't show up in NVG's.
15. We use NVGs and a number of heliports have been popping up with green or blue LEDs that are outside of the NVG wavelength and therefore are invisible through the NVGs. Efforts need to be put forth to ensure that only visible (though NVGs) led lighting is used.
16. Amber is the best. Certain shades of green are ok, but usually not visible from very far out. Blue is next to impossible to see when surrounded by brighter ground lights. White is very visible, but can often be blinding unless it is shaded properly.
17. Green doesn't lend itself to NVG use.
18. Amber and white seem to blend in to city lights.
19. Why not stay consistent with established airport color codes.
20. Depends on Goggled or not.
21. White can be too bright with NVGs if they are used for landing.
22. Where the lighting makes a difference is that it has to contrast with other lighting and it needs to be NVG visible. We had a helipad where they put in yellow lights and the hospital had yellow sodium lights in the parking lot. Made it difficult to discern the pad. They changed the pad lights to white and it made all the difference.

23. NVGs have blue green filters, they are very sensitive to Red and white lights. White also destroys night vision.
24. White blinds out NVGs
25. No experience with white or amber.
26. An excellent option is IR infrared for NVG compatibility.
27. Amber at a distance appears white, and white lights are every where so they are hard to discern from other ground lighting.
28. Unaided only
29. Green lights tend to be INVISIBLE under night vision goggles!
30. Depends on whether I'm operating under NVG's or not. White or amber is best for un aided. Blue is best for aided.
31. Above answers are for NVG operations. For non-NVG ops (inner-city helipads), Amber is an excellent color.
32. White to illuminate the TLOF with blue or red to outline the perimeter.
33. Lights need to be seen by both NVG's and naked eye. I am a proponent of Pilot controlled, dimmable lighting.
34. White is too easily confused with local lighting.
35. The other colors are used on runways. Different meanings.
36. Not enough night experience with different colors.
37. We are a goggle base, amber and white are very good unaided, where as green and blue are better for goggle use.
38. I'm used to all of these colors and have no issues with them, except that white is sometimes bright for NVGs.
39. Depends on if I am on NVG's or not.
40. Blue / or green lights are invisible while using NVG's.
41. Key is brilliance, placement, shading (if necessary), ambient light situation, etc.
42. White definitely throws off night vision when approaching pads with white lights, They also tend to blur into local building and street lights on approach.
43. Should be the same as runway lighting. Any other color can create confusion.
44. HNVG...Blue/Green is not amplified by the goggles and is invisible when aided. Therefore, finding the lit helipad is difficult. Amber lighting is amplified by the goggles AND does not match the surrounding hospital, airfield lighting. Therefore, it is easy to identify the hospital pad from altitude and perform a high reconnaissance without hunting for the pad looking underneath the goggles (unaided).
45. We have several hospital pads that have red lights for the TLOF. Un-acceptable! They have been this way for years it has been pointed out to the hospital safety folks and the largest EMS provider in the world and defended by the operator that sits on their pad.
46. Green heliport lights are invisible with NVG's.
47. Blue denotes a taxi area more than a TLOF.
48. Blue/green poor for NVG operations.
49. White is not good for night ops.
50. Blue green normally not compatible with NVG's.

51. Most of my experience with night operations from helipads has been under NVGs, so there has been special lighting or no lighting.
52. NVG use has a huge effect on what colors work best.
53. "Blue is taxi way lighting, thus not acceptable.
54. Green is more difficult to see under NVGs".
55. Blue is easy on the eyes.
56. Blue and green are not always visible while using NVGs. Most HEMS services are now using them.
57. Blue may be best for NVDs, white will be visible farthest away, colors may stand out in white city lighted areas.
58. This question should include whether or not you use NVGS which are highly susceptible to white and amber lighting.
59. Blue light is filtered by NVGs and has the least impact on NVG operations. I make unaided approaches to pads with amber and white lights due to incompatibility with NVGs.
60. Some Green lights are not visible using NVG, otherwise I don't have any particular preference in color.
61. White and Amber lights tend to blend in with other city lights making them hard to see.
62. Green led not good for NVG viewing.
63. Lighting should be the same color as airports.
64. Limited experience.
65. Must be NVG compatible.
66. There are some pads that we go to which have overhead super bright flood lights. We don't need them and they are blinding landing and taking off from the pad.
67. White is always best, but can greatly hurt night vision when transitioning to very dark environment.
68. Amber shows best in marginal visibility.
69. Green and blue not acceptable for NVG operations.
70. White lights tend to blend in with surrounding lights making it difficult to see the pad.
71. NVG lighting is best now days. White lights get lost with surrounding lights when looking for the pad at night.
72. This is based on unaided flight (no NVGs).
73. NVG compatibility
74. Needs to be NVG compatible.
75. Usually green or blue are best to distinguish from other light sources.
76. Prefer green for ability to pick out from city lighting. Anticipate using NVGs in future and would like compatible lighting.
77. Can't recall ever seeing green lights on a helipad.
78. If God wanted me to use colored lights, the sun wouldn't put out white light.
79. Green and Blue are sometimes invisible with NVG's.
80. Green and blue might "stand out" more in a busy urban environment where one would expect white/amber street lights, headlights, etc. to predominate.

81. Green perimeter lights offer distinction from other surface lights but are nearly invisible to NVG. Amber perimeter lights are still visible to NVG.
82. It all depends on the contrast with the surrounding lights. See above.
83. Should consider how lights blend with surroundings.
84. White and NVGs... workable, but not ideal. Amber isn't NVG friendly but you can handle it. Green disappears on the NVGs, but doesn't blind you. Blue is great for ID-ing the helipad from a distance b/c our eyes are very sensitive to blue light and most cultural lighting isn't blue, so it stands out. Also, easy on NVGs.
85. Must be compatible with NVG's....white light in not except for some LED.
86. NVG operations should dictate lighting color. Any operations conducted under NVG should automatically dictate that the lighting must be NVG compatible.
87. I do not typically operate at night, so these choices are based on very limited experience. Take them for what they are worth!
88. Considering NVG compatibility.
89. Contrast to surrounding colors important.
90. The new standard that is changing all heliport lights to green is sub-optimal. In theory it would be the way to go due to NVG:s, but in practice it might be harder to spot a heliport since it is now invisible under NVG:s. Heliport lighting colors and their intensity should be studied.
91. Without NVG consideration.
92. Depends on surrounding lighting.
93. Blue is based on landings on taxi ways. Others are speculation.
94. I fly both Helicopters & Airplanes, White lights line the landing area, please do not add any confusion to this.
95. White feels too glaring, green and blue too dim, amber feels just right.
96. Intensity is key.
97. White tends to blend with other cultural lighting and has the most negative impact on NVGs.
98. Seeing is believing.
99. Based on my experience it doesn't make any difference.
100. The latest trend seems to be helipad perimeter lighting that is "NVG Compatible" in green. Not sure why, as it doesn't help locate the pad during goggle operations. Amber perimeter lights are much easier to see to locate the pad and perform a safe approach.
101. Many blues are NVG compatible and therefore invisible under goggles.
102. The light need to be visible with NVGs to locate the LZ in the high recon.
103. Not much experience with landings on lit heliports.
104. Amber offers little contrast to most street lighting. Blue is the most difficult to see at a distance. White can be good or bad depending on the environment and lighting.
105. Blue and green washout in nvg's and white is too bright.
106. Never really thought of color being an issue. Bright and not in my eyes is all I care about.
107. I would think that brightness and direction the light is pointed is most important- i.e. not too bright compared to the surroundings of the heliport-dim in dark areas, bright in urban areas, so the pilot can find and identify the heliport and also not be blinded; also consider the colors that the human eye sees best when dark adapted; also consider a/c systems i.e. night vision goggles or infrared or other sensors on the a/c

108. NVG's
109. Must contrast with surrounding lights.
110. LED lights are invisible when viewed through the goggles.
111. NVG need more consideration.
112. Answers based on day time flight and also night on NVG's.
113. Amber stands out from other ambient lighting.
114. Color also needs to be considered with type of light fixture, number of fixtures and intensity.
115. Not sure if it's just me, but blue tends to distort visual accuracy.
116. Amber & white blend in with city lights and are sometimes hard to see.
117. I don't care for amber or white when using NVG's; Green is OK; blue is best.
118. They are all fine depending on the surrounding ground lighting.
119. Green in particular is difficult to pick out under NVG.
120. Night vision goggle compatibility is the most important aspect of the lighting.
121. Depends on if aided or unaided and light sources of surrounding area. Flight to a white light pad with no lighting from surrounding area (dark night rural hospital pad) requiring aided approach causes difficulty when close to the pad.
122. We're operating with NVDs so amber and white are not optimal.
123. Anything but green or LED. LED bulbs cannot be seen wearing goggles.
124. Contrasting colors to taxiway lights and runway lights are FAR easier to see, particularly when operating in "light saturated" busy airports.
125. Green is not visible under NVG's.
126. Any color is fine once that is a known. The key here is standardization and association with conventional airport lighting. The most common are the most easily identified which makes arrival at a never used location least questionable. We do not operate with nor do I have goggle experience.
127. I don't fly at night without NVGs, so compatibility is most important.
128. Green and Blue don't ruin your night vision as badly as white.
129. Eyes adapt fastest to Red light at night. Blue, White, and Green cause papillary contraction and reduced night visibility. If using NVGs, color and adaptation time are unimportant since apparent vision is an analog of actual. When NVGs are removed, color and adaptation time suddenly becomes important.
130. Most done at night under NVG. Prefer IR lighting.
131. Must be NVG compatible.
132. Not sure
133. Green/Blue is not suitable for use with NVGs.
134. White lighting degrades night vision.
135. NVG's do not work well with blue, green or any light in the red spectrum.
136. New LED green difficult if not impossible to see with NVGs.
137. I would like to see ground based lighting of a white or amber color with slightly elevated heliport markers. During hours of darkness that would make the LZ stand out.



138. Green can NOT be seen under NVG's.
139. When using NVG's for operation, colored lighting is most often impossible to see.
140. However, white lighting is destructive to night vision. Indirect white lighting would be best.
141. I have no real preference regarding heliport lighting. My one concern is some LED lights are not seen by NVG.
142. Green helipad lights are invisible when using NVGs. The FAA should prohibit the use of green helipad lights for that reason.
143. Limited experience at night.
144. Green must be able to be seen under NVGs.
145. I assume acceptable because I have little night experience.
146. Lighting can affect night vision -- the question did not address day or night, or if NVGs are used.
147. White blends in at municipalities.
148. We have a operational rule of no night flight.
149. All night landings are being used with NVG's. The lighting needs to be NVG compliant.
150. Blue light is hard to detect with NVG's.
151. Amber and White interfere with NVG operations. Blue and green can not be seen with NVG's.
152. Amber tend to blends in with the Vapor street lights, onshore, and with the platform lights offshore.
153. Blue/white LEDs that look white work well and don't washout NVGs.
154. Amber provides the greatest visibility with the least effect on dark adaptation.
155. Need to be NVG compatible lighting.
156. Several pads in the area have gone to green LEDs that do not show while wearing NVGs.
157. No experience or opinion.
158. Too many heliports/helistops are using RED!! When you are not familiar with area you think that the landing area is a hazard.
159. White flood lighting, not directed upward is excellent. The typical elevated perimeter lights are fine unless NVGs are used. Then NVG friendly lights are best.
160. Blue / Green can't be seen with NVG's at altitude.
161. I prefer reflective surfaces marking the pad perimeter.
162. Many blue or green lights are difficult to see under NVGs. I would recommend a light reflective surface be required on each light fixture, made of the same reflective material found on road signs, in the same color as the light to which it is attached. This would assist in the event the lights were burned out, and would be picked up by NVG.
163. NVG user: White & Amber tend to wash out the goggles. Offer selectable lighting on different pilot controlled lighting frequencies?
164. Blue/green is an issue with NVGs on approach. Can be difficult to pick out the pad from altitude. High visibility is more important than NVG compatibility. Most landings end unaided, anyway.
165. No lighting at the pads I ever go to.
166. No Preference.

- 167. 99% of my operations are off airport during the day time.
- 168. Depends if NVG or not.
- 169. Use the standard colors as in fixed wing aircraft.

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**- End of Appendix F-**

**APPENDIX G: Question # 17:**

**In your experience is there a functional up to date national data base, either in print or online, for heliports that is both accurate and inclusive for flight planning purposes?**

**Comments:**

1. HAI's site is best, but it is not comprehensive.
2. Often thought about making some money with that one.
3. Partial information only.
4. But we need one. There is an EMS version, but these are not for public use.
5. Should be a standard national recording of heliports, to include trauma level, standard grid format (lat long and mgrs), and list alternate landing or cross-load location for larger helicopters not able to use primary spot.
6. How would you ensure such a database was consistently up-to-date?
7. I asked the DOT in WA state for a list of helipad identifiers and they said that they don't keep that kind of information. Huh???
8. There are state heliport listings, but none with AFD type information for hospital helipads.
9. There are several places where it has been attempted to obtain data, however, local knowledge at communication centers remains the only way to know local information.
10. There is a great need for a national register, something I experienced in the United Kingdom for over 30 years.
11. We have a homemade, local data base.
12. Western helipads.
13. AirNav has a fine database of heliports, however, it is not up-to-date, as the helipad operators are lax in keeping the FSDO's informed (because most don't even know they are suppose to operating a FAA designated helipad) I think the FSDOs need to audit their helipads regularly.
14. The information is limited, but it is available.
15. Up to date is the main issue?
16. The only place I've seen any helipad data is on Airnav. They will list heliports if they are registered with the state. Some are not listed. States may have a register with their DOT.
17. Airnav.com
18. have seen one, but probably not up to date/accurate.
19. AeroPlanner
20. 90% of the Heliports I TO/LD are Hospital Base.
21. Skyvector and Airnav seem to give this information to pilots.
22. I don't think it's national. We distribute well within the region, but the heliports are typically hospital owned and thus distributed within that network only.
23. Enough for safe ops in the area I have used.
24. No but I have seen certain companies using in house heliport databases. One is even located with Google Map interactivity.

25. Most information I get is from dispatch. I do use Forflight a private software for the location of some pads never get much other info such as lighting is it raised or in ground, does it have a wind sock, noise abatement neighborhoods etc etc
26. HAI tries but database is not up to date.
27. There are informal lists, but not necessarily with photos/diagrams or updated information.
28. Most lists I've found are incomplete.
29. None
30. Without an ID, the actual bases cannot be identified in OpSpecs. It can effect how flight operations are tracked.
31. AOPA for public use heliports.
32. Most heliports we use are private. Even if the NOTAM system covered private heliports, the owners are mostly clueless about the NOTAM system.
33. Airnav.com has the only one that I know about.
34. Operators must maintain our own hospital heliport directory because FAA airport master records are inaccurate and not updated. Several hospital heliports have never been reported to FAA nor included in 5010 data.
35. We in the EMS industry use designated landing areas and not public use heliports for the most part. Thus no FAA crap to muddy up the process and cost.
36. If one exists, please post it in Rotor and Wing Magazine for all to use and update.
37. Use Airnav.com but much of the information is out of date. Still very useful.
38. If there is one, please email me the URL. Is this it? <http://www.rotor.com/fox/heliport.htm>
39. In Illinois there is a published book on the heliports.
40. Corporate knowledge is the ONLY data for data. Ask somebody who has been there recently.
41. It would be useful to have that.
42. Illinois IDOT do a very good one.
43. Found one, but not necessarily accurate/up to date.
44. City-data.com and skyvector.com have heliport data, but neither enables quick & easy use or a sort function. It is unclear how accurate the skyvector.com heliport data is with respect to "elevation"
45. there is one for Arizona, although not necessarily up to date.
46. There is LZ Check.com but priced a little expensive for my operator to add data. Which is why we don't use it.
47. Our company compiles this information at my location.
48. Would be nice to have.... please check out example: <http://www.helipad.org/app/default.asp?padId=100>
49. A lot of the sites I use are not charted, and there is no reference to them - or they are charted, but not physically there any more.
50. Company flight data via radio or phone.
51. AirNav.com and, there are several others we keep bookmarked on our base work computer. However, I don't believe they get updated regularly.
52. The key problem is currency.

53. There is plenty on Heliport's, most I assume are for EMS or government operations, would like to see more open to public.
54. State of Illinois Heliport Directory is available but not kept current due to budget cuts and had minimal info for use in flight planning.
55. There are but only if the FAA has made it a priority to include it in their analysis. Most of the information we get is from our own analysis as we document where we fly.
56. Only reporting system I've seen is weatherturndown.com or the communications center in the area.
57. When going to an unfamiliar hospital I generally research the hospital online and use Google Earth to look at the pad and surrounding area.
58. Airnav.com
59. Take a look at the NY Port Authority books for heliports and hospital pads fo NY, NJ, PA and tell me why we do not have available that type of book for the entire US.
60. FAA designated for heliports are difficult to find. Many landing areas are not designated.
61. Skyvector and AirNav are both very useful.
62. I would have to somewhat as the answer to the above. The state in which I primarily operate maintains a data base on geographical position and description while the national airport directory provides information of many heliports but the information is limited and not all inclusive.
63. Must be pieced together from multiple sources and peer knowledge.
64. Air guide useful.
65. State of IL has published a great Helipad directory.
66. Aerosafe and NEMSPA are putting one together However it is not functional at the user level yet.
67. Have not seen or heard of any.
68. Not for all heliports.
69. Airnav.com
70. Some heliports appear on airnav.com, but I don't know if it is close to being complete.
71. We have one for our state but we rarely operate out of state. I do not know if there is one nationwide.
72. Is this a trick? There never has been one.
73. I am unaware of such a document, but it would be a very useful tool for operations
74. God Bless you for asking this question...excellent question!
75. When trying to find information about a heliport our comm center tends to be able to provide that information. I also use various online sources of information.
76. Pseudo functional NOTAM type system with weatherturndown.com
77. State of IL has an excellent directory.
78. When I do fly, I check all available resources that I am aware of and that FAA and local area provides.
79. SkyVector is as good as it gets..!
80. I use many long established helipads that are not listed in any database I can find.
81. Unknown
82. States should produce heliport directories or FAA mandate registration and include in A/FD.

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- End of Appendix G-

**- NOTHING FOLLOWS -**