

# Hangar Talk

Serving airplane builders, restorers, pilots, & airplane lovers in Western Michigan

Next Meeting: 7:00 p.m., Friday, March 4, 2022, EAA Clubhouse, Grand Haven Airport

**\* Please Park In The Terminal Parking Lot \***

## Prandtl-D

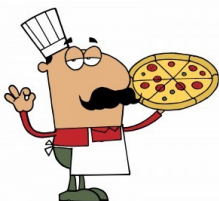
### The Quest for a Safer, More Efficient Wing Design

For March 2022 we welcome Randy Houtman, engineer at Dematic and Newsletter Editor for of EAA Chapter 145, as our guest speaker. Randy's program will introduce us to NASA's Preliminary Research Aerodynamic Design to Lower Drag (Prandtl-D), a project intended to provide for future low-drag and experimental aircraft designs.

The origin of the project's tongue-twisting name, and its acronym, is a reference to early German Aerospace Engineer, Ludwig Prandtl.

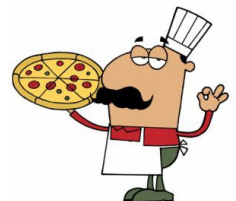
For nearly a century Ludwig Prandtl's lifting-line theory remains a standard tool for understanding and analyzing aircraft wings. The tool, said Prandtl, initially points to the elliptical spanload as the most efficient wing choice, and it, too, has become the standard in aviation. Having no other model, avian researchers have used the elliptical spanload virtually since its introduction. Yet over the last half-century, research in bird flight has generated increasing data incongruous with the elliptical spanload. In 1933 Prandtl published a little-known paper presenting a superior spanload: any other solution produces greater drag. We argue that this second spanload is the correct model for bird flight data. Based on research we present a unifying theory for superior efficiency and coordinated control in a single solution. Specifically, Prandtl's second spanload offers the only solution to three aspects of bird flight: how birds are able to turn and maneuver without a vertical tail; why birds fly in formation with their wingtips overlapped; and why narrow wingtips do not result in wingtip stall. We performed research using two experimental aircraft designed in accordance with the fundamentals of Prandtl's second paper, but applying recent developments, to validate the various potentials of the new spanload, to wit: as an alternative for avian researchers, to demonstrate the concept of proverse yaw, and to offer a new method of aircraft control and efficiency. — Quote from NASA Technical Publication (TP) Document ID 20160003578

**This is going to be a very interesting program! We hope you will come on out and enjoy the evening with us. The weather isn't looking to be an issue, we will have the clubhouse nice and warm, with coffee, cookies and hot cocoa too.**





**Invite a Friend**

**Don't forget, Pizza with your buddies at Clover Bar after the meeting!**



# EAA Chapter 211 has a New Website



 EAA

## EAA Chapter 211

16446 Comstock St., Grand Haven, Michigan, 49417

### Chapter 211 Home


- Calendar of Events
- Become a Member
- Newsletters
- Technical Counselors
- Flight Advisors
- Young Eagles
- Eagle Flights
- Chapters Flickr Page for Photos
- Members Projects
- Ray Aviation Scholarship
- Contact Us

### Welcome to our chapter

Whether you fly, build, restore or simply enjoy airplanes and aviation, you are welcome to attend our events and join our Chapter.

We are a group of aviation enthusiasts, aircraft builders, and pilots who get together with like minded people to share ideas, exchange information, encourage safety, serve the local aviation community and have a lot of fun doing so.

EAA's local chapters are about people, bringing together individuals interested in learning more about aviation as well as sharing their own knowledge. Chapter members are involved in a variety of social and educational activities, including Young Eagles rallies, fly-outs, building seminars, and more, to build awareness in the community.



Members enjoying one of our Friday night meetings in our clubhouse at the Grand Haven airport.

Most of our regular meetings are held on the first Friday evening of each month, except the rare occasion it conflicts with a holiday (then we move it to the next Friday). In August we hold a Chapter 211 Family Picnic where spouses and children are encouraged to attend. Sometimes our meetings are held at different locations than our own clubhouse at the Grand Haven Memorial Airport. For example we hold several of our meetings per year at Ottawa Executive Airport, just east of Zeeland, MI, and sometimes we do project visits at the hangar's, shops and garages of our own members who are building a plane

The picture above is a screenshot of our new website. Click anywhere on the image of the website above and the actual website should come up (as long as you are connected to the Internet). If that doesn't work, the URL is: [chapters.eaa.org/ea211](http://chapters.eaa.org/ea211)

It is "Responsive," meaning, it will respond to changes in width of a browser window by fluidly adjusting the placement of elements on a web page to best fit the available space. In other words, it should work pretty good with your tablet or smartphone. However, I noticed a little distortion in some pictures on my phone, but there is a desktop setting you can select that gives you the exact image you would get on a desktop, shrunk down to fit your screen. To find that setting, touch the three little dots in the upper right portion of your screen and check "Desktop site" in the menu that drops down...at least that's how it works on my Samsung phone.

There is still a little more work to do on the website, but it is useful enough in it's present state to bring it out now. I will be adding some pictures to the galleries, and you might notice some slight changes to the navigation choices on the left side as things get figured out.

The website is provided free-of-charge to our chapter from EAA International Headquarters and the Peter Burger Fund. They do not, however, "build" the site for us. That's up to each chapter using the infostructure, tools and templates EAA provides. If you have any suggestions for the website, (including error corrections), Please contact Dale Hagen, text 616-260-4990 or email [hagenphoto@yahoo.com](mailto:hagenphoto@yahoo.com)

# February's Meeting

The unusually low attendance at our February 2022 meeting (just 8 people), presented a timely opportunity for what turned out to be a surprisingly constructive dialogue concerning shrinking attendance and the slowly declining membership that Chapter 211 has experienced in recent years.

One might hope for a miracle solution, one simple answer yet to be discovered...some dramatic change we can make that will turn everything around. But an analysis of what we uncovered in our discussion reveals a complex mosaic of influencing factors. The vexing thing is that while some of these factors can be remedied through greater diligence and shared commitment, others are completely beyond our control!

**1. Weather / Time of Year** – This is the time of year that can make even the hardy wince at venturing out. It's cold. The roads are slippery. The wind is howling, and visibility is sometimes nonexistent. It is so bad that some of our regular members simply leave and go South for a few months.

**2. Aging Membership** – Guys are getting older, some to the point they are giving up flying, or, sadly, dying.

**3. As membership declines, so do the dynamics that make membership attractive.** – How? People want to belong to Chapters that are active, vibrant, and fun. Programs, activities, and fun require input and implementation by dedicated, enthusiastic volunteers who are fired up, not burned out. When membership declines, naturally, volunteerism declines, and an ever increasing share of the load of running the organization falls to fewer and fewer volunteers. There can be no doubt that for any organi-

zation to survive, it must continually attract new members!

**4. COVID-19** – Not only concerns about transmission, but all the protocols, masking, physical distancing, seating capacity limits, etc., created many difficulties and frustrations in trying to schedule programs weeks and months in advance, when some-



times we didn't even know if we would be allowed to have a meeting, or whether anyone would attend.

**5. Friday Night Meetings** – Some guys have told us Friday nights are difficult for them to attend, but it's hard to determine what night/day/time would be better. Somebody's going to have a problem with whatever day or night we choose to meet.

**6. The Internet** – Literally EVERYTHING is available on the Internet. Many of the reasons chapters became so popular in years and decades past can now be easily satisfied online, any day or night of the week. Builders' Forums and groups who build and fly the same make and model of aircraft, can and do find each other for answers and support, not just from somebody within a 50 mile radius, but from all over the country, or anywhere the world! Pilots used to build from scratch or from plans. Today, most are building

from kits, and many of the manufacturers offer fast-build options and tech support. So, the Internet is supplanting some of the traditional functions of Chapters.

**7. Losing Members to More Dynamic Chapters** – We discovered that a few guys that used to be active in our chapter have joined EAA Chapter 704, in Sparta. Some drive, or fly, much farther to go there than to come to Grand Haven! In recent years, Sparta Airport has become a happening place. Several large corporate hangars have been built by some guys who are active in 704, and a lot of active building of airplanes is occurring on-site, creating much interest and excitement. 704's IMC Club is also a big attraction for some.

There may be more reasons than the seven listed here, but think about this; two years ago, before the Covid pandemic, we were down to an average attendance of 24 to 28 per meeting. For most meetings after March 2020 but prior to February 2022 (when we could have them), we were having a minimum attendance of 12. If we lost an average of just two attendees for each of the reasons acknowledged here, it would put us right about at an attendance of 12.

**Conclusion** – Some of these issues will eventually resolve themselves. The weather will soon warm up. "Snowbirds" will return. The Covid pandemic will pass. Good meetings and good speakers will be found and booking them will become easier. New ideas to rejuvenate and inspire our Chapter will be implemented. Attracting new members will bear fruit. With effort, creative ideas, and your help, we will survive this present low cycle.

# Survey Results

I want to say a big THANK YOU! to all of you who took a few minutes of your time to fill out the survey I sent to you on February 8. I sent out 44 surveys and had 24 replies. For all of you who are curious about the results, here they are!

Q1

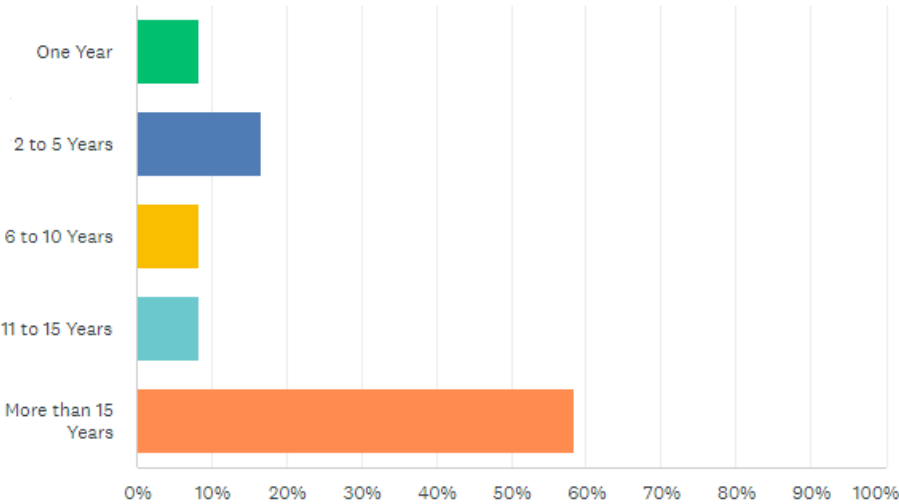


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How many years have you been a member of Chapter 211?

Answered: 24    Skipped: 0

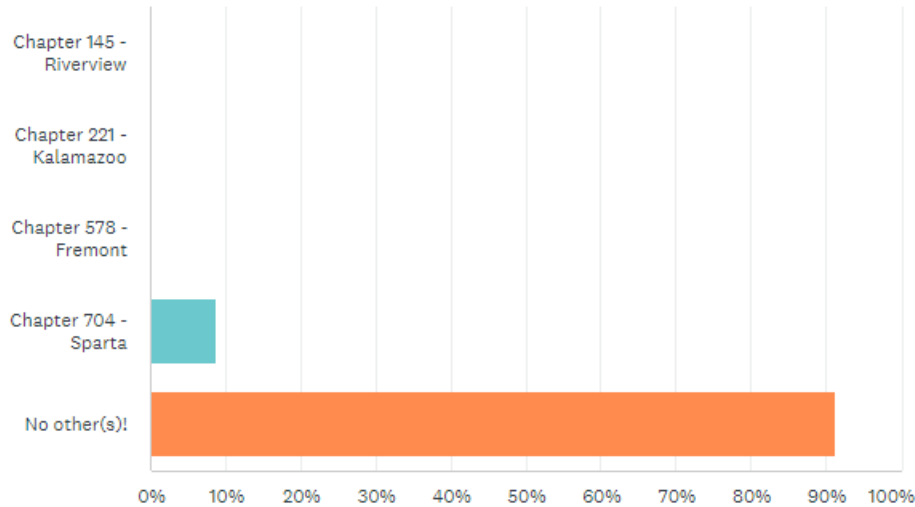


ANSWER CHOICES ▾	RESPONSES ▾	
▾ One Year	8.33%	2
▾ 2 to 5 Years	16.67%	4
▾ 6 to 10 Years	8.33%	2
▾ 11 to 15 Years	8.33%	2
▾ More than 15 Years	58.33%	14
TOTAL	24	



# To what other EAA Chapters are you a member?

Answered: 23    Skipped: 1



ANSWER CHOICES	RESPONSES	
▼ Chapter 145 - Riverview	0.00%	0
▼ Chapter 221 - Kalamazoo	0.00%	0
▼ Chapter 578 - Fremont	0.00%	0
▼ Chapter 704 - Sparta	8.70%	2
▼ No other(s)!	91.30%	21
Total Respondents: 23		

[Comments \(1\)](#)

Showing 1 response

☐ I have considered joining at least three of these chapters.

2/10/2022 9:36 AM

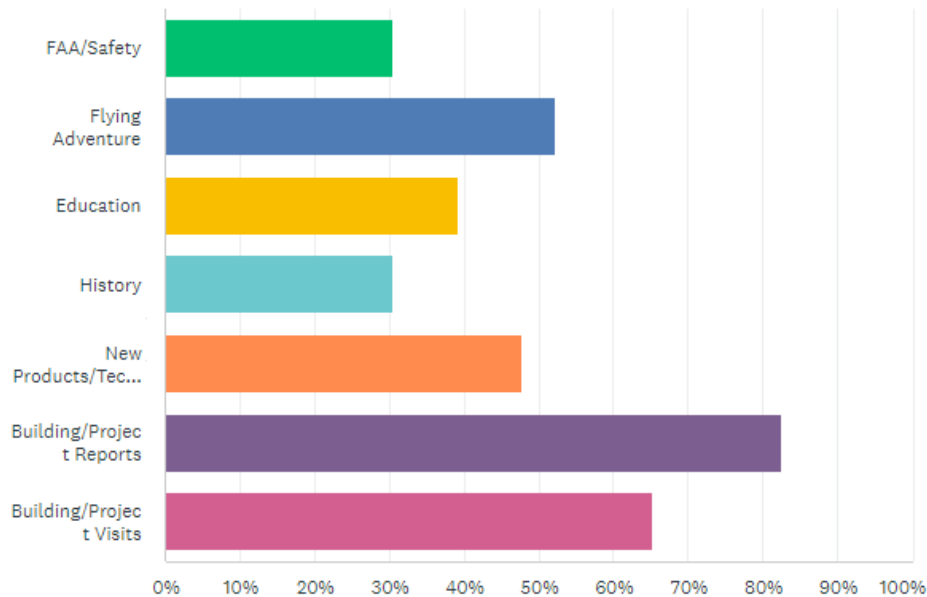
[View respondent's answers](#)

[Add tags](#) ▼



## What program topics would you like to see more of?

Answered: 23 Skipped: 1



ANSWER CHOICES ▼	RESPONSES ▼	
▼ FAA/Safety	30.43%	7
▼ Flying Adventure	52.17%	12
▼ Education	39.13%	9
▼ History	30.43%	7
▼ New Products/Technology	47.83%	11
▼ Building/Project Reports	82.61%	19
▼ Building/Project Visits	65.22%	15
Total Respondents: 23		

### Comments (4)

Showing 4 responses

☐

No preference. Not building again, and not flying anymore.

2/16/2022 1:39 PM

[View respondent's answers](#)

[Add tags ▼](#)

☐

Hands on projects

2/9/2022 10:46 AM

[View respondent's answers](#)

[Add tags ▼](#)

☐

Hands on projects

2/8/2022 10:33 PM

[View respondent's answers](#)

[Add tags ▼](#)

☐

UAV's Paramotor's

2/8/2022 9:42 PM

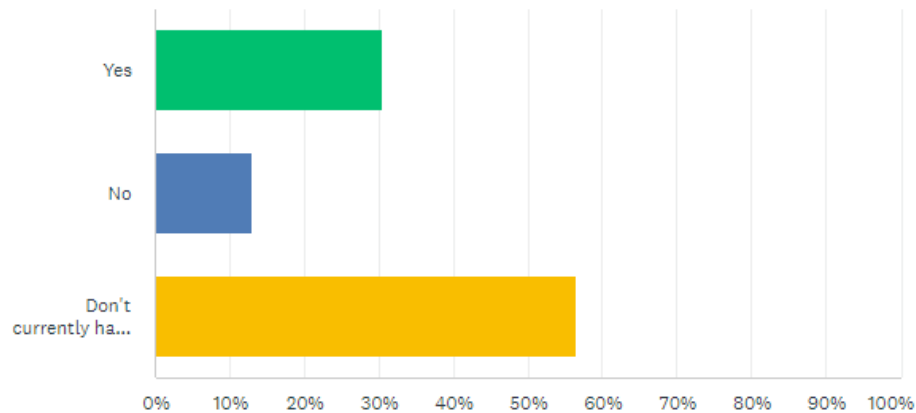
[View respondent's answers](#)

[Add tags ▼](#)



## Would you be willing to give a program (or host a visit) about your project/build?

Answered: 23 Skipped: 1



### ANSWER CHOICES ▼

### RESPONSES ▼

▼ Yes	30.43%	7
▼ No	13.04%	3
▼ Don't currently have one	56.52%	13

### TOTAL

23

[Comments \(3\)](#)[RESPONSES \(3\)](#) [WORD CLOUD](#) [TAGS \(0\)](#) Sentiments: OFF ☐**NEW!**

### Introducing Sentiment Analysis

Detect the feeling and sentiment behind written responses.

[Watch a demo](#)[↑ Try it!](#)[Upgrade](#)☐ Add tags ▼ [Filter by tag ▼](#)

Showing 3 responses

☐ not for awhile though

2/17/2022 3:03 PM

[View respondent's answers](#)[Add tags ▼](#)☐ I did already on my RV-12 and Fisher Youngster

2/9/2022 4:04 PM

[View respondent's answers](#)[Add tags ▼](#)☐ Unfortunately my wing kits won't be arriving for another 6 months.

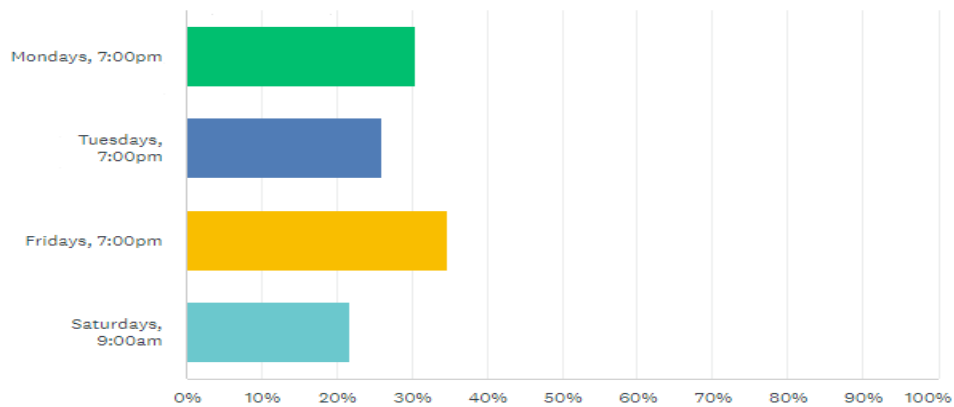
2/8/2022 9:30 PM

[View respondent's answers](#)[Add tags ▼](#)



Of the following choices, what would be your preferred meeting day and time for our regular meetings?

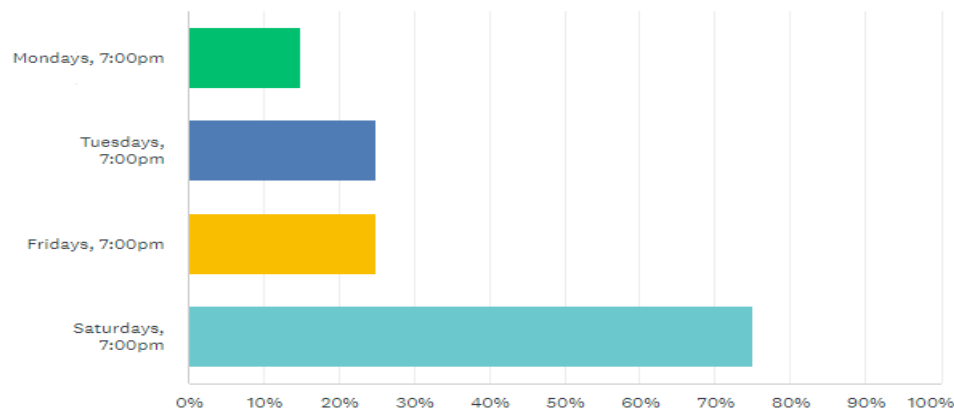
Answered: 23    Skipped: 1



ANSWER CHOICES	RESPONSES	
Mondays, 7:00pm	30.43%	7
Tuesdays, 7:00pm	26.09%	6
Fridays, 7:00pm	34.78%	8
Saturdays, 9:00am	21.74%	5
Total Respondents: 23		

Of the following choices, which (if any) would be unlikely or impossible for you to participate/attend?

Answered: 20    Skipped: 4



ANSWER CHOICES	RESPONSES	
Mondays, 7:00pm	15.00%	3
Tuesdays, 7:00pm	25.00%	5
Fridays, 7:00pm	25.00%	5
Saturdays, 7:00pm	75.00%	15
Total Respondents: 20		



Q7

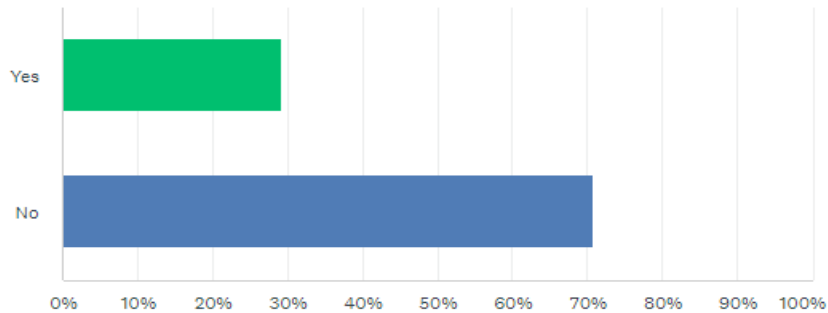


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Have you missed any Chapter 211 meetings due to concern about COVID-19?

Answered: 24 Skipped: 0



ANSWER CHOICES	RESPONSES	
▼ Yes	29.17%	7
▼ No	70.83%	17
TOTAL		24

Q8

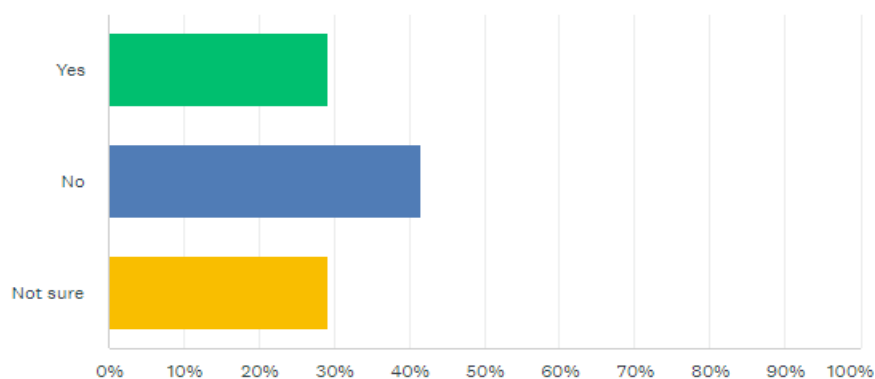


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If you were out of town, or home ill, or just quarantining, would you have any interest in viewing a Chapter 211 meeting online (for example, via Facebook Live)?

Answered: 24 Skipped: 0

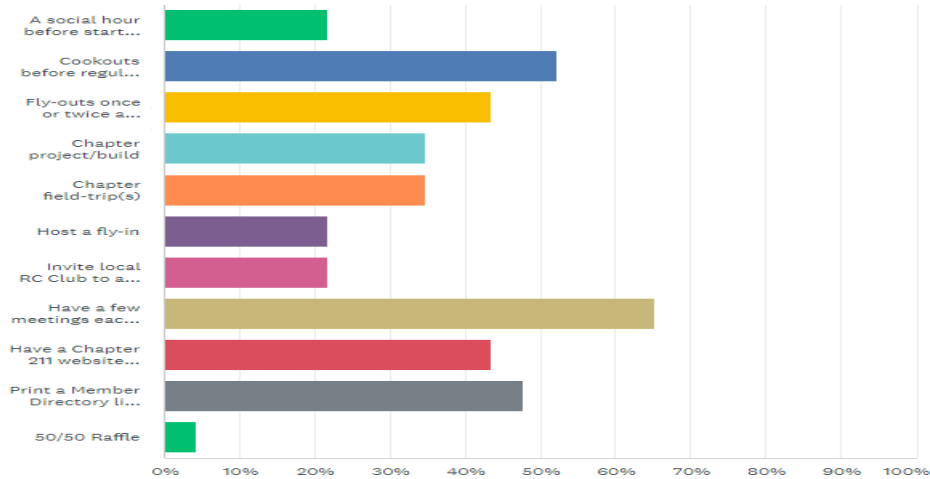


ANSWER CHOICES	RESPONSES	
▼ Yes	29.17%	7
▼ No	41.67%	10
▼ Not sure	29.17%	7
TOTAL		24



## What ideas might you suggest to help Chapter 211 retain existing, and attract new members?

Answered: 23 Skipped: 1



### ANSWER CHOICES

### RESPONSES

▼ A social hour before start of regular meetings.	21.74%	5
▼ Cookouts before regular meetings when weather permits.	52.17%	12
▼ Fly-outs once or twice a month.	43.48%	10
▼ Chapter project/build	34.78%	8
▼ Chapter field-trip(s)	34.78%	8
▼ Host a fly-in	21.74%	5
▼ Invite local RC Club to a joint venture with us to introduce S.T.E.M. students to aviation.	21.74%	5
▼ Have a few meetings each year at Ottawa Executive Airport.	65.22%	15
▼ Have a Chapter 211 website again.	43.48%	10
▼ Print a Member Directory like we used to have.	47.83%	11
▼ 50/50 Raffle	4.35%	1

Total Respondents: 23

[Comments \(4\)](#)

**RESPONSES (4)** [WORD CLOUD](#) [TAGS \(0\)](#)

Sentiments: OFF ☐

☐ Add tags ▾ Filter by tag ▾

Search responses

Showing 4 responses

☐ I know there are EAA members in the area that are not members of a chapter. Is there a way to get a list of these members from EAA headquarters and actively inform these individuals of the local EAA chapter.

2/10/2022 9:36 AM

[View respondent's answers](#) [Add tags ▾](#)

☐ Hands on learning nights

2/9/2022 10:46 AM

[View respondent's answers](#) [Add tags ▾](#)

☐ Hands on projects where experienced members lead a learning experience.

2/8/2022 10:33 PM

[View respondent's answers](#) [Add tags ▾](#)

☐ Somehow get more members to volunteer themselves to help in leadership roles... e.g. Be an officer like Secretary or Vice-President, and Coordinate Young Eagles, etc.

2/8/2022 9:42 PM

[View respondent's answers](#) [Add tags ▾](#)

Q10

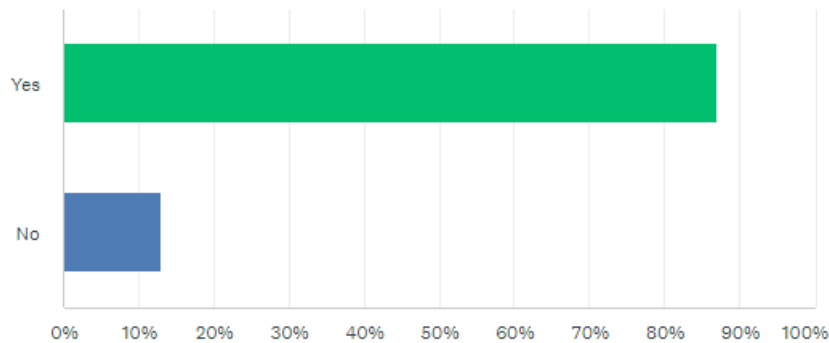


Customize

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Do you intend to renew your EAA Chapter 211 Membership this year? We sure hope so! (Notices will be going out in April)

Answered: 23 Skipped: 1



ANSWER CHOICES	RESPONSES
Yes	86.96% 20
No	13.04% 3
TOTAL	23

I made a couple of mistakes with this survey. The first was on Question 6 (Q6). The Saturday answer was supposed to be Saturdays, 9:00am, just like the answers in Question 5, not 7:00pm. I hope people caught that and understood it was a typo, otherwise the results would make question 6 pretty much invalid.

The second mistake, if you want to call it that, is with Question 10. I regret not asking the respondents who answered “No” why they answered as they did. All we can gather from this question is the fact at least three members do not intend to renew their membership this year. To know why would have made this question much more informative and educational.

Another important note. Although some would say that a .545 response rate (24 replies out of 44 surveyed) is pretty good, it is possible that if the other 20 had responded, they might have drastically altered the results. Statisticians might counter that additional respondents would likely have reinforced the surveys results. I suppose that is possible as well, but we’ll never know!

If you have any questions about this survey, or any suggestions for future surveys, please follow up with me on it, in person or by email. Thank You.

Dale Hagen

hagenphoto@yahoo.com