



The Highlanders Executive Summaries

Chairman's Executive Summaries

Executive Summary Question 1

Briefly describe the impact of the FIRST program on team participants with special emphasis on the current season and the preceding two to five years

The Highlanders(4499) create problem solvers with real world experience. Knowledge gained from FIRST is versatile in school, internships, college, and job opportunities, preparing alumni to make differences in their communities. Our alumni best demonstrate FIRST's impact on 4499. 96% attend college after graduation, with 4% joining the Army. All college bound alumni pursue STEM majors: 64% return to assist 4499, 43% registered mentors, 38% FIRST volunteers and 10% are pursuing graduate programs.

Executive Summary Question 2

Describe the impact of the FIRST program on your community with special emphasis on the current season and the preceding two to five years.

From running 2 FLL Qualifiers to Title One School outreach, 4499 demoed at 66 schools and events including 3 parades, 16 expos—totaling approx 60,000 people, with many from underprivileged populations. We support flood victims, toy drives, and donate to a foster family organization. Colorado is our expanded community, this year alone, we assisted 11 FLL Qualifiers and the Colorado State Championships and inaugurated FLL judge training conference calls on behalf of ColoradoFIRST.

Executive Summary Question 3

Describe the team's methods for spreading the FIRST message in ways that are effective, scalable, sustainable, and creative

Alongside general community outreach though dressing up robots for Halloween, publishing children's books, creating FIRST themed activity books, and volunteering at local events, 4499 puts emphasis on youth. We spread FIRST's message by supplying volunteers, streamlining FLL events, and volunteering ourselves. By working with the Jeffco school board (2nd largest school district in Colorado), we ran the first FLL qualifier in Jeffco since 2013.

Executive Summary Question 4

Describe examples of how your team members act as role models and inspire other FIRST team members to emulate

4499 embrace Core Values, sharing them with our assisted/mentored FIRST teams and at public events. At competitions, 4499 pass out survival kits to rookie teams, lend out tools, and assist teams in need. In the off-season, we participated and hosted a mentor support group, host lessons in CAM and carbon fiber design. We volunteer and assist with state-wide FLL event planning, serve as FIRST ambassadors, and our alumni continue to be active in FIRST long after graduating from the team.

Executive Summary Question 5

Team's initiatives to help start or form other FIRST Robotics Competition teams

4499 offers resources, supplies and training many FRC teams at tournaments and any team who reaches out. We assisted in writing rookie grants for FRC teams 5318 and 5657 and encourage local FRC teams to visit our shop to work on CNC equipment, learn carbon fiber manufacturing, and produce their own parts (159,4388). We are always here to help and guide students and mentors who are interested in the program to start FRC teams.

Executive Summary Question 6

Describe the team's initiatives to help start or form other FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge)

4499 started 10 teams, 1 FLL Jr., 8 FLL and 1 FTC, across the Colorado Front Range. Many participants that attend our summer camps go on to join FIRST teams afterwards. We hosted an FLL coach's training night, with those coaches going on to form 3 FLL teams of their own. We have assisted the Liberty Common FLL Jr. Tournament for 3 years. Through Neaera Robotics, our 501(c)3 non-profit, we assisted 10 teams and continue to spread the word of FIRST.

Executive Summary Question 7

Describe the team's initiatives on assisting other FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge) with progressing through the FIRST program

We facilitate progression through FIRST at FLL and FLL Jr. events and with our mentored teams. As Judges and Referees, 4499 are FIRST ambassadors. We demo our robot at FIRST events and give a presentation before the awards ceremony. Over 60% of team members progressed through FIRST (some from our mentored teams and camps). Local FIRST teams benefit from using our machines and unique capabilities (carbon fiber/3D printing).

Executive Summary Question 8

Describe how your team works with other FIRST teams to serve as mentors to younger or less experienced FIRST teams (including FIRST LEGO League Jr., FIRST LEGO League, & FIRST Tech Challenge)

4499 members and alumni mentored 1 FLL Jr. team & 12 FLL teams, working for 6 years with 2 local Boys & Girls clubs after school programs. At past FLL qualifiers, 3 of our team members have been given the Youth Mentor of the Year award. We have assisted 4 FLL, 4 FTC and 13 FRC teams, plus countless others at tournaments—helping with coding, building, bumpers, tools and supplies. We helped FRC team members from 159 and 4388 learn to use CAM software at our "Learn how to run a CNC mill" workshop.

Executive Summary Question 9

Describe your Corporate/University sponsors

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Our corporate sponsors Neaera Consulting, Lockheed Martin, Constant Contact, Keysight and Metal Distributors have assisted us financially. Other corporations that have helped 4499 through mentorship or supply donations include Front Range Powder Coating (FRPC), Xylinx, Fleetwood and AMD. Prior sponsors include: NASA, PTC, OtterCares, PEAK Resources and Micron. As a community-based team, we rely on meaningful partnerships with our sponsors; with their support, we excel.

Executive Summary Question 10

Describe the strength of your partnership with your sponsors within the last five years

Our sponsors partner with us. 4499 visit their facilities, give presentations, demos, and newsletters. Our primary sponsor, Neaera Consulting, hires team members and alumni as interns. They donate a portion of their profit from the work done by interns to 4499, totaling to over \$100,000 in financial support over the past 6 years. FRPC has generously powder coated our robot for the past 5 years and they love to see the competition robot with the parts they have powder coated.

Executive Summary Question 11

For FIRST Robotics Competition teams older than 5 years, briefly describe your team's broader impact from its inception

4499 began as a small community-based team focused on local outreach. After 7 years, our impact spans Colorado. Highlanders are leaders, serving as judges, head judges, and a Tournament Director in an area primarily dominated by adults. Our Alumni are active in their own communities, volunteering with FIRST in multiple states and at the Houston Champs. As FIRST ambassadors, 4499 leverages our impact through collaboration with local school boards and principals. We are small, but we are mighty!

Executive Summary Question 12

Describe how your team would explain what FIRST is to someone who has never heard of it

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We get to build and play robots! FIRST stands for "*For Inspiration and Recognition of Science and Technology*". It creates opportunities to work with local business leaders in the community, and improve skills in engineering, leadership, and teamwork. We compete with teams from all over the world in an environment where we promote each other's success. It provides real world experience and is the only High School sport where everyone can go pro.

Executive Summary Question 13

Briefly describe other matters of interest to the FIRST Judges, if any

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The Highlanders are a team of students across Colorado from 7 schools 75 miles apart. 4499 has doubled in size in the last year. Modeling the Core Value of inclusion, with 45% minority students, we are a diverse team. Our team is young, median age 15, and we are leaders in our communities. We are tightknit, meet year-round and keep in touch with dedicated alumni. Our family is ever growing, dedicated to FIRST and dedicated to each other, which makes the Highlanders exceptional.