

**Agency: Commerce, Community and Economic Development****Grants to Named Recipients (AS 37.05.316)****Grant Recipient: Juneau Economic Development Council****Federal Tax ID: 943053042****Project Title:****Project Type: Other**

# Juneau Economic Development Council - FIRST Robotics Alaska

**State Funding Requested: \$280,000****House District: Statewide (1-40)**

One-Time Need

**Brief Project Description:**

Statewide coordination and leadership, K-12 FIRST Robotics in Alaska.

**Funding Plan:**

Total Project Cost:	\$430,000
Funding Already Secured:	(\$150,000)
FY2013 State Funding Request:	(\$280,000)
Project Deficit:	\$0

*Funding Details:*

*For the past three years the primary funding source for statewide FIRST Robotics infrastructure has been the U.S. Dept. of Defense, Office of Technology Transfer, and the OSD National Defense Education Program. Significant private sector support comes from BP and GCI, with smaller contributions from other corporate sponsors.*

**Detailed Project Description and Justification:**

Robotics in Alaska is gaining momentum. Alaska now leads the nation in FIRST LEGO League and FIRST Tech Challenge, with the highest per capita participation in the United States. During the 2011-12 season approximately 2,200 students will participate in four FIRST Robotics programs, mentored by over 225 adult coaches and 200+ volunteers who donate over 1600 hours of time at tournaments. This is made possible by the statewide coordination and leadership of the STEM AK program of the Juneau Economic Development Council, with funding from the U.S. Department of Defense, National Defense Education Program, and private sector.

Given current and projected Department of Defense budget cuts, state funding is needed to sustain the statewide infrastructure for FIRST Robotics in Alaska. Capital funding allows time to pursue other foundations, corporate sponsors, and longer term financing options.

FIRST (For Inspiration and Recognition of Science and Technology) is a national and world-wide program designed to inspire young people's interest and participation in science and technology. It offers a continuum of challenges, from Kindergarten through high school:

- Jr. FIRST LEGO League (Jr. FLL) for grades K-3
- FIRST LEGO League (FLL) for ages 9-14,
- FIRST Tech Challenge (FTC), introductory high school robotics, and

- FIRST Robotics (FRC), high school robotics

As Operational Partner for FIRST in Alaska, JEDC is the main liaison with the national FIRST office, and coordinates all activities in the state. This includes awarding financial support to rookie teams, leading regional coach trainings, organizing student workshops, and overseeing tournaments in the state. In 2011-2012 there were 4 Jr. FIRST LEGO League expos, 10 FIRST LEGO League tournaments including one virtual tournament, and 6 FIRST Tech Challenge (FTC) tournaments. Regional and virtual tournaments are proving a cost effective means of keeping travel costs low for teams, who cover this cost through local fund raising and school district contributions.

Corporate partners include BP and GCI, with additional support from CH2MHill and UAF Space Grant. In addition, partnerships forged with the Girl Scouts of Alaska, 4-H, the Anchorage Museum, the Alaska State Fair, the Challenger Learning Center and Alaska Space Grant have strengthened the program's community base, and broadened participation across the state. Funding for FIRST Tournaments is also provided on a local and regional basis by Flint Hills and other donors, along with significant in-kind contributions by University of Alaska and local school districts.

Enthusiasm for FIRST LEGO League (ages 9-14) is growing. 2011-2012 season recap shows:

- Over 1200 students participated, with
- 45% of participants are girls, as compared to the national average of ~ 30%, on
- 148 teams (13% growth), in 94 schools
- In 50 communities (38% growth over previous year), representing 25 School Districts
- The season included 8 regional qualifiers, a virtual tournament, and 2 state championships.
- Tournaments were held in Juneau, Anchorage, Fairbanks, Bethel, and Kenai
- FLL is proving successful in both remote village and large urban schools

FIRST LEGO League (FLL) teams are judged in four categories: Research Project, Teamwork, Robot Design and Programming, and Robot Performance. Each year students are tasked with researching and proposing solutions to a current real world challenge. This project based approach offers a rich opportunity to address issues grounded in student experience and local context.

STEM competitions like FIRST Robotics offer an opportunity for students to push themselves to excel in a fun and exciting way that is often difficult to reproduce in the traditional school setting. These competitions build a community of students interested in science, technology, engineering, and math (STEM) in the same way traditional sports competitions build school spirit. In addition, FIRST places a premium on creating a culture of gracious professionalism, fair play and hard work.

National studies have tracked students and found that participants in FIRST Robotics are 50% more likely to attend college, and three times as likely to major specifically in engineering. They have access to \$15 million in college scholarships. Once in college, these students are ten times as likely to have an internship with a company, and young women are four times more likely to go on to studies in science and engineering. We are just beginning to see the results of earlier student participation in FIRST LEGO League as this cohort graduates from high school. For example, a young man who participated in FLL in middle school and continued onto high school robotics at East High School, is now successfully enrolled in UAF's engineering program and recently interned with BP.

State funding is needed to sustain the infrastructure and continue the momentum of FIRST Robotics in Alaska. It is an investment in workforce development and Science, Technology, Engineering and Math (STEM) capacity.

**Project Timeline:**

Expenditures will begin July 1, 2012 and continue through two fiscal years.

**Entity Responsible for the Ongoing Operation and Maintenance of this Project:**

n/a

**Grant Recipient Contact Information:**

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Has this project been through a public review process at the local level and is it a community priority? ☒ Yes ☐ No



**RESOLUTION of the Board of Directors in support of  
State of Alaska Funding for *FIRST* Robotics  
Resolution 01-12**

**WHEREAS**, according to the American College Testing (ACT) program, of the students of Alaska's high school class of 2010 who took the ACT test, 54% did not meet college-readiness benchmark in mathematics and 69% did not meet the college-readiness benchmark for science. (*ACT, The Condition of College & Career Readiness – Class of 2010, Alaska*); and

**WHEREAS**, U.S. jobs that demand technical training are growing five times faster than those requiring no technical training. (*National Math & Science Initiative*); and

**WHEREAS**, by 2018, it is projected that 90% of U.S. occupations will require either a bachelor's degree or a combination of college-level technical courses and employer sponsored technical training. (*US Bureau of Labor Statistics*); and

**WHEREAS**, Governor Sean Parnell has recognized the importance of increasing student achievement, by signing into law the Alaska Performance Scholarship, which will provide incentive for students to take a more rigorous curriculum, including four years each for courses in math and science, to better prepare students for college, job training and career success; and

**WHEREAS**, Alaska employers have increasingly expressed concern about the lack of Alaska job seekers with Science, Technology, Engineering, and Math (STEM) skills; and

**WHEREAS**, since 2007, Juneau Economic Development Council (JEDC) has developed a robust program to support STEM education in 25 school districts across the state, which includes teacher professional development, an array of summer and after-school enrichment programs, developing and subsidizing the cost of over 1,000 classroom science kits; and

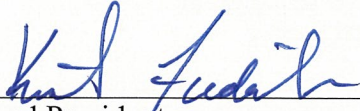
**WHEREAS**, JEDC is the operational partner for *FIRST* Robotics in Alaska, responsible for statewide coordination and support for the continuum of robotics programs, including Jr. *FIRST* LEGO League, *FIRST* LEGO League, *FIRST* Technology Challenge, and *FIRST* Robotics, and under whose leadership, Alaska has become a national leader, with the highest per capital participation in FIRST LEGO League and FIRST Tech Challenge in the nation; and

**WHEREAS**, the U.S. Department of Defense funding for K-12 STEM Outreach has declined and these cuts threaten the future of these programs in Alaska;

**NOW, THEREFORE, BE IT RESOLVED THAT:**



On this 1<sup>st</sup> day of February 2012, the Board of Directors of the Juneau Economic Development Council hereby requests funding of \$280,000 from the State of Alaska for *FIRST* Robotics to inspire, engage and train a new generation of students proficient in STEM skills and prepared for the projected 8,000 STEM job openings in Alaska.



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Board President

Kurt Fredriksson

2-6-2012

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Date

FIRST Tech Challenge Teams - 2011-2012 Season

<b>Team #</b>	<b>School/Organization</b>	<b>Community</b>	<b>Tournament</b>
3208	Dimond High School	Anchorage	Anc
3360	East High School	Anchorage	Anc
3492	East High School	Anchorage	Anc
3825	Dimond High School	Anchorage	Anc
3826	Bartlett High School	Anchorage	Anc
3827	Bartlett High School	Anchorage	Anc
4431	Service High School	Anchorage	Anc
4538	South High School	Anchorage	Anc
4539	South High School	Anchorage	Anc
4951	Dimond High School	Anchorage	Anc
4952	Dimond High School	Anchorage	Anc
4953	Dimond High School	Anchorage	Anc
4954	Dimond High School	Anchorage	Anc
4955	Dimond High School	Anchorage	Anc
5167	Bartlett High School	Anchorage	Anc
5168	Bartlett High School	Anchorage	Anc
5215	South High School	Anchorage	Anc
5223	Grace Christian School	Anchorage	Anc
5247	South High School	Anchorage	Anc
5358	East High School	Anchorage	Anc
5394	South High School	Anchorage	Anc
2005207	South High School	Anchorage	Anc
2005438	Dimond High School	Anchorage	Anc
2005221	Eagle River High School	Eagle River	Anc
2005430	Eagle River High School	Eagle River	Anc
3480	Twindly Bridge Charter School	Wasilla	Anc
5222	Twindly Bridge Charter School	Wasilla	Anc
5349	Burchell High School	Wasilla	Anc
5350	Burchell High School	Wasilla	Anc
3497	Lower Kuskokwim School District	Bethel	Bet
3500	Lower Kuskokwim School District	Bethel	Bet
3501	Lower Kuskokwim School District	Bethel	Bet
3502	Lower Kuskokwim School District	Bethel	Bet
3503	Lower Kuskokwim School District	Bethel	Bet
3792	Lower Kuskokwim School District	Bethel	Bet
4971	Lower Kuskokwim School District	Bethel	Bet
4972	Lower Kuskokwim School District	Bethel	Bet
4973	Lower Kuskokwim School District	Bethel	Bet
4974	Lower Kuskokwim School District	Bethel	Bet
5089	Lower Kuskokwim School District	Bethel	Bet
5122	Lower Kuskokwim School District	Bethel	Bet
5123	Lower Kuskokwim School District	Bethel	Bet
5124	Lower Kuskokwim School District	Bethel	Bet
4121	Kwethluk Community School	Kwethluk	Bet
4125	Qugcuun Memorial School	Newtok	Bet
3258	Lathrop High School	Fairbanks	Fbx
3595	Community Team	Fairbanks	Fbx
3705	Lathrop Robotics Club	Fairbanks	Fbx
4819	Effie Kokrine Charter School	Fairbanks	Fbx
2005363	Effie Kokrine Charter School	Fairbanks	Fbx
2005402	Hutchison High School	Fairbanks	Fbx
4357	Hoonah High School	Hoonah	Sit
4358	Hoonah High School	Hoonah	Sit
3081	Thunder Mountain High School	Juneau	Sit
3766	Thunder Mountain High School	Juneau	Sit
4138	Ketchikan High School	Ketchikan	Sit
4164	Mt. Edgecumbe High School	Sitka	Sit
4165	Mt. Edgecumbe High School	Sitka	Sit
4166	Mt. Edgecumbe High School	Sitka	Sit
5389	Sitka High School	Sitka	Sit
5101	Skagway High School	Skagway	Sit

FIRST LEGO League Teams - 2011-2012 Season

Team #	Team Name	Organization Name	City
14356	Pelican School	Pelican School	Pelican
12684	Huskies	Akiachak High School	Akiachak
3835	The Awesomes		Anchorage
616	North Star	North Star 21st CCLC Afterschool Program	Anchorage
635	Alaska Native Cultural School	Alaska Native Cultural School-21st CCLC Afterschool Program	Anchorage
8547	Sand Lake Samurai	Sand Lake Elementary	Anchorage
14183	Montessori Gerbils	Children's Garden Montessori	Anchorage
12052	Numquam Redono	Anchorage Christian Schools	Anchorage
8208	Speedy Sloths		anchorage
6538	Hanshew Hawks	Hanshew Middle School	Anchorage
5672	The Mighty Malamutes	O'Malley Elementary School	Anchorage
14164	Middle Squirrelers	Polaris K-12 School	Anchorage
14168	Mighty Midgets	Polaris K-12 School	Anchorage
13658	Trailside Timberwolves	Trailside PTA	Anchorage
14297	Chinook Dimonds	Chinook Elementary	Anchorage
11668	Raven Correspondence School	Yukon-Koyukuk School District	Anchorage
12747	Falconbots	Clark Middle School	Anchorage
637	"The Wolves"	Northwood ABC Elementary School	Anchorage
631	Williwaw Owls	21st CCLC after-school program - Williwaw Elementary	Anchorage
707	Taku Neutron Techies	Taku 21st Century Afterschool Program	Anchorage
908	Wolverines	Willow Crest Elementary	Anchorage
14210	Polar Bots	Polaris K-12 School	Anchorage
11918	Suns	Goldenview Middle School	Anchorage
14209	Polar Wolves	Polaris K-12 School	Anchorage
10348	PNA Robotic Panthers	Pacific Northern Academy	Anchorage
10404	Northern Lights	Northern Lights ABC School	Anchorage
6947	LEGO Zeppelin	Begich Middle School	Anchorage
11165	Aquarian	Aquarian Charter School	Anchorage
12799	Girl Scouts Team 8	Girl Scouts of Alaska	Anchorage
4964	Girlz vs. Food	Girl Scouts of Alaska	Anchorage
769	Chugach Electric Sparks	Chugach Optional	Anchorage
4965	Girl Scouts 5	Girl Scouts of Alaska	Anchorage
4960	Girl Scout 1	Girl Scouts of Alaska	Anchorage
4963	Robotchicks	Girl Scouts of Alaska	Anchorage
7858	Bionic Fire Squirrels	Highland Tech Charter School	Anchorage
10848	RP 1	Rogers Park Elementary	Anchorage
10850	RP 2	Rogers Park Elementary	Anchorage
10853	RP 3	Rogers Park Elementary	Anchorage
13644	Mears Robotic Panthers	Mears Middle School	Anchorage
794	Chugach Electric Generators	Chugach Optional	Anchorage
4962	Blight Busters	Girl Scouts of Alaska	Anchorage
4966	Girl Scout 6	Girl Scouts of Alaska	Anchorage
4967	Girl Scout 7	Girl Scouts of Alaska	Anchorage
14295	Robot vs Food	Chugach Optional	Anchorage
357	Robotic Seals	Ocean View Elementary	Anchorage
628	Muldoon 21st CCLC After-School Program	21st CCLC After School Program	Anchorage
11535	Electra-Maniacs	Turnagain Elementary	Anchorage
11538	Lego Strike	Turnagain Elementary	Anchorage
11540	Flaming Robots	Turnagain Elementary	Anchorage
11868	Mister Roboto's	Turnagain Elementary	Anchorage
961	Village People	Joann Alexie Memorial School	Atmoutluak
13968	Cruikshank School	Yukon Flats School District	Beaver
12643	Superbots	McCann Treatment Center	Bethel
929	Tundra Techs	Gladys Jung Elementary School	Bethel
931	Lego Crane Mushers	Gladys Jung Elementary School	Bethel
932	Mall*E	Gladys Jung Elementary School	Bethel
933	Blizzard Wizards	Gladys Jung Elementary School	Bethel
939	Roboslaps	Bethel Regional High School	Bethel
940	Bionic Warriors	Bethel Regional High School	Bethel
949	Ayaprunbots	Ayaprun Eliitnaurvik	Bethel
950	Robraings	Ayaprun Eliitnaurvik	Bethel
952	Kuskimos	Ayaprun Eliitnaurvik	Bethel
1503	Shamanbots	Chaputnguak School	Chefornak
14194	Upriver Robotics	Kuspuk School District	Chuathbaluk
854	Cranial Turbulence	VW Homeschool Hui	Chugiak
14143	Gastineau Elementary School	Gastineau Elementary School	Douglas
12061	Lego Lunatics		Douglas
8916	Rosie Riveters		Eagle River
11048	The Lynx	Ben Eielson Junior High School	Eielson AFB
11067	Lynx, too	Ben Eielson Junior High School	Eielson AFB
11956	Crawford Caribou	Crawford Elementary School	Eielson AFB
5477	Boys & Girls Club of Fairbanks 2	Boys & Girls Club of Fairbanks	Fairbanks
9881	Boys & Girls Club of Fairbanks 1	Boys & Girls Club - Fairbanks	Fairbanks
590	Denali Panthers	Denali Elementary School	Fairbanks
10302	Iron Nerds	Effie Kokrine Charter School	Fairbanks
12673	TeraByte Warriors	Effie Kokrine Charter School	Fairbanks
4786	Knights of the Lego Table	Interior Distance Education of Alaska	Fairbanks
11694	Lego Distraction	Chinook Montessori Charter School, FNSBSD	Fairbanks

## FIRST LEGO League Teams - 2011-2012 Season

Team #	Team Name	Organization Name	City
9142	Weller Whales	Weller Elementary School	Fairbanks
7867	Rock'em Sock'em Robots	Nordale Elementary School	Fairbanks
14135	Team Hunter	Hunter Elementray School After School Program	Fairbanks
14141	Team Hunter 2	Hunter Elementray School After School Program	Fairbanks
11871	Black Bears	Randy Smith Middle School	Fairbanks
11685	Joy 1	Joy Elementary School, FNSBSD	Fairbanks
11690	Joy 2	Joy Elementary School, FNSBSD	Fairbanks
1817	Ryan Robotics One	Ryan Middle School	Fairbanks
1818	Ryan Robotics Two	Ryan Middle School	Fairbanks
1819	Ryan Robotics Three	Ryan Middle School	Fairbanks
1820	Ryan Robotics Four	Ryan Middle School	Fairbanks
13452	PLC Puffins Robotics	Pearl Creek Elementary	Fairbanks
14161	Pearl Creek Puffins 2	Pearl Creek Elementary	Fairbanks
11950	Lego Demons	Barnette Magnet School After School Program	Fairbanks
11953	Mabuhay	Barnette Magnet School	Fairbanks
11955	WOW (We're Obsessed Weirdos)	Barnette Magnet School	Fairbanks
11958	Bob	Barnette Magnet School	Fairbanks
912	Eagles 1	Tanana Middle School	Fairbanks
914	Eagles 2	Tanana Middle School	Fairbanks
1191	Robo Wolves	Two Rivers School	Fairbanks
5012	Deltabots	Ft. Greely School	Ft. Greely
14344	GangGreen	Haines middle school	Haines
10076	Viking Robot Warriors 2	Denali Borough School District	Healy
3896	Viking Robot Warriors	Tri-Valley School	Healy
10910	Dragons1	McNeil Canyon Elementary	Homer
10911	Dragons2	McNeil Canyon Elementary	Homer
13676	Math Nerdz		Homer
2092	Ferocious Lego Lovers	Hoonah City Schools	Hoonah
12529	Cheeseheads		Indian
13000	Riverbend Team #1	Riverbend Elementary School	Juneau
13002	Riverbend Team #2	Riverbend Elementary School	Juneau
7148	Lochness Monkeys		Juneau
9049	Auke Bay 4th grade	Auke Bay Elementary	Juneau
14383	Dryden Eagles	Floyd Dryden Middle School	Juneau
1516	Robotic Bears	Glacier Valley Elementary	Juneau
6490	Dzantik'i Heeni 1	Juneau School District	Juneau
6496	Dzantik'i Heeni 2	Juneau School District	Juneau
9052	Auke Bay 5th Grade	Auke Bay Elementary	Juneau
942	RoboFreaks	Akiuk Memorial School	Kasigluk
11479	Carnivores	Tustumena Elementary	Kasilof
9107	Legoteers		Kenai
6895	Boys	Interior Distance Education of Alaska	Kenai
12648	Schoenbar Middle School	Schoenbar Middle School	Ketchikan
333	ROBoT PANDAS	Ketchikan Charter School	Ketchikan
5382	Fawn Mountain Robotics	Fawn Mountain School	Ketchikan
959	Vikings	Ket'acik/Aapalluk Memorial School	Kwethluk
849	Herders	Nuniwarmiut School	Mekoryuk
13915	Charles Leask Middle School	Annette Island School District	Metlakatla
14262	Bristol Bay Robotics Club	Bristol Bay Borough School District	Naknek
927	Huskies	William Miller Memorial School	Napakiaik
946	Hawks	Z John Williams Memorial School	Napaskiak
934	Yungat	Ayaprun School	Newtok
853	Nighthawks	Nightmute School	Nightmute
12330	Nikiski Dawgs	Nikiski Middle/High School	Nikiski
2467	Northway Robotics	Alaska Gateway School District	Northway
928	Hornets	Qugcuun Memorial School	Oscarville
10437	Mechanical Moose	Palmer Junior Middle School	Palmer
13215	Mechanical Moose	Palmer Junior Middle School	Palmer
6507	Glacier Bearbots	Sherrod Elementary	Palmer
6718	Eagles	Stedman Elementary School	Petersburg
14173	Keet Gooshi Heen Elementary School	Keet Gooshi Heen Elementary School	Sitka
5673	Skagway School	Skagway School	Skagway
1594	Roadrunners	Redoubt Elementary	Soldotna
7295	Tetlin Robotics	Alaska Gateway School District	Tetlin
7296	Tok Robotics	ALASKA GATEWAY SCHOOL DISTRICT	TOK
956	Bay Bots	Nelson Island School	Toksook Bay
954	Got Milk?	Paul T Albert Memorial School	Tununak
13489	HHES LEGO Robotics Club	Valdez City School District	Valdez
13460	Tanaina FIRST Robotics	Tanaina Elementary	Wasilla
11320	Team 2	Wasilla Lake Christian School	Wasilla
6691	Team 1	Wasilla Lake Christian School	Wasilla
1847	Twindly Bots	Twindly Bridge Charter School	Wasilla
1848	Twindly Bears	Twindly Bridge Charter School	Wasilla
14355	Stikin Middle School	Wrangell School District	Wrangell