U.S. DEPARTMENT OF EDUCATION

GreenRibbonSchools

School Nominee Presentation Form

ELIGIBILITY CERTIFICATIONS

School and District's Certifications

The signatures of the school principal and district superintendent (or equivalents) on the next page certify that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of their knowledge. *In no case is a private school required to make any certification with regard to the public school district in which it is located.*

1. The school has some configuration that includes grades early learning to 12.
2. The school has been evaluated and selected from among schools within the Nominating Authority's jurisdiction, based on high achievement in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. Neither the nominated public school nor its public school district is refusing the U.S. Department of Education Office of Civil Rights (OCR) access to information necessary to investigate a civil rights complaint or to conduct a district wide compliance review. The Department of Defense Education Activity (DoDEA) is not subject to the jurisdiction of OCR. The nominated DoDEA schools, however, are subject to and in compliance with statutory and regulatory requirements to comply with Federal civil rights laws.
4. OCR has not issued a violation letter of findings to the public school district concluding that the nominated public school or the public school district as a whole has violated one or more of the civil rights statutes. A violation letter of findings will not be considered outstanding if OCR has accepted a corrective action plan to remedy the violation.
5. The U.S. Department of Justice does not have a pending suit alleging that the public school or the public school district as a whole has violated one or more of the civil rights statutes or the Constitution's equal protection clause.
6. There are no findings of violations of the Individuals with Disabilities Education Act in a U.S. Department of Education monitoring report that apply to the public school or public school district in question; or if there are such findings, the state or public school district has corrected, or agreed to correct, the findings.
7. The school meets all applicable federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

U.S. Department of Education Green Ribbon Schools

☒ Public ☐ Charter ☐ Title I ☐ Magnet ☐ Private ☐ Independent ☐ Rural

Name of Principal: Mr. Jim Caldwell
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in the official records)

Official School Name: Forest Lake Area High School
(As it should appear on an award)

Official School Name Mailing Address: 6101 Scandia Trail North, Forest Lake, MN 55025
(If address is P.O. Box, also include street address.)

County: Washington State School Code Number *: 831

Telephone: 651-982-8400 Fax: 651-982-8428

Web site/URL: Forest Lake Area High School (https://www.flaschools.org/hs) E-mail: wschroeder@flaschools.org

**Private Schools: If the information requested is not applicable, write N/A in the space*

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

Date: 2/4/2019

(Principal's Signature)

U.S. DEPARTMENT OF EDUCATION

GreenRibbonSchools

Name of Superintendent: Dr. Steve Massey
(Specify: Ms., Miss, Mrs., Dr., Mr., etc.) (As it should appear in official records)

District Name:

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.

Steve Massey _____ Date: 2/5/2019

(Superintendent's Signature)

Nominating Authority's Certifications

The signature by the Nominating Authority on this page certifies that each of the statements below concerning the school's eligibility and compliance with the following requirements is true and correct to the best of the Authority's knowledge.

1. The school has some configuration that includes grades Pre-K-12.
2. The school is one of those overseen by the Nominating Authority which is highest achieving in the three ED-GRS Pillars: 1) reduced environmental impact and costs; 2) improved health and wellness; and 3) effective environmental and sustainability education.
3. The school meets all applicable federal civil rights and federal, state, local and tribal health, environmental and safety requirements in law, regulations and policy and is willing to undergo EPA on-site verification.

Name of Nominating Agency: Minnesota Department of Education

Name of Nominating Authority: Commissioner Mary Cathryn Ricker, NBCT
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

I have reviewed the information in this application and certify to the best of my knowledge that the school meets the provisions above.

Mary Cathryn Ricker Date:2/14/19

(Nominating Authority's Signature)

SUBMISSION

The nomination package, including the signed certifications, narrative summary, documentation of evaluation in the three Pillars, and photos should be submitted online according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509
Expiration Date: March 31, 2021

Public Burden Statement

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. The valid OMB control number for this information collection is 1860-0509. Public reporting burden for this collection of information is estimated to average 37 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit P.L. 107-110, Sec. 501, Innovative Programs and Parental Choice Provisions. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20202-4536 or email ICDocketMgr@ed.gov and reference the OMB Control Number 1860-0509. Note: Please do not return the completed ED-Green Ribbon Schools application to this address.

Minnesota Green Ribbon School and District Award
Application Cover Sheet 2018-19

School or District Information

District or School Name: Forest Lake Area High School
Street Address: 6101 Scandia Trail North
City: Forest Lake State: MN ZIP code: 55025
Website: Forest Lake Area High School Website
Facebook: Forest Lake Area High School Facebook Page
Twitter: Forest Lake Area High School Twitter Page

Superintendent Name: Dr. Steve Massey
Superintendent Email Address: smassey@flaschools.org
Phone Number: 651-982-8103
Principal Name (if a school application): Mr. Jim Caldwell
Principal Email Address: jcaldwell@flaschools.org
Phone Number: 651-982-8401
Lead Applicant Name (if different): Ms. Devon Vojtech
Lead Applicant Email: dvojtech@flaschools.org
Phone Number: 651-982-8439
Grades at the school: High School Grades 9-12
How would you describe your district: (place an "x" after your choice?)

Urban:
Suburban: X
Rural:

Total Enrolled: 1971 (December 2018)
Does your school or district serve 40 percent or more students from disadvantaged households? ___Yes _X_No

Percentage receiving free or reduced-priced lunch: 16% (9.85% Free, 6.15% Reduced; 2018-2019 school year data)
Percentage limited English proficient: 1.2% (2017-2018 school year data)
Percentage special education: 10.9% (2017-2018 school year data)
Graduation rate: 89.6% (2017-2018 school year data)

Summary Narrative Encompassing All Three Pillars

Forest Lake Area High School, located 30 minutes north of Saint Paul, Minnesota, serves nearly 2000 students from the following communities: East Bethel, Forest Lake, May Township, Ham Lake, Hugo, Columbus, Lino Lakes, Linwood, Scandia, Marine, Stacy and Wyoming. Recently, the high school has undergone significant construction by expanding and renovating spaces with a focus on environmental sustainability. In the fall of 2018, student enrollment increased from grades 10-12 to grades 9-12. Even with a larger building and 500 additional students, the high school reduced energy use per square foot and energy use per student.

New and renovated spaces now include glass windows and doors, six refillable water bottle stations, and flexible spaces for collaborative student learning. The new two-story addition added small group conference rooms, significant amounts of natural light, and science and agricultural spaces. Energy efficient LED lighting with motion sensors are in classrooms, hallways, and throughout the entire building. Approximately 1500 solar panels (418 kW of power) on the high school rooftop saves the school district approximately $70,000 per year.

Energy efficient boilers and an updated HVAC system use remote monitoring and zonal setbacks to reduce energy use. The motion sensors in each room identify occupied versus unoccupied spaces and automatically adjust room temperature. Occupied zones are set between 70-72^{o}F and unoccupied zones are set at 65^{o}F in the winter and 85^{o}F in the summer. The cumulative environmental impact of these energy efficient renovations is a 38.6% reduction in greenhouse gas emissions on a square foot basis from the 2012-2013 school year to the 2017-2018 school year.

Water conservation saved over 4 million gallons of water between September 2012 and August 2018 (Figure 1). Changes in irrigation equipment (rain detectors) and practices (programmable sprinklers) significantly enhanced water conservation. A storm water reuse project underway will utilize retention ponds for water storage before filtration and irrigation on athletic fields. Not only does the storm water reuse project save on potable water use, but it reduces the amount of storm water pollution that otherwise would have been added to Clear Lake.

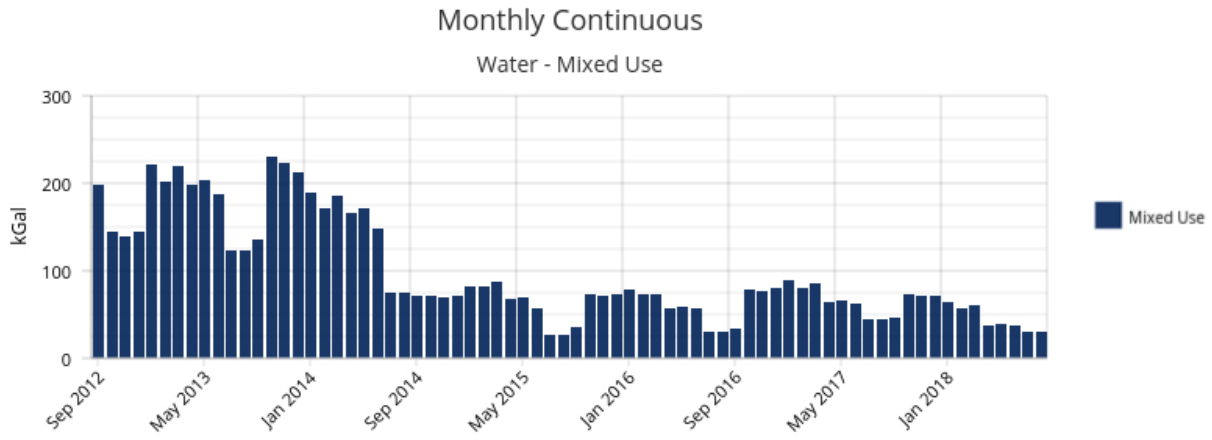

Figure 1: Water use at Forest Lake Area High School by month from September 2012 to August 2018.

Staff and student well-being is supported through wellness activities, mental and physical health supports, and diverse clubs and activities. Positive Behavioral Interventions and Supports is being implemented at Forest Lake Area High School over the next several years to improve overall school culture. Depression screening for the incoming student class has taken place each fall since 2013 to identify students with mental health needs and provide the necessary support. One hundred and forty-nine junior and senior student Link Leaders serve as mentors for ninth and tenth graders.

Student volunteer hours, measured through an online recording system and organized by the United Nations Sustainable Development Goals, surpassed 3000 hours in the fall of 2018 (September to December). Most of these hours supported the United Nation goals of Quality Education, Sustainable Cities and Communities, and Good Health and Well-Being. In November 2017 over 150 students participated in the global Paper Crane Project celebrating the 2017 Nobel Peace Prize awarded to the International Campaign to Abolish Nuclear Weapons. Forest Lake Area High School students

folded over 230 origami paper cranes while learning about the Japanese student Sadako Sasaki and the legend of 1000 paper cranes. Students posed for pictures with their paper cranes to share internationally with other schools and for display at the Nobel Peace Prize ceremony.

Comprehensive environmental education in social studies, science, agriculture, and physical education focus on humans' interaction with the natural environment in both required and elective courses. Students spend time outside collecting field data (soil/water sampling) and connect with the natural environment through outdoor recreation (mountain biking/ice fishing). Students have multiple opportunities to earn college credit and national certifications (Emergency Medical Technician and Certified Nursing Assistant), practice sustainable initiatives, and learn about environmental careers (Figure 2).

Figure 2: DNR Conservation Officer and Game Warden speaking at the Learning Stairs during the 2018 Fall Career Day with an American Sign Language interpreter. Photo credit: Lee Anne Brockman

The Environmental Club received the 2018 Washington County Public Health Achievement Award for a group. Students educate others on recycling practices, volunteer with local organizations, and collaborate with Youth Eco Solutions to complete projects, including the on-campus pollinator garden. Students in the Environmental Club partnered with Climate Generation, a Minneapolis-based non-profit organization, to host a Youth Convening Minnesota event held at the high school in the spring of 2019. For this event, students plan and facilitate a public community-wide event that focuses on climate change science with local stories and solutions.

Forest Lake Area High School provides all students with an environmental foundation to achieve success. A district-wide commitment to environmental literacy promotes a responsible and engaged community. Two students from the Environmental Club, Jake Ross and Kaitlyn Atkin, spent significant time collecting data and contributing to the writing of the Green Ribbon School application.

Cross-Cutting Programs

1. Is your district participating in a local, state or national program, such as EPA ENERGY STAR Portfolio Manager, EcoSchools, Project Learning Tree, or others, which asks you to benchmark progress in some fashion in any or all of the Pillars?

   FLAHS utilizes the B3 Benchmarking program to measure energy and water consumption. With B3 Benchmarking the high school is automatically enrolled in the EPA ENERGY STAR Portfolio Manager program.

2. Has your district received any awards for facilities, health or environmental education?

   2018 Green Champion Award for Water Stewardship Project from the Forest Lake Chamber of Commerce
   The Forest Lake Area School District received the Green Champion award for a water reuse initiative located at Forest Lake Area High School. Storm water runoff at the high school typically flows into Clear Lake, but through the reuse project storm water now enters retention ponds, is filtered, and reused for athletic field irrigation. Additionally, teachers developed water reuse curriculum to utilize in the classroom and share with teachers in other districts.

   2018 Washington County Public Health Achievement Award for a Group
   Twenty-three students in the Forest Lake Area High School Environmental Club received recognition for ongoing environmental stewardship. Students participated in weekly club meetings, cleanup of school grounds, educational events, and community engagement. As part of the award ceremony students received a letter of recommendation and framed certificate.

   2017 Minnesota Association for Environmental Education Formal Environmental Educator of the Year
   The Minnesota Association for Environmental Education recognized Forest Lake Area High School earth and space science teacher and environmental club adviser, Devon Vojtech, for formal environmental education with high school students. All graduating students participate in science-based climate change education curriculum that includes both science and solutions.

   2017 Japan-U.S. Teacher Exchange Program for Education for Sustainable Development
   Forest Lake Area High School earth and space science teacher, Devon Vojtech, participated in an international teacher exchange program that focused on the United Nations Sustainable Development Goals. Twelve U.S. teachers and twelve Japanese teachers collaborated in-person on environmental issues while experiencing and learning about other cultures. Students from both countries electronically engaged in shared sustainable development lessons.

3. Does the district have a sustainability program or coordinator?

   Sustainability programs within the Forest Lake Area School District are coordinated by the Supervisor of Building and Grounds, Bill Schwartz, and the Director of Business Services, Larry Martini. These roles evaluate building operations for environmental impacts and financial savings.

Pillar I: Reduced Environmental Impact and Costs

***Element A**:* reducing or eliminating greenhouse gas emissions, including using energy audits, energy efficient facilities and practices, and use of renewable energy.

Over the past few years, Forest Lake Area High School (FLAHS) has taken many steps to reduce its greenhouse gas emissions. New construction at the school utilized energy-efficient equipment such as LED lights, motion-sensor light switches, and virtual monitoring and automatic control of HVAC equipment to minimize energy use. In addition, the school has installed solar panels on the rooftop, which generate renewable energy and further reduce greenhouse gas emissions. The cumulative impact of these efforts has been a 38.6% reduction in greenhouse gas emissions on a square foot basis from the 2012-2013 school year to the 2017-2018 school year (19.54 pounds of carbon dioxide equivalent per square foot between September 2012 and August 2013 to 12.00 pounds of carbon dioxide equivalent per square foot between September 2017 and August 2018) (Figure 3). This reduction was calculated using B3 Benchmarking, an analytical tool that uses data from the school's energy bills to track energy usage over time.

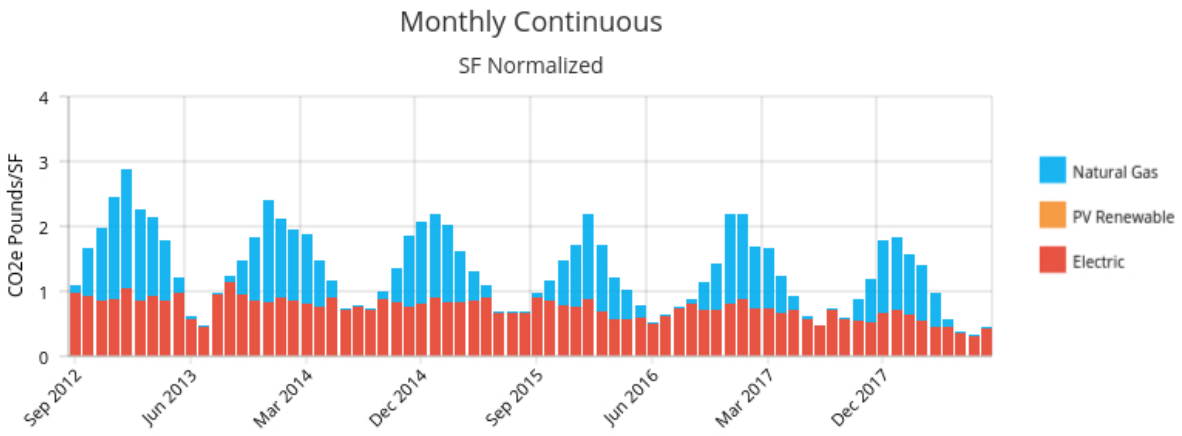

Figure 3: Pounds of carbon dioxide equivalent emissions per square foot at FLAHS by month from September 2012 to August 2018.

With the addition of approximately 500 ninth grade students in September 2018, a full school year of data (September 2018-June 2019) is not yet available to illustrate the decline in energy use and carbon emissions per person. Construction of additional square footage neared completion in August 2017, providing enough data to show a dramatic drop in energy use and emissions per square foot.

By using B3 Benchmarking, the high school is automatically given an EPA ENERGY STAR Portfolio Manager Account. FLAHS has an EPA Energy Star score of 78.

Between the 2012-2013 school year and the 2017-2018 school year, FLAHS reduced its non-transportation energy use from 103.62 kBTU per square foot (September 2012 and August 2013) to 70.47 kBTU per square foot (September 2017 and August 2018). These reductions were documented using data in B3 Benchmarking from the school's energy bills.

Over the past year (from the beginning of November 2017 to the end of October 2018), the high school has obtained 23.31% of its energy from the electric grid, 71.16% of its energy from natural gas, and 5.53% of its energy from solar panels installed on the school. FLAHS has about 1,500 solar panels totaling 418 kW of power, which were installed in increments starting in fall 2015. The solar panels are owned by a third party investor that sells the energy to the school. 42.4% of this energy is pre-purchased by the school to receive a reduced rate. Since installation, the solar panels on the high school rooftop saved the school district approximately $70,000 per year. Over the last year (from the beginning of November 2017 to the end of October 2018), the solar panels have generated a total of 1,992,415 kBTU of electricity, equivalent to about 583,919 kWh.

***Element B**:* improving quality, efficiency and conservation of water.

FLAHS has taken steps to reduce water consumption through water-efficient boilers and water reuse practices for athletic field irrigation on school grounds. Rain detection, programmable and efficient sprinkler heads, and leak detection alarms further reduce water use for irrigation. In addition, the school district is partnering with Rice Creek Watershed District and the City of Forest Lake to develop the first phase of a long-term storm water reuse and education program starting at FLAHS. During the first phase, storm water pond retrofits and construction of new irrigation infrastructure will reduce potable water usage at the high school by over 4 million gallons per year. Further, educational curriculum will be developed to integrate the reuse technology and water conservation concepts into biology, agriculture and earth and space science courses. The project also resides in the Clear Lake Watershed which has undergone a complete diagnostics study, continued water quality monitoring of the tributary inflows and the lake, and several key water quality improvement projects. The addition of storm water reuse projects will reduce the volume of inflow by 4.1 million gallons, reduce total suspended solids by 4650 pounds, and reduce total phosphorus by 19.5 pounds to Clear Lake annually. The project budget is $560,000.

These cumulative efforts have resulted in an enormous reduction in water use at FLAHS. Potable water use has declined from 2,103,000 gallons (September 2012 and August 2013) to 621,000 gallons (September 2017 and August 2018) (Figure 1). This represents a 70.5% reduction in domestic water use. The high school significantly reduced potable water use to irrigate school grounds, saving 4,083,000 gallons of water once used for irrigation between September 2012 and August 2013. These reductions were documented using data in B3 Benchmarking from the high school's water bills.

FLAHS plans to use storm water as an alternate source of water for irrigation. The aforementioned project is building an irrigation system that will use storm water to reduce the high school's potable water use for irrigation by 4.1 million gallons. The storm water reuse system includes features to collect runoff, a surface pond to store the runoff, and a filtration/pump station with piping to convey the reuse water to the irrigation areas. The projects incorporates the existing ball field irrigation system. The pump station will include pumps and a control system that will monitor flow and pressure and adjust the pumping rate to meet the demand. In addition, FLAHS uses retainment ponds and sediment ponds to reduce amounts of polluted storm water runoff.

The safety of drinking water at the high school is ensured by annual tests conducted by the City of Forest Lake. In addition, the Minnesota Department of Health conducts lead tests of water in the school. The wells that provide water for the high school are tested for lead and copper, with a requirement that the concentration of either substance in water be less than 20 parts per billion.

In total, about 13% of school grounds at FLAHS are dedicated to ecologically beneficial uses, including the school pollinator garden and two wooded areas.

***Element C**:* reducing solid and hazardous waste through recycling and composting, reduced consumption, and improved management.

FLAHS, with approximately 2,000 students, reduces solid waste by actively separating commingled recyclables (8 cubic yard dumpster picked up once per week), cardboard (6 cubic yard dumpster picked up twice per week), and metal (6 cubic yard dumpster picked up on call) from trash (8 cubic yard dumpster picked up six times per week and a two cubic yard grounds dumpster picked up twice per week).

High visibility four-gallon blue recycle bins are located in all classrooms and recycling is collected by students in the Special Education Department on a daily basis (Figure 4). On average these students collect between 2-3 cubic yards of classroom recycling each week, the majority of which is paper. In addition to helping reduce school waste, students learn how to read a weekly work schedule, experience a consistent work routine, and engage in map reading skills.

Figure 4: Students in the Special Education program emptying classroom recycle bins. Photo credit: Kayla Oakley

Four 32-gallon blue recycle bins, provided by Washington County, are located in high traffic hallway areas and the cafeteria. They are emptied weekly by a student in the Environmental Club, resulting in 70-90 gallons of recycling per week.

The cafeteria staff composts approximately 75 gallons per week of left over and unusable food through the Food to Hogs program. Students implemented a lunch-time Food Share Table to reduce the disposal of unopened quality food. In January and February of 2018, students shared nearly 100 food items such as milk and fruit.

All hazardous waste generated at FLAHS is disposed of in a responsible manner through contracted companies. Science chemical storage containers are clearly labeled and is picked up upon request when all teachers have completed the lab. Routine inspections from the Washington County Fire Marshall monitor the science stockroom and waste disposal. A science staff member has completed the Flinn Scientific Chemical Safety training to ensure proper chemical storage and waste disposal. Acids and bases are neutralized before disposal and no other corrosive liquids are used. Less than 100mL of heavy metal solutions are stored until the waste treatment company arrives for disposal and all mercury has been removed from the science department.

Electronic devices throughout the school are recycled with practices aligning with vendors. Staff computers are refurbished by Minnesota Computers for Schools.

***Element D**:* expanding use of alternative transportation through active promotion of locally-available transportation, energy efficient options and implementation of alternative transportation supportive projects and policies.

A Safe Routes to School grant for $471,795 provided walking path connections along US Highway 61, 8th Street SE, and 11th Avenue SE to connect FLAHS, Forest Lake Area Middle School, Saint Peter's Catholic School, and Lakes International Language Academy (MN DOT 2014 SRTS Grant Recipients). Bus driver policy limits idling and supervisors have the ability to track drivers by GPS.

Pillar 2: Improve the health and wellness of students, faculty, and staff

Element A: an integrated campus environmental health program, including: pest management, contaminant controls, asthma control, indoor air quality, moisture control and chemical management.

FLAHS proactively monitors and manages campus environmental health. Common practices include: contracted routine food service pest management spray schedule, Indoor Quality Improvement Energy Management System, removal of nearly 100% mercury from the building, carbon monoxide monitors, long-term radon test (December 2018 to March 2019), regular testing for asbestos, lead paint removal or covered by several layers of non-leaded paint, new HVAC system, no PCBs, green chemicals used when appropriate, and annual visits by the Fire Marshall. The high school parking lot is swept every spring to remove sand and grit from winter de-icing. A student from the environmental club is providing training for custodians on sidewalk salting best practices.

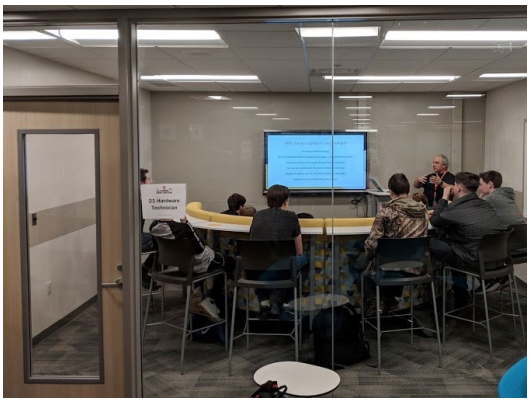

Figure 5: Students attend a Hardware Technician career day presentation in a newly renovated FLAHS Media Center conference room. Photo credit: Lee Anne Brockman

Through recent renovations, FLAHS has added more than 440 square meters of exterior windows in classrooms and hallways, attributing to over 60% of the school's total natural light. Students and staff now have access to additional collaboration spaces with flexible seating from small-group conference rooms to a multi-class size Learning Stairs. The Media Center added more than 65 square meters of glass walls, including a glass classroom and several conference rooms (Figure 5).

Element B: health and wellness programs, including nutrition and outdoor physical activity. Other components you may include are: health education, health services, counseling, psychological and social services, sun safety, staff health promotion, and family and community involvement.

FLAHS offers students and staff a comprehensive health and wellness experience. Student health and wellness programs are offered during the school day for all students and extracurricular programs for before or after school. The staff wellness program focuses on the seven dimensions of wellness (physical, emotional, intellectual, social, spiritual, environmental, and occupational). Activities and incentives improve staff morale, relationships, and an overall positive work experience.

The onsite Fairview Clinic offers free medical resources to staff and family members covered by district health insurance. Treated services include minor illnesses, minor injuries, skin conditions, vaccinations, and sport physicals. A health enhancer benefit promotes annual wellness checks, which adds $500 to a Health Reimbursement Account upon completion.

The Forest Lake Area School District's Health Service mission is to promote the health, safety and well-being of students. Each school building has a health office that is primarily staffed with a Licensed Practical Nurse (LPN). There are also three Licensed School Nurses (LSN's) that cover the district. As a team the LPN and LSN provides professional support to students enrolled in the district. The School District has developed policies and procedures that are based on the recommendations of the Minnesota Department of Health and the Minnesota Department of Education.

Since 2013 a mental health survey has been offered to all students of the incoming class. Depression screening, funded by the Mark A. Pursley Foundation ($1500 per year) and the Allina Health Charitable Giving fund ($1500, fall 2018) has evaluated a total of 2,295 students, reaching approximately 90% of students in each class per year. Based on student responses, follow up takes place within 1-2 days determined by Tier 1 or Tier 2 criteria. From 2013-2017, students that

met follow up criteria ranged from 15-24% each year. Follow up strategies begin with an in-person meeting and contacting a parent or guardian.

All ninth and tenth grade students meet the Health Education and Physical Education Minnesota state standards in required physical education courses. Student course electives such as outdoor education and natural resources offer diverse outdoor environmental experiences.

FLAHS partners with Pine Technical and Community College for health-related college credits and eligible certification. Approximately 100 students per year complete the Emergency Medical Responder course and earn 3 college credits. Upon completion of this course, students may enroll in the Emergency Medical Technician course to earn 6 college credits (approximately 22 students per year). After completion of these courses, students are eligible to take the National Registry of Emergency Medical Technicians exam. Students may also enroll in Introduction to Health Care, earning students 4 college credits with the option to take the Certified Nursing Assistant exam.

Over 700 students participate in multiple athletics, over 110 students in service organizations, and the high school offers over 60 different student account groups. Student clubs include: Black Student Union, Culinary Club, Debate, DECA, Drumline, Environmental Club, FFA, GSA, History Day Club, Hmong Club, Link Leaders, NHS, Healthy Minds, Robotics, Rotary Interact, SADD, Sign Language Club, Speech, Student Council, Student Equity Leaders, and Youth Service Club.

Student Equity Leaders (23 students at FLAHS), meet 2-3 times per month to discuss equity issues and social justice within the school and community. Through Saint Paul Schools Center for Equity and Culture/Equity Department students meet 3-4 times per year with students at Creative Arts Secondary School (CASS). Through this partnership, FLAHS students from a predominately white student body partner with CASS, a school that is very diverse in racial makeup. During partnership days students are led through activities that address inequities, primarily due to race or ethnic background (Figure 6).

Figure 6: Student Equity Leaders present at CASS during a student equity partnership day. Photo credit: Kim Vanneste

One hundred and forty-nine Link Leaders mentor incoming student classes (fall 2018 included both freshman and sophomores classes). Upperclassman lead new students through a successful experience during the high school transition. Mentors provide students with a tour of the school and meet with them every month. The primary goal of Link Leaders to provide a structure for students to make real connections, thereby increasing school safety, reducing bullying, and building community.

Over the next several years FLAHS is implementing Positive Behavioral Interventions and Supports (PBIS). During the first year a team of one administrator, one dean, one school psychologist and five teachers completes six training days to learn about the PBIS system. This team analyzes the current school system around behavior and develops an implementation plan to improve overall school culture. A new electronic behavioral database evaluates student behavior in order to assist with positive change for staff and students.

Pillar 3: Effective Environmental and Sustainability Education

Element A: interdisciplinary learning about the key dynamic relationships between environmental, energy and human systems. Show how these concepts are integrated into assessments, and describe environmental and sustainability literacy professional development and co-curricular activities.

The FLAHS Environmental Club received the 2018 Washington County Public Health Achievement Award for a group. Student led projects included: planting 128 native pollinator plants on campus (Figure 7), hosting an environmental film and educational event, collecting over 600 pounds of old holiday lights during three seasons, creating a Food Share table in the high school cafeteria, and hosting several community guest speakers on topics ranging from storm water to asphalt.

The Environmental Club has collaborated with Youth Eco Solutions (YES!), a Minnesota based environmental youth organization, for the past three years. Over 21 members of the YES! Team, sponsored by Apex Efficiency Solutions, participated in the 2017-2018 school year and 76 students are currently connected to electronic club communication via Google Classroom. Students planted over 200 seeds in repurposed milk cartons to give away on Earth Day and attended environmental education workshops. One of these workshops showcased the City of Forest Lake as a GreenStep City. Students volunteered for Great River Greening on two different occasions to plant trees and remove invasive buckthorn in nearby parks.

Figure 7: Environmental Club members, Nicole Babineau and Graden Bloom, planting native plants in the FLAHS pollinator garden. Photo credit: Devon Vojtech

Environmental literacy, integrated in both required and elective courses, focuses on human interaction with Earth's four spheres (atmosphere, hydrosphere, biosphere, and geosphere). In the required world history course, students read primary sources, weigh evidence, and apply their own findings to present day. The theme of environmentalism versus economic development is crucial to discussions on the Industrial Revolution and the link between health and environmental quality.

Required biology, earth and space science, and physical education courses regularly utilize the natural environment for learning. Biology students conduct field analyses, earth and space science students evaluate climate data, and physical education students engage in outdoor lessons.

Forest Lake Area High School offers numerous elective courses for students to explore different sustainability themes. Many of these courses spend time outside making observations, conducting water and soil sampling, identifying trees, or experiencing physical outdoor activities.

- Agricultural courses include: fish and wildlife management, natural resources science, alternative energies, and animal science courses. The annual showcase of Ag Day invites all students to explore a hydroponics trailer with Central Lakes College, information tables, and live animals. This event invites specialists from the DNR, recruiters from higher education institutions, and student group presentations on planting trees, bees and pollinators, etc.

- Physical Education offers two outdoor education courses. The fall or spring season course includes activities such as bicycling, canoeing, water safety, orienteering, and related outdoor recreational activities that promote physical fitness. The winter season activities include Nordic skiing, Alpine skiing, snow caving, winter survival, orienteering, broomball and related outdoor recreational activities that promote physical fitness. The impact of recreational activity on the environment receives special attention in both of these courses. Class sessions are held outdoors as well as in the classroom. Field trips are scheduled during certain units for practical application of skills.

- Science courses include: environmental science and meteorology. In these courses students participate and initiate research projects that examine all aspects of environmental stability and the complexity of natural systems. Students collect data outdoors and analyze the way humans interact with their environments.

Element B: environment and sustainability curriculum and programs to develop STEM content knowledge and thinking skills to prepare students for the 21st century technology-driven economy.

Biology, agriculture, and earth and space science instructors are writing curriculum for the FLAHS storm water reuse project. The installed reuse technology and water conservation concepts onsite brings environmental literacy into the classroom. In the spring of 2018, over 20 environmental education students tested the impact of salt water on the growth rate of plants, evaluating sidewalk and road salting practices. In 2018 the Agricultural Department received a $2000 grant to develop a hydroponics system and $3600 grant for an aquaponics system with the goal of reaching over 300 students annually with implementation and growth of the program. Earth and space science students evaluate the human use water cycle focusing on the questions, “Where does your water come from?” and “Where does your used water go?”

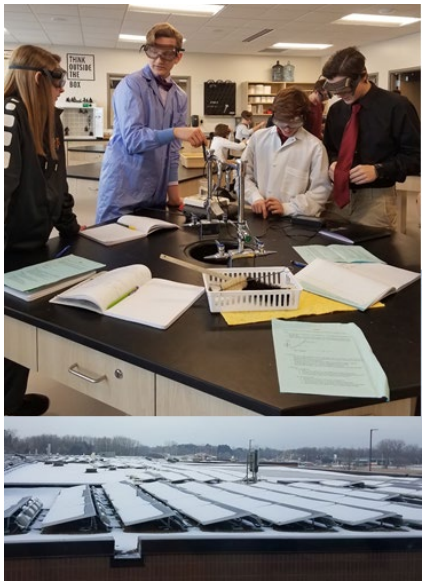

Figure 8: Advanced placement chemistry students (top) in a second floor lab space that overlooks the first floor rooftop solar panels (bottom). Photo credit: Lynda Rupp

The addition of a two-story science and agriculture wing has provided students the ability to view the solar panels installed on the original one-story portion of the school. Three chemistry classrooms with floor to ceiling windows overlook the panels. Students often ask questions about the panels; the most frequently asked question: “How do they remove snow from the panels?” (Figure 8).

In earth and space science students design and test passive solar water heaters. For this project, students are provided all the necessary equipment, but no formal instructions. Students evaluate the equipment and problem solve engineering designs to create an operational system. Students collaborate with other groups, and eventually, measure water temperature change over time.

In 2019, students in the greenhouse technology course will participate in a cistern project to collect rainwater for use in the FLAHS greenhouse. Students learn about water resource management and have ability to transfer their skills into small scale water reuse projects in their community.

Element C: the development of civic engagement knowledge and skills and students’ application of such knowledge and skills to address sustainability issues in their community.

National Honors Society, Youth Service Club, Rotary Interact, and the Environmental Club utilize InnerView for online tracking of volunteer hours. From September-December 2018 over 100 students volunteered more than 3000 hours in the school and community. InnerView organizes student volunteer hours according to the United Nations Sustainable Development Goals. Over 730 volunteer hours have been dedicated to Quality Education, 715 hours for Sustainable Cities and Communities, and 615 hours for Good Health and Well-Being.

Several community guest speakers presented to students at Environmental Club meetings over the past three years. These interactions led to long-term environmental student projects and community relationships:

- Representatives from Climate Generation, a Minneapolis-based non-profit organization, presented to students in September 2018 and January 2017 to discuss climate change solutions. Two students, Kaitlyn Atkin and Annica Stiles, are participating in a long-term leadership opportunity to plan a Youth Convening Minnesota event held at FLAHS in the spring of 2019. This public convening focuses on science, stories, and solutions to climate change. Businesses, students, and families are invited to share their own stories regarding climate change and discuss solutions to the problem.

- In October of 2018, Jack MacKenzie, a volunteer with the Comfort Lake - Forest Lake Watershed District, presented on storm water drainage and introduced students to a local storm drain stencil project. Six students stenciled 15 drains in Lakeside Park encouraging the community to, "Dump No Waste; Drains to Lake," (Figure 9).

- In October of 2017, Dan Undem the Assistant to the City Administrator in Forest Lake presented on recycling in the community. Afterward environmental club member Adam Strupp sat down with Mr. Undem to discuss the potential for an Eagle Scout project that focused on increasing recycling in Forest Lake parks. After eight months of planning and collaboration, Adam recruited volunteers, designed posters for distribution, created signs for mounting on bins, and installed 11 new recycle bins (four replacement bins and seven additional bins) in Fenway Park and Beltz Park (Figure 10).

The FLAHS College and Career Center offers students numerous opportunities to learn about environmental careers. A Solar Panel Technician and recent graduate from FLAHS spoke to 480 seniors as part of a panel sharing education and work experiences after high school. In the fall of 2018, FLAHS hosted 82 different sessions on Career Exploration Day. Eight professionals in environmental careers presented to 395 students. These careers included: Arborist, DNR Forestry Fire Technician and Forester, Professor of Fish, Wildlife, and Conservation Biology, Horticulturist, Landscaper and Nursery Owner, Engineer (Project Manager of Construction Planning and Sustainability), Facility Operations Manager, and DNR Conservation Officer and Game Warden (Figure 2).

Figure 9: Reed Nelson and Matthew Strupp stencil storm water drains in Lakeside Park to raise awareness for the direct flow of storm water into Forest Lake. Photo credit: Elizabeth Campbell

Figure 10: Volunteers John Zigelski and Tristan Brunfelt rivet a sign onto a recycle bin. Photo credit: Adam Strupp