



Lowell Elementary School

California Nominee to
U. S. Department of Education Green Ribbon Schools
Public School



Prepared by
California Department of Education
School Facilities and Transportation Services Division
<http://www.cde.ca.gov/lr/fa/sf/greenribbonprog.asp>
January 2014



2013-2014 School Nominee Presentation Form

PART I - ELIGIBILITY CERTIFICATION

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 one or more of grades Pre-K-12. (Schools on the same campus with one principal, even a Pre-K-12 school, must apply as an entire school.)
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.
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 2014

Charter Title I Magnet Private Independent

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

Official School Name Lowell Elementary School
(As it should appear on an award)

School
Mailing Address 5201 East Broadway
(If address is P.O. Box, also include street address.)

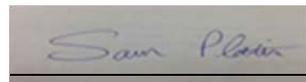
City Long Beach State CA Zip 90803

County Los Angeles County State School Code Number 1964725-6015473

Telephone (562) 433-6757 Fax (562) 438-3264

Web site/URL www.lowell-lbusd-ca.schoolloop.com E-mail splatis@lbschools.net

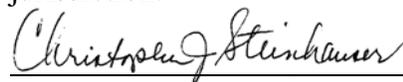
I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate.


(Principal's Signature) Date January 16, 2014

Name of Superintendent* Mr. Christopher J. Steinhauser
(Specify: Ms., Miss, Mrs., Dr., Mr., Other)

District Name* Long Beach Unified School District Tel. (562) 997-8242

I have reviewed the information in this application and certify that to the best of my knowledge all information is accurate. This is one of the highest performing green schools in my jurisdiction.


(Superintendent's Signature) Date January 16, 2014

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



PART II – SUMMARY OF ACHIEVEMENTS

Instructions to School Principal

Provide a concise and coherent "snapshot" that describes how your school is representative of your jurisdiction's highest achieving green school efforts in approximately 800 words. Summarize your strengths and accomplishments. Focus on what makes your school worthy of the title U.S. Department of Education Green Ribbon School.

PART III – DOCUMENTATION OF STATE EVALUATION OF NOMINEE

Instructions to Nominating Authority

The Nominating Authority must document schools' high achievement in each of the three ED-GRS Pillars and nine Elements. For each school nominated, please attach documentation in each Pillar and Element. This may be the Authority's application based on the Framework and sample application or a committee's written evaluation of a school in each Pillar and Element.

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 one or more of grades Pre-K-12. (Schools on the same campus with one principal, even a Pre-K-12 school, must apply as an entire school.)
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

California Department of Education

Name of Nominating
Authority

Tom Torlakson, State Superintendent of Public Instruction
(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.

Tom Tonkaleson

Date January 30, 2014

(Nominating Authority's Signature)

The nomination package, including the signed certifications and documentation of evaluation in the three Pillars should be converted to a PDF file and emailed to green.ribbon.schools@ed.gov according to the instructions in the Nominee Submission Procedure.

OMB Control Number: 1860-0509
Expiration Date: February 28, 2015

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.

PART II – SUMMARY OF ACHIEVEMENTS

Lowell Elementary School

Growing, Conserving, and Learning-by-Doing

Lowell has a comprehensive program to promote green practices at school, at home, and in the community. With students as the primary decision-makers and stewards, school programs promote exercise, carbon-reduction, resource conservation, and healthy choices. Staff, community partners, and 80+ parent Green Team volunteers work together to provide unique, hands-on environmental education for every student.

Every Lowell child participates in the Green Team's Learning Garden, totaling 8,000 instructional hours per year. The unique curriculum was developed on-site and is volunteer-taught and academic standards-based, providing enrichment and supplemental lessons for every grade level in science, social studies, ELA, math, art, and the humanities. The Learning Garden began with three raised beds in 2006 and has evolved into a thriving outdoor educational program that teaches all students the connection between healthy food choices, a vibrant community, and environmental stewardship. Over time, volunteers built three additional raised beds, created five Colonial plots, and designed a new Outdoor Classroom with five more raised beds, student seating, teaching areas, and composters. In 2012, the California State PTA recognized the Learning Garden, which includes a National Wildlife Federation certified habitat and Monarch Butterfly Waystation, with its Spotlight Award. The Learning Garden has an especially strong connection to Special Education students, who have weekly lessons on natural resources, healthy food choices, and manners. This is a place where all children partake in meaningful experiences and foster a sense of caring and community.

The Lowell Green Team also promotes responsible resource management in all aspects of student life. Student Green Team members divert more than 28,000 gallons of classroom recyclables annually from the trash. Since 2012, Lowell has worked with nonprofit Grades of Green and the City of Long Beach to provide school-wide waste reduction assemblies and help students sort lunch waste into trash, compost, and recycling. Fifth graders perform detailed waste audits and supervise sorting stations, reducing lunch waste by 68% so far. In the Learning Garden, students use washable plates, silverware, cups, and cloth napkins and discuss how to reduce their carbon footprint. Car Free Fridays, promoted and measured by the Student Council, eliminate more than 150 lbs. of CO₂/week and encourage exercise. In January 2014, Lowell held its first E-waste drive with E-Recycling of California, and created a video to teach students the importance of recycling electronic materials. To reduce water usage, volunteers planted native and drought-tolerant gardens. To increase permeable surfaces on campus and capture particulate matter in the air, Lowell partnered with design firm Studio One Eleven and Long Beach Councilmember Gary DeLong to plant 48 trees on-site.

The Long Beach Unified School District (LBUSD) has reduced overall district energy costs by \$3.6 million/year since 2002, and Lowell is doing its part to reduce its environmental impact and cost. 100% of on-site irrigation is now from recycled water, and an innovative Solar Bench will soon power the sprinkler system and electrical outlet in the Outdoor Classroom. Although the main school building dates to 1926, the school was able to achieve ENERGY STAR certification with a score of 98 in 2013.

At Lowell, student and staff health is a priority. The PTA funds a certified Physical Education teacher through events such as Pennies for PE and the Long Beach Fire Department Saturday Breakfast. All students log at least 200 minutes of P.E. every two weeks, and all students and

most teachers participate in the annual Jog-a-Thon. Lowell also emphasizes proper nutrition. All Learning Garden lessons—which involve students, teachers, and parents—focus on the importance of healthy food choices. Students grow and eat organic produce, build digestive system models, and use computers to research and understand nutrition. In 2012, 4th and 5th graders partnered with King Arthur Flour for a skill building and community service project in which students baked two loaves of bread—one to keep and one to donate to Meals on Wheels—and 147 loaves were donated. The school also encourages active lifestyles. 55% of students walk or bike to school, and alternative transportation is promoted on Car Free Days. In 2012, the City of Long Beach and Bike LB installed new, on-site bike racks; additional bike racks are slated for the front and side of school. Students take more than 15 walking field trips each year and use public buses to the library, Ralphs, and Rancho Los Alamitos.

Lowell is also preparing its students for college and career with a host of on-site opportunities. The Solar Bench will allow students to analyze and understand benefits of solar power as a renewable energy resource and emerging technology. The solar contractor and others with careers in alternative energy and the care of natural resources speak to students on Career Day. Also, in the Learning Garden, students mimic Farm-to-Table careers including farmer, harvester, processor, and distributor; they also conduct interviews with actual farmers at the local Farmers Market and visit farms. On the annual Merchant Mentor Day, students' shadow 20 locally owned or operated businesses, reinforcing curriculum about producers and consumers, the importance of buying local, and what makes a community.

PART III – DOCUMENTATION OF STATE EVALUATION OF DISTRICT NOMINEE

Pillar I: Reduce Environmental Impact and Costs

Element IA: Energy

- LBUSD has established and closely managed Energy Conservation Guidelines for all 84 school sites and performs regular energy audits using the ABSOLUTE system. Lowell's new Solar Bench will expose all students to energy conservation curriculum.
- Lowell demonstrated a 29.14% reduction in greenhouse gas emissions (26.75 Metric Tons of CO₂) between March 2003 and September 2013 using data from Energy CAP Program.
- Lowell received ENERGY STAR certification with a score of 98 in 2012 and 2013.
- Lowell demonstrated a 17.4% reduction in non-transportation energy between March 2003 and September 2013 using data from Energy CAP Program & Energy Star Portfolio Manager, LBUSD Energy Savings Program - Cost Avoidance Summary / Energy Types.
- 20% of the energy delivered by Edison comes from renewable sources.
- Lowell participates in Demand Response Summer Discount Program through Edison.
- In partnership with Studio One Eleven Architects, an open-space plan was created for Lowell and 48 drought-tolerant trees were planted on campus to provide shade for buildings and the playground, thereby reducing the heat island effect.
- Lowell is a Central Computer energy management system (EMS), and uses electronic programmable thermostats and has installed T8 and LED lamps, delamped from 4-2

tubes in each 2x4 fixture. LED auditorium program alone is saving 75% energy. New high-efficiency hot water boilers have been installed.

Element IB: Water and Grounds

- The school's water use per person is 747 gallons per year. Lowell used Energy CAP to document a 9.3% reduction in domestic water use from January 2002 to July 2013.
- 50% of the school's landscaping is considered water-efficient and/or regionally appropriate.
- Spread throughout the perimeter and interior of the school is the following: Abutilon, Arctostaphylos, Asclepias, Calylophus, Ceanothus, Diplacus, Erigeron, Festuca californica, Galvezia, Isocoma, Limonium, Lobelia, Muhlenbergia, Salvia apiana and clevelandii.
- 100% of Lowell's irrigation is tertiary-treated recycled water and is controlled by Evapotranspiration controllers (ET) to insure that grounds are only irrigated when the weather conditions require it. 75% of all water used is for irrigation.
- The rainwater downspout in our Outdoor Classroom drains to a filtration area to reabsorb storm water. All gardens created since 2006 reduce storm runoff and are permeable surfaces. Other areas of school are grass/landscaped to reduce storm runoff.
- Potable water is 38% ground water, 42% imported, and 6% treated reclaimed; all three sources treat using multi-stage processes including controlled doses of chlorine and chloramine.

Element IC: Waste

- 39% of solid waste is diverted from landfilling or incinerating due to reduction, recycling, and/or composting.
- 100% of the school's total office/classroom paper content is post-consumer material, fiber from forests certified as responsibly managed, and/or chlorine-free.
- All hazardous waste tracked and disposed of according to district policy. Lowell follows the Asbestos Hazard Emergency Response Act (AHERA) and an Environmental Health and Safety Program is in place. LBUSD appropriately disposes of any compact fluorescent light bulbs (CFLs), cathode ray tubes (CRTs), and central processing units (CPUs), e-waste, and batteries used on-site.
- Recycling is tracked by observation and detailed waste audits are performed by all 5th grade students.
- All students are involved in reducing waste, starting with a waste assembly in the fall. Students recycle or compost all paper, plastics, cardboard, organics, etc. produced on-site. The Green Team holds annual E-waste collection events and promotes Zero Waste Lunch incentives and education. 5th graders perform waste audits, supervise sorting stations, and maintain our compost piles. Students recycle and compost in class and at garden lessons, and have reduced waste by more than 3,000 gallons/month.
- LBUSD's Operations Branch is responsible for the cleaning of district sites. Whenever possible, every effort is made to include green-certified cleaning products in the evaluation and bid process. LBUSD looks for and includes green products in requests for proposals and quotes whenever possible.
- 15-20% of all cleaning products are third-party-certified by Green Seal or the US Environmental Protection Agency (EPA).

Element ID: Alternative Transportation

- 38% of students walk to school. 17% bicycle or skateboard. 18% carpool. 6% ride the school bus. 1% use other public transportation. The entire school was surveyed in person by Student Council Representatives and Special Education classes, using a kid-friendly data collection form. Students are surveyed several times each year to track progress and results are shared school-wide via weekly video announcements.
- Lowell has vehicle loading/unloading areas at least 25 feet from building intakes, doors, and windows; and secure bicycle storage.
- Lowell participates in the Safe Routes to School program, which covers bike and pedestrian safety, traffic skills, vehicle codes and laws, suggested routes to school (including crossing guards), and the fitness and environmental benefits of biking.
- Lowell has over 15 walking field trips annually and uses public buses (alternative fuel) whenever possible. 35% of the LBUSD bus fleet is powered by compressed natural gas and these buses are used for transport of Special Education students and for some field trips.
- The entire Lowell community is focused on reducing its impact through the following programs:
 - Car Free Friday: promoted by Student Council, Bike LB and City of LB installed bike racks, reduced 150 lbs. of CO₂/week, will host livability/biking expert Charles Gandy at PTA/Earth Day celebration.
 - Garden lessons: model sustainability by using melamine plates, metal utensils, and cloth napkins.
 - Zero Waste Lunch: created and implemented by 5th graders and supported by nonprofit Grades of Green has reduced waste by 15 cubic yards/month.

Pillar II: Improve the Health and Wellness of Students and Staff

Element IIA: Environmental Health

- Lowell's Integrated Pest Management (IPM) plan mandates that pesticides only be used as needed. Staff conducts routine inspections and reports problems to the district's Pest Control, which conducts pest identification, application of non-toxic solutions, monitoring, and recordkeeping.
- There have been no routine applications of pesticides since before the implementation of IPM in 2000. Non-poison, Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)-exempt solutions are used before chemical alternatives are considered. As such, no percentage reduction values are available.
- Lowell has a written no-smoking policy and signs are posted. Mercury thermostat switches were replaced by electronic switches, mercury thermometers replaced by alcohol. CO detectors are in place for gas stoves. LBUSD is AHERA-compliant and radon testing is conducted at all sites and the district's Chemical Management Program covers purchasing.
- Classrooms are constructed to achieve an acoustical performance of 45 dBA background noise level (unoccupied) or better and have acoustic tiles. All classrooms have windows for natural light and T12-T8 electric lighting.
- Elementary school academic curriculum does not call for use of chemicals. Custodial staff has received training about on-site cleaning chemicals, including proper handling and storage, and use of personal protection equipment (goggles, gloves, masks, etc.) Pesticides and herbicides are applied by the district and are not stored on-site. The

district posts notice of application prior to event and it is usually done in off campus hours to control student and staff exposure.

- Loose or flaky paint is analyzed for waste characterization and any affected areas are stabilized. If necessary, structures are removed according to identified proper disposal. All drinking structures containing lead were removed and backflow check valves have been installed. The City of Long Beach Water Department conducts monthly water quality tests.
- Custodial staff cleans the classrooms, hallways, auditorium, and offices daily, including vacuuming carpets and sweeping all floor surfaces. The cafeteria is cleaned several times a day and staff uses district-approved safe food storage practices. Smoking is not allowed on campus. Over 48 additional trees were recently planted on-site to help reduce, capture, and mitigate particulate matter.
- Water leaks or other liquid spills that might foster mold growth are addressed promptly. Substantial leaks are addressed at the source and small leaks are cleaned and dried with mops. Extractors, fans, and dehumidifiers are used as needed to prevent condensation and excess moisture from developing. Where leak/moisture damage is substantial, the district subcontracts to licensed restoration companies, who remove possible mold and install fresh material.
- Lowell's Merv 8 pleated air filters are replaced twice per year. If the ventilation unit requires cleaning, it is performed at that time or when service is requested by the school.
- All classrooms, bathrooms, cafeteria, offices, computer lab, and the library have operable windows as a source of air ventilation. In addition, every classroom has ceiling fans and Lowell's new forced draft heating units include a feature to filter and circulate outside air. On-site bungalows, used for classrooms and other spaces, have operable windows and complete HVAC systems.
- The district follows the EPA Indoor Air Quality (IAQ) Tools for Schools framework, inspecting and addressing HVAC systems, monitoring and addressing moisture issues, implementing the IPM plan, rigorously cleaning and maintaining the site, and purchasing products with limited environmental impact. Additionally, the school has yearly inspections of chemical safety, fire extinguishers, safety equipment, and twice-yearly AHERA inspections.

Element IIB: Nutrition and Fitness

- Lowell provides over 8,000 hours of garden-based education to all students in our on-site Outdoor Classroom. Children grow, harvest, and eat from the garden, as well as host an annual produce sale for charity. The P.E. program is taught by a certified teacher and assessed using FITNESSGRAM testing. Afterschool wellness programs feature Skate Dogs, TKB Theater Company and INSPYR Arts. All families receive sun protection guidelines/policies.
- All students log at least 200 minutes of P.E. every two weeks on the playground with a certificated P.E. teacher, plus supervised outdoor recess of at least 75 min/week. P.E. includes calisthenics, sports and general fitness, and can include yoga and Tai Chi. In addition, all students take a dance class biweekly. All students and most teachers participate in annual Jog-a-Thon.
- Teachers lead and participate in P.E., dance, Jog-a-Thon, and garden classes with their students. Teachers, recreation aides, and office staff are also encouraged to harvest vegetables, such as lettuce, carrots, herbs, and peas, from the Outdoor Classroom. The Green Team meets with faculty to promote wellness by implementing class garden lessons, discussing local and seasonal eating, and making food using healthy recipes.

- Tanaka Farms has provided community-supported agriculture (CSA) boxes with fresh, local produce as a PTA fundraiser; the Food Bank of Southern California receives proceeds from our annual organic produce sale (all student-grown/harvested); students take walking field trips to local businesses, Local Harvest Farmers Market, the public library, and Ralphs.
- Lowell uses a Coordinated School Health approach. A registered nurse and a licensed vocational nurse are on-site one day a week with additional visits as necessary. Lowell also has a school psychologist, a behavior specialist, a school psychology intern, a counselor, an occupational therapist, and a speech specialist all assigned to the school. Recreation aides encourage active recess time. Best practices for staying healthy and state-approved health curriculum are in place and emphasize wellness.
- The Long Beach Fire and Police Departments participate in school assemblies, attend fire drills, and bring education trailers on-site to educate students about health and safety. Middle school students from neighboring Rogers are aides in many classrooms and provide teacher support for health and safety programs. A Lowell parent, Howard Mayo, with the Orange County Environmental Health Department, hosts an educational booth at our Earth Day celebration.
- Lowell's Six Pillars of Character Education (Trustworthiness, Respect, Responsibility, Fairness, Caring, and Citizenship) are integrated into all school programs to support student mental and academic health. 5th grade "Peace Keepers" provide playground supervision and conflict resolution to younger students. Our Special Ed. and General Ed. students are paired in a "Lunch Buddy" program to promote healthy relationships among diverse groups. An anti-bullying unit is taught in 4th grade.

Pillar III: Provide Effective Environmental and Sustainability Education

Element IIIA: Interdisciplinary Learning

- Our unique garden program augments California Academic Standards with hands-on science, math, social studies, and ELA lessons for K-5, including planting, seed biology, photosynthesis, food chains, weather, ecosystems, geology, watersheds, natural resources, citizenship, economics, journaling, cooking, and composting. Lessons are enhanced by partnerships with California State University Long Beach, Farmers Market, and Food Bank of Southern California. Lowell achieves high API scores (935 in 2013), indicating students master environmental and sustainability education requirements.

Element IIIB: STEM Content, Knowledge, and Skills

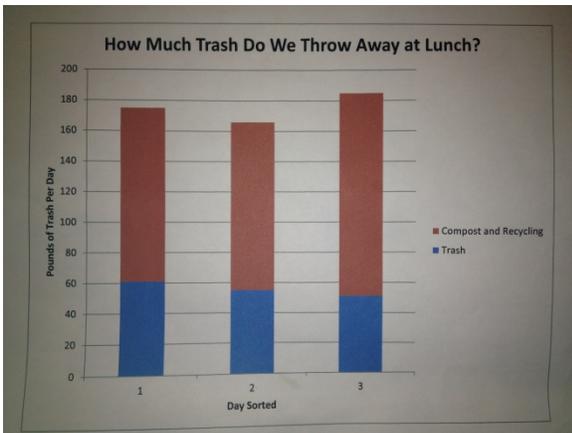
- Students are immersed in hands-on, grade-appropriate, garden-based lessons that support California State standards and curriculum, such as STEM. Examples:
 - Kindergarten: Hypothesizing/measuring/graphing/counting plant growth
 - First Grade: Building/monitoring weather stations, tracking sun's energy with life-size food chain, making solar prints
 - Second Grade: Analyzing/amending local soil samples, calculating food miles
 - Third Grade: Calculating food costs/profit and running produce stand, on-line exploration of My Plate nutrition guidelines
 - Fourth Grade: Building models of local watersheds, computer modeled drought-tolerant gardens; building volcanoes and modeling plate tectonics

- Fifth Grade: Weighing/sorting lunch trash to calculate waste and monitor recycling/composting rates and documenting the Zero Waste Lunch on iPads
- Green Team works with all Special Education students to conduct transportation surveys and calculate/analyze data.
- Lowell offers many chances to learn about green technologies and career pathways:
 - Solar Bench: Allows students to analyze/understand benefits of solar power as a renewable energy resource/emerging technology. The solar contractor and others with careers in alternative energy/care of natural resources will speak for Career Day.
 - Composting: By turning trash into healthy fertilizer, composting teaches about green waste reduction.
 - Grades of Green assembly: Highlights local recycling/landfill facilities, including related careers.
 - Long Beach City College campus tour: Presents green career options.
 - Learning Garden: Students “mimic” Farm-to-Table careers including farmer, harvester, processor, and distributor; they conduct interviews with actual farmers at local Farmers Market, and visit farms.
 - Merchant Mentor Day: Students “shadow” 20 locally owned/operated businesses, reinforcing curriculum about producers/consumers, the importance of buying local, and what makes a community.

Element III C: Civic Knowledge and Skills

- All grades participate in Car Free Friday, a student-driven effort to reduce greenhouse gas emissions (GHG) and decrease congestion in the neighborhood.
- For Earth Day, students recycle telephone books, make crafts from salvaged materials, and learn conservation concepts from the Long Beach Water Department and Orange County Health Department.
- PTA and students hold various food and clothing donation drives. Lowell reaches out to other schools in the community (West in Downey, Lafayette and McKinley in Long Beach) by offering financial support, donating gently used books and clothing, and sharing the Learning Garden curriculum.
- Lowell provides more than 8,000 hours of unique outdoor learning garden curriculum to students across the grades:
 - Kindergarten: Centennial Farm trip; plant Iroquois “Three Sisters” garden; grow vegetables/herbs and make recipes.
 - First Grade: Plant/harvest peas; track weather/seasons; make solar prints; make ice cream to explore states of matter.
 - Second Grade: Walk to Farmers Market; learn about “Farm to Table” by planting crops and harvesting/processing/distributing; take/analyze soil samples; use old fashioned tools and churn butter.
 - Third Grade: Plant a garden as a “small business” then market/sell produce and donate proceeds; hatch quail for California Symbols; identify California native plants in local biome.
 - Fourth Grade: Walking field trip to Colorado Lagoon to study ecosystems; tend compost piles (traditional/worm); make geology models; study/model watershed pollution.

- Fifth Grade: Colonial medicinal/culinary herb garden (plant dyes, tea, molasses candy); human body systems lesson; reproductive plant parts dissection; photosynthesis demonstration; waste audit; Zero Waste Lunch program.
- Lowell's Learning Garden uses a multi-disciplinary approach to reinforce stewardship of the environment, respect and care for the community and the interconnectedness of all living things. Every lesson has several academic components (science, math, social studies, ELA), hands-on activities (planting, cooking, and modeling) and woven throughout is continual building of respect for each other and our community (manners, donating, recycling). A perfect example is the 3rd grade produce stand. It starts by reading *Uncle Willie and the Soup Kitchen* to understand the importance of community. Students then plot and plant a vegetable garden and create a mock-up of a smoothie shop to understand what it takes to run a small business. The students use concepts of costs/profit to calculate the price of their produce, advertise their sale, harvest/wash/bag/label the bags and run the cash register to hold and on-campus produce sale. All proceeds are donated to the Food Bank of Southern California.
- Past ED-GRS selectees Longfellow, Hughes, and other "Green Schools Coalition" members share best practices, and student interns from CSULB volunteer in the Learning Garden.
- Business relationships include: E-Recycling California and Future Shredding support community e-waste event; Local Harvest Farmers Market field trips; campus tree planting with Studio One Eleven; Solar Bench with Solar Source/Adam Wheeler Design
- Government relationships include: Lisa Harris, Recycling Specialist/City of Long Beach advises on materials/composting; Gary DeLong (City Council) sponsored E-waste education and tree planting; Long Beach Water Department attends/provides Earth Day activities.
- Nonprofit partners include: Grades of Green, providing educational materials and a recycling assembly; Friends of the Colorado Lagoon and Tidal Influence, promoting habitat restoration and native plant propagation through walking field trips; 3rd graders donate to the Food Bank of Southern California through organic produce sale; 4th and 5th graders worked with Meals on Wheels to provide home-baked bread to homebound seniors.
- Lowell's recycling program began in 2010 with one parent's attempt to recycle white paper. It's evolved into a kid-powered school-wide effort to recycle all mixed materials produced in classrooms, offices, and the cafeteria. The school measures and calculates their efforts, allowing kids to analyze the waste stream and implement solutions.
- The Learning Garden began with three raised beds in 2006 and has become a thriving outdoor educational program that teaches all students the connection between healthy food choices, a vibrant community, and environmental stewardship. The Learning Garden provides lessons to support California Academic standards at all grades. In 2008, Lowell added three raised beds and created five Colonial plots. In 2010, the Outdoor Classroom added seating, teaching areas, composters, and five beds. The Learning Garden has a strong connection to Special Education students, who have weekly lessons on natural resources, healthy food choices, and manners. This is a place where all children partake in meaningful experiences and foster a sense of caring.



(Left, top to bottom) First grade pea math; waste diversion graph; student recycling. (Above, top to bottom) Baking bread assembly; zero waste lunch.