

The Dayton Regional STEM School

Developing the Dayton Region's Talent
Base through STEM Education

Phillip L. Parker, CAE, CCE
President and CEO
Dayton Area Chamber of Commerce



Introduction: The Dayton Regional STEM School

The mission of Dayton Regional STEM School (DRSS) is to prepare students with the skills necessary to compete in the global economy while nurturing in our young people the same enthusiasm for discovery, invention and application that launched the vision for powered flight. The DRSS, opening with the 2009-2010 academic year, will serve students residing in Clark, Greene and Montgomery counties. Hosted by the Wright State University and anchored in the Air Force Research Laboratories, the school will initially admit the ninth grade class, then will add two additional levels every year until grades six through twelve are all in session. Each grade will have 80 students and the entire school enrollment will not exceed 600. Student eligibility will be based on interest and commitment, not academic achievement. Area business and educational entities have pledged to support and collaborate with school to provide a one-of-a-kind educational experience.

The DRSS, part of the region's EDvention program will additionally act as a laboratory for new and innovative curriculum to be shared with *WeEXCEL*, the Regional STEM Center, local school districts, charter schools, parochial education institutions and every partner in the region open to the idea that more and/or advanced knowledge in science, technology, engineering and mathematics is one of the most important keys to providing the workforce in our area that can and will sustain economic vitality through jobs of the future.

However, the DRSS is just one part of the larger need for a more educated workforce for this region. It will be a major focal point in our long-term task and will be under great scrutiny if it succeeds or fails. This specific project is not "an all eggs in one basket" approach. It is just the opposite. The school will be a microcosm of what we know will be a multi-county, regional approach to the demand side of jobs that will be developed in our community. It will be the project that "models the way" for the Dayton area's business, job and citizen futures through the 21st century and beyond.

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Regional Action Plan: The Dayton Regional STEM School

WHO: The Dayton, Ohio region, a region in southwestern Ohio made up of a 9-county area in excess of 1.2 million citizens. Dayton at its hub is a 3rd tier urban center with 161,000 people surrounded by suburbs and rural areas that has suffered from the loss of auto manufacturing jobs over the last 4 decades and who must now transform itself into a community more geared to the 21st century jobs that can and will replace the traditional low-skill manufacturing jobs of the past.

WHAT: The Dayton Regional STEM School Initiative (see Introduction) is one strategic part of an overall initiative of the region's EDvention program. It is the development of a regional school that will educate students in 6th – 12th grades and act as a laboratory for curriculum in the areas of science, technology, engineering and mathematics.

WHEN: Beginning in 2007, the business and education communities came together to plan and decide what could be done to take advantage of the known job growth in certain industries with our current and future populations. What grew out of an initiative to simply grow jobs became the overarching need for a much more skilled workforce. Since 2007, the business and education communities have identified certain skill sets needed that will take new resources or the prioritization of our current resources to produce. The state of Ohio and local legislators have been partners from the beginning of this initiative as well as other local economic development organizations and private-sector funders.

Now in 2009, we are ready to unveil one of the "gems" of this initiative, a stand-alone public charter school anchored by Wright State University (across the street) and Wright-Patterson Air Force Base Research Laboratories. The new school is on target to open this fall with a 9th grade class of 80 to 90 students. Ultimately grades 8 through 12 will be phased in by the beginning of the 2012-2013 academic year.

WHERE: This is a multi-county regional facility. Yes, real brick and mortar housed in Greene County, across from Wright State University and just outside the fence of Wright-Patterson Air Force Base, Ohio, the state's largest single-site employer with a local yearly economic impact of \$5.1 billion.

This is not just a Dayton Public Schools initiative; it is much broader reaching than that. It is designed to be centrally located so that students may attend from a variety of school districts throughout the region. Much effort has been used to ensure students

can attend this specific school and not miss any extra-curricular activities from their home school districts (i.e. sports, debate, etc.).

HOW: This has been a time-consuming and complex venture from many and varied people, partners and governmental entities across the region. It has been funded by both the public and private sectors with champions at each and every level.

Funding in any project can be the make-or-break element to its success. Fortunately, our local state delegation led by former Ohio Speaker of the House of Representatives Jon Husted, a former Dayton Area Chamber of Commerce staff member, was a strong supporter of the STEM movement and passed legislation that infused a \$600,000 grant in FY 2008 and later in FY 2009 a \$300,000 addition to stimulate the project. Additionally, the DRSS fiscal agent and largest four year university pledged \$500,000 to help launch the DRSS, bringing the total of state and university support \$1.4 million. As a public charter school, public school funding (state) dollars of \$5,732 per student annually will follow each student who attends the institution. Each home school district provides transportation, if necessary. This will ensure the school will have over \$3.5 million in annual public state support, not including private funding support that may subsidize capital costs.

Additionally, a campaign has been launched in partnership with EDVention to help raise \$350,000 in donations from the business community to help support STEM curriculum and STEM teacher training in traditional public schools throughout the Dayton region. We believe strongly that every school needs to have a strong STEM education program and we want to ensure that they have resources to implement this vital curriculum.

Special thanks must go to Wright State University for being the strongest partner and fiduciary agent; Wright-Patterson Air Force Base Research Laboratories for its time, talent and resources; the University of Dayton and a very large group of public and private-sector organizations who have given many resources and time, much of it strictly voluntarily, to carry out this particular project.

Additional information has been included as part of this Regional Action Plan to more fully discuss or answer questions concerning the status of this new school. Needless to say, we are still in the early stages of this project. Full implementation will not occur until the 2012-2013 school year where all seven grades, levels 6 – 12, will be functioning at a new and larger location yet to be determined. We have two academic years to develop and implement the building of a new school while infusing additional grade levels each year (2) until we complete the full phase-in.

Remember, this is only one project of many in our grand plan. But the Chamber, business and education leaders and public officials have all “drawn a line in the sand” to commit to this school. It will be a model for curriculum, teacher training, experimentation and innovation for the entire EDvention learning initiative.

NEXT STEPS:



1. The principal has been hired, but must fill 2009-2010 staff positions and prepare to implement plan through 2012-2013.
2. Recruit balance of class (9th grade) for 2009-2010. Currently 80 students have been recruited.
3. Fundraising for operational uses including gaps in state or local public tax support.
4. Move into new, temporary facility provided by Wright State University for an August 2009 opening.
5. Fundraising for the new facility that we will ultimately be used to house 600+ students, additional teacher trainers and trainees and administration.
6. Implement balance of plan (see section in this submission).

Conclusion: This project is more than just a dream of educators, the business community and government leaders. It is on a GREEN LIGHT for go.

We will be ready to start by this August and be well on our way for future expansion years. State funding is approved; but we will still need additional resources to complete our task and make this a unique and special educational experience for students and teachers alike.

I am proud of the hard work of many including my own Chamber volunteer leaders and our staff.

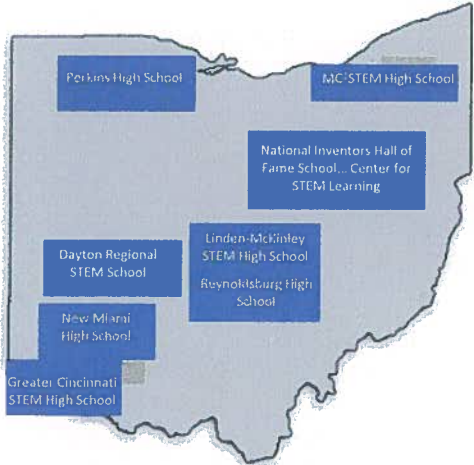
Our plan ... yes still not a fully implemented plan until 2012, is more than just an idea or dream. It is reality. And because it will happen, it will be just one more way we can sustain our community through the education of a future workforce which will apply to and seek out companies who will have innovative jobs ... well-paying jobs in science, technology, engineering and mathematics ... the jobs of the Dayton region's future.



The Dayton Regional
STEM
SCHOOL

Dayton Regional STEM School
Business Plan

HB 119 STEM Schools in Ohio



Perkins High School

MCSTEM High School

National Inventors Hall of Fame School... Center for STEM Learning

Dayton Regional STEM School

Linden-McKinley STEM High School

Reynoldsburg High School

New Miami High School

Greater Cincinnati STEM High School

Ohio STEM Learning Network

Why Dayton, why now?

- Strong legacy of successful collaboration and demonstrated success in public-private partnerships
- Spirit of innovation and invention
- One-of-a-kind centerpiece resource: WPAFB - AFRL
- Strong STEM infrastructure already in place



DRSS Partners

Business, Govt. & Industry

- DACC, DDC
- WPAFB-AFRL
- Mound Laser
- Standard Register
- CDO Technologies
- Time Warner Cable
- LexisNexis
- Texas Instruments
- Cornerstone Research Group
- Think TV
- National Composite Center
- Inventis
- ID Cast
- Peerless Technologies

K-12 Schools

- Fairborn, Xenia
- Huber Heights, West Carrollton
- Miami Valley CTC
- Greene County Career Center
- Clark, Greene, & Montgomery County ESC

Higher Education

- Clark State CC
- Sinclair CC
- Central SU
- UD
- WSU
- ATIC

Other

- Dayton Society of Natural History
- Dayton Regional STEM Center
- Muse Machine
- EDvention
- WeEXCEL



DRSS Governing Board

Greg Bernhardt, Wright State University
Susan Bodary, EDvention
Kimberly Kendricks, Central State University
Chris Kershner, Dayton Area Chamber of Commerce
Marsha Leonard, Greene County Career Center
Paul Nelson, CDO Technologies
Rick Negrón (ex-officio), Air Force Research Lab
David Novak, Inventis
Margy Stevens, Montgomery County ESC and STEM Center
Michele Wheatly, Wright State University



Current DRSS Employees

Brian Boyd, Principal
Judy Brown, Mathematics Teacher
Linda Hallinan, Science Teacher
Kevin Lydy, Social Studies Teacher
Tricia Gardner, Administrative Assistant

Prior to August, 2009

- External Communications Director
- Guidance Counselor
- Language Arts Teacher
- Support Teacher



Dayton Regional STEM School

- What qualities do you want developed in your child in the next four years?
- What expectations do you have for a school to develop these qualities?



Qualities Developed at DRSS

- **Persist** - Students will exhibit persistence, sustaining a problem solving process over time while remaining focused and producing multiple drafts, much as a skilled artisan, to achieve success.
- **Inquire** - Students will be inquisitive thinkers, not only asking questions, but acting upon those questions in an effort to discover the answers, accepting confusion, uncertainty and the risk of failure as part of the process.
- **Communicate** - Students will communicate their ideas clearly and have the ability to reflectively consider others' ideas, even when those ideas may differ from their own.
- **Create** - Students will be creative thinkers, approaching new and perplexing problems with positive energy, uniqueness and originality of thought, drawing from their own personal experiences and prior knowledge.
- **Collaborate** - Students will work independently and as contributing members of a team, accepting and reacting to improve oneself based on feedback and criticism, and demonstrating compassion and honesty in all interactions with others.



Practices at DRSS

- Students engaged in authentic, real-world problems
 - Problems, issues, projects that transcend typical subjects and extend beyond “school”
 - Isolated disciplines and subjects
- Students assessed in many ways – informal and formal presentations of learning, digital portfolios, etc.
- Meaningful relationships between school personnel, students, and families, as well as the community, business partners and institutions of higher education
- Participation in the governance of the school, providing real experiences for students in a democracy
- All members of the school community engaged in continuous learning



Dayton Regional STEM School

- DRSS is a public school
- Students in Montgomery, Greene, and Clark Counties are eligible to attend
- Students are chosen by lottery
 - Not based on academic achievement
 - Weighted to reflect demographics of the region
- 80-100 students per grade level



Dayton Regional STEM School

- Fall 2009 - Grade 9
- Fall 2010 - Grades 8, 9, 10
- Fall 2011 - Grades 7, 8, 9, 10, 11
- Fall 2012 - Grades 6 – 12



Dayton Regional STEM School

Graduation Requirements

- 4 credits in mathematics
- 4 credits in laboratory sciences
- 4 credits in language arts
- 4 credits in social studies
- 3 credits of foreign language
- 2 credits selected from arts and music
- ½ credit of health
- ½ credit of physical education
- 2credits electives

24 Credits



Dayton Regional STEM School

Grade 9

Mathematics (Algebra, Geometry, Data Analysis)
Science (Conceptual Physics)
Social Studies (U.S. History)
Language Arts (U.S. Literature)
Physical Education (1/2)
Engineering (1/2)
Art (1/2)
Music (1/2)



DRSS Location

Temporary

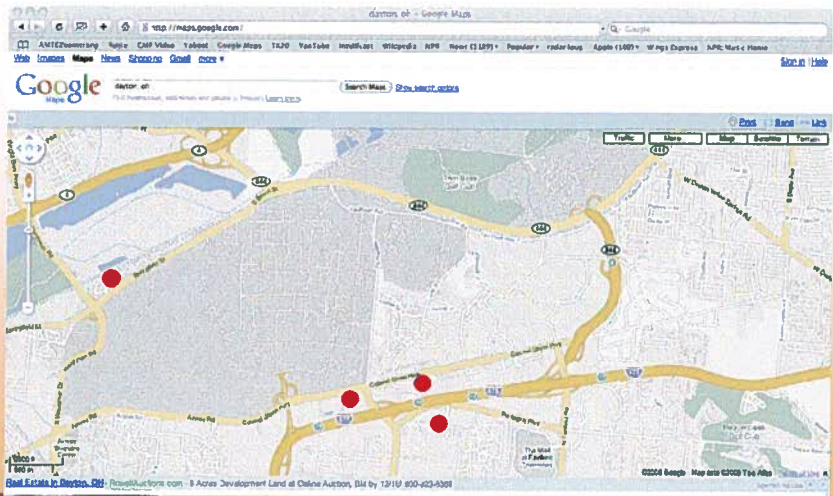
- **University Park**
 - Near WSU, across Colonel Glenn Hwy from Meijer
- **Clark State Building**
 - Near ATIC, Fairfield Commons Mall

Permanent

- **Colonel Glenn Highway**
 - University Park
 - West of Grange Hall Road
- **Center of Flight**
 - Across from National Museum of the Air Force on Springfield Street



DRSS Location



The image is a screenshot of a Google Maps browser window. The address bar shows 'http://maps.google.com/'. The search bar contains 'Dayton, OH'. The map shows a street grid with several red dots marking locations. A small inset image in the bottom left corner shows a person wearing safety glasses and a 'STEM SCHOOLS' logo. In the bottom right corner of the slide, there are three colored circles: red, yellow, and blue.

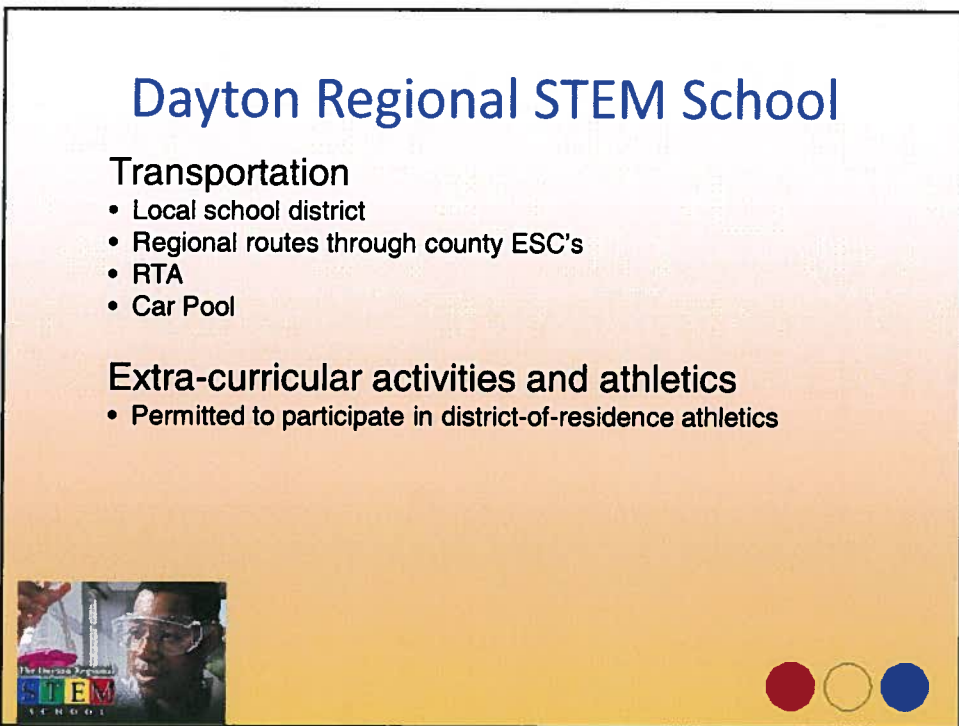
Dayton Regional STEM School

Transportation

- Local school district
- Regional routes through county ESC's
- RTA
- Car Pool

Extra-curricular activities and athletics

- Permitted to participate in district-of-residence athletics



The slide contains text about transportation and extra-curricular activities for Dayton Regional STEM School. A small inset image in the bottom left corner shows a person wearing safety glasses and a 'STEM SCHOOLS' logo. In the bottom right corner of the slide, there are three colored circles: red, yellow, and blue.

Upcoming Events

- Remaining information sessions for parents
 - Beaver Creek Library, February 18, 7:00pm
 - Boonshoft Museum, February 19, 7:00pm
 - DRSS (University Park), February 23, 7:00pm
- Applications for the Class of 2013 due by March 2.
- Website for more information: www.daytonstemschool.org

