TRANSPORTATION TODAY™

YOUR WISCONSIN TRANSPORTATION CONNECTION

FALL 2013

→ HIGHWAY → RAILROAD → AVIATION → MARITIME → PERSONAL/RECREATIONAL → PUBLIC TRANSIT

Kids are on a new mission, calling for them to work in space.

Forty-three years ago today, men walked on the moon for the first time.

Apollo 11 carried U.S. astronauts Neil Armstrong, Buzz Aldrin and Michael Collins into space.

Hundreds of millions of people around the globe watched the Apollo 11 land on the moon back in 1969 and Sharon Ryan was one of those people. She said she remembers joining thousands of others in downtown Chicago to watch TV monitors set up to share the historic moment.

The Dream Flight USA Foundation and curriculum were developed by Sharon, a fifth grade teacher at John Marshall School in the Wausau, WI school district. Mrs. Ryan, a Presidential Award recipient, developed a similar program in the school district which served students for ten years.

The original Dream Flight Wausau program was featured on ABC Television's Good Morning America. The program was chosen as one of the top 30 innovative programs in the United States by PBS New York's Searching for a Hero.

The Dream Flight USA S.T.E.M. Shuttle is designed to excite kids about the world, outside of the one they live in.

The "classroom on wheels" targets students to educate them about the earth, stars, and the moon.

The 45 foot long S.T,E.M. Shuttle is the focal point of the Dream Flight USA Foundation. The mission of the Wausau, WI based foundation is to motivate to learn by offering hands-on activities using space travel and aviation as a catalyst. The vehicle travels to schools and events wherever requested.

The 44,000 pound shuttle/space station is just over 13 feet high and 8.5 feet wide. On board, visitors will find study areas and work stations where students participate in a variety of activities.

The Dream Flight USA S.T.E.M. Shuttle travels all over Wisconsin, educating more than 3,500 children throughout the year. "We want them to realize that learning is the key to a successful life," said Nick Ryan, director of the Dream Flight USA Foundation.

Hands-on work stations bring life to what is taught in the classroom. Students experiment to learn about space, space travel, and living and working in space.

- **Station 1:** A study of the Earth's seasons, and the reasons for them
- **Station 2:** Making a model in order to understand a lunar eclipse
- **Station 3:** Using spectrometry to identify gases
- **Station 4:** Creating a floor plan for the International Space Station
- **Station 5:** Space repairs - much more difficult than it looks
- **Station 6:** Working with a robot - practice and teamwork
- **Station 7:** Understanding micro gravity
- **Station 8:** Solar System
- Proper nutrition for healthy teeth and gums
- Toys in Space

Applied learning is demonstrated throughout the activities

The constellation activity is where students learn about constellations and then create their own. It includes a hands-on approach, as well as shared discussion and written work.

A popular activity is a lesson about the International Space Station. It is designed to help students understand how a space station serves the needs of astronauts, and what goes into its construction. Students can share their ideas and write a paper to explain how and why they designed their stations as they did.

The final area is designed for small-group (3-6 students) study. The students watch a short Solar System video and then do an activity in which each chooses a planet, researches it, and then uses that research to complete a hands-on project and a written paper.

Designing a Space Station floor plan

Learning to find constellations

CAREERS IN TRANSPORTATION START AT CVTC

Chippewa Valley Technical College

Learn More!

> www.cvtc.edu/truckdriving
> www.cvtc.edu/diesel
> 1-800-547-2882

CVTC is the Chippewa Valley's leading hands-on educational institution for transportation. If your students enjoy working with their hands, taking apart engines, problem solving, and working independently, encourage them to consider the educational opportunities at CVTC.

CVTC transportation programs

> Diesel/Heavy Equipment Technician.....$34,603 average annual salary
> Truck Driving.....$41,876 average annual salary

Average annual salaries are based on the 2011-2012 CVTC Graduate Follow-up Survey data.

CVTC. The right choice.

Automotive Training Curriculum Gets Boost from Business

The School District of Beloit has revamped its Career and Technical Education program, with the help of the local business community.

Initially, the CTE program consisted of nursing and automotive courses, all done on the Beloit Memorial High School (BMHS) campus. Now, those courses have homes outside the campus, while others are being brought in. As students in the CNA nursing program are getting help with space and resources from the local hospital, the automotive center has its own home in the centrally located Beloit Mall, now known as the Eclipse Center, just across the bridge from BMHS.

The late Ken Hendricks of ABC Supply and Hendricks Holding Company, took interest in hands-on technical training programs, recognizing the now rapidly growing interest in the CTE career path once largely ignored in high schools in favor of pushing 4-year college path courses. He used his passion and resources to renovate an old department store automotive garage, transforming it into classroom and garage space with the latest equipment for students to use. While the majority of students learning at the center are from BMHS, there are a handful of students from surrounding districts taking classes there.

District officials did not stop with the automotive center. Recently, over 90 business representatives from several different industries from engineering and construction to digital graphics and foods have joined with district staff to design curriculum that not only meets state standards, but also aligns with the latest industry standards. As a local community member phrased the change: "This isn't your dad's tech ed program!" In fact, many students completing programs will have certification upon graduation from high school, letting them enter the work force immediately, or with minimal training at a technical school or apprenticeship.

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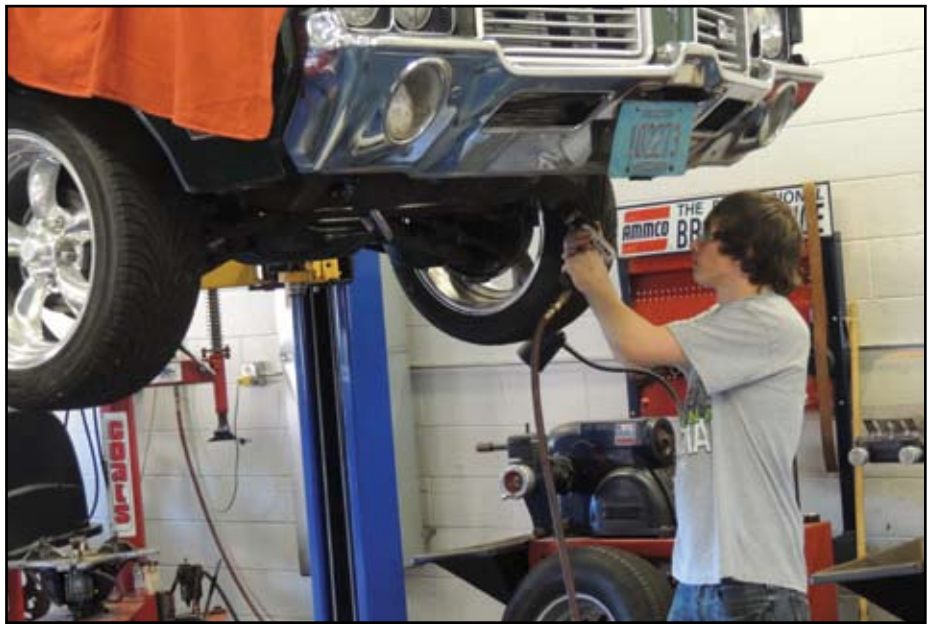
Of course, such a relationship didn't emerge overnight. The charge to begin working closely together began years ago when a small group of community leaders and educators organized a formal discussion event, named the Business Education Summit. Over 300 attendees, made up equally of educators and business representatives, discussed openly their concerns over education and business involvement in roundtable fashion. While some of the concerns recorded by each table's designated note-taker were very specific, they mainly boiled down to businesses feeling that students are not graduating with skills needed to succeed in the workforce, while educators felt businesses didn't understand the lack of resources and increased expectations put on them over the years. Without any judgment placed on either side, a smaller group went to work to brainstorm solutions.

The group, Greater Beloit Economic Development Corporation Business Education Partnership, implemented several initiatives that very first year, with the help of many volunteers: Lunch and Learn mentoring at the high school on Fridays, Mock Interviews with selected high school English classes, and the return of the Career Fair. More have been added over the years such as Reality Store and sponsorship of such character building activities such as Kids Against Hunger and Challenge Day.

On the District side, administrators have now incorporated the Mock Interview program into its 11th grade curriculum, expanded Lunch and Learn to middle schools, and is working to strengthen its CTE offerings. The CTE area at the high school has just been renovated, including space for 18 welding stations and brand new machining equipment. The equipment was purchased with close consultation with the business advisory committees. The new CTE area is a highlight of many tours the high school leads and source of pride for the businesses involved in the renovations and curriculum design.

Next steps include creating greater awareness among students of the different careers offered in these technical education areas and the course and training requirements to get there. In early October, the new director for CTE, is hosting a career fair, featuring 30-40 businesses, focused on careers in automotive and other industries.

www.sdb.k12.wi.us



Grants

ADVANCE: Increasing the Participation and Advancement of Women in Academic Science and Engineering Careers

Sponsored by The National Science Foundation

The ADVANCE program invites systematic approaches to improve the representation and advancement of women in academic science and engineering careers. The program is all about responding to the national need for developing a more diverse and talented science and engineering workforce. Both women and men are encouraged to provide creative strategies to excite women faculty with earned STEM degrees about academia as a viable and attractive career choice. Proposals that foster participation and advancement of academic women from underrepresented minority groups and women with disabilities are given particular attention.

Approximately six IT five-year awards and up to six IT-Catalyst awards are expected to be made, with total budgets of approximately $200,000 each.

Deadline: IT and IT-Catalyst Letters of Intent are due October 4, 2013, and full proposals are due November 12, 2013.

Website: www.nsf.gov/funding/pgm_summ.jsp?pims_id=5383.

Northrop Grumman Foundation Education Grants

The Northrop Grumman Education Strategy centers on the pursuit of four main education objectives:

- Strengthening the workforce of Northrop Grumman and the nation.
- Ensuring alignment between Northrop Grumman core competencies, critical skills, and STEM investments.
- Attracting, developing, and retaining diverse students in STEM disciplines.
- Engaging, exciting, and educating students about products, services, and technologies.

Deadline: Applications are accepted late November to mid-December, annually.

Website: www.northropgrumman.com/CorporateResponsibility/CorporateCitizenship/Philanthropy/Pages/default.aspx

Shell Oil Company Educational Grants

Grant requests related to education must focus on Shell's funding priorities. These include increasing interest in technical careers among students, and professional development in science and mathematics for educators. Funding is provided to support programs in kindergarten through grade 12 that are designed to boost students' mathematics and science skills.

Deadline: Grant applications are accepted year-round, with a limit of one grant application per organization per fiscal year (September to August).

Website: www.shell.us/environment-society/grant.html

National Lab Challenge

Shell sponsors the NSTA's National Lab Challenge, which invites middle and high school science teachers in the United States and Canada to illustrate replicable approaches to science lab instruction using limited school and laboratory resources.

Are you succeeding in science lab instruction with minimal equipment? The Shell Science Lab Challenge gives you an opportunity to share your exemplary approach for a chance to win a school science lab makeover support package valued at $20,000!

Deadline: December 20, 2013

Website: www.nsta.org/shellsciencelab/

Shell Science Teaching Award

Shell also sponsors the Shell Science Teaching Award, which recognizes one outstanding classroom science teacher in grades K through 12 who has had a positive impact on his or her students, school and community through exemplary classroom science learning. The grand prizewinner receives $10,000 and an all-expense-paid trip to attend the NSTA National Conference on Science Education, where the winner is honored at an awards banquet.

The 2014 award applications are open for submission. Winners for this year's teacher awards will be presented at the Boston conference.

Website: www.nsta.org/about/awards.aspx

Competitions

Spirit of Innovation Challenge

Sponsored by Conrad Foundation

The Conrad Foundation believes high school students have the potential to create the next world-changing, commercially viable product or service. The Spirit of Innovation Challenge is a competition that challenges students ages 13 to 18 to use science, technology engineering, and mathematics (STEM) skills to develop the products of tomorrow.

Students can form teams with members from different schools, states, and around the world. Each team's goal is to create a commercial product that will help solve a challenge facing the world today. Teams can devise solutions in the following areas: aerospace and aviation, energy and environment, cybertechnology and security, and health and nutrition.

Throughout the challenge process, coaches (teachers and parents), world-renowned scientists, engineers, and entrepreneurs will mentor students and assist with advanced academic and business principles.

Deadline: One-page abstracts are due October 24, 2013.

Website: www.conradawards.org/pages/about-category

eCYBERMISSION

Sponsored by US Army

eCYBERMISSION is a web-based science, technology, engineering, and mathematics (STEM) competition free for students in grades 6 through 9 where teams can compete for state, regional, and national awards while working to solve problems in their communities. Expanding STEM education opportunities across the country will not only improve global competitiveness and national security, but it will also open doors to new career paths for American students that lead to a brighter tomorrow.

State Awards:

- First-place state winners will receive a $1,000 US Series EE Savings Bond per student.
- Second-place state winners will receive a $500 US Series EE Savings Bond per student.
- Honorable mention winners will receive an award certificate and STEM tool kit.

Regional Awards:

- First-place regional winners will receive a $2,000 US Series EE Savings Bond per student and an all-expenses paid trip to the Washington, DC metropolitan area to compete for the first-place national award.

National Awards:

- First-place national winners will receive a $5,000 US Series EE Savings Bond per student.

Website: www.ecybermission.com/

Resources

Fuel Economy Calculator

Improved fuel economy saves you money every time you fill up!

A vehicle that gets 30 MPG will cost you $903 less to fuel each year than one that gets 20 MPG (assuming 15,000 miles of driving annually and a fuel cost of $3.61).

Over a period of 5 years, the 30-MPG vehicle will save you $4,515.

Website: fueleconomy.gov/feg/savemoney.shtml

My Trip Calculator

Website: www.fueleconomy.gov/trip/

Gasoline Prices

Local Prices: Find the cheapest gasoline prices in your area.

Website: fueleconomy.gov/feg/gasprices/states/index.shtml

State & Metro Area Prices: Average prices from AAA's Daily Fuel Gauge Report (See "Today's AAA State Averages")

Website: fuelgaugereport.opisnet.com/index.asp

National and Regional Prices: Weekly gasoline and diesel price estimates from the Energy Information Administration

Website: www.eia.gov/petroleum/gasdiesel/

Website: fueleconomy.gov/feg/gasprices/

Alternative Fueling Station Locator

Find alternative fueling stations near an address or ZIP code or along a route in the United States. Enter a state to see a station count.

Website: www.afdc.energy.gov/locator/stations

How Hybrids Work

Hybrid-electric vehicles (HEVs) combine the benefits of gasoline engines and electric motors and can be configured to obtain different objectives, such as improved fuel economy, increased power, or additional auxiliary power for electronic devices and power tools.

Website: fueleconomy.gov/feg/hybridtech.shtml

Free Curriculum for Teen Driver Safety

Toyota and Discovery Education are offering Toyota Teen Driver, a free online resource for educators, students, and parents that promotes responsible driving for teens. In addition to parent-focused resources, the website offers a digital curriculum that includes lesson plans, activities, and discussion starters for students in grades 9-12. Through these resources, educators can help inform students about the dangers of distracted driving, enable them to drive safely, and encourage their friends to do the same.

Website: toyotateendriver.discoveryeducation.com

Searching Transportation Today's Career Sections

Ok, say you want to learn more about a career as a Marine Engineer. You go to our website (www.transportationtodaywi.com) and click on **Maritime**. Scroll down until you get to the careers section and click on Learn More under Marine Engineers, and now a new window pops up – O*net.

This window has been customized (as are the other links to all of the careers on the website) to show you a wide variety of information about marine engineers.

You will find:

- State and National Employment Trends
- State and National Wages
- Knowledge, Skills, and Abilities Needed in this Field
- Tasks and Activities Preformed on the Job
- Tools and Technology Used
- Education and Training Required
- A Video About this Career

At the bottom of the page is a box where you can find more information on related careers and web resources to help you explore marine engineering.

Right above that box are links to:

- Find colleges, training schools and instructional programs for this occupation
- Access additional Education Resources in the Career Resource Library
- Use the Financial Aid Advisor to help find funds for financing education

When you have finished looking at marine engineers, go back to Transportation Today to find a wide variety of careers in transportation to check into and explore.

*O*net is brought to you by the US Department of Labor/Employment and Training Administration (USDOL/ETA) through a grant to the North Carolina Department of Commerce.*

But wait, there's more!

While careers in transportation are the main focus of this publication, there is much more information about each mode to look at and use in the classroom.

In **Aviation**, you can find all of the airports, heliports, and seaplane bases (both public and private) in Wisconsin. These links provide explanations of technical terms, runway lengths, customs information and more. Under Websites of Interest, learn about aviation history, using aircraft to battle fires, how weather affects aviation and there is a website where you can build your own airplane.

In **Highways/Roadways**, there is a good history section all about the development of Wisconsin's roads and highways, a ton of safety information, and a glossary of trucking terminology.

Would you like to see the weather conditions and water temperature in oceans and waterways around the world? In **Maritime's** Websites of Interest, there is a link to NOAA's weather buoys. You can look at many of Wisconsin's ports from here, and on Duluth-Superior's website, you can actually view the ships going under the lift bridge.

.In the **Rail** section, there are links to the railroad companies operating in Wisconsin as well as timelines and links for learning more about the rich history of railroad operation and construction in our state. Would you and your students like more information on how trains work and the technology employed by them? Take a look here!

What about seeing how traditional engines, diesel engines, and hybrid engines work? You can also find a large variety of driver's safety websites, fuel economy and alternative fuels, as well as historical websites — including a particularly nice one on the timeline of motorcycles in the **Personal/Recreational** section. There is also information on snowmobiling, ATVs and links to maps of Wisconsin's many lakes.

Besides careers in **public transit**, find links to areas served by this mode of transportation. There is a map and a link to ferries operating in our waters.

There are so many wonderful areas to explore and learn from on Transportation Today's website. Whatever your interest, take a look here; you might be there longer than you thought!

The Science Behind Concrete

Kevin W. McMullen, P.E.
President, Wisconsin Concrete Pavement Association

Concrete is the most widely used construction material across the globe. Our highways, bridges, airport runways, sidewalks, homes, schools, etc. all utilize this versatile construction material. Yet, most people do not even have a fundamental understanding of it. In fact, I commonly hear people incorrectly say that something has been built out of cement, calling concrete by the wrong name. Cement is an ingredient of concrete. The parallel example that I like to use is that you do not go to the grocery store and buy a loaf of flour. You buy bread and flour is an ingredient.

Concrete can be called man made stone. And, the reason it came into existence centuries ago with the ancient Romans was that people had the desire to form stone like material into the shapes and sizes of the things they wanted to build. So, what is concrete made of? Stone or gravel, sand, Portland cement, fly ash, slag, water and air are the basic ingredients of concrete.

The stone or gravel is naturally occurring rock that is crushed down to sizes ranging from 3/8ths of an inch up to 1 ½ inches or more. The rock is crushed to have a range of sizes so that we pack them together to form as dense of a matrix of stone as possible. This is what gives concrete strength to do all the things we require of it. Sand is the small stone that fills the voids left between the big stones, further strengthening the concrete.

Cement is a manufactured product. It is a blend of limestone, clay and shale that is put through a rotary kiln to produce an end product high in calcium oxide, silica, alumina and iron. The end product is then ground up into a fine gray powder. This product when mixed with water chemically reacts and hardens binding the stone and sand together. I commonly hear people say the concrete dries as it hardens. This is again a common misstatement.

Fly ash and slag are relatively new to concrete. Fly ash is the ash from the coal burning power plants and slag is the sludge that floats to the top during the steel production process. Historically, these materials were industrial wastes that went to landfills. Fly ash and slag have the same basic chemical make-up as cement. What is really interesting is that when we use these byproducts in concrete we can produce stronger, less permeable to water and longer lasting concrete. So, this is a great environmental success story of utilizing an industrial waste in a beneficial way.

Air is a very necessary ingredient of concrete because of our freezing temperatures each winter. Water has the ability to soak into concrete. When water freezes it naturally expands in volume. Air in the concrete is required for that ice to expand into. If we don't provide a volume of 4-8 percent air, the concrete would be slowly broken apart at a microscopic level and would eventually crumble significantly reducing the life of the highway, bridge, sidewalk, etc. So, we add chemical air entraining admixtures for the purpose of producing small micro bubbles of air throughout the concrete.

For expanded discussions on concrete, I recommend that you go to the Portland Cement Association website at www.cement.org and go to their pages titled "Concrete in the Classroom".

What is the Operating Engineers' apprenticeship program?

The purpose of the International Union of Operating Engineers Local 139 apprenticeship program is to recruit and train people who are interested in a career in operating and maintaining heavy construction equipment. The program is sponsored by the union in conjunction with the Associated General Contractors of Wisconsin, Associated Construction Employers Association, Wisconsin Underground Contractors Association and Wisconsin Transportation Builders Association.

Operating Engineers run heavy equipment such as cranes, dozers, scrapers, wheel loaders, tractor loader backhoes, excavators, compaction rollers, paving machines, concrete plants etc. Their worksite is the construction project such as highways, dams, commercial and public buildings or residential developments. It also may be plants that produce aggregate for road-building and other construction activities. Or they may be involved in the cleanup of hazardous materials. This could mean working in a remote rural area or in the heart of a major city. So having reliable transportation is a must for Operating Engineers to get them to their worksite.

Maintenance and servicing of equipment is another part of the job. Any schooling you take for engine, hydraulics and electrical repair will be to your advantage. Also, many machines now use computers as part of their control systems.

Excellent wage rates and benefits may draw you to this trade. However, you should be aware that Operating Engineers often work on a seasonal basis in Wisconsin. They can work extended hours during the construction season but not at all during the three or four months of winter when many projects are shutdown. Also, the nature of the work often requires that Operating Engineers work far from home.

The best way to learn the skills required of Operating Engineers is to do the work of an Operating Engineer. Therefore, an apprentice will actually work on the job, learning from journey-worker operators. Each apprentice must work 6,000 hours (about four years) and is paid a percentage of journey-level wages. Apprentice hourly wages start at approximately $21 and increase to approximately $28.

Local 139 maintains a nearly 400-acre training center near Coloma, in central Wisconsin, where apprentices learn the trade and journey-workers polish their skills and keep necessary certifications current. The Joseph J. Goetz Jr. Training Center, W11584 Highway 21, is accredited by the state of Wisconsin and affiliated with Fox Valley Technical College.

In classrooms there, apprentices receive mandatory instruction in safe operating procedures of heavy equipment, construction fundamentals, first aid, cardio-pulmonary resuscitation, telehandler/forklift safety, Mining Safety & Health Administration, Occupational Safety & Health Administration, operator qualification and 40-hour hazardous materials training along with other related classes. In the field, people serving a 6,000-hour on-the-job apprenticeship will be trained in specific process needed for operating heavy equipment.

Highway Careers

Transportation Engineers

What they do: Transportation Engineers develop plans for surface transportation projects. They also plan modifications of existing streets, highways, or freeways to improve traffic flow.

Average yearly salary in Wisconsin: $68,000

Some of the knowledge needed for this career includes:

- *Engineering and Technology* — Knowledge of the practical application of engineering science and technology. This includes applying principles, techniques, procedures, and equipment to design and production.
- *Design* — Knowledge of design techniques, tools, and principles involved in production of precision technical plans, blueprints, drawings, and models.
- *Building and Construction* — Knowledge of materials, methods, and the tools involved in the construction or repair of highways and roads.
- *Mathematics* — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

Operating Engineers

Sample of reported job titles: Heavy Equipment Operator, Back Hoe Operator, Loader Operator, Motor Grader Operator, Track Hoe Operator, Excavator Operator, Grader Operator

Average yearly salary in Wis.: $62,800

Some of the knowledge needed for these careers includes:

- *Production and Processing* — Knowledge of raw materials, production processes and other techniques for maximizing the effective manufacture and distribution of goods.
- *Building and Construction* — Knowledge of materials, methods, and the tools involved in the construction or repair of highways and roads.
- *Public Safety and Security* — Knowledge of procedures, and strategies to promote effective security operations for the protection of people, data, property, and institutions.

For more information on careers in highway please see the Highway section on our website: **www.transportationtodaywi.com/highway.html**

Share the Road in Safety

Blind Spots

All vehicles traveling on the road have blind spots where other vehicles disappear from view. In tractor trailers and other large vehicles these blind spots can be surprisingly big. There are blind spots on all sides of a large truck where other vehicles can disappear from the view of the driver. If a professional truck driver has to make a sudden maneuver on the road, such as a quick lane change to avoid debris, crashes can occur if they don't know you're there.

Here's what to do to avoid a truck's blind spots:

- Don't linger alongside a truck. If you find yourself alongside a truck either move on past or back off so that the driver can see you. Look for the driver's face in their mirror. That will tell you if you are visible to that driver or not.
- If possible pass on the left where the blind spot is smaller. On the right the blind spot runs the length of the truck and extends out 3 lanes.
- When traveling behind a truck stay back so that the driver knows you're there.

Following Distances

When following behind a truck leave yourself 20 to 25 car lengths behind it. This may seem like a long distance but because large trucks obscure visibility far more than smaller vehicles that much room is needed so that you have enough time to react if road conditions suddenly change. A good rule of thumb to ensure that you've left yourself enough room is to look for the truck's side mirrors. If you can see them then you are in a good place

Some of the things that can happen that require that much space behind a truck:

- Debris in the road like lumber or a ladder might have no impact on a large truck. If that debris was suddenly in front of you because the truck drove over it and you were following too closely it could have a devastating impact.
- On congested roadways traffic often slows down suddenly. If you are traveling too closely behind a truck you cannot see the slowdown coming.
- At highway speeds everything happens very fast. Accidents up ahead or right in front of a truck require fast reactions. Leaving enough space in front of you will allow for that response.

Passing a Truck

When passing a truck and moving back into its lane make sure you can see the truck's headlights in your rear view mirror before you cut back in. That allows the truck enough space to slow down or stop if something happens up ahead.

A fully loaded tractor trailer can weigh up to 80,000 pounds and take the length of a football field to stop. Most passenger cars weigh around 3,000 pounds and have a much shorter stopping distance. Just because you can stop in time doesn't mean that the truck behind you can if you've cut too close in front of it. Even if the driver makes a monumental effort they may not be able to stop if you haven't left them enough room.

You may wonder why trucks leave space in front of them in heavy traffic. It's so they have enough stopping distance. Don't fill in that space and take up that safety buffer that the driver is trying to maintain.

From the American Trucking Associations

www.truckline.com/Share_the_Road.aspx

Take the NEXT step in creating a successful career

Pratt & Whitney
A United Technologies Company

We have unique programs in place such as informative and thought-provoking workshops that are intended to help you to build on the academic achievements you've already attained.

Pratt & Whitney offers an unmatched internship or co-op experience with exposure to world-class innovations and opportunities to grow. Join us here to develop your skills by working with experts in the industry within an environment that welcomes individuals who are creative and forward-thinking.

Internship Program

Pratt & Whitney provides full-time paid summer internships. Most internships begin in middle to late May and last into the month of August.

Our Internship Program is for students who are not enrolled in a formal Co-op Program. To ensure the best possible employment experience, we will match you with opportunities that best fit your academic major, skill set, and aspirations.

Co-Op Program

Cooperative Education is a joint effort between business, government, and education that combines classroom theory with career-related work experience. Through co-op assignments, students alternate semesters of full-time study with semesters of full-time paid employment. Our Co-op Program is designed to enhance your academic training, professional growth, and personal development.

INROADS

Pratt & Whitney has participated in the INROADS programs since 1989. The mission of INROADS is to develop and place talented minority youth in business and industry and prepare them for corporate and community leadership. INROADS seeks high performing minority students for internship opportunities with some of the nation's largest companies. This rigorous career development training process will challenge you to commit to excellence and raise the bar on your personal expectations. Learn more about INROADS at www.inroads.org/

www.prattcareers.com/internships.asp

Interstate Numbers – What They Mean

Two-digit interstate highways are numbered according to direction and location. Highways running north-south are odd numbered, while highways running east-west are even numbered. The lowest numbers are in the west and in the south.

Three-digit interstate highway numbers represent beltways or loops, attached to a primary interstate highway (represented by the last two numbers of the beltway's number). Washington D.C.'s beltway is numbered 495, because its parent highway is I-95.

If the first digit of a three-digit interstate route number is odd, it is a spur into a city. If it is even, it goes through or around a city.

The interstate sign itself measures 36 inches high, and is 36 inches wide for two-digit interstates, or 45 inches for three digit interstates.

Green Bay East High School's Automotive Technician Program Jumpstarts Student's Careers

Since its inception, students have been flocking to Green Bay East High School's automotive technician program, taught by technical education teacher Rich Sawyer. The hands-on program offers students the opportunity to take three years of classes to get a jumpstart in the automotive field.

This in-depth program also allows students to earn dual credit with Northeast Wisconsin Technical College (NWTC), and it will eventually allow them to earn a certification in Maintenance and Light Repair. Although some students may start Sawyer's class with basic knowledge of tools and car repair, it is certainly not a requirement.

"In this class we teach the fundamentals, like how to identify the parts of a car and how they work together to make it run," said Sawyer. "After the basics, we are able get into how to diagnose, service, and repair a car and understand its systems better."

According to one student who knew nothing about cars before entering the class, he could now "build a car from the ground up."

As automotive industry jobs are in high demand, classes like Sawyer's provide students with an advantage in their career search after high school. "It's important to expose my students to post-secondary career and education options after high school," said Sawyer.

To learn more about East High School's Automotive Technician program, watch the video at the URL listed below.

Website: youtu.be/9kyjm4vLg_4.

Bridgestone Americas Announces Grand Prize Winners in the Teens Drive Smart Video Contest

BRIDGESTONE
TEENSDRIVESMART

NASHVILLE, Tenn. (Aug. 5, 2013) – For three students, college just got a little cheaper, thanks to their winning video submissionsin the Bridgestone Teens Drive Smart Video Contest.

Nicole Ricketts of Anaheim, Calif., received the top prize — a $25,000 college scholarship, for her winning video, "Driving is Beautiful." University of Pittsburgh sophomore Tosh Chambers won second place and a $15,000 scholarship for his video,"Technically Almost Legal," and Natalie Barrios took the third spot and a $10,000 scholarship for her video, "Safe Driver." Martha Levytsky of Bronxville, N.Y., was given a Critic's Choice award and a $2,500 cash prize for the video she produced, "Times Not to Text."

This year's winning videos competed with more than 1,800 submissions from 16-21 year olds across the United States to become one of the top 10 finalists. Nearly 8,000 votes helped determine the top three videos and Bridgestone judges then ranked the winners. The three winning videos, along with the other top 10 finalists, can all be viewed at www.teensdrivesmart.com.

"After seven years of holding this contest, I'm encouraged that we continue to receive such creative videos from passionate young adults who take an interest in making our roads safer," said Angela Patterson, Manager, Teens Drive Smart Program, Bridgestone Americas. "Ultimately, our goal is to help teens make the right choice behind the wheel, but we know that message is communicated much more effectively when it comes from a peer."

In addition to receiving a college scholarship and a free set of Bridgestone-brand tires, the three winners have the chance to have their video broadcast as a public service announcement (PSA) on television stations across the United States.

About the winners:

First Place: Nicole Ricketts is a rising junior at Hope International University in Anaheim, Calif., where she is studying business administration. Her video, "Driving is Beautiful," aims to show the blessings, the beauty, the adventure and the fun that teen driving can be, while emphasizing the responsibility drivers have to preserve that beauty. Behind the wheel, drivers have a choice to respect the law and avoid reckless and irresponsible behavior. Driving is a gift, one that shouldn't be taken for granted. Accidents may be inevitable, but the best way teens can be safe is to be smart.

Second place: Tosh Chambers is a rising sophomore at the University of Pittsburgh, where he is planning to major in film. His video, "Technically Almost Legal," shows multiple distractions in the car that should be avoided for safety purposes, even though not all of them are illegal. Chambers was inspired by recent laws on texting and driving and wanted to highlight other activities that are equally as dangerous but have not received the same attention.

Third place: Natalie Barrios is a rising senior at Florida Gulf Coast University in Fort Myers, Fla., where she is studying English. Her video, "Safe Driver," is a spoof on infomercials, advertising the ultimate safe driving companion. It showcases the special features and versions of the "Safe Driver" product while explaining the danger of distractions that teens face behind the wheel every day. She was inspired by the number of accidents that occur because of distracted driving.

Critic's Choice: Martha Levytsky is a rising senior at Sarah Lawrence College in New York, where she is studying film making. "Times Not to Text" gives a comedic look at the absurdity of texting while driving. As humorous as it seems to text while mid-surgery, Levytsky's video shows that texting while driving needs to be treated in the same, if not greater, respect.

About Bridgestone Americas, Inc.:

Nashville, Tenn.-based Bridgestone Americas, Inc. (BSAM) is the U.S. subsidiary of Bridgestone Corporation, the world's largest tire and rubber company. BSAM and its subsidiaries develop, manufacture and market a wide range of Bridgestone, Firestone and associate brand tires to address the needs of a broad range of customers, including consumers, automotive and commercial vehicle original equipment manufacturers, and those in the agricultural, forestry and mining industries. The companies are also engaged in retreading operations throughout the Western Hemisphere and produce air springs, roofing materials, and industrial fibers and textiles. The BSAM family of companies also operates the world's largest chain of automotive tire and service centers. Guided by its One Team, One Planet message, the company is dedicated to achieving a positive environmental impact in all of the communities it calls home.

These Pilot Jobs Are All About Air Superiority

Naval Aviators

Pursue enemy submarines. Search for underwater mines. Execute strategic aerial maneuvers anywhere from the stratosphere to just hundreds of feet above the sea.

Whether it's flying a strike fighter or tracking adversaries, Navy Pilots and Naval Flight Officers (NFOs) play a crucial role.

Piloting some of the world's most sophisticated aircraft and helicopters — Taking part in important missions ranging from intelligence collection to combat operations — Earning coveted wings that put them among the most skilled and accomplished men and women in the Navy today

Job Description

Navy Pilots and NFOs are important components in an exclusive, world-class group of Officers. To hold either of these prestigious positions, a bachelor's degree from a four-year college or university is required.

Beyond that, you will undergo some of the most intense and comprehensive aviation training in the world - Doing anything from performing precision maneuvers in strike fighters to operating the communications systems aboard a helicopter.

As a Pilot or NFO, you may:

- Fly some of the most innovative and high-tech aircraft in the world
- Provide vital attack, defense and logistic support to the Fleet
- Control and maintain all internal and external aircraft systems

Your ability to lead and excel under pressure will make you an essential member of this prominent unit. You will always be functioning at top speed and charged with adrenaline.

Specific Responsibilities

Fly a SH-60 Seahawk helicopter or F/A-18 Super Hornet jet. Track enemy submarines from above the ocean's surface. Control the onboard communications system on any of over 6,000 state-of-the-art aircraft. Whether as a Navy Pilot or NFO, your job will require you to perform at the best of your ability at all times - Making use of your advanced training and unparalleled knowledge to provide the utmost safety and security in the world's skies.

As a Pilot, you may:

- Take part in antisubmarine warfare and mine countermeasures, as well as search and rescue operations and vertical replenishment missions
- Receive specialized training on the advanced tactical systems found on Navy aircraft
- Conduct enemy surveillance by collecting photographic intelligence

As a NFO, you may:

- Study aerodynamics, aircraft engine systems, meteorology, navigation, flight planning and flight safety
- Train and specialize in EA-6B Prowler electronic countermeasures aircraft, F/A-18 Hornet and Super Hornet jet fighters, E-2C Hawkeye early warning and control aircraft and P-3C antisubmarine aircraft
- Electronically detect and track ships, submarines, aircraft and missiles

Work Environment

As a Navy Pilot or NFO, your missions will take you anywhere and everywhere across the globe. You may be prowling for enemy submarines hundreds of feet above the Atlantic Ocean. You could be piloting an E-2C Hawkeye on a radar-surveillance warfare mission. No matter where your assignment may lead, expect an exciting and adrenaline-charged environment to surround you.

Training and Advancement

America's Navy offers some of the most advanced and comprehensive aviation training in the world. Officers who demonstrate academic and physical aptitude and a potential for leadership and responsibility are considered ideal candidates for this highly select, prestigious community of Pilots and NFOs.

Those entering aviation programs must first attend Officer Candidate School (OCS) in Newport, Rhode Island, and then complete a six-week air indoctrination course at Naval Aviation Schools Command, in Pensacola, Florida. From there, prospective Pilots and NFOs attend primary flight training.

Upon completion of primary flight training, Pilots and NFOs request an aircraft pipeline and enter the intermediate phase of flight training. This phase builds upon the prerequisites of basic flight and navigation training. The next step, advanced naval flight training, focuses on mission specifics. Upon its completion, Pilots and NFOs are awarded their "wings of gold" and report to their respective Fleet Replacement Squadrons (FRSs) for further training specific to their aircraft.

Education Opportunities

For college graduates who have become Officers, there's the possibility to "earn while you learn." Following your initial flying tour, you could attend the Naval Postgraduate School in Monterey, California, where you may be able to earn a master's or doctoral degree while being paid full-time.

Pay Range

Navy Pilots and NFOs receive aviation career incentive pay in addition to their regular salary. Student Aviation Officers receive $125 per month flight pay during flight training. Your monthly flight pay incentive will depend on your time in service and increases by hundreds of dollars within a few years to the current maximum of $840 per month. In addition, you may be eligible for continuation bonuses at the end of your initial commitment.

Qualifications

To be a Navy Pilot or NFO candidate, you must have a bachelor's degree from a four-year college or university.

After the Navy

Whether a Pilot or NFO, being a member of the world's most respected aviation force will lead to exceptional career opportunities after your service. The flight hours and expertise you receive could lead to work for a major airline, as a private aircraft operator or as a pilot or aircraft maintainer for corporations or government agencies.

www.navy.com/careers/aviation/naval-aviators.html

Minute with a Master

Jerry Werner,
Lean Six Sigma Master Black Belt

The most difficult problems to solve are those that cross the boundaries of an organization through departments, with names like Sales, Finance, Operations and Human Resources. These are called cross-functional problems and they involve processes that flow through those areas. The process usually begins with a customer requesting something (product, service, or information) and ends with the customer getting what they asked for, or not. When this process is broken, it requires the coordinated effort of representatives of all of those departments to work together as a team, to fix it.

How do we solve such a problem? We establish a project.

Eight vital steps are required to execute a successful project and hold the gains. The leader needs to make sure that the following are addressed:

1. Sponsorship
2. Charter
3. Voice of the Customer
4. Data Driven
5. Root Cause Analysis
6. Project Management
7. Pilot Testing
8. Process Ownership with Dashboard Controls

We discussed Sponsorship, last time. Today, we will focus on Step 2, the Charter.

The Charter is a document that outlines the problem we are trying to solve, the time frame, where it's going to be done, who's responsible, anticipated resources and outcomes expected. The Charter is an agreement between the Sponsor and the team. Essentially the Sponsor is telling the team, through the Charter, that if they work on this problem, she will support their efforts and invest in the improvements.

Why is a charter important? If we are not clear about the problem we are solving, we probably won't solve anything. If we don't have agreement with the person who is directing traffic and writing the checks (the Sponsor), we will fail. A basic charter includes the following:

- Problem Statement – What problem are we solving?
- Measurable Goals/Objectives – What benefits are we seeking?
- Business Case – How will this help the organization and its customers?

- Project Scope – How big is it? How much of it will we tackle in this project?
- Roles/Resources – Who is the Sponsor? Who is the Team Leader? Who is going to work on this team and what other resources are available?
- Schedules/Deliverables – What are we expected to deliver and by when?

If you would like a free copy of a charter template, please send me an email.

In the next issue we will discuss Step 3, Voice of Customer, why it is important and how we acquire it.

Questions? Feel free to address them to Jerry.Werner@Werner-Assoc.com.

What Is Human Resources?

Sharon Werner, Human Resources
Marsh & McLennan Companies

What is human resources? Do you immediately think of a Dilbert cartoon featuring Catbert, the evil HR Director or perhaps a scene from from The Office? Most students do not understand the HR profession. I'd like to demystify this profession by a simple analogy of the skills in human resources as compared to coaching a sports team.

Let's take the Green Bay Packers. Mike McCarthy, the head coach, has a lot of "human resources" responsibilities. McCarthy drafts new players. He matches a player's talent with very specific requirements for the team. Even a casual observer knows that you cannot just swap Aaron Rodgers (quarterback) with Clay Matthews (linebacker) and expect them to be equally successful. Each position requires specific skills and talents. It is also McCarthy's job to ensure that the players' contracts are negotiated and that they are paid fairly. In addition, he will deliver feedback to players so they know how they've performed. If a player gets hurt and ends up on the injured list, he needs to find a replacement. Or, if a player is caught using steroids, he must implement consequences. And finally, to protect the franchise in the event that the big shot quarterback leaves to play for the Vikings; he needs to groom an up-in-coming superstar like Rodgers to backfill.

Similar to the actions that a football coach needs to do to deliver a winning season, a human resources professional leads the people-related efforts of an organization. The HR professional will ensure that the company is hiring the right people in the right jobs, paying employees fairly, providing feedback about job performance, ensuring employee benefit plans are in place, training employees for their current jobs and future positions, and to ensure successors are groomed. The HR professional is often in a coaching role to the managers within a company to guide them on leading their teams.

Human resources jobs are typically generalists or specialists. A generalist needs to have a strong working command of all of the disciplines. A specialist carries deep subject matter expertise in a single discipline such as recruiting, compensation, benefits, HR systems, training & development or employee relations, to name a few. Human resources is such a broad and varied profession that it offers many interesting opportunities to contribute to a company's success.

The field of human resources became vital to US companies as our economy shifted from the manufacturing age to the information age. Employers' competitive advantage now lies in its talented people. Today companies measure their value not only in financial terms but also in strength of their human capital.

So as you contemplate the career opportunities that lie ahead for you, consider, what are your strongest skills, knowledge, aptitudes, and interests? What do you do better than others? What do you enjoy doing? Then also consider, what type of skills and talents do the marketplace need? Finding the right profession is identifying the intersection of your gifts and talents with the demands of our economy. US companies need talented human resources professionals to drive a competitive advantage through their organizations.

About the author: Sharon Werner, a graduate of the University of Wisconsin-Stout, is SVP Human Resources for a subsidiary of Marsh & McLennan Companies, a New York City based professional services firm with 52,000 employees worldwide.

"TEACH"ing the Great Lakes

The Great Lakes Information Network (GLIN) is a partnership that provides one place online for people to find information relating to the binational Great Lakes-St. Lawrence region of North America.

GLIN also sponsors an education and curriculum site (TEACH.glin.net) featuring mini-lessons on Great Lakes topics: environment, history & culture,geography, pollution and careers & business. Geared for elementary through high school students, the modules are continually expanded and updated and include links to a glossary to help explain scientific terms and acronyms.

TEACH also features links to other educational resources as well as state and regional agencies and organizations. A Great Lakes calendar of events provides students with the information they need to learn about and participate in state and regional activities. In the TEACH Question and Answer (Q&A) section, kids can submit questions about the Great Lakes and enter a drawing to win a Great Lakes prize. One question is featured each month, and all are answered and archived in the Great Lakes Vault of Knowledge.

TEACH is envisioned to be a "virtual library" of curriculum and related educational materials, as well as an educators information exchange corner that will include a variety of listserves and bulletin boards, image and map galleries, a speakers bureau, and basic introductions to scientific tools including Geographic Information Systems (GIS), lake and watershed monitoring activities, hands-on science opportunities, and much more.

TEACH is a project of the Great Lakes Commission through a grant from the U.S. Environmental Protection Agency — Great Lakes National Program Office.

To share questions, comments, or suggestions for TEACH, please contact:

Christine Manninen and Elizabeth Schmidt
Great Lakes Commission
Eisenhower Corporate Park
2805 S. Industrial Hwy, Suite 100
Ann Arbor, MI 48104-6791
Phone: 734-971-9135

Do you have a topic that you would like to see covered in this section of TEACH? Please contactaskteach@great-lakes.net.

Maritime Careers

Bridge and Lock Tenders

What they do: Bridge and Lock Tenders operate and tend bridges, canal locks, and lighthouses to permit marine passage on inland waterways, near shores, and at danger points in waterway passages.

Average yearly salary in Wisconsin: $53,200

Some of the knowledge needed for this career includes:

- *Public Safety and Security* — Knowledge of procedures, and strategies to promote effective local, state, or national security operations for the protection of people, data, property, and institutions.
- *Education and Training* — Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and groups.
- *Telecommunications* — Knowledge of transmission, broadcasting, switching, control, and operation of telecommunications systems.

Plating & Coating Machine Setters, Operators & Tenders

What they do: People in these jobs set up, operate, or tend plating or coating machines to coat metal or plastic products to protect or decorate surfaces.

Average yearly salary in Wisconsin: $30,500

Some of the knowledge needed for this career includes:

- *Production and Processing* — Knowledge of raw materials, production processes, quality control, costs, and other techniques for maximizing the effective manufacture and distribution of goods.
- *Mathematics* — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.
- *Chemistry* — Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo.

For more information on other maritime careers please see the Maritime section on our website.

www.transportationtodaywi.com/maritime.html

What is Intermodal Transportation?

Intermodal transportation is using interconnecting modes of transportation to ship product from one location to its destination. By utilizing multiple modes such as railroad, ship and tractor-trailer, the product can travel without reloading the shipping container. The ideal situation is for all transportation elements to meld into a seamless system for the effective and flexible needs of shippers.

Container Ships

Container shipping services are important to global trade. Purchasing products from overseas can require using container shipping in order to get the product to its final destination. Purchasing product from overseas and shipping via air does get the product to the final destination sooner, however, this is not generally a cost effective method of shipping large quantity or heavy weight loads.

The world's biggest container ships are about 1,300 feet with a maximum width of 180 feet (55 meters). Their engines weigh 2,300 tons, their propellers 130 tons, and there are twenty-one stories between their bridge and their engine room. They can be operated by teams of just thirteen people and a sophisticated computer system and carry 11,000 20-foot containers. If that number of containers were loaded onto a train it would need to be 44 miles or 71 kilometers long! – World Shipping Council

Semi-Trucks

A tractor-trailer's intermodal purpose is to take the container to its final destination from either a rail or a sea location. A regular semi-truck needs forklifts and/or cranes to load and unload containers, but now there are trailers equipped to perform this by themselves. A "Sidelifter" is a semi-trailer with hydraulic cranes mounted at both ends of the chassis allowing for the loading and unloading of shipping containers without the need of a forklift or other container handling equipment.

Containers

Container shipping uses standard sized containers of 20 foot (6.09 meters), 40 foot (12.18 meters), 45 foot (14.6 meters) and 53 foot (16.15 meters). TEU is twenty-foot equivalent unit, which is the standard measure. Containers are built to international standards making them interchangeable between shipping companies, rail and truck companies. The different types of containers include open end, open side, open top, half height, flat rack, refrigerated, liquid build (tank), modular and standard dry cargo. Containers are generally constructed of aluminum or steel with each container size and type built according to the same ISO (International Organization for Standardization) specifications, regardless of where the container is manufactured.

Container Shipping — *A Brief History*

Modern container shipping celebrated its 50th anniversary in 2006. Almost from the first voyage, use of this method of transport for goods grew steadily and in just five decades, containerships would carry about 60% of the value of goods shipped via sea.

The idea of using some type of shipping container was not completely novel. Boxes similar to modern containers had been used for combined rail- and horse-drawn transport in England as early as 1792. The US government used small standard-sized containers during the Second World War, which proved a means of quickly and efficiently unloading and distributing supplies. Before the container shipping industry emerged, boxes of various types and sizes had often been used in transporting cargo simply because they were the logical way to move things en masse from one location to another. However, even with these developments, cargo handling was almost as labor-intensive after World War II as it had been in the mid-1800s.

In 1955, Malcom P. McLean, a trucking entrepreneur from North Carolina, USA, bought a steamship company with the idea of transporting entire truck trailers with their cargo still inside. He realized it would be much simpler and quicker to have one container that could be lifted from a vehicle directly on to a ship without first having to unload its contents.

His ideas were based on the theory that efficiency could be vastly improved through a system of "intermodalism", in which the same container, with the same cargo, can be transported with minimum interruption via different transport modes during its journey. Containers could be moved seamlessly between ships, trucks and trains. This would simplify the whole logistical process and, eventually, implementing this idea led to a revolution in cargo transportation and international trade over the next 50 years.

On 23 April 1966, ten years after the first converted container ship sailed, Sea-Land's Fairland sailed from Port Elizabeth in the USA to Rotterdam in the Netherlands with 236 containers. This was the first international voyage of a container ship.

During the rapid build-up to the Vietnam War, the US military was faced with the logistical problem of getting supplies to troops. It had somehow to transport mass supplies to a war zone in south-east Asia through a single under-developed port on the Saigon River and a partially-functioning railway. The government turned to container shipping as the most efficient option.

1968 and 1969 were the Baby Boomer years for container shipping. In 1968 alone, 18 container vessels were built, ten of them with a capacity of 1,000 TEUs (TEU is a twenty-foot equivalent unit, which is the standard measure.) which was large for the time. In 1969, 25 ships were built and the size of the largest ships increased to approaching 2,000 TEU. In 1972, the first container ships with a capacity of more than 3,000 TEU were completed by the Howaldtwerke Shipyard in Germany.

Now an entire industry had emerged, demanding unprecedented investment in vessels, containers, terminals, offices and information technology to manage the complex logistics.

From the World Shipping Council

Website: www.worldshipping.org/about-the-industry/history-of-containerization

WORLD SHIPPING COUNCIL
PARTNERS IN TRADE

Public Transportation Benefits

Public transportation in the United States is a crucial part of the solution to the nation's economic, energy, and environmental challenges - helping to bring a better quality of life. In increasing numbers, people are using public transportation and local communities are expanding public transit services. Every segment of American society — individuals, families, communities, and businesses — benefits from public transportation.

Public Transportation Consists of a Variety of Modes

- Buses
- Trolleys and light rail
- Subways
- Commuter trains
- Streetcars
- Cable cars
- Van pool services
- Paratransit services for Senior citizens and people with disabilities
- Ferries and water taxis
- Monorails and tramways

Quick Facts

- In 2012, Americans took 10.5 billion trips on public transportation, the 2nd highest annual ridership number since 1957.
- 35 million times each weekday, people board public transportation.
- From 1995 through 2012, public transportation ridership increased by 34%—a growth rate higher than the 17% increase in U.S. population and higher than the 22% growth in the use of the nation's highways over the same period.
- Public transportation is a $57 billion industry that employs nearly 400,000 people.
- More than 7,300 organizations provide public transportation in the United States.
- 74% of public funding for public transit is spent creating and supporting hundreds of thousands of private sector jobs.

Public Transportation Enhances Personal Opportunities

- Public transportation provides personal mobility and freedom for people from every walk of life.
- Access to public transportation gives people transportation options to get to work, go to school, visit friends, or go to a doctor's office.
- Public transportation provides access to job opportunities for millions of Americans.

Public Transportation Saves Fuel, Reduces Congestion

- Americans living in areas served by public transportation save 865 million hours in travel time and 450 million gallons of fuel annually in congestion reduction alone.
- Without public transportation, congestion costs would have been an additional $21 billion.

Public Transportation Provides Economic Opportunities

- For every dollar communities inves in public transportation generates approximatley $4 in economic returns.
- Every $1 billion invested in public transportation supports and creates 36,000 jobs.
- Every $10 million in capital investment in public transportation yields $30 million in increased business sales.
- Every $10 million in operating investment yields $32 million in increased business sales.

Public Transportation Saves Money

- The average household spends 16 cents of every dollar on transportation, and 94% of this goes to buying, maintaining, and operating cars, the largest expenditure after housing.
- Public transportation provides an affordable, and for many, necessary, alternative to driving.
- Households that are likely to use public transportation on a given day save more than $9,700 every year.

Public Transportation Reduces Gasoline Consumption

- Public transportation's overall effects save the United States 4.2 billion gallons of gasoline annually.
- Households near public transit drive an average of 4,400 fewer miles than households with no access to public transit. This equates to an individual household reduction of 223 gallons per year.

Public Transportation Reduces Carbon Footprint

- Communities that invest in public transit reduce the nation's carbon emissions by 37 million metric tons annually: equivalent to New York City; Washington, DC; Atlanta; Denver; and Los Angeles combined stopped using electricity.
- A single commuter switching his or her commute to public transportation can reduce a household's carbon emissions by 10%, or up to 30% if he or she eliminates a second car. When compared to other household actions that limit CO2, taking public transportation can be 10 times greater in reducing this harmful greenhouse gas.

For more public transportation facts, see the *Public Transportation Fact Book*.at the website below.

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www.apta.com/resources/statistics/Pages/transitstats.aspx

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Milwaukee Streetcar Gaining Traction

Dan Casanova, Senior Economic Development Specialist, for the RedevelopmentAuthority of the City of Milwaukee gave a presentation about the status of the Milwaukee Streetcar project on April 17 at Joey Buona's in Milwaukee.

The proposed project will feature modern vehicles on a fixed guideway rail system with stops every one to three blocks in downtown Milwaukee. Currently in the design phase, the project supports 80,000 existing downtown employees, creates temporary construction jobs, generates long-term operations jobs and the potential for future extensions.

Reprinted from Wisconsin Women's Transportation Summer 2013 Newsletter

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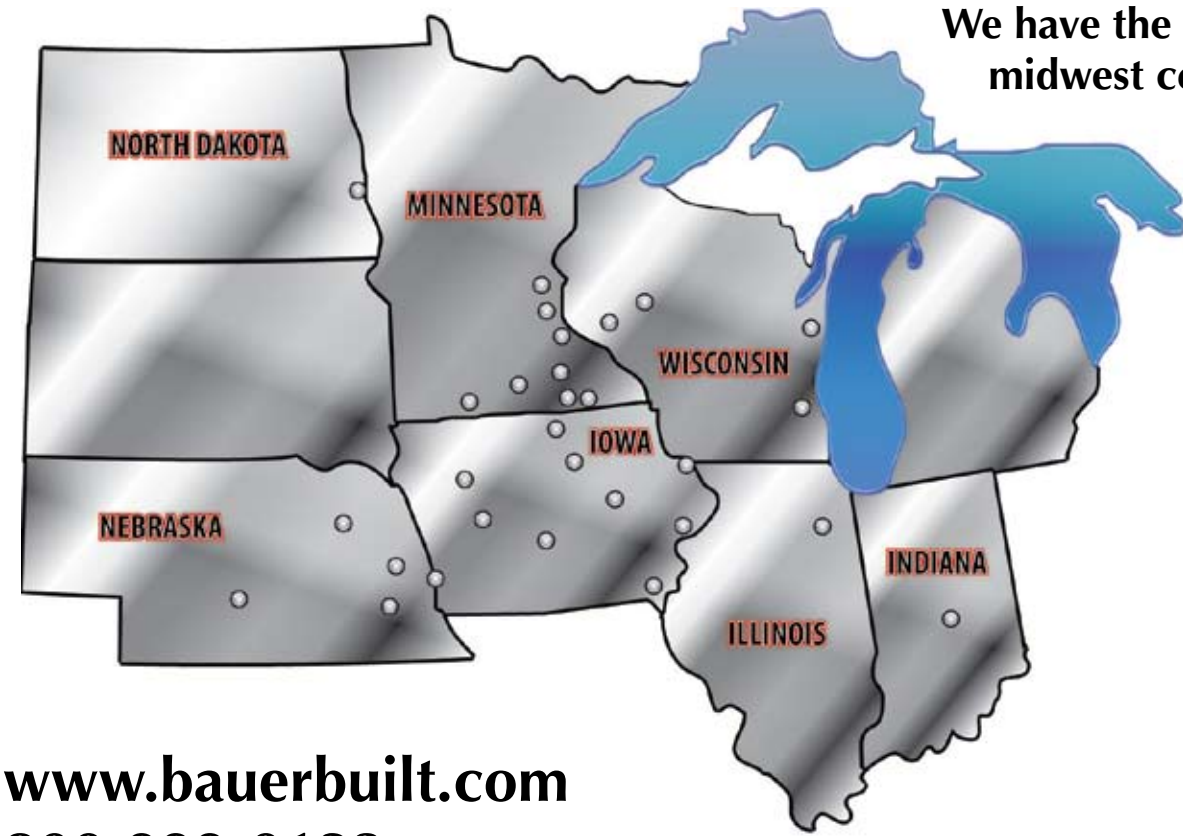

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