REGIONAL REVIEW: NORTH AMERICA

IN THIS SECTION

Being an active and responsible member of the communities in which we operate is a core value at Ford.

We demonstrate it by helping to alleviate shared social, economic and environmental problems and playing our part in creating a better world.

For example, the effects of global problems like climate change show themselves in different ways and to varying degrees in different locations. At the same time, technology is accelerating the pace of change in many areas of human activity, driving fundamental shifts in consumer trends in our markets. Our corporate strategies provide a framework for regional programs that reflect this fast-moving picture at the same time as addressing local circumstances and needs.

This section aims to give a flavor of material sustainability issues having an impact on our regional business units, and describes some key initiatives and programs supporting our corporate strategies.

North America

This section offers a regional perspective and an overview of initiatives to implement the corporate sustainability strategy in our North America regional business unit.

"Ford is a truly global company with its home in North America. We are proud to build more vehicles in the United States than any other automaker and we are the largest UAW employer in the country. In our North American markets we have continued to deliver strong sales and develop our product lineup to offer affordable mobility, quality, safety and smart design. Working with our partners, we have created 28,000 jobs and invested $12 billion in our plants in the U.S. during the last five years.

Standing on the cusp of a transportation revolution, we recognize that tomorrow's world will look very different. Our strategy is future-focused – to strengthen our core business in automotive and pursue new opportunities in electrification, mobility services and autonomous vehicles, supported by our investment in innovation and jobs. For us at Ford, forward thinking is the essence of sustainability and how we go further together.

By expanding to become both an auto and a mobility company, Ford is committed to creating a sustainable future and contribute to the continued well-being and success of our employees and communities in North America."

Joe Hinrichs
Executive Vice President and President, Global Operations, Ford Motor Company (formerly Executive Vice President and President, The Americas)

At a Glance

- Our North America Business Unit comprises the United States, Canada and Mexico
- 101,000 employees
- 29 manufacturing facilities

› Please see Ford's Annual Report 2016 for further information on our regional business units, including key financial metrics for North America

Strategy and Governance

Partnering With Cities to Transform Mobility

Today, half the world's population lives in cities. By 2030, that number is expected to grow to 60 percent. As populations grow, so does the challenge of keeping cities moving, thriving and healthy.

This is why Ford has established a new City Solutions team – the only one of its kind in the industry. The team is beginning to collaborate with Bloomberg Philanthropies and its global coalition of mayors as part of a cross-sector dialogue in preparation for the era of autonomous vehicles, and also is working with major cities in North America, starting in San Francisco.

› Read about our vision for the City of Tomorrow, and how we're partnering to meet San Francisco's future transportation needs

Beyond the Car: Human Progress and Mobility

The mobility challenges tied to moving people and goods around become tougher as cities expand and develop. This is the key for a transformational mobility project that was awarded a $200,000 grant from the Bill Ford Better World Challenge, a program launched by Ford Motor Company Fund.

GoodTurn is a type of ride-sharing application that will be used by Ford volunteers and others in the community to identify needs and connect underserved populations with the resources they need. The idea came from a group of Ford employees. After enlisting technical help from the University of Detroit Mercy, the group received the challenge grant to develop an app that connects nonprofit organizations' needs with volunteer drivers in real time.

The GoodTurn team is testing the app and working with four southeast Michigan nonprofits: Detroit Mercy Campus Kitchen, Cass Community Social Services, Detroit Rescue Mission Ministries and Macomb Habitat for Humanity. The app works like this:

- A nonprofit will set "goals," which encompass the timing, desired "to" and "from" locations, and the types and quantities of item(s) that need to be moved
- GoodTurn then will link the nonprofit to a registered volunteer driver who is able to assist. The driver determines what "goals" they are able to help the nonprofits achieve by deciding what their schedule allows and what their vehicle is able to handle

- The volunteer communicates, via the app, to the nonprofit to manage the moving and delivery times; once the drop-off is fulfilled, the goal is complete

GoodTurn perfectly illustrates Ford's vision of how mobility solutions can go "beyond the car" – by harnessing technologies and new thinking to address social challenges and ultimately make people's lives better.

Innovate Mobility Challenge Series

Big challenges call for big ideas. Held in cities around the world, Ford's Innovate Mobility Challenge series invites developers to apply fresh thinking and breakthrough technology to understand and address mobility issues.

Go Detroit Innovation Challenge

The Ford-sponsored Go Detroit innovation challenge was intended to help identify and address Detroit transportation needs with new technology advancements. More than 1,000 challenge participants from across the United States and around the world generated more than 160 ideas.

Finalists in the social entrepreneur category came up with creative ideas for improving daily lives through better access to places, people and services across Detroit, while the app developer finalists produced ideas for helping commuters have a safer, more efficient trip. The finalists have the opportunity to work with community organizations and Ford mobility experts to transform their ideas into innovative mobility solutions.

Mexico City Smart Journey

Almost 300 teams took part in a challenge to develop solutions for easier commuting across Mexico City. The focus was to give city residents and visitors all the available transport options in one app, powered by public, private and crowdsourced data. The Lino app was the overall winner, offering an engaging virtual reality experience that helps the commuter know which types of transportation to choose for an efficient multimodal journey.

As part of expanding our engineering presence in Canada, we announced an **investment of CA$500 million in mobility development-related work**, and took on **400 former Blackberry employees** (about 300 in Canada and the remainder in the U.S.)

Customers and Products

Innovative, Sustainable Materials

For nearly two decades, researchers have worked successfully to develop sustainable materials for Ford products. In North America, soy foam is in every Ford vehicle. Coconut fiber backs trunk liners; recycled tires and soy are in mirror gaskets; recycled T-shirts and denim go into carpeting; and recycled plastic bottles become REPREVE fabric used in the 2016 F-150.

Recently, a team took inspiration from plants to find a use for excess CO_2, sequestering (capturing) it to make durable plastics to use in vehicles.

› Watch a video about the work we're doing to develop foams and plastics using captured CO_2.

CASE STUDY

Agave By-products Get a Second Chance

In tequila production, once the heart of the agave plant is harvested and roasted, and its juices extracted for distillation, a portion of the remaining fibers can be used as compost for local farms, or used by local artisans to make crafts. However, there is a huge surplus of fiber, and much of it is burned in the field, producing greenhouse gas. Now, as part of a broader sustainability plan, Jose Cuervo® has joined forces with Ford to develop a new way to use its remnant fibers.

Together, we're exploring the use of its by-products to develop sustainable bioplastics for our vehicles, and testing them for use in components such as wiring harnesses, heating and air conditioning units, and storage bins.

Initial assessments highlight the potential for success, given the composite's durability and aesthetic qualities. It could reduce vehicle weight and improve fuel economy, while reducing our reliance on petrochemical-based plastics.

› See the route agave takes to get a second life in a Ford vehicle.

"There are about 400 pounds of plastic on a typical car. Our job is to optimize the material properties of a natural fiber composite such as agave, and then find the appropriate place for it on our vehicles. This will help Ford to reduce our impact on the planet. It is work that we're really proud of, and it could certainly have broad impact across numerous industries."

Debbie Mielewski
Senior Technical Leader, Sustainable Materials Research, Ford Motor Company

Leading and Partnering in Research and Innovation

At the same time as maintaining our leadership in product design, we also are collaborating with specialist partners on next-generation mobility solutions.

Continuing the Quest for Better Fuel Economy

As part of our continuing focus on vehicle fuel economy and performance, we are making a $200 million investment in a new wind tunnel complex in Allen Park, Michigan. With construction starting in 2017, the complex will house new and innovative technology that delivers state-of-the-art real-world driving simulations to advance improvements.

Expanding Opportunities in Future Mobility

As part of our business model expansion to an auto and a mobility company, we plan to capitalize on emerging ecosystems on our own or through partnerships and acquisitions. These areas range from connected telematics, sharing, paying and charging to vehicle management and financing.

Fostering the Startup Community

The TechStars Mobility initiative is a Ford-sponsored program now in its second year, designed to help accelerate each business and fuel partnership opportunities across the automotive industry. We are collaborating with several startups from 2016 Techstars Mobility to enhance navigation, connectivity and ride-sharing initiatives:

- Spatial is a Cincinnati-based company that provides a dynamic, human-driven layer of social intelligence to create mapping and navigation
- Chicago-based HAAS Alert is a connected notification platform that warns motorists when emergency vehicles are approaching
- Cargo is a New York-based in-vehicle general store, helping ride-share drivers cater to passengers

Supporting Research into On-Demand Models

Ford's collaboration with the Massachusetts Institute of Technology (MIT), Cambridge, is an innovative mobility research project to improve demand prediction models for mobility-on-demand services. This is measuring pedestrian flow to ultimately help predict demand for electric shuttles operating on city roads and campus walkways at MIT.

Operations

Water Stewardship at Our Chicago Assembly Plant

Ford is continuing its water leadership with new water-saving technologies at the Chicago assembly plant – home of the Ford Taurus and the award-winning Ford Explorer. The plant implemented initiatives toward the end of 2016 that helped it reduce water usage by 13 million gallons last year – expected to be significantly higher in 2017 after a full year of use.

Two key projects have contributed – an increase in the reuse of water in the plant's pre-treatment system and the addition of a cooling tower side-stream electrolysis system to remove calcium and magnesium (softening system). The plant is also developing additional innovative processes that aim to reuse up to 90 percent of water used in the pre-treatment process, reducing the need to use Chicago city water.

› Read more about water-saving initiatives at the Chicago assembly plant

Zero Waste to Landfill and Closed-Loop Aluminum Recycling

After two years of hard work, our Rouge Center has joined the growing list of Ford manufacturing facilities that have achieved the demanding zero waste to landfill (ZWTL) status – no mean feat for this large-scale complex with 16 million square feet of factory floor and approximately 7,000 employees.

All of our manufacturing plants in Canada and Mexico are also ZWTL facilities.

Reducing Waste at Ford Rouge

The closed-loop recycling system at our Rouge Center plays a big part in successful waste reduction, enabling up to 20 million pounds of aluminum stamping scrap to be recycled each month – the equivalent to 30,000 F-150 truck bodies.

› Watch a video about zero waste to landfill at Ford Rouge Center.

Targeting zero waste also meant finding innovative solutions for managing different types of waste. One challenge was how to handle the swarf – the metal shavings and chips that are created when metal is ground during engine manufacturing processes. The team found a briquetter machine that can transform the metal back into a brick that can be recycled. Any coolant oil on the metal shavings is squeezed out during the process and is then reused.

"We are proud of the efforts of our employees worldwide in their commitment to helping Ford reduce its global environmental footprint, and especially pleased with this achievement at our iconic Ford Rouge Center."

Andy Hobbs
Ford Motor Company Director, Environmental Quality Office

CASE STUDY

Closed-Loop Aluminum Recycling

An expansive, closed-loop recycling system has been developed at our Dearborn stamping plant, and is now in use at our Kentucky truck and Buffalo stamping plants. It's helping us produce aluminum savings that are nothing short of monumental.

In these three plants alone, we are now recycling 5 million pounds a week of high-strength military-grade aluminum alloy – the material we use to make the Ford F-150, America's best-selling pickup for 40 years.

› Meet Chip Conrad, the Ford stamping engineer who led the design of the system that enables Ford to recycle large amounts of aluminum, one "chip" at a time.

The **5 million pounds of aluminum that we recycle every week** in our Dearborn, Kentucky and Buffalo plants is enough to build 51 commercial jetliners, or more than 37,000 new F-Series truck bodies, per month.

How It Works

At the heart of this closed-loop recycling process is a large, automated vacuum system and more than two miles of tubing. As vehicle doors and fenders are stamped into shape, scrap material is shredded into chips, roughly the size of a dollar bill, which get sucked into the system and routed via a series of computer-controlled gates. The system automatically knows which of the four different grades of alloy is being stamped at a given time, then routes the material within seconds into one of four trucks standing by to send it back for reprocessing.

As we expand the use of aluminum in our product lineup, closed-loop recycling systems will be essential to the long-term viability of lightweight materials and meeting overall sustainability targets.

"Our ability to recycle leads to improved fuel economy and capability for our truck customers – and helps us build more affordable, high-performing, efficient vehicles."

Chip Conrad

Wildlife Habitat: Doing Our Best for Bees

Ford's Rouge Center is home to thousands of factory workers and 80,000 honeybees – thanks to Mary Mason, a Ford engineer who works at Rouge – and the company's wildlife habitat plan.

It all started in the early 2000s as part of Ford's environmental initiative – the Heritage 2000 program – which included "greening" parts of the Rouge facility, planting crabapple trees and introducing hives to the orchard. Mason, a Ford safety investigation engineer, brought in some of her own bees, and has served as a volunteer caring for the Rouge bees for three years.

Honeybees in the U.S. are in steep decline, as in other parts of the world. The Rouge hives are helping to support local populations of this precious insect. They are also part of the Rouge tour, teaching visiting schoolkids about the significance of bees for biodiversity and pollination.

› Meet Mary Mason, Ford engineer – and unofficial beekeeper at Ford's Rouge facility.

Aside from the bees at the Rouge plant, Ford rescued tens of thousands of other honeybees in the summer of 2016. Officials at the Ohio Assembly Plant in Avon Lake called in a beekeeper to remove about 10,000 bees and at the old St. Thomas Assembly Plant in Canada, thousands more were rescued.

› Read about how honeybees informed the design of the all-new 2018 Ford EcoSport

People and Communities

Our People Driving Innovation

In 2016, Ford employees submitted the most patent applications in the company's history – in both the United States and globally. Worldwide, there was a 40 percent increase over 2015, and a 90 percent jump over 2014 – reflecting Ford's innovation mind-set and our focus on advancing emerging new technologies.

› Meet Victoria Schein, a 23-year-old Ford research engineer with more patents than many industry veterans.

At Ford, intelligence isn't artificial – it's human. One recent innovation by Ford employees is On-the-Go H20, developed by engineers Doug Martin and John Rollinger. This provides an ingenious way to collect vehicle condensation, which is then filtered and pumped into a faucet inside the car to provide drinking water.

› Hear from Doug Martin about the ideas behind On-the-Go H_2O.

Ford Volunteer Corps

Every September across the company, some 20,000 Ford volunteers participate in hundreds of community service projects around the world. This is Ford Global Caring Month, the signature annual event of the Ford Volunteer Corps. Each year, the aim is to create a powerful and positive impact on people and communities through the efforts of Ford employees and our nonprofit partners.

Since it was launched in 2005, Ford Volunteer Corps members have contributed more than **one million hours** of community service in 48 countries, representing **$29 million of in-kind community investments**.

In the United States in 2016, Ford volunteers participated in more than 160 activities across 16 states throughout the month. In Mexico, volunteers took part in a whole host of projects, from making improvements at an orphanage to building water storage and providing food for those in hunger. In Canada, employees raised funds for charitable organizations, including national cancer and diabetes campaigns, and a local mental health facility.

Empowering Students to Help Their Communities

Ford Motor Company and Ford Fund invest more than $18 million each year in forward-thinking education programs around the globe that empower people to develop creative solutions to improve the quality of life in their communities. This investment also helps develop the future pipeline of skilled technical talent that is essential to Ford and the automotive industry.

Ford STEM High School Community Challenge

The Ford STEM High School Community Challenge encourages students to use their science, technology, engineering, arts and math (STEAM) knowledge to design sustainable solutions that will have a lasting impact.

A number of winning projects have been selected by a panel of Ford reviewers with first place awarded $20,000, second place winners awarded $10,000 each and third place receiving grants of $5,000 each to implement their solutions.

The inventive ideas include converting vehicles to run on renewable hydrogen fuel, developing solar-powered charging stations, hosting hackathons for underserved youth, programming drones to battle high populations of mosquitoes, transforming a school bus into a mobile learning lab and creating a Community IT Engagement Center to share with members of the community.

Ford Historically Black Colleges and Universities Community Challenge

Now in its fourth year, the Ford Historically Black Colleges and Universities Community Challenge encourages students to design innovative projects that address critical sustainability needs.

In the U.S. edition of the program, four chemical engineering students from Prairie View A&M University in Prairie View, Texas, won top honors with a software app that enables homeowners to monitor water and energy use in real time. The innovative app, which helps homeowners adjust their utility use and save money, earned the students $75,000 in scholarships, grants and implementation funds.

Dealers Going Further in Our Communities

In the U.S., Ford and Lincoln dealers gave more than $100 million and 800,000 hours to local causes and nonprofits in 2016.

In Mexico, Ford and its dealers recently celebrated 50 years of supporting social causes. Over this period, the education program has seen more than 200 primary public schools built and donated, and 80,000 children attending a Ford School every day.

Dealers' caring efforts and contributions to children's charities, environmental protection, hunger relief, education initiatives and other good causes are recognized each year in the Ford Salute to Dealers Awards. In Canada, Vaughn A. Wyant, Jubilee Ford Sales Ltd., Saskatoon, Saskatchewan, was one of six dealers from across the globe who were saluted for their deep-rooted commitment to improving the lives of others. For example, through the efforts of Wyant and his team, US$450,000 has been raised for the Children's Hospital Foundation of Saskatchewan.