TOYOTA

2017 NORTH AMERICAN ENVIRONMENTAL REPORT

ABOUT THIS REPORT

This report covers Toyota Motor North America, Inc.'s activities in the United States, Canada and Mexico under the Toyota and Lexus brands. The period covered is fiscal year 2017 (April 1, 2016 through March 31, 2017) and product model year 2016. Data presented with different dates is clearly indicated.

We listened to your comments and suggestions about last year's report and used them to improve this report. We would appreciate your feedback. You may participate in a survey found here.

CONTACT

Environmental Report Manager

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Toyota's trailblazing Mirai is a fuel cell electric vehicle that combines hydrogen and oxygen to make electricity onboard while emitting nothing but water vapor.

→ HOME

WELCOME TO TOYOTA'S 2017 NORTH AMERICAN ENVIRONMENTAL REPORT, WHERE WE FEATURE INFORMATION ABOUT OUR ENVIRONMENTAL STRATEGY AND PERFORMANCE ACROSS FOUR KEY FOCUS AREAS – **CARBON, WATER**, **MATERIALS** AND **BIODIVERSITY** – PLUS RELATED **OUTREACH** ACTIVITIES. WE BELIEVE CONCENTRATING OUR EFFORTS ON THESE CORE FOCUS AREAS WILL HAVE THE GREATEST POSITIVE IMPACT ON OUR BUSINESS, SOCIETY AND THE PLANET.

Our core focus areas are aligned with Toyota's Environmental Challenge 2050, six goals that seek to go beyond minimizing negative impacts to creating a net positive impact on the environment. Challenge 2050 encourages us to take our environmental thinking and actions to the next level. In this report, you'll learn more about how Challenge 2050 is informing our strategy and pushing us to build a better, smarter, more sustainable future.

Consider our three new One Toyota facilities in North America: the headquarters campus in Plano, Texas; the production engineering manufacturing center in Georgetown, Kentucky; and the purchasing and prototype design center in York, Michigan. We committed to pursuing LEED® Platinum certification – the highest level available – at all three locations. Pursuing Platinum required our team members, along with our architects, engineers and contractors, to think innovatively, beyond traditional green building techniques, to minimize impacts and maximize positive outcomes.

In the spring of 2017, team members began moving into the most environmentally advanced facilities we've ever built. All three campuses incorporate a wide range of sustainable features, such as solar arrays, rainwater harvesting, sustainable materials, and habitat areas that cater to pollinators and native species. These campuses support – and even redefine – our commitment to environmental sustainability across our core focus areas and Challenge 2050. We are united under one environmental mission and one resolve as One Toyota across North America.

CARBON

A PORTAL TO THE FUTURE:

"Project Portal" is a hydrogen fuel cell system designed for heavy-duty truck use at the Los Angeles ports. The fully functioning heavy-duty truck has the power and torque capacity to conduct port drayage operations while emitting nothing but water vapor. Project Portal is the next step in Toyota's effort to broaden the application of zero emission fuel cell technology that can serve a range of industries.

WATER

HARVESTING RAINWATER:

An innovative rainwater harvesting system was installed at Toyota's new headquarters campus in Plano, Texas. Four large cisterns are located in each of the parking garages and are expected to collect more than 11 million gallons of water per year.

MATERIALS

RECYCLING TO THE MAX:

Toyota's new purchasing and prototype design center in York, Michigan, was able to recycle 92 percent of all construction waste. Everything from concrete to cardboard was diverted from landfill and put to productive use.

BIODIVERSITY

HOME IS FOR THE BIRDS:

Toyota Bodine Aluminum in Troy, Missouri, is happy to share its home with the Eastern Bluebird. These little songbirds are pretty particular about where they nest. Team members helped Missouri's state bird by building cedar nesting boxes and installing them around 30 acres of the site.

DEAR READER:

ACROSS TOYOTA, WE'VE PLEDGED TO CREATE A NET POSITIVE IMPACT ON SOCIETY AND THE PLANET BY 2050. BY NET POSITIVE, WE MEAN GOING BEYOND JUST ELIMINATING OUR NEGATIVE IMPACT, TO HELPING CREATE WIDESPREAD, MEANINGFUL CHANGE.

To help us do that, we have Toyota's Environmental Challenge 2050, which commits us to building a resilient, shared future. Challenge 2050 has six goals:

- Reducing CO_2 emissions from new vehicles,
- Eliminating CO_2 emissions in our supply chain,
- Eliminating CO_2 emissions from our operations,
- Protecting water resources,
- Supporting a recycling-based society, and
- Operating in harmony with nature

You can read more about Challenge 2050 and some of our successes toward reaching our goals in the 2017 Environmental Report.

But we know we can't do this alone. We must partner with suppliers, dealers, local communities, nonprofit organizations and others and share our know-how. We've started this process through partnerships with various organizations, such as Yellowstone National Park. Our partnerships are diverse, addressing a range of environmental issues with a variety of stakeholders, spanning from an individual school district in rural Indiana to entire communities in the Galápagos Islands.

Still more needs to be done to solve the major environmental issues facing the global community – climate change, water scarcity, resource depletion and habitat loss, to name a few.

We won't see progress on a massive scale overnight. Our environmental activities are about small, steady steps forward. They're about sharing our expertise to help others and maximize positive outcomes. And most of all, they're about doing.

At Toyota, our 136,000 direct employees, contingent workers and supplier employees in North America are committed to doing our part. Together, we are ready to make great things happen. So, join us as we take steps toward creating a more sustainable future.

Jim Lentz
Chief Executive Officer
Toyota Motor North America, Inc.

HIGHLIGHTS

CARBON

- Toyota and Lexus have 14 hybrid electric vehicles on the roads in North America. Hybrid electric means they all use batteries plus one other fuel source, either hydrogen (fuel cell electric hybrid) or gasoline (plug-in electric hybrid or gasoline-electric hybrid).
- Toyota's 8.79-megawatt solar array at our new Plano headquarters campus produces about one-third of daily electric needs for the campus. It is the largest on-site corporate solar installation among non-utility companies in Texas.
- We revealed Project Portal, a hydrogen fuel cell system designed for heavy-duty truck use at the Los Angeles ports. The fully functioning, heavy-duty truck has the power and torque capacity to conduct port drayage operations while emitting nothing but water vapor.

WATER

- Projects at four of Toyota's North American manufacturing plants resulted in water savings last fiscal year in excess of 43.2 million gallons, equivalent to the annual water use of 394 average American families.
- An innovative rainwater harvesting system installed at our new headquarters campus in Plano, Texas, is expected to collect more than 11 million gallons of water annually, more than enough to meet the forecasted annual irrigation demand.
- Residents from 4,800 cities across the U.S. pledged to save more than 2.2 billion gallons of water as part of the sixth annual National Mayors Challenge for Water Conservation, presented by Toyota.

MATERIALS

- We worked with one of our packaging suppliers, PakFab, to find a way to reuse and recycle all of the obsolete packaging from vehicle model changes. With eight plants adopting this solution, we expect to eliminate 13 million pounds of waste annually.
- The paint shop at Toyota's assembly plant in Blue Springs, Mississippi, eliminated 320,000 pounds of waste by improving the way they manage waterborne paint waste.
- Toyota's new research and development campus in York, Michigan, recycled 92 percent of the waste generated during construction. That's 461 tons of material put to productive use instead of being disposed in a landfill.

BIODIVERSITY

- Thanks to team members building bird nest boxes, 137 Tree Swallow chicks were born last spring at our Cambridge and Woodstock, Ontario, assembly plants.
- Toyota has programs at 12 sites with Wildlife Habitat Council Conservation Certification. In 2017, we welcomed programs at the first two non-manufacturing sites to the list: the new R&D center in York, Michigan, and the proving grounds in Phoenix, Arizona.
- Thanks to support from Toyota, the Galápagos archipelago has a state-of-the-art fueling facility that is one of the most advanced and environmentally safe in all of South America.

OUTREACH

- Toyota gave $637,439 in Public Lands Every Day grants and made volunteerism possible at 2,600 National Public Lands Day sites, including 56 sites where 1,755 Toyota team members volunteered.
- In the 2015-2016 school year, the Toyota Evergreen Learning Grounds program, led by Evergreen with support from Toyota Canada and its dealerships, helped 559 schools with their efforts to green their outdoor spaces, engaging 48,245 students and staff.
- With 58 and counting, Toyota and Lexus continue to lead the industry with more dealership facilities certified to LEED® standards in North America than any other auto manufacturer.

Ash Corson
Advanced Business Strategist
Toyota Motor North America, Inc.

FEATURE STORY: ELECTRIC AVENUE

One of the questions I'm most frequently asked is, "When will electric cars become mainstream?" To which I invariably reply, "They already are."

The electrification of the automobile is arguably the greatest force transforming our industry. Appearing as early as the 1800's, electricity has served us increasingly well across the automotive spectrum, giving rise to continuous advances in lighting, ignition, communications, processing, propelling, regenerating, all manner of efficiencies, and more. Today, electricity—along with the connectivity and autonomy that it enables—is powering the industry's transformation toward a new paradigm of sustainable mobility for all.

So, electrification is with us, it's pervasive, and it's transformative. And it's also a core strength of what we do at Toyota.

From the launch of our very first hybrid-electric Prius 20 years ago, to the introduction of our fuel cell electric Mirai in 2014, Toyota has helped pioneer the path to electrification, providing a range of environmentally preferable products intelligently engineered to meet our customers' diverse needs via varying levels of electric generation, regeneration and propulsion.

This layering, or stratification, of electrification is perhaps best illustrated by its efficiency and emissions benefits. If we begin with a vehicle powered by a conventional gasoline-fueled internal combustion engine, adding an initial layer of electrification via a regenerative braking, battery and motor system enables virtuous reductions in fuel consumption, engine size and harmful emissions. An example of this hybrid-electric approach is the class-leading 2017 Toyota Prius, with its impressive available 54 mpg city EPA rating, incredibly efficient 1.8L engine, and Super-Ultra-Low-Emissions output.

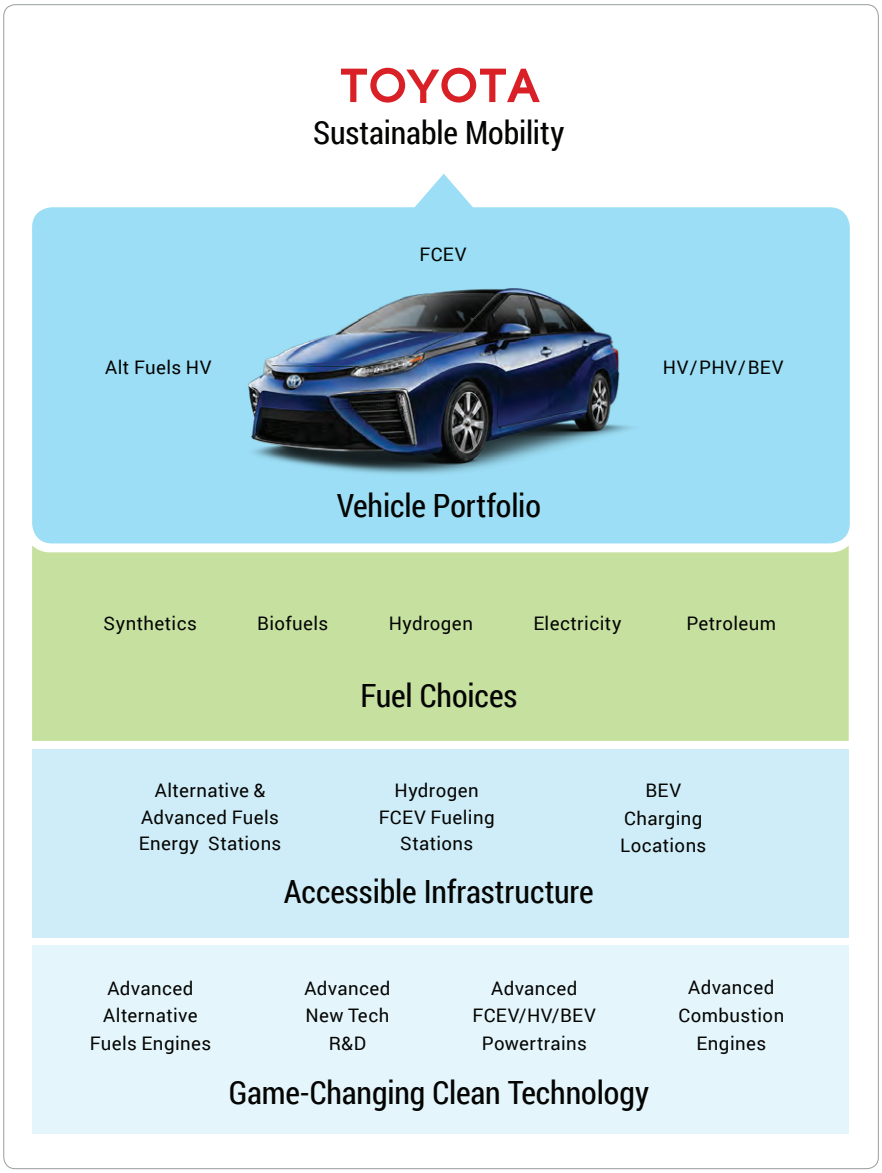
Adding a second level of electrification—in the form of expanded battery, electric motor, power control and operating capabilities—enables even greater efficiency and emissions gains. An example of a vehicle incorporating such advantages is the all-new Toyota Prius Prime advanced hybrid-electric, which allows customers to fuel either conventionally or electrically, with the ability to operate on battery power alone for up to 25 miles of zero emissions driving. In a showcase of its versatility, the Prius Prime offers owners an EPA-estimated 133 MPGe efficiency and 640 miles of total driving range.

Highest on our efficiency scale is the third stratum of electrification—pure electric vehicles. These completely replace carbon-emitting internal combustion engines with electric motors to provide silent, smooth, clean propulsion. Traditional pure electric vehicles are powered by batteries upsized to provide sufficient performance, range and longevity. An example of such a battery-electric vehicle is the i-Road concept vehicle, which is being used in ongoing demonstration programs in Japan and France.

An even more promising form of pure electric mobility is the fuel cell electric vehicle, such as the trailblazing Toyota Mirai. Vehicles like the Mirai utilize hydrogen to generate their own electricity onboard, while emitting nothing but water vapor from the tailpipe. Fuel cell electrics overcome many issues associated with battery electrics – lengthy recharging times, reduced range, diminished performance and lower infrastructure throughput. Fuel cell vehicles do require hydrogen fueling stations, but 31 such stations[1] already exist in California to serve a growing population of thousands of vehicles. More hydrogen fueling stations are under development with the prioritized support of the state, and station development in the Northeast is also underway. For fundamental reasons such as these, our fuel cell electric vehicle program — based on our core, layered, hybrid-technology strength — is a central pillar in Toyota's pursuit of sustainable mobility (see *Figure 1*).

[1] *Station count as of September 2017.*

F1 / Toyota's Global Electrification Strategy



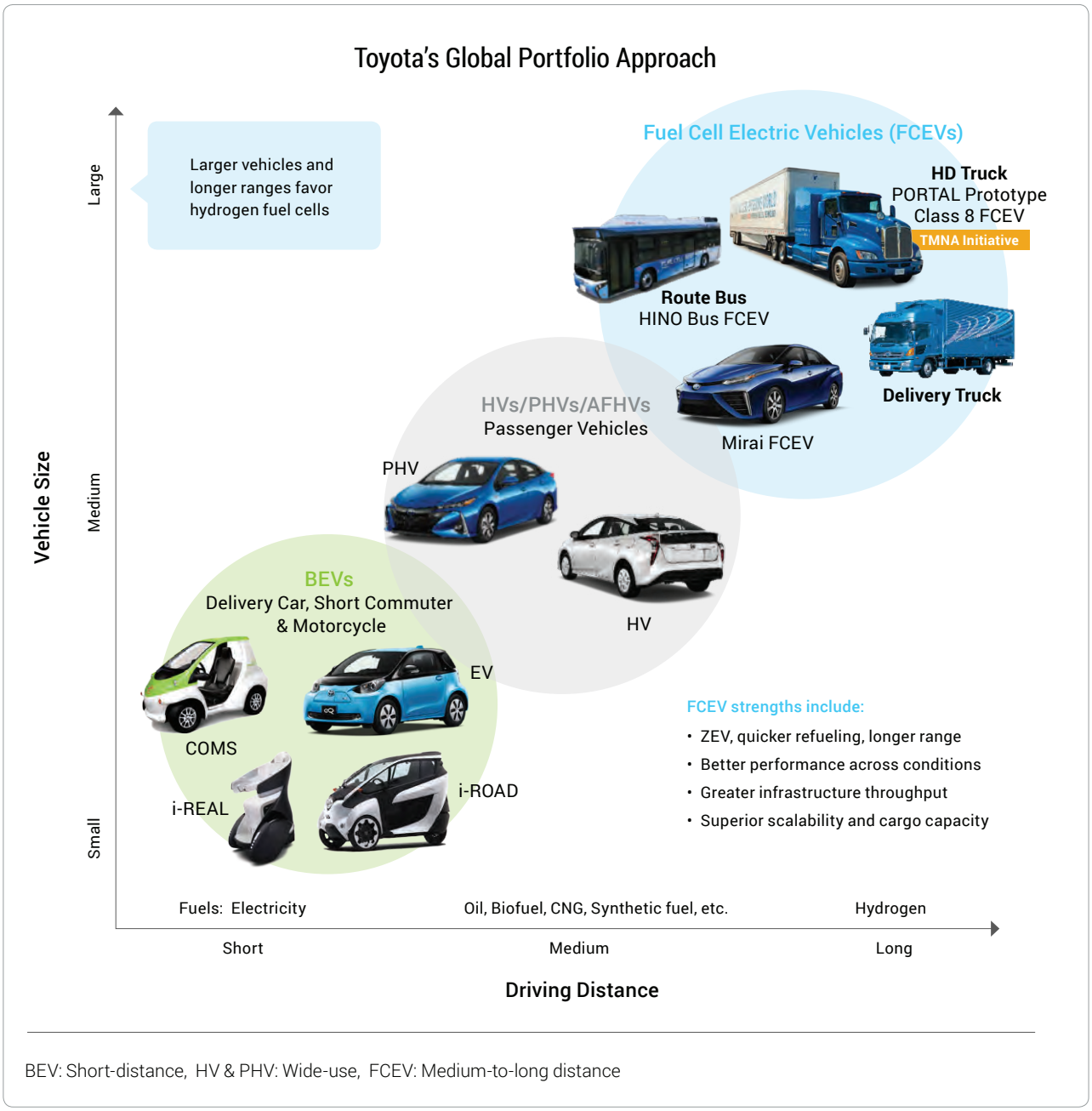
Perhaps the most exciting aspect of fuel-cell-driven electrification, however, is its scalability. The need to reduce emissions across the transportation, commercial and community sectors is dramatic, increasing and global. And where these sectors converge, such as in the teeming goods-movement port communities and their surrounding regions all over the world, this emissions issue has become critical.

A key means of addressing this problem is to electrify commercial freight transport, converting aging and polluting heavy-duty diesel fleets to pure, zero emissions, electric propulsion. And with our pioneering Project Portal Class 8 truck fuel cell feasibility study at the Los Angeles ports, Toyota is helping demonstrate that heavy-duty fuel cell electrics—with their range, weight, performance, refueling time, cargo capacity and infrastructure scalability advantages over battery-electrics—have the potential to be the optimal solution for electrifying – and revolutionizing – global transport.

This potential is visually summarized in *Figure 2* below. Overall, fuel-cell electric vehicles offer a compelling combination of market and societal benefits, particularly at scale, and are, therefore, a core of Toyota's layered, customer-needs-based portfolio approach to electrification.

F2 / Electrification via Hydrogen Fuel Cell is a Compelling Combination

H2 supply, scalability & renewability potential = good fit for ZEV freight transport



BEV: Short-distance, HV & PHV: Wide-use, FCEV: Medium-to-long distance

So, in summary, when someone asks you, "When will electric cars become mainstream? And how is Toyota participating?" you'll be able to smile and reply, "They already are, and we're helping lead the way."

Jaycie Chitwood
Sustainable Mobility Consultant
Toyota Motor North America, Inc.

FEATURE STORY: Toyota in the Galápagos

Over the past 17+ years working at Toyota, I've had the good fortune to work on many programs and products that help make the world a little better place. Yes, I know, that sounds very cheesy, but believe me when I say – no one who knows me would ever describe me as sappy. But I would go even a step further and say that one of the programs that fills me with the most pride is Toyota's partnership with the World Wildlife Fund (WWF) in the Galápagos Islands.

When I tell someone this, I usually get a puzzled look, followed by a "Do they even have cars in the Galápagos?" And when I respond with "Yes, they have cars in the Galápagos, but our work has nothing to do with cars," I get a "Huh? I don't get it."

The conversation with the World Wildlife Fund began in 2001. In January of that year, a tanker ship transporting fuel to the Galápagos Islands ran aground, spilling diesel and bunker fuel into the water surrounding San Cristobal Island. The spill was one of the worst environmental disasters in the archipelago's history and caused WWF, who had been working in the Galápagos for over 40 years on various conservation projects, to focus on the significant environmental threat of how fuel is transported and used on the islands.

One of Toyota's core principles is *Genchi Genbutsu*, which means that to make correct decisions, you need to go to the source and find the facts for yourself. Toyota sent a small team to the islands to assess the entire fuel supply chain. The resulting Energy Blueprint for the Galápagos Islands was an ambitious pathway toward a sustainable energy future. It identified a set of unified actions to be taken across each sector of energy use – electricity generation, cargo ships, fishing boats, tourism vessels that travel between the islands, and cars and trucks. The idea was not that Toyota would fund everything in the blueprint, but that beyond the funding and expertise we could bring, our work with WWF would serve as a catalyst for change. In January 2002, the government of Ecuador officially endorsed the blueprint.

The highest priority in the blueprint was the overhaul of the main fuel depot, which was both an environmental and safety hazard. The depot – into which all fuel for the islands was delivered, then re-loaded for delivery to the inhabited islands – used "temporary" storage tanks built by the U.S. Navy during the Second World War. The tanks leaked into the ocean and onto the ground, there was no way to contain spills, and the loading and unloading was mostly a manual process. Toyota's engineers designed a new, state-of-the-art facility, and PetroEcuador, the state-owned oil company, funded the renovation. The new facility was completed in 2005 and is still one of the most advanced fuel handling facilities in all of South America.

Over the years, as our knowledge of the islands and the issues grew, we expanded our scope to include waste management. Waste is not a very glamorous topic, but one with huge potential to degrade the archipelago's unique ecosystem if not handled properly. The human population centers had increased rapidly, but without a holistic waste management system in place. There was a rudimentary collection system, minimal recycling and no proper landfill. The artisanal fishermen changed the oil from their boats and dumped it onto land or into the sea, and the trash collected from homes and businesses was burned in an open pit.

In addition to funding and equipment donations, Toyota brought expertise in minimizing and handling waste. Many people don't know that Toyota makes about two million vehicles every year at our North American manufacturing plants, yet only 1 percent of all the waste generated goes to a landfill. OK, bordering on sappy now, but it's pretty astonishing to think about huge manufacturing facilities cranking out millions of vehicles, and almost nothing going to a landfill!

Another core Toyota principle is that of taking the long-term perspective. We want our partnerships to be truly transformative and address issues in a way that is sustainable over the long term. It's very easy to spend money on short-term fixes, but very

difficult to create lasting change. Lasting change takes time, getting buy-in from all stakeholders, and patience. And most importantly, it takes ensuring that there is local capacity to sustain whatever changes are made or systems put in place.

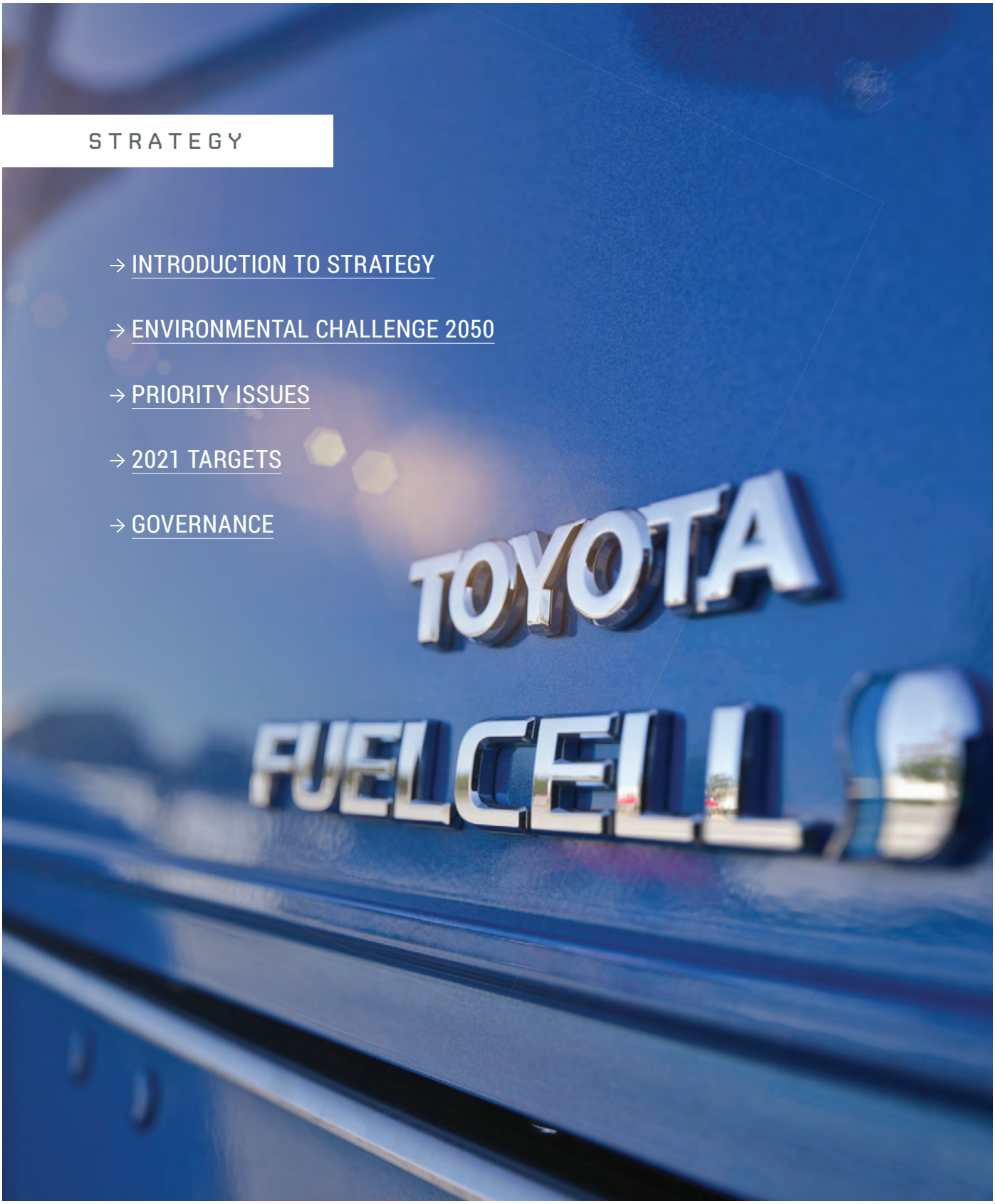
This principle was at the core of all our work in the Galápagos, particularly our work in waste management. We needed to systematically build the entire system. We worked within the existing government structure at first, then, through public education and outreach, technical training, financial investments and time, created new departments and functions within the municipality. To enable the long-term sustainability of the system, new fees had to be put in place – fees that households and businesses would never have accepted if they had not been part of the journey and had not understood the importance.

Oh, and I almost forgot the most important element of our successes in the Galápagos – individuals who are passionate about making a difference. And of that, I'm guilty.

A small team of Toyota engineers and scientists worked with WWF to assess the entire fuel supply and demand system in the Galápagos Islands. Together, we developed an ambitious plan to move to a clean, sustainable energy system. Today, the islands have a multi-million-dollar, state-of-the-art fueling facility that is one of the most advanced and environmentally safe in South America.

The isolated terrain of the Galápagos archipelago shelters a diversity of plant and animal species, many found nowhere else on Earth. The Galápagos giant tortoise (Chelonoidis nigra) is the largest living species of tortoise. These creatures can weigh more than 900 pounds and live well over 100 years. They can only be found in the Galápagos and in an archipelago in the Indian Ocean, east of Tanzania.

STRATEGY



INTRODUCTION TO STRATEGY

Toyota's global vision of Respect for the Planet is a core value of the company and a driving force behind our environmental initiatives. Respect for the Planet is also the foundation for Toyota Motor North America's (TMNA's) environmental sustainability strategy.

Two years ago, our parent company unveiled the Toyota Environmental Challenge 2050, which builds on that foundation and provides a blueprint for the next 30-plus years. Challenge 2050 consists of six goals that seek to go beyond zero environmental impact and create a net positive impact on society and the planet. In North America, we developed a regional Environmental Mission Statement that aligns Respect for the Planet and Challenge 2050 with our four focus areas and five-year environmental action plans.

01 /

TOYOTA MOTOR
NORTH AMERICA

2050 Environmental Sustainability Strategy

RESPECT FOR THE PLANET is one of Toyota's core values. To demonstrate the company's commitment to this value, Toyota issued the Environmental Challenge 2050, a set of six global challenges that will move our company beyond zero environmental impact to achieving a net positive impact on society. Here in North America, we have developed a strategy to align with these six challenges and achieve a net positive impact in our region.

Environmental Challenge 2050

To go beyond zero environmental impact and achieve a net positive impact:

1. Eliminate almost all CO_2 emissions from new Toyota vehicles
2. Eliminate all CO_2 emissions from the manufacturing of parts and materials used to produce Toyota vehicles
3. Eliminate all CO_2 emissions from Toyota facilities, logistics and processes
4. Ensure all Toyota facilities and processes conserve and protect water resources
5. Ensure all Toyota facilities and processes support a recycling-based society
6. Ensure all Toyota facilities and processes operate in harmony with nature

TMNA Environmental Mission

TMNA will demonstrate Respect for the Planet and achieve a net positive impact on society and the environment by:

1. Supporting Toyota's global Environmental Challenge 2050 through our five-year EAPs and regional strategy
2. Managing priority issues specific to the North American region
3. Engaging in outreach by promoting awareness, developing strategic partnerships and sharing know-how with business partners and other stakeholders to create positive change

TMNA Focus Areas

TMNA has organized its priority issues into four focus areas:

Carbon | Water | Materials | Biodiversity

TMNA 5-Year EAPs

Five-year targets in the following areas ensure incremental progress toward our 2050 goals:

- **Four Focus Areas**
- **Outreach**

ENVIRONMENTAL CHALLENGE 2050

The Toyota Environmental Challenge 2050, unveiled in September 2015, consists of six challenges that seek to go beyond merely minimizing environmental impact, to actually creating net positive change. For more information on Challenge 2050 and how it relates to our focus areas and our activities in North America, please see the following:

- Environmental 101
- Challenges 1-3: Reducing Life Cycle CO_2
- Challenge 4: Conserving & Protecting Water Resources
- Challenge 5: Recycling-Based Society
- Challenge 6: Harmony with Nature

02 / Toyota's Environmental Challenge 2050 at Work in North America

Toyota Motor North America (TMNA) has aligned our core focus areas with the global Environmental Challenge 2050. In each focus area, we are working toward zero environmental impact and, with outreach, toward a net positive impact for society and the planet.

PRIORITY ISSUES

A global materiality assessment was conducted by our parent company, Toyota Motor Corporation (TMC), as part of developing the Toyota Environmental Challenge 2050. TMC evaluated global trends, risks and opportunities, including the United Nations 2030 Agenda and the 17 Sustainable Development Goals, and identified the following serious environmental issues facing society and the planet:

- Extreme weather phenomena attributed to greenhouse gas emissions.
- Aggravated air pollution in cities.
- Water shortages due to population growth.
- Resource depletion.
- Ecosystem fragmentation and biodiversity loss.

TMC then evaluated the importance of these issues to Toyota and external stakeholders. As a result of this process, TMC identified six material issues:

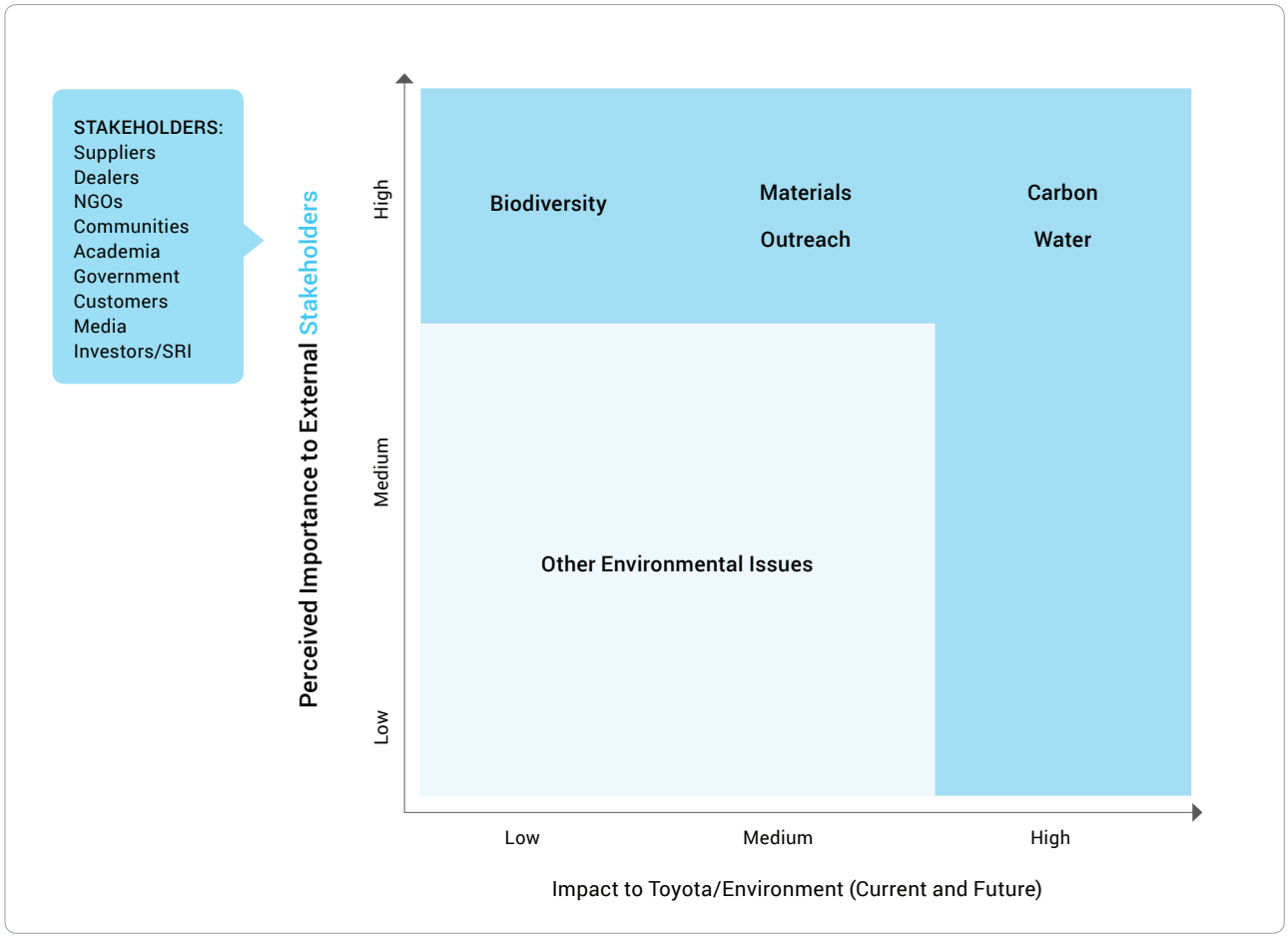
1. CO_2 emissions from new vehicles
2. CO_2 emissions from upstream activities and end-of-life treatment of vehicles
3. CO_2 emissions from vehicle manufacturing
4. Water stewardship
5. Materials management
6. Biodiversity protection

TMC addresses these six issues in the Toyota Environmental Challenge 2050, which consists of six environmental goals for creating a net positive impact on our planet. See pages 14-15 of the Toyota Sustainable Management Report 2016 for more information on TMC's assessment and the process for identifying and implementing the Environmental Challenge 2050.

TMNA's process in North America followed a similar path. Our identification of priority issues aligns with TMC's, but consolidates the three CO_2 emissions challenges into a single issue we call "Carbon." We also call out the importance of sharing know-how for achieving a net positive impact by 2050. Our priority issues in North America are our four focus areas – Carbon, Water, Materials and Biodiversity – as well as Outreach.

We continue to manage other environmental issues, including air quality and green building, and we are as committed as ever to compliance with all applicable environmental laws and regulations. See Performance for information on our activities and performance in these areas.

03 / Priority Environmental Issues for Toyota Motor North America (Materiality)



The environmental materiality assessment for Toyota Motor North American complements the global assessment conducted by our parent company, Toyota Motor Corporation (TMC). TMC's assessment identified six material environmental issues: CO_2 emissions from vehicles, CO_2 emissions from upstream activities and end-of-life treatment of vehicles, CO_2 emissions from vehicle manufacturing, water conservation, materials management and biodiversity protection. These are the issues addressed in the Toyota Environmental Challenge 2050, which establishes six environmental goals for creating a net positive impact on our planet. Our identification of priority issues aligns with TMC's, but consolidates the three CO_2 emissions issues into a single issue we call "Carbon." We also call out the importance of outreach for achieving a net positive impact by 2050.

We continue to manage other environmental issues, including air quality and green building, and we are as committed as ever to compliance with environmental laws and regulations.

2021 TARGETS

TMNA's Environmental Action Plan (EAP) for fiscal years 2017 to 2021 is organized by focus area and the six goals of Toyota's Environmental Challenge 2050. The targets put us on a path to achieving all six goals. We know there is much to do and a long way to go, but we are putting the building blocks in place for a successful strategy, which, by 2050, are expected to result in net positive impacts to society and the planet.

04 / TMNA Environmental Action Plan, FY2017-2021

FOCUS AREA/ CHALLENGE 2050	FY2021 TARGET	STATUS	FY2017 PROGRESS
CARBON Challenge 1 Challenge 2 Challenge 3	Foster accelerated adoption of next-generation vehicles by continuously supporting education and infrastructure deployment	△	• Supported education initiatives such as Environmental Media Awards • Partnering with Shell, FirstElement Fuels, Linde and Air Liquide on hydrogen infrastructure
	Advance the development and utilization of low carbon fuels	△	Working on developing renewable hydrogen fuel for the fuel cell truck at the Los Angeles ports
	Develop a mobility project in North America that reduces congestion and GHGs	△	Developing a ride share program for Plano headquarters
	Improve absolute GHG emissions from North American operations 15% from a baseline of FY2016	△	Total GHG emissions increased but we finished developing a plan that will decrease absolute emissions by FY2021
	Improve GHG emissions intensity from all logistics 5% from a baseline of FY2016	△	• Gathering data from all logistics divisions is in process • Improved GHG intensity from owned U.S. vehicle logistics by 2%
WATER Challenge 4	Prioritize and implement water stewardship plans for facilities in water-stressed areas	△	• Mapped major sites with Aqueduct™ • Prioritizing sites in areas of high overall risk is in process
MATERIALS Challenge 5	Reduce the use of packaging material 5% from a FY2016 baseline	△	• Establishing a data tracking system is in process • Reusing and recycling 13 million pounds of packaging through new program with PakFab
BIODIVERSITY Challenge 6	Partner with third parties and other Toyota regions to protect globally recognized biodiversity hotspots	△	• Participated in WWF partnership with TMC • Continued partnership in the Galápagos Islands
	Partner with others to help protect and preserve 50,000 acres of natural habitat in North America	△	• Protecting ~1,000 acres through WHC Conservation Certifications • Supported 56 NPLD sites • Worked with WWF to protect Northern Great Plains
	Participate in regional biodiversity activities that support wildlife corridor(s)	△	Planted pollinator gardens to support monarch butterflies
	Achieve at least two new WHC Conservation Certifications per year	△	• 2 WHC Conservation Certifications received in 2017 (for a total of 12)

◉ Target Exceeded ○ Target Achieved △ On Track X Target Missed

GOVERNANCE

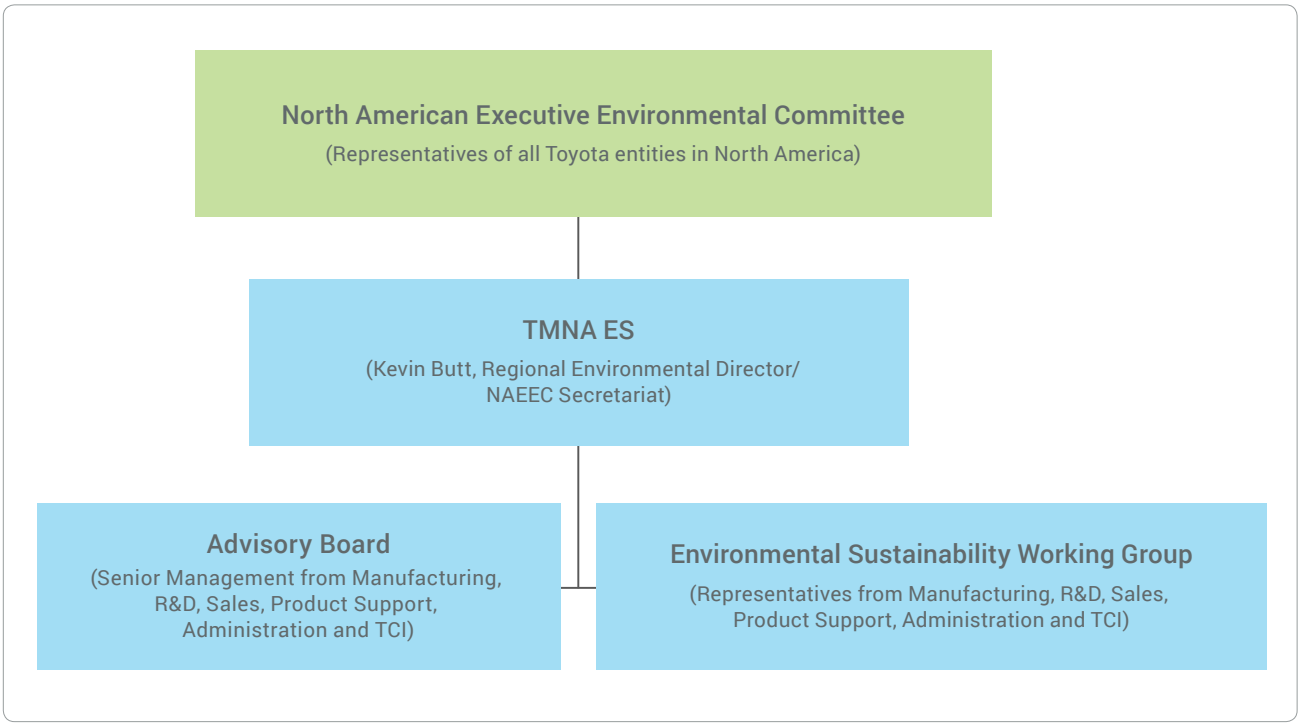
TMNA's Environmental Sustainability (ES) department reports to the North American Executive Environmental Committee (NAEEC) and serves as the chief environmental body representing Toyota entities in North America. ES, in cooperation with the NAEEC, establishes activities and provides one voice for appropriate responses to environmental sustainability issues in North America. The ES department's primary responsibilities include setting policy and direction for the region, developing consolidated environmental action plan goals and targets, and developing the annual North American Environmental Report.

TMNA ES facilitates an Advisory Board and Working Group as a coordinating mechanism across the organization. Both are comprised of environmental experts and representatives from various divisions:

- Manufacturing
- Research and Development
- Sales
- Product Support
- Administration *(includes Regulatory Affairs and Legal)*
- Social Innovation
- Compliance and Audit
- Toyota Canada Inc. (TCI)

This report contains information from these divisions. Representatives from these divisions also participate in focus groups that concentrate on a particular environmental issue (such as water or biodiversity). These focus groups report to the Environmental Sustainability Working Group and help develop and implement environmental action plan targets, develop strategies for the region, perform benchmarking and data gathering activities, and raise awareness among team members and external stakeholders.

05 / Environmental Governance in North America



CARBON

Toyota's "Project Portal" is a hydrogen fuel cell system designed for heavy-duty truck use. Our zero emission class 8 truck proof of concept has completed more than 4,000 successful development miles while progressively pulling drayage-rated cargo weight and emitting nothing but water vapor.

→ **CARBON**

"CARBON" IS ONE OF TOYOTA'S FOUR FOCUS AREAS IN NORTH AMERICA. CLIMATE CHANGE IS A SIGNIFICANT CHALLENGE FACING THE GLOBAL COMMUNITY. OUR CARBON STRATEGY INCLUDES **REDUCING CO_2 EMISSIONS FROM NEW VEHICLES**, **ELIMINATING CO_2 EMISSIONS FROM MANUFACTURING**, AND **SHARING OUR KNOW-HOW** WITH OTHERS. WE ARE WORKING AT EVERY STAGE OF THE VEHICLE LIFE CYCLE TO HELP THE WORLD BUILD A LOW CARBON FUTURE.

INTRODUCTION TO CARBON

Earth's average temperature has risen over the past century. Continued emission of greenhouse gases (GHGs) – including carbon dioxide – is expected to cause further warming and long-lasting changes in all components of the climate system, increasing the likelihood of severe, pervasive and irreversible impacts for people and ecosystems. The Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) concludes climate risk can only be limited by substantial and sustained reductions in GHG emissions, together with adaptation measures.

According to the International Energy Agency, the transportation sector is responsible for approximately 23 percent of the world's total carbon dioxide (CO_2) emissions from fuel combustion. This is a problem that Toyota cannot address in isolation. Taking urgent action to combat climate change and its impacts by building resilience and improving awareness is a shared challenge that requires a shared response. By developing vehicles that emit less carbon dioxide and finding ways to use more sustainable energy, we are helping to build a more sustainable future for society, business and the planet.

CHALLENGES 1-3: REDUCING LIFE CYCLE CO_2

Our CARBON focus area relates to Challenges 1, 2 and 3 of Toyota's Environmental Challenge 2050, which call for reducing new vehicle CO_2 emissions by 90 percent from 2010 levels, eliminating CO_2 emissions from manufacturing of parts and materials used to produce Toyota vehicles, and eliminating CO_2 emissions from our facilities and processes. These challenges recognize climate change as a global issue that must be addressed across the vehicle life cycle.

Toyota is ready to do our part to help build a low carbon future. Here in North America, we developed an approach to conquering these challenges that involves three actions:

1 **Reducing new vehicle CO_2 emissions** by improving the fuel efficiency of conventional gasoline vehicles, increasing hybrid technology penetration, developing advanced technology vehicles, and promoting low carbon fuels (Challenge 1). We continue to pioneer the path to greater engine efficiency and next-generation vehicles by providing a range of intelligently engineered products to meet our customers' diverse needs. We also work with a variety of partners on how to make alternative fuels from renewable sources, such as hydrogen for fuel cell electric vehicles and electricity to power battery electric and plug-in vehicles.

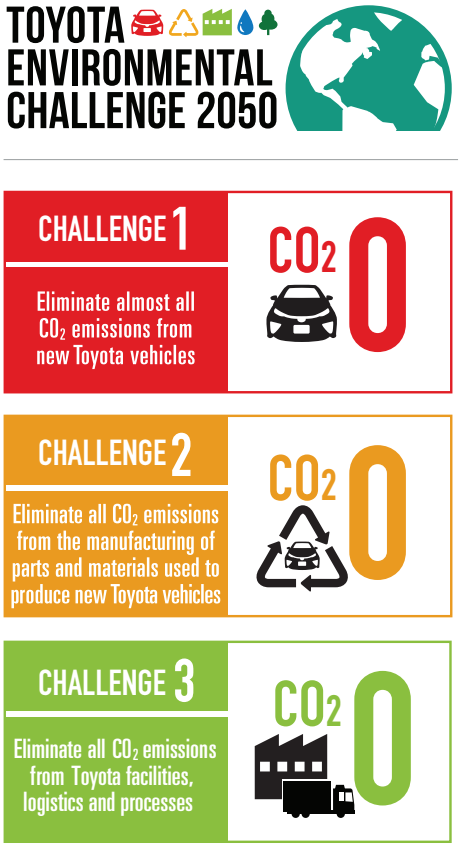
2 **Sharing our know-how** and engaging in outreach with stakeholders – especially suppliers who manufacture the parts and materials used to produce Toyota vehicles – to eliminate CO_2 emissions from the vehicle life cycle (Challenge 2). We will work with all stakeholder groups to scale up progress and support efforts to generate more renewable energy than the total amount of energy we consume. Key to our engagement is close collaboration with communities, suppliers and dealerships toward building a low carbon society.

3 **Eliminating CO_2 emissions from operations** in ways that eventually will lead us to be net zero for carbon (Challenge 3). Getting to zero requires us to rethink the way we power our facilities, especially our manufacturing plants. We are implementing projects that reduce our energy consumption, investing in renewable energy and improving the GHG intensity of both owned and third-party logistics.

We are working on our 2021 environmental action plan targets, which direct us to foster accelerated adoption of all types of next-generation powertrains and vehicles, advance the development of low carbon vehicle fuels, implement a mobility project that reduces congestion, reduce CO_2 emissions from North American operations, and improve the GHG emissions intensity of both owned and third-party logistics. Our progress is described in the next section.

06 / TMNA's Approach to a Low Carbon Society

Our CARBON focus area relates to Challenges 1, 2 and 3 of Toyota's Environmental Challenge 2050. This challenge recognizes climate change as a global issue that must be addressed across the vehicle life cycle. Toyota is ready to do our part to build a low carbon future. Here in North America, we developed an approach to conquering this challenge that involves three actions:



CARBON

Reducing New Vehicle CO_2 Emissions:

- Advance next-generation powertrains and vehicles
- Support infrastructure development for advanced technology running on alternative fuels
- Help develop low carbon vehicle fuels

Sharing Know- How:

Support efforts to generate more renewable energy than the total amount of energy we use by engaging with:

- Local communities
- Major suppliers
- Dealers

Eliminating CO_2 Emissions From Operations:

- Reduce energy use
- Use more renewable energy

CARBON TARGETS

Between fiscal years 2017 and 2021, Toyota Motor North America (TMNA) will:

Foster accelerated adoption of next-generation vehicles by continuously supporting education and infrastructure deployment (on track)

EDUCATION

We engage in a variety of activities to educate customers and the public about our advanced technology vehicles. For example, we host ride and drive events and participate in demonstration programs with universities and government agencies. In October 2016, Toyota and Lexus joined Calvert Investments in sponsoring the 26th annual Environmental Media Awards, which honored film and television productions that communicate environmental messages in creative and influential ways. To educate attendees about fuel cell electric vehicles, a hydrogen-powered Mirai graced the green carpet.

INFRASTRUCTURE DEPLOYMENT

Hydrogen fueling stations take processed hydrogen, compress it and cool it to deliver it safely to a fuel cell vehicle (FCV). Hydrogen stations operate a lot like gasoline stations and it takes only about five minutes to refill the tank of Toyota's Mirai.

The availability of hydrogen fueling infrastructure presents one of the biggest challenges with commercializing fuel cell vehicles like Mirai. The University of California Irvine estimates 68 stations are needed to support 10,000 fuel cell vehicles state-wide; 31 are currently operating. The state of California has earmarked $200 million for as many as 100 new hydrogen stations in the next several years. **Shell**, in partnership with Toyota, will be installing hydrogen refueling equipment into seven retail stations in California. Additionally, Toyota is helping fund infrastructure that supports a growing community of FCV drivers by committing millions of dollars to three hydrogen fuel providers:

- **FirstElement Fuels**, as part of a financial agreement with Toyota, is working to develop an integrated and reliable network of fueling stations across California in target market locations approved by Toyota and consistent with the California Fuel Cell Partnership Road Map. As of August 2017, FirstElement had completed construction of 17 stations.
- Industrial gas supplier **Linde LLC** is building a hydrogen fueling station on Toyota-owned property in San Ramon, California, adjacent to Toyota's San Francisco Regional Office and Parts Distribution Center. This location will serve local and regional customers and will function as an important connector site between the Sacramento and San Joaquin Valleys and the San Francisco Bay Area.
- In the northeast United States, Toyota and **Air Liquide** are collaborating to develop and supply a fully integrated hydrogen fueling infrastructure to support the introduction of Mirai on the east coast in 2018. Air Liquide's hydrogen fueling infrastructure in the northeast is expected to consist initially of 12 filling stations across New York, New Jersey, Massachusetts, Connecticut and Rhode Island, with plans to extend the network as demand warrants.

In the first global initiative of its kind, the **Hydrogen Council** was launched in early 2017 to position hydrogen among the key solutions of the energy transition. The members of the Council are Air Liquide, Alstom, Anglo American, BMW GROUP, Daimler, ENGIE, Honda, Hyundai, Kawasaki, Royal Dutch Shell, The Linde Group, Total and Toyota. The Council is led by two Co-Chairs from different geographies and sectors, currently represented by Air Liquide and Toyota.

"The Hydrogen Council will exhibit responsible leadership in showcasing hydrogen technology and its benefits to the world," said Toyota Chairman Takeshi Uchiyamada. "It will seek collaboration, cooperation and understanding from governments, industry and, most importantly, the public. We know that in addition to transportation, hydrogen has the potential to support our transition to alow carbon society across multiple industries and the entire value chain. The Hydrogen Council aims to actively encourage this transition."

Advance the development of low carbon vehicle fuels (on track)

Zero emission vehicles are only as good as the fuel they run on, whether that be electricity or hydrogen. TMNA is working on developing renewable hydrogen fuel for the new fuel cell truck being piloted at the Ports of Los Angeles and Long Beach. For information on this project, see our Spotlight: Toyota Opens a Portal to the Future.

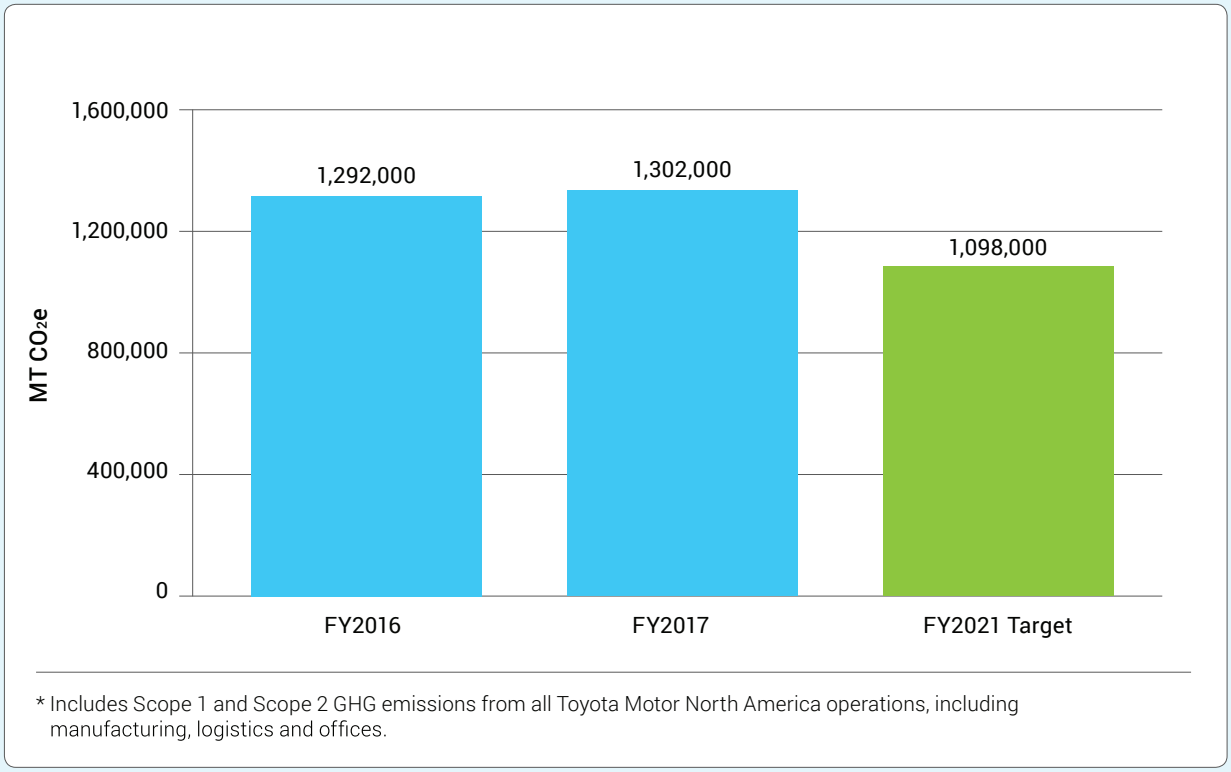
Implement a mobility project in North America that reduces congestion and GHGs (on track)

TMNA is researching, partnering and piloting many different types of mobility as it relates to moving from place A to place B. We recently began a pilot at our new North American headquarters campus to get team members out of their cars – more accurately, to reduce the number of cars to and around our campus with only a single occupant, or driver, during peak commute times. It's an app-based, flexible system that allows team members to commute together using hybrid Toyota vehicles located in easily accessible locations in neighborhoods and near heavy commute corridors. If the pilot proves successful, it will be a triple win: We will help to relieve the growing congestion challenges near our new campus, reduce our corporate greenhouse gas emissions from employee commuting, and prove out the business model for ride sharing for commuting.

Reduce absolute GHG emissions (Scopes 1 and 2) from North American operations 15 percent, from a baseline of fiscal year 2016 (on track)

Scope 1 and 2 greenhouse gas (GHG) emissions increased between fiscal years 2016 and 2017, mainly due to a production increase. We recently finished developing a GHG reduction plan for our sites that includes GHG and energy efficiency projects as well as renewable energy projects. Once these projects come online, we expect to see significant decreases in total emissions. See Eliminating CO_2 From Operations for more on our activities to reduce energy use and GHG emissions. See also Figure P12 for more information on our North American GHG inventory, including a description of the different Scopes.

07 / GHG Emissions from Toyota's North American Operations

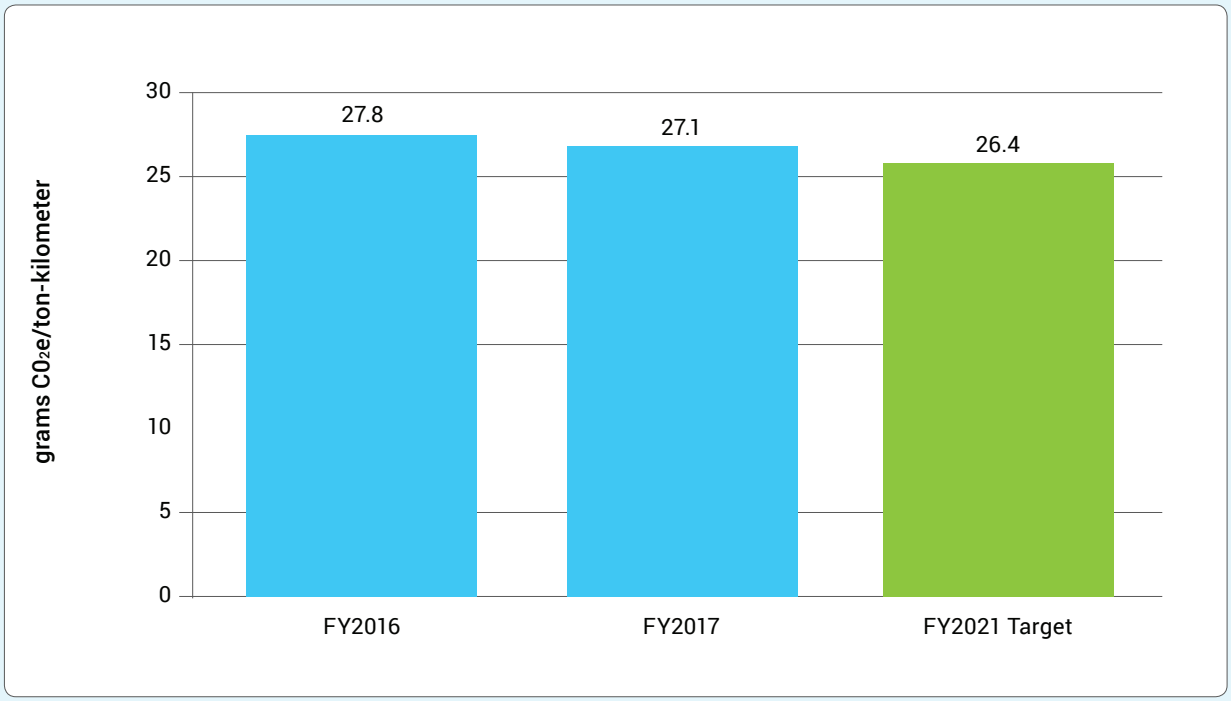


* Includes Scope 1 and Scope 2 GHG emissions from all Toyota Motor North America operations, including manufacturing, logistics and offices.

Reduce GHG emissions intensity from all logistics (owned and third-party) by 5 percent, from a baseline of fiscal year 2016 (on track)

For fiscal year 2017, we report GHG intensity from owned U.S. vehicle logistics, which improved GHG intensity by more than 2 percent from the previous year. We expect to report performance from all logistics operations next year. We are establishing a data collection process aligned with the reorganization and consolidation of functions at our new headquarters campus in Plano, Texas. For more information on activities to reduce GHG emissions from our own logistics, click here. See also Third-Party Logistics for information on how we work with third-party carriers.

08 / GHG Intensity from U.S. Vehicle Logistics (owned)



REDUCING NEW VEHICLE CO_2 EMISSIONS

The combustion of gasoline while driving results in CO_2 emissions. Challenge 1 of Toyota's Environmental Challenge 2050 calls on all Toyota regions globally to reduce CO_2 emissions from new vehicles by 90 percent by 2050, from a 2010 baseline.

To accomplish this challenge, Toyota is pursuing multiple pathways to reduce vehicle fuel consumption and greenhouse gas (GHG) emissions in our global markets. We try to match technologies to best meet customer needs in each specific region. We evaluate vehicle powertrains, weight, aerodynamics and other design factors to boost vehicle efficiency while preserving the vehicle size, power, driving range and affordability that our customers demand — without sacrificing world-class vehicle safety features and performance.

There are several factors that must be weighed when considering the appropriate match. That's why we research driving trends, sociological behaviors, the changing energy and transportation landscape, and the evolution of cities. This research helps us understand which technology works in which circumstance so that we can build the vehicles that best suit the needs of the market.

While the continued evolution of vehicle technology is critical to achieving zero emissions, vehicles and fuels must be evaluated as a system. That's why our vehicle portfolio approach also considers the diversity of alternative transportation fuels currently available as well as those on the horizon.

For additional information related to vehicle CO_2 emissions in other sections of this report, please see the following:

- For our approach to electrification, see our feature story.
- For information related to our target to foster accelerated adoption of next-generations vehicles, see here.
- For information related to our target to advance the development of low carbon vehicle fuels, see here.
- For information on Project Portal, the heavy-duty fuel cell truck being piloted at the Los Angeles ports, see here.
- For information related to our fuel economy and vehicle GHG performance as well as recent fuel economy awards, see the Performance section (Vehicle CO_2 Emissions and Fuel Economy Awards).

ADVANCING CONVENTIONAL TECHNOLOGY

The all-new 2018 Camry and Camry Hybrid exemplify key elements of our technology strategy for reducing vehicle CO_2 emissions and improving fuel economy. The new 2.5-liter four-cylinder Dynamic Force engine in the 2018 Camry embodies design features that produce higher engine output while achieving a world-class peak thermal efficiency rating of 40 percent. The 2.5-liter engine is then matched to a new Direct Shift eight-speed automatic transmission. Additionally, the vehicle utilizes more lightweight materials than the previous generation Camry, including high strength steel and aluminum. This results in an EPA-estimated combined fuel economy rating of 34 miles per gallon (mpg), marking a 20 percent improvement over the previous generation Camry while still improving performance by 10 percent. Adding Toyota's fourth-generation hybrid technology increases EPA's estimated fuel economy rating to 52 mpg, making the 2018 Camry Hybrid one of the most fuel-efficient midsize cars available.

The 2018 Camry and Camry Hybrid are based on TNGA (Toyota New Global Architecture), enabling many of their groundbreaking technologies to be more easily shared with future vehicles and helping Toyota realize our commitment to "making ever-better cars." The TNGA integrated development supports the concept of total optimization for a lightweight, streamlined, high-performance platform and powertrain unit. TNGA helps us meet consumer's needs while continuing to improve vehicle efficiency.

The 2018 Camry Hybrid is one of the most fuel-efficient midsize cars available, with a combined EPA-estimated fuel economy rating of 52 mpg.

HYBRID TECHNOLOGY IS OUR CORE

Hybrid technology is the foundation of Toyota's approach to minimizing the environmental impacts of gasoline-powered vehicles. Knowledge gained from hybrid development and deployment is helping Toyota accelerate the introduction of future powertrains that can utilize a wide variety of energy sources and fuels, including hydrogen and electricity.

In February 2017, the cumulative figure for global sales of Toyota hybrid vehicles (including plug-in hybrids) reached 10 million. The Toyota Prius hybrid is a marquee vehicle that established mainstream adoption of hybrid technology. By achieving global mass-market appeal, Toyota hybrids have created a significant positive impact in gasoline consumption and emissions generated by driving. Toyota calculates that as of January 31, 2017, the use of Toyota hybrid vehicles worldwide in lieu of conventional vehicles of similar size and driving performance has resulted in approximately 77 million fewer tons of CO_2 emissions, believed to be a cause of global warming.[2] Toyota also estimates that its hybrid vehicles have saved approximately 7.7 billion gallons of gasoline compared to the amount used by gasoline-powered vehicles in the same class.

Toyota and Lexus currently have 12 conventional hybrid models, one plug-in hybrid model and one fuel cell electric hybrid model on the market in North America (not including the Lexus CT 200h, which is not offered as a 2018 model). Cumulative Toyota and Lexus hybrid sales in North America are over 3.1 million vehicles (as of July 2017).

With the introduction of the model year 2017 Prius Prime, we have shown our continued commitment to expanding the capabilities of Toyota's traditional hybrid fleet for the future. Prius Prime allows consumers the flexibility of both a battery electric vehicle and the reliability of the Prius Hybrid. Toyota will continue to develop and build on this flexibility as we strive for our vehicles to readily adapt to future consumer needs.

[2] *Number of registered vehicles × estimated distance traveled × fuel efficiency rating × CO_2 conversion factor*

09 / Toyota's Hybrid Electric Fleet

Toyota and Lexus have 14 hybrid electric vehicles on the roads in North America. Hybrid electric means they all use batteries plus one other fuel source, either hydrogen (fuel cell electric hybrid) or gasoline (plug-in electric hybrid or gasoline-electric hybrid). The current fleet of Toyota and Lexus hybrid electric vehicles includes:

Model	Type of Hybrid Electric Vehicle
Toyota Mirai	Fuel Cell Electric
Toyota Prius Prime	Plug-in Gasoline-Electric
Toyota Prius	Gasoline-Electric
Toyota Prius *c*	Gasoline-Electric
Toyota Prius *v*	Gasoline-Electric
Toyota Avalon Hybrid	Gasoline-Electric
Toyota Camry Hybrid	Gasoline-Electric
Toyota Highlander Hybrid	Gasoline-Electric
Toyota RAV4 Hybrid	Gasoline-Electric
Lexus ES 300h	Gasoline-Electric
Lexus GS 450h	Gasoline-Electric
Lexus LC 500h	Gasoline-Electric
Lexus NX 300h	Gasoline-Electric
Lexus RX 450h	Gasoline-Electric

All 14 Toyota and Lexus hybrid electric vehicles were available during 2017. All but the Lexus LC 500h were offered as 2017 model year vehicles; the LC 500h is a 2018 model year vehicle. The Lexus CT 200h is not being offered as a 2018 model and, therefore, is not included in the table above.

FUTURE TECHNOLOGY

The Toyota Research Institute (TRI) is collaborating with research entities, universities and companies on materials science research, investing approximately $35 million over the next four years in research that uses artificial intelligence to help accelerate the design and discovery of advanced materials. Initially, the program will aim to help revolutionize materials science and identify new advanced battery materials and fuel cell catalysts that can power future zero emissions and carbon-neutral vehicles. These efforts will help lay the groundwork for the future of clean energy and bring us even closer to achieving Toyota's vision of reducing global average new vehicle CO_2 emissions by 90 percent by 2050.

ELIMINATING CO_2 FROM OPERATIONS

We mainly use four types of energy – electricity and natural gas to power our sites, and diesel and gasoline in our logistics operations. CO_2 emissions are generated where the energy is produced – for example, at a power plant – but we are responsible for how much we use. Challenge 3 of Toyota's Environmental Challenge 2050 calls on us to eliminate all CO_2 emissions from the use of energy at our facilities and in logistics. To put us on this path, we established targets to reduce GHG emissions from our operations by 15 percent and improve GHG emissions intensity in logistics by 5 percent, both by the end of fiscal year 2021. Our strategy for achieving these targets focuses on three activities: reducing our use of electricity and natural gas, investing in renewable energy, and making our logistics operations more fuel-efficient.

- For performance data related to our 15 percent GHG reduction target, see here.
- For performance data related to our GHG emissions per vehicle produced, see Figure P10.
- For performance data related to our 5 percent GHG intensity target for logistics, see here.
- For GHG emissions data, including Scopes 1, 2 and 3, see Figure P12.

ELECTRICITY AND NATURAL GAS

During fiscal year 2017, we used about 3.85 million megawatt-hours of electricity and natural gas in our North American operations. To reduce electricity consumption, we began installing LED fixtures in a number of our assembly and engine plants. For this sizable lighting retrofit project, we selected LED high bay fixtures that deliver an unprecedented 214 lumens per watt, which helps to significantly reduce the amount of electricity required to light certain areas of our facilities. Additionally, the LED lights don't contain any mercury, making them easier to recycle than fluorescent lamps.

We installed high bay LED fixtures over the past year at four plants, and we are working on retrofits at another four plants. When we complete this project by the end of fiscal year 2018, we expect the eight plants to be saving an estimated 29 million kilowatt-hours per year and avoiding an estimated 17,000 metric tons of CO_2 per year from this retrofit project alone.

Toyota's plant in Long Beach, California, installed LEDs in all high bays and has already seen electricity use decrease by 20 percent. Toyota's engine plant in Huntsville, Alabama, went one step further and was the first of our plants to install a control system along with the new LED fixtures. Team members can control the lighting and use capacity as low as 10 percent. Using only what they need has resulted in huge savings: With 1,300 fixtures re-lamped, the Alabama plant is saving 1.2 million kilowatt-hours per year.

Major projects like this lighting retrofit will go a long way toward helping us meet our target to reduce GHG emissions and the Challenge 2050 goal of eliminating CO_2 emissions from operations. But we can't get all the way to zero unless we've educated every team member about our plans and what they can do to help. At our assembly plant in Indiana, team members are encouraged to pay close attention to the compressed air systems, and, if they hear a leak, to point it out so it gets fixed. This simple action helps raise awareness of the benefits of saving energy and reinforces everyone's role in achieving Challenge 2050.

The Indiana plant used Earth Day as another educational opportunity and handed out more than 5,000 LED lights as part of rolling out Challenge 2050 information to team members. So, in addition to Toyota making the switch to LEDs at our facilities, we are helping team members do this at home, too. If all 5,000 LED bulbs replace an incandescent bulb, using those LEDs for only three hours a day would avoid 500,000 pounds of CO_2 emissions. That gets us closer to a net positive impact on the planet.

RENEWABLE ENERGY

Renewable energy comes from naturally occurring sources that are not depleted as a result of consumption. Sunlight, wind, biomass and geothermal are common examples. Renewable energy can replace conventional fuels used for electricity generation and transportation.

We are expanding the use of renewable energy as a means of reducing our carbon footprint and our reliance on non-renewable energy sources. Our assembly plant in Baja California, Mexico, has 107 kilowatts of renewable energy installed. In fiscal year 2017, two solar array systems were added, including a 50-kilowatt system ground-mounted in an open field to the north of the plant. The plant now has four solar array systems that generate 372,300 kilowatt-hours of renewable electricity – about 1 percent of the plant's annual demand – and avoid 242 metric tons of CO_2 annually.

In July 2017, we celebrated the grand opening of Toyota's new North American headquarters campus in Plano, Texas, which has an 8.79-megawatt solar array designed and installed by SunPower Corp. The system is the largest on-site corporate solar installation among non-utility companies in the state of Texas. In total, the system is expected to provide about one-third of the daily electric needs for the headquarters campus and reduce annual carbon dioxide emissions by 7,198 metric tons, or the equivalent of the electricity used by almost 1,200 average U.S. homes for a year.

A flexible energy contract is in place to preserve and resell excess power generation back to the grid, and all additional grid energy is being offset by Texas wind farm renewable energy credits. A number of other features, such as LED lights and high efficiency building shells, help cut down on the amount of energy used on campus. Rooftops on select buildings are specially designed, teeming with plant life to manage rainwater, reduce heat and further insulate the buildings. The state-of-the-art campus in Plano was awarded Platinum LEED® certification in September 2017.

"We are dedicated to making sure our new headquarters campus supports – even redefines – Toyota's commitment to the environment," said Kevin Butt, general manager and regional director of Environmental Sustainability at TMNA. "The Plano solar system will not only reduce our environmental footprint and educate team members about renewable energy, it will also move us closer to Toyota's 2050 global environmental challenge to eliminate carbon emissions in all operations."

At the new supplier center in York, Michigan, a solar installation generates more than 218,000 kilowatt-hours per year, which is 22 percent of the site's total annual electricity use. We have plans to add solar to additional locations in the coming years.

See also Supplier Engagement for information about what we learned from a visit to the SunPower Corp. factory that manufactured the panels used on our rooftops in Plano.

LOGISTICS

According to the International Transport Forum and the Organization for Economic Cooperation and Development (OECD), trade-related freight transport emissions will increase by almost a factor of four between 2010 and 2050. Experts project that by 2050, global freight transport emissions will surpass those from passenger vehicles.

To address GHG emissions from Toyota's extensive logistics operation, TMNA has a target to improve GHG emissions intensity from all owned and third-party logistics by 5 percent from a baseline of FY2016. See the Suppliers section to see how we are working with third-party logistics carriers to help them reduce their emissions.

Toyota Transport (truck carrier) and Toyota Logistics Services (shipper) continue to be members in U.S. EPA's SmartWay® Transport Partnership, a market-driven partnership aimed at helping businesses move goods in the cleanest, most efficient way possible. One of the main purposes of SmartWay is to improve fuel efficiency and reduce GHG emissions from the movement of goods.

Since joining SmartWay in 2009, Toyota Transport, our in-house trucking carrier for completed vehicles, has improved the GHG efficiency of its deliveries by 13 percent (per ton-kilometer). To further reduce GHG emissions, Toyota Transport began piloting a truck fueled by compressed natural gas (CNG) in the fall of 2015 for short hauls from the Port of Long Beach in California. The CNG truck plus trailer is expected to emit 85 percent less overall particulate matter and 10 percent less carbon dioxide than its diesel-powered counterpart.

Toyota Transport expects to begin replacing the current truck fleet in the spring of 2018. New trucks will be equipped with more fuel-efficient engines and will incorporate tire pressure monitoring systems that will help drivers keep tires inflated to their optimum air pressure, which also helps fuel efficiency.

SPOTLIGHT: TOYOTA OPENS A PORTAL TO THE FUTURE

In April 2017, TMNA revealed "Project Portal," a hydrogen fuel cell system designed for heavy-duty truck use at the Los Angeles ports, which handle nearly 40 percent of all imports to the U.S. The Project Portal zero emission truck proof of concept will take part in a feasibility study examining the potential of fuel cell technology in heavy-duty applications.

The study, which began during the summer of 2017, contributes to the ports' Clean Air Action Plan, which has dramatically reduced harmful emissions from operations at the Ports of Long Beach and Los Angeles since 2005.

"As they did with the Prius and the Mirai, Toyota is taking a leap into the future of technology. By bringing this heavy-duty, zero emission hydrogen fuel cell proof of concept truck to the ports, Toyota has planted a flag that we hope many others will follow," said Mary D. Nichols, chair of the California Air Resources Board (CARB). "CARB will be following the progress of this feasibility study with interest, as we look to develop the best mix of regulations and incentives to rapidly expand the market for the cleanest, most efficient big trucks to meet the need for dramatic change in the freight sector."

Project Portal is the next step in Toyota's effort to broaden the application of zero emission fuel cell technology that can serve a range of industries. It is a fully functioning heavy-duty truck with the power and torque capacity to conduct port drayage operations while emitting nothing but water vapor. Heavy-duty vehicles make up a significant percentage of the annual emissions output at the Ports of Los Angeles and Long Beach, and the Portal feasibility study may provide a vital means of reducing emissions.

"Toyota is helping pioneer the path toward true zero emissions freight transport," said TMNA Advanced Business Strategist Ash Corson. "By leveraging our technological strength in sustainable mobility, Toyota is able to demonstrate the viability, versatility and scalability of our hydrogen fuel cell powertrain to heavy-duty applications such as port drayage. With Project Portal, we're proving that fuel cell electric trucks—with their range, weight, performance, refueling-time, cargo-capacity and infrastructure-throughput advantages over battery-electrics—have the potential to be the optimal solution for electrifying global goods movement and providing a critical zero emissions solution for our communities."

The Project Portal platform is designed to provide the target performance required to support port drayage operations, generating more than 670 horsepower and 1,325 pound-feet of torque from two Mirai fuel cell stacks and a 12-kWh battery, a relatively small battery to support class 8 load operations. The concept's gross combined weight capacity is 80,000 pounds, and its estimated driving range is more than 200 miles per fill under normal drayage operation.

"The Port of Los Angeles is excited to collaborate with Toyota to explore the feasibility of fuel cell technology for port drayage operations," said Tony Gioiello, deputy executive director of Port Development for the Port of Los Angeles. "Our port and industry stakeholders have demonstrated their leadership in reducing pollution from

port-related operations, and we see the potential of Toyota's zero emission heavy-duty truck technology as another solution to meet the long-term goals of the San Pedro Bay Ports Clean Air Action Plan."

Project Portal is just one part of Toyota's ongoing commitment to fuel cell technology and the potential of a hydrogen society. It follows on the company's continued work to expand California's hydrogen refueling infrastructure, including the recently announced partnership with Shell to increase the number of hydrogen refueling stations in the state.

"Hydrogen fuel cell vehicles play a role in California's efforts to achieve greenhouse gas emission reduction goals, improve air quality and reduce our reliance on fossil fuels," said Janea A. Scott, commissioner of the California Energy Commission. "That's why the California Energy Commission is investing in the refueling infrastructure needed to support adoption of these vehicles. The Commission applauds Toyota for putting this cutting-edge technology to use in a heavy-duty freight proof of concept. This demo will show how fuel cells can help support the heavy-duty sector's efforts to increase efficiency, transition to zero emission technologies and increase competitiveness."

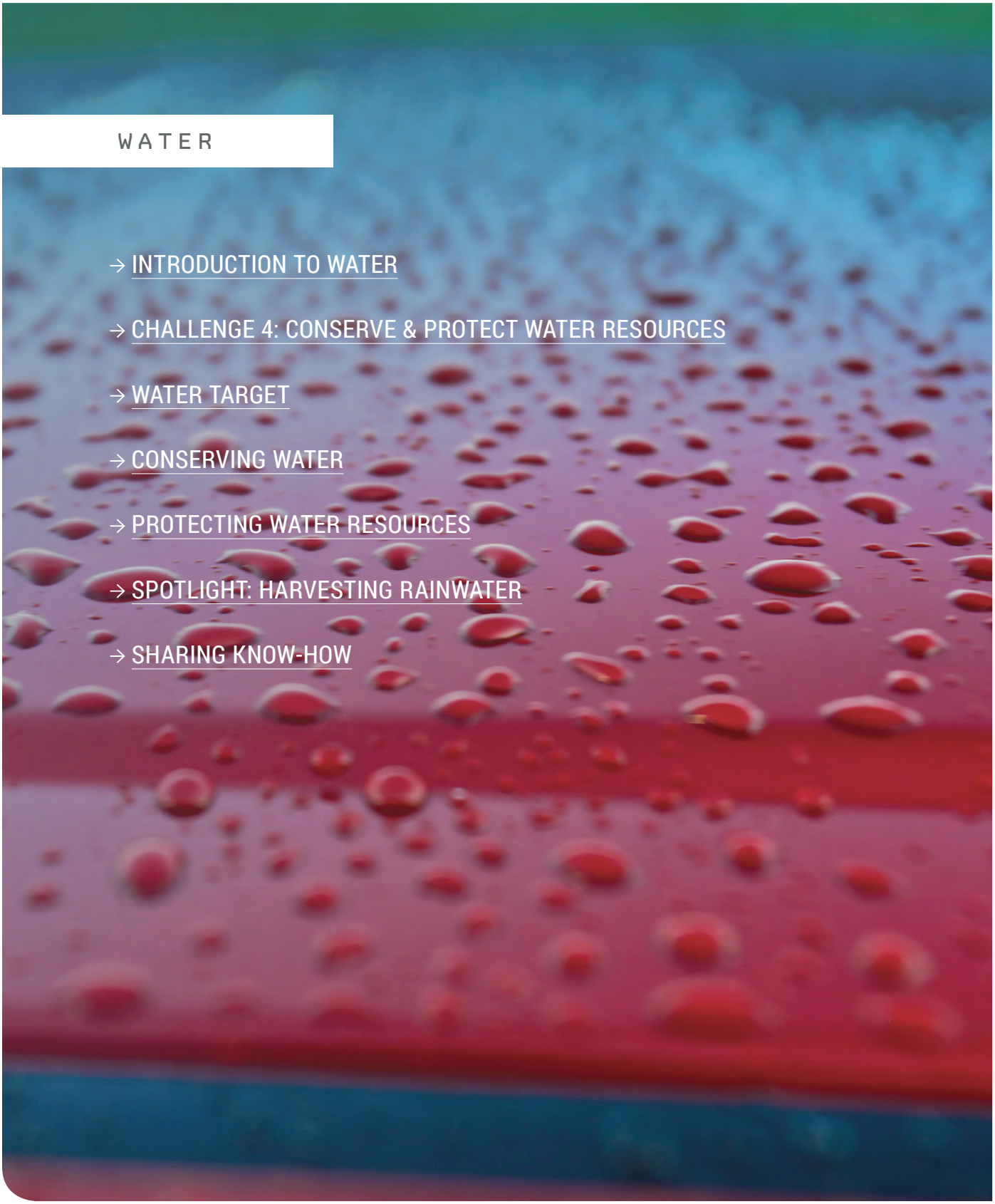
Project Portal is the next step in Toyota's effort to broaden the application of zero emission fuel cell technology that can serve a range of industries. It is a fully functioning heavy-duty truck with the power and torque capacity to conduct port drayage operations while emitting nothing but water vapor.

SHARING KNOW-HOW

We know that reducing our own carbon footprint isn't enough. Achieving a low carbon future requires collaboration with a wide range of stakeholders. That's why we support **community efforts** to help scale up efforts to develop and use more sustainable forms of energy. For example:

- We foster adoption of next-generation vehicles through education initiatives and by working with various partners to develop hydrogen fueling infrastructure for fuel cell vehicles.
- We used recovered hybrid vehicle batteries in an innovative distributed energy system that provides the Lamar Buffalo Ranch field campus in Yellowstone National Park with reliable, sustainable, zero emission power. We are currently evaluating the fourth rendition of our control system that would allow us to implement battery storage at additional sites.
- We supported the third annual ECS Toyota Young Investigator Fellowship, which provides $50,000 each to three young professors and scholars pursuing innovative electrochemical research in green energy technology.

We also work with **suppliers and dealerships** on projects that reduce their carbon footprints. We are engaging with logistics suppliers to reduce GHG emissions from transporting parts and vehicles, and we have supported 58 dealerships across North America with achieving LEED® certification. LEED®, or Leadership in Energy and Environmental Design, is a point-based system promoting a whole-building approach to sustainable construction and remodeling. LEED® certification is based on meeting stringent evaluations in sustainable site development, water savings, energy efficiency, materials selection and indoor air quality.



WATER

Toyota's Douglas Beebe and Becky Martin describe the state-of-the-art rainwater capture system installed at Toyota's LEED® Platinum headquarters campus in Plano, Texas. Four cisterns collect about 11 million gallons of water per year, which is used for landscape irrigation.

→ WATER

"WATER" IS ONE OF TOYOTA'S FOUR FOCUS AREAS IN NORTH AMERICA. WE HAVE DEVELOPED AN APPROACH TO WATER STEWARDSHIP THAT **CONSERVES WATER**, **PROTECTS WATER RESOURCES** AND **SHARES OUR KNOW-HOW** WITH OTHERS. EVERY LIVING THING NEEDS WATER TO SURVIVE. WHAT WE DO TODAY TO PROTECT THIS PRECIOUS RESOURCE CREATES LASTING VALUE AND BUILDS A BETTER TOMORROW FOR US AND THE PLANET.

INTRODUCTION TO WATER

Water is at the heart of every aspect of life. We need water for health, food, energy and economic growth, and to sustain the natural world.

Research by the United Nations Human Settlements Program (UN-Habitat) suggests that by 2030, global water demand will be 50 percent greater than today's reliable, accessible supply. Demand for fresh water will continue to rise as the world's population is projected to reach nearly 9.8 billion by 2050. That demand relies on the small fraction of water on the planet that's fresh water and actually available for people to use.

Water is a finite resource, and population growth puts a strain on this already stressed resource. Hundreds of thousands of people are living without access to safe water and every 90 seconds, a child dies from a water-related disease. Rising demand for water threatens the safety and health of people and impacts the balance of nature.

This is a problem that Toyota cannot address in isolation. Ensuring the availability and sustainable management of water for all is a shared challenge that requires a shared response. By finding ways to improve water quality, increase water-use efficiency and protect water-related ecosystems, we are helping to build a more sustainable future for society, business and the planet.

CHALLENGE 4: CONSERVE & PROTECT WATER RESOURCES

Our WATER focus area relates to Challenge 4 of Toyota's Environmental Challenge 2050, which addresses conserving and protecting water resources by reducing the amount of water we need for vehicle painting and other activities, treating the water we've already used so that it can be reused again and again, and purifying water we return to the environment. This challenge recognizes water as a global issue that must be managed locally.

As the availability of clean water becomes more and more important to Toyota communities in drought-stressed regions of North America, we will continue to manage and preserve this critical resource. In North America, our approach to conquering this challenge involves three actions:

1. **Conserving water** at all of our sites with a goal of becoming a net zero fresh water user (meaning we do not withdraw fresh water for non-potable uses at any of our major sites without replenishing that volume somewhere). We will continue to make auto manufacturing more efficient so that we use less water for every vehicle we produce, and we will continue to explore options for reusing and recycling water so that we withdraw less from fresh water sources.

2. **Protecting water resources** to minimize the negative impacts our activities can have on the environment. Whenever we discharge wastewater, whether to a publicly owned treatment works or to the environment, it must be high quality. And we must be proactive to ensure that sufficient water is available to all stakeholders, including other businesses, individuals, and plants and animals.

3. **Sharing our know-how** and engaging in outreach with stakeholders to scale up progress to the point of creating positive change. We will support efforts to conserve more water than we use. Key to our engagement is working with local communities to protect water-related ecosystems and assisting suppliers and dealers with developing water stewardship plans.

To advance us on this journey, we set a fiscal year 2021 environmental action plan target to prioritize and implement water stewardship plans for facilities in areas of high water risk. Our progress is described in the next section.

10 / TMNA's Approach to Water Stewardship

Our WATER focus area relates to Challenge 4 of Toyota's Environmental Challenge 2050. This challenge recognizes water as a global issue that must be managed locally. As the availability of clean water becomes more and more important to Toyota communities in drought-stressed regions of North America, we will continue to manage and preserve this critical resource. In North America, our approach to conquering this challenge involves three actions:

WATER

Conserving Water:

- Use less water
- Recycle more water

Protecting Water Resources:

- Discharge high quality water
- Ensure availability for all users

Sharing Know-How:

Conserve more water than we use by engaging with:

- Local communities
- Major suppliers
- Dealers

WATER TARGET

Between fiscal years 2017 and 2021, Toyota Motor North America (TMNA) will:

Prioritize and implement water stewardship plans for facilities in water-stressed areas (on track)

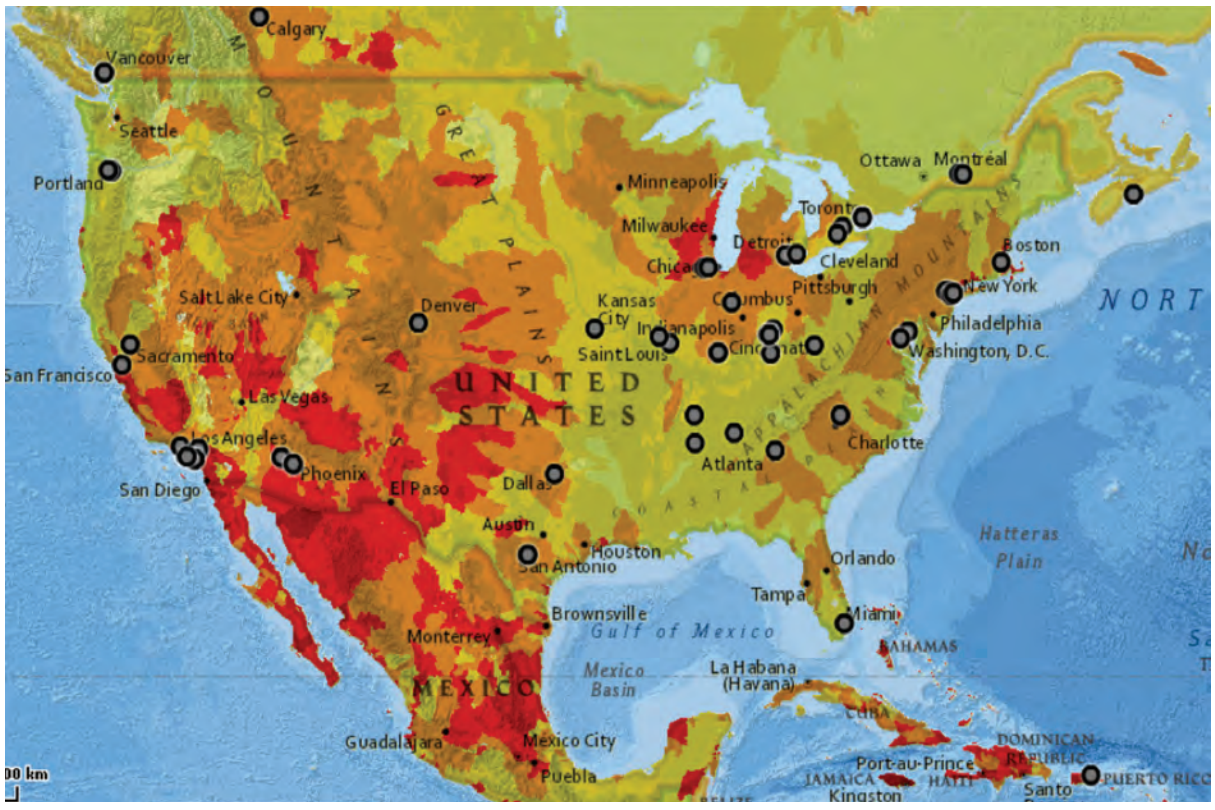
TMNA's water stewardship strategy focuses on facilities located in areas of water risk. We define water risk according to Aqueduct™, a tool developed by the World Resources Institute to help companies, investors, governments and communities better understand where and how water risks are emerging around the world. The centerpiece of Aqueduct is the Water Risk Atlas, which creates customizable global maps of water risk. The Atlas combines 12 indicators in three categories (physical risk quantity, physical risk quality, and regulatory and reputational risk) to create an overall map of where and how water risks may be prevalent.

The Water Risk Atlas is helping us further focus water conservation efforts on sites in water-stressed regions, and on sites with concerns about future water availability. The Aqueduct tool is also helping us incorporate all water risk factors into our analysis, which will aid in developing future tailored strategies for certain sites and/or regions within North America.

We have mapped our manufacturing sites as well as a number of other locations (including offices and parts and vehicle distribution centers). The Atlas shows a total of 19 of Toyota's North American locations, including three manufacturing plants, in areas of high overall water risk. Currently, we do not have any sites in areas of extremely high risk.

Through the end of fiscal year 2021, we will be working on prioritizing these 19 sites and implementing water stewardship plans at our highest risk sites. These strategies will address water conservation (including potentially absolute water reduction targets), water quality and outreach activities with suppliers and local communities.

11 / Toyota's Overall Water Risk in North America



OVERALL WATER RISK

- Low risk (0-1)
- Low to medium risk (1-2)
- Medium to high risk (2-3)
- High risk (3-4)
- Extremely high risk (4-5)

* This map was generated from WRI's Aqueduct™ Water Risk Atlas. The Atlas combines 12 indicators in three categories (physical risk quantity, physical risk quality, and regulatory and reputational risk) to create an overall map of where and how water risks may be prevalent. We mapped 73 sites in North America, including assembly and unit plants, R&D centers, parts and vehicle distribution centers, and office buildings. Not all 73 sites are visible at this resolution. Sites in close proximity appear as a single dot.

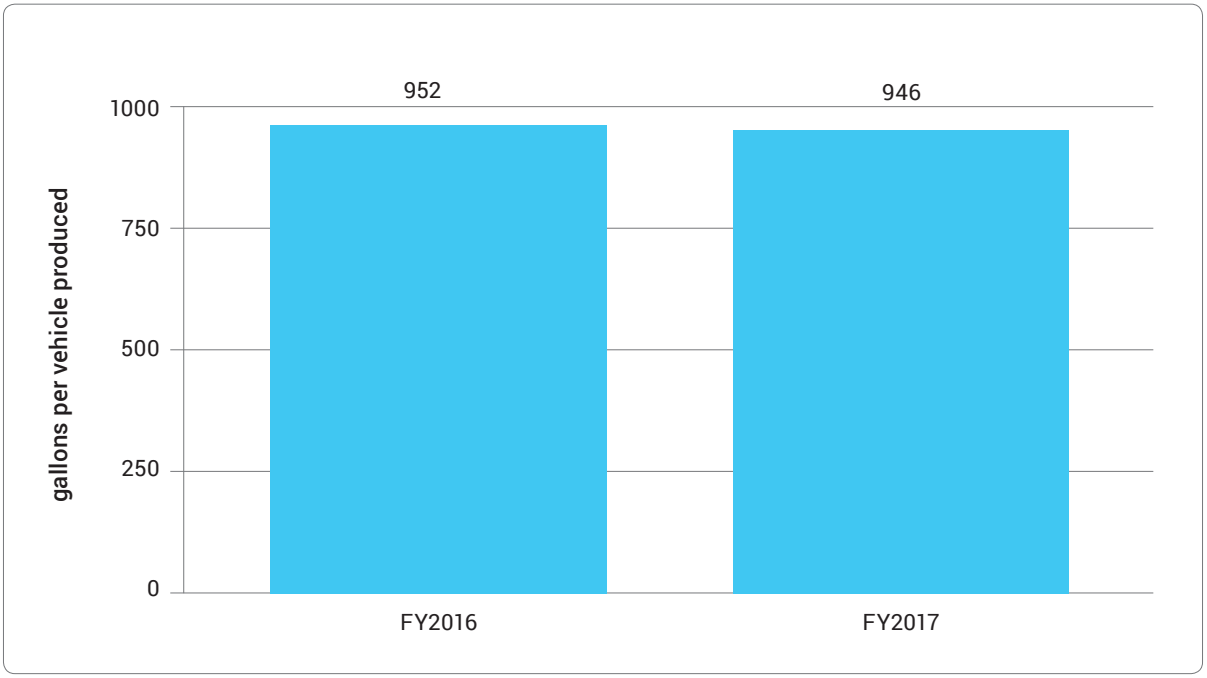
CONSERVING WATER

During fiscal year 2017, Toyota withdrew 1.95 billion gallons of water at more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D sites and offices. More than 99 percent of this water came from municipal sources (both fresh and recycled water from utilities); other sources included surface water bodies, ground water and rainwater. The amount of water we used to produce a vehicle decreased by 1 percent, from 952 gallons per vehicle in fiscal year 2016 to 946 gallons in 2017.

To conserve water, we look for ways to reduce (use less), reuse (use what we have already used again, without further processing) and recycle (use what we have already used, after some level of treatment). Projects at four of Toyota's North American manufacturing plants resulted in water savings last fiscal year in excess of 43.2 million gallons, equivalent to the annual water use of 394 average American families (based on U.S. EPA's estimate that the average American family uses about 300 gallons of water per day at home):

- The **assembly plant in Georgetown, Kentucky**, is recovering 10 million gallons per year. The Lexus paint shop has a reverse osmosis (RO) system that was rejecting water to the sewer (the water rejected by the RO is called concentrate). Instead of discharging the concentrate, it is now used as makeup water to reduce the RO system's use of incoming city water.
- The **assembly plant in Blue Springs, Mississippi**, reduced total water use by 5 percent compared to the previous year. Team members automated one of the rinse stage cycles so that water would turn on and off when a car body entered and exited the rinse booth. They also changed the type and quantity of nozzles to reduce the flow rate. These projects are saving 4.4 million gallons per year.
- The **assembly plant in Baja California (Mexico)** executed seven projects that are reducing water use by almost 20 million gallons per year. Projects included using rejected water from the reverse osmosis system to clean tanks and reducing rinse time during the electrodeposition stage in the paint booth.
- The **assembly plant in Woodstock, Ontario**, installed an ultrafilter, which allows wastewater to be recovered and processed through a reverse osmosis system, saving 8.9 million gallons of water per year.

12 / Water Withdrawal per Vehicle Produced



Scope = All Toyota Motor North America operations, including manufacturing, logistics and offices. Water withdrawal sources include public utilities, groundwater wells, surface water bodies and rainwater.

PROTECTING WATER RESOURCES

According to the United Nations, over 80 percent of the wastewater generated by society globally flows back into the environment without being treated or reused. Unsafe water and poor sanitation and hygiene cause over 800,000 deaths per year.

Wastewater issues are not just a concern in the developing world. For example, here in North America, "dead zones" –areas where marine life can't survive due to low oxygen levels – form in the Chesapeake Bay, off the coast of Oregon, in Lake Erie, and in the Gulf of Mexico. The Gulf of Mexico dead zone is caused by excess nutrient loading from poorly treated wastewater in the Mississippi River basin.

Water quality monitoring is a key component of Toyota's environmental management systems. Some of our sites discharge wastewater that we treat and monitor to meet local, state and federal regulations and to ensure we don't negatively impact water bodies. In fact, Toyota requires all manufacturing sites to operate below discharge permit limits by an average of 20 percent. There were no unplanned discharges of wastewater that adversely affected water bodies during fiscal year 2017, and no water bodies were adversely affected by Toyota's wastewater discharges.

Toyota's Texas assembly plant makes an annual donation to support one of the San Antonio River Authority's monitoring stations. The River Authority was established in 1937 to protect the San Antonio River Basin, an area covering over 3,600 square miles. The river basin supports our San Antonio assembly plant and vehicle distribution center as well as our on-site suppliers.

We also recognize the importance of teaching youngsters about water quality. Each year, team members from our Indiana assembly plant work with sixth-grade students to sample lakes, rivers and streams across southwestern Indiana. See the full story here.

During the remainder of this action plan period (through the end of fiscal year 2021), we will be assessing Toyota's North American sites in areas of high water risk. We will consider the projected future availability of water at these sites and the potential impacts of our withdrawals to other water users.

SPOTLIGHT: HARVESTING RAINWATER

Three years ago, Toyota announced its "One Toyota" initiative to create more unified operations in North America, in part, by bringing together quality engineering, sales, marketing, financial services and corporate functions in one location. Since then, the company has invested about $1 billion to build the new corporate campus on 100 acres in Plano, Texas, and move thousands of team members and their families from California, Kentucky and beyond to North Texas. With construction complete, occupancy began in late spring 2017.

The opening of our new headquarters in Plano is an extraordinary next step in Toyota's 60-year journey in the United States, in no small part because of Toyota's efforts to make the campus sustainable, both during construction and while in operation. The campus, which was awarded LEED® Platinum certification from the U.S. Green Building Council in September 2017, demonstrates Toyota's commitment to sustainability by offering:

- Exterior landscaping that reflects the native habitat and is pollinator friendly, with drought-resistant plants.
- A Texas-sized 8.79-megawatt array of more than 20,000 solar panels.
- A commitment to purchase renewable energy credits to offset all grid-purchased electricity not generated by the solar panels.
- A rainwater harvesting system to use in landscape irrigation.

The rainwater harvesting system is unique to the Plano campus. Cisterns with a total capacity of 400,000 gallons are located at each of the four parking structures and tie in to a master irrigation system that allows the water to be distributed for landscaping. Float valves in the cisterns allow for potable water to augment the system should seasonal demand ever exceed system capacity.

One of the more interesting aspects of the system is that the solar panel arrays on the parking garages have been canted to direct rainwater to the capture system.

The innovative rainwater harvesting system installed at TMNA's headquarters campus in Plano, Texas, consists of cisterns in each of the four parking structures. The cisterns, with a total capacity of 400,000 gallons, tie in to a master irrigation system that allows the water to be distributed for landscaping.

The rainwater harvesting system at our headquarters campus in Texas collects rainwater to irrigate the exterior landscaping, which reflects native habitat with pollinator friendly and drought-resistant plants. The rainwater harvesting system is projected to collect more than 11 million gallons of water per year, more than the forecasted annual irrigation demand for the campus.

The system is projected to collect more than 11 million gallons of water per year, more than the forecasted annual irrigation demand.

"Installing a rainwater capture system at our new headquarters in Plano was a must," explained Douglas Beebe, general manager for Real Estate and Facilities at Toyota Motor North America, Inc. "Plano is in a water-stressed part of the country. To minimize the risk of not having enough water – and to make sure others always have enough – we designed this system to make the campus as self-sufficient as possible."

The total annual harvest will depend on draw down and recharge cycles and timing. Ultimately, the campus is forecasted to be in at least a net zero position, meaning we will capture as much water as we use anywhere on the site.

SHARING KNOW-HOW

Toyota supports **community efforts** to educate individuals and families and encourage water conservation. These activities help to scale up conservation efforts and make positive outcomes more impactful. For example:

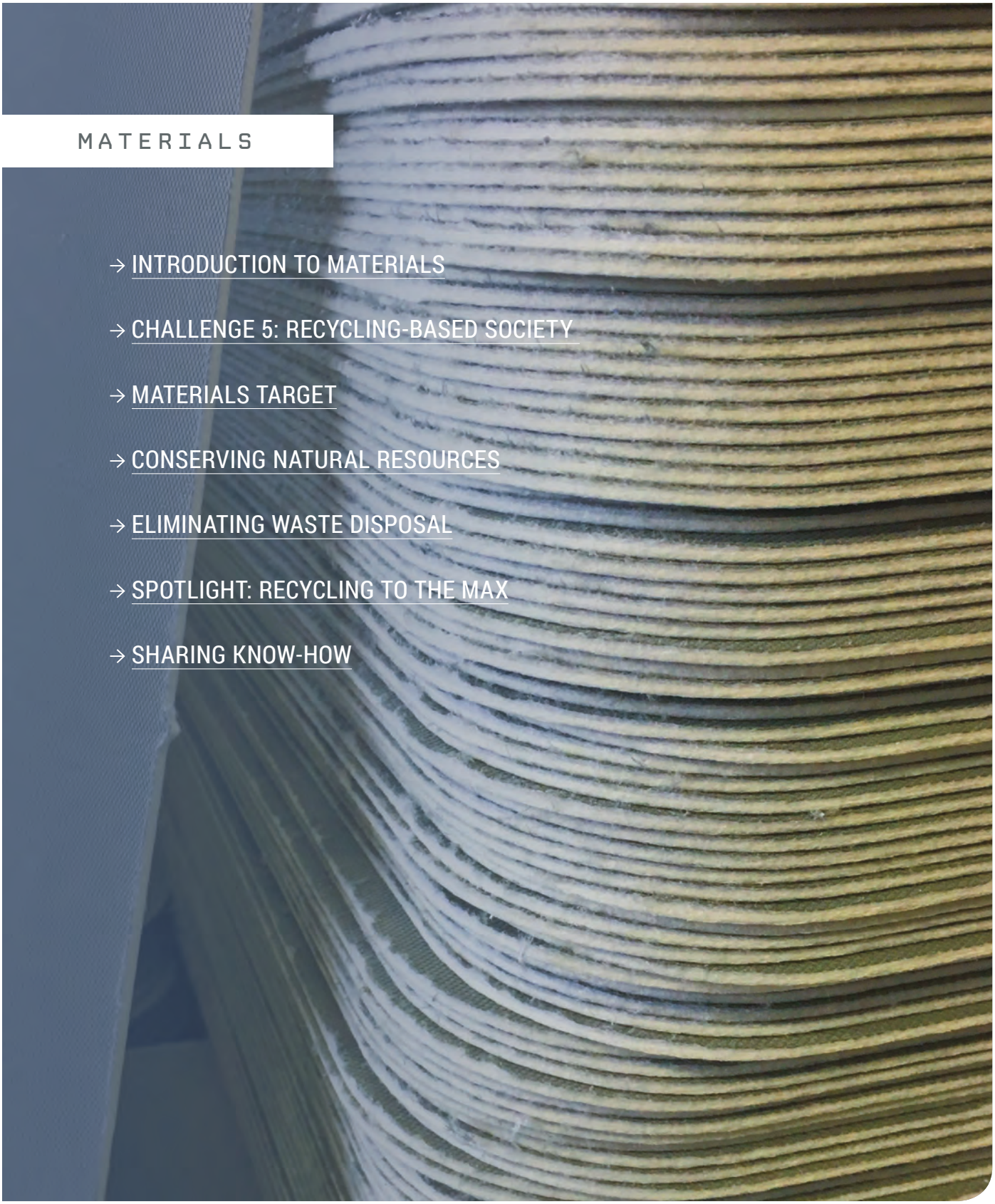
- Toyota is the national sponsor of the **Waterkeeper Alliance's annual SPLASH event series**. In 2017, 16 SPLASH events took place on waterways across the United States, engaging community members and outdoor enthusiasts in water-based recreational activities like swimming, paddling, kayaking and fishing. Engaging people with their local waterways is a crucial part of securing drinkable, fishable, swimmable water.

- Toyota partners with the Wyland Foundation in support of the annual **National Mayor's Challenge for Water Conservation**. During April 2017, mayors across the country once again asked residents to make a commitment to conserve water and cut pollution by taking part in a national contest aimed at drastically slashing water use across the U.S. Residents from 4,800 cities pledged 421,891 specific actions over the next year to change the way they use water in their homes, yards and communities. By sticking to their commitments, the collective efforts of these residents would reduce national water waste by more than 2.2 billion gallons.

  The challenge addresses the growing importance of educating individuals about the many ways they can conserve water — for example, by swapping out their lawns in favor of drought-resistant native plants, fixing leaks and looking at how we use water for food and manufacturing. As prospects of water reduction mandates grow in the U.S., the campaign provides cities with a way to engage residents with positive incentives and raises the collective water I.Q. of the nation. See the full story here.

We are also working on a plan to engage both **dealerships and suppliers** on water conservation efforts. Last year, we reported on the Wash Can Wait campaign run by Northern California dealers that saved more than 8 million gallons of water over the summer months. We'll share more on these efforts in future reports.

Lastly, we support **nonprofit organizations** that work to provide access to safe drinking water and adequate sanitation. In an effort to make a difference to those affected by Hurricane Matthew, Toyota donated to **DayOne Response**, an organization that distributes water and sanitation products globally for disaster relief, on behalf of attendees of the 2016 Environmental Media Association's Awards Gala. The donation provided 300,000 liters of clean drinking water for Haitian families, enough for a family of four for up to two months.



MATERIALS

Toyota's Christina Rohs (left) and DIG's Iman Eidi explain what went into recycling 461 tons of material during the construction of Toyota's new R&D campus in York, Michigan. Putting all this material to productive use was good for the environment, the surrounding community and local businesses.

→ **MATERIALS**

"MATERIALS" IS ONE OF TOYOTA'S FOUR FOCUS AREAS IN NORTH AMERICA. MATERIALS REFERS TO EVERYTHING USED TO MAKE A VEHICLE, WHETHER IT ENDS UP IN THE FINAL PRODUCT OR NOT. OUR MATERIALS STRATEGY ADDRESSES **CONSERVING NATURAL RESOURCES**, **ELIMINATING WASTE DISPOSAL** AND **SHARING OUR KNOW-HOW** WITH OTHERS. EVERYTHING WE DO TODAY TO BETTER MANAGE MATERIALS BUILDS A CLEANER, HEALTHIER FUTURE.

INTRODUCTION TO MATERIALS

Do you ever think about what it takes to make the things you buy and use? Where do the materials come from? What happens during the manufacturing process? What happens to the waste?

At Toyota, we think about these questions as we design, manufacture and sell vehicles across North America. We devote significant time and energy to sustainable materials management because the reality is staggering: Globally, the use of raw materials increased at about twice the rate of population growth during the last century, and more than half of the annual resource inputs to industrial economies is returned to the environment as waste within just one year.

The global demand for resources – and the corresponding generation of waste – will continue to expand as the world's population is projected to reach nearly 9.8 billion by 2050. This increasing consumption comes at a cost to humans and the environment in the form of pollution, habitat destruction and biodiversity loss.

This is a problem that Toyota cannot address in isolation. Ensuring responsible consumption and production patterns is a shared challenge that requires a shared response. By finding more sustainable ways to manufacture, use and manage materials, we can help build a more sustainable future for society, business and the planet.

CHALLENGE 5: RECYCLING-BASED SOCIETY

Our MATERIALS focus area relates to Challenge 5 of Toyota's Environmental Challenge 2050. Challenge 5 directs us to help establish a recycling-based society, one where sustainable materials are used and waste becomes a thing of the past. Toyota recognizes the world must transition to a new way of thinking about material flows to avoid exploitation and depletion of natural resources and environmental pollution from unsustainable consumption patterns.

We will continue to look for ways to keep materials circulating and out of landfills. In North America, we developed an approach to conquering this challenge that involves three actions:

1 **Conserving natural resources** by increasing our use of sustainable materials, namely those that are renewable, recycled or recyclable, and extending the life of vehicle parts such as batteries. These practices reduce the environmental footprint of our vehicles and help prevent habitat destruction, biodiversity loss and pollution.

2 **Eliminating waste disposal**. To minimize the negative impacts our activities can have on the environment, we will continue our focus on the 3R's: Reducing waste at the source, Reusing and Recycling. By using less and increasing reuse and recycling, we will keep materials circulating, thereby helping to alleviate the demand for natural resources and keeping waste from being disposed in a landfill or by incineration.

3 **Sharing our know-how** and engaging in outreach with stakeholders to scale up progress to the point of creating positive change. We will support efforts that help others reduce more waste than the total amount we generate. Key to our engagement is educating local communities about recycling and the importance of proper waste management practices, and assisting suppliers and dealers with enhancing their sustainable materials programs.

To advance us on this journey, we set a fiscal year 2021 environmental action plan target to reduce the amount of packaging material used by 5 percent from a FY2016 baseline. Our progress is described in the next section.

13 / TMNA's Approach to a Recycling-Based Society

Our MATERIALS focus area relates to Challenge 5 of Toyota's Environmental Challenge 2050. Toyota recognizes the world must transition to a new way of thinking about material flows to avoid exploitation and depletion of natural resources and environmental pollution from unsustainable consumption patterns. We will continue to look for ways to keep materials circulating and out of landfills. In North America, we developed an approach to conquering this challenge that involves three actions:

MATERIALS

Conserving Natural Resources:

- Increase the use of sustainable materials
- Extend the life of vehicle parts

Eliminating Waste Disposal:

- Reduce at the source
- Reuse
- Recycle

Sharing Know-How:

Help others reduce more waste than we generate by engaging with:

- Local communities
- Major suppliers
- Dealers

MATERIALS TARGET

Between fiscal years 2017 and 2021, Toyota Motor North America (TMNA) will:

Reduce the use of packaging material 5 percent from a FY2016 baseline (on track)

Most people probably don't realize how much packaging is thrown out every year. Packaging represents about 65 percent of household trash, and about one-third of the average landfill is composed of packaging material.

Much of this material is recyclable, but globally, only 14 percent of plastic packaging is collected for recycling. The rest is either disposed in landfills or released to the environment. By 2050, oceans could contain more plastics than fish (by weight).

A similar story can be told for other types of packaging. Becoming more efficient with packaging is more urgent than ever – to keep packaging material out of landfills and out of the environment, and to reduce the amount of virgin material harvested.

Automotive companies and their suppliers ship vehicle parts using a variety of packaging types to prevent damage and maximize warehouse space. To reduce the amount of packaging used, Toyota set a global target to reduce packaging material use by 5 percent by fiscal year 2021. Here in North America, our first task has been to establish a data tracking system so that we can grasp the amount of packaging we use annually.

We have been actively working to reduce packaging for many years. Over the past decade, using returnable containers to ship parts between distribution centers, plants and dealerships saved more than 300 million pounds of wood and 185 million pounds of cardboard.

In 2016, Toyota's Cambridge and Woodstock plants in Ontario, Canada, found a way to keep obsolete packaging out of landfills. Packaging is used to ship parts from a supplier to our plants. The packaging is stored at the suppliers' facilities when not in use. When a plant starts production on a new vehicle model, the packaging used for the previous model's parts becomes obsolete. Suppliers were disposing about 3.1 million pounds (1.4 million kilograms) of obsolete packaging in landfills per model change.

The two Canadian plants assemble four different models (Toyota Corolla and RAV4, and Lexus RX 350 and RX 450h). Since model changes are staggered, this means there is a model change every one or two years. To keep this material out of landfills, the plants now use a single supplier, PakFab, which acts as a hub. PakFab collects the obsolete packaging and ships it to providers to be refurbished for reuse or otherwise recycled. Now, 70 percent of packaging is reused and returned to our plants as refurbished packaging, and none of it goes to landfill.

Toyota's plant in Mississippi has already adopted this practice and five other North American plants plan to adopt it in the near future. PakFab has created a U.S. hub in Ohio to collect recyclable packaging from the U.S. plants, with the potential to eliminate another 10 million pounds (4.5 million kilograms) of packaging waste per year.

See the Suppliers section for more information on our engagement with this stakeholder group.

CONSERVING NATURAL RESOURCES

Our approach to conserving natural resources has two elements – using sustainable materials in vehicles and parts and finding ways to extend the life of parts from end-of-life vehicles.

Over the course of a vehicle's life cycle, sustainable materials – those that are renewable, recyclable or are made of recycled content – have a smaller greenhouse gas footprint and generate less waste than their alternatives. Toyota uses renewable, recycled and recyclable materials where practical.

Over the last several years, Toyota has evaluated numerous materials made from renewable resources to assess their performance, appearance, safety and mass production capability. In May 2016, Toyota became the world's first automaker to use biohydrin, a newly developed biosynthetic rubber product, in engine and drive system hoses.

Toyota has been using bio-based plastics — plastics derived either wholly or in part from plant materials — in numerous parts and components for over a decade. For example, we use bio-based plastics in the seat cushions in Toyota Prius, Corolla, Matrix and RAV4, and in Lexus RX 350 and CT 200h. Going forward, Toyota will continue to develop and commercialize technologies that enable the use of materials like Ecological Plastic and biosynthetic rubber in a wider range of components.

PRECIOUS METALS

In early 2017, Toyota Motor Corporation announced the commercial availability of a new, smaller catalyst that uses 20 percent less precious metal in approximately 20 percent less volume, while maintaining the same exhaust gas purification performance. Innovative design and manufacturing technologies have allowed for the mass production of the new catalyst, which will gradually be installed in new vehicle models.

Increased usage of catalytic precious metals to clean exhaust gas and reduce air pollution presents many issues, including increased costs and resource depletion. Toyota has conducted extensive research and development into finding solutions to help improve the purification efficiency of catalytic precious metals, such as finding the optimal substrate shape and length as well as modifying the cell wall thickness and cross-sectional area. Other R&D efforts include selectively wash-coating precious metals and other catalytic materials, and changing catalytic substrate cell density in line with exhaust gas flows.

HYBRID VEHICLE BATTERIES

Hybrid vehicle batteries typically reach the end of their usable life in automobile-grade applications with significant remaining power storage capacity. While Toyota has a robust hybrid battery recycling program in place, we engage in ongoing efforts to extend the life of hybrid batteries.

We recovered 208 used Camry Hybrid nickel-metal hydride battery packs from Toyota dealers across the United States and used them in an innovative distributed energy system at the Lamar Buffalo Ranch field campus in Yellowstone National Park. Solar panels generate the renewable electricity stored within the batteries. Online since 2015, the system was a joint effort of Toyota, Indy Power Systems, Sharp USA SolarWorld, Patriot Solar, National Park Service and Yellowstone Park Foundation.

The Yellowstone system is the first of its kind to use recovered hybrid vehicle batteries for commercial energy storage. Engineers expect this type of use to double the overall lifespan of the hybrid batteries.

Each battery pack was disassembled and tested. New components were also designed and built by Indy Power Systems specifically for this application, including an onboard battery management system for each battery pack. The battery management system is designed to maximize battery life and is also providing important insights into real-world performance.

These insights are helping Toyota design future battery performance and durability improvements. Toyota's plant in Huntsville, Alabama, was our first North American manufacturing plant to reuse batteries from end-of-life hybrid vehicles for energy storage. The energy stored in the battery packs is used to reduce peak demand and for emergency backup. We are currently evaluating the fourth rendition of our control system that would allow us to implement battery storage at additional sites.

To see and hear experts explain how reused Camry Hybrid battery packs are helping bring power to the Lamar Buffalo Ranch field campus in Yellowstone National Park, view the videos here and here.

Thanks to 208 used Camry Hybrid batteries and some innovative thinking, the Lamar Buffalo Ranch field campus in Yellowstone National Park has reliable, sustainable, zero emission power for the first time since the park was founded in 1907.

ELIMINATING WASTE DISPOSAL

Minimizing waste has always been part of our DNA, but how we go about minimizing waste has changed over the years. Initially, we focused on where our waste was disposed. In 2003, our plants in southern California and West Virginia became the first Toyota plants to achieve zero waste to landfill. Our focus on landfill was a way of reducing risk, but also a way to encourage recycling. It took several years, but we finally eliminated almost all landfilling. In calendar year 2016, only 1 percent of waste from our North American manufacturing plants, logistics sites and offices was disposed in a landfill. (For certain waste streams, landfill disposal is required by law.)

The next step was to increase recycling of marketable waste – material that we couldn't use, but that we could sell to others. We increased marketable waste, but eventually, the opportunities for further reduction became limited.

We are finally at the top of the waste disposal pyramid, where the focus is on source reduction and reuse. These are the most challenging types of waste minimization. We are working on a methodology to track reduce and reuse activities consistently at all locations.

Toyota Motor North America is a founding member of the U.S. Zero Waste Business Council (ZWBC), an organization that is now part of the U.S. Green Building Council. ZWBC defines a "Zero Waste Business" as one with a 90 percent or greater diversion of all waste from landfill, incineration and the environment, with the ultimate goal of 100 percent diversion. As a whole, Toyota's North American operations meet this definition: In calendar year 2016, we recycled, reused or composted 94 percent, sending only 5 percent of waste to waste-to-energy or fuels blending and 1 percent to landfill.

Total waste increased by 3 percent between 2015 and 2016 due to an increase in production and the relocation of team members from California and Kentucky to the new campuses in Plano, Texas; York, Michigan; and Georgetown, Kentucky.

14 / Total Waste (Pounds)

	2015	2016
Regulated Waste*		
Recycled/Reused Regulated Waste	13,494,000	4,570,000
Waste to Energy or Fuels Blending	11,183,000	7,247,000
Incineration	0	0
Landfill	48,000	692,000
Non-Regulated Waste		
Composted	1,088,000	831,000
Recycled Scrap Steel from Mfg Plants	659,718,000	678,953,000
Other Recycled/Reused	79,267,000	87,805,000
Waste to Energy or Fuels Blending	26,574,000	33,933,000
Incineration	0	0
Landfill	7,602,000	8,081,000
TOTAL WASTE GENERATED	798,974,000	822,112,000

** Regulated waste includes hazardous, universal and special wastes regulated at the federal, state, provincial or local level. Non-regulated waste is all other waste.*

Scope = Toyota's North American manufacturing, sales and logistics sites in the U.S., Canada and Puerto Rico. Data from R&D sites and Mexico will be included in future years.

Examples of waste minimization projects implemented during fiscal year 2017 include:

- The paint shop at Toyota's **Mississippi assembly plant** eliminated 320,000 pounds of waste per year by changing the way waterborne paint waste is managed. Previously, waterborne paint waste and wastewater were collected in drums and 275-gallon portable containers and sent off-site for disposal. Team members discovered that much of the waterborne paint-contaminated water could be treated on-site, which eliminated the need for the portable containers.
- The **assembly plant in Indiana** eliminated 24,000 pounds of hazardous waste by finding a recycling vendor to take undeployed air bags. The recycler safely deploys the air bags, then is able to reuse the nylon and metal.
- Team members at the **assembly plant in Cambridge, Ontario**, replaced a corrosive chemical used to clean instrument panel molds with a product that is less hazardous and reduces waste by 7,055 pounds (3,200 kilograms) per year. They also found a way to reclaim the sealer applied to the car body, which eliminates 216 drums, or 140,000 pounds (63,500 kilograms), of hazardous waste per year.

Pictured from left to right: Sarah Kountouris, chair of the Board of the Mississippi Recycling Coalition (MRC) and director of Keep Mississippi Beautiful; Rosario Halberstadt, environmental specialist at Toyota Motor Manufacturing Mississippi (TMMMS); and Roberta Davis, safety, security, environmental and facilities manager for TMMMS. Rosario and Roberta accepted the MRC Environmental Hero Award on behalf of TMMMS, which was named the 2016 Corporate Recycler of the Year. Each year, MRC seeks nominations of organizations, businesses, agencies, schools and local governments from around Mississippi that have excelled in their recycling and materials management program efforts. The nominees are evaluated based on promotion and outreach, the duration and extent of their recycling program, their overall environmental stewardship, and the manner in which recycling has improved community waste handling and environmental practices.

Toyota's plant in Mississippi was recognized with the 2016 Corporate Recycler of the Year award for its comprehensive commitment to improving and promoting recycling and waste reduction as well as its participation in National Public Lands Day (NPLD). As part of NPLD, team members recycled 50 55-gallon drums, which were painted by local children and distributed throughout Pontotoc and Union Counties as trash receptacles.

SPOTLIGHT: RECYCLING TO THE MAX

As part of our "One Toyota" plan to create more unified operations in North America, TMNA invested $154 million in the expansion of the R&D center in York, Michigan. The new campus, which opened in the spring of 2017, consolidates direct procurement and supplier engineering development talent from Kentucky as well as vehicle development and powertrain talent from California. These moves reaffirm Toyota's commitment to drive more local decision making and faster, more precise response to the needs of the marketplace.

The new campus also demonstrates Toyota's commitment to environmental sustainability. The campus is anticipating LEED® Platinum certification from the U.S. Green Building Council.

TMNA pursued sustainable, state-of-the-art design, materials, features and efficiencies across all of LEED® V4's impact categories. Impact categories include energy, water, waste and innovation, among others, and are tailored to the built environment.

"Materials" is also an impact category. To earn credits in this area, TMNA developed a construction and demolition waste management plan. Under the plan, individual containers were provided during the entire construction process for on-site separation of six types of waste materials: wood, metal, cardboard, drywall, concrete/block, and construction debris. All subcontractors were required to deposit waste in the appropriate containers. This helped ensure the material would be recycled and would not end up in a landfill.

Subcontractors were also required to aid in the recycling of construction waste by protecting materials that could be reused or recycled, and preventing recyclable and salvageable waste products from becoming "contaminated" by waste material.

In the end, the plan was a success: 461 tons of material were recycled. That's 92 percent of all construction waste.

"One of the interesting things about the LEED® V4 standard is the focus within each impact category on positive outcomes," said Christina Rohs, TMNA building planning architect at York. "We see positive outcomes in keeping this material out of the landfill and circulating in the economy – it's good for local businesses, good for the surrounding community and good for the environment."

So how were these materials recycled? Here are a few examples:

- Wood was sent to a power station, where it was burned to create renewable energy.
- Cardboard was delivered to a nearby company in Ann Arbor, where it was processed and sent to a packaging company to be reused in the production of corrugated cardboard and boxboard.
- Concrete and block material was crushed and reused as road base or mixed in with new concrete.

TMNA also emphasized recycling with material choices. A wide range of materials contain pre- and post-consumer recycled content. For example, the fire-resistant drywall contains 94 percent pre-consumer recycled content, meaning the material was diverted from the waste stream during its manufacturing process, and a wall in the lobby is constructed of scrap pieces of wood, expertly combined and finished to create a unique look.

Even after construction was completed, recycling continued. For example, TMNA asked the furniture vendor to reduce the amount of packaging used when delivering the office furniture. Desk chairs were wrapped in reusable blankets, and cardboard was eliminated wherever feasible. The cardboard that was used for packaging – more than 17,600 pounds – was delivered to Cincinnati Paperboard, where 100 percent of it has been recycled.

"LEED® really helped us consider recycling at every point of the building process," explained Christina. "LEED® V4 places new emphasis on the environmental impacts of materials over the entire life cycle, which required our design team to pay close attention to the environmental and health impacts of the materials we wanted to use as well as the recycled content and recyclability. We're really proud of the efforts of all of our team members and subcontractors who helped us work toward LEED® Platinum."

During the construction of Toyota's new R&D campus in York, Michigan, 461 tons of material were diverted from landfill. That's 92 percent of construction waste put to productive use.

Toyota also emphasizes recycling through materials choices. This wall in the lobby of our new R&D campus in York, Michigan, is constructed of scrap pieces of wood, expertly combined and finished to create a unique look.

SHARING KNOW-HOW

The best way for us to help create a net positive impact on the environment is to share our expertise with others. That's why team members participate in projects large and small, near and far, to help spread the word about the environmental and cost benefits of reducing, reusing and recycling.

We start with our **local communities**. Since 1994, Toyota has helped team members and surrounding communities recycle and properly dispose of household waste. During designated collection days, team members and local residents can drop off electronic waste, appliances, paint and other household items that are difficult to recycle or dispose. Team members also collect items such as clothing and eye glasses that can be donated to those in need. Four sites have been hosting these events for a number of years and together, they have invested close to $1 million to ensure more than 1.8 million pounds of material are recycled or properly disposed. For more information, see the full story here.

We have extended our reach beyond local communities to one very remote place: the Galápagos Islands off the coast of Ecuador. We worked with WWF to design a new municipal solid waste landfill and a recycling center, which have dramatically improved waste handling practices and increased recycling.

Next, we consider our **dealers and suppliers**. We have been supporting dealerships for many years during new construction and renovation projects, and we encourage the use of LEED®, which rewards the use of sustainable materials and recycling of construction and demolition waste. We are also a member of U.S. EPA's Supplier Partnership for the Environment, which encourages working together to reduce waste, promote reuse and maximize recycling.

Since 2004, team members from Toyota's plant in Buffalo, West Virginia, have been collecting and baling plastics to donate to the Jackson County Development Center (JCDC). The center sorts and sells the plastics, using the income to provide training and employment opportunities to the disabled. For Earth Day in 2017, the plant donated two pieces of ergonomic matting, both 8 feet wide by 20 feet long. New mats were purchased for the plant when a new assembly line was installed; instead of throwing out the old mats, they were donated. Team members helped install the mats along the wooden tables at JCDC that serve as the sorting platform for the plastics waste.

BIODIVERSITY

Toyota's Glenn Kelley (left), Terence Proctor and Vicki Hamilton describe how making nesting boxes helps the Eastern Bluebird feel at home at our aluminum casting facility in Troy, Missouri. Team members built and installed six specially designed nesting boxes, spread around 30 acres of the site.

→ **BIODIVERSITY**

"BIODIVERSITY" IS ONE OF TOYOTA'S FOUR FOCUS AREAS IN NORTH AMERICA. WE ARE **PROTECTING VULNERABLE SPECIES**, **PRESERVING AND RESTORING HABITAT**, AND **SHARING OUR KNOW-HOW** NEAR AND FAR. WE ARE COMMITTED TO OPERATING IN HARMONY WITH THE ENVIRONMENT AND BUILDING HEALTHY ECOSYSTEMS SO THAT FUTURE GENERATIONS MAY CONTINUE TO ENJOY THE NATURAL WONDERS OF OUR WORLD.

INTRODUCTION TO BIODIVERSITY

Biological diversity – or biodiversity – is the term given to the variety of life on Earth and the natural patterns it forms. This diversity is often understood in terms of the wide variety and interdependence of plants, animals and microorganisms that inhabit the planet. So far, about 1.75 million species have been identified. Scientists' estimates on the number of species range between 3 and 100 million.

The diversity of living organisms and the habitats in which they live are crucial for the functioning of ecosystems. We benefit from the resources they provide, including fresh water, fertile soils, food, ingredients for medicines, shelter and recreation.

Human activities can have great influence — both positive and negative — on biodiversity. That's why Toyota strives to minimize negative environmental impacts (for example, by generating less waste) and maximize positive impacts (for example, by restoring habitat).

According to WWF, humans are behind the current rate of species extinction, which is 100 to 1,000 times higher than nature intended. Populations of vertebrate species – mammals, birds, reptiles, amphibians and fish – have declined 52 percent over the last 40 years due to a variety of factors, including habitat destruction. The loss of so many species impacts the balance of nature and threatens the ecosystem services on which life depends.

This is a problem that Toyota cannot address in isolation. Protecting life on land is a shared challenge that requires a shared response. By protecting and restoring terrestrial ecosystems, and halting and reversing land degradation and biodiversity loss, we are helping to build a healthier future for society, business and the planet.

CHALLENGE 6: HARMONY WITH NATURE

Our BIODIVERSITY focus area relates to Challenge 6 of Toyota's Environmental Challenge 2050, which directs us to establish a future society in harmony with nature. If humans and nature are to coexist long into the future, Toyota needs to do our part to conserve forests and other rich natural systems in all regions. This challenge recognizes biodiversity as a global issue that must be managed locally and regionally as well as globally.

We will minimize the disruption of natural habitats as we plan, construct and manage our facilities, and actively enhance the natural balance of plants, animals and ecosystems. Here in North America, we developed an approach to conquering this challenge that involves three actions:

1. **Protecting species**, both native and threatened. When managing habitats on our sites, we promote native species and remove invasive species. We also support various pollinator species, such as the monarch butterfly, honeybees and birds.
2. **Conserving habitat** within North America toward a goal of conserving or restoring more acreage than we occupy. We will continue to seek Wildlife Habitat Council Conservation Certification at our North American sites, and we will work with communities and other partners to protect and restore habitats within North America.
3. **Sharing our know-how** and engaging in outreach with stakeholders to scale up progress to the point of creating positive change. We will support efforts to conserve or restore more acreage than we occupy. Key to our engagement is working with local communities as well as other partners to protect and restore terrestrial ecosystems and other biodiversity hotspots.

To advance us on this journey, we set four fiscal year 2021 environmental action plan targets, which direct us to partner with others to protect a globally recognized biodiversity hotspot, partner with others to help protect and preserve 50,000 acres of habitat in North America, participate in regional biodiversity activities that support wildlife corridors, and certify sites with the Wildlife Habitat Council. Our progress is described in the next section.

15 / TMNA's Approach to Harmony With Nature

Our BIODIVERSITY focus area relates to Challenge 6 of Toyota's Environmental Challenge 2050. Toyota recognizes the importance of operating in harmony with nature. We will minimize the disruption of natural habitats as we plan, construct and manage our facilities, and actively enhance the natural balance of plants, animals and ecosystems. Here in North America, we developed an approach to conquering this challenge that involves three actions:

BIODIVERSITY

Protecting Species:

- Promote native species and remove invasive species
- Support pollinator species

Conserving Habitat:

- Achieve Wildlife Habitat Council Conservation Certification
- Participate in education activities that promote habitat conservation

Sharing Know-How:

Conserve or restore more acreage than we occupy by engaging with:

- Local communities
- Partners

BIODIVERSITY TARGETS

Between fiscal years 2017 and 2021, Toyota Motor North America (TMNA) will:

Partner with third parties to protect globally recognized biodiversity hotspots (on track)

During fiscal year 2017, TMNA continued our 17-year partnership with WWF in the Galápagos Islands (see feature story) and participated in a global partnership with WWF led by our parent company, Toyota Motor Corporation. Toyota is the first car company and the first Japanese company to sign a Global Corporate Partnership agreement with WWF.

As part of the five-year agreement with WWF, which went into effect on July 1, 2016, Toyota is donating $1 million to the Living Asian Forest Project, a new series of existing and planned WWF activities to conserve tropical forests and wildlife in Southeast Asia. The project will take place in Borneo (Kalimantan) and Sumatra in Indonesia, both WWF priority places. In the future, the project will expand to the Greater Mekong region. Toyota will continue its support of this project for a total of five years.

The partnership will also focus on increasing the sustainability of natural resources such as wood, paper and pulp, palm oil and natural rubber. Unsustainable production and use of these commodities are among the main causes of deforestation and increased threats to endangered species in these regions.

With demand expected to rise for natural rubber – the main resource for car tires – the partnership recognizes that the sustainable production and use of natural rubber is required for forest ecosystem conservation. Toyota acknowledges the environmental and social challenges surrounding natural rubber, and will collaborate with industries and stakeholders to contribute to international standard-setting as well as other related activities that WWF promotes.

Partner with others to help protect and preserve 50,000 acres of natural habitat in North America (on track)

We are working on a way to better track and quantify our actions that protect and restore habitat, particularly those that involve team member volunteers. In fiscal year 2017, we counted three activities toward this target:

- Toyota has about 1,000 acres at 12 sites engaged in conservation programs certified by the Wildlife Habitat Council (WHC). Our partnership with WHC helps us inventory plant and animal species on our sites and identify appropriate projects. Our protected areas include grasslands, wildflower meadows, pollinator gardens and forests. See Wildlife Habitat Council Conservation Certifications for more information.
- In partnership with the National Environmental Education Foundation (NEEF), Toyota sponsors National Public Lands Day, an annual event that is the largest single-day volunteer effort for public lands in the U.S. In September 2016, 1,755 team members volunteered at 56 sites around the nation to build and maintain trails and remove invasive species on public lands; see the full story here.
- Toyota continued to work with WWF to protect the Northern Great Plains, a short- and mixed-grass prairie that spans 180 million acres and is one of only four remaining intact temperate grasslands in the world. In the Mississippi River basin alone, over 2.8 million acres of grasslands are lost annually. Demand for agricultural

commodities and new drought-resistant, bioengineered crops encourage the degradation of native grasslands and drain waterways and watersheds. Development, roads and fences, habitat clearing and invasive plant species are causing habitat fragmentation. With the help of partners and supporters, including Toyota, WWF's Northern Great Plains program includes working with ranchers and Native American Tribes to return bison to their ancestral homeland, establishing the first tribal national park, and creating sustainable ranching initiatives

Participate in regional biodiversity activities that support wildlife corridors (on track)

Many of our sites are located along the monarch butterfly's migration pathway. To support monarch butterflies, we have planted pollinator gardens and/or certified monarch waystation habitats in the following 13 locations:

- The assembly plant in Cambridge, Ontario
- The assembly plant in Woodstock, Ontario
- The assembly plant in Princeton, Indiana
- The assembly plant in Georgetown, Kentucky
- The assembly plant in Blue Springs, Mississippi
- The assembly plant in San Antonio, Texas
- The powertrain plant in Huntsville, Alabama
- The powertrain plant in Buffalo, West Virginia
- The aluminum casting facility in Jackson, Tennessee
- The aluminum casting facility in Troy, Missouri
- The R&D facility in York, Michigan
- The parts distribution center in Boston, Massachusetts
- TMNA's new headquarters campus in Plano, Texas

See Monarch Butterflies for more information.

Achieve at least two new WHC Conservation Certifications per year (on track)

This target is based on a calendar year cycle. As of the end of 2017, Toyota has 12 WHC Conservation Certifications (certification tier is in parentheses):

- Toyota Motor Manufacturing, Kentucky — certified since 2008 (Gold)
- Toyota Motor Manufacturing Canada, Cambridge plant — certified since 2017 (Certified)*
- Toyota Motor Manufacturing Canada, Woodstock plant— certified since 2012 (Gold)
- Toyota Motor Manufacturing, Indiana — certified since 2013 (Silver)
- Toyota Motor Manufacturing, Alabama — certified since 2014 (Gold)

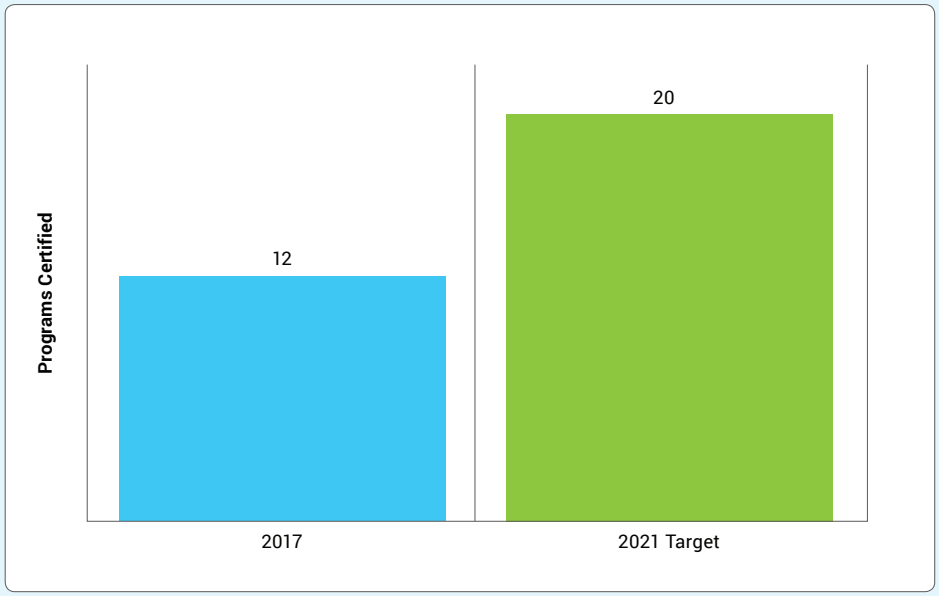
CONSERVATION CERTIFICATION℠
WILDLIFE HABITAT COUNCIL

- Toyota Motor Manufacturing, Mississippi — certified since 2014 (Gold)
- Toyota Motor Manufacturing, Texas – certified since 2015 (Certified)
- Bodine Aluminum, Jackson, Tennessee – certified since 2015 (Certified)
- Bodine Aluminum, Troy, Missouri – certified since 2016 (Certified)
- Toyota Motor Manufacturing, West Virginia – certified since 2016 (Gold)
- Toyota Arizona Proving Grounds, Phoenix, Arizona – certified in 2017 (Silver)
- Toyota Technical Center, York, Michigan – certified in 2017 (Silver)

For more on WHC Certification, click here.

*Toyota's Cambridge and Woodstock plants were first certified as a single program in 2012. The programs have since separated, and Cambridge obtained its own certification in 2017.

16 / Wildlife Habitat Council Conservation Certifications in North America



PROTECTING SPECIES

Imagine a world without the Giant Panda. Or Amur leopards. Or Javan rhinoceros. These are iconic species, but there are also thousands of plants, fish, reptiles and other mammals that are threatened by extinction. Losing these species has implications for ecosystem functioning. And who knows which plant or fungus will provide the next wonder drug?

We can't protect every species, but we can focus on those that call our sites home. By transitioning our thinking from landscaping to habitat management, we support **native species** at many of our larger sites. And because **pollinator species** are so important to biodiversity and agriculture, we pay special attention to the birds and the bees, bats and butterflies.

Through a five-year partnership with the International Union for the Conservation of Nature (IUCN), Toyota is providing funding to broaden the scope of the IUCN Red List of Threatened Species™. This will significantly increase knowledge on the extinction risk of more than 28,000 species, including many that are key food sources for a significant portion of the global population, and will help IUCN reach its goal of assessing 160,000 species (about 80,000 species have been assessed so far). With our planet experiencing extinctions at the fastest rate in its history, IUCN and Toyota believe that there has never been a greater need to understand the current status of the species upon which our survival depends.

NATIVE SPECIES

See Figure P03 for a list of the endangered and protected species found at our sites and what we do to protect them.
When managing habitats on our sites, we promote native species by planting native trees and plants and removing invasive species. For example:

- At the **three new campuses** in Plano, Texas; Georgetown, Kentucky; and York, Michigan, native species were planted to create habitats for migratory birds and small mammals around the new building structures.
- Between 2007 and 2014, team members at our **assembly plant in Indiana** planted 130,900 native trees on 1,160 acres that created a thriving habitat for wildlife, including white-tailed deer, red-tailed hawks and bobcats. The first trees planted have already reached maturity after growing for 10 years. When all the trees reach their peak in a few years, they will be capturing and storing 2,170 tons of CO2 from the air annually.[3]
- Team members at Toyota's **proving grounds in Arizona (TAPG)** installed four rainwater collection troughs that provide drinking water to native wildlife. Motion-sensitive cameras placed nearby have captured coyotes, roadrunners, turkey vultures, quails and bobcats. The strategic placement of the troughs keeps wildlife away from the test tracks.
- Team members at our **assembly plant in Blue Springs, Mississippi**, installed four wood duck boxes. A female wood duck has been coming back to one of the boxes for the last four years. This year, there were 17 eggs in the box, and they all hatched.
- At our **assembly plant in Georgetown, Kentucky**, two endangered plants can be found on the property – Short's goldenrod and Running Buffalo Clover. Short's goldenrods were nurtured in the on-site greenhouse, then planted along the nature trail. The U.S. Fish & Wildlife Service provided several endangered Running Buffalo Clover plants, which were carefully placed to provide the specific combination of sun and shade needed for the plants to flourish. Team members continue to protect these species. They also control and prevent future growth of cattails and Japanese honeysuckle, both invasive species. Reducing the population of invasive species encourages native wetland species to repopulate.

A male Tree Swallow is seen on one of the 33 bird boxes installed by team members at the assembly plants in Cambridge and Woodstock, Ontario. In the spring of 2017, 137 baby Tree Swallows hatched in these boxes, up from only 46 the previous year. Tree Swallows are small, migratory song birds with long, pointed wings. They like their space, so boxes are placed 150 feet apart. Tree Swallows are native to Ontario and are protected by Canada's Migratory Birds Convention Act.

[3] This estimate is based on a methodology used by U.S. EPA in its Greenhouse Gas Equivalency Calculator, where it is assumed that it takes about 10 years for a tree to reach its full potential for sequestering carbon.

POLLINATOR SPECIES

Pollinators come in different shapes and sizes, from bees to birds, bats and butterflies. They move pollen from the male to the female part of a flower to fertilize the plant.

These industrious creatures pollinate more than flowers. A number of food crops, like apples, pumpkins and alfalfa, rely on honey bees for pollination. In fact, pollinators affect 35 percent of the world's crop production, increasing outputs of 87 of the leading food crops worldwide as well as many plant-derived medicines. In the United States alone, pollination of agricultural crops is valued at $10 billion annually. Globally, pollination services are likely worth more than $3 trillion.[4]

Bees are the most recognized pollinator and the most effective. But hard times have befallen the honey bee. Over the past decade, colony numbers in the U.S. have dropped to their lowest in 50 years.

That's why efforts to protect honey bees and other pollinators are so important. In May 2015, an interagency task force under the leadership of the U.S. EPA and U.S. Department of Agriculture released a Strategy to Promote the Health of Honey Bees and Other Pollinators, which has three overarching goals:

- Reduce honey bee colony losses to economically sustainable levels.
- Increase monarch butterfly numbers to protect the annual migration.
- Restore or enhance millions of acres of land for pollinators through combined public and private action.

With more than 21,000 acres of land in North America, Toyota is proud to do our part to support this strategy. Four Toyota sites maintain honey bee colonies. The parts distribution centers in Boston and West Caldwell, New Jersey, began hosting hives in the spring of 2017. Each site has two hives maintained by Urban Beekeeping Laboratory and Bee Sanctuary, Inc., a nonprofit organization on a mission to improve bee health. They have launched an innovative new public-private partnership linking corporate-sponsored honey beehives with communities in need of access to ample pollinators.

Corolla Assembly Manager Rich Kufske is the bee keeper for the hives at Toyota's Cambridge, Ontario, assembly plant. The hives produced 18 kilograms of honey in 2016, which was donated to the Haven House, a women's shelter in Cambridge. If the weather cooperates in 2017, Rich expects to harvest even more honey.

[4] Sources for this data include the Food and Agriculture Organization of the United Nations and the U.S. Fish & Wildlife Service.

Monarch Butterflies

Even in the best of circumstances, the monarch butterfly (Danaus plexippus) has a low chance of survival in the wild. An adult butterfly can lay up to 400 eggs, but only a few of those survive to adulthood. This is what nature intended, except nature didn't plan on the species declining by 90 percent in the past 20 years.

That's where Toyota team members come in. At 13 Toyota sites across North America, team members have planted pollinator gardens to nurture monarchs as well as other pollinator species. Three of our sites have planted monarch waystations that have been certified by Monarch Watch (the plants in Cambridge and Woodstock in Ontario and the plant in Mississippi). The assembly plant in Kentucky planted two monarch waystations on its property and supported four more in surrounding communities. These waystations are on the monarch migration path, meaning they provide food and shelter to the butterflies at various stages of their life cycle as they make their way south for the winter, then return in the spring.

The monarch is the only butterfly known to make a two-way migration. Unlike other species of butterflies that can overwinter as larvae, pupae or even as adults, monarchs can't survive the cold winters of northern climates. Monarchs from the eastern part of North America migrate to the Sierra Madre Mountains in Mexico, where they spend October to late March roosting in oyamel fir forests. Monarchs from west of the Rocky Mountain range in North America overwinter in California along the Pacific coast near Santa Cruz and San Diego, roosting in eucalyptus, Monterey pines and Monterey cypresses. Some migration routes are as long as 3,000 miles, and it can take a monarch as long as two months to complete its journey south.

This information supports the Biodiversity Target to support wildlife corridors.

17 / Toyota and the Monarch Migration

The monarch is the only butterfly known to make a two-way migration. Monarchs from the eastern part of North America migrate to the Sierra Madre Mountains in Mexico, while those from west of the Rocky Mountain range overwinter in California. Some migration routes are as long as 3,000 miles. It can take as long as two months for a monarch to complete the journey south.

Toyota hopes to help the monarchs by offering these colorful commuters a “pollinator pit stop” on their trip south in the fall and north in the spring. Toyota has 13 facilities with pollinator gardens located along the monarch’s migration pathway.

CONSERVING HABITAT

Protecting species and conserving habitat go hand in hand – saving the species isn't possible unless the species has a place to live. Some species require very little area to survive, others roam across vast expanses. To protect and restore habitats large and small, Toyota pursues activities within North America (see the target to help protect and preserve 50,000 acres of natural habitat in North America) by:

- Pursuing Wildlife Habitat Council Conservation Certification,
- Volunteering to restore parks and recreation sites during National Public Lands Day, and
- Partnering with WWF to protect the Northern Great Plains;

And globally by:

- Participating in a global corporate partnership with WWF (see the target to protect globally recognized biodiversity hotspots) and
- Partnering with WWF in the Galápagos Islands (see the feature story).

See also Figure P04 for a list of TMNA sites in or near a protected area, critical habitat or biodiversity hotspot.

WILDLIFE HABITAT COUNCIL CONSERVATION CERTIFICATIONS

Toyota has about 1,000 acres at 12 sites engaged in conservation programs certified by the Wildlife Habitat Council (WHC). Our partnership with WHC began in 2008 when the conservation program at our Kentucky assembly plant became Toyota's first WHC certification. WHC helps us inventory plant and animal species on our sites and identify appropriate projects. Our protected areas include grassland, wildflower meadows, pollinator gardens and forests.

The Wildlife Habitat Council is a nonprofit group of corporations, conservation organizations and individuals dedicated to restoring and enhancing wildlife habitat. The WHC Conservation Certification recognizes meaningful wildlife habitat management and conservation education programs at individual sites.

Toyota's new purchasing and prototype development center opened in York, Michigan, in May 2017 and received WHC Conservation Certification in November 2017. The site has a large storm water retention pond supporting migratory birds and a variety of mammals, amphibians, reptiles and insects. A grasslands and wildflower habitat area covers 76 acres and offers team members a walking trail through the southeastern portion. Native deciduous trees and pollinator gardens have been planted on three acres along the south gate entrance on Pratt Road and near two of the main buildings. Walkways through these areas allow team members the opportunity to enjoy nature and learn a little about some of the species that share their space.

Toyota Arizona Proving Grounds (TAPG) in Phoenix also received WHC Conservation Certification in November 2017. To prevent red-tailed hawks from nesting on dangerous utility poles, they installed a 15-meter high pole to provide a safe nesting site, and 12 hawk chicks have been born in the new nest since 2008. They also created an outdoor classroom to share with students and teachers from the Nadaburg Unified School District.

For a list of TMNA sites certified with WHC, see the target to certify at least two new sites per year.

EDUCATION

Raising awareness is essential to the success of conservation efforts, and the younger the audience, the better. Many of our sites volunteer with local elementary and high schools to teach students about the importance of biodiversity and how they can do their part. In the spring of 2017, team members from Toyota's powertrain plant in Buffalo, West Virginia, continued their long-standing partnership with **Hometown Elementary School** by helping students and teachers release 100 trout at Kanawha State Forest in Charleston, West Virginia. With the help of volunteers from Trout Unlimited, students had raised the trout in an aquarium at school until the trout were big enough to be released in the wild.

At TAPG, we created an outdoor classroom on five acres to share the beauty and diversity of the desert landscape with students and teachers from **Nadaburg Unified School District**. Team members worked with WHC to develop the program, lesson plans and activities. The outdoor classroom was used for about 200 hours of learning during the 2016-2017 school year. Lessons included mapping skills, plant and animal identification and classification, animal habitat identification, and creating food chains and food webs. Students also learned how natural hazards can change the landscape over time. Each time they visited the classroom, students recorded weather and other data, which are being used to track changes over time.

As part of Earth Day in 2017, TAPG donated time and funds to help plant trees on the school's new nature trail, which is designed to mimic the desert plant life at TAPG.

Students from Nadaburg Unified School District inventory cacti and other desert species at Toyota's proving grounds in Arizona, where an outdoor classroom is providing a hands-on opportunity to learn about wildlife.

SPOTLIGHT: HOME IS FOR THE BIRDS

Toyota Bodine Aluminum in Troy, Missouri, is a 500,000-square foot facility that supplies four-cylinder, six-cylinder and eight-cylinder aluminum castings to support all Toyota assembly operations in North America. The facility sits on 80 acres and employs 800 team members.

In addition to the humans, the Bodine plant is home to many other creatures, including the Eastern Bluebird (Sialia sialis). Male Eastern Bluebirds are a brilliant royal blue on the back and head, and warm red-brown on the breast. Blue tinges in the wings and tail identify the grayer females.

Eastern Bluebird populations fell in the early 20th century as aggressive introduced species such as the European Starling took over the bluebirds' nesting holes. But the species recovered after successful nest box campaigns alleviated much of this competition, especially after the use of nest boxes designed to keep out the larger European Starling increased. Eastern Bluebirds can now be seen across much of eastern North America and south as far as Nicaragua. They're most common along pastures, agricultural fields, suburban parks, backyards and golf courses.

Toyota Bodine Aluminum is happy to share our land with these little songbirds. Team members built and installed six cedar nesting boxes for Eastern Bluebirds, spread around 30 acres of the site. The nest boxes were designed by the Missouri Department of Conservation with small openings to allow the Eastern Bluebirds in and keep predators out. The boxes are mounted on stainless steel poles to keep snakes out.

The birds are attracted to wide open spaces, and with input from a Wildlife Habitat Council biologist, the boxes were situated around a storm water pond in an open field behind the plant.

"The placement of the nesting boxes turned out to be ideal," explained Vicki Hamilton, environmental assistant at Toyota Bodine Aluminum. "We were thrilled to see all six boxes occupied this spring. This project really shows our team members and the community how we can make a positive impact on biodiversity here."

The nest boxes provide an opportunity to educate team members about the Eastern Bluebirds, which also happens to be Missouri's state bird. Information about the species is posted on boards throughout the plant and on the internal TV network.

Thanks in part to these efforts, the Troy plant received WHC Conservation Certification in 2016.

Team members built and installed six cedar nesting boxes, and in the spring of 2017, all six were occupied by Eastern Bluebirds. These songbirds, once threatened by introduced species, now thrive with the help of nesting boxes specially designed for their small size.

SHARING KNOW-HOW

Supporting community initiatives helps to scale up conservation efforts. TMNA's work in the Galápagos Islands is a telling example of how we have been sharing our know-how: We helped these remote islands design and implement a clean energy system and a waste management structure, both needed to protect the fragile ecosystem. Toyota's intent from the start was to fund projects that would act as catalysts to spur long-term, sustainable change. As the feature story explains, that's exactly what happened.

In the communities where we live and work, we focus our efforts on building knowledge and fostering a love of nature in children through school programs. Allowing youngsters to experience wildlife and learn about biodiversity at an early age helps them understand the value of biodiversity and the importance of protecting it.

- The Toyota Evergreen Learning Grounds program helps schools create outdoor classrooms to provide students with a healthy place to play, learn and develop a genuine respect for nature. By planting trees, shrubs and wildflowers, creating meadows, butterfly gardens and other theme areas on school grounds, learning opportunities literally come alive. Since 2000, the partnership has provided millions of dollars of support through hands-on expertise, training, publications and grants to over 6,000 schools across Canada, reaching close to 1.2 million elementary and secondary school students and 96,000 teachers and school staff.
- In August 2016, Toyota presented a $1 million donation to Yellowstone Forever (the park's charitable foundation) to support development of a new Yellowstone Youth Campus. The new campus will be a home for immersive youth programming in the park, creating a place of learning for future generations of conservationists and a pretty cool hang-out to share experiences. The campus will serve as the home of two youth programs, each with a national reach – Expedition Yellowstone and the Youth Conservation Corps.

In 2017, Toyota Canada team members participated in WWF's CN Tower Climb for Nature, which brings out thousands of supporters and raises essential funds to support WWF's conservation priorities. Participants are challenged to climb the 1,776 stairs of Toronto's tallest tower. Toyota Canada's team of 33 team members raised $8,354, putting them in ninth place among participating groups.

OUTREACH

A car called "Stop Global Warming," drawn by Lynn Sun of Livingston, New Jersey, was one of nine U.S. winners of Toyota's 2017 Dream Car Art Contest. The worldwide contest is designed to inspire creativity in youth and imagine the future of mobility.

→ **OUTREACH**

"OUTREACH" IS A CORE ELEMENT OF TOYOTA'S APPROACH TO OUR FOUR MAIN FOCUS AREAS IN NORTH AMERICA. WE **CONDUCT OUTREACH** ACTIVITIES RELATED TO CARBON, WATER, MATERIALS AND BIODIVERSITY AS A WAY OF **CREATING A NET POSITIVE IMPACT**. BY COLLABORATING WITH VARIOUS STAKEHOLDERS, OUR ACTIONS HARNESS THE POWER OF PARTNERSHIPS TO ADVANCE US BEYOND BUILDING BETTER CARS – WE ARE BUILDING CONNECTIONS THAT ARE HELPING TO SHAPE A MORE SUSTAINABLE FUTURE.

INTRODUCTION TO OUTREACH

Toyota Motor North America (TMNA) has identified four interrelated environmental issues as our core focus areas: **Carbon**, **Water**, **Materials** and **Biodiversity**. These focus areas align with Toyota's Environmental Challenge 2050, which consists of six goals that seek to create a net positive impact on the planet.

This report provides information on our efforts to minimize negative impacts and maximize positive outcomes in each of our four focus areas. But if we really want to make a difference — and we do — we can't just act alone. We must engage with our stakeholders to work toward common objectives.

TMNA's stakeholders include customers, team members, dealers, suppliers, communities, nonprofit organizations, government agencies, academia and other partners (including other companies and trade associations). **Outreach** with these groups is a crucial component of our environmental sustainability strategy. Through outreach, we create mechanisms for building on the successes of our environmental programs and scaling up the outcomes. We can act locally and make a difference globally.

We acknowledge that a stronger commitment to partnership and collaboration is needed to address the world's environmental challenges successfully. Through our diverse set of partnerships, we are taking steps to build a path to achieving Challenge 2050 and a net positive impact. Through the power of collaboration, we hope to create lasting positive outcomes on a macro scale that will help us build a more sustainable future.

COMMUNITIES & NONPROFITS

TMNA supports local and national community projects that align with our core focus areas of **Carbon**, **Water**, **Materials** and **Biodiversity**. By concentrating our support on organizations that address challenges in these four areas, we are building on our environmental commitment beyond minimizing negative impacts and helping to promote positive environmental change across the North American region. We share our know-how and collaborate so that we can build more than great cars – we are building a better tomorrow by harnessing the power of collective action.

We describe a number of our programs in the sections below. For additional examples, follow these links to learn how we have partnered with the following organizations:

- DayOne Response
- Hometown Elementary School
- Jackson County Development Center
- Nadaburg Unified School District
- Waterkeeper Alliance

TMNA team members are members of the Boards of Directors of a number of nonprofit organizations, such as Yellowstone Forever, Kentucky Fish & Wildlife Foundation, National Environmental Education Foundation, Environmental Media Association and U.S. Zero Waste Business Council.

Toyota is also a member of the National Council of World Wildlife Fund (WWF), an advisory group to WWF's Board. Toyota participates in the following WWF programs:

- Partnership in the Galápagos Islands
- Living Asian Forest Project as part of the Global Corporate Partnership Agreement with TMC
- Northern Great Plains project
- CN Tower Climb for Nature

18 / The Power of Collective Action

Toyota supports community projects that focus on the same issues we do: carbon, water, materials and biodiversity. By concentrating our support on these issues, we are harnessing the power of collective action to shape a better tomorrow.

COMMUNITY PROJECTS	CARBON	WATER	MATERIALS	BIODIVERSITY
Dream Car Art Contest	√	√	√	√
EarthEcho Water Challenge		√		
ECS/Toyota Young Investigator Fellowship	√			
Household Waste & E-Waste Collections			√	
Lexus Eco Challenge	√	√		√
Mothers of Invention	√	√	√	
National Mayor's Challenge for Water Conservation		√		
National Public Lands Day		√		√
Toyota Evergreen Learning Grounds				√
Yellowstone Youth Campus	√	√	√	√

DREAM CAR ART CONTEST

The Toyota Dream Car Art Contest is a worldwide contest presented annually, designed to inspire creativity in youth and imagine the future of mobility. Winners of the Toyota Dream Car Art Contest in participating countries are chosen from three age categories (under 8 years old; 8-11 years old; and 12-15 years old), with judging based on three criteria: artistry, uniqueness and execution of concept. The first international contest was held in 2004 by Toyota Motor Corporation in Japan.

Nine U.S. Winners and nine Canadian Winners were selected by panels of judges. Their artwork advanced to represent the U.S. and Canada in competing against entrants from over 80 countries. In August 2017, the top 30 World Winners won an all-expenses-paid trip to Toyota City, Japan, and participated in an awards ceremony, which included a tour of a Toyota manufacturing plant.

"As a collector, when I view art, in addition to noticing artistic quality and techniques, I am often drawn to the emotions conveyed by the artist, which stir my own feelings," said actor, art collector and U.S. contest judge Cheech Marin. "With artwork themes ranging from global warming to world hunger, it's evident that these kids are keenly aware of what's happening around them everywhere today."

"The ingenuity and creativity of the kids submitting ideas was mind-boggling!" exclaimed Jill Amery, author of the "Urban Mommies" blog and Canadian contest judge. "Seeing ideas of social responsibility and respect for the planet come to life through innovations applied by these kids to their dream vehicles was truly inspiring."

"After six years of hosting the Toyota Dream Car Art Contest in the United States, I'm still amazed by these kids," said Mike Groff, president and CEO of Toyota Financial Services. "It's so inspiring to see children from diverse backgrounds construct such an array of beautiful works of art. These young artists put an incredible amount of thought, creativity and talent into their visions of what the car of the future will look like. They make me optimistic about the future – and how we can change the world for the better."

Lynn Sun, age 8 from Livingston, New Jersey, dreams of a car called "Stop Global Warming." Lynn was one of the U.S. winners of Toyota's 2017 Dream Car Art contest.

Sherry Chen, age 11 from British Columbia, Canada, dreams of a car called "Plastic Reducer" that collects plastic waste and turns it into functional objects. Sherry was one of the Canadian winners of Toyota's 2017 Dream Car Art Contest.

EARTHECHO WATER CHALLENGE

Each year during Earth Week, Toyota's assembly plant in Princeton, Indiana, sponsors a poster contest for fifth-grade students in Gibson, Vanderburgh, Posey and Warrick counties. Students are asked to design a poster focusing on why we need clean water and how to protect the earth's water resources.

The winner of the 2017 Earth Day Poster Contest was Hannah Rhea, a fifth-grader from Marrs Elementary School in Mt. Vernon, Indiana. Her design was chosen from over 2,300 student entries. All participating classes received a pizza party just for entering the contest.

Each year, the winning design is put on a T-shirt given to all sixth-grade students who participate in the EarthEcho Water Challenge (formerly World Water Monitoring Challenge), an international program that runs annually from March 22 (the United Nations World Water Day) through December and equips anyone to protect the water resources we depend on every day.

The EarthEcho Water Challenge builds public awareness and involvement in protecting water resources around the world by engaging citizens to conduct basic monitoring of their local waterbodies. EarthEcho International is a nonprofit organization founded on the belief that youth have the power to change our planet. Established by siblings Philippe and Alexandra Cousteau in honor of their father Philippe Cousteau Sr., and grandfather and legendary explorer Jacques-Yves Cousteau, their mission is to inspire young people worldwide to act now for a sustainable future.

In November 2016, Toyota once again worked with 500 sixth-graders from 20 classes to sample about 40 different lakes, rivers and streams across southwestern Indiana. Toyota Indiana has supported the EarthEcho Water Challenge since 2005 and in that time, has worked with more than 18,500 students.

Paul Delor, environmental specialist at Toyota's Indiana assembly plant, stands with one of the sixth-grade classes from Marrs Elementary School in Mt. Vernon that participated in the EarthEcho Water Challenge. In November 2016, Toyota worked with 500 sixth-graders from 20 classes to sample about 40 different lakes, rivers and streams across southwestern Indiana.

The winning design of Toyota's 2017 Earth Day Poster Contest was drawn by Hannah Rhea, a fifth-grader from Marrs Elementary School in Mt. Vernon, Indiana. Her design was chosen from over 2,300 student entries and was put on T-shirts worn by the sixth-graders participating in the EarthEcho Water Challenge.

ECS FELLOWSHIP FOR PROJECTS IN GREEN ENERGY TECHNOLOGY

The ECS Toyota Young Investigator Fellowship Selection Committee has chosen three winners who will receive $50,000 fellowship awards each for projects in green energy technology. The awardees are Dr. Ahmet Kusoglu, Lawrence Berkeley National Laboratory; Professor Julie Renner, Case Western Reserve University; and Professor Shuhui Sun, Institut National de la Recherche Scientifique (INRS).

The ECS Toyota Young Investigator Fellowship, a partnership between the Electrochemical Society (ECS) and Toyota Research Institute of North America (TRINA), a division of Toyota Motor North America, is in its third year. A diverse applicant pool of young professors and scholars pursuing innovative electrochemical research in green energy technology responded to ECS's request for proposals.

"This fellowship gives the Society's young investigators visibility and the freedom to explore uncharted areas," said ECS Executive Director Roque Calvo. "Toyota's continuing support is helping our scientists and engineers create a practical pathway to a renewable energy future."

The ECS Toyota Young Investigator Fellowship aims to encourage young professors and scholars to pursue research in green energy technology that may promote the development of next-generation vehicles capable of utilizing alternative fuels.

Electrochemical research has already informed the development and improvement of innovative batteries, electrocatalysts, photovoltaics and fuel cells. Through this fellowship, ECS and Toyota hope to see further innovative and unconventional technologies borne from electrochemical research.

"We are excited to add three energetic and creative scholars to the ECS-Toyota Fellowship family, including our first winners from Canada and from the West Coast," said Fellowship Chair and Senior Manager of Toyota's North American Research Strategy Office, Paul Fanson. "This year's topics run the gambit, from ideas that may impact the current design of fuel cell membranes to materials

and design strategies for next-generation electrocatalysts and electrolyzers. What all three winners have in common is their desire to make the world a better place through outside-the-box thinking, which is a mindset that they share with Toyota."

The selected fellows will receive restricted grants of a minimum of $50,000 to conduct the research outlined in their proposals within one year. They will also receive a one-year complimentary ECS membership as well as the opportunity to present and/or publish their research with ECS.

The ECS Toyota Young Investigator Fellowship is an annual program; the 2018-2019 request for proposals was released in the fall of 2017.

HOUSEHOLD WASTE & E-WASTE COLLECTIONS

Since 1994, Toyota has helped team members and surrounding communities recycle and properly dispose of household waste. During designated collection days, team members and local residents can drop off electronic waste, appliances, paint and other household items that are difficult to recycle or dispose. Team members also collect items such as clothing and eye glasses that can be donated to those in need.

Four sites have been hosting these events for a number of years and together, they have invested close to $1 million over the years to ensure more than1,868,000 pounds of material are recycled or properly disposed. Here are results from their most recent events:

- **Toyota's assembly plant in Princeton, Indiana**, hosted household waste and recycling days for team members and Gibson County residents in October 2016 and April 2017 and collected 104,423 pounds of waste that was originally destined for landfill. Since the program's inception in 2006, Toyota Indiana has collected 693,445 pounds of material from the community, including paints, oils, electronic equipment, fluorescent tubes and batteries.
- **Toyota's assembly plant in Georgetown, Kentucky**, hosted a collection event in May 2017 for team members and local residents in partnership with the city of Georgetown, Scott County and Green Metals, Inc. In addition to household and electronic waste, new this year was the option to have documents shredded and recycled. More than 860 vehicles came to the plant to drop off 113,546 pounds of waste.
- **Toyota's assembly plants in Cambridge and Woodstock, Ontario**, hosted their fifth electronic waste drop-off for team members during Earth Month (April) 2017 and collected over 6,600 pounds (3,000 kilograms). Team members also donated work boots, which were distributed to Habitat for Humanity.
- **Toyota's head office in Toronto** held its 10th annual event in June 2017 and collected 4,400 pounds (1,996 kilograms) of electronic waste and donations.

Toyota's assembly plant in Georgetown, Kentucky, hosted SupeRecycling Days in May 2017 for team members and local residents. Over a Friday and Saturday, more than 860 vehicles came to the plant to drop off 113,546 pounds of waste. Since these collections began in 1994, the Kentucky plant has helped recycle or properly dispose of more than one million pounds of waste.

LEXUS ECO CHALLENGE

In its 10th year, the annual Lexus Eco Challenge is an educational program and contest that inspires and empowers high school and middle school students to learn about an environmental issue that is important to them, develop an action plan to address the issue, implement the plan and report on the results. The Grand Prize-winning teams earn $30,000. Each winning team divides the grand prize: a $7,000 grant for the school, a $3,000 grant for the team's teacher advisor, and $20,000 in scholarships for the students to share. Eight First Place-winning teams are awarded $15,000 each.

The 2016-2017 Lexus Eco Challenge had more than 1,700 student participants. Lexus and Scholastic reviewed the finalists' innovative submissions and selected one middle school team and one high school team as the 2016-2017 Lexus Eco Challenge Grand Prize winners. The Grand Prize winners were "Second Chance Band" from Lebanon Trail High School in Frisco, Texas, and "WMS Coral Keepers" from Whitehall Middle School in Whitehall, Michigan.

"WMS Coral Keepers" wanted to bring attention to the issue of plastic straw pollution in lakes and oceans and encourage everyone to "Skip the Straw!" Their research showed that over 500 million plastic drinking straws are used in the United States every single day. They also learned that plastic straws do not biodegrade, but instead, they break into tiny pieces that are eaten by birds, fish and other marine animals. The team eliminated plastic straws in their school and offered the option to purchase reusable or paper straws. They also worked with area restaurants to reduce straw usage and petitioned the National Day Calendar to create National Skip the Straw Day on the fourth Friday in February every year.

The 2016-2017 Lexus Eco Challenge Grand Prize high school team was the "Second Chance Band" from Lebanon Trail High School in Frisco, Texas. To address landfills filling up with trash across the United States and the increase of ocean trash pollution, Second Chance Band developed a unique upcycling project using trash and other discarded objects to create musical instruments. The team discovered the materials needed to build instruments could all be found in a landfill. They collected old instruments and upcycled trash to build and refurbish flutes, violins, guitars, trumpets and drums. Over 75 handmade instruments were made, including a violin from a tin lunch box and discarded violin neck, small drums from a Styrofoam box, old x-ray films and a broken picture frame, and flutes from found metal pipes. Using social media, the team was able to reach the global community and share their how-to videos. The team sent the recycled instruments to areas in need all around the world, from Latin America to the Middle East.

The 2016-2017 Lexus Eco Challenge Grand Prize high school team was the "Second Chance Band" from Lebanon Trail High School in Frisco, Texas. To address landfills filling up with trash across the United States and the increase of ocean trash pollution, Second Chance Band developed a unique upcycling project using trash and other discarded objects to create musical instruments.

MOTHERS OF INVENTION

The eighth annual Tina Brown Live Media Women in the World Summit, presented and co-hosted by Toyota, featured the Mothers of Invention (MOI) Class of 2017, celebrating pioneers who are driving positive change in the world through innovation and entrepreneurship. Three grants in the amount of $50,000 each were awarded for groundbreaking work in clean water infrastructure, power-generating footwear and science instrument-smartphone technology.

Each year, Toyota collaborates with the Tina Brown Live Media editorial team to identify three women who affect change throughout the world and have tremendous vision. The finalists meet myriad criteria, such as solving large-scale problems, affecting impact and growth, introducing new product categories, finding solutions to societal issues around the globe, and innovating technologies. Since its inception, the Toyota Mothers of Invention program has recognized the ingenuity of 19 women with a total of nearly $1 million in grants.

"We are thrilled to support these remarkable women, who with their optimism, intelligence and grit are writing bright new endings to stories of people the world often forgets or overlooks," said Lisa Materazzo, vice president of Vehicle Marketing & Communications, Toyota Motor North America. "By working together to tackle the world's biggest challenges, the Toyota Mothers of Invention network can grow larger, stronger, and make a bigger impact on the lives of others."

In addition to building great cars, Toyota is committed to improving society and the lives of others, championing solutions to issues around food, water, shelter, healthcare, electricity, sanitation and education. As a sponsor of the Women in the World Summit since its inception in 2012, Toyota has cultivated the Toyota Mothers of Invention program by not only awarding MOIs with the Driving Solutions Grant, but also facilitating networking opportunities, building relevant connections, and providing access to intellectual capital to help their organizations and causes go places.

Sarah Evans, Founder, Well Aware (left)
Sarah Evans' vision is to enable prosperity in impoverished communities by providing access to lasting clean water. Under her leadership, Well Aware has impacted more than 150,000 people and is on track to more than double their impact in 2017. Since Well Aware's first project was implemented in 2010, they have doubled their project capacity every year. The organization's reputation for project success (100 percent) and cost effectiveness (averaging $10 per person for decades) has also promoted numerous collaborations with other NGOs worldwide to guide their water infrastructure projects through Aurora Global (a for-profit organization of which Sarah is also a principal).

Komal Dadlani, Founder, Lab4U (center)
Lab4U develops web and mobile technologies to turn smartphones and tablets into science instruments. The technology uses sensors already in smartphones, for example, to measure acceleration, frequency and movement. It also transforms the phone into a microscope with a one-dollar filter attached to the camera. Lab4Physics, the first product, has been tested with more than 2,000 students in Latin America and California since its launch in May 2016. It provides a low-cost solution for science education for schools in emerging markets or underprivileged students who do not have access to scientific instruments.

Hahna Alexander, CEO & Co-founder SolePower (right)
SolePower creates self-charging wearables that capture energy from human motion. Electronics can be powered solely by footsteps—creating "unplugged" technology that doesn't need to be charged. Hahna and her co-founder found a way to "harvest" kinetic energy of a heel strike into human footsteps in a capstone engineering class project at Carnegie Mellon University. They embedded the solution into the sole of a work boot to create self-charging SmartBoots. The boots track location and motion, providing workforces with insights to keep workers safe and alert them when they are in danger. The U.S. Army is testing SolePower's kinetic charger as a lightweight back-up battery for soldiers. Other applications for firefighters and emergency workers that light up as they walk are in development.

NATIONAL MAYOR'S CHALLENGE FOR WATER CONSERVATION

In 2017, residents in more than 4,800 cities across the United States took part in the sixth annual Wyland National Mayor's Challenge for Water Conservation, presented by Toyota, by pledging to save over 2.2 billion gallons of water over the next year. The annual month-long campaign to promote drought resiliency and water quality ended on April 30 with mayors from 38 states vying to see whose city could be the nation's most "water wise."

The cities with the highest percentage of residents making pledges during the campaign included Laguna Beach, California; Flagstaff, Arizona; Athens, Georgia; Aurora, Colorado; and Dallas, Texas. Overall, residents around the nation, from Anchorage to the Florida Keys, made 421,891 pledges to change behaviors ranging from fixing home leaks to reducing harmful runoff into local rivers and streams.

The challenge, presented by the Wyland Foundation and Toyota, with support from the U.S. EPA, National League of Cities, The Toro Company, Earth Friendly Products (ECOS) and Conserva Irrigation, addresses the growing importance of educating consumers about the many ways they can conserve water — for example, by swapping out their lawns in favor of drought-resistant native plants, fixing leaks and looking at how we use water for food and manufacturing.

"This year's challenge took a hard look at things we can all do to reduce our impact on lakes, rivers, streams and wetlands," said marine life artist Wyland, who founded the Wyland Foundation in 1993. "The more we can do to reduce harmful runoff into our water systems, the more we can provide long-term sustainable benefits to our communities."

In addition to reducing water, challenge participants in 50 states pledged to reduce the use of 4.7 million single-use plastic water bottles and eliminate 114,000 pounds of hazardous waste from entering watersheds. By altering daily lifestyle choices, pledges will also result in potentially 52.5 million fewer pounds of waste going to landfills. Potential savings of 14.6 million gallons of oil, 7.8 billion pounds of carbon dioxide, 156.8 million kilowatt-hours of electricity, and $35.5 million in consumer cost savings rounded out the final pledge results.

NATIONAL PUBLIC LANDS DAY

Toyota encourages all of its team members, dealers and customers to offer a little nurture to nature on National Public Lands Day (NPLD). Held every September, NPLD is the largest single-day volunteer effort for public lands in the U.S. It is a celebration of the work, play and learning that takes place on public lands every day and offers everyone an opportunity to help maintain these special places. NPLD is hosted by the National Environmental Education Foundation, and Toyota has been the national corporate sponsor since 1999.

In 2016, Toyota made volunteerism possible at 2,600 NPLD sites, including 56 sites where 1,755 Toyota team members volunteered, and gave $637,439 in Public Lands Every Day grants. Here are just a few of the tasks Toyota volunteers tackled in 2016:

- Toyota's plant in Mississippi hosted its second NPLD event at Tombigbee State Park as part of a five-year, $250,000 partnership with the park and the Mississippi Department of Wildlife, Fisheries & Parks. More than 500 team members and their families contributed over 2,000 volunteer hours to build a regulation size tee-ball field, update playground equipment, install a split-rail fence throughout the park, clear trail heads, and rebuild handrails, benches and bridges, which allowed a nature trail that had been closed for nearly 10 years to reopen.
- Toyota team members from Bodine Aluminum in Troy, Missouri, partnered with Cuivre River State Park to construct an ADA-accessible (Americans with Disabilities Act) picnic shelter near the ADA fishing dock (which the plant donated funds to help construct in 2014). At Toyota Bodine Aluminum in Jackson, Tennessee, volunteers worked at Liberty Garden Park while team members from the Bodine St. Louis plant helped clean up trails at Vinita Park.
- Team member volunteers in the Dallas area mulched trails and assisted with other projects to help prepare the Oak Point Park and Nature Preserve in Plano for winter.
- Toyota's plant in Texas partnered with the San Antonio Mitchell Lake Audubon Center, where team members, their families and local students cleared wildlife areas, trimmed trails and gardened campus grounds. In addition, they presented the facility with a $15,000 check to further efforts to conserve park land.
- Toyota's plant in Alabama partnered with the Land Trust of North Alabama on a trail development project at the nearby Wade Mountain Nature Preserve.
- For the fourth year in a row, Southern California team members showed their stewardship at the White Point Nature Preserve and Education Center in San Pedro. Projects included watering native plants, laying mulch, removing invasive weeds and more. The center recognized team member Ernie Lopez with an Outstanding Volunteer award for his continued commitment.
- Team members from Toyota's plant in Kentucky partnered with Salato Wildlife Education Center to build fencing throughout the Frankfort Park, make improvements to the quail exhibit and mulch around fields that house bison and elk to reduce weeds.

For NPLD 2016, team members in Indiana helped construct a playground, landscape, mulch a walking trail, assemble picnic tables and add grills to a shelter house area at the Hopkins Family Park in Francisco, Indiana. This is phase one for the new park, which opened in October.

Toyota's assembly plant in Mississippi is investing five years and $250,000 in Tombigbee State Park, listed on the National Register of Historic Places. To date, more than 900 team member volunteers have contributed over 5,500 volunteer hours (that equals $108,748 in manpower value) to numerous projects and upgrades. The improvements our team members have made to the park are enjoyed by visitors of all ages and have had a significant impact: Since Toyota began work at Tombigbee in 2015, the park's revenue has increased by 30 percent. Toyota has also challenged other area businesses and local residents to make their own commitment to the park. Two companies, Hunter Douglas and American Furniture Manufacturing, have already accepted the challenge and have pledged their support.

TOYOTA EVERGREEN LEARNING GROUNDS

The Toyota Evergreen Learning Grounds (TELG) program continues to help Canadian students and teachers transform their school grounds into healthy places to learn, play and connect with nature. In the 2015-2016 school year, the national program led by Evergreen, with support from Toyota Canada and Toyota dealerships, helped 559 schools – through 110 grants totaling CAD$250,000 – with their efforts to green their outdoor spaces, engaging 48,245 students and staff.

The TELG program is at the forefront of the school ground greening movement. Since 2000, the partnership has provided millions of dollars of support through hands-on expertise, training, publications and grants to over 6,000 schools across Canada, reaching close to 1.2 million elementary and secondary school students and 96,000 teachers and school staff. The scope of the TELG's impact inspired Evergreen to cofound the International School Ground Alliance in 2011.

Green school grounds aim to inspire discovery and learning, increase physical activity, motivate teachers and students, and support environmental awareness and stewardship. Each project offers a unique opportunity for schools to engage with the greater community, including the active support role many Toyota dealerships have played in their local service areas. Toyota dealers engage directly with schools in their communities at events such as check presentations, kick off assemblies, work bees and grand openings. Additionally, dealerships often invest their own funds and personal volunteer time in support of school projects.

"Through this innovative long-standing initiative, students and staff each year have access to expert hands-on environmental learning and the unique opportunity to design and create their school's new outdoor space," says Geoff Cape, Evergreen CEO. "Toyota's incredible commitment to this work continues to encourage a life-long passion for play and learning in nature that builds a caring relationship with the natural world – a foundation for building sustainable and flourishing cities."

"Toyota's commitment to enriching communities and establishing a future society in harmony with nature is at the core of our collaboration with Evergreen," says Larry Hutchinson, president and CEO of Toyota Canada Inc. "Toyota Canada is proud of the impact the Toyota Evergreen Learning Grounds program has had over the past 16 years, providing everyday opportunities for students to engage with nature on Canada's school grounds."

In honor of its 25th anniversary, Evergreen launched the Evergreen City Builders Awards and partnered with Toyota to recognize outstanding innovation in children's nature playgrounds with the Toyota Playground Placemaker Award. The award recipient, Sandy Clee, senior planner at the Simcoe County District School Board in Midhurst, Ontario, supported the transformation of 87 early-year schoolyards from barren outdoor expanses to dynamic natural play and learning spaces.

Schools participating in the 2015-2016 TELG program have realized their greening goals with a wide variety of outdoor improvements such as a year-round outdoor classroom in North Vancouver, a food and pollinator garden for kindergarten students in Montreal, and an edible garden in Saskatoon that helps students and families learn about and participate in sustainable food growing practices.

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At Gosford Public School in North York, Ontario, a grant from the Toyota Evergreen Learning Grounds program brought the whole community together. With hands-on support from Evergreen, excited parents, students, alumni and community members organized a special volunteer day to help build and fill three new raised garden beds last year. Students from Kindergarten to grade five planted vegetable seedlings that they had been nurturing indoors since the winter. Throughout the harvest season, students learned about seed saving, tried many new foods, and prepared fresh salads from the garden. The gardening season ended with another community volunteer day to mulch, harvest and plant late harvest seeds.

Teachers are using the new space to enhance their lessons and students' learning. The garden provides authentic hands-on learning experiences, weaved into the elementary science curriculum.

YELLOWSTONE YOUTH CAMPUS

Toyota presented a $1 million donation to Yellowstone Forever (formerly the Yellowstone Park Foundation) to support development of a new Yellowstone Youth Campus. The new campus will be a home for immersive youth programming in the park, creating a place of learning for future generations of conservationists and a pretty cool hang-out to share experiences.

Designed by Hennebery Eddy Architects of Portland, Oregon, the new Yellowstone Youth Campus aims to be the first building in a national park to achieve Living Building Challenge Certification. One of the most rigorous environmental building certifications in the world, the Living Building Challenge integrates ecological relationship, cultural heritage, stewardship, sustainability and leadership into all aspects of design, construction and operation. The result is a "Living Lab" for all who enter.

"The new Yellowstone Youth Campus is an opportunity to support the conservation principles of the National Park Service while reinforcing Toyota's commitment to the environment," said Kevin Butt, general manager and regional director of Environmental Sustainability at Toyota Motor North America. "We hope this environmental learning center will inspire and empower future leaders in building a more culturally aware, ecologically responsible and regenerative future."

While the campus expands, the environmental footprint is expected to shrink with pursuit of the Living Building Challenge. The buildings are designed to significantly reduce energy use through high-performance insulation and windows, natural ventilation, and other passive measures. Planned photovoltaic arrays on-site will provide more than 100 percent of campus energy needs, creating excess energy for the grid. One hundred percent of water used on campus will be locally sourced and all wastewater will be treated on-site for reuse. The design prioritizes a healthy indoor environment by using only non-toxic and low VOC building materials and furnishings. Once complete, the campus will serve as a new benchmark for National Park Service projects.

It also will serve as the home of two youth programs, each with a national reach – Expedition Yellowstone and the Youth Conservation Corps. Expedition Yellowstone provides week-long residential experiences for grade school-aged children with a focus on disadvantaged populations, while the Youth Conservation Corps offers a one-month immersive summer program for high-school students. Replacing the existing Youth Conservation Corps campus, the new youth campus will be able to serve twice the current student capacity with the addition of four classrooms, residential buildings and staff housing on-site.

This isn't Toyota's first footprint in the park. In 2015, Toyota introduced a unique, renewable distributed energy system at the Lamar Buffalo Ranch. By combining solar power with re-used Camry Hybrid battery packs, the system provides reliable, sustainable, quiet, zero emission power to the ranger station and education center for the first time since it was founded in 1907.

And when Yellowstone designed the new Old Faithful Visitor Education Center, Toyota engineers shared knowledge gained during construction of its Gold Leadership in Energy and Environmental Design (LEED®) certified office complex in Torrance, California. The automaker also provided a $1 million gift to the foundation for construction of the Center, which opened in 2010.

The Yellowstone Youth Campus will house immersive youth programing. The new campus aims to be the first building in a national park to achieve Living Building Challenge Certification, one of the most rigorous environmental building certifications in the world. Great Room Rendering. Image courtesy of Hennebery Eddy Architects

DEALERS

There are approximately 1,850 Toyota and Lexus dealerships in the United States, Canada and Mexico, all independently owned franchises. We partner with our dealers on green building projects and community outreach initiatives.

GREEN BUILDING

We work closely with dealers to promote green building practices, since buildings can have a large environmental footprint. Buildings are responsible for about one-third of the energy consumed in the United States and Canada. Operating green buildings can reduce energy use and associated greenhouse gas emissions, water use and solid waste, and green buildings have been shown to improve worker health and productivity.

Toyota and Lexus continue to lead the industry with more dealership facilities certified to LEED® standards in North America than any other auto manufacturer. As of July 2017, we had assisted 58 Toyota and Lexus dealerships — 51 in the United States, six in Canada and one in Mexico — with LEED® certification. Additionally, several more dealerships have completed construction and are waiting for their LEED® ratings to be decided. Many more are under construction or in the design and permitting phase and have registered their intent to pursue LEED®.

LEED®, or Leadership in Energy and Environmental Design, is a point-based system administered by the U.S. and Canadian Green Building Councils promoting a whole-building approach to sustainable construction and remodeling. LEED® certification is based on meeting stringent evaluations in sustainable site development, water savings, energy efficiency, materials selection and indoor air quality.

We emphasize three areas to dealers to get the best return on investment from green building practices: using high-quality materials on the building envelope (particularly the insulation and the roof), using LED lighting in both interior and exterior areas, and right-sizing the heating, ventilation and air-conditioning systems. A study performed on LEED®-certified Toyota dealerships shows the average dealer who completes the LEED® process can save about 25 percent on their energy costs per square foot per year (based on a 52,000 square-foot building). The often-rapid return on investment for environmentally sustainable materials, energy-efficient lighting fixtures and other LEED® elements confirms the economic benefit of building green.

19 / Toyota/Lexus LEED® Dealerships

	Toyota	Lexus
Platinum	4	
Gold	20	4
Silver	14	2
Certified	10	4
Total	48	10

** As of July 2017, 51 Toyota and Lexus dealerships in the U.S., 6 in Canada and 1 in Mexico have been certified to LEED®.*

In November 2016, Toyota of Corvallis in Oregon became the fourth Toyota dealership to earn LEED® Platinum certification. The dealership is also on track to becoming the world's first Certified Net Zero Energy Automotive Dealership. By definition, Net Zero Energy means that at the end of the year, the building has produced more power than it used. Toyota of Corvallis is collecting solar energy through photovoltaic panels and returning any unused energy back to the local power grid. That power will help offset local power demands at peak usage periods. Toyota of Corvallis is setting a positive example and creating a first-of-its-kind template for the auto dealership of the future.

COMMUNITY OUTREACH

Toyota also partners with our dealers to support community environmental initiatives. The Toyota Evergreen Learning Grounds program helps schools create outdoor classrooms to provide students with a healthy place to play, learn and develop a genuine respect for nature. Green school grounds aim to inspire discovery and learning, increase physical activity, motivate teachers and students, and support environmental awareness and stewardship. Each project offers a unique opportunity for schools to engage with the greater community, including the active support role many Toyota dealerships have played in their local service areas. Toyota dealers engage directly with schools in their communities at events such as check presentations, kick-off assemblies, work bees and grand openings. Additionally, dealerships often invest their own funds and personal volunteer time in support of school projects. Since 2000, 218 Toyota dealerships have been directly involved in one or more school ground greening projects in their communities.

Team members from Toyota Canada Inc. joined Stouffville Toyota to host an Earth Day presentation for 40 students from Summitview and James Robinson Public Schools. John-Paul Farag from Toyota Canada Inc. was present to speak about Toyota's advanced technology vehicles. Dealer Principal Kevin Baxter later toured the students around the LEED® Gold certified facility. Everyone took home goody bags with seedlings to plant.

Students check out Toyota's Prius Prime during an Earth Day event at Stouffville Toyota. Toyota Canada Inc.'s Product Planning Department also brought a model Mirai with a solar panel that produces hydrogen fuel to power the vehicle.

GOVERNMENT AGENCIES

Establishing positive and productive working relationships with local, state, provincial and federal government agencies is vital for sharing ideas and facilitating a common understanding of issues. Sharing information helps us understand the government's concerns and helps them understand how potential new requirements impact our business. Together, we can seek a balance that protects health and the environment without putting unnecessary burden on our facilities.

For example, we engage and collaborate with state and local government agencies and other companies through state-sponsored environmental programs:

- Our assembly plant in Indiana has been a member of Partners for Pollution Prevention since 2006. This program is organized by the Indiana Department of Environmental Management (IDEM) to provide a forum for local businesses to discuss and share pollution prevention (P2) successes and challenges with each other and to advise IDEM on P2 policies and programs. The sharing of ideas amongst Indiana businesses allows everyone to improve together. Good ideas are yokotened (taken from one place and implemented at another), and bad ideas are also shared so that we all learn from mistakes and challenges.

- Our assembly plant in Blue Springs, Mississippi, has been a Leader in EnHance (Envision Heightened Awareness Nurturing Conservation & Environmental Excellence) since 2013. EnHance is a voluntary environmental stewardship program run by the Mississippi Department of Environmental Quality (MDEQ) that recognizes committed environmental leaders who accomplish goals beyond their legal requirements. In April 2017, the Mississippi plant's membership was renewed and John Raymer, the plant's assembly general manager and environmental director, and Rosario Halberstadt, environmental specialist, were on hand to receive the award from MDEQ Executive Director Gary Rikard.

Our assembly plants in Cambridge and Woodstock, Ontario, offer tours to Canadian ministries to demonstrate the minimal impacts of our operations. Regulators have told us that these tours helped them see firsthand and understand the controls we already have in place and how risks are managed.

Toyota's Canadian plants also participate on the Automotive Manufacturing Working Group facilitated by the Facility Environment and Energy Committee of the Canadian Vehicle Manufacturers' Association. This working group meets regularly with Environment and Climate Change Canada (ECCC) and the Provincial Ministry of Environment and Climate Change to discuss upcoming regulatory changes.

Toyota, along with the rest of the working group, recently worked with ECCC to develop *Principles to Inform Chemical Management Plan Implementation, as applicable to the Automotive Manufacturing Sector.* These nine principles seek to implement Canada's chemical management plan in a cost-effective way that achieves the desired health and environmental outcomes while being mindful of industry competitiveness issues. The principles also recognize the highly integrated nature of auto manufacturing in North America and call for coordination with other jurisdictions, such as the U.S., on approach and timing of requirements. This collaboration is an example of the win-win that happens when we have an open, honest relationship with regulators.

SUPPLIERS

Toyota recognizes that environmental impacts extend into our supply chain. When considering the full life cycle impacts of manufacturing, distributing and driving vehicles, supply chain impacts outpace our own. That's why Toyota's Environmental Challenge 2050 directs us to work with suppliers to achieve three main goals:

- We will engage with suppliers to eliminate CO_2 emissions from the process of manufacturing the parts and materials we purchase to make our vehicles (Challenge 2). Toyota Motor Corp. joined CDP's Supply Chain Program, which helps us gather information on major supplier initiatives worldwide. We will continue to use this information to prioritize engagement with major suppliers in North America.

- We will seek to eliminate CO_2 emissions from our own operations and third-party logistics (Challenge 3). Below, we discuss the importance of due diligence and working with third-party carriers in helping us meet this challenge.
- We will collaborate to help establish a recycling-based society (Challenge 5). One of our suppliers developed a way to reuse and recycle obsolete packaging. With their help, an estimated 13 million pounds of waste are kept out of landfills. See the packaging reduction target and story in the Materials chapter for more information.

Meeting these challenges depends on close collaboration with our major suppliers. To enhance our collaboration and leverage on-going sustainability efforts on an industry-wide scale, Toyota became a member of U.S. EPA's Suppliers Partnership for the Environment (SP), an innovative partnership between automobile original equipment manufacturers, their suppliers and EPA. SP provides a forum for small, mid-sized and large automotive and vehicle suppliers to work together, learn from each other and share environmental best practices.

We hosted SP's second quarter meeting in April 2017 at our assembly plant in Georgetown, Kentucky. Attendees had an opportunity to tour the plant – Toyota's largest manufacturing facility in the world – and hear speakers from Toyota, Johnson Controls, General Motors, U.S. EPA, World Economic Forum, Plastics Industry Association, Tennessee Department of Environment & Conservation, and Starco Lighting, who shared emerging trends impacting the industry and discussed key opportunities related to items such as advancing a circular economy, working together with public and private partners, and improving environmental performance and competitiveness.

SUPPLIER ENGAGEMENT

We visit suppliers to understand and learn about their sustainability programs. These activities are an essential component of our strategy for meeting challenge 3 of Challenge 2050 and eliminating CO_2 emissions from our operations.

In early 2017, we visited one of SunPower Corp.'s North American manufacturing plants, which produced the solar array that now sits on the rooftop of our new headquarters campus in Plano, Texas. The purpose of the visit was to learn about SunPower's manufacturing process, see their quality control program in action, and learn about their leading environmental sustainability initiatives. The facility we visited, which produces 1 gigawatt of solar panels annually, is certified LEED® Gold by the U.S. Green Building Council and is verified by NSF Sustainability as landfill-free, which means the facility diverts at least 99 percent of waste, with only 1 percent or less of waste going to landfills.

The facility is also where two of SunPower's *Cradle to Cradle Certified™* Silver products are manufactured. The Cradle to Cradle Certified™ Product Standard is a comprehensive product quality standard that evaluates product design, manufacturing, corporate citizenship and ethics principles. Products are assessed according to Material Health, Material Reutilization, Renewable Energy Use, Water Stewardship and Social Fairness.

"SunPower is a business partner we have worked with that can help us meet our absolute GHG reduction target, achieve Challenge 2050 and, perhaps most importantly, advance our journey to creating a net positive impact on society and the planet," said Mark Yamauchi, environmental sustainability manager at TMNA.

THIRD-PARTY LOGISTICS

Toyota's logistics network is a complex operation that ensures smooth shipping and delivery of vehicles, parts and accessories, from the supplier to the plant, to Toyota's distribution centers, and ultimately to dealerships and customers. Through the use of returnable shipping containers, packaging reductions, light weighting and densification, our own logistics operation has reduced waste, fuel consumption and greenhouse gas (GHG) emissions, and we have helped our third-party logistics carriers do the same.

We set a target with our third-party logistics carriers to reduce the GHG intensity of both owned and third-party logistics by 5 percent by fiscal year 2021, from a 2016 baseline. Fiscal year 2017 results can be found here.

Toyota's production control logistics operation – which procures the parts and materials used to manufacture our vehicles – has been working with two of their largest carriers on GHG emissions reductions. These carriers are developing plans to help us meet our 2021 target to improve GHG intensity from logistics operations by 5 percent as well as the Challenge 2050 goal to eliminate CO_2 emissions from manufacturing and logistics operations. We will have more on this in next year's report.

See also the story on Toyota's Project Portal, the zero emission truck proof of concept taking part in a feasibility study to examine the potential of fuel cell technology in heavy-duty applications.

TEAM MEMBERS

We want all of our team members to be environmental ambassadors. We want them all to be educated about and take pride in our environmental activities, participate in projects that improve our environmental performance, and be inspired to share our know-how with others.

We take a variety of approaches to **educating our team members** about Toyota's Environmental Challenge 2050 and our North American environmental action plan and activities. We host lunch-and-learns, publish newsletters and include an overview of Toyota's North American Environmental Report in new hire training. We want to make sure everyone at every level — not just those with the word "environmental" in their job title — is aware of our environmental activities and understands they have a role to play. Some of our sites give team members a chance to test their environmental knowledge through a trivia game and award the high scorers with T-shirts and other prizes. Our assembly plants in Ontario use their internal newsletter to teach team members how to make a pollinator garden and ways they can reduce plastic pollution. These newsletters raise awareness about Toyota's environmental performance and provide educational material to explain why we spend so much time and effort trying to reduce energy, GHG emissions, waste and water use and protect the plants and animals around us.

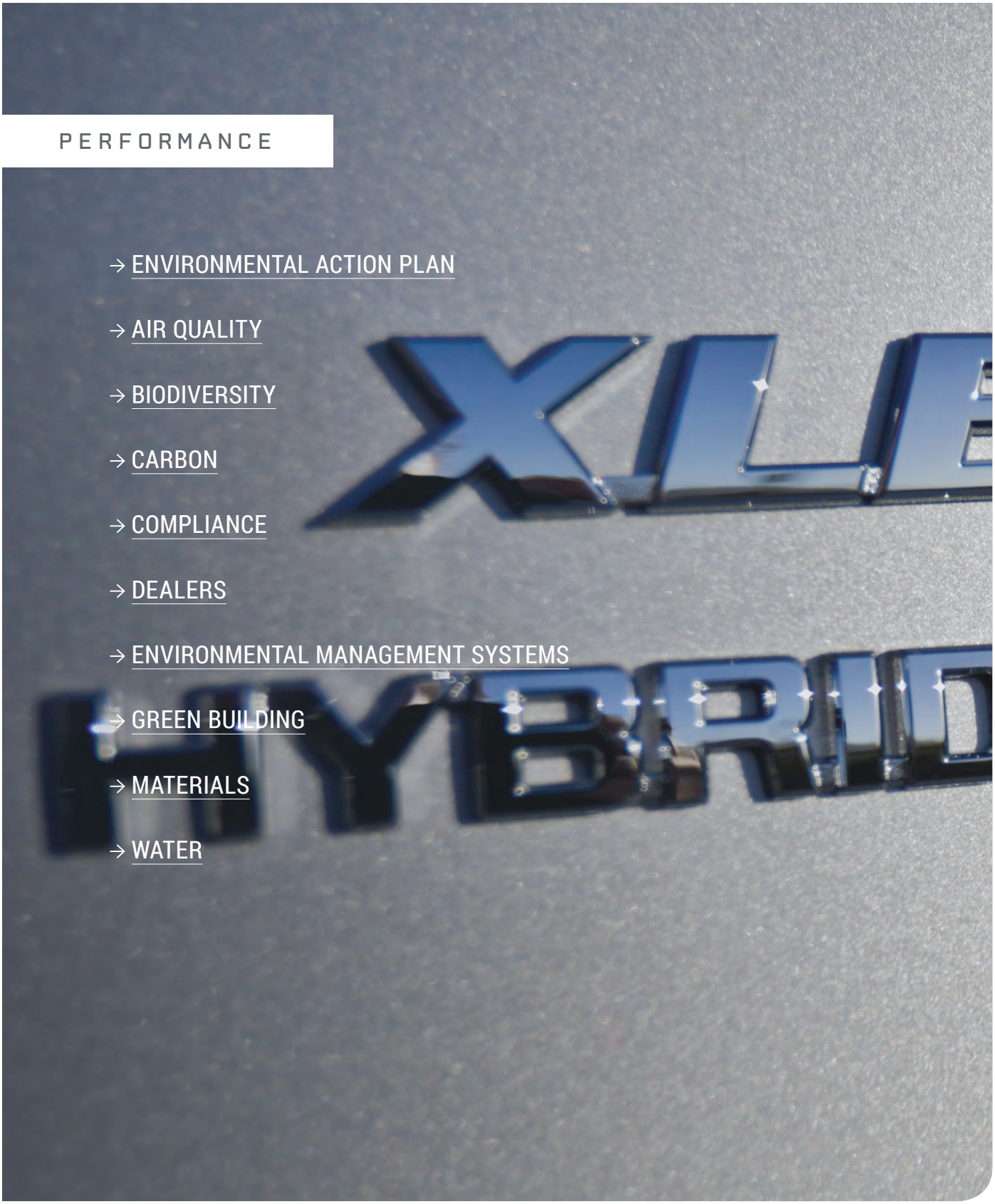
Team members play a big part in **helping us identify projects** that protect nature and save energy, water and everything in between. Some projects require a small group of dedicated team members, and others succeed thanks to help from our suppliers. A number of these projects are described in the Carbon, Water, Materials and Biodiversity sections of this report. During Earth Month, our plants in Ontario encourage team members to submit environmental suggestions for a chance to win a special Earth Month shirt.

Finally, we encourage team members to take all the good things we do at work and **share their know-how** with others. Earth Day provides an annual opportunity for us to educate and engage team members on environmental topics and empower them to take what they know home and into their communities. Many of our locations host activities for a week or even a whole month that include a chance for team members to give back to their communities.

- The **New York area parts distribution center** hosted a combined Earth Day / Bring Your Child to Work Day. The youngsters helped build an insect hotel for the community garden.
- **Toyota Bodine Aluminum in Troy, Missouri**, hosted an Earth Day cleanup event at the nearby Cuivre River State Park. The 48 team member volunteers spent the morning cleaning the dining room for Camp Derricotte.
- Team members from the **West Virginia plant** worked with fifth-graders from Hometown Elementary School and the Cub Scouts to build birdhouses and bat houses, which were all placed along the site's nature trail. These activities provided team members with a fun opportunity to teach the youngsters about the different types of pollinators that can be found at the plant's pollinator garden.
- **Toyota's assembly plant in Princeton, Indiana**, hosted Earth Aware Camps for about 1,000 third-graders at Camp Carson and Wesselman Woods Nature Preserve. The children spent a day doing activities and playing games designed to teach them about environmental responsibility. See the photos from the event below.
- **Toyota Canada Inc.** executives and team members dedicated their lunch time during Earth Week to cleaning up the outdoor area near the organization's Head Office in Toronto. In 2017, they collected 50 bags of garbage.

During Earth Week 2017, Toyota's assembly plant in Indiana hosted Earth Aware Camp at Camp Carson in Princeton and Wesselman Woods Nature Preserve in Evansville. Team members shared their knowledge of all things environmental with third-grade students, who spent a day doing activities and games designed to teach them about environmental responsibility. During the recycle relays, student teams raced through the contents of barrels to separate what could be recycled. At Camp Carson, the students also planted seedlings and met some of the creatures from Mesker Park Zoo, while at Wesselman Woods, wildlife exhibits and a nature hike through the forest helped deliver the message of preservation.

PERFORMANCE



The Toyota Mirai is a hydrogen fuel cell electric vehicle with an EPA-estimated driving range of 312 miles. Toyota is participating in a number of partnerships to advance the development of a hydrogen fueling infrastructure, both in California and on the East Coast.

→ **PERFORMANCE**

WELCOME TO THE PERFORMANCE SECTION OF TOYOTA'S NORTH AMERICAN ENVIRONMENTAL REPORT. HERE WE PROVIDE OUR **ENVIRONMENTAL ACTION PLAN** RESULTS AS WELL AS DATA RELATED TO OUR ENVIRONMENTAL PERFORMANCE IN THE FOLLOWING AREAS: **AIR QUALITY**, **BIODIVERSITY**, **CARBON**, **COMPLIANCE**, **DEALERS**, **ENVIRONMENTAL MANAGEMENT SYSTEMS**, **GREEN BUILDING**, **MATERIALS** AND **WATER**.

ENVIRONMENTAL ACTION PLAN

P01 / TMNA Environmental Action Plan, FY2017-2021

FOCUS AREA/ CHALLENGE 2050	FY2021 TARGET	STATUS	FY2017 PROGRESS
CARBON Challenge 1 Challenge 2 Challenge 3	Foster accelerated adoption of next-generation vehicles by continuously supporting education and infrastructure deployment	△	• Supported education initiatives such as Environmental Media Awards • Partnering with Shell, FirstElement Fuels, Linde and Air Liquide on hydrogen infrastructure
	Advance the development and utilization of low carbon fuels	△	Working on developing renewable hydrogen fuel for the fuel cell truck at the Los Angeles ports
	Develop a mobility project in North America that reduces congestion and GHGs	△	Developing a ride share program for Plano headquarters
	Improve absolute GHG emissions from North American operations 15% from a baseline of FY2016	△	Total GHG emissions increased but we finished developing a plan that will decrease absolute emissions by FY2021
	Improve GHG emissions intensity from all logistics 5% from a baseline of FY2016	△	• Gathering data from all logistics divisions is in process • Improved GHG intensity from owned U.S. vehicle logistics by 2%
WATER Challenge 4	Prioritize and implement water stewardship plans for facilities in water-stressed areas	△	• Mapped major sites with Aqueduct™ • Prioritizing sites in areas of high overall risk is in process
MATERIALS Challenge 5	Reduce the use of packaging material 5% from a FY2016 baseline	△	• Establishing a data tracking system is in process • Reusing and recycling 13 million pounds of packaging through new program with PakFab
BIODIVERSITY Challenge 6	Partner with third parties and other Toyota regions to protect globally recognized biodiversity hotspots	△	• Participated in WWF partnership with TMC • Continued partnership in the Galápagos Islands
	Partner with others to help protect and preserve 50,000 acres of natural habitat in North America	△	• Protecting ~1,000 acres through WHC Conservation Certifications • Supported 56 NPLD sites • Worked with WWF to protect Northern Great Plains
	Participate in regional biodiversity activities that support wildlife corridor(s)	△	Planted pollinator gardens to support monarch butterflies
	Achieve at least two new WHC Conservation Certifications per year	△	• 2 WHC Conservation Certifications received in 2017 (for a total of 12)

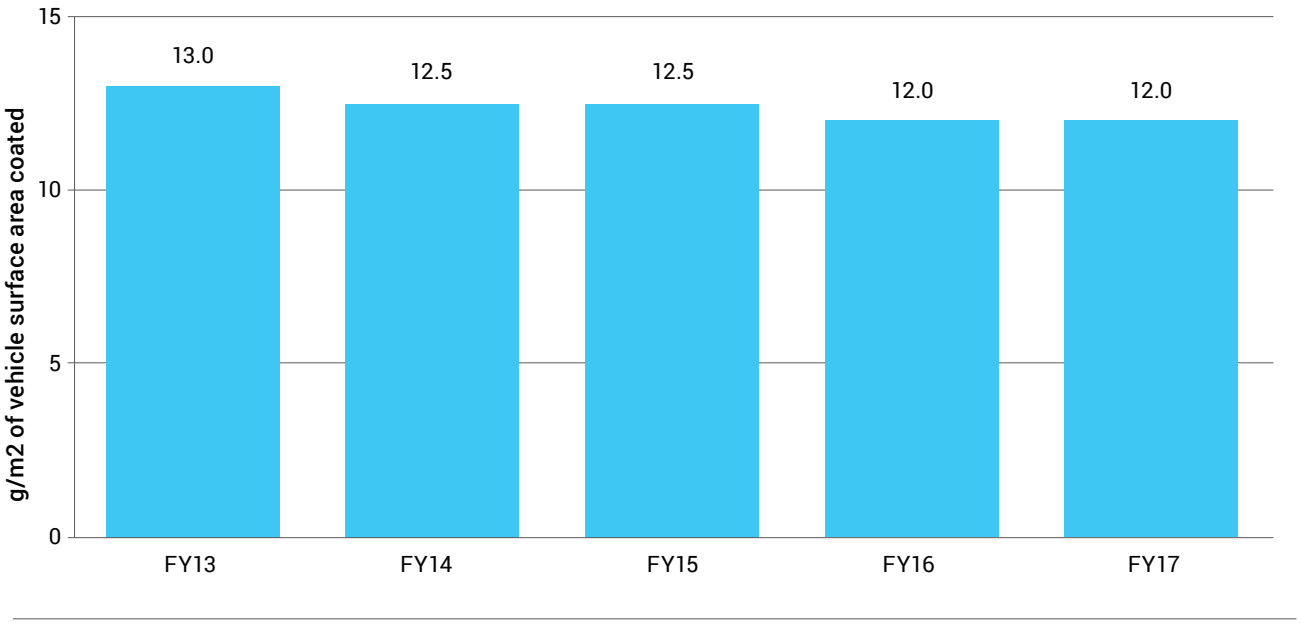
⦿ Target Exceeded ○ Target Achieved △ On Track X Target Missed

ABOUT THIS CHART: This chart summarizes fiscal year 2017 progress against our environmental action plan (EAP) targets for fiscal years 2017 to 2021. These targets cover more than 85 sites, including assembly and unit plants, parts and vehicle distribution centers, sales offices and R&D sites.

AIR QUALITY

VOLATILE ORGANIC COMPOUNDS

P02 / VOC Emissions



Fiscal Year(FY) runs April to March
Scope: Toyota's North American Manufacturing Plants

ABOUT THIS CHART: The primary concern with non-greenhouse gas air emissions is smog. Smog is formed as particulate matter, nitrogen oxides and volatile organic compounds (VOCs) react with sunlight. Smog has been linked to a number of health issues and is particularly prevalent in dense urban areas with heavy traffic, industrial activity and sunny, warm climates.

Painting operations generate the majority of Toyota's VOC emissions. We have a North American Manufacturing VOC Working Group studying aspects of the vehicle body painting process to find ways to reduce VOC emissions. Group members review painting operations as a whole as well as the components of the process to find opportunities for improvement. We benefit from sharing lessons learned from one plant to the next.

Toyota's North American manufacturing plants measure grams of VOCs emitted per square meter of vehicle surface area coated (g/m^2). Since 2002, we have reduced VOC emissions by 66 percent, from 35.0 to 12.0 g/m^2.

CRITERIA POLLUTANT TAILPIPE EMISSIONS

Hydrocarbons, nitrogen oxides (NOx) and carbon monoxide — all byproducts of fuel combustion — are linked to various air quality issues, including smog formation as well as a number of health effects. Limiting criteria pollutant tailpipe emissions from our vehicles helps to reduce some of the environmental impacts of driving.

The U.S. Environmental Protection Agency (EPA) and the state of California have certification programs to categorize vehicles in terms of their level of tailpipe emissions. EPA's certification program categorizes vehicles into Tier 2, Bins 1 through 8. Lower bin numbers correspond to vehicles with lower tailpipe emissions; Bin 1 is for vehicles with zero tailpipe emissions. This program requires a manufacturer's fleet average to meet a Tier 2 NOx standard of 0.07 grams per mile (g/mi). (The Canadian program is equivalent to the U.S. federal program.)

In California, the Low-Emission Vehicle III (LEV III) regulations categorize vehicles as LEV (Low Emission Vehicle), ULEV (Ultra Low Emission Vehicle), SULEV (Super Ultra Low Emission Vehicle), ZEV (Zero Emission Vehicle) or AT-PZEV (Advanced Technology Partial Zero Emission Vehicle). For the 2016 model year, the California LEV III regulations required an auto manufacturer's fleet average to meet an emission standard for non-methane organic gas with nitrogen oxides (NMOG + NOx) of 0.093 g/mi for passenger cars and light-duty trucks up to 3,750 pounds, and 0.110 for other light-duty trucks.

Federal vehicle emission standards will change based on EPA's issuance of their Tier 3 rule. In Tier 3, EPA established more stringent vehicle emissions standards and reduces the sulfur content of gasoline beginning in 2017, as part of a systems approach to addressing the impacts of motor vehicles and fuels on air quality and public health. The gasoline sulfur standard will make emission control systems more effective for both existing and new vehicles. The more stringent vehicle standards will reduce both tailpipe and evaporative emissions from passenger cars, light-duty trucks, medium-duty passenger vehicles and some heavy-duty vehicles. This will result in significant reductions in emissions in order to reduce pollutants such as ozone, particulate matter and air toxics, and help state and local agencies in their efforts to attain and maintain health-based National Ambient Air Quality Standards.

These vehicle standards are intended to harmonize with California's Low Emission Vehicle program, thus creating a federal vehicle emissions program that will allow automakers to sell the same vehicles in all 50 states. The vehicle standards will be implemented over the same timeframe as the greenhouse gas/fuel efficiency standards for light-duty vehicles (promulgated by EPA and the National Highway Safety Administration in 2012) as part of a comprehensive approach toward regulating emissions from motor vehicles.

Environment and Climate Change Canada has issued Tier 3 regulations aligned with the final U.S. Tier 3 rule.

Toyota, along with other auto manufacturers, supported efforts to harmonize the new California LEV III and federal Tier 3 programs. We worked with federal and state agencies through their regulatory processes to help develop rules that are both effective and feasible. Our goal was – and is – to maintain the flexibility to build vehicles based on customer preferences. In setting tailpipe emission regulations, we believe standards should be performance-based and consider the interaction with other vehicle rules — such as fuel economy/greenhouse gas standards — to ensure the total package of requirements is effective and acceptable to the consumer. As with greenhouse gas emissions, fuels must be considered with vehicle technologies as a holistic system. Reduced sulfur levels in gasoline, already available for the LEV III program in California, are needed to enable the after-treatment systems being designed for Tier 3 compliance.

Toyota annually complies with the state of California, U.S. and Canadian federal vehicle emissions programs, and we have met the requirements for each model year.

The American Council for an Energy Efficient Economy (ACEEE) "Greenest Vehicles of 2017" list contains three Toyota models: Prius Eco[5], Prius Prime and Prius c. The list is notable in that it considers a variety of criteria when determining the greenest cars, including the car's emissions, emissions from the electric grid on which it charges, and energy necessary to build and dispose of the car.

[5] *The Prius Eco is an available trim level within the Prius model line. This trim option offers customers even better fuel efficiency than other Prius trims thanks to lighter weight and further optimized aerodynamics.*

The Toyota Mirai eco-billboard campaign was launched during April and May 2017 in coordination with Clear Channel Outdoor Americas. Thirty-seven billboards in Los Angeles and San Francisco created 24,960 square feet of pollution scrubbing surface and reversed the equivalent of 5,285 vehicles worth of nitrogen dioxide (NOx) emissions per month. NOx is a key ingredient in acid rain and smog. This "catalytic converter" of billboards uses a titanium dioxide coated vinyl to purify the surrounding air. When oxygen reacts with the energized titanium dioxide catalyst, NOx is converted to nitrate and removed from the air. The light-activated, smog-reducing billboards continue to purify the air as long as light, humidity, airflow and the titanium dioxide coating are present.

BIODIVERSITY

P03 / Endangered, Threatened or Protected Species on or Near Toyota Sites

Toyota Site	Endangered, Threatened, or Protected Species	Law/Regulation	Activities
All TMNA sites in North America	Monarch butterfly	The U.S. Fish & Wildlife Service is legally bound to determine whether to protect monarchs under the Endangered Species Act. A decision will be made by June 2019.	See Protecting Species/Polllinator Species/Monarch Butterflies
Manufacturing plant in Baja California, Tecate (Mexico)	• Ceanothus verrucosus (a medicinal shrub) • Crotalus ruber (a native rattlesnake) • Linx rufus (bobcat) • Lepus californicus (black tailed jackrabbit) • Ferocactus gracilis (fire barrel cactus)	Protected by Mexico's Ministry of Environment and Natural Resources (SEMARNAT) under NOM-059-SEMARNAT - 2010	These species are found on 143 acres of the site's property that are protected as a wildlife preserve.
Manufacturing plants in Cambridge and Woodstock, Ontario (Canada)	Tree Swallow	Protected by the Migratory Birds Convention Act	See Protecting Species/Native Species
Engine plant in Huntsville, Alabama	Alabama cave shrimp	Protected by the U.S. Endangered Species Act	Cave shrimp are found in an area of the site that is not disturbed by site operations or activities.
Assembly and unit plant in Georgetown, Kentucky	Short's Goldenrod, Running Buffalo Clover, Indiana Bat	Protected by the U.S. Endagered Species Act	Planted Short's Goldenrod along a one-mile nature trail onsite
Vehicle logistics site at the Port of Portland, Oregon	Coho Salmon	Protected by the U.S. Endangered Species Act	Salmon Safe certified; site maintains a bioswale and storm water pollution prevention program; team members participate in annual cleanup of the Willamette River

ABOUT THIS CHART: As sites apply for certification with the Wildlife Habitat Council, they work with a WHC biologist to take an inventory of species onsite. This inventory includes any species listed by federal law as endangered or threatened. In addition to the 12 WHC certified sites, we have begun to inventory other manufacturing and logistics sites. As we gather this information, it will be used to inform our biodiversity strategy and project selection.

P04 / Toyota Sites in or Near a Protected Area, Critical Habitat or Biodiversity Hotspot

Site Name	Location	Type of Operation	Protected Area, Critical Habitat and/or Biodiversity Hotspot
TMMBC	Baja California, Tacate, Mexico	Manufacturing	Hotspot: California Floristic Province; Protected area: Wildlife Preserve
TMMC	Cambridge and Woodstock, Ontario, Canada	Manufacturing	Protected Area: Vansittart Woods wetlands
TABC	Long Beach, California		Hotspot: California Floristic Province
TLS Long Beach	Port of Long Beach, California	Vehicle logistics	Hotspot: California Floristic Province
San Ramon Regional Office and Parts Distribution Center	San Ramon, California	Parts logistics	Hotspot: California Floristic Province
North American Parts Center California	Ontario, California	Parts logistics	Hotspot: California Floristic Province
TLS Portland	Port of Portland, Oregon	Vehicle logistics	Critical Habitat for Soho Salmon
TAPG	Phoenix, Arizona	Proving ground	Critical Habitat for Yellow-billed Cuckoo

ABOUT THIS CHART: TMNA has begun an analysis to determine whether sites are located in a protected area, critical habitat or biodiversity hotspot (see below for definitions of these terms). We started with our largest facilities, those that have Conservation Certification from the Wildlife Habitat Council, and those undergoing major renovations. In the table above, we only include the sites located in these areas. We will be analyzing additional sites going forward and the information will be used to inform our biodiversity strategy and project selection.

A **Protected Area** is defined as a geographic area that is designated, regulated or managed to achieve specific conservation objectives. (GRI Standards Glossary 2016)

Critical Habitat is a term defined and used in the Endangered Species Act. It is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery.

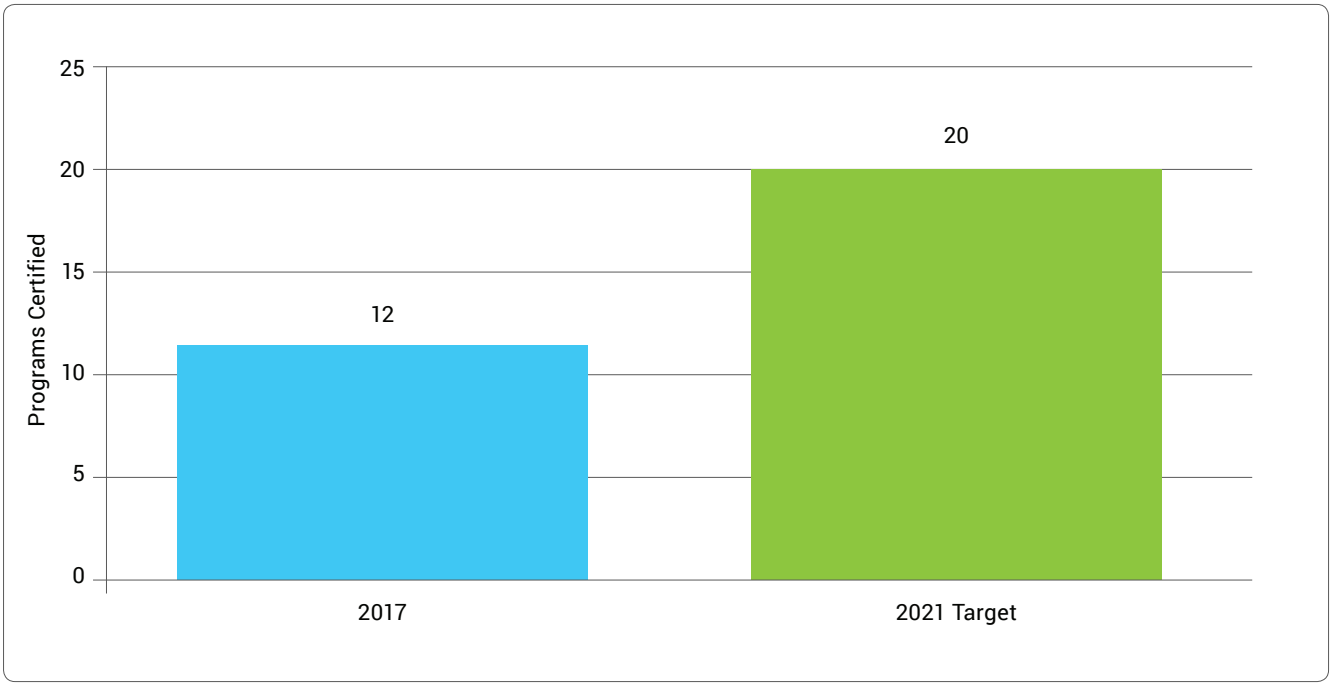
A **Biodiversity Hotspot** is defined as an area that meets two criteria:

- It must have at least 1,500 vascular plants as endemics — which is to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable.
- It must have 30 percent or less of its original natural vegetation. In other words, it must be threatened.

Around the world, 36 areas qualify as biodiversity hotspots. They represent just 2.3 percent of Earth's land surface, but they support more than half of the world's plant species as endemics — i.e., species found no place else — and nearly 43 percent of bird, mammal, reptile and amphibian species as endemics.

Critical Ecosystem Partnership Fund (CEPF) maintains a list of hotspots by region. CEPF is a joint initiative of l'Agence Française de Développement, Conservation International, the European Union, the Global Environment Facility, the Government of Japan, the MacArthur Foundation and the World Bank.

P05 / Wildlife Habitat Council Conservation Certifications



ABOUT THIS CHART: This target is based on a calendar year. As of the end of 2017, Toyota has 12 WHC Conservation Certifications (certification tier is in parentheses):

- Toyota Motor Manufacturing, Kentucky — certified since 2008 (Gold)
- Toyota Motor Manufacturing Canada, Cambridge plant — certified since 2017 (Certified)*
- Toyota Motor Manufacturing Canada, Woodstock plant— certified since 2012 (Gold)
- Toyota Motor Manufacturing, Indiana — certified since 2013 (Silver)
- Toyota Motor Manufacturing, Alabama — certified since 2014 (Gold)
- Toyota Motor Manufacturing, Mississippi — certified since 2014 (Gold)
- Toyota Motor Manufacturing, Texas – certified since 2015 (Certified)
- Bodine Aluminum, Jackson, Tennessee – certified since 2015 (Certified)
- Bodine Aluminum, Troy, Missouri – certified since 2016 (Certified)
- Toyota Motor Manufacturing, West Virginia – certified since 2016 (Gold)
- Toyota Arizona Proving Grounds, Phoenix, Arizona – certified in 2017 (Silver)
- Toyota Technical Center, York, Michigan – certified in 2017 (Silver)

*Toyota's Cambridge and Woodstock plants were first certified as a single program in 2012. The programs have since separated, and Cambridge obtained its own certification in 2017.

CARBON

VEHICLE CO_2 EMISSIONS

Our efforts to improve fuel economy and reduce GHGs have become more aggressive with the adoption in the United States of new fuel economy and GHG emissions standards for passenger cars and light trucks through the 2025 model year. By 2016, the new vehicle fleet was required to meet a GHG standard of 250 grams of CO_2 per mile by 2016, equivalent to a Corporate Average Fuel Economy (CAFE) standard of 35.5 miles per gallon (mpg); by 2025, cars and light trucks are required to meet a GHG standard of 163 grams of CO_2 per mile, equivalent to 54.5 mpg. While overall compliance is based on a fleet average, each vehicle has a fuel economy/GHG target based on its footprint.

One significant challenge to meeting these standards is having technology options available that consumers are willing to purchase in sufficient quantities. Low fuel prices have recently added to this challenge. When the standards through the 2025 model year were set in 2012, it was impossible to predict market outcomes so far into the future, since preferences are largely determined by factors such as fuel price, economic conditions and infrastructure development — most of which are beyond an auto manufacturer's control. As such, the regulations call for a feasibility evaluation of the 2022-2025 standards, which is underway. Toyota is collaborating with the relevant government agencies to ensure the regulations are aligned with technology and market realities while achieving the program's environmental goals.

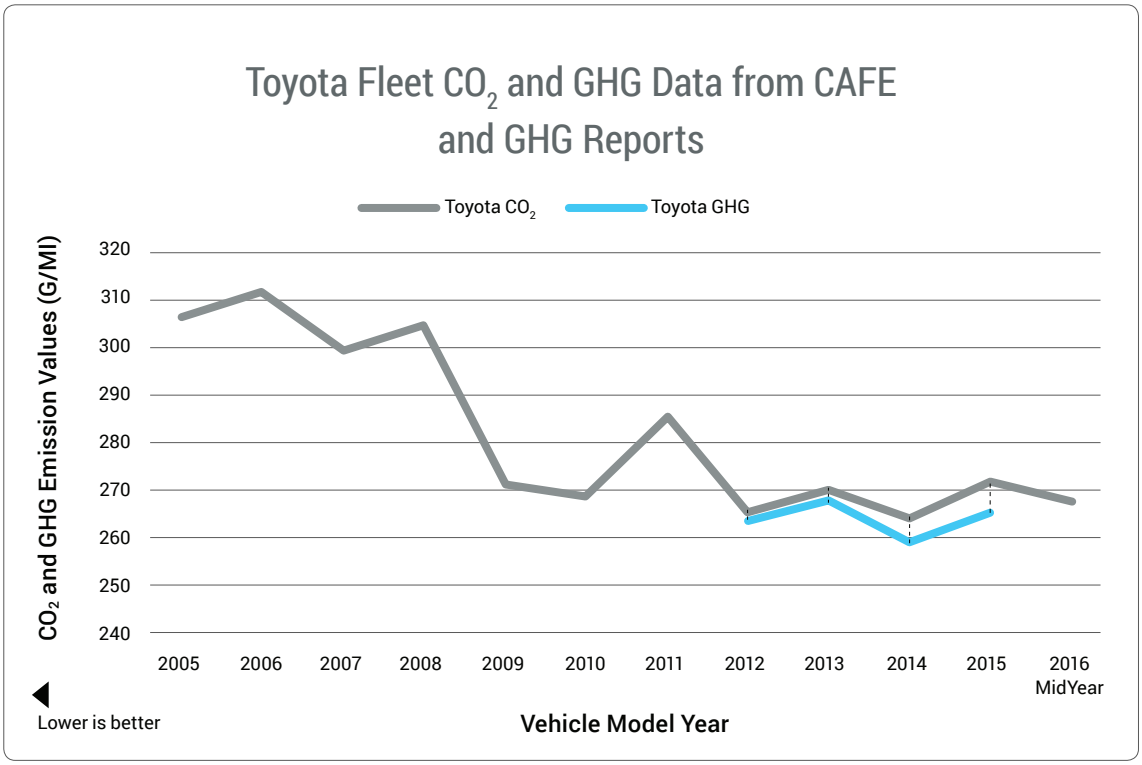
In Canada, Toyota supports alignment with the United States for setting vehicle emissions standards. The Canadian federal government introduced a GHG emissions regulation under the Canadian Environmental Protection Act for the 2011-2016 model years, and in October of 2014 issued final GHG regulations for the 2017-2025 model years.

In Mexico, the government has modeled vehicle GHG standards after U.S. requirements. The standards require automakers to meet a single sales-weighted fleet average over the period 2014 through 2016, and allow credits generated in 2012 and 2013 to be used toward compliance. These standards have been appropriately tailored to the unique driving conditions and product mix associated with the Mexican market and contain similar compliance flexibilities and lead time as those offered in the United States.

Many of our hybrid products are already capable of meeting their respective future targets for fuel economy and GHG standards in all three countries. But there is still a sense of urgency as states like California seek to accelerate the number of zero emission vehicles on the road to meet its ZEV requirements.

Toyota achieved the required U.S. Corporate Average Fuel Economy (CAFE) standards and met the required vehicle GHG standards in the United States, Canada and Mexico. See Figures P6-8 for Toyota fleet performance in the U.S., Canada and Mexico. We report up to model year 2016, because model year 2017 had not yet ended at the time this report was published.

P06 /



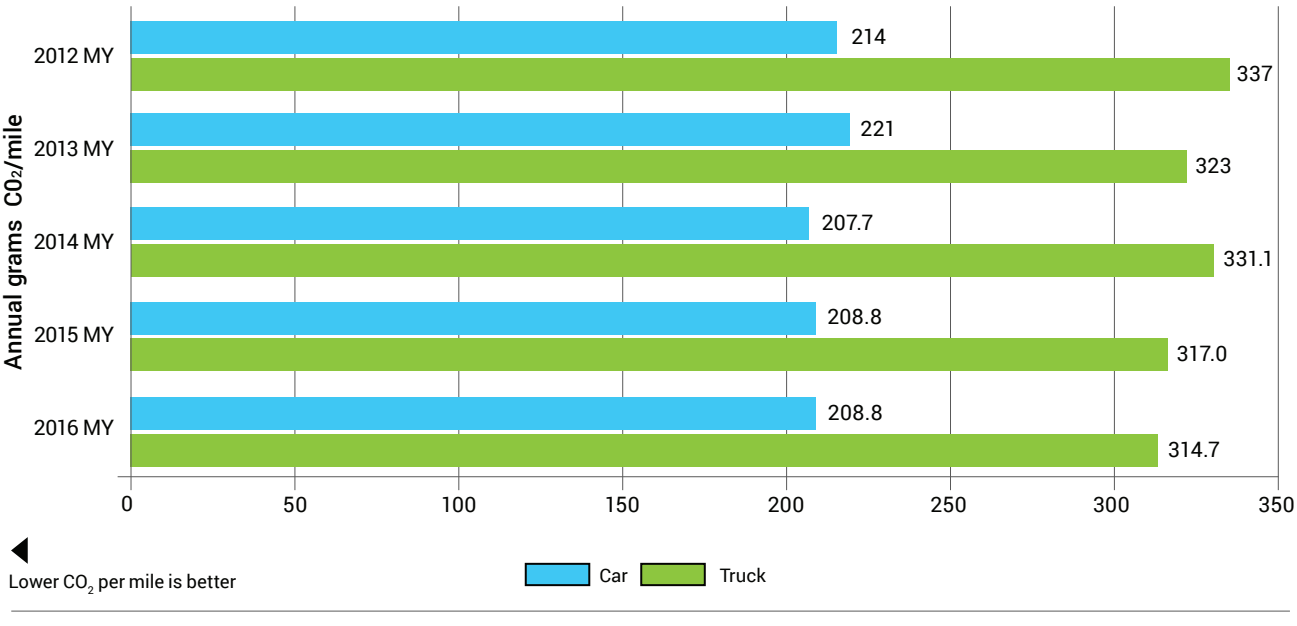
ABOUT THIS CHART: The performance of the U.S. vehicle fleet is being shown in two ways. The grey line shows Toyota's fleet-wide CAFE fuel economy presented in terms of grams of CO_2 per mile. This measure of performance, shown in previous Toyota North American Environmental Reports, only reflects GHG emissions reductions measured at the tailpipe during the official government test procedure.

The blue line is new for this year's report and depicts a broader view of GHG performance that entails provisions in the U.S. EPA GHG program (starting with the 2012 model year). The annual GHG compliance values account for real-world GHG benefits from off-cycle technologies, such as air conditioning and aerodynamic improvements not observed over the official testing conditions.

Showing both values provides a transparent way of looking at Toyota's historical fleet performance as we continue to pursue both GHG reductions and fuel economy improvements under both the GHG and CAFE programs.

For more information about the U.S. National Highway Traffic Safety Administration (NHTSA) Corporate Average Fuel Economy (CAFE) program, see https://one.nhtsa.gov/cafe_pic/CAFE_PIC_fleet_LIVE.html. For more information about the U.S. EPA GHG program, see https://www.epa.gov/regulations-emissions-vehicles-and-engines.

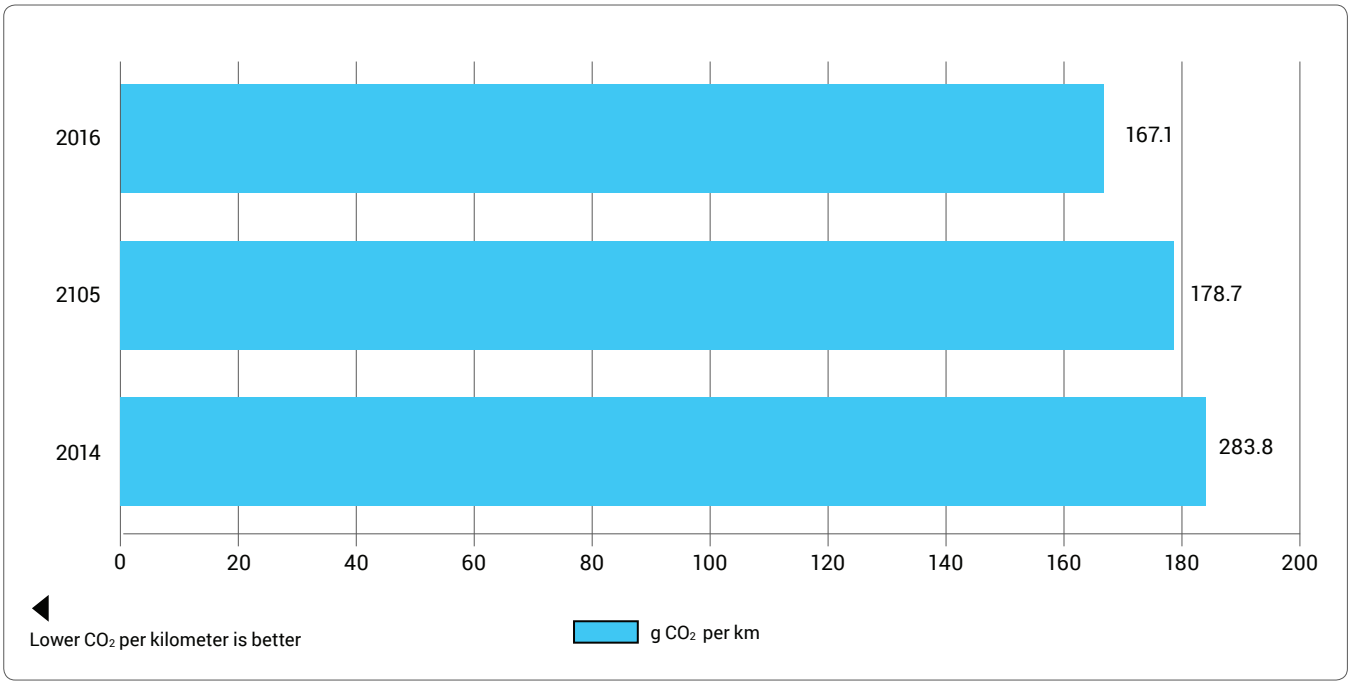
P07 / Annual CO_2 per Mile*, Toyota Canada Fleet



*Based on CO_2 emissions data reported to Environment and Climate Change Canada

ABOUT THIS CHART: In Canada, Toyota supports alignment with the United States for setting vehicle emissions standards. The Canadian federal government introduced a GHG emissions regulation under the Canadian Environmental Protection Act for the 2011-2016 model years, and in October of 2014 issued final GHG emissions regulations for the 2017-2025 model years. Toyota met the required vehicle CO_2 standards in Canada for the 2016 model year.

P08 / Annual CO_2 per Kilometer, Toyota Mexico Fleet



ABOUT THIS CHART: In Mexico, the government has modeled vehicle GHG standards after U.S. requirements. The standards require automakers to meet a single sales weighted fleet average over the period 2014 through 2016, and allow credits generated in 2012 and 2013 to be used toward compliance. These standards have been appropriately tailored to the unique driving conditions and product mix associated with the Mexican market and contain similar compliance flexibilities and lead time as those offered in the United States. Toyota continues to be in compliance with these standards.

FUEL ECONOMY AWARDS

Toyota offers several models that achieved best-in-class fuel economy ratings in 2017. For example:

- Toyota Prius Two Eco was named the Best New Hybrid by *Good Housekeeping* in its February 2017 issue. The Good Housekeeping Institute worked with *Car and Driver* to screen more than 100 new vehicles. After driving 1,200 miles on test tracks and open roads, engineers from the GHI Labs and consumer testers rated cars on value, safety, smoothness, handling, interior design and comfort, and onboard technology.
- The Automobile Journalist Association of Canada named Prius Canada's Green Car of the Year and RAV4 Hybrid Canada's Green Utility Vehicle of the Year. This is the first time the same manufacturer has won both categories.
- Natural Resources Canada (NRCan) named five Toyota/Lexus vehicles as best-in-class for fuel efficiency for the 2017 model year. Best-in-class vehicles have the lowest combined fuel consumption rating, based on 55 percent city and 45 percent highway driving. For each class, the most fuel-efficient conventional vehicle and the most efficient advanced technology vehicle (where applicable) are recognized. Five Toyota and Lexus vehicles were awarded by NRCan for the lowest estimated annual fuel use in their respective classes:
  - Toyota Prius *c* (Compact car)
  - Toyota Prius (Mid-size car)
  - Toyota Prius *v* (Mid-size station wagon)
  - Toyota RAV4 Hybrid AWD (Small SUV)
  - Lexus RX 450h AWD (Standard SUV)

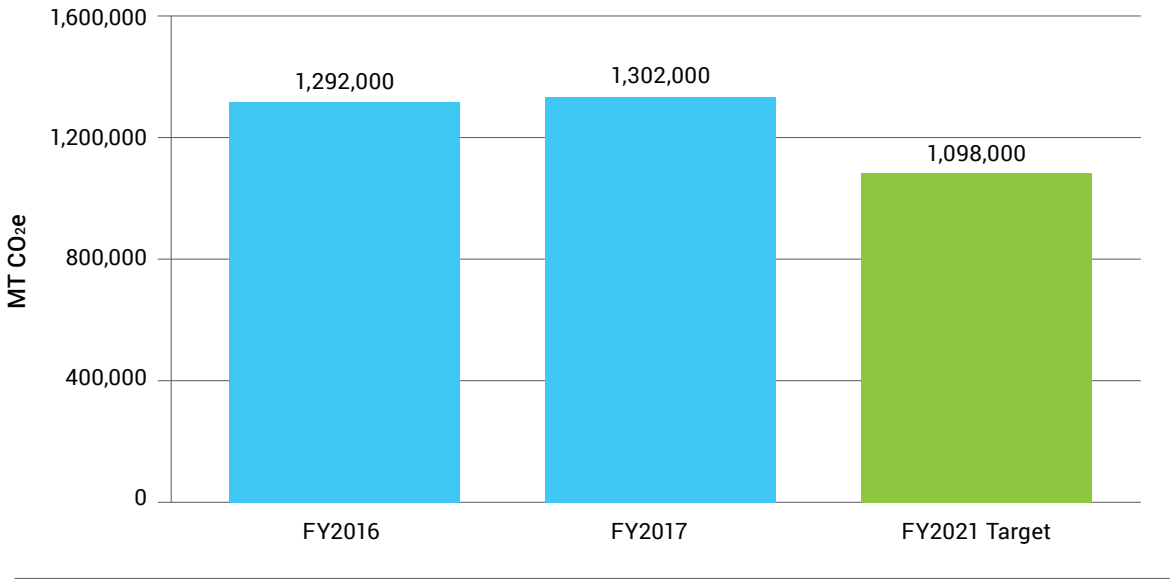
  This marked the 17th year in a row that a vehicle from the Prius Family was named to the list, including the Prius v leading the way in each of the five years it has been on the market. In fact, for the third year, every Prius hybrid model won its respective category.

GREENHOUSE GAS EMISSIONS

Three of Toyota's U.S. manufacturing plants are required to report GHG emissions data under U.S. EPA's Greenhouse Gas Reporting Program. Individual plant data for our plants in Kentucky, Texas and Indiana are available on EPA's website through its online data publication tool.

In Canada, Toyota Motor Manufacturing Canada (TMMC) and CAPTIN are required to report GHG emissions data. TMMC's Cambridge plant is required to report under Environment Canada's Greenhouse Gas Emissions Reporting Program; both the Cambridge and Woodstock plants are required to report GHG emissions to the province of Ontario under its Environmental Protection Act. CAPTIN is required to report GHG emissions to the province of British Columbia under its Greenhouse Gas Reduction Act.

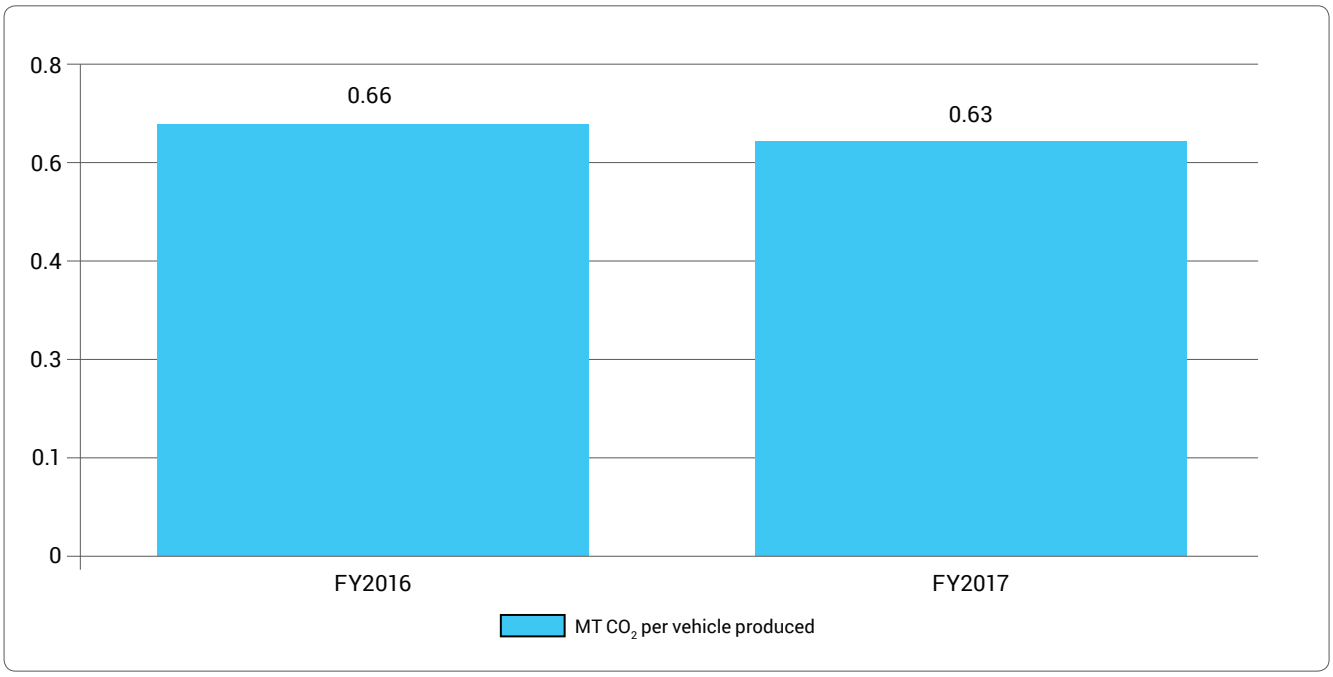
P09 / GHG Emissions from Toyota's North American Operations



* Includes Scope 1 and Scope 2 GHG emissions from all Toyota Motor North America operations, including manufacturing, logistics and offices.

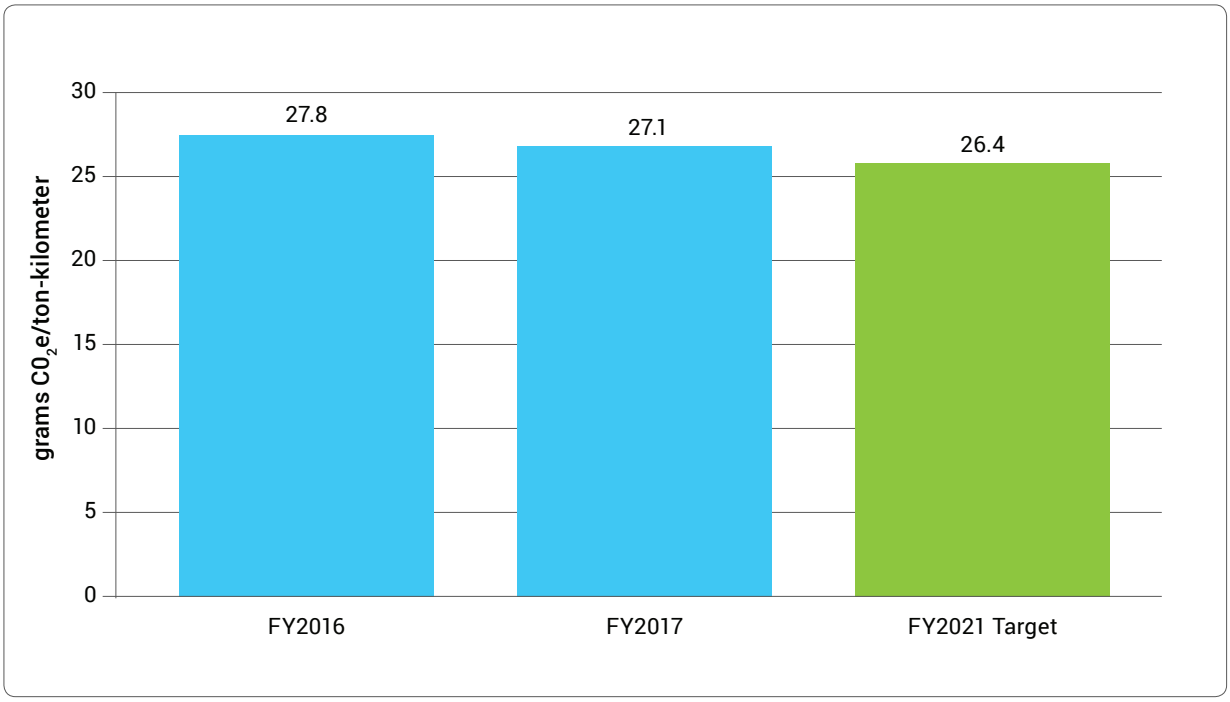
ABOUT THIS CHART: Scope 1 and 2 greenhouse gas emissions increased between fiscal years 2016 and 2017. We recently finished developing a GHG reduction plan for our sites that includes both GHG and energy efficiency projects and renewable energy projects. Once these projects come online, we expect to see significant decreases in total emissions.

P10 / GHG Emissions Per Vehicle Produced



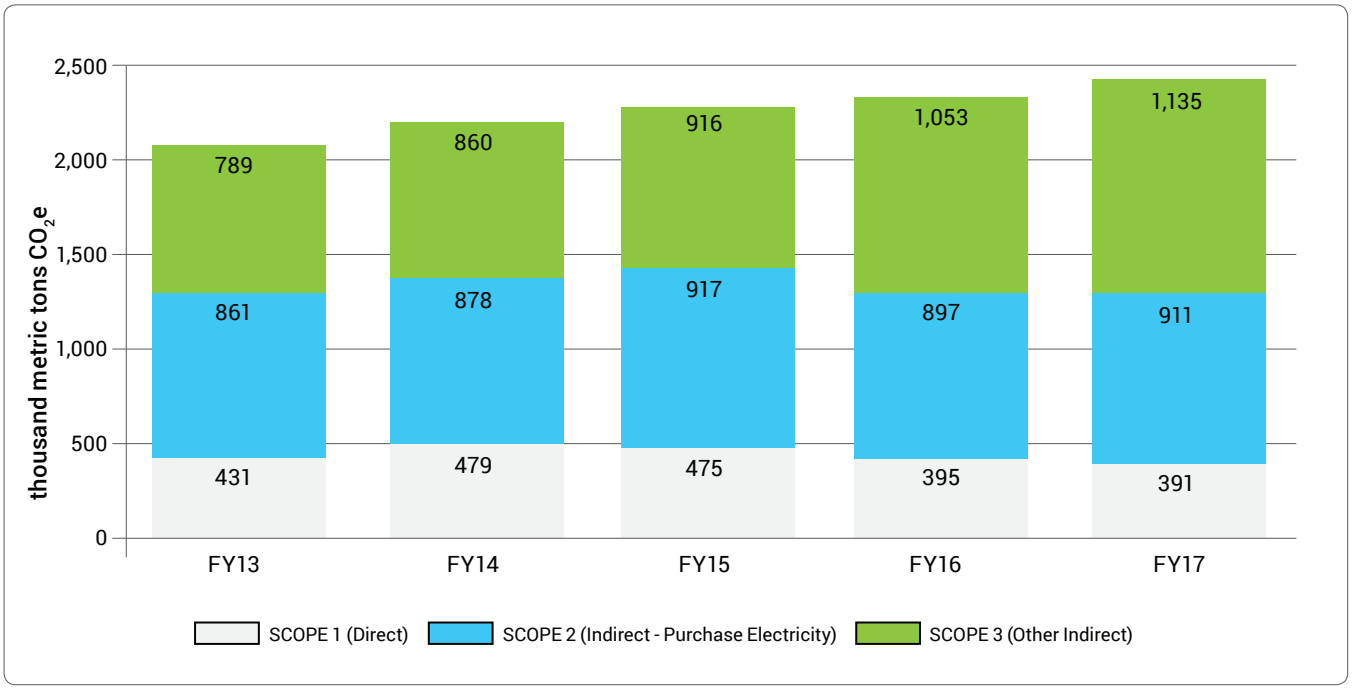
ABOUT THIS CHART: Data in this chart includes Scope 1 and Scope 2 GHG emissions from all North American sites, including manufacturing, logistics, sales and R&D. Scope 1 and 2 GHG emissions per vehicle produced decreased by 4.5 percent in fiscal year 2017, compared to the previous year.

P11 / GHG Intensity from U.S. Vehicle Logistics (owned)



ABOUT THIS CHART: For fiscal year 2017, we report GHG intensity from owned U.S. vehicle logistics, which reduced GHG intensity by more than 2 percent from the previous year. We expect to report performance from all logistics operations next year. We are establishing a data collection process aligned with the reorganization and consolidation of functions at our new headquarters campus in Plano, Texas.

P12 / North American Greenhouse Gas Inventory



ABOUT THIS CHART: Each year we prepare an inventory of greenhouse gas (GHG) emissions from Toyota's North American companies. The methodology used to calculate emissions is based on The GHG Protocol® developed by the World Resources Institute and the World Business Council for Sustainable Development. The process of preparing this consolidated inventory has helped us better understand where GHG emissions occur and has facilitated information sharing across Toyota's North American companies.

The inventory measures GHG emissions from Scopes 1, 2 and 3, as defined by The GHG Protocol:

- Scope 1 includes emissions from the consumption of natural gas as well as fuel consumption by in-house trucking operations.
- Scope 2 includes emissions from the consumption of purchased electricity.
- Scope 3 includes emissions from fuel consumed by third-party carriers, team member commuting and business travel. These are emissions, which Toyota has influence over but does not directly control.

(Our Scope 3 emissions do not include emissions from the use of our sold vehicles. For information on our vehicle carbon footprint please see Vehicle CO_2 Emissions.)

COMPLIANCE

P13 / Environmental Compliance

	Significant Environmental Violations
FY13	0
FY14	0
FY15	0
FY16	0
FY17	0

ABOUT THIS CHART: Many of our activities in vehicle development, manufacturing and logistics are subject to local, state, provincial and federal laws that regulate chemical management, air emissions, water discharges, storm water management, greenhouse gas emissions, and waste treatment and disposal. These regulations vary by facility based on the type of equipment we operate and the functions performed.

Toyota reports significant environmental violations – those resulting in fines of $5,000 or more and in an impact to the environment (we do not report administrative violations). In fiscal year 2017, our North American manufacturing plants and logistics sites had zero significant environmental regulatory violations.

DEALERS

P14 / Toyota/Lexus LEED® Dealerships

	Toyota	Lexus
Platinum	4	
Gold	20	4
Silver	14	2
Certified	10	4
Total	**48**	**10**

*As of July 2017, 51 Toyota and Lexus dealerships in the U.S, 6 in Canada and 1 in Mexico have been certified to LEED®.

ABOUT THIS CHART: Toyota and Lexus continue to lead the industry with more LEED® certified dealership facilities in North America than any other auto manufacturer. As of July 2017, we have assisted 58 Toyota and Lexus dealerships with LEED® certification: 42 Toyota and 9 Lexus dealerships in the U.S and 5 Toyota and 1 Lexus dealership in Canada, and 1 Toyota dealership in Mexico. (Beaverton Toyota in Oregon received two separate certifications for the sales building and service center; we counted this dealership only once).

Several more dealerships have completed construction and are waiting for their ratings to be decided. Many more are under construction or in the design and permitting phase and have registered their intent to pursue LEED®.

LEED®, or Leadership in Energy and Environmental Design, is a point based system administered by the U.S. and Canadian Green Building Councils promoting a whole building approach to sustainable construction and remodeling. LEED® certification is based on meeting stringent evaluations in sustainable site development, water savings, energy efficiency, materials selection and indoor air quality.

ENVIRONMENTAL MANAGEMENT SYSTEMS

P15 / ISO 14001 Certifications of Toyota's North American Facilities

	Location	Original Certification Date
Manufacturing Plants	Huntsville, Alabama	2005
	Long Beach, California	1998
	Princeton, Indiana	1999
	Georgetown, Kentucky	1998
	St. Louis, Missouri	1998
	Troy, Missouri	1998
	Blue Springs, Mississippi	2012
	Jackson, Tennessee	2007
	San Antonio, Texas	2008
	Buffalo, West Virginia	2000
	Woodstock, Ontario	2009
	Cambridge, Ontario	1998
	Delta, British Columbia	1997
	Baja California, Mexico	2006
Vehicle Distribution Centers	Toronto, Ontario	2002
	Montreal, Quebec	2003
Parts Distribution Center	Toronto, Ontario	2001
	Vancouver, British Columbia	2002
Sales and Regional Offices	Canadian Sales Headquarters in Toronto, Ontario	2001
	Pacific Regional Office and TFS	2002
	Quebec Regional Office and TFS	2005
	Prairie Regional Office and TFS	2008
	Atlantic Regional Office and TFS	2006

ABOUT THIS CHART: Environmental management systems are an essential part of Toyota's overall effort to minimize risks and achieve leading levels of environmental performance. Each Toyota location has an environmental management system (EMS) that identifies the significant environmental aspects and impacts of its operations and sets corresponding controls, goals and targets to manage and reduce these impacts over time. The facilities listed in the chart have been third-party certified to the ISO 14001 standard, the International Organization for Standardization's standard for designing and implementing an effective environmental management system.

GREEN BUILDING

P16 / Toyota's North American Facilities With LEED® Certifications

TOYOTA FACILITY	LOCATION	YEAR	CERTIFICATION LEVEL
Toyota Motor North America Headquarters	Plano, Texas	2017	NC Platinum
Chicago Service Training Center	Aurora, Illinois	2015	NC Gold
Lexus Eastern Area Office	Parsippany, New Jersey	2014	CI Platinum
Toyota Kansas City Training Center	Kansas City, Missouri	2012	NC Gold
Toyota Inland Empire Training Center	Rancho Cucamonga, California	2010	CI Gold
Toyota Technical Center	York Township, Michigan	2010	NC Gold
Toyota Racing Development North Carolina	Salisbury, North Carolina	2010	NC Certified
Lexus Florida Training Center	Miramar, Florida	2009	CI Gold
Toyota Phoenix Training Center	Phoenix, Arizona	2009	CI Silver
North America Production Support Center	Georgetown, Kentucky	2006	CI Silver
Toyota Motor North America, Inc.	Washington, D.C.	2016	CI Silver
Portland Vehicle Distribution Center	Portland, Oregon	2004	NC Gold
Toyota Motor Sales - South Campus	Torrance, California	2003	NC Gold

NC = New Construction
CI = Commercial Interiors

ABOUT THIS CHART: A total of 13 Toyota and Lexus facilities have achieved Leadership in Energy and Environmental Design (LEED®) certification. LEED® is a point-based system administered by the U.S. and Canadian Green Building Councils promoting a whole-building approach to sustainable construction and remodeling. LEED® certification is based on meeting stringent evaluations in sustainable site development, water savings, energy efficiency, materials selection and indoor air quality. Ranging from office space to vehicle distribution centers, these facilities represent Toyota's continued efforts to improve the design and efficiency of all operations.

Toyota Motor North America's (TMNA's) new headquarters campus in Plano, Texas, was awarded LEED® Platinum certification by the U.S. Green Building Council in September 2017. TMNA CEO Jim Lentz (right) received the LEED® Platinum plaque from Jonathan Kraatz (left), executive director of the U.S. Green Building Council's Dallas chapter.

MATERIALS

WASTE

P17 / Total Waste (Pounds)

	2015	2016
Regulated Waste*		
Recycled/Reused Regulated Waste	13,494,000	4,570,000
Waste to Energy or Fuels Blending	11,183,000	7,247,000
Incineration	0	0
Landfill	48,000	692,000
Non-Regulated Waste		
Composted	1,088,000	831,000
Recycled Scrap Steel from Mfg Plants	659,718,000	678,593,000
Other Recycled/Reused	79,267,000	87,805,000
Waste to Energy or Fuels Blending	26,574,000	33,933,000
Incineration	0	0
Landfill	7,602,000	8,081,000
TOTAL WASTE GENERATED	798,974,000	822,112,000

*Regulated waste includes hazardous, universal and special wastes regulated at the federal, state, provincial or local level. Non-regulated waste is all other waste.

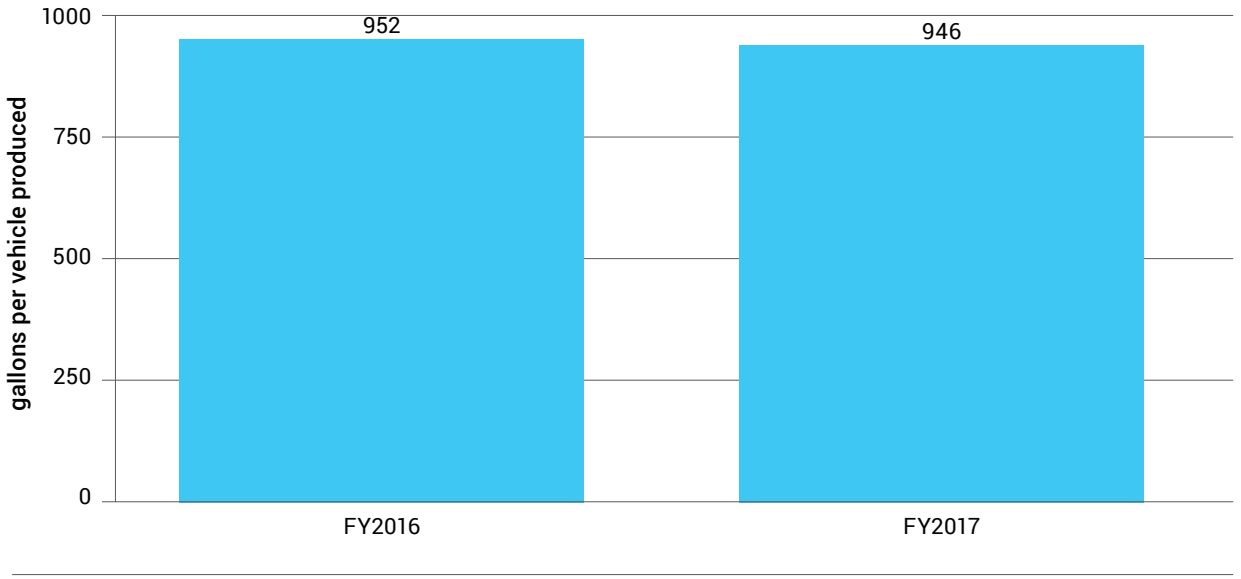
Scope = Toyota's North American manufacturing, sales and logistics sites in the U.S., Canada and Puerto Rico. Data from R&D sites and Mexico will be included in future years.

ABOUT THIS CHART: Total waste generated by Toyota's North American operations increased by 3 percent between calendar years 2015 and 2016 due to an increase in production and the relocation of team members from Torrance, California, and Erlanger, Kentucky, to the new campuses in Plano, Texas; York, Michigan; and Georgetown, Kentucky.

Waste data is collected on a calendar year basis to align with U.S. EPA's WasteWise program. While we did not participate in WasteWise in 2016, we plan to again in the future, once all of our data reporting systems are consolidated across the new organization.

WATER

P18 / Water Withdrawal per Vehicle Produced



*Includes water withdrawals from all Toyota Motor North America's operations, including manufacturing, logistics and offices. Water withdrawal sources include public utilities, groundwater wells, surface water bodies and rainwater.

ABOUT THIS CHART: The amount of water we used to produce a vehicle decreased by 1 percent, from 952 gallons per vehicle in fiscal year 2016 to 946 gallons in 2017.

During fiscal year 2017, Toyota withdrew 1.95 billion gallons of water at more than 85 North American facilities, including assembly and unit plants, parts and vehicle distribution centers, R&D sites and offices. More than 99 percent of this water came from municipal sources (both fresh and recycled water from utilities); other sources included surface water bodies, ground water and rainwater.