TRANSPORTATION RESEARCH CENTER INC.

2014 Annual Report
Transportation Research Center Inc. (TRC Inc.) independently manages a transportation research and testing facility serving the needs of industries, governments, trade associations, and educational organizations worldwide. Transportation Research Center (the Center) is located near East Liberty, Ohio, approximately 40 miles northwest of Columbus. Because much of TRC Inc.'s work is proprietary, many projects are described in general terms. However, the information presented on the following pages will provide the extent of TRC Inc.'s capabilities.

History

The Center was developed by the State of Ohio as a transportation research and development proving ground with the purpose of encouraging motor vehicle research and development activities in Ohio. The Center began testing in 1974. In 1979, the State of Ohio's Transportation Research Board entered into a management agreement with The Ohio State University's (University) College of Engineering to oversee the operations of the Center. In 1987, the Center was sold as part of an economic inducement to Honda of America Manufacturing, Inc. to build an automobile plant in Ohio. In order to ensure that the business of the Center could be preserved without violating the confidentiality of the Center’s customers, the University established Transportation Research Center Inc., a non-profit corporation. TRC Inc. is governed by a Board of Directors chaired by the University's Dean of the College of Engineering.

Mission Statement

As a global independent provider of development, research and testing, TRC Inc. serves the mobility industry with a world-class facility, high-quality services and innovative solutions through collaboration and partnerships with academia, industry and government, while satisfying stakeholder expectations.

Vision

To be the global leader in mobility development, research and testing solutions.

Quality

We will strive to meet or exceed customer expectations.

Environmental

We will strive to protect the environment and assure safe and healthful working conditions.

Equal Employment Opportunity

It is the policy of TRC Inc. to provide equal opportunity in all areas of employment practices, without regard to race, color, religion, national origin, sex, age, disability, veteran status, or any other reason prohibited by law.
I am pleased to present, on behalf of our staff, the Annual Report for Transportation Research Center Inc. (TRC Inc.) for Fiscal Year ended June 30, 2014.

After 37 years of service at TRC Inc., and the last 22 years as President, Rick Gildow retired on June 30, 2014. Rick provided consistent leadership over the years, developing TRC into a world-class facility, while maintaining the vision for TRC Inc. We will miss Rick and wish him well in retirement.

The Board of Directors and the College of Engineering are conducting a search for a presidential replacement. In the interim, the Board has requested that I serve as President until a permanent replacement is found.

As the search for a new president continues, progress at TRC Inc. will not be at a standstill. Next year will mark TRC Inc.’s 40th year of providing vehicular testing services. Our vision is to be the global leader in mobility development research and testing solutions.

There is a need to review, improve and expand our service offerings and strengthen our relationships with our customers and the University. We will accomplish this through an examination of our operations and our customers’ needs, while continuing to provide high-quality, error-free technical services in a timely fashion.

While the automotive industry has had impressive sales numbers the past few years as manufacturers continue to release record numbers of new models and refresh older models, the U.S. economy has been slow to fully recover from the results of the Great Recession. However, a focus on operations and consistent cost controls at TRC has resulted in an improved bottom line for TRC Inc. in FY 2014, with revenue from all sources at $37.8 million.

This past year TRC Inc. renewed two industry sponsorships. The Automotive News PACE™ Awards program recognizes automotive suppliers for excellence and innovation and allows us to strengthen our relationship with our customers by providing opportunities to improve their products and technologies. Our sponsorship of EcoCAR 3, a four-year Department of Energy student competition, enables us to host an emissions testing event, judge student presentations, and help educate the next generation of automotive engineers.

We continue to maintain a strong relationship with The Ohio State University through transfers to the University Endowment Portfolio to support transportation research in the College of Engineering. TRC Inc. will also provide assistance to numerous student engineering projects, such as the Buckeye Bullet, EcoCAR, electric motorcycle and Formula SAE. We also will continue to maintain consortium memberships in the OSU Center for Automotive Research, Smart Car Vehicle Concept Center and Center for Child Injury Prevention Research Studies (CChIPS).

I would like to thank the staff of TRC Inc. for their hard work and dedication over the past year. Additionally, I would like to recognize the Board of Directors for their guidance as TRC Inc. moves forward into its 40th year.

Jeffrey A. Sprague

Statement of Revenue & Expenses

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Operating Revenue</td>
<td>$37,843,270</td>
</tr>
<tr>
<td>Total Operating Expense</td>
<td>$36,445,986</td>
</tr>
<tr>
<td>Non-Operating Revenue / (Expense)</td>
<td>$132,723</td>
</tr>
<tr>
<td>Net Change in Fair Value of Assets</td>
<td>$385,388</td>
</tr>
<tr>
<td>Change in Net Assets</td>
<td>$1,915,395</td>
</tr>
</tbody>
</table>

Statement of Net Assets

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Assets</td>
<td>$14,064,556</td>
</tr>
<tr>
<td>Net Property &amp; Equipment</td>
<td>$429,034</td>
</tr>
<tr>
<td>Total Assets</td>
<td>$14,493,590</td>
</tr>
<tr>
<td>Total Liabilities</td>
<td>$4,095,352</td>
</tr>
</tbody>
</table>

Net Assets

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Assets at July 1, 2013</td>
<td>$8,693,771</td>
</tr>
<tr>
<td>Fiscal Year 2014 Change in Net Assets</td>
<td>$1,915,395</td>
</tr>
<tr>
<td>Transfer to Transportation Research Fund</td>
<td>$(210,928)</td>
</tr>
<tr>
<td>Net Assets at June 30, 2014</td>
<td>$10,398,238</td>
</tr>
<tr>
<td>Total Liabilities &amp; Net Assets</td>
<td>$14,493,590</td>
</tr>
</tbody>
</table>
Timeline of TRC facilities
Introduction

Over the past 40 years, Transportation Research Center Inc. (TRC Inc.) has gained a reputation as the world’s leading provider of vehicular testing services. This reputation has been maintained, not only because of the quality of the services offered, but also because the challenges that each year brings are viewed as new and exciting opportunities for growth.

Since Transportation Research Center (the Center) began operations in 1974, new programs have been developed for customers in the areas of collision avoidance, energy absorption, fuel economy, emissions, durability, performance, noise, crash simulation, and crashworthiness (please refer to the timeline presented below for an overview of our progress). Test programs evaluate the performance of passenger cars, trucks, airplanes, tracked vehicles, off-road vehicles, recreational vehicles, buses, motorcycles, electric vehicles, and automotive components. TRC Inc. schedules and monitors all facilities, with primary importance placed on the safety and security of each customer.

TRC Inc. is continually improving and adapting to meet changing customer needs. To enhance the Center and TRC Inc.’s overall service offerings, new facilities have been designed to assist customers in developing safe and marketable products. To complement our new facilities, TRC Inc. is ISO 9001 and 14001 registered, and maintains a 17025 accreditation. These registrations and accreditations demonstrate TRC Inc.’s commitment to customers. We will continue to measure and improve the quality of the services we provide.

The following pages of this report are dedicated to describing each of TRC Inc.’s primary business areas - Durability and Dynamics Operations, Laboratory Operations, and Contract Services - including a brief review of their activities and accomplishments during the past year.

From 1962 to 2014
Facilities, Equipment, & Operational Changes

Under the terms of our Management Agreement, Transportation Research Center Inc. (TRC Inc.) exclusively schedules the facilities and equipment of Transportation Research Center (the Center). In addition, TRC Inc. maintains the facilities and buildings, which include approximately 150 lane miles of improved and unimproved road surfaces and 328,000 square feet of building space. Annual extensive facility upgrades are made through maintenance and repair, procurement of equipment, and facility construction, based on customer survey feedback.

For Fiscal Year 2014 we allocated resources for repairs and upgrades of existing facilities to continue to meet customer demand.

Durability and Dynamics Operations upgrades included installation of a new Water Shock fixture designed to significantly improve water depth accuracy and control. In addition, a new road (Potato Chip Road) was added to the VDA Profile Roads. The uneven concrete surface has been designed to replicate a poorly constructed or failing road surface and is intended to test vehicle suspension systems and provide for noise and vibration testing.

Laboratory Operations received upgrades in both the Impact Laboratory and the Emissions Laboratory. The Impact Laboratory purchased equipment to improve dummy calibration, data acquisition, and camera capabilities. In addition, components of the Crash Test Facility (CTF) electric service were upgraded. Electric service at the CTF has been in service since the original barrier installation. The purpose of the project is to replace the existing CTF lighting system with an updated service in order to improve reliability and to improve safety by replacing manually operated switches with remote operating stations for breaker control. The Emissions Laboratory commissioned a Sealed Housing for Evaporative Determination (SHED), which improves capabilities for automotive evaporative emissions testing. Installation of the VT SHED provides new capabilities that can be marketed to new and existing customers including OEMs, components manufactures, and government labs. Additionally, the Emissions Laboratory purchased a super ultra-low emissions vehicle (SULEV) capable bench with the added capability of N2O to meet the needs of current and upcoming EPA standards.

We will continue to invest in facilities, equipment, and operations to meet the continued needs of our customers.
Durability and Dynamics Operations (DDO) finished FY 2014 2% below budget and 1% behind revenue from Fiscal Year 2013. The majority of DDO testing involves powertrain, rough road, chassis, corrosion, and fuel additives. In addition, we conduct brake, skid truck correlation, and vehicle handling testing to FMVSS, SAE, and ASTM Standards. DDO maintains a 24-hour-a-day, seven-day-a-week operation for rapid, safe mileage accumulation.

The following table represents the percentage of business by industry classification for Fiscal Year 2014:

<table>
<thead>
<tr>
<th>Industry Classification</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Manufacturers</td>
<td>78%</td>
</tr>
<tr>
<td>Component Manufacturers</td>
<td>8%</td>
</tr>
<tr>
<td>Independent Labs</td>
<td>5%</td>
</tr>
<tr>
<td>Fuels &amp; Lubricants</td>
<td>4%</td>
</tr>
<tr>
<td>Government Organizations</td>
<td>3%</td>
</tr>
<tr>
<td>Other</td>
<td>2%</td>
</tr>
</tbody>
</table>

DDO continued to support core customers from government and industry. Significant increases occurred in brake testing, testing of advanced technologies, alternative fuels, and testing for military and foreign manufacturers.

A change in Federal Motor Vehicle Standards (FMVSS) for Motorcycles lead to an increase in motorcycle brake testing for Fiscal Year 2014. This standard change was a result of a concurrence of FMVSS, European safety standards, and Japanese safety standards for motorcycles. The new FMVSS standard added anti-lock brake systems (ABS) testing, which affects all motorcycles equipped with ABS with the rare exception of three-wheeled motorcycles.

The proliferation of advanced technologies in automobiles over the past few years has led to an increase in testing of these new vehicle technologies including, forward collision warning systems, lane departure warning systems, and advanced driver assistance systems. As these new technologies become standard in vehicles, we expect this testing to continue to expand.

TRC Inc. has also supported an increase in non-internal combustion hybrid and range extended vehicles, ranging from cars to large trucks and busses.

Additionally, FY 2014 saw an increase in testing for military vehicles, as well as foreign manufacturers. Military vehicle testing ranged from total vehicle performance to dynamic testing for wheeled and tracked vehicles. Testing for foreign manufacturers was in support of compliance for FMVSS standards to assure the vehicle would meet all applicable safety standards before being offered for sale in the United States.

For FY 2015 DDO will continue to provide independent test services to the mobility industry and testing is expected to remain steady for FY2015.
Laboratory Operations

Laboratory Operations, which increased 40% in revenues for Fiscal Year 2014, consists of both Impact Laboratory Operations and Emissions Laboratory Operations. Impact Laboratory Operations had an increase both in crash testing and sled testing for Fiscal Year 2014. A total of 217 crash tests were conducted, which was an increase of 28% from Fiscal Year 2013. Impact simulation testing on the HYGE sled totaled 131 tests, an increase of 70% from Fiscal Year 2013. Additionally, the Emissions Laboratory Operations conducted a total of 258 tests in Fiscal Year 2014, which was a 9% decrease in testing from Fiscal Year 2013.

The majority of the Impact Laboratory's crash work involved development and certification of automobiles and light trucks to meet occupant protection requirements established by the U.S. Federal and Canadian Motor Vehicle Safety Standards (FMVSS and CMVSS). The Impact Laboratory provided research and development of alternative-powered vehicles, and simulation testing for child safety seat crashworthiness. The majority of the Emissions Laboratory's testing included fuel and fuel additive testing, small engine and vehicle emissions certification, and fuel economy devices and additives.

The following table shows the distribution of business by industry classification for Fiscal Year 2014:

<table>
<thead>
<tr>
<th>Industry Classification</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Manufacturers</td>
<td>43%</td>
</tr>
<tr>
<td>Government Organizations</td>
<td>24%</td>
</tr>
<tr>
<td>Fuels &amp; Lubricants</td>
<td>23%</td>
</tr>
<tr>
<td>Component Manufacturers</td>
<td>7%</td>
</tr>
<tr>
<td>Other</td>
<td>3%</td>
</tr>
</tbody>
</table>

In order to meet our customers’ expectations by continuing to expand our capabilities and provide state-of-the-art test equipment, improvements were made in both the Impact Laboratory and the Emissions Laboratory. The Impact Laboratory broadened its scope for calibrating advanced crash test dummies, including preparation for the Q3s dummy. This three-year old dummy was developed specifically for side impact testing and is going into regulation. The Impact Simulator saw in increase in government testing, which was driven by potential upgrades to the FMVSS 213 child safety seat standard and development of future generations of more advanced dummies. The Emissions Laboratory added a new super ultra-low emissions vehicle (SULEV) capable emissions bench, which improves accuracy when testing low emissions level vehicles. The new equipment includes gasoline, alternative fuel, and diesel testing capabilities and adds particulate counting (PN), which is required for GDI equipped vehicle certification to TRC Inc.’s capabilities list.
The Organization

Contract Services

The mission of Contract Services is to provide customers with high-quality engineering and technical support to improve the safety, quality, and competitiveness of their products.

Contract Services is comprised of technical personnel whose services are dedicated to specific customers on a full-time basis. Their work predominantly involves research and development testing, including vehicle components, crashworthiness, crash avoidance, biomechanics, research analysis and test device and procedure development. The personnel in these groups include engineering technicians, mechanical and electronics technicians, engineering assistants, photographers, research engineers and research scientists.

The staff holds memberships in professional societies, including the Society of Automotive Engineers (SAE), and plays major roles in various technical committees. Numerous technical papers were authored or co-authored by our personnel during the past year. These affiliations and publications bring recognition and industry exposure to Transportation Research Center Inc.

The following table describes the percentage of business by industry classification for Fiscal Year 2014:

<table>
<thead>
<tr>
<th>Industry Classification</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government Organizations</td>
<td>54%</td>
</tr>
<tr>
<td>Vehicle Manufacturers</td>
<td>46%</td>
</tr>
</tbody>
</table>

Although revenues for Fiscal Year 2014 were predicted to be low, the first three quarters were stronger than anticipated, resulting in an increase of 3%. For Fiscal Year 2015, we are predicting a 3% decrease in revenue due to employee turnover and a number of our associates being hired by customers during the latter half of Fiscal Year 2014.

Transportation Research Center Inc. Contract Services employees (pictured from left to right: Rod Herriott, Kamel Salaani, and Josh Every).
Quality Planning, Assurance, Improvement & Control

Company Registrations

ISO 9001 Registration

As part of Transportation Research Center Inc.’s (TRC Inc.) commitment to customer satisfaction and continual improvement, the organization renewed its registration to the ISO 9001:2008 Standard on January 7, 2012 (Certificate No. US004370-1). The ISO 9001 Standard is an international model for quality management systems. Organizations are required to identify and document best business practices, and to implement these practices to achieve consistent quality services to meet and exceed customer expectations.

TRC Inc. Quality Policy Statement:
We will strive to meet or exceed customer expectations.

Quality Principles:

1. Customer Focus: TRC Inc. is committed to ensuring that each employee understands who the customer is, what the customer expects, and how their processes support the delivery of customer services.
2. Continual Improvement: TRC Inc. is committed to continual improvement in TRC Inc.’s Management System by setting quality objectives and targets, and by evaluating our performance to those goals.
3. Compliance: TRC Inc. is committed to complying with all applicable statutory, regulatory, and customer requirements, as well as internal policies.
4. Communication & Understanding: TRC Inc. provides education and training to ensure understanding of the quality policy throughout the organization.

ISO 14001 Registration

TRC Inc. is registered to the ISO 14001:2004 Standard. The organization renewed its registration to the ISO 14001:2004 Standard on January 7, 2012 (Certificate No. US004371-1). The ISO 14001:2004 Standard is a model for environmental management systems and addresses the management of business activities impacting the environment. Although not required by the ISO 14001 Standard, TRC Inc. has incorporated health and safety into our environmental program.

TRC Inc.’s Environmental, Health & Safety (EH&S) Policy Statement:
We will strive to protect the environment and assure safe and healthful working conditions.

EH&S Principles:

1. TRC Inc. is committed to continual improvement in its environmental, health, and safety program by setting objectives and targets and by evaluating our performance to those goals.
2. TRC Inc. is committed to prevention of pollution by using processes and materials that prevent, reduce, or minimize pollution. This commitment includes recycling, control mechanisms, material substitution, and efficient use of resources.
3. TRC Inc. is committed to compliance with all applicable environmental, health, and safety regulations, laws, and other internal and external requirements.
4. TRC Inc. provides education and training to ensure understanding of the environmental, health, and safety policies throughout the organization.

Company Accreditations

ISO 17025 Accreditation

As part of our commitment to customer satisfaction and continual improvement, TRC Inc. has been granted the ISO/IEC 17025:2005 Accreditation from the Laboratory Accreditation Bureau to perform the following tests:

- Fuel Injector Fouling Initial Performance (SCPI)
- Intake Valve Stick (IVS)
- Automotive Spark-Ignition Engine Fuel for Electronic Port Fuel Injector Fouling (PFI)
- Vehicle Crash Testing of Perimeter Barriers
The Activities

Sponsorship Activities & Community Relations

Transportation Research Center Inc. (TRC Inc.) has renewed its sponsorship of the Automotive News PACE™ Award for the 13th year. PACE™ is the acronym for Premier Automotive Suppliers’ Contribution to Excellence. Now in its 21st year, the PACE™ Award honors automotive suppliers who have embraced innovation or adapted and reinvented themselves to meet the demands of the OEM customer. This prestigious award sets the standard for innovation and excellence and has become a significant industry credential.

TRC Inc. has just completed its initial foray as a competition-level sponsor for the EcoCAR 2 Year Three emissions testing event, where TRC Inc. provided the facilities, resources and testing expertise. We are also proud to announce that we have just signed on to become a sponsor for EcoCAR 3, which will comprise a fourth year and will again utilize the facilities of the Center. The competition’s mission is a vital one: offer an unparalleled hands-on, real-world experience to educate the next generation of automotive engineers. The competition challenges 16 universities across North America to rebuild the Chevrolet Camaro to squeeze even more fuel efficiency out of it and reduce emissions, all while keeping muscle car fanatics satisfied.

Staff Activities / Community Service

TRC Inc. believes in maintaining its role as a good corporate citizen in the community. TRC Inc. provides financial support through payrolls, payroll taxes and local procurement of goods and services.

TRC Inc.’s “Partnership in Technology Scholarship” program provides $1,000 renewable college scholarships for high school seniors planning to major in a two- or four-year automotive-related field, as well as the opportunity for an internship at Transportation Research Center (the Center). Two first-year students were added this year for a total of 10 students receiving this award in Fiscal Year 2014.

Good corporate citizenship includes protecting the environment. At the Center, this is accomplished in a variety of ways, including the recycling of paper, plastics, glass and metals. TRC Inc. participates in the Ohio Department of Transportation’s Adopt-A-Highway program and supports the Keep Logan County Beautiful Committee, an organization that encourages recycling and litter prevention.

Child safety is promoted through TRC Inc.’s Child Seat Awareness Program, which provides employee reimbursement for the purchase of child restraints and assists the community through child restraint donation programs administered by local health departments.

The following organizations have benefited this Fiscal Year from TRC Inc.’s Community Relations programs:

- Adopt-A-Highway
- American Association of University of Women
- American Red Cross
- Antioch Shriners
- Bellefontaine City Schools – Seatbelt Safety
- Discovery Riders
- Humane Society of Logan & Union Counties
- Keep Logan County Beautiful Committee
- Local Food Pantries
- Logan Acres
- Logan County Agricultural Society
- Logan County Cancer Society
- Logan County Education Foundation
- Logan County Fraternal Order of Police
- Mothers Against Drunk Driving (MADD)
- Multiple Sclerosis Association of America
- North Union Elementary
- Perry Township Events Committee
- Rushcreek Fire Department
- Special Olympics Ohio
- Suicide Prevention Coalition
- United Way

TRC Inc.’s scholarship winners and co-op students from left to right: Sam Baker, Isaac Luther, Nick Burton, Aaron Dunn, and Evan See.
Governance

Board of Directors

Dr. David B. Williams  
Dean of the College of Engineering  
The Ohio State University  
TRC Inc. Chairman of the Board

Mr. George J. Arnold  
Business Development Director, H.R. Gray  
TRC Inc. Vice Chairman of the Board

Mr. Geoffrey S. Chatas  
Senior Vice President Business & Finance  
The Ohio State University

Mr. Rick D. Gildow  
Transportation Research Center Inc.  
TRC Inc. President

Mr. R. Michael Gray  
University Controller  
The Ohio State University

Mr. Kenny McDonald  
Chief Economic Officer  
Columbus 2020

Dr. Caroline C. Whitacre  
Senior Vice President for Research  
The Ohio State University

Officers

Mr. Shawn T. Ahern, CPA  
TRC Inc. Vice President  
TRC Inc. Treasurer of the Board

Mr. Milton J. Dunlop  
TRC Inc. Senior Vice President

Mr. John W. Phillips  
TRC Inc. Vice President

Mr. Jeffrey A. Sprague  
TRC Inc. Vice President  
TRC Inc. Board Secretary

Mr. Ronald W. Burton  
TRC Inc. Assistant Vice President

Mr. Richard E. Powers  
TRC Inc. Assistant Vice President

Board Changes

Mr. Kenny McDonald, Chief Economic Officer, Columbus 2020, was appointed to the Board on October 14, 2013, for a two-year term ending at the close of the annual meeting in 2015. Mr. Rick D. Gildow, President, TRC Inc., announced his retirement after 37 years of service, effective June 30, 2014. Mr. Jeffrey A. Sprague was appointed by the Board to serve as TRC Inc.’s Interim President, effective July 1, 2014.

General Counsel

Mr. Christopher E. Hogan

Independent Auditors

PricewaterhouseCoopers LLP