Managing rapid urbanisation

Wastewater resource recovery

Light rail momentum

Issue 139 - 2015
Responding to water, energy & urbanisation
Welcome to Issue 139 of GHD NEWS, the latest edition of our newsletter that showcases the success of our clients, demonstrates our technical excellence and provides insight into emerging industry issues and trends.

In this edition, we focus on the theme of responding to the global demands of water, energy and urbanisation. This is a key plank in our client-service led strategy to deliver greater responsiveness and client relationship depth.

According to a United Nations report, two-thirds of the world’s population will live in cities by 2050. All nations will face the challenge of providing growing urban populations with housing, infrastructure, transportation, energy and water, as well as essential services such as education and healthcare. To prepare for these unprecedented challenges, we will need to focus on creating inclusive and sustainable cities with adequate infrastructure and services. In short, we must rethink the way we manage urban areas. Our opinion piece with world-renowned planner, Pedro Ortiz, provides a unique perspective on the urbanisation debate.

In the pages that follow, we provide examples of how public and private sector organisations are improving essential infrastructure and access to services. One such example is our work with Carillion in the UK on the Doncaster to Water Orton rail network, a major enhancement project to cater for large container traffic. We also showcase a range of global projects where our clients are adopting new approaches and innovative ideas to optimise solutions and enhance asset productivity.

The communities in which we live and operate are an essential part of GHD. Our people continue to be involved in a myriad of causes around the world.

Ian Shepherd
Chief Executive Officer
New opportunities for GHD

As we near the completion of our merger with CRA, GHD is making significant progress. We are combining systems and processes and are well on our way to building on the best practices of both organisations to achieve a connected global network of 8500+ professionals.

“To date the merger has presented numerous opportunities to deliver additional value for clients,” explains Tony Ying, GHD’s General Manager Integration. “With the growth in our capabilities, we have expanded the range of services to include industrial hygiene, forensic engineering, data management, emergency response and materials testing to name a few.

“This expansion is resonating well with our clients and to date we have won numerous joint projects. For example, in the USA, we have completed a plant-wide asbestos survey for BASF Chemical Corporation in Pasadena, Texas. In Canada, we have won a major tunnelling project with the Region of Peel for the installation of a new watermain in Mississauga, Ontario.

“In New Zealand, we have brought CRA’s emergency response service, known as the Fast Incident Response Services team to Watercare, a strategic GHD client providing water and wastewater services in Auckland. In Western Australia, CRA is supporting GHD in providing design consulting services for the construction of a permanent mercury management facility to decontaminate equipment at the Gorgon Gas Treatment Plant on Barrow Island.”

On July 1 2015, CRA changed its name to GHD and we are now operating as one company.

Expansion boosts capabilities

GHD’s business has been strengthened with teams from Carlton Engineering Inc. in the USA and GHA Livigunn in the UK joining our global connected network.

Carlton Engineering Inc. is now part of GHD, diversifying and deepening our engineering, land surveying, and environmental service offering in Sacramento, California, USA. This merger has boosted the combined GHD and CRA presence in Sacramento to more than 50 people in total, serving a balanced mix of public and private sector clients. We are now also equipped with a materials laboratory for soils and concrete testing, which will help us expand our geotechnical practice to the West Coast of USA.

GHA Livigunn has boosted GHD’s presence in the UK with more than 160 people with offices in the north-west, north-east and southern parts of the country. This award-winning, multidisciplinary, strong performing consulting engineering business – serving water, buildings, nuclear, power, waste, bioenergy and chemical clients – will allow us to expand our services in the water, energy and resources, and property and buildings sectors. We now have more than 450 people in the UK/Middle East/Africa region, providing significant scale and capability.

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You can also view the newsletter as a PDF by visiting: www.ghd.com/PDF/GHDNews139_web.pdf
For infrastructure owners, responding to the global demands of water, energy and urbanisation in challenging economic times, requires imaginative thinking.

“This is particularly true for water utilities, where around 80 percent\(^1\) of energy consumed in treating and distributing water is through the process of pumping water,” says Matthew Bowler, GHD’s Commercialisation Manager.

“To assist pumping system operators, who often lack the tools, data, or know-how to determine if pumping systems are operating at their optimal performance levels, GHD has released PumpCheckr\(^\text{TM}\), a real-time energy monitoring and alert system.”

The technology was created by a team from GHD’s Cazenovia office with support from our global Innovation group. With a patent application pending in the USA, PumpCheckr can be integrated into existing monitoring systems to provide essential information. Matthew explains, “It provides owners and operators with the ability to deliver timely maintenance and optimise operations as well as measure immediate benefits. The potential savings in energy costs over time are significant.

“For example, according to GHD’s modelling, PumpCheckr has the potential to save operators between AUD4000 and AUD42,000 in energy costs per pump, per year. We further estimate the payback period for the technology to be between 8 months and 3.5 years, depending on the environments pumps are exposed to.”

Interest in PumpCheckr is gathering momentum since it was successfully implemented on a full-scale pilot at a site in Skaneateles, New York last year. Another trial is currently under way in Victoria, Australia for a global malt producer, while three more trials for water utilities have been earmarked for this year. In addition, GHD is establishing partnerships with leading pumping and control manufacturers to maximise the efficiency of PumpCheckr’s sensor elements.

*For more information, contact Matthew Bowler on +61 3 8687 8780 or matthew.bowler@ghd.com*

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\(^{1}\) Water Research Foundation

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**Innovative thinking**

Home-grown technology boosts efficiency of pumping assets

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**Safety first**

Our commitment to safety continues to be at the forefront of GHD’s operations.

GHD’s health, safety and environment lead and lag indicators have again experienced significant improvements recently. Recent milestones include:

- 12 million hours Lost Time Injury (LTI) free (GHD only)
- Current annualised Total Frequency Rate of 0.86
- More than 13,500 lead interactions undertaken to date in 2014/2015 including inspections, briefings, job HSE reviews, behavioural observations, etc.
- Our HSE culture continues to improve. The 2015 GHD People Survey highlighted people’s belief that GHD is committed to their safety (93 percent - world class)
- GHD’s HSE management systems have remained certified to International Standards (ISO14001 and OHSAS18001)

According to Clayton Harrison, GHD’s Manager Health Safety and Environment, “Safety is a core business value of GHD. We believe that the best solution for the management of GHD’s safety - as part of our HSE system - is also the best solution for our clients.

“As demonstrated by these milestones, GHD is working hard to provide workplaces free from harm and remains committed to measurable and continual improvements to safety.”
Tell us about yourself?
My parents came from Ireland in the early 60s and my father worked as a joiner in the north of England. My first exposure to construction was working with him when I was a teenager and it inspired me to become an engineer. In 1989 I joined the Tarmac Group (a company that eventually became Carillion in 1999) and was put through an education program which saw me earn a National Certificate in Construction Engineering, followed by further study at university in Civil Engineering. Following a period working on energy from waste and water treatment facilities, I joined Alfred McAlpines where I began my career in the rail sector. When Carillion took over McAlpines in 2008, I had literally come full circle. The merger opened up new avenues for me and cemented my passion for the rail industry.

Tell us about the Doncaster to Water Orton (D2WO) project that Carillion is working on with GHD?
As part of our MAFA Framework agreement with Network Rail, Carillion is concluding the D2WO project, which is a significant part of the UK rail network, traversing the major cities of the north to Birmingham in the Midlands. We are delivering a multi-discipline scope of works. GHD has been working with us to provide design management services – such as managing the developing, review, submission and approval of designs against a tight program of track possessions. The route from Doncaster to Water Orton runs for 177 km through the East and West Midlands. It is an ideal route for freight apart from one thing – it is too narrow. Large containers can’t pass down the line without fouling bridges, platforms and station canopies. This project clears the route for large container freight traffic. [Project is featured on front cover of GHD News].

Carillion has had a long association with Network Rail? Tell us about some other recent projects.
We have been working together for quite some time. Today we are the largest supplier of infrastructure services to Network Rail. Some recent projects include the East London Line, North London Railway Infrastructure Project and Southampton Tunnel. We are also providing facilities management to London Overground at sites spread across 20 London boroughs. Most recently, we were selected as Network Rail’s preferred partner to deliver £100m of track renewal work. Plus, a joint venture we established with SPL Powerlines was appointed as one of four suppliers to deliver a £2b program to electrify more than 2000 miles of Britain’s railways over the next seven years.

What are some of the challenges and opportunities Carillion faces in delivering projects?
Growth is both a challenge and opportunity for Carillion. Our volume of projects is expanding and we need to be increasing our capacity to match this. As we grow, managing people is a huge focus for us as is investing in health, safety and competency. It’s all about looking at risk and making safety personal. In terms of expansion, we are of course taking a keen interest in the UK’s new high speed rail network known as High Speed 2 (HS2). This is an extremely exciting and challenging project that a multi-disciplinary construction business like Carillion is perfectly aligned with. We are building resilience within our teams to deal with the demands of this project as its scope crystallises, whilst ensuring this does not detract from fulfilling current and future long term commitments with our primary client Network Rail.

How do you manage health and safety?
Put simply, we don’t compromise. Through a range of programs and training we are working hard to achieve our Target Zero for accidents and ill health caused by work. All contracts are assessed for health and safety risks at each stage and senior managers regularly visit to review health and safety with employees at all levels. Like many large companies, we have many processes that support the way we keep our teams safe and efficient, but paperwork alone will not be the only remedy. That’s why we are continuing to invest significant time and resources in behavioural training of our teams, drawing out personal responsibility and influence in the way we work. In simple terms it’s a focus on making safety personal.

Through our ‘Health Like Safety’ program we also promote healthier lifestyles, and are embarking on a journey that will look at the ways we provide nutrient, physical and mental health support and launder services. In particular, we are focusing on fatigue management, not just the ‘here and now’ of a person’s tiredness rating, but a forecast as to when this will happen, so our teams can plan proactively to ensure our people get home safely every day.

What’s next for Carillion?
We are committed to making tomorrow a better place and our vision is to be a leader in delivering integrated solutions for infrastructure, buildings and services. Rail is a key part of our future and we will continue to deliver rail projects, rail maintenance and services to the highest standards of quality and safety underpinned by sustainable organic growth where our key resource, our people, are at the heart of our business model and reputation.
According to the UN, 85 percent of the world’s population will live in cities of more than 750,000 by the year 2050. What are some of the challenges of this unprecedented level of urbanisation?

Population growth and increased urban concentration are two of the biggest challenges we face. Currently, the world population is around seven billion and by 2050 it will reach 11 billion. In addition to population explosion, we face a huge migration of people from rural to urban centres. The issue is that many of these developing metropolises (with more than 750,000 people), of which there are now 600, are growing at a rate of five percent per year. This means that cities such as London will double in size every 14 years. In Australia alone, the population will reach 42 million by 2050 and Melbourne will experience 50 percent growth.

The most dramatic impact will be as cities combine as they expand, notably around the Pearl River Delta (Hong Kong, Macau, Shenzhen, Foshan and Guangzhou) where the urban population is expected to reach 120 million in that timeframe, but also similar conurbations of greater New York, Tokyo, Shanghai and Mumbai. These are huge numbers to manage, particularly in terms of infrastructure and critical services such as water, energy and transportation. If we don’t get it right, it could take up to 300 years to fix our mistakes.

For the past 30 years, the rationale for many governments has been to discourage people from leaving rural towns and moving to the cities. However, there are no social amenities in these towns and while there has been a focus on creating regional centres and jobs, it has proved to be an extremely expensive approach. It hasn’t worked as people have still moved to the cities, so instead of building acceptable urban environments, we have ended up with slums or congested cities that are bursting at the seams. However, we are now starting to see governments accepting this inevitable migration and implementing policies to manage its impact.

Do the challenges of urbanisation differ between developed and developing nations?

Yes, for developed countries, 70-80 percent of the population lives in cities, whereas in developing nations it’s about 30 percent. The issue for developing nations is that they are also growing at a fast pace with vastly different financial capabilities. When these cities get to the point of housing 70-80 percent of the population, it means they will have more than tripled in size, as the new extensions have lower sprawl density than the consolidated areas. For Latin America, Africa and Asia this will be particularly challenging.

In developed countries, 99 percent of growth is controlled, yet in developing nations, as much as 80 percent is uncontrolled. You can’t plan for the uncontrolled, but you can invent a new process for planning in those cities that’s based on having dialogues with the informal sector.

For example, Nigeria is now the second biggest film producer in the world after India, and Africa’s biggest economy. Known as Nollywood, this is an industry that has grown rapidly in just 20 years because it produces films that address the specific challenges of Nigeria. It is this kind of adaptation that we need to bring to the planning of cities.

What are some of the solutions to deal with the impacts of urbanisation?

We have to rethink our approach. One of the ways to do this is to transform the model of metropolitan planning from orbital (growing outwards from the centre) to reticular, where every square on the city’s grid has a key role to play. This is the same approach that enabled New York and Barcelona to grow so rapidly during the Industrial Revolution in the 19th century, when the need for rural labour was high and cities were unprepared.

I adapted this reticular approach for metropolitan Madrid in 1996, when the city was growing at a pace of 50 percent every 20 years. The concept, which I call the Metro-Matrix, transforms a rigid urban grid into a flexible framework at a regional scale. This allows a city to grow in a sustainable way by encouraging the creation of multiple centres – such as housing developments, commercial precincts and airports – all connected by a network of public transport and highways. It is certainly an approach that can assist both developed and developing cities today.

What is at the core of the urbanisation debate?

Collective intelligence is something we need to strive for. Let me explain. Cities that have ‘human resources’ can leverage the capacity of two people and by collaborating closely together the output will be the same as two and half people. This multiplier effect is what we call ‘social resources’ and when it is combined with governance, you can achieve a powerful, two-way dialogue (bottom up and top down) about a city’s needs and plans for the future.

For example, a city that needs a light rail system but cannot afford to build one now should not scrap it from its planning.
mandate but rather ensure it has earmarked a location for it. Sooner or later the funding will be available and at that time the rail system can be constructed along the planned corridor. In developing nations, this is a much harder concept to achieve as social resources are closely related to the value system of that country. Unfortunately there are systems of value that do not promote working together to achieve win-win situations. The message here is that no matter how under-resourced a city is, upgrading a slum is three to nine times more expensive than doing it from the ground up, and it will never be as good.

How can professional services companies like GHD help public and private sector clients prioritise their projects to adequately address the future demands of urbanisation?

Essentially it comes down to helping your clients adopt a long-term vision wherever possible. It’s also about being flexible in providing solutions that are adaptable and customised to the specific circumstances of a particular city, including climate, culture, socio-political and economic factors. By understanding the entire fabric of a city, you can create design solutions that are more inclusive and are therefore more beneficial in the long term.

Helping your clients open a dialogue at the highest levels of government is another way to elevate the urbanisation debate. The issue of course is that most administrations are only concerned with investments during their term of office, so discussing plans for the next 30 years is difficult. However, when politicians see the effects of urbanisation on their mandate they take notice. That’s why focusing on three or four key priorities and making decisions based on a small scale is useful in this scenario. It’s akin to acupuncture: you place your needle at the small scale, but you must have a vision of the entire body and the effects it will have at a larger scale.

Overall, the opportunity is to ensure your clients have a long-term vision with a sense of responsibility and a clear mandate for short-term priorities.

Can cities grow in a sustainable fashion?

Yes they can, provided we can allocate this growth rationally and use approaches (such as the reticular system that I mentioned earlier) to organise development in such a way that it can be improved in the future. The objective here is to plan the entire development in a sustainable fashion, and then prioritise projects based on available funding. Even if the infrastructure or services can’t be constructed now, the most important thing is to protect rights of way for the future and start development in the right locations.

Sustainability is a key part of the urbanisation challenge, particularly when you consider the increased demands on water, energy and transportation.

Above: Madrid, a city that has benefited from the reticular planning method

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About Pedro B. Ortiz

Pedro B. Ortiz is currently a Senior Urban Consultant at the World Bank in Washington, DC, USA and visiting Professor at the Milan Polytechnic University in Italy.

Previously, he was Deputy Director of the Council of Architects of Madrid and Director of the Institute for Urban Renewal, a joint venture between the public and private sectors in Madrid.

He was also the founder and Director of the Master of Town Planning program at the King Juan Carlos University in Madrid. Prior to this, Ortiz held a range of senior planning roles with public sector firms, and several engineering and development companies.

He is a former elected Deputy Mayor for Madrid and Mayor for Madrid’s Central District (Distrito de Salamanca), and served on the city’s council where he was responsible for Madrid’s strategic planning as well as cultural policies.
Although the original goal of wastewater treatment was to protect water quality, today scarcity of resources and sustainability are driving major global changes. The N-E-W paradigm focuses on recovering resources such as Nutrients, Energy and Water.

The concept of discharging or disposing is gone as is describing constituents in wastewater as pollutants or contaminants. Beneficial use and resource recovery are the focus of using Water Resource Recovery Facilities (WRRFs).

For decades GHD has designed facilities for water reclamation and high performance capture of phosphorus and nitrogen.

According to Alan B. Cooper, GHD’s Head of Biosolids Technology in the USA, “Biosolids treatment consolidates nutrients into new products for beneficial uses such as soil amendments, compost, fertilisers, artificial soils, fuel and biochar as examples. Separate phosphorus recovery can also be done. Anaerobic digesting biosolids generates digester gas (60 percent methane) for co-generating electricity and heat, providing half of a WRFF’s energy requirements assuming proper energy conservation. Digester gas can be refined to natural gas quality and even converted to liquid natural gas or LNG.

Importation of high strength waste, food wastes and Fats/Oils/Grease (FOG) into co-digestion can produce the methane required to produce as much energy as the WRFF requires. Examples include the Hill Canyon Treatment Plant in Thousand Oaks, California, which has been energy neutral since 2013 by receiving and treating FOG and wastes from dairies, a coffee plant and a brewery. Food wastes can be gathered efficiently from institutions, universities, schools, cafeterias, or restaurants.

“In addition, DC Water in Washington, DC, USA and Queensland Urban Utilities in Australia utilise hydrolysed anaerobic digestion for high levels of biosolids decomposition and digester gas production for power generation and heat.”

Validating the benefits of biosolids technology, DC Water’s Biosolids Program has been recognised by the Water Environment Research Foundation as ‘one of the greenest projects in the world’. This has been achieved by improving all biosolids facilities and adding thermal hydrolysis, anaerobic digestion, and gas turbines to reduce biosolids by 50 percent, produce 13 MW of electricity and provide for all process heat. In this process, all biosolids are beneficially used.

Alan says, “As urbanisation increases demand on water resources, there are rising opportunities for wastewater treatment plants to become resource recovery plants.”

For more information contact Alan B. Cooper on +1 541 214 0403 or email alan.cooper@ghd.com
Savings water

Irrigation modernisation delivers returns

Farmers that rely on irrigation have a vital role to play in meeting the challenges of food security in the context of climate variability and a growing global population. To cope, it is estimated that food production will have to double in the next 25 years thereby increasing demand on irrigation from 40 to 60 percent of crop production. With many of the water resources around the world already over-committed, the need to find new ways to use less water in food production is crucial.

In Australia’s Murrumbidgee Irrigation Area (MIA), located within the Riverina region of New South Wales, GHD is helping to create significant water savings.

One of Australia’s largest private irrigation companies, Murrumbidgee Irrigation Limited, has formed the MIA Renewal Alliance with GHD, John Holland Group and UGL Infrastructure, to deliver a series of water saving projects. The alliance is working closely with local communities to design and carry out irrigation infrastructure modernisation works that will improve productivity, create water savings and ensure the long-term viability of the MIA and surrounding regions.

The Lake Wyangan project is one of two current projects that aim to deliver water savings back to the Murray-Darling Basin river system. The AUD50M project, funded under the Australian Government’s Private Infrastructure Operators Program, consists of increasing the capacity of the Lake View Branch Canal (LVBC), replacing 15.8 km of deteriorated lining in the LVBC, modernising the lateral canals through the installation of 13.8 km of gravity pipelines, replacing Dethridge wheels with electronic flow metres, automating flow control structures and installing remote monitoring capability for new metred outlets.

“This is a significant project for the Australian water industry, as it delivers fundamental water savings to the MIA and the Murray-Darling Basin,” says Andrew Porter, GHD’s Project Manager. “Additionally, it improves the sustainability of the district into the future.

“Overall, the project renews a large part of the Lake Wyangan irrigation system and assists in recovering water for the environment, while providing a modern, efficient and effective way to deliver water to irrigators in the region.”

For more information, contact Andrew Porter on +61 2 9239 7258 or email andrew.porter@ghd.com
Porous asphalt helps clean water in Provincetown

Beach protection

Provincetown, one of Cape Cod’s most popular holiday destinations in Massachusetts, USA, is keeping its magnificent beaches open and securing its tourist-reliant economy thanks to a GHD-designed state of the art stormwater improvement and roadway project.

The small coastal resort town with a year-round population of just 3000 is known for its magnificent beaches, harbour and holiday atmosphere and attracts more than 60,000 people in summer. Yet over the past decade Provincetown has averaged 9.4 beach closures a year due to high levels of harmful bacteria associated with stormwater runoff.

To address this challenge, the town’s officials have systematically replaced antiquated septic systems, fixed broken sanitary sewers and constructed a new wastewater treatment facility. While the results were noticeable, beaches were still being closed, particularly after storm events across the Cape.

Deeply concerned about the ongoing health of its beaches and the effect on the local economy, Provincetown engaged GHD to find a more permanent solution. Our team undertook a stormwater assessment, which identified the outfalls that discharged untreated stormwater from Commercial Street and other streets into the harbour. In addition, the ageing roadway was in poor condition due to the many repairs and installations that had been carried out on the water and sewer networks.

“We recommended the town install a porous asphalt pavement along Commercial Street,” explains Sandy Tripp, GHD’s Project Manager. “This relatively new technology – more commonly used on parking lots than municipal roads – is known for enhancing water quality. Our design included 10 cm of porous asphalt underlain by a reservoir bed of 46 cm minimum thickness, atop proof-rolled native sands. This enables the stormwater to be filtered before flowing through the outfall system and into Provincetown harbour.

“The results speak for themselves. A year after installation, there were no closures at the beaches running parallel to the sections of Commercial Street with the porous pavement. However, outfalls adjacent to the beaches in the yet to be improved parts of Commercial Street had 15 beach closures.”

Phase 2 of the project has since been finalised, extending the porous pavement another 1.6 km from Johnston Street to the West End Parking Lot and relieving four additional outfalls to Provincetown harbour. Phase 3 is currently in the design phase and will relieve an additional six outfalls, from Johnston Street to Howland Street, leaving a small minority of the town’s 25 beach outfalls to be fed by non-filtered runoff.

For more information, contact Sandy Tripp on +1 774 470 1643 or email sandy.tripp@ghd.com
In Plainwell, Michigan, USA, the Plainwell Paper Mill played a vital part of the state’s economy, history and heritage for more than a century. After closure in 2000, the site was earmarked for cleanup and revitalisation to create a mixed used, sustainable and community friendly development.

For the past decade, the City of Plainwell (City) in association with the Environmental Protection Agency, the Michigan Department of Environmental Quality and Weyerhaeuser and GHD has been championing the redevelopment of the site, which has considerable community-wide benefits due to the property’s location and size.

The resulting plan includes restoring historic mill buildings, establishing new commercial areas and residential neighborhoods, as well as creating recreational trails along the nearby Kalamazoo River.

According to Wayne Bauman, GHD’s Project Director, “We have been involved in this project since 2009 when the City selected us to become a development partner. This led us to renovate a commercial space at the mill, and relocate our 50-people Kalamazoo office to Plainwell in 2012.

“Today, we are undertaking a comprehensive program of consulting/engineering and cleanup activities for Weyerhaeuser, the party responsible for the site’s cleanup. This includes removal and off-site disposal of contaminants including polychlorinated biphenyls (PCBs) from the former mill property, in accordance with state and federal regulations.”

In addition to this role, the City appointed GHD as its engineer to provide a wide range of services for the creation of a city parking lot, demolition of buildings and rehabilitation of an old structure into a new public safety building. It also put GHD in a construction management role for the new city hall’s offices.

Wayne adds, “This is a unique project where a local government organisation (City of Plainwell) and its development partner (GHD) both have offices on the property owned by the parties. This partnership and high level of collaboration with the City and other stakeholders including Weyerhaeuser has been central to delivering successful the paper mill’s revitalisation over the long term.”

Phase 2 of the project is set to begin with the site cleanup planned to start in late 2015 and earmarked for completion in 2016. Once the cleanup is complete the property will be ready for new development as well as continued rehabilitation of the former mill buildings.

For more information, contact Wayne Bauman on +1 296 685 5181 or email wayne.bauman@ghd.com
Australian dairy company, ViPlus Dairy Pty Ltd (ViPlus) is helping to quench China’s thirst for infant formula.

Following the country’s introduction of tougher regulatory requirements for infant formula in 2009, GHD was approached by Melbourne-based Chinese investor, Mr Dajian Li, who was seeking to establish a milk powder plant in Australia.

According to Jon McNaught, GHD’s Gippsland Manager, “After initial discussions, we completed a feasibility study to assist in site selection and key project parameters including services, transport, milk supply, approval requirements, financial modelling and risk assessment. From this, it was determined a smaller scale plant would be best, and that refurbishment of an existing milk plant in the Gippsland region of Victoria would be more cost-effective than starting a greenfield development.”

“As a result, ViPlus was established by Mr Li to develop the project. GHD continued to provide support in the project development phase, including investigations into existing conditions of the milk plant, documentation for demolition and asbestos removal works, design of new plant and services, approval processes, traffic studies, power upgrade, liaison with equipment supplier and project development support.”

The outcome is a 5000 tonnes per year baby formula plant which was successfully commissioned in February 2014 and is now one of only eight plants in Australia to be certified by the Chinese Government. GHD is working on the next stage, which involves adding a 10,000 tonnes milk spray dryer to increase output capacity to 15,000 tonnes per year.

Jon adds, “This project is delivering significant benefits to the Gippsland region, such as full-time employment for more than 22 people during the first stage of operation and many more jobs during construction. It is providing millions of dollars to the local economy and has revived a key industry in the small town of Toora. More importantly it is feeding China’s growing population with a high-quality and safe supply of infant milk.”

Meeting China’s demand for infant formula

Food security

Above: ViPlus plant

For more information, contact Jon McNaught on +61 3 5136 5877 or email jon.mcnaught@ghd.com
GHD’s Business Consulting team has teamed up with the Bureau of Engineering Design and Construction of the New York City Department of Environmental Protection (DEP) to develop and implement a training course designed to enhance the effectiveness of staff and capital project delivery.

The 15 day course is aimed at the agency’s 125 Accountable Managers (project managers) who are responsible for delivering the DEP’s multi-billion dollar capital program every year.

The course is being provided over the span of approximately one year with the content of each session reflecting the key project management challenges that DEP is facing. Topics include: scope management, quality management, environmental health and safety, construction standard operating procedures and more.

“Each course incorporates lessons learned from actual DEP projects that course facilitators have led. To make the learning ‘sticky’ and memorable, course design emphasises interactive discussions, scenario-based exercises, and tangible knowledge transfer from DEP subject matter experts to course participants,” adds Seth Yoskowitz, GHD’s Project Manager.

“To reinforce the importance of the program, there are graded tests at the end of each course day, which count towards completion of the program. DEP staff members also receive professional development hours for each completed course day.

“Overall, the course enables DEP staff to learn from their internal subject matter experts, stay up to date with leading practices, and manage projects more efficiently. This is particularly important for public sector organisations like DEP that face increased demand for services and tighter budgets.”
Recognising the advantages of renewable energy, the Philippines Government is actively pursuing the development of geothermal, solar, wind, hydro and biomass projects.

In 2013, the Office of the President’s Climate Change Commission partnered with the Worldwatch Institute to establish a Sustainable Energy Roadmap for the country, which aims to shift its electricity system to 100 percent renewable energy within a decade.

According to Louis Lefevre, GHD’s Technical Director for Energy, “The Philippines is in a desirable position to develop commercially viable projects for nearly all forms of renewable energy. The country is a pioneer in geothermal energy and also a leader in wind and solar power in Southeast Asia. Hydro power and biomass are also well established and there are early signs that wave energy is being considered. For more than a decade, GHD has been working on a range of projects to help the country transition to a low-carbon economy that will provide strong prospects for economic growth and development.

“In terms of wind energy, we have supported the implementation of the Pagudpud Wind Farm (81 MW) for North Luzon Renewable Energy Corporation, with our team delivering the substations and the 80 km transmission line. As owner’s engineer for the Pililia Wind Farm (54 MW) for Altenergy Wind One Corporation, we are expecting first energy dispatch very soon. Our team assisted with the necessary construction permits and is now on site monitoring the EPC contractor.

“On the solar front, GHD has been involved in more than 570MW of solar projects. Today we are involved in 230MW of projects either implemented or under construction. Our scope of services varies from lender’s engineer supporting the transaction, to owner’s engineer and detailed designer. Recent projects include the first utility scale San Carlos Solar Energy Farm commissioned in June 2014. Building on earlier work, GHD is now providing concept layout and site development detailed design, site grading, design of internal and access roads, road pavement, storm drainage system and foundations for the remaining project portfolio.

“From a geothermal perspective, we have been heavily involved in the design and development of the 49 MW Biliran Geothermal Power Plant. Once complete, it will supply the electricity needs of the island of Biliran and its neighbour Leyte. On the hydro side, GHD is also involved in a number of run of river schemes, a very popular mode of development in the Philippines.

“Overall, by leveraging a vast connected global network of energy professionals, GHD has the skills, knowledge and innovation to ride the renewable energy wave, not just in the Philippines, but throughout Southeast Asia and around the world.”
Renewables for Chile

In Chile’s Atacama Desert, in the north of the country, one of the world’s leading renewable energy operators is developing two solar power projects that will provide much needed energy resources to sustain the growing population and mining industry.

Acciona Energia’s proposed two solar photovoltaic plants will be located in isolated areas of the desert some 20 km apart. They will generate 28 MW each and will connect into the country’s Central Interconnected System known as the SIC.

To ensure the plants meet Chile’s rigorous sustainability development criteria, Acciona Energia engaged long-time partner, GHD, to prepare the necessary Environmental Impact Statements (EIS).

As part of the project, GHD performed baseline data collection on noise, carried out archaeological excavations, developed flora, fauna and landscape documentation, prepared estimations on waste generation and emissions, and carried out community consultation activities which culminated in the development of the EIS.

According to Daniel Barriga, GHD’s Project Director, “Chile’s capacity for solar energy is extensive, particularly in the Atacama desert which receives more solar irradiance per square metre than anywhere else in the world.

“Acciona Energia’s projects to provide clean renewable energy in this area will enable residents and nearby mining companies to secure energy supplies and reduce their reliance on diesel fuel. Feasibility of the plants will depend on mitigating the risks to the environment, which have been addressed in the EIS.”

The Chilean government has approved the EIS and construction plans are yet to be announced.
In Western Australia’s Pilbara, demand for power infrastructure is increasing alongside resource projects and population growth. With the region responsible for around 90 percent of Australia’s iron ore exports, 85 percent of LNG exports and 80 percent of crude oil, there is an imperative to secure electricity supplies to sustain economic development now and in the future.

To address this, Horizon Power, a state government-owned corporation that services more than 100,000 residents and 10,000 businesses in regional Western Australia, has been undertaking a range of projects to provide additional electricity capacity with GHD’s assistance.

In 2014, Horizon Power partnered with GHD to outsource the Engineering, Procurement and Project Management (EPCM) services associated with its works program, including project and asset management plan activities. The transition process included the integration of 38 Horizon Power personnel into GHD’s Perth-based Power team.

According to Paul Buch, GHD’s Project Director, “Combining GHD’s safety culture, experience in EPCM and project management knowledge with Horizon Power’s regional skills has enabled us to form a powerful team capable of offering end-to-end services across the full project lifecycle of the power value chain including thermal generation, renewable energy, transmission and distribution and protection, plus general electrical engineering.”

GHD’s Power team has recently completed the commissioning of the 80 MW generation capacity at the Hedland Power Precinct project in Port Hedland and a new 45 MVA transformer and associated infrastructure at the Wedgefield substation in Port Hedland. Together these projects have augmented the generation and network capacity of the North West Interconnected System.

“More recently, we have secured a new commission from Horizon Power to provide project management services for the Pilbara Power project,” adds Paul. “This new 145 MW power station will be situated adjacent to the existing power station and switchyard established by the Hedland Precinct Power project.”

To be commissioned by 2017, the power station will be built by Canadian company TransAlta and will provide energy to Horizon Power customers and resource company Fortescue Metals Group.
Revitalisation efforts are under way in cities around the world, as urban populations increase and place new demands on the built environment. In Toronto, Canada, the West Queen West Triangle is benefiting from some restorative efforts that are breathing life back into the downtown-adjacent neighbourhood.

Recently named by Vogue as the world’s second hippest district, West Queen West is a major east-west thoroughfare in the city’s downtown area. Today it is best known as a centre for Canadian broadcasting, music, fashion, performance and the visual arts.

Since 2006, GHD has worked alongside UrbanCorp and the Pemberton Group to create a vibrant new precinct that includes a connected road network, high-rise residential condominiums, mixed-use ground floor spaces, a hotel and a new city park.

As part of our engagement to provide recommendations for five urban developments, GHD delivered a range of multi-disciplinary services. According to GHD Project Managers, Monica George and Rasheed Serrao, “We completed the master servicing study, detailed design (including tunnelling under Queen Street) for the Sudbury Street extension, contract administration, field services during construction and civil engineering services (site servicing, grading and development of stormwater management strategies) for site plan applications.

“In addition to these five locations, GHD managed the cost sharing and servicing agreements and extension for Abell Street as well as the detailed design, utility servicing coordination and construction phase services. We coordinated with the surrounding developments and City Park in various stages of the design and construction process.”

Overall, the revitalisation of West Queen West will be responsible for the continuing advancement of sustainable urbanisation throughout Toronto. In doing so, the city is looking ahead and addressing its future needs by creating vibrant communities and connected social hubs, which have been revitalised from their pasts.

For more information, contact Monica George or Rasheed Serrao by email monica.george@ghd.com or rasheed.serrao@ghd.com
Known as the ‘Pyramid of the Gulf’ for its unique architecture, the Sheraton Doha Resort & Convention Hotel in Qatar has recently re-opened its doors after a nine-month extensive renovation and restoration.

Located in a prime position in the West Bay area of Doha, the five-star hotel has been a milestone in the history of Qatar and a popular landmark since the early 1980s. Today it features 371 guest rooms including 64 luxurious suites and an opulent design. It attracts business and leisure travellers in equal measure, and is a preferred venue for prestigious international conferences.

Katara Hospitality, the hotel’s owner, engaged GHD to deliver ‘back of house’ and façade design services and structural repairs. According to Stephen Copestick, GHD’s Project Director, “The original scope required approximately six months of work, but this quickly turned into a complete demolition of existing services up to the structure and a full renovation of the entire building.

“We worked very closely with all stakeholders to deliver on Katara Hospitality’s objectives on the initial project scope. This led to us being awarded the design review and coordination role for the construction phase of the project including architectural plans, ‘front of house’ design review for public areas and construction drawings, finishes schedule, interior design review, ironmongery schedule, shop drawings and general supervision duties.

“Overall, GHD’s strong leadership and commitment to project management united individual consultants and enabled a coordinated approach to delivering drawings across all the zones in the building. The outcome speaks for itself – the hotel structure has been upgraded while preserving the hotel’s original architecture and design, and bringing the operational and technology systems into the digital age.”

Construction began in May 2014 and was completed by early December 2014 in time for the hotel to host the 35th Summit of the countries of the Gulf Cooperation Council.
The art of safety

Washington icon expands

Since opening in 1971, the John F. Kennedy Center for the Performing Arts (Kennedy Center) has produced and presented theatre, dance, ballet, orchestral, chamber, jazz and folk music performances from around the world.

The iconic venue, which is located on the Potomac River, adjacent to the Watergate complex in Washington DC, USA, is undergoing an expansion.

Designed by Steven Holl Architects, the expansion will provide approximately 5574 m² of additional space for rehearsal rooms, event spaces, and dedicated classroom and multipurpose rooms for the Center’s extensive arts education programs. Public access spaces will include gardens, an outdoor video wall upon which simulcast performances and other multimedia events may be projected, and an outdoor performance space on the river. Finally, multimodal access will be enhanced to and from the Center including the Rock Creek Paved Recreation Trail, the Potomac River waterfront, and surrounding facilities.

As part of our merger with the Protection Engineering Group in 2014, GHD was engaged to provide life safety and building code consulting services.

Commenting on the project, Isa Saah, GHD’s Project Manager said, “We collaborated closely with the design team to provide specific guidance for building and life safety code compliance of this major expansion. ‘Working with the Kennedy Center and design team, we determined a maximum realistic occupant load for a venue that could have one or more events occurring simultaneously. We also performed a dynamic egress analysis to identify how the expansion might affect a previous performance-based design we prepared for the adjacent parking garage.”

The project broke ground on 4 December 2014 and is scheduled for completion on 29 May, 2017 the 100th birthday of President Kennedy.

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In response to the increasing need for public transport in Canada’s Greater Toronto Area (GTA), the Government of Ontario created Metrolinx, an agency tasked with improving the regional coordination and integrations of all modes of transport to enhance prosperity, sustainability and quality of life.

Metrolinx decided to develop an application (app) to better assist commuters in obtaining real-time information about the current status of their transport. The objective was to give commuters real-time, station-specific service status information through the installation of an S4 communications system throughout the GTA railway network operated by GO Transit, its operating division.

GHD has played an integral role in the app’s implementation by providing hardware and structural drawings, undertaking the mounting and removal of legacy ticketing/cancelling machines, and providing power and data supply specifications.

According to Casey Kwan, GHD’s Project Manager, “The main challenge was to integrate system specification and legacy electrical data with the design of a distributed architecture in order to meet current Electric Safety Authority building and fire codes.

“The S4 communications system is a general-purpose, distributed, scalable, fault-tolerant, pluggable platform that allows programmers to easily develop apps for processing continuous streams of data. The system is part of the Metrolinx Passenger Charter promise to keep the commuters in the know. The anticipation is that over time – as more people embrace public transport for its convenience and ease of use – there will be a dramatic decrease in road-based traffic throughout GTA.

“Already, the successful roll-out of the app has resulted in greater commuter satisfaction due to improvements in communication efficiency with GO Transit customers.”

For more information, contact Casey Kwan on +1 905 814 4343 or email casey.kwan@ghd.com

Simplifying commuter lifestyle one app at a time
With London’s population predicted to reach 10 million by 2029, there is rising concern about the added pressure placed on public services including transportation. As part of looking at its preparedness for the future, Transport for London sought to develop a new track system for the London Underground to enable 24 hour railway operations across the network.

In 2013, Transport for London appointed GHD to undertake a strategic study on the development of a new track form. The study was recently completed over a number of discrete phases.

According to John Dutton, GHD’s Operating Centre Manager for the UK and Project Director, “The first phase, undertaken with key stakeholders from London Underground Limited (LUL), incorporated the development of a strategic approach and reviewed all areas of the transport network. Once the first phase was assessed, a decision was made to focus the study on the sub-surface area of London Underground as this was identified as the key area for development.”

The second phase focused on the components that could be amalgamated to create a track form for the sub-surface area of London Underground. More than 30 different components were identified and assessed on their appropriateness for use in a new track form giving due consideration to size of the components, means of access, associated logistics, track geometry, maintainability and modes of emergency response.

During the third phase, the components were assessed as a matrix to identify where they could be amalgamated to create a small number of track systems that could be evaluated through a whole life cost model known as ‘SALVO’.

John adds, “The outputs of the engineering matrix combined with the whole life cost outputs provided LUL with the necessary insight to begin the early stages of implementing a wide sleeper option combined with underside sleeper pads.”

Commenting on the work undertaken by the GHD team over the three phases of the project, Larry Hawker, Senior Project Manager, Track Programme, CPD, LUL said, “The results of the study have allowed us to move forward on track form componentry for the sub-surface area that will, subject to the outputs of the planned performance trials, be implemented.”
In the face of ongoing population growth and increased urban concentration in cities around the world, governments are reassessing transportation methods.

Prevalent in Europe, North America and Asia, light rail is gaining momentum in other parts of the world as a viable, cost-effective and essential addition to the urban transportation system of many cities.

According to David Kinniburgh, GHD’s Market Leader for Transportation in Australia, “Light rail is an effective urban rapid transit mode of transport, particularly for city centres and inner suburban areas. It can fill the void between heavy rail and buses through greater accessibility, improved mobility and barrier-less entry. More importantly it can carry almost three times the amount of passengers compared to buses. It is highly conducive to urban regeneration projects.

“For the past two decades, GHD has been involved in most light rail projects in Australia including Sydney, Adelaide, the Gold Coast, Newcastle and Melbourne.

“Our longest association is with the Sydney Inner West Light Rail, which we designed some 15 years ago. We have recently been appointed as lead designers along with our design partner Jacobs, on the CBD and South East Light Rail line project that aims to reduce traffic congestion and provide faster travel times for passengers. We will provide detailed design for the track on a route from Circular Quay to Moore Park including overhead facilities, civil works, road works, tunnels and bridges for the 15 km extension that is planned for construction between 2016 and 2019.

“In Newcastle, as the city begins an urban regeneration program, we have been working on an early scoping study and have recently completed the Environmental Impact Statement for the proposed light rail.

“On the Gold Coast, the rapid transit system planned by GHD and known as G:Link was commissioned in July 2014 and has been hailed a success. After just six months of operation, more than 3.2 million passenger trips have been made.

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“In Melbourne, we have worked extensively on the light rail system, most recently preparing the detailed design for a new light rail track in Harbour Esplanade in collaboration with Yarra Trams.

“Overall, we see opportunities for light rail increasing, particularly in Europe, Asia, the Middle East and New Zealand. To respond, we are bringing our experience from Australia and are leveraging involvement in light rail projects in the UK including the Docklands Light Rail in London, Croydon Tramlink and Manchester Metrolink.”
Ranked as one of the most liveable cities in the world, Auckland is New Zealand’s largest city and main transport hub. Home to some 1.5 million people, Auckland has been progressively developing walkways and cycleways to boost the city’s liveability, reduce traffic congestion and improve the health and wellbeing of the community.

With a focus on creating a well-connected cycle and walk-friendly city, Auckland Transport and the NZ Transport Agency are working with GHD to improve infrastructure, provide greater connectivity amongst routes and boost safety for cyclists and pedestrians. Projects include the Albany Highway North upgrade, Mount Roskill Safe Routes, Point England to Panmure Cycleway, the City Centre Cycle Route, the Upper Queen Street Cycleway and the Nelson Street Offramp Cycleway.

According to GHD’s Jason Chow, Senior Traffic Engineer and Walking and Cycling Leader in Auckland, “Better cycleway and walkway facilities make it easier for more people to get to work, school, the shops, or exercise. The program of works GHD has carried out on these projects is providing better facilities and delivering considerable benefits to the community such as increased travel choices, improvements in neighbourhoods, reduced dependence on private cars, improved traffic flows and reduced air pollution. It also helps to manage increases in travel demands from growing populations and rising urbanisation.

“For example, as part of our work on the Albany Highway North Upgrade, we developed a more appropriate road corridor – in consultation with the community and general public – that caters for all modes of transport, including cyclists, and accommodates a growing population. One of the outcomes is the creation of Auckland’s first ‘Copenhagen-style’ corridor, which protects cyclists. This will be achieved by positioning cycling paths next to the live traffic lane, separated with a raised buffer between the carriageway and the footpath to provide a greater perception of safety for cyclists. (The highway is scheduled to open at the end of 2016).

“On the Point England to Panmure cycleway, which will connect the Auckland Manukau East Transport Initiative and Glen Eden, our team is looking at protected cycle lane treatments such as ‘armadillos’ raised cycle separators and raised kerb up-stand facilities. These pioneering armadillos are being used in Europe and the USA as a way of enhancing usability and safety.

“Overall, these projects will contribute significantly to Auckland Transport’s target to deliver 70 percent of the Auckland Cycle network by 2023. They also directly support the Mayor’s vision of making Auckland the most liveable city in the world by investing in cycleways and walkways.”
Global recognition

Global recognition of GHD continues. In Australia, GHD has once again been named the 2015 Best Large Consultant in the waste sector by Inside Waste Magazine. In Canada, CRA has celebrated its 10th year as one of the country’s best managed companies as part of Deloitte’s Best Managed Awards. In the USA, GHD ranked 11th in the Top 50 Bay Area Engineering firms by the San Francisco Times, while CRA has been ranked 22nd in the Top 50 Trenchless Design Firms by Trenchless Technology Magazine.

Environmental accolade

GHD and CRA have been acknowledged for setting new benchmarks with a ‘merger of equals’ in the engineering and environmental industry. We received the 2014 Outstanding Business Achievement in the Environmental Industry Award in the Mergers & Acquisitions category from Environmental Business Journal. In the 2014 financial year, the environment market accounted for 33 percent of total revenue for our combined company.

Award-winning stadium

Levi’s Stadium, home to the San Francisco 49ers National Football League (NFL) team, has been named Project of the Year by Region 9 of the American Society of Civil Engineers. The award recognised the stadium’s unique approach to sustainability and technology as the first venue in the NFL to achieve Leadership in Energy and Environmental Design (LEED) Gold rating. GHD, provided civil engineering services as part of a project team that also included HNTB, Turner/Devcon and the Santa Clara Stadium Authority.

Sustainability benchmark

GHD has helped Aqua Pennsylvania in the USA receive Leadership in Energy and Environmental Design (LEED) Silver Certification from the US Green Building Council for its Ridley Water Treatment Plant Filter Building Addition. To achieve this, GHD captured energy from plant water to heat and cool the building. A precast wall system, initially used to meet a tight construction schedule, assisted in achieving recycled content and regional material credits.

HSE for Qatar University

Our team in the United Arab Emirates has been appointed as project consultant to Qatar University (QU) for the development and implementation of an Environment, Health and Safety Management System (EHMS). As the oldest university in Qatar with more than 16,000 students, QU aims to achieve both ISO 14001 and OHSAS 18001 certifications as a result of this project.
US Army win

GHD has won a five-year contract with the US Army Corps of Engineers Fort Worth District, in Texas. Our team, led by our strategic partner, EJES Inc., will provide a range of services for the Department of Homeland Security’s US Customs and Border Patrol and US Immigrations and Customs Enforcement facility needs. This includes architectural and engineering design, environmental, asset management, GIS, energy management, and information technology design.

Knowledge management win

GHD and CRA are working together to help public water and wastewater utility, Lehigh County Authority (LCA) in Pennsylvania, USA, collect and share institutional knowledge. We combined the technical capabilities of CRA’s eSolutions and the engineering support of GHD’s Harrisburg, Pennsylvania office to implement SharePoint enterprise content management system. This includes SharePoint configuration and customisation as well as system administrator training.

Greater Toronto Area

GHD in Canada has secured new assignments in the Greater Toronto Area, Ontario. Our Linear Infrastructure team and Power & Lighting group have secured another three-year term to carry out various engineering services for municipal infrastructure projects for both the Town of Ajax and Town of Richmond Hill, including consulting services for roads, bridges, stormwater management, electrical, lighting and traffic signalisation.

San Francisco waterfront

A project to complete a high-profile earthquake vulnerability study of the seawall protecting the waterfront district of San Francisco in the USA has been awarded to a joint venture comprised of GHD and Geotechnical Consultants Inc. The team will deliver waterfront structural engineering, geotechnical engineering and seismic analysis, climate vulnerability assessment, and a review of critical utilities and infrastructure for the northern waterfront seawall.

Disaster management for India

Demonstrating the strength of our industry connections, GHD is collaborating on the development of a disaster management information system for the State of Tamil Nadu in India, one of the country’s most populous states. We are working with India’s Anna University, Australia’s University of Melbourne and the Cooperative Research Centre for Spatial Information (CRCSI). The proposed system will provide state of the art wireless sensor network to monitor disasters.
01 Geology leader

Norman Meeks, a professional geologist in CRA's Tampa office, has been appointed by Governor Rick Scott to the Florida Board of Professional Geologists. He will serve an initial two-year term, working with six other appointees and the State Geologist’s representative to fulfill the Board’s responsibility for regulating professional practice, and supporting licensure examinations and disciplinary processes. The appointment is based on Norman’s extensive contributions to geology, willingness to serve in professional organisations and evaluations provided by his peers.

02 Member of the year

Sherri Smith, Marketing Manager in our Atlanta office in the USA, has been recognised for her commitment to the Society of American Military Engineers. The professional organisation’s Atlanta Post has named Sherri Member of the Year for her valuable contribution to advancing the organisation’s mission. Sherri serves as Secretary of the Atlanta Post and coordinates a variety of events, including the Toys for Tots charity drive.

03 A tale of two engineers

Tom Fricke and Mike Rodd, two of our senior engineers, studied together at the University of Tasmania, Australia and worked for GHD for more than 40 years in different specialisations. While Mike has recently retired from our Canberra office, Tom is still working in our Melbourne operation. We recognise Tom and Mike for their long term commitment to the success of our clients and GHD. Pictured overhead are Tom Fricke (03a) and Mike Rodd (03b).

04 Young water professional

Tim Crockford, a mechanical engineer in our Canberra office, Australia, has been named Young Water Professional of the Year by the Australian Capital Territory branch of the Australian Water Association. The award recognises Tim’s outstanding career achievements to date and his potential to play an influential role in the water industry.

05 Community leader

For the past five years, CRA’s Paula Hutchison has led Team Conestoga-Rovers & Associates in the Grand Bend to London MS Bike tour; raising a total of over CAD97,000 for the MS Society of Canada to help improve the lives of people living with multiple sclerosis. Paula was recently honoured at the Celebration of Champions Dinner and Awards Ceremony in Toronto to celebrate her leadership in fundraising.

06 Dairy leadership

Jen Keuning from CRA’s office in Green Bay, Wisconsin, USA has been re-elected for a third term as a corporate board member and secretary of the Dairy Business Association of Wisconsin, an organisation that advocates the advancement of the state’s billion dollar dairy industry at the local and federal levels. Jen opened CRA’s office in Green Bay to provide services to the agriculture industry, primarily dairy farms. She works with numerous farms and agriculture facilities to manage facility design projects, soil investigations, stormwater planning, and waste storage facility sizing and design.
**07 CIO trailblazer**

Elizabeth Harper, our Chief Information Officer has received the 2014 Telstra Business Women’s Award for Queensland, Australia in the private and corporate sector category. The award recognises business leaders whose passion, determination, innovation and success inspire other women to walk in their footsteps.

**08 Inspirational leader**

Van Tang, our manager for South Australia, has received the 2014 Telstra Business Women’s Awards for the state in the private and corporate sector category. After moving to Australia as a refugee from Vietnam at a young age, Van became a civil engineer. The award acknowledges Van’s commitment to developing GHD’s people and her leadership in delivering infrastructure projects.

**09 Safety award**

Marc Bouchard, an environmental scientist based out of CRA’s Ottawa, Canada office, has won the Q4 2014 Shell SGW Safety award. Marc was recognised for his commitment and dedication to achieving Shell’s Goal Zero while overseeing a large-scale remediation project for Shell in Lebel-sur-Quevillon, located in northern Quebec. During the six weeks on site, Marc managed six sub-contractors and ensured safety remained the primary focus of all workers on site.

**10 ASCE representation**

Matt Kennedy, a senior project manager in our Santa Rosa office in the USA, has been named President of the San Francisco Section of the American Society of Civil Engineers (ASCE) which represents more than 6100 members in central and northern California. Leveraging more than 12 years of industry experience, Matt will assist the ASCE to advance the civil engineering profession.

GHD Annual Review 2014 out now!

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