

the magazine of kiewit corporation

# KIEWAYS







Kiewit is one of North America's largest and most respected construction and engineering organizations. With its roots dating back to 1884, the employee-owned company operates through a network of offices and projects in the United States, Canada and Australia. Kiewit offers construction and engineering services in a variety of markets including transportation, water/wastewater, power, oil, gas and chemical, building and mining. Kiewit had 2012 revenues of more than \$11 billion and employs more than 30,000 staff and craft employees.

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**KIEWAYS**

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**POWERED UP**

Building on a previous successful partnership with client Northland Power, Kiewit built Saskatchewan's largest power facility. Learn more on Page 4.



**THE BEST AND BRIGHTEST**

By the time this issue goes to print, the summer will have wound down and students will be back at school. Across Kiewit, we will say goodbye to the hundreds of college interns who spent their summers with us. There's a good chance, however, that we will see them again for another internship or to join our company after graduation. In fact, so far this year, we've hired nearly 250 former interns into full-time positions.

Our internship program has been a long-standing, important part of our company. Many people in our company started out as interns — including me. What makes it so special? We don't treat our interns like interns. From day one, they are given real responsibilities and are expected to contribute and add significant value. Along the way, we take extra time to answer questions and explain processes. We know how important it is to give our interns the time and attention they need to learn about the job they are assigned to and about our industry.

In addition to the many types of work opportunities we have, Kiewit interns also have the opportunity to work in a geographic location that's new to them. The articles in this issue of Kieways demonstrate our geographic and market diversity, from power plant construction in Saskatchewan and airport work in San Diego, to vertical building work in Texas and transportation work in Vancouver. Working at Kiewit — as an intern or a full-time employee — means opportunity. Our internship program is a great way to discover the best and brightest people, so we can hire them and continue to build the safest, highest quality projects for our clients.

**BRUCE GREWCOCK**  
Chairman and CEO





## WORLD'S WIDEST BRIDGE

The new Port Mann Bridge — the widest bridge in the world — will eliminate congestion caused by more than 800,000 cars per week. Story on Page 20.



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The Port Mann Bridge in Vancouver serves more than 800,000 cars every week — and the four-lane bridge couldn't keep up with demand. That's not a problem anymore.

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What would you change about the air travel experience? Parking? Congestion? Check-in? Security lines? Kiewit addressed all of these and more at the San Diego International Airport. Story on Page 10.



# POWERED UP



## NEW NATURAL GAS FACILITY ADDS CAPACITY TO SASKATCHEWAN'S GRID

Scan a list of those who've made it big from North Battleford, Saskatchewan, and you'll see some notable names — the expected, like a dozen or so NHL players, and perhaps the unexpected, such as folk music legend Joni Mitchell.

In the 1980s, another influential player emerged in this west central Canadian province: natural gas. The clean-burning fuel put the country on the energy-production map. Production surged during the '80s and peaked a decade later. Today, Canada is the third-largest producer of natural gas in the world.

Saskatchewan still relies heavily on the fuel to power their businesses and homes. As of 2010, the province ranked third in the nation's natural gas reserves and production, and was first in primary energy consumption.

### MORE MEGAWATTS FOR THE GRID

To meet demand, the North Battleford Energy Centre, a new combined-cycle power plant, has been taking shape over the past three years. Kiewit Power Partners, an internal joint venture including Kiewit and TIC, a subsidiary of Kiewit Corporation, recently completed a \$456 million engineer-procure-construct contract for Northland Power.

The plant consists of a 170-megawatt gas turbine operating in "combined-cycle" mode with a heat-recovery steam generator that powers a 90-megawatt steam turbine. Each of the turbines drives a generator to produce electricity. Together, the plant is equipped to produce a total of 260 megawatts.

That's enough to supply electricity to the equivalent of 260,000 homes under a 20-year contract with SaskPower.

The North Battleford Energy Centre is the largest independent power-producing facility in the entire province, said Steve Purto, project manager. It's designed to handle seven percent of the power generation for Saskatchewan.

"Saskatchewan as a whole doesn't have a large population, but there's a large industry need for power," he said. "It's the largest potash producer in the world, and the same with uranium. To facilitate these larger projects, it needed to significantly upgrade its grid."

### A UNIQUE REQUEST

The energy center is the second project Kiewit Power Partners has completed for Northland Power. As with any project, there are lessons to be learned and ways to improve, Purto said.

"Our previous project was successful, but we wanted to see how we could improve on our success. We met with the client to see if they would commit to embedding a full-time employee in our engineering offices during detailed design."

That's a unique request in the EPC industry, but the client was on board, said Allen Snyder, project design manager.

"I think we all realized that to get the most benefit from how Kiewit works — with our open process — we needed someone from the client side to move the design and planning along at the same speed," he said. "It was important to us to get buy-in and expedited answers."

### GETTING AHEAD OF THE WEATHER

While it was simple to facilitate a client presence in the office, another factor on the job would prove to be unyielding.

Saskatchewan is notorious for its harsh winters, which Purto says — not entirely tongue in cheek — "start in July."

During a calendar year, temperatures can swing from -40 degrees Celsius (-40 degrees Fahrenheit) on the coldest winter days to 32 degrees Celsius (90 degrees Fahrenheit) in summer. A hard freeze arrives in September and the typical winter in North Battleford brings 105 centimeters (41 inches) of snow over 51 days.

"We were so conscientious of potentially losing up to nine months during the course of the project due to weather that we aggressively scheduled the up-front portion of the



1. Multiple cranes are used to construct the gas turbine and steam generator that create up to 260 megawatts of electricity for Saskatchewan. 2. Power generated at the plant is delivered to the "grid" through transmitters. Electricity created at North Battleford can power up to 260,000 homes. 3. A crane sets a platform inside the North Battleford Energy Centre in North Battleford, Saskatchewan. Teams sometimes work 24 hours a day in the spring, summer and fall months to beat the harsh Saskatchewan winters.



project,” said Purto. “We got out of the gate and were able to build a lot of float into the schedule.”

Teams worked 24 hours a day, six to seven days a week during the spring, summer and fall of 2010. When the first winter came, much of the crew was ready to head inside to work, said Snyder.

The remaining labor completed much of the concrete work and even some civil dirt work, taking care to winter-protect the surfaces.

“Our planning turned out to be beneficial and helped us move forward when we weren’t sure we could be mobilized,” Snyder said.

### PROJECT OF CHOICE

The other challenge on this project: finding enough labor in Saskatchewan’s booming economy, which boasted a four percent unemployment rate.

“It was one of the largest risks in the beginning,” said Gary Anderson, who started on the project as construction manager and moved into the role of project manager in 2012.

“We needed to figure out how we were going to man a project from a province with only one million people in it. It was easy to think that every able-bodied person was probably up in the oil sands, making money.”

But the project’s location — closer for many craft weary of years working away from home in Alberta’s oil sands region — and the project’s reputation gave Kiewit Power Partners an advantage when it came time to recruit workers.

“We got out early and met with unions to talk about manpower and availability of workers,” Anderson said. “Then we also got to leverage Western Canada’s experience with a non-union workforce.”

Word spread, and KPP soon found they had the manpower they needed for the job. Union craft handled the mechanical and electrical work. The nonunion force was assigned civil and concrete work.

“The unions were telling us this was the project of choice in the area,” said Anderson. “Workers were leaving their other jobs for this.”

At its peak, the North Battleford project employed approximately 450 craft, 75 subcontractors and 100 staff.



## Electrifying numbers at North Battleford

### Time and resources



1.8  
million

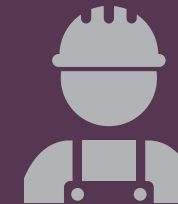
Total project  
manhours

587  
thousand

Manhours  
worked in 2012

75

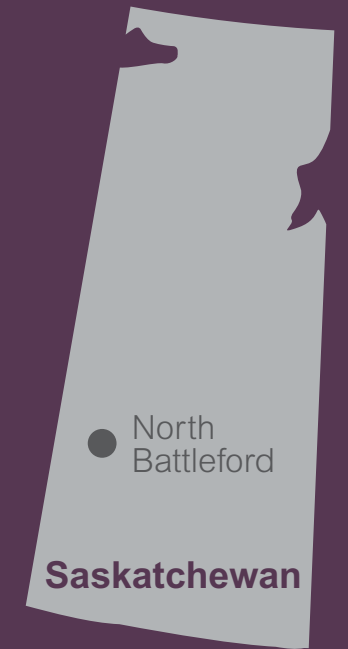
Subcontractors



450  
Craft

100  
Staff

### Population



### Power



260

Total capacity  
in megawatts

260  
thousand

Homes  
powered

13,888

Population of North Battleford,  
Saskatchewan

1.09 million  
Total population  
of Saskatchewan



## ONE TEAM, ONE IDENTITY

Kiewit employees from all over North America, with different backgrounds and expertise, came together on the project. For some companies, that might have added up to too many cooks in the kitchen. But for this group, it worked.

“Right from the start, we all agreed we were going to do what was best for the project,” said Snyder. “At our upfront meetings where we talked to engineering and construction staff, we set the tone to interact and make decisions as one group.”

More “internal partnering” meetings set the tone and helped to avoid and resolve issues.

“I think it helped us focus,” said Snyder. “Having those internal meetings made sure our management team was

more transparent in communications to the whole team.

“We put the North Battleford project logo on everything to reflect the focus on the project.”

## READY FOR OPERATION

In May 2013, KPP completed its startup and commissioning work on the North Battleford facility. This final stage included a long list of tasks, none of which could be rushed.

All the systems and equipment were checked out to confirm they were built to spec. Then the systems were officially started up — a process that took as little as a day for an air compressor to as much as several months for the combustion turbine.


After start-up was complete, performance testing confirmed the major equipment was generating the proper amount of electricity while meeting government standards in acoustics and emissions.

With the tests passed, the project was considered substantially complete and ready for commercial operation.

## THE BIGGEST SUCCESS

By the time the craft had packed up and the KPP internal partners were moving on to their next job, the North Battleford project had laid the foundation for a fully functioning plant — but also for lasting relationships and memorable career opportunities for many in first-time roles.

“A lot of us came up from the United States, not knowing what to expect being assigned to a project in Saskatchewan,” said Purto. “But there was a family atmosphere and a feeling we were all in it together.

“We proved to our client, our company and ourselves that we could do this kind of work successfully. Even more than that, we left feeling that the people on the job were the biggest success.” 

“We proved to our client, our company and ourselves that we could do this kind of work successfully. Even more than that, we left feeling that the people on the job were the biggest success.”

STEVE PURTO,  
PROJECT MANAGER

## Flashback: Thorold Cogeneration Project

In 2010, Kiewit completed its first project for Northland Power, the 265-megawatt combined-cycle Thorold Cogeneration Power Plant. Located 20 minutes from Niagara Falls, just west of Lake Ontario, the Thorold Power Plant provides power to more than 100,000 Ontario homes and businesses. It can also provide up

to 350,000 pounds of process steam per hour to the adjacent Rolute Forest Projects paper mill.

The Kiewit team’s contract included the detailed design, construction, startup, commissioning and performance testing for the plant.







SAN DIEGO AIRPORT:

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# TRAVEL MADE EASY

*Parking that seems miles away, long security lines, congested traffic flow, inconvenient check-in — these are just a few of the many complaints airport travelers across the country express every day. The San Diego International Airport, however, is doing its best to address these issues, and it will soon offer passengers a more pleasant experience.*



Kiewit/Sundt, a Kiewit-led joint venture, is tackling all of these challenges and more as part of its work on the San Diego International Airport's largest improvement project in its history. The project — The Green Build — will not only help the airport meet its current and future travel demands, but will do so while maintaining a focus on environmentally friendly construction and sustainability.

"Nearly 17 million passengers travel through this airport each year," said Mauricio Andrade, project manager. "It's a great project to work on. People have the opportunity to see directly and indirectly what we are building in front of the terminal. The amount of exposure we have to the public is high."

### CURBING CONGESTION

Currently, both arrivals and departures, as well as buses, shuttles and taxis, share the same roadway to access the airport's terminal, which causes congestion and confusion. Kiewit/Sundt will relieve curbside congestion by separating arriving passengers from departing passengers by constructing a four-lane elevated roadway for departures. The 1,300-foot upper level will include an uninterrupted sidewalk for passenger unloading.

To make check-in more convenient, the joint-venture team will also add two innovative "Smart Curb" check-in pavilions to the upper level. These pavilions are exterior lobbies allowing passengers to obtain boarding passes, check their bags and get flight information before going directly to security screening and the departure gate area. Each pavilion will be connected to the terminal by a pedestrian bridge over the existing arrivals roadway.

"One of the major concerns was the congestion that built up with arrivals and departures sharing one road," said Steve Fry, senior superintendent. "Cars would back up on the roadway. Lines would back up at check-in. And it all resulted in confusion for passengers. We're trying to make

it as easy as possible, and we think we're building some innovative solutions that will be used by other airports across the country."

Improvements to the airport's roadway, where cars can circle around while waiting for an arrival or exit toward their destination, and the parking lots are also part of the project. Kiewit/Sundt will build six overpass bridges, make utility improvements, reconfigure surface parking lots and reconstruct an auxiliary road near the airport. Two new toll plazas will be able to communicate directly with the new parking management office, and public art and landscape enhancements provide emphasis for selected site features.

"There will be more parking within walking distance of the terminal," said Andrade. "That was a big part of the airport's wish list. It will allow for more passenger convenience and increase revenue for the airport."

### THANKING THE COUNTRY'S FINEST

The coolest part of the project, says Andrade, might be constructing the nation's largest airport United Service Organization center. San Diego has deep military roots and welcomes nearly 100,000 service members and their families at the airport every year. The USO center provides a place for military members to gather as they wait for flights or seek information.

"The airport promotes the USO facility as a sense of pride and community service to the military and its members," says Andrade. "The building will be first-class and provide our military with a home away from home."

The 9,300-square-foot facility will include temporary beds, video games, a 24-hour lounge, fully-equipped laundry rooms, a computer room, a baggage-storage area and a full-size kitchen. Prior to the project, the airport had a 5,000-square-foot USO center, which was comparable to other facilities in cities across the country with a strong

military presence. That will almost double.

"It's everyone's favorite part of the project," said Fry. "It's just an honor to be able to give something back to our military. It'll be one of the country's top facilities."

The upper level of the building will house the parking management office.

### SETTING AN EXAMPLE

Andrade and his team are setting an example and have achieved Leadership in Energy and Environmental Design Gold certification from the U.S. Green Building Council. To meet this goal, Kiewit/Sundt is minimizing construction material going to the landfill. Certification requires 80 percent diversion from landfills, but Kiewit/Sundt is aiming for 98 percent diversion. The majority of all concrete and asphalt was crushed on site, and other construction materials such as steel were put in special recycle bins.

"It takes more effort in the planning stages to set it up, but in the long run it results in a cleaner and more efficient job," said Andrade.

Airport projects always include a wide range of stakeholders — and a huge number of eyeballs. With nearly 17 million passengers traveling through San Diego's airport each year, public interest is significant. The project team has been as open as possible during construction.

"We give tours all the time," said Andrade. "Different groups — community groups, media, the client, government officials — need to stay informed on what's happening, and we do the best we can. This is one of the doorsteps to the city, a first impression for a lot of people."

While Kiewit/Sundt works on the "landside" portion of the airport's improvement project, there is also a simultaneous "airside" part of the project. Continuous communication was required between both parties to determine utility interface points and coordinate a multitude of other items. This was achieved through weekly meetings to discuss schedules and systems.

"It's been a pretty smooth ride," said Lisa Michaelis from the San Diego Regional Airport Authority. "We've been lucky to work with a great contractor. Communication has been outstanding. We're excited to unveil much improved services to our passengers."

The project is scheduled for completion in July 2014. 

“It’s been a pretty smooth ride. We’ve been lucky to work with a great contractor. Communication has been outstanding. We’re excited to unveil much improved services to our passengers.”

LISA MICHAELIS,  
SAN DIEGO  
REGIONAL AIRPORT  
AUTHORITY





# San Diego Airport: new and improved

## SMART CURB

Connected to the new second-level departure roadway are two innovative Smart Curb check-in pavilions. These pavilions serve as exterior “lobbies” allowing passengers to:

- Obtain boarding passes
- Check their bags
- Get flight information

They can do all this before going directly to security screening and the departure gate area, which will clear up congestion in the terminal lobby. Each pavilion is 225 feet long by 40 feet deep and connected to the terminal by a new pedestrian bridge. Tensioned fabric membrane structures are provided over the pavilions and sidewalk for weather protection.



## USO CENTER

The 9,300-square-foot facility will include temporary beds, video games, a 24-hour lounge, fully-equipped laundry rooms, a computer room, a baggage-storage area and a full-size kitchen. A courtyard with picnic tables and a barbecue will be available for the private use of USO guests. A new parking management office occupies the top floor.



San Diego's rich military history makes it a natural fit for the country's largest airport USO center — nearly 100,000 service members and their families travel through the airport each year.

San Diego's naval base, the largest naval base on the West Coast, is home to the largest naval fleet in the world — 54 ships, more than 120 tenant commands (units located on base but not part of the chain of command) and more than 35,000 sailors, soldiers, Department of Defense civilian employees and contractors. San Diego is also home to Marine Corps bases and Coast Guard stations.



## ELEVATED ROADWAY

Six overpass bridges and other roadway system improvements will alleviate congestion caused by vehicle circulation. Previously, arriving and departing passengers used the same roadway. Departures will now have their own elevated roadway with arrivals — as well as shuttles, taxis and other ground transportation — circulating beneath.





# GETTING BIGGER IN TEXAS

*Everything might be bigger in Texas, but it's still business as usual for Kiewit Building Group.*

Opportunities continue to expand in Texas, and Kiewit has been there to showcase its diverse range of experience. From healthcare facilities to giant tension leg platform topsides, KBG is ready for a project of any dimension.

"Texas has been a market that has really expanded in the past couple of years," said Jason Beiter, Lempka, KBG vice president in charge of operations in Texas. "I think we provide some really unique services. We're able to partner with other parts of the business to provide that classic Kiewit depth of experience."

#### BRINGING EXPERIENCE TO TEXAS

Kiewit has a long history of building projects throughout North America.

"The work is nothing new for us," said Beiter. "We're just moving into a new area. So we're able to show many examples of the types of work we've done across the country."

KBG's capabilities include commercial, data center, education, government, healthcare, hospitality,

manufacturing, retail, sports/entertainment and transit facilities. It recently constructed two new facilities for the University of Texas MD Anderson Cancer Center. The first is a new 1,950-square-foot laundry and shower facility for the center's employees; the second project is a new 1,200-square-foot "Q" building that houses chimpanzees used at the center for research.

"This type of project really shows our range," said Adam Bealle, operations manager. "We can do big, shiny corporate headquarters and towers, but we also have the capabilities for the smaller, more unique jobs. That's what makes Kiewit a great contractor — the ability to take on any job, big or small, simple or complex."

Another example of KBG's expanding list of talents is its work on the Shell Olympus living quarters. The Olympus will be the largest tension leg platform in the Gulf of Mexico when it is completed. The living quarters module is a 5,000-ton structure that will provide living accommodations for 192 people in addition to housing the emergency rescue vessels, a helipad for two helicopters and the control center for the entire platform.

This project combines Kiewit's work in the oil, gas and chemical market with its building expertise.

"Kiewit can offer experts in every market, and we come together as a team when the project calls for it," said Beiter.

## KBG: LEEDing the way



#### TD Ameritrade Headquarters

The new TD Ameritrade Headquarters building in Omaha, Neb., aims to be certified as LEED Platinum. The building will cut utility costs by using natural light, generating power from solar panels and wind turbines and capturing rainwater to flush toilets. Renewable building materials included bamboo, natural rubber flooring and linoleum made from linseed oil.



#### Denver Zoo Toyota Elephant Passage

KBG constructed the massive Toyota Elephant Passage exhibit that opened at the Denver Zoo in 2012. It was the first zoo exhibit in the United States to receive LEED Platinum certification. More than 75 percent of the project's waste and construction debris was diverted from landfills. About 50 trees that needed to be cleared for the exhibit were used as paneling, mulch for landscaping or deadfall for the animals to use for nesting and perching. A biomass gasification system turns human trash and animal waste into energy to power the exhibit — more than 90 percent of the zoo's waste is turned into usable energy.



#### University of Colorado at Boulder residence halls

Arnett Hall, Andrews Hall, Smith Hall and Buckingham Hall all received LEED Gold certification after Kiewit Building Group renovation projects. More efficient HVAC systems, low-water-use fixtures, high-efficiency lighting fixtures, controls to reduce electrical use and more efficient use of available light are among the energy-efficient improvements made during the renovation.



“So as a building group, we can offer comprehensive building capabilities or provide support on any project that might have a building component.”

**PROVEN CAPABILITIES**

KBG has the experience at any stage of a project’s development, and that’s why it offers an early contractor involvement model.

“The earlier we get involved in project development and design, the more value we provide to our clients,” said Beiter. “We’ve really been able to provide ideas early on that clients hadn’t thought of. In the end, they have been very pleased.”

These suggestions often include aiming for LEED certification — Leadership in Energy and Environmental Design. Kiewit can offer guidance on attaining LEED

certification, which is an area that continues to expand rapidly around the United States. Other services include preconstruction, general contracting, construction management and engineering.

“Our LEED services are top of the line,” said Beiter. “We have so much recent experience in that realm. We almost always suggest it to clients now. It’s not fit for every project, but it’s something that can save clients money in the long term. Plus, it’s good for the environment.”


KBG has also adapted its warranty program to fit what clients want. Kiewit visits its clients monthly during the warranty period (contracts usually call for one total visit), allowing the team to resolve any issues in a much more timely manner and provide more preventative maintenance services.

“It’s just what we do,” said Beiter. “All of our projects are our most important projects.”

**TEXAS EXPANSION**

As Kiewit Building Group looks for more opportunities in Texas, it knows it has a solid history of experience to back it up.

“We’re always looking for new opportunities,” said Beiter. “It’s the Peter Kiewit way — go where the work is. But we don’t just pick up and move on a whim. When we find new markets, it’s because we know they’re great markets.”

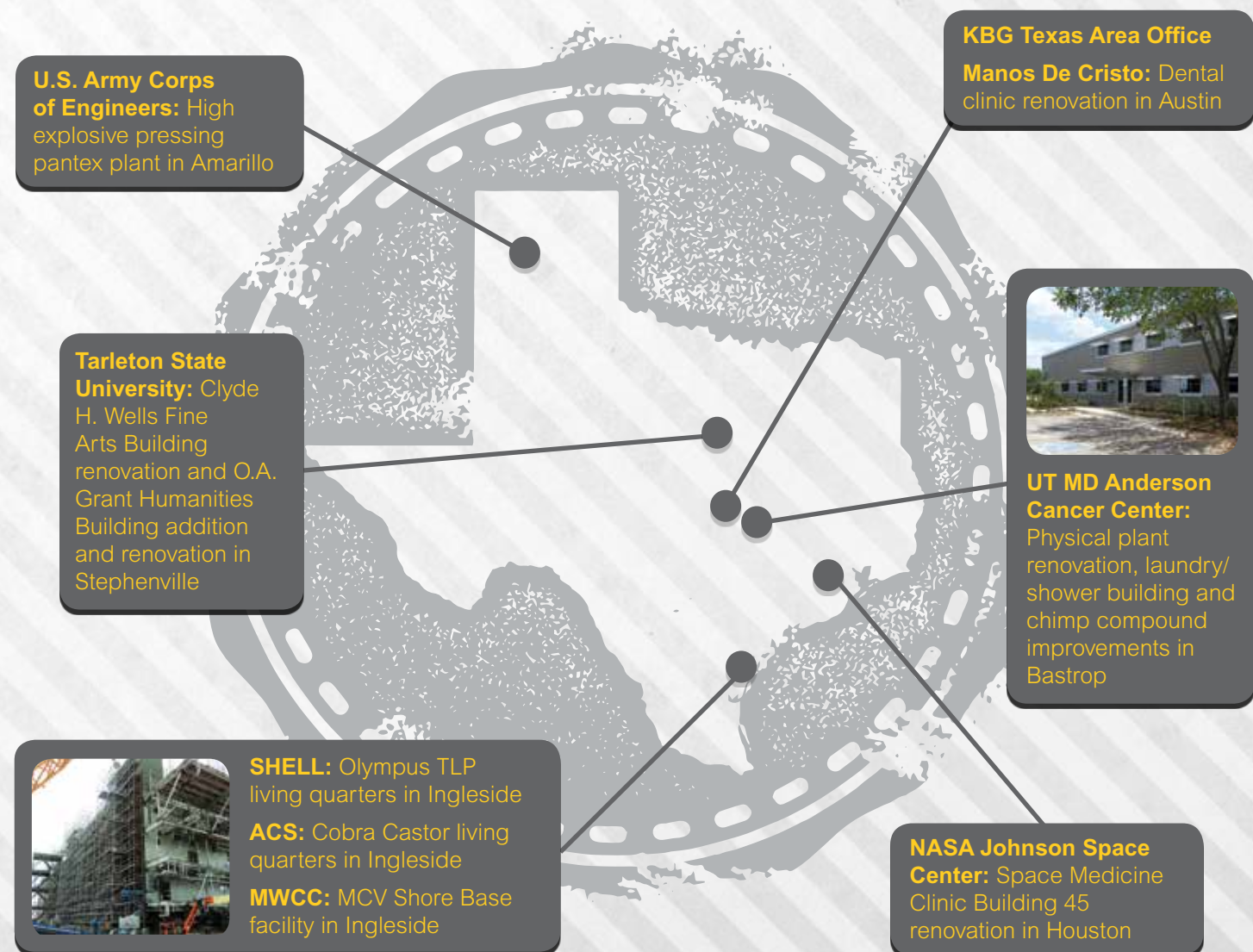
“We’re excited to offer our capabilities in a new area. Texas is a great state with a lot going on, and we’re already working with some great clients. We look forward to growth over the next several years here in the Lone Star State.” 

“The earlier we get involved in project development and design, the more value we provide to our clients. We’ve really been able to provide ideas early on that clients hadn’t thought of. In the end, they have been very pleased.”

**JASON BEITER,**  
KIEWIT BUILDING  
GROUP VICE  
PRESIDENT

# Leaving our stamp in Texas

Less than three years after moving into the Texas market, Kiewit Building Group is already making a name for itself in the state. Here are a sample of its projects.





WORLD'S WIDEST BRIDGE:

# A MODERN MARVEL

*In the Vancouver, B.C., region, the Fraser River separates the city center from suburbs to the south and east. For decades, the 1960s-era Port Mann Bridge was the primary route across the river, serving more than 800,000 vehicles in a single week.*



But the four-lane bridge couldn't keep pace with the growing needs of the region. In fact, the old bridge was congested up to 14 hours a day. A fifth lane was added in 2002, but it was not enough.

To address this congestion and accommodate the more than 2.2 million people who now call Metro Vancouver home, not to mention the additional 1 million people expected in the region over the next 30 years, the Province of British Columbia created the Transportation Investment Corporation, a public crown corporation, to implement the Port Mann/Highway 1 Improvement Project (PMH1).

In March 2009, the joint venture of Kiewit/Flatiron was awarded the design-build contract for the \$2.7 billion project — the largest transportation infrastructure project in B.C. history. Less than a year later, a Kiewit-led design-build team broke ground.

Once complete, the new 10-lane Port Mann Bridge will be the second longest cable-stayed bridge in North America, and at 65 meters wide it will hold the Guinness World Record for widest bridge in the world.

"This project really is a game-changer for the region," said Rod VanWerkhoven, project engineer. "And it's long overdue."

### CONSTRUCTION CONSIDERATIONS

As part of its contract, Kiewit/Flatiron is responsible for:

- The construction of a new 10-lane Port Mann Bridge, providing a critical link between Vancouver and Langley across the Fraser River.
- Thirty-seven kilometers of highway widening on the Trans-Canada Highway, the major arterial route for commuting around the mainland, including 30 kilometers of new high-occupancy vehicle lanes.

- The replacement or widening of 36 highway overpasses and underpasses.

### BRIDGE PORTION

A record-setting bridge requires unique and highly technical construction methods, and Kiewit/Flatiron was prepared for the challenge.

The two towers supporting the mainspan of the new bridge were built in part using a slip-form method — the first project in North America to use this method on a bridge.

"You are constantly pouring concrete into a continuously moving form," said Daryl Schubert, project engineer. "A lot of work and preplanning went into it. In the end, it really helped accelerate our schedule."

The bridge span itself is comprised of two separate deck structures; the south and north approaches are made up of precast concrete segments, while the mainspan is structural steel supported by stay cables. After 45 months of construction, the team opened the bridge to eight lanes of traffic on Dec. 1, 2012.

"Now that we have opened the eastern segment of the corridor and the new bridge is operating with eight of its 10 lanes open to traffic, we have already seen vast improvements in travel times and the corridor's ability to meet the needs of commuters and goods movers," said Garry Dawson, vice president of technical services for TI Corp. "This will improve even more as the overall project moves toward completion."

Schubert, who grew up in Vancouver, has noticed an improvement in his commute time already, as have others. "The reception has been positive," he said.

The unique construction methods will help ensure that crews deliver the full 10-lane bridge in 2015. In that time, the old bridge must also come down.

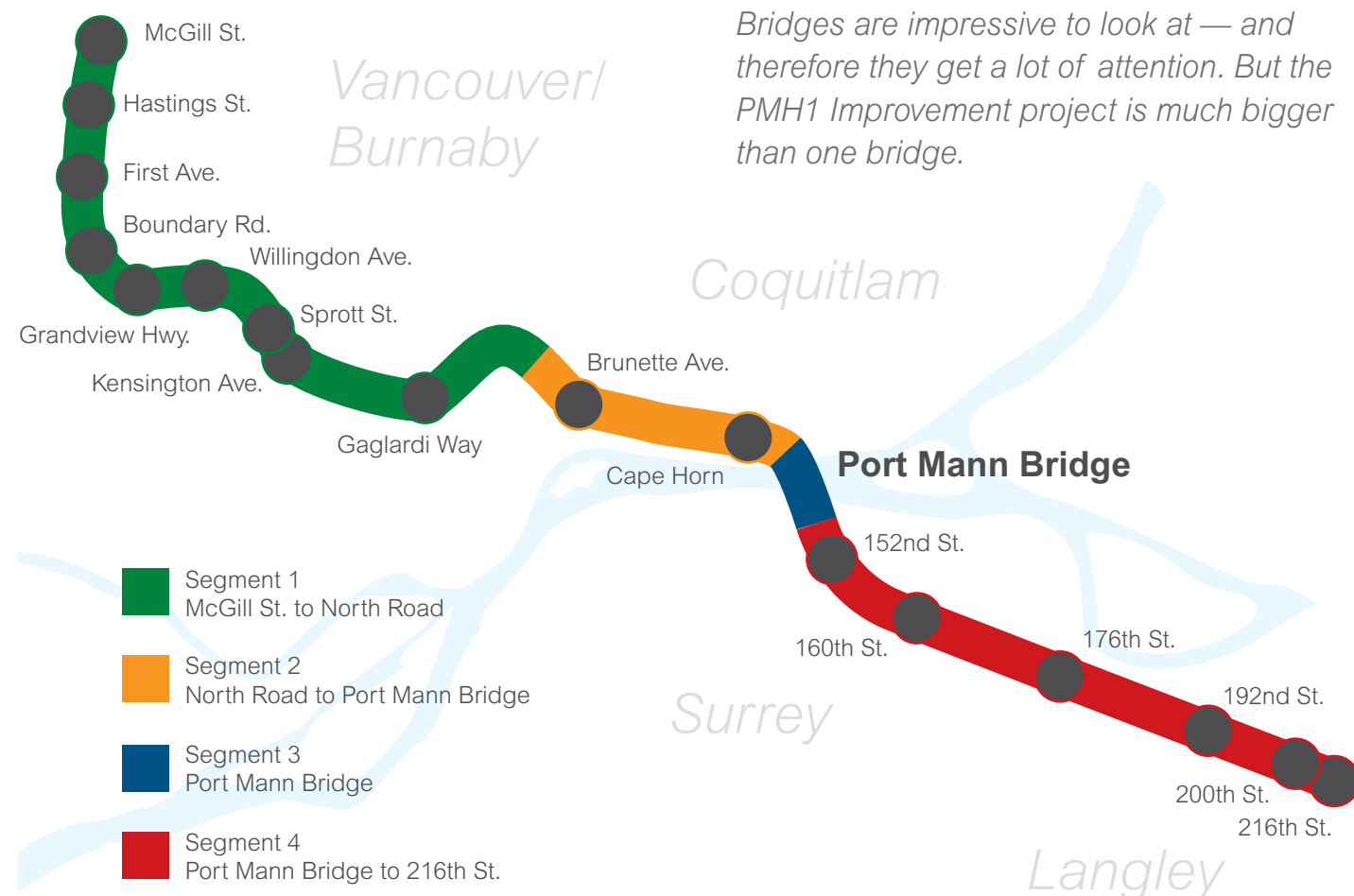
"It's a very technical demolition," said Schubert. "We are essentially removing the old bridge employing the same methods that were used to build it: stay towers, stays and derrick cranes on the deck."

Additional work is also required to reinforce and stabilize the old structure that was built in the 1960s, to prepare it for demolition. The mainspan will then be deconstructed in reverse order of how it was originally built.



1. Bridge deck installation continues at the new Port Mann Bridge. The bridge deck, along with the cables and paving, was completed in 2012. 2. Segment 4 of the highway project included building an overpass over 152nd Street in Surrey, which is British Columbia's second-largest city by population. 3. The Port Mann/Highway 1 Improvement included the replacement of nine highway interchanges throughout all segments of the project.

## The segments of PMH1





## HIGHWAY PORTION

"The project is much more than a bridge," said Ryan Tones, commercial manager.

In addition to the new bridge, the project team was tasked with widening the highway and replacing nine interchanges.

As part of the project's contract, the team must maintain existing traffic levels during all stages of construction, while protecting and working over more than 150 live utility locations including power, oil, natural gas and sewer lines.

"Kiewit has been uncompromising in maintaining a solid safety program, constantly assessing the work underway and ensuring the program adapts to manage risks that may be encountered so workers are trained and aware of the importance of the safety program," said Dawson. "This recognition of maintaining a safe environment extends to ensuring construction work retains a safe roadway for vehicles at all time. Overall we are very pleased with the

project's safety record and the attention that Kiewit brings to it."

At project completion, more than 100 detours will have been used to divert traffic and allow for on-time project delivery.

"Much like a game of chess, we need to keep moving pieces around, all while moving traffic through them," said Tones. "We all have to be task masters."

The weekend of Sept. 22-23, 2012, was known as "Weekend Warrior" — the one and only weekend the project team was allowed to shut down the existing Cape Horn interchange, located on the north approach of the new Port Mann Bridge — one of the busiest interchanges along the TransCanada highway. The team needed to dismantle it to allow for a new interchange. Thanks to an entire year of preplanning, the team was able to complete the challenge 12 hours ahead of schedule, opening back up for traffic

Sunday night.

The interchange reconstruction remains one of the most complex components of the project — and the most comprehensive interchange reconstruction in British Columbia history.

"I've been doing transportation projects for 12 years of my career with Kiewit," said Tones. "And this was the most complicated project — logistically and technically — I've ever been a part of."

## A PRESTIGIOUS AWARD — COMMUNITY INVOLVEMENT

In spite of an aggressive schedule, the project team has continued to make it a priority to donate time and resources to the local community.

In addition to supporting its local United Way chapter, the project team participates in and leads multiple charity

fundraising events to collect funds and food for the surrounding communities. This includes supporting food drives, project tours and raffles, and sponsoring fundraising events and local galas.

The team's biggest event, the annual charity golf tournament, is held with all subcontractors and suppliers. Proceeds from the event go to SHARE Society, a not-for-profit, independent, community-based organization that provides leadership and programs in response to the social needs of the residents of Coquitlam, Port Coquitlam and Port Moody.

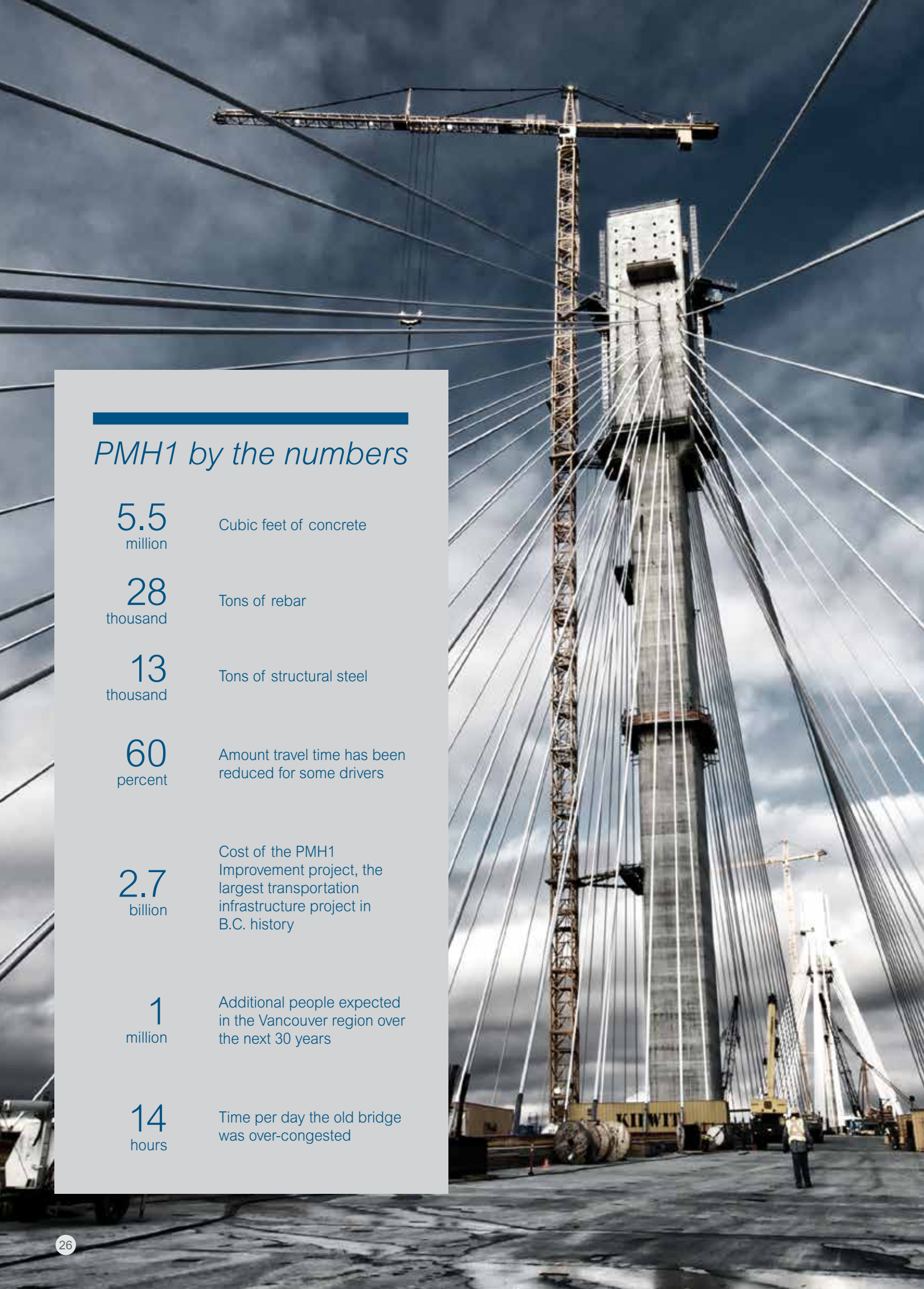
"Kiewit's gifts have helped support so many families and have made a huge impact on the people we serve," said Katherine Lawrence, director of development at SHARE Family and Community Services.

"It's so important to be connected with the local community," said Tones, who is also a member of the Tri-

# Fifty years of the Port Mann Bridge







## PMH1 by the numbers

5.5 million	Cubic feet of concrete
28 thousand	Tons of rebar
13 thousand	Tons of structural steel
60 percent	Amount travel time has been reduced for some drivers
2.7 billion	Cost of the PMH1 Improvement project, the largest transportation infrastructure project in B.C. history
1 million	Additional people expected in the Vancouver region over the next 30 years
14 hours	Time per day the old bridge was over-congested

Cities Chamber of Commerce. "It is humbling to know that we are not only helping improve the local landscape, but also the community itself."

Among other awards it has won for service to the community, Kiewit/Flatiron was awarded the Wesbild Leadership in Philanthropy award from the SHARE Society in June 2012. The highest honor awarded by the SHARE Society, the Wesbild Leadership in Philanthropy is given to donors whose significant contributions allow SHARE to pursue its mission to help those in need.

"Really getting to know those in the community and building relationships with them makes it easier for people to see and understand the future benefits of our projects to the public," said Scott Taylor, project engineer.

### A MELTING POT

In addition to working with many groups within the local community, the project team itself is quite diverse.

"The company really provided tremendous support and assembled a very strong team for this project," said Ellis. "It exemplifies one of the true strengths of Kiewit — the ability to draw on our broad array of talent to get the job done."

Dawson agreed.

"Kiewit and Flatiron have brought a strong, diverse team to this project and in doing so are achieving TI Corp's goal of constructing an efficient, high quality roadway that will serve the region today and for many years to come," he said.

The project is also employing First Nations members to assist with construction and offering on-the-job training.

"It's been a great experience," said Tones. "Some First Nations members have enjoyed working with Kiewit so much on this project that they have decided to stay on with Kiewit and move on to other projects.

"Every member of our team worked toward a single goal: a safe and on-time delivery.

Projects like this aren't successful without everyone pulling their weight."

“ This is an extremely large and complex project that demands intense coordination on the contractor’s part, a role that Kiewit has handled exceptionally well, not only on the ground but working closely with TI Corp to ensure the owners’ needs are met as well.”

**GARRY DAWSON,**  
VICE PRESIDENT  
OF TECHNICAL  
SERVICES, TI CORP






### A LOOK AHEAD

To date, construction on the Port Mann project has reduced travel time by up to 60 percent and saves drivers up to an hour a day.

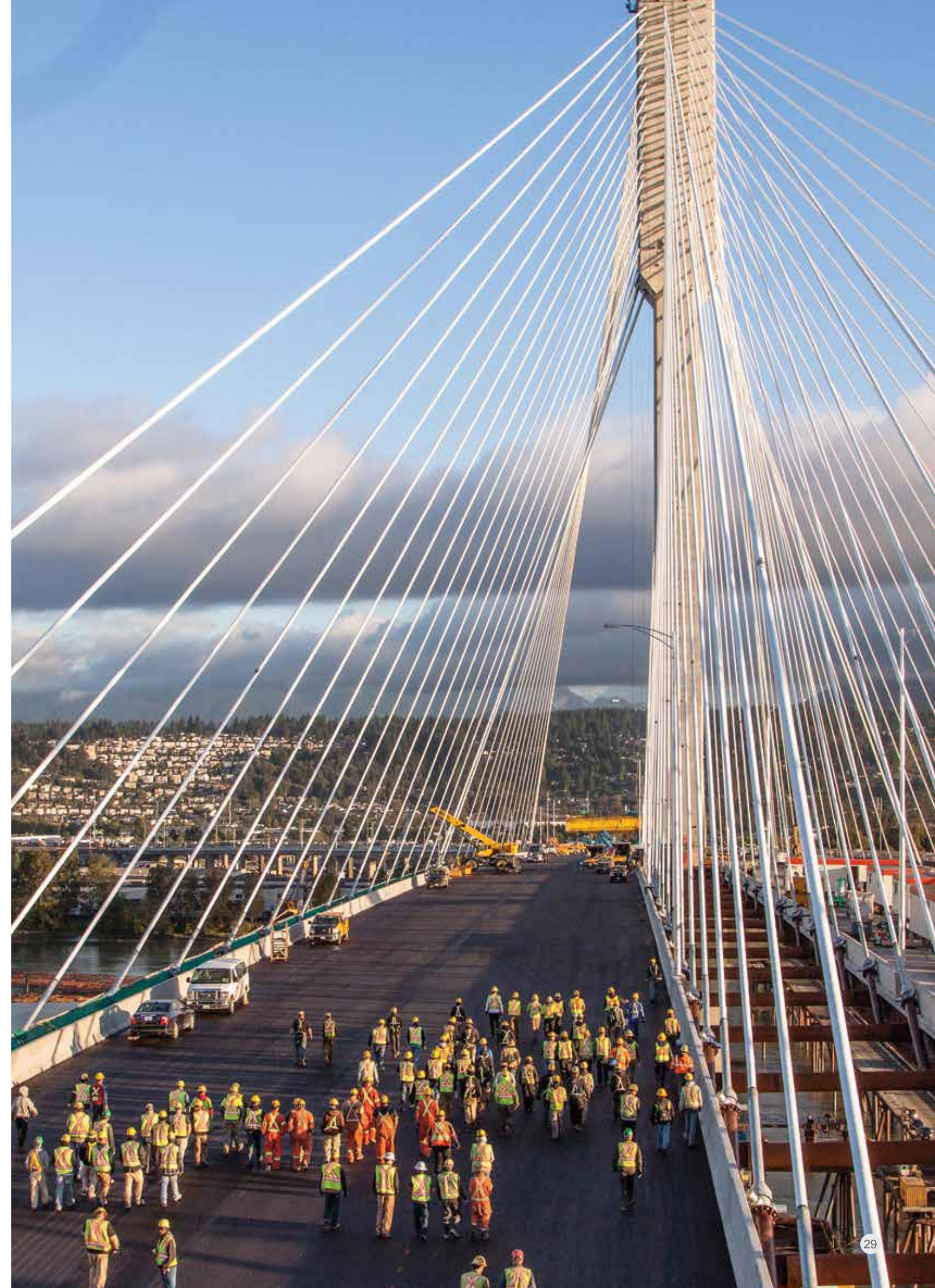
“The experience working with Kiewit has been very good,” said Dawson. “This is an extremely large and complex project that demands intense coordination on the contractor’s part, a role that Kiewit has handled exceptionally well, not only on the ground but working closely with TI Corp to ensure the owners’ needs are met as well.”

Work on the project will continue through 2015, with estimated completion set for January of that year, eight months ahead of schedule.

“I grew up in the lower mainland and have traveled all over different parts of Western Canada during my career with Kiewit,” said Tones. “To have the opportunity to come back and be a part of totally changing the face of the lower mainland is an honor. I’m really proud of what our team has accomplished in my hometown. This is one of those projects I can drive through in years to come with my kids and grandkids, letting them know I was part of making this happen.” 



1. The “structures gang” celebrates a job well done at the new Port Mann Bridge. 2. Segment 4 of the project includes the widening and upgrading of miles of Highway 1 as it winds throughout Surrey, a suburb of Vancouver. 3. The new Port Mann Bridge goes in alongside the old bridge, which opened in 1964. The old bridge will be torn down when the new version is completely finished and opened to traffic.







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