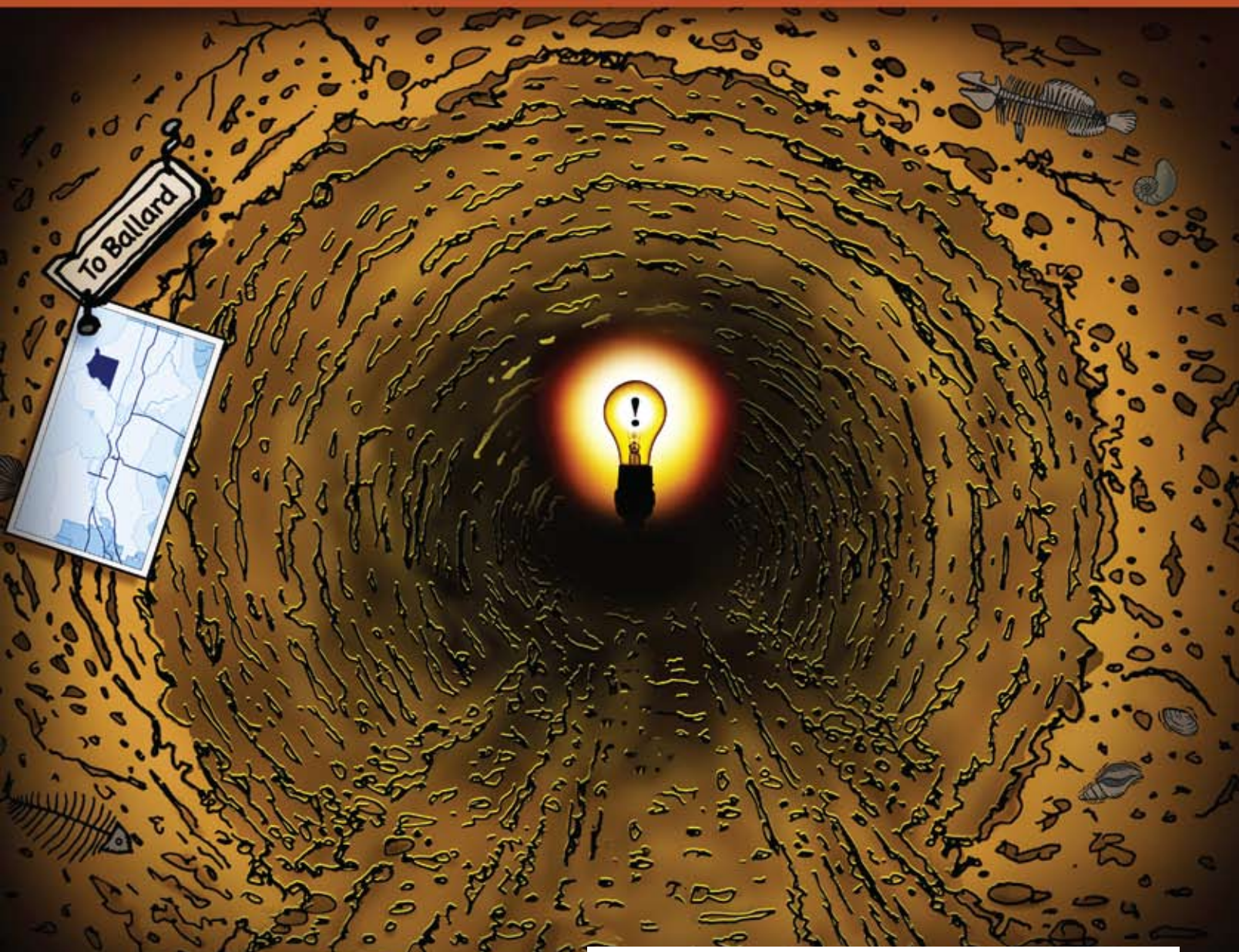
Special Issue - Alaskan Way Viaduct

Seattle Industry

Spring 2009

The Voice for Industry



Deep Bore Breakthrough

PRSRT STD
U.S. POSTAGE
PAID
Permit #231
Seattle, WA

South Seattle Community College

TRANSPORTATION, LOGISTICS, AND SUPPLY CHAIN MANAGEMENT

NEW PROGRAM

WHY TRANSPORTATION, LOGISTICS, AND SUPPLY CHAIN MANAGEMENT?

- Every day, 43 million tons of goods move on the nation's interconnected transportation network.[1]
- Over $1.5 billion in containerized shipments pass through U.S. ports each day.[1]
- Puget Sound is home to one of the busiest airports and two of the busiest seaports in the U.S.
- There is a projected workforce shortage of transportation, distribution, logistics and supply chain professionals. Plus, rapid changes in transportation technology require ongoing training for transportation workers.[2]
- Jobs offer above-average salaries, providing sustainable, living-wage careers. Work in sales, distribution, security, maritime, customs compliance, international logistics, safety, import/export, airfreight, customer service, warehouse operations and more![3]

[1] Council of Supply Chain Management Professionals, http://cscmp.org/
[2] TR News July-August 2008 [3] Bureau of Labor Statistics

PROGRAM DESCRIPTION

Short-term, 19-credit program offers courses in airport and seaport operations, security and regulatory environment, international and domestic transportation modes, and supply chain management.

- Evening classes and online course work provide flexibility for students with busy schedules.
- Program focuses on practical and relevant skills for immediate application.
- Taught by industry professionals with up-to-date knowledge and contacts.
- Convenient class location at the Georgetown Campus.

GET STARTED SPRING QUARTER!

LOG 236	**Introduction to Airport & Seaport Operations**		
4 cr	Tuesdays	5:30 – 9:30 pm	4/7 – 5/12
LOG 235	**Introduction to Transportation & Logistics**		
3 cr	Tuesdays	5:30 – 9:30 pm	5/19 – 6/16

Puget Sound Industrial Excellence Center also offers:

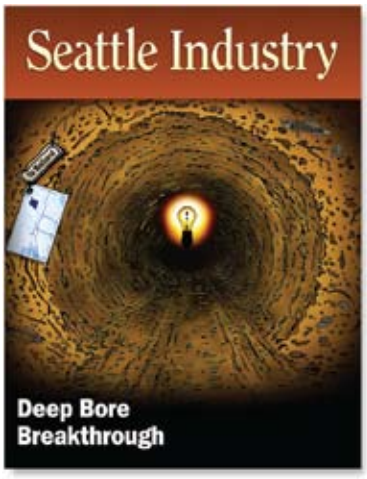
- Customized workplace training programs
- Computer skills training
- Industrial safety training
- Energy auditing and BPI certification

FOR ADDITIONAL INFORMATION

Puget Sound Industrial Excellence Center (PSIEC)
Where Industry Meets Innovation
South Seattle Community College Georgetown Campus
6737 Corson Avenue South, Seattle, WA 98108
(206) 764-5350 • jhauth@sccd.ctc.edu • www.southseattle.edu

Contents

Volume 6 Number 1
Spring 2009



ON THE COVER
Illustration by Deb McCarroll

Seattle Industry Online!

The Voice for Industry
Get more news at wwwSeattleIndustry.Org

Now Online:

Tale of Two Parking Garages

Bus drivers get a parking garage in the Duwamish but the rest of us can't because we're all supposed to ride the bus. Huh? The Alaskan Way Viaduct may be a giant billboard for all that's goofed up with transportation in our region but the sorry story hardly ends there. Learn more at Seattle Industry Online.

Seattle Industry eBulletin

Keep current every week with news about the people and issues that shape industry in the greater Pacific Northwest. **Subscribe at www.SeattleIndustry.org**.

SPECIAL REPORT – DIG THIS!

We're as sick and tired of the Alaskan Way Viaduct as you are but the deep bore tunnel idea changes everything. The politics surrounding the project remain stormy but it is the best viaduct replacement option and it brings a whole new way of looking at a complex civic challenge that has so far flummoxed the best of us.

MIC MANUFACTURING INDUSTRIAL COUNCIL

DUWAMISH TMA Duwamish Transportation Management Association

PUBLISHER
Manufacturing Industrial Council of Seattle
5509 1st Avenue South
Seattle, WA 98108
Tel. 206-762-2470
Fax 206-762-2492
e-mail: seattleindustry@qwest.net

Editor
Dave Gering
e-mail: dgmic@qwest.net

Advertising Sales
Marilyn Young Skogland
e-mail: mysmic@qwest.net
206-762-2470

Design/Production
Studio Pacific Inc.
Tel. 206-935-8717
e-mail: deb@studiopacific.com
www.studiopacific.com

Seattle Industry is published periodically by the Manufacturing Industrial Council of Greater Seattle at 5509 1st Avenue South, Suite B, Seattle, WA 98108.

To learn more about the MIC and *Seattle Industry* visit our website, www.seattleindustry.org

POSTMASTER: Please send address changes to Seattle Industry, P.O. Box 81063, Seattle, WA 98108.

***Seattle Industry* was established with start-up support from the South Downtown Foundation.**

Deep Bore Breakthrough

The deep bore tunnel costs a lot. It's worth it. Here's why and how the idea came forward.

DOZENS – NO, HUNDREDS – of questions are yet to be answered about the proposal to replace the Alaskan Way Viaduct with a deep bore tunnel. They include questions about cost, the potential for cost overruns, design challenges, and even the propriety of considering such a big idea while the world suffers through the worst economic slump since FDR was conducting fireside chats with Lucy Mercer.

But there is also an outstanding argument in favor of the deep bore option and, assuming Mother Nature cooperates, it goes like this:

1) Leave the Alaskan Way Viaduct standing while the tunnel is engineered, designed, and bored;

2) Connect the tunnel openings with related roadways;

3) Divert viaduct traffic into the tunnel after it is completed; and then

4) Tear down the viaduct.

The process would not be painless. The deep bore tunnel may require three to six months of significant traffic detours as the street connections are built that will allow SR 99 traffic to move from the viaduct to the tunnel. But any other viaduct replacement option would cause far more pain for far longer periods of time.

A new elevated structure would cause worse disruption for three to five years on the waterfront due to construction and detours. Construction overall would have lasted 6.5 to 8.5 years. The earlier cut-and-cover tunnel plan would have shut down SR 99 and the central waterfront for four years and clogged up Interstate 5 for the better part of a decade.

With the deep bore proposal, it all boils down to money. Wealth-creating, family-raising, house-buying, tuition-paying export dollars and how we can best keep the regional economy rolling while the viaduct is being replaced.

The Well, Duh! surface option of removing the viaduct and replacing it with road and transit improvements would not cause disruption so much as strangulation, permanently shrinking regional north-south traffic capacity while clogging Interstate 5, Seattle surface streets, and the central waterfront with tens of thousands of cars, trucks, and buses.

Like the surface option, the deep bore tunnel scenario would remove the viaduct, opening the way for a nicer waterfront. But that is not its primary objective. The primary function of the deep bore option is to support a regional economy that is, according to the U.S. Department of Commerce, the fourth largest export production center in the United States of America.

Since the 2002 Nisqually earthquake, the viaduct debate has covered a lot of ground, from the future of the waterfront to the future of the planet to the soul of the city. Interesting, but beside the point.

With the deep bore proposal, it all boils down to money and not Wall Street subprime money, Bernie Madoff stolen money, or government printing press bailout money – or even the money that it will cost to build the deep bore tunnel. The deep bore is instead all about wealth-creating, family-raising, house-buying, tuition-paying export dollars and how we can best keep the regional economy rolling while the viaduct is being replaced.

That is a fundamental shift in the viaduct planning process and it comes with an enormous caveat because the political and institutional process issues that gummed it up for the past eight years might still screw everything up.

To get a better sense of the value of the deep bore tunnel, it helps to visit one of the overpasses in downtown Seattle that carry streets like Madison over Interstate 5. At times, the "whoosh" of the cars, trucks, and buses thundering along the freeway below is so loud you can't hear yourself whistle.

Traffic volumes on I-5 have not changed over the past ten years because it can't carry any more vehicles. SR 99 has added about 10,000 vehicles per day during that time, and today its busiest stretch, the viaduct in the middle of downtown, now carries 110,000 vehicles daily.

From east to west along Madison, it is barely four-tenths of a mile from the western shoulder of I-5 to the eastern edge of the viaduct, but the two roadways are actually far more closely tied than that.

Between them, I-5, SR99, and the Alaskan Way Viaduct carry about 340,000 cars, trucks and buses every workday. That is by far the largest volume of commuters and commerce carried by any corridor in the state. I-5 south of Tacoma comes in a low second, with about 180,000 vehicles.

I-5 and SR99 share another key distinction. They are the only roads, large or small, that completely cross Seattle north to south. This is very important and, Seattle being Seattle, it is all about global warming.

During the last Ice Age, the future home of the Seahawks was covered by a huge glacier. As the world warmed and the glacier retreated, it left behind a landscape that had been ruggedly and

deeply scoured by the enormous weight of the ice dragging across it. Salt water soon filled the gaping, deep valley to the west while fresh water filled the one to the east and a few big puddles formed on some of the land in between.

Today, under a bright sun and blue skies, the outcome is an urban landscape that is drop-dead gorgeous, graced with thousands of viewpoints along hills and ridges from which it can all be appreciated. Unfortunately, the hills, ridges, bays, and waterways also make Seattle highly prone to stop-dead, workday ruining traffic jams the likes of which some cities never see.

Most cities are flatter, drier, and not as pretty as Seattle is, but they are served by street grids with lots of straight stretches and 90-degree turns. Seattle's street network is comprised of many ill-fitting grids with roads that must wind around all the hills and shorelines

If you are driving north-south in Seattle, I-5 or SR 99 can carry you above all this. If you are trying to drive north-south on the surface, the crazy-quilt streets funnel you inexorably to one of four drawbridges.

That's because the city is not only bound by water on the east and west, it is entirely bifurcated by a human-built ship canal that can only be crossed by drawbridges at only four points: Ballard, Fremont, the University District, and Montlake.

To make things even more interesting, these bridges are subject to federal requirements that they open whenever a tall enough boat approaches, even if it's a single yacht for a big-shot lawyer making an early afternoon summer getaway with her boyfriend Andres who is lounging with an umbrella drink on the poop deck, wearing a bright red Speedo.

In spite of all these obstructions, most times, somehow, the big grid functions. But if a car gets a flat tire in the wrong place at the wrong time, the whole place can grind into gridlock, and when something goes wrong on the Viaduct – let's say a two-car accident requiring a police investigation – the whole place clogs up worse than Uncle Joe's arteries.

Even on weekends when the viaduct is closed for inspections or repair work, traffic on the west side of downtown Seattle crawls until the viaduct reopens.

Now, imagine doing that to ourselves for three, five, seven, or nine years while the viaduct is replaced. If we didn't have to, we wouldn't, and, thanks to the deep bore option, now we don't have to.

Ugly? Maybe, maybe not. But the Alaskan Way Viaduct is picture-perfect when it comes to carrying SR 99 above and across downtown Seattle, usually providing an unclogged alternative to frequently jammed I-5. It also provides a key link for regional and local export-enmeshed supply chains that join together tens of thousands of highly productive workers like Herald Ugles.

When the viaduct is closed for inspections or repair work, traffic on the west side of downtown Seattle crawls until the viaduct reopens. Now, imagine doing that to ourselves for three, five, seven, or nine years while the viaduct is replaced. If we didn't have to, we wouldn't, and, thanks to the deep bore option, now we don't have to.

Ugles is a smart, strapping guy who played basketball in community college and spent 29 years working his way up through the ranks of Local 19 of the International Longshore and Warehouse Union. The local represents some of the highest paid industrial workers in the world.

Ugles spends nearly every workday operating heavy lift equipment to move cargo containers around the port terminals in Seattle that are perched around the southern end of Elliott Bay.

But when it is time for Ugles to bring home the bacon, he stops by the Poulsbo Red Apple Supermarket.

His robust paychecks may come from Seattle, but Herald, his wife, and their two teenagers spend them mostly on the western shore of Puget Sound and when they need groceries, the Red Apple is where they usually shop.

Those paychecks also cover the mortgage and property tax payments for their home on Bainbridge Island, the clothes and other department store purchases that they make at the Silverdale Mall, the cars they shop for and buy at Bremerton Toyota, the meals and takeout that they get at places like Hakata's – their favorite place for sushi – and annual treks to Port Townsend to buy special stocking stuffers and other Christmas gifts.

"We're like everybody else," Herald jokes. "We usually find a way to spend a penny more or a penny less than just about everything I make."

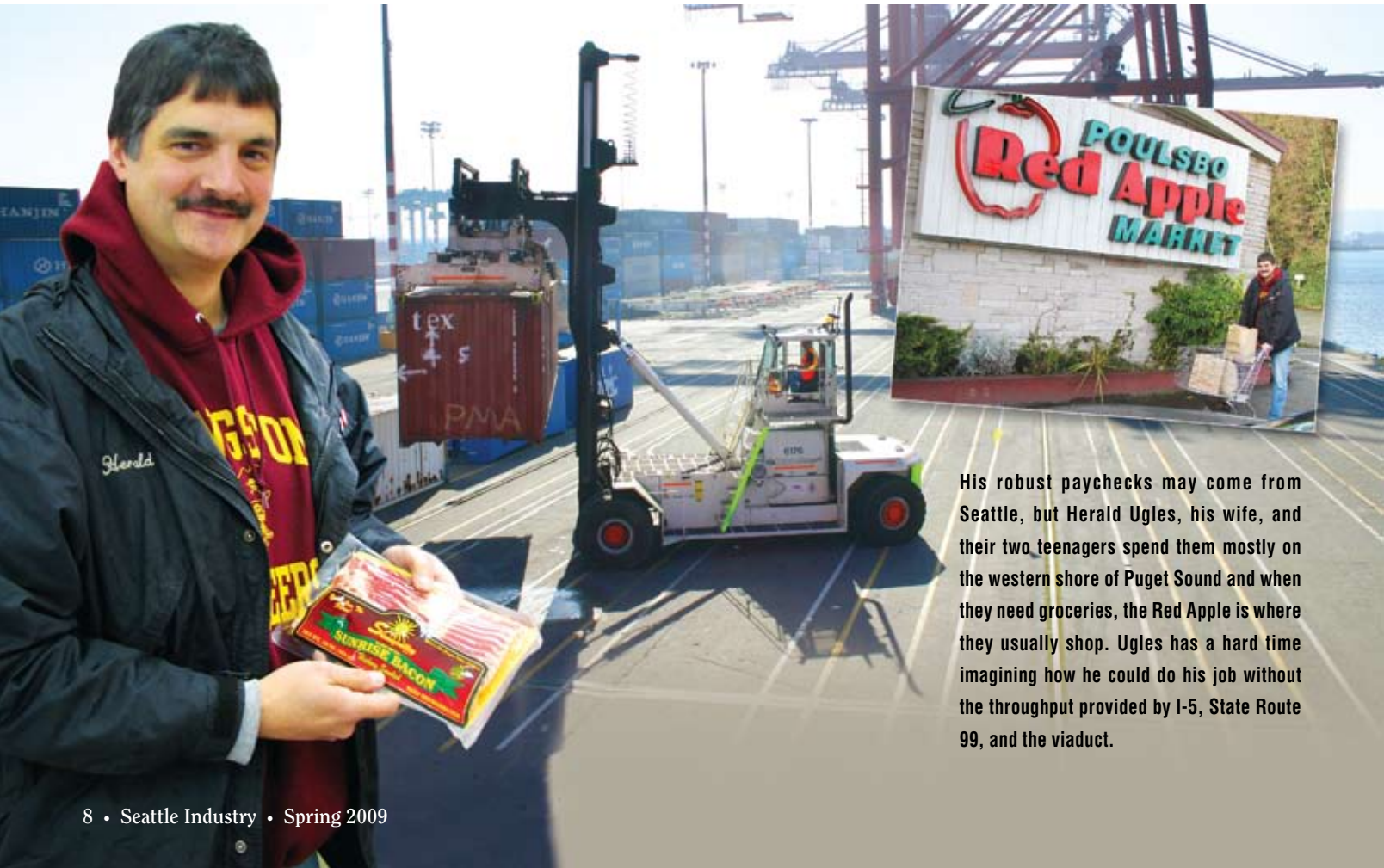
And, like Herald, most members of Local 19 spend their paychecks in places far removed from the shadow of the Space Needle.

The extent of this trend was documented in a 2008 study of the regional economic impacts of the Port of Seattle. The study identified the hometowns of 12,456 people who are employed in some aspect of the marine cargo industry, ranging from lawyers and longshoremen to truck drivers and shipping agents.

Only 14% lived in Seattle. Thirty-six percent lived in the balance of King County. The other 50% lived outside King County.

They all rely on the SR 99-Interstate 5 corridor to reach their jobs in downtown office towers and the bayside terminals. They use it to move cargo containers between ships and rail yards. They use it to deliver equipment and supplies. The viaduct literally casts its shadow onto the port's Terminal 46, where Ugles often works. Further south, the viaduct soars above the dispatch hall where the longshoreman report each day to get their work assignments.

Ugles has a hard time imagining how he could do his job without the throughput provided by I-5, State Route 99, and the viaduct. At press time, Local 19 had not taken a position on the deep bore tunnel proposal, but Ugles was ready to cast his vote as soon as he heard there was a way to leave the viaduct standing while a deep bore is dug.



His robust paychecks may come from Seattle, but Herald Ugles, his wife, and their two teenagers spend them mostly on the western shore of Puget Sound and when they need groceries, the Red Apple is where they usually shop. Ugles has a hard time imagining how he could do his job without the throughput provided by I-5, State Route 99, and the viaduct.

"That's the biggest plus," he said. "Leave the viaduct up and running. I know it's a lot of money, but it's a 100-year decision."

The money generated in the corridor rolls like the tide. It does not just roll out of Seattle. It also rolls in.

About 10,000 Boeing employees live inside the City of Seattle. They are among the best-paid manufacturing workers in the world.

Most of them work at commercial aircraft production and support facilities located outside the city limits, and when they come home they bring their paychecks with them.

They rely on the corridor and a related spur along Interstate 405 to get to and from work, and to receive the parts and supplies necessary to build airplanes. And in the middle of the corridor there are hundreds of companies that provide aircraft parts, supplies, and services.

According to a state survey, Boeing has more than 900 suppliers in Washington. Seattle is home to 230 of them. That's more than the combined total for the cities with the next largest numbers – 92 for Kent, 60 for Everett, and 51 for Redmond. For those Seattle-based companies, the corridor is not just a regional system, it's a local one that moves workers and goods on related roads like Michigan, East Marginal Way, the Spokane Street Viaduct, Elliott Avenue West and 15th Avenue West.

Then there are the other supply and production threads that use the corridor and Seattle to connect with the state's historic export markets throughout the greater Pacific Northwest.

The corridor carries watermelons grown near Yakima that are trucked to a company on the Duwamish River that barges the melons to grocery stores in Alaska. Custom diesel engines are rebuilt in Seattle and then shipped to diamond mines in Canada's Northwest Territories and the vast oil fields in Alberta. Trees grown in eastern Washington become cardboard boxes at a factory in Bellevue. They are then trucked to Seattle and shipped to fish processors in Alaska that are owned by Seattle companies that are among the leading seafood companies in North America.

Then there are the boats, nets, provisions, hardware, and electronic gear that are made in towns throughout Washington for the Ballard-based fishing fleet which, year in and year out, accounts for the largest single share of the Alaska seafood harvest, which accounts for two-thirds of all U.S. seafood exports and 100 percent of all hit cable TV shows about Ballard-based crab-boat captains with the first name "Sig."

It is possible to partially monetize the argument for the deep bore option by examining private business revenues that are reported to the state and the City of Seattle for calculating corporate B&O tax liabilities.

According to these records, in 2006 Boeing commercial aircraft production generated sales revenues of $33 billion. Nearly all of that revenue was created at assembly plants and support facilities in Renton as well as Boeing Field and Paine Field, which form a kind of golden triangle around the SR 99 and I-5 corridor.

In that same year, industrial firms based inside the City of Seattle reported an additional $32 billion in revenue. This included none of the Boeing revenue, but it did include the 230 aerospace suppliers and more than a thousand other companies engaged in construction, metal fabricating, machine making, electronics, boatbuilding, fishing, food processing, wholesale distribution, trucking, and all other forms of land, air, and water transportation.

Combine the aircraft assembly money and Seattle industrial revenues and they equal $65 billion. In 2006, that represented half the $122 billion value of the state's entire manufacturing output, and nearly every dime of it was supported in some way by the throughput capacity provided in the SR99 I-5 corridor and the I-405 spur to Renton.

Moreover, while it is valid for illustrative purposes, the $65 billion figure does not come close to capturing the total value of the commerce that hinges on the corridor.

Sixteen billion in revenue was generated by Seattle retailers who depend on the corridor to bring in their customers and employees, while Seattle-based doctors, accountants, engineers, lawyers, and others in the service sector generated $17 billion. Then there are the companies of all types in Tukwila and Shoreline. Toss in a Bainbridge Island grocer or two and shopkeepers in Port Townsend, and the annual dollar value probably comes close to $100 billion.

Viaduct visionaries like to say we need to take a 50 year or even a 100 year view in deciding what to do about the viaduct because of what it will mean for Seattle's central waterfront. That's shortsighted.

Multiply $65 billion or $100 billion by 50 or 100 times and it doesn't take long to understand the real value of the deep bore tunnel option to the people of the State of Washington.

Year in and year out, the U.S. Department of Commerce tracks US exports by a system that connects each export sale to the zip code of the company that collected the cash for it. Year in, year out, the survey shows the greater Seattle region is the fourth largest export production center in the United States, and the SR99 I-5 corridor runs like a nourishing river right through the heart of it.

In fact, the arguments for the deep bore option are so compelling, they beg the question: Why did it take so long for our elected leaders to come up with it?

Good question. A whole book could be written to answer it and in 2007, one was. For more about that, go to page 12.

The short answer is, the elected leaders didn't come up with it. The deep bore option was brought to them by members of a 30-person citizen advisory group that was appointed to study potential solutions to the viaduct quandary, and, amazingly enough,

given the long, unproductive histories of most citizen advisory groups, that's just what they did.

In March 2007, the viaduct planning process came to a bitter turn that culminated in an ill-fated City of Seattle advisory ballot. City Hall asked residents to express their views regarding the cut-and-cover tunnel proposal and the idea of building a new elevated highway on the waterfront. Intentionally or not, cynically or not, the ballot provided the unofficial launch pad for the surface-transit proposal, which was and is the viaduct replacement option preferred by some highly influential environmental groups and some elected leaders at Seattle City Hall.

The outcome of the advisory vote was entirely predictable. Tunnel haters and surface advocates voted against that option by a 70% margin. Elevated haters and surface advocates voted down that option by 57%.

Voila, some proclaimed that the double negative equaled a positive case for the surface option.

Meanwhile everyone seemed to forget that the viaduct is owned by the State of Washington, and some very influential state leaders viewed the surface option as an only-in-Seattle-style pipedream. Not surprisingly, many ordinary citizens in Seattle grew fed up with the whole viaduct process.

After the election was over, the Governor, Mayor, and County Executive took a collective deep breath, then jointly announced a new road forward. The state would take down the viaduct in 2012. The Governor would pick a replacement option in collaboration with the Mayor and County Executive by the end of 2008. Their preferred alternative would then be subject to a final round of environmental review and forwarded for funding approval by the Washington State Legislature, the Seattle City Council, and the King County Council.

A citizen stakeholder process would be convened to provide input, and, thus, the Alaskan Way Viaduct Replacement Stakeholder Advisory Group was born.

The viaduct stakeholders included freight haulers, bicycle advocates, urban designers, downtown and industrial business representatives, environmentalists, and representatives from organized labor, as well as advocates for the surface option, the elevated option, and die-hards for a tunnel.

They were told from the get-go they would not make recommendations. That was up to a senior government staff team. The stakeholders were charged instead with doing lots of homework, sorting through lots of information, attending lots of meetings, and asking lots of questions.

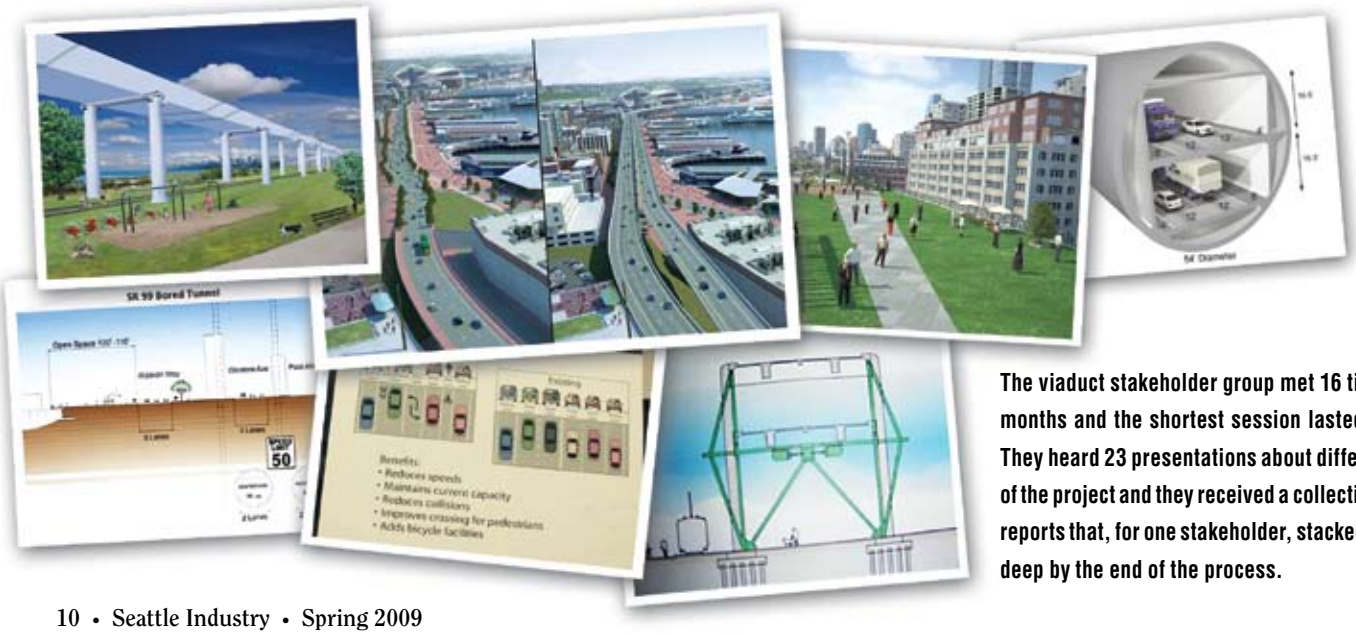
The stakeholder group met 16 times over 13 months and the shortest session lasted two hours. They heard 23 presentations about different aspects of the project and they received a collection of written reports that, for one stakeholder, stacked up 8 inches deep by the end of the process.

The stakeholders became the best-informed group of laypeople to ever study the viaduct, or, possibly, any major public works project in state history, and, in spite of their many differences and disagreements, they got along famously.

It was the first time in a long time that goodwill and optimism were parts of the viaduct planning process. One leading member of the group was Bob Donegan, from the Ivar's seafood chain. "We argued strongly but respectfully with each other and you don't often see that," he said.

Yet, for all the hard work and good will, as the planning process moved along, it began to wobble worse than the viaduct ever has.

At their last scheduled meeting on December 11, 2008, the stakeholders were told the government staff team had picked the final two options for consideration by the elected leaders. One was the surface-transit option. The other was a new elevated structure. The decision had already been released to the news media. The stakeholders were reminded they were not asked to make recommendations, but each was allowed to make a last statement.



The viaduct stakeholder group met 16 times over 13 months and the shortest session lasted two hours. They heard 23 presentations about different aspects of the project and they received a collection of written reports that, for one stakeholder, stacked up 8 inches deep by the end of the process.

A few supported the new elevated structure. A few supported the surface option.

The vast majority picked "neither."

During the process, a strong consensus had developed among many of the stakeholders that the surface and elevated options were both fatally flawed.

The surface option would neither provide adequate capacity nor fulfill the desires of those who wanted a prettier waterfront.

The elevated structure required permits that city officials said they would never issue, and there was the fact that, were it ever to be built, it would result in years of major traffic disruption.

The deep bore option had been rejected years earlier by the government staff as too expensive and requiring too much time to build, but nearly every stakeholder expressed some degree of support for that option, and asked that it be sent to the elected leaders for further consideration.

The staff team reminded them the deep bore option was out. The meeting ended awkwardly. Five weeks later, the Governor, Mayor, and the County Executive announced that their preference was to replace the viaduct with a deep bore tunnel.

Over those five weeks, many things happened to move the deep bore forward, but two things made the biggest difference – three, if you include the stakeholders who refused to accept the options picked by the government staff.

One agent of change was the Cascadia Center of the Discovery Institute, a Seattle-based think tank. A few years ago the staff at Cascadia began drilling into the subject of deep bore tunneling to learn if it might be a solution for the viaduct. They tapped into a surprising number of people and companies in the area with deep bore expertise, including Dick Robbins of the Robbins Company in Kent, which built the boring machines that dug the "Chunnel" under the English Channel.

Cascadia learned that deep bore tunneling was far cheaper than the viaduct staff team believed, and that a tunnel could be bored far more quickly than the viaduct staff team thought. They also found that many cities around the world were using deep bore tunneling in high-density urban environments to overcome construction disruption issues just like those posed by the viaduct.

The other change agent? Governor Chris Gregoire. After the December 11, 2008, meeting, the Governor began placing what turned into dozens of personal telephone calls to members of the stakeholders to ask about their reasoning and their support for the deep bore option.

She eventually agreed that consideration of the disruption costs meant that the deep bore option merited pursuit. She also agreed that, as long as it remained safe to do so, the viaduct would remain standing while the tunnel is being dug.

The press conference announcing the decision implied it's all over but the shouting, but the shouting has just begun. The environmental review process will take about two years to complete and many issues remain unresolved. Others are still being identified. Many political barriers remain and the world economic outlook is, at best, uncertain.

Doug MacDonald thinks the Governor finally found the right approach. His reaction is worth noting because, from 2001 through 2007, he worked for the Governor as the Washington State Secretary of Transportation. In that role, he opposed the deep bore option. Now he supports it.

Still, if we are not yet at the beginning of the end, as Churchill said after El Alamein, we are at least at the end of the beginning.

Eight years after the Nisqually Quake rocked the viaduct, a citizen-based process identified the strategy that works best for SR 99 and I-5 and does the most good for the greatest number of people.

Doug MacDonald thinks the Governor finally found the right approach. His reaction is worth noting because, from 2001 through 2007, he worked for the Governor as the Washington State Secretary of Transportation. In that role, he opposed the deep bore option. Now he supports it.

He says his thinking began to change about a year ago when he moved to a house in north Seattle one block from Aurora, the name for SR 99 in that stretch of town.

"Living with Aurora helped me understand how many different things SR 99 does and how all of them have to be accommodated by the viaduct replacement project."

"If you don't have north-south movement on Aurora, you get east-west problems on every street between Mercer and 85th, at a minimum. Those east-west streets are jammed up now with traffic that can't get over to I-5. Initially, I was not that sensitive to this. It's not just about moving 110,000 cars on the central waterfront."

It won't come cheap, but neither do husbands, wives, kids, homes, or Port Townsend stocking stuffers.

"People will always say we can't afford to build things like a deep bore tunnel," MacDonald said. "Actually, we can't afford not to." ■

Disruption and CONSTRUCTION

An inside look at the viaduct planning process (Not a pretty picture)

Many were surprised when a deep bore tunnel was selected as the preferred way to replace the Alaskan Way Viaduct. But not Brian Scott.

A mediator based in Portland, Oregon, Scott was retained by the region's elected leadership in 2007 to help identify what had gone wrong with the viaduct planning process up to that point and suggest how it might be made right. To do that, Scott con-

ducted in-depth interviews with 55 people engaged in some aspect of viaduct planning.

The interviews followed a highly divisive Seattle advisory vote on the viaduct and the interview list included elected officials, top government managers, environmentalists, industrial business owners, civic activists, advocates for the arts, and advocates for bicyclists, as well as representatives for organized labor and downtown business associations.

The report was published in December 2007. What it portrays is not a pretty picture.

The Scott report begins by noting the enormous difficulties posed by Washington's goofy, ad hoc system for planning, funding, managing, building, and maintaining transportation infrastructure. The viaduct requires collaborative action by, at least, the Governor, the Washington State Legislature and the Washington State Department of Transportation, plus the Seattle Mayor, City Council and the Seattle Department of Transportation. The present bid to replace the viaduct also includes the King County Executive, the King County Council, the King County Department of Transportation, the Port of Seattle CEO, the Port Commission and port staff planners and managers.

Each is a major player in addressing a civic puzzle that comes with no playbook or even instructions thanks to our lack of an effective transportation governing system. As the report observes:

"The Viaduct is a State highway built on City land. The State is responsible for capital improvements, the City for routine maintenance. The Viaduct serves both as a regional connector for points north and south and as a local access road. ... Replacing a facility of this magnitude requires massive public funding while resources are limited and there are many competing needs for State highway dollars... It is understandable that the process of deciding how to replace the Viaduct would be messy."

And, boy was it messy. According to the report:

"For a variety of reasons that are variously practical, political, economic, personal, institutional and procedural, the Alaskan Way Viaduct Replacement Program went very wrong in late 2006 and early 2007. It won't be helpful to elaborate on or analyze those events here, but it is important to recognize that real damage was done to interagency and interpersonal relationships. At the same time, the vast majority of the stakeholders interviewed are begging for coordinated leadership."

The report also revealed that most citizens believed the government planners were low-balling the issue of construction-related traffic disruption.

Brian Scott, a mediator retained by the region's elected leadership in 2007 to help identify what had gone wrong with the viaduct planning process and suggest how it might be made right.

Whether it is rebuilt or torn down, replacing the viaduct promises to be one of the most disruptive public construction projects in the history of the state, with high costs for the private sector due its location at the heart of the state's industrial base. This challenge was compounded by the original selection of a cut-and-cover tunnel to replace the viaduct, because a cut-and-cover tunnel is just about the most disruptive option available.

From the get-go, senior transportation staff downplayed disruption, and they opted to barely even mention the issue in an environmental impact statement that was more than 1,000 pages long. When a group of waterfront business owners paid for their own study of potential disruption, one leader of the viaduct team told a newspaper reporter the businesspeople were "Chicken Littles" afraid the "sky is falling."

But Scott's 2007 interviews showed that private sector concern about disruption was very high, and his report concluded that staff handling of the issue had undermined the credibility of the planning effort:

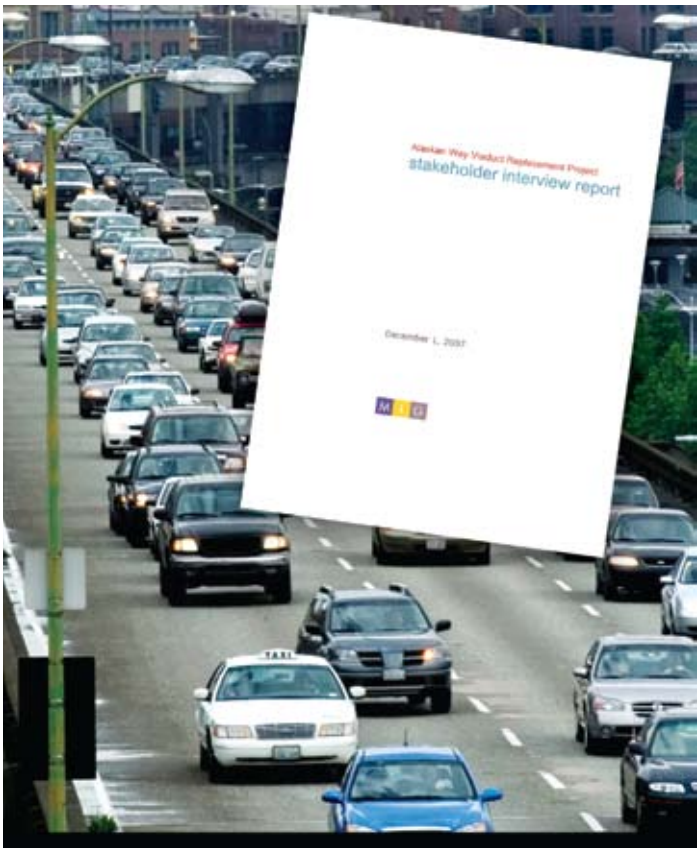
"Analysis of possible solutions must promptly and rigorously address disruption during construction. Strong feedback from many stakeholders indicates that the cost of disruption during construction has not been adequately researched ... [this] undermines the credibility of any conclusions by project planners."

But if the disruption issue was a unifying issue for citizens, the citizenry remained sharply divided about what to build.

"There are some who are fond of the Viaduct's practicality as a utilitarian piece of infrastructure that supports Seattle's working waterfront. Most of those interviewed, however, are strongly against a new elevated structure."

Most of those interviewed favored the surface option, but many of them conceded it might not work. *"Even those who intuitively believe that [the surface option] is the only workable solution acknowledge that they need to see convincing evidence that it can be fully implemented and that it will work if it is."*

However, surface supporters were also adamantly opposed to building a new viaduct. *"These people are motivated, passionate, influential and prepared to go to extraordinary lengths to keep Seattle from reinvesting in an elevated highway on its waterfront."*



The substance and timing of the disruption report did two things: It created a low boil on a key trust and credibility issue that simmered for the 12 months while the stakeholders waited for the disruption report to appear, and – when the report finally arrived – many stakeholders found it incredibly lame.

Not reported was the fact this group included the Mayor and most members of the City Council.

Among its conclusions, the report found:

- *The process to date has lacked adequate interagency and executive communication and cooperation.*
- *While trust is very low and relationships are damaged, the desire for forward movement is overwhelming.*
- *Analysis of possible solutions must promptly and rigorously address disruption during construction.*

Yet disruption was not pursued "promptly" when the planning process resumed, and a new group of citizen stakeholders was brought into the planning loop. The staff team left it to the end.

At one of the last meetings of the citizen stakeholder group, an out-of-state economist reported that the different replacement options would all cause just about the same amount of disruption, and there wouldn't be much disruption, anyway. Disruption might be significant "locally," he said, but not regionally.

The substance and timing of the disruption report did two things: It created a low boil on a key trust and credibility issue that simmered for the 12 months while the stakeholders waited for the disruption report to appear, and – when the report finally arrived – many stakeholders found it incredibly lame.

Local and regional are often a single entity in the SR99 – Interstate 5 corridor.

Disrupt the 230 Boeing suppliers who are local to the viaduct because they are based in Seattle and you impact aircraft assembly lines that are among the largest backbones of the regional economy. Disrupt the Port's marine cargo facility at Terminal 46, which stands in the shadow of the viaduct, and you disrupt a 12,000-member workforce that spreads the wealth and lives throughout central Puget Sound, to say nothing of diverting an international flow of commerce that stretches from the U.S. Midwest to the eastern shores of Asia.

Many of the stakeholders also disagreed with the staff team when the team recommended that the viaduct be replaced with either a new elevated highway or the surface option. They disagreed as well when the staff team rejected the deep bore tunnel option – the option that would create by far the least construction disruption to the private sector.

Even so, one month after the last strained meeting between them, many of the stakeholders and the staff team were present at a high-fiving press conference where the region's elected leaders announced that a deep bore tunnel would replace the viaduct.

To the public at large, the deep bore option seemed to come from nowhere, and it is now under attack by some who supported the surface option or another elevated highway.

In a recent interview, however, Brian Scott said the deep bore option was nearly inevitable. "After talking with everybody, it was easy to see that's the way this thing was going to go." And, in hindsight, his report makes that pretty clear.

As suspected even by some of its fans, the surface option didn't work. Even now, any effort to build a new elevated highway would lead to a huge, tax-funded legal brawl between city and state elected officials. If the state won, a new elevated structure would disrupt the regional economy for 6.5 to 8.5 years while it is being built.

On the other hand, as Scott wrote in his 2007 report:

"Tunnel opponents fall into two camps: the first fear cost; the second dread the disruptive impacts of cut-and-cover construction. If people were convinced that a tunnel could be built with limited disruption and at a cost commensurate with benefit, detractors would be few. Some would object to losing the view from the existing Viaduct. Others would say that building such a major facility to accommodate automobiles is not good for the environment. In the current political environment, however, it is unlikely that either of these perspectives would outweigh widespread support for a seemingly logical answer."

In a recent interview, however, Brian Scott said the deep bore option was nearly inevitable. "After talking with everybody, it was easy to see that's the way this thing was going to go." And, in hindsight, his report makes that pretty clear.

That answer, Scott said in the interview, appears to be the deep bore tunnel. It's not the cheapest solution, but it achieves the highest value because it minimizes disruption.

Scott enjoyed Seattle so much while learning about the viaduct unpleasantries that he took a job offer last year from a company that wanted him to work in its Seattle office. What's more, he rented an apartment in one of the high-rises that stands between the viaduct and Elliott Bay.

Of his time studying the political entrails of the viaduct issue, he says "The whole thing was just fascinating. What happened was entirely predictable." ■

Tunnel Talk

A publication of the
Cascadia Center for Regional Development
Discovery Institute
Seattle, Washington

Washington State Department of Transportation

Washington State Department of Transportation

CASCADIA
Discovery Institute

SEATTLE (January 13, 2009) – EXCEPT FOR THE ABSENCE OF RAINDROPS, EVERYTHING SEEMED normal for a mid-January day in the Emerald City. Clouds hovered. The air was cool but comfortable. But on the city's idyllic waterfront, inside Seattle's World Trade Center, any semblance of normalcy was about to change. Inside, surrounded by reporters, citizens and community leaders, the region's leaders were about to bring an end to an eight-year stalemate. By late morning, Washington Governor Christine Gregoire, Seattle Mayor Greg Nickels, and King County Executive Ron Sims had announced their decision. In a unified voice of leadership, they said they supported tearing down the aging Alaskan Way Viaduct and replacing it with a technologically advanced deep-bored tunnel, improvements to transit and surface streets. The crowd cheered. And Seattle would never be the same.

Testimony to Washington State Senate Transportation Committee February 10, 2009

"[A deep-bored tunnel] offers a clear strategic advantage over the other replacement options….Minimizing disruption is crucial to maintaining through capacity in the State Route 99-Interstate 5 corridor, which is essential to sustaining the regional economy."

Dave Gering,
Manufacturing Industrial Council

"It is quite clear to me that they would prefer a tunnel for all of its significant economic benefits and the promise of a restored waterfront. Even in these difficult economic times we must search for the right answer, not the cheapest."

Dan Evans,
Former Washington governor

"[The tunnel] provides some of the fastest travel times, has the fewest construction impacts and can be built for the most part while the existing viaduct continues to move traffic…. the project is expected to maintain and create 10,000 jobs each year over the course of the project."

Maud Daudon,
SNW Securities Corp.

"Our trucks use the Alaskan Way Viaduct to make their way through Seattle and we believe replacing the viaduct with a deep bore tunnel is vital to our operations."

Bob Donegan,
Ivar's

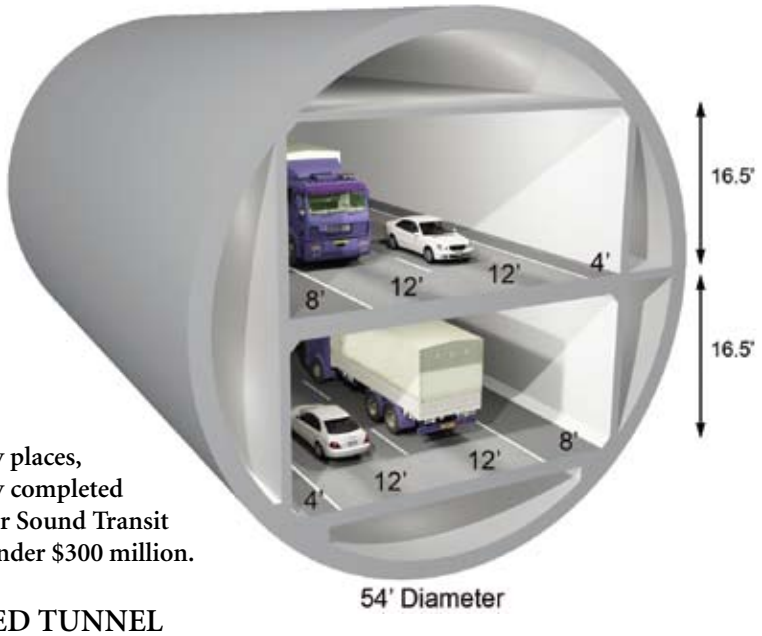
Source for document Q/A: Greater Seattle Chamber of Commerce (Items marked with an asterisk are from the WSDOT presentation to the State Senate Transportation Committee on January 26, 2009)*

TUNNELS ARE BEING built around the world, at a faster pace, at less cost and disruption, and using highly advanced technology.

TUNNELS LAST 100-150 years. The Great Northern Tunnel under Seattle was built at the turn of the 20th century, and it is used by more than 40 trains a day.

THE TUNNEL ALLOWS commerce and commuting to continue during construction.

THE DEEP-BORED TUNNEL allows for the seamless integration into a system-wide approach to the region's throughput needs.



SEATTLE USES TUNNELS in many places, including the recently completed Beacon Hill tunnel for Sound Transit which was built for under $300 million.

THE DEEP-BORED TUNNEL is an environmentally responsible option: fewer surface impacts, no run-off, and particulates are scrubbed by ventilation systems.

What is the Bored Tunnel Hybrid Alternative?

The Bored Tunnel Hybrid Alternative combines the best elements of the surface street options with a bored tunnel. It accomplishes what other hybrid scenarios cannot. It preserves throughput, reduces construction and operating impacts to businesses and residents, increases transit service, creates jobs, provides a long-term return on investment at a reasonably affordable price, has low environmental impacts, and maximizes new open-space on the waterfront.

How Will the Bored Tunnel Hybrid Alternative Benefit the Environment?

The Bored Tunnel Hybrid Alternative will provide a world class open-space that is a welcoming place for pedestrians, bicycles, transit and vehicles. It will eliminate noise, shadowing and view blockage, reduce surface-water runoff, and provide a memorable place for people to live, work and play. The project plan also includes a 25% increase in transit (a million more hours of transit per year) that will provide more transportation choices to a broader segment of the region's population. The tunnel allows surface water and air emissions to be collected and treated before release into the environment.

How Does the Bored Tunnel Hybrid Alternative Differ From the Cut-and-Cover Tunnel Seattle Voters Rejected in a 2007 Advisory Election?

The two tunnels could not be more different. The bored tunnel will be stacked with two lanes in each direction and will be constructed under First Avenue at a depth of 30 to 200 feet below the surface, two blocks from the water. The previous cut-and-cover tunnel was stacked with three lanes in each direction and would have been constructed along the waterfront at a depth of 10 feet below the surface, in the tidal zone.

Bored tunnel construction will take 4 ½ years and the viaduct can stay open to traffic while it is being built, thus limiting the impact to adjacent businesses and residents.

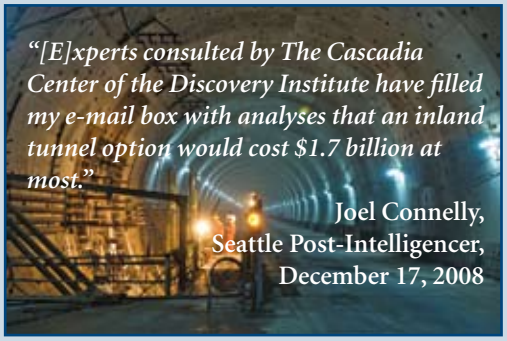
In contrast, the previous cut-and-cover tunnel would have taken at least 7 years to build, and would have put the viaduct out of commission for at least 3 ½ years, causing major impacts to the waterfront and surrounding area.*

How Did the Bored Tunnel Hybrid Alternative Emerge as a Viable Solution?

The deep-bored option was not the one that was recommended to the stakeholders by the government planning team as the stakeholders came to the final hour of their deliberations. It was a recommended option that emerged instead from the stakeholders themselves based on their judgments regarding the data, including costs and benefits, and the different perspectives each stakeholder brought to the table. In the end, not everyone agreed, but remarkably most stakeholders reached something that has not been achieved during the eight years since the viaduct was shaken by the Nisqually quake — a broad-based consensus about a positive path forward.

THE LAST CHAPTER? How Seattle Turned To A Tunnel

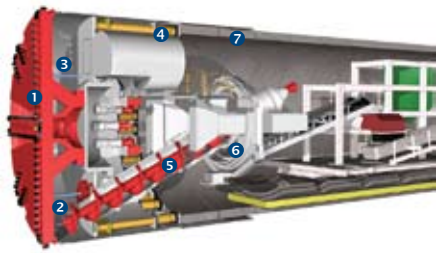
BY EARLY DECEMBER 2008 A STATE, county and city project team had moved forward with its choices for replacing the aging Alaskan Way Viaduct: either an elevated replacement or a surface street option.



In reaction, almost immediately, the Stakeholder Advisory Committee, made up of local and community civic and business leaders who had studied replacement options carefully for nearly one year, said they wanted to take a closer look at the deep-bored tunnel. The deep-bored option was not the one that was recommended to the stakeholders by the government planning team as the stakeholders came to the final hour of their deliberations. It was a recommended option that emerged instead from the stakeholders themselves based on their judgments regarding the data, including costs and benefits, and the different perspectives each stakeholder brought to the table. The stakeholders had spent the better part of a year learning about the options, including countless interactions with Cascadia Center with regard to a deep-bored tunnel. In the end, not everyone agreed, but remarkably most stakeholders reached something that has not been achieved during the eight years since the viaduct was shaken by the Nisqually quake—a broad-based consensus about a positive path forward.

It was then that Cascadia Center and Arup, along with other tunneling experts, were brought in again and asked to share further information about tunneling technology and how it could be used to replace the viaduct. On December 16, in a critical workshop, Cascadia's experts helped share information about tunneling, emphasizing that tunnel costs really were an "apples to apples" comparison and that the cost could be under $2 billion and completed in five years or fewer. Following that workshop, Governor Gregoire led the way, deciding to postpone the decision about the viaduct replacement to allow for several more weeks of study and consideration. Several short weeks later, on January 13, Governor Gregoire, County Executive Sims and Mayor Nickels announced their historic decision.

Earth Pressure Balance Machine



Using EPB (Earth Pressure Balance) machines, the soil is excavated by the tools on the rotating cutting wheel ❶ at the tunnel face and passes through the openings in the cutting wheel into the excavation chamber ❷ There, it mixes with the other plastic soil. The force from the thrust cylinders ❹ is transmitted via the pressure bulkhead ❸ to the soil to support the tunnel face and control the entry of material into the excavation chamber. The excavated material is removed by the screw conveyor ❺ from the excavation chamber which is under pressure and into the tunnel which is under atmospheric pressure. With the help of an erector ❻ the tunnel lining segments ❼ are built directly behind the shield.

How Does the Tunnel Help me get to Ballard or Magnolia?

Less than one percent of the project is designed, so there is plenty of time to develop a good solution for access to Magnolia, Ballard, Fremont and North Bay. About 33,000 vehicles now on the viaduct come from or head to Northwest Seattle, so the project team is looking at solutions on Elliott, Western, along the waterfront, and across Mercer to the north portal of the tunnel.

"Our plan would consider both I-5 reconstruction and added capacity and replacement of the central section of the Alaskan Way Viaduct, within the context of region wide tolling... A deep-bored tunnel through downtown to replace the viaduct…would segregate local traffic from through traffic, and would avoid the construction disruptions on the central waterfront that threaten businesses." Bruce Agnew, Cascadia Center Policy Director, *Puget Sound Business Journal* op-ed, "Viaduct Bypass, I-5 Expansion Should be Linked"

"A brighter future for Seattle's waterfront took a dramatic step forward this week, as three key leaders endorsed a plan to use a deep-bore tunnel to replace the crippled Alaskan Way Viaduct."

Alwyn Scott,
Puget Sound Business Journal

What Now?

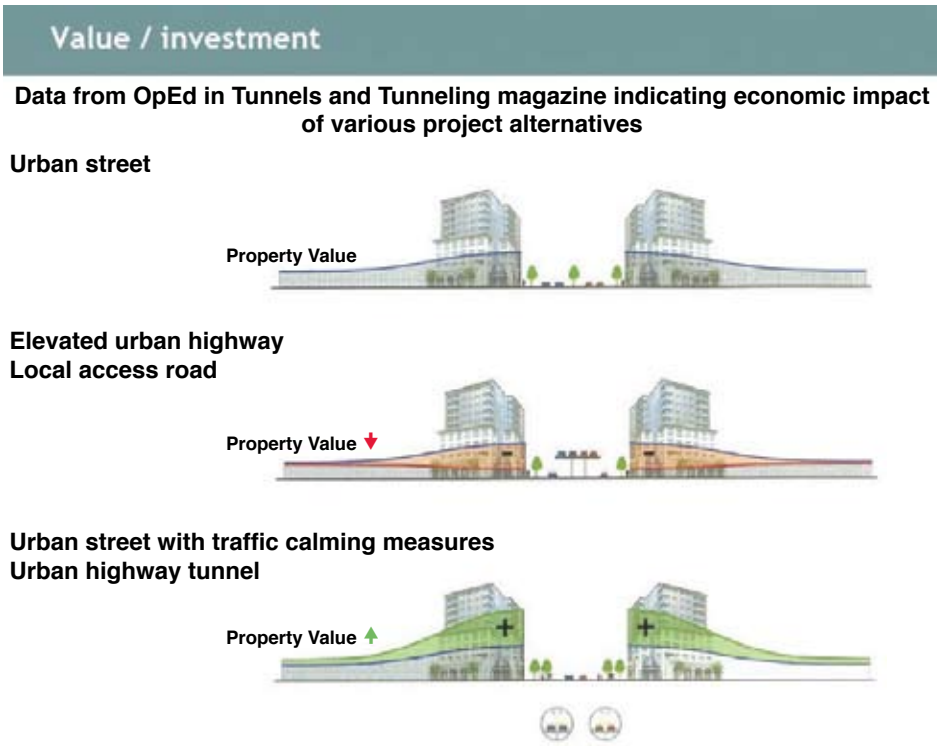
The viaduct replacement package is now before the Washington State Legislature, where the Senate approved it 43-6, but it is facing some opposition in the House, especially from those who thought an elevated replacement was favorable. The full package for the replacement is just over $4 billion, but the cost of the deep-bored tunnel represents about half of that, or $1.9 billion.

This is a critically important transportation and sustainability issue for the region, one that will have an impact on the Puget Sound region for decades to come. For citizens (individuals and businesses) who have views about next steps, we encourage you to reach out to your state legislators. **www.leg.wa.gov/legislature**

How Does the Bored Tunnel Hybrid Alternative Differ From the 'Big Dig' in Boston?

The Big Dig was one of the largest engineering projects in world history and has next to nothing in common with this project. As Governor Gregoire said: "They tried to move the world…we're trying to keep the world in place." The Big Dig included a very disruptive cut-and-cover tunnel through the central city under an existing roadway and two subway lines, a new cable-stayed bridge over the Charles River, and two sets of immersed tubes under the harbor to the airport in very challenging soil conditions.* Nearly a third of the project costs went to extensive traffic management and construction mitigation. Moreover, the initial cost estimate did not include inflation, risk or escalation and there was significant growth in the scope of work from what was originally envisioned.

In contrast, the Bored Tunnel Hybrid Alternative will have minimal impacts on existing traffic, downtown and the waterfront, and WSDOT will strongly assert itself as the project owner using state-of-the-art cost estimates that account for risk, contingency and escalation. Also, it's important to remember that over 150 tunnels have been built in Seattle since 1890, mostly in glacial soils. Unquestionably, we have the tools and expertise to do this project. The machines that dug the English Channel Tunnel were built in Kent, Wash.



As part of its presentation at the December 16, 2008, tunneling workshop, Arup discussed the above image (originally used in an article in the magazine Tunnels and Tunneling). The description above right describes the significance of the graphic.

For most urban streets, there is a real estate premium placed on major street front properties with the traffic and pedestrian activity driving commercial and retail vitality. A seminal 1981 study looked at the quality of life on three San Francisco streets where there was low, medium and high traffic. The study concluded that high levels of traffic on a particular street reduces amenity and creates a barrier within a community, while lower volumes result in more attractive streetscapes and increased usage making them more attractive locations to work and for retail purposes.

Elevated highways do not provide much in the way of amenity to the adjacent properties along the highway and instead can act as a barrier dividing communities in two. Urban blight results in the form of depressed rental rates and property values as we have seen with the nature of the properties directly to the east of the Alaskan Way.

Removing high-volume through traffic into a bypass tunnel results in the best of both worlds. Throughput is maintained, sustaining the regional economy, while the level of traffic at the urban street level encourages vibrant, commercially active communities. When the Embarcadero Freeway was torn down, nearby property values are quoted as increasing by 300 percent and entire new neighborhoods were created along the waterfront.

Samples of Reported Cost Per Mile of Completed Large Diameter Highway Tunnels*

- **MADRID, SPAIN:** M-30 – north tunnel of the south bypass, $131 million/mile
- **KUALA LUMPUR, MALAYSIA:** SMART Tunnel, $85 million/mile
- **PARIS, FRANCE:** A-86W East Tunnel, $242 million/mile

*Information extracted from Arup's December 2008 report "Large Diameter Soft Ground Bored Tunnel Review." Arup (www.arup.com) is a global firm of planners, designers, engineers and business consultants, and their tunneling report continues to serve as an important educational tool. It is available online at www.cascadiaproject.org.

Everything you did—by force of will mostly—to keep the tunnel on the table made the difference, thank you!

Kate Joncas,
President of the Downtown Seattle Association in a note to Cascadia Center

CASCADIA Discovery Institute
208 Columbia Street, Seattle, Washington 98104
206-292-0401 www.cascadiaproject.org

The greenest port starts with the bluest skies.

Whether it's at Seattle-Tacoma International Airport or Seattle's seaport, Port of Seattle is setting new standards to help protect air quality in the Puget Sound region. With baseline inventories completed, we're establishing partnerships with other ports, our tenants and customers to reduce diesel and greenhouse gas emissions.

By setting the highest-level benchmarks the industry has seen, we continue to strive toward our goal of becoming the cleanest, greenest, most energy-efficient port in the nation.

Learn more about Port environmental initiatives or watch a Commission meeting live at: **www.portseattle.org**

You can also watch Commission meetings Sundays at 1 p.m., on KCTV, channel 22.

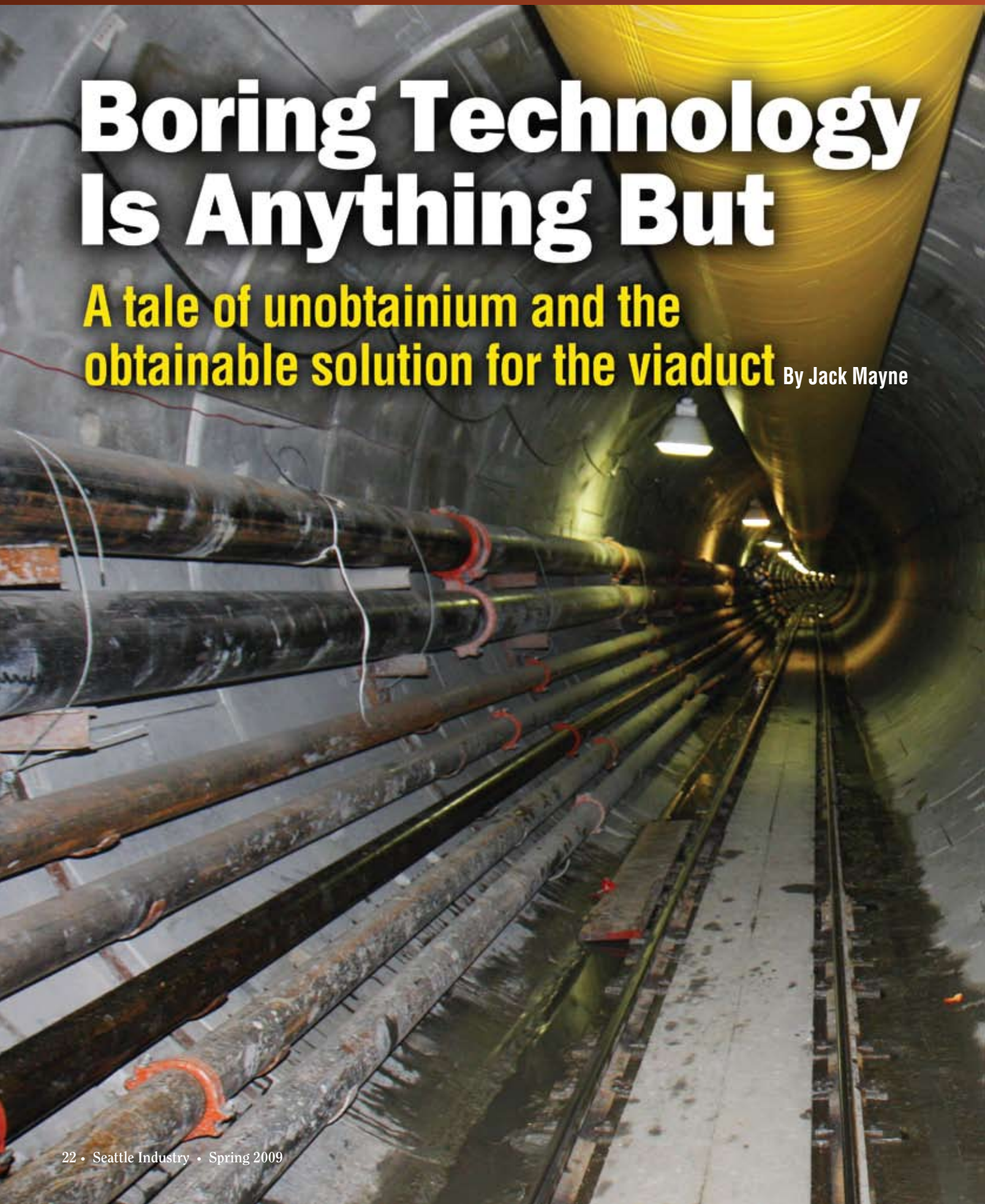
Port of Seattle

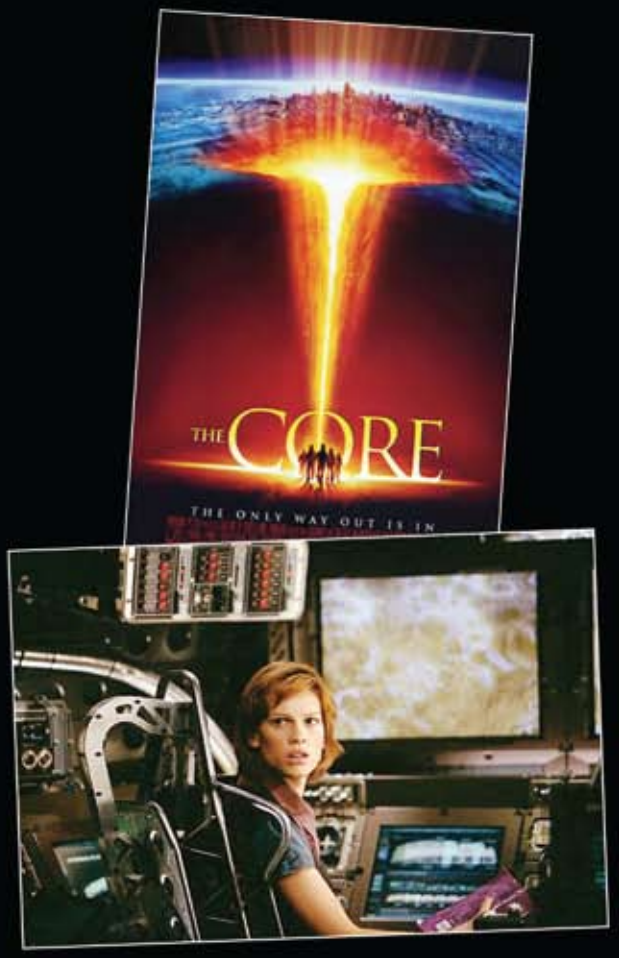
Where a sustainable world is headed.

Boring Technology Is Anything But

A tale of unobtainium and the obtainable solution for the viaduct

By Jack Mayne





The earth has stopped turning so microwaves are about to cook the world like an apple in a flame. NASA turns to a smart, sexy space shuttle pilot with a gorgeous, toothy smile, Air Force Maj. Rebecca Childs, and asks her to bore a tunnel to the center of the earth and drop off a load of hydrogen bombs that will be detonated to get billions of tons of liquid metal moving again, so the world will resume its spin.

The dashing heroine, "Beck" is given command of a sleek, spaceship-like experimental tunneling machine powered by a new fuel, "unobtainium." Then, with the help of a hunky male college professor, and against all odds, Beck bores down with great determination and speed, driving her snazzy tunnel machine to the very bowels of the earth where she drops off the hydrogen bombs, narrowly escapes the resulting implosion, and returns to the surface of the earth – at the bottom of the sea – where she and the professor await rescue while realizing they just might be falling in love as the earth, thank goodness, resumes its interrupted spin.

In the 2003 movie *The Core*, Major Beck was played by Bellingham's own Hillary Swank, a two-time Academy Award winner who received nothing but awful reviews and a few million dollars for the picture, a box office stinker that sunk from view almost faster than Major Beck's fantastic tunneling machine.

Unfortunately or not, Beck and unobtainium are not available to provide the so-far unobtainable solution to the dilemma of how to replace the Alaskan Way Viaduct. Meanwhile, however, the Governor, the Mayor, and the King County Executive have decided to use a deep bore tunnel to replace the viaduct and real-life boring technology is anything but.

A machine that would build a tunnel under Seattle's downtown would not look anything like the sleek, sophisticated vehicle in *The Core*.

A real tunnel-boring machine looks more like a pile of pipes, tanks, wires, electric motors, cages, and miscellaneous industrial flotsam piled on railway cars. Instead of a roaring, grinding noise, the machine sounds rather quiet underground, and what you hear are the sounds of water, earth, and sand slooshing through pipes and the noise of air ventilators and humming motors.

The future Alaskan Way tunnel will be dug with a special machine designed for the specific soil conditions under downtown Seattle. It will reach depths of 200 or more feet along a route that will extend from a portal near Safeco Field and move north, ending up somewhere in the Lake Union area between the Battery Street Tunnel and Mercer Street.

Not much is known about the project beyond that because only about one percent of the required engineering has been performed. Operational details and challenges will be fleshed out over the next year or so along with lots of design work to figure out the locations of portals where the tunnel will be integrated with surface streets.

Compared to the surface issues, tunneling could prove to be the easy part of the multi-billion dollar project.

In spite of predictable concerns about their safety and reliability, scores of tunnels are already in service or are now being built around the world. The use of laser-guided tunnel boring has become the standard technique, because it gets people, vehicles, and commodities from one location to another without despoiling the surface landscape.

The Swiss are now building the world's longest tunnel. Thirty-five miles long, it will create a new direct rail link from Zurich to Milan, Italy. The tunnel will enable the rail line to operate far beneath the Alps at a constant altitude of 1,650 feet the entire way, permitting trains to move between the two cities in two and a half hours instead of the four hours now required to deal with steep grades. The trains will travel at speeds up to 149 miles per hour.

A 3.3 mile tunnel linking the airport in Brisbane, Australia, to the city center will permit congestion-free vehicle flow, bypassing 16 traffic lights. The Queensland state government says the $3.4 billion (Australian) project is under way and on budget. It is due for completion in 2012.

Today the biggest tunnels in the world are currently being bored under the Yangtze River in Shanghai, China, where two tunnels will link Shanghai with Chongming Island. Each tunnel is 51 feet in diameter. The entire project is to be opened next year, a year ahead of schedule.

A real tunnel-boring machine looks more like a pile of pipes, tanks, wires, electric motors, cages, and miscellaneous industrial flotsam piled on railway cars. The future Alaskan Way tunnel will be dug with a special machine designed for the specific soil conditions under downtown Seattle. It will reach depths of 200 or more feet along a route that will extend from a portal near Safeco Field and move north, ending up somewhere in the Lake Union area between the Battery Street Tunnel and Mercer Street.

Sound Transit says the underground University Link extension will generate or retain about 2,900 direct construction jobs and provide seven-minute rides between downtown and the university.

It is expected that the Seattle tunnel would be dug by a machine 54 feet in diameter.

While there's no question it will be the state's highest-profile tunnel project, it won't really be a new concept because tunnels are a part of the history of Seattle, starting with the Lake Union wastewater tunnel that was hand-dug and completed in 1893. That brick-lined tunnel, still in service today, carries wastewater from the south Lake Union area to the Elliott Bay sewer interceptor.

Then there's the Stevens Pass Railroad Tunnel, opened in December 1900. That project was an amazing success for its time, as recounted in this passage from the 1935 memoir of John Stevens, for whom the pass was named.

Stevens wrote: "That tunnel was 2 ½ miles in length. The headings met almost exactly at equal distance from the portals with remarkable results. Error: alignment, ¼ inch; grade ½ inch, distance [outside measurement carried over two high mountains] 1 ½ inch. I know of no other case under similar circumstances where this record has ever been equaled."

Back to the future, in early March digging began for the $1.9 billion phase of a tunnel that will extend light rail from downtown to the University of Washington. Sound Transit reports that this University Link, a 3.15 mile light rail extension, will run in twin-bored tunnels from downtown to the university, with stations at Capitol Hill and on the UW campus near Husky Stadium.

The University Link will serve the three largest urban centers in the State of Washington – downtown Seattle, Capitol Hill, and the University District. By 2030, the University Link line alone is projected to add 70,000 boardings a day to the light rail system.

Sound Transit says the underground University Link extension will generate or retain about 2,900 direct construction jobs and provide seven-minute rides between downtown and the university.

The project is on budget, says Sound Transit. Washington Senator Patty Murray, chair of the Senate Transportation Appropriations Committee, worked with the Federal Transit Administration and Sound Transit to secure $813 million in federal funds for the $1.9 billion project.

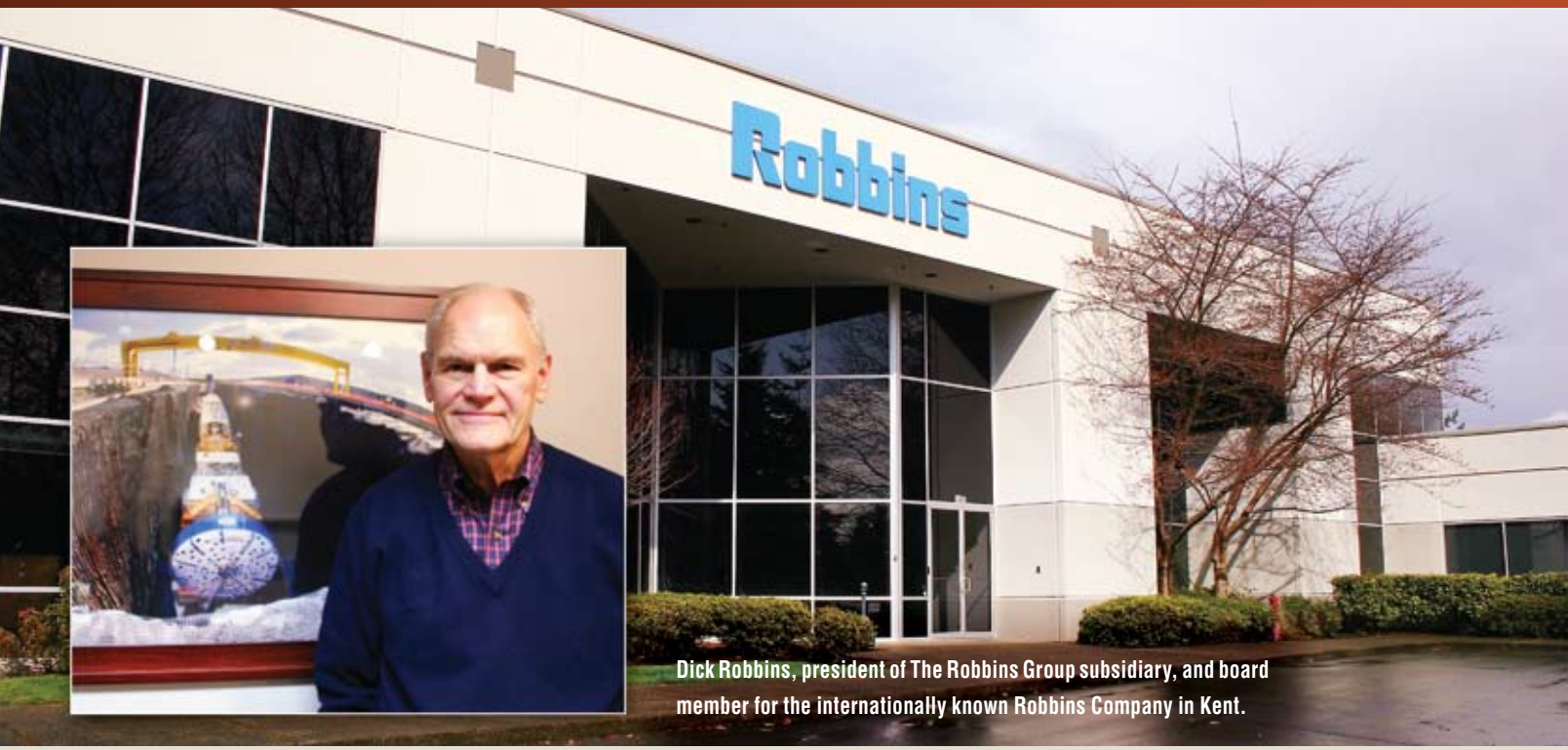
Three boring machines will be used, two from Husky Stadium heading toward Capitol Hill, and one from Capitol Hill. The project is slated to be completed in 2015.

To date Sound Transit has not opened the larger University Link contracts – but the early ones have been below initial projections. The largest one – to prepare areas adjacent to I-5 for the tunnel machines – came in about 34% below engineers' estimates.

Another major local project offered us the chance to actually see a tunnel being bored. This is the $1.8 billion, 13 mile long Brightwater sewer tunnel now under way in north King County. One section of the sewer tunnel is 17.5 feet wide, while the width of another section is 19.5 feet.

Unlike Major Beck and her fantastic tunneling machine, the Brightwater machines are not sleek and sexy, but the results usually are.

The two machines on this part of the project were made by Herrenknecht AG, a company based in Schwanau, Germany. These are described as Mixshield machines, and were shipped in parts to Brightwater, where they were assembled.



Dick Robbins, president of The Robbins Group subsidiary, and board member for the internationally known Robbins Company in Kent.

Dick Robbins

DEEP BORE TUNNEL PIONEER

It might surprise a lot of people to hear that the preeminent maker of tunnel boring machines is a company in Kent run by a man who is about to win the 2009 Benjamin Franklin Medal in Engineering.

Dick Robbins, a lifetime Seattle resident, is president of The Robbins Group subsidiary, and board member for the internationally known Robbins Company in Kent. He will receive the prestigious award at The Franklin Institute Awards in Philadelphia. The Franklin Medal is among the oldest and most prestigious science awards in the world.

Following in his father's footsteps, Robbins created the world's leading company that develops hard-rock tunnel-boring machines, including those that were used to build the famed Chunnel between England and France. Robbins built all or portions of five of the six machines used to dig the three Chunnel tunnels. Now the company is building both vehicle and utility tunnels all over the world.

His father, James S. Robbins, invented tunneling machines, or "at least he thought he did," says Dick. Others had made similar inventions before his father, but "my dad's machine finally made the breakthrough, and made the first economical machines that were able to tunnel and had good performance in moderately hard to hard rock."

"Dad developed the first machine, back in 1956, that used all rolling cutters – they are just like wheels. They are called disc cutters, 11 or 12 inches in diameter, and they succeeded in cutting hard rock, or crushing it."

Robbins notes there are two types of tunneling, in soft ground – like around here – and in hard rock, such as the long tunnel now being bored under the Alps in Europe, where Robbins machines and ones from Europe are boring the tunnel. He says his father's interest was in making machines that would bore hard rock, and that is still the "central emphasis" of the Robbins Company.

Robbins's company has produced all kinds of new cutter modifications since he succeeded his father, who died in a 1958 plane crash. Dick has 11 patents granted in the field of underground mechanical excavation, and has numerous publications to his credit.

Large tunnel projects are sometimes handled by joint ventures, he says, especially in projects where the ground is partly hard rock and partly soft dirt and sand, or where the ground facing the machine is a combination of soft earth and rock.

"These are complex and difficult tunnels," Robbins says. "We will build the machine ourselves or will joint-venture with one of the Japanese companies. We have done a lot with Kawasaki and in recent years with Mitsubishi."

He says the machine that dug the Sound Transit tunnel under Beacon Hill was built by Mitsubishi, but the Robbins

Company built structures like the conveyors and other equipment, essential parts of the backup systems for the "trailing machine," that part of the machine behind the actual boring machine.

In other cases, such as a tunnel in Spain, Robbins says his company will design the machine for Mitsubishi, which in turn will design and build the rest of it in Japan and then ship it to Spain.

Currently, Robbins says the company's biggest projects are very long water-supply tunnels in India and "maybe a dozen machines" operating in China. Some soft-ground light-rail tunnel machines are built at a Robbins factory in China.

Tunnel construction safety and the safety of a tunnel in operation are two separate issues, says Robbins.

He says a deep bored tunnel through the solid glacial till under Seattle would not be seriously affected by a major earthquake because while the ground around it would move, the tunnel would move with it, making it much different from a surface building or the Viaduct, which is "up there waving around in the air being supported only on the bottom which is moving."

Once the tunnel is in the ground, he says, it is much safer than anything you can put on the ground or near the surface.

Robbins has some suggestions on what should be done with the tunnel replacement for the Viaduct.

He thinks the Seattle tunnel might be better situated if it started at Safeco Field, moved under Fifth or Sixth avenues, and came out farther north after going under much of Queen Anne hill, perhaps halfway to the Aurora Bridge. He says such a route would remove the "huge construction bottleneck" of the intersection with Mercer. "But it takes a thorough geologic exploration program before a route can be finalized."

"Not as a tunnel person, but just as a person who has lived here most of my life, any way we can open up the waterfront down where the Alaskan Way Viaduct is now, and make it a user friendly place, is going to be a huge long-term advantage to the city for 100 or 200 years," Robbins said.

"You want a system that will move people more efficiently, especially bypassing the city, because of all the people who now go up the Viaduct, 70% of them don't want to go into the city, they just want to go by it. You are able to do that much better going under the ground and bypassing the surface streets or I-5. You just have to have a better way to go north and connect with 99." ■

Each machine is shaped like an immense tin can, with a huge, rotating cutting head that is the size of the tunnel to be built at one end, but open at the far end for disposal of the excavated materials. The heads were specifically engineered for the soil and ground conditions at the boring site. Each head contains a series of round cutting discs. As they are relentlessly ground down by the drilling, they are replaced. Some of the cutting discs used at Brightwater were manufactured in Kent by the 50-year-old Robbins Company.

The massive cutting head face that holds the discs also has openings through which dislodged dirt, sand, and gravel will be drawn, to be mixed with a liquid (often a bentonite slurry) so the mixture can be piped to a separation plant outside the tunnel where the bentonite, a liquid suspension agent, is cleaned and returned to the tunneling machine for reuse.

The sand, gravel, and other materials are separated at the same staging area and disposed of according to regulations.

Both the face of the machine and the ground through which it moves are kept under high pressure to keep the material from collapsing or the tunnel from falling apart. For repairs to the interior of the machine, there are compressed-air locks so that workers can service the cutting head or replace discs or cutterhead parts worn down as they grind rocks or by the abrasiveness of soil and sand.

Everything from the cutting head at the front end to an erector for the new tunnel walls is located inside a protective steel shield, much like a tin can that can make its own concrete walls as it moves forward.

The machines designed for Brightwater will not be used anywhere else, although some parts may get reused for other machines and purposes.

So, that's the machine. Here is how the boring process works:

The entire machine is encased in a shield, like a tin can, which slides along the bottom of the unlined tunnel. At the trailing edge of the shield, rail tracks are installed – behind the machine itself, to permit equipment and supplies to follow the machine, much like rail cars behind an engine.

A suspension medium is pumped into a sealed and pressured chamber behind the cutting wheels to help liquefy the bored material so it can be pumped away to the surface. Meanwhile, some of this suspension material is also forced under pressure to the forward side of the machine, ahead of the cutting wheels, to help support the ground in front of and around the cutter head. It basically makes a place to move forward by excavating the diameter of the tunnel itself.

Inside the boring machine, a separate process meanwhile erects a set of five semi-round steel-reinforced tunnel wall segments, each five feet from side to side. When five of these are

bolted and sealed together, the set creates a new segment of the round tunnel wall.

The entire boring machine is moved forward by a series of thruster cylinders that extend backward from the main boring unit and press against the edges of the installed tunnel wall. These cylinders push the cutting head into the soil to be bored. When the cylinders reach their five-foot extension length, a new five-foot section of the tunnel wall is lifted piece by piece into place, bolted together, and the cylinders are retracted for the next push.

At the same time the rails are extended. Below the machine is a set of wheels that can be retracted as the cutting head moves forward; when it does the next set of rails is installed in the new area of the tunnel floor.

Both the rails and tunnel wall segments are brought in and staged on cars behind the boring machine. The startling thing is that, for the entire unit, the operation requires only a cab operator and a few men who monitor operations and handle special tasks. Everything else is automated.

As for what goes on underground, regulations apply. Just as with air rights, property owners of the surface land have below-ground ownership rights. For example, if a machine passes under a farmer's field in north King County, or a small farm or large home lot, the owner must agree on a cost for boring under the property. Since such subterranean acquisitions are rarely contested, tunnels move quickly once they are under way.

When a tunnel is built in Seattle, each aboveground property owner must be dealt with. For that reason, current thought is that the tunnel will follow a path through City of Seattle–owned property, such as under Second Avenue or other city rights-of-way.

After engineers select and design the boring route, every aspect of the entire boring process will be driven by a computer program. Unlike the movies, you won't see a comfy cockpit with steering wheels or throttles for comely drivers. Instead, the cab where the tunneling process is controlled has just an array of start switches, an emergency off switch, and several computer monitors.

A laser-aided survey program keeps the machine boring on the proper course, and at the proper depth. All of that is decided by engineering studies of the soil conditions, the amount of water in the soil, and special considerations for aquifers, rivers, and creeks. Changes are made only as necessary. With problems minimized, the advance rate for the tunnel is estimated at from 360 to 550 feet per week, depending on hours worked and the lack of major problems.

That does not mean that highly trained and skilled operators are not necessary. They are definitely present in the control center and, like airplane pilots, use the autopilot when possible, but monitor closely to detect any deviations. These operators are the tunnel-world equals of Captain Chesley Sullenberger, the pilot who brought his automated plane down safely in the Hudson River recently.

Even so, most situations can be designed for in advance, says Jacobs Engineering's Anthony Pooley, project manager for King County's Brightwater treatment system project.

In the case of the two tunnels being bored in the current phase of the Brightwater project, one tunnel segment is moving ahead on schedule. The other one is a bit behind because of problems with soil conditions plus some launching conditions

Each machine is shaped like an immense tin can, with a huge, rotating cutting head that is the size of the tunnel to be built at one end, but open at the far end for disposal of the excavated materials. The heads were specifically engineered for the soil and ground conditions at the boring site. Each head contains a series of round cutting discs. As they are relentlessly ground down by the drilling, they are replaced. The massive cutting head face that holds the discs has openings through which dislodged dirt, sand, and gravel will be drawn, to be mixed with a liquid (often a bentonite slurry) so the mixture can be piped to a separation plant outside the tunnel where the bentonite, a liquid suspension agent, is cleaned and returned to the tunneling machine for reuse.

Upon its expected completion in 2011, the Brightwater tunnels will convey treated sewage. Far left: lighting, air and slurry pipes in the tunnel. Center: maintenance locks at the back of the TBM. Far right: concrete wall sections await placement.

that included a tricky curve. The first machine is operating seven days a week, three shifts. The other is active over two shifts with some maintenance time.

Once the tunnel walls are in place, the crew working underground has good light from overhead lighting that is also installed as the tunnel section is built.

One major safety feature that is closely controlled by regulations is fresh air. Found even far from the tunnel entrance, it is delivered by a large, flexible tube suspended from the top of the tunnel. The fresh air is piped in under enough pressure to create a healthy backdraft toward the tunnel opening when released near the boring machine. The rules say that this air must move at a specified rate. There was no hint of bad air or equipment exhaust even deep into the dig area.

The depth of the tunnel also keeps the temperature about even all year no matter what the aboveground temperature is. It appeared to be an even 70 or so degrees during our visit, even though it was much cooler outside.

The Brightwater tunnels will convey treated sewage. When they are completed, all of the pipes, lights, and associated construction equipment will be removed. Completion is expected in 2011.

As with all major construction projects, unexpected problems arise. A sinkhole 15 feet deep, perhaps related to tunneling of the Brightwater project, opened up in a Kenmore driveway on March 8. A boring machine was operating about 150 feet under the area, Judy Cochran said.

Cochran, construction manager for Brightwater, said the boring machine was moving far below the surface in the groundwater layer. A sinkhole can occur if pressure changes, but "it's pretty rare," she told the *Seattle Times*. It's the first time since the Brightwater project started that a sinkhole has developed, Cochran said.

Crews quickly filled the sinkhole with sand and gravel. There appeared to be no property damage other than the driveway and the sidewalk.

In spite of repeated claims by local critics, the Seattle tunnel is not likely to turn into a "Big Dig" fiasco like in Boston. The Boston project was far larger and far more complex. It combined a huge cut-and-cover ditch with an underground tube, an additional tunnel, and a huge surface-road project that rerouted a 3.5-mile stretch of interstate freeway that once carried nearly 200,000 cars per day through the heart of Boston. By the time it was all over, with debt costs included, it was estimated that the final price tag would reach $22 billion.

The two-mile Seattle tunnel is presently envisioned as a single-bore structure with a radius of 54 feet housing four lanes carrying 80,000 to 85,000 cars each day, with estimated tunnel construction costs of $1.2 to $2.2 billion, with associated costs bringing the total to something more than $4 billion.

Doug MacDonald, the recently retired Secretary of the Washington State Department of Transportation, was the executive director of the Massachusetts Water Resource Authority in the 1990s and supervised some non-vehicle tunnel construction while the Big Dig was underway.

"The Seattle project would have almost no parallel to the Big Dig," he said recently. "The Seattle project calls for a different kind of tunnel with a different technology and on an entirely different and much more limited scale. Its construction in Seattle would, I hope, avoid the many management problems that plagued the Big Dig. [The state department of transportation's] record in successful management of large and complex projects is illustrated by the successful Tacoma Narrows Bridge project completed in 2007."

A reporter visited the completed Boston project recently and was amazed at the major changes made to what was the "Central Artery," blocking the waterfront from the historic portions of downtown Boston, including Faneuil Hall and the Quincy Market. Now the area is filled with tourists and local residents in a parklike area with new businesses filling what was once an ugly maze of elevated highways and downtrodden businesses.

Not that the Seattle tunnel won't have its own unique challenges and problems. Major political battles remain before the funding and design package can be nailed down, and a final proposal will require approvals from the Seattle City Council, the King County Council, the Seattle Port Commission, and the Washington State Legislature. There is even a decent chance it might be killed by its detractors before you get a chance to read this.

But as a strategy for minimizing surface disruptions in dense urban landscapes like the one in Seattle, the value of deep bore tunneling is high.

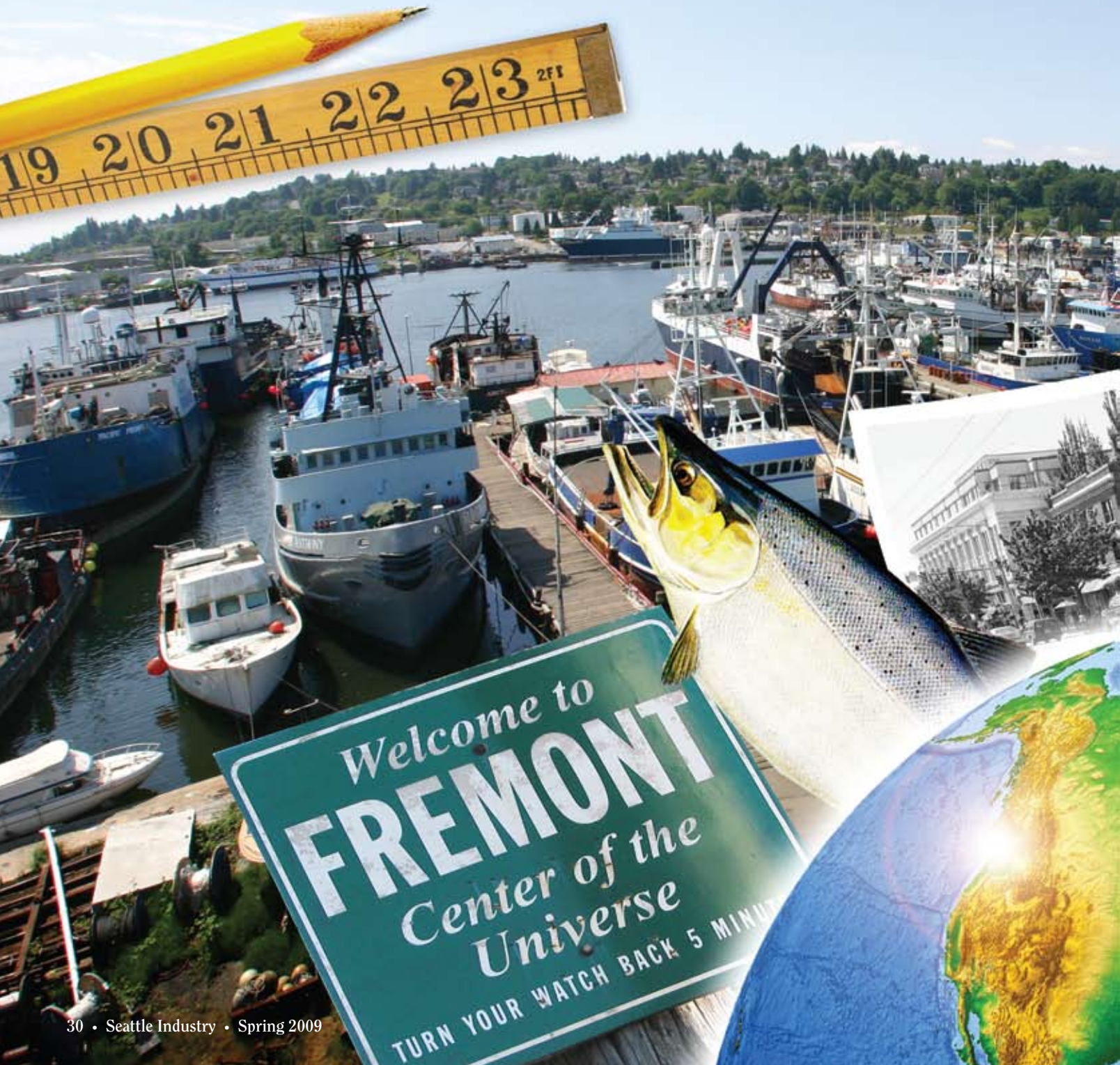
At the end of the journey in *The Core*, Beck and the hunky college professor who headed the mission lounge together at the bottom of the sea in the cockpit of their tunneling machine awaiting rescue and wondering if anyone will ever know how heroic they and their now dead companions were.

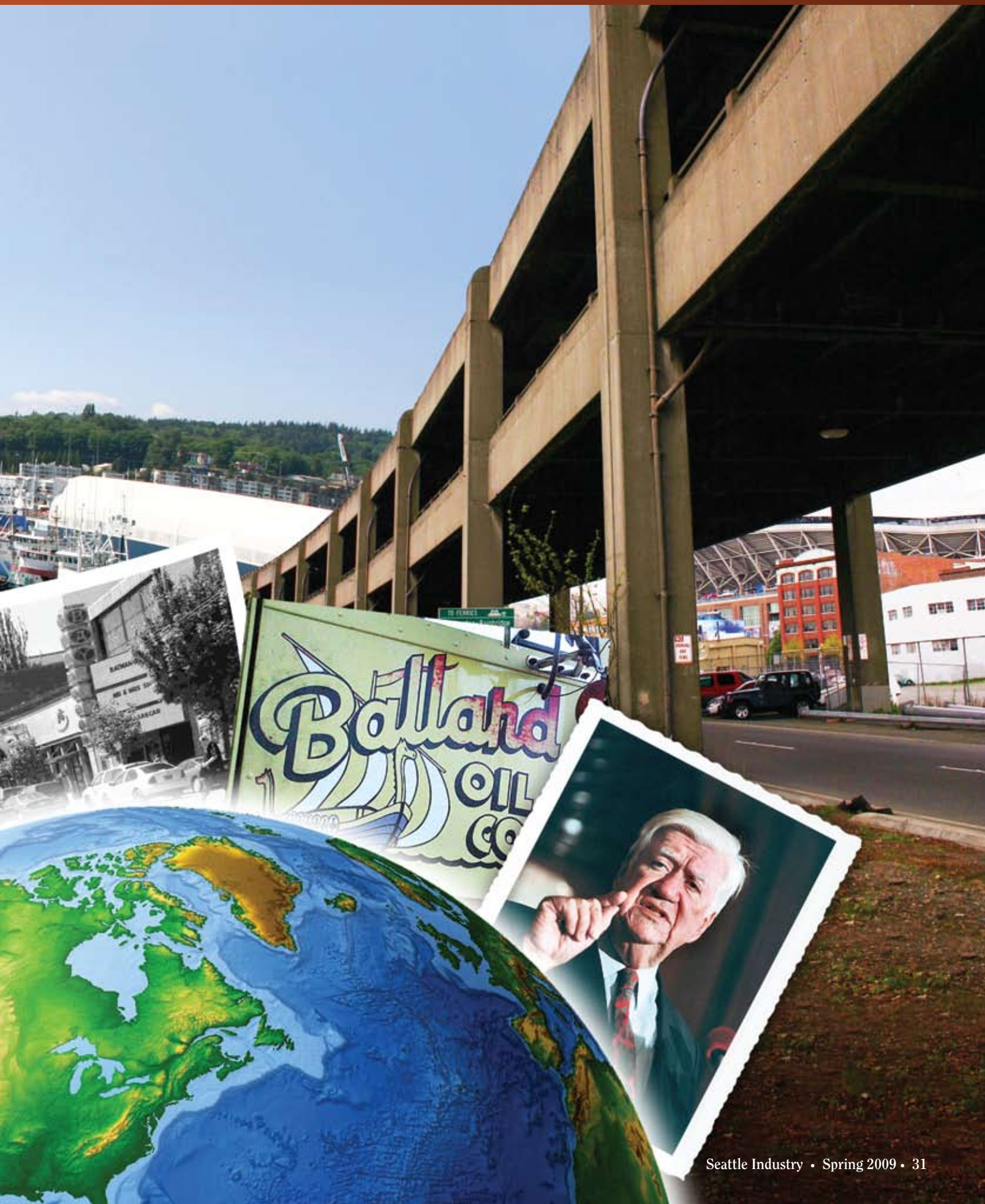
They saved the earth. We seek only to save our city from traffic gridlock and lengthy traffic constrictions while a replacement for the viaduct is being built. ■

Northwest Connectivity Think globally, act locally

Tip O'Neill famously said that "All politics is local" – and Alaskan Way Viaduct politics don't get any more local than the Elliott Avenue on-ramp to the viaduct and State Route 99 just north of the Pike Place Market.

Extending into the on-ramp is a concrete intrusion known as a curb bulb. This particular bulb was installed to make it safer for pedestrians to cross the on-ramp to get to the market and other places to the south, even though they could have used a signalized crosswalk less than one block away.




Ballard
OIL

City transportation planners insist curb bulbs do not restrict traffic flows. On some streets that might be true, but it's not for the curb bulb on Elliott.

In ones, twos, and threes, ambling pedestrians cross the on-ramp whenever they feel like it, usually bringing one, two, or three cars and trucks to a halt. Sometimes during the day, this causes nothing but some frustration. It's just another chapter in the ongoing urban interplay between pedestrians and motorists. It happens thousands of times in local intersections all over town. Most of the people crossing Elliott don't even bother to look up.

But the Elliott curb bulb isn't just local to the pedestrian crossing. It obstructs an onramp to SR 99, one of the busiest truck routes in the state, and, at peak travel times, if you take a more global look up from the ramp you see that the cumulative effect is a backup of cars, trucks, and buses that often extends north down Elliott for as far as the eye can see.

The same goes for a neighboring ramp at Western. The northbound traffic on the Western ramp frequently backs up onto the viaduct due to conflicts that occur between motorists, pedestrians, and transients on Western underneath the viaduct.

The good news is that all this may be improved by the deep bore tunnel plan, which would eliminate the curb bulb and open the way for other major improvements that would almost have to improve traffic flow.

But you have to wonder. Can you trust the city transportation planners – who thought the Elliott curb bulb was a good idea in the first place – to manage the new roadways? More to the point, can the industrial businesses in northwest Seattle trust the city?

The Elliott curb bulb isn't just local to the pedestrian crossing. It obstructs an onramp to SR 99, one of the busiest truck routes in the state, and, at peak travel times, if you take a more global look up from the ramp you see that the cumulative effect is a backup of cars, trucks, and buses that often extends north down Elliott for as far as the eye can see.

Welcome to the front line in the battle to replace the viaduct with a deep bore tunnel.

For the past decade, business groups in Ballard and Fremont have battled the City of Seattle over a series of bike paths, curb bulbs, and roadway lane reductions along the handful of designated truck routes that provide freight and commuter access into northwest Seattle.

This history is problematic for the deep bore proposal for at least three reasons.

First, the deep bore option would move SR 99 away from its present connections at Elliott and Western, relocating the highway east to the deep bore tunnel. The ramps presently carry about 33,000 vehicles per day to and from the viaduct. That's a full third of all viaduct traffic, and it's a major planning challenge to figure out where these vehicles would go. Transportation planners call this the "northwest connectivity" issue.

Second, the most significant truck roads into and out of northwest Seattle are located inside or near the 43rd District of the Washington State Legislature. That district has been represented in the Washington State Legislature for the past 14 years by the Honorable Frank Chopp, D-Fremont. Representative Chopp has marshaled that seniority and strong personal political skills into an eight-year tenure as Speaker of the Washington State House of Representatives. That makes him a very influential person and the good folks in Fremont and Ballard have learned they can often rely on Speaker Chopp to do a good job representing them.

Third, downtown Ballard may be awash in condos, piercing studios, rock clubs, trendy restaurants, and construction sites, but the areas along the shore in Salmon Bay remain the home port for the North Pacific Fishing Fleet, a collection of some of the most successful seafood and fishing companies in the world.

Ten years ago the future of commercial fishing in Washington state seemed bleak. Washington's offshore waters were depleted, and farmed salmon was both popular and cheap. Even in Alaska, where salmon runs remained abundant, the fishing industry suffered through a crippling downturn that started in the mid 1980s and lasted for 15 years.

But, as the 21st century approached, a handful of enterprising individuals perceived that America's rising interest in healthy, organic foods might create a market for "wild Alaskan seafood."

At about the same time in Alaska, innovative companies figured out more and more ways to create markets and products for the chum and pink varieties of salmon, which are more abundant and cheaper than the better known coho, Chinook, and sockeye varieties. Also in Alaska, and almost concurrently, the pollock fishery grew from being a fairly small share of the overall catch to become the largest edible fishery in the world.

These diverse, wealth-creating activities possess one thing in common in addition to proximity to saltwater, and that is proximity to Ballard along with "Baha Ballard," otherwise known as Interbay.

The port survey also doesn't account for boats using private facilities like the Pacific Fishermen Shipyard on the north side of Lake Washington Ship Canal where Sig Hansen of *Deadliest Catch* TV fame recently brought his boat, the *Northwestern*, to get outfitted with a new rudder and 45,000 gallons of fuel before heading up north to work for a spell as a salmon tender.

Today, Alaska accounts for about 60% of the U.S. commercial seafood harvest, and close to two-thirds of all U.S. seafood exports. And year in, year out, about half the Alaska catch is caught by fishermen whose wives spend way too much time deciding whether to shop at the downtown Seattle Nordstrom's or, maybe, the one at Northgate.

According to a survey by the Port of Seattle, commercial fishing boats utilizing port facilities bring in about $1.8 billion per year to the Seattle economy, while spending untold millions to purchase Seattle gear and supplies. And that doesn't account for the value of the fish they catch or the money they spend in Alaska buying more things from Alaska outlets for companies based in Seattle, but with a much, much higher markup.

The port survey also doesn't account for boats using private facilities like the Pacific Fishermen Shipyard on the north side of Lake Washington Ship Canal where Sig Hansen of *Deadliest Catch* TV fame recently brought his boat, the *Northwestern*, to get outfitted with a new rudder and 45,000 gallons of fuel before heading up north to work for a spell as a salmon tender.

A person who knows about such things estimates that each fishing boats pays, on average, about $200,000 per year in Ballard for boat maintenance and replacement parts. Or they buy the parts in Alaska from Alaska outlets for companies based in Seattle, with that famous Seattle-Alaska mark-up.

Yet while the north Pacific fleet is thriving, the farmed fish industry around here is pretty much in the tank. Even so, members of the north Pacific fleet, like the kids in the rock clubs, and the young people in the condos, and a few hundred lawyers from Magnolia, use the Elliott and Western ramps to get to the viaduct and SR 99.

What to do? All is not lost.

Under the deep bore option, although SR 99 would move east, Elliott and Western would not go away. They would be connected instead with a new four-lane roadway that would extend down a ramp over the railroad tracks to touch ground near the Pike Place Market Hillclimb in the footprint of the existing viaduct.

This road would become the main part of the new Alaskan Way surface street that would follow the present footprint of the viaduct to the Coleman Street ferry terminal, where it would become a six-lane road traveling south to reconnect with SR 99 somewhere near the sports stadiums.

The existing Alaskan Way surface road would continue to exist, connecting with the new road near the Hillclimb, then continuing in its present path north past the Port of Seattle headquarters on Pier 66 before tying into Broad.

As part of this new route, the present one-lane viaduct on-ramps at Elliott and Western would each be replaced by two new lanes that would blend into the four-lane ramp.

And, instead of having two crappy one-lane ramps carrying 33,000 vehicles daily, the four new lanes would need to handle only 25,000 vehicles because the other 8,000 vehicles would shift over to the deep bore tunnel. At least, that's the traffic reduction predicted at this point by the transportation planners.

Sound good? Maybe. A four-lane road can carry lots of vehicles. The floating bridge for SR 520 carries 110,000 vehicles every day. But, it all depends on how the road is managed along the waterfront.

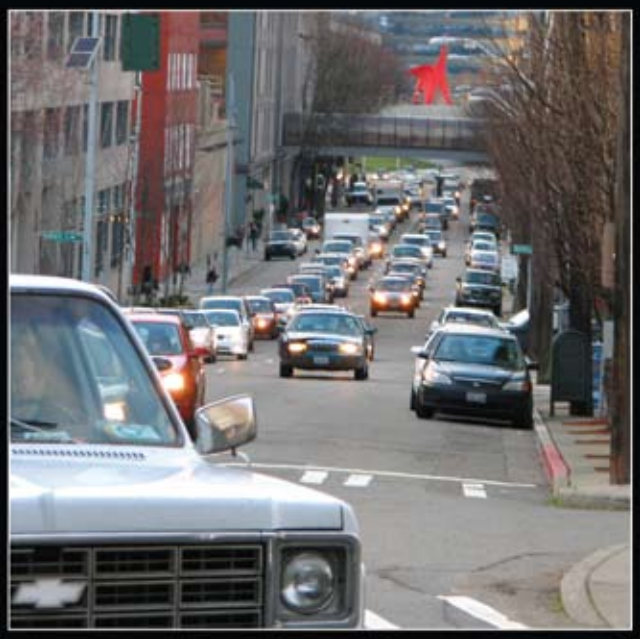
We say it's time to think globally and act locally.

Globally speaking, the deep bore tunnel could solve some big, big problems. It would replace a damaged viaduct in a way that minimizes construction-related traffic disruption, allowing the regional economy and Interstate 5 to function while the replacement structure is built. That's good. It might also allow an adequate volume of north-south traffic. That's good. It might also allow us to revamp existing roadways, intersections, and curb bulbs that don't work well now. That's good. It might also end a bitter community controversy that has divided the city, and the city and the state, for years. That's good, too.

But, locally speaking, the tunnel plan was presented in a manner that appeared to disregard the transportation needs of northwest Seattle, the North Pacific Fishing Fleet, and the 43rd Legislative District. That's not just bad. It's dumb.

Two steps might help. First, include a Ballard spur in the environmental review of the present deep-bore tunnel configuration. If it doesn't pencil out, it doesn't pencil out, but you don't know that until you sharpen up the pencil and give it a try.

Second, speak softly and carry a big measuring stick, then use it to make sure there's plenty of through capacity along Elliott and Western and all the way down the waterfront. Otherwise, the deep bore option might never get off the drawing board. ■



Locally speaking, the tunnel plan was presented in a manner that appeared to disregard the transportation needs of northwest Seattle, the North Pacific Fishing Fleet, and the 43rd Legislative District. That's not just bad. It's dumb.

Continental Van Lines

Special Deliveries in a Growth Market

Thanks to Virginia and Greg Blaine, owners of Seattle-based Continental Van Lines, we can finally conclude that 2008 might not have been the unmitigated business disaster that it so often seemed like. Because, just barely, it appears that more people were still moving into Washington State during 2008 than were moving out.

Virginia and Greg provide *Seattle Industry* with access to inbound-outbound migration data compiled by the UniGroup, a national consortium of moving companies with which Continental is affiliated. In 2008, according to UniGroup data, 50.3% of all moves in Washington were inbound while 49.7% were leaving.

That's no great shakes compared with Oregon, with a 56% inbound rate, or the District of Columbia. In the era of the bailout, it seems only fitting that Washington, DC had a higher inbound rate than any of the 50 states, 62.1%.

But, 50.3% feels pretty good when you consider the outbound rate for New York, where 57% of the moves were fleeing, or Michigan, with a 59.4% so-long rate, or Indiana, New Jersey, Wisconsin, Maine, and Nebraska, which were all on the negative side of the migration survey.

Alabama, North Carolina, and Nevada were among the strongest inbound states, with Nevada the best one, no doubt because of all the empty houses now available there cheap.

Let's assume 2009 might be better as Continental marks its 55th year in business.

The company was founded in 1954 by Virginia and Greg's stepdad, Eugene Hundley, who worked at that time for a company that transported freight from Seattle to Anchorage and other Alaska ports.

The opportunity came about because the US Army was looking for a company to move household items for military families stationed in Alaska. Hundley first went to a potential partner who wanted nothing to do with such work because of the emotional complications that can come up when moving families.

For those of us not engaged in the moving business, a move might seem like a move. But for those who are in the moving industry few things are more different than moving households or cargo.

"Freight doesn't talk, but people do," explains Virginia. "When you are moving people's personal possessions, you are dealing with items with very high sentimental value and moving can be very stressful. When you are helping a family move, you sometimes have to think like a therapist or a family counselor."

But the opportunity to get into the business of moving families appealed to Hundley. He pursued and won the Army contract, and Continental Van Lines was born, eventually establishing a customer base throughout Puget Sound and Alaska.

Virginia and Greg went to work for the company while they were in high school, and two of Greg's sons, Joseph and Robert, also work there, representing the third generation of the family to work for Continental.

The company recently changed its national affiliation to UniGroup, the parent company of Mayflower Transit and United Van Lines. With the change, Continental is the Mayflower mover for Seattle and Tacoma, and the United Van Lines mover in Alaska.

The affiliation includes access to UniGroup's monthly migration survey, which traces people's comings and goings for every state in the union.

Where were our inbounders inbounding from? California was the largest state for new Washingtonians, accounting for 1,491 inbound moves, followed by Texas with 703, Arizona with 377, and New York and Virginia at about 300 each.

California and Texas were also the top destinations for those leaving Washington, with 1,172 and 643 moves respectively. Virginia nearly matched Arizona for third, with 292 moves to homes in, no doubt, the outskirts of Washington, DC. ■

Seattle-based Continental Van Lines owners Virginia and Greg Blaine

Free Business Checking

Dropping fees, lifting eyebrows

Free Business Checking is a great place to start when you need a basic checking account with a full range of benefits. It's ideal for businesses with low to moderate transaction volume and can help you save time and money in the day-to-day management of your business finances.

ACCOUNT FEATURES

- $100 Minimum opening deposit
- No minimum balance requirement
- No monthly maintenance fee
- 200 Free checking transactions, including deposited items, checks paid and ACH debits/credits (35¢ each after 200)

South Seattle: (206) 768-1088 › 5701 First Ave. S., Seattle, WA 98108 › www.vikingbank.com

Also Serving: Bainbridge / Ballard / Bellevue / Fife / Poulsbo / Tacoma / West Seattle EQUAL HOUSING LENDER | MEMBER FDIC

VIKING BANK

Local. Personalized. Customer-Driven.