

ALASKAN WAY VIADUCT SEATTLE, USA

LONGUEUR DU TRACÉ	3,5 km
RÉALISATION	1953
MAÎTRISE D'OUVRAGE	Partenariat formé par le Washington State Department of Transportation (WSDOT), la Federal Highway Administration (FHWA), le Comté King et la Ville de Seattle
CAPACITÉ DU RÉSEAU	
TRANSIT APPROXIMATIF	110 000 véhicules / jour

CONTEXTE DE RÉALISATION

- 1953 Mise en service de l'Alaskan Way Viaduct, aménagé au-dessus de l'Alaskan Way. L'Alaskan Way Viaduct est la section surélevée de la route nationale 99. Longeant le front de mer, il s'agit d'un des 2 corridors autoroutiers nord-sud traversant le centre-ville et la zone industrielle de Seattle (l'autre étant l'Interstate 5). Environ 110 00 véhicules l'empruntent chaque jour, soit 20 à 25% des flux véhiculaires traversant le centre-ville.
- 17 OCTOBRE 1989 Le tremblement de terre de Loma Prieta cause d'importants dégâts sur un viaduc de conception similaire à Oakland en Californie; le Cypress Street Viaduct construit en 1955 selon des normes isostatiques.
- L'effondrement partiel de ce viaduc fut à l'origine de la majorité des disparitions dues au tremblement de terre. Un défaut de ductilité des pieds droits, un excès d'armatures longitudinales et un manque patent d'armatures transversales alliés aux caractéristiques naturelles du secteur (composition des sols, etc.) en seraient l'origine.
- La sécurité de l'Alaskan Way Viaduct devient de fait suspecte.
- 28 FÉVRIER 2001 Le viaduc Alaskan Way et sa structure sont endommagés par le tremblement de terre Nisqually.
- Le Washington State Department of Transportation (WSDOT) engage 14,5 millions de dollars en travaux de réparation d'urgence.
- En raison des dégâts causés par le séisme, des conséquences du choc sur la structure du pont, mais également de la vétusté de cet équipement, les experts estiment à 1/20 les risques que le viaduc soit détruit par un tremblement de terre lors de la prochaine décennie.
- La question de la viabilité à long terme de l'Alaskan Way Viaduct se pose alors sérieusement.

DOCUMENT DE TRAVAIL

DEPUIS 2001	Les inspections conduites biannuellement mettent en évidence le tassement continu de la structure du viaduc.
2007	En raison de ce tassement et des dommages ainsi causés, un groupe de chercheurs et d'enseignants de l'Université de Washington interpelle le Maire de Seattle pour la fermeture du viaduc et sa démolition dans un délai de quatre ans.
MARS 2007	Désaccord sur les solutions de remplacement à envisager (tunnel, autoroute surélevée, voies de surface).
12 JANVIER 2009	Accord de l'État de Washington, du Comté, de la Ville et du Port de Seattle pour démolir le viaduc et le remplacer par un tunnel.

DESCRIPTION DU PROJET

RÔLE	Démolition d'une infrastructure autoroutière vétuste, principale voie de circulation nord-sud du centre-ville de Seattle, et son remplacement
COMPOSITION	
TYPE DE STRUCTURE	Tunnel
DIMENSIONNEMENT	3,2 km et 4 voies
LIAISONS	2 entrées / sorties principales du tunnel : <ul style="list-style-type: none">- au nord, près de Thomas Street, au nord du Battery Street Tunnel;- au sud, dans le quartier de SoDo, près de Qwest Field.

PARTICULARITÉS DU PROJET

- Le projet est estimé à 4,25 milliards de dollars. L'État financera la construction du tunnel, alors que le Comté et la Ville financeront les interventions de surface et la réparation de l'Alaskan Way Seawall, également endommagée lors du tremblement de terre de 2001.
- La construction du tunnel devrait débuter en 2011 et s'achever en 2015.

MISE EN OEUVRE

SOURCES

- http://en.wikipedia.org/wiki/Alaskan_Way_Viaduct
- <http://www.wsdot.wa.gov/projects/viaduct/>
- <http://www.mssmat.ecp.fr/Seisme-de-Loma-Prieta,493>

Alaskan Way Viaduct

47°33′24″N 122°33′24″W﻿ / ﻿47.55667°N 122.55667°W﻿ / 47.55667; -122.55667 (http://stable.toolserver.org/geohack/geohack.php?pagename=Alaskan_Way_Viaduct¶ms=47.603986_N_122.338246_W_) From Wikipedia, the free encyclopedia

The **Alaskan Way Viaduct**, completed on April 4, 1953, is an elevated section of State Route 99 that runs along the Elliott Bay waterfront in Seattle's Industrial District and downtown Seattle. It is the smaller of the two major north-south traffic corridors through Seattle (the other being Interstate 5), carrying up to 110,000 vehicles per day.^[1] The viaduct runs above the surface street, Alaskan Way, from S. Nevada Street in the south to the entrance of Belltown's Battery Street Tunnel in the north, following previously existing railroad lines.

The viaduct was damaged in the 2001 Nisqually earthquake, and is proposed to be replaced by an underground tunnel.

Contents

- 1 Earthquake concerns
- 2 Proposed replacement
- 3 Route description
 - 3.1 Entrances and exits
- 4 References
- 5 See also
- 6 External links
 - 6.1 News stories

Earthquake concerns

The 1989 Loma Prieta earthquake destroyed the similarly designed Cypress Street Viaduct in Oakland, California with considerable loss of life. The 2001 Nisqually earthquake damaged the viaduct and its supporting Alaskan Way Seawall and required the Washington State Department of Transportation (WSDOT) to invest US\$14.5 million in emergency repairs. Experts give a 1-in-20 chance that the viaduct could be shut down by an earthquake within the next decade.^[1] Since the Nisqually Earthquake occurred, semi-annual inspections have discovered continuing settlement damage.

Due to damage from continuing settlement, a group of researchers and faculty from the University of Washington urged the mayor of Seattle (in 2007) to close the viaduct within a four-year timeframe.^[2]

Proposed replacement

Alaskan Way Viaduct



The Alaskan Way Viaduct, looking southeast

Carries	Washington State Route 99
Locale	Industrial District, Seattle, Washington
Material	Concrete
AADT	110,000 cars per day ^[1]
Completion date	April 4, 1953



On January 12, 2009, the state of Washington, King County, the city of Seattle, and the Port of Seattle revealed that they had agreed to replace the viaduct with a four-lane, 2-mile (3.2 km) long underground tunnel.

^[3] The tunnel would have a south portal in SoDo, near Qwest Field, and a north portal near Thomas Street, north of the Battery Street Tunnel.

The project is estimated to cost US\$4.25 billion, with the state, city, and county promising funding well short of the estimate.^[3] The state will fund boring of the tunnels, while the city and county will fund surface street improvements and repairs to the Alaskan Way Seawall, which itself was damaged in the Nisqually earthquake.^[3] There is presently no publicly-known timetable for the construction and opening of the tunnel. Construction of the tunnel is scheduled to begin in early 2011 and end in late 2015, with the potential length of the project being 6 years.

The announcement did little to quell the heated debate over the viaduct's replacement, with several factions expressing their criticism over the tunnel decision.^[3]

Route description

Heading northbound on State Route 99, the viaduct begins about a mile north of the First Avenue South Bridge, passing over the west end of the Industrial District. Just south of Safeco Field, at Massachusetts Street, the bridge shifts from a side-by-side alignment to the double-deck alignment commonly associated with the Alaskan Way Viaduct, with northbound traffic on the upper deck and southbound traffic on the lower deck. Then, at approximately Pike Street, the bridge reverts to a side-by-side alignment for about ½ mile until the viaduct's north end at the entrance to the Battery Street Tunnel.

Entrances and exits

Mile	Entrances	Exits	Destinations
28.91	southbound	northbound	Spokane Street - West Seattle
28.91	northbound	southbound	West Seattle Bridge/Harbor Island
30.75	northbound	southbound	1st Avenue S./Safeco Field/Qwest Field/Colman Dock
31.30	southbound	northbound	Seneca Street/Downtown
	northbound and	northbound and	



The Alaskan Way Viaduct seen from Elliott Bay



The view beneath the viaduct, facing south



Western Ave Exit to Belltown.



The cutout of the Viaduct is just one of several unique features of the structure

31.95	southbound	southbound	Western Avenue/Belltown
32.44	northbound	southbound	Denny Way/South Lake Union

References

- [^] ^{*a b c*} WSDOT Projects: Alaskan Way Viaduct and Seawall Replacement (<http://www.wsdot.wa.gov/projects/Viaduct/>)
- [^] Seattle Times:Shut down the viaduct (March 2, 2006) (http://seattletimes.nwsourc.com/html/opinion/2002837776_viaduct02.html)
- [^] ^{*a b c d*} Garber, Andrew (January 13, 2009). "Tunnel in place of viaduct: A deal, but how to pay?" (http://seattletimes.nwsourc.com/html/localnews/2008621043_viaduct13m.html). *The Seattle Times*. http://seattletimes.nwsourc.com/html/localnews/2008621043_viaduct13m.html. Retrieved on January 13, 2009.

See also

- Big Dig (an elevated-to-tunnel conversion in Boston)
- Gardiner Expressway (an elevated freeway in Toronto with similar future plans)

External links

- SR 99 - Alaskan Way Viaduct & Seawall Replacement Project (<http://www.wsdot.wa.gov/projects/viaduct/>)

News stories

- "Two views of the (http://seattletimes.nwsourc.com/html/localnews/2003249507_webviaduct08.html). Seattle Times. 2006-09-08. http://seattletimes.nwsourc.com/html/localnews/2003249507_webviaduct08.html. Retrieved on 2006-09-10.
 - note: article links to videos which require RealPlayer 10.5
- "State offers 3 decidedly different designs for (http://seattletimes.nwsourc.com/html/localnews/2003185081_viaduct09m.html). Seattle Times. 2006-08-09. http://seattletimes.nwsourc.com/html/localnews/2003185081_viaduct09m.html. Retrieved on 2006-08-15.
- "Idea of fixing viaduct seen as having merit but problems as (http://seattletimes.nwsourc.com/html/localnews/2003169038_viaduct02m.html). Seattle Times. 2006-08-02. http://seattletimes.nwsourc.com/html/localnews/2003169038_viaduct02m.html. Retrieved on 2006-08-02.
- "What will happen if viaduct closes? Study takes a (http://seattletimes.nwsourc.com/html/localnews/2003149875_viaduct25m.html). Seattle Times. 2006-07-25. http://seattletimes.nwsourc.com/html/localnews/2003149875_viaduct25m.html. Retrieved on 2006-07-25.

- "A Longer shelf life for the (http://seattlepi.nwsourc.com/transportation/268857_viaduct03.html). Seattle P.I. 2006-05-03. http://seattlepi.nwsourc.com/transportation/268857_viaduct03.html. Retrieved on 2006-06-24.
- "Seattle's Little Dig" (http://www.seattleweekly.com/news/0616/viaduct.php). Seattle Weekly. 2006-04-19. http://www.seattleweekly.com/news/0616/viaduct.php. Retrieved on 2006-06-24.
- "MorePerfect.org collected news stories" (http://www.moreperfect.org/wiki/index.php?title=Alaskan_Way_Viaduct:_Transit_%26_Streets_Proposal:_Read_More). MorePerfect.org. http://www.moreperfect.org/wiki/index.php?title=Alaskan_Way_Viaduct:_Transit_%26_Streets_Proposal:_Read_More.

Retrieved from "http://en.wikipedia.org/wiki/Alaskan_Way_Viaduct"

Categories: Bridges in Seattle, Washington | Roads in Washington (U.S. state) | Bridges completed in 1953 | Viaducts | U.S. Route 99

- This page was last modified on 6 May 2009, at 20:44 (UTC).
- All text is available under the terms of the GNU Free Documentation License. (See **Copyrights** for details.)
Wikipedia® is a registered trademark of the Wikimedia Foundation, Inc., a U.S. registered 501(c)(3) tax-deductible nonprofit charity.



LEED-ND COMMENT ON THE DRAFT RATING
SYSTEM FOR GREEN URBANISM » » »



CNU

 Search

[CHARTER](#) [CHAPTERS](#) [STORE](#) [CONTACT CNU](#) [CNU 17](#) [DONATE](#) [JOIN CNU](#) [LOGIN](#)
[ABOUT CNU](#) [NEWS](#) [CONNECT](#) [INITIATIVES](#) [RESOURCES](#) [EVENTS](#) [AWARDS](#)

Seattle's Alaskan Way Viaduct

The Alaskan Way Viaduct of Seattle is a road under siege. Built in 1953, as State Route 99, the Alaskan Way is a north-south route alongside Seattle's Elliot Bay and carries approximately 105,000 vehicles per day. After portions of the structurally similar Cyprus Street Viaduct of Oakland, CA crumbled during the 1989 Loma Prieta Earthquake, the integrity of the Alaskan Way became highly suspect. In 2001, damage by the Nisqually Earthquake confirmed these suspicions, necessitating emergency repairs and calling into question its long-term viability. The City of Seattle and the State of Washington have been wrestling with what to do with the aging, precarious structure ever since.

Removal Proposals

In 2007, after a study by the University of Washington found that damage from continued post-earthquake settling will further damage the structure, they recommended the viaduct be destroyed within 4 years. Initial proposals released by the Washington State Department of Transportation for replacement arterials included only an expanded elevated highway or a tunnel during the downtown segment--each with price tags of \$4 billion or more--met with fierce opposition. On a March 13, 2007, Seattleites voted both of these options down in a local referendum--welcoming in a surface and transit option.

The Boulevard Option

With the two expensive options off the table, Cary Moon and the [People's Waterfront Coalition](#) have capitalized on momentum for a surface boulevard alternative. The organization envisions an open, landscaped boulevard with built-in options for transit. This human-scale structure would re-open the waterfront to the community and restore the shoreline, thus supporting a vibrant urban atmosphere. Further development along the newly opened 335 acres of public land on Seattle's waterfront could give way to new parks, beaches, and development--and save the city years of construction delays and billions of dollars. "If you try to build your way out of congestion," says Moon, "you'll ruin your city or go broke trying."

Future Plans

<http://www.cnu.org/highways/seattle>



The Alaskan Way Viaduct, as seen from Elliot Bay. Source: Wikipedia



Source: Flickr.com Slightlynorth

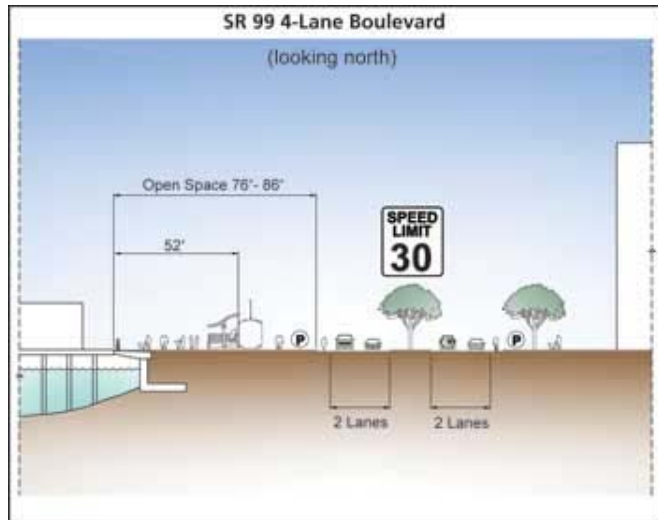
2009-05-11

Seattle's Alaskan Way Viaduct | Cong...

In January, 2008 Governor Christine Gregoire decreed that "no-action" was not an option, and that by 2012 the Viaduct would come down, though she has not decided on a specific replacement. The current mayor Greg Nickels and other local officials still support the tunnel option, despite the prohibitive cost and voter disapproval. After the March, 2007 voter rejection of the rebuilding and tunneling options, the city went back to work, putting together other proposals. Today, there are 8 alternatives, three of which involve replacing the elevated structure with surface roads.

Resources

Smart Mobility Sept. 2006: [Alaskan Way Viaduct: Analysis of No-replacement Option](#)



One of three proposed surface level alternatives Source: Washington State DOT

© 1997-2007 Congress for the New Urbanism. Opinions posted in CNU Salons and in comments are those of their respective authors, not of CNU.



WSDOT Projects

About the Alaskan Way Viaduct and Seawall



Crews atop the Alaskan Way Viaduct repair earthquake damage in April 2001.



The deteriorating Alaskan Way Seawall, which was completed in the 1930s.

Alaskan Way Viaduct

The Alaskan Way Viaduct section of SR 99 has been a fixture of the downtown Seattle waterfront for more than five decades. Today, SR 99 continues to be a main north-south route through the city, carrying 20 to 25 percent of the traffic traveling through downtown. However, its days are numbered. Time, daily wear and tear, salty marine air, and some sizeable earthquakes have taken their toll on the structure.

Studies in the mid-1990s showed that the 1950s-era viaduct was nearing the end of its useful life. The viaduct's age and vulnerability were signaled by crumbling concrete, exposed rebar, cracking concrete, weakening column connections, and deteriorating railings. In early 2001, a team of design and seismic experts began work to determine whether it was feasible and cost-effective to strengthen the viaduct by retrofitting it. In the midst of this investigation, the 6.8 magnitude Nisqually earthquake shook the Puget Sound region. The earthquake damaged the viaduct, forcing the Washington State Department of Transportation (WSDOT) to temporarily shut it down.

Seawall

Shortly after the Nisqually earthquake, a 100-foot-long by 10-foot-wide section of the Alaskan Way surface street settled, raising concerns about the condition of the Alaskan Way Seawall. The seawall holds the soil in place along Seattle's waterfront. The seawall also holds the Alaskan Way surface street and many utilities in place. The viaduct's foundations are embedded in the soil held back by the seawall. If the seawall were to fail, sections of the viaduct, the Alaskan Way surface street, and adjacent structures and utilities could collapse or become unsafe.

Further investigations were conducted to assess the seawall's condition. These investigations showed that the seawall's condition is worse than expected, and it needs to be replaced. The seawall continues to deteriorate despite regular maintenance by the City of Seattle. Soils underneath the roadway moved and liquefied during the Nisqually earthquake. Liquefaction is what can happen to loose, wet soils when shaking motion from an earthquake causes the soil to turn into a quicksand-like condition.

Post-earthquake inspections of the viaduct revealed both good and bad news concerning its condition. The good news was that the viaduct survived the 6.8 magnitude earthquake. The bad news was the earthquake caused damage to the viaduct's joints and columns, further weakening the structure and revealing its severe vulnerability. A team of experts concluded that it was not cost-effective to fully retrofit the majority of the viaduct; rather, the viaduct would need to be rebuilt or replaced.

Immediate repairs were made to four viaduct sections in the Pioneer Square area near S. Washington Street. WSDOT also imposed roadway restrictions that remain in effect today. Vehicles with a gross weight of more than 105,500 pounds are prohibited, and trucks and buses must travel in the right-hand lane only. [Ongoing inspections](#) have revealed other increased cracks, exposed rebar, and weakening concrete; all signs that the viaduct is aging and continues to deteriorate.

In addition, marine organisms called gribbles have been eating away at the timbers that support the seawall. Inspections have shown that substantial portions of the seawall's timber support structures have been weakened or destroyed by gribbles.

The Nisqually earthquake highlighted the inevitable fact that the viaduct and seawall are nearing the end of their useful lives, and it's time to replace them.

For more information about the Alaskan Way Seawall, visit the City of Seattle [Web site](#).

Copyright WSDOT © 2009

SR 99 - Alaskan Way Viaduct and Seawall Replacement

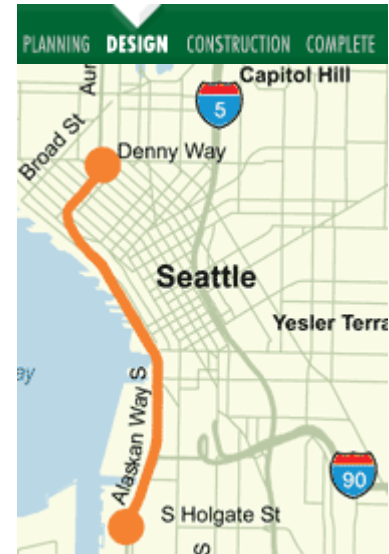
Project Status

May 2009

Construction activity: Learn more about building demolition and parking restrictions near the stadiums.

We have created three [working groups](#) to provide feedback on the bored tunnel and central waterfront design. Meetings are open to the public, and meeting dates and locations are listed under [public events](#).

Visit [contracting and equal opportunity](#) to learn about upcoming program work, including the expected contracting approach for the bored tunnel.



[View corridor map.](#)



Looking south onto the Alaskan Way Viaduct.

Overview

The Alaskan Way Viaduct and Seawall Replacement Program is composed of the Moving Forward projects, located in the north and south ends of the viaduct, and the central waterfront project.

We will replace the viaduct's [central waterfront section](#) with a bored tunnel beneath downtown, a new waterfront surface street, transit investments, and downtown waterfront and city street improvements. The state, county and city departments of transportation are working together to implement the bored tunnel and related projects.

While we design the central waterfront replacement, we have begun other safety and mobility projects in the corridor. These [Moving Forward projects](#) (pdf 302 kb) are:

- [Column safety repairs](#) in the Pioneer Square area
- [Electrical line relocation](#) along the viaduct's south end
- [Battery Street Tunnel maintenance and repairs](#)
- [South end viaduct replacement between S. Holgate Street and S. King Street](#)
- [Transit enhancements and other improvements](#)

Why is WSDOT pursuing this program?

The Alaskan Way Viaduct plays a major role in sustaining our economy and maintaining our citizens' ability to travel to and through Seattle. However, the viaduct, along with the seawall, is at [risk of failure from earthquakes](#) (with unacceptable risk to lives as well as property) and irreversible loss of use from age and deterioration. The structure must be replaced.

We [continue to monitor and inspect](#) the viaduct as we move forward with its replacement.

Our Partners

This program is led by the Washington State Department of Transportation (WSDOT) in partnership with the Federal Highway Administration, King County, and the City of Seattle.

The End Result

The end result for this program will be the replacement of the viaduct and the central waterfront seawall.

Project Benefits

- **Safety.** We will create safe, seismically sound replacement structures for the viaduct and seawall.
- **Traffic.** The bored tunnel, new waterfront surface street, transit investments and city street improvements will provide capacity in the transportation system for today and the future and improve access and mobility to and through downtown Seattle.

What is the project timeline?

We completed our first project - [column safety repairs](#) - in 2008. That same year we began to [move electrical lines](#) off of the south end of the viaduct.

Construction will start this year on the [southern mile of the viaduct](#) and on [transit and city street investments](#) to keep people and goods moving during this work.

Construction on the [bored tunnel](#) is expected to begin in 2011. Visit the [program timeline](#) for more information.

Financial Information

The information below reflects current program funding by the State of Washington. Other [funding sources](#) (pdf 584 kb) include the City of Seattle, King County, and the Port of Seattle.

- **2005 Gas Tax** ([Partnership Funding](#)) - \$1.6 billion
- **2003 Gas Tax** ([Nickel Funding](#)) - \$251.4 million
- **2005 Federal Earmark Funds** - \$209.4 million
- **Federal Bridge Funds** - \$72.6 million
- **Other Funds** - \$256.6 million
(Includes \$247.4 million in other state funding, \$5.3 million from the City of Seattle and \$3.9 million of Federal Emergency Repair Funds.)

Total funding available - \$2.39 billion

How can I get more information?

Contact:

KaDeena Lenz, Communications Officer

WSDOT

999 Third Ave., Suite 2424

Seattle, WA 98104

Phone: 206-267-3836

Email: viaduct@wsdot.wa.gov

Program Hotline: 1 - 888 - A W V - LINE
NE