

CCTN Assignment Sheet

Date Assigned: 2/19

CCTN #: 147202

Constituent Last Name: Brown

Assignee: TPC

CC: _____

PRCS Person of Contact:

Andrea:

(360) 586-0752

Other: _____

____ Prepare a Draft for AG/Chief Deputy review

____ Prepare a Draft for AG/Chief Deputy signature

Date due back to Executive Assistant: _____
(Judy Gaul: 360-664-9083)

____ Division response due to constituent: 3/6

Comments:

Christopher Brown, P.E.
9688 Rainier Ave. S.
Seattle, WA 98118-5981

SEATTLE WA 981

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INCOMING 02/19/2009 04:03 AM

Rob McKenna, Esq.
Office of the Attorney General
State of Washington
P. O. Box 40100
Olympia, WA 98504-0100

985040100



9688 Rainier Avenue S.
Seattle, WA 98118

February 17, 2009

Rob McKenna, Esq.
Office of the Attorney General
State of Washington
P. O. Box 40100
Olympia, WA 98504-0100

2009 FEB 19 A 8:02
ATTORNEY GENERAL
WASHINGTON

RECEIVED
OSG

Re: SR 99, PSH 1, Alaskan Way Viaduct
Deep Bore Tunnel Viaduct Replacement Option
Notice of Negligent Design

Dear Mr. McKenna:

I am enclosing a copy of my recent letter addressed to the Governor, Mayor of Seattle, King County Administrator, Chief Executive Officer for the Port of Seattle, and the Regional Administrator for FHWA regarding the subject tunnel. You will note that I am of the opinion that it is potentially hazardous in that it fails to meet the minimum adopted design standards of the state. Indeed, the design being espoused carries with it substantial tort liability due to a number of factors not the least being inadequate shoulder widths and no "shy" distance being provide between the edges of shoulders and the tunnel walls.

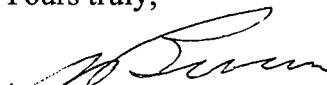
To meet what I judge to be an acceptable tunnel design, and using the proposed boring technology, it is clear that a single tunnel with 2-decks will not suffice. Minimally, to accommodate a design that meets all safety standards there will need to be two parallel, single deck tunnels. That, in turn, can raise the cost well above \$8 billion.

I wish to ask that you carefully review what is being proposed and take note of the inadequacy of the design by way of inadequate shoulder widths and lack of an appropriate "shy" distance between tunnel walls and shoulder edges.

If the correct design standards cannot be provided I ask that you so advise WSDOT who has a major design responsibility. It would be imprudent to undertake such a project that obviously jeopardizes public safety and, as a consequence, carries huge tort liability for the State – a liability you should not ignore.

Thank you for your kind and deliberate consideration,

Yours truly,


Christopher V. Brown, P.E.

encl.

9688 Rainier Avenue S.
Seattle, WA 98118

February 17, 2009

The Honorable Christine Gregoire
Office of the Governor
State of Washington
P. O. Box 40002
Olympia, WA 98504-0002

The Honorable Greg Nickels
Office of the Mayor of the City of Seattle
P. O. Box 94749
Seattle, WA 98124-4749

The Honorable Ron Sims
King County Executive Office
401 5th Avenue, Suite 800
Seattle, WA 98104

Mr. Tay Yoshitani
Chief Executive Office
Port of Seattle
P. O. Box 1209
Seattle, WA 98111

Mr. Daniel Mathis
Regional Administrator
Federal Highway Administration
801 Capitol Way South
Olympia, WA 98501

Re: SR 99, PSH 1, Alaskan Way Viaduct
Deep Bore Tunnel Viaduct Replacement Option
Notice of Negligent Design

Madam Governor and Gentlemen:

The proposed deep bore tunnel is shockingly inadequate for accommodating fire apparatus and other emergency vehicles that may be required to respond to any accident involving a major fire and multiple vehicles. Of particular concern, it fails to meet the minimum design standards published by the Washington State Department of Transportation (WSDOT) in their *Design Manual*, Publication M 22-01.03 dated May 2008, Figure 440-9, entitled Geometric Design Data: Urban Managed Access Highways.

The Honorable Christine Gregoire
The Honorable Greg Nickels
The Honorable Ron Sims
Mr. Tay Yoshitani
Mr. Daniel Mathis
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The design as now proposed, from media publications,¹ calls for a single deep bore tunnel with two “decks”. Each deck is to have two 12-foot travel lanes and includes a 4-foot shoulder on the left side and an 8-foot shoulder on the right side. Although a tunnel is described, and therefore by definition is a structure, there are no “shy” distances shown between the shoulder edges and the tunnel walls on either side. The shy distance is typically 1.5 to 2-feet and is curbed so that it separates vehicles using the shoulder from the tunnel wall and, importantly, can also be used as a pedestrian refuge, if needed, especially if there is a major accident and they must vacate the immediate vicinity.

Characteristically, and an operational fact, the 2-mile tunnel is absent any entering or exiting ramps. Consequently, it will take on all the traffic flow characteristics of a freeway despite what you may hope for.² Among these characteristics are high traffic speeds, high lane densities, and correspondingly accident frequencies with higher levels of severity. Further, with an average daily traffic (ADT) of at least 85,000 vehicles per day (under a zero growth scenario³) and a truck direction design hourly volume (DDHV) in excess of 250 per hour, a 12-foot shoulder should be the mandated design standard for both sides of the traveled way. This is a sharp and compelling contrast to the proposed 4-foot shoulder on one side and an 8-foot shoulder on the other that fail to meet the adopted standard. It is even more appalling when you consider the total lack of a “shy” distance on both sides. Clearly and without argument the proposed tunnel design is negligent.

Even if you ignore the more likely freeway operating characteristics described above, this facility must, at a bare minimum, be defined as a “Divided Multilane P-1, Urban Class Arterial” within the parameters established by the adopted WSDOT *Design Manual*. Minimally, with a design hourly volume (DHV) well over 8,000 vehicles per hour, the published mandate demands 10-foot shoulders on both left and right sides of the traveled way, excluding the above noted shy distance to the tunnel walls. Importantly, the Federal Highway Administration (FHWA) has endorsed these design standards. You should know that they have been adopted for traffic safety purposes only. Any deviation from these design standards carries enormous tort liability. This should concern you.

In this regard, I find it extremely disturbing that the State, City of Seattle, and King County are in support of a 2-mile long tunnel that is likely not capable of handling fire apparatus⁴ and other emergency vehicles in the event of a major incident.

1. Seattle Times, January 1, 2009 page B-1
2. It is recognized that a 4-foot left shoulder is described in Standard U-_{M/A}1 for an Urban Managed Access Highway.
3. Design standard Figure 440-9 mandates a 20-year horizon year forecast.
4. Example, Engine #33 has an 8-foot width, mirror-to-mirror, typical for SFD apparatus.

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As a civil engineer practicing transportation engineering over these last 48 years, and as a professional engineer, I am fully aware all engineers have a duty under RCW 18.43.010 "... to safeguard life, health, and public property, and to promote the public welfare ...". If the chosen design standard (Figure 440-9) mandates a 10-foot shoulder, minimally on just the right side excluding any "shy distance", and the proposed design calls for merely an 8-foot shoulder without any "shy distance" at all, why have your engineers failed to heed this mandate?

There should be no argument that the proposed deep bore tunnel design ignores that most basic statutory requirement concerning public safety. Your design engineers need to be reminded of that duty. Accordingly, I am taking this opportunity to place you on notice and request that you take immediate corrective action with respect to the currently proposed deep bore tunnel design. You cannot lightly dismiss these profound public health and safety concerns.

Thank you for your attention in this regard.

Yours truly,



Christopher V. Brown, P.E.

Encl. Page 440-22, *Design Manual*, M22-01.03, dated May 2008

cc Senate Transportation Committee
House Transportation Committee
Seattle Port Commission
Seattle City Council
King County Council
Rep. Frank Chopp
Rep. Mary Lou Dickerson
Rep. Bob Hasegawa
Attorney General Rob McKenna

Design Class	Divided Multilane		Undivided Multilane		Two-Lane	
	U _{M/A} -1	U _{M/A} -2	U _{M/A} -3	U _{M/A} -4	U _{M/A} -5	U _{M/A} -6
DHV in Design Year ^[1]	Over 700	Over 700	700-2,500	Over 700	All	All
Design Speed (mph)	Greater than 45	45 or less	35 to 45	30 or less	Greater than 45	45 or less
Access	[2]	[2]	[2]	[2]	[2]	[2]
Traffic Lanes						
Number	4 or more	4 or more	4 or more	4 or more	2	2
Width (ft)	12 ^[3] /14 ^[4]	12 ^[3]	12 ^[3]	12 ^[3]	12 ^[3] /16 ^[5]	12 ^[3]
NHS	11 ^[4]	11 ^[5]	11 ^[5]	11 ^[5]	11 ^[5]	11 ^[7]
Non-NHS						
Shoulder Width (ft) ^[8]						
Right of Traffic ^[9]	10	10	8	8	8 ^[10]	4
Left of Traffic	4	4				
Median Width (ft) ^[11]			[12]	[12]		
Parking Lane Width (ft)	None	10 ^[13]	10 ^[13]	8 ^[14]	10 ^[15]	8 ^[14]
Structures Width (ft) ^[16]	Full Roadway Width ^[17]	Full Roadway Width ^[17]	Full Roadway Width	Full Roadway Width	32	30
Other Design Considerations	[18]	[18]	[18]	[18]	[18]	[18]

Urban Managed Access Highways Notes:

- [1] The design year is 20 years after the year the construction is scheduled to begin.
- [2] The urban managed access highway design is only used on managed access highways (see Chapter 1435).
- [3] May be reduced to 11 ft, with justification.
- [4] Provide 12-ft lanes when truck DDHV is 200 or greater.
- [5] Consider 12-ft lanes when truck DDHV is 200 or greater.
- [6] Provide 12-ft lanes when truck DHV is 100 or greater.
- [7] Consider 12-ft lanes when truck DHV is 100 or greater.
- [8] When curb section is used, see Figure 440-3.
- [9] When guardrail is installed along existing shoulders with a width greater than 4 ft, the shoulder width may be reduced by 4 inches.
- [10] When DHV is 200 or less, may be reduced to 4 ft.
- [11] Minimum width is as required for shoulders and barrier or ditch (see 440.10).

- [12] 2 ft desirable. When a TWLTL is present, 13 ft is desirable, 11 ft is minimum.
- [13] Prohibit parking when DHV is over 1500.
- [14] 10 ft is desirable.
- [15] Prohibit parking when DHV is over 500.
- [16] For minimum vertical clearance, see Chapter 1120.
- [17] For median requirements, see Chapter 1120.
- [18] For bicycle requirements, see Chapter 1020. For pedestrian and sidewalk requirements, see Chapter 1025. Lateral clearances from face of curb to obstruction are in Chapter 700. For railroad and other roadway grade separation, maximum grade, and pavement type for the functional class, see Figures 440-6 through 440-8. Make right of way widths not less than required for necessary cross section elements.

Geometric Design Data: Urban Managed Access Highways

Figure 440-9