

Assumptions used to extension fee

The fee for Alternative 1 is based on the cost estimates from the California Environmental Protection Agency Enrolled Bill Report, SB 346/August 25,2010, Subject: Hazardous materials: motor vehicle brake friction materials, page 12.

- a. Costs associated with appointing the advisory committee will be incurred by January 1, 2019 in accordance with the statute
- b. Renewal of approved extensions will be good for 2 years
- c. Assume all extensions issued prior to January 1, 2025 become effective on January 1, 2025
- d. Extensions issued prior to January 1, 2025 will expire on the following dates depending on the time period request by the manufacturer
 - i. January 1, 2026 (1-yr extension)
 - ii. January 1, 2027 (2-yr extension)
 - iii. January 1, 2028 (3-yr extension)
- e. The fee associated with an extension request is assumed to be the same regardless of whether the duration of the extension is 1, 2, or 3 years. It is assumed the manufacturers will request an extension for 3 years.
- f. The extension process is estimated to take approximately 1 year to complete based on the requirements in the statute
- g. Assume the bulk of the extension requests will be received between 2023 and 2025 with 1 extensions request being received prior to 2023 and one new extension request being received after 2025.
- h. The extensions approved under this process are not assumed to be recognized by the State of Washington
- i. Assuming in 2023/2024, DTSC will receive 888 extension requests based on data from the NSF Interantional registration site as of 7/6/2015. The assumption is that 60 manufacturers will submit an extension request for each of their "B" formulations which will cover 1 vehicle platform (888 extension requests).
- j. The costs associated with appointing the advisory committee and setting up the extension protocol were considered one time costs and converted to a equivalent annualized cost and spread out from 2019 to 2031.
- k. Future values were calculated using the formula:

$$FV = PV \times (1 + r)^n$$

where FV = Future value
PV = Present value
r = Rate of return
n = Number of periods or years from present value

- l. Equivalent annualized cost was calculated using the formula:

$$EAC = \frac{NPV}{A_{t,r}} \quad A_{t,r} = \frac{1 - \frac{1}{(1+r)^t}}{r}$$

where EAC = Equivalent annualized cost
NPV = Net present value
A_{t,r} = Present value of annuity factor

- m. Present value calculations use an annual discount rate of 1.58 percent for future dollar exchanges, based on the risk-free historic rate of return on I-Bonds from the US Treasury. Cited from the State of Washington Department of Ecology, Final Cost-Benefit and Least Burdensome Alternative Analysis, Chapter 173-901 WAC, Better Brakes, August 2012.

Assumptions used to extension fee

The fee for Alternative 3 is based on the following assumptions:

1. cost associated to appoint the advisory committee [66387.9(d)(1)]
2. travel costs incurred for each advisory committee meeting held {66387.9(d)(2)}
3. cost associated for Department staff time spent overseeing and coordinating the extensions through the review process, stakeholder comment solicitation, public review process and public hearing(s); [663879(d)(3)]
4. cost associated with California Air Resources Board staff time to review submitted extension requests; [66387.9(d)(4)]. Assumed 80 hours per extension request for review.
5. cost associated with the State Water Resources Control Board staff time to review submitted extension requests, [66387.9(d)(5)] Assum 80 hours per extension request for review.
6. cost associated with a 60-day public comment period on the recommendation of the advisory committee[66387.9(d)(6)] ; and
7. cost associated with the secretary's time to review, and approve or disapprove a submitted extension request. Assumed 16 hours per extension to review, and approve/deny request.
8. Staff time to set-up a MOU or MOA with the SWRCB and CARB to review and comment on extension requests
9. Staff time to set-up a MOU or MOA with the Cal/EPA Office for the Secretary's time to approve/deny extension requests
10. Staff time to set-up fee system and billing process
11. Fee for extension process will be based on items 1, 2, 3, 4, 5, 6, and 7 listed above.
12. The cost to the state will be due to items 8, 9, and 10 above.
13. Costs associated with appointing the advisory committee will be incurred by January 1, 2019 in accordance with the statute.
14. Renewal of extensions approved in the past will be good for 2 years.
15. Assume all extensions issued prior to January 1, 2025 become effective on January 1, 2025
16. Extensions issued prior to January 1, 2022 will expire on the following dates depending on the time period request by the manufacturer
 - i. January 1, 2026 (1-yr extension)
 - ii. January 1, 2027 (2-yr extension)
 - iii. January 1, 2028 (3-yr extension)
17. The fee associated with an extension request is assumed to be the same regardless on whether the duration of the extension is 1, 2, or 3 years. It is assumed the manufacturers will request an extension for 3 years.
18. The extension process is estimated to take approximately 1 year to complete based on the requirements in the statute.
19. Brake friction material manufacturers are not anticipated to apply for an extension until 2023/2024.
20. The extensions approved under this process are not assumed to be recognized by the State of Washington.
21. The cost estimates for items 1 through 7 above are based on estimates from the California Environmental Protection Agency Enrolled Bill Report, SB 346/August 25,2010, Subject: Hazardous materials: motor vehicle brake friction materials, page 12.
22. The one-time cost for setting up the advisory committee was converted to a equivalent annualized cost and spread out from 2019 to 2032.

23. Future values were calculated using the formula: $FV = PV \times (1 + r)^n$

where	FV	=	Future value
	PV	=	Present value
	r	=	Rate of return
	n	=	Number of periods or years from present value

24. Equivalent annualized cost was calculated using the formula: $EAC = \frac{NPV}{A_{t,r}}$ $A_{t,r} = \frac{1 - \frac{1}{(1+r)^t}}{r}$

where EAC = Equivalent annualized cost
NPV = Net present value
A_{t,r} = Present value of annuity factor

25. Present value calculations use an annual discount rate of 1.58 percent for future dollar exchanges, based on the risk-free historic rate of return on I-Bonds from the US Treasury. Cited from the State of Washington Department of Ecology, Final Cost-Benefit and Least Burdensome Alternative Analysis, Chapter 173-901 WAC, Better Brakes, August 2012.

Task Description	Staff title	Personnel Years (PY)	Unit Cost			Estimated Total Cost Per Year (\$/Yr) ^[1]														
			Per Meeting ^[2]	One-time cost	Per Ext. request															
			(2010 \$/mg)	(2010 \$)	(2010 \$/Ext. req.)	2019 ^[3]	2020 ^[4]	2021 ^[5]	2022 ^[6]	2023 ^[7]	2024 ^[8]	2025 ^[9]	2026 ^[10]	2027 ^[11]	2028 ^[12]	2029 ^[13]	2030 ^[14]	2031 ^[15]	2032 ^[16]	
1. Cost associated to appoint the advisory committee (Proposed regulation section 66387.9(d)(1)) ^[1]	Hazardous Substances Scientist	0.5	--	\$50,618	--	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$4,338	\$0
2. Travel costs incurred for each advisory committee meeting held (Proposed regulation section 66387.9(d)(2)) ^[1]	--	--	\$15,000	--	--	\$34,546	\$35,092	\$35,646	\$36,209	\$36,781	\$37,363	\$37,953	\$38,553	\$39,162	\$39,780	\$40,409	\$41,047	\$41,696	\$0	
3. Cost associated for Department staff time spent overseeing and coordinating the extensions through the review process, stakeholder comment solicitation, public review process and public hearings (Proposed regulation section 66387.9(d)(3)) ^[1]	Hazardous Substances Scientist	0.75	--	--	\$75,927	\$87,432	\$88,813	\$90,217	\$91,642	\$27,554,635	\$27,989,998	\$28,432,240	\$28,883,482	\$29,334,724	\$29,791,966	\$30,255,208	\$30,724,450	\$31,199,692	\$31,675,934	\$0
4. Cost associated with California Air Resources Board staff time to review submitted extension requests (Proposed regulation section 66387.9(d)(4))	Air Resources Specialist	0.07	--	--	\$7,087	\$8,160	\$8,289	\$8,420	\$8,553	\$2,571,766	\$2,612,400	\$2,653,034	\$2,693,668	\$2,734,302	\$2,774,936	\$2,815,570	\$2,856,204	\$2,896,838	\$2,937,472	\$0
5. Cost associated with the State Water Resources Control Board staff time to review submitted extension requests (Proposed regulation section 66387.9(d)(5))	Water Resources Scientist	0.07	--	--	\$7,087	\$8,160	\$8,289	\$8,420	\$8,553	\$2,571,766	\$2,612,400	\$2,653,034	\$2,693,668	\$2,734,302	\$2,774,936	\$2,815,570	\$2,856,204	\$2,896,838	\$2,937,472	\$0
6. Cost associated with a 60-day public comment period on the recommendation of the advisory committee (Proposed regulation section 66387.9(d)(6))	Cal/EPA Secretary	0.01	--	--	\$1,200	\$1,382	\$1,404	\$1,426	\$1,448	\$439,491.48	\$442,372.75	\$445,254.02	\$448,135.29	\$451,016.56	\$453,897.83	\$456,779.10	\$459,660.37	\$462,541.64	\$465,422.91	\$0
7. Cost associated with the secretary's time to review, and approve or disapprove a submitted extension request. ^[1]	Hazardous Substances Scientist	0.25	--	--	\$25,309	\$29,144	\$29,604	\$30,072	\$30,547	\$9,184,878	\$9,329,999	\$9,475,119	\$9,620,239	\$9,765,359	\$9,910,479	\$10,055,599	\$10,200,719	\$10,345,839	\$10,490,959	\$0
					Subtotal	\$173,162	\$175,829	\$178,539	\$181,291	\$42,309,656	\$43,038,830	\$43,768,004	\$44,497,178	\$45,226,352	\$45,955,526	\$46,684,700	\$47,413,874	\$48,143,048	\$48,872,222	\$0

- [1] Unit costs for Tasks 1, 2, 3, and 7 above are based on cost estimates from the California Environmental Protection Agency Enrolled Bill Report, SB 346/August 25, 2010, Subject: Hazardous materials: motor vehicle brake friction materials, page 12.
- [2] Assumes 888 extension requests will be received between 2023-2025 from 60 manufacturers with formulations that meet the "R" environmental compliance designation. This is based on the registration information posted by NSF International as of 7/6/2015.
- [3] Assumes two face-to-face meetings are held at the Cal/EPA HQ Bldg.
- [4] Assumes that prior to 2023, only one extension request from one manufacturer is assumed to be received. After 2025, only one new extension request from one manufacturer is assumed to be received.
- [5] Assumes all manufacturers that applied for an extension in 2023 and 2024 renew their extensions in 2028. Manufacturers that received applied for an extension in 2025 are assumed to request an extension renewal in 2029.
- [6] Assumes all manufacturers that received for an extension in 2026 will renew their extensions in 2030. Manufacturers that received an extension in 2029 are assumed to request an extension renewal in 2031.
- [7] Assumes no renewal requests will be received in 2032 since the program sunsets.
- [8] Unit costs for each extension request is in 2010 dollars.
- [9] Present value calculations use an annual discount rate of 1.58 percent for future dollar exchanges, based on the risk-free historic rate of return on I-Bonds from the US Treasury. Cited from the State of Washington Department of Ecology, Final Cost-Benefit and Least Burdensome Alternative Analysis, Chapter 173-901 WAC, Better Brakes, August 2012.

NPV ₂₀₂₂	t	r	A _{1.58}	EAC
\$50,618.00	12	1.58	11.67	\$4,338

		Future Values														
		n	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Unit Cost PV ₂₀₂₂	r	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
\$75,927	r	\$87,432	\$88,813	\$90,217	\$91,642	\$93,090	\$94,561	\$96,055	\$97,573	\$99,114	\$100,680	\$102,271	\$103,887	\$105,528	\$107,196	
\$25,309	r	\$29,144	\$29,604	\$30,072	\$30,547	\$31,030	\$31,520	\$32,018	\$32,524	\$33,038	\$33,560	\$34,090	\$34,629	\$35,176	\$35,732	
\$30,000	r	\$34,546	\$35,092	\$35,646	\$36,209	\$36,781	\$37,363	\$37,953	\$38,553	\$39,162	\$39,780	\$40,409	\$41,047	\$41,696	\$42,355	

		Future Values														
		n	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032		
Unit Cost PV ₂₀₂₂	r	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58	1.58
\$7,087	r	\$8,160	\$8,289	\$8,420	\$8,553	\$8,688	\$8,826	\$8,965	\$9,107	\$9,251	\$9,397	\$9,545	\$9,696	\$9,849	\$10,005	
\$7,087	r	\$8,160	\$8,289	\$8,420	\$8,553	\$8,688	\$8,826	\$8,965	\$9,107	\$9,251	\$9,397	\$9,545	\$9,696	\$9,849	\$10,005	
\$1,200	r	\$1,382	\$1,404	\$1,426	\$1,448	\$1,471	\$1,495	\$1,518	\$1,542	\$1,566	\$1,591	\$1,616	\$1,642	\$1,668	\$1,694	