

BRAKE FRICTION MATERIAL RULEMAKING

REGULATORY, FISCAL, AND ECONOMIC ANALYSES

A. Introduction

This document supplements the preparation of local mandate determinations and cost estimates for executive regulations and orders pursuant to Government Code section 11346.5. The statute and implementing regulations (State Administrative Manual section 6600 et. seq.) require a rulemaking agency - prior to notice of a proposed adoption of a regulation and issuance of an executive regulation - to do all of the following:

- determine whether the proposed regulation imposes a mandate on local agencies or school districts, and, if so, whether the mandate requires state reimbursement pursuant to Part 7 (commencing with section 17500) of Division 4 of the Government Code;
- estimate, in accordance with instructions adopted by the Department of Finance (DOF),¹ the costs or savings to any state agency or local government, including any revenue changes, and the costs or savings in federal funding to the state; and
- Disclose the results of the assessment of economic impacts of the proposed regulation pursuant to Government Code sections 11346.2 and 11346.3.

The Department of Toxic Substances Control (DTSC)² proposes, in this rulemaking action, to establish:

- [1] Certification procedures for third-party analytical laboratory testing of brake friction materials, and
- [2] Requirements for a third-party testing certification agency (also commonly called a "registrar").

The proposed regulation also establishes the requirements that manufacturers must follow when requesting an extension. The enabling statute sets forth the metal and chemical substance concentration limits in brake friction materials and the compliance dates that must be met by the manufacturers of brake friction materials.

This document provides the DTSC staff analysis of the baseline conditions, the relevant supporting data, the estimated costs, and associated economic impacts for the proposed regulation. Impacts to sensitive populations are not included in this analysis since the proposed regulation is assumed to have the same impact on all consumers regardless of their socioeconomic status. These costs represent the estimated costs to manufacturers - beyond the baseline condition - to comply with the requirements in the proposed regulation.

¹ California Government Code section 13000, added by Chapter 112, Statutes of 1945

² California Health and Safety Code, Division 38, section 58000, added by Governor's Reorganization Plan No. 1 of 1991, section 146, effective July 17, 1991.

In general, regulatory impact and economic impact analyses are inherently imprecise by nature, given the unpredictable and dynamic behavior of companies in the highly competitive and diverse global motor vehicle parts market. Automotive parts, including brake pads, are closely linked to the demand for new vehicles. Roughly 70 percent of the automotive parts sector in the United States represents original equipment (OE) products.³ Repair and modification (aftermarket) comprises the remaining 30 percent. The automotive parts sector includes the following North American Industry Classification System (NAICS) sectors listed in Table 1.

Table 1. NAICS Associated with the Automotive Parts Sector³

NAICS Code Description	2010 NAICS
Storage Battery Manufacturing	335911
Motor Vehicle Body Manufacturing	336211
Carburetor, Piston, Piston Ring, & Valve Manufacturing	336311
Gasoline Engine & Engine Parts Manufacturing	336312
Vehicular Lighting Equipment Manufacturing	336321
Other Motor Vehicle Electrical & Electronic Equipment Manufacturing	336322
Motor Vehicle Steering & Suspension Component	336330
Motor Vehicle Brake System Manufacturing	336340
Motor Vehicle Transmission & Power Train Parts Manufacturing	336350
Motor Vehicle Seating & Interior Trim Manufacturing	336360
Motor Vehicle Metal Stamping	336370
Motor Vehicle Air-Conditioning Manufacturing	336391
All Other Motor Vehicle Parts Manufacturing	336399

The proposed regulation directly affects manufacturers of brake friction materials which are a subset of the motor vehicle brake system manufacturing sector highlighted in Table 1.

Automotive parts production and value declined significantly beginning in 2008 as global economic recession weakened the entire automobile industry. (Automobile parts accounts for 1.5 to 2.5 percent of the United States' Gross Domestic Production.) As vehicle production and sales declined, production of brake pads (like other automotive parts) concurrently decreased. In California, the Board of Equalization reported \$115 Billion in taxable transactions for motor vehicle and parts dealers in 2006. In 2009, those transactions declined to \$44.5 Billion⁴ -- a \$70.5 Billion loss. Recovery has been slow, with many manufacturers experiencing heavy debt and overcapacity during the recession seeking reorganization and bankruptcy.⁵ Automakers, who also sought bankruptcy protection and restructuring as well as government relief, demanded price cuts and other concessions from brake friction material manufacturers in their private contracts for OE products. Brake friction material manufacturers make brake pad products for OE vehicle makers as well as for aftermarket sale under various brand names, as

³ U. S. Department of Commerce, International Trade Administration, Office of Transportation and Machinery, "On the Road, U.S. Automotive Parts Industry Annual Assessment," 2011.

⁴ State of California, Board of Equalization, Statewide Taxable Sales, Table 1, for NA/CS 441 sector and sub-sectors.

⁵ U. S. Department of Commerce, International Trade Administration, Office of Transportation and Machinery, "On the Road, U.S. Automotive Parts Industry Annual Assessment," 2011.

private label products for distributors, and as co-branded products.⁶ Brake friction material manufacturers typically have long-standing supplier relationships with OE vehicle makers, which are reflected in long-term contracts for specific products, formulations, and designs.

Along with global recession, demand for brake pad products has also been influenced by several other factors:

- An increase in vehicle miles traveled (VMT) in California and the U.S.,
- An increase in the average age (retention) of passenger cars and light duty vehicles in California and the U.S., and
- Lower labor and raw material costs plus increasing demand in emerging foreign markets.

As Californians kept their cars longer and drove those cars more each year after the recession, the overall demand for brake pads - in new vehicles and in aftermarket repair and replacement - has been flat. According to the Board of Equalization, the number of seller permits and the total taxable transactions for auto parts, accessories, and tire stores has been roughly 19,800 to 20,916 permits and \$6.0 to \$6.7 Billion for 2010 to 2012⁷. California is ranked last (the lowest of all U.S. states) in per capita spending growth for motor vehicles and parts from 2000 to 2012.⁸ California's per capita spending for motor vehicles and parts declined by 8 percent. These trends are representative across the auto parts sector, including brake pads.

Most importantly, a similar law⁹ and regulation¹⁰ enacted in the State of Washington in 2012 prompted the brake pad industry, and its OE vehicle and aftermarket customers, to establish testing, certification, marking, and reporting procedures for brake friction materials. The State of Washington law and regulation is not identical to the California statute and the proposed regulation; but, the third-party analytical laboratory testing and third-party testing certification agency provisions are sufficiently similar and already in operation. Therefore, the State of Washington's Better Brakes Rule represents the existing "baseline" for purposes of this analysis of DTSC's proposed regulation.

This analysis is a general estimate of the ranges of costs reasonably anticipated to be borne by a typical business entity beyond those costs already incurred in compliance with the State of Washington law and rule. Individual companies may experience different impacts, and bear different (lower or higher) costs than assumed or estimated.

⁶ Automotive Aftermarket Suppliers Association (AASA) and Motor and Equipment Manufacturers Association (MEMA), Brake Manufacturers Council, "The Flow of Parts into the Automotive Aftermarket," August 2014.

⁷ Board of Equalization, Taxable Sales in California, North American Industry Classification System (NAICS) for 2010 and 2012, <http://www.boe.ca.gov/news/tsalescont.htm>

⁸ U.S. Bureau of Economic Analysis, Economic Perspectives, March 2015, Table 2.

⁹ State of Washington, Brake Friction Material, Chapter 70.285 RCW.

¹⁰ State of Washington, Better Brake Rule, Chapter 173-901, Publication Number 12-04-027, September 2012.

B. REGULATORY IMPACTS ANALYSIS

1. Legal Requirements

a. Major Regulations

California law sets forth two different but concurrent thresholds and requirements for "major regulations." DTSC must comply with both statutes.

First, Section 11346 of the Government Code requires state agencies and departments to conduct and submit, to the Department of Finance and the Office of the Governor, for review and approval, a standardized regulatory impact assessment for major regulations. The statute¹¹, implementing regulations¹², and procedures¹³ define a "major regulation" as any proposed rulemaking that will have an economic impact on California business enterprises and individuals (including consumers) exceeding \$50 million during the first twelve months after the regulation takes effect.

Second, Section 57005 of the Health and Safety Code further requires DTSC (as part of the California Environmental Protection Agency, "Cal/EPA") to evaluate alternatives to a "major regulation." Section 57005(b)¹⁴ defines a "major regulation" as any rulemaking that will have an economic impact on business enterprises exceeding \$10 million. If a board, department, or office within the agency proposes a major regulation, it must consider whether a less costly alternative would be equally effective in achieving incremental environmental protection. The Secretary for Environmental Protection has issued policy¹⁵ and procedures requiring boards, departments, and offices within the agency to:

- Perform a thorough economic analysis before the "45-day notice" is issued;
- Conduct an incremental cost-effectiveness analysis of alternatives to the proposed regulation;
- Hold one or more public workshops; and
- Perform a risk assessment

to fulfill the requirements of Section 57005 of the Health and Safety Code.

b. Duplication, Conflict, or Supersession

Section 11346.2(b)(6) of the Government Code prohibits state agencies and departments from promulgating regulations that duplicate or conflict with federal regulations. Section

¹¹ California Government Code section 11342.548, added by Chapter 496, Statutes of 2011.

¹² Title 1, Division 3, Chapter 1, of the California Code of Regulations.

¹³ State Administrative Manual, Budgeting, Standardized Regulatory Impact Assessment for Major Regulations, Section 6600.

¹⁴ California Government Code section 57005, added by Chapter 938, Statutes of 1995.

¹⁵ "Economic Analysis Requirements for the Adoption of Administrative Regulations," Secretary for Environmental Protection, December 9, 1996, updating the Management Memorandum dated September 12, 1994.

11346.2(b)(7)¹⁶ applies specifically to the Cal/EPA boards, departments, and offices and sets forth more specific prohibitions with respect to federal regulations. Moreover, Governor Wilson issued Executive Order W-144-97 (which remains in effect); EO W-144-97 mandates that state agencies identify the manner in which the proposed regulation is different from federal, state, local law or regulation.¹⁷

c. Cost-effectiveness of the Proposed Regulation

Section 11346 of the Government Code requires that agencies and departments consider alternatives to the proposed regulation and analyze the cost-effectiveness of those alternatives. At a minimum, the law requires consideration of alternatives which:

- Are less burdensome and equally effective,
- Reduce impacts on small businesses, and
- Apply performance standards (rather than prescriptive requirements),

The Secretary for Environmental Protection's policy and procedures¹⁸ for an economic analysis of a regulation exceeding \$10,000,000 also requires an incremental cost-effectiveness analysis of the proposed regulation.

2. Potential Regulatory Impacts of Proposed Brake Friction Material Regulations

a. Major Regulations

DTSC estimates that additional costs to manufacturers - beyond the current baseline condition - associated with the proposed requirements for [1] certification procedures for third-party analytical laboratory testing of brake friction materials and [2] a third-party testing certification agency (also commonly called a "registrar") will be significantly less than either threshold amount for a "major" regulation. Accordingly, DTSC is not required to prepare, and submit for approval, a "Standardized Regulatory Impact Assessment" because the estimated costs incurred by brake friction material and vehicle manufacturers will be less than \$50 million in the first year. Consequently, DTSC is not required to conduct macro-economic modeling for the proposed rulemaking pursuant to Section 11346 of the Government Code. Similarly, the estimated additional costs for the proposed regulation will be less than \$10 million (the Cal/EPA-specific threshold pursuant to Section 57005 of the Health and Safety Code).

¹⁶ The sections added require more information during the pre-notice stage of rulemaking and place more emphasis on reasonable alternatives and the selection of the least costly and burdensome alternative. These were added by Chapter 496, Statutes of 2011.

¹⁷ Provision 1(c) of Executive Order W-144-97, which took effect immediately on January 10, 1997, and remains in effect today.

¹⁸ "Economic Analysis Requirements for the Adoption of Administrative Regulations." Secretary for Environmental Protection, December 9, 1996, updating the Management Memorandum dated September 12, 1994.

b. Duplication, Conflict, or Supersession

DTSC has consulted with other California state agencies and the federal government. No other California state agency or department regulates the chemical composition, testing, certification, marking, or reporting of brake friction materials. No federal regulations govern the chemical composition of brake friction materials although several regulations exist that require performance testing and certification of brake pads for safety. The proposed regulations do not duplicate, conflict, and supersede any other rule or requirement.

As explained above, the proposed DTSC regulation is patterned on (but not identical to) the State of Washington's Better Brake Rule¹⁰. DTSC has made every effort to avoid any conflicts with the State of Washington regulation to the extent that the California statute permits. Because California law uses different terms and provisions, some of the procedural requirements differ in regards to specific exemptions, the extension process for the 2025 requirements, and sell-off periods. However, those differences have negligible effect on the overall costs anticipated with the proposed California regulation.

c. Cost-effectiveness of the Proposed Regulation

DTSC considered the following alternatives to the proposed regulation:

- Alternative 1: No action
- Alternative 2: Regulation with the certification process and marking unique to California
- Alternative 3: Proposed regulation (selected alternative)

The Department's cost-effectiveness analysis focused on the three alternatives listed above. The results for the three alternatives are summarized in Table 2.

DTSC analysis found no reasonable alternative to Alternative #3 (the proposed regulation) would be either more effective in carrying out the purpose for which the action is proposed or would be as effective or less burdensome to affected private persons and equally effective in achieving the purposes of the regulation in a manner that ensures full compliance with the law being implemented or made specific. Alternative #3 (the proposed regulation) was the least burdensome alternative for regulated businesses because it relies on the certification process, testing, and marking procedure currently in use to meet the State of Washington Better Brakes Rule. This includes the third-party analytical laboratories and the third-party testing certification agency currently established to fulfill the State of Washington Better Brake Rule.

Table 2. Summary of Cost-Effectiveness Analysis

	Alternative #1¹⁹	Alternative #2	Alternative #3
Cost per manufacturer			
Testing	\$3,150 - \$2,005,830 \$14,265 (median) \$101,211 (average)	No additional costs ²⁰	No additional costs ²⁰
Certification	\$320 - \$310,080 \$1,760 (median) \$15,143 (average)	\$320 - \$310,080 \$1,760 (median) \$15,143 (average)	No additional costs ²¹
Marking	Up to \$250,000 for retooling and redesigning packaging	Additional costs due to redesigning packaging and issues ²²	No additional cost ²³
Recertification	\$4,123 - \$1,476,591 \$19,181 (median) \$163,926 (average)	Estimated higher cost ²⁴	No additional costs ²⁵
Fee per application²⁶			
Extension fee	\$160,449	\$173,162	\$173,162

The Department considered implementing a certification process and packaging logo that would be unique to California. However, this alternative was rejected due to additional cost to DTSC associated with directly overseeing the testing certification agency and accredited laboratories and managing access and use of the packaging logo; additional cost to industry to redesign their packaging to incorporate the DTSC logo; and the duplicative reporting of test results to DTSC and the testing certification agency.

See the Initial Statement of Reasons for a list of rejected alternatives to the proposed regulation that were considered. Appendix A of the Brake Friction Material Rulemaking Regulatory, Fiscal,

¹⁹ Manufacturers have already incurred the costs listed under Alternative #1 and is considered part of the baseline.

²⁰ Since the testing requirements in Alternative #1 are the same as those in this alternative, no additional costs are assumed because manufacturers have complied requirements to meet the State of Washington law and regulations.

²¹ Since the certification procedures in Alternative #1 are the same as those in this alternative, no additional costs are assumed because manufacturers have complied requirements to meet the State of Washington law and regulations.

²² The estimated higher cost is due to redesigning packaging and issues related to marking brake friction material with a second compliance code.

²³ Since the marking used for products and packaging in Alternative #1 are the same as those in this alternative, no additional costs are assumed because manufacturers have complied with marking requirements under the State of Washington law and regulations.

²⁴ The estimated higher costs for this alternative is due to the additional costs associated with testing and certification assuming the DTSC recertification cycle will be out of sync with present certification cycle.

²⁵ Since the certification procedure and recertification cycle in Alternative #1 is the same as those in this alternative, no additional costs are assumed because manufacturers have complied with marking requirements under the State of Washington law and regulations.

²⁶ The total cost per manufacturer depends on the number of extension applications submitted by a manufacturer.

and Economic Analyses contains the cost-effectiveness analysis for three alternatives presented in this section.

C. FISCAL IMPACTS ANALYSIS

1. Legal Requirements

Section 11346 of the Government Code requires that state agencies and departments analyze the fiscal impacts of a proposed regulation on local agencies and school districts, on state agencies, and on federal funding to the State of California.

2. Potential Fiscal Impacts

a. Fiscal Impacts to Local Agencies and School Districts

Local governments, cities, counties, special districts, and school districts are consumers (or customers and end-users) of brake friction materials ("brake pads") for their vehicles. DTSC informally surveyed local government fleets and determined that the public sector vehicles subject to the brake friction material statute and proposed regulation are identical to private sector vehicles. Any costs, which DTSC estimates to be negligible, would be the same to the public (local government) and private sectors.

Cities, counties, special districts, and other local governments (with limited exceptions) must comply with California's Public Contract Code. Local agencies and school districts would not likely experience any unique cost changes, resulting from the proposed regulation.

b. Fiscal Impacts to State Agencies

State agencies - like local governments - are consumers of brake friction materials on new vehicles they buy and as replacement parts for their existing vehicles. Like local government fleets, DTSC surveyed state agencies - Department of Transportation (Caltrans), California Highway Patrol (CHP), and others - regarding brake pads in new vehicle procurement and in aftermarket repair and replacement. As above in local governments, DTSC concluded that no unique costs would be anticipated for state agencies.

Thus, any potential costs or savings to state agencies for purchasing brake friction materials is likely to be small. All state agencies are expected to absorb any cost changes within existing appropriation authorities.

For DTSC, the Governor's Budget for fiscal year 2015-2016 displays the resources appropriated to DTSC for administration of the Safer Consumer Products Program (Program 3630). This is the budgetary program in which brake friction materials activities are housed and funded. In the last year (fiscal year 2014-2015), \$12,860,000 and 56.5 personnel years are appropriated for this program. The Governor's Budget proposes increasing these resources to \$14,346,000 and 64.5

personnel years in the budget year (fiscal year 2015-2016). DTSC will administer the brake friction material regulation within the appropriated resources and approved budget. No additional costs are anticipated now or over the lifetime of the proposed regulation.

The costs associated with a memorandum of understanding or memorandum of agreement with DTSC by the California Air Resources Board (CARB), the State Water Resources Control Board (SWRCB), and the California Environmental Protection Agency (CalEPA) will be covered by existing resources. However, additional resources needed to review the extension applications by CARB and SWRCB will depend on the number of applications received and if the applicant uses a complex method to quantify brake friction material emissions. For CalEPA, the need for additional resources will depend on the number of extension applications that must be approved or denied. These costs cannot be determined at this time. As part of the proposed regulations, a fee²⁷ shall be collected for each extension application received by DTSC. This fee includes the cost associated with CARB and SWRCB staff to review the application and the CalEPA Secretary to approve or deny the application.

c. Fiscal Impacts on Federal Funding to the State of California

DTSC does not anticipate any changes to federal funds which the State of California receives. DTSC does not receive any federal funds for water pollution control²⁸.

California is a "net donor state" to the U.S. Treasury; California taxpayers pay more taxes, in total revenues, to the federal government than the total amount of federal funds that California receives. DTSC does not anticipate any changes (increase or decrease) in the taxes and revenues paid to the U.S. Treasury resulting from the proposed regulation for brake friction materials.

D. ECONOMIC IMPACTS ANALYSIS ON CALIFORNIA BUSINESSES, CONSUMERS, AND EMPLOYMENT

a. Legal Requirements

Executive Order W-144-97 and Section 11346.3 of the Government Code requires state agencies and departments to (1) assess the potential for adverse economic impacts on California business enterprises and individuals and (2) avoid the imposition of unnecessary or unreasonable regulations or reporting, record-keeping, or compliance requirements when proposing to adopt or amend any administrative regulation. The assessment must evaluate whether and to what extent the proposed regulation will create or eliminate jobs within the state, create new businesses or eliminate existing businesses in the state, expand existing businesses in the state, and affect the ability of California businesses to compete with businesses outside of California.

²⁷ Per Health and Safety Code section 25250.54(j).

²⁸ Department of Finance, Governor's Budget 2015-2016, 3960 Department of Toxic Substances Control, 3-Yr Expenditures and Positions, Expenditure by Fund.

The Department of Finance has promulgated the implementing regulations for this statutory requirement in Section 6603 of the State Administrative Manual and in other official directives (such as Budget Letters). Moreover, the Secretary for Environmental Protection issued policy and procedures²⁹ requiring analysis of the potential economic impacts of proposed regulations as well as how such analyses must be conducted within the agency.

b. Potential Economic Impact on California Businesses

Overview

The proposed regulation will affect different market, labor, and industry sectors in California only indirectly. Brake friction material manufacturers, who are located outside of California, have incurred costs to test, obtain certification, and mark the brake pad products they make and sell to OE vehicle makers and the aftermarket channels. Those costs, however, result from earlier enactment and operation of a similar law in the State of Washington.

California has no motor vehicle production³⁰ and has only a few, small brake friction material manufacturers who serve a niche market segment for racing and custom applications. Those applications are not subject to the proposed DTSC regulation. New motor vehicle manufacturers are located in other U.S. states or foreign nations. Brake friction material manufacturers - like other auto parts suppliers - are generally located near those new vehicle OE makers or in emerging markets for new vehicles (such as China, Brazil, India, etc.). Brake pad manufacturers are located near demand for their products (new OE vehicle makers and larger vehicle populations) and near less expensive and more efficient labor and raw material sources. See Table 3.

Brake Pads, as a subset of Automotive Parts Sector

Automotive parts are defined as either Original Equipment (OE) or aftermarket. Original equipment parts are used in the assembly of new motor vehicles (passenger cars, light trucks, and heavy duty trucks). Brake pad manufacturers sell finished brake friction material components (as Tier 1 suppliers) to new motor vehicle (OE) makers, often under long-term contracts which also include the same component for use in service and repair by the new motor vehicle manufacturer's dealers. Aftermarket parts are divided into two categories: replacement parts and accessories. Replacement parts replace OE parts when those are worn or

²⁹ "Management Memo: Implementation of 1993 Regulatory Reform Legislation Relating to Adoption of Administrative Regulations," Secretary for Environmental Protection, which was Issued and took effect on September 12, 1994, implementing Chapters 418, 870, 1038, 1046, 1063, and 1131, Statutes of 1993. These requirements have not expired, have not been repealed, and have not been superseded; these requirements remain in effect.

³⁰ Although Tesla Motors manufactures electric vehicles in California, the primary braking system uses regenerative braking where the electric motor provides most of the braking power for the vehicle. The friction brakes on a Tesla vehicle are used at low speeds (e.g., a few miles per hour) to bring the vehicle to a complete stop. Since friction brakes are not the primary braking system on Tesla's vehicles, the friction brakes will last longer, and require fewer brake change outs, if any.

damaged. Accessories are aftermarket parts made for performance, customization, or other specialized purposes for add-on or substitution of the OE parts on the motor vehicle.

Table 3. Number of Vehicles and Manufacturers of Brake Friction Material and Brake Systems

	World	United States	California
Population	7,257,385,000	316,128,839 ³¹	38,332,521 ³²
Number of Vehicles in Use	1,143,231,000 ³³	251,497,000 ³⁴	26,496,651 ³⁵
Number of New Vehicles Produced	87,299,993 ³⁶	11,045,902 ³⁷	0
Number of Brake Friction Material Manufacturers	158 ³⁸		
Number of Brake System Manufacturers		230 ³⁹	12 ⁴⁰

For brake pads, the aftermarket sector includes brake pads marketed directly to both "Do It Yourself" (DIY) consumers and "Do It For Me" (DIFM) service and repair providers under various brand names, as private label products for distributors, and as co-branded products. Brake pad manufacturers often make and sell components to both the OE new vehicle sector and the aftermarket sectors. The formulations and design of the brake friction materials may differ, however, for the various brake pad products. As noted above, the new vehicle OE sector represents about 70 percent of the brake pad market. For the 30 percent comprising the aftermarket sector, a shift is occurring from DIY to DIFM consumers as vehicles become more complex, although this has little effect on the number of brake pad components sold. (The main difference from this trend is the additional labor cost for the service provider.) Figure 1 is a conceptual diagram of the OEM and aftermarket channels for automotive parts⁴¹. Appendix B is

³¹ U.S. Census Bureau, Population Division, Annual Estimate of the Resident Population, April 1, 2010 to July 1, 2013, Release Date: December 2013.

³² U.S. Census Bureau, Population Division, Annual Estimate of the Resident Population, April 1, 2010 to July 1, 2013, Release Date: December 2013.

³³ Organisation Internationale des Constructeurs d'Automobiles (OICA, also known as the International Organization of Motor Vehicle Manufacturers), 2013.

³⁴ Organisation Internationale des Constructeurs d'Automobiles (OICA, also known as the International Organization of Motor Vehicle Manufacturers), 2013.

³⁵ Air Resources Board, EMFAC 2011, Vehicle Population (aggregated).

³⁶ Organisation Internationale des Constructeurs d'Automobiles (OICA, also known as the International Organization of Motor Vehicle Manufacturers), 2013.

³⁷ Organisation Internationale des Constructeurs d'Automobiles (OICA, also known as the International Organization of Motor Vehicle Manufacturers), 2013.

³⁸ Data derived from AMECA registration tables and from the State of Washington's datasets.

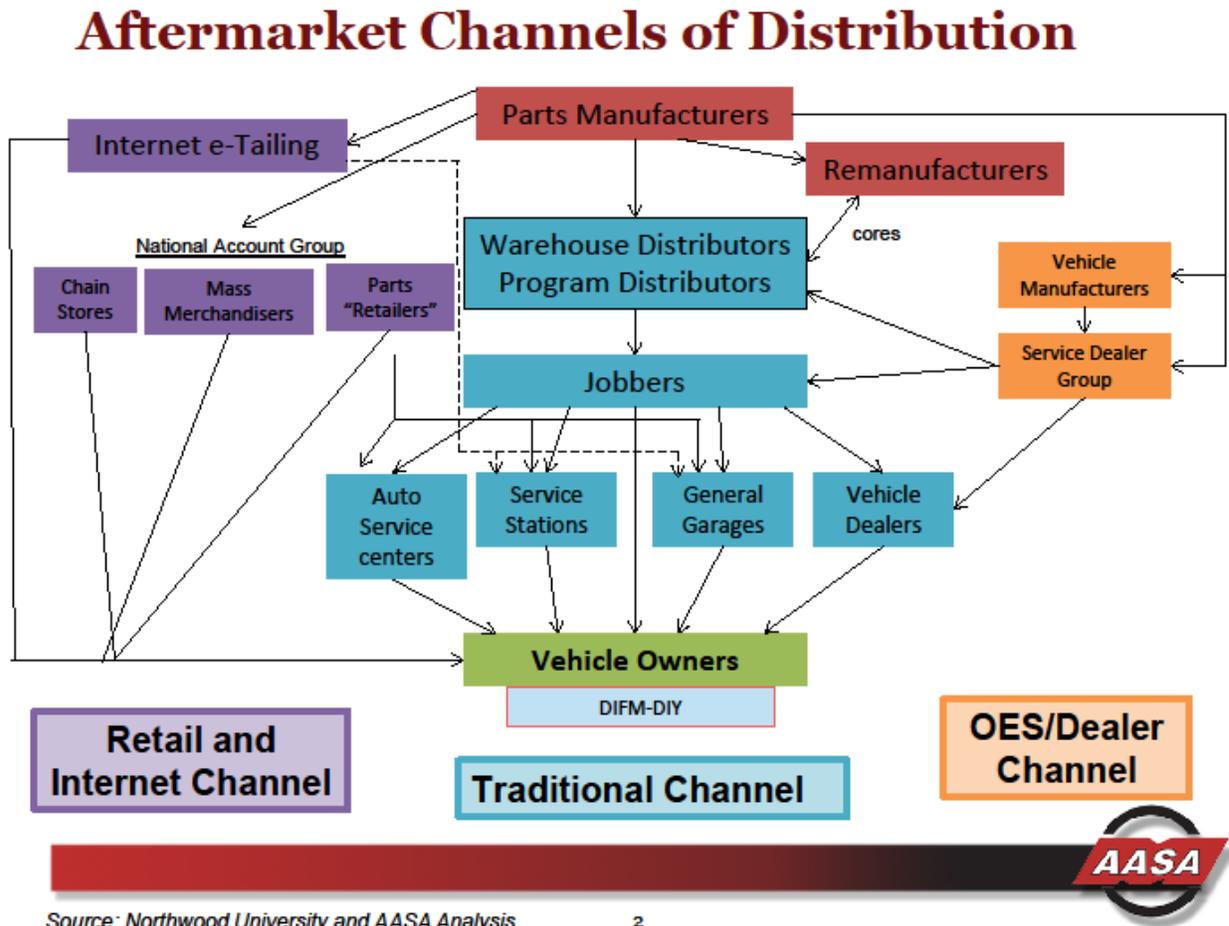
³⁹ U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, NA/CS 33634, Motor Vehicle Brake System Manufacturing, 2013 First Quarter.

⁴⁰ U.S. Bureau of Labor Statistics, Quarterly Census of Employment and Wages, NA/CS 33634, Motor Vehicle Brake System Manufacturing, 2013 First Quarter.

⁴¹ Motor & Equipment Manufacturers Association (MEMA), The Flow of Parts into the Automotive Aftermarket, August 2014.

included as a reference and contains a copy of the MEMA presentation entitled "The Flow of Parts into the Automotive Aftermarket".

Figure 1. Conceptual Diagram of the Distribution Channel for Aftermarket Automotive Parts



Source: Northwood University and AASA Analysis

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A typical "value chain" for a consumer product includes:

- Raw material producer or supplier,
- Product manufacturer or formulator,
- Importer or distributor,
- Product seller (retailer, vendor, or service provider), and
- Customer (purchaser or end-user).

Brake friction materials include many materials and chemical substances. Each brake pad maker may produce dozens of different formulations and designs for different OE or aftermarket customer requirements, performance specifications, and vehicle applications. These materials include abrasives, friction modifiers, fillers and reinforcements, lubricants, and binder materials.

Raw materials include metals, minerals, carbon, resins, plant and synthetic substances, etc. These formulations are proprietary and held as closely guarded trade secrets. (Asbestos has been phased out of most U.S. brake pad products but may still be imported, as reported in the U.S. Congress recently.)⁴² Copper and the various metals which are restricted in the California and Washington statutes are generally more expensive than other raw materials, such as cashew nut shells and other fibers.

For brake pads, the segments of the value chain of brake friction materials relevant to California are the last three: distributor, seller or service provider, and end-user customer. As stated above, no raw material suppliers, brake friction material manufacturers, or vehicle makers subject to the law and proposed regulation are located in California (see Table 3), from the information available to DTSC. Distributors and sellers/service providers are not subject to any reporting requirements under the law and proposed regulation. However, these groups are still responsible in confirming that the brake pads they either sell or install are compliant with the law.

Manufactured auto parts are distributed to stores throughout the country by jobbers, distributors, and wholesalers. Domestic wholesalers distribute auto parts and accessories across the U.S. that are produced here and import products produced abroad.⁴³ These businesses are grouped by the Standard Industry Classification (SIC) code in Table 4. The industry sectors highlighted in yellow may contain distributors or importers of brake pad products.

Table 4. Crosswalk of SIC and NAICS codes for Distribution Chain

SIC Description	SIC Code ⁴³	NAICS Description	NAICS Code
Motor Vehicle Supplies and New Parts	5013	Motor Vehicle Supplies and New Parts Merchant Wholesalers	423120
		Business to Business Electronic Markets	425110
		Wholesale Trade Agents and Brokers	425120
		Automotive Parts and Accessories Stores	441310
Tires and Tubes	5014	Tire and Tube Merchant Wholesalers	423130
		Business to Business Electronic Markets	425110
		Wholesale Trade Agents and Brokers	425120
		Tire Dealers	441320
Motor Vehicle Parts, Used	5015	Motor Vehicle Parts (Used) Merchant Wholesalers	423140
		Business to Business Electronic Markets	425110
		Wholesale Trade Agents and Brokers	425120
		Automotive Parts and Accessories Stores	441310

California does have several businesses that are service providers. These service providers are part of the auto care industry which includes thousands of retailers that directly sell products to

⁴² AMN Aftermarket News, Legislative Victory for US Brake Manufacturers: House Orders Report on Asbestos Content of Imported Brake Products, June 9, 2014, <http://www.aftermarketsuppliers.org>

the consumer, and automotive service shops that sell and install these products for the public. These include a wide range of retailers including auto supply stores, auto and truck equipment and parts retailers, general automotive repair shops, tire repair shops, and various other automotive repair shops.⁴³ These service providers are grouped by the Standard Industry Classification (SIC) code in Table 5. The industry sectors highlighted in yellow may contain retailers or services providers that sell or install brake pads on vehicles.

Table 5. Crosswalk of SIC and NAICS codes for Auto Care Industry

SIC Description	SIC Code ⁴³	NAICS Description	NAICS Code ⁴⁴
Auto and Home Supply Stores	5531	Automotive Parts and Accessories Stores	441310
		Tire Dealers	441320
		All Other General Merchandise Stores	452990
Auto Exhaust System Repair Shops	7533	Automotive Exhaust System Repair	811112
Tire Retreading and Repair Shops	7534	Tire Retreading	326212
		All Other Automotive Repair and Maintenance	811198
Automotive Glass replacement Shops	7536	Automotive Glass Replacement Shops	811122
Automotive Transmission Repair Shops	7537	Automotive Transmission Repair	811113
General Automotive Repair Shops	7538	General Automotive Repair	811111
Automotive Repair Shops	7539	Other Automotive Mechanical and Electrical Repair and Maintenance	811118
		All Other Automotive Repair and Maintenance	811198
Automotive Services, Nec	7549	Motor Vehicle Towing	488410
		Automotive Oil Change and Lubrication Shops	811191
		Automotive Glass Replacement Shops	811122
		All Other Automotive Repair and Maintenance	811198

Using the Board of Equalization 2014 seller permits⁴⁵, DTSC used the highlighted NAICS codes to identify potential distributors/importers and automotive parts sellers in California. The results of this search are

⁴³ The Auto Care Association, 2013 Economic Impact of the Auto Care Industry Methodology and Documentation, June 2013.

⁴⁴ Based on the SIC – 2012 NAICS Crosswalk, <http://www.naics.com/naicswp2014/wp-content/uploads/2014/10/SIC-to-NAICS-Crosswalk.pdf>

⁴⁵ Board of Equalization, Active Sellers Permits, ACTIVE305.TXT Q1TAR305, April 23, 2014.

summarized in **Table 6**. It should be noted that the NAICS codes listed in **Table 6** includes all sellers of automotive parts and are not specific to brake pads.

Table 6. Summary Automotive Parts Sellers and Distributors in California

NAICS Code	NAICS Description	Number of Permitted Sellers⁴⁵
423120	Automotive Parts and Accessories Stores	124
425110	Business to Business Electronic Markets	402
425120	Wholesale Trade Agents and Brokers	2042
441310	Automotive Parts and Accessories Stores	8945
423140	Motor Vehicle Parts (Used) Merchant Wholesalers	17
811111	General Automotive Repair	459
811118	Other Automotive Mechanical and Electrical Repair and Maintenance	46
811198	All Other Automotive Repair and Maintenance	88
811191	Automotive Oil Change and Lubrication Shops	32

Although no vehicle manufacturers are located in California, several new and used car dealerships operate in the state. Approximately 9,763 new and used car dealers with total taxable transactions of \$14.8 billion did business in 2014.⁴⁶ Car dealerships are also not subject to any reporting requirements under the law and proposed regulation. However, this group is responsible for confirming that the brake pads on new vehicles they sell are compliant with the law. Used vehicles with brake friction material not compliant to the January 1, 2014 requirements (Health and Safety Code section 25250.51) are not required to be changed out by the dealer for compliance to this law.

a. Affected California Businesses

DTSC estimates that the economic impact on California businesses, employment, and consumers will be negligible because brake pad manufacturers and new motor vehicle manufacturers have already invested in the third-party testing and third-party testing certification agency in order to comply with the State of Washington's Better Brake Rule and statute. DTSC has determined, from extensive consultation with industry and independent research, that brake pad manufacturers market an extensive array of products with different formulations at many price points. Those prices are set via terms of the OE new vehicle maker contracts and robust competition in the aftermarket sector (refer to Appendix B for examples of the industry in the aftermarket sector). From experience gained through implementation of the State of Washington Better Brake Rule in 2012, the consumer's cost for brake pads that are compliant with the chemical restrictions are unchanged. The State of Washington reports a significant percentage of the brake pad formulations tested and reported by the third-party are already compliant with the concentrations required in the final deadlines. The State of Washington

⁴⁶ Board of Equalization, Taxable Sales in California, North American Industry Classification System (NAICS), First quarter 2014, <http://www.boe.ca.gov/news/tsalescont.htm>

detailed its estimates of the economic effects, cost benefit, and least burdensome alternative analyses in its August 2012 publication (number 12-04-023)⁴⁷. Actual experience reveals that the expected costs were generally correct. While brake pad manufacturers have complied with the statutory and administrative requirements, no cost increases appear to have been passed along to consumers - in the OE or aftermarket sectors.

i. Potential Impacts on Brake Pad Sellers (Retailers and Service Providers)

The Department of Consumer Affairs, Bureau of Automotive Repair reports 1,448 service and repair stations (providers) are licensed for brake repair work in California as of 2014. These businesses provide "DIFM" aftermarket repair and replacement for worn or damaged brake pads. DTSC anticipates minor additional time - to view the package labeling - but no additional cost to the consumer because "brake jobs" are customarily a flat fee which includes labor and brake pad materials. New OE vehicle sellers typically now include brake pad replacement in on-going service contracts sold along with the new vehicle. These also are a pre-set cost, and paid under the service contract.

The Board of Equalization reports 18,964 permits have been issued to entities selling auto parts, accessories, and tires as of the first quarter of 2014.⁴⁸ Roughly 7,000 of these permits have been issued to small businesses.⁴⁸ This universe includes the subset of retailers selling aftermarket brake pads to the "DIY" customer. The proposed regulations also incorporate a packaging logo to make compliant brake pads easily recognized by end-users. This packaging logo was requested by the retailers and auto service providers as a less time-consuming way to check for compliant brake pads. As above, DTSC does not anticipate any price changes (increase or decrease) associated with the proposed regulations for the aftermarket brake pads sold at retail.

ii. Potential Impacts on Brake Pad Purchasers (Users and Customers)

California has 26.5 million vehicles in use, according the ARB's 2011 EMFAC model. About 15 percent of these (roughly 3,975,000 vehicles) may have the brake pads replaced each year, based on the Brake Manufacturers Council statistics.⁴⁹ As above, no changes in the aftermarket brake pad pricing are expected. DTSC does not anticipate any cost increases or decreases to these consumers resulting from the proposed regulation.

iii. Potential Impacts on California Employment

DTSC does not anticipate any changes in employment, wages, or the labor market in California from the proposed regulation because there are no brake friction material

⁴⁷ State of Washington, Final Cost-Benefit and Least Burdensome Alternative Analysis, Chapter 173-901 WAC Better Brakes, Publication No, 12-04-023- August 2012.

⁴⁸ Based on value reported by the Small Business Administration that 37% of retailers are small businesses. U.S. Small Business Administration, California Small Business Profile, Table 4, Retailers, 2014.

⁴⁹ AASA and MEMA, 2014 AASA Automotive Aftermarket Status Report, www.aftermarketsuppliers.org

manufacturers in California (Refer to the discussion in section D subsection b). The third-party analytical laboratories and third-party testing certification agency established to fulfill the State of Washington's requirements will generally meet the provisions in the proposed DTSC regulation. No new jobs for either third-party entity will be created in California.

iv. Potential Impacts on California Competitiveness

Because the State of Washington law and regulation have been in effect and manufacturers are already complying, DTSC does not anticipate any change in competitiveness for California businesses.

v. Potential Impacts on California Housing

No economic impacts to California housing will result from the proposed regulation.

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Appendix A

Cost Effectiveness Analyses for Selected ISOR Alternatives

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Appendix B

The Flow of Parts into the Automotive Aftermarket

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