NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
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STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
File:

HOUSE COMMITTEE ON FINANCE

S.B. 3006, S.D. 2 H.D. 1, RELATING TO MOTOR VEHICLE TIRES

Testimony of Loretta J. Fuddy, A.C.S.W., M.P.H.
Director of Health

April 3, 2012
6:00 p.m.

Department's Position: The department supports this measure as it will help address ways to prevent and control an ongoing illegal dumping issue and reestablish the ability to support ongoing community tire cleanup efforts.

Fiscal Implications: Reestablishes the $1 tire surcharge on all motor vehicle tires imported into the state. Collections are estimated to be in excess of $1 million a year. Surcharge collection puts an additional payment and reporting burden on tire importers and retailers. Task force expenses are undetermined.

Purpose and Justification: There is a need to curb illegal dumping of motor vehicle tires, and agrees this measure will provide funding for the cleanup of dump sites. The department since 2006 did not have the means to fund tire cleanup activities on an ongoing basis. The surcharge will be added to disposal fees presently charged by retailers at the point of sale. While the present problem appears to be associated with salvagers and secondary use markets rather than tire retailers, it is wise to study the issue together with a wide range of stakeholders.

While this measure identifies key stakeholders, we hope each task force member will involve and hold their own discussions within their own constituency, group or agency, in order to best represent their respective constituents at task force meetings. The department envisions that the task force needs to define the problem, assess the problem, set goals, select key components of a prevention program (i.e., site maintenance, outreach, enforcement, and tracking), determine roles and responsibilities, and write the report on its findings and recommendations to the Legislature. We anticipate monthly meetings for twelve (12) months, three of which are to develop the report to the Legislature and a final meeting to approve the draft report.

Thank you for the opportunity to testify on this measure.

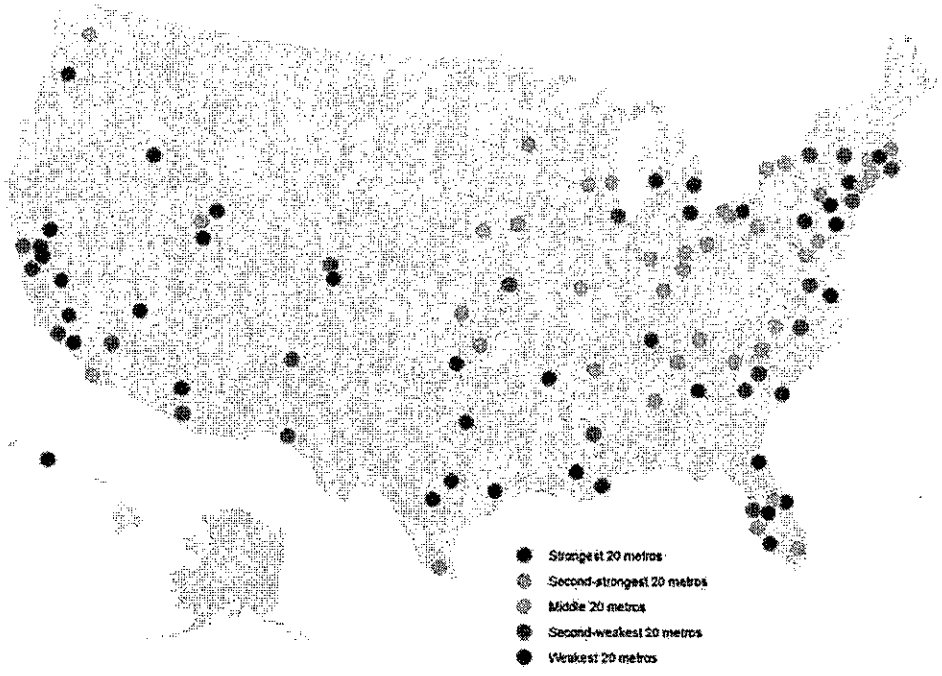
Testimony STRONGLY OPPOSED
to SB 3006, SD2, HD1
RELATING TO MOTOR VEHICLE TIRES
Respectfully submitted
by the Hawaii Automobile Dealers Association
to the House Committee on Finance
for the public hearing 6 p.m. Tuesday April 3, 2012
in Conference Room 308, Hawaii State Capitol

Chair Oshiro, Vice Chair Lee, and member of the committee:

HADA is STRONGLY OPPOSED to additional complex requirements on business, particularly when those requirements do not solve a problem. With regard to a failed $1 surcharge, we note that we have gone down this road before in establishing a $1 surcharge on new tires. The regulation required additional record keeping for auto dealers and other retailers. It did not, however, solve the problem of illegal tire dumping. The problem reoccurs because of LAX enforcement of the dumping laws. Again, this is not a time to be placing additional regulations on businesses, particularly regulations that failed to solve the dumping problem.

Tracking Economic Recession and Recovery in America's 100 Largest Metropolitan Areas Howard Wial and Siddharth Kulkarni
March 2012

Overall Performance: Recovery



For no clearly defined "purpose" in citing 1 million+ illegally scrapped tires that need to be addressed, this bill, in a fragile economic environment, proposes taxing tire retailers to raise $1 million per year. This bill cited 1,000 tires that needed cleanup, not 1,000,000 tires.

HADA agreed to a study to determine how to SOLVE what seems to be a continuing enforcement problem. We strongly OPPOSE this complex and costly method of funding the currently unworkable solution.

HADA respectfully requests that the committee delete the inserted HD1 language requiring a $1 surcharge, and allow a study to come up with solutions.

Respectfully submitted,

David H. Rolf
For the members of the Hawaii Automobile Dealers Association

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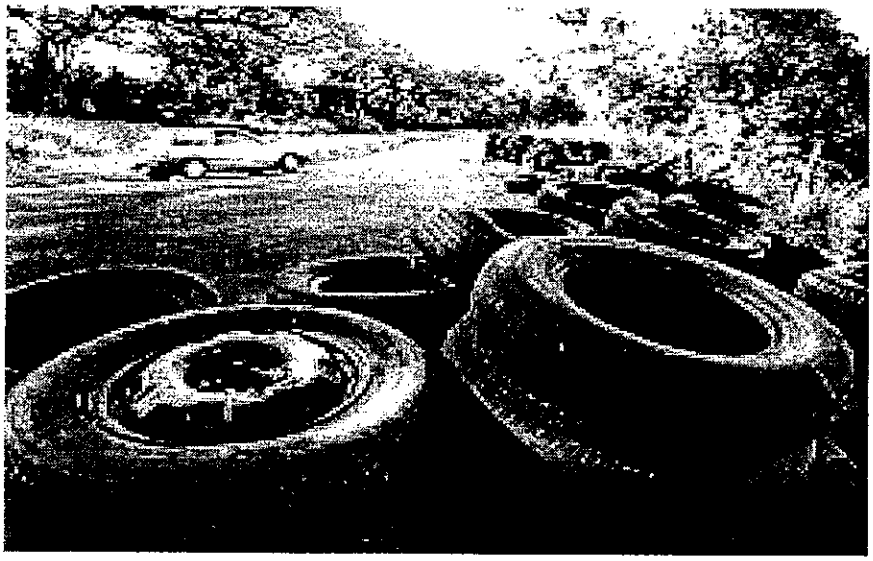
SB3006 In Support

ILLEGALLY DUMPED TIRES

What Can We Do?



By Donna M. Calarruda

English 200

4:30 Class

Illegally Dumped Tires

~~What Can We Do?~~

Waianae, ~~HI~~ Hawaii is one of the most beautiful places in the world. As soon as one enters the Leeward Coast, one ~~will be~~is greeted with beautiful mountains, rolling blue seas and sandy beaches. Palms, kiawe trees, coconut trees, plumeria, hibiscus and many other plants enhance the setting. As one tours ~~the~~ this coast of ~~the~~ beautiful beaches and maybe through the suburbs and businesses towards the mountains, one might dare to venture towards the back roads ~~of the town~~. One might begin to notice that the scenery soon becomes spoiled ~~with~~ by illegally dumped items. One of which is "tires."

There are more illegally dumped scrap tires each year as offenders avoid disposal fees or the time and effort required for proper disposal. One ~~will~~ finds them littered along roadsides and in wooded areas, even in state and beach parks. It ~~also~~ even includes abandoned industrial sites~~,~~ and vacant lots.

The beautiful Waianae coast is not excluded from this serious problem. In 2004, the Department of Health removed a huge illegal tire dump at Lualualei Homestead Road. "Approximately 6,628 tons of solid waste materials, comprised mostly of shredded and partially burned tires were removed" ("State Completes Removal of Huge Illegal Tire Dump" 1). Industrial Technology, a tire recycling facility, operated without a solid waste permit there. On December of 1997, a pile of shredded tires caught fire and caused the evacuation of several nearby homes. The ~~C~~contract cost for the project was $1,269,779 ("State Completes Removal of Huge Illegal Tire Dump" 1).

Another example of the seriousness of the scrap tire problem was ~~that~~ on November of 2011, when debris from a streambed caused flooding along Paakea Road (Pang-). Volunteers who

cleaned up that mess included Waianae coast businesses, military personnel, high school groups, young men from the Youth Challenge Academy, officials from the federal, state and city government, including Senator Maile Shimabukuro, who all chipped in to help clean up the stream bed. There were so many tires hauled that some had to be put into storage until organizers could determine how to dispose of the illegally dumped tires.

"Hawaii News Now" reported about a brush fire in Makaha which burned more than 300 acres. Piles of old scrap tires and automobile parts were found just off of the path (Pai-). There are many more similar stories of illegally dumping ~~of~~ tires along the leeward coast.

What these offenders fail to see is that there ~~is~~ are major health issues associated with illegal tire dumping. Rainwater collects within the tires~~,~~ attracting mosquitoes. Mosquito bites can cause diseases such as ~~Dengue~~dengue, ~~Malaria~~malaria, ~~Rift~~ rift ~~Valley~~ valley ~~Fever~~fever, and ~~Yellow~~ yellow ~~Fever~~fever ("Mosquito Borne Diseases"). Symptoms of ~~Dengue~~ dengue are high fever, severe headache; severe eye, joint, muscle or bone pain; rash, mild bleeding of nose and gums and low white cell count. Three to seven days after symptoms begin, one may experience severe abdominal pain or persistent vomiting, red spots or patches on the skin, bleeding from nose or gums, vomiting blood, black and tarry stools, drowsiness or irritability, pale, cold or clammy skin, or difficulty in breathing.

Malaria also causes high fever, chills and flu-like illnesses. If left untreated, severe complications may arise and death may occur. Pregnant women are more susceptible and it decreases the chance of the baby's survival.

With ~~Rift~~ rift ~~Valley~~ valley ~~Fever~~fever, one may have either no symptoms or a mild illness associated with fever and liver abnormalities~~.~~. ~~But~~ but in some patients, the illness can progress to hemorrhagic fever which can lead to shock or hemorrhage. Inflammation of the brain may

occur causing headaches, coma or seizures. Patients that become ill, experience fever, weakness, back pain, dizziness, and extreme weight loss. Typically, patients recover within two days to one week after onset of illness. The most common complication is inflammation of the retina which may cause permanent vision loss. Approximately one percent of patients that have become infected die of the disease.

With ~~Yellow~~ yellow ~~Fever~~fever, one may suffer no illness or mild illness. As with other mosquito borne illnesses, it may cause fever, chills, severe headache, back pain, body aches, nausea, fatigue and vomiting. Most persons improve but after a short remission, one may develop a more severe form of the disease characterized by high fever, jaundice, bleeding and eventually shock and failure of multiple organs. A majority of infected people recover~~.:~~ ~~I~~ although, in some, weakness and fatigue may last for several months. Twenty to fifty percent of those who develop severe symptoms die. Those who recover from the disease generally have lasting immunity against subsequent infection ("Mosquito Borne Diseases"). Here in Hawaii, there was an outbreak of dengue fever in Hawaii in the past, they are now nothing more than irritating pests to humans. But dogs have acquired heartworms and native birds have died from bird malaria and bird pox (Leong), and both diseases are passed on by mosquitos..

Burning tires also cause serious health concerns as they release hundreds of different toxic pollutants ~~that settle deep in the lungs~~ such as chromium, arsenic, zinc, barium, cobalt, copper, iron, aluminum, manganese and vanadium that settle deep in the lungs ("People For Less Pollution"-). ~~Nursing~~ Worse still, nursing mothers transfer contaminated breast milk to their infants. ~~S~~ while small particles released worsen asthma and may contribute to heart disease. Children, elderly, fetuses and immune suppressed individuals are more vulnerable to illnesses.

Burning tires are difficult to extinguish and could burn for long periods. Finally, the ~~T~~thick black smoke can contaminate soil with an oily residue.

Each state makes its own scrap tire laws and regulations. ~~T~~, and these laws typically set the stage for rules for scrap tire storage, collection, processing, and use. States also establish programs to clean up old scrap tire stockpiles, and the funding needed to accomplish that goal. For example, New York has a dedicated tire fee to be used to fund initiatives, short and long-term market development programs, and it has created a stock pile remediation and abatement program ("Scrap Tire Laws/Statutes").

In addition, ~~P~~penalties for illegal dumping vary from state to state. The penalty for illegal dumping in New York is $100,000 and or 10 to 15 years average probation ("State Scrap Tire Programs"). The penalty for illegal dumping in California is $1,500 to $25,000 and /or 6 months to 10 years possible jail time with 5 years average probation ("State Scrap Tire Programs"). In Salt Lake City, Utah, "the Bureau of Land Management, West Desert District is offering a $500 reward for information leading to the arrest and / or conviction of the party responsible for illegally dumping over 70 tires on public lands. The majority of tires dumped were for large commercial trucks and heavy equipment operations. Evidence suggests the tires were dumped on one or more occasions. The clean-up costs to remove the illegally dumped tires are estimated at $2,000 to $5,000." ("Bureau of Land Management Offers Reward for Illegal Tire Dumping"). The penalty for illegal dumping of tires in Utah is $100,000 and / or 25 years of possible jail time with life probation ("State Scrap Tire Programs"). In Hawaii, effective as of July 1, 1994, Chapter 3421 Hawaii Revised Statutes (H.R.S.) prohibits the disposal of whole used motor vehicle tires at all landfills and incinerators within the State of Hawaii. The penalty for illegal

dumping in Hawaii is up to $5,000 and 1 to 25 years possible jail time with community service ("State Scrap Tire Programs")

In California, the Department of Resources Recycling and Recovery (CalRecycle) develops markets to enhance end-products through the establishment of special recycling zones and grants. They conduct balanced enforcement action through scrap tire hauler licenses, public education and targeting recyclers, collectors, and processors that are not following requirements regarding pile size, storage time, and fire prevention at permitted tire storage sites. They also identify illegal tire piles for cleanup and provide the funds to accomplish the job. ~~The penalty for illegal dumping in California is $1,500 to $25,000 and/or 6 months to 10 years possible jail time with 5 years average probation ("State Scrap Tire Programs"). In Salt Lake City, Utah, "the Bureau of Land Management, West Desert District is offering a $500 reward for information leading to the arrest and/or conviction of the party responsible for illegally dumping over 70 tires on public lands. The majority of tires dumped were for large commercial trucks and heavy equipment operations. Evidence suggests the tires were dumped on one or more occasions. The clean-up costs to remove the illegally dumped tires are estimated at $2,000 to $5,000." ("Bureau of Land Management Offers Reward for Illegal Tire Dumping"). The penalty for illegal dumping of tires in Utah is $100,000 and/or 25 years of possible jail time with life probation ("State Scrap Tire Programs"). In Hawaii, effective as of July 1, 1994, Chapter 3421 Hawaii Revised Statutes (H.R.S.) prohibits the disposal of whole used motor vehicle tires at all landfills and incinerators within the State of Hawaii.~~ In Hawaii, ~~T~~tire retailers are required to accept used tires in exchange for new ones purchased. Tire storage, shredding and processing facilities are now required to seek permit approval as described in Hawaii Administrative Rules Title 11, Chapter 58.1, "Solid Waste Management Control." The Department of Accounting and General

Services has finalized (under legislative direction) its procurement rules and specifications. They include a 10% preference for products made with recycled materials, including retread tires. Shredded tires are sold to a coal plant for use as fuel, as well as mulch, field turf, and asphalt. The five stage tire recycling process includes shredding, grinding, steel and fiber removal, screen separation and bagging before it is sold back to the consumer. ~~The penalty for illegal dumping in Hawaii is up to $5,000 and 1 to 25 years possible jail time with community service ("State Scrap Tire Programs").~~

I am very grateful to all of the community workers that are helping to take care of the scrap tire problem. Perhaps as one becomes more aware of the health and environmental problems incurred due to illegal tire dumping, then one might be more inclined to dispose of one's tires properly. Then perhaps, as one tours the coast of the beautiful beaches and maybe through the suburbs and businesses towards the mountains, one might dare to venture towards the back roads of the town and just enjoy all of the beauty that Waianae has to offer.

Citations:

Department of Health. United States. *State Completes Removal of Huge Illegal Tire Dump.* Honolulu: , 2004. Print. <hawaii.gov/health/about/pr/2004/04-45shwb.html>.

Environmental Protection Agency. United States. *State Scrap Tire Programs.* 1999. Print. <http://www.epa

Environmental Protection Agency. United States. *Scrap Tires Laws/Statutes.* 2011. Print. <http://www.epa.gov/osw/conserve/materials/tires/laws.htm>.

Leong, Mark. Directorate of Public Works. United States. *Mosquitoes.* Print. <http://www.mcbh.usmc.mil/Mosquitoes Bulletin.pdf>.

National Center for Disease Control. United States. *Mosquito Borne Diseases.* 2009. Print. <http://www.cdc.gov/ncidod

Pai, Darren. "Leeward Fire Reveals Illegal Dumping." *Hawaii News Now.* n. page. Print.

<www.hawaii newsnow.com/Global/story.asp?s=6195845>.

Pang, Gordon. "Illegally dumped tires turn up at clean up in Waianae." *Star Advertiser*. (2011ww): n. page. Print. <www.staradvertiser.com/s?action=login&f=y&id=134199843>.

"People for Less Pollution." *15 Reasons Not to Burn Tires*. N.p., n.d. Web. 17 Mar 2012. <http://www.lesspollution.org/learn.html>.

SB3006 support

Tire Disposal Problems and Solutions

JaLisa Josue

English 200

If one were to take a drive down the Wai'anae coast, they would encounter a number of characteristics unique to the west side of O'ahu. There are miles of beautiful countryside with the Pacific Ocean glimmering just a short distance away. However, there is an item that litters the west coast which does not belong being disposed of alongside the road that residents here see much too often. This item almost becomes part of the landscape, a part of the minutiae that the community encounters on a daily basis. People do not even notice it. However, if one were to take off their figurative 'blinders' and actually look for this item, they would see them everywhere, and they would be surprised at just how many they actually see.

Irresponsibly disposed of tires are something that the people of the Wai'anae coast have become much too accustomed to seeing. The only instances in which residents actually think about tires are when they either have to buy new ones or replace the old ones on their vehicles. Other than that, the important invention that helps enable us to get from one place to another is a just a trivial part of most peoples' lives. The community of Wai'anae does not realize just how many resources it is consuming when using tires and the impacts that tire pollution has on the environment, resources, and general health and well-being; something must be done to rectify this issue.

In order for one to genuinely care about this issue, the realization of just how much of an impact it is having on the community must become evident. 290 million scrap tires are generated annually in the U.S. The Rubber Manufacturer's Association says that over 75% of scrap tires are recycled or used for fuel or other applications, but the other 25% remains unused. There are another 265 million tires sitting in stockpiles (United States. "Frequent Questions"). Add these figures together, and it still does ~~n't~~ not account for the number of tires imported to Hawai'i, whether they are on cars or not, and whether they are being imported legally or not.

According to the Hawai'i State Department of Transportation, there were 149,197 cars shipped to the island of O'ahu in the year 2011 alone. That amounts to 596,788 tires, and those are just the ones imported here on cars. As one can imagine, these tires have created a problem. So far, there have been some potential ideas and solutions to this problem, but as of yet there is no cookie cutter solution that still manages to be economically viable. The fact is that the State of Hawai'i has no tire disposal program and no way to responsibly dispose of or recycle tires.

So, what could potentially happen if the community ~~just~~ continues to ignores this issue? Of course, the number of tires will build up, but what would happen after that? Tire fires are a potential threat. Although there are no official tire stockpiles on O'ahu, piles of tires can be found on the west coast in Wai'anae Valley, Nanakuli, and Campbell's Industrial Park. Due to the physical characteristics of tires, they are prone to heat retention. Although they are somewhat difficult to ignite, tires can create fires that are extremely difficult to extinguish and can burn for weeks or months, creating unhealthy smoke containing gases, heavy metals, and toxic oils. An average passenger car tire will produce over two gallons of oil when it burns, which would eventually end up in the community's drinking water. The oily material produced from incineration is also highly flammable. Air pollution is highly likely when tires combust; chemicals spewed into the air may contain polycyclic aromatic hydrocarbons (PAHs), including benzene, styrene, phenols, and butadiene. These toxic gases are known to cause adverse health effects such as cancer and birth defects (United States. "Basic Information"). Tire fires can potentially have detrimental effects on our air, water, and soil. As one can imagine, these fires are quite expensive to extinguish and clean up. In 1999, a tire fire in Westley, California took 30 days to extinguish and ultimately cost the EPA $3.5 million to clean up (United States. "Tire Fires").

Another health concern is that tires are exceptional breeding grounds for mosquitoes and rodents. Again, the physical shape of tires creates a problem because of impermeability; they can hold water ("Environmental Problem Associated ..."). Mosquitoes can proliferate in abandoned tires and then go out into the community and transmit diseases. These diseases can include encephalitis and dengue fever. The Wai'anae coast would not be ready for any kind of epidemic like those and the community would be devastated, both financially and physically. The potential epidemic could also easily spread to the rest of the island; emergency funding would definitely be needed to eradicate it.

The common denominator between all of the potential problems with scrap tires is cost. In the long-run, the cost of not responsibly disposing of or recycling our tires is going to continue to be harmful to us. As more tires accumulate on the island, expenses are adding up to find uses and end products for them. One can point out that our state has no extra money and that politics makes the issue even more complicated, but the simple fact is that if something counteractive is not done now, much more expensive problems will be encountered in the future. The state of Hawai'i must take legislative actions in regards to the issue of tires.

Senator Maile Shimabukuro has introduced Senate Bill number 3006. It is requesting a resurrection of a law that was repealed on January 1, 2006. That law required customers buying tires pay a one dollar surcharge for each tire. The current act is to reestablish the one dollar surcharge and "assist the department of health in its permitting, monitoring, and enforcement activities regarding used tire management, collection, recycling, and disposal facilities." Businesses such as motor vehicle companies or companies that sell vehicles to motor vehicle rental businesses shall pay surcharge credit to the state if the number of exported vehicles is lower than imported vehicles (SB 3006).

This measure may not necessarily solve all of the problems that come with tire waste on the island, but it is indeed a start. The Senate Bill should be enacted as a viable first step towards solving the tire problems. Many people and businesses are not likely to agree with the idea, but they also are not the ones who are living in the areas most affected by the problem and trying to find feasible solutions.

With funds from this potential law, there are a number of projects that could be worked upon that would combat the tire issue. Firstly, there is potential for the state to construct a tire disposal/crumb rubber facility. There is currently a facility that deals with tire waste in Campbell's Industrial Park, but it is not a facility that has the means to deal with the entire island's used tires. In order to make construction of this facility possible, it must be ensured that the funds being set aside for the law are indeed being set aside for this specific purpose and not being appropriated or just thrown into a "general fund". Money deposited into a general fund for a specific purpose is rarely if ever used for said purpose; money is used on what is prioritized by the government. Upon research, a crumb rubber facility would cost around $2 million to construct (Gugliotta), so ~~while~~ though expensive, the long-term benefits make it worthwhile.

Crumb rubber has a variety of uses and functions. As recently as 2003, eighteen million tires were converted into ground rubber and recycled into products (United States. "Additional Information"). The market for crumb rubber has been expanding in recent years, and a variety of uses for it have been developed. By far, the largest of these markets is that of asphalt rubber. Rubberized asphalt concrete (RAC) is produced by melting crumb rubber and mixing it with asphalt. Contrary to its name, the asphalt actually has no concrete in it. This new material has proven to be effective in a number of ways. The initial cost is indeed a large investment, but the

investment just may be worth it. "Applying a two-inch layer overlay of RAC can save $50,000 per lane, compared to using four inches of conventional asphalt in the same application" (Rispo).

For example, the Arizona Department of Transportation (ADOT) has experimented with the use of rubberized asphalt on highways, which has proven to be quite successful. Using rubberized asphalt concrete would potentially prove to be a very viable solution for Hawai'i's tire problem. ADOT first began using the material in 1988; more than fifteen million tires were recycled and used for highways at a cost of about $225 million. It has been found that the material is more durable than regular asphalt and that it is actually smoother and quieter (Arizona. "Quiet Roads ~ FAQ"). Rubberized hot mix asphalt actually reduces noise levels by up to five decibels. In addition to those benefits, rubberized asphalt reduces cracks in asphalt overlays. The usual cracks in asphalt caused by anything from traffic loads, temperature, or earth movements do not occur in rubberized asphalt highways. The makeup of the material allows for moving and stretching which prevents it from cracking under stress (Clemson. "Benefits of Rubberized Asphalt"). Because of this, maintenance costs for highways would be greatly lowered as less or no repairs would be needed. Rubberized asphalt literally ages slower than traditional asphalt because it contains anti-oxidants from the scrap tires. Furthermore, the new material has a ten to twenty year lifespan. Another benefit of the new material is that it offers greater skid resistance than conventional asphalt material (United States. "Frequently Asked Questions").

Along with the cornucopia of potential benefits that rubberized asphalt has to offer Hawai'i is the fact that it actually makes use of a material that would otherwise not be very beneficial for many applications. 2,000 to 8,000 tires could potentially be used to create a one mile section of a four lane highway (United States. "Frequently Asked Questions"). The

materials and construction for this endeavor is indeed a large investment. However, upon research, one can find that the state of Hawai'i invests a large amount of money for highways statewide anyways. According to the Department of Transportation, $288,142,000 was set aside for appropriations for the highways (Hayashida). A substantial amount of these funds are being used to repair roads, but these repairs would not be needed if the initial investment in rubberized asphalt highways was made. In addition, repairs made with the RAC would last longer as well. At the very least, Hawai'i should consider using rubberized asphalt to fill in the many potholes that have become an issue ~~as of~~ in recent years.

Recycled rubber can also be used in a variety of other applications. It is an expanding market and using ground rubber in products accounted for 18 million of those tires that were recycled in 2003. Recycled rubber in playground equipment has proven to reduce injuries and absorb shock better than traditional materials used. It is also more durable and requires less maintenance. Additionally, the shredded recycled tires can be added to soil for sports turf (Rubber Playground Mulch. "Rubber Mulch Playground").

Hawai'i could potentially do a lot more to combat the issue of irresponsibly disposed tires. The general fund that is created by taxpayer's money and set aside could be used to improve our state in regards to this tire issue. Hawai'i could create a program modeled after California's tire amnesty day program. By offering amnesty days, local citizens could "bring in a limited number of tires to a drop-off site free of charge", thereby promoting tire recycling and giving citizens a reason and incentive to recycle (United States. "Basic Information"). As mentioned before, the state can fund these programs through the use of allocated funds.

According to the Hawai'i State Department of Transportation, approximately $288, 142,000 was appropriated for highways statewide. Much of these funds are usually used to repair extensive road damage such as cracking of the asphalt or pot holes. Pot holes are an item of concern, especially in recent years here in Hawai'i. The west side of the island is especially overwhelmed with piles of tires; these can be found in areas such as Wai'anae Valley or Nanakuli on Lualualei Naval Road. Usually these road issues either go ignored or are temporarily fixed until they come up again. Looking at this issue from a long-term point of view, it becomes evident that these road problems pose greater enduring problems from a financial standpoint if they continue to be ignored. In other words, if these road problems are allowed to proliferate, the ultimate cost to the state and taxpayers will be detrimental.

The problem of illegal tire dumping and disposal in Hawai'i has become quite evident; less obvious ~~is~~ are the solution~~(s)~~ that are the best possible answer to the issue. Aside from the health and environmental concerns that these tires ~~cause~~ pose are the future potential problems that they could create. Currently, there are a lot of issues on this island that need prompt attention and correction. These are some problems that affect the community today and some that will affect it for years to come. Although the issue is not 'black and white,' it is important for one to acknowledge it and realize the full repercussions of the actions that they take today. Politics have been proven to serve as a vehicle for change as well as a hindrance in regards to these types of issues. Money will always be an issue, but it is important to realize that not investing in the future now will prove to be harmful in the grand scheme of things.

Bibliography

"Basic Information | Scrap Tires | US EPA." *US Environmental Protection Agency*. 04 Oct. 2011. Web. 25 Jan. 2012. <http://www.epa.gov/osw/conserve/materials/tires/basic.htm>.

"Benefits of Rubberized Asphalt." *Clemson University*. Department of Civil Engineering. Web. 08 Feb. 2012. <http://www.clemson.edu/ces/arts/benefitsofRA.html>.

"Frequent Questions | Scrap Tires | US EPA." *US Environmental Protection Agency*. 04 Oct. 2011. Web. 25 Jan. 2012. <http://www.epa.gov/osw/conserve/materials/tires/faq.htm>.

"Ground Rubber Applications | Scrap Tires | US EPA." US Environmental Protection Agency. 04 Oct. 2011. Web. 08 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/ground.htm>.

Gugliotta, Guy. "A New Source of Green Energy: Burning Tires?" *Discover Magazine*. 12 Feb. 2008. Web. 23 Jan. 2012. <http://discovermagazine.com/2008/feb/new-source-of-green-energy-burning-tires>.

Hayashida, Dean. Personal Interview. Feb. 1 2012.

"Problems About Waste Tires." *InfoHouse - The Most Diverse, Authoritative, and Comprehensive P2 Electronic Resources in the World*. Web. 25 Jan. 2012. <http://infohouse.p2ric.org/ref/11/10504/html/intro/ploblems.htm>.

"Quiet Roads ~ FAQ." Arizona Department of Transportation. Arizona Department of Transportation. Web. 08 Feb. 2012. <http://www.azdot.gov/quietroads/faq.asp>.

Relating to Motor Vehicle Tires. SB 3006, 25 Jan 2012.

Rispo, Vito. "190 Million Tires Thrown Away Each Year: Where's The Rubberized Asphalt Concrete (RAC)?" *RideLust*. 19 Sept. 2008. Web. 23 June 2012. <http://www.ridelust.com/190-million-tires-thrown-away-each-year-wheres-the-rubberized-asphalt-concrete-rac/>.

"Rubber Mulch Playground." Rubber Playground Mulch: Playground Safety Surfacing for Safe Playgrounds. Web. 13 Mar. 2012. <http://www.rubbermulch.com/playground.htm>.

"Tire Fires | Scrap Tires." EPA. Environmental Protection Agency, 04 Oct. 2011. Web. 15 Mar. 2012. <http://www.epa.gov/osw/conserve/materials/tires/fires.htm>.

Jasmine Apostadiro SB 3006 Support
430 ENG 200
Research #1

Illegally dumped tires are ~~becoming~~ a growing problem in Hawaii. There have been thousands of tires ~~that are~~ thrown on roadsides mainly in the Waianae area. According to the U.S Environmental Protection Agency, there were about 270 million scrap tires being discarded in 1998. An estimated 500 million to 3 billion scrap tire stockpiles ~~has~~ have been found around the United States noted by the Energy Efficiency and Renewable Clearinghouse (EREC). Not only does it look unattractive, this problem also presents health and environmental issues as well. When used tires are left unattended, ~~it~~ they ~~will~~ start to collect water and attract disease carrying mosquitoes or can start an uncontrollable fire that could burn for weeks. The burned material will give off a thick black smoke making it hard to breathe and possibly contaminate the soil and water supply. There are a few recycling facilities in Hawaii such as AES, which is a coal fired electrical power station located here in Hawaii. Unitek is Hawaii's largest collector of oily waste and waste antifreeze. These companies accept used tires usually charging a fee and have a limit to the amount of tires being ~~brought in~~ accepted. On the other hand, ~~U~~used tires can ~~also~~ be used for fuel, an additive to road pavement, or Hawaii could build a tire recycling factory. Used tires should be recycled or reused not thrown on the roadsides.

Sanitary landfills and all island wide transfer stations prohibit disposal of waste tires ~~at both locations~~. Space availability is limited due of the fact that tires do not break down to crumbs on ~~its~~ their own. If you burry tires, over the years ~~it~~ they will find a way back up to the surface and still present health hazards. The transfer stations do not take in any

whole, shredded, chipped, or sliced tires because of the disposal process. Since ~~A~~a tire is made up of natural rubbers, synthetic rubbers, and other harsh chemicals~~.~~, and t~~T~~he steel wire that is used has to be removed in order to put it through a shredder, tires are hard to dispose of properly. ~~These~~ Plus, landfills are running out of space ~~and~~ so there needs to be another better solution.

Currently, there is a bill that our Senator, Maile Shimabukuro, has introduced. SB3006 re-instates a $1 deposit on imported tires and it will generate funds to be managed through the Department of Health. The money will go towards the cost of disposing of the illegally dumped tires and preventing added pollution to the community. House Bill 1696 will require a $5 fee for each new motor vehicle tire sold. The fee will be established if a tire ~~was~~ is not exchanged with a used tire ~~to~~ but it can be refunded on exchange. In order for a bill to become a law in Hawaii, it needs to go through a moderately long process until it is published. Passing ~~this~~ these bills would be a solution to maintain solid waste pollution and help keeping Hawaii clean.

In 2004, according to the Department of Health, through its contractor Unitek, ~~they have~~ completed a removal of scrap tires that cost over $1 million ~~dollars~~. The state should use that money by building a tire recycling facility in Hawaii. It will give people a direct place to ~~bring in~~ take used tire materials. This facility would not only create jobs but would also keep money within the state instead of paying the cost to bring items in or send them out to somewhere else. In order to start a company for scrap tires, a specific location, markets, and regulations would have to be further looked into. If scrapped tires can be processed locally ~~maintained~~, then there would be ~~less~~ fewer illegal dump sites.

Tires are not instantly melted down, ~~it~~ they goes through a process called

"vulcanization," and ~~is~~ are processed to attain ~~its~~ their springy, flexible nature. Sulfur is added which creates stronger bonds between the rubber polymers. Shredded material is placed in grinding machines that help remove the steel fibers. When bulk steel is removed, the rubber is placed on a granulator to be pressed into different sizes that are useful to ~~some~~ different industries ~~by~~ creating new products such as rubber mulch for gardens or playground padding on play structures.

Specialized Rubber Products is a local company that produces crumb rubber and the Pacific Recreation and Specialty Surfacing sell and apply the final product of playground padding. As reported by Department of Environmental Services, the Waipio soccer field used 5,000 cubic yards of shredded, crumbed tires and 5,000 cubic yards of soil additive to develop athletic fields of the new soccer complex. Using rubber material on a playground ~~will~~ helps keep children safe and would decrease the injury that may occur. It creates cushion and safety. Plus, ~~R~~rubber mulch is a unique rubber product made entirely from tire rubber. It is non-toxic and good for the environment. People ~~also~~ add ~~them~~ it to their gardens to provide good insulation for the soil and it allows water and nutrients to be stored in the soil. Mulch reduces weeds and may be purchased at a home and garden department store.

The U.S Environmental Protection Agency ~~has mentioned~~ mentions ~~in an online website~~ that tires are mainly used as a supplement to regular fuels such as coal or wood. This ~~would~~ can also be considered a solution to scrap tire pollution by burning the material at a certified plant to generate ~~fuel source~~ energy as a fuel source. Before rubber is burned, tires need to be reduced in size to be able to fit in the combustion units and the steel wires needs to be removed. This particular fuel source, ~~is~~ also known as Tire

Derived Fuel (TDF), ~~which~~ is burned in cement kilns and the energy required to create rubber compounds is 3 or 4 times the energy that is let out when the tire burns. It is said that tires produce the same amount of energy as oil and about a quarter more energy than coal. AES is the only coal-fired power plant in Hawaii. Burning tire rubber is not only an alternative to recycling but beneficial ~~to~~ as a Hawaii~~'s~~ power source. Although burning ~~of~~ used tires creates a natural health hazard, if we burn more of these resources properly, then the health concern will be better ~~maintained and~~ controlled. This would help bring the tire stockpiles down and ~~produce~~ provide fuel at the same time.

In Sweden, they use tire rubber in asphalt pavement mixes that enhances the performance of their roads. A report titled "Use of Tire Rubber in Asphalt Pavements in Sweden" dated March, 1994, mentions how a conventional mix lasts up to about 5 years while rubit should last 6-7 years longer. Rubit is a paving material that is used as a surfacing hot mix and in surface dressing binders. Rubit mixes cost about 50% more than conventional mixes ~~and it~~ usesing tire rubber as an aggregate only. But road ~~N~~noise levels are reduced and the material has a stronger resistance to the different weather types. Currently, the Swedish government does not feel they have a problem with excess waste tires because they use them.

According to Vorsino, author of an online article posted by the *Honolulu* ~~*advertiser*~~*Advertiser*, the City and State was forced to pay $172,000 in pothole damage claims made to drivers. It is an inconvenience to drivers and state workers because of traffic and the amount of money it ~~will~~ costs to fix the damage made to ~~the~~ cars or roads. In 2006, the City and County of Honolulu ~~has~~ patched 68,586 potholes that were caused by heavy rains. Poor road conditions stops tires from being used to reach their potential

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mileage. If the state uses tire rubber in the asphalt road mixture, then there will be less money ~~to spend~~ spent on car and road repairs and it will avoid scrapping more tires.

Rubberized Asphalt is safe, durable and quieter for road paving alternatives. Rubberized Asphalt Concrete (RAC)– is a road paving material made by blending recycled tire rubber with asphalt to produce a binder which is then mixed with conventional aggregate materials. Cal Recycle is a California government website that ~~provided~~ provides three reasons as to why using RAC ~~would be~~ is useful. It is cost-effective because RAC can be used to thicken conventional asphalt overlays which results in primary material reduction and cost savings. RAC ~~should~~ lasts longer even through rainy weather. ~~The durability of~~ RAC ~~would~~ resists cracking and provides ~~a~~ better skid resistance. A two-inch-thick RAC resurfacing project uses about 2,000 scrap tires per lane mile. With all these waste tires, there should be enough to fix damaged roads and make the roads last longer with less maintenance being required.

Used tires should be recycled and reused. As a resident in the Waianae area, there needs to be more options other than leaving ~~your~~ old tires with a –retailer. Even auto shops need to be more responsible for properly discarding their used tires. Citizens should also do a tire check every so often. Check the tire pressure, rotate tires when needed, and check threading for any visible damage so their tires last longer. ~~Rubberized Asphalt is safe, durable and quieter for road paving alternatives.~~

Using rubber for fuel is also an effective plan because it is cost efficient and Hawaii would not have to ship in fuel ~~from other states or countries~~. By creating a tire recycling factory, the machines and process of starting a business would cost a large amount of money and would take a while to get started, but in the long-run, Hawaii would benefit

because there would be a place specifically made to properly dispose of tires and have the rubber recycled locally. Schools or other facilities would be able to purchase play-ground cushioning to ~~protect~~ prevent injury to a child or use rubber mulch as ~~an~~ a gardening additive. Overall, by presenting a few possible solutions on how to manage and prevent illegally dumped tires, it ~~would~~ should motivate the community to recycle and to help take part in keeping the ~~earth~~ aina clean.

Works Cited

United States . Environmental Protection Agency. *Scrap Tire Workgroup*. U.S EPA, 2012. Web. http://www.epa.gov/osw/conserve/materials/tires/workgroup.htm.

Shimabukuro, Maile. "ENG 200 Class". Leeward Community College - Waianae. 18 Jan. 2012. Class Presentation.

Relating to Motor Vehicle Tires. SB 3006, 25 Jan 2012.

"Scrap Tire Recycling ." *Consumer Energy Information: EREC Reference Briefs*. EREC, may 2000. Web. 14 Mar 2012. http://infohouse.p2ric.org/ref/10/09925/.

"Recycled Products Guide." *ENV Department of Environmental Services*. City & County of Honolulu's Department of Environmental Services, 2005. Web. 14 Mar 2012. <http://www.opala.org/solid_waste/archive/recycled_products_guide.html>.

vorsino, mary. "Pothole Restitution Cost City and State $172,000 ." *Honolulu advertiser* 04 Feb 2007, n. pag. Web. 14 Mar. 2012. <http://the.honoluluadvertiser.com/article/2007/Feb/04/ln/FP702040369.html>.

Rich, Frank. "Use of Tire Rubber In Asphalt Pavements In Sweden." . North DakotaDivision, mar 1994. Web. 14 Mar 2012. <http://www.asphaltrubber.org/ARTIC/International/RPA_A1179.pdf>.

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Bibliography

"Asphalt Rubber Paving- Tire Recycling Options." Online Posting. Youtube, 10 Feb 2010. Web. 28 Jan 2012.

"Basic Information." U.S. Environmental Protection Agency. N.p., 4 Oct 2011. Web. 23 Jan 2012

"California Promotes Reuse, Recycling Of Scrap Tires." Biocycle 41.12

(2000): 42. Academic Search Premier. Web. 21 Jan. 2012.

"Civil Engineering Applications." U.S. Environmental Protection Agency. N.p., 10/04/2011. Web. 1 Feb 2012. European Tyre and Rubber Manufacturers' Association, . "End of Life Tyres." European Tyre and Rubber Manufacturers' Association. N.p., 27 Sep 2011. Web. 28 Jan 2012.

"Frequent Questions." U.S. Environmental Protection Agency. N.p., 4 Oct 2011. Web. 1 Feb 2012. Hensley, Trish. "Creative Options for Old Tires Benefit Environment, Communities." American Recycler: Newsvoice of Salvage, Waste and Recycling. N.p., 1 Feb 2012. Web. 1 Feb 2012.

PR Newswire, . "LTR Products Joins KaBOOM! to Help Build New Playground for School in Hawaii: Pinnacle Rubber Mulch Selected for Playground's Safety Surfacing." The Business Journals. N.p., 1 Feb 2012. Web. 1 Feb 2012.

Pinnacle Rubber Mulch, Pinnacle Rubber Mulch. N.p., 2011. Web. 1 Feb 2012.

"Reuse recycled rubber tires in roads other useful produces." Online Posting. Youtube, 3 Feb 2007. Web. 28 Jan 2012.

"Rubberized Roads: Making Streets Quieter." Discoveries and Breakthroughs Inside Science. N.p., Apr 2009. Web. 30 Jan 2012.

"Scrap Tire Recycling." *Texas Commission On Environmental Quality*. N.p., 4 Jun 2010. Web. 6 Feb. 2012. http://www.tceq.state.tx.us/compliance/tires/recycling.html. Field Code Changed

Seldman, Neil. "Old Tires Face The Zero Waste Option." Biocycle 47.10 (2006): 20. Academic Search Premier. Web. 21 Jan. 2012.

Skeelsd. "What to do with those Used Tires." Art of the Stem: Science Art Culture. WordPress.com, 15 Dec 2011. Web. 1 Feb. 2012.

"Tire disposal & recycling." Tire disposal & recycling, Inc.. Websource Northwest, LLC, n.d. Web. 25 Jan 2012.

"Tire Management Overview." Calrecycle.ca.gov. N.p., 2 Feb 2012. Web. 25 Jan 2012. Field Code Changed

"Tire Trouble." Family Education Network. N.p., 2012. Web. 18 Jan 2012.

"Tires." World Watch 18.5 (2005): 1. Academic Search Premier. Web. 18, Jan. 2012.

United States. Cong. House. Relating to Special Wastes Disposal and Recycling. 26 Jan. 2012. Web. 30 Jan. 2012.

United States. Cong. Senate. Relating to Motor Vehicle Tires. 26 Jan. 2012. Web. 30 Jan.

2012.

"Waste Tire Facilities." Cal Recycle. N.p., 2012. Web. 24 Jan. 2012.

SB53006 In Support

The Impacts to Illegal Dumping

By: Bridget Canoneo
English 200
Spring 2012
4:30 Class

Because vehicles are used on a daily basis, tires from those vehicles eventually wear out. Most ~~of the~~ people from Waianae travel long distances ~~because of reasons such as going~~ to work, to school, or to ~~an~~ appointments. What-ever the reason may be, tires from their vehicles wear faster than those who drive only short distances. When tires do wear out, new tires are needed to ~~be replaced~~ replace them. As tires are replaced, what happens to the old ones? They are illegally dumped into areas such as bushes and on the sides of streets. There are different methods to disposing ~~a~~ used tires, which many people in Waianae are not properly disposing of. Because used tires are disposed inappropriately, many Waianae residents do not understand that tires can damage our environment and cause health problems. ~~By r~~Recycling tires will help alleviate the problems that will ~~effect~~ affect our environment and health.

One of the main concerns with piled scrap tires is they attract many pests. When ~~piled~~ these tires are continuously piling up without proper disposal, pests such as mosquitoes, mice, and rats will begin to live and breed in them. If they continue to multiply, these pests could infect many humans because of the infectious diseases they carry. For one thing, rats carry diseases such as bubonic plague, rat bite fever, salmonellosis, leptospirosis, eosinophilic meningitis, and typhus ("Rat Related Health..."). According to the State of Indiana Department of Health, the feces from the rats are contaminated with diseases, and ~~that twenty percent~~20% of the world's food is contaminated by rats and mice each year ("Rats and Mice"). Rats are not the only pest that live in tires, but mosquitoes are also breeding in them. During the rainy season, the water that accumulates in the tires are used by mosquitoes to lay their eggs. Because mosquitoes live off stagnant water, they pose ~~as~~ a threat to many people ~~because~~ of the diseases they carry.

The ~~D~~diseases that mosquitoes carry are found in different parts of the world such as ~~Malaria~~ malaria, ~~Yellow~~ yellow fever, ~~Rift~~ rift ~~Valley~~ valley fever, and ~~Dengue~~ dengue. The most common ~~type of~~ disease found in Hawaii is ~~Dengue~~ dengue. Dengue is one of the leading causes of death caused by

mosquitoes. According to Center for Disease Control, an estimated hundred million people have been infected by this disease ("Dengue"). When infected by dengue, many people experience symptoms such as headache, fever, pain when moving eyes, backache, leg pain, low joint paint, fast pulse rate, and low blood pressure. Although there are not ~~any forms of~~ vaccinations for this disease, ~~many~~ people can avoid it by reducing the areas ~~of~~ where mosquitoes can lay their eggs. For example, outdoor containers such as flower pots could easily attract mosquitoes because of the accumulation of stagnant water. Cleaning flower containers once a week should help prevent mosquitoes from forming. Wearing long sleeves and applying mosquito repellent when outdoors also helps prevent mosquitoes from biting.

~~Piled~~ Scrap tires not only cause health problems, but when caught on fire, ~~it~~ they damages our ecosystem and the environment. Burning tires can be very difficult to extinguish, and can be on fire for months and even years ("Health consequences from tire dumps"). For example, ~~I~~in 1983 about seven million tires ~~were~~ caught on fire in Virginia ~~which~~ and that fire lasted for nine months. The smoke from the flames caused air pollution to three different states, and ~~also~~ polluted their waters with lead and arsenic ("NPL Site..."). Once tires ~~are caught on~~ catch fire, they are very difficult and ~~also~~ dangerous to extinguish. If tires get extinguished, chemical compounds from the burned tire will seep through the ground polluting the soil. It is recommended by the United States Fire Administration in 1998, to let tires stay on fire rather than to extinguish it because of the potential pollution that it can create ("Tire pile fires"). Black smoke caused by the flames have toxic substances that could kill a person when inhaled, and could also create air pollution.

The chemicals in the smoke are found to have carbon monoxide, sulfur oxide, nitrogen oxide, and volatile organic compounds ~~in them~~ which are poisonous. Other chemicals found in the black smoke include: dioxins, furans hydrogen chloride, benzene, and poly chlorinated biphenyles. Because Waianae is such a small place to live, let alone Oahu, think of all the air pollution and toxic fumes from the tires it can create in the atmosphere? If tires are not disposed of properly, the toxic fumes could kill

the entire population of Waianae. Trying to alleviate the problems with ~~piled~~ scrap tires in Waianae will take a lot of work; this is why Senator Maile Shimabukaro, Waianae's district ~~representative~~ senator, has proposed a bill to help alleviate those ~~piled~~ piles of scrap tires. SB 3006 ~~is required to~~ charges $1 per imported tire ~~that will be imported into the state~~ beginning January 13, 2013. The money that will be collected will be ~~given~~ allocated to the Department of Health~~, where they~~which will use it for any tire disposal expenses. If passed, the Act will take effect on July 1, 2013 (SB 3006). Aside from the Senate Bill, House Bill 1696 HD1 has also been ~~made~~ proposed to help reduce the problems with ~~piled~~ scrap tires. The House Bill requires a $5 deposit fee for each new motor vehicle tire that is not exchanged with a used motor vehicle tire. Refunds will be granted upon exchange for a used motor vehicle tire (HB 1696 HD1). Because the House Bill will mandate a fee, people will be able to recycle their tires and dispose of them legally with no additional cost ~~to get rid of current tires~~.

If disposing of tires at inappropriate sites is a problem, why not recycle them ~~as way~~ to prevent environmental catastrophe? Recycling used tires could help reduce litter off the sidewalks, roads, and vacant lots. One method to recycling tires is to use rubber from the tires and turning it into mulch, also known as rubber mulch. Rubber mulch can be used for playgrounds, landscapes, arenas, athletic fields, new roads, and highways. The benefits to rubber mulch ~~is~~ are that it is cost effective, it is long-lasting, it reduces the maintenance of roads, it ~~has~~ lowers road noise, and has a shorter breaking distance when driving. Rubber mulch is safe and secure. While other companies use wood mulch, rubber mulch does not have problems with airborne dust and particles, and wood splinters like wood mulch. Rubber mulch provides a secure environment for kids when used for playgrounds because is acts as a cushion for children who fall on the material ("Recycle: Rubber Mulch, Recycled Rubber Tires"). Over all rubber mulch is a great economical choice that is also environmentally friendly.

Secondly, rubber can also be used as a tire-derived fuel. The advantage to using rubber as fuel is that it ~~provides~~ creates less nitrogen oxide emissions that could spread poisonous gas into the air. The ashes from the tire-derived fuel also gives off less metal than coal, and has the same type of energy as

oil. Tire-Derived fuels not only creates less problems with the environment, but it is less expensive than other fuels. Many consumers use Tire-Derived fuels for cement kilns, pulp and paper mill boilers, utility boilers, industrial boilers, foundry cupolas, and electric utilities. Cement companies, pulp and paper industries, and electrical companies use tire-derived fuels because it provides higher temperature voltages that produces combustion from the tires. Many companies used tire-derived fuel because it is inexpensive less expensive, and provides more heat than wood waste fuels. According to the Environmental Protection Agency, using scrap tires as alternatives for fuel is not only beneficial, but it could help eliminate the problems of piled the growing number of scrap tires ("Tire-Derived Fuel").

Last, by using incinerators will help reduce over filled landfills and control pollution. An Eelectrostatic precipitators is a type of incinerator that eliminates tiny particles from smoke, dust, and oil. Because tires that are caught on fire, and causes black smoke contained containing with toxic chemicals, using the electrostatic precipitator is a great option when for providing pollution control. Once materials are incinerated, the ashes from those materials are can be disposed of at appropriate sites. These ashes are considered safe because the incinerator eliminates any toxic compounds found in them ("Electrostatic precipitator"). Another type of method to reduce pollution is called wet scrubbers. Wet scrubbers are used to help eliminate pollutants by gas streams that are used in a furnace or a flue. Any contaminates that are passed through the gas, combined with scrubbing liquid, will beand are removed (Pollution Systems). By uUsing this approach will not only help control pollution, but will allow landfills to be more abundant last longer.

The more acrap tires that are being disposed of at inappropriate sites, will increase the chances of health problems and pollution to the environment. Controlling piled scrap tires in Waianae will provide a cleaner and more environmentally friendly place. Using Senator Shimabukaro's proposal will help provide ways to eliminate the problems of disposed tires, but will it be enough to protect the health of people and the environment? With the proper usage of funds being collected, the State should invest in building an incinerator. According to the Environmental Protection Agency, building a

incinerator cost about $200 million dollars ("Waste To Energy Incineration"). Building an incinerator will take a while, but will benefit the State of Hawaii in the long run. Having incinerators will allow the State to save money, and provide ample land space producing a cleaner environment for the next generation while getting rid of all those scrap tires.

Bibliography

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Centers for Disease Control and Prevention. National Center For Infectious Diseases. *Mosquito-Borne Diseases*. 2007. Web. <http://www.cdc.gov/ncidod/diseases/list_mosquitoborne.-htm>.

State of Hawaii. Department of Health. Hawaii State Department of Health Tire Recycling for land application Interim Policy. 2009. Print.<www.hawaii.gov/health/environmental-/waste /su/pdf/tirerecycintrm.pdf>.

Jasmine. Telephone Interview. 1/25/2012.

Murphy, Joshua. "How To Reduce Wear and Tear." *How To Do Things.com.* 2012. Web. 3 Feb 2012.

"Recycle: Rubber Mulch, Recycled Rubber Tires." Rubber Mulch: Tire Mulch Playground Safety Playground Flooring Horse Arena Footing. Web. 08 Feb. 2012. <http://www.rubbermulch.com/tire-recycling.asp>.

Relating to Motor Vehicle Tires. HB1696 HD1, 11 Jan 2012.

Relating to Motor Vehicle Tires. SB 3006, 25 Jan 2012.

Shimabukaro, Maile. "ENG 200 Class". Leeward Community College-Waianae. 18 Jan. 2012. Class Presentation.

The Used Tire Problem". *Tiretofuel.* 2011. Web, 1 Feb 2012. <http://tiretofuel.com/the-used-tire-problem.html>.

"Tips on Recycling Tires – Earth911.com". Earth911.com - Find Recycling Centers and Learn How To Recycle. Web. 08 Feb. 2012. <http://earth911.com/recycling/automotive/tires/tips-on-recycling-tires/>.

United States. Environmental Protection Agency. "Civil Engineering Applications-Scrap Tires ". *U.S. Environmental Protection Agency*. Web. 08 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/civil_eng.htm>.

United States. Environmental Protection Agency. *Health and Environmental Concerns*. 2011.

United States. Environmental Protection Agency. "*Laws and Statutes / Scrap Tire*". *U.S Environmental*

Protection Agency. U.S. Environmental Protection Agency 2011.

United States. Environmental Protection Agency. *Scrap Tire Technology and Markets*. William Andrew Publishing/Noyes.

United States. Environmental Protection Agency. State Scrap tire Programs. 1999.

United States. Environmental Protection Agency". Tire-Derived Fuel | Scrap Tires | US EPA." Web. 08 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/tdf.htm>.

Works Cited

1. "Health consequences from tire dumps". *Tiretofuel*. 2011. Web. 1 Feb 2012. <http://tiretofuel.com/the-used-tire-problem.html>.

2. "Rat Related Health Hazards and Diseases". *OrlandoRats.com*. 2011. Web. 8 Mar 2012. <http://www.orlandorats.com/diseases.htm>.

3. "Rats and Mice". *IN.gov*. Web. 8 Mar 2012. <http://www.in.gov/isdh/23256.htm>.

4. "Dengue". *Center for Disease Control and Prevention*. Web. 8 Mar 2012. <http://www.cdc.gov/dengue/>.

5. United States. Environmental Protection Agency. "NPL Site Narrative for Rhinehart Tire Fire Dump". U.S. Environmental Protection Agency. 10 June 1986 Web. 7, March 2012.

6. "Tire pile fires". *Tiretofuel*. 2011. Web. 1 Feb 2012. <http://tiretofuel.com/the-used-tire-problem.html>.

7. "Industrial Wet Scrubbers." *Pollution Systems*. Web. 8 Mar 2012. <http://www.pollutionsystems.com/wet-scrubbers.html>.

8. "Electrostatic precipitator." *Wikipedia*. 2012. Print. <http://en.wikipedia.org/wiki/Electrostatic_precipitator>.

9. "Recycle: Rubber Mulch, Recycled Rubber Tires." Rubber Mulch: Tire Mulch Playground Safety Playground Flooring Horse Arena Footing. Web. 08 Feb. 2012. <http://www.rubbermulch.com/tire-recycling.asp>.

10. "Waste To Energy Incineration." *Tennessee Solid Waste Education Project*. Web. 13 Mar 2012. <http://www-tnswep.ra.utk.edu/activities/pdfs/mu-W.pdf>.

SB3006 Support

Tire Research Paper

Hawaii's Waste Tire Issue and What Can Be Done

2/19/2012

Kuuipo Jones

6:00 English 200

In 2009 at last count, there were 600,000 cars on Oahu alone, all of which were imported(Eckelman) ~~(Eckelman)~~. Imagine how many tires are annually being brought into the state if for every vehicle four tires are brought into just the island of Oahu; that adds up to over 2 million tires. Hawaii's lack of a tire disposal program has led to many of them being dumped illegally, especially in rural areas such as Waianae. If Hawaii does not address this issue and find a solution to this problem, it will continue to get worse which is environmentally and economically crippling to the State ~~of Hawaii~~.

Hawaii had a $1 motor vehicle tire surcharge which had taken effect on October 1, 2000 but expired on January 1, 2006. The money collected from Hawaii's first motor vehicle tire surcharge was capped at $3,000,000 which led to the reason for S.B. (Senate Bill) 3006 being reintroduced. The new surcharge was to take effect on tires imported into the State after September 30, 2012. However, as of February 15, 2012 the bill was amended to instead establish a task force to study ways to prevent or control the problem of abandoned tires littering the landscape. The task force is scheduled to report its findings and recommendations to the legislature no later than twenty eight days before the 2013 regular session convenes. Such a dramatic revision to the bill not only delays the state from actively ~~doing something about the~~ addressing the problem now but also prolongs efforts to address what to do with tires in the future. A House bill has also been introduced to help combat ~~the issue of~~ tires being illegally dumped. H.B. (House Bill) 1696 requires customers to pay a $5 deposit per a tire to the seller if a used vehicle tire is not exchanged at the time of sale. The deposit will be returned upon delivery of a used vehicle tire within 30 days of the sale date. However, if the customer

fails to bring in the used tire~~,~~ with the deposit ~~will~~ going into a separate trust and be accounted for by the seller.

~~As~~ Since ~~of~~ June 26, 2008 the disposal of all tires that are whole, cut, sliced, chipped, or shredded at landfills and transfer stations are prohibited. At this time, Hawaii residents have only two options in regards to the disposal of used tires 1) to be left with the retailer when purchasing new tires or 2) contact a vendor for proper disposal for a fee. While these options prevent tires from entering and filling up landfills, ~~it~~ they ~~does~~ not prevent them from being illegally dumped. Rather, it adds to and increases the risk of people of improperly disposing these tires due to restricted choices. The introduction~~s~~ of both bills demonstrate~~s~~ that the State has acknowledged there is a problem and ~~are~~ is trying to come up with solutions to address the problem, but it is not the answer to it. There are four matters at hand that the State need~~s~~ to respond to: 1) what is going to be done about the tires that have already been illegally dumped 2) how ~~to~~ can the stte prevent future imported tires from being dumped illegally 3) what uses for tires ~~that~~ are there and will continue to be bought into the State, and, 4) from where shall the funding to assist in these subjects be acquired ~~from~~.

Currently, there are no federal laws or regulations in regards to waste tire disposal but there are state laws. Management and recycling of these massive non-biodegradable products are managed at the state levels. Every state, except for Alaska and Delaware, has laws or regulations to deal with the management of scrap tires. While many states collect fees to fund scrap tire management, a few states have implemented waste tire disposal programs. For example, California and Arizona are currently the only states whose programs are still active

and have an end use for the tires collected. On the other hand, ~~O~~other states such as Minnesota and Wisconsin ended their programs when the numbers of stockpile scrap tires declined.

In 1989, California passed the California Tire Recycling Act. Then ~~I~~in 2000, SB 876 was passed by the Legislature to expand on the California Tire Recycling Act in which the $0.25 per tire fee was amended to $1.00 in order to fund the tire programs of the California Department of Resources, known as CalRecycle ("California: General ..."). The aim was to reduce the disposal and stockpiling of tires by 25 percent within four years. Its aim was ~~to~~ also to recycle and reclaim used tires to the greatest degree possible. More than 30 million tires are discarded annually in California ("California: General ..."). Another 3 million are exported from nearby states. Seventy two percent of the 34 million have been diverted to end use, which amounts to 26 million being reused, retread, crumb rubber, and energy recovery ("California: General ...").

California's tire recycling process consists of three phases: collection, processing, and end use. The collection phase is primarily the responsibility of the tire dealers. The discarded tires are taken to crumb rubber producers or other facilities for end use or disposal by registered private haulers. CalRecyle gives grants to local governments to hold an amnesty day program when citizens are allowed to bring old tires, usually with a per person tire limit, ~~at~~ to a central drop-off location. The second phase, processing, entails the shredding process. The ~~desired shred size needed for a particular end use determines the extent of the shredding.~~ The end use involves new uses for old tires. ~~It~~ by ~~provides~~ providing creative ways to reduce waste, cut costs, and improve the quality and safety of public works projects.

Currently, three end use markets exist for waste tires that include energy recovery, retreading, and crumb rubber products. Energy recovery consumed 5.2 million tires in 2000 ("California: General ..."). There are several facilities around the state that are permitted to burn tires to supplement their coal use. There are also facilities that use tires as fuel supplements. Secondly, ~~R~~retreading consumed an estimated 2.4 million tires ("California: General ..."). Although it can be one of the most cost-effective methods of diversion, only certain tires can be retreaded. Finally, ~~R~~rubber crumb products accounted for approximately seven million tires in 2000~~. It was primarily~~ used primarily for paving and molded products ("California: General ..."). Other crumb uses include industrial flooring, playground mats, and animal bedding.

As mentioned, rubber crumb products are primarily used for paving. California has been using rubberized asphalt concrete (RAC) since the 1980s. Other states such as Arizona, Florida, and Texas have also used scrap tires in asphalt pavement with respectable success. RAC is a mixture of regular asphalt paving along with crumb rubber which is grounded used tires. Traditional asphalt concrete is made up of asphalt and mixed aggregates such as sand, gravel, crushed stone, and slag. Notably, ~~R~~rubber asphalt concrete has been proven to be much more environmentally and economically beneficial for states that have used it to combat their significant number of waste tires. For example, ~~i~~in the 1990s, Arizona used about 1.1 million old tires to resurface more than 200 miles of streets with ~~the use of~~ this product. Since 1998, the State of Arizona has spent $225,000,000 using RAC on its highways which has resulted in 15 million tires being recycled for its paving projects ("Arizona: Quiet Roads").

While ~~T~~the initial costs of installing traditional asphalt concrete are lower than rubberized asphalt concrete, due in part mainly to the equipment availability used for installation. However, the overall life cycle costs reduce and offset the higher initial cost, mainly because of its long life span which is from 10-20 years. Simply put, the ~~U~~upfront costs are 20-40 percent more than asphalt concrete but ~~the cost of~~ using rubberized asphalt for resurfacing costs less than conventional asphalt. CalRecycle did a cost comparison per lane using conventional asphalt concrete and rubberized asphalt. In its comparison RAC cost $125 per ton whereas AC (asphalt concrete) cost $100 per ton; however the same lane required the use of 1,584 tons of AC while RAC required only 754 tons because it weighs 5% less than AC. A total of $64,150 ~~would be~~ was saved just on using RAC materials instead of conventional asphalt concrete. In 1971 Arizona applied a rubberized asphalt chip seal, which is a mixture of rubberized asphalt and gravel, to Indian School Road from Central Avenue to 7th Street as a temporary measure. Remarkably, ~~T~~the street was not repaved until 1992 because it had performed so well. In 1989, Arizona used rubberized asphalt on Dobbins Road. It performed for 14 years without maintenance and its estimated life span was 18 years which would have been until the year 2007. In summer of 2003 to determine the long range effects of rubberized asphalt, two similar streets with similar traffic flows were redone. Conventional concrete asphalt was used on Kyrene Road from Chandler Boulevard to the Santan Freeway. On the same stretch of road, McClintock Drive was redone with rubberized asphalt. Both roadways were reopened in November. With rubberized asphalt roads having advantages such as performing well and saving money, why has~~n't~~ Hawaii not jumped on this bandwagon yet?

While the most significant benefit of using rubberized asphalt is the numbers of tires that would be recycled instead of it being illegally dumped or stockpiled, they are also many other incentives to using this product on Hawaii's roadways. RAC has been proven to have increased performance because of resistance to rutting, fatigue, and reflective cracking. The durability of RAC roads would reduces the costs that the state spends to resurface roads and repair potholes. In 2011, the State of Hawaii spent $40,123,310 just resurfacing the roads alone while $629,645 was spent on pothole repair expenses(Inglis) ~~(Inglis)~~. Because rubberized asphalt roads require less maintenance than conventional asphalt concrete, the number of projects needed to upkeep Hawaii's roads will decrease over time. As a result, it can reduces the number of road lanes being closed or road ways being shut down to complete these maintenance projects. In turn, Hawaii drivers would spend less time in traffic and decreases the chances of drivers speeding to their destinations because of being stuck in traffic, thus lessening the number of accidents if there are less maintenance projects being done on the road.

In addition, rubberized asphalt is more skid resistant than conventional asphalt concrete and provides better traction while, decreasing the wear and tear on vehicle tires. Hawaii consumers would spend less money replacing their tires and can use that money for other things that can be pumped back into Hawaii's economy and businesses. With tires not having to be replaced, that equals to ~~less~~ fewer tires being illegally dumped or stockpiled. RAC has a semi-porous surface that improves visibility because the amount of spray from wet roadways is reduced. This lessens the chances of an accident occurring when there is rainy weather. The darker color on RAC lasts longer making the safety markings more visible. Additionally, Aan

average noise reduction of 50-75% is commonly attained according to research ("Arizona: Quiet Roads").

Another potential market for waste tires is using it a fill in civil engineering projects. Due to ~~their~~ its light weight, it can be used to construct embankments on weak compressible foundation soils. It is significantly cheaper than other alternatives. For example in 1985, Minnesota used shredded tires on logging roads through areas with weak soils. In Hawaii, along areas of Kamehameha Highway, especially North Shore, Hauula, and Laie, it can protect coastal roads from erosion. The light weight fill also enhances the stability of steep slopes along the highway. It can also be used as playground surface material. In order to meet state and federal laws, the State of California used waste tires to renovate playground equipment. In 1997, the City of Torrance worked with Sears in which the city received 10,000 pounds of recycled rubber to resurface several local schools' playgrounds ("California: Supporting ..."). The tires were collected at special tire collection events and turned into crumb rubber by a local processor. The products were supplied at no cost to the area where the tires were collected. It was used to replace and upgrade playground equipment at the schools.

In sum, ~~E~~every year Hawaii generates between 500,000 to 1,000,000 tires ("Hawaii: Solid ..."). It is essential that Hawaii not only implement a waste tire disposal program but also create a recycling program where these tires will be used, whether for road paving projects or as a civil engineering fill. Something has to be done with these tires because they are NEVER going to disappear and moving them from one location to another is not solving the problem, it is just moving the problem from one area to another. There are so many benefits to be gained

from having a waste tire disposal and recycling program. Although it would have a positive major impact on Hawaii's environment, there are effects that would be beneficial to the State of Hawaii and its residents. Through education, consumer awareness, and communities working together, the people of Hawaii can get the State of Hawaii to address this problematic issue instead of putting it on the back burner. Hawaii has to two choices; either it solves the problem before it becomes a crisis, or it lets the problem continue and risk the health of Hawaii's environment and its residents. Keep Hawaii what everyone around the world and the people of this state sees it as, PARADISE!

Works Cited

California. CalRecycle. "General Information: New Uses for Old Tires." 2 October 2012. 19 Feb. 2012. <http://www.calrecycle.ca.gov/LGCentral/Library/Innovations/Tires/Program.htm>.

Inglis, W. HWY Maintenance Inquiry. Message to: K JONES. 9 February 2012.

Arizona. Department of Transportation. "Quiet Roads-What Is Rubberized Asphalt?" n.d. 19 Feb. 2012. <http://www.azdot.gov/quietroads/what_is_rubberized_asphalt.asp>.

Hawaii. Hawaii State Department of Health. "Solid and Hazardous Waste Branch." 6 May 2009. 14 March 2012.

California. CalRecycle. "Supporting Tire Recycling Through Local Public Works." n.d. 19 Feb. 2012. <http://www.calrecycle.ca.gov/LGCentral/Library/Innovations/Tires/PublicWorks.htm>.

Bibliography

2009/2010 Report on Air Emissions from Facilities Burning Waste Tires in California. Rep. State of California AIR RESOURCES BOARD. June 2010. 19 Feb. 2012. <http://www.arb.ca.gov/ei/tire/2009-2010_tire_burning_report.pdf>.

"Asphalt Concrete." *Wikipedia, the Free Encyclopedia.* 8 March 2012. 19 Feb. 2012. <http://en.wikipedia.org/wiki/Asphalt_concrete>.

"Automobiles and Tires | County of Hawai'i Department of Environmental Management." *Home Page | County of Hawai'i Department of Environmental Management.* n.d. 19 Feb. 2012. <http://hawaiizerowaste.org/recycle/automotive>.

California. CalRecycle. "Benefits: Rubberized Asphalt Concrete." 25 August 2011. 19 Feb. 2012. <http://www.calrecycle.ca.gov/Tires/RAC/Benefits.htm>.

United States. Environmental Protection Agency. "Civil Engineering Applications." 23 February 2012. 19 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/civil_eng.htm>.

Eckelman, M. J. and Chertow, M. R. (2009), Using Material Flow Analysis to Illuminate Long-Term Waste Management Solutions in Oahu, Hawaii. Journal of Industrial Ecology, 13: 758–774. doi: 10.1111/j.1530-9290.2009.00159.x

California. CalRecycle. "General Information: New Uses for Old Tires." 2 October 2012. 19 Feb. 2012. <http://www.calrecycle.ca.gov/LGCentral/Library/Innovations/Tires/Program.htm>.

Inglis, W. HWY Maintenance Inquiry. Message to: K JONES. 9 February 2012.

United States. Environmental Protection Agency. "Laws and Statutes." 4 October 2011. 20 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/laws.htm>.

Overview Report on California's Waste Tire Program. Rep. no. 540-98-007. California Environmental Protection Agency Integrated Waste Management Board. October 1998. 19 Feb. 2012. <http://infohouse.p2ric.org/ref/35/34525.pdf>.

Arizona. Department of Transportation. "Quiet Roads-What Is Rubberized Asphalt?" n.d. 19 Feb. 2012. <http://www.azdot.gov/quietroads/what_is_rubberized_asphalt.asp>.

"RMA: State Issues." *RMA: Rubber Manufacturers Association.* n.d. 19 Feb. 2012. <https://www.rma.org/scrap_tires/state_issues/california.cfm>.

Relating to Motor Vehicle Tires. SB 3006, 25 Jan 2012.

Relating to Special Wastes and Recycling. HB 1696, 18 Jan 2012.

Report to the Twenty -Third Legislature State of Hawaii 2006 Solid Waste Management. Rep. State of Hawaii Department of Health Office of Solid Waste Management. December 2005. 19 Feb. 2012. <http://hawaii.gov/health/about/legrpts2006/finaloswmreport.pdf>.

California. CalRecycle. "Rubberized Asphalt Concrete (RAC) Home Page." 6 January 2012. 19 Feb. 2012. <http://www.calrecycle.ca.gov/Tires/RAC/>.

"Rubberized Asphalt's Benefits Outweigh Flaws." *Arizona Local News - Phoenix Arizona News - Phoenix Breaking News - Azcentral.com.* 4 August 2005. 19 Feb. 2012. <http://www.azcentral.com/arizonarepublic/eastvalleyopinions/articles/0804cr-edit04.html?>.

California. CalRecycle. "Supporting Tire Recycling Through Local Public Works." n.d. 19 Feb. 2012. <http://www.calrecycle.ca.gov/LGCentral/Library/Innovations/Tires/PublicWorks.htm>.

California. CalRecycle. "Tire Management Home Page: CalRecycle. 8 March 2012. 19 Feb. 2012. <http://www.calrecycle.ca.gov/Tires/>.

Wisconsin. Department of Natural Resource. "WDNR-Waste Tires in Wisconsin." 28 November 2011. 19 Feb. 2012. <http://dnr.wi.gov/org/aw/wm/solid/tires.htm>.

SB3006 Support Christina Lefua

When traveling on the Waianae Coast, there is a lovely view of the blue ocean, and. ~~T~~there is an equally beautiful view of the majestic green mountains. Unfortunately, there is a view of used tires on the side of the roads. Not too long ago, ~~T~~there were about a thousand tires found on Pa'akea Road. The problem of dumping used tires is a growing problem and no solution has been found. First, dumping used tires can impact the environment. Second, the legislature address the dumping used tires by creating House Bill 1696 HD1 and Senate Bill 3006, and. ~~T~~third, a solution is available to dumping used tires ~~is to~~by ~~recycle~~ recycling them. ~~and different ways to recycle.~~

Seeing used tires in the neighborhood ~~are~~ is an eye sore, but ~~it~~ they can also be hazardous to ~~health of~~ the general public's health. Used tires dumped on the side of the road can become a health hazard because when it rains, the used tires can collect water and attract mosquitos that can carry diseases like ~~Dengue~~ dengue ~~Fever~~ fever. Dengue ~~Fever~~ fever is an infection that if bitten by an infected mosquito can cause symptoms like severe flu. In cases that are severe, the patient would need to be hospitalized and. ~~I~~if not treated, it could be life-threatening (Medical News Today, 1). There were four confirmed of Dengue Fever in Pearl City and all were immediately hospitalized (Hawaii News Now, 1). Also, if tires are in piles and no effort is made to eliminate them ~~tires~~, then they ~~tires~~ could catch on fire and the smoke can contain harmful chemicals to the environment like sulfur and carbon black (Chemical Properties in Tires, 1).

The legislature began to address the concerns of dumping used tires by creating two bills. House Bill 1696 HD 1 and Senate Bill 3006 are the two bills that were ~~created~~ written to address the problem of dumping used tires. House Bill 1696 HD1 states that each tire retailer accepts used tires in exchange for new tires being purchased by a customer. If the customer does not

have a used tire to exchange, then a $5 deposit needs to be paid by the customer for each new tire. Then, within thirty days, the customer may bring in the used tires and have the deposit returned to them. The tire retailer will account for the money and ~~put it~~ separate~~ly~~ it from the retailer's sales (HB 1696, 1-3).

Senate Bill 3006 states that for every motor vehicle tire imported in the state, there is a one-dollar surcharge. This bill was taken from the Hawai'i Revised Statutes: Act 173. Act 173 was created in 2000 to put the money into a special fund to help tire clean up, but it was repealed in 2006 because it was a temporary bill. The bill ~~wants to~~ reestablishes the $1 surcharge (SB 3006, 1-3).

It is important to support HB 1696 HD1 and SB 3006 because supporting these two bills will keep our environment healthy and clean, puts the responsibility on the general public, and ~~it~~ they states what actions need to be taken to ensure that the problem of dumping used tires ~~are~~ is taken care of. ~~In b~~Both bills ~~it~~ states that the customer has a responsibility to bring in their used tires and offers them an incentive~~:~~; if they do not have a used tire to exchange, then the customers must pay the $5 surcharge for each tire and also gives the customer a chance to get their money back by bringing back used tires within thirty days of the sale. Another reason we should support both of these bills is that ~~it~~ they states what needs to be done in order to take care of the tire problem. Both bills ~~has~~ have given specific ~~things~~ procedures to follow in collecting used tires and monies for the tire retailer, gives the customers' a chance to get back ~~there~~ their deposit, and the Department of Health is able to use those monies specifically towards clean up and tire recovery (HB 1696, 1-3; SB 3006, 1-3).

An important solution to this tire problem is to recycle and reuse tires. Three ways of doing this is to reuse tires by using it as an art form. Art has always used different mediums ~~of~~ in

expressing an artist' creative ideas into a form or shape. The use of scrap materials is always cheap and easy to come by. For example, ~~a~~ Korean artist ~~named~~ Yong Ho Ji makes sculptures out of recycled tires. He likes the material because he says it is as close as he can get to skin and muscles (The Fantastic Old Tyre Sculpture, 1-2).

_____Another solution is for Hawaii to have a tire recycling factory ~~here~~. Hawaii should build a tire recycling factory to break down the rubber in used tires into crumbs ~~and~~ to be used as rubberized asphalt concrete or RAC. The benefits of having one here is be able to keep business here in Hawaii, create more jobs in Hawaii, and decrease the ~~amount~~ number of scrap tires in the Waianae community. The cost is a lot but the monies would be put into good use. For example, Minnesota had a similar problem and they ~~identify the problem and~~ came up with the solution to open a tire recycling factory. The cost was $2.3 million ~~dollars~~ but they have recycled 3 to 4 million tires (Liberty Tire, 1-2).

_____One final solution can be the use of crumbs from the used tires and mix it in with the asphalt to use on the roads which is called Rubberized Asphalt Concrete or RAC. ~~The use of~~ RAC ~~can be~~ is durable and long lasting, saves money on ~~a~~ cars that are affected by potholes, and decreases the ~~amount~~ number of scrap tires. A news story from Winslow, Arizona talked about their experiment comparing two stretches of road. One had four inches thick of the regular asphalt and the other road had two inches thick of RAC. After seven years, the regular asphalt had a lot of cracks due to the weather and heavy traffic. The RAC road had no cracking and it still looked like it was a new road. The news story ~~mentioned~~ mentions that having the rubber in the asphalt was expensive but with RAC, the product is not used as much and it lasts a lot longer. ("Reuse recycled rubber tires in roads other useful produces~~;~~" ~~video~~).

In short, the growing problem of dumping used tires can be taken care of by first

addressing ~~why~~ how dumping used tires has a negative effect on the environment. Next, the legislature is able to find out how to take care of the problem of dumping used tires. Finally, to create a solution by recycling the used tires like, using tires as an art form or using tires as RAC for roadways.

WORKS CITED

"Reuse recycled rubber tires in roads other useful produces." Youtube. Okheir, 03022007. Web. 17 Feb 2012. <http://www.youtube.com/watch?v=Ga6FBAKP3Oc>.

"Tire Management ." California Recycle. CalRecycle, 15112011. Web. 17 Feb 2012. <http://www.calrecycle.ca.gov/Tires/

"Untapped Resources." English 200. Waianae, Waianae. 15022012. Speech. 06/04/2011. Web. 7 Feb 2012. www.ehow.com/info_8176244_chemical-proper-tires.

Hawaii. Hawaii Legislature. House Bill 1696 HD 1. Honolulu: Hawaii Legislature, 2012. Web. <http://www.capitol.hawaii.gov/session2012/bills/HB1696_HD1_.htm>.

Hawaii. Hawaii Legislature. Senate Bill 3006. Honolulu: Hawaii Legislature, 2012. Web. <http://www.capitol.hawaii.gov/session2012/bills/SB3006_.htm>.

McQuade, Tim. "Chemical Properties of Tires."eHow. Demand Media, Inc.,

Okita, Teri. "DOH confirms 4 cases of dengue fever on Oahu, more pending." *Hawaii News Now*. WorldNow and KHNL, 1 Apr 2011. Web. 16 Mar 2012. <http://www.hawaiinewsnow.com/Global/story.asp?S=14370083>.

Paddock, Mike. "Medical News Today." *What is Dengue Fever?*. Medical News Today, 17 Feb 2010. Web. 16 Mar 2012. <http://www.medicalnewstoday.com/articles/179471.php>.

Web. 17 Feb 2012. <http://urbantitan.com/the-fantastic-old-tyre-sculptures-of-ji-yong-ho/>.

Yong, Ho Ji. "The Fantastic Old Tyre Sculpture." Urban Titan. Urban Titan, 10/06/2010.

BIBLIOGRAPHY

"Reuse and Recycling." Energy Justice Network. Energy Justice Network, 06/11. Web. 8 Feb 2012. <http://www.energyjustice.net/tires/solutions

"Tire Management ." California Recycle. CalRecycle, 15112011. Web. 17 Feb 2012. <http://www.calrecycle.ca.gov/Tires/

"Tires and Rubber." Arizona Chemical. Arizona Chemical, 2009. Web. 8 Feb 2012. *<http://www.arizonachemical.com/en/Markets/Tires-and-Rubber/>*.

Alderman, Nancy, Susan Addiss, and Jane Bradley, eds. "Artificial Turf." Environment and Human Health, Inc.. Environment & Human Health,Inc., 2007. Web. 8 Feb 2012. <http://www.ehhi.org/reports/turf/>.

Fredrick, Hans . "Chemicals Used in Rubber Tire Manufacturing." eHow. Demand Media, Inc., 08/11/2011. Web. 7 Feb 2012. <http://www.ehow.com/info_12183221_chemicals-used-rubber-tire-manufacturing.html>

Gauff, Nate. "Tire Management Rubberized Asphalt Concrete." CA.gov Cal Recycle. California Department of Resources Recycling and Recovery , 06/01/2012. Web. 7 Feb 2012. <http://www.calrecycle.ca.gov/Tires/RAC/>.

Hawaii. Hawaii Legislature. House Bill 1696 HD 1. Honolulu: Hawaii Legislature, 2012. Web. <http://www.capitol.hawaii.gov/session2012/bills/HB1696_HD1_.htm>.

Hawaii. Hawaii Legislature. Senate Bill 3006. Honolulu: Hawaii Legislature, 2012. Web. <http://www.capitol.hawaii.gov/session2012/bills/SB3006_.htm>.

Overman, Stephenie. "Harsh Road Chemicals Clear Ice and Snow, But Increase Wheel Corrosion Experts Say. " Transport Topics. Trucking Associations, Inc., 05/12/2011. American Web. 7 Feb 2012. <http://www.ttnews.com/articles/petemplate.aspx?storyid=28199&t=Harsh-Road-Chemicals-Clear-Ice-and-Snow-But-Increase-Wheel-Corrosion-Experts-Say>.

Shimbukuro, Maile. "Project Based Learning." Problem Based Learning. Waianae, Waianae. 18012012. Speech.

Yong, Ho Ji. "The Fantastic Old Tyre Sculpture." Urban Titan. Urban Titan, 10/06/2010. Web. 17 Feb 2012. <http://urbantitan.com/the-fantastic-old-tyre-sculptures-of-ji-yong-ho/>.

SB 3006 Support

LCC-Waianae 4:30/200

Used Tires

Finding Solutions

Pauline Mercado
3/15/2012

Approximately 290 million used vehicle tires are discarded by Americans each year (Mitchell). In January 2012, Leeward Senator Maile Shimabukuro proposed a bill to the legislature that would regulate used tire on Oahu. Senate Bill 3006, if passed, will place a $1 fee on those who import tires on Oahu. The $1 fee will be placed into a fund that will be used toward cleanup efforts and monitoring and regulating ~~of~~ businesses for proper disposal of used tires. There was a temporary bill that also charged a $1 fee for the same reasons but that ended in 2006. On the other hand, House Bill 1696 HD1 will charge a $5 deposit for consumers who do not have a used tire to exchange when they buy a new tire. The consumer will have 90 days to bring a used tire to the business in order to get their $5 deposit back. These two attempts to help with the used tire problem seem like ~~a~~ good ideas but support is needed from residents, businesses and the other legislators. Used tires have become a big problem for residents on Oahu~~.~~; fortunately it is a solvable one.

The Hawaii State Department of Health estimates that between 500,000 to 1,000,000 used tires are generated each year ("Tire recycling for land application recycling policy"). This problem not only affects the Leeward side of the island, it is all over the island. Since there ~~are~~ is lack of places to dispose of used tires, many people and businesses end up leaving piles of used tires ~~many people and businesses end up leaving piles of used tires~~ on the side of the road. Not only is this an eye sore, ~~it~~ they can also cause a lot health and environmental problems.

When water sits in tires, it attracts mosquitoes that carry dengue fever or west ~~Nile~~ nile virus. Should the tires catch fire, ~~it will burn~~ black smoke ~~that is~~ filled with chemicals is released from the burning rubber. For example, 7 million used tires caught fire and burned for 9 months and polluted the water supply with arsenic and lead (Mitchell). The chemicals are dangerous to both the environment and humans. Another problem is that people and businesses are ~~not~~ unable

to dispose of used tires at the dump or landfill because they take up too much space and also because of the negative effects they can have on the environment. The ~~O~~only ~~2~~ two places to take used tires are to Unitek Solvent in Kapolei and AES power plant in Kalaeloa, but ~~they~~ consumers have to pay for each tire they dispose of and the bigger the tire, the more they have to pay. People just do not want to pay so much to dispose of old tires especially when they have to pay so much to buy ~~the~~ brand new tires for their vehicle in the first place.

According to ~~an article from~~ the Hawaii Department of Health, in 2004 they cleaned up an illegal dump on Lualualei Homestead Road in Waianae. They say that 6,628 tons of solid waste material which included mostly shredded and partly burned tires was removed. On a positive note, 5,014 tons were processed into tire derived fuel and sold to AES Hawaii, Inc. The rest of the non-reusable waste was disposed ~~of~~ at the landfill in Nanakuli ("State Completes Removal of Huge Illegal Tire Dump"). The piles of ~~used~~ scrap tires were there because a ~~company called~~ Industrial Technology (IT) had a tire recycling facility at the location. IT ran an illegal operation because they did not obtain a solid waste permit from the Department of Health. Although the Department of Health had hazard concerns as to whether IT had a procedure to prevent a tire fire from happening, the Department of Health did not close the facility down. Nonetheless, a huge tire fire broke out and the area around the facility had to be evacuated due to the pollutants that were dispersed into the air by the tire fire. Maybe if the funding were available they could have had the manpower to enforce regulations upon this business so the fire could have been avoided. Soon thereafter, IT filed for bankruptcy and abandoned the property~~.~~, yet ~~T~~the cost of the cleanup was $1,269,779. The Hawaii Department of Health went after the former landowners for reimbursement of the costs. It is not known if the former landowners paid or not.

Currently in the U.S., 130 million scrap tires are being used for fuel, 56 million scrap tires are used in civil engineering projects, 28 million scrap tires are recycled into other products and 9 million scrap tires are shipped to other countries to make retreads (Mitchell). Senator Shimabukuro's bill is accurate because this problem needs to be taken care of before it gets worse. Some solutions would be to build a factory in Kalaeloa that would process used tires ~~can~~ to be recycled into other useful items. The island of Oahu can take a few tips from other states as to what they do with their used tires. For example, there is a processing facility in Oregon called Tire and Recycling, Inc. located in ~~The~~ the Rivergate District that handles used tires from Washington, Western Oregon and Idaho. They process used tires into derived fuel, crumb rubber, and tire derived aggregate for civil engineering projects. Tire and Recycling, Inc has more than 14 power units and 112 freight vans to keep up with customer's demands. Since January of 1983, TDR has recycled and properly disposed of 136 million scrap tires (Tire disposal and recycling, Inc). Tires are not just a waste product, but a source of revenue.

Used tires can also be used in other applications~~.~~, ~~Such~~ such as playgrounds, construction of roads, to make slippers and it can even be made into art! Retreading tires is another smart option. The problem is that not a lot of people want or trust retreads. Even though nothing is wrong with retreads since airlines use retreads on their airplanes. Also, retreads are cheaper than new tires! Also, ~~W~~whole tires can be placed on the bumpers of boats in marinas, not to mention whole tires can also be made into something as simple as a tire swing or a planter. They can also be used as bumpers in go cart tracks and as part of the obstacle course in paint ball courses. With all of these options, Hawaii should definitely get involved in this.

Having its own processing facility will save Oahu money on importing supplies made from used tires. Another advantage of having our own processing facility is that it will create

jobs for our many unemployed residents. ~~By h~~Having a processing facility~~, it~~ will give residents and businesses another, more environmentally friendly way to dispose of used tires. This will help with the overflow at the Waianae Refuse Center and especially on the side of the roads. A processing facility will take Oahu one step closer to becoming more self-sufficient by not having to import or export materials from the mainland or other countries. Keeping the whole process of recycling and reusing used scrap tires in various ways will increase Oahu's financially ~~benefits~~ as well as help Oahu be more tourist friendly. Since tourists come to visit this beautiful isle, the last thing they want to see are a bunch of old used tires of various sizes sitting in piles on both sides of the road. These actions will bring more of a sense of pride in each community and will make residents want to volunteer to clean up their community. This is also where the bill comes in by using funds to help organize community cleanups. Although with the opening of a process facility in Kalaeloa, residents would probably pack them up on their personal trucks and take the used tires to be disposed of on their own. There are already community cleanup efforts in progress such as Nani O Waianae.

Also, it has also been proven that roads made with rubberized asphalt concrete are more cost efficient and last longer than regular roads. According to the *Honolulu ~~advertiser~~Advertiser*, it is estimated that drivers in Hawaii spend $500-$600 a year on car repairs ("Bad roads cost Hawaii drivers an average of $503 a year"). Which means people will spend less money on repairs and the city will spend less money on road repairs if they were to use rubberized asphalt concrete. Another advantage to rubberized roads is that they are quieter than traditional roads. Research shows that rubberized roads lower the noise by 8 to 10 decibels, which is like a truck noise being lowered to the level of noise made by a car. Also, making one like of rubberized roads uses 10,000 to 12,000 used tires (Rubberized roads: making streets quieter). That will

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definitely alleviate the tire build up on the sides of the roads and in the landfills on Oahu. Installing rubberized roads ~~will~~ costs more to make but ~~they will~~ pays for themselves in the long run because rubberized roads are more resistant to potholes, cracking and the usual wear that regular roads experience. This means that the city will not have to pay for repairs to be done to the roads. Plus, traditional roads use 4 inches of pavement while rubberized roads use only 2 inches of rubberized asphalt concrete. A great comparison for Hawaii is the rubberized roads that were built in Arizona. Both Arizona and Hawaii ~~has~~ have the same type of climate that Hawaii experiences so it is easier to see how it would work for local residents. Over a span of 15 years the rubberized roads in Arizona showed much less cracking, potholes and overall wear and tear compared to the regular roads (Tires and rubber).

Furthermore, Minnesota passed a bill that regulated the disposal of used tires, banned disposing used tires in landfills and took care of their existing tire piles while enforcing a disposal fee that went towards a fund to build their 48,000 square foot tire recycling facility. At the tire recycling facility's full capacity, it is able to recycle Minnesota's annual generated used vehicle tire amount of three to four million tires. (Ecar fact sheet for Minnesota waste tires). As previously stated, Oahu is estimated to generate between 500,000 to one million used tire a year. Clearly if Oahu had its own tire recycling facility, it would be able to keep up with newly produced used vehicle tires as well as all of the old used vehicle tires that have been piling up around Oahu. In fact, by having a tire recycling facility on Oahu, we could take care of all the outer islands used vehicle tires as well. It would not make sense to build tire facilities on every island since their populations are not as big, they would not be making as many used tires as the residents on the island of Oahu.

For t~~T~~he Senate and House bills ~~that Senator Maile Shimabukuro introduced.~~ passing is essential for the health and financial wellbeing of all the residents living on Oahu. In addition to passing those bills ~~passing~~, having our own processing facility on Oahu and building roads with rubberized asphalt concrete will be an immense help to the growing problems with the landfill, dumps and sides of the roads being littered with used scrap tires. ~~By g~~Giving more options as to how to go about disposing of used tires to local people and businesses will help to make Oahu a more beautiful place for all.

Works Cited

"Bad Roads cost Hawaii drivers an average of $503 a year." *Honoluluadvertiser.com*. Honolulu Advertiser, 30 Jan. 2012. Web. 10 Feb 2012.

"Ecar Fact Sheet for Minnesota Waste Tires." *Ecarcenter.org*. Ecarcenter.org, jan 25

Hawaii Department of Health. "State Completes Removal of Huge Illegal Tire Dump". Hawaii State Department of Health. 21 June 2004. Web. 8 Feb. 2012

Mitchell, Deborah. "Used Tires:Reuse, Recycle, Retread."*Voluteer Guide*. Charity Guide, Web. 15 Feb 2012.

"Rubberized Roads: Making Streets Quieter." Discoveries and Breakthroughs Inside Science. N.p., Apr 2009. Web. 30 Jan 2012.

"Tires and Rubber." *Arizona Chemical*. Arizona Chemical, 2009. Web. 8 Feb 2012. <http://www.arizonachemical.com/en/Markets/Tires-and-Rubber/>.

"Tire Recycling for Land Application Interim Policy."*Health User*. Hawaii State Department of Health, 06 May 2009. Web. 15 Feb 2012. <http://healthuser.hawaii.gov/health/environmental/waste/sw/pdf/tirerecycintrm.pdf>.

"Tire disposal & recycling." *Tire disposal & recycling, Inc.*. Websource Northwest, LLC, N.p. Web. 25 Jan 2012. http://www.tiredisposalrecycling.com/DisplayPage.aspx?pageid=68>.

Bibliography

Alderman, Nancy, Susan Addiss, and Jane Bradley, eds."Artificial Turf." *Environment and Human Health, Inc.*. Environment & Human Health, Inc., 2007. Web. 8 Feb 2012. http://www.ehhi.org/reports/turf/.

"Arizona Chemical". Arizona Chemical, 2009. Web. 7 Feb. 2012 http://www.arizonachemical.com/markets/Tires-and-Rubber/

"Asphalt Rubber Paving- Tire Recycling Options." Online Posting. Youtube, 10 Feb 2010. Web. 28 Jan 2012.

"Bad Roads cost Hawaii drivers an average of $503 a year." *Honoluluadvertiser.com*. Honolulu Advertiser, 30 Jan. 2012. Web. 10 Feb 2012.

"Basic Information." U.S. Environmental Protection Agency. N.p., 4 Oct 2011. Web. 23 Jan 2012

CA. California Department of Resources Recycling and Recovery. "Tire Management Rubberized Asphalt Concrete". CalRecycle. 1995, 2012. Web. 14 Feb. 2012

"California Promotes Reuse, Recycling Of Scrap Tires." Biocycle 41.12 (2000): 42. Academic Search Premier. Web. 21 Jan. 2012.

"Civil Engineering Applications." U.S. Environmental Protection Agency. N.p., 10/04/2011. Web. 1 Feb 2012.

"Civil Engineering Applications." *U.S. Environmental Protection Agency*. N.p., 4 Oct. 2011. Web. 1 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/civil_eng.htm>.

"Ecar Fact Sheet for Minnesota Waste Tires." *Ecarcenter.org*. Ecarcenter.org, jan 25 2012. Web. 10 Feb 2012.

European Tyre and Rubber Manufacturers' Association, . "End of Life Tyres." European Tyre and Rubber Manufacturers' Association. N.p., 27 Sep 2011. Web. 28 Jan 2012.

"Evaluation of health risk from open tire burning." *calrecycle.ca.gov*. calrecycle, 1 feb.2012. Web. 10 Feb 2012.

"Fredrick, Hans. "eHOW Discover the Expert in You". Chemicals Used in Rubber Tire Manufacturing. Demand Media, Inc., 1999,2012. Web. 7 Feb. 2012 http://www.ehow.com/info_12183221_chemicals-used-rubber-tire-manufactoring.html

"Frequent Questions." U.S. Environmental Protection Agency. N.p., 4 Oct 2011. Web. 1 Feb 2012.

"Hawaii's Illegal Dumping and Pollution Laws". Department of Environmental Services. City and County of Honolulu's Department and Environmental Services, 2005. Web. 7 Feb. 2012. http://www.opala.org/solid_waste/archive/recycled_products_guide.html

Hawaii Department of Health. "State Completes Removal of Huge Illegal Tire Dump". Hawaii State Department of Health. 21 June 2004. Web. 8 Feb. 2012

Hensley, Trish. "Creative Options for Old Tires Benefit Environment, Communities." American Recycler: Newsvoice of Salvage, Waste and Recycling. N.p., 1 Feb 2012. Web. 1 Feb 2012.

"Key Facts About Hawaii's Road and Bridge Conditions and Federal Funding." Tripnet.org, feb.10 2007. Web. 10 Feb 2012. *WWW.tripnet.org*. tripnet.org

Mitchell, Deborah. "Used Tires:Reuse, Recycle, Retread."*Voluteer Guide*. Charity Guide, n.d. Web. 15 Feb 2012.

PR Newswire, . "LTR Products Joins KaBOOM! to Help Build New Playground for School in Hawaii: Pinnacle Rubber Mulch Selected for Playground's Safety Surfacing." The Business Journals. N.p., 1 Feb 2012. Web. 1 Feb 2012.

Pinnacle Rubber Mulch, Pinnacle Rubber Mulch. N.p., 2011. Web. 1 Feb 2012.

"Reuse recycled rubber tires in roads other useful produces." Online Posting. Youtube, 3 Feb 2007. Web. 28 Jan 2012

"Rubberized Roads: Making Streets Quieter." Discoveries and Breakthroughs Inside Science. N.p., Apr 2009. Web. 30 Jan 2012.

"Scrap Tire Recycling." Texas Commission On Environmental Quality. N.p., 4 Jun 2010. Web. 6 Feb 2012.

Seldman, Neil. "Old Tires Face The Zero Waste Option." Biocycle 47.10 (2006): 20. Academic Search Premier. Web. 21 Jan. 2012.

Skeelsd. "What to do with those Used Tires." Art of the Stem: Science Art Culture. WordPress.com, 15 Dec 2011. Web. 1 Feb. 2012.

Stark, John. "The tire cycle solution." *ecarcenter.org*. rubber résearch elastomerics, oct 11 1988. Web. 10 Feb 2012.

"TBS Factoring Service. Worx Company, 2012. Web. 7 Feb. 2012. http://www.tbsfactoring.com/news/road-chemicals-bad-tires

"Tires and Rubber." *Arizona Chemical*. Arizona Chemical, 2009. Web. 8 Feb 2012. <http://www.arizonachemical.com/en/Markets/Tires-and-Rubber/>.

"Tire disposal & recycling." Tire disposal & recycling, Inc. Websource Northwest, LLC, n.d. Web. 25 Jan 2012.

"Tire Management Overview." Calrecycle.ca.gov. N.p., 2 Feb 2012. Web. 25 Jan 2012.

. "Tire Recycling for Land Application Interim Policy."*Health User*. Hawaii State Department of Health, 06 May 2009. Web. 15 Feb 2012. <http://healthuser.hawaii.gov/health/environmental/waste/sw/pdf/tirerecycintrm.pdf>.

"Tire Trouble." Family Education Network. N.p., 2012. Web. 18 Jan 2012.

"Tires." World Watch 18.5 (2005): 1. Academic Search Premier. Web. 18, Jan, 2012.

United States. Cong. House. Relating to Special Wastes Disposal and Recycling. 26 Jan. 2012. Web. 30 Jan. 2012.

United States. Cong. Senate. "Relating to Motor Vehicle Tires." 26 Jan. 2012. Web. 30 Jan. 2012.

"Waste Tire Facilities." Cal Recycle. N.p., 2012. Web. 24 Jan. 2012.

SB 3006 Support

Sheryl Ka'uilani Barretto
February 16, 2012
ENG 200 MW 4:30-5:45pm

Man's Invention Turned Inconvenient: The Unavoidable Rubber Tire

For the past 3 months, every morning at about 6:30 I put in my earphones, lace up my trail shoes, and begin my day with a 4 mile hike into Waianae Valley. It is invigorating having to quickly shuffle my feet out from under the untamed mango trees overhead to step within the sun's warm path. When I see photos of friend's houses covered in snow, I think to myself as to just how lucky I am to wake up every day to see the blue skies meeting the Waianae Mountain Range. Also, since I ~~'~~am originally a "Kalihi Girl," it is wonderful getting to experience the beautiful scenery that my father was raised in when he was a child.

Unfortunately for some, nature's beauty is not something worth appreciating. During my ritual hike, there in the middle of a green unfenced field are about 20 tires placed in four stacks. I first thought to myself that maybe someone placed them there for future use. As the weeks continued, I began to notice how the stack continued to grow and ~~became~~ become less organized. Tires were being tossed randomly about. What started off as 20 tires soon became a pile of more than fifty. Sadly, the tires became initial grounds for illegal dumping. In addition to scrap~~ped~~ tires, a large pile of discarded items began to litter the field. Items that are found at this site include a vandalized refrigerator, empty cardboard boxes, and car engine parts.

Into our second week of instruction, Senator Maile Shimabukuro's guest speaker appearance could not have been timed better. By witnessing as to how quickly tires can collect and how upset it had me, it made me realize that something needs to be done to ensure a cleaner and ~~healthy~~ healthier environment for future generations to come. Although it may seem that the

passing of congressional bills is just another attempt ~~of~~ by the State Legislature to control the masses, scrap tire legislation is a great idea because it will create public awareness of the issue and the monies generated can be utilized efficiently.

It is amazing to think at how the breakthrough invention of the rubber tire, which has benefitted society as a whole, has eventually become an environmental catastrophe in less than a century's time. According to the Environmental Protection Agency, in the United States alone, there are roughly 290 million tires discarded each year (Wastes- Resource Conservation…). These discarded, or more commonly referred to as scrap tires, are tires that are no longer viable for their original purpose. Some scrap tires which are stored in stockpiles are collected and manufactured into recycled products by authorized tire shredding and recycling facilities. Examples of recycled products are soil additives, athletic and playground surfacing, cargo containment and erosion barriers. Unfortunately, an appalling ~~amount~~ number of scrap tires are being illegally dumped into the environment which results in the contamination of ecosystems and placing every living organism at harm.

Stockpiles and illegally dumped scrap tires are potential environmental hazards. One question that may arise is, "Well it's only a tire. What serious harm can a rubber tire do?" It is truly surprising of the potential dangers these tires ~~can~~ possess. A major health threat linked to legal and illegally disposed tires are fires. According to the Environmental Protection Agency, in 1983 in Rhinehart, Virginia, a lot housing approximately 7 million tires caught on fire (Waste-Resource Conservation…). Due to their highly flammable properties and immense energy output, it took emergency responders nearly nine months to contain the fire~~. The fire~~ which resulted in high levels of arsenic and lead contaminating water supplies. Furthermore, the thick, black smoke from the fire traveled cross-state~~;~~ forcing many residents to evacuate their homes.

Many of these people suffered from smoke inhalation and troubled breathing. According to Dr. Neil Carman, clean air program director for the Texas Sierra Club, in the event of a synthetic rubber tire being burned, the byproducts emitted into the air are "highly toxic beryllium, lead, cadmium, selenium, silver, manganese and chromium 6" (Lydersen). Inhalation of such particles can be fatal.

In addition to fires, pests are also a major health threat. Rodents find tires to be suitable shelters. According to the Centers for Disease Control and Prevention, wild rats and mice are known to carry over 35 diseases which can be transmitted to humans both directly and indirectly (Centers for Disease Control and Prevention). Diseases can be spread directly through the handling of rodents and exposure to feces, urine, and saliva. On the other hand, humans are indirectly infected by fleas, ticks, and mites that have fed on diseased rodents. Similar~~ly~~ to rodents, mosquitoes are another health concern. When stagnant rainwater collects in tires, it creates the perfect breeding ground for these unavoidable pests. In tropical and subtropical regions, mosquitoes are notorious in transmitting such viral diseases as dengue fever, malaria and encephalitis. In these cases, if the proper medical treatment is not obtained, the results can be deadly. Proper maintenance and disposal of tires are guaranteed methods of preventing the spread of diseases affecting the human population.

The costly and labor intensive tire epidemic is becoming a major concern not only in the continental U.S., but here in Hawaii as well. Typically, states with larger populations have a tendency to exceed large ~~amounts~~ numbers of scrap tires. For example, in 2003 the New York State Department of Environmental Conservation reported that, "an estimated 18-20 million tires are generated each year" (NYSDEC). This is roughly a single tire for each resident of New York. In Hawaii, scrap tires are estimated between 500,000 to 1 million tires annually

(Environmental Protection Agency). Although these numbers may not seem as significant as New York's, one must take into account the limited space an island occupies. Furthermore, effective since July, 1, 1994, Hawaii state law prohibits the disposal of used motor vehicle tires at landfills, therefore lessening the options of disposing tires legally. As an illustration, in 2004 the Department of Health and Unitek Solvent Services, Inc accomplished the removal of approximately 6,628 tons of solid waste on Lualualei Homestead Road in Waianae (State of Hawaii Department of Health). Most of the solid waste consisted of scrap rubber tires. The cost of the removal project totaled an astonishing $1.3 million. Unfortunately, at face value this is just the tip of the iceberg when it comes to the issue that the residents of Hawaii are presented with.

Currently, Senator Shimabukuro and her associates have introduced two bills to ~~The~~ the State Legislature with the hopes of curbing the tire issue. The first bill is HB1696 HD1 entitled *Relating to Special Wastes Disposal and Recycling*. HB1696 HD1 states that it "requires a $5 deposit for each new motor vehicle tire sold that is not exchanged with a used motor vehicle tire, to be refunded on exchange of a used motor vehicle tire. Does not apply to motorcycle or bicycle tires" (Hawaii State Legislature). The customer has thirty days from the date of sale to return a used tire to receive their deposit. In addition to this bill, tire retailers are required by law to accept returned used tires from customers who have purchased new tires and to display the proper advertisement signage for all customers to view.

The benefits of HB 1696 HD1 outweigh the drawbacks. First of all, this bill is affordable. At $5 per tire, the deposit fee will only cost $20 for a set of four. From another perspective, if you are an avid Starbucks customer, this will cover at least nine days of ordering a tall regular coffee. Secondly, it promotes community effort. The deposit fee will encourage

people to return their used tires to authorized tire retailers. In turn, the retailers are expected to properly dispose of the returned tires. Lastly, HB 1696 HD1 makes the public aware of the issue. Being aware that something is happening in your community is the first step to taking action.

The second bill introduced is SB3006; entitled *Relating to Motor Vehicle Tires*. According to the Hawaii State Legislature, in 2000, Act 173 called for a tire recovery program designated in keeping track of tire inventories, reporting and registration, along with enforcement, authority and penalty arrangements (Hawaii State Legislature). In addition, this act also instituted a temporary $1 motor vehicle tire surcharge which was to be kept in a separate account in the Environmental Special Fund. The purpose of this surcharge was to "assist the ~~department~~ Department of ~~health~~ Health in its permitting, monitoring, and enforcement activities regarding used tire management, collection, recycling, and disposal facilities" (Hawaii State Legislature). However, on January 1, 2006, the $1 surcharge was revoked. On January 25, 2012, SB3006 was introduced to reestablish this $1 surcharge yet again.

Similarly to HB 1696 HD1, SB3006 will benefit the people of Hawaii. The money collected in the Environmental Special Fund will go towards programs directly involved in the up-keep and maintenance of the environment. Monies will not be placed into a general fund. SB3006 along with HB 1696 HD1 will initiate environmental awareness among the people of Hawaii. Scrap tire legislation is an excellent approach to tackling the issue at hand.

For anyone who lives in Hawaii, it is common to know of someone or to have personally experienced pothole damage to a vehicle. According to *The Honolulu Advertiser*, in 2007 the city and state paid $172,000 in pothole claims to drivers (Vorsino). A combination of heavy

rain, continuous traffic, and the typical wearing of asphalt plays a significant role in creating potholes. Back in 2005, Mayor Mufi Hanneman waged a "war on potholes" ~~where~~ when he planned to establish a 2-year road reconstruction program. Luckily, this plan fell through along with its estimated $70 million price tag (Dingeman). The current solution for patching potholes is laborious, an inconvenience for commuters, costly, and above all, temporarily met. The patching of potholes is not the answer. However, the reconstruction of roads is.

Once legislation is passed, the following option should be implemented to utilize the half a million scrap tires accumulating in the state of Hawaii. The proposed solution is to invest the monies generated within the environmental special fund towards the application of rubberized asphalt concrete (RCA) in the reconstruction and maintenance of Hawaii roads. Rubberized asphalt concrete is composed of a blend of various additives and ground recycled rubber tires.

A perfect example in which RCA does in fact work is the state of Arizona. The Arizona Department of Transportation (ADOT) refers to themselves as a "pioneer in the use of rubberized asphalt" (Arizona Department of Transportation). For the past twenty years, ADOT has gained considerable knowledge in ~~the utilization~~ utilizing ~~of~~ rubber asphalt in resurfacing city streets and highways. Due to Arizona's distinctive seasons, the department follows a strict protocol when paving roads. The project is stalled during very cold or very hot weather. The pavement must be between 85 to 145 degrees Fahrenheit or the rubber asphalt will not hold properly. The potential in withstanding varying temperatures is evidence of how durable RAC really is. According to their credible government website, "more than 4.2 million tons of rubberized asphalt has been used on Arizona highways since 1988, at a cost of some $225 million" (Arizona Department of Transportation). Their projects have recycled approximately

15 million old tires to date. Recycling scrap tires comes secondary to their ultimate goal and that is creating safe and quieter roads for the people of Arizona.

The benefits of rubberized asphalt concrete (RAC) exceed those of conventional asphalt. Conventional asphalt is currently used in the repaving and construction of Hawaii roads. To begin with, RAC is cost-effective. Conventional asphalt is required to be at least four inches thick when being compressed into road moldings. RAC, on the other hand, uses half of the material needed with a mandatory thickness of only two inches. In comparing costs, according to the California Department of Resources of Recycling and Recovery, the cost per lane mile using conventional asphalt is $170,400 in materials and preparation and the cost per lane mile using two inches of RAC is $94,250 for materials (CalRecycle). Pavement preparation for RAC is not necessary. When calculated, $76,150 is saved per lane mile when using RAC. According to the AA Roads webpage, the entire length of Farrington Highway is approximately 19.53 miles (Oahu Roads...). If Farrington Highway ~~was~~ were to be reconstructed ~~with the~~ useing ~~of~~ conventional asphalt, the cost would be roughly $3.3 million. However, ~~with the use~~ using ~~of~~ RAC, the cost would be $1.8 million. Ultimately, the state of Hawaii would definitely save a lot of money.

RAC is also long-lasting and safer than conventional asphalt. Rubberized asphalt is crack resistant and fairs very well in varying temperatures. Because of its durability, RAC lasts twice as long as conventional roads, therefore reducing maintenance costs. In regards to safety, RAC maintains its deep black color, making road lines much more visible to drivers during their smooth commutes to their destinations. Also, RAC has better traction because of its skid resistant surface.

Simultaneously, rubberized asphalt is a wonderful way for the state to promote going "green." RAC is considered environmentally friendly because it takes about 2000 rubber tires to create a two inch thick one mile lane. According to the City and County of Honolulu, there are currently 1,933 miles of streets and roads in Oahu (This is Your City...). It would take roughly 3.8 million tires to completely repave the streets and roads of Oahu if this were the case. The Environmental Protection Agency estimates 500,000 to a million scrap tires per year in Hawaii (Environmental Protection Agency). By implementing RAC into road construction, this could undeniably end the negative impact of scrap tires on the environment and the people of Hawaii. Another environmental benefit of RAC is its capability of decreasing the amount of traffic noise. RAC is said to reduce road noise by at least 50 to 75% (CalRecycle).

Across the country, we are faced with an environmental issue with detrimental effects. Scrap tires are overflowing landfills, streams, and fields. With the influx of tires, people are susceptible to potential harm ~~such as~~from fires and transmittable diseases such as dengue fever. In Hawaii, with a half a million scrap tires per year, illegal dumping is becoming more prevalent in rural areas. Scrap tire legislation is a good idea. HB1696 HD1 is affordable and keeps the tire retailer and consumer accountable for returning scrap tires. The funds collected from the $1 surcharge of SB3006 will help in the clean-up process and recycling of illegally dumped tires littering our environment. The proposed solution to the issue is utilizing the half a million scrap tires into rubberized asphalt concrete as an alternative to conventional concrete. Rubberized asphalt concrete is cost-effective, safer, and environmentally friendly. By following in the footsteps of Arizona, Hawaii may possibly have a chance to nip the tire epidemic in the bud before it grows to immense proportions.

Works Cited

Arizona. Arizona Department of Transportation. "Welcome to ADOT's Quiet Pavement Pilot Program." Arizona Department of Transportation. 12 Feb. 2012. Web. 12 Feb. 2012.

California. California Department of Resources of Recycling and Recovery. "Tire Management-Rubberized Asphalt Concrete (RAC)." California Department of Resources of Recycling and Recovery. 2012. Web. 12 Feb. 2012.

Dingeman, Robbie. "War on Potholes to Cost $70M." The.honoluluadvertiser.com. 31 Mar. 2005. Web. 12 Feb. 2012.

Hawaii. City and County of Honolulu. "This is Your City and County of Honolulu Government." City and County of Honolulu. 26 Apr. 2011. Web. 12 Feb. 2012.

Hawaii. Department of Health. "State Completes Removal of Huge Illegal Tire Dump." *Hawaii State Department of Health.* Hawaii State Department of Health. 21 Jun. 2004. Web. 13 Feb. 2012.

Lydersen, Kari. "Burning Tires for Power: Green Energy or Health Hazard" Alternet.org. 10 Jul. 2008. Web. 13 Feb. 2012.

New York. Department of Environmental Conservation. "Waste Tires." *New York State Department of Environmental Conservation.* New York State Department of Environmental Conservation. 13 Feb. 2012. Web. 13 Feb. 2012.

"Oahu Roads." AA Roads." 3 Feb. 2012. Web. 12 Feb. 2012.

Relating to Motor Vehicle Tires. SB3006, 25 Jan. 2012.

Relating to Special Wastes Disposal and Recycling. HB1696 HD1, 18 Jan. 2012.

United States. Centers for Disease Control and Prevention. "Rodents." *Centers for Disease Control and Prevention.* Centers for Disease Control and Prevention. 29 Jul 2012. Web. 12 Feb. 2012.

United States. Environmental Protection Agency. "Wastes – Resource Conservation – Common Waste & Materials – Scrap Tires." *U.S. Environmental Protection Agency.* U.S. Environmental Protection Agency. 4 Oct. 2011. Web. 6 Feb. 2012.

Vorsino, Mary. "Pothole Restitution Cost City and State $172,000." The.honoluluadvertiser.com. 2 Feb. 2007. Web. 12 Feb. 2012.

Support SB 3006

Jennifer Karr
English 200, 6:00pm
Mr. Wyatt
March 16, 2012

Scrap Tires in Hawaii

The Waianae coast is being used as a dump for scrap tires. Waste tire disposal is a complicated and overwhelming problem in the United States. Tires can have a negative impact on the environment when they catch on fire or are stockpiled. Some states are effectively ~~handling issues~~ dealing with the disposal of waste tires, while some are not there yet. Crumb rubber made from scrap tires can be used for a variety of applications including road construction and as an alternative fuel source. Legislation for the handling of scrap tires is needed however, incentive programs and a comprehensive plan to deal with both stockpiled scrap tires and newly generated waste tires is needed.

Disposal of scrap tires in the United States has been a problem for many years. Over four millions tons of scrap tires are generated every year. That is approximately one scrap tire for every man, woman and child in the United States. Although there has been an 87% reduction in stockpiles of scrap tires, there are still 128 million scrap tires in stockpiles across America (Miller). With such an overwhelming ~~amount~~ number of scrap tires in stockpiles in the United States, solutions for dealing with newly scrapped tires needs to be addressed. Without legislation that specifically addresses both problems, the stockpiling of scrap tires will only continue.

According to the EPA, about 80% of scrap tires generated in the United States are being consumed in the aftermarket (retreaded) or exported. About 16.5 million tires are retreaded and sold back to consumers, which leaves about 9% of scrap tires unaccounted for and assumed to be in landfills or mono-fills. With only 80% of scrap tires generated being

consumed in the aftermarket, more and more tires may be illegally disposed of. And with such a short fall in the consumption of new scrap tires, the cleanup of stock piles around the country will never happen unless something is done to solve the problem.

There are many environmental concerns with scrap tires. Stockpiles of scrap tires are susceptible to fire. According to the EPA, these tire fires can become major hazardous events. The EPA does not classify scrap tires as a hazardous waste, although they do admit that when tires burn there is about two gallons of oil residue produced. The runoff of oil may contaminate the surrounding area, which makes tire fires difficult and expensive to clean up. Furthermore, once waste tires catch on fire, it is very difficult to extinguish ~~the fire~~; the fire often needs to be smothered with dirt or sand. The reduction of stockpiled scrap tires needs to be addressed so that the environment does not further suffer the pollution caused by tire fires.

There is also toxic air pollution that occurs when scrap tires are burned. According to the EPA, people who are exposed to the toxic air produced by tire fires may have an increased chance of getting cancer. Although tire fires are uncommon, prevention needs to be taken in order to protect the public. In 1999, a tire dump in Westley, California where millions of scrap tires were being stockpiled was struck by lightning. The fire produced large amounts of oil that made its way into a local stream, and eventually this also caught on fire. The smoke created by the fire also generated a lot of concern about the potential health risk to people as well as other forms of life. This particular fire took over 30 days to be put out, the total response costs were about 3.5 million dollars (EPA).

In Hawaii, the problem of scrap tire disposal and recycling is obvious. Take a drive down the Waianae coast, hundreds of old tires can be seen littered up and down the highway.

In 2011 a group of volunteers cleaned up a stretch of land on Paakea road in Waianae. The product of the cleanup was about four 40 foot trash containers of scrap tires. The tires are currently being stored until a way to dispose of them is found (Pang). People in Hawaii are using the Waianae coast as their personal tire dump, and without some kind of intervention, the problem will only get worse.

According to the Tire Recycling for Land Application Policy between 500,000 – 1,000,000 waste tires are created in Hawaii each year. Currently there is only one company on Oahu that disposes of waste tires, Unitek Environmental Services located in Kapolei. With only one company on the Island authorized to recycle waste tires, Hawaii's stockpiles of waste tires will continue to rise. Unitek Environment Services has suffered several production related accidents. In 2001 the plant experienced two fires within two weeks of each other. Although there was little property damage due to the fires, Unitek suffered $265,000 worth of damage to their equipment ("Recycling-plant Fire"). By only having one scrap tire recycler in Hawaii, accidents like these are a major concern if the plant has to shut down for a length of time. The government should entice other companies to open up other tire recycling plants by offering tax incentives.

According to the EPA, 48 states currently have laws or regulations pertaining to the disposal of scrap tires. Many states collect a fee on the sale of new tires, ranging from $0.50 to $5.00. The states then use those funds to fund services and programs to manage and cleanup their scrap tires. Laws vary from state to state; at this time each state regulates the disposal of tires within their jurisdiction. With so many states setting examples of ways to handle waste tires, the state of Hawaii should model their scrap tire legislation after a state that is successful.

Some states, such as California, have enacted laws and regulations that are effectively addressing scrap tire storage and disposal. California has a waste tire tracking system to ensure that all tires generated and transported within the state are accounted for, and are delivered to a proper disposal facility. Program participants must be registered and are required to keep and submit comprehensive records. Discrepancies in records will be investigated by the CALRecycle authority, and violators will be fined as much as $25,000.00. These programs are funded by a $1.75 fee charged to any new tire purchased in the state (California Department of Resources Recycling and Recovery)._Because the state of California is processing newly generated waste tires so efficiently ,resources are also available to fund stock pile abatement. According to the Tire Management page, it is estimated that only 50,000 waste tires remain in stockpiles in California.

However, other states such as Colorado are not so successful with their scrap tire abatement. Leslie Jorgensen reports about two state approved tire disposal mono-fills, and an abatement program that is not effective in the state of Colorado. Estimates have the two mono-fills packed with over 60 million tires; some estimates are as high as 100 million. Currently the state of Colorado collects a $1.50 fee to the purchase of each new vehicle tire; these funds were to be used to clean up scrap tires from illegal tire piles and recycle them. Unlike California, Colorado does not require scrap tire generators, haulers, or end unit facilities to be registered. There is no control of comprehensive records of the proper disposal of used tires. Colorado's tire program also does not address stockpile abatement and without proper funding stockpiles will continue to grow.

Legislation for the disposal of scrap tires exists in almost every state. States like California have comprehensive and effective laws for the disposal of newly created waste

tires and abatement of scrap tire stockpiles. These programs are funded by surcharges placed on the purchase of new tires, making the economic impact of such legislation minimal to the State Government. Hawaii does not have a comprehensive program in place to monitor and dispose of scrap tires. The State of Hawaii should model their legislation on that of California.

In 2012 House Bill 1696 Relating to Special Wastes Disposal and Recycling was submitted to the Hawaii State House of Representatives. After several revisions, the bill requires a $5.00 deposit for each new tire sold that is not exchanged for an old tire. The bill does not suggest any possible use for funds that are collected, nor does it address the overwhelming scrap tire dumping in Hawaii's rural areas. Although the intent of the bill is commendable, a more comprehensive plan with provisions for documentation and enforcement are needed.

Hawaii State Senate Bill SB3006 was also introduced in 2012. After being amended, this bill will establish a task force which will study ways to prevent or control the problem of abandoned tires. This task force will be comprised of community leaders, government officials, and representatives from the tire and auto industry. By assembling a diverse group of people, the task force will be able to get a well-rounded view of the problems associated with tire fees and the proper disposal of waste tires. The task force will have the opportunity to explore uses of recycled tires in roadway construction and playground equipment. The committee should then be able to develop and recommend viable solutions to the State Senate. ~~The c~~Creating ~~of~~ a task force to investigate the local problems with waste tires is a good step toward thwarting the possible environmental impacts and was a good move by the State Senate. This panel of experts can then give the information needed in order for legislators to institute thorough and informed laws regarding scrap tires in Hawaii

Scrap tires need to be broken down into usable material, crumb rubber, before they can be effectively recycled. This process can be achieved by using several different methods. The ambient process grinds scrap tires into usable material. It is a multistep process that requires a series of diverse machines to break down the different components of the tire into rubber, metal and fabric. This process creates granulation crumb rubber which can be used in a variety of applications. The cryogenic process uses liquid nitrogen to flash freeze tires, causing the tires to shatter into many pieces. By using the cryogenic process the final product can be reduced into a range of sizes including very fine crumb rubber (Scrap Tire News). These processes are essential to creating usable scrap tire material. Either process may be used to achieve the goal of recycling scrap tires. However, there is specific and expensive equipment required to accomplish either process.

Turning scrap tires into road building materials is a good way to recycle waste tires. In South Carolina, a program to establish the Asphalt Rubber Technology Services was created. Crumb rubber is added to asphalt and used in road construction. The additive strengthens the asphalt and extends its life. Another benefit is reduced friction causing less stress on vehicles (Amirkhanian). The use of crumb rubber in Hawaii roadways would extend the life of the roads. It would benefit local drivers because the wear and tear on each vehicle would be decreased, resulting in fewer scrap tires.

One of the most popular ways to deal with scrap tires is burning them for fuel. For example, the Empire District Electric Co. of Joplin, MO burns more than one million scrap tires a year. The company has been using tire-derived fuel (TDF) for several years now. Although the company does not save money by using TDF in their Asbury power plant, 5,000 scrap tires can be converted as a fuel additive each day ("Smokin"). Power notes that although the sulfur

content of TDF is relatively low and stable, the plant must combine a large amount of coal into the fuel mixture with the processed rubber in order to operate within emissions limits.

Hawaii is an island thousands of miles away from the nearest power grid. All electricity is generated by Hawaiian Electric Company. By adopting an alternative fuel source such as TDF, Hawaiian Electric Company may be able to provide more reliable power service to its customers. Hawaiian Electric Company has to import its entire fuel source currently. By introducing TDF into the fuel mixture, Hawaiian Electric Company will help to reduce the amount of waste tires in Hawaii. Additionally, by using a local fuel source such as scrap tires, Hawaiian Electric Company may see a reduction in cost due to less imported fuel.

In order to effectively and efficiently solve the problem with scrap tires in Hawaii, additional facilities are needed that are capable of processing scrap tires into useful material. Legislation needs to offer ~~new~~ incentives in order for ~~new~~ companies to be able to develop and operate new scrap tire recycling facilities. Money for this incentive program could be raised by applying a surcharge as suggested in House Bill 1696, to all new tires bought in Hawaii. Companies could use this incentive ~~money~~ to help purchase tire recycling machinery. A predesigned fine grind system package may be purchased for under $650,000.00, according Global Recycling Equipment. This system has the ability to turn 500 tires an hour into usable materiel. Approximately 83,000 new tires are imported into Hawaii each month (Hawaii Solid Waste Report), a new tire surcharge such as the one implemented in California, would create over $140,000 a month in funds. In just a few months, the State of Hawaii would have enough funds to subsidize a new facility to process scrap tires.

Scrap tire legislation is needed in Hawaii; however, incentive programs and a comprehensive plan of action is needed to ensure a long-term solution to the problem of

scrap tires. Stockpiling scrap tires can result in fire and diseases caring pests. Most states now have rules and regulations that effectively address issues dealing with stockpiles of waste tires and newly generated scrap tires. There are many useful products that can be developed while also solving the problem of disposing of scrap tires

If regulations are implemented, it will be a great benefit to the people of Hawaii and scrap tires will no longer litter the countryside roads. This will restore the west side of Oahu back to its natural beauty.

Works Cited

Amirkhanian, Serji. "Waste Tires Cut The Cost Of Building New Highways." Biocycle 41.12 (2000): 46. Academic Search Premier. Web. 17 Feb. 2012.

Bernardo, Rosemarie, and Treena Shapiro. "Recycling-plant Fire Accidental, Officials Say: Yesterday's Fire, Unrelated to One at the Plant 2 Weeks Ago, Did $250,000 Damage." Editorial. *Honolulu Star - Bulletin* 26 Feb. 2001. Web. 17 Feb. 2012.

California Department of Resources Recycling and Recovery. *Tire Management.* CAL, 2012. Web. 17 Feb. 2012.

United States. Environmental Protection Agency. Environmental Protection Agency. *Scrap Tires.* EPA. 2011.Web. 15 Feb. 2012

Global Recycling Equipment. Advertisement. Shredderhotline.com. Web. 17 Feb. 2012.

Hawaii. Department of Health. Solid and Hazardous Waste Branch. *Tire Recycling for Land Application Interim Policy.* 2009. Print.

Hawaii. Department of Health. Solid and Hazardous Waste Branch. *Report to The Twenty-Fourth Legislature.* 2007. Print.

Jorgensen, Leslie. "Tire Dumps Pose Health, Safety Hazards." *Colorado Statesman.* 10 July 2009. Web. 17 Feb. 2012.

Miller, Chaz. "Scrap Tires." *Waste Age* 41.3 (2010): 58. GreenFILE. Web. 15 Feb. 2012.

Pang, Gordon. "Illegally dumped tires turn up at cleanup in Waianae." *Honolulu Star-Advertiser* [Honolulu] 20 Nov 2011, n. pag. Web. 17 Feb. 2012.

Relating to Motor Vehicle Tires. SB 3006, 25 Jan 2012.

Relating to Special Wastes Disposal and Recycling. HB 1696, 11 Jan 12.

Scrap Tire News. "Crumb Rubber Information." *Scrap Tire News.* Web. 17 Feb. 2012

"Smokin'." Power 148.5 (2004): 9-10. Academic Search Premier. Web. 17 Feb. 2012.

Bibliography

"How A Bill Becomes Law In Hawaii." Web. 16 Feb. 2012.

~~"Scrap Tires | Common Wastes & Materials | US EPA." US Environmental Protection Agency. Web. 15 Feb. 2012~~

~~"Scrap Tires | Common Wastes & Materials | US EPA." US Environmental Protection Agency. Web. 16 Feb. 2012.~~

"Smokin'." *Power* 148.5 (2004): 9-10. Academic Search Premier. Web. 17 Feb. 2012.

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Amirkhanian, Serji. "Waste Tires Cut The Cost Of Building New Highways." *Biocycle* 41.12 (2000): 46. Academic Search Premier. Web. 17 Feb. 2012.

Bernardo, Rosemarie, and Treena Shapiro. "Recycling-plant Fire Accidental, Officials Say: Yesterday's Fire, Unrelated to One at the Plant 2 Weeks Ago, Did $250,000 Damage." Editorial. *Honolulu Star - Bulletin* 26 Feb. 2001. Web. 17 Feb. 2012.

Bernhard DeQuervain, et al. "Comparative Life Cycle Assessment Of Beneficial Applications For Scrap Tires." Clean Technologies & Environmental Policy 13.1 (2011): 19-35. GreenFILE. Web. 15 Feb. 2012.

California Department of Resources Recycling and Recovery. *Tire Management.* CAL, 2012. Web. 17 Feb. 2012.

Farrell, Molly, and Dave Block. "Funding Innovative Uses For Scrap Tires." *Biocycle* 40.3 (1999): 61. Academic Search Premier. Web. 16 Feb. 2012.

Fuddy, Loretta. Hawaii. Department of Health. Testimony of Loretta J. Fuddy, A.C.S.W., M.H.P.. Honolulu: State of Hawaii, 2012. Web.

Global Recycling Equipment. Advertisement. Shredderhotline.com. Web. 17 Feb. 2012.

Hawaii. Department of Health. Solid and Hazardous Waste Branch. *Report to The Twenty-Fourth Legislature.* 2007. Print.

Hawaii. Department of Health. Solid and Hazardous Waste Branch. *Tire Recycling for Land Application Interim Policy.* 2009. Print.

Jorgensen, Leslie. "Tire Dumps Pose Health, Safety Hazards." *Colorado Statesman.* 10 July 2009. Web. 17 Feb. 2012.

Jorgensen, Leslie. "Tire Dumps Pose Health, Safety Hazards." Colorado Statesman. Web. 16

Miller, Chaz. "Scrap Tires." *Waste Age* 41.3 (2010): 58. GreenFILE. Web. 15 Feb. 2012.

Moore, Miles. "Report Shows Most States Conquering Scrap Tires." *Rubber & Plastics News* 39.15 (2010): 19. GreenFILE. Web. 15 Feb. 2012

Pang, Gordon. "Illegally dumped tires turn up at cleanup in Waianae." *Honolulu Star-Advertiser* [Honolulu] 20 Nov 2011, n. pag. Web. 17 Feb. 2012.

Relating to Motor Vehicle Tires. SB 3006, 25 Jan 2012.

Relating to Special Wastes Disposal and Recycling. HB 1696, 11 Jan 12.

Rolf, David. Hawaii. House Committe on Transportation. Testimony in OPPOSITION to HB1696. Honolulu: , 2012. Web.

Scrap Tire News. "Crumb Rubber Information." *Scrap Tire News.* Web. 17 Feb. 2012

Steinberger, Timothy. Hawaii. Testimony SB3006. Honolulu: Department of Environmental Services, 2012. Web.

United States. Environmental Protection Agency. Environmental Protection Agency. *Scrap Tires.* EPA. 2011.Web. 15 Feb. 2012

United States. Environmental Protection Agencey Environmental Protection Agency "Scrap Tires | Common Wastes & Materials | US EPA." US Environmental Protection Agency. Web. 15 Feb. 2012

United States. Environmental Protection Agencey Environmental Protection Agency "Scrap Tires | Common Wastes & Materials | US EPA." US Environmental Protection Agency. Web. 16 Feb. 2012.

Support SB3006

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Tires, Tires, Tires!

Driving along the coast of Waianae everyone is used to seeing the illegal dumping and all of the rubbish piled along the roads. Though, residents all witness these problems, no one knew that tires were ~~being~~ such a huge issue here in the islands but also in the United States. Residents see it as a problem now but how do we come up with a solution to make this problem disappear from the roads? No one ~~had~~ has answers because no one here on Oahu has made it an issue and no one ~~knew~~ knows how bad the issue really is. Driving along the highway there are piles of tires along the roads some in the bushes, in canals, and some just on the side of the road ~~collecting~~ providing homes to rodents and mosquitoes. These tires are a huge issue becomes a health hazard to all of us residents on Oahu. Oahu has a problem with scrap tires ~~and~~ that needs to be solved for a better environment.

Driving around Waianae people see the rubbish piled in areas where it does not belong. Though as people take a drive they do not take notice of what kind of rubbish that is on the side of the roads, the rubbish that is piled everywhere ~~are~~ is scrap tires. Then as people take notice they see the problem of these tires just sitting on sidewalks and causing problems. For example, my professor showed ~~my~~ our class 125 pictures of scrap tires going from Sea Country to LCC Wai'anae and going back to Sea Country ~~sea country~~. He took pictures only on one side of the road and as ~~my~~ the class had seen these pictures, there were ~~more than 100~~ hundreds of tires as he showed us these pictures. As we sat in class all we could think of was how did all of these tires get there? It was disturbing looking at these pictures because the community already has a problem with rubbish being all over the roads. As he kept flipping through his pictures, the tires were thrown in places we hardy see as we are driving past. But if people were to walk around, they ~~would~~ see how all of these tires ~~were~~ are just dumped in all types of areas. Tires ~~were~~ are in bushes, lying on the side of the road, and in the canals. No matter what as we drive around anywhere down in Wai'anae, these tires are everywhere no matter where you turn there could be a tire lying right in front of you.

These tires also cause potential health issues for residents because ~~you~~ they can get diseases such as ~~Dengue~~ dengue ~~Fever~~ fever. This disease is caused by a family of Mosquitoes that has this disease carried with them. Mosquitoes can ~~breathe~~ breed in water and when it rains the tires collect the water and then the water attracts the mosquitoes. The mosquitoes build families in these tires and then they end up flying around and ~~bite~~ biting someone then they get infected with dengue fever. There were four confirmed cases on Oahu in Pearl City on April 01, 2011 (~~Teri~~ Okita). At Pearl City elementary custodians

checked for standing water where mosquitoes ~~breathe~~ breed and it was said they checked in plants (~~Teri~~ Okita).

Another health hazard that can take~~s~~ a toll on residents on Oahu is the fires that tires can cause. Fires in ~~T~~tire stockpiles are really hard to extinguish and may burn up to months and years. These tires ~~bounce~~ emit off unhealthy chemicals that are spread through the air as they are burning. For example, tire fires can release thick black smoke containing hazardous compounds and toxic gasses in~~-~~to the air *(Tire Fires).* These compounds are not healthy for anyone to breathe in because they can harm our bodies and potentially kill us. Furthermore, ~~T~~the oil and ash created by the fire can threaten the ground water we drink ~~from and the surface of the ground~~ *(Tire Fires).* For example in Westley, California there was a huge fire that started from a lighting strike. The fire produced large volumes of pyrolotic oil that trailed off into a stream. This fire took about 30 days ~~to extinguish~~ and cost up to about $3.5 ~~Million~~ million to extinguish *(Tire Fires).* To extinguish a tire fire using sand or dirt will help it stop. When using water only makes the tires burn more because it is like adding more fuel to the fire and it will not stop *(Tire Fires).*

There are two bills put into place here on Oahu to propose a solution to the tire issue. One is the Senate Bill and the second bill is House of Representatives. The first Senate ~~bill~~ Bill No. 3006 was introduced on January 25, 2012. It states that Maile Shimubukuro wants to "reestablish the $1 motor vehicle surcharge to assist the Department of Health and permitting monitoring and enforce activities regarding used tires management" *(S.B. 3006).* For ~~an~~ example, if customers want to take in their used tires to dealerships and they want new tires for their car, the dealerships will tack on $1 per tire. This is a good because

it will start a fund that will start producing money to help stop illegal dumping here on Oahu.

The second bill is House ~~bill~~ Bill No.1696 and this bill proposes to a $5 deposit on the new tires ~~*(H.B 1969*~~, so when a customer goes into a dealership's they have a choice to exchange their motor vehicle tire or they get charged the $5 fee *(H.B 1969)*. This deposit is returned ~~back~~ to the customer when the customer delivers a used motor tire within thirty days *(H.B 1969)*. By this bill proposing this fee, it will help decrease illegal dumping of tires on the streets. It also helps because the tires ~~Customers~~ customers turn in they will not have to deal with them when they go home, can turn it in to the dealerships and the dealerships have to do what they have to with the tires.

Though the Senate ~~bill~~ Bill went through legislature, ~~the bill~~ it got revised and the Director of Health is convening a task force. ~~A~~ to study ~~to~~ ways to prevent or control the problem of abandoned tires being illegally dumped *(S.B. 3006)*. This bill is now trying to reestablish the $1 surcharge for every new tire bought. The ~~task~~ Task ~~force~~ Force will report ~~all of~~ its findings and recommendations to the legislature no later than the convening session in 2013*(S.B. 3006)*. This will be better way to come upon approval because ~~if~~ the legislature gets ~~back~~ feedback from community members on Oahu on if this is a good way to solve the issue. This will make it easier ~~way~~ to ~~make this~~ pass so there will be a better community with ~~less~~ fewer scrap tires .

A tire shredder plays a huge role in recycling tires *(Tire Shredding)*. Tires are very hard to break in down in ~~big~~ large amounts~~,~~ ; it requires a great deal of force to break down tires into little tiny pieces. One of the most popular shredders ~~that are usually~~ used is called a shear shredder. This shredder is a slow speed shredder that has two big knives

(Tire Shredding). This will make it easier for many tires to be shredded when they are put into the machine. For low ~~type of~~ volume tire shredding, the machine may cost up to about $50,000. ~~Though~~ though for higher volume passenger tires or for a truck shredding, it may need more horse power and ~~it may~~ cost up to $125,000 *(Tire Shredding).* Some other machines may cost up to half a million just to shred scrap tires that are illegally dumped. The United States generates about 300 million used tires every single year *(Tire Shredding).* Also Oahu has millions of tires that are imported into the islands. If Oahu could save money and use our tax money for good reasons like getting a tire shredder, our tire problem in Oahu and even for all of Hawaii would be solved quickly. If the money was saved and used correctly, we all would see ~~lest~~ fewer tires on the roads.

Scrap tires can be used to filter wastewater. This was studied by professor Dr.Yuefeng Xie, he developed a method that uses crumb rubber to filter wastewater *("Scrap tires can be used to filter waste water").* His research has found that "crumb rubber, derived from wastewater, ~~it~~ can be used as a filter" *("Scrap tires can be used to filter waste water").* The rubber is produced by chopping up and grinding up waste tires and removing the metal from the tires *("Scrap tires can be used to filter waste water").* For example this crumb rubber can be used for filters for treating storm water and ship ballast water. Dr. Yuefeng states "that for traditional waste water filtration, gravity down flow granular filters *("Scrap tires can be used to filter waste water").* It is also stated that crumb rubber is not a rigid material but instead it can be bent or compressed for better filters. This is a good way to use crumb rubber because this will help clean storm waters and the crumb rubber act as a filter.

Another way scrap tires can be used for is asphalt rubber. Asphalt rubber is one of the largest single markets for ground rubber; it consumes about 220 million pounds and about 12 million tires annually *(Tire Fires).* In California and Arizona, they use the most asphalt rubber for their highway construction. These two states use over 80% of the asphalt rubber, and Florida is the next big user of rubber asphalt *(Tire Fires).* After the asphalt rubber goes through the shredder ~~machine~~ and ~~it is~~ broken into small pieces, it is blended with the asphalt in the highways to beneficially modify the properties for the construction for the highways *(Tire Fires).* The benefits of using asphalt rubber are longer lasting roads surfaces, it reduces road maintenance, and it reduces the road noise *(Tire Fires).* By using rubber for the highways, it will be much safer for drivers because drivers will not be getting into accidents and also the asphalt is better for tires. Now rubber is being used in greater amounts by the ~~state~~ State ~~department~~ Department of ~~transportation~~ Transportation *(Tire Fires).*

Tires have become such a huge problem on Oahu. ~~.~~ that ~~S~~scrap tires are everywhere, and when my class looked at all of the pictures that my teacher had taken, it was amazing how many tires ~~were~~ are just being left and illegally dumped. These scrap tires also caused health issues because ~~it~~ they ~~caused~~ huge fires and they cause diseases that can kill residents. By having the House Bill and the Senate ~~bill~~ Bill ~~put in place~~ passed, it is a good thing to stop illegal tire dumping ~~of tires. By the senate bill passing legislature to reduce the problem our environment will be better.~~ Though the machines for shredding tires are really expensive, if our government uses our tax money and funding money right, we could have a machine here on Oahu to get rid of our tires. Then if we have a tire shredder we could use the mulch for water filters for storm water and for asphalt rubber. If we used it

for asphalt rubber our roads would be ~~more~~ safer and quieter and our tires will last longer on the roads. By our community and our state starting doing something about scrap tires and keep proposing that this is an issue here on Oahu a lot will get done to stop illegal dumping of tires.

Work Cited

"Recycling tires." ~~benefites~~ Benefites of ~~reelycling~~ Recycling . N.p., n.d. Web. 15 Feb 2012.

"Scrap tires." earth 911. N.p., n.d. Web. 16 Feb 2012.

"Tire fires." Environmental Protection Agency. N.p., Tuesday, October 04, 2011. Web. 16 Feb 2012.

"Scrap Tire Surface Material Grant Information." Missouri Department of Natural Resources. N.p., n.d. Web. 2/16/12.

Okita, Terri. "DOH Confirmes 4 cases of dengue fever here on Oahu, More pending." *Hawaii News Now*. N.p., April 1,2011. Web. 16 Mar 2012.

"Tire Management." ga.gov cal recycle. N.p., January 6, 2012. Web. 16 Feb 2012

"SB 3006 sd1." Hawaii State Legislater . N.p., .Nd. Web. 17 Feb 2012

"HB 1696 hd1." Hawaii State Legislater . N.p., N.d. Web. 17 Feb 2012.

"Tire Shredding." URC. N.p., n.d. Web. 17 Feb 2012.

"Scrap tires can be used to filter wastewater". *Science Daily*. web, 19 Nov. Web. 17 Feb 2012.

SB3006 Support

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Research Paper #1
Tires

A great way to handle scrap tires being illegally dumped is to ~~have~~ pass scrap tire legislation. There are two bills in the process of trying to become laws which are Senate Bill 3006 and House Bill 1696. Both bills are really great ways to help stop a serious problem in Hawaii. There are many places in Hawaii that have illegally dumped tires that are just sitting there. On a recent clean sweep ~~that was~~ held on the Waianae Coast, Senator Maile Shimabukuro said that they collected over a thousand illegally dumped tires within just a few streets near Hakimo. This is obviously a major problem that everyone should take seriously. Illegally dumped tires make the lands look like the people living on them have no respect. It also makes the scenery look ugly and dirty.

Currently, the penalties for dumping tires illegally in Hawai'i are up to five thousand dollars and one to twenty-five years possible jail time with community service. Although Hawai'i has such strong penalties, they have no way of keeping track of tires to see which tires came from which tire store. For all they know, the people who work at the tire store could be the ones disposing old tires illegally so that they do not have to pay a fee at a place such as Unitek. For example, tires that are a lot bigger than regular sized tires are harder to dispose of. Maile said the reason why bigger tires are harder to dispose of is because the fees are more expensive. She also said that these are the tires seen more frequently in clean sweeps (Shimabauro). Unitek Solvent Services Inc. in Kapolei is the only business that charges a fee ~~to~~

and accepts scrap tires and recycles them. Another place that takes scrap tires is Waianae Dump but they only allow two to be dumped per day. Many people who do not want to pay ~~a fee~~ to dump old tires just go out to Pa'akea road and dump them illegally. Pa'akea road at night is ~~a~~ very dark ~~place that~~ and does not routinely have a lot of cars driving up and down, so ~~many people tend to think~~ it is easy to get away with illegally dumping tires. Obviously from the ~~amounts~~ number of tires being collected during these clean sweeps, it is very easy to get away with illegally dumping tires.

The illegally dumped tires being thrown out all over Hawai'i raises health hazards and cautions. Tires being thrown out into the open are breeding grounds for mosquitos because they collect water that sits ~~which allows~~ allowing ~~the~~ mosquitos plenty of time to reproduce. Mosquitos can carry all sorts of disease such as ~~Malaria~~malaria, ~~Dengue~~ dengue fever, and yellow fever which ~~is~~ have been commonly found in Hawai'i ~~and Yellow fever~~. These diseases can cause fever, nausea, chills, headache, rash, sweats, fatigue and more.

Not only do mosquitos ~~from~~ living in the tires cause health hazards, fires ~~that start and~~ burning old tires~~,~~ give off dangerous smoke! The smoke from a burning tire distributes poisonous gas compounds that can cause severe respiratory problems or even kill a person. The black smoke has poisonous chemicals such as carbon monoxide, sulfur oxides, dioxins, furans, benzene, lead, and arsenic which can be life threatening. Burning tires are also hard to put out and can burn for months or even years. Fires that start can spread easily and be a ~~seriously~~ dangerous ~~situation~~ problem.

Different states have their own effective systems for dealing with illegal scrap tire dumping. California and New York ~~has~~ have developed programs and funding to address illegal scrap tire dumping. For example, ~~O~~one way California utilizes scrap tire is by cutting the used rubber to make new roads which are said to be better because ~~it~~ they lasts longer and ~~is~~ are more durable. A problem like this demands funds and a secure system to be in place because of health hazards and risks. Effective July 1, 1994, Chapter 342I, Hawaii Revised Statutes (H.R.S.) prohibits the disposal of whole used motor vehicle tires at all landfills and incinerators within the State of Hawaii. Tire retailers ~~are~~ have since then been required to accept used tires in exchange for new ones purchased. There is no tax on the retail sale of tires. Many people have no clue that when they purchase a new tire, by law the retailers are required to accept the used tires in exchange for the new ones purchased.

There are a few other ways to reuse and recycle scrap tires. Hawai'i can establish a recycling center that either retreads or shreds the rubber into mulch. The process for retreading is to shred, separate the steel and the fiber, go through a screen separation, and bag it to make new products. Re-treading is also cheaper and faster to make then. People can also make garden ponds, livestock feeders, sandboxes, swings and tree guards with used tires. Speedways tend to use old tires for crash cushions, but there are always many other alternatives ~~to situations~~, it just takes creativity to make it work. Car manufacturers are trying a new method for car crash resistance cushion. They are using old tires in new cars as cushions so that cars that crash can have more resistance. This new method has already ~~proved~~ proven quite effective and can hopefully be a new way to help ~~build~~ not only cars but planes and all types of vehicles.

Senate Bill 3006 and House Bill 1696 are works in progress to helping this problem that could have been a tire epidemic. House Bill 1696 requires a $5 deposit for each new motor vehicle tire sold that is not exchanged with a used motor vehicle tire, to be refunded on exchange of a used motor vehicle tire. Senate Bill 3006 re-instates a $1 deposit on imported tires. This deposit goes into a fund run by DOH, which can be used to pay for disposal of illegally dumped tires, as well as prevention of illegal dumping. The bill does NOT create a system so that people get paid to properly dispose of tires. Both bills sound reasonable for both customers and retailers.

The ~~N~~next thing that needs to take place is an establishment center for recycling. The Senate and House bills should take effect by July 1, 2012. Funds needed to open a recycling center can come from these bills. The bills also help decrease the tire epidemic in Hawaii ~~decrease~~.

With-out spreading awareness about the problem ~~with~~ of illegal tire dumping, ~~there's~~ there is no way the problem is going to get solved. After people find out about the risks and hazards that can take place, ~~they'll~~ they will be able to understand why ~~it's~~ it is such a big problem. Also if more people knew about the kinds of fines and penalties there are, they might not want to get caught illegally dumping and probably ~~won't~~ will not do it at all. The more people are aware of problems, the more the problem can get ~~helped to be~~ solved. If the city would post volunteer clean sweeps at stores to let the public know when and where, they would probably be surprised at the ~~amount~~ number of people actually willing to help. There are tons of people who would help if they knew where, when and why?

Making new laws like the two bills that are trying to become law is a great way for people to take this tire problem more seriously. Spreading awareness and letting people do their share, are steps toward helping illegally dumped tires be stopped.

Bibliography

Centers for Disease Control and Prevention. National Center For Infectious Diseases. *Mosquito-Borne Diseases. 2007. Web. <http://www.cdc.gov/ncidod/diseases/list_mosquitoborne.-htm>.*

"Civil Engineering Applications | Scrap Tires | US EPA." US Environmental Protection Agency. Web. 08 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/civil_eng.htm>.

Department of Health. Hawaii State Hawaii State Department of Health Tire Recycling for land application Interim Policy. 2009. Print. <www.hawaii.gov/health/environmental/waste-/su/pdf/tirerecycintrm.pdf>.

Home. Web. 08 Feb. 2012. <http://www.uniteksolvent.com/>.

Jasmine. Telephone Interview. 1/25/2012.

Mosquito-Borne Diseases. AMCA, 2011. Web. 1 Feb 2012.<http://www.cdc.gov/ncidod/-diseases/listmosquito-borne.htm>.

Murphy, Joshua. "How To Reduce Wear and Tear." How To Do Things.com. Howtodothings.com, 2012. Web. 3 Feb 2012.

"Recycle: Rubber Mulch, Recycled Rubber Tires." Rubber Mulch: Tire Mulch Playground Safety Playground Flooring Horse Arena Footing. Web. 08 Feb. 2012. <http://www.rubbermulch.com/tire-recycling.asp>.

Recycling : The Best Ways to Recycle Tires - YouTube. YouTube - Broadcast Yourself. Web. 08 Feb. 2012. <http://www.youtube.com/watch?v=mJoST2kVaXw>.

Shimabauro, Maile. "ENG 200 Class". Leeward Community College-Waianae. 18 Jan. 2012. Class Presentation.

The Used Tire Problem." Tiretofuel. 2011. Web. 1 Feb 2012. <http://tiretofuel.com/the-used-tire-problem.html>.

"Tips on Recycling Tires - Earth911.com." Earth911.com - Find Recycling Centers and Learn How To Recycle. Web. 08 Feb. 2012. <http://earth911.com/recycling/automotive/tires/tips-on-recycling-tires/>.

United States Environmental Protection Agency."Tire-Derived Fuel | Scrap Tires | US EPA." Web. 08 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/tdf.htm>.

United States. Environmental Protection Agency.. *Health and Environmental Concerns*. 2011.

United States. Environmental Protection Agency.. "*Laws and Statutes / Scrap Tire*".*U.S Environmental* Protection Agency. U.S. Environmental Protection Agency 2011.

United States. Environmental Protection Agency. Scrap Tire Technology and Markets.. William Andrew Publishing/Noyes.

United States. Environmental Protection Agency. "State Scrap tire Programs. 1999.

United States . Environmental Protection Agency. Waste Scrap Tires. Environmental Protection Agency, 2011. Web.

SB3006 In Support

Brittany R. Cox
Research Paper I
4:30

Solution to a Tire Epidemic

There is an epidemic in Hawaii. It is a problem visible to everyone, everyday, although very few ever seem to take notice. Maybe this is because this problem is all too common becoming nearly invisible to those who ~~are in~~ constantly ~~view of~~ see it. Along what should be Hawaii's beautiful roadsides are old tires that have been improperly and illegally disposed of. These tires are frequently dumped along roads in an attempt to save people some money. While these criminals may be victorious in their attempt to save some moneys, they show a blatant disregard for the environment and community.

To put an end to this tire epidemic, Senator Maile Shimabauro has presented ~~-~~Bill SB3006. With this bill in act along with its sister bill HB1969 HD1 and further research into cleaner recycling methods, Hawaii will be better able to handle this epidemic of used tires. Hawaii should take advantage of the unique old motor vehicle tire recycling options specifically used ~~for old motor vehicle tires like~~ in fellow states California, Arizona, Florida, Texas, New York and New Mexico (United States).

Senate Bill, SB3006 SD1 reestablishes a $1 motor vehicle surcharge to assist the Department of Health in its permitting, monitoring, and enforcement~~-~~ activities regarding used tire management, collection, recycling and disposal. This fee is required to be paid by the importer within ninety days of receiving the tires. SB3006 SD1 also states that a task force will also be established to study ways to control or prevent the problem of abandoned tires.

House bill, HB1696 HD1 originally required consumers to pay a $25 deposit which has recently been revised to $5, to be charged for each new motor vehicle tire purchased that is not exchanged with a used motor vehicle tire (HB 1696). Customers are

given thirty days to bring in their used tires in exchange for their deposits. This exchange of used tires for a deposit will give consumers incentive to properly dispose of their old tires. If a customer purchases four new tires, that customer may then return four used tires to the retailer to receive back $20. HB1696 HD1 is a good start to immediately help lower the current ~~amount of~~ dumping problem. This method is comparable to the $0.05 fee on all bottles and cans which the consumer may get back by recycling the bottles and cans they purchased. ~~This method of give and get back~~ and has proven to work for Hawaii in the past which can be seen by the reduced amount of waste produced by the state.

The bill presented by Senator Maile Shimabauro along with Bill HB1969 HD1 work hand in hand to immediately reduce illegal dumping of motor vehicle tires while also seeking methods to eradicate tire dumping completely. HB1696 HD1 works to immediately reduce illegal dumping of used tires (HB1969). SB3006 SD1 acts as a long term counter to the problem, setting up funds and exploring alternative methods for recycling and disposal (SB 3006). The House Bill is a good start, but the Senate Bill, more specifically the revised edit that now includes a research task force, is what Hawaii needs in order to accomplish true eradication of roadside scrap tires.

Health concerns ~~is~~ are another issue tied to this scrap tire epidemic. Of course, no community wants old, used tires plaguing their street sides. Not only does ~~it~~ they take away from the beauty of the land, but ~~it~~ they also allows a build-up of rain-water in the tires that can subsequently cause an increase of mosquitoes as well as the diseases they carry. Up until the mid-1980's illegal dumping of used tires ~~were~~ was seen more of a nuisance than an actual health risk. It was not until 1985 when in Houston, Texas a

significant ~~amount~~ number of a particular type of mosquito, *Aedus albopicus*, ~~had been~~ were discovered, ~~a~~ the type of mosquito known for carrying dengue fever, a common mosquito related illness in Hawaii. Tires by design make for the perfect breeding grounds for mosquitoes. By reducing the ~~amount~~ number of improperly disposed/managed tires, the number of mosquitoes bred in them can also be greatly reduced.

Tire fires ~~is~~ are another concern tied to improper disposal of used tires. Tire piles are at risk of ~~-~~catching on fire which is very hard to contain and worse still, very expensive to clean up. Some tire fires have been known to last anywhere from days to months. For example, ~~I~~in Rhinehart, Virginia a seven million tire fire stretched for nearly 50 miles(United States). Another example of outrageous tire fires would be that of ~~-~~the 1999 tire fire in Westley, California where it took an entire month to extinguish the fire (United States). Tire fires jeopardize the air, soil, and water, all limited natural resources. The average car tire has been estimated to produce up to two gallons of oil when burned. Dangerous fumes are also emitted during these ~~types of~~ fires as tires break down into gases, heavy metals, and oils.

Fortunately, SB3006 SD1 states that a task force will be established. This task force will look into several methods for tire recycling. Popular in a few states already is tire-derived fuel, civil engineering applications and ground rubber applications (United States). Asphalt rubber is the largest single market for ground rubber applications. Not only is this method of recycling long-term cost efficient, but it also reduces street noise, creates longer lasting roads, reducing road maintenance, as well as creates shorter breaking distances (United States). Ground rubber may be a possible recycling method for Hawaii and is something to be further researched by the task force. The use of

rubberized asphalt by Hawaii's Department of Transportation would be beneficial to all drivers statewide.

Tire-derived fuel is another option that may put Hawaii's scrap tires to good use and is an excellent ~~was~~ way to create needed energy. Tires have a high heating value which make them a great energy source, producing the same amount of energy as oil and 25 percent more energy than coal (United States). According to an estimate done by the United States Environmental Protection Agency, in 2003 there were over 290 million scrap tires generated in the United States and in the same year 130 million scrap tires were used as tire-derived fuel (United States). The cement industry accounted for 41 percent of the 130 million scrap tires used for fuel (United States Environmental Protection Agency, Tire-Derived Fuel). This is something that should be looked further into for the state of Hawaii that has several different cement industries. Like ground rubber, tire-derived fuel is also a possible alternative method that should be looked into further by the assigned task force. Tire-derived fuel is not regarded as recycling, but is seen as beneficial (United States). Many would agree that alternative fuel methods may be better than letting ~~the~~ scrap tires pile up along roadsides ~~the tires~~ where they present a danger to the community.

With all the different methods available for tire recycling, there is absolutely no reason why Hawaii should continue letting ~~pile~~ scrap tires pile up along streets. There is ample information and alternatives to solve this epidemic of used tires. So, with a little brain power and support from the state, this problem should one day be a thing of the past. As HB1696 HD1 provides the residents with an immediate improvement to the tire situation, SB3006 SD1 will help to improve Hawaii's long-term tire management

methods. Consumers will have to pay an additional $5 surcharge for each tire purchased, which should not be a problem for those who bring their used tires back. This solution can be seen as a win, win situation. Hopefully, after more research there will be a better developed method for the actual recycling process for used tires, specified to the needs of Hawaii.

Works Cited

"Tire-Derived Fuel | Scrap Tires | US EPA." US Environmental Protection Agency. Web. 08 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/tdf.htm>.

United States. Environmental Protection Agency. *Health and Environmental Concerns.* 2011. Web. <http://www.epa.gov/osw/conserve/materials/tires/basic.htm>.

United States. Environmental Protection Agency. State Scrap tire Programs. 1999.Print. <.ww.epa.gov/osw/conserve/materials/tires/laws.htm>.

United States. Environmental Protection Agency. Waste Scrap Tires. Environmental Protection Agency, 2011. Web.

Shimabauro, Maile. "ENG 200 Class". Leeward Community College-Waianae. 18 Jan. 2012. Class Presentation.

Mosquito-Borne Diseases. AMCA, 2011. Web. 1 Feb 2012.<http://www.cdc.gov/ncidod/- diseases/listmosquito-borne.htm>.

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Bibliography

Centers for Disease Control and Prevention. National Center For Infectious Diseases. *Mosquito-Borne Diseases. 2007. Web. <http://www.cdc.gov/ncidod/diseases/list_mosquitoborne.-htm>.*

"Civil Engineering Applications | Scrap Tires | US EPA." US Environmental Protection Agency. Web. 08 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/civil_eng.htm>.

Hawaii Department of Health. Hawaii State Hawaii State Department of Health Tire Recycling for land application Interim Policy. 2009. Print. <www.hawaii.gov/health/environmental/waste-/su/pdf/tirerecycintrm.pdf>.

Home. Web. 08 Feb. 2012. <http://www.uniteksolvent.com/>.

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Formatted: Line spacing: single

Jasmine. Telephone Interview. 1/25/2012.

Mosquito-Borne Diseases. AMCA, 2011. Web. 1 Feb 012.<http://www.cdc.gov/ncidod/-diseases/listmosquito-borne.htm>.

Murphy, Joshua. "How To Reduce Wear and Tear." How To Do Things.com. Howtodothings.com, 2012. Web. 3 Feb 2012.

"Recycle: Rubber Mulch, Recycled Rubber Tires." Rubber Mulch: Tire Mulch Playground Safety Playground Flooring Horse Arena Footing. Web. 08 Feb. 2012. <http://www.rubbermulch.com/tire-recycling.asp>.

Recycling : The Best Ways to Recycle Tires - YouTube. YouTube - Broadcast Yourself. Web. 08 Feb. 2012. <http://www.youtube.com/watch?v=mJoST2kVaXw>.

Shimabauro, Maile. "ENG 200 Class". Leeward Community College-Waianae. 18 Jan. 2012. Class Presentation.

The Used Tire Problem." Tiretofuel. 2011. Web. 1 Feb 2012. <http://tiretofuel.com/the-used tire-problem.html>.

"Tips on Recycling Tires - Earth911.com." Earth911.com - Find Recycling Centers and Learn How To Recycle. Web. 08 Feb. 2012. <http://earth911.com/recycling/automotive/tires/tips-on-recycling-tires/>.

"Tire-Derived Fuel | Scrap Tires | US EPA." US Environmental Protection Agency. Web. 08 Feb. 2012. <http://www.epa.gov/osw/conserve/materials/tires/tdf.htm>.

United States Environmental Protection Agency. *Health and Environmental Concerns.* 2011. Web. <http://www.epa.gov/osw/conserve/materials/tires/basic.htm>.

United States Environmental Protection Agency. *Laws and Statutes / Scrap Tire.* 2011. Print.www.epa.gov/osw/conserve/materials/tires/laws.htm.

United States. Environmental Protection Agency. Mosquito Borne Illnesses. Environmental Protection Agency, 2001. Web

United States. Environmental Protection Agency. Scrap Tire Technology and Markets.. William Andrew Publishing/Noyes.

United States. Environmental Protection Agency. State Scrap tire Programs. 1999.Print. <.ww.epa.gov/osw/conserve/materials/tires/laws.htm>.

United States . Environmental Protection Agency. Waste Scrap Tires. Environmental Protection Agency, 2011. Web.

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SB3 DOE in support

Uilani Arasato
6:00pm-7:15pm

Retread, Recycle, Reuse and Repeat

Scrap tires throughout Oahu have become a problem. Causing pollution and health hazards ~~is~~ are only the beginning of the problems scrap tires create throughout the island. Illegally dumped scrap tires bring an entire wave of dangerous issues to the community. Recycling these items will lessen most if not all the problems associated with illegally disposed tires. Scrap tires should be recycled either by rethreading, or ~~turned~~ turning them into useful equipment for our economy which will decrease ~~the number of~~ illegal tire dumping around the island. Scrap tires do not seem like an issue big enough to confront to higher power, but after researching the issue in depth, scrap tires are a big problem in our community and action must be taken.

When thinking about car tires, the thought of a car driving around comes to mind, though this is true the tires later taken off and disposed of ~~is~~ are creating the problem. When looked at in depth, scrap tires add to a majority of the pollution in the community backing up in dumpsites, creating piles on the sides of the roads, and randomly lying in beaches and parks. Scrap tires become a pollutant when not disposed of properly. Though there is one company on Oahu specifically designated to dispose of old car tires, yet it appears most do not make it to those facilities ~~or even landfills~~. This along with a variety of reasons give scrap tires an unwanted place on Oahu.

First of all retreading, ~~"retreading of tires"~~ ... is a process whereby selected and inspected worn tires, called casings, receive a new ~~thread~~" (Repair Bureau). This process of retreading of tires has not yet grown popular in Oahu, or anywhere else for that matter, but in North America there is a movement; which is happening with the retreading of scrap tires. This includes reusing scrap tires, giving the impression that North America

has it welled figured out. Within North America there is plenty of retreading of tire going around as it is saving people time and money. Fully understanding the benefits of retreading old car tires besides leaving them ~~to~~ dumped, gives North America an advantage because retreading is the unknown future for recycling old car tires. When thinking of re-treading ~~of~~ a tire, a lot of people have fears ~~such as or~~ about safety, quality, and expenses.

If a more specific perspective were brought out then maybe more Americans would look into the market of retreading ~~of~~ old car tires. When thinking of safety, retread tires ~~is~~ are as safe as ~~a~~ brand new manufactured tires. Retreads are used safely everyday on airplanes, school buses, fire engines, ambulances, trucking fleets, taxis, postal service vehicles, military vehicles, and by millions of motorists. These vehicles are used all around the island whether for business, flight, work, or even casual uses. Scrap ~~tiers~~ tires can be re-treaded and reused frequently and safely on all types of vehicles as a brand new tire could. Qualities of retreaded tires are equal that of any new manufactured tire.

Like safety, quality is just as satisfying to everyone even if we do not personally use retreaded tires. Take airplanes for ~~instant~~ instance, holding them to high expectations they transport us over land and sea. Would it make a difference if airplane companies chose to use retreaded tires? Well, "80% of all aircrafts tires now in service in the U.S are re-treads" (About Retreading). That means more than ~~half~~ three quarters of all aircrafts providing transportation to the United States citizens are using retreaded tires to do so. In fact, "More then 100,000 air craft retreads are used annually with an average of 270 take offs and landings per tread life"(About Retreading). Retreads are just as durable and long lasting as any other airplane tires, and obviously, just as safe.

People believe that it takes more work creating a new tread for the tire, and because of this it would be more costly to produce and sell. In fact, "retreaded tires cost less to produce then a new tire. And sell for less" (About Retreading). In North America they save truck companies over $3 billion dollars because retreaded tires are much cheaper than brand new tires. With the process and the product itself being cheaper, it ~~would~~ mean that the government would not have to spend so much money to create a facility for this process. Cheaper is better because with all the money that would be saved on the making and reselling retreaded tires, the government would have extra money to create clean up and establish recycling programs for scrap tires. Retreaded tires ~~is~~ are such a good market that, "even the president in 2000 signed an executive order, requiring federal agencies to replace their original tires on vehicles with retreaded ones whenever practical" (About Retreading). It is not yet an option that a few states have looked into, ~~and~~ but at this point they should.

Second, recycled tires can be used to create other types of useful equipment throughout the state. Often tires are looked at as one item meant for one purpose, cars. What a lot of Americans do not realize is that car tires can be used for many different uses. Most of their uses include outdoor equipment, personal commodities, and fuel. All these different items can be made by the tread or outside layer of a tire. This is the layer that physically touches the road. This part can create ~~bottoms~~ soles for shoes and sandals, backfill for walls and bridges, stall mats, roof pads, fuel, rubber modified asphalt (for roads and athletic tracks), shower tiles, commercial flooring, carpet padding, and speed bumps. All these new and innovative creations coming forth from scrap tires ~~assumes~~ indicate the market of recycling scrap ~~tiers~~ tires should be at its prime, but sadly it is not.

There are not many scrap tire facilities on Oahu where residents can go and drop off scrap tires. In fact there is only one. Though just one facility can make a difference, it is not doing much about the situation because hundreds, ~~and~~ even thousands, of scrap tires still are being illegally dumped around the island as well as at various dumpsites accumulating not only tires, but also problems.

Recycling and creating new and innovative projects with scrap tires will help the economy and the island. Instead of looking out and seeing old tires on the sides of the roads, Rubberized Asphalt Concrete or RAC as California refers to it, has a lot of advantages. RAC is, "~~A~~ a blend of paving grade asphalt cement, ground recycled tires, rubber and other additives..." (Gauff). ~~With this~~ This type of blend ~~it~~ creates a mix that can be used as roads, employing about 2000 scrap tires per lane, per mile is to create a road. ~~By p~~Putting scrap tires toward a project like this will give Oahu a reason to start cleaning up scrap tires around the island so ~~it~~ they can be used for this purpose. By using scrap tires, the cost of materials decreases because companies would not have to spend so much money on conventional materials used to make the traditional roads. If cost is not the biggest problem, then exploring other benefits to creating roads with RAC will be reasonable.

Other benefit~~'~~s that RAC has it is long lasting, resists cracking, reduces maintenance costs, lasts 50% longer than the conventional materials, is skid resistance, provides better traction, is darker so the markings on the road are more visible, cooler, and reduces road noise. With the negative effect that scrap tires are, why not try create positive outcomes instead, and use~~d~~ scrap tires as a material ~~give various different positives~~ that ~~would~~ lasts a long time.

Lastly recycling tires will reduce illegal dumping. When looking at the many reasons why scrap tires can and should be recycled, dumping them whether properly or improperly because the demands for scrap tires will be higher. When seeing that scrap tires can save time and even money, dumping them will not be necessary. If Oahu sets up recycling facilities and programs to proper rid and recycle car tires, the issue of tires being dumped throughout the community will one day subside. Community members will not only notice that scrap tires are a problem, but they will also see the different solutions ~~that can be done~~ to recycle scrap tires and they would want to recycle them regardless if the promotion for it is in high demand or not. If there was a greater reason to recycle used tires, then more people will get involved in recycling them. That is why the House Bill 1696 has a reasonable agreement for community members. The bill has ~~offered~~ proposes a $5.00 disposal fee that is required only if customers choose not to give auto shops the old tires after purchasing new ones. If customers decide to give ~~the~~ auto shops the scrap tires, the auto shops will then take ~~then~~ them free of charge as well as take the proper steps necessary in recycling or even reusing them ~~tires~~, this is based upon the choice of the auto shops and not anyone else. ~~By h~~Having mutual agreements such as this, will ~~help~~ give community members ~~have~~ no excuse not to give dealers their old tires.

Programs that will encourage recycling old tires will get more people within the community aware of the problem and become more active in recycling of tires. For instance, ~~A~~ a few years ago cans and bottles were a big problem. Now we have a recycling program that we take our cans and bottles too. Throughout the years the program has become much more popular ~~amongst the community~~. Now there are different can and bottle recycling facilities around the islands. If scrap tire recycling

designed programs geared toward ~~it then~~ cans and bottles, it could become more and more popular around Oahu.

Throughout America more and more people are noticing the scrap tire problem ~~in many different communities~~ and like others are trying to find alternatives. There are ~~high~~ large numbers of illegal scrap tires ~~dumping~~ dumped and something must be done, that is why scrap tires ~~should~~ need to be recycled by retreading them in order for them to be reused on vehicles, recycled and made into other useful equipment for our communities in order for them to be productive elsewhere. ~~By d~~Doing this helps reduce the acts of illegal tire dumping.

House Bill 1696 will give us the opportunity to start a movement, it will help people be aware, and give them a reason to recycle tires ~~besides~~ instead of dumping them illegally. One-day scrap tires will be valuable to individuals in the community. Until that time the movement to promote scrap tire recycling must continue, educating those for the future will push the movement along, and one day scrap tires will find ~~its~~ their place within the community.

Work Cited

"About Retreading." *Tire Retread & Repair Information Bureau.* Tire Retreading & Repair Bureau, 2011. Web. 16 Feb 2012. <http://www.retread.org/>.

Guaff, Nate. "Rubberized Asphalt Concrete (RAC)." *CalRecycle*. California Department of Resources Recycling and R, 2012. Web. 17 Feb 2012. <http://www.calrecycle.ca.gov/Tires/RAC/Default.htm>.

Nice, K.. "How Tires are Made." *How things work.com.* Discovery, 2000. Web. 16 Feb 2012. <http://www.howstuffworks.com/tire1.htm>.

"Tires." *Green Student U.* University , Feb 17 2012. Web. 16 Feb 2012. <http://www.greenstudentu.com/encyclopedia/recycling/tires>.

SB3006 Support

S'meta
200 6:00
Research Paper 1

Tire Dumping Solutions

We see them every day on the side of the road, at the beach, and even in our neighbor's yard. Tires are everywhere. The sad part is that our community has gotten so used to seeing them that no one really takes into consideration how problematic tire dumping has become. This seems to be more of a problem ~~in~~ on the Leeward coast than other parts of the island. Wai'anae is not a dump and community members need to realize how important it is that we take care of our home. We cannot do it alone~~,~~ because this is not just a Leeward Coast problem; this involves the state. Issues like this reflect the state as a whole and raise a question whether the state is paying attention to all taxpayers.

As a state, we need to recognize the affects that tire dumping has on our community. We also need to take action. The tire dumping in our state has become an eyesore. For a state that profits from tourism, we should be doing what we can to make sure that we keep our islands beautiful. What can we do to dispose of these tires that have taken away from our beautiful scenery? Some solutions may be to bring awareness to our community of this growing problem, make it more affordable for those who want to dispose of their waste tires correctly, and consider ways to recycle tires within our state.

S'meta
200 6:00
Research Paper 1

According to Hawaii Department of Health, it is estimated that 500,000-1,000,000 waste tires are produced each year(Hawaii State Department of Health , 2009) ~~(Hawaii State Department of Health)~~. There are waste tires everywhere -- especially in Wai'anae. Wai'anae is considered the countryside of Oahu, so there is a lot of farmland. This rural side of the island also has land that is undeveloped and not taken care of. Unfortunately, this gives an ~~advantage~~ opportunity to those who want to dump their tires and not have to pay a fee. It is not hard for people to dump their tires in a place where the property is not given much attention. However, ~~T~~these tires are not biodegradable, so over time, these tires accumulate and create ~~a~~ piles of abandoned waste tires. There are so many of these waste tires lying around, it is a wonder no one notices them as a problem. That is just it; no one notices. The community does not recognize tire dumping as a problem. Therefore, there needs to be awareness of this problem in order to solve it.

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The community may better understand why tire dumping is a problem if they were more aware of the health hazards that came with it. According to the Environmental Protection Agency, waste tires that are sitting in the open harbor mosquitos such as the Asian tiger mosquito which carries ~~a disease known as~~ dengue fever. The collected rain-water sitting in waste tires make it easy for mosquitos to breed and larvae to develop. Mosquitos can also carry ~~Encephalitis~~ encephalitis which is a disease known to cause swelling in the brain. Other symptoms include severe headaches, fever, vomiting, and in some cases, death (Illinois EPA, 2011)~~(Illinois EPA)~~. These diseases are not something that we want spreading in our community or even in our state. It is not hard for ~~a~~ these sicknesses to spread, but it is very difficult to stop

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once ~~it~~ they starts. In addition to ~~this~~ these health issues, there are also environmental ~~issues~~ problems caused by waste tires.

The EPA states that waste tires left in piles have an increased risk of catching on fire~~.~~ and worse still, ~~T~~tire fires are difficult to contain and create an environmental threat. In a fire, tires ~~are~~ eventually ~~melted~~ into an oily substance that can run off into nearby surface water. This oily substance can contaminate waters nearby too. Tire fires can also threaten the people's health nearby. The smoke that the fire produces may affect those with a respiratory condition. This includes everyone from small children to the elderly ~~people~~ (Illinois EPA, 2011)~~(Illinois EPA)~~. The state of Hawaii can avoid these health and environmental risks by looking at possible solutions ~~to~~ for ~~ease~~ easing the burden of tire dumping.

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One solution is to start educating the community by bringing up ~~the~~ tire dumping issues at regular neighborhood board meetings. These meetings are usually held every month and are an effective way of informing the community of rising issues going on in the state ~~of Hawaii~~. By starting at board meetings in Leeward district, the community can expand on educating the rest of the state~~.~~ because ~~T~~the state as a whole needs to take part in solving this problem. If not well informed, the community might not know that they are able to voice their opinions. Issues such as tire dumping~~,~~ may go under the radar and not be acknowledged by the community. For example, the Purple Spot, plans to build an industrial park, would affect the community of Nanakuli. The problem is that no one even knew of this problem until it was brought up at community board meetings. This issue was important because those attending the meetings ~~could~~ ~~speak~~ spoke up for what they found was best for their community. If they ~~were~~ had not been not

informed of this issue in the first place, they would not be able to voice their opinions. This is just one example of why it is important that people ~~are~~ be better informed of the problems that are rising in their own community. It does not have to stop there; people can also use the schools to help better inform their community. What better way to start than in education?

For those who have an interest in helping and educating their community, an environmental awareness group would be beneficial. This group could be created by those in the community colleges of Oahu to promote awareness about issues such tire dumping, starting with the Leeward coast. This group could hold meetings with all those who want to participate whether they are students or just community members. The group could be specifically designed to handle rising environmental issues and come up with a solutions together. That way everyone's opinion is heard and everyone is informed of how these issue may affect them. As a community, groups such as these would make it easier to have their voice heard by the City and County members of Honolulu. It is difficult for one person to be heard, but with help from those of the same community, everyone will be heard. This will help resolve the issues such as scrap tire dumping. Along with promoting awareness to help solve the problem of tire dumping, we can also work on making tire disposal more affordable.

An additional solution is to make the disposal of tires more inexpensive for those with passenger vehicles. According to the State of Hawai'i, House Bill 1696, those purchasing a tire would pay a recycling fee of ~~twenty~~ five dollars upon purchase of a new tire (HB 1696). This fee might not be affordable for those who need to dispose of their old tires, especially if they are disposing of more than one tire. While charging people up front for a disposal fee might be a better solution, it might help if it were a sensible fee. More people would participate in tire recycling if it was more affordable ~~and~~ so tire dumping will reduce. Another bill ~~that was~~

introduced by the state of Hawai'i was the ~~State~~ Senate Bill 3006. The purpose of this bill is to implement ~~the~~ a disposal fee of a dollar in addition to the purchase of the new tire. This is to help the Department of Health in monitoring the management, collection and recycling of tires (SB 3006). This fee might be feasible for those purchasing a tire. Even though no one really wants to pay an additional fee, this is something that needs to be done to enforce the importance of tire recycling. It is also important for people to know that tire dumping is illegal. It is already a problem, so the state currently has to pay the price ~~to~~ in ~~tackle~~ tackling this issue. After the collection of tires, it would benefit Hawaii if the state found ways to recycle waste tires.

Since t~~T~~here are many ways to recycle waste tires~~.~~, ~~The~~ the problem is that Hawai'i has no recycling program in place. If the state invested in a recycling program, they could find ways to not only dispose of waste tires but find an end use for them. After all, the tires are accumulated, there just needs to be a way to get rid of them. They cannot just sit in facilities~~.~~; There needs to be some kind of a process to help break down all the scrap tires and find a way to recycle them in an environmentally friendly way. This is where research comes in. What are other states doing with their waste tires?

According to research, tire retailers such as Sears and Goodyear ship their tires out of the state to be recycled after they are collected. Instead, the state should find ways to recycle these tires within Hawaii. It is possible and could benefit the state in the ~~long run~~ long run. Other states, such as California and Minnesota, have found ways to recycle tires. For example, California uses their waste tires for rubberized asphalt concrete (RAC). Rubberized asphalt concrete consists of an asphalt binder, ground tire rubber, and other aggregate~~d~~ materials. RAC lasts longer ~~that~~ than traditional asphalt concrete(California Department of Resources Recycling and Recovery, 2012) ~~(California Department of Resources Recycling and Recovery)~~. This could

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be beneficial in Hawaii~~,~~ where there is already constant road work. A lot of the roads are deteriorating and have potholes. If RAC is used, there will be less maintenance required and more money saved because there is less cracking. It is also reported that ten million tires have been used in California's RAC projects(California Department of Resources Recycling and Recovery, 2012) ~~(California Department of Resources Recycling and Recovery)~~. This number shows success in their recycling of tires and that it is possible to find a viable solution. Along with California's success in waste tire recycling, Minnesota has also found ways to recycle their tires.

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Taking a similar approach to California, Minnesota has used waste tires to build over unstable soil. It is found that because shredded tires are non-biodegradable, ~~it is~~ they are more beneficial to use as a lightweight fill material. Whole tires have also been used for erosion control near lakes (Minnesota Department of Transportation, 2011)~~(Minnesota Department of Transportation)~~. If states such as Minnesota are successful in finding a way to recycle their tires, then Hawai'i should be able to do the same. It could benefit as a long-term solution instead of paying for waste tires to be shipped to another place. It does not only have to stop with roads; Hawai'i could use these ideas to find other ways to recycle waste tires that will be beneficial to the state.

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In closing, scrap tire dumping is an issue that ~~people of~~ Hawaii needs to be more aware of ~~and~~ since it is a growing problem. If we do not recognize that, then it could get worse over time. Many people might not know the effects of tire dumping and it happens so frequently that it is not seen as a ~~big deal~~serious health and environmental threat~~. It is important that everyone recognize the health risks and environmental threats it has~~ ~~on~~ to our community. This can help promote cleaning up the streets on the Leeward coast and start a tire disposal program that

everyone in the state can participate in. Cleaning up ~~the~~ waste tires will help make it easier for those in the community appreciate their homes. We can start by building awareness ~~to~~ within ~~the~~ our ~~community~~ communities. Schools can help promote tire recycling and educating those around them of this problem; not just students. If the young adults are educated then this problem could be resolved over generations. Creating an environmental awareness group can also help in the disposal of waste tires. Recognizing the problem is the first step to finding a solution. Also, enforcing regulations and ~~creating~~ passing a bill can help promote recycling at a reasonable fee. Lastly, it is possible to find ways to recycle. If other states, such as California and Minnesota, have been successful so successful, there is no reason Hawai'i ~~should~~ cannot ~~not try~~ be as well.

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Works Cited Formatted: Font: Bold

California Department of Resources Recycling and Recovery. (2012, January 6). *CalRecycle*. Retrieved Febuary 1, 2012

Hawaii State Department of Health . (2009, May 6). *Solid and Hazardous Waste Branch*. Retrieved February 1, 2012, from State of Hawaii Department of Health.

Illinois EPA. (2011). *Illinois Environmental Protection Agency*. Retrieved January 27, 2012

Minnesota Department of Transportation. (2011). *Mn/DOT Materials Engineering*. Retrieved Febuary 1, 2012, from Minnesota Department of Trasportation.

~~California Department of Resources Recycling and Recovery. *CalRecycle*. 6 Jan. 2012. 1 Feb. 2012.~~

~~Hawaii State Department of Health . " Solid and Hazardous Waste Branch." 6 May 2009. *State of Hawaii Department of Health*. 01 Feb. 2012.~~

~~Illinois EPA. *Illinois Environmental Protection Agency*. 2011. 27 Jan. 2012.~~

~~Minnesota Department of Transportation. "Mn/DOT Materials Engineering." 2011. *Minnesota Department of Trasportation*. 01 Feb.2012.~~

~~Relating to Motor Vehicle Tires. SB 3006, 25 Jan 2012.~~

~~Relating to Special Wastes Disposal and Recycling. HB 1696, 25 Jan 2012.~~

S'meta
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Research Paper 1

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Bibliography

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California Department of Resources Recycling and Recovery. (2012, January 6). *CalRecycle*. Retrieved Febuary 1, 2012

Hawaii State Department of Health . (2009, May 6). *Solid and Hazardous Waste Branch*. Retrieved February 1, 2012, from State of Hawaii Department of Health.

Illinois EPA. (2011). *Illinois Environmental Protection Agency*. Retrieved January 27, 2012

Minnesota Department of Transportation. (2011). *Mn/DOT Materials Engineering*. Retrieved Febuary 1, 2012, from Minnesota Department of Trasportation.

California Department of Resources Recycling and Recovery. *CalRecycle*. 6 Jan. 2012. 01 Feb.2012. <http://www.calrecycle.ca.gov/Tires/RAC/default.htm>

Earth 911. "*How Tires Get Recycled*." 2012. 22 Jan. 2012. <http://earth911.com/recycling/automotive/tires/how-tires-get-recycled/>

Environmental Protection Agency. "*Wastes - Resource Conservation - Common Wastes & Materials - Scrap Tires*." U.S. Environmental Protection Agency 22 Jan. 2012.<http://earth911.com/recycling/automotive/tires/how-tires-get-recycled/>

Hawaii State Department of Health . " Solid and Hazardous Waste Branch." 6 May 2009. *State of Hawaii Department of Health*. 01 Feb. 2012. <http://hawaii.gov/health/environmental/waste/sw/index.html>

Illinois EPA. *Illinois Environmental Protection Agency*. 2011. 27 Jan. 2012. <www.epa.state.il.us>

Minnesota Department of Transportation. "Mn/DOT Materials Engineering." 2011. *Minnesota Department of Trasportation*. 01 Feb. 2012. <http://www.dot.state.mn.us/materials/>

Relating to Motor Vehicle Tires. SB 3006, 25 Jan 2012.

Relating to Special Wastes Disposal and Recycling. HB 1696, 25 Jan 2012.

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Research Paper 1

~~Washington State Department of Ecology. *Waste Tires.* 2011. 22 Jan. 2012. Department of Ecology State of Washington. <http://www.ecy.wa.gov/programs/swfa/tires/fees.html>~~

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SB3006 In Support

Research

Scrap Tires Can Be a Non-Nuisance or Nuisance

Shad K. Rosario
English 200-WI 6pm March 16,2012

Scrap Tires Can Be a Non-Nuisance or Nuisance

Did you know there are ~~at least a dozen~~ hundreds of tires lying along roadways? ~~Reason~~The reason is, people just do not know where to put theme legally. Illegal dumping of tires found in brushes, gulches, alongside roadways ~~is~~ are an issue in today's society. However, there is a positive and negative approach to this situation. Positively, tires left can now be recycled and reused for the good. For instance, providing cushioned like landscapes for sports activities, children's playgrounds and mulch. On the other hand, negatively, tires left unattended can be risky. Likely, health issues and fire hazardous ~~would be~~ are the most common compliant. Some would say it is a ~~Non~~ non ~~Nuisance~~ nuisance ~~and~~ while others would say it surely is a ~~Nuisance~~ nuisance.

You have seen scrap tires dumped along the side roads, vacant lots, in allay ways, along coastlines and even your favorite stream ~~bens~~ beds. Sometimes tires are stacked more than likely at least a dozen at a time. When more are at ~~its~~ their usual place, those tires were left there during the night hours. Usually, when there is more than one pile, soon more will ~~come~~ follow. Some materials that are left back bring ~~soar~~ sores to the human eyes. This becomes a nuisance because soon volunteers are called in~~,~~ when non-profit organization ~~are needed to~~ clean up the mess left by unseen individuals~~,~~ who~~m has~~ have no care in the world. However, others may say it is not a nuisance only because they are making use of scrap tires.

However, these scraps tires ~~were~~ are left for various reasons. First, poor enforcement can become the cause because there ~~are~~ is "no federal legislation specially ~~addresses~~ addressing illegal dumping in American cities" (~~J.~~ Waddell). These poorly enforced laws and the lack of available space can be the cause of this problem. Secondly, there is no control over the pollution when tires are burnt~~,~~; they become hard to digest. Third, people just want to make a few bucks by helping others in removing~~,~~ scrap tires~~,~~ t hen leaving these nuisance materials along the roadways. Finally, there is just no place without limited dumping. For instance, today some recycling industries only ~~allow~~ accept a certain ~~amount~~ number of tires. However, there are positive effects where scrap tires are concerned. The most popular ~~thing~~ approach nowadays is recycling.

Recyclers often take tires for the use to provide safer landscapes for children such as through the use of rubber mulch, roadbeds, and running tracks that reduces injuries. These are just a few benefits mentioned. Blumenthal states, "Since rubber has been shown to leach toxic contaminants, there might be cause for concern. However, tire rubber has also been shown to have benefits by removing metals and organic chemicals from ground water. The actual amount

of contamination leaching from artificial turf used on playgrounds or athletic fields needs further research to determine the potential harm to human health or the environment" (Blumenthal).

Recycling tires reduces pollution and energy consumption. Finding new uses for ~~used~~ scrap tires is the most useful idea. Grinding tires down to crumbs to become rubber to use to make new products is the next best option because it keeps the material around to be recycled yet again. Recycled tires ~~is~~ are a one-time energy savings that can be realized by burning tire chips for fuel, but that obviously ~~fore-closers~~ prevents further recycling opportunities. Nevertheless, promoting burning waste tires in cement ovens cannot support that it is safe to do so. It is likely that an increase in the use of waste tires as fuel will be damaging to the public's health and wellbeing. However, the people in communities always focus is on the cause and effects concerning these scrap tires.

Like any material, care must ensure ~~the~~ that tires are somewhat contaminated by debris that may be a harmful. In general, reusing scrap tires has a number of positive environmental benefits. About half of the annually generated scrap tires used for fuel, primarily by cement and paper industries,~~; they used scraps~~ to generate electricity. Tires used for fuel ~~that~~ is more popular because the energy provided by tires is comparable to that of oil and greater than that of coal. Though there are issues yet because of the concerns regarding the environment; however, tires are low on sulfur and have low gas productions. However, there are still concerns regarding these rubbery materials.

The ~~F~~first~~,~~ concern is regarding health issues. Illegal dumping of scrap materials such as tires, pose health threats. Wet tires accumulate pests such as mosquitos of several varieties that carry deadly diseases like dengue fever. Pests can become the main invader especially after it

rains. These pests seem to like ~~breathing~~ breeding during the next day after the rain subsides then manifestation occurs. When this happens, ~~then~~ there will be more pests and more health risks.

Secondly, fires from scrap tires are harder to extinguish. Health causes such as combustion issues due to inadequate combustion can result in ~~these~~ chemicals from tires that are ~~releases~~ released into the air and lead to the creation of toxic gasses. These gasses ~~called~~ include benzene, ~~based of a~~ colorless unstable toxic compound, and include hydrocarbon that is a chemical, ~~,~~ both of which ~~produces~~ are toxic environmental pollutants.

Third, the accumulative impact of illegal dumping can have a devastating impact on fish and other wildlife in the area. Local creeks have a variety of problems, including storm water runoff containing numerous pollutants, illegal dumped trash ~~dumping~~, and wastewater discharges, becomes situate habitat destruction. When this occurs, the eco-system and habitats ~~become~~ are ~~disruptive~~ disrupted.

However, ongoing dumping continues to persist. The problems with removing tires becomes costly, ~~,~~ ; people in communities always bring bad impressions that visitors will not come back because it is a disgrace to see. Then when bad impressions are noted, then another impact begins economically, then everyone become affected because of these dumped tires. Community members complain, bitch and ~~grown~~ groan instead of getting their hands dirty, ~~concluded~~ by removing these scraps tires. ~~However, there are those who do not see it is an issue.~~

Yet, negative and positive weighs out but the issue remains the same. Dumping tires has affected communities. However, there are rules about scrap tires that individuals are continuing to disobey ~~the environmental~~. However, there are community-based strategies for cleaning by public awareness. This task can modify to fit ~~the~~ each community since every town is different

and no one process will fit ~~all~~ each ~~communities~~ community. For example, an anonymous tip from citizens and property owners are kept anonymous every time there is a complaint. People in their community are more than likely to put ~~somewhat of~~ a program to have these scraps taken away. Some will just help ~~the~~ with scrap tire removal because of their personal feelings

According to Blumenthal, ~~states~~ "up until the late 1960s most Americans did not seem to "give a hoot" about roadside pollution. At least there were no organized federal or state programs that took an activist view toward stopping the dumping of tires." Today, there are more than tires left along roadside illegally. Now people are being more aware. However, there have been small changes concerning this matter. Regulations passed by ~~congress~~ Congress ~~for~~ of the Resource Conservation and Recovery Act (RCRA), which ~~gave~~ gives the ~~environmental~~ Environmental Protection Agency (EPA) the authority to control hazardous waste from "cradle–to-grave" (Blumenthal). For example, when tires are taken to landfills, this provides a framework for management to control hazardous wastes, which is a turning point in landfills regulations and control. Where regulations are concerned, these protected agencies are authorized to protect the landscapes from these materials. Controversy continues whether to allow more then limited tire be recycled or not.

In other words, people see scrap tires being convenient habitats for rodents, hold water and become excellent breathing grounds for pests, but while the debate continues, tires still are tossed into the environment. Therefore, why not have tires reused? More ~~i~~importantly, tires and inner tubes are made out of rubber. These materials are all along city blocks. Because of these materials, more landscapes will provide cleaner environmental and a safety zone for human beings. The degree to which rubber can lead to environmental contamination is currently not clear. ~~Since rubber has been shown to leach toxic contaminants, there might be is cause for~~

concern. The degree to which rubber can lead to environmental contamination is currently not clear. Overall, some people seen on the islands have mounds of tires in their backyards. Some are being use for swings, planters, boundaries and other essential uses. Nevertheless, scrap tires ~~is~~ are not a bad thing, there are reasons why we see the difference between someone tossing them out and someone ~~stacks~~ stacking them in their yard. Moreover, if tires are the issue, then why are community members not focused on other hazardous scraps such as automobiles, broken old refrigerator~~'~~s, furniture~~'~~s and dead animals. Although scraps are, benefits and recyclable communities and individuals are still making this situation part of their business.

Work Cited

Blumenthal, M. (2004). Scrap Tires Fuel U.S. Cement Industry. *Rock Products*, 18-23

Waste-Resource Conservation-Common Waste & Materials-Scrap Tires. (n.d.). ~~Retreived~~ http://www.epa.gov

~~Blumenthal, M. (2004). Scrap Tires Fuel U.S. Cement Industry. *Rock Products*, 18-23~~

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SB3006 In Support

Misty Carrillo
February 13,2012
English 200 6:00pm
Research Paper #1

Waste Tires

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Every year in the United States, 250 million car tires are thrown away (Welcome to Vulcana), ~~bringing about~~creating a serious disposal problem. Waste tires take up a considerable amount of space and are difficult to dispose of. More than 40 million waste tires are generated every year in California ("Tire Management"), while in 2009, it was estimated that Hawaii generated up to 1,000,000 waste tires every year, it is now 2012 and that number continues to climb. Even though the number of waste tires generated is significantly lower than that of California, it does not mean that Hawaii's waste tire problem is any less of an issue than California's tire troubles. The management of scrap tires is a growing ~~issue~~ problem and has been for many years in Hawaii. ~~W~~ because waste tires are a major source of pollution. With limited space and extremely limited resources, a solution needs to be found swiftly. Tires pose many safety hazards to the public, health wise, environmentally, and economically.

In numerous states, laws have been passed that establish deposits; refunds or fees to help support ~~the~~ scrap tire recycling costs. There are also tire amnesty days being held all over the country in an effort to decrease the number of scrap tires in several states. Various states even provide funding for waste tire clean up grants to help with the disposal of illegally dumped tires. As an answer to the dilemma, people have found multiple uses for

waste tires. People have come up with ways to recycle and reuse them in an environmentally friendly way. These approaches could be potential solutions to the problem that continues to plague the state of Hawaii. Even so, due to the lack of funds, even the simplest of solutions cannot materialize without monetary support. In order to get the ball rolling on establishing a productive system for tire disposal, necessary steps need to be taken.

Senator Maile Shimabukuro of Hawaii has recommended Senate Bill 3006 in hopes of establishing a special fund to reverse the damage that illegally dumped tires are having on the Hawaii's environment ~~of Hawaii~~. Senate Bill 3006 could be the means necessary to initiate the beginning of a successful solution to a difficult problem. House Bill 1696 is a bill to protect and maintain Hawaii's existing environment and crackdown on the illegally dumping ~~of~~ car tires by creating a tire retainer policy. By setting these bills into motion, the state and the people of Hawaii are becoming aware of the seriousness regarding illegally dumped tires.

Illegal dumping is any unauthorized disposal of waste ("Tires") on any public or private property. Usually, people dump illegally to avoid collection and disposal fees, or because they believe proper disposal is tedious and time consuming. Tire dumping in Hawaii is a nightmare and a huge obstacle to overcome. Whatever the reasons for illegally dumping tires, it is inexcusable and needs to be addressed.

The problem of illegally dumped tires should not be taken lightly. Besides being an eye sore, they are a serious problem to our communities. They are not only hazardous to

the environment, they are hazardous to the public's health. Dumped tires make excellent breeding grounds for mosquitoes and the diseases they spread. Tires containing water provide an ideal "incubator" for mosquito larvae and mosquitos take full advantage of this. Illegally dumped tires increase the threat of ~~Dengue~~ dengue ~~Fever~~fever, which is a disease transmitted by a mosquito bite. Mosquitoes usually pick up the ~~Dengue~~ dengue ~~Fever~~ fever virus while feeding on the blood of an infected person. The infected mosquito is capable, during probing and feeding off humans, of transmitting the virus for the rest of its life. Inadequate waste management systems are a big factor in the increase of mosquito populations and make ~~it~~ possible ~~for~~ the transmission of mosquito-borne diseases effortlessly.

Another mosquito-borne disease is ~~Encephalitis~~ encephalitis. Encephalitis is inflammation of the brain. It is among the most serious conditions linked to mosquitoes and afflicts over 100 Americans per year. The diseases of major concern in the U.S. for mosquito-borne encephalitis are:

- Dengue Fever
- West Nile virus
- Encephalitis

Encephalitis is a serious threat to not only the public's health but also animals. It also affects the central nervous system of many species. Tires filled with stagnant water are ideal in hastening the infected mosquito's reproduction capacity. Encephalitis is a terrible disease that causes brain tissue to swell, destroys nerve cells, causes bleeding in the brain,

memory loss, can even cause coma and irreversible brain damage. Fatalities are few and far between but not unheard of in humans. For humans' the symptoms are either not present or similar to a mild case of the flu such as headaches, fevers, body and muscle aches, sluggishness and feelings of weakness. In cases that are more serious, an infected person can experience seizures, hallucinations and lose consciousness ~~to name a few~~.

Another danger of waste tires is fire hazards. Tire fires in Hawaii have taken place on several occasions, for the most part at tire recycling establishments, resulting in one of the most sizable fires until this day, at a location in Maili. That is where substantial amounts of waste tire chips were being ~~stocked~~ stockpiled. A number of tire fires have occurred in the United States and abroad throughout the years. For example, ~~T~~there have been major tire fires at Panoche, Tracy and Westley in California. On August 7, 1998, a tire fire took place at S.F. Royster's Tire Disposal south of Tracy, California, the tire dump had illegally stored over 7 million tires on the property and the tires were ignited by a brush fire. That tire fire ~~was allowed to~~ burned for over two years before it was finally put out. Letting the tire fire burn was considered ~~a~~ the smarter alternative to help steer clear of groundwater contamination rather than extinguishing the fire. Another major tire fire occurred in September 1999 in Westley, California when lightning struck a tire dump. Approximately five million tires caught fire and burned for 36 days. In both situations, human health was a major concern. Many residents ~~were~~ had to be evacuated and some were warned to remain inside their homes with the windows securely shut in the hopes ~~that it will~~ of keeping some of the pollutants at bay. The long- term effects are still undetermined.

Tire fires can cause poisons or polluting substances to affect the air, soil and water and have a negative impact on human health and the environment. Aside from the obvious potential respiratory problems, tire fires can contaminate ground water; oily residues leach into the soil and cause pollution. Burning tires release thick black smoke that contains large amounts of air pollutants and contaminates the environment. Tire fire emissions can pose significant health hazards to all involved (firefighters, police officers, emergency responders, volunteers, residents, etc.) and can cause irritation of the skin, eyes, and mucous membranes, respiratory effects, central nervous system depression, and cancer. The long-term environmental and health effects are still unknown, but they are not expected to be good for either the environment or one's health.

Tire fires are extremely difficult to put out. Tires burn adeptly because of the amount of empty space and the doughnut-shape of the tire. This allows air drafts to pass through the tires and the trapped oxygen continues to add fuel to the fire and stokes the flames. An alternative to water and the most effective solution to putting out a tire fire ~~are~~ is by using soil. ~~The~~ Only soil is able to reduce the supply of oxygen circulating throughout the tire fire.

In order to address these concerns, ~~C~~currently 48 states have laws or regulations dealing with scrap tires. Many states are actively involved in the proper disposal of waste tires and the management of these discarded tires. In 1985, Minnesota was the first state to proceed with laws that dealt with the management of scrap tires. They are now quite successful in directing the flow of tires. West Virginia has established a scrap tire fund, which requires a $5.00 vehicle registration fee that goes to the Department of Transportation to fund a stockpile cleanup program. Alabama has $1 fee for every tire sold

at retail price to fund stockpile cleanup grants and fund scrap tire market development grants. They are trying to find innovative ways to make use of scrap tires. Nebraska charges a fee of $1 for every retail sale made to help fund their Waste Reduction & Recycling Fund that in turn provides $1 million in grants and loans to support tire recycling projects, market development and county amnesty days.

What exactly is a tire amnesty day? It is when people can dispose of their tires free of charge. It is also meant to raise public awareness and mitigate the adverse environmental impacts created by unlawful dumping or storage of waste tires. These are the ultimate purpose of such events. Removing waste tires from local neighborhoods promotes public health and safety and brings up the morale in the communities.

Many other states are finding innovative ways to make use of scrap tires. For example, rubber modified asphalt has grown quite popular. It has been used in highway construction, riverbank stabilization projects, septic systems, and many other forms. By using rubberized asphalt in the construction of highways, the end product is overall quality material. The benefits of using asphalt rubber include: longer lasting road surfaces, reduced road maintenance, cost effectiveness over the long term, reduction in the levels of road noise and shorter breaking distances.

Scrap tire material is also currently being used on playgrounds, as a spongy material for matting under the playground equipment. Materials used on the playground act as a cushion and absorbs some of the impact from falling children and objects. The benefits of using scrap tires for recreational and athletic uses include: in playing fields when used as an additive in the soil, it increases the resiliency of the field as a result decreasing injuries.

By using it for track material for runners, it decreases the amount of stress on runner's legs. It is beneficial for those who lead active lifestyles and are concerned about potential injuries.

Scrap tires are also used as insulation for roads, on walls and bridges for adjustments. Some states, such as Alabama and Florida, allow tire shreds to be used in construction of drain fields for septic systems. By using the components from the scrap tires, it reduces the cost of materials and labor expenses because it is more easily transported due ~~to it~~ being lighter ~~in weight~~ than other materials like concrete and stone. Whole tires can be used to control erosion and form a barrier as a runoff for rainwater. Whole tires are commonly seen as crash barriers ~~for~~ at racetracks and as bumpers at boat marinas. Those who have an interest in planting may find scrap tires serviceable as a planter. Finely shredded scrap tire pieces could be used as an additive in soil. Scrap tires could even be ret~~h~~readed and be used on the road again. Whole tires can be used as tire swings or recycled into doormats. There are countless creative and useful alternatives for scrap tires that can be beneficial to many people. There are now roofing shingles made out of the rubber material found in scrap tires. Not only is this an awesome alternative to standard roofing shingles, it is also environmentally friendly. ~~It~~ They may cost more than traditional shingles, but in the long run, it is well worth it because they are extremely durable and ~~will~~ last a very long time. The same could be said about the roads that are using rubberized asphalt. Cost wise they are expensive to construct, but in the long run, they are well worth the money. The amount of money it takes to maintain the roads of traditional construction over time exceeds the cost of using rubberized asphalt. It has multiple benefits and is highly efficient.

It is apparent that Senator Maile Shimabukuro's and the House Bills are the first step in the right direction in finding a solution to the problem of illegally dumped tires and their disposal. Raising the public's awareness of waste tire disposal and the illegal dumping that is taking place can have an impact on the community and environment in a positive way. Sharing how hazardous illegally dumped tires are to the public's safety, health, environment and economy, can make a difference in the state of Hawaii. Helping people realize the usefulness and unique alternatives that are emerging everyday concerning recycled tires could be an eye-opener for many who have not given a second thought about how tires in Hawaii are disposed of.

Overall, the big question is, "How can Hawaii's natural environment be preserved and is it worth preserving?" There should be no debate about a considerably low fee of $1 to help with the funding to establish a motor vehicle deposit fund and a tire cleanup fund that helps enforce proper tire disposal. In the end, not only are the people of Hawaii coming out on top, so is the environment and community.

"Welcome to Vulcana." *Vulcana*. Vulcana, n.d. Web. 17 Mar 2012. <http://www.vulcana.net/default.aspx?src=QSA130>.

FINTestimony

From: Karen Young [kgsyoung@hotmail.com]
Sent: Monday, April 02, 2012 2:27 PM
To: FINTestimony
Subject: TESTIMONY IN SUPPORT OF SB 3006

TESTIMONY IN SUPPORT OF SB 3006

Hearing on 4/3/12, 6pm

Dear House Finance Committee Chair Marcus Oshiro, Vice Chair Marilyn Lee, and Committee Members:

Every time we do a major clean up here on the Wai'anae Coast, we find alot of discarded tires. They litter
the coast, and are often in difficult places (off of cliffs, in the keawe, way in the brush, mixed with other heavy
litter, etc.)

They are bulky, dirty and heavy and we drag them to the pick up spot.
Due to its bulkiness, sometimes 2 of us have to drag it.

Imagine a virtual mountain of tires, when the clean up is done!

However, then comes the worse problem of who will take them away.

There is a limit to the amount a facility will accept. And the cost is prohibitive especially if there is a
large amount.

The tire bill will help keep our aina clean and uncluttered.

Please support the TIRE BILL !

Mahalo,

Karen GS Young ph 388- 8828
Fred Dodge, MD ph 277-0345
Summer O. Miles ph 721-6592

FINTestimony

From: mailinglist@capitol.hawaii.gov
Sent: Monday, April 02, 2012 9:34 PM
To: FINTestimony
Cc: suiso@aloha.net
Subject: Testimony for SB3006 on 4/3/2012 6:00:00 PM

Testimony for FIN 4/3/2012 6:00:00 PM SB3006

Conference room: 308
Testifier position: Support
Testifier will be present: No
Submitted by: Mark Suiso
Organization: Individual
E-mail: suiso@aloha.net
Submitted on: 4/2/2012

Comments:
I like the current version SB3006 SD 2 HD1. I provides some funds to address the problem It charges a broad based group to seek a solution and gives them a deadline. If the group cannot develop a solution. they should be disbanded and the surcharge removed.

FINTestimony

From: Karen Young [kgsyoung@hotmail.com]
Sent: Monday, April 02, 2012 6:20 PM
To: FINTestimony
Subject: Supplemental Testimony in Support of SB 3006 HD1

Supplemental Testimony in Support of SB 3006 HD1

The current draft of SB 3006 reinstates a $1 deposit on new tire imports. This fee will generate much needed funds for DOH to prevent illegal dumping and pay for disposing of illegally dumped tires. DOH, the City, and even Lex Brodies supports this $1 deposit. Please keep this deposit in the bill to give it real TEETH! The task force created by the bill is also a good step in the right direction.

There are scattered tires that litter the beaches and side roads of our community.
We are angry that once again, another dumping is happening in our community.
My guess is that in the "nicer" communities, this is once again, "not a problem", something they don't see, or have to contend with !

When we have a major Clean Up we end up with literally a mountain of tires !! The City will arrange for 1-2 truckloads of tire pick ups usually. The rest, we have to somehow dispose of on our own. Also, some of these tires are of industrial size, and it's no small task to get them to the edge of the road for pick up.

There is a fellow on Apana St. in Wai'anae that has a huge collection of tires ready, near the entrance of his large lot. He hauls a pile of them out whenever there's a big clean up on his street. If you doubt my words, go ↄ Paakea Rd. in Wai'anae and go down until you come to Apana St. and look for yourself – or tell someone to check it out for you.

Unitek is the only tire recycler in the island that I know of. They charge for acceptance of tires. For 500 tires, it typically is approximately $3,000. For 800 tires, it costs between $6,000 - $10,000. Perhaps my figures are inexact, but my point is that it is prohibitively expensive to take tires to Unitek. And it is taxpayer dollars that pay for the disposal of dumped tires, via the City and State!

Help us keep our environment clean and STOP making us have to scramble to find taxpayer dollars to pay for disposing of illegally dumped tires !! Please pass SB 3006 with the $1 tire charge. That is just $4 for 4 tires – yet it will help keep our environment from being a dump ! Mahalo.

Karen GS Young
Fred A. Dodge, MD
86-024 Glenmonger St.
Wai'anae, HI 96792