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Examining Bus Idling on the Dickinson Campus: Diesel Idling (Team 1 Report)

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April 1, 2012

Dear Dr. Les Poolman,

Thank you for choosing Bird's Eye Consulting to help alleviate diesel idling at Dickinson College. In early February, you asked us to devise recommendations to help ensure that Dickinson comes into compliance with Pennsylvania’s Diesel-Powered Motor Vehicle Idling Act (Act 124). It is a direct violation of Act 124 to allow a bus to idle for more than an average of five minutes at a time, and because of the number of buses athletic teams use, it is important to address the diesel idling issue. We have taken this issue seriously and provided an overview of the diesel idling problem on campus, along with recommendations we believe will be useful in carrying out measures to certify our compliance with Act 124.

Three of our leading associates were assigned to this assignment: Jesica Ray, Nolan Funchion, and Pietro Molino. They worked diligently for many weeks speaking with various sources on and off campus, researching Act 124, and preparing this binder. Most importantly, they kept in mind that Dickinson is a “sustainable campus” and diesel idling does not fit well with this title that Dickinson College has spent so much time and resources obtaining.

Bird’s Eye Consulting found that diesel idling at Dickinson might be a high magnitude problem on campus partly because there are nearly 500 inbound and outbound buses per year for sporting events. As a relatively new law, we believe measures can be taken to better educate the bus drivers and other stakeholders about the harms of diesel idling. In this binder, we will discuss measures our campus can take to reduce diesel idling including creating a uniform no idling contract with the Centennial Conference bussing companies, the option of placing “no idling” signs, flyers, etc. on campus to educate the public about Act 124, and having one central parking lot where idling busses can be easily monitored.

We would like to thank you again for choosing to work with Bird’s Eye Consulting. If you would like further information, clarification, or have any questions, please feel free to contact us. We are available for further consulting as needed.

Sincerely,

Jesica Ray  Nolan Funchion  Pietro Molino
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PROBLEM DEFINITION

Diesel idling at Dickinson College is a high magnitude issue, resulting from the buses taken to Dickinson by visiting college and high school athletes. Visiting buses generally stay for six or seven hours, and while these athletes are competing, the drivers of these buses sometime idle their engine. Not only is the idling of these vehicles illegal due to Pennsylvania’s Diesel-Powered Motor Vehicle Idling Act of 2008, but diesel idling also counteracts Dickinson’s sustainability-oriented culture, and threatens the college’s “green reputation”.

Idling occurs when truck or bus drivers idle their engines while the vehicles are not in motion. Generally, drivers idle for one of three reasons:

• to generate heat or air conditioning;
• to keep the engine warm during cold weather;
• to provide electrical power for personal amenities.¹

Idling is not a small problem because trucks consume up to one gallon of fuel per idling hour. Nowadays, a gallon averages over four dollars. That said, nationally, trucks and buses spend almost $2.5 billion, or one billion gallons of fuel per year idling. One of the major concerns with this is that idling contaminates the air with about 140,000 tons of nitrogen oxide and 7.6 million tons of carbon dioxide per year.²

Members of the scientific community have found that diesel vehicles are an enormous source of the fine-particle emissions that contribute to the depletion of the ozone layer.³ Fine particles from diesel exhaust are a concern because they not only contaminate the air and increase ozone layer destruction, but they also act similarly on

² Ibid.
our bodies, causing many health issues. The hazardous fine particulate, that is created from the carbon, combusts through the engine and picks up toxic substances. The 2.5 micron particulate, known as PM2.5, is 1/20th the diameter of a human hair.

I. Potential Health Risks

The disadvantage of the existence of such fine particulate is that diesel exhaust particulate can be absorbed into the bloodstream, causing a variety of problems. Years of exposure to the diesel exhaust may lead to lung cancer, cardiovascular death, stroke, worsened asthma, reduced lung function growth, slowed fetal growth, infant mortality, or DNA damage. Dangerous health hazards can also develop within a day of breathing diesel particles. A day of breathing the particulate can result in asthma attacks, premature death, nervous system impairment, increased allergies, and infant mortality among others. In addition, a few hours of breathing diesel particles may lead to bodily irritation, pulmonary inflammation, adverse cardiovascular effects, doubled risk of death due to stroke, and suppressed defense mechanisms.⁴

Health risks are present in many circumstances, but data shows that there is a clear correlation between areas that do not meet the Environmental Protection Agency’s (EPA) requirements for air quality and the number of asthma or other respiratory problem victims. Looking specifically at Cumberland County, the American Lung Association (ALA) says that the area falls within the worst 2% of counties in the nation for fine particle pollution. The US EPA also flagged Carlisle, PA as a “non-attainment” area, which means that Carlisle does not meet the 1990 Clean Air Act’s standards for particulate pollution.

II. Who Suffers

According to the Clean Air Board, children suffer most from the fine diesel particulate problem because they spend more time engaging in vigorous outdoor activity than most adults do. Moreover, children biologically have a higher breathing rate relative to their weight and lung surface area than adults, so they are more prone to the health risks mentioned above.\(^5\) Cumberland County’s particle pollution has decreased over time and Cumberland County has passed the annual particle pollution assessment in recent years. Aside from Philadelphia and Washington counties, Cumberland is the third worst polluted area in Pennsylvania, according to the ALA. Figure 1 shows that Cumberland County has the highest percentage of pediatric asthma, chronic bronchitis, and emphysema cases per unit of population in comparison to Los Angeles and Philadelphia. Even looking specifically at Pennsylvania’s largest city, Philadelphia, the percentage of asthma cases is 10%, which is similar to that of Cumberland County. Overall, Carlisle’s idling problem should be addressed for the safety of the community, and more specifically, our students.\(^6\)

HISTORY OF THE PROBLEM

I. Overview of the Legislative Process

Regarding Carlisle, the problem of diesel idling began to gain recognition in 2005, when physicians, especially pulmonologists, noticed an immense increase in the number of patients affected by general respiratory problems. These physicians collaborated with some other local residents to found the Clean Air Board of Central Pennsylvania (CAB). CAB is "a faith-based group of concerned citizens (...) with input

from residents, educators, health professionals, government, and industry" whose goals are "to raise community awareness and to have air pollution in Central Pennsylvania reduced to levels at which our air is safe to breathe". CAB submitted a petition that asked the Environmental Quality Board (EQB) to establish regulations that restricted the idling time for diesel-powered vehicles. While the Department of Environmental Protection (DEP) was creating an idling regulation, the Pennsylvania Senate began drafting an idling law, which was later passed by the General Assembly, and called Act 124. Governor Rendell signed the Diesel-Powered Motor Vehicle Idling Act, which became effective in 2009. At the moment, as you can see in Figure 2, there are the 29 US states that adopted a law to regulate idling. The ALA used data collected from the U.S. EPA’s Air Quality System (AQS), which stores air quality data from over 10,000 monitors, to find that out of 277 metropolitan areas, our area was ranked 48th for high ozone days, 39th for particle pollution per day, and 37th for annual particle pollution.

II. Pennsylvania’s Diesel-Powered Motor Vehicle Idling (Act 124 of 2008)

The Act, geared towards buses and trucks, was designed to reduce excessive and unnecessary idling amounts of propulsion engine in diesel-powered motor vehicles. There are four main elements in Act 124.

- It prohibits any diesel-powered motor vehicle, over 10,001 pounds, to idle more than five minutes in any 60-minute period, with some exceptions depending on the situation.
- The consequences of a violation can be placed on either the drivers, the owners of the vehicle, or the owners and operators of the location where the idling occurs.
- The two categories of penalties under this law are summary citations, which entail a citation between $150 and $300, and civil penalties, which are fines of up to $1,000 per day for each violation of Act 124.

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• Any owner of property where these vehicles may load or unload, or where 15 or more parking spaces are provided for diesel-vehicles, must post at least one sign (shown in Figure 3) to inform the public about the restrictions;¹⁰

III. Diesel Particle Filters

The most significant innovation in recent affairs with regards to diesel fine particulate is the Diesel Particle Filter (DPF). The DPF is often referred to as the 90 percent solution because the filter achieves a 90 percent-plus reduction in diesel particles. The key facts about DPF’s include:

• generally cost around $4,000;
• were mandated by the EPA in 2007;
• have a 90% reduction in fine diesel particulate matter;
• and the filter can be installed on most vehicles built since 1994.

Although this 90 percent solution is an effective way to reduce fine particulate matter, because of the high cost and life span of most buses, many buses do not have the technology and ozone issues are still present.

CURRENT STATUS

I. Diesel Idling at Dickinson College

The issue of diesel idling at Dickinson College, specifically during athletic games, is very significant, and must be addressed. The total number of inbound buses per year at Dickinson, shown in Figure 6, for both college and high school sporting events, is estimated around 300. Given this large number of inbound buses, the probability of bus idling at Dickinson is very high. Moreover, college sports games can often be daylong events; therefore, buses could potentially be idling for seven or eight hours straight during harsh temperature days. In order to gather evidence, opinions, and advice on

how to best limit this issue at Dickinson, it is imperative to address why diesel idling is an issue at the college.

A prime reason why diesel idling is prevalent at Dickinson is the nature and layout of the college. The layout of the college itself poses an issue with its current parking situation. As shown in Figure 4, athletic events that are hosted at Dickinson are in three different areas.

1. Dickinson Park, which is 0.6 miles away from campus;
2. the Kline Center;
3. Biddle Field.

Once a year, the cross-country team hosts an event at Boiling Springs High School, which is five miles away from Dickinson. This wide distance between areas where athletic games are played makes it very hard for Dickinson Public Safety (DPS) to monitor bus idling. It is important to note that Dickinson does have a large lot, the Facilities Management Lot, shown in Figure 4, which is often left relatively empty on weekends and late weekday afternoons. However, buses currently park most often at the Kline and Dickinson Park lots because of their locations. The Kline Parking Lot in particular is relatively small and often filled, because athletes and coaches park their cars there. Therefore, there is rarely enough room for all buses to park there. This forces buses, during athletic games at the Kline or Biddle Field, to park at nearby Massey’s or on Belvedere Street, which creates another obstacle for the college; worrying about a third-party. These third-party obstacles make it more difficult to enforce idling, and pose another way for Dickinson to be fined under Act 124. Moreover, the Dickinson Park Lot gets filled with cars relatively easy, so there is not enough room to hold all the buses on a given Saturday. The current parking system at Dickinson must
be considered while making recommendations because the wide variety of parking areas that are being used currently for athletic games make it difficult to monitor idling. It is also important to consider that while the current lots being used are too small to hold all the buses for athletic games on a given Saturday, Dickinson does have an alternative lot that has the capacity to hold all of these buses with proper scheduling. However, the location of the lot is not as favorable as the current parking lots that are used.

Finally, while making recommendations, Bird’s Eye Consulting believes it is important to consider possible measures and policies, which have yet to be established, that Dickinson could utilize to help reduce this current issue. Dickinson currently does not have any “no idling” signs in these lots, as seen in Figure 3. In addition, Dickinson does not have the appropriate policies in place such as contracts with bus companies and efforts to educate the community about idling. Without these policies, the Dickinson community is made vulnerable to serious health implications. Overall, Bird’s Eye Consulting believes that during recommendations, it is important to consider the status of diesel idling at Dickinson, and the key factors that presently contribute to this issue. This issues include the current parking system, and the lack of policies or measures taken by the college to reduce diesel idling.

II. Similar College Comparison

As a way to analyze the subject of bus idling at Dickinson College, Bird’s Eye Consulting investigated the measures and issues of bus idling at 12 similar colleges, either in the Centennial Conference or those who are leaders in sustainability. As a way to compare and draw conclusions from this study, we ranked these 12 colleges based
on their performance on diesel idling, and categorized them into three groups, as seen in Figure 7. Two main conclusions that can be drawn from the results. First, the data shows a wide margin between many of these similar schools with regards to diesel idling measures, as some colleges, such as Franklin & Marshall and Haverford, are very responsive towards Act 124, while others, such as Swarthmore and Bucknell, hardly even acknowledge this issue. Secondly, when comparing Dickinson's actions towards diesel idling to the 12 schools surveyed, Dickinson falls in the upper tier of the third category since the college has taken relatively no measures, but the athletic director is aware of the law and this issue on campus. Although the data does suggest that several similar schools to Dickinson have taken more comprehensive approaches to diesel idling a consideration while making recommendations is the possibility of bias and the reliability of the 12 schools surveyed. Athletic directors may be motivated to exaggerate their school's measures in order to create a positive image for the college they represent.

III. Haverford College Case Study

In order to evaluate and find possible approaches that Dickinson can adopt do to limit diesel idling during athletic games, Bird’s Eye Consulting examined and performed a case study on Haverford College, a similar school that has taken significant measures to limit diesel idling. Reliability on the part of the athletic director was not an issue when speaking with Wendy Smith, the athletic director at Haverford College, who laid out measures and specific guidelines her college has taken.

After our case study on Haverford, we drew several conclusions on the differences between Haverford and Dickinson with regards to bus idling measures,
some of which were categorized as structural differences, while other differences were human action measures. From a structural standpoint, Haverford has an ideal college-configuration, which greatly helps reduce idling on its own. As seen in Figure 5, all buses park at the bottom of Haverford College’s campus map, the South Parking Lot, which is much larger than Dickinson’s Kline Parking Lot. During athletic events, only buses park here so the lot is never filled with coaches’ or athletes’ vehicles. Also, this lot has five “no idling” signs, and more in other lots on campus, to better enforce the law. Directly north of this lot is Haverford’s athletic center, the GIAC, which is also the home of Haverford’s campus security, making it very easy to monitor idling since the parking lot is directly outside. In addition, Haverford’s “Coup”, a larger version of Dickinson’s “Snar”, is directly to the right of the South Parking Lot, which provides a close indoor place for bus drivers to sit, eat, and watch television. Finally, all the athletic fields are to the left of the parking lot, which gives drivers the ability to monitor their vehicles from a close distance.

With regards to busing contracts, Haverford College calls all of the colleges’ and local high schools’ athletic directors who travel to Haverford for sporting events to make sure that not only they are aware of Act 124, but also that their busing companies are aware of the idling laws. A key statement from Smith that exemplifies Haverford’s concerns with idling is, “we try to reduce idling from incoming buses as much as possible at our school; however, it is just as important to make sure that we take responsibility for our athletic buses also.” Haverford has a no idling policy in their contract with Werner, their bus company, to reduce idling at all schools that Haverford travels to for athletic events. (W. Smith, personal communication, Feb. 16, 2012).
IV. Bus Company Study

Before analyzing the three main liabilities under Act 124 at Dickinson, Bird’s Eye Consulting interviewed seven bus companies, which were placed into two categories (above average compliance and needed improvements) in order to gain information and current measures of bus companies that can be considered while making recommendations to improve this issue at Dickinson (Figure 8). One important result from this investigation is that, unlike the similar college data, the seven bus companies have taken relatively similar actions to promote and enforce Act 124. Another important result to note is that Dickinson’s bus company, Bieber, has taken additional measures to reduce diesel idling, such as implementing GPS monitoring devices and clearly identifying policies for bus drivers when at off-company locations. The above compliant actions taken by Bieber will be helpful when making recommendations as the results show that Dickinson’s bus company promotes and enforces Act 124. Finally, an important consideration while analyzing this data is the reliability of the representatives interviewed, and the difference between “abiding and following Act 124” and actually listing out specific measures and educational tactics used to combat this issue.

V. The Three Liable Stakeholders

When focusing on the diesel idling issue at Dickinson College, it is important to consider the three main parties who are affected by Act 124 and their incentives and stakes. Under Act 124, the three groups that can be fined and penalized for violating idling policies are the drivers, the owners of the vehicles, and the owners of the property where the idling occurs, which in this case is Dickinson College itself.
Bus companies have an important role, due to Act 124, to make sure that their employees are cognizant of the idling policies in Pennsylvania, and moreover, abide by these restrictions. Typically, fines and citations because of idling violations do not directly affect the company from a monetary standpoint, since the employee is required to pay for the violation. However, bus companies are negatively affected by these violations from a reputation standpoint, because they do not want the public to view their company in a negative light. In addition to sustaining a good reputation, bus companies are directly affected by their employees’ idling habits because of the wasted fuel costs that result from idling. Idling continuously for an hour has an average cost of around one dollar, and considering today’s economy, many bus companies are beginning to recognize this economic incentive to promote no idling. Although it seems logical for bus companies to take sufficient strides in enforcing idling to their employees, there are a few issues and problems to consider. It is important to keep in mind that bus drivers typically idle off-company grounds, making it hard for companies to actually monitor this issue. Similarly, since drivers are often off company headquarters, realistically, any measures companies take to make strides to enforce and promote Act 124 to their employees does not guarantee that the drivers will actually abide by the commands. In addition, based on the bus companies we examined, we consider that employees pay for their own idling fines, therefore, it is important to determine how much companies actually care about their employees receiving citations.

The second party that must be considered when evaluating the issue of diesel idling at Dickinson is the bus drivers. An important consideration when investigating bus drivers’ incentives to idle is how effectively no idling policies are monitored and
enforced. Bus companies often have some trouble monitoring the behaviors of their drivers while the drivers are on the road. It is important to note that several bus companies have recently implemented GPS technologies to monitor their employees’ idling; however, the majority of buses still do not have this device. Another matter that must be considered is how effectively Act 124 is regulated and enforced. If enforcement is relatively weak, it is important to question whether this lack of regulation results in continued idling from bus drivers. It is also essential to consider other potential factors of diesel idling by bus drivers. Weather conditions tend to affect drivers’ tendencies to idle. In an interview with Dr. Les Poolman, the athletic director of Dickinson College, noted that in the summer and winter idling is much more prominent, and he also suggested that although indoor accommodations may sometimes affect idling when temperatures are not ideal, drivers will tend to idle regardless of whether or not there are controlled climate accommodations. From a legal standpoint, several bus companies prefer that their drivers stay on the bus in fear of athletes having their personal items stolen during games. The possible status-quo and traditional tendencies of the bus drivers, who have worked in this field for a long time, and the likelihood that these drivers may be used to idling should also be considered. Representatives from both the CAB and ALA noted this possibility. They explained the difficulties in educating some bus drivers about how idling negatively effects the atmosphere and their own health to Bird’s Eye Consulting. It is imperative to note that all of the considerations and questions identified above are contingent, not definite explanations and reasons.

The final stakeholder that can be found liable for idling violations during athletic events at Dickinson is the college itself. As shown in Figure 4, the current parking
situation, due to the distance between the different lots, at Dickinson makes it difficult to monitor idling. Another concern for the college with regards to parking could be the potential fines and tension from idling in Massey’s parking lot. While analyzing the possible repercussions from violating Act 124, it is also important to consider the college’s violation of inadequate no idling signs in the parking lots. While making recommendations, Bird's Eye Consulting thinks it is vital to recognize the stakes and incentives of the college and the potential violations it could receive. It is also important to identify the value Dickinson places on sustainability; a forefront issue in today’s society, and the impact an idling violation would have on Dickinson’s “green” reputation. A potential consideration while making recommendations is not only removing the possible negative reputation from idling violations, but leveraging a parking solution and idling policy as a way to gain recognition in sustainable rankings, who now incorporate idling policies and measures as a part of their rating system.

VI. Secondary Stakeholders/Experts

The American Lung Association of Pennsylvania (ALAPA) is a national organization with a goal of preserving healthy lungs and air in our nation. The ALAPA was one of the three outreach groups, designated by the DEP of PA, to help educate the public about the new idling restrictions. In Bird’s Eye Consulting's interview with Kevin Stewart, the Director of Environmental Health for ALAPA, Mr. Stewart addressed the magnitude of the problem of diesel idling, and gave significant insight into the current status of this issue. The underlying message throughout the entire conversation was that with the given circumstances of today’s technology, economy, and ethical concerns, there is no prominent reason to idle. ALAPA’s stake in this issue is large, as
its ultimate goal is to have a cleaner atmosphere and environment, which will reduce health risks. By handing out flyers, notifications, signs, and guest speaking at school districts, companies, and to the general public, ALAPA tries to spread notice on this issue throughout central Pennsylvania.

Stewart also gave insight into possible measures Dickinson specifically could take to limit this issue. He first identified two of the three liabilities as a result of Act 124, the college itself and the bus companies. Stewart praised Dickinson for its leadership in sustainability and drive towards individual projects and research. He claimed that the most important measure ALAPA takes is to educate the public about the side effects of diesel exhaust. Stewart believes Dickinson could potentially take the same steps through creating student-led groups to advocate this issue and educate the Dickinson community about idling. Further, Stewart advocated that increasing the awareness of this issue on campus could lead to other measures such as increased patrol and monitoring, contracts with bus companies, and posting more no idling signs (K. Stewart, personal communication, Feb. 23, 2012).

The Clean Air Board of Central Pennsylvania has very similar goals to ALAPA. Representatives of CAB that came to speak to us explained that although stakeholder associations with regards to diesel idling can take initiatives through control measures, the most effective way to reduce diesel idling is by raising awareness in communities. Thomas Au, President of CAB and a main force behind the creation of Act 124, stated, “there is only so much we, and associations like the ALAPA, can do to control the issue on our own. That is why educating and informing the public is such an important part of our job. Without public awareness on the issue, and negative effects, of diesel idling,
there will be little success.” This stakeholder association plays a vital role in educating the public in Central Pennsylvania because everyone, to a certain extent, is affected by the negative externalities of diesel idling (T. Au & J. Wasicek, personal communication, March 1, 2012).

In a lecture to our class, Dr. Les Poolman, noted the nature of Dickinson’s campus and athletic fields as a prime reason to the idling issue at Dickinson. Poolman highlighted that the wide range of areas where sporting events at Dickinson College occur, makes it difficult for DPS to manage the idling that occurs. Another issue that Dr. Poolman mentioned was that the current lots used for buses to park do not have sufficient spaces to hold all the buses on a given Saturday. Some of the actions that Poolman has already considered include bringing up the idling conversation in the Annual Division Three NCAA meeting in May, forming idling contracts with visiting schools, and having a written contract with Dickinson’s busing company, Bieber. Further, also present at the lecture was DPS Chief Dee Danser, who gave a perspective on enforcement of Act 124 at Dickinson. She clarified that DPS does have the ability to legally enforce and help regulate the no idling law. Similar to Stewart’s opinion on idling, Danser thinks that regardless of whether the vehicle is 10,000 pounds or more, idling is unnecessary. (D. Danser & L. Poolman, personal communication, Feb. 27, 2012). All of these interviewed officials had great insight and advice that Bird’s Eye Consulting took into account when making recommendations.

RECOMMENDATIONS

I. Recommendations for the Athletic Department

Bird’s Eye Consulting believes Dickinson College’s athletic department can
play an important role in decreasing the amount of diesel idling that occurs on campus. Since Dr. Les Poolman will be meeting with the other athletic directors from the Centennial Conference in May, we believe it is important to put diesel idling on the agenda. Creating a uniform policy for diesel idling between all the schools in the Centennial Conference and the bus companies that they use will be a useful tool to educate the drivers of the law, and notify the companies that we are serious about addressing the diesel idling problem. Cooperation between all the schools will be beneficial in creating a positive image for the schools’ sustainability ratings and will spread awareness in a more effective manner. The only significant challenge we may encounter with creating a uniform contract between the Centennial schools and the bus companies is the time needed for completion. The cost will likely be low since it is just a matter of re-drafting bus contracts. Bird’s Eye Consulting expects that this option has a high likelihood of adoption and we have confidence that it will be successful in reducing bus idling on college campuses.

Other ways to raise awareness of the diesel idling problem at Dickinson is to place signs in parking lots to inform bus drivers about Act 124 and to hire students who welcome drivers to campus. “No Idling” signs, as created by Act 124 and seen in Figure 3, cost around $30, but since Dickinson parking lots are not required to have the official “no idling” signs, we can create more aesthetically pleasing ones. For example, Figure 11 shows an example of a no idling sign that relates both to Dickinson College and the Pennsylvania no idling laws. These signs can be strategically placed around whichever lots we designate the buses to use. They can serve as a reminder of the law for the drivers, and present Dickinson as a school that is extremely interested in taking
sustainable measures to reduce harm to the environment and students’ risk of respiratory problems. We believe this option does not require too much time to carry out, we do not expect too much deliberation on the signs, and are confident that the sign will serve as a friendly reminder of Pennsylvania’s no idling policy. Even though the signs are relatively pricey, it is a “one-time” price that we believe Dickinson can find a way to fund. Further, hiring students to approach the bus drivers upon arrival to campus will be a good way to make the drivers feel comfortable. The students can offer the drivers vouchers for coffee and/or a light snack and guide them to possible sitting areas on campus, such as the Biblio café, the Snack Bar, or the Quarry. Currently, Dickinson’s Conference and Special Events (CASE) organization hires students to direct visiting students and/or organizations where to park and where the buildings are on campus. Working off of their idea, Bird’s Eye Consulting believes this could be an effective measure to help alleviate the idling issue. Figure 4 shows that if we were to direct all the buses to park at the 5 N. Orange St. Parking Lot (the facilities lot), than many snack areas would be less than half a mile walk away. This may be inconvenient for some drivers, but hopefully the free snack coupons will serve as an incentive. These students can further assure the drivers that their buses will be safe as long as they are locked since DPS generally can come by to check on the buses for both idling and safety. Hiring students will probably be a low time-consumption project because we already have a work-study program in place. However, this method of trying to take measures to reduce idling may be too costly and the drivers may still feel uncomfortable. We have high confidence in the three suggestions we have provided for the athletic department, but some require more time or money than others.
II. Recommendations for Dickinson Public Safety

The current parking situation at Dickinson College during athletic events is a main reason behind the diesel idling issue. The distance between and the size of the four main lots or streets that are currently used makes it hard to monitor idling. As a result, we feel that it is imperative to suggest to DPS a new parking alternative, where all buses can park in a single location, to help limit this issue on campus.

The main recommendation for DPS is to direct all buses for athletic games to park in the Facilities Management Lot. This lot is large enough to fit 4-5 buses on most days, and has indoor accommodations, such as a pool table and kitchen for the drivers. As seen in Figure 10, last year, there were only two days where a high number of buses came to campus. Both of these days were for track events during our Winter Break, when space was not too much of a concern. Otherwise, the bar graph shows that there are rarely any days when there are more than three incoming buses. These attributes of the Facilities Management Lot will help decrease the difficulty of monitoring idling for DPS, since all of the buses will be located in the same place. Although it could be argued that this lot is far away from the athletic facilities, especially Dickinson Park, we believe that the benefits of having all buses in one lot outweigh this distance issue.

Considering most buses for an athletic game stay for around six or seven hours, the location of the buses during this lengthy period is not extremely vital. However, Bird’s Eye Consulting understands that alternative parking options, or a back-up parking plan, is necessary in the case that the Facilities Lot is being used, such as on Project Share meeting days. As Ken Shultes, the associate vice president of campus operations, had stressed, scheduling plays a key role in successfully using the Facilities Lot. Figure 9
shows the different strengths and weaknesses of the various lots that Dickinson can look into to use for parking busses.

To further increase DPS’s ability to enforce idling, we suggest DPS forms a monitoring policy. Since the buses would all be parked in one lot, it would be relatively easy for an officer to check the idling statuses of all buses at one time. Therefore, Bird’s Eye Consulting is recommending to DPS that they have at least one officer check the Facilities Management Lot every 30 minutes during athletic games. This will further the control of diesel idling at Dickinson.

III. Recommendation to Dickinson’s Student-Led Organizations

During our background research, key stakeholders such as Kevin Stewart, Thomas Au, and Justina Wasicek all stressed the importance of educating the public about this issue. They all stated that the best way to limit diesel idling is by increasing the community’s awareness about this issue. At a small college like Dickinson, student organizations can have a large impact and voice on campus. As a way to promote this issue and the potential resulting health risks, our third recommendation is that the college creates an organization to get this issue out on campus.

We suggest that Dickinson either creates a new group, through the Student Senate recognition process, or emphasizes this issue through an already existing organization, such as the Treehouse, to promote no idling to the Dickinson community. Measures this organization can take include posting fliers or notifications around campus and holding special events to raise diesel idling awareness. This organization could also act as a task force for this issue at Dickinson. This task force could work hand-in-hand with key stakeholders such as the athletic department, DPS, and CASE to
help advance diesel idling measures such as posting new idling signs and adopting policies and contracts.

Dickinson is one of the leading colleges in sustainability, an issue that is becoming more and more prevalent in today’s society. We believe that these measures can help the college gain further recognition and increased ratings, as many sustainable associations today such as the Association for the Advancement of Sustainability in Higher Education (AASHE) now incorporate idling policies and student led innovation programs as a part of their rating system.
BIBLIOGRAPHY


APPENDIX

**Figure 1:** Percent of the population suffering from respiratory disease in three locations

![Bar chart showing percentages of respiratory diseases in three locations.

Caption: This graph shows the comparison between Los Angeles, Philadelphia, and Cumberland County in relation to percentages of pediatric asthma, adult asthma, chronic bronchitis, and emphysema.

---

Figure 2: Map of states with anti-idling regulations and no anti-idling regulations

Caption: This graph shows that nearly half the states in the US have anti-idling laws in place, while half do not.

Figure 3: This is the approved sign that must be posted at least 1 time per facility.\textsuperscript{13}

![Sign](image)

Caption: This is the “No idling” sign that is required by Act 124 on parking lots that have space for more than 15 trucks.

\textsuperscript{13} Clean Air Board. http://www.dep.state.pa.us/dep/deputate/airwaste/aq/cars/idling.htm
Figure 4: Current and potential bus parking locations at Dickinson College\textsuperscript{14}

Caption: This map shows the distances from the current lots (denoted by the buses), potential lot (denoted by the orange shading), and eating areas (denoted by the burger and drink)

\textsuperscript{14} Google maps. http://g.co/maps/u3efv
**Figure 5:** Current bus parking locations at Haverford College

![Map of Haverford College with bus parking locations]

**Caption:** This view shows the South Parking lot and set up at Haverford College.

---

**Figure 6:** Inbound and outbound athletic team buses at Dickinson College ¹⁶

<table>
<thead>
<tr>
<th>Sport</th>
<th>Inbound</th>
<th>Outbound</th>
<th>Total</th>
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<tr>
<td>HS track</td>
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</tr>
<tr>
<td>College track</td>
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<td>40</td>
</tr>
<tr>
<td>College x-country</td>
<td>25</td>
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<td>31</td>
</tr>
<tr>
<td>W Basketball</td>
<td>13</td>
<td>13</td>
<td>26</td>
</tr>
<tr>
<td>M Basketball</td>
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<td>11</td>
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</tr>
<tr>
<td>M Baseball</td>
<td>12</td>
<td>10</td>
<td>22</td>
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<tr>
<td>W Volleyball</td>
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<tr>
<td>M Football</td>
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<td><strong>295</strong></td>
<td><strong>161</strong></td>
<td><strong>456</strong></td>
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**Caption:** This chart shows the high numbers of inbound and outbound sports buses at Dickinson College.

¹⁶ Data collected by Foundations students, Dickinson College, spring 2012
Figure 7: College information on compliance with Act 124\textsuperscript{17}

<table>
<thead>
<tr>
<th>Category</th>
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Caption:

1. Aware of Act 124
2. Suitable lot(s) for buses to park
3. “No idling” signs on lots
4. Measures addressed to enforce no idling
5. Measures taken to enforce no idling; Measures include, but are not limited to, having no idling contracts with bus companies, supervision of buses that come to the school, & proper measures taken when a bus is seen idling
6. Sitting area/ place for driver to go
7. Electrical Outlets Available

\textsuperscript{17} Data collected by Foundations students, Dickinson College, spring 2012
**Figure 8:** Bus information on compliance with Act 124\(^\text{18}\)

<table>
<thead>
<tr>
<th>Category</th>
<th>Bus company</th>
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<tr>
<td>1: Above Average Compliance</td>
<td>Bailey</td>
<td>- Aware of the no idling law</td>
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<tr>
<td></td>
<td>Elite</td>
<td>- Meet the EPA emissions standards taken clear measures to educate drivers about Act 124 (ie. fliers, pamphlets)</td>
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<tr>
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<td>Bieber</td>
<td>- Consequences for drivers who idle</td>
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<td>Susquahana</td>
<td>- Additional steps taken to reduce illegal idling (ie. technology to monitor idling)</td>
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<td>2: Needs Improvement</td>
<td>Wolf</td>
<td>- Well-defined requirements for leaving/ staying with the bus</td>
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<td></td>
<td>Red Lion</td>
<td>- Measures were taken to inform the drivers of the law</td>
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<tr>
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<td></td>
<td>- Consequences for drivers who idle are present</td>
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</table>

**Caption:** This chart shows the issues regarding bus compliance with Act 124 for the six different companies.

---

\(^{18}\) Data collected by Foundations students, Dickinson College, spring 2012
**Figure 9: Pros and Cons of Possible Parking Lots**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Parking Lot</th>
<th>Positives</th>
<th>Negatives</th>
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| 1    | Facilities Management Lot        | - Large lot that can fill 4-5 buses on average afternoon  
- Closest possible lot to on-campus food options  
- Closest lot to Kline and Biddle  
- Onsite indoor accommodations  
- Dickinson Owns lot   | - Can’t use lot on Project Share meeting days  
- Used for other groups such as Youth Ballet and Facilities Crew  
- Over 0.6 mi away from D-Park   |
| 2    | Dickinson Park Lot               | - Easy bus access for soccer, baseball, and softball games  
- Dickinson Owns Lot  
- Small indoor accommodations   | - Over 0.6 miles away from Kline and Biddle  
- Almost a mile away from center of campus  
- Lot fills up during athletic games at D-Park   |
| 3    | County Transportation Center     | - One of largest possible lots  
- No activity obstacles in lot besides other transportation trucks  
- Close to D-Park   | - Dickinson would have to rent/lease lot to use it since they do not own it  
- Nearly a mile away from center of campus  
- Far away from Biddle and Kline Center  
- Tough for DPS to monitor buses   |
| 4    | Carlisle Production’s “Expo Center” | - Almost always vacant  
- Largest possible lot option  
- Interested in finding creative ways to utilize lot   | - Very far from D-Park  
- Far from campus, Kline, and Biddle  
- Would have to rent/lease with Carlisle Productions  
- 1.4 mi from Kline  
- 2.1 mi from Dickinson Park   |

**Caption:** This chart shows four potential parking locations to direct all the buses in order from the best option to the least viable option based on the pros and cons above.

---

19 Data collected by Foundations students, Dickinson College, spring 2012
Figure 10: Number of Incoming Buses to Dickinson in 2010/2011

Caption: This bar graph shows the dates when Dickinson had over 3 incoming athletic buses in the 2011 school year.

---

Data collected by Foundations students, Dickinson College, spring 2012
Figure 11: Possible “No Idling” Sign\textsuperscript{21}

\begin{center}
\begin{figure}
\centering
\includegraphics[width=\textwidth]{no_idling_sign.png}
\caption{This is an example of an aesthetically pleasing “no idling” sign that can be used at Dickinson.}
\end{figure}
\end{center}

\textsuperscript{21} Image created by Foundations students, Dickinson College, spring 2012
Figure 12: Memo to the Board of Centennial Conference Athletic Directors

April 1, 2012
Dickinson College
28 N. College St.
Carlisle, PA 17013

Dear Centennial Conference Board of Athletic Directors,

I look forward to meeting with all of you in our May meeting. I wanted to give you an overview of an issue that I hope to put on the agenda for the upcoming meeting—diesel idling. From research conducted by students here at Dickinson College, I have found that we have nearly 500 incoming and outgoing athletic buses a year. These buses omit fine diesel particulate, which is proven to increase the risk of respiratory problems. For obvious reasons, this is a concern to our student athletes' health. Among numerous other illnesses, fine particles from diesel exhaust are responsible for asthma, stroke, and lung diseases.

Many of you may be aware of the existence of regulations regarding idling for diesel motor vehicles. In the state of Pennsylvania, Act 124 of 2008:

• limits idling to 5 minutes in a 60-minutes period;
• imposes the owner of the property where buses are parked to post an adequate sign;
• and sets fines up to 1000$ per day for: drivers, owners of the bus and owners of the property.

As for Maryland, the same time limit is applied and further information about their regulations can be found in Section 22-402 of the Maryland Transportation Code. These regulations can be enforced by the public safety at our perspective schools and our athletic departments can take measures to better implement the no dieseling policy.

Many schools have taken measures already to keep idling under control, and I apologize for any repetition, however I feel it is important for all the Centennial Conference schools to be on the same page regarding diesel idling. For example, our students have found that Haverford College has a fantastic setup to reduce diesel idling and they have taken the necessary measures to post “no idling” signs at their parking lot. Haverford can serve as a model to work off of to ensure healthier air quality for our athletes and communities.

In helping solve this issue, a Dickinson policy studies class had recommended that we all discuss a uniform contract to have with the bus companies. The students believe signing a contract that flows throughout the bus companies within the Centennial Conference is a major first step in ensuring that drivers are fully aware of the schools' anti-idling policies and avoid any behavior that is contra this contract.

For the reasons I mentioned above, I am writing to you to set a foundation for our upcoming discussion about this issue. I believe this is something we should all be concerned about, for both the possibility of being fined and the care of our students' health. I hope a discussion about this will help us figure out a way to face this problem and also give us the time to exchange feedback with each other regarding possible
policies that some of our schools are already utilizing. Thank you for your time, and I have posted some links below if you would like more information on these issues.

- [http://www.dep.state.pa.us/dep/deputate/airwaste/aq/cars/idling.htm](http://www.dep.state.pa.us/dep/deputate/airwaste/aq/cars/idling.htm)
- [https://web.lexisnexis.com/research/retrieve?_m=7f793d20a13ab17304fb9fbaa16c0590&csvc=toc2doc&cform=tocslim&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLzVzB-zSkAb&_md5=6630254bc0a18ce21ea6ba3745aaac28](https://web.lexisnexis.com/research/retrieve?_m=7f793d20a13ab17304fb9fbaa16c0590&csvc=toc2doc&cform=tocslim&_fmtstr=FULL&docnum=1&_startdoc=1&wchp=dGLzVzB-zSkAb&_md5=6630254bc0a18ce21ea6ba3745aaac28)

Sincerely,

Les Poolman
Director of Athletics
poolman@dickinson.edu
# CONTACT INFORMATION TABLES

## I. DICKINSON AND LOCAL STAKEHOLDERS

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Phone Number</th>
<th>Email Address</th>
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<tbody>
<tr>
<td>Dee Danser</td>
<td>Chief of Dickinson’s Public Safety</td>
<td></td>
<td><a href="mailto:danserd@dickinson.edu">danserd@dickinson.edu</a></td>
</tr>
<tr>
<td>Les Poolman</td>
<td>Director of Athletics at Dickinson College</td>
<td></td>
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</tr>
<tr>
<td>Ken Shultes</td>
<td>Associate Vice President of Campus Operations</td>
<td></td>
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<tr>
<td>Tom Au</td>
<td>President of Clean Air Board of Central PA</td>
<td>717-234-7445</td>
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<tr>
<td>Justina Wasicek</td>
<td>Secretary of Clean Air Board of Central PA</td>
<td>717-234-7445</td>
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<tr>
<td>Kevin Stewart</td>
<td>American Lung Association of the Mid-Atlantic, Director of Environmental Health</td>
<td>717-541-5864 ext. 36</td>
<td><a href="mailto:kstewart@lunginfo.org">kstewart@lunginfo.org</a></td>
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## II. SUSTAINABLE SCHOOLS & THE CENTENNIAL CONFERENCE

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<th>Name</th>
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<tr>
<td>Ken Ralph</td>
<td>Director of Athletics- Colorado College</td>
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<tr>
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<td><a href="mailto:W1smith@haverford.edu">W1smith@haverford.edu</a></td>
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<tr>
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<td>Director of Athletics- Franklin and Marshall</td>
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<td><a href="mailto:pepps@fandm.edu">pepps@fandm.edu</a></td>
</tr>
<tr>
<td>Bryan Matthews</td>
<td>Director of Athletics- Washington College</td>
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</tr>
<tr>
<td>James Kressley</td>
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<tr>
<td>Sam Beidleman</td>
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<tr>
<td>Suzanne Coffey</td>
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<td></td>
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<tr>
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<td>781-283-2002</td>
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</tr>
<tr>
<td>Ken Ralph</td>
<td>Director of Athletics- Colorado College</td>
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</tr>
<tr>
<td>John Hardt</td>
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III. BUS COMPANIES

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<tbody>
<tr>
<td>John Bailey</td>
<td>Founder/Owner of Bailey Bus Company</td>
<td>717-424-5511</td>
<td><a href="mailto:jbailey@baileycoach.com">jbailey@baileycoach.com</a></td>
</tr>
<tr>
<td>John Allison</td>
<td>Safety Officer of Rohrer Bus Company</td>
<td></td>
<td><a href="mailto:safety@rohrerbus.com">safety@rohrerbus.com</a></td>
</tr>
<tr>
<td>Brad Wolf</td>
<td>Part Owner of Wolf Bus Company</td>
<td>717-528-4125</td>
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<tr>
<td>Brian Kurtz</td>
<td>Operations Manager of Elite Bus Company</td>
<td>717-733-7710 ext. 102</td>
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<tr>
<td>Jack Owens</td>
<td>Dispatch Worker of Bieber Bus Company</td>
<td>1-800-Bieber4</td>
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<tr>
<td>Jim Bower</td>
<td>Safety Officer - Susquehanna Trail Ways</td>
<td>1-800-692-6314</td>
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<td>Red Lion Bus Company</td>
<td></td>
<td>717-244-4591</td>
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<tr>
<td>Brian Kurtz</td>
<td>Operations Manager- Elite Coach Bus Company</td>
<td>717.733.7710</td>
<td><a href="mailto:brian@elitecoach.com">brian@elitecoach.com</a></td>
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