

Transportation- Building a Reliable Future

The focus of this paper will be on various maintenance topics related to the transportation industry and its vital role in keeping it a thriving success. Transportation is the life line of our cities and economic well being. It is how we move, travel, receive food, deliver fuel, move waste, etc. This includes public transportation, emergency rescue services, goods delivery, and snow removal to name a few. Transportation is the key to almost every aspect of modern daily life.

To the average citizens eye, what do they see or think when a Transit bus passes by, or a waste collection truck completes a run? What do people see or think when a semi truck with a load on is down the highway or a fire truck rushing the city streets? Most people simply see it for what it is, a truck, or car, etc. In a technical aspect this is not the case, these means of transportation are the heart of everything society has come to require in our lives in order to develop, grow and prosper. Majority do not stop to think, what does it actually take to keep this transportation heart beating? Will these transportation services still be here in the future?

Regardless of industry, this transportation heart generally belongs to a fleet body which can consist of various vehicles and equipment. To transport and conduct a city's operations it would include say, transit buses, waste collection units, emergency units, snow removal graders, road sanders, asphalt pavers, sidewalk tractors, park landscape equipment, etc. In order to keep a city moving and its transportation fleet into the future, it requires a very detailed system of maintenance to ensure vehicles and equipment are on the roads when needed to accomplish several jobs each day. This of course directly effects the public and day to day lives of people which is why it is so critical to maintain a healthy transportation fleet.

The reason I returned to university is to further my education and ultimately work as a reliability engineer in transportation services. Seeing outdated equipment and transportation systems in my current city motivates me and gives me passion to reach my goals to help city fleets such as this one. In most cases companies just do the basics on their equipment i.e. oil change, filter change, etc. The reason most cities or fleets do maintenance this way is because no doubt it is cheap and fixes the problem now. What I want to bring to these cities and types of fleets are long term reliability strategies and improvements. This includes various types of maintenance techniques that are preventative, predictive, and proactive. Typically, a reliability engineer would develop,

manage and coordinate such maintenance programs and implement them into the fleet. I want to do just that! Make our world a better place by improving transportation services now and into the future. Obtaining an engineering degree along with my previous work experience will give me the tools I require to accomplish this task and reach my dream of being a professional reliability engineer.

What most cities and fleets don't realize is that operating in a "fix as fail" fashion is actually costing more in the long run and causing more down time for the crucial transportation equipment that must be on the road! I want to contribute and help fleets like this stay on the road longer by increasing their life expectancy, shop performance, long term maintenance strategies, etc. which will reduce fleet downtime, costs, and environment impacts. I know the power of fluids/oil analysis programs within a fleet and would introduce this first. It is cheap, effective, reliable and builds data that allows personnel to see into the future (predict maintenance). Fluids analysis can be a key to starting any predictive maintenance plan and keep transportation fleets on the roads longer while reducing break downs and in many cases increasing public safety. After establishing a world class fluids handling, storage, and sampling program; proper maintenance intervals could be set to optimize fluids life and schedule maintenance only when changes are required. This eliminates premature oil changes, wastes, labor costs, unplanned breakdowns, and environmental impact. The fluids analysis report can identify limits and help set correct tone for transportation fleets and its maintenance goals. Once this system is in place, results can start to be analyzed for trends by a trained technician to see what are repeating or bigger issues taking place. Once these are identified the next level of maintenance can be developed which is called condition based and or reliability centered.

With staff training and cooperation these systems start to shine and increase shop output, vehicles reliability, public satisfaction, and environmental reductions. These improvements are tangible and real time data that can be documented and visibly seen. Management starts to get involved at this point once these benefits are showing and will contribute to building proactive maintenance strategies and engineering plans. It is endless from this point. These are the focuses and mindset I will bring to the transportation industry upon graduating. To help stop "fix as fail" mentalities and improve equipment and transportation fleets thrive and blossom into the future. I have ideas on converting transport vehicles cooling systems to hybrid and organic extended life

bases that will last longer, require little maintenance, and if leaked to the ground is more environmentally friendly. I also believe we must find innovative ways to power our transportation fleets by researching and testing new types of hybrid and electric equipment options.

These are just a scratch at the surface of the ideas I have and want to get more exposure to once completing school and returning back to the industry. Winning the CITE WSP Undergraduate Scholarship would not only help me pay for school expenses, but help me obtain my dream of working in the transportation industry and increasing its reliability into the future. I believe this can benefit us all, and together we can build that reliable future.

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