Four Consulting: UBC Building Operations

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UBC BUILDING OPERATIONS

Team 4

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Executive Summary

Introduction

Four Consulting was contacted by UBC Building Operations in February 2017 and asked to identify possible tactics that could help the client reduce greenhouse gas emissions from the operations of its fleet and achieve a green, cost-effective fleet.

About the Client

UBC Building Operations maintains and operates the Vancouver campus. That includes operating a service of fleet maintenance. It is their responsibility to investigate new possible methods of reducing UBC's vehicle emissions and maintenance costs. However, many UBC departments operate their own vehicles and refuse to use the service provided while still contributing to vehicle emissions. Therefore, UBC Building Operations realized the need for a long-term strategy to identify and tackle key areas of improvement that will allow them to achieve their desired sustainability goals.

Current Situation

Initially, we analyzed UBC Building Operations' current situation. We conducted a SWOT analysis to evaluate their strengths and weaknesses as well as identifying the opportunities and threats facing our client's fleet management practices. UBC Building Operations has a detailed and well-constructed fleet plan and a clearly communicated policy. The client has already taken initiative in order to reduce the greenhouse gas emissions from its fleet and meet the target emission rates outlined in the Climate Action Plan 2020. However, although UBC Building Operations managed to achieve significant reductions in GHG emissions and obtain the only E3 Platinum fleet certification in Canada, there exists a need to achieve further improvements, in terms of GHG emission reductions and the creation of a more cost-effective fleet. The key weaknesses are the limited capital resources available to finance these improvements and the lack of cohesiveness within the fleet operations of different UBC departments. We have identified numerous opportunities for our client, including technological improvements as well as increases in fleet utilization and access to free capital. A significant threat was a halt in technological growth, which would make it difficult for UBC to meet emission targets. Through the utilization of an ERRC grid, we have come up with potential solutions for the problems UBC Building Operations was facing. After careful analysis and research, our team has identified the most efficient and cost-effective tactics that will assist our client in meeting their targets.

Short Term Initiatives

In terms of improving today's emissions, there are three tactics proposed. One tactic is the adoption of a software that is able to improve utilization rates of every vehicle. This software enables drivers to reserve cars using an online platform. We believe that the integration of this

software in the fleet's operations will result in a higher utilization of the existing fleet and will lower the GHG emission rate by allowing drivers to engage in car sharing. Another tactic will target elimination of idling emissions which represent one of the highest rates of unnecessary emissions of every fleet. The final tactic will focus on adoption of more sustainable electric vehicles. It will provide realistic substitutes for some of the fleet's vehicles.

Long Term Initiatives

We understand that it is UBC Building Operations' full intention to eliminate GHG emissions from its fleet by 2050 in adherence with UBC's overall emissions goals. We also believe that this goals is entirely reasonable and achievable in that time frame, given the advances in technology that have occurred in recent years with regards to clean energy. However, we are not confident in these technologies as pervasive and specific solutions to UBC Building Operations vehicle fleet. We are technology agnostic with the current alternative options available. Although full electric fleets, compressed natural gas options, or hydrogen fuel cell cars have significant potential to eliminate GHG emissions in the future, there remains technological, financial, and operational risks that overpower the opportunity as it stands today. That is not to say that these options may not be strategic investments in the future, but rather than propose a sole answer to achieve the 2050 emission-free goal, we advise that UBC Building Operations stay cognisant of all the available alternatives.

Financial Implications

One of the major hurdles in developing UBC Building Operation's fuel efficient fleet is the financial costs. We have developed a financial plan that facilitates our other initiatives in order to meet the goals as prescribed by the project. We propose selling all owned assets either under a direction outright sale or through a sales leaseback mechanism. We have modeled these transactions and predict a sizeable financial capacity can be achieved. This along with the annual budget, we believe will provide sufficient capacity to maintain the currently budgeted operations, while also being able to invest and develop a new, more efficient fleet and the infrastructure required to do so. This unique financial structure, although more common with real estate will ensure that UBC Building Operations stays cost neutral.

Conclusion

We believe that the tactics we have identified will enable UBC Building Operations to meet its GHG emission targets as well as allowing our client to achieve a cost-effective and highly efficient fleet. We have identified performance metrics to evaluate the progress every step of the way in order to make sure that we are moving in the right direction by prioritizing what is important for our client.

UBC BUILDING OPERATIONS

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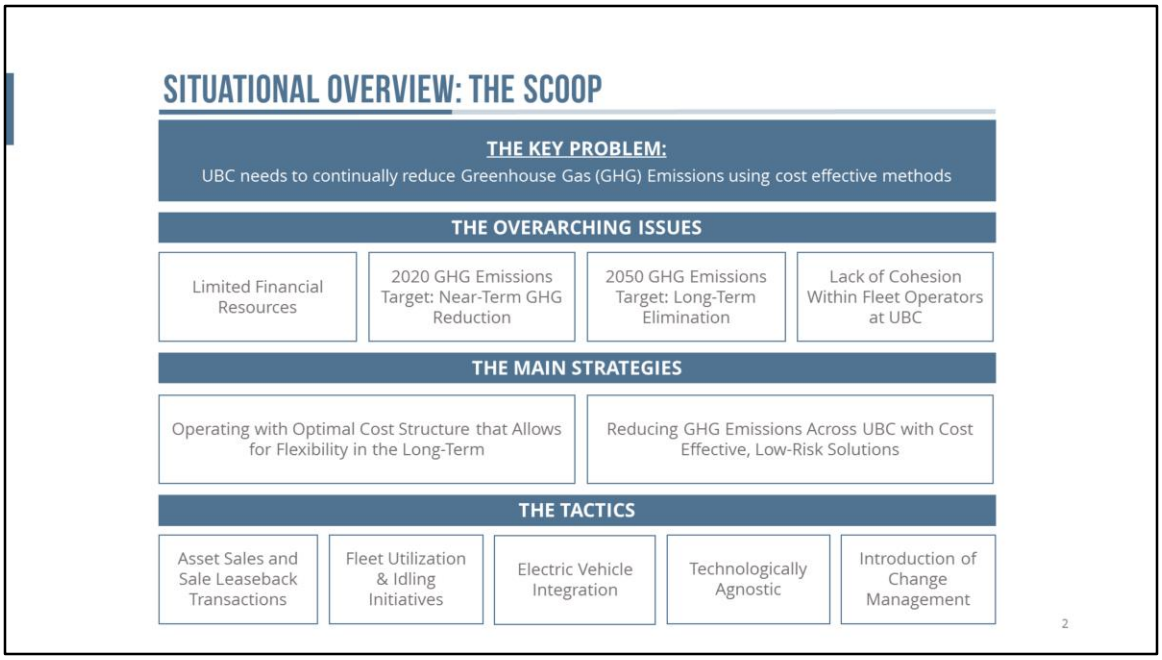


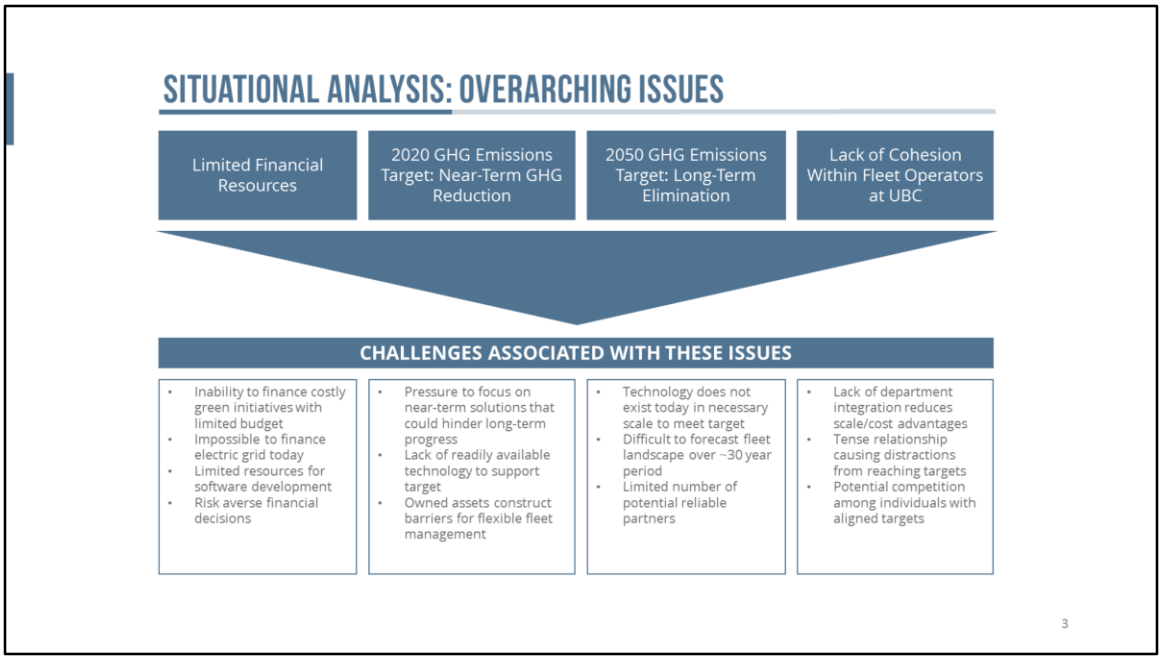
The key problem facing UBC today, specifically UBC Building Operations, is the need to continually reduce the Greenhouse Gases emitted but doing so using cost effective methods due to budgetary constraints.

While conducting our diligence, we determined that there were four overarching issues associated with the Building Operations fleet that are currently creating the aforementioned key problem. These include:

1) Limited financial resources, which constrains Building Operations from simply creating a network of zero emission vehicles with the latest and greatest technology. Clearly, this would be incredibly expensive and with an annual budget of approximately $2 million, unfeasible.
2) There is a near-term target of reducing Building Operations GHG emissions to 275 tons by 2020. This target has yet to be reached in 2017 and we have deemed it to be the primary roadblock facing Building Operations today.
3) There is also the long-term target of completely eliminating GHG emissions by 2050. Again, this is an important milestone that must be considered when making decisions.
4) The lack of cohesion amongst fleet operators (i.e. various departments) has led to distractions and could potentially worsen with time if not addressed in the near-term.

From these four issues, we believe that there are two main strategies that should be implemented simultaneously, as they complement one another. First, UBC Building Operations should operate an optimal cost structure that promotes flexibility both in the short and longer terms. This should be coupled with the strategy of reducing GHG emissions across all UBC fleets while being cognizant of costs and risks associated with these initiatives.

This framework led us into our five tactics that we will be discussing in greater depth later in the presentation. They include:
1) Selling UBC Building Operations assets outright, as well as conducting sale and leaseback transactions
2) Improving fleet utilization and reducing idling via various initiatives
3) Integrating a small fleet of electric vehicles
4) Remaining technologically agnostic to the various under-developed methods for reaching 2050 target
5) Creating and hiring a Change Manager who will be tasked with increasing inter-department cohesion



Once we determined the aforementioned four overarching issues listed at the top of the slide we considered a wide range of challenges that have been created due to these issues.

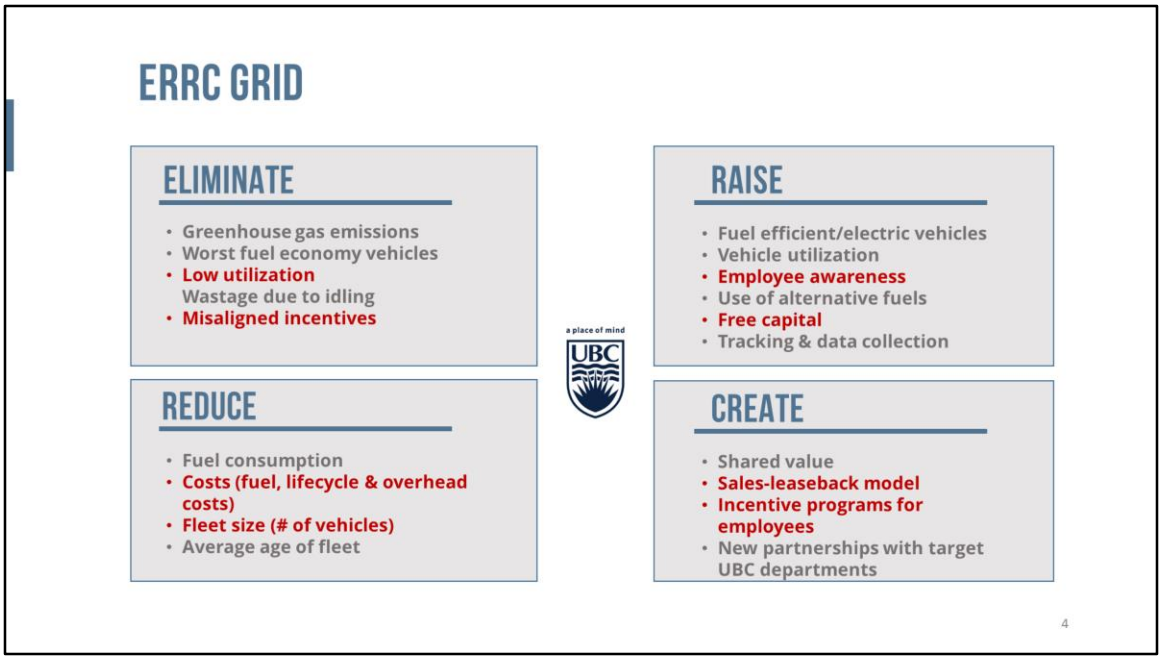
It is important to take a few minutes now to highlight the key challenges that impacted on recommendations.

First, the key challenges associated with the issue of limited financial recourses. Given the current budget is largely allocated to fuel costs, maintenance costs, and replacement vehicles and annual leases; there is little room for the development of the GHG free technology in the market today, which remains costs. It also does not allow for the full rollout of initiatives that could be useful for reducing emissions; including fleet utilization software. Finally, due to the inability for cost overruns, each decision is extremely risk averse.

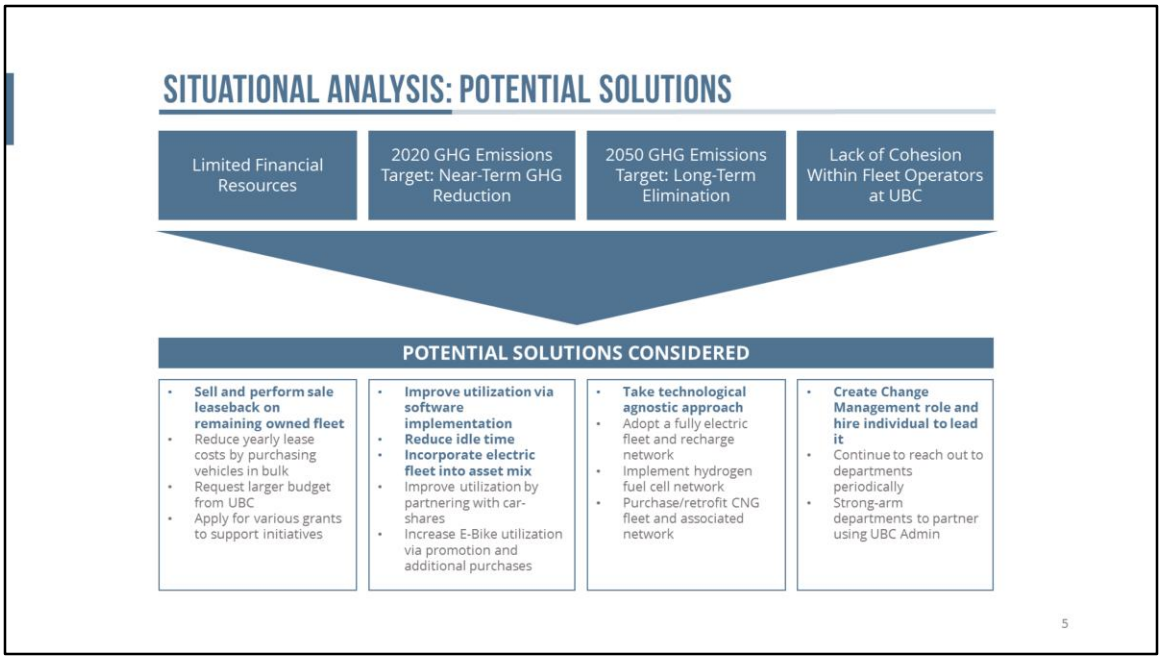
Second, since UBC Building Operations remain off their 2020 GHG reduction target, there are pressures associated with meeting expectations. We are concerned that this leads to the potential for near-term fixes that hinder long-term reduction possibilities, such as investing heavily in technology that is not fully up-to scale. Additionally, the current fleet includes owned assets, which causes inflexibility when making fleet management decisions. In other words, ARI has offered leasing contracts that can be extinguished after one year, which allows for rapid turnover of vehicles if technologies vastly improve on a year-over-year basis.

Third, the issue with the 2050 GHG elimination is that it is hard to have a vision for something without a well-designed route to attain the goal. As we mentioned earlier, current technologies to provide UBC Building Operations with a GHG free fleet without the incurrence of high costs and high risks. It is debatable if it is even feasible today on the scale of UBC. Forecasting the changing landscape remains difficult.

Finally, given the lack of integration within departments, UBC is foregoing cost savings from scale advantage and further fuel reduction from the turnover of departmental fleet. This relationship with several departments is distracting and could potentially become damaging to the success of the Building Operations goals.



We have decided to apply the ERRC grid to UBC Building Operations' fleet plan in order to conduct a deeper analysis before making recommendations. UBC Building Operations' goal is to eliminate GHG emissions and idling in the long-term. We have realized that by increasing utilization, we can achieve reductions in both GHG emissions and costs associated with fleet operations as well as right-sizing the fleet. Moreover, in order to realize the targets for GHG emissions and idling, our client will need access to financial resources which suggests a need to free up some of the currently tied-up capital. The creation of a sales-leaseback model is vital for this reason. We have also identified a need to increase employee awareness regarding GHG emissions and UBC's emission targets in order to eliminate wastage due to idling. In addition to this, the creation of incentive programs are also expected to have an impact on idling. Lastly, eliminating misaligned incentives and creating new partnerships are crucial for the 100% reduction in GHG emissions and idling in the long term.



After conducting various strategy analyses including the aforementioned ERRC grid, as well as SWOT analysis found in the appendix; we considered solutions for issues. Prior to deciding on the highlighted tactical solutions, we discussed amongst ourselves the validity of each option and weighed the costs and benefits of all potential solutions.

In terms of the financial resources bucket, we were dissuaded from tying up capital in owned assets because this reduced the flexibility of fleet management and would be a large undertaking given that ~80% of Building Operations fleet is currently leased. While grant applications and budget requests seemed possible at first, we were concerned with the volatility associated with these cash in-flows. It would be hard to map out a comprehensive strategy based off of aspects out of Building Operations control.

We considered partnering with car share companies in Vancouver to increase the utilization of the fleet. However, we felt that this again left Building Operations at the peril of an outside company that might not be able to fully support their needs. Instead, we decided to opt for a software. We also decided against E-Bike promotion due to the lack of flexibility of these assets.

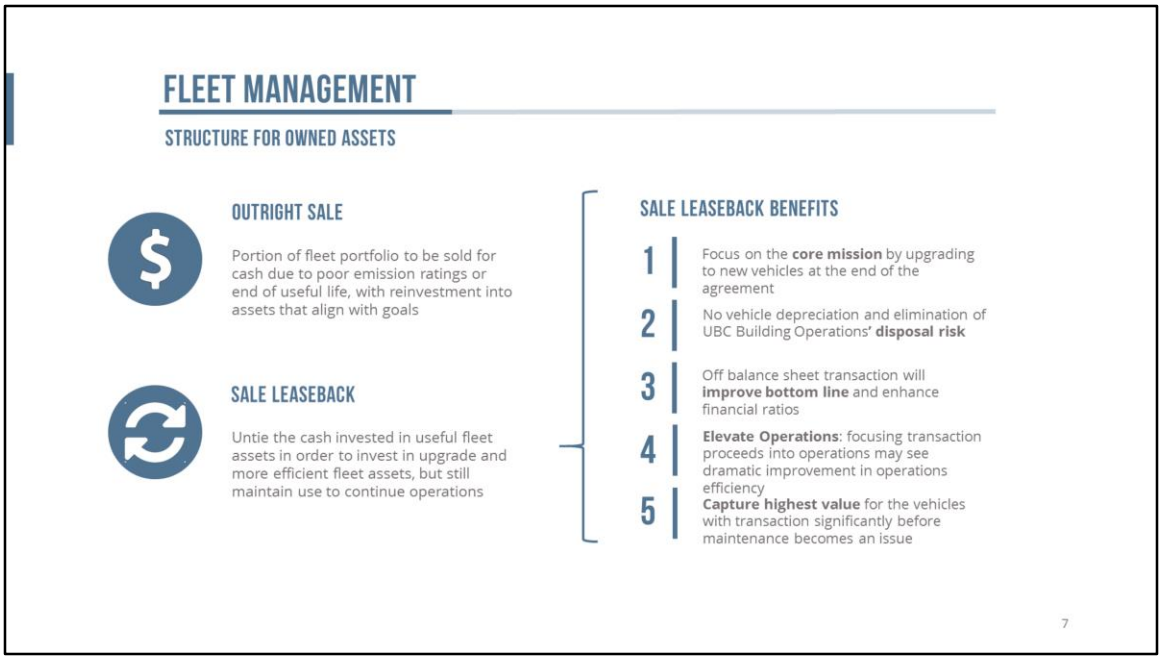
We considered several technologies to pursue the 2050 goal with; however, as discussed later in the presentation, we opted for being technologically agnostic today. Essentially, there are too many variables to be confident in the success of any specific technology today.

Finally, we did not feel comfortable with attempting to strong-arm the departments into partnering with Building Operations for fairly obvious reasons. While we did consider the periodic approach, ultimately we thought it would be wise to hire an independent professional with expertise in this field.

Going forward, we will be bucketing the key tactics into four discussions:

1) Cost efficiency
2) Emissions Today
3) Future Proofing
4) HR Solutions

We will begin with cost efficiency.



Developing a vehicle fleet that meets strict environmental standards is not only difficult to implement and highly time consuming, it is also capital intensive to replace, update, and collectively bring up to speed a portfolio of vehicles that range in make, model, year, and condition. In our later two key points, we will address our approach to tackling GHG emissions concerns in order to adhere to UBC's 2020 and 2050 goals, but before we can consider those, we must ensure that UBC Building Operations maintains at a minimum cost neutral. We have developed a layered approach to create the financial capacity to commit the necessary capital to invest in more fuel efficient and GHG-friendly assets and vehicles, while maintaining use of assets currently required to ensure no service gaps arise. As a entity, we believe that leasing is a better option for UBC Building Operations' vehicle fleet as it provides less risk inherent with ownership, greater optionality for rotating your asset base, and greater term negotiation. Given this, we propose the sale of all currently owned fleet vehicles, either through an outright sale for those vehicles that are deemed unfit to meet the current goals, and the use of a sale leaseback mechanism for the remaining, acceptable vehicles that are under UBC Building Operations' ownership.

A sale leaseback is a financial arrangement whereby a sale agreement of an asset between two parties occurs simultaneously with a lease arrangement for those same assets in reverse between the two parties. Typically done to unlock the value of a companies real-estate, it is also common in all fixed-asset heavy industries, such as light-rail and airlines, and can be applied to vehicle fleets as well. There are five major benefits to the transaction for UBC Building Operations, which are as follows:

1. Rather than focusing on the physical assets of the fleet, a sale leaseback transaction allows for greater focus on the core mission of meeting the 2020 and 2050 goals. The upfront proceeds will enable upgrading and reinvestment into new vehicles to meet the time sensitive milestones.
2. Under the lease agreement, UBC Building Operations will maintain exclusive use of the assets for a finite life at which point the assets will be transitioned to the new owner, eliminating any prior disposal risk.
3. The transaction includes a sale element and, therefore, results in a off balance sheet transaction. The sale leaseback will improve bottom line from the upfront proceeds and improve financial rations, specifically those related to total assets (return on assets debt to equity ratios, etc.).
4. Focusing the proceeds from the transaction back into more efficient operations may show improved performance, efficiency, and increase financial capacity to stay cost neutral.
5. The transaction will, lastly, maximize value for the vehicle. At the time of the sale, the vehicles will retain a higher dollar value opposed to selling at the end of their useful lives. Additionally, the current renewal methodology for leases aims to capture the highest return for the vehicle, which will be applied to the new leases under the leaseback component of the transaction.

FLEET UTILIZATION

- **Shared Value Creation**
- **FleetCommander by Agile Fleet**
  - Cost Reduction - Fleet Right-Sizing
  - GHG Emissions Reduction - Pooling

AGILE
FLEETCOMMANDER
WEB-BASED FLEET & MOTOR POOL SOFTWARE

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It is essential for UBC Building Ops to track and manage fleet utilization in a more effective way in order to right-size the fleet and reduce GHG emissions. The goal is to create shared value by increasing utilization, as this would not only have a significant environmental impact, but it would also result in remarkable cost savings. We believe that UBC Building Ops can increase fleet utilization through the use of a software that will enable drivers to reserve cars online, similar to how users can reserve cars on car sharing platforms like Zipcar and Car2Go. This will also allow drivers to engage in “car sharing” or “car pooling” and therefore reduce fuel consumption. Increased utilization and car sharing can help UBC Building Operations with fleet right-sizing.

Building a software from scratch would be very costly and time-consuming. Therefore, in order to benefit from an increase in utilization right away, we suggest using an established software, in particular, FleetCommander by Agile Fleet. This cost effective fleet management software not only enables drivers to reserve cars for a specific amount of time, but it also comes with key dispatching solutions, allows manager to track all vehicles from a single dashboard, assists maintenance scheduling and inventory management, provides vehicle usage and fuel consumption analytics as well as right-sizing reports. The software can be implemented right away and Agile Fleet provides training and maintenance. Current users include US Homeland Security, many universities and states including Cornell University and state of Michigan as well as Greater Toronto Airports Authority.

IDLE TIME REDUCTION

- **Technology**
  - Idle start-stop system/ Automatic engine shut-off system
- **Employee Engagement**
  - Training
  - Incentive programs

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It was mentioned in Pegasus 5.0 that idling wasted 35,611L of fuel each year for forty three tons of GHG emissions. We have identified a couple of tactics in order to reach the idling target of 0% by 2025. First of all, when replacing cars, UBC Building Ops should make sure that the new cars have the automatic engine shut-off feature, also known as the idle start-stop system, that automatically shuts off the engine when the car is at rest. According to Natural Resources Canada, this technology reduces fuel consumption in cities by at least 4 to 10% and over 10 years, this amount corresponds to savings of around $285 to $1,677 and GHG reductions of 610 to 3,540 kg. Although the start-stop system is not very common in the North American models yet, the popularity of this technology is increasing. 2017 Toyota Highlander became Toyota's first model in North America to include this technology and Toyota is expected to offer the technology in more models, starting with larger vehicles, in the near future according to Toyota's Brian Williams. This means that Tundra and Tacoma may offer this feature soon. Mercedes Benz Sprinters already offer this technology optionally.

Although training was mentioned in the Pegasus fleet plan, we believe that UBC Building Ops needs to focus more on training the employees, especially with regard to idling reduction. Idling reduction is very simple, yet Building Ops needs the collaboration of all drivers in order to meet its 2025 target of 0 idling. Therefore, educating drivers on the costs of idling and the environmental impact the reduction could make is essential. Another possible tactic to ensure employee contribution in this goal is to utilize incentive programs whereby employees are penalized or rewarded for idling in excess of or less than a determined amount. Stan Koch and Sons Trucking company reduced idling from 60% to 15% in 2 years using a reward program to incentivize their drivers.

ELECTRIC VEHICLES

MIGHT-E TRUCK

- Price: $28,000
- Canadian Electric Vehicles Ltd.
- Range: 50 miles

CONDOR

- Price: $49,995
- EV Fleet Inc
- Range: 100+ miles

NISSAN E-NV200

- Price: $23,550
- Nissan
- Range: 106 miles

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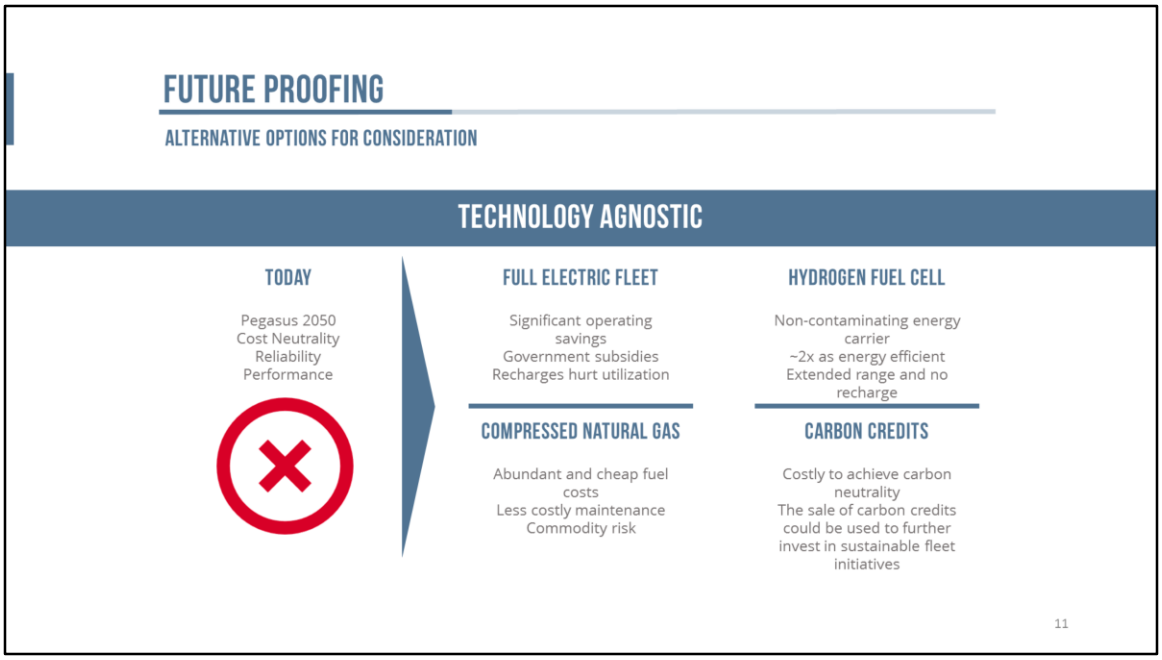
It was mentioned that UBC operations wanted to standardize the fleet to reduce costs and increase efficiency. The report stated that electric vehicles tested did not have the right features required by the fleet's purposes and hybrids were not efficient due to the conditions of the campus' roads. However, we were able to find three vehicles that fit within the report's criteria for new vehicles to be integrated to the fleet.

Might-E Truck
- Proved their vehicles' capabilities through several different projects and partnerships
- Several different options that can accommodate and substitute different vehicles.
  - Van body, pickup box, flat deck, service body, garbage truck.
- Battery life enough for two days and can go as fast as 25 mph.
  - Range is of only 50 miles/battery charge.
  - Optimal for on-campus daily operations since they are quiet and have more than enough range for needs.
- 1000lb load capacity and can be charged from a regular 110V outlet.
- Designed for low maintenance costs.

Condor
- Biggest selling point is the size range the Condor can reach with one battery charge.
  - On highway speed (65 mph) can reach 100 miles
  - At 45 mph can reach 140 miles
  - Can go up to 200 miles in one day with opportunity charging
- Slightly smaller than Toyota Tundra but has dry storage space in the front of the vehicle.
  - Can carry up to 1,000lbs of load and tow up to 1,000lbs as well
- Rear wheel drive with independent coil-over shocks for any type of operational need.

Nissan e-NV200
- Can be a complete substitute to fleet vans
  - Range of 106 miles per charge and can be charged of any regular charging station.
  - Similar dimensions for cargo area
  - 703kg maximum load
  - Possible to get subsidies for adopting more of these electrical vans by government since they will be replacing vehicles that are responsible for a large amount of ghg emissions.

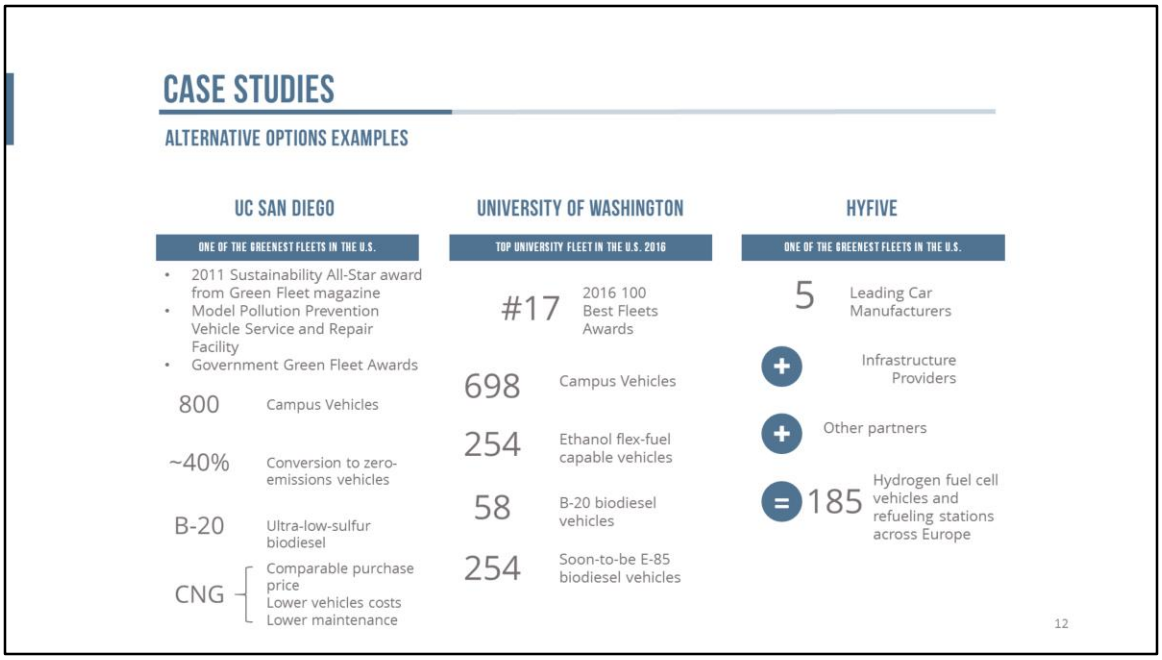


It is UBC's goal to be 100% emissions free by 2050. We believe that in order to achieve this expectation, the foundations need to be laid today and built upon. In an culture so heavily dependant on GHG emission producing vehicles, it will require a discipline approach to introduce and entrench a new ideology within UBC Building Operations.

Although technologies currently exist to reduce emissions substantially, if not entirely, there still remains technology, financial, and operational risks with implementing those technologies. Further to this, UBC Building Operations needs to maintain its ability to stay cost neutral. Due to these high risk aspects today, as well as many other considerations that would need to be weighed prior to committing to an alterative option, we recommend remaining technology agnostic toward fleet alternatives. We do not believe that the current options fully resemble all possibilities nor will they be the full solution to meeting the 100% emission free goal by 2050. The current options available either fail to meet all the operational demands of an acceptable fleet, carry excessive risk, particularly default, or are not fully developed and tested as of late. In order to meaningfully adopt an alternative fleet option, the technology must be sound, proven, reliable, and have sufficient supporting infrastructure built.

Given this though, UBC Building Operations should still remain knowledgeable and current towards the alternative solutions available in order to make sound financial and operational decisions as the technologies advances to the point where the associated risk become palatable. We have identified four alternative fleet options that UBC Building Operations should continuously observe as they progress towards their 2050 goals of eliminating all GHG emissions.

1. Full Electric Fleet: The most viable alternative for UBC, an all electric fleet offers significant operating savings, zero emissions, but comes at a high acquisition cost and reduced utilization due to recharging. Significant advances and application of electric technology must be developed prior to being a viable option.
2. Compressed natural gas is a proven technology that boast lower maintenance costs and historically, cheaper resource inputs due to increases in fracking, but as of late has a comparable costs and therefore runs a commodity risk.
3. Hydrogen fuel cells are currently being developed tested due to being a non-contaminating energy carrier, being ~2x as energy efficient, and has a greater range without the necessity of recharging when compared to electric.
4. Lastly, UBC Building Operations should also consider the use of carbon credits under both circumstances where they either are not able to meet the 100% emission free goal, or whether they exceed it. Should they not foresee adherence to the goal, the purchase of carbon credits could be a feasible, albeit costly, solution. Alternatively, carbon credits could be an additional revenue source that would allow for further fleet investment and could have substantial impact in the long run.



There is a global push to create more energy efficient operations from states, cities, companies, and all other forms of organizations, which includes many vehicle fleets. Three case studies of recognized energy efficient vehicle fleets which are intended to provide a direct comparison to the initiative introduced by UBC and serve as a guide going forward of what is feasible are the University of California San Diego, the University of Washington, and HyFive.

UC San Diego

In 2011, UC San Diego received recognition for its efforts in establishing of the greenest fleets in the U.S. at the time, winning the "Sustainable All-Star Award" from Green Fleet magazine. UC San Diego was able to convert approximately 40% of the campus' 800 vehicles to zero-emission vehicles. Further, diesel fuel was phased out and was replaced by ultra-low-sulfur B-20 biodiesel. For their efforts, UC San Diego also receive recognition from the California office of the Environmental Protection Agency as a "Model Pollution Prevention Vehicle Service and Repair Facility".

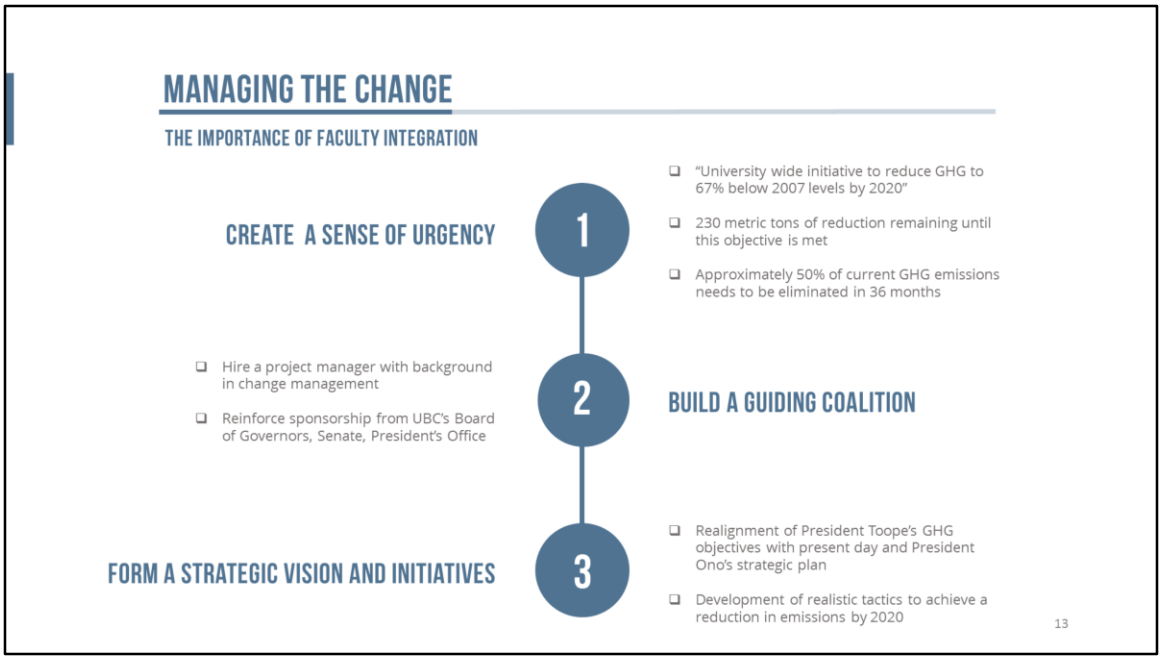
Most importantly though, UC San Diego invested heavily in compressed natural gas ("CNG") by installing a fueling station that would service their fleet. They were able to acquire CNG vehicles at comparable costs, and therefore saved substantially from lower fuel costs and lower maintenance. UC San Diego, in 2011, was leading the way in green fleets and served as a model for other universities and institutions aiming to develop an efficient fleet.

University of Washington

Another model university for their efforts to create an energy efficient vehicle fleet is the University of Washington. This past year, the university ranked #17 on the 100 Best Fleets Awards, which is open to all federal, state, and local government fleets in North America. Evaluations depend on fleet composition, fuel and emissions, policy, utilization, education, employee involvement, and supporting programs. In 2016, University of Washington was the only university to receive recognition of the award. Their fleet consists of 698 vehicles, including 254 ethanol flex-fuel vehicles, 120 hybrid vehicles, 5 diesel-electric vehicles, and 24 all-electric vehicles. Additionally, the university heavily uses biodiesels where applicable, with 58 vehicles using B-20 and 254 planned to use E-85 biofuels. University of Washington should serve an exemplary model for UBC Building Operations.

HyFive

HyFive is a project under the umbrella of Fuel Cells and Hydrogen Joint Undertaking, a public-private partnership with the European Commission. HyFive is a project to deploy 185 hydrogen fuel cell vehicles and refueling stations from the five leading global automotive companies: Daimler, Hyundai, Honda, BMW, and Toyota. A total of 15 partners comprises the HyFive team, giving it the scale to avoid scale issues that currently prevent wide-scale roll-out. The project has almost 18 million euros in funding and is set to end on September 30, 2017. This project's success could be leveraged to develop successful and sustainable hydrogen fuel cell infrastructure.



Kotter's 8 steps for leading change – Adapted for UBC Building Op's Department Integration Plan

This framework was designed to help facilitate change. Using it as a guide, we have created customized steps to outline how you persuade the 50 UBC departments to utilize your services and best practices.

1. **Create a sense of urgency:** By establishing early on why this change is important to your stakeholders and why they should adopt the change, they will embrace the change as opposed to fighting it. We suggest you can establish this urgency by reminding the departments of UBC's emission goals, and how little time they have to reduce over 50% of their total emissions.

2. **Build a guiding coalition:** This step establishes your credibility. By having influential members of UBC's leadership team voice their support for your change, you will be less likely to experience resistance from the departments.

3. **Form a strategic vision and initiatives:** During this step, you will communicate the vision of UBC's lowered emissions. Emphasis will be placed on listening to the needs of UBC's departments, and tailoring your services according to their needs to help them reach their objectives.

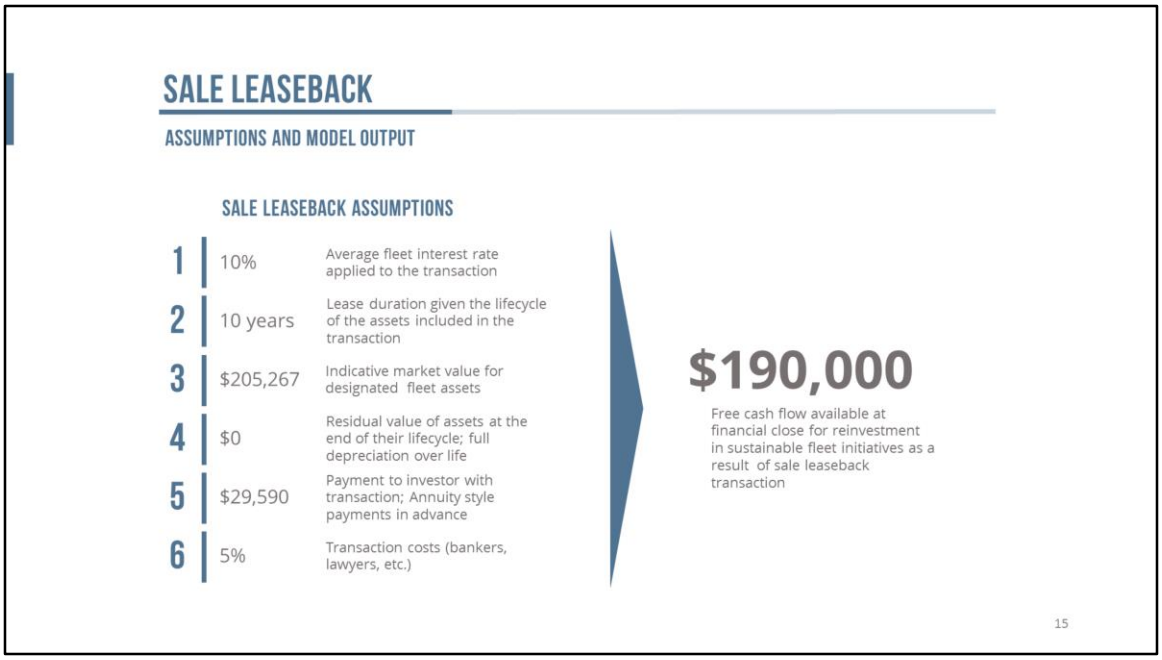
4. **Enlist a volunteer army:** A volunteer army will begin to form when partnerships between UBC Building Ops and UBC departments are created. These partnerships can be used as example of UBC Ops listening to the specific needs of departments and coming back to them with tailored solutions. Having the support of different departments extends your credibility when trying to establish more partnerships. In order to establish the first few department partnerships, preliminary analysis will be conducted to identify which departments will be more open to a partnership with UBC Building Ops.

5. **Enable action by removing barriers:** As mentioned in our Q & A session, there are three key barriers to establishing department partnerships: limited time to build relationships, frequent turnover of department staff, and misaligned incentives between Building Ops and various departments. By hiring a contractor with experience in project management, change management, and management of vehicle fleets, we will no longer be held back by these constraints as we will have a dedicated resource devoted to this endeavour.

6. **Generate short term wins:** Short term wins are critical for motivating stakeholders involved in the change. By introducing monthly metrics onto departments' invoices they will be able to see clear results from partnership.

7. **Sustain acceleration:** This step ensures that change does not lose momentum after the initial push has been made. Leveraging existing partnerships and consistently delivering quality results will aid in the acquisition of new department partnerships.

8. **Institute change:** Reinforcing the change by attributing success to the desired behaviours will motivate stakeholders to follow through until the end of implementation. Behaviours that are key to establishing partnerships with UBC departments are: the willingness to listen, understanding the fundamental needs of each department, and selecting services that will best fit those needs.

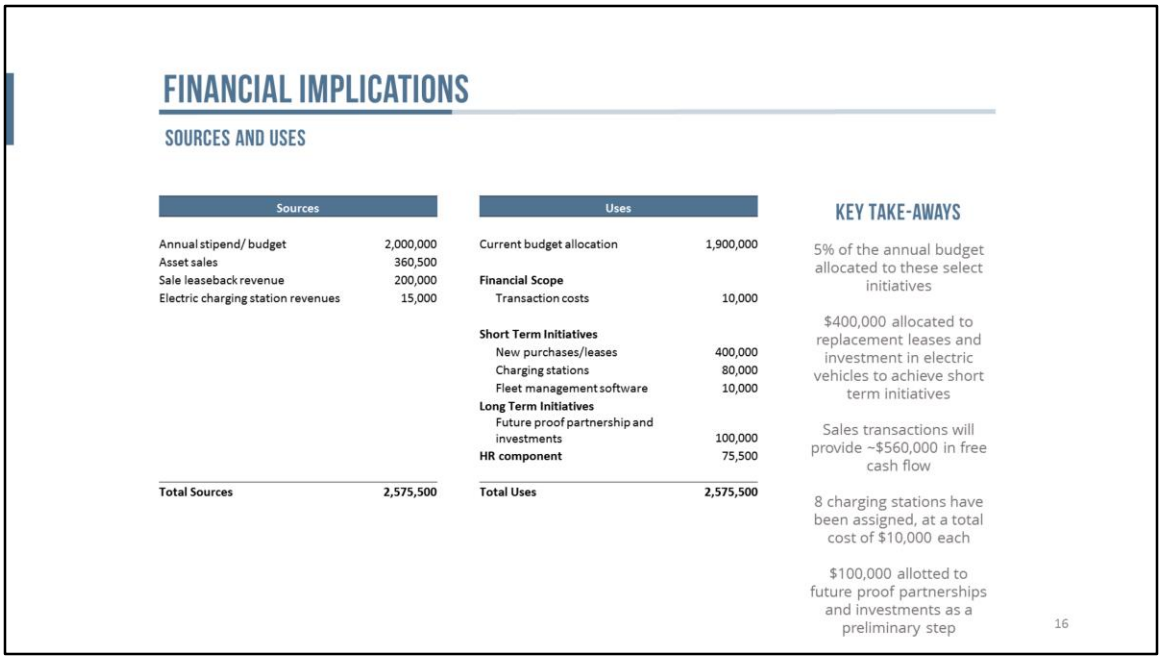


As previously mentioned, the sale leaseback model uses a sale mechanism of an asset(s) between two parties with a simultaneous lease agreement between the same parties, in opposite direction.

We have performed a highly indicative financial model representing this transaction as a representation of the possible capital inflow provided. With further discussion and involvement from UBC Building Operations, the assumptions could be greatly refined to create a more succinct idea of the potential value associated with the transaction, but at its current state the assumption that influence the model are as follows:

1. The interest rate applied to the whole of the fleet in the transaction was 10%.
2. 10-year life as an average of the whole fleet in the transaction, as the lifecycle of the specific vehicles vary.
3. Using broad-based market values, we had an indicative market value of the whole fleet of assets in the transaction of $205,267.
4. We used a residual value of the assets in the transaction of $0, indicating that the assets will fully depreciate with the new owners.
5. Using an annuity style payment in advance, we determined that the annual payment to be $29,590 over 10 years
6. We assumed that transaction costs (bankers, lawyers, etc.) would cost 5% of the total deal value.

With these assumptions, we determined that the free cash flow available at financial close to be $190,000. This can be directly reinvested into fleet upgrades and acquisitions in order to meet the predefined goals.



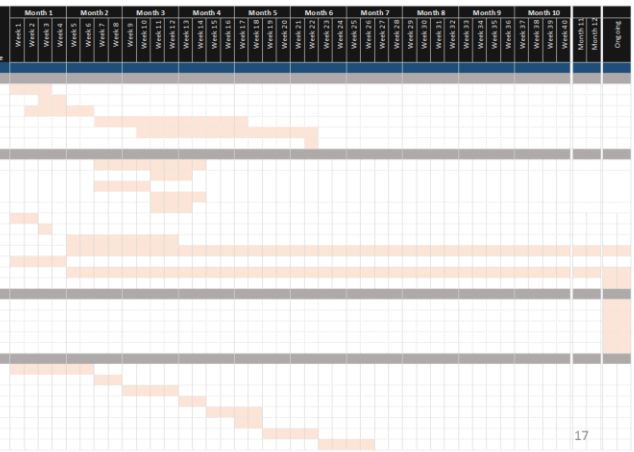
Our analysis of UBC Building Operations' currently owned fleet led to the creation of two distinct groups: vehicles for direct outright sale and those available to be included in the sale leaseback transaction. Collectively these two transactions will provide a significant capital influx above the annual budget for the UBC Building Operations in an amount of $560,500. In our sources column, we have also allocated revenues from electric charging stations, as it is possible for the charging stations to be available for general public use when not being used by Building Operations. All in, we have defined our sources of capital at $2,575,500.

On the uses side, we have broken out our forecast by group: current budget, financial scope, short term initiatives, long term initiatives, and our HR aspect. We have made the assumption that 95% of the annual budget is currently allocated. Additionally, the short term initiatives are by far the most pressing items with capital requirements and therefore have distributed the majority of remaining capital to this bucket. We have grouped new leases of electric and non electric vehicles together for simplicity sake as it is highly indicative and would require further due diligence to determine the specific vehicle requirements for replacement. In this group we have allocated a spend of $400,000. We have also placed $80,000 to develop further electric infrastructure through charging stations. At $10,000 per station, we have estimated that 8 stations should be sufficient in the short term. The final major piece of the uses category is the future proof long term initiatives. Although we have not provided a specific recommendation for alternative option, we have outlined numerous potential options and we have allocated some of the capital to being able to partner and build on these new technologies for when they become suitable alternatives.

SCHEDULE AND IMPLEMENTATION

CONDENSED GANTT CHART

UBC Building Ops - Detailed Schedule	Duration	Start	Finish	Milestone
Summary				
Financial Scope				
Define transaction scope and objectives	3 week(s)	01-Jul	21-Jul	
Review existing assets for SLB or sale	2 week(s)	15-Jul	28-Jul	
Select all preferred partners	5 week(s)	08-Jul	11-Aug	
Outright sale process	11 week(s)	12-Aug	27-Oct	
Sale leaseback transaction	13 week(s)	02-Sep	01-Dec	
Financial Close	1 week(s)	25-Nov	01-Dec	
Short Term Initiatives				
Contact and Negotiate lease with CANEV	8 week(s)	12-Aug	06-Oct	
Application for provincial subsidies	3 week(s)	09-Sep	29-Sep	
Contact and Negotiate lease with EV Fleet	4 week(s)	12-Aug	08-Sep	
Manufacturing and delivery negotiations	4 week(s)	09-Sep	06-Oct	
Application for provincial subsidies	3 week(s)	09-Sep	29-Sep	
Initiate communication program	2 week(s)	01-Jul	14-Jul	
FleetCommander Pilot Period	1 week(s)	15-Jul	21-Jul	
Initiate FleetCommander setup & training	8 week(s)	29-Jul	22-Sep	
Training program for all employees	Ongoing	29-Jul	Ongoing	
Plan incentive program	4 week(s)	01-Jul	28-Jul	
Implement incentive program for employees	Ongoing	29-Jul	Ongoing	
Full integration of FleetComander	Ongoing	N/A	Ongoing	
Long Term Initiatives				
Analyze and review Pegasus 2050 goals	Ongoing	N/A	Ongoing	
Evaluate alternative options	Ongoing	N/A	Ongoing	
Develop emission management plan to meet zero emissions goal	Ongoing	N/A	Ongoing	
Present recommendations to board	Ongoing	N/A	Ongoing	
Achieve zero emissions	Ongoing	N/A	Ongoing	
HR Scope				
Conduct search for Change Management Contractor (CMC)	6 week(s)	01-Jul	11-Aug	
Hire and onboard CMC	2 week(s)	12-Aug	25-Aug	
Identifying goals, objectives, and target client groups	4 week(s)	26-Aug	22-Sep	
Review goals, objectives, and target client groups	2 week(s)	23-Sep	06-Oct	
Begin client engagments	4 week(s)	07-Oct	03-Nov	
Submission of client profiles (needs, points of differeination, etc.)	2 week(s)	21-Oct	03-Nov	
Tailor client packages	4 week(s)	04-Nov	01-Dec	
Client proposal meetings	4 week(s)	02-Dec	29-Dec	



RISKS AND MITIGATION

Risk	Mitigation	Severity
Sale and lease back model based on assumptions that might not be correct	• Model presents an indicative projection which can be easily adapted to reflect actual information	High
Employees resisting the use of new utilization software	• Provide training on how to operate within software • Show positive outcomes of software in achieving emissions goal	Medium
Electric vehicles manufacturer declares bankruptcy or delays delivery	• Enter negotiations with legal advisory to prevent delays or be compensated if there are any • Decrease amount of initial deposits to begin manufacturing to minimize losses	Low
Sustainable technology invested in do not prove reliable	• Do extensive consulting with experts in the area • Maintain constant vigilance on performance	High
Rise of new technologies that render investments outdated	• Set strict metrics that will ensure desired performance • Monitor market to predict possible new investment opportunities	Medium
[redacted]	[redacted]	[redacted]

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As in any strategy, there are potential risks when implementing them. We have created action plans to mitigate them.

Risk 1: The sale and lease back model was based on assumptions that might be reflective of the actual situation.
Mitigation: The model was based on projections that were made with all available information. Therefore, any of the assumptions made could be easily substituted with data that reflects on the situation at hand into the model and it would be still applicable. This lowers the risk of entering into an agreement blindsided with different values.

Risk 2: Employees resisting the use of new utilization software.
Mitigation: Provide training to employees on how to operate within the new software to ease them into the new operations method and avoid major confusions and conflicts. Showing how to software will help the entire fleet to reduce inefficient practices and decrease greenhouse gas emissions, employees are more likely to be open to change.

Risk 3: Electric vehicles manufacturer declares bankruptcy or delays delivery.
Mitigation: With legal advisory UBC operations will not be harmed if any delays occur since contracts entered will have clauses predicting possible situations and remedies that apply in each. During negotiations make sure to have clauses included that will please both parties so that manufacturer begins production of vehicles requested with a small initial deposit as to decrease potential losses if any bankruptcies are declared.

Risk 4: Sustainable technology invested in do not prove reliable.
Mitigation: Before making any final decisions on what technologies to invest in, consult with experts in the area to understand potentials and risks of each possibility. Having more than one opinion before making a decision will allow for a more comprehensive analysis on possible scenarios. After investment is done maintain constant vigilance on performance of new technology as to detect early on any signs of underperformance. This will allow for losses to be cut short if decision was proven to be wrong.

Risk 5: Rise of new technologies that render investments outdated.
Mitigation: Set strict metrics that will guarantee that technology still is performing according to expectation. If technology still performs within desired standards, although being outdated, it will still help UBC operations to reach their emission goals. Monitoring markets to predict new investment opportunities will ensure that UBC operations will not fall behind greener and more sustainable solutions for its fleet.

[redacted]

DEFINING SUCCESS: PERFORMANCE METRICS

Measure	Provides Solutions to:	Indicators
Vehicle Efficiency	• Are we maintaining the correct vehicles? • What vehicles should we invest in?	Fuel usage/km driven Maintenance cost/year
Idling Time Reduction	• Are the programs implemented decreasing idling?	Fuel usage/km GPS tracking
Acceptance of Services	• How well are we managing the implementation of new departments?	Number of new departments adopting service Satisfaction = timely surveys sent to department heads
Fleet Utilization	• How often our vehicles are being used? • Do we have any surplus vehicles?	Amount of time each vehicle is used per day
New Technology Success Criteria	• How efficient are the new technologies in energy utilization? • What are the reduction of emissions?	Efficiency = energy use/km Emissions = emissions of ghg/km

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Metrics play a crucial part in any strategy as it sets the standards of what will be defined as acceptable. Therefore, we developed metrics that will help UBC operations determine the success rate of each tactic.

Vehicle Efficiency: Measures how efficient each vehicle in the fleet is. This will be a determining factor since the fleet's overall performance is evaluated by every vehicle emission and fuel efficiency. With this metric UBC operations will be able to determine what vehicles should remain as part of the fleet and what vehicles should be sold entirely. It will also dictate what vehicles will be incorporated into the fleet since it has to fit within the desired standards.

Idling Time Reduction: One of the tactics relies solely on the reduction of the idling time. This is crucial to the overall strategy since idling time contributes to the biggest waste of resources and unnecessary emissions of a fleet. Therefore, by measuring fuel efficiency of each car and comparing to GPS tracking system, the fleet manager is able to determine every driver's action and see if there were any excessive idling times.

Acceptance of Services: Will measure how well UBC operations are handling the influx of departments that are accepting the services provided. This will determine how well the departments are understanding the advantages provided by UBC operations services and the how well UBC operations understands the needs of each department. This will also provide feedback on how to improve the services since surveys will be handed out to measure satisfaction.

Fleet Utilization: Will measure how well the new software is being accepted and how efficiently the vehicles are being used. This will allow UBC operations to identify if there are any surplus vehicles to requirement and see if there are improvements in overall vehicle utilization.

New Technology Success Criteria: Will determine how efficient the technologies invested in are providing the expected returns. This will be measured through the efficiency of each technology in energy usage. This will also provide UBC operations with information regarding the reduction of emissions the adoption of the technology is providing. It will be fundamental to set strict standards of emissions and efficiency for each technology in order to measure its perfomance according to expectation.

QUESTIONS?

APPENDIX A: SWOT ANALYSIS

STRENGTHS

- E3 Platinum fleet certificate showcasing commitment to GHG reduction
- World-class fleet with strong structural lease partner (ARI)
- Located in "living lab" with various research projects and grants available to promote innovation
- Relatively efficient fleet operations within Building Operations with limited room for improvement today

WEAKNESSES

- Budgetary constraints and limited capital resources on annual basis
- Have not reached 2020 (or 2050) GHG emission targets as of 2017; there is still work be completed
- Lack of cohesiveness within UBC departments' fleet operations
- Large degree of needs and vehicle types causing fleet complexities

a place of mind

UBC

OPPORTUNITIES

- Sale of owned fleet assets to free up capital and increase flexibility to fleet change
- Improved fleet utilization via software introduction
- Eliminate vehicle idling
- Introduce various green technologies including electric vehicles and hydrogen fuel cell network
- Increased collaboration of UBC departments to align incentives and reduce costs

THREATS

- ARI fleet provider risk: lack of diversification could lead to price hikes and creditor risks
- Lack of technological growth to meet UBC GHG emission targets
- External fleet management services that attract UBC departments away from Building Operations
- Change in UBC Administrative decisions/change of focus resulting in key targets becoming meaningless

APPENDIX B

SALE LEASEBACK MODEL

UBC Building Operations
Sales Leaseback Model
(in CDN)

Transaction Assumptions			
Inflation rate	[Input]	[%]	0%
Fleet market value	[Calc]	[$]	205,267
Fleet sale price	[Input]	[$]	200,000
Transaction costs	[Input]	[%]	5%
Payment style	[Input]	[Type]	Advance
Payments in advance	[Calc]	[$/year]	29,590
Payments in arrears	[Calc]	[$/year]	32,549
Fleet Assumptions			
Fleet - interest rate	[Input]	[%]	10%
Fleet - life	[Input]	[Years]	10
Fleet - payment	[Calc]	[$/month]	2,466
Fleet - future value	[Input]	[$]	-

Flags			01-Jan-18	01-Jan-19	01-Jan-20	01-Jan-21	01-Jan-22	01-Jan-23	01-Jan-24	01-Jan-25	01-Jan-26	01-Jan-27	01-Jan-28
Beginning of Period			01-Jan-18	01-Jan-19	01-Jan-20	01-Jan-21	01-Jan-22	01-Jan-23	01-Jan-24	01-Jan-25	01-Jan-26	01-Jan-27	01-Jan-28
End of Period			31-Dec-18	31-Dec-19	31-Dec-20	31-Dec-21	31-Dec-22	31-Dec-23	31-Dec-24	31-Dec-25	31-Dec-26	31-Dec-27	31-Dec-28
Number of days			365	365	365	365	365	365	365	365	365	365	365
Year Counter			1.0	2.0	3.0	4.0	5.0	6.0	7.0	8.0	9.0	10.0	11.0
Inflation rate			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Transaction													
Capital inflow		200,000											
Transaction fees		(10,000)											
Transaction revenue		190,000	-	-	-	-	-	-	-	-	-	-	-
Starting lease value			200,000	187,451	173,647	158,463	141,760	123,387	103,176	80,945	56,490	29,590	(0)
Payment			(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	-
All amortized value			170,410	157,861	144,057	128,872	112,170	93,797	73,586	51,355	26,900	(0)	(0)
Interest			(17,041)	(15,786)	(14,406)	(12,887)	(11,217)	(9,380)	(7,359)	(5,135)	(2,690)	0	0
Ending lease value			187,451	173,647	158,463	141,760	123,387	103,176	80,945	56,490	29,590	(0)	(0)
Total cash flow		190,000	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	(29,590)	-

APPENDIX C: BREAKDOWN OF UBC VEHICLE GHG EMMISIONS

POSSIBLE REDUCTION OF GHG BY SERVICING UBC DEPARTMENTS

		VEHICLES	
		BUILDING OPS (240)	UBC DEP. (260)
YEAR	2007/2008	833 METRIC TONS	850 METRIC TONS
	2012/2013	690 METRIC TONS	700 METRIC TONS
	2015/2016	478 METRIC TONS	485 METRIC TONS
	2015/2016 + ERROR	500 METRIC TONS	515 METRIC TONS

Sources: Project Pegasus Report V5

APPENDIX D: OPTIONS FOR DEPARTMENT INTEGRATION INITIATIVE

WHO WILL LEAD THE CHANGE?

FULL TIME EMPLOYEE	CONTRACTOR	CONSULTING TEAM
GOOD OPTION	BEST OPTION	POOR OPTION
$80K + BENEFITS/YR	$70K/YR	$100K+
DEDICATED RESOURCE	DEDICATED RESOURCE	TEMPORARY RESOURCE
1 PERSON TEAM	1 PERSON TEAM	4 PERSON TEAM
SUBJECT MATTER EXPERT	SUBJECT MATTER EXPERT	SUBJECT MATTER EXPERTS
	FLEXIBLE SCHEDULING	

Sources: http://www.consultancy.uk/consulting-industry/fees-rates

APPENDIX E: NISSAN E-NV200 SPECIFICATIONS

VAN CARGO-AREA DIMENSIONS

Max width between wheel arches	1,220mm
Max width	1,500mm
Max height	1,358mm
Max length	2,040mm
Load platform height	524mm
Side door width / height	700mm / 1,171mm
Rear door width / height	1,262mm / 1,228mm

A FULL DAY'S RANGE

DESIGNED FOR HOW YOU REALLY DRIVE

The Nissan e-NV200 electric van is engineered for the real world. With an NEDC range of up to 106 miles* – the e-NV200 is perfect for most businesses to comfortably cover deliveries for the day. Helping you get the most out of every charge, the e-NV200 features energy-saving driving modes and a trip computer, which informs you of power used or generated, battery charge, charging times and more.

APPENDIX F: EV FLEET PO AND FLEET VEHICLE FORECAST

Assembly Plant		SOLD TO	SHIP TO
EV Fleet, Inc.		Customer Name	Delivery address
Export Department		Customer Address	
11701 Mt. Holly Road Bldg #32		Customer Address	
Charlotte, NC 28214		City, State/Province Country	
909-FLEET-01		Postal Code	

REQUISITIONER	SHIP VIA	F.O.B.	SHIPPING TERMS
	Ocean Carrier	Charlotte, NC	Buyer arranges shipping

ITEM #	DESCRIPTION	QTY	UNIT PRICE	TOTAL
1	Condor Cab and Chassis		36,950.00	-
	Specify Color			-
	Specify Battery and Charger		15,120.00	-
	select options from the Pricing Sheet			-
				-
				-
				-
				-
				-
				-
				-
				-
				-
				-
	Assembly schedule will be reported by EVFI to customer			-
	within 3 business days of the execution of the Purchase Order.			-
				-
			SUBTOTAL	$ -
			TAX RATE	
			TAX	$ -
			S & H	$ -
			Agent Fee	-
			TOTAL	$ -

Shipping Company (attach ISF)
EVFI will attach ISF when ready to ship
EVFI will attach commercial invoice when ready to ship

80% of the purchase order will be wired to EVFI with the purchase order. The balance of 20% will be secured by LC with EVFI made an sole beneficiary and submitted to EVFI Bank data to be provided.

Authorized Signature

Authorized by Date

[Insert date]

EV Fleet, Inc.
11701 Mt. Holly Road
Charlotte, NC 28217

RE: Interest in Purchasing EV Fleet Electric Trucks – The Condor

Dear Sir/Madam:

This letter expresses our interest in test driving and possibly purchasing ____ electric trucks designed and manufactured by EV Fleet, Inc. at a sale price ranging from $45,000 to $55,000, subject to our approval of the quality of the vehicle. We currently operate a fleet of _____ vehicles, with approximately _____ vehicles that might fit the application intended for the Condor. In the event the initial Condors purchased meet our needs we may be interested in purchasing an additional _____Condors during the next fiscal year.

Best regards,

_____

Name, Title

APPENDIX G: CONDOR SPECIFICATIONS

Range

- 45 MPH: 140 miles
- 55 MPH: 115 miles
- 65 MPH: 100 miles
- Daily Range (opportunity charging): 200 miles
- Daily Range (end-of-day charging): 120 miles*
- Minimum Temperature to Charge: -25 F (with cold weather package)^ Power usage will vary depending upon driving style. Repeated rapid acceleration will increase cost to operate.
- *Standard Built-in Solar panels add up to 20 miles of driving without charging from external sources. Built-in Solar Power Station Package adds up to 100 miles of driving without external sources.

Time to full Recharge

- 120 VAC outlet: 14 hours (overnight)
- 240 VAC outlet: 20 amps=8-10 Hours
- J1772 AC Power 30-Amp Source: 5-6 Hours
- DC Power 50-Amp Source: 2-4 Hours
- DC Power 90-Amp Source: 1-2 Hours

Dimensions

- Length: 191 inches overall
- Width: 65-75 inches body width (depending upon service bed)
- Wheelbase: 127 inches
- Wheel Track: (on center) 61 inches
- Bed Length: 99 inches
- Bed Width: 52-61 inches flat (depending upon service bed)

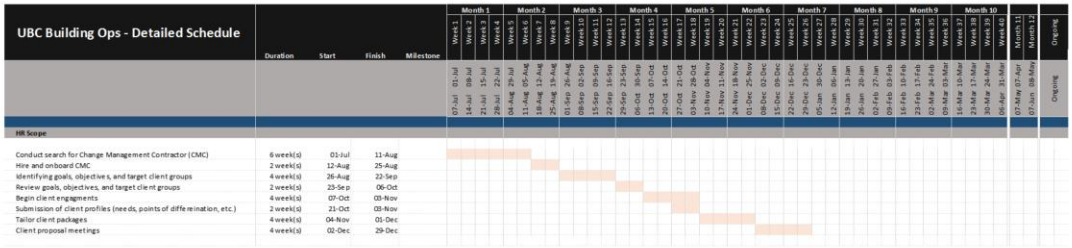
APPENDIX H: MIGHT-E TRUCK SPECIFICATIONS

ELECTRICAL	
System Voltage	72V
System Batteries	16kw (225 Ah, 12 x 6V) Lead Acid
Lighting	Headlights, brake & tail lights, turn signals, hazard lights, back-up & dome interior light
Horn	Automotive style
Heating & Defrost	1500 W defrost/heater unit
Motor	72V 9Hp Cont. 29 HP Peak AC12 direct drive
Controller	72V 550A AC
DC/DC Converter	72V to 12V, DC to DC @30A
Wiring	Modular wire harness, weather protected connectors
Charger	72V / 12A @ 100VAC-230VAC (UL, CSA, CE) approved with built in charger interlock

SPECIFICATIONS	
Wheels	4 Wheels
Programmable Speed	Up to 25 mph (40km/h)
Driving Range	50 miles (90km) load/terrain dependent
Vehicle Weight	2,500 lbs (1134 kg) Cab & Chassis
Dimensions	(LxWxH) 138"x53"x70" (3.48x1.53x1.78m)
Wheel Base	72" (1.83m)
Track Width	40" (1.02m)
Turning Radius	12.5 ft (3.81m)
Ground Clearance	8" (0.20m)
Incline Travel	25% empty, 17% with 1000 lb load
Steering Location	Left hand drive
Bullard Pull	952 lb (4.235kN)
Load Capacity	300-500* lb on road 1500 lb off road (*dependant on body configuration)
Anticorrosion	Sprayed at time of assembly

APPENDIX I

GANTT CHART – HUMAN RESOURCES SCOPE



APPENDIX J

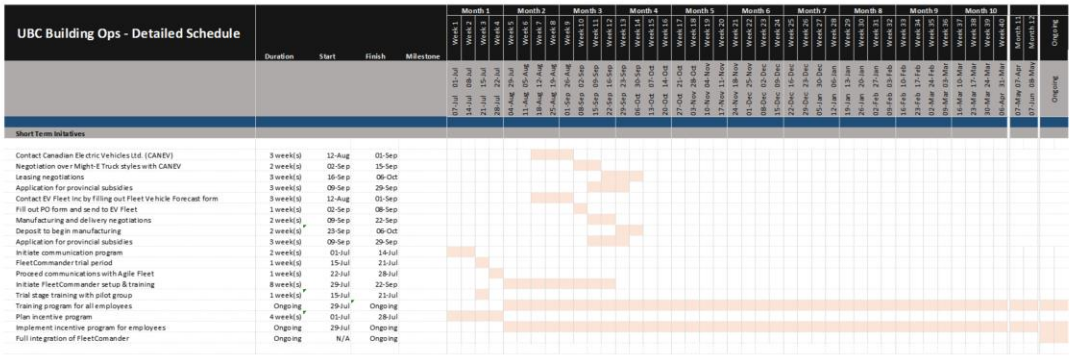
GANTT CHART – LONG TERM INITIATIVES

UBC Building Ops - Detailed Schedule	Duration	Start	Finish	Milestone
Long Term Initiatives				
Analyze and review Pegasus 2050 goals	Ongoing	N/A	Ongoing	
Evaluate current fleet	Ongoing	N/A	Ongoing	
Evaluate department fleets	Ongoing	N/A	Ongoing	
Evaluate emission reduction projects	Ongoing	N/A	Ongoing	
Calculate total fleet emissions	Ongoing	N/A	Ongoing	
Develop emission management plan to meet zero emissions goal	Ongoing	N/A	Ongoing	
Engage with consultants and specialists for advisory services	Ongoing	N/A	Ongoing	
Shortlist options to meet goal	Ongoing	N/A	Ongoing	
Create relationships with parties engaged in preferred alternatives	Ongoing	N/A	Ongoing	
Present recommendations to board	Ongoing	N/A	Ongoing	
Choose preferred alternative	Ongoing	N/A	Ongoing	
Partner with industry specialists	Ongoing	N/A	Ongoing	
Review alternatives as technology develops	Ongoing	N/A	Ongoing	
Achieve zero emissions	Ongoing	N/A	Ongoing	
Review sustainability of zero emissions	Ongoing	N/A	Ongoing	
Review costs of sustaining zero emissions	Ongoing	N/A	Ongoing	

Month 1				Month 2				Month 3				Month 4				Month 5				Month 6				Month 7				Month 8				Month 9				Month 10				Month 11	Month 12	Ongoing
Week 1	Week 2	Week 3	Week 4	Week 5	Week 6	Week 7	Week 8	Week 9	Week 10	Week 11	Week 12	Week 13	Week 14	Week 15	Week 16	Week 17	Week 18	Week 19	Week 20	Week 21	Week 22	Week 23	Week 24	Week 25	Week 26	Week 27	Week 28	Week 29	Week 30	Week 31	Week 32	Week 33	Week 34	Week 35	Week 36	Week 37	Week 38	Week 39	Week 40			
07-Jul	01-Jul			04-Aug	29-Jul			01-Sep	26-Aug			29-Sep	23-Sep			27-Oct	21-Oct			24-Nov	18-Nov			22-Dec	16-Dec			19-Jan	13-Jan			16-Feb	10-Feb			16-Mar	10-Mar			07-May	07-Apr	Ongoing
14-Jul	08-Jul			11-Aug	05-Aug			08-Sep	02-Sep			06-Oct	30-Sep			03-Nov	28-Oct			01-Dec	25-Nov			29-Dec	23-Dec			26-Jan	20-Jan			23-Feb	17-Feb			23-Mar	17-Mar			07-Jun	08-May	
21-Jul	15-Jul			18-Aug	12-Aug			15-Sep	09-Sep			13-Oct	07-Oct			10-Nov	04-Nov			08-Dec	02-Dec			05-Jan	30-Dec			02-Feb	27-Jan			01-Mar	24-Feb			30-Mar	24-Mar					
28-Jul	22-Jul			25-Aug	19-Aug			22-Sep	16-Sep			20-Oct	14-Oct			17-Nov	11-Nov			15-Dec	09-Dec			12-Jan	06-Jan			09-Feb	03-Feb			08-Mar	03-Mar			06-Apr	31-Mar					

APPENDIX K

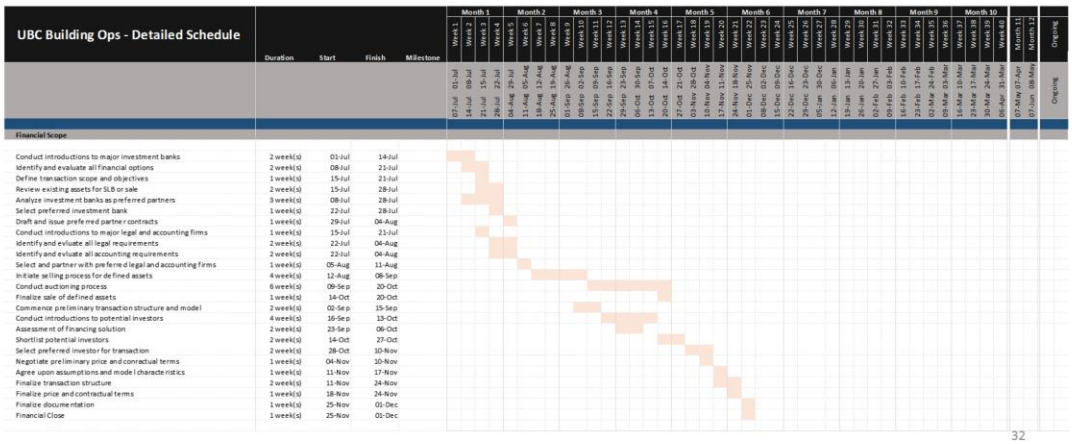
GANTT CHART – SHORT TERM INITIATIVES



UBC Building Ops - Detailed Schedule	Duration	Start	Finish	Milestone
Short Term Initatives				
Contact Canadian Electric Vehicles Ltd. (CANEV)	3 week(s)	12-Aug	01-Sep	
Negotiation over Might-E Truck styles with CANEV	2 week(s)	02-Sep	15-Sep	
Leasing negotiations	3 week(s)	16-Sep	06-Oct	
Application for provincial subsidies	3 week(s)	09-Sep	29-Sep	
Contact EV Fleet Inc by Filling out Fleet Vehicle Forecast form	3 week(s)	12-Aug	01-Sep	
Fill out PO form and send to EV Fleet	1 week(s)	02-Sep	08-Sep	
Manufacturing and delivery negotiations	2 week(s)	09-Sep	22-Sep	
Deposit to begin manufacturing	2 week(s)	23-Sep	06-Oct	
Application for provincial subsidies	3 week(s)	09-Sep	29-Sep	
Initiate communication program	2 week(s)	01-Jul	14-Jul	
FleetCommander trial period	1 week(s)	15-Jul	21-Jul	
Proceed communications with Agile Fleet	1 week(s)	22-Jul	28-Jul	
Initiate FleetCommander setup & training	8 week(s)	29-Jul	22-Sep	
Trial stage training with pilot group	1 week(s)	15-Jul	21-Jul	
Training program for all employees	Ongoing	29-Jul	Ongoing	
Plan incentive program	4 week(s)	01-Jul	28-Jul	
Implement incentive program for employees	Ongoing	29-Jul	Ongoing	
Full integration of FleetComander	Ongoing	N/A	Ongoing	

APPENDIX L

GANTT CHART – FINANCIAL SCOPE



UBC Building Ops - Detailed Schedule	Duration	Start	Finish	Milestone
Financial Scope				
Conduct introductions to major investment banks	2 week(s)	01-Jul	14-Jul	
Identify and evaluate all financial options	2 week(s)	08-Jul	21-Jul	
Define transaction scope and objectives	1 week(s)	15-Jul	21-Jul	
Review existing assets for SLB or sale	2 week(s)	15-Jul	28-Jul	
Analyze investment banks as preferred partners	3 week(s)	08-Jul	28-Jul	
Select preferred investment bank	1 week(s)	22-Jul	28-Jul	
Draft and issue preferred partner contracts	1 week(s)	29-Jul	04-Aug	
Conduct introductions to major legal and accounting firms	1 week(s)	15-Jul	21-Jul	
Identify and evluate all legal requirements	2 week(s)	22-Jul	04-Aug	
Identify and evluate all accounting requirements	2 week(s)	22-Jul	04-Aug	
Select and partner with preferred legal and accounting firms	1 week(s)	05-Aug	11-Aug	
Initiate selling process for defined assets	4 week(s)	12-Aug	08-Sep	
Conduct auctioning process	6 week(s)	09-Sep	20-Oct	
Finalize sale of defined assets	1 week(s)	14-Oct	20-Oct	
Commence preliminary transaction structure and model	2 week(s)	02-Sep	15-Sep	
Conduct introductions to potential investors	4 week(s)	16-Sep	13-Oct	
Assessment of financing solution	2 week(s)	23-Sep	06-Oct	
Shortlist potential investors	2 week(s)	14-Oct	27-Oct	
Select preferred investor for transaction	2 week(s)	28-Oct	10-Nov	
Negotiate preliminary price and conractual terms	1 week(s)	04-Nov	10-Nov	
Agree upon assumptions and model characteristics	1 week(s)	11-Nov	17-Nov	
Finalize transaction structure	2 week(s)	11-Nov	24-Nov	
Finalize price and contractual terms	1 week(s)	18-Nov	24-Nov	
Finalize documentation	1 week(s)	25-Nov	01-Dec	
Financial Close	1 week(s)	25-Nov	01-Dec	

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APPENDIX M

SALE LEASEBACK MODEL CONTINUED

End Lease - Three Main Models: Transit Connect, Mercedes Sprinter, Toyota Tacoma

Vehicle #	Model Yr	Model Name	VIN Model	Make Name	Cap Cost	Book Value	Replacement Vehicle
339	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
340	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
341	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
342	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
343	2013	59B TRANSIT CONN	TRANSIT CONNECT	FORD	$29,403	$12,659	Transit Cargo
344	2013	59B TRANSIT CONN	TRANSIT CONNECT	FORD	$29,403	$12,659	Transit Cargo
346	2013	25C144 SPRINTER	SPRINTER 2500	MERCEDES-B	$49,735	$21,413	Sprinter
347	2013	25C144 SPRINTER	SPRINTER 2500	MERCEDES-B	$49,735	$20,653	Sprinter
348	2013	25C144 SPRINTER	SPRINTER 2500	MERCEDES-B	$49,735	$21,413	Sprinter
349	2013	TX4CNP TACOMA	TACOMA	TOYOTA	$28,270	$12,172	Tacoma
350	2013	TX4CNP TACOMA	TACOMA	TOYOTA	$30,385	$13,082	Tacoma
351	2013	TX4CNP TACOMA	TACOMA	TOYOTA	$28,709	$12,360	Tacoma
364	2012	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$24,523	$10,183	Transit Cargo
366	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$29,837	$12,390	Transit Cargo
367	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$29,186	$12,119	Transit Cargo
368	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$30,150	$12,520	Transit Cargo
369	2012	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$24,523	$10,183	Transit Cargo
370	2012	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$24,523	$10,183	Transit Cargo
371	2012	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$24,523	$10,183	Transit Cargo
372	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$29,186	$12,119	Transit Cargo
373	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$29,186	$12,119	Transit Cargo
374	2014	3C1444 SPRINTER	SPRINTER 3500	MERCEDES-B	$134,833	$75,018	Sprinter
375	2014	W4G F-450 CHASSI	F450	FORD	$63,144	$36,867	Small Dump (Hook)
376	2014	W4G F-450 CHASSI	F450	FORD	$63,144	$36,867	Small Dump (Hook)
377	2014	W3G F-350 CHASSI	F350	FORD	$44,679	$26,086	Small Dump
379	2014	NY5F1T TUNDRA	TUNDRA	TOYOTA	$30,479	$0	Tundra F150
380	2014	TX4CNP TACOMA	TACOMA	TOYOTA	$27,813	$0	Tacoma

APPENDIX N

SALE LEASEBACK MODEL

End Lease - Three Main Models: Transit Connect, Mercedes Sprinter, Toyota Tacoma

Vehicle #	Model Yr	Model Name	VIN Model	Make Name	Cap Cost	Book Value	Replacement Vehicle
300	2012	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$30,098	$9,944	Transit Cargo
301	2012	25C144 SPRINTER	SPRINTER 2500	MERCEDES-B	$43,211	$14,276	Sprinter
302	2012	25C144 SPRINTER	SPRINTER 2500	MERCEDES-B	$47,685	$15,754	Sprinter
308	2012	59B TRANSIT CONN	TRANSIT CONNECT	FORD	$32,588	$10,766	Transit Cargo
312	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
313	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
314	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
315	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
316	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
317	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$27,714	$11,932	Transit Cargo
318	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$27,714	$11,932	Transit Cargo
319	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$27,714	$11,932	Transit Cargo
320	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$27,714	$11,932	Transit Cargo
324	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,561	$12,297	Transit Cargo
325	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,561	$12,297	Transit Cargo
326	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,561	$12,297	Transit Cargo
327	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,561	$12,297	Transit Cargo
328	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,561	$12,297	Transit Cargo
329	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,561	$12,297	Transit Cargo
330	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,561	$12,297	Transit Cargo
331	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
332	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
333	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,840	$12,417	Transit Cargo
334	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,840	$12,417	Transit Cargo
335	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,561	$12,297	Transit Cargo
336	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
337	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo
338	2013	57B TRANSIT CONN	TRANSIT CONNECT	FORD	$28,873	$12,431	Transit Cargo

APPENDIX O

FLEET FOR SALE LEASEBACK

UBC Building Operations
Fleet Breakdown
(in CDN)

Sale-Leaseback

Vehicle #	Model Yr	Model Name	VIN Model	Make Name	Market Price
76	1991	FORKLIFT	FORKLIFT	NISSAN	$10,640
234	2003	LOADER-SKID STEER	LOADER	CATERPILLAR	$14,000
250	2006	LOADER	LOADER	BOBCAT	$19,000
256	2007	SCB000 CARGO	SCB000 CARGO	STERLING	$66,500
269	2009	M2 106 MEDIUM DUTY	M2 106 MEDIUM DUTY	FREIGHTLINER	$48,000
289	2009	MILES ZX40ST	ZX40ST	MISC	$9,709
290	2009	MILES ZX40ST	ZX40ST	MISC	$9,709
291	2009	MILES ZX40ST	ZX40ST	MISC	$9,709
295	2004	SIERRA 2500	SIERRA	GMC	$18,000
					$205,267

APPENDIX P

FLEET FOR OUTRIGHT SALE

UBC Building Operations
Fleet Breakdown
(in CDN)

Sell Vehicles

Vehicle #	Model Yr	Model Name	VIN Model	Make Name	Market Price	Replacement Vehicle (Lease)
248	2006	MT45 CHASSIS	MT45 CHASSIS	FREIGHTLINER	$22,000	Sprinter
294	2010	MT45 CHASSIS	MT45 CHASSIS	FREIGHTLINER	$35,000	Sprinter
264	2007	W4500	W4500	GMC	$16,500	Medium Box Truck Hino
271	2008	SPRINTER 2500	SPRINTER 2500	DODGE	$16,000	Sprinter
279	2009	MA035 4400 SBA 4X2	4400 LP	INTERNATIONAL	$69,000	Small Dump
280	2009	LOADERBACKHOE	CASE 580 SUPER M	CASE	$48,000	Case 580 SN
281	2010	TRANSIT CONNECT	TRANSIT CONNECT	FORD	$10,000	*Don't Replace*
282	2010	TRANSIT CONNECT	TRANSIT CONNECT	FORD	$10,000	*Don't Replace*
283	2010	TRANSIT CONNECT	TRANSIT CONNECT	FORD	$10,000	*Don't Replace*
284	2010	TRANSIT CONNECT	TRANSIT CONNECT	FORD	$10,000	*Don't Replace*
285	2010	TRANSIT CONNECT	TRANSIT CONNECT	FORD	$10,000	*Don't Replace*
286	2010	TRANSIT CONNECT	TRANSIT CONNECT	FORD	$10,000	*Don't Replace*
292	2010	4300	4300	INTERNATIONAL	$69,000	Small Dump
296	2008	F250	F250	FORD	$25,000	Tundra
				Total	**$360,500**	

APPENDIX Q: FLEETCOMMANDER – PRICING AND EXPECTED SAVINGS

Costs	Year 1 Costs	Annual Costs After Year 1
FleetCommander software & services, including:		
- FleetCommander software	✓	✓
- Complete setup support and training	✓	
- Hosting, maintenance & technical support	✓	✓
- Site optimization and configuration coaching	✓	✓
- Hassle-free customer service	✓	✓
- Unlimited number of users	✓	✓
Cost for FleetCommander software & services:	**$16,000**	**$9,500**

Savings	Year 1 Savings	Annual Savings After Year 1
Estimated reduction in vehicle count	18 Vehicles	TBD
Reduction in maintenance & depreciation (est.@ $4,000/vehicle)	$72,000	$72,000
One-time vehicle disposal income (est@ $3,500/vehicle)	$63,000	$0
Other savings (parking, insurance, administrative @ $500/vehicle)	$9,000	$9,000
Estimated Savings	**$144,000**	**$81,000**
Less Cost of Fleet Commander	($16,000)	($9,500)
BOTTOM LINE SAVINGS	**$128,000 Year 1**	**$71,500 Annually After Year 1**

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Source: http://www.agilefleet.com/pricing

APPENDIX R: FLEETCOMMANDER – KEY MANAGEMENT

Automated Dispatching & Key Management

We know one size does not fit all when it comes to key management and dispatching. That's why FleetCommander offers technologies suited to every dispatching scenario.

With Fleetcommander's key management and automated dispatching capabilities, key pick up and return is a snap, and all activity is automatically recorded (including odometers!) behind the scenes. Let your fleet drivers access keys to vehicles 24 hours per day...even in outdoor and remote locations.

- Keys won't disappear any more. Keys are secured and all key activity is logged.
- Vehicle pick-ups and returns can happen anytime...not just when your motor pool staff is there.
- Valuable data is recorded when the keys are picked up or returned. There's no need for extra, duplicated data entry.
- Motor pool staff can focus on other work rather than managing dispatch functions.
- Supports remote locations that have little or no staff.
- Manage the pools from one central location or have administrators at some or all of the sites.

http://www.capterra.com/fleet-management-software/spotlight/12687/FleetCommander/Agile%20Access%20Control

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APPENDIX S: IDLE START-STOP SYSTEM

- **Savings:** Over 10 years, savings add up to approximately $285 to $1,677, according to Natural Resources Canada.
- **GHG Emissions:** Over 10 years, CO_2 reductions of up to 610 to 3,540 kg can be expected.
- **Cost:** Some models come with this feature included in the price and for others it is an add-on. In Fords' 2015 Fusion SE and SE Luxury cars, this was a $150 option.
- **Availability**: HIS Markit forecasted that by the end of 2016, over 15% of new cars in the U.S. will have this technology – compared to 5.7% in 2013.

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APPENDIX T: FLEETCOMMANDER – TESTIMONIALS

"With FleetCommander, we will be reducing costs at the same time we are making it easier and more convenient for state employees to access a vehicle -- day or night -- using the self-service motor pool kiosk with automated key control. It's a win-win for the state and for our employees." **— State of Colorado**

"Automating reservations and dispatching with the FleetCommander (...) will enable employees (...) to focus on their non-fleet-related primary duties. Drivers will have access to vehicles 24 x 7. We'll get instant utilization reports. And we're hoping word will spread and we will be able to bring the solution to our other facilities." **— U.S. Department of Homeland Security**

"Would highly recommend. Makes our life easier and more efficient." **— Cornell University**

"The 50 vehicles we cut [using FleetCommander data] were eligible for replacement. It would have cost the county $800,000 to replace those vehicles, not to mention ongoing maintenance and depreciation expenses that would have been associated with those new vehicles."

— Forsyth County, North Carolina

"The savings started on day one and we haven't looked back. We grew from five or six shared vehicles to dozens of shared vehicles. The positive feedback from drivers and the bottom-line savings we have realized go beyond expectations." **— Greater Toronto Airports Authority**

"The last few weeks we have had very high utilizations with some Wednesdays operating in the 85% to 95% range with very few turndowns. My downtown staff told me they would never have had 100% out in a day with the old reservation book." **— State of Michigan**

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Source: http://www.agilefleet.com/testimonials