Entrepreneurial Based Project:  
Minority Owned  
Guardrail Installation Company

Nick Rubio  
California Polytechnic State University  
San Luis Obispo, California

This company will provide commercial and highway guardrail installation services to the Northern California Region. The organization will retain a Minority Owned Business Certification and will operate under a Class C-32 License for Parking and Highway Improvement. Due to the large backlog of guardrail projects and the lack of qualified contractors in Northern California, the company plans to partner with existing firms that are unable to take on work. After firmly establishing ourselves in the private commercial market, the organization plans to migrate to public road work where the Minority Owned title can provide more benefit. Through this process we aim to be recognized as a reputable and skilled contractor that will eventually take place among the ranks of larger more established guardrail installation companies.

Key Words: Guardrail, Minority Owned, Northern California, Driver

How the Project Came About

While working an internship with Neenan Archistruction from March 2017 – June 2018, I observed an interesting piece of specialty equipment that I had not seen on a jobsite before. The few concrete crew members that had showed up that day were grinning ear to ear as a Putzmeister TB110 telebelt pulled onto the site to shoot gravel on the prepped building pad. Gravel would be loaded into the tail end of the telebelt with a skid steer. An extendable conveyor belt that could also swing side to side then carried the material to the end chute (2019, Putzmeister). Once the gravel hit the end, it was dumped down a tube that was guided by a laborer. After talking to the concrete crew, I quickly realized the multiple advantages this machine brought to a jobsite. 4 concrete laborers were utilized as the machine spit out gravel one section at a time. The work was done much faster than a typical crew laying gravel with a skid steer and shovels. The crew was less tired and less prone to injury, due to the lack of lifting heavy rock over and over. Safety and ergonomics alone seemed to be a huge advantage of using this machine. While I was amazed at the physical advantage of this piece of machinery, I became very interested once I saw the invoice from the telebelt company. The hourly rate and mobilization costs that they charged to have one piece of machinery and one operator out there was extraordinarily high. Besides the cost of the machinery, its maintenance and the operator, this equipment’s overhead was very low. Not to mention the fact that there was only one company offering this service on the Central Coast. Surely with one contractor serving such an enormous market, their backlog and fees must be large to match.

This is the case with many specialized trades due to the expensive equipment and specialized training needed to operate it. I began to dive deeper into specialty equipment and the challenges/benefits of owning and operating it. But, it wasn’t until I took the Heavy Civil Lab at Cal Poly, San Luis Obispo,
that I learned how many more specialized pieces of equipment existed than what I had previously found. Due to the rising complexity of the built environment and shortage/cost of skilled labor, specialty machinery has become an integral part of building today. This enables specialized construction to be extremely profitable and guarantees a long list of available work for years to come, regardless of economic climate. Equipment such as pile drivers, benders and truck mounted cranes are all pieces of machinery that are commonly owned and operated by specialty contractors. These contractors can access larger contracts over a greater area, due to the lack of competition. After speaking to Ed Boucher about various scopes of work that are in high demand with short supply of labor, I concluded that guard rail installation was the trade that I wanted to focus on.

With only three to five major players in California there is a huge market to tap into. The demand for rail far exceeds the supply making it a market ready for another player. Most of these contractors are located in Southern California and are unable to service smaller jobs in the Northern portion of the state. This leaves many jobs at a standstill or unable to stay under budget until one of these companies becomes available. Additionally, none of these contractors possess a Minority Owned Business Certification which would enable clients to fulfill state or federal spending requirements. Large clients are continuing to require that a certain percentage of the budget is spent on these Minority Owned Businesses. This is certainly true among publicly funded companies, but also is beginning to be common amongst private owners. With all of these facts, I proceeded to research what it would take to create a business plan, acquire funding, and a secure a labor force. This paper will focus on the feasibility and start up requirements of a Guard Rail Installation Company holding a Minority Owned Certification. It will also cover the barriers to entry specific to this trade and to minority owned construction businesses in general. In conclusion this report will determine future action towards the creation of the firm.

**Process**

Research began with examining existing Guardrail Installation Companies in California. The closest being in Ventura, California. It was apparent how difficult it was to fulfill work north of the Bay Area. Many of the companies had started off as small business fence installers before moving onto larger, more skilled scopes of work. Many of the company’s “about us” pages revealed that they had acquired or partnered with several smaller contractors over the years. This was most likely to secure repair and shop facilities or to utilize another company’s machinery and labor. One could infer that these companies were potentially open to buying a company that had resources outside their own such as a Northern California Division. Research on existing companies also shed insight on the scopes of work that they were taking on. Many required machinery worth millions and were far too complex for the potential business to take on. Many others however, were simple long spans of standard wooden post and W-Beam Guardrail, a scope of work that is relatively simple and extremely profitable.

Once the company’s scope was determined a list of equipment was created varying from “ideal” to “bottom end” machinery. The best suited piece of machinery would be a track driven post driver with GPS and laser capabilities that loads its own posts as it moves along. Some models even have the option to attach the rail to the post after it drives. This driver allows the use of an extremely small crew and ensures accuracy and efficiency. The amount of movement and heavy lifting the crew does can also be limited because of the automated features, ensuring safety and longevity of the employees (2019, Osha). The technology is limitless, but the price tag is extremely high. These drivers also have problems adjusting to varying heights which are necessary on steep grades and inclines. The
alternative is a truck mounted pile driver that is capable of picking up a beam, placing it and driving it. The downside however is that 3 people are required to drive one post at a time. This in addition to the time to lift the rail and bolt it, install time increases dramatically. The potential for injury due to a struck by or a caught-in-between goes up dramatically when labor is involved in this way. These drivers however are extremely durable and versatile and can be outfitted with a variety of hammers, driver heads and attachments such as augers or cutters (2019, Higgins). A truck would need to be purchased that is capable of supporting the driver and a full load of steel rail and posts of various materials. For larger jobs a second truck would necessary to transport material and additional crew members. A large bender and cutter would also be utilized to bend custom radiused pieces of rail for curves road sections. This will require skilled labor that will be difficult to retrain.

Materials for a guard rail installation vary from job to job depending on location and traffic type. Standard W-Rail is produced in 12’6” and 25’ standard lengths that are 12.25” tall (2019, Highway Guardrail). This needs to be cut and bent on-site to accommodate the roadside. Wooden posts come in various sizes from 6x8 all the way up to 10x12 in some cases. Metal H Beams or I Beams can also be utilized and are most efficiently driven using the track equipped driver. Galvanized hardware is used to resist corrosion and secure the rails to the posts (Barrier, 2019). Custom sections such as bridges, road transitions and off-ramps create a large increase in installation time that will decrease over time as repetition increases. Increased material costs and possible need for equipment rental are serious concerns however. As the business progresses and experience is gained we plan to be able to take on more complex work.

The firm plans to begin with commercial jobs in Northern California that are typically in need of 25-300 LF of guard rail. This level of production is easy to install and does not require a large crew. By performing commercial work instead of public work, the firm can utilize non-union labor and can retain good employees over a long period of time. After standard practices are in place and the firm has gained a strong reputation, it plans to venture into the public road work sector. While this area can be risky and has several barriers to entry, we hope that our reputation as a trustworthy and skilled contractor will proceed us. Cal Trans has pushed their DBE (Disadvantaged Business Enterprise) to 15% up from 12.5% from 2018 (2019, Office of Advocacy). By participating in the bidding process as the only Minority Owned Business, we can assist Cal Trans in fulfilling their requirement while also being able to bid higher than our competitors. When doing publicly funded work, union workers or prevailing wage must be utilized. If our commercial division workers are already trained, they will only want to work on the higher paying prevailing wage jobs and will not return to commercial work. To combat this, I will utilize one commercial foreman and all union labor when doing public work. Issues of quality may come up, but best practices will make the work easy to understand for cyclical labor.

**Deliverables**

*Challenges and Barrier to Entry*

The market is currently dominated by three to five major players. These companies are spread throughout Southern California and have extensive backlogs. Many roadway jobs have the potential to be put on hold until these companies can make time for a rail install. While installers are unable to keep up with demand, they have the ability to say no to work and still maintain a high level of profit. These companies have extensive resources to do jobs in any environment. This ranges from commercial areas to remote places that require special machinery to enable their installation process. Just to get into the market for simple scopes of work, a large amount of capital is necessary.
Production cannot begin until all equipment and material is purchased and crews assembled. This requires extensive funding to be sourced before any revenue is received. Even after this, there is not a guaranteed stream of easily accessible work which we hope to combat over time with reputation and exposure. Jobs may be hundreds of miles apart from each other which may cost more in fuel than our mobilization costs. Storage facilities, repairs, fuel, labor and material costs all require cash to be flowing at all times. After compiling all of these costs into an approximate total, we compared this to the potential revenue that the firm could make. This will require $320,000 in funding which may be hard to acquire with a lack of experience. When expanding into public road work, union labor will be necessary to continue. This will be an extreme change to amount of money we charge for work as well as a change to what we pay. Standard practices must be set up before going through such a transition. Quality of work is also a concern when using cyclical union labor. The crew sizes are fairly small so any deviation in quality will show up. This trade is full of difficulties and challenges that must be overcome in order to be profitable. A large loan, dependable crew and large cash flow will enable this business to succeed competitively.

Action Plan

In the early stage of the business, the primary source of work will be commercial. While the linear feet of rail installed are generally lower, this enables us to use non-union labor and create close relationships with other trades. By building a close-knit crew we can establish working standards that will dictate how we run the business in the field. This will also give the firm an opportunity to elect several key employees who we will need to manage operations if/when the business grows. Overtime our competency and reputation will grow giving us exposure to more General Contractors in Northern California and beyond. With this high level of exposure, we hope to spread the word that there is a new company able and ready to accept work.

Initially, we expect a level of kick-back from other competing companies. Since we are based in Northern California, we do not expect this to be an issue in the beginning stages of our operation. This could potentially change once we begin to expand farther South. However, we hope to avoid a “competitive” attitude with other rail installation companies. While we are technically in direct competition, we hope to assist them in better reaching clients in this already under supplied market. The firm plans to partner with other guardrail installation companies to help clean up their extensive back log and close the gap between demand and supply. This has the potential to help us lower our equipment and maintenance costs if we need another guard rail driver.

The large cost of initial investment is not avoidable however. But, with collaborative relations with neighboring companies, we hope to find avenues to avoid this. By utilizing small crew sizes and cheaper materials we hope to circumvent the large initial investment necessary to operate. However, we recognize that the largest portion of capital required will go towards the machinery. The firm will make efforts to negotiate with larger rail companies to lease equipment or even buy materials to avoid this. It is difficult at this time to forecast what this process will be like, or what kind of terms we could negotiate.
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<thead>
<tr>
<th></th>
<th>Rate</th>
<th>Base Week</th>
<th>Unit</th>
<th>Operating</th>
<th>Modified Weekly Subtotals</th>
<th>Weeks/Year</th>
<th>Annual Subtotals</th>
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<td>Equipment Rental Revenue [$/LF]</td>
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<td>240 LF</td>
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<td>60%</td>
<td>$11,664.00</td>
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<td>Mobilization (roundtrip)</td>
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<td>4 each</td>
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<td>Repairs &amp; maintenance</td>
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<td>60%</td>
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<td><strong>Net Income (after taxes)</strong></td>
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**Truck Mounted Post Driver** (2016, TruckPlanet)
- High Initial & Maintenance Costs
- Extremely Durable
- Great for high cycle work
- Performs in multiple soil conditions

**Track Mounted Post Driver** (2018, Orteco)
- High Initial Costs & Expensive Parts
- Medium Durability
- Highly Maneuverable in tight conditions
- Performs well in Medium to Soft soil conditions
- Large amount of attachments available from manufacturer

**Skid Steer Mounted Post Driver** (2017, Luther)
- Low Initial & Maintenance Costs
- Not as durable as full driving units
- Has same maneuverability as a skid steer
- Requires skid-steer to operate
- Performs in multiple soil conditions with depth limitations
Pictured above are standard Cal Trans connection details. These are readily available on the CalTrans online resources. This gives the firm an opportunity to acquire pricing and become knowledgeable of CalTrans standard assemblies before the job begins. By the time public work is within reach the firm will have a firm grasp on the work to be completed. (2019, DOT)
Lessons Learned

Doing the research into what it takes to start a specialized construction company has opened my eyes to any things that I never thought of before starting this project. The biggest one being the massive amount of capital that is required and the consistent cashflow necessary to fund your projects and payroll. As a newcomer to the entrepreneurial side of things, I had no idea of all the costs associated with keeping a firm such as this running day to day. It almost seemed like a common sense process. If there was enough demand, naturally creating the supply would be seamless due to the sheer number of consumers that required a service. I quickly learned that there are reasons why a large supply of rail labor does not exist. The machinery is expensive, the jobs are short duration and often very far away from one another. The business idea is very simple to come up with but identifying and tackling all the steps in between is extremely difficult. I have learned far more than I had ever known about the challenges and start-up requirements of owning a business. However, I feel as though I have much more to experience and learn about what it takes to be an owner. I learned that specialty construction business’ like to play their industry cards close to the chest. Every time I tried to contact an existing Guardrail Installation Company about information or what kind of equipment they used, I was quickly hung up on. It seems like there is a reason that only five exist in California. There is not much incentive to help another company out in acquiring business when it would only be a threat to that company. Over time I hope that connections and reputation may allow for collaboration with other firms. Perhaps at that point a company that caters to Northern California would create a smart acquisition proposition for one of the existing companies. Acquiring pricing was also extremely difficult because of my limited knowledge on the different guardrail assemblies. There are hundreds of different types and sizes and throughout my research I was not able to get pricing on them all. I was however, able to average the pricing on over 50 different variations to come up with a $/LF to charge the owner. Finding specifics on relations with the union and guidelines for prevailing wage jobs were also hard to analyze due to differing wording from organization to organization. Union site handbooks say one thing, while the Department of Labor says another while CalTrans guidelines say another. In the future I plan to do more research this and expose myself to more prevailing wage work.
References


