TIRE & RUBBER, INC.

710 GRASS RUN ROAD
WESTON, WV 26452

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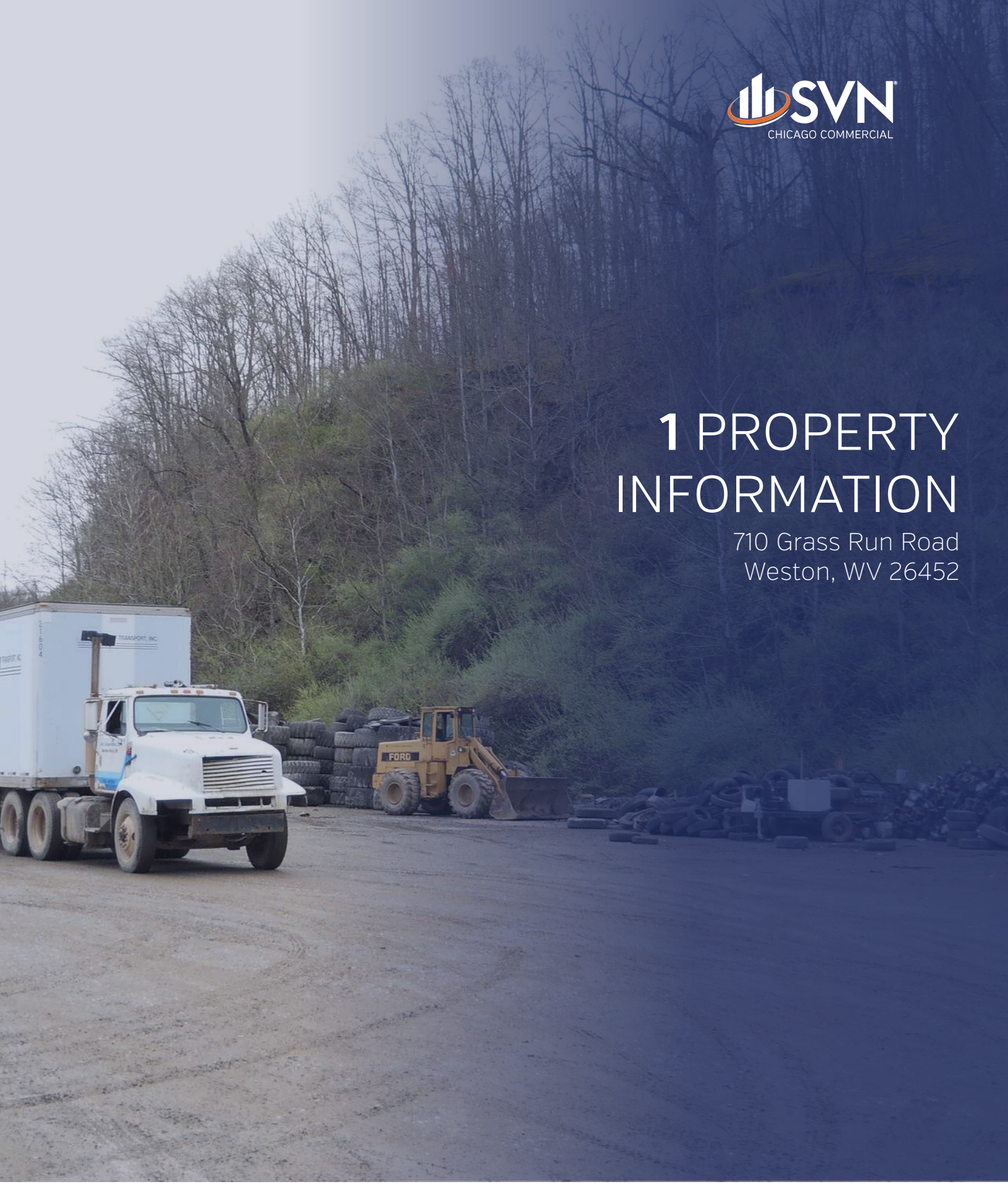
SVN
CHICAGO COMMERCIAL



1 PROPERTY INFORMATION

710 Grass Run Road
Weston, WV 26452

Property Summary

OFFERING SUMMARY

Sale Price:	$4,500,000
Cap Rate:	10.03%
NOI:	$451,477
Lot Size:	284.18 Acres
Building Size:	2,020 SF
Zoning:	Class B Solid Waste Faclity
Market:	West Virginia
Submarket:	Marcellus and Utica Shale Formations
Price / Acre: (Including Business)	$15,835

PROPERTY OVERVIEW

An early stage waste disposal facility located on the southern rim of the Marcellus & Utica Shale basins with over a total 48 million cubic yards of unmanaged airspace ready for immediate further development and ideally suited for:

• Oil & gas drill solid or “fracking” wastes that are being generated in large amounts in the Marcellus & Utica shale regions,

• Gasification or Pyrolysis processing of the 90,000-105,000 tons of primary cut tire shred stored on-site and 50,000 tons of C&D resulting in salable back-end products,

• Other potential waste streams to include Municipal Solid Waste (not easily obtained), Specialized Industrial Waste, Asbestos, etc.

Present operations are generating $2+ million in annual revenues with improving Net Income and EBITDA over the last several years. The company has over $2.5MM net operating loss carry forwards from original expense investment prior to becoming profitable. This opportunity is primed for the next stage of development which should catapult it into a strong earnings generator in addition to being a positive cash flow provider.

Offering Overview

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Present operations are generating $2+ million in annual revenues with improving Net Income and EBITDA over the last seven years. The company has over $2.5MM net operating loss carry forwards from original expense investment prior to becoming profitable. This opportunity is prime for the next stage of development which should catapult it into a strong earnings generator in addition to being a positive cash flow provider.

The Company's 284.18 acre Weston facility is a perfect natural landfill, and includes 121 acres that have already been approved for use by the West Virginia Public Services Commission and Department of Environmental Protection. In total, the site contains in excess of 48 million cubic yards of unmanaged airspace to be consumed with waste disposal. The Company's current operations utilize only a small portion of the facility's airspace, giving any buyer significant upside through the use of millions of cubic yards of airspace for future disposal.

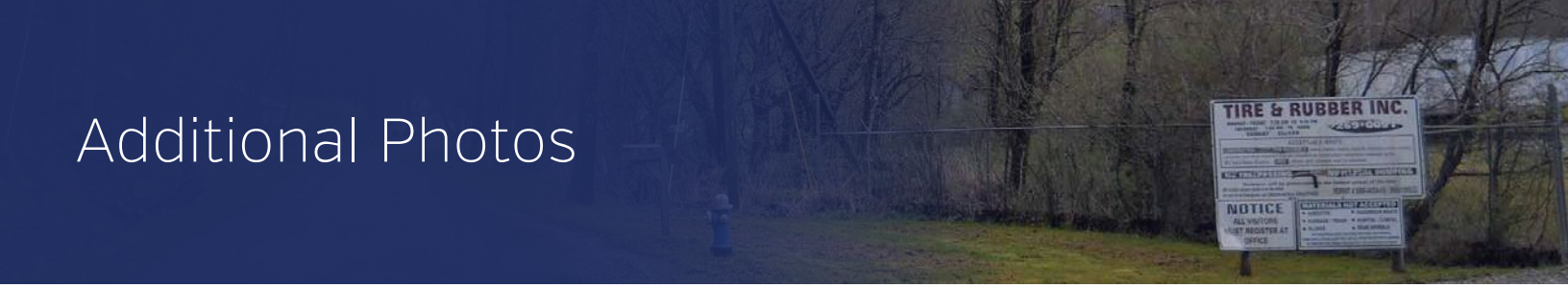
TRI is a West Virginia corporation created by Houston, TX based N.C.-W.C., LP in December, 2004 to resume the operations of the facility's previous owner, PKC Environmental Services, Inc., which obtained the original facility PSC Certificate-of-Need and DEP Solid Waste Permit issued effective August 3, 1995. TRI is owned solely by Key Star Partners, LLC. Prior to receiving approval from the West Virginia DEP to accept new business, the facility was required to comply with a major 21 item checklist of business, environmental and financial requirements in addition to shredding an estimated 100,000 tires.

Complete Highlights

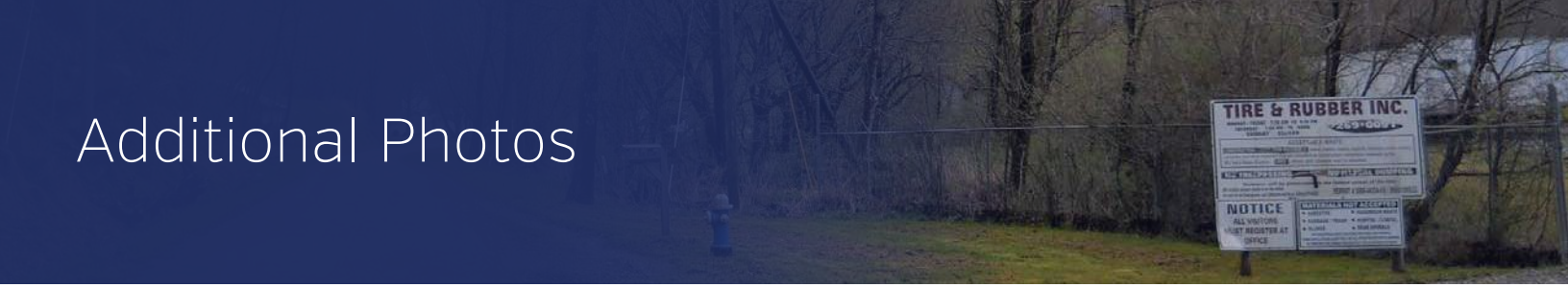
SALE HIGHLIGHTS

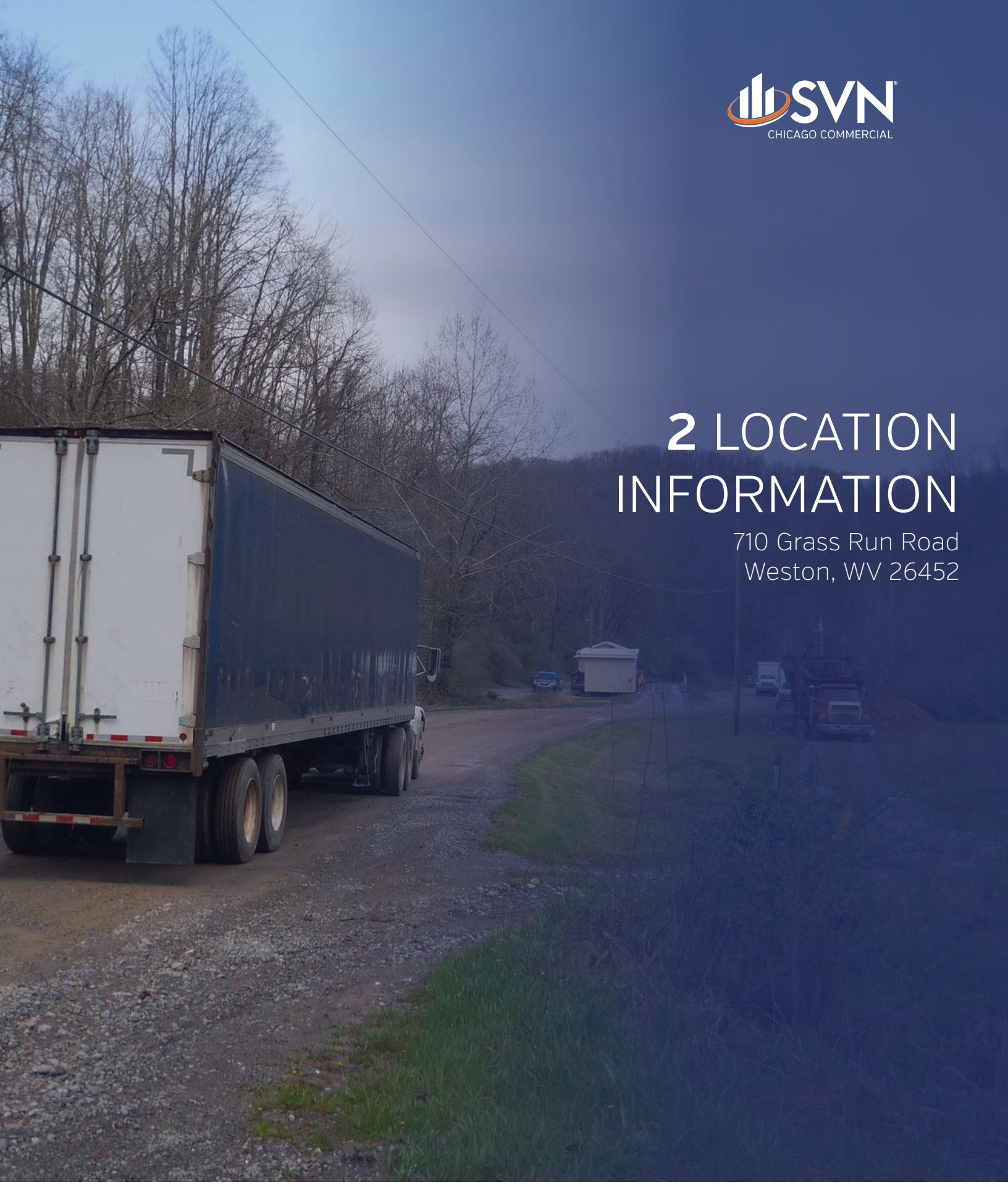
- Operating Business and Real Estate Opportunity
- 284.18 acre site; naturally conducive to land fill and waste disposal
- Permitted Waste Tire Mono-Fill and Construction/ Demolition Waste Landfill
- TRI is a Regulated Public Utility
- 100% Owned by One Owner (single site and 1 West Virginia "C" Corporation)
- Over the past 7 years, business is up 15% per year on average
- Tire & Rubber, Inc. has owned and operated the business and real estate for the past 14 years
- The project is debt free to outside lenders
- There is an approximate $2.5 Million loss carry forwards from its original site investment and remediation activities that the buyer will likely take advantage of in the transaction
- Nothing but upside due to the size of the property; a tremendous 284 acres total with 121+ acres currently approved for their current operation; however it is estimated that TRI is only using its first 12 acres (10% of the approved area and 4.2% of the total capacity)
- Roughly an estimated 46 Million cubic yards of available airspace to be filled in this natural hollow
- TRI has an "intra-state" hauling permit for tires for most of the state
- Over 100,000+ tons (approximately 10,000,000) shredded tires are held in clay lined cells for future sale or use (see pyrolysis and gasification)

Additional Photos



Additional Photos

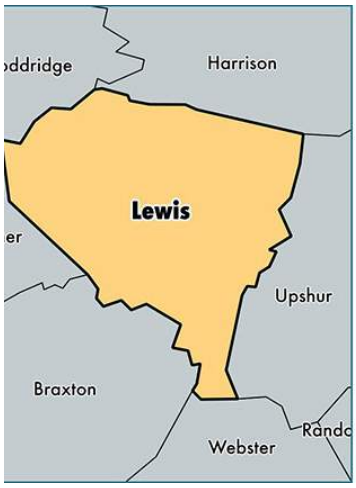




2 LOCATION INFORMATION

710 Grass Run Road
Weston, WV 26452

Property Description



LEWIS COUNTY, WEST VIRGINIA

Lewis County, located in north-central West Virginia at the crossroads of Interstate 79 and U.S. 33, was created from part of Harrison County on December 18, 1816. Named for Col. Charles Lewis, killed in the Battle of Point Pleasant, it was a huge territory from which were later formed all or part of six other counties. Modern Lewis County has an area of 389.5 square miles. The population was an estimated 16,371 in 2012.

The county potential for tourism is only beginning to be realized, with 1-79 and Corridor H (U.S. 33 east) placing it within a day's drive of half of America's population. New motels and restaurants now operate on those highways. The development of Stonewall Jackson Lake and Dam brought major change to southeastern Lewis County in the late 20th century. The dam, originally opposed by local residents facing displacement, was completed in 1988. The new Stonewall Jackson Lake State Park, West Virginia's premier state resort park, opened in 2002.

WESTON, WEST VIRGINIA

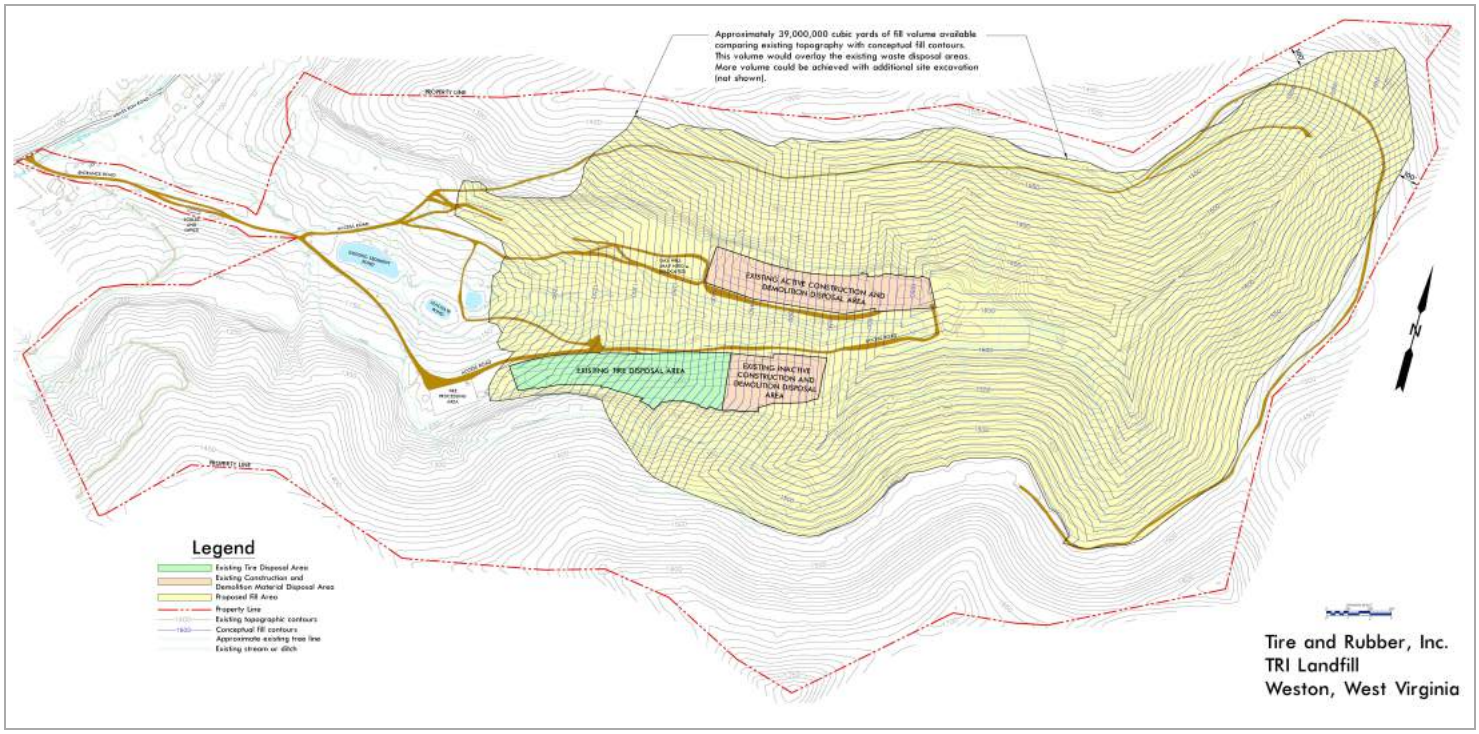
Weston is at town in Lewis County, West Virginia, United States. The population is approximately 4,300. It is the county seat of and home to several popular tourist attractions including the West Virginia Museum of American Glass and the Weston State Hospital, now known as the Trans-Allgeheny Lunatic Asylum (TALA). Weston was founded in 1818 as Preston; the the name changed to Flesherville soon after for Henry Flesher; and then to Weston on 1819. It was incorporated in 1913.

Weston sits at the intersection of two major highways, Interstate 79 and Corridor H. Major employers are the Lewis County Board of Education and Stonewall Jackson Memorial Hospital. The Weston State Hospital moved from its location within the city limits to a location a short way past the city limits in the mid 1990s.

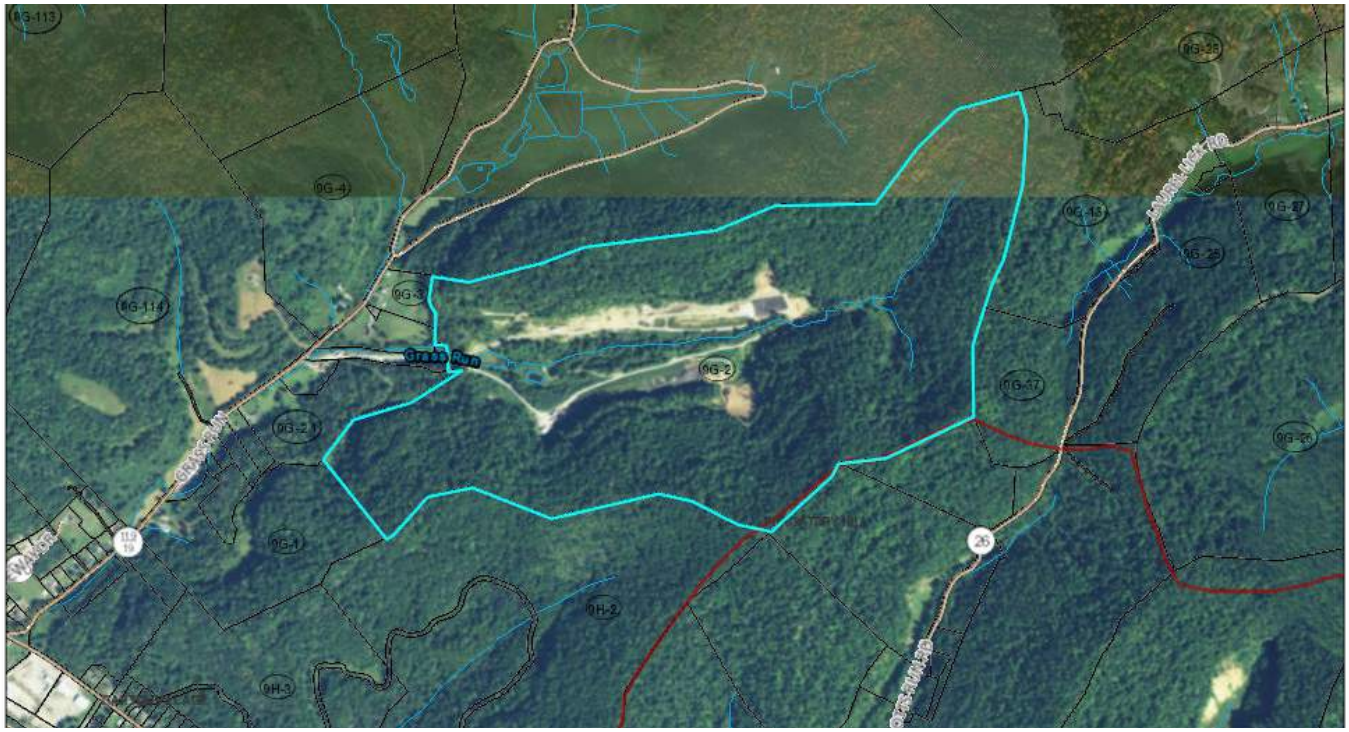
Weston is home to several notable tourist attractions including the Trans Allegheny Lunatic Asylum (TALA), the West Virginia Museum of American Glass, and the Military Museum. These locations bring in thousands of visitors each year.

Regional Map

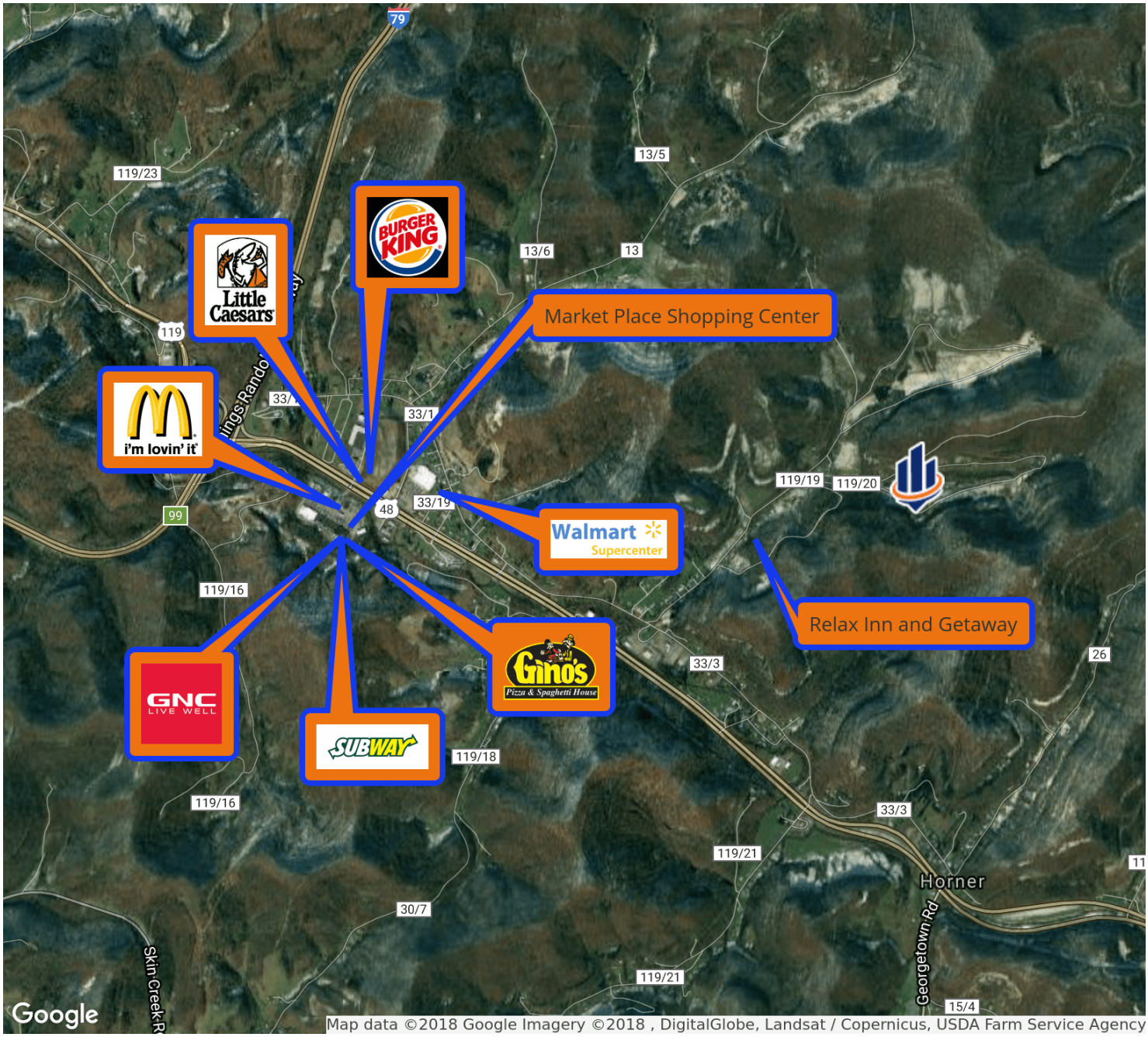
Location Maps

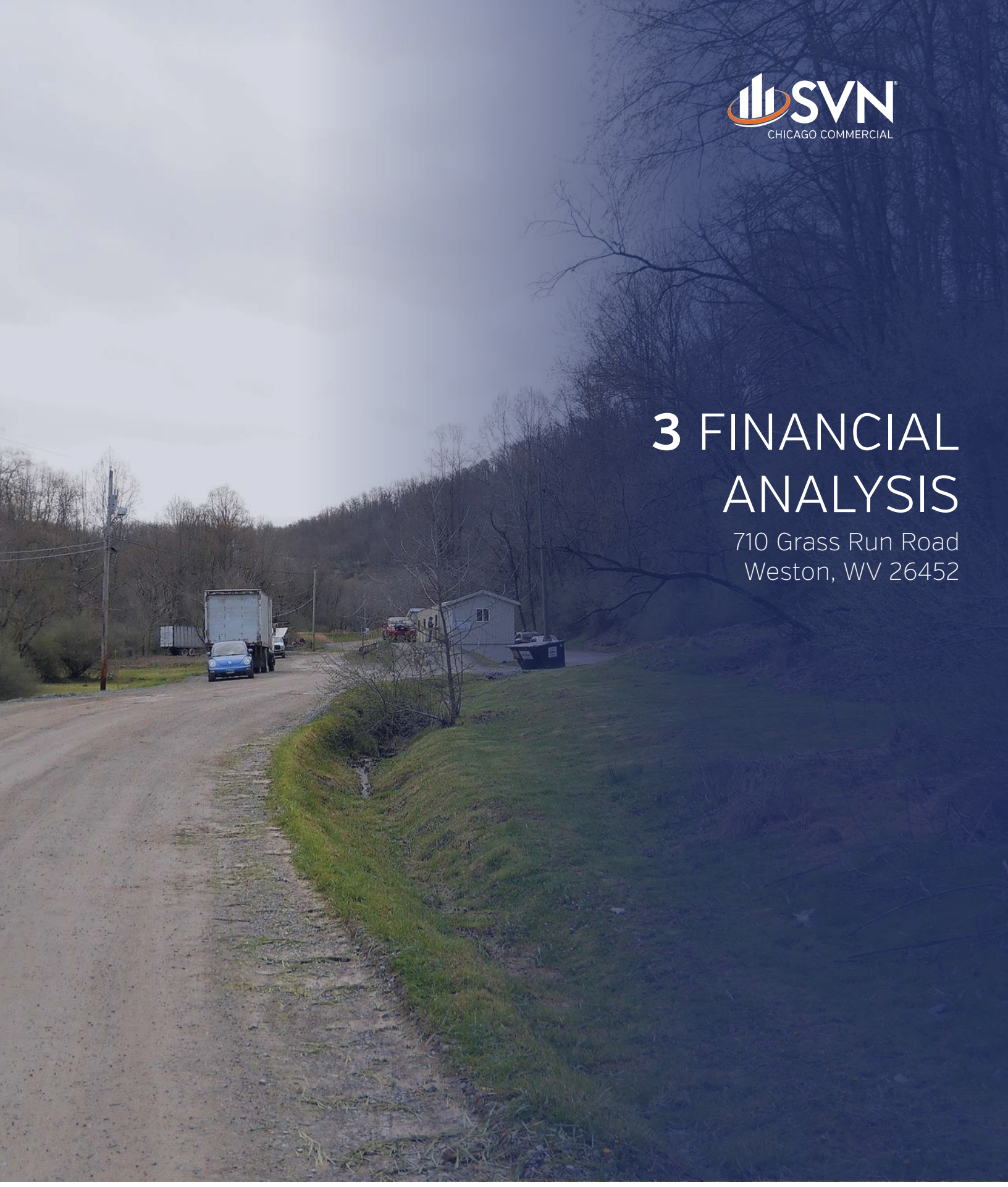


Aerial Map



Retailer Map

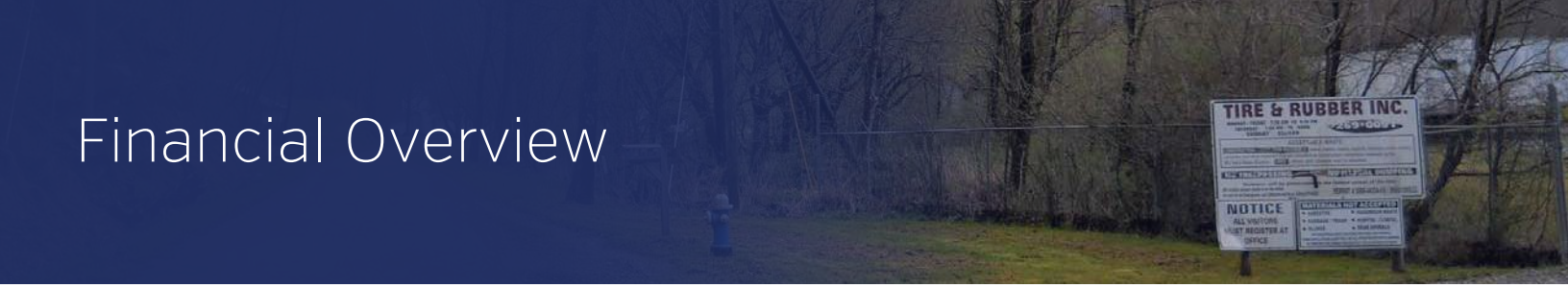




3 FINANCIAL ANALYSIS

710 Grass Run Road
Weston, WV 26452

Financial Overview



TIRE & RUBBER, INC.

710 Grass Run Road, Weston, WV 26452

PROPERTY OVERVIEW

Sale Price:	$4,500,000
Lot Size:	284.18 Acres
Cross Street:	I-79 and State Route 33
Market:	West Virginia
Submarket:	Marcellus and Utica Shale Formations

DEAL OVERVIEW

The Opportunity

SVN Chicago Commercial is pleased to offer for sale, both the Business Opportunity represented by Tire & Rubber, Inc. plus the real estate related thereto, which includes 284.18 acres consisting of a naturally formed setting ideal for a land-fill with multiple uses and a proven track-record of increasing profitability.

The Offering Memorandum

We have organized the Offering Memorandum to describe the real estate as an investment opportunity for a new owner/user at a 10.03% cap rate at $4,500,000; which includes the operating business, the real estate and all related Furniture, Fixtures and Equipment (F. F. & E.); the most significant of course is equipment.

The Future

While the current business and real estate operation is fully permitted and operating as both a Tire Recycling facility handling approximately 2,000,000 tires each year and a land fill for Construction and Demolition (C&D) materials, it can be further permitted for a host of other disposal uses which might include, but not be limited to the following: fly ash, hazardous waste, bio-medical waste, drill solid waste/drill mud from nearby shale drilling operations or even oil wastes.

The most exciting future use is to align the facility and its current inventory of nearly 10,000,000+ stored tires (with 2,000,000 new tires per year coming in) to the industry of "pyrolysis", where the rubber is converted to valuable oil, gas and carbon black (see materials in the memorandum).

Financial Pro - Forma And Modeling

Tire & Rubber, Inc.
Business and Real Estate Opportunity
$4,500,000 USD

The Industrial Real Estate which is home to Tire and Rubber Inc. is one of the most unique locations and configurations in America as it is a naturally formed "hollow" ideally suited for a landfill operation encompassing 284.18 acres; with 121 acres approved and approximately only 12+ acres currently being utilized.

The real estate asset alone is valued at between $1,420,900 ($5,000 per acre) and $2,131,350 ($7,500 per acre). Due to the irreplaceable nature of the site and the owner/user considerations of this offering; we value the real estate at $2,000,000 (Not including Airspace; which is conservatively valued at more than $1,250,000).

The Furniture, Fixtures, Equipment, Machines and Tools are of significant value and strategic importance to the operation of Tire & Rubber, Inc. and has a book value more than $928,000 at the end of 2017.

The "C & D cell" and "Tire cell" development for the facility have an asset book value of over $1,270,000 at the end of 2017.

In addition, there are approximately 10,000,000 stored tires in the ground for future use and processing.

The Goodwill, client base and legacy of the firm is being valued conservatively at $300,000.

Tire & Rubber, Inc. continues to meet or exceed Two Million Two Hundred Thousand dollars ($2,200,000) in gross revenues annually and under new ownership should be able to increase revenues and other lines of business substantially.

In excess of $600,000 annually in EBITDA at a multiple of 5.00; the business operational value is estimated to be $3,000,000. Additionally there is a loss carry forward available to the purchaser of the enterprise in excess of $2,000,000.

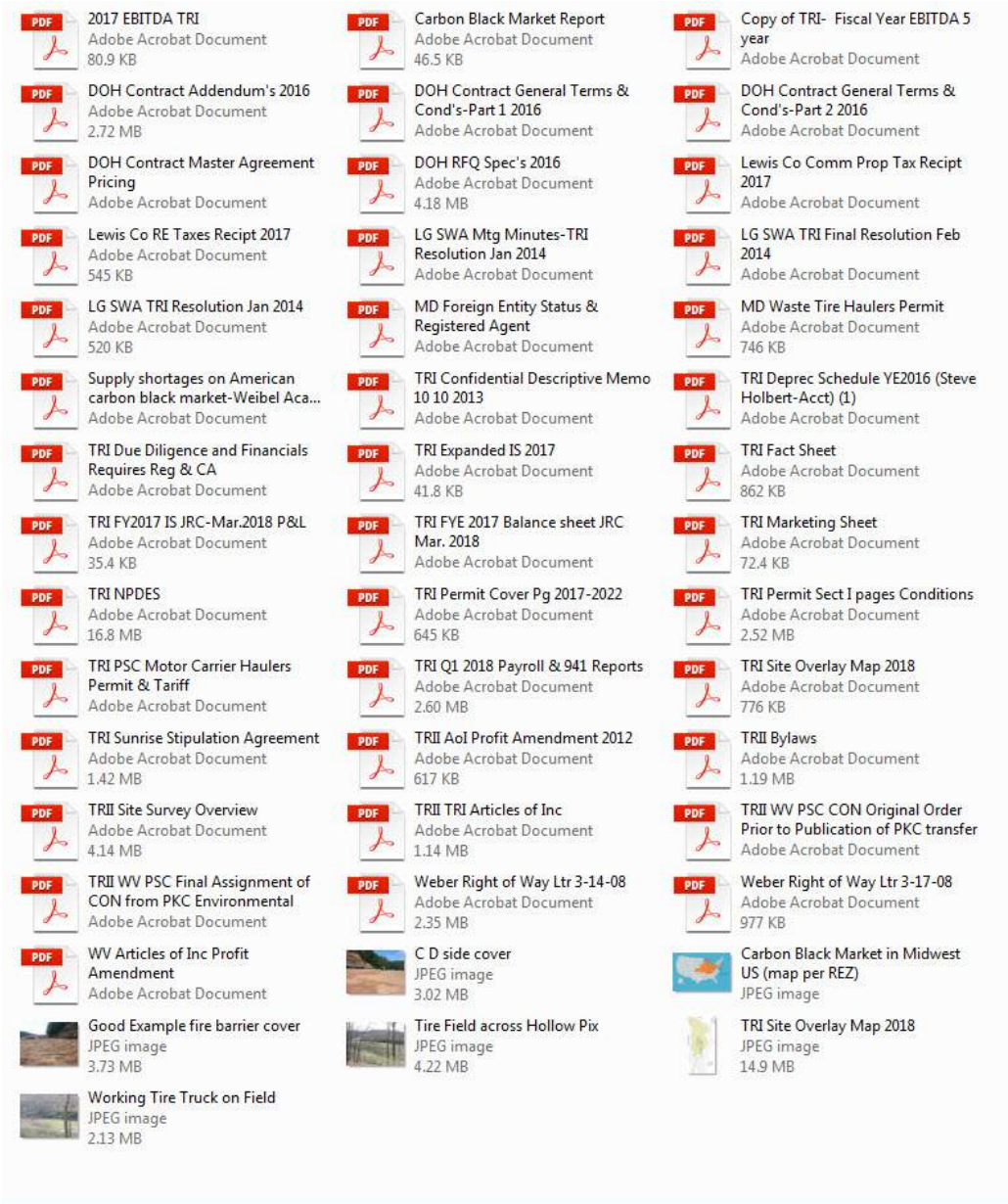
This well run and now stabilized enterprise offers significant value and long term sustainability.

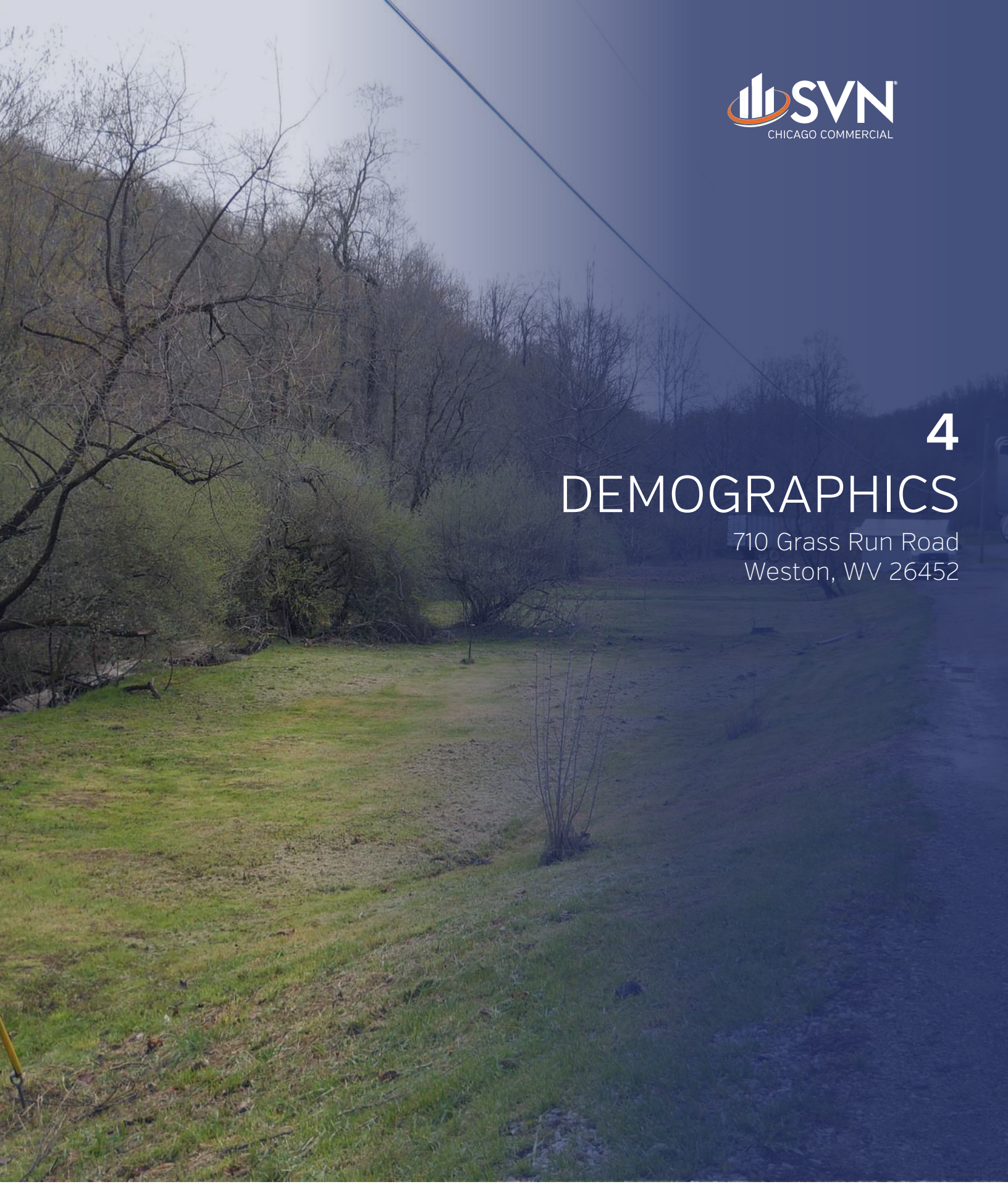
Books and Records will be provided to registered interested parties upon the execution of a Confidentiality Agreement with seller’s approval and consent.

Documentation Vault Available Upon Registration

Tire & Rubber, Inc.
Business and Real Estate Opportunity
$4,500,000 USD

Books and Records will be provided to registered interested parties upon the execution of a Confidentiality Agreement with seller's approval and consent. The following documents are in the password protected vault:





4
DEMOGRAPHICS

710 Grass Run Road
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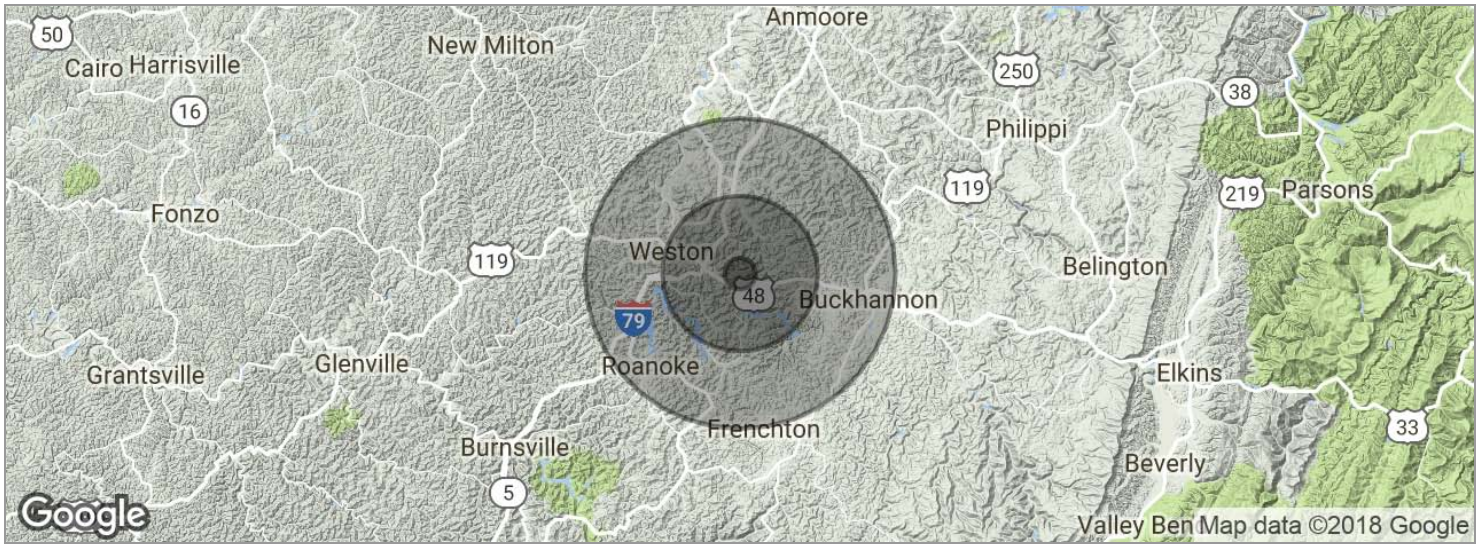
Demographics Map



POPULATION	1 MILE	5 MILES	10 MILES
Total population	193	5,800	21,046
Median age	44.3	42.5	42.5
Median age (male)	40.3	39.4	40.5
Median age (Female)	47.3	45.4	44.4

HOUSEHOLDS & INCOME	1 MILE	5 MILES	10 MILES
Total households	73	2,463	8,280
# of persons per HH	2.6	2.4	2.5
Average HH income	$48,546	$42,816	$45,940
Average house value	$139,211	$139,077	$139,362

** Demographic data derived from 2010 US Census*

5 TECHNOLOGY

710 Grass Run Road
Weston, WV 26452

by MAURA KELLER

According to the U.S. Environmental Protection Agency (EPA), about 100 million pounds of tire components discarded during the manufacturing process are dumped in landfills nationally each year because the body ply – the tire's largest component – can't be effectively recycled. That is, until tire pyrolysis gains more of a foothold throughout the industry.

Pyrolysis of scrap tires offers an environmentally and economically attractive method for transforming waste tires into useful products, heat and electrical energy.

As Salmon Zafar, chief executive officer of waste management consulting firm, BioEnergy Consult explained, tire pyrolysis is one of the most popular methods for disposal of scrap tires in many parts of the world. Tire-derived fuel (TDF) or pyrolysis oil is one of the largest applications of scrap tires in U.S., however it is currently being challenged by crumb rubber due to the steep fall in oil prices in recent years. Cement plants are the biggest consumers of TDF in the country.

The EPA described TDF as a high Btu-value fuel with lower emissions, including lower greenhouse gas emissions, than comparable traditional fuels, in a 2009 Advanced Notice of Proposed Rulemaking. In earlier studies, the EPA concluded, "With proper emission controls, burning tires for their fuel energy can be an environmentally sound method of disposing a difficult waste."

Klean Industries in Vancouver, BC, has been building and operating tire carbonization facilities at a scale north of 100 metric tons per day since the 1980s.

According to Marc Smith, business development and sales at Klean Industries, the recovery of valuable resources, such as tires, done in the right format delivers the highest possible returns both financially and environmentally, without the need for subsidies.

"Sadly, however, little money has been invested over the decades into new tire recycling methods and infrastructure, as the current market is largely supported by recycling subsidies that support a broken industrial model where by the consumers have been paying for the down cycling of tires in to lower value materials and or into a tire derived fuel to only see tires be incinerated or landfilled," Smith said.

Currently, Klean Industries is seeing a glut of low value product on the market and a saturation of raw materials from tires that have a very low economic value.

"This saturation is what is also driving change in the marketplace as industry is now looking for more valuable products that have a wide range of applications in order to monetize the value position further, while offsetting costs and delivering better returns," Smith said. "The benefits of a circular economy are slowly coming to light and are now starting to be understood and acted upon."

At Its Core

In the past, the main approach to tire disposal was to get paid for the disposal of tires with secondary interest in the oil.

But as the environmental concerns surrounding tire disposal and recycling continue to emerge, tire pyrolysis is gaining momentum throughout the industry.

The pyrolysis method for scrap tire recycling involves heating whole, halved or shredded tires in a reactor containing an oxygen-free atmosphere and a heat source. In the reactor, the rubber is softened after which the rubber polymers disintegrate into smaller molecules, which eventually vaporize and exit from the reactor.

"These vapors can be burned directly to produce power or condensed into an oily type liquid, called pyrolysis oil or bio oil," Zafar said. "Some molecules are too small to condense and remain as a gas, which can be burned as fuel. The minerals that were part of the tire, about 40 percent by weight, are removed as a solid in the form of carbon black."

According to Metso Corporation, a leading provider of tire pyrolysis, from a single tire, approximately one third of the weight is steel, one third becomes pyro black (carbon black plus additives) and the final third, pyrolysis system, are carbon black char, oil, steel and non-condensable gases.

Metso's tire pyrolysis process involves a pyrolysis reaction in which the chips go through three stages inside the kiln. First, the rubber becomes brittle and separates from the steel, resulting in rubber char. In the second stage, the oil and gas are forced from the rubber char and swept from the kiln. In the last tire pyrolysis stage, the char is fully processed into a carbon black-like substance and separated from the steel wires.

The char is sent through a processor to cool it and then sent to a grinding, pelletizing and bagging system where it is packaged for transport. The steel is cooled, and the steel wires are compacted and made available for transport to a steel recycler or steel-processing furnace. The Metso two-stage condenser system is where the off-gas is pulled through and the oil is extracted.

Metso Corporation developed its tire pyrolysis system to produce a high-quality carbon product that could be used in rubber manufacturing. As a result, the company's plant design and recycling process follows the same principles as that of a chemical processing plant.

When performed well, the tire pyrolysis process is a very clean operation and has nearly no emissions or waste.

Diran Apelian, Alcoa-Howmet Professor of Mechanical Engineering at Worcester Polytechnic Institute, said tires are a great example of what can be done economically as long as there is a collection system in place.

"Rubber tires, when exposed to liquid nitrogen, undergoes a transformation and becomes brittle like a glass, and rubber tires can be pulverized, which are further reused as additives in highway surfaces, parks, stadiums, and many other surfaces," Apelian said. "It's a great way to recover and reuse the product at end of life."

On the Horizon

The tire recycling industry in the U.S. is among the strongest and most diverse worldwide. In fact, according to Zafar most of the states have their own laws regarding disposal of waste tires along with environmental stewardship programs and highly developed end-products.

"The carbon black market has historically displayed a steady growth profile and there is increasing demand for carbon black from the tire industry and other end users," Zafar said.

Smith said the industry is on the precipice of change on a global basis with respect to energy and raw material costs, specifically with the massive boom in population growth that is taking place around the planet. "We are going to see consumption habits and the volume of consumption significantly change over the coming decades. This then combined with the pressure on the environment is also going to create change," Smith said. "We see nothing but significant growth in our future, and that's not just in tire pyrolysis, but also in plastic recycling and creating energy from waste as a whole."

Rubber Recycling Innovations

Recognizing the detrimental effect that discarded tires has on the environment, RVS Rubber Solutions, a student startup based at Case Western Reserve University, has developed a viable solution to this environmental hazard: A new technology that extracts the rubber and steel from within the components in a cost-effective and environmentally friendly way.

The brainchild of Pavel Galchenko, a Case Western Reserve sophomore studying biochemistry and applied data science, and Yohann Samarasinghe, a sophomore studying nanoengineering and business at the University of California, San Diego, RVS Rubber has developed a process to repurpose the rubber within the material, reducing and potentially eliminating waste, while providing rubber products manufacturers with high quality material to make them less dependent on environmentally harmful virgin rubber for a range of applications.

Here's how it works: RVS Tech induces vibrations within the plies to break the rubber off the steel to create an almost perfect separation of the base components. This is also done without degrading the quality of the rubber, resulting in various reusable applications in the consumer marketplace.

RVS Rubber Solutions expects its technology to revolutionize the rubber recycling process.

"We recycle the component materials from tires rejected during their manufacturing in a very cost-efficient process," Samarasinghe said. "We are a 'negative-waste company,' meaning we are actually reducing the amount of waste material entering landfills from other producers by reintroducing the rejected tire component into the consumer market after our RVS Tech has processed it."

Published in the July 2017 Edition of American Recycler New

Pyrolysis of Scrap Tires

By Salman Zafar | April 27, 2018 - 7:13 pm |

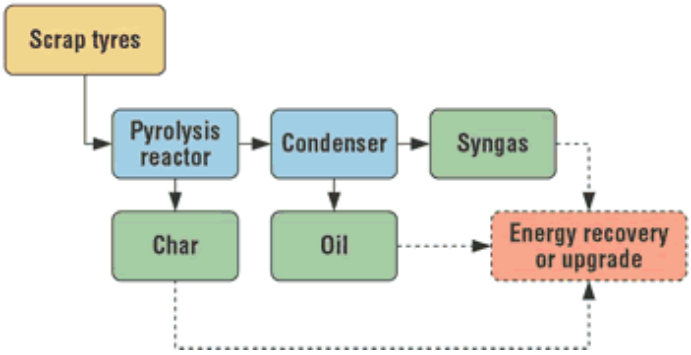
Pyrolysis of scrap tires offers an environmentally and economically attractive method for transforming waste tires into useful products, heat and electrical energy. Pyrolysis refers to the thermal decomposition of scrap tires either in the absence or lack of oxygen. The principal feedstocks for pyrolysis are pre-treated car, bus or truck tire chips. Scrap tires are an excellent fuel because of their high calorific value which is comparable to that of coal and crude oil. The heating value of an average size passenger tire is between 30 – 34MJ/kg.

Pyrolysis is the most recommended alternative for the thermochemical treatment of waste tires and extensively used for conversion of carbonaceous materials in Europe and the Asia-Pacific. Pyrolysis is a two-phase treatment which uses thermal decomposition to heat the rubber in the absence of oxygen to break it into its constituent parts, e.g., pyrolysis oil (or bio oil), synthetic gas and char. Cracking and post-cracking take place progressively as the material is heated to 450-500°C and above.

Process Description

The pyrolysis method for scrap tires recycling involves heating whole or halved or shredded tires in a reactor containing an oxygen free atmosphere and a heat source. In the reactor, the rubber is softened after which the rubber polymers disintegrate into smaller molecules which eventually vaporize and exit from the reactor. These vapors can be burned directly to produce power or condensed into an oily type liquid, called pyrolysis oil or bio oil. Some molecules are too small to condense and remain as a gas which can be burned as fuel. The minerals that were part of the tire, about 40% by weight, are removed as a solid. When performed well a tire pyrolysis process is a very clean operation and has nearly no emissions or waste.

The heating rate of tire is an important parameter affecting the reaction time, product yield, product quality and energy requirement of the waste tire pyrolysis process. If the temperature is maintained at around 450◦C the main product is liquid which could be a mixture of hydrocarbon depending on the initial composition of waste material. At temperature above 700◦C, synthetic gas (also known as syngas), a mixture of hydrogen and carbon monoxide, becomes the primary product due to further cracking of the liquids.



Schematic for Pyrolysis of Scrap Tires

The nature of the feedstock and process conditions defines the properties of the gas, liquid and solid products. For example, whole tires contain fibers and steel while shredded tires have most of the steel and sometimes most of the fiber removed. Processes can be either batch or continuous. The energy required for thermal decomposition of the scrap tires can be in the form of directly-fired fuel, electrical induction and or by microwaves (like a microwave oven). A catalyst may also be required to accelerate the pyrolysis process.

Useful Products

The high acceptance of pyrolysis for the treatment of scrap tires is due to the fact that the derived oils and syngas can be used as biofuels or as feedstock for refining crude oil or chemical products. The pyrolysis oil (or bio oil) has higher calorific value, low ash, low residual carbon and low Sulphur content.

The use of pyrolysis oil in cement kilns, paper mills, power plants, industrial furnaces, foundries and other industries is one of the best uses of scrap tires. Pyrolysis of scrap tyres produces oil that can be used as liquid fuels for industrial furnaces, foundries and boilers in power plants due to their higher calorific value, low ash, residual carbon and Sulphur content.

The solid residue, called char, contains carbon black, and inorganic matter. It contains carbon black and the mineral matter initially present in the tire. This solid char may be used as reinforcement in the rubber industry, as activated carbon or as smokeless fuel.

SUPPLY SHORTAGES ON AMERICAN CARBON BLACK MARKET

May 11, 2018 | Carbon Black

North American carbon black manufacturers will keep on struggling to catch up with increasing demand for the product, and the growing demand is anticipated to remain in the nearest future, said an expert, Gary Horning, during the 34th Clemson University Global Tire Industry Conference last month.

According to an accounts manager from Sid Richardson Carbon and Energy, Gary Horning, who gave a speech during the conference, the product's demand is expected to escalate, and tread carbon blacks will be completely sold out.

Gary Horning from Sid Richardson Carbon and Energy at the Clemson Tire Conference. Photo: Rubber News

He also quoted speech that Sed Richardson's vice president for sales and marketing, Greg King, gave in 2014 – he had forecast that starting from 2016, the American market will witness a deficit of carbon black.

Horning concluded that his company's prognosis had turned out to be credible, as the carbon black industry is struggling now.

King has made his new forecasts up until 2025 taking into account not only the United States, but Mexico and Canada as well, and providing analysis of what will happen if they stick to the North American Free Trade Agreement. Tire manufacturing is expected to escalate, and producers will start utilizing 65 percent of capacities as they will start constructing their first plants choosing the United States as a location.

According to the forecast, by 2025 the industry will face CB deficit of 375 million pounds. The experts believe that the balance on the market can be attained with the help of sound solution for resource supply.

Horning said that a resource deficit is unavoidable, and it can be solved if two of the options are used: importations of carbon black, or augmentation of NAFTA carbon black manufacturing.

In the United States, the carbon black commercial segment operates at an extremely high capacity.

The future of imported carbon black largely depends on oil prices. For instance, oil price of USD 100 per barrel enabled competitive imports of carbon black.

Given that the national tire production is undergoing transformations, carbon black manufactures are forced to deal with new obstacles.

Despite increased volumes of produced tires, shapes and forms of tires start to transform as well becoming wider and having smaller sidewalls. The transformed shape leads to increased demand for tread carbon black, however, according to Horning, carcass blacks start to lose its appeal to customers.

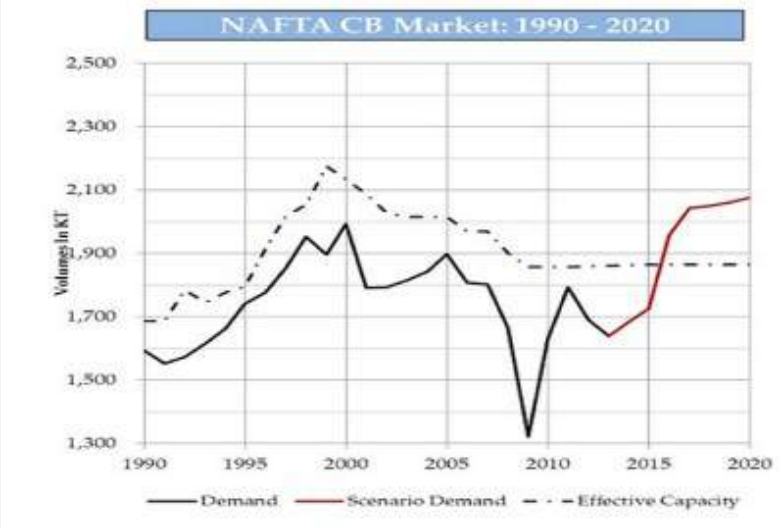


Image: Clemson University, Global Tire Industry Conference

In 2018, rim size of 18 inches is considered a best-seller, while it was once 14 and then 16 inches, claimed Horning.

He also noted that carbon black demand is influenced by popularity of silica and its application as a substitute for carbon black, as it provides less roller resistance. Nevertheless, this trend is favored by Sid Richrdson, as it is impossible to provide all consumers with sufficient amount of manufactured carbon black.

Reflecting upon other concerns, the carbon black commercial sector struggles to find rational solutions for transportation and logistics. To ship carbon black, railroad hopper vehicles, or hopper trucksare normally used.

Sid Richardson is the leading owner of hopper cars in North America; in 2016, it had more than 950 vehicles; this year, extra 50 cars are expected to be taken into operation, but the company claimed that they wished they could use even a thousand more – the obstacle here is that these cars are expensive and it will require a lot of time to get returns on investments.

Given that it can be problematic to manage logistic costs, and the expenses for new equipment will increase, transportation of carbon black will become a serious challenge, explained Horning.

Apart from these concerns, the US manufacturers will still need to pay certain environmental fees. Moreover, a recently signed contract with the U.S. Environmental Protection Agency forces Sid Richardson to comply with regulations, which target reduction of toxic emissions from plants. Thus, investments in production capacity can be more problematic in the nearest years.

Given the increasing carbon black demand, we see a good potential for tire pyrolysis companies focused on high-quality rCB production to expand their business and fill shortages of virgin carbon black on American market.

Article by Rubber News

Carbon Black Market Size, Share & Trends Analysis Report By Application (Tires, High Performance Coatings, Plastics), By Region, Competitive Landscape, And Segment Forecasts, 2012 - 2022

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- Number of Pages: 106

Industry Insights

The global carbon black market size was estimated at 11.99 million tons in 2014. Carbon black is majorly used in manufacturing of tires as it maximizes tread wear and reduces rolling resistance which is the key driver for the industry. They are produced via three major processes including furnace black, channel process and acetylene black process utilizing petroleum, natural gas or acetylene gas as feedstock. Furnace black is the most widely used process as it offers greater potential for mass production.

Tires in automobile play a crucial role in ensuring better handling, improved fuel efficiency and safety by offering better traction. Carbon black is utilized in different rubber types to enhance performance properties of tires. With increasing regulatory intervention regarding passenger safety, participants in the tire industry have been concentrating on improving performance properties thereby increasing their scope in the application segment

Manufacturers combine various tread and carcass grade of the product to improve handling, tread wear and fuel efficiency to meet consumer requirements. Several tests conducted by tire manufacturers have revealed that integrating them in production increases abrasion resistance multiple fold as well as enhances tire tensile strength.

They are also extensively used in electrical & electronics, chemicals and construction industry for strengthening rubber compounds and equipment’s. Products include roll coverings, seals, tubes, conveyor belts, profiles, antistatic films, fibers, floppy disks, moldings, cables and roofing foils. It is a highly competitive industry with key players increasingly investing in R&D to improve their product quality.

Furthermore, it can absorb Ultra Violet light rays and assists in converting it to heat, which has augmented its use in plastics industry. It improves UV resistance of plastics and offers superior conductivity and antistatic properties. Thus, increasing plastics production as well as development of advanced polymers will have a considerable impact on industry dynamics. In addition, a shift towards utilizing specialty grade plastics in several manufacturing industries and rising demand for product in lightweight auto parts will be a positive influence.

North American market is driven by increasing utilization of the product as pigment in light weight auto parts to meet stringent environmental regulations. Moreover, there will be considerable demand in North America for the foreseeable future owing to increasing tire, rubber and high-performance coatings demand from end-use industries such as automotive, aerospace, packaging and ink.

North America

- North America carbon black market by application
  - Tires
  - High Performance Coatings
  - Plastics
  - Others
- U.S.
  - U.S. carbon black market by application
    - Tires
    - High Performance Coatings
    - Plastics
    - Others

https://www.grandviewresearch.com/industry-analysis/carbon-black-market/segmentation

Scrap Tire News...

Bolder Industries Wins Research Grant

Colorado-based Bolder Industries, which operates the Maryville Carbon Solutions plant in Maryville, Missouri has received a $50,000 grant from the Waste Tire Market Development Fund through the Colorado Department of Public Health and Environment.

The Maryville facility uses pyrolysis technology to transform waste automotive tires into a trademarked recovered carbon black, a coloring and reinforcing agent used to manufacture rubber and plastic products ranging from gaskets and wetsuits to conveyor belts and windshield wipers.

According to a Bolder Industries release, the company plans to use the grant funds to develop specialty applications for its primary product, trade-named Bolder Black. The grant-funded research includes the creation and testing of custom compounds promising a variety of new performance characteristics. It is hoped these compounds, or "recipes," will allow rubber manufacturers both to improve existing products and develop new ones, the company said.

"This will be another step in Bolder Industries' expansion into specialty carbon blacks, which is the fastest growing area of the nearly $15 billion global carbon black market," the release stated.

Research and development made possible by the grant, will "increase the end uses for the over 300 million scrap tires that enter the U.S. waste stream every year," the company said.

Bolder said similar research has already led to improved performance of several rubber products, including conveyor belts, diaphragms, agriculture harvesting equipment and forklift tires.

"We now have empirical evidence that Bolder Black delivered a new level of performance across a wide variety of rubber goods, which is a first in the reclaimed carbon world," CEO Tony Wibbeler said. "This means we have a solid market advantage and the ability to collaborate with rubber industry partners to reach new and exciting places."

Bolder Industries is marketing Bolder Black as an environmentally sustainable alternative to traditional carbon black, typically produced using a variety of petroleum products, such as coal tar.

Bolder Black is reclaimed from waste tires that would otherwise be incinerated or end up in landfills, the company said.

The process, the company maintains, cuts greenhouse gas emissions by as much as 90 percent and uses 90 percent less water than traditional production methods. ◆

Green Carbon Teams Up With Caterpillar to Develop Tire Recycling System

Rome, GA-based Green Carbon Inc. has partnered with Caterpillar Power Systems to develop a self-sustaining tire recycling system.

Called a Bio-Cogeneration System, it uses the synthetic gas produced from recycling tires, belting and rubber tracks in Green Carbon's Thermal Vacuum Reactor (TVR) System to power a custom designed generator developed by Caterpillar.

Green Carbon's Phil Wilson checks a control on Caterpillar's synthetic gas-powered generator that powers Green Carbon's Thermal Vacuum Reactors. (Photo courtesy of Doug Walker RN-T)

"We were looking for a way to use the excess gas that is produced in the system in an environmentally friendly way," Green Carbon co-founder Phil Wilson said. "I approached not only Caterpillar but several other companies and Caterpillar was the one that was able to develop the generator so that it would work off our gas."

Wilson said he first contacted Caterpillar in July 2017 and the company was able to convert one of its other natural gas-powered generators in less than three months time.

"Essentially you could put it out in the middle of a corn field and run it without anything else, except for the tires," Andrew Taylor, Green Carbon's environmental manager said. "It's perpetual, the whole thing is powered by itself as long as you keep putting tires in."

Green Carbon Inc. is a co-owned company with OTR Wheel Engineering of Rome. OTR has had a long relationship with Caterpillar.

"They worked with us and we finally got the design right," Taylor said. All the testing on the generator has been completed. The entire system produces its own energy and never needs any kind of virgin material, such as natural gas or diesel or electricity from an external source," Taylor said.

The units in Rome are currently running on the new generators, he said.

Traditional recyclers of tires use a tremendous amount of external energy to power their systems. The Green Carbon system now not only does not require any external energy source, but also reduces carbon dioxide emissions significantly.

A half dozen of the TVR units are in use at Fort McMurray in the area of oil sands in extreme northern Alberta, Canada. The reactors are used to recycle massive earth-moving and mining tires.

The largest of the tires, a 63-inch tire, can be reduced to 588 gallons of oil, 3,500 pounds of carbon black and 1,500 pounds of steel. The largest reactor can burn two of those tires at the same time in a process that takes 16 hours from start to finish. The process also produces and captures more gas than it takes to fuel the process.

"Our latest units that are operating in Fort McMurray are producing about 180 percent of the synthetic gas that is required to run the process," Wilson said. "There is an enormous surplus of gas which in the winter they can use for heating, but in the summer they just have to store it. Co-generation will use that gas up supplying not only the power they need to run their plant but also sell it back to the grid."

TVR units at Green Carbon facility in Rome, GA

Co-founder Fred Taylor has indicated that each of the large reactors is capable of eliminating enough tires to result in the creation of about 36,000 gallons of oil.

Wilson said Green Carbon is able to customize its reactors for the client based on local and regional conditions where the equipment will be used. Wilson said the designers had to make changes for the extreme climate at Fort McMurray.

The Rome plant typically bales old tires into 1,000 pounds per bale. The reactors are capable of recycling 20,000 pounds at a time and run every other day because of the time it takes for the process. ◆

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