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ALL ABOARD:

CLEAN ENERGY TRANSPORTATION OPPORTUNITIES FAVOR OHIO ECONOMY

A REPORT FROM
POLICY MATTERS OHIO

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Executive Summary

America once led the world in production of rail cars, buses and other forms of transportation capital stock. As national attention shifted to highways and air transit in the second half of the twentieth century, investment in rail and public transit dwindled. New interest sparked by climate change and the dangers of dependency on fossil fuel and foreign oil have brought attention to pent-up demand and investment needs in this sector. National investments to repair existing stock and implement plans already in the works would provide sufficient demand to start rebuilding the public transit manufacturing sector:

- According to a recent nationwide analysis of transit agencies' and municipal planning organizations' long-range plans, at least 400 rail, streetcar and bus rapid transit projects are in the planning stages.
- An FTA assessment of all of the nation's public transit assets, including rail, bus and para-transit, found 29 percent in poor or marginal condition. The investments needed to bring these 690 separate rail and bus systems to a state of good repair total an estimated \$78 billion.
- Amtrak calculates that in the next 14 years, it will need to buy 1,200 railcars, 334 locomotives, and 25 high-speed train sets.
- Re-establishing the national intercity passenger rail network would require capital investments of an estimated \$8.1 billion annually through 2050

A key question revolves around whether America has the industrial base to serve existing, let alone expanded, demand. The Apollo Alliance has partnered with researchers at Duke University to find some answers. Researchers at Duke University's Center on Globalization, Governance & Competitiveness (CGCC) mapped out the U.S. supply chain in one key industry segment, passenger and transit rail. CGGC researcher Marcy Lowe and her team found that America retains a solid domestic production and supply capacity in that segment of the market. They identified 249 manufacturing locations across the nation that either produce transit capital stock or are top-tier suppliers to the producers. Ohio ranked fifth in number of top-tier firms with 13 first- or second-tier locations in the state.

Data from the Ohio Rail Development Commission (ORDC) paints a picture of the freight rail industry in Ohio. Their research reveals an extensive supply base of freight rail suppliers and contractors in Ohio, in addition to the passenger and transit rail firms identified in the Duke University study. Using Rail Supply Institute listings, which

overwhelmingly reflect the freight rail industry, the ORDC found 226 firms in Ohio, supporting 26,516 jobs in the Buckeye State.

Federal and state policy makers can maximize their use of taxpayer funds by investing in public transit, streetcar and rail infrastructure, operations and capital stock. Investment in these sectors supports labor-intensive activity that maximizes job creation. For example, a cleaner transportation bill, as proposed by the advocacy group Transportation for America, could boost employment associated with the federal surface transportation programming by an additional 250,000 jobs. Because of our industrial base, Ohio could be a big beneficiary of federal programming that would create new demand for rail, bus, streetcar and clean heavy truck sectors.

Key public policies to underpin a transportation-led economic development strategy, whether embedded in climate legislation or in transportation legislation, must include the following elements:

- **Stabilize demand** for transportation capital stock through long-term commitment to public transit through legislation like the surface transportation act (SAFETEA-LU) and climate change legislation. This will ensure a market, limit risk and permit financing of new industrial capacity.
- **Incentivize supply** and make domestic production profitable through improving Buy America provisions and providing incentives for enhanced domestic content. This too will limit financial and production risk of expanding domestic capacity.
- **Provide access to capital** to help automotive and related firms retool for new transportation capital stock markets as part of climate legislation investment programming to build a clean energy economy. This also reduces risk and enhances reward for entrepreneurs rebuilding these sectors.
- **Create market efficiencies** by encouraging greater product standardization for domestic transportation capital stock to make the market work more efficiently. Enhance procurement practices to encourage better economies of scale.
- **Provide technical assistance** to support a cluster of domestic transportation capital stock producers in Ohio through economic development services proposed by Ohio's EWI (Edison Welding Institute) to foster continuous improvement, efficiency and research and development in the rail industry.

All Aboard: Clean Energy Transportation Opportunities Favor Ohio Economy

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The drive to reduce pollution and move to a clean energy economy has created new interest in public and rail transportation. Seventy percent of our dependence on foreign oil is attributable to the transportation sector.¹ If we provided more mass transit options and cleaner vehicles, it could boost demand for new and cleaner buses, streetcars, rail cars, locomotives and trucks, a critically important part of creating a clean energy economy in America. This could maximize our return on investment by creating new manufacturing jobs while capping our dependence on fossil fuels and cutting pollution.

America was once a leader in manufacture of transit capital stock of all kinds. Ohio would be big winner in the revitalization of that diminished industrial infrastructure. In this paper, Policy Matters draws on national work to explore market demand and Ohio's domestic supply base in passenger and freight rail manufacture. We recommend policies to increase both. Data about Ohio firms currently serving those markets is provided. A policy platform that could drive growth of these key manufacturing sectors is outlined.

History

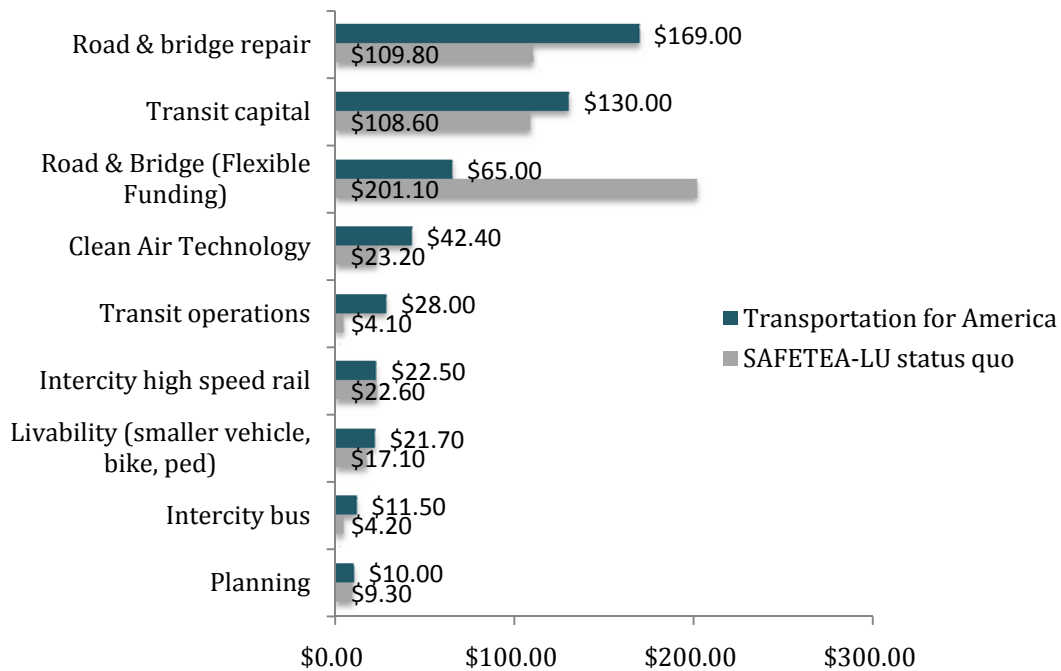
As American investment in highways and air transport expanded in the 1950s, it declined in rail and bus transportation. The supporting industrial infrastructure was also downsized. However, the United States has begun to invest again in passenger and freight transportation. The 2009 American Recovery and Reinvestment Act (ARRA) provided a total of \$17.7 billion for transit (including bus transit) and intercity rail programs combined, including \$1.3 billion for Amtrak and \$8 billion for new high-speed rail corridors and intercity passenger rail. Similarly, current proposals for the renewal of the nation's six-year surface transportation bill call for significantly greater commitments to public transit, including rail.

Ohio is already benefitting from this investment. Approximately \$400 million has been allocated to underwrite passenger rail from Cincinnati to Cleveland. Initial planning is underway for additional corridors. Recently, \$98 million in stimulus funding was dedicated to opening up the National Gateway freight rail corridor from the Port of Norfolk to the Midwest to accommodate an anticipated increase in freight rail of 70 percent through six states. Led by Ohio, six states jointly applied for the funding through the Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant program, part of the American Recovery and Reinvestment Act. These investments are good starts. However, the stimulus was one-time money. In order for investment to stimulate domestic job creation, a commitment to ongoing investment must be made.

¹ The Institute for Energy Research at <http://www.instituteforenergyresearch.org/energy-overview/petroleum-oil/H>

The advocacy group “Transportation for America” has proposed a set of priorities for a new \$500 billion surface transportation bill that differs from the status quo in several important ways (Figure 1). For example, the Transportation for America plan would invest more heavily in repair of existing roads and bridges, which creates more jobs, since repair work is more labor intensive than new build.² They would boost spending on transit capital by 20 percent and funding for public transit operations by almost six times over. The Economic Policy Institute estimates that while the existing program funding could create 6.9 million jobs over its lifetime, the alternative proposal of Transportation for America could create 7.2 million jobs.

Figure 1: Comparison of proposals for surface transportation reauthorization (millions of dollars)



Source: Policy Matters Ohio, based on EPI, [The Job Impact of Transportation Reauthorization](#), 6/24/2010.

Note: SAFETEA-LU stands for “Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users.” This is the name of the current legislation governing distribution of transportation funds.

The Market for Rail Equipment in America

The Apollo Alliance partnered with Duke University to look at the market for rail

² The Political Economy Research Institute estimated total jobs that may result from different types of infrastructure investments (Heintz et al, [How Infrastructure Investments Support the US Economy](#), Jan 2009). Repair of roads and bridges creates about 16 percent more jobs than new build – in other words, it is a more labor-intensive process, involving removal of damaged parts and reconstruction of new elements. Mass transit is very labor intensive, creating about 31 percent more jobs than new highway construction.

equipment and to recommend policy change to support market development in the United States. Duke University's research team found that America retains a solid domestic production and supply capacity in the rail industry. The freight rail market is significant, but the passenger rail market, the target of their research, is small.³ The U.S. market is poised for growth. In urban transit rail, industry analysts forecast growth due to a combination of pent-up demand for rail service and a backlog of needed capital investment. According to a recent nationwide analysis of transit agencies' and municipal planning organizations' long-range plans, at least 400 rail, streetcar and bus rapid transit projects are in the planning stage (Figure 2).

Figure 2: Rail, streetcar and bus rapid transit projects already on the books



Lowe, *US Manufacture of Rail Vehicles for Intercity Passenger Rail and Urban Transit*, 6/24/10 based on data from Reconnecting America, a project of the Center for Transit-oriented Development. Website: <http://www.reconnectingamerica.org/public/about>

Further, there is a need to bring existing systems into a state of good repair. An FTA assessment of all of the nation's public transit assets, including rail, bus and para-transit, found that 29 percent are in poor or marginal condition. The investment needed to bring these 690 separate rail and bus systems to a state of good repair is an estimated \$78 billion.⁴ Similarly, the U.S. intercity passenger rail system is in need of investment. Amtrak calculates that in the next 14 years, it will need to buy 1,200 railcars, 334

³ In the 1950s, the percentage of U.S. and European freight moved by rail was about equal (approximately 58 percent). By 2000, the share of U.S. freight transported by rail was 38 percent, while in Europe it was only 8 percent. (Lowe, *US Manufacture of Rail Vehicles*, 6/24/10.)

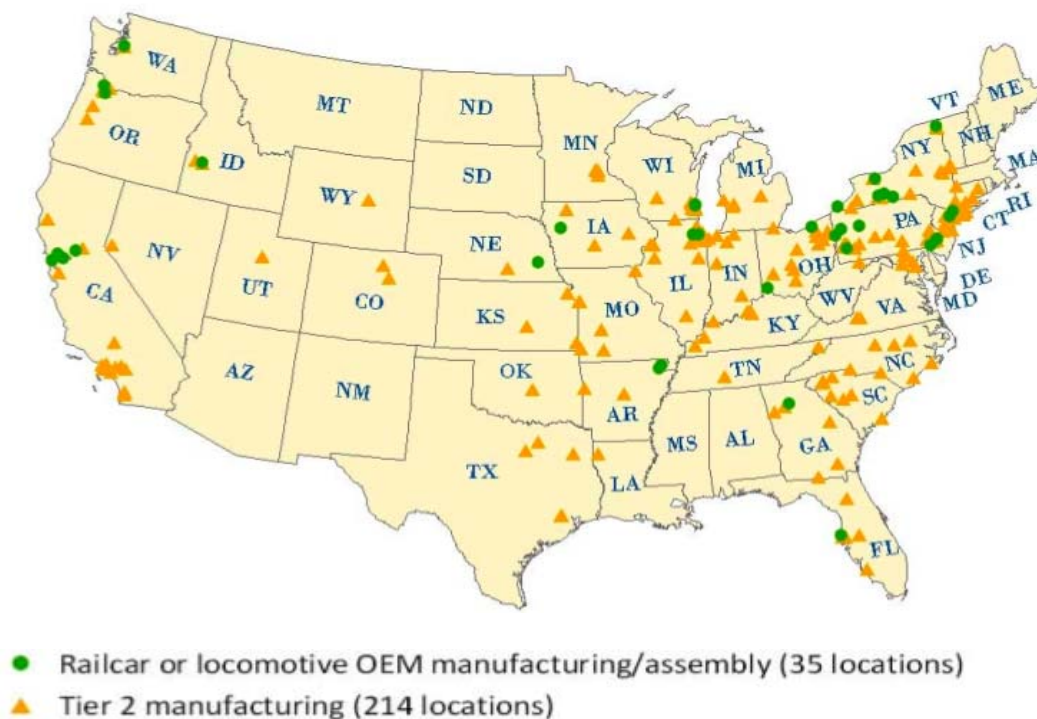
⁴ Rogoff, 2010, cited in Lowe, *US Manufacture of Rail Vehicles*, 6/24/10.

locomotives, and 25 high-speed train sets.⁵ Investments of this size could be funded by a shift in priorities within the surface transportation bill and through climate change legislation, which would impose a cost on carbon emissions and use the funds for clean energy investments.

The Geography of Rail Manufacture

Enhanced demand for passenger and freight rail vehicles – as well as streetcars, buses and clean fuel trucks – could create manufacturing jobs. The question is, however: is there enough of a supply chain left in the United States for the jobs to be created here at home? Duke University found the answer to be yes, even within the diminished passenger rail industry. The research team found 249 manufacturing locations in the United States for passenger rail producers and suppliers. The five states with the most locations were New York (32), Illinois (23), Pennsylvania (26), California (22) and Ohio (13). Figure 3 shows locations of passenger rail product manufacturers across the nation.

Figure 3: Location of rail producers or suppliers (Tiers One and Two)



Lowe, US Manufacture of Rail Vehicles for Inter city Passenger Rail and Urban Transit, 6/24/10

The following Ohio firms or facilities were identified in the Duke University research as manufacturers supplying the passenger rail industry, firms that would benefit from increased domestic demand.

⁵ Passenger Rail Working Group, 2007, cited in Lowe, US Manufacture of Rail Vehicles, 6/24/10.

Table 1: Manufacturers in passenger rail industry in Ohio

Company	Headquarters	OH Facility	Product
ADTrans	Mansfield, OH	Mansfield	Seating and flooring
Bentech	Philadelphia, PA	Youngstown	Seating and flooring
Columbus Steel Castings	Columbus, OH	Columbus	Truck system and coupler
Dayton-Phoenix	Dayton, OH	Dayton	Auxiliary power units, brake parts, electric generator, HVAC, radiator cooling fan
Filnor	Alliance, OH	Alliance	Switching systems
Mohawk Industries	Calhoun, GA	Lockbourne	Seating, flooring
RCA Rubber	Akron, OH	Akron	Seating, flooring
Standard truck car inc	Ridge, IL	Chillicothe	Break parts
Timken	Canton, OH	Canton	Truck parts
Visual Marking Systems	Twinsburg, OH	Twinsburg	Labels
Westcode	Galesburg, IL	Warren	Brake parts, HVAC
US Railcar	Columbus OH	Paragould,	None
Nippon Sharyo USA	Arlington, IL	Cleveland	Truck System

Lowe, US Manufacture of Rail Vehicles for Inter city Passenger Rail and Urban Transit, 6/24/10

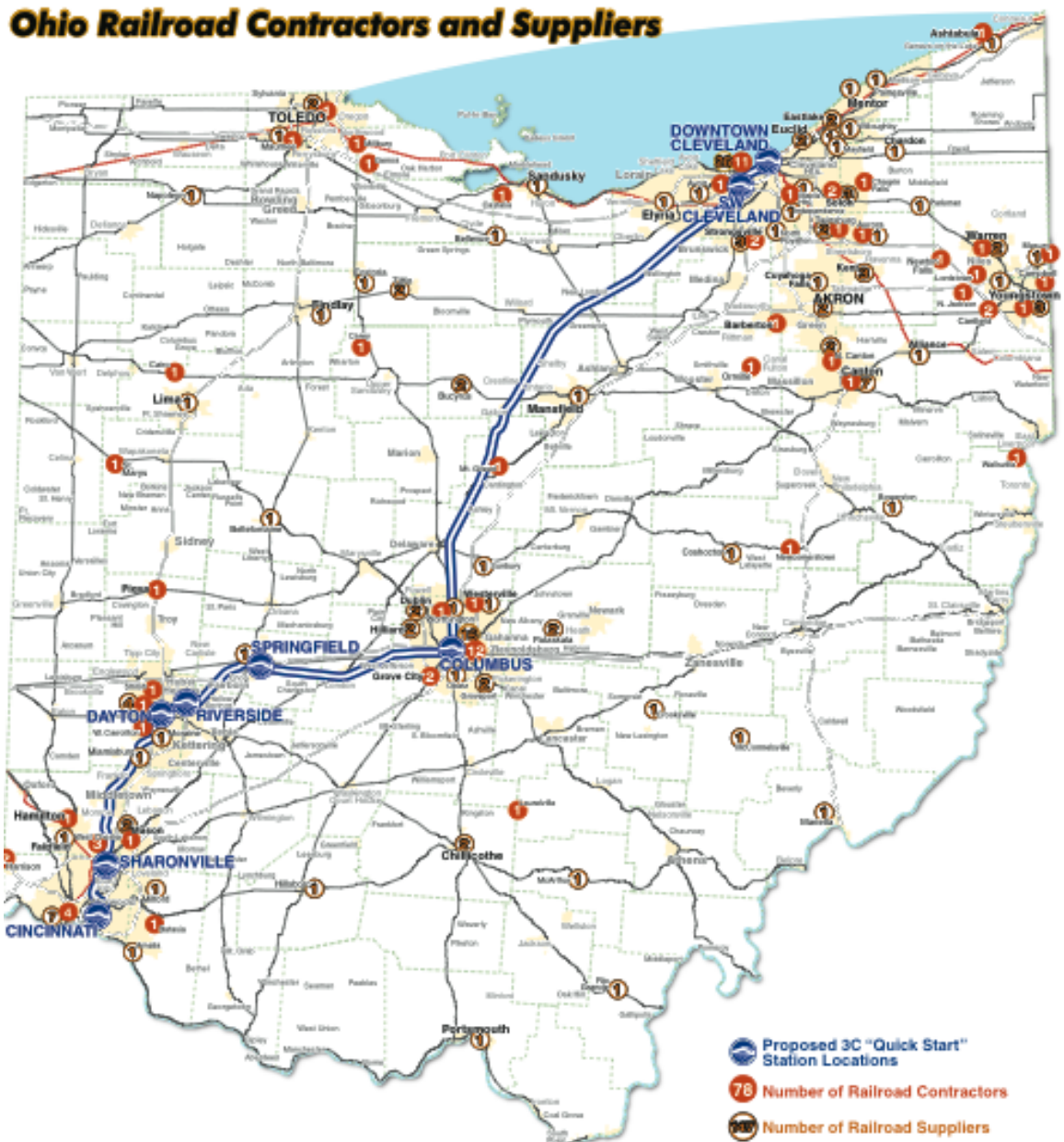
The Ohio Rail Development Commission findings

The Ohio Rail Development Commission (ORDC), working with the Rail Supply Institute, found a larger network of rail industry contractors and manufacturers. At least 226 firms in Ohio alone, employing 26,516 people, are in operation in the state (Figure 4).

Of that group, 147 are manufacturers, supporting 23,074 jobs. These firms supply items ranging from rail joints to passenger car interiors. One supplies chemical solutions for cleaning. Another supplies computer hardware and software, while others supply switch gears, cranes or camshafts. A complete list of these firms, with a description of their production, is provided in Appendix 1.

An additional 79 firms, supporting 3,442 jobs, contract with the rail industry for a somewhat different set of services and products. They provide construction services, storage and repair of railroad cars, service of locomotives, repair of lathes used by the rail companies, safety and track inspections, among other services. (Appendix 2).

Figure 4: Rail Suppliers and Contractors in Ohio



Source: The Ohio Rail Development Commission, "3C Quick Start Passenger Rail Plan," <http://www.dot.state.oh.us/Divisions/Rail/Programs/passenger/3CisME/Documents/Proposed3CRoute-Stations-With-Contractors-Suppliers.pdf>

For this analysis, we focus in on the ODRC lists generated from the Rail Supply Institute directory. Of the 226 firms identified, 189 indicated they serve the freight rail market, the passenger rail market, or both. There is clear interest in growth: slightly more than three quarters of the firms currently serving only the freight industry indicated that if the passenger rail industry grows, they would be interested in moving into passenger rail markets. These are the firms that would grow with new investment in streetcars, rail and rapid transit bus service. Expanding a company's product base stabilizes employment. The product diversification offered by investment in public transportation vehicles and passenger rail could help maintain existing jobs and grow new ones.

Of the 226 firms identified by the Ohio Rail Development Commission as supplying or contracting with the rail industry in Ohio, 147 or 65 percent are also headquartered in Ohio. Nationally, these 147 firms employ 80,730 people. Since growth frequently brings expanded headquarters positions, the concentration of headquarters among this group is another factor making increased heavy transit demand attractive for Ohio.

Policy Matters also looked in the Dun and Bradstreet Selectory Database to see if there were additional firms that identify themselves as suppliers of manufactured goods to the rail industry. Another 31 firms, with small overlap with the ODRC lists, were identified (Appendix 3). These firms support 2,850 jobs.

A supply base essential for domestic production of rail and other clean transportation – public transportation - equipment manufacture is in place and ready to grow in Ohio. Growing the base, however, requires a set of policies to ensure growth is economical, competitive, and domestic.

Domestic content and investment incentives

The Buy American Act, originally passed in 1933, applies to all large federal government agency purchases of goods, but does not apply to services. Under the act, at least 51% of content in goods for public use, including manufactured items and construction materials, must be produced in the United States. In 1978, a “Buy America” provision was added to the federal transportation bill, which states that final assembly of trains, buses, ferries, and other vehicles purchased with the support of federal funds must occur in the United States. The provision further requires 60% domestic content; in other words, the cost of components manufactured domestically must represent more than 60% of the cost of all components. Waivers from these domestic purchasing requirements can be obtained for the following three reasons:⁶

- 1) Preference for the domestic product is “inconsistent with the public interest,” a

⁶ The Apollo Alliance, Transportation Manufacturing & Domestic Content Requirements, [Hhttp://apolloalliance.org/wp-content/uploads/2010/05/H_buyamericabackground.pdf](http://apolloalliance.org/wp-content/uploads/2010/05/H_buyamericabackground.pdf)

broad category that can include impacts on project outcomes or on domestic markets or firms.

- 2) The product is not available in the United States in sufficient and reasonable quantity or satisfactory quality.
- 3) Procuring the product or component domestically would increase project costs by more than 25 percent.

The Buy America policy, similar to policies of our trading partners in China, Europe and Canada, was enacted to ensure jobs supported with taxpayer dollars benefit American families and communities. Additional carrots might boost the effectiveness of Buy America. For example, incentives could be offered to encourage projects to go beyond the required share of domestic content. Economic development incentives could also be used to encourage expansion of the existing market suppliers. Financing programs to guarantee loans, lengthen terms or lower interest rates would encourage domestic production. The America Power Act of 2010 and the American Clean Energy and Security Act of last year, both addressing climate legislation, provide programming that would encourage the rebirth and growth of the rail and heavy transit industries in America and in Ohio. The ‘Investment in Manufacturing Productivity and Competitive Technology’ bill (IMPACT), for example, which was part of the American Clean Energy and Security Act of 2009 (ACES) would direct investment capital to retooling and energy efficiency for production of clean energy technology – of which rail, buses, street car and inter city transit are a part.

Key policy findings of Apollo Alliance/Duke University research

The Duke University researchers concluded their review of the passenger and transit rail industry in America with the following recommendations:⁷

1. **For the domestic industry to develop fully, much larger and more consistent U.S. investments in passenger and transit rail are needed.** The small size of the U.S. market for passenger and transit rail limits development of domestic companies. The international passenger and transit rail vehicle and component firms that figure prominently in the U.S. market are headquartered in countries with stronger markets, mostly in Europe and Asia. Our research results regarding the future of the U.S. supply base for manufacturing passenger and transit rail vehicles consistently emphasized this need for increased, steady demand.
2. **The positive impact of Buy America and Buy American rules can be enhanced by improving accountability, heightening transparency, and offering incentives to increase vehicles’ share of domestic content.** Given that domestic demand for passenger rail vehicles has been very limited for decades, it is largely thanks to Buy America that the domestic supply chain is already quite well developed. However, several firms noted that problems remain in the accounting

⁷ Lowe, US Manufacture of Rail Vehicles, 6/24/10.

and auditing process for certifying domestic content. Large differences remain in the way firms determine U.S. content, with some finding ways to disguise foreign-manufactured content, thus disadvantaging those that closely follow the rules. A common theme is that auditing needs to be improved and loopholes closed so that all firms are playing fairly.

3. **To stabilize the market and bring down costs, it is important to revisit U.S. standards and specifications and promote their use.** For intercity passenger rail, section 305 of the Passenger Rail Investment and Improvement Act of 2008 (PRIIA) established a committee to work out national component standards for wheel sets, doors, air conditioning modules, and the like. If this work succeeds in creating industry-wide standards that allow features to be modified for specific needs (similar to the aviation industry), the passenger rail industry should enjoy more stability and enable new firms to enter the market with less risk regarding engineering and design. For transit rail categories, APTA is coordinating the development of new standards that should provide similar benefits, stabilizing the market and enabling transit agencies to pool vehicle purchases and achieve economies of scale.
4. **To help capture higher value activities in the supply chain, a combination of measures is needed, including technology agreements, government support for research and development (R&D), and a collaborative, orchestrated approach to innovation, supply chain development, and commercialization.** Buy America alone is considered insufficient to build higher value within the manufacturing base for U.S. passenger and transit rail. In many cases, firms satisfy Buy America requirements by using U.S. subcontractors for lower-value manufacturing, while keeping high-value engineering and intellectual property in other countries. Our interviews suggest that for OEMs in Tier 2 as well as Tier 1, engineering may take up at least the first year of a contract. Firms mentioned several additional measures that could potentially help capture this higher value, including technology agreements, joint ventures, and joint licensing with lead firms. The right mix of such measures could make it more feasible for new U.S. players to emerge and be able to compete against the experience and expertise of large international OEMs.

To further enhance U.S. firms' position in higher-value activities, government support of research and development (R&D) can be very strategic, as demonstrated by the \$2.4 million federal grant that enabled United Streetcar and Rockwell Automation to develop a new, U.S.-made propulsion system for modern streetcars. Incorporating these U.S. propulsion systems will increase the U.S.-made content of United Streetcar vehicles from the current 70% to 90% (Brown, 2010). Also needed in order to enhance relevant R&D—now fragmented among a few small research centers at universities—is a well-developed education base, perhaps including institutions similar to the major research centers that have spurred technology development in the automotive industry. A collaborative, orchestrated approach is needed to ensure that new developments carry all the way through to

commercialization. An example of an effort to meet this need is Edison Welding Institute, (EWI), a not-for-profit R&D firm in Columbus, Ohio. EWI recently established the Passenger Rail Manufacturing Center to promote private-public collaboration. The center aims to facilitate commercialization of advanced technology through innovation, supply chain development, prototyping, testing, and training.⁸

Summary and conclusions

Investment in public transit and new capital stock could contribute to rebuilding the American industrial base. Pent-up demand, if served by domestic factories, could stabilize existing manufacturing jobs and grow new jobs. Reauthorization of the surface transportation act to favor public transit through enhanced support for transit operations, capital stock and intercity rail and bus service instead of new highway miles could create hundreds of thousands more jobs than reauthorization under the status quo. Passage of climate legislation that captures the cost of pollution and funds transition to cleaner modes of power and transit are other public policy measures that could help rebuild America's industrial base. Ohio, with growing freight rail capacity and new funding for passenger rail, and with a robust transit production and supply base already in place, stands to be a big winner in a transit-led industrial development strategy.

⁸ Dennis Harwing of EWI, cited in Lowe, [US Manufacture of Rail Vehicles](#), 6/24/10.

Appendix 1: Rail suppliers in Ohio

Railroad Supplier	County	Ohio Jobs	What do they supply to the railroads
A & K Railroads Materials Inc.	LUC	8	New and used railroad materials for building railroads.
Ace Precision Industries, Inc.	SUM	35	HC50 Machine Knuckles (Freight). Machine components for passenger trains.
Adelmann & Clark Inc.	VIN	25	Construction materials lumber rough, dressed and finished.
Advanced Drainage System	FRA	664	Corrugated pipe and storm sewer products.
AHL-Tech	HAM	3	Alternative Hybrid locomotive technology.
Alliance Casting	STA	250	Manufacturer railroad equipment, railway and tramway machines and locomotives.
Alro Steel	FRA	25	Raw materials and fabrication.
American & Ohio Locomotive Crane Co.	CRA	25	Supplies and manufacturers maintenance of way equipment.
Ametek Rotron Products	POR	40	Brushless blowers, brushless fans, motors, stepper motors, pumps, controllers/drives.
Apex Welding, Inc.	CUY	15	Provide self-dumping hoppers to railroads.
Applied Industrial Technologies	CUY	100	Maintenance repairs.
Arthur N. Ulrich Company	LIC	15	Solar crossings.
ASI International	CUY	7	Sells metal to fabricators.
Associated Spring	LUC	20	Springs.
Barber Spring	ROS	4	Springs.
Bearing Distributors, Inc.	FRA	100	Cleveland Main Office, supplies bearings and power transmissions.
Becker Pumps Corporation	CUY	25	Vacuum pumps, pressure pumps, central vacuum.
Benjamin Steel Co.	CLA	165	Steel to fabricators.
Bowman Distribution	CUY	50	Wire springs.
Capital Spring Division	FRA	40	Coiled springs, rings, fasteners, SEMS, wire forms, spring washers.
Chemical Methods Inc.	CUY	25	Cleaners for traction motors and rail cars.
Chromate Industrial	CUY	20	Chemicals, electrical, welding, cutting tools, fasteners, hydraulics.
Chromium Corporation	CUY	65	Rebuilds and manufactures locomotive engines.
Cincinnati Industrial	WAR	150	Fabricated structural metal.
Cleveland Track Material, Inc.	CUY	200	Frogs, crossings and switches to all Class 1 railroads. Supplies to all national transit systems.
Cliffe Metal Products, Inc.	HAM	3	Springs for locomotives and rail cars.
Columbus Steel Castings Company	FRA	400	Couplers, frames, bolts, yokes, draft arms, etc. manufactures them in Columbus.
Com Net Software	MOT	100	Passenger communication and digital signage systems. Digital public address systems.
Crowd Control Depot	CUY	2	Plastic barricades, portable floors, expanding barricades.
Crown Lift Trucks	HAM	100	Electric lift trucks, IC lift trucks.
Cummings Bridgeway	FRA	20	Distributor of Cummins engines.
D&A International Casting	RIC	10	Manufacturer railroad car parts.

Dayton Phoenix Group	MOT	200	Electrical locomotive components.
Demag Cranes & Components	CUY	100	Overhead traveling cranes and hoists.
Durox	CUY	53	Locomotive components.
Erico Products Inc.	CUY	500	Bonding and grounding equipment to railroads.
Fechheimer Brothers	HAM	500	Uniforms.
Frederick Steel Co.	HAM	67	Manufacturers steel.
Freeman Manufacturing Co.	LOR	50	Liquid plastics, sheet wax, lumber.
Griffin Wheel	FRA	100	Manufacturer and supply railcar wheels.
Gunderson Rail Services LLC	MAH	15	Manufacturer railroad/Corporate Office is in Oregon - 800-253-4350.
HBD Industries, Inc.	LOG	40	Power transmission belts, rubber rolls, ducting, hoses.
HFI Inc.	FRA	230	Interior parts and assemblies, foam seat trim, door trim.
Hickok Inc.	CUY	30	Pneumatic pressure gages .
Hi-Vac Corp.	WAS	99	Industrial vacuum equipment.
Holtgreven Scale & Electronic Corp.	HAN	16	Railroad track scales.
Industrial Fabricators, Inc.	FRA	33	Job shop metal fabricator - when blue prints are provided they can construct anything including a rail car.
Industrial Nut Corporation	ERI	60	Components - special nuts.
International Display Systems	MOT	5	Electronic signage for Arrivals/Departures.
Interstate -- McBee	CUY	300	Diesel engine parts.
Iron Horse Engineering Co., Inc.	GEA	30	Embedded track applications for transit systems.
JWF Technologies	BUT	17	Distributes gas springs and hydraulics.
K&G Machine Company	CUY	7	All parts to rebuild engines.
Kay Toledo Tag Inc.	LUC	25	Tags, labels, tickets.
Kimball Midwest	FRA	135	Fasteners, chemicals, cutting tools, paints, electrical.
Kottler Metal Products, Inc.	LAK	30	Bent rail to freight and passenger trains.
KSA	SCI	21	Concrete railroad ties.
L.B. Foster	TRU	15	Distribute and manufacturer everything that a trains runs on except for stone.
Laird Plastics	FRA	30	Supply and distribute plastic parts for the railroad industry.
M & F Technology, Inc.	LAK	8	Machine parts.
Macco Adhesives	CUY	10	Produce liquid nails for companies.
Marble Cliff Oil Co.	FRA	8	Fuel.
Master Bolt Manufacturing Inc.	LOR	25	Fasteners for railroad tracks.
Mayfran International	CUY	50	Machine tool chip and coolant solutions, scrap management system, recycling systems.
Mettler Toledo	FRA	500	Weighing equipment.
Miba Bearings	MOR	200	Engine bearings, friction materials and coatings. Supply and manufacturer.
Midwest Industrial Supply	STA	45	Chemicals Price.
Midwest Steel	CUY	45	Used wheels, axles, springs and couplers.
Molded Fiberglass	ATB	1000	Composite technology, mass reductions solutions.
Morgan AM&T	SEN	95	Manufacturer of brush blocks for electric motors.
Motion Savers, Inc.	WAR	5	Ergonomic material handling equipment solutions.

Nationwide Express	PER	9	Provides weight permits to Amtrak for oversized loads moving equipment on the highway through several states at a time.
Network Technologies, Inc.	POR	125	Electronic equipment such as extenders, video splitters, KVM switches, console switches, etc.
Nolan Company	HAR	7	Plant.
Nolan Company	STA	25	Corporation office they supply maintenance of way safety equipment.
OCS Technologies, Inc.	CUY	21	Scales.
Ohio Crankshaft Company	CUY	138	Camshafts and crankshafts to locomotives.
Ohio Gratings Inc.	STA	500	Industrial and architectural metal grating products.
Ohio Locomotive Crane Co., Inc.	CRA	28	Ohio locomotive cranes.
Ohio Magnetics, Inc.	CUY	50	Magnets, power packets for controllers/track maintenance.
Ohio Power Tool	FRA	10	Tools, hydraulic and mechanical jacks.
Ohio Railway Supply	POR	8	Used locomotives and passenger rail cars.
Ohio Valley Track work	GAL	14	Switch gears to breakers.
Park Ohio	CUY	130	Electronic motive diesels to freight & passenger railroads.
Parker Hannifin	CUY	150	Pneumatic components.
Parts Associates, Inc.	CUY	40	Standard fasteners, electrical and shop supplies to railroads.
Performed Line Product	CUY	100	Cable anchoring and control hardware and systems, fiber optic and copper splice closures, high-speed cross-connect devices.
Piedmont Plastics	HAM	25	Sheet, rod, tube components, digital equipment, engineering plastics.
Powell Electrical Systems	STA	120	Manufacturer and supplier of power distribution equipment, power control rooms and builds traction sub-stations.
PPG Industries	CUY	1574	Industrial coatings pre-treatment specialty products, including alkaline and acid cleaners and zinc phosphates.
Precision Gage & Tool Co.	MOT	19	Gauges for railroads, paint, films and coatings and manufacturing of Sheffield measuring equipment.
Provantage Superstore	STA	50	Computer hardware and software and GPS.
Pullift	CUY	18	Supplies and manufacturers railroad car pullers, winches and positive control equipment.
Queen City Forging Co.	HAM	14	Create a part that goes into other parts. When they are not made anymore.
Quest Corporation	CUY	13	Auxiliary lighting controls for locomotives.
R.H. Little Company	STA	7	Manufacturer and supply freight car roller bearing adapters.
Rail Products International Inc.	FRA		Electrical motors, traction motors, coils, alternators to locomotives.
Railroad Tools & Solutions	HIG	1	Tools.
Railtech Boutet, Inc.	HEN	30	Welding kits and hardware to perform the welds. Only 2 companies in US provide this.
Railway Equipment Corp.	FRA	4	Builds diesel electric Locomotives.
Ralph C. Williams, Inc.	STA	10	Fittings, hydraulics, repair to tools.
Ransohoff	HAM	25	Ultrasonic cleaning systems.
RCA Rubber Company	SUM	80	Rubber flooring in subways.
Redhawk Energy Systems,	LIC	15	Auxiliary lighting controls for locomotives and handheld break line air pressure test devices.

RELAM, Inc.	CUY	75	Provide equipment to RR's.
Robin Industries	CUY	275	Custom molder of rubber and plastic parts.
Roemer Industries	TRU	50	Industrial name plates/materials.
Sabic Polymershapes	MOT	100	Plastic sheet, film and shapes distributor.
Safety Sign Company	CUY	2000	Diamonlite reflective aluminum signs.
Safety Today	FRA	40	Safety equipment to employees to build and maintain rail systems.
Salient Systems Inc.	FRA	18	Manufacture wayside electronic systems.
Sancast, Inc.	COS	35	Suspension to freight cars - friction wedge.
SAS Rubber Co.	LAK	65	Tier 3 - to the people that make subway cars.
Schaefer Equipment Inc.	TRU	50	Manufacturer and supply foundation break rigging components.
Schneller Inc.	POR	300	Interior surfaces for new and refurbished passenger rail cars.
Seneca Railroad & Mining, Inc.	SAN	25	Manufacturer and supply polyurethane insulated rail joints, switch rod and gauge plates.
Seves USA	SEN	25	Porcelain electrical supplies.
Sherwin-Williams Company	CUY	2000	Manufacture and supply from distribution center rail coatings and linings for cars.
SIFCO Selective Plating	CUY	100	Brush plating solutions and auxiliary brush plating equipment.
Silcott Railway Equipment Limited	FRA	4	Parts and service locomotives only.
Solon Manufacturing Co.	GEA	42	Steel washers, disc springs on tracks.
Solutions Plus	CLE	100	Cleaning operations for engines, passenger cars, air boxes, air filters, cab cleaning, paint stripping, steam gun cleaning and more.
Sonich Industrial Sales Co., Inc.	CUY	3	Supply radio remote control.
Spectrum Infrared, Inc.	LAK	11	Switch heaters.
Spencer Products Company		50	Industrial tapes, adhesives, heavy fasteners systems, cable ties.
Sperling Railway Services, Inc.	STA	7	Manufacturer and supply track maintenance equipment and railroad signs.
Spirit Services	FRA	20	Glove cleaning repair, absorbents, linens, uniforms.
State Industrial Products	CUY	1500	Chemical Solutions, lubricants, food preparation, general cleaners, grounds care, insecticides, industrial cleaners.
Sterling Commerce, Inc.	FRA	50	Electronic software.
Stevenson Oil & Chemical	LAK	4	Metalworking fluids and industrial fluids. Rail engine oil, gear oil and grease.
Stromag Inc.	MOT	25	Electromagnetic spring brakes, couplings, rotary cam limit switches.
Swiger Coil Systems	CUY	240	Stator, rotor, specialty, OEM, generator coils.
Tameran Graphic Systems	CUY	20	Software solutions, data for companies.
Terresolve Technologies LTD	LAK	10	Maintenance equipment for railroad track work. Makes hydraulic fluid for equipment.
Tiffin Palfinger	SEN	50	Manufacturer and supply truck mounted cranes for rail maintenance.
Timken Company	STA	4330	Manufacturer and supply AP wheel bearings and other related components. Distribution center in Bucyrus, OH.

TPC Wire & Cable	CUY	40	Electrical wire for rail yards.
Trinity Equipment Company	CUY	40	Replacement parts, pumps, motors, heater motors, lock washers.
Ultra Hydraulics, Inc.	FRA	6	Speed control equipment.
Union Spring & Manufacturing Co.	ROS	4	Coil springs and other parts.
United Grinding	STA	100	Maintenance of way equipment. Heavy steel mill equipment, coil processing equipment.
United States Plastics	ALL	90	Tubing for railroads.
Visual Marking Systems	SUM	100	Transportation signs and public transit graphics.
Williams Distribution	FRA	25	Hard to find locomotive parts.
Yenkin Majestic	FRA	160	Supply coatings to freight and passenger trains.
Youngstown Barrel & Drum	MAH	100	Steel, fiber, plastic drums. Environmental containment products.
YSD Industries, Inc.	MAH	15	Manufacturer Railroad/Corporate Office is in Oregon - 800-253-4350.
Total		23074	

Source: The Ohio Rail Development Commission

Appendix 2: Rail contractors in Ohio

Railroad Contractor	# of Employees in Ohio	What do they supply to the railroads
Acme Construction Co., Inc.	75	Performs Construction on RR's.
Acme Machine Tool Co.	10	Repair old lathes.
Advance Machining	40	Performs machining on aluminum, steel, bronze and castings.
Allied Fabricating & Welding	51	Repairs box unloaders.
Amtrak Ohio	30	Railroad construction.
Andersons		
Appalachian Railcar Service	4	Storage and repair rail cars.
Avtron Manufacturing		
B & K Locomotive Service Inc.		
Batavia & Ohio Railways Svcs	7	Service locomotives.
Blackfoot Co.		
Brown Steel, Co.	35	Steel to fabricators.
B-Tec Scales	35	Rail scales.
Bula Forge & Machine, Inc.		Forge steel.
CC & G Enterprises Inc.		
Cincinnati, Inc.	265	Tool company.
Cintas Corp.		
Clifton Steel Company	90	Manufacturers steel.
Clifton Steel Company		
Columbus Fastener	50	Manufacturers bolts/nuts.
Consolidated Electric Co.	50	Electric to crossings.
Contech Construction Products Inc.	83	Manufacturers bridges for metal plates and concrete arches, drainage lines, geo grids, ballasts, liner plates. Etc.
CR Construction	30	Maintenance work, surface, design and layout work, welded rail work, track replacement, emergency repairs.
Curdeo		
Delta Railroad Construction	50	New track installation, maintenance and rehabilitation.
E J Brooks Co.		
Enta Products Inc.		
EWI	150	Arc, laser, resistance and solid-state welding, micro joining, brazing soldering.
Fastenal Company	40	Manufacturers safety equipment that railroad workers use.
Fenton Rigging		
Foseco, Inc.		
Fritz Rumer Cooke Co.	60	contractor - work and builds rail
Gaiser		
Goodyear Tire & Rubber Co.		
Great Lakes Rail Service		

Industrial Timber & Land Co.		
Keyser Powell Equipment Company	5	Manufacturers and repairs rail mover vehicles.
Kokosing Construction Company	25	Main Headquarters Fredericktown, Ohio, they build roads and bridges.
Liberty Alpha JV		Bridge painting for Amtrak.
Magnetek		
Matco Precision		
Morrison Metalweld Process Corp.	3	Welding Track.
N. T. Ruddock Co.	14	Sandblasting to locomotives and rail cars, reconditioning of rail equipment.
Newberry Construction Co.	25	Switches, design work, rails, ties
Ohio Castings Co.	350	Manufacture truck (wheels) boggles, couplers, yokes
Ohio Track Inc.	15	Construct and supply tracks
Parsec	50	Contract personnel and equipment for loading and unloading
Pennsylvania Electric Motor Service, Inc.	12	Supplies electric motor repairs on locomotives and generators.
Philip Metals, Inc.	300	Ship recycled metal by rail
Piqua Materials		No longer supply to rail.
Plymouth Locomotive Service	6	Service work on old locomotives.
Porcelain Products Company		
Precision Gage & Tool Co.	20	Gagging/measuring equipment and calibration.
Precision Gage & Tool Co.	20	Gagging/measuring equipment and calibration.
Railworks Track Services	8	Repairs and installations of track.
RELAM, Inc.	75	Provide equipment to RR's.
Robin Industries		
RWC Inc.	35	Railroads hire to spray for weed control.
Schirmer Construction		Have only built bridges over RRs.
Simpson & Sons Incorporated	10	Welding Track.
Stacy Builders	2	Plow snow for Amtrak on platforms.
Standard Car Truck Company		Gaskets and seals.
Swiger Coil Systems	240	Repairs traction motors. Also sell supplies, on other list.
Tracksense Inc.		Rail safety and track inspection training for Amtrak.
Trane Co		
Transco Railway Products	1000	Repairs rail cars.
Transportation Resources, Inc.		
Transrail		
Tri Palm International LLC	30	Manufacturers water coolers for trains.
Tri State Testing Laboratories	5	Manufacturers mechanical and chemical testing.
United Railroad Services Inc.	15	Builds new track and maintenance track and switches.
United Security Seals, Inc.	20	Supplies seals for freight cars.
UZ Engineered Products		
Vaughn Industrial Car & Equipment Co.		
Vaughn Industrial Car & Equipment Co.		

Veteran Enterprises LLC	2	Supplies soaps commercial clears for all transportation (buses, trucks, railroads)
W.M. Brode Company		
Wintrow Construction		
Worthington Machine Technology		
Total	3442	

Source: The Ohio Rail Development Commission

Appendix 3: Ohio Firms identifying themselves as rail or rail supply manufacturers in Dun & Bradstreet Selectory Database

Company	County	Jobs	Line of business
General Dynamics Land Systems	Allen	400	Manufactures military tanks including factory rebuilt
United States Department of Defense	Allen	75	Tanks & tank components; manufactures military tanks including factory rebuilt; federal government national security; united States Army
Diamond Trailers Inc	Butler	28	Manufactures truck trailers
Navistar Inc	Clark	130	Assembles complete trucks & tractor trucks
Navistar Inc	Clark	60	Assembles complete trucks & tractor trucks
Navistar Inc	Clark	30	Mfg Motor Vehicle/Car Bodies Mfg Internal Combustion Engines Mfg Motor Vehicle Parts/Accessories
Mac Manufacturing Inc	Columbiana	104	Manufactures truck trailers; wholesales new & used trailers for trucks; wholesales truck bodies
Ers Industries Inc	Crawford	20	Manufactures locomotive cranes
International Associates	Cuyahoga	60	Assembles complete fire department vehicles
Gerling & Associates Inc	Delaware	80	Assembles complete mobile lounges
Pegasus Vans & Trailers	Erie	25	Manufactures fifth-wheel type trailers or vans for transporting horses
Sutphen Corp	Franklin	115	Assembles complete fire department vehicles; wholesales firefighting equipment
Post Rv Service	Franklin	30	Manufactures recreational vehicles
Transit Mix Concrete & Mtls	Hamilton	200	Mfg Railcars Marine Vessels Structural Pdts Pressere & Non Pressure Containers
Jk-Co LLC	Hancock	45	Rebuilds railroad cars; provides railroad car repair services
Transit Mix Concrete & Mtls	Hancock	100	Manufactures railroad equipment
Besl Specialized Carrier	Knox	60	Manufactures transportation equipment
High Tech Performance Trailers	Lake	65	Manufactures truck trailers
Norfolk Southern Corp	Lucas	20	Rebuilds railroad cars; provides railroad car repair services
Gunderson Rail Services	Mahoning	100	Manufactures railroad equipment; sheet metal fabricator; steel fabricator
Stahl Scott Fetzer Co	Morrow	107	Manufactures trailer bodies
East Manufacturing Corp	Portage	280	Manufactures trailer bodies; automotive repair services; wholesales truck parts & accessories
Moritz International Inc	Richland	37	Manufactures truck trailers
Bell Logistics Co	Ross	30	Manufactures truck trailers
Mac Trailer Manufacturing Inc	Stark	400	Manufactures truck trailers; wholesales new & used trailers for trucks; wholesales truck bodies; trailer repair service; wholesales new motor vehicle parts & supplies; wholesales used motor vehicle parts
Nolan Co	Stark	30	Manufactures railroad equipment; manufactures mining machinery

Alliance Castings Co LLC	Stark	20	Manufactures railroad equipment
Copley Fire & Rescue Assn	Summit	24	Assembles complete fire department vehicles
Premier Uv Products LLC	Summit	25	Manufactures all terrain vehicles
Stahl Scott Fetzer Co	Wayne	150	Manufactures trailer bodies
TOTAL		2850	

Source: Dun & Bradstreet Selectory Database, June 28, 2010

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