Market and Community in Antebellum America: The Plank Roads of New York

John Majewski
Christopher Baer
Daniel B. Klein

August 1991
Working Paper No. 47
The University of California Transportation Center

The University of California Transportation Center (UCTC) is one of ten regional units mandated by Congress and established in Fall 1988 to support research, education, and training in surface transportation. The UC Center serves federal Region IX and is supported by matching grants from the U.S. Department of Transportation, the California State Department of Transportation (Caltrans), and the University.

Based on the Berkeley Campus, UCTC draws upon existing capabilities and resources of the Institutes of Transportation Studies at Berkeley, Davis, and Irvine; the Institute of Urban and Regional Development at Berkeley; the Graduate School of Architecture and Urban Planning at Los Angeles; and several academic departments at the Berkeley, Davis, Irvine, and Los Angeles campuses. Faculty and students on other University of California campuses may participate in Center activities. Researchers at other universities within the region also have opportunities to collaborate on selected studies. Currently faculty at California State University, Long Beach, and at Arizona State University, Tempe, are active participants.

UCTC's educational and research programs are focused on strategic planning for improving metropolitan accessibility, with emphasis on the special conditions in Region IX. Particular attention is directed to strategies for using transportation as an instrument of economic development, while also accommodating to the region's persistent expansion and while maintaining and enhancing the quality of life there.

The Center distributes reports on its research in working papers, monographs, and in reprints of published articles. For a list of publications in print, write to the address below.

University of California Transportation Center

108 Naval Architecture Building
Berkeley, California 94720
Tel: 415/643-7378
FAX: 415/643-5450

Authors of papers reporting on UCTC-sponsored research are solely responsible for their content. This research was supported by the U.S. Department of Transportation and the California State Department of Transportation, neither of which assumes liability for its content or use.
Market and Community in Antebellum America: The Plank Roads of New York

John Majewski

Department of History
University of California at Los Angeles

Christopher Baer
Hagley Museum and Library

Daniel B. Klein

Department of Economics
University of California at Irvine

Working Paper No. 47
August 1991

The University of California Transportation Center
University of California at Berkeley
Market and Community in Antebellum America:
The Plank Roads of New York

by

John Majewski, Christopher Baer, and Daniel B. Klein

John Majewski is a graduate student in the history department of the University of California, Los Angeles. Christopher Baer is assistant curator of manuscripts and archives at the Hagley Museum and Library. Daniel B. Klein is an assistant professor of economics at the University of California, Irvine.

The authors wish to thank the following for comments and suggestions: Tyler Cowen, Amihai Glazer, Jack Johnston, Warren Lammert, Jim Meriwether, Eric Monkkonen, Jean-Laurent Rosenthal, Ken Sokoloff, Viken Thakerian, Mary Yeager, and the participants of the Early American Thesis Seminar at UCLA and the Institute for Transportation Studies lunch at UC Irvine. The following provided generous financial assistance: Institute for Transportation Studies at UC Irvine, Hagley Museum and Library, Arthur H. Cole Committee of the Economic History Association, and the Institute for Humane Studies at George Mason University.
I. Introduction

The plank road is of the class of canals and railways. They are the three great inscriptions graven on the earth by the hand of modern science, never to be obliterated, but to grow deeper and deeper.

W. H. Bogart, *Hunt's Merchant Magazine*, 1851.¹

The importance of canals and railroads has hardly grown "deeper and deeper," but at least they had their day. As for plank roads, most people have never heard of them.

The historical obscurity of plank roads reflects the general scholarly neglect of nineteenth-century roads. Excellent work has been done on canals, and studies of railroads have engendered some of the most vibrant debates in American economic history.² Yet no substantial study of road transport has been done in decades.³ In 1964, Robert Fogel complained about the "neglected problem" of road transportation in the nineteenth-century.⁴ Fifteen years later, Fogel lamented that "the issue of antebellum wagon transportation should not be left in such a highly conjectural and unsatisfactory state."⁵ Although Winifred Rothenberg's work on Massachusetts's farmers has produced some suggestive insights on the cost of road transport, Fogel's call has gone more or less unheeded.⁶

Good reasons explain why nineteenth-century roads have not
been a hot topic in recent years. According to traditional accounts of the transportation revolution, the majority of turnpikes—the most visible form of road improvement—were in decline by 1830. Roads seemed incidental to the rapidly growing antebellum economy, especially when compared to the more visible accomplishments of canals and railroads. Compounding the apparent unimportance of roads is the problem of research materials. Whereas canals and railroads produced numerous government and corporate reports, road companies left few records, which are scattered like gems in the dark catacombs of state archives and local historical societies.

We gather some of the gems to take a detailed look at the plank road movement in New York. As the name implies, plank roads used wooden planks for surfacing. Organized exclusively as stock-financed corporations, plank roads promised affordable roads that allowed year-around travel. Numerous promoters asserted that the roads would increase commerce, raise land values, and pay handsome dividends. Barraged by pamphlets, books, and newspaper articles, New Yorkers built more than 3500 miles of plank roads between 1846 and 1853. But the boom came to a sudden end. The promoters based their claims on the overly optimistic estimate that planks would last 8-12 years. Finding that planks lasted only four or five, companies often lacked sufficient funds to resurface, much less to pay dividends. Most companies quickly abandoned their roads, leading historians to regard the movement as a failure.
Although plank roads did not last long, they give insight into the role (or at least the potential role) of roads in the antebellum transportation system. Plank roads connected rural townships with major cities and transportation hubs. The episode suggests that roads could have played a bigger role in the economy if the problem of road surfacing could have been solved. As it happens, the failure of plank roads and the continued inadequacy of public roads led to the vast extension of branch and spur railroads after the Civil War.

The plank road boom gives a glimpse of the mind set of rural Americans in the antebellum period. One historian has called rural towns of nineteenth-century America "island communities," implying isolation. That may have been true, but the plank roads movement shows that small-town Americans assiduously worked to integrate themselves into bigger markets. Residents of declining rural townships eagerly invested in plank roads to stimulate commerce, spur population growth, and increase land values. A broad cross-section of upper and middle-class occupations invested in the roads, suggesting that most elements in rural society supported integration into bigger markets. But considerable community-spirit also animated the movement, showing that rural Americans in the antebellum period could combine community values with an entrepreneurial ethos.

We concentrate most of our efforts on New York because it was the cradle of the plank road boom; not only did it have the most roads, but it served as a beacon for plank road enthusiasts.
across the Union. New Yorkers also richly documented the movement. The New York State legislature required companies to submit articles of incorporation and annual reports, providing an exceptional storehouse of quantitative data on one cluster of nineteenth-century toll roads. (Our data and methods are outlined more fully in the appendix on sources). An added advantage is that New York was a leading manufacturing state, making it an excellent case study of the potential role of roads in a developing economy.

II. The Problem of Road Surfacing

The story begins with the poor quality of roads in the 1840s. Although nobody bothered to keep systematic records, government reports and travel accounts agree that poor road conditions impeded travel. In 1844 a committee of the New York State Assembly declared that most roads were "always in bad repair, and in the spring and fall almost impassible."10 Spring and autumn rains turned roads into virtual quagmires, prompting the citizens of Ithaca to complain that "[t]here are many sections of the country, that are for the most part of the year almost inaccessible...because the roads leading to those sections are impossible for loaded teams."11 In the summer, ruts became so bad that local travellers complained about broken bones suffered during stagecoach journeys.12 While they usually did not complain about broken bones, a number of travellers mentioned
the poor conditions of roads except when snowfall permitted travel by sleighs.\textsuperscript{13}

The main problem was surfacing. New Yorkers covered most of their roads with a thin layer of loose stones or gravel, which wagon wheels and horse hooves quickly ground into dirt, eventually producing mud and ruts. Macadam, a compacted surface of crushed stones, could provide year around travel on a more or less smooth surface. But macadam cost at least 3,500 per mile, which was too expensive to justify for most roads.\textsuperscript{14} Even on relatively busy routes macadam was a difficult proposition because of the ineffectiveness of the three main types of road-building organizations: turnpikes, local governments, and the state government.

Turnpikes were state-chartered companies that had the right to collect tolls. Unlike plank roads, they were usually surfaced with gravel or earth. Built mainly during the first third of the century, turnpikes served primarily as trunk lines. Although usually better designed and maintained than public roads, turnpikes fared poorly in competition with canals and railroads.\textsuperscript{15} Turnpikes also suffered from state regulation that granted numerous exemptions from tolls. Travellers going to a local grist mill or a nearby church, for example, would not have to pay tolls. Regulation also fixed the location of toll gates, which allowed people to avoid tolls by taking "shunpikes" that bypassed the gates. Most turnpikes that remained operating in the 1840s lacked the revenue to afford macadam.\textsuperscript{16}
Town governments, which had primary responsibility for maintaining local public roads, also had a hard time improving surfacing. Townships assessed a road labor tax, which forced the local citizenry to work on roads during a specified period. The road labor tax has been condemned by both contemporaries and historians.\textsuperscript{17} According to one writer, the only reason people brought shovels to road work was to "support them when they get too lazy to stand alone."\textsuperscript{18} Finding the required technical expertise was also a problem, as most of the overseers of roads (called "path-masters") had little training in surveying and engineering.\textsuperscript{19} Perhaps most importantly, local government did not have the money to improve roads. The small town of Beekmantown (in the northern part of the state) spent between $85 and $500 per year in the 1840s to maintain local roads.\textsuperscript{20} Such sums were trifling compared to the thousands of dollars needed to surface one mile with macadam.

New Yorkers might have looked to their state government for assistance. The state government helped to build roads in isolated areas, but widespread assistance to macadamize county roads was never attempted in the nineteenth century.\textsuperscript{21} Ambitious plans to macadamize county roads -- like a $12 million proposal by a committee of a 1836 internal improvement convention -- fell on deaf ears in a political climate of fiscal retrenchment.\textsuperscript{22} By the late 1830s the state government was overextended through poor investments in canals, creating a strong backlash against state involvement in internal
III. The Plank Road Boom Begins.

The failure of local and state governments dictated that road improvement would have to come from a new, inexpensive surface that private companies could finance. George Geddes, a gentleman farmer from the Syracuse area, provided such a solution. At the behest of a meeting of prominent citizens of Salina (a village later incorporated into Syracuse), Geddes traveled to Toronto in the summer of 1844 to observe plank roads. Geddes came back with glowing reports. After another trip to Canada, Geddes began construction of the Salina-Central Square Plank Road. According to one observer, the road displayed "the success of a safe and well matured enterprise." The triumph of the Salina-Central Square sparked widespread interest. Business magazines, agricultural periodicals, and state government reports soon publicized plank roads across the country.

Figure 1, which shows the annual progression of plank roads in New York, demonstrates the boom nature of the movement. The legislature chartered three experimental roads in 1844. The apparent success of the first roads led the legislature to pass a general law that allowed companies easy incorporation. In 1850, 86 companies (representing more than 800 miles of road) had filed articles of association. But once people realized that planks
would last only four years rather than ten, the tidal wave quickly subsided. By 1854 the movement was clearly spent.

Many other states, much to their later chagrin, emulated New York. As Table 1 shows, all sections of the country except New England chartered plank roads. Pennsylvania, Ohio, and Michigan joined the Empire State as the top plank road states. The plank road states shared one distinguishing characteristic: they produced lots of lumber. As Table 1 also shows, New York ranked first in lumber output, Pennsylvania second, Michigan fourth, and Ohio fifth. Large timber reserves were crucial. According to Robert Kuhn McGregor, the initial construction of 78 miles of plank road in New York’s Delaware valley consumed the average output of 244 saw mills. Extrapolated for the state as a whole, the initial construction of plank roads consumed the average output of more than 11,000 saw mills!

But as long as timber was readily available, plank roads seemed like a bargain. In a popular 1850 engineering textbook, professor William Gillispie of Union College argued that a plank road could be built and maintained “for less than the interest on the cost of a Macadam one.” Gillispie was exaggerating, but other sources suggest that plank roads were about two-thirds of the cost of macadam. The average capitalization of a mile of plank road ($1,900) was far lower than the estimated cost of macadam ($3,500).

Another advantage of planking was its simplicity. The surfacing hardly constituted a great engineering feat. Most
roads were constructed on a wooden foundation of "stringers" or "sleepers" that builders firmly planted in the ground. Usually hemlock or pine, the planks (about four inches thick) were laid at right angles to the sleepers. The road was imbedded so that the planks were even with the adjoining earth. Even the amateur engineers of the antebellum period could build a plank road with help from one of the many manuals on the subject.32

Despite its relative cheapness and simplicity, planking promised all of the advantages of macadam. Travelers marveled at the speed and comfort of plank roads.33 The smooth surfacing allowed farmers, merchants, and manufacturers to haul bigger loads at higher speeds. More importantly, planks withstood the seasons far better than unsurfaced roads, making road travel more dependable. A 1846 state senate report noted that those living near a plank road could "reach their markets in all seasons of the year with an equal ease and facility," while those living off the road confine themselves to a "short space of the year for the transportation of their produce to market, owing to the state of the roads."34 All of the benefits promised to revolutionize transportation, which is why contemporaries like South Carolina manufacturer William Gregg exclaimed plank roads were "infinitely superior to any other [thoroughfare], not excepting railroads."35

IV. Where New Yorkers Built Plank Roads
Gregg’s claim now seems ridiculous, but his alluring promise struck a responsive chord across the state. Which areas most desired the perceived economic and social advantages of plank roads? To find an answer we mapped the plank roads that we know were built (Figure 2; please see data appendix). The plank roads are concentrated along the upper-Hudson valley and the Erie canal. Also prominent is the convergence of plank roads around major up-state cities like Albany, Buffalo, Utica, Rochester and Syracuse. Almost no roads, however, were built within the cities.36

For more systematic analysis of the plank road location, we regressed total plank road mileage in 1855 against various economic characteristics of New York’s counties.17 The first problem encountered was finding a suitable measure of plank road mileage. Per-capita figures might seem the most appropriate, but the impossibility of building plank roads in urban areas creates a bias against counties with big cities. Most counties with a big city—Albany (Albany), Erie (Buffalo), Kings (Brooklyn), Monroe (Rochester), New York (New York), and Rensselaer (Troy)—ranked low in per-capita mileage, even though some had relatively high absolute mileage figures. We therefore use both absolute and per-capita mileage figures of the cumulative miles of plank roads in operation in 1855.38

Fortunately, both measures yield more or less the same results, which are presented in Table 2. The “big city” variable (defined as a city bigger than 10,000) and the “dairy”
variable (amount of butter and cheese output, in pounds) seem especially important in explaining plank road location. The existence of canals and railroads were also positively associated with plank roads, but much less significantly than big cities or dairy farms. On the negative side, plank roads tended not to be built in areas with lots of manufacturing and a high ratio of improved to unimproved land. We weighted the regressions by 1855 population, which improves the specification considerably.39

The big city variable is important because most plank roads connected rural townships with large markets. Besides providing a ready market for farm produce, big cities also had obvious links with canals and railroads. The influence of big cities is shown in the map of Oneida county. Plank roads emanated, to use William Kingsford's words, like "spokes from a hub of a wheel" from the cities of Rome and Utica, both of which had canal and rail connections.40 This helps explains the poor performance of the "population" variable. Lacking a focused market, large and populous rural counties like St. Lawrence (population 74,977) and Jefferson (65,420) built fewer plank roads than their less-populous big-city counterparts like Oswego (69,389) and Cayuga (53,571).

The concentration of plank roads in dairy areas reflects the changing composition of farm production in the state. New York had traditionally been an important grain state, but soil depletion and competition with the West (made possible by the Erie Canal) reduced it to a mere middle-of-the-pack grain
producer. Farmers naturally substituted dairy products for grain, a switch made possible by the state's excellent pastures. Increased dairy output made roads more important. Unlike grain, which could be stored for long periods, dairy products had to be moved to market quickly. The frequency of dairy trips called for roads that would be serviceable in all seasons. David Ellis notes that by the 1850s farmers "usually took their cheese to the railroad depots where local market were held twice a week." The importance of dairy production is highlighted by the poor performance of the wheat variable, which seems unrelated to plank road production.

As one would expect, the regressions indicate that plank roads were built in counties with canals and railroads. Usually 10 to 15 miles in length, plank roads often served as feeders to the more powerful means of transportation. But the statistical relationship is much weaker than most of the other variables, as evinced by the sub-par t-statistics. Canals and railroads may have been necessary factors spurring plank road construction, but certainly not sufficient. Several railroads ran through the hilly "southern tier" of the state, yet residents in these counties constructed only a smattering of plank roads. Notice that the canal variable preforms better than the railroad variable, especially in the per-capita equation. The canal variable may be picking up flatness, a topographical feature far more suited to plank road construction than hills and mountains.
The negative relationship with manufacturing (as measured by the number of manufacturing hands) is an additional indication of the essentially rural nature of plank roads. While the articles of association frequently mention the presence of a textile mill or iron foundry near a particular road, it took more than manufacturing to spur plank road construction. Most large manufacturing firms were located close to rivers in order to take advantage of water power, therefore having little use for plank roads. The negative impact of the ratio of improved to unimproved land suggests the importance of available timber. Unimproved land indicates the proximity of forests that could provide lumber for the roads.

IV. Plank Roads and the Relative Decline of Rural Townships.

The plank road boom is not simply a story of dairy farmers near big cities seeking improved transportation. The episode highlights the reaction of rural New Yorkers to changes in relative economic standing. From 1810 to the 1840, rural New Yorkers in the central and western portions of the state enjoyed the benefits of a booming frontier, characterized by high population growth rates and rising land values. For 16 counties along or near the Erie Canal, population increased by 139%, or 46% per decade, between 1810 and 1840. But in the 1840s, rural New Yorkers at mid-century faced a starkly different situation. The population growth rate of same 16 county area was
only 13 percent between 1840 and 1850, and most of that was concentrated in cities like Albany and Buffalo. In his study of the Hudson-Mohawk Region—which includes prominent plank road counties like Albany and Oneida—David Ellis found that one hundred rural townships lost population between 1830 and 1840, while another 80 rural townships lost population between 1840 and 1850.46

Many rural townships still enjoyed some of the fruits of prosperity, but the first taste of "maturity" after the heady days of frontier growth created a sense of stagnation and even decline. Contemporary discourse revealed a strong concern not only for the absolute quality of living, but with what social theorists call "positional goods," such as comparative standing in population, commerce, and land values.47 As historian Hal S. Barron notes in his study of nineteenth-century rural New England, "American culture then, as now, had little tolerance for a situation that did not give at least the illusion of rapid growth and progressive advance."48 Reports of town meetings convey a sense of impending doom felt by residents of rural townships. A speaker at a Delaware county meeting declared that a plank road "is the only hope for an adequate thoroughfare to market. If this long-cherished project fails, this county MUST REMAIN A SEQUESTERED AND ISOLATED REGION FOR ALL TIME."49 Citizens of towns like Ithaca deluded themselves into thinking that plank roads would help them recapture past glory. With plank roads, a committee of a town meeting reported, Ithaca would
soon "take that stand among the inland towns of New York to which it is entitled by its position; and will soon become 'first in population, wealth, and enterprise.'" 50

An examination of lists of plank road subscribers reveals that residents of rural townships like Ithaca propelled the plank road boom. Plank road investment was extremely local, as almost all investors lived in the same county as the road, and most came from the townships and villages along the route. Table 3 shows the residences of investors of plank roads in five counties: Albany, Erie, Monroe, Oneida, and Onondaga. All five of the counties ranked high in plank road mileage, and each had a large city with a considerable agricultural hinterland. The table reveals that more than 70% of investment came from the small towns outside the major city. For the roads in Oneida, for example, only 16% of investment came from the big city of Utica, while residents of outlying townships contributed the rest. The figure is especially impressive given the disparity in population and wealth between the major cities and the surrounding townships. 51

Many of the rural townships that invested in plank roads had experienced the first symptoms of relative decline--falling or even negative rates of population growth. In the five counties there were 71 townships that had residents who invested in plank roads. Of these townships, 23 percent had absolute declines in population between 1840 and 1850, while another 15 percent grew by less than 5 percent for the decade. Only 12 (including the
five urban areas) managed to sustain their county growth rates, which tended to be high because of urbanization. What areas contributed more to the plank road boom -- the high-growth or slow-growth areas?

The townships falling behind contributed proportionally more than faster-growing areas. Again using the 71 townships in the five counties as a sample, we regressed per-capita plank road investment against the rate of population growth for all townships and cities for the 1840s. The regression was weighted by 1850 population. The results show that the slower the population growth rate of the township, the greater the per-capita investment of residents:

\[
Y \text{ (per-capita investment)} = 2.19 \text{ (constant)} - 0.017 X \text{ (growth rate)}
\]

\[
(t = 7.45) \quad (t = -3.51)
\]

The townships that invested the most per-capita in plank roads were clearly those falling behind in the race for population and wealth.

V. Plank Roads and Community Spirit

What groups in the rural townships sought to avoid economic decline through plank roads? The answer is almost everybody who could afford to take part. Using a genealogical index, we linked 158 investors who signed subscriber lists for ten roads in Oneida county with the 1850 census manuscripts. As Table 4 reveals, a striking variety of occupations are represented. Almost half of
the subscribers were farmers, which is consistent with the "dairy" variable in the Table 2 regressions. But a number of merchants, artisans, and professionals also had a financial stake in the roads. The real estate holdings of the subscribers give a similar impression. The relatively large mean value of real estate holdings suggests that a wealthy group of elites supported the roads. But the smaller median value indicates that many people with more moderate real estate holdings also bought stock. The median real estate holding of the farm subscriber, for example, translated into a modest farm of less than a hundred acres. Such investors were definitely middle class, but a far cry from the large capitalists usually associated with railroads and canals.

The differing motivations for plank road investment sheds light on why plank roads received such diverse support. Investors had two distinct incentives to invest in plank roads: direct returns from the stock, and indirect, secondary benefits from having a better road. The difference between the two are important. Direct returns benefitted only the individual owning stock, while the indirect benefits helped the community as a whole.

There is good reason to believe that investors attached greater importance to indirect benefits. The fact that most investment came from rural townships suggests that more than dividends motivated subscribers; one would expect, after all, that investors in major cities would be just as eager to reap
perceived returns on stock as those in rural townships. The large percentage of investors who lived on or near the road also attests to the importance of indirect benefits. Linking the names of Oneida county subscribers to a 1851 county landownership map, we found that about 75% of the investors owned property along the road. The only group who we could not locate near the roads were the professionals, who lived in urban areas like Rome and Utica.57

The importance of indirect benefits presented plank road organizers with a problem. Indirect benefits could have been enjoyed by a person not contributing to the road—the landowner would benefit from rising property values and the merchant from increased commerce regardless of whether they bought stock. Community spirit therefore came into play. People invested in plank roads not only because of monetary returns, but because they were making a worthwhile contribution to the community. Community spirit meant that it was socially unacceptable to be a "free-rider," a person who unfairly benefitted from the efforts of others.

Community spirit is hard to quantify, but scholars like Carter Goodrich have found it an important impetus for many internal improvements.58 The older turnpikes are perhaps the best example. As discussed above, shunpiking and numerous exemptions helped make many turnpikes financial disasters. After 1810 or so, most investors knew that turnpike stock was unprofitable. Yet turnpike promoters managed to get many roads
built by fostering a sense of community-spirit. They sponsored meetings that made stock purchases public events, personally visited potential investors, and wrote rousing newspaper articles and editorials.59

Some of the same methods helped encouraged subscription to plank road stock. In 1851 the Poughkeepsie Eagle published a long article about a dinner exalting the recent completion of the Poughkeepsie and Stormville Plank Road. Filled with the usual celebratory speeches and toasts, the dinner conveyed the boundless enthusiasm felt by investors in the road. Hailing the enterprise as a "visionary experiment," the president of the company compared the road to the inventions of Franklin, Fulton, and Morse. He concluded, fittingly enough, with a long tribute to the community benefits of the road. Regardless of "the profit and loss account to the stockholders," those participating in the road could take pride in introducing an important "social convenience" to the community in general:

Plank roads are emphatically the people roads; they can use them with regularity to fit their own convenience, they promote social intercourse among neighbors, afford ready dispatch for medical relief in cases of sickness by abridging distances, and remove all occasions for excuse to attend religious worship in bad weather.60

Such festivities on behalf of plank road investors may have been common. Henry Sheldon, a banker in Dutchess County, apologized to Uriah Gregory, an organizer of a local plank road, for not attending a celebration: "I cannot [go to the celebration], as you know I am entirely alone & cannot leave, [I] should rejoice
to be with you if I could, [as] you know the interest I feel in our road.""\textsuperscript{61}

Negative social pressure could also be applied to recalcitrant residents. Those who did not favor a road were told to keep their opinions to themselves. Much like a football coach giving his team a pep talk, a committee of a town meeting in Ithaca recommended "that we have no more croaking, and that the words, 'can't' and 'impossible' become less fashionable."\textsuperscript{62}

Plank road organizers equated failure to build a road with a lack of spirit and enterprise on the part of residents. Commenting on a failure to build an earlier road, the president of Poughkeepsie and Stormville company noted that the incident was "a rather poor commentary upon the wealth, intelligence, and enterprise of the citizens of Old Dutchess, who could not build one plank road, while their neighbors across the River at Newburgh and Kingston could build two or three in the same year."\textsuperscript{63}

Plank road organizers also used personal visits--to twist arms and consciences, no doubt--in order to obtain subscriptions. An 1847 letter written from William K. Fuller to an organizer of the Cazenovia and Chittenango Plank Road reveals that Fuller's brother "acquainted our leading citizens" with the project. Fuller assures the organizer "that in carrying out your project, you may confidently rely upon contributions from the inhabitants of this town commensurate with the extent of their interest."\textsuperscript{64}

Community spirit did not mean that plank road investors ignored monetary returns from their stock. Whereas the investors
in the earlier turnpikes had been more narrowly motivated by indirect benefits and social pressure, plank roads investors had mixed incentives. The combination of direct investment returns and indirect secondary benefits is evident in local newspapers across the state. In 1851 the Fredonia Censor declared that plank road investment is a "profitable one not only in the increased business it will bring to their village, but the amount of travel that will be secured by the road." Similarly, the Long Island Democrat noted in 1850 that a plank road would "promote the prosperity of our village and enhance the value of property along the line of the proposed road," while adding "that such a road will pay well there can be no doubt--the story of plank roads in other parts proves this." An 1849 editorial in the Albany Argus outlined the important benefits of plank roads, but also pointed out that "men of capital" must receive "a fair profit on such investment." It also added that "we find whenever the experiment has been tried, that the capital invested in Plank Roads...has produced large profit on the investment." Perhaps the attitude of manufacturer Henry A. Foster was typical of how plank road investors thought in terms of the welfare of both the individual and the community. In a letter to a Ledyard Lincklaer, a plank road organizer, Foster mentions that the proposed Cazenovia and Chittenango plank road would benefit others in the community more than himself:

It is true that such a road will materially benefit the property which I have at the falls, but it is also true that in proportion to the amount of water power[,] it will most benefit those farthest off the canal and railroad. And
above the falls the mill sites are very numerous.\textsuperscript{11}

Despite the fact that other landowners might gain more than he would, Foster still subscribed to $500 worth of stock, which he considered as "my proportion according to my interest in the local benefits."\textsuperscript{12}

The amplification of investment prospects in the plank roads as compared to turnpikes speaks of the transition from the "commonwealth" corporation of the earlier part of the century to the "business" corporation of the later part of the century.\textsuperscript{69}

As noted above, much local travel on the older turnpikes passed without paying tolls because of shunpiking and legal exemptions. A number of legal changes allowed plank road companies to exact payment from local travellers. While tollgates on the older turnpikes were usually placed five to ten miles apart, the 1847 general law explicitly reduced the gap to three miles.\textsuperscript{70}

Travellers residing within one mile of a gate had formerly passed free; an 1848 law permitted the collection of half tolls.\textsuperscript{71} An 1849 law retracted exemptions that had been enjoyed by those travelling to or from 1) a grist mill for grinding family grain, 2) a blacksmith, and 3) a doctor or midwife.\textsuperscript{72} Although an 1850 amendment largely reinstated the first two exemptions, the 1849 law also eliminated the traditional ceiling on profits.\textsuperscript{73}

Although community benefits undoubtedly encouraged plank road construction, the legal changes associated with plank roads indicates that they were clearly designed as profit-making enterprises.
VI. End of the Boom and Concluding Comments

The plank road boom came to a halt in 1854, as an increasing number of companies suddenly discovered that their roads were prematurely worn. Facing huge replanking costs, many companies cut their losses and quickly dissolved. As the large errors in the secondary literature suggest, determining when plank roads went out of business is not an easy task.* Using data from the articles of association, contemporary maps, county histories, and legislative acts, we estimate (guess would be a better word) that almost 40 percent of plank road mileage extant in 1855 disappeared by 1860. Many of the existing roads were probably operating without planking, as an 1854 law allowed companies to abandon wood surfacing at will. Only 32 out of the original 350 companies submitted new articles at the end of thirty years. By the 1880s, plank roads had become exceedingly rare sights.

In the words of George Rogers Taylor, the failure of plank roads "left most short-haul transportation literally stuck in the mud, there to remain until the later age of the rigid-surfaced road and the internal-combustion engine." To help themselves out of the mud, New Yorkers built thousands of miles of branch and spur railroads after the Civil War. Between 1865 and 1875, more than 2400 new miles of railroad were built. The boom in branch railroads resembled the earlier boom in plank roads, as small towns saw the railroads as the key to future prosperity.
Historian Harry Pierce notes that "Proposals for the construction of railroads often evoked the wildest enthusiasm... even short branch lines had unlimited possibilities. Any town, however remote and isolated, might become a bustling community." Unlike plank roads, railroads received generous subsidies from towns. By 1875, 315 municipal governments had given over $36 million in subsidies to railroad companies.

Although the continued construction of branch railroads helped New Yorkers overcome poor roads by shortening the trip to the nearest train station, one still wonders why they did not pursue other solutions to the problem of road-surfacing -- like macadam -- more vigorously. As Fogel points out, the benefits of hard surfacing were large even after the boom in branch railroads, but few roads were surfaced until the twentieth century. The answer lies in the continued inability of road-building organizations to finance new surfacing. Turnpikes still had a hard time overcoming shunpikes and the numerous exemptions from tolls, while townships continued to use the inefficient labor tax. The plank road boom was a technological response to the inadequacy of the various road-building organizations, whose failure continued to plague New Yorkers well into the twentieth century.

The plank road episode shows how antebellum Americans could combine the values of market and community. Historians have debated at length whether rural Americans in the first half of the nineteenth century were family-minded producers with strong
community ties or market-oriented capitalists. The plank road story suggests that both claims are valid. New Yorkers did not merely take advantage of markets, but actually tried to create and improve them through better transportation. On the other hand, the story reveals a strong community ethic, as investors knew that the entire township would benefit from their purchase of plank road stock. Perhaps the lesson from the plank road story is that historians, in drawing the useful distinction between "market" and "community," have too readily viewed the two as conflicting forces. In the plank road episode, rural townships tried to tap the economic advantages of the market by utilizing what James Coleman calls the "social capital" of the community.

The plank road boom also suggests that improved transportation might even strengthen community ties. The plank road promotional literature gives the impression that many rural New Yorkers lived on isolated farms, having to take tedious, time-consuming trips to community institutions like churches and town meetings. According to plank road promoters like William Kingsford, the speed and smoothness of plank roads made interaction easier, especially in the muddy spring and autumn months:

On Sunday, the farmer can go to church with regularity, which was not always possible in the fall, when the church was one fourth of a mile from the farm. He can live with more friendliness with his neighbors--for the plank roads have led to an increased intercourse between families. He can meet people of his own pursuits more frequently and converse upon prices current and improved modes of farming.
Kingsford's logic obviously appealed to many New Yorkers. For the state's rural townships, plank roads promised to link together "the social fabric with stronger and more lasting bonds."
Notes


3. The literature about turnpikes consists mostly of older and descriptive studies, such as Joseph A. Durrenberger *Turnpikes: A Study of the Toll Road Movement in the Middle Atlantic States and Maryland* (Valdosta, Georgia: Southern Stationery and Printing Company, 1931). George Roger Taylor’s famous *Transportation Revolution, 1815-1860* (New York: Rinehart and Company, 1951) devotes a chapter to turnpikes and a few pages to plank roads. As we will see later, both Durrenberger and Taylor make some important errors in their assessment of the plank road boom. Of the number of local and regional articles done on plank roads, the best is Carl Abbott, "The Plank Road Enthusiasm in the Antebellum Middle West," *Indiana Magazine of History*, 47 (1971), p. 115.


14. It is not hard to see why macadam was so expensive. The stones had to be crushed by hand, and then carefully laid on the road in four layers, each layer being 3 inches thick. The stones then had to be "consolidated" thirty to forty times using huge rollers (7 to 19 thousand pounds) that were drawn by a dozen horses. See Gillespie, Manual, pp. 194-210.


17. George Rogers Taylor (Transportation Revolution, p. 18) reports that a "carnival mood" prevailed when people performed their public road duties. For contemporary opinion, see the comments by a Judge Gridley on the frequent shirking of the road labor tax in Geddes, Observations upon Plank Roads, p. 15. Also see Gillispie's comments in Manual, pp. 341-347.


20. Philip H. White, *Beekmantown, New York: Forest Frontier to Farm Community* (Austin: University of Texas Press, 1979), p. 201. This figure does not include the dollar value of labor assessments. Although potentially useful in repairing roads, labor assessments obviously could not pay for crushed stones and large rollers needed for macadam.

21. White reports that the state was assuming greater responsibility for roads in sparsely populated areas, but for the most part improvements were the responsibility of the local townships. See White, *Beekmantown*, pp. 204-205.


24. How plank roads got started in Canada is not clear. Several plank road promoters maintained that the British diplomat Lord Sydenham introduced the idea after seeing plank roads in Russia, but there is no independent proof of the claim.


27. The only major lumber state without plank roads was Maine, which lacked another requirement for the roads: people.


31. From the articles of associations, we calculated that the average capitalization per mile of plank road was just under $1900. The most favorable estimate of macadam—made by Kingsford—"Few
Words," p. 9--argues that the stone surfacing cost about $3400.

32.Geddes, for example, had no formal training in engineering.


36.Toll gates in busy downtown areas were not sanctioned by the legislature. Besides being inconvenient, it would have been an easy manner to avoid tolls by riding around the extra block around the toll gate.

37.Notice that we use the number of miles built, not chartered. Determining if a chartered company actually built a road is difficult; please see our appendix on data and sources. We use the cumulative miles operating in 1855.

38.Another problem is selecting the appropriate year for the regressions. To utilize federal or state census data for the independent variables, three possible choices present themselves: 1850, 1855, and 1860. Since we use cumulative miles built up to a particular year, 1850 is too early, as we would miss all of the roads built after that date. The third is too late; many plank road companies were out of business by 1860. Although a few of the earliest roads had gone out of business, 1855 maximizes plank road mileage for most counties.

39.Without weighing, the adjusted R-squared of the per-capita regression falls to .29 and the F-statistic falls to 4.39. The t-statistics for the independent variables either fall or stay the same. The only exception is the canal dummy, which is significant at the 95% level without weighing.


44. Engineering authorities argued that plank roads should not be built up steep hills, as their smoothness would give horses less traction for difficult climbs. Hills would also put more wear and tear on the planks, as horses "put forth extra exertion to overcome such an increased resistance." See Gillespie, *Manual*, pp. 232-33.

45. The 16 counties include Albany, Cayuga, Erie, Genesee, Herkimer, Madison, Monroe, Montgomery, Niagara, Oneida, Onondaga, Ontario, Orleans, Saratoga, Seneca, and Wayne. Population statistics were taken from Shupe, *New York State Population*.


51. The five cities contained 36% of the total population and 50% of the assessed real estate in the five counties. The real estate figure was calculated from J. H. French, *1860 Gazetteer of the State of New York* (New York, 1860). The real estate figure is for 1858.

52. The number of observations for the regression was 71. The adjusted R-squared was .14, while the F-statistic was 12.33. The weighted mean for per-capita investment was 1.38; the weighted mean for the population growth rate was 46.94. Both the population growth rate and constant were significant at the 99% level.

54. The strong association of plank roads with farmers accounted for the strong support plank roads received from the agricultural press. George Geddes himself published scores of agricultural articles in the *New York Tribune* and *Country Gentleman*. Articles supporting plank roads also appeared in *The Plough, Loom, and Anvil*, *The American Farmer*, and the *Albany Cultivator*. Farmers, the journals asserted, could finally use roads in the wet spring and autumn months without "their horses, mules, and oxen, sink[ing] to their knees, and their carts, and wagons, up to their hubs." See "Plank Roads," *American Farmer*, 7 (1852), p. 28.


57. The map of Oneida County is part of the large collection of landownership maps at the Library of Congress. The map was surveyed by A. E. Rogerson and E. J. Murphy and published by Newell S. Brown of Philadelphia in 1852.


61. Henry Sheldon to Uriah Gregory, November 15, 1850 in Uriah Gregory Folder #486 at the Broome County Historical Society in Binghamton, New York.


63. Buck, "Account of the Poughkeepsie and Stormville Plank Road," p. 22.

64. Letter from William K. Fuller to Ledyard Lincklaer, dated May 20, 1847. Box 5, Fairfield Collection, New York Public Library.


68. Letter from Henry A. Foster to Ledyard Lincklaer, dated Feb. 8, 1848. Box 5, Fairfield Collection, New York Public Library.


74. Durrenberger (1931, p.152) claims that "so suddenly did the plank road companies disappear that of the 352 companies chartered by New York only 17 remained in existence in 1868 and they were operating as turnpikes." His claim has been passed on by transportation historians such as George Rogers Taylor to form the standard account of the demise of the plank road movement. Durrenberger apparently overlooks that one-third of the corporations in the state did not comply with the 1868 tax request, and many roads known to be operating in 1868 are not listed in the records.

75. If a road did not file any annual reports, was not on contemporary maps, and was not mentioned in county histories or legislative acts, we considered the road defunct. We undoubtedly missed operating roads not mentioned by these sources, but we think the downward bias is probably small. Longer roads would surely have appeared on maps or have gotten mention in a county history.


79. Pierce, p. 42.

80. Calculated from Pierce, p. 176.
81. By the end of the century, the average haul to market for a New York farmer was about 3 miles, which was much shorter than the average length of plank roads (12 miles). See Ira Osborn Baker, A Treatise on Roads and Pavements (New York: John Wiley and Sons, 1905), pp. 11-15.


86. "Account of the Poughkeepsie and Stormville Plank Road," p. 25.
APPENDIX: SOURCES OF PLANK ROAD MAPS AND STATISTICS

The basic documentary source on the plank road companies of New York State are the articles of incorporation and reports filed with the Office of the Secretary of State. In addition, several plank road companies were incorporated by special acts of the legislature or were converted from turnpike companies chartered by special acts. Special acts, which were published in the annual session laws, were also used to merge or reorganize plank road companies, to abandon plank roads or convert them to turnpikes, or to raise additional money by loans, for which no provision was made by the general law.

Another important source is the series of maps for each New York county produced between 1850 and 1861. These were produced for profit by commercial map makers (the teenage Jay Gould worked on two of these county maps). A complete list is contained in, Richard W. Stephenson, ed., *Land Ownership Maps - A Checklist of Nineteenth Century United States County Maps in the Library of Congress* (Washington: Library of Congress, 1967). Unfortunately, the maps of some counties were made at the very beginning of the plank road era, some at its height, and some after most or all plank roads had been abandoned, so that consistent data is lacking for the state as a whole.

Furthermore, many plank roads that were built were never fully completed, and many were built and abandoned piecemeal, one gate at a time. This is confirmed by data in the session laws and by discrepancies between the Secretary of State's reports and
the county maps. The only accurate record of toll road
abandonments is contained in the deeds of cession to the towns,
which would have been filed at the appropriate county court
house. Since it would be necessary to search dozens or hundreds
of deeds at each of the sixty-two county court houses in New York
State, this source is rendered practically unusable.

We have thus collated information from the articles and
reports, the session laws, and contemporary county maps,
supplemented by information in contemporary city directories
(many of which list toll road companies headquartered in that
city), county histories and the proceedings of county historical
societies. While no single source captures the entire plank-road
network, the major sources generally support each other and yield
data that are reasonably accurate for statistical purposes. For
example, plank roads which filed no annual reports nevertheless
showed up on the county maps. Roads were assumed to not have
been built without the proof of more than one source.

Each of the plank roads was then plotted onto a
dimensionally accurate modern map, usually the United States
Geographical Survey 1:250,000 series of Atlas & Gazetteer
(Freeport, Me.: 1988). The latter had the advantage of showing
all existing streets and roads. Many are shown with their
current names, and the "plank road" designation has frequently
survived. About one per cent of the roads could not be located
precisely.
Each county was plotted separately, and the road lengths scaled directly from the maps. Allowance was made for changes in county boundaries. Lengths are accurate to within one half mile and generally agree with the lengths given in the articles.

For comparative purposes, the canals and railroads in each county were plotted using the tables in Christopher Baer's *Canals and Railroads of the Mid-Atlantic States, 1800-1860* (Greenville, Del.: 1981) and the more detailed raw data tabulations for the book now filed as Manuscript Accessoin 1777 at the Hagley Museum & Library.
Table 1
Plank Road Incorporation and Lumber Output by State

<table>
<thead>
<tr>
<th>State</th>
<th>Number of Roads Chartered</th>
<th>Value of Lumber Production (Millions of $)</th>
<th>Rank as Lumber Producer</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>350</td>
<td>13.126</td>
<td>1</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>315</td>
<td>7.729</td>
<td>2</td>
</tr>
<tr>
<td>Ohio</td>
<td>205</td>
<td>3.894</td>
<td>4</td>
</tr>
<tr>
<td>Michigan</td>
<td>122</td>
<td>2.464</td>
<td>5</td>
</tr>
<tr>
<td>Illinois</td>
<td>88</td>
<td>1.324</td>
<td>10</td>
</tr>
<tr>
<td>North Carolina</td>
<td>54</td>
<td>.985</td>
<td>16</td>
</tr>
<tr>
<td>Missouri</td>
<td>49</td>
<td>1.479</td>
<td>9</td>
</tr>
<tr>
<td>New Jersey</td>
<td>25</td>
<td>1.123</td>
<td>13</td>
</tr>
<tr>
<td>Georgia</td>
<td>16</td>
<td>.923</td>
<td>18</td>
</tr>
<tr>
<td>Iowa</td>
<td>14</td>
<td>.470</td>
<td>23</td>
</tr>
<tr>
<td>Vermont</td>
<td>14</td>
<td>.618</td>
<td>20</td>
</tr>
<tr>
<td>Maryland</td>
<td>13</td>
<td>.614</td>
<td>21</td>
</tr>
<tr>
<td>Connecticut</td>
<td>7</td>
<td>.535</td>
<td>22</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>1</td>
<td>1.552</td>
<td>7</td>
</tr>
<tr>
<td>Rhode Island</td>
<td>0</td>
<td>.242</td>
<td>26</td>
</tr>
<tr>
<td>Maine</td>
<td>0</td>
<td>5.872</td>
<td>3</td>
</tr>
</tbody>
</table>

Notes: Ohio is through 1851; Pennsylvania, New Jersey, and Maryland are through 1857. Few plank roads were chartered after 1857. Lumber production and rank are for the year 1849. Excluded states did not necessarily have zero plank roads, but rather lacked data to make even a good guess impossible.
Table 1 (Continued)

Sources:

Table 2
Ordinary Least Square Regressions:
New York Counties, 1855

(N = 60)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficients (t-statistic)</th>
<th>Coefficients (t-statistic)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute Mileage (Weighted Mean = 49.53)</td>
<td>Per-capita Mileage (Weighted Mean = .78)</td>
<td></td>
</tr>
<tr>
<td>Big City Dummy</td>
<td>68.35 (5.31)**</td>
<td>.682 (2.82)**</td>
</tr>
<tr>
<td>Population</td>
<td>.0000434 (.42)</td>
<td>Not Used</td>
</tr>
<tr>
<td>Dairy Production</td>
<td>.00915 (4.80)**</td>
<td>.00017 (3.50)**</td>
</tr>
<tr>
<td>Canal Dummy</td>
<td>12.21 (1.93)</td>
<td>.120 (1.54)</td>
</tr>
<tr>
<td>Railroad Miles</td>
<td>.147 (1.47)</td>
<td>-.0016 (-.85)</td>
</tr>
<tr>
<td>Wheat</td>
<td>-.00164 (-.81)</td>
<td>-.00001 (-.21)</td>
</tr>
<tr>
<td>Number of Manufacturing Hands</td>
<td>-3.86 (-1.38)</td>
<td>-.119 (-2.53)**</td>
</tr>
<tr>
<td>Ratio of Improved to Unimproved Land</td>
<td>-9.41 (-2.82)**</td>
<td>-.126 (-2.04)**</td>
</tr>
<tr>
<td>Constant</td>
<td>26.62 (2.73)</td>
<td>.85 (4.97)**</td>
</tr>
</tbody>
</table>

Absolute Mileage: Adjusted R-Squared: .69  F-statistic: 17
Per-Capita Mileage: Adjusted R-Squared: .42  F-statistic: 7

Notes: Equations are weighted by the population of the county. (*) indicates significance at 95% level; (**) indicates significance at the 99% level. New York County (NYC) was excluded from the regressions.
Sources and Explanation of Regression Variables:

1. Plank Road Mileage: See data appendix.


5. Railroad Miles: Miles of railroad in each county in 1855, calculated from various contemporary maps. Weighted mean=50.

6. Wheat: Thousands of bushels of wheat produced in each county as reported in 1855 state census. Weighted mean=444.

7. Number of Manufacturing Hands: Number of factory workers as reported in 1855 state census, expressed in thousands of workers. Weighted mean=3.16.

8. Ratio of Improved Land to Unimproved Land: Taken from 1855 state census. Weighted mean=1.94.
Table 3
Capital Stock Invested by "Big City" Investors in Counties with a "Big City"

<table>
<thead>
<tr>
<th>County (Big City)</th>
<th>Total Capital Stock ($)</th>
<th>Investment from &quot;Big City&quot; ($)</th>
<th>Percentage from &quot;Big City&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albany (Albany)</td>
<td>66,800</td>
<td>37,625</td>
<td>56%</td>
</tr>
<tr>
<td>Erie (Buffalo)</td>
<td>63,675</td>
<td>10,200</td>
<td>16%</td>
</tr>
<tr>
<td>Monroe (Rochester)</td>
<td>111,175</td>
<td>26,825</td>
<td>24%</td>
</tr>
<tr>
<td>Oneida (Utica)</td>
<td>264,275</td>
<td>42,950</td>
<td>16%</td>
</tr>
<tr>
<td>Onondaga (Syracuse)</td>
<td>100,165</td>
<td>40,325</td>
<td>40%</td>
</tr>
<tr>
<td><strong>Totals</strong></td>
<td><strong>606,090</strong></td>
<td><strong>157,925</strong></td>
<td><strong>26%</strong></td>
</tr>
</tbody>
</table>

**Note:** "Total Capital Stock" refers to the total amount of stock purchased by residents of the county.

**Source:** "Plank Road Reports:" 5 vol. MSS in New York State Department containing articles of association of plank road companies.
Table 4
Occupations and Real Estate Holdings of Plank Road Investors

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Number</th>
<th>Average Value of Investment ($)</th>
<th>Mean Real Estate Holdings ($)</th>
<th>Median Real Estate Holdings ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers</td>
<td>76</td>
<td>277</td>
<td>5,290</td>
<td>4,000</td>
</tr>
<tr>
<td>Merchants/Retailers</td>
<td>19</td>
<td>563</td>
<td>7,022</td>
<td>3,600</td>
</tr>
<tr>
<td>Professionals</td>
<td>17</td>
<td>382</td>
<td>6,451</td>
<td>3,000</td>
</tr>
<tr>
<td>Artisans</td>
<td>16</td>
<td>256</td>
<td>1,384</td>
<td>1,000</td>
</tr>
<tr>
<td>Manufacturers</td>
<td>11</td>
<td>309</td>
<td>18,577</td>
<td>5,850</td>
</tr>
<tr>
<td>Delivery Services</td>
<td>9</td>
<td>472</td>
<td>4,464</td>
<td>1,500</td>
</tr>
<tr>
<td>Innkeepers</td>
<td>4</td>
<td>388</td>
<td>4,875</td>
<td>5,500</td>
</tr>
<tr>
<td>Lumbermen</td>
<td>4</td>
<td>625</td>
<td>4,675</td>
<td>4,000</td>
</tr>
<tr>
<td>None</td>
<td>2</td>
<td>700</td>
<td>17,000</td>
<td>17,000</td>
</tr>
<tr>
<td>Total</td>
<td>158</td>
<td>350</td>
<td>6,225</td>
<td>4,000</td>
</tr>
</tbody>
</table>
Notes: The "Merchants/Retailers" category includes the following census listings: clothier, grocer, merchant, and tobacconist. The "Professionals" category includes clergymen, dentists, doctors, druggists, justices, lawyers, sheriffs, and the president of the Morse Telegraph Company, while the "artisan" category contains blacksmiths, carpenters, glassmen, harnessmakers, millers, millwrights, shoemakers, tanners, tailors, and wheelwrights. Distillers, hatters, iron foundry operators, manufacturers, and sythemen were included in "the manufacturers" category, while the "delivery service" category is made up of livery stable owners and boatmen.

Source: Manuscript returns from Census of 1850 and 5 vol. MSS in New York State Department containing articles of association of plank road companies.
Plank Roads of Oneida County, New York, 1845-1860
<table>
<thead>
<tr>
<th>NO.</th>
<th>NAME</th>
<th>INCORPORATED</th>
<th>LIFE SPAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Augusta</td>
<td>1848</td>
<td>ca. 1850-1869</td>
</tr>
<tr>
<td>2</td>
<td>Booneville</td>
<td>1848</td>
<td>ca. 1848-1855</td>
</tr>
<tr>
<td>3</td>
<td>Bridgeport &amp; Hampton</td>
<td>1849</td>
<td>not built</td>
</tr>
<tr>
<td>4</td>
<td>Bridgewater &amp; Leonardsville</td>
<td>1849</td>
<td>ca. 1849-1857</td>
</tr>
<tr>
<td>5</td>
<td>Bridgewater &amp; Utica</td>
<td>1847</td>
<td>ca. 1847-1854</td>
</tr>
<tr>
<td>6</td>
<td>Burlington &amp; Utica</td>
<td>1849</td>
<td>ca. 1849-1861</td>
</tr>
<tr>
<td>7</td>
<td>Central Square &amp; Pine</td>
<td>1848</td>
<td>not built</td>
</tr>
<tr>
<td>8</td>
<td>Durhamville &amp; Wood Creek</td>
<td>1849</td>
<td>ca. 1848-1855</td>
</tr>
<tr>
<td>9</td>
<td>Frankfort &amp; Utica</td>
<td>1848</td>
<td>ca. 1849-1861</td>
</tr>
<tr>
<td>10</td>
<td>Hamilton &amp; Deansville</td>
<td>1847</td>
<td>ca. 1848-1853</td>
</tr>
<tr>
<td>11</td>
<td>Hampton &amp; Whitesborough</td>
<td>1850</td>
<td>ca. 1850-1852</td>
</tr>
<tr>
<td>12</td>
<td>Holland Patent &amp; Marcy</td>
<td>1847</td>
<td>ca. 1847-1854</td>
</tr>
<tr>
<td>13</td>
<td>McConnellsville &amp; Fish Creek</td>
<td>1850</td>
<td>ca. 1850-1854</td>
</tr>
<tr>
<td>14</td>
<td>Madison &amp; Earlville</td>
<td>1850</td>
<td>ca. 1850-1854</td>
</tr>
<tr>
<td>15</td>
<td>New London</td>
<td>1847</td>
<td>ca. 1847-1857</td>
</tr>
<tr>
<td>16</td>
<td>Northern Number 1</td>
<td>1854</td>
<td>ca. 1854-1856</td>
</tr>
<tr>
<td>17</td>
<td>Oneida</td>
<td>1847</td>
<td>ca. 1850-1857</td>
</tr>
<tr>
<td>18</td>
<td>Rome &amp; Madison</td>
<td>1850</td>
<td>ca. 1850-1857</td>
</tr>
<tr>
<td>19</td>
<td>Rome &amp; Oswego Road Company</td>
<td>1844</td>
<td>1844-1855</td>
</tr>
<tr>
<td>20</td>
<td>Rome &amp; Taberg</td>
<td>1848</td>
<td>ca. 1848-1871</td>
</tr>
<tr>
<td>21</td>
<td>Rome &amp; Turin</td>
<td>1847</td>
<td>ca. 1847-1855</td>
</tr>
<tr>
<td>22</td>
<td>Rome &amp; Utica</td>
<td>1847</td>
<td>ca. 1847-1866</td>
</tr>
<tr>
<td>23</td>
<td>Rome &amp; Western</td>
<td>1848</td>
<td>ca. 1848-1853</td>
</tr>
<tr>
<td>24</td>
<td>Russia &amp; North Gage</td>
<td>1849</td>
<td>ca. 1849-1860</td>
</tr>
<tr>
<td>25</td>
<td>Seneca</td>
<td>1849</td>
<td>ca. 1849-1852</td>
</tr>
<tr>
<td>26</td>
<td>Trenton &amp; Prospect</td>
<td>1851</td>
<td>ca. 1851-1880</td>
</tr>
<tr>
<td>27</td>
<td>Utica &amp; Waterville Central</td>
<td>1848</td>
<td>ca. 1848-1876</td>
</tr>
<tr>
<td>28</td>
<td>Utica, Deerfield &amp; Schuyler</td>
<td>1850</td>
<td>ca. 1850-1852</td>
</tr>
<tr>
<td>29</td>
<td>Vernon &amp; Verona</td>
<td>1848</td>
<td>not built</td>
</tr>
<tr>
<td>30</td>
<td>Waterville &amp; Earlville</td>
<td>1849</td>
<td>ca. 1849-1869</td>
</tr>
<tr>
<td>31</td>
<td>Waterville &amp; Utica</td>
<td>1847</td>
<td>ca. 1847-1856</td>
</tr>
</tbody>
</table>