

## CREATING HISTORIC BICYCLE SHOP MAPS USING OPEN SOURCE AND FREE GIS PLATFORMS



ST. PAUL, MINNESOTA BICYCLE SHOP, 1890'S  
PAYNE AVENUE AND MINNEHAHA AVENUE EAST

# ALAN LAUMEYER, GISP

GOODHUE COUNTY GIS OFFICE, RED WING, MINNESOTA

CYCLING MUSEUM OF MINNESOTA, VOLUNTEER AND CONTRIBUTOR, MINNEAPOLIS, MINNESOTA

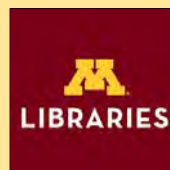


**CYCLING MUSEUM  
OF MINNESOTA**

Bicycling has been a popular activity in Minnesota since the late 19th century and was a popular means of personal transportation before the automobile became widely available. The city of Minneapolis and St. Paul have been on the forefront of cycling since the 1880's and many of the first streets to be paved also became the city's first bicycle routes. Bicycle shops grew up along those routes, as a contributor and volunteer to the Cycling Museum of Minnesota I created maps of those locations. The maps were donated and on display in the museum.

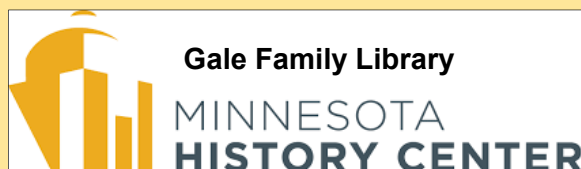
Open source and free software packages were used to create detailed maps depicting bicycle shop information during the 1883 – 1899 time period in both Minneapolis and St. Paul, Minnesota. My interest in geography, cycling and history led to researching and utilizing open source and free software throughout the cartographic process. This session describes the extensive research involved in the project and more specifically the products used in the process.

FREE, OPEN SOURCE SOFTWARE AND  
REFERENCE LIBRARIES USED TO CREATE THE MINNEAPOLIS AND THE ST. PAUL  
BICYCLE SHOP MAPS



John R. Borchert Map Library;  
Automated Cartographic Information Center

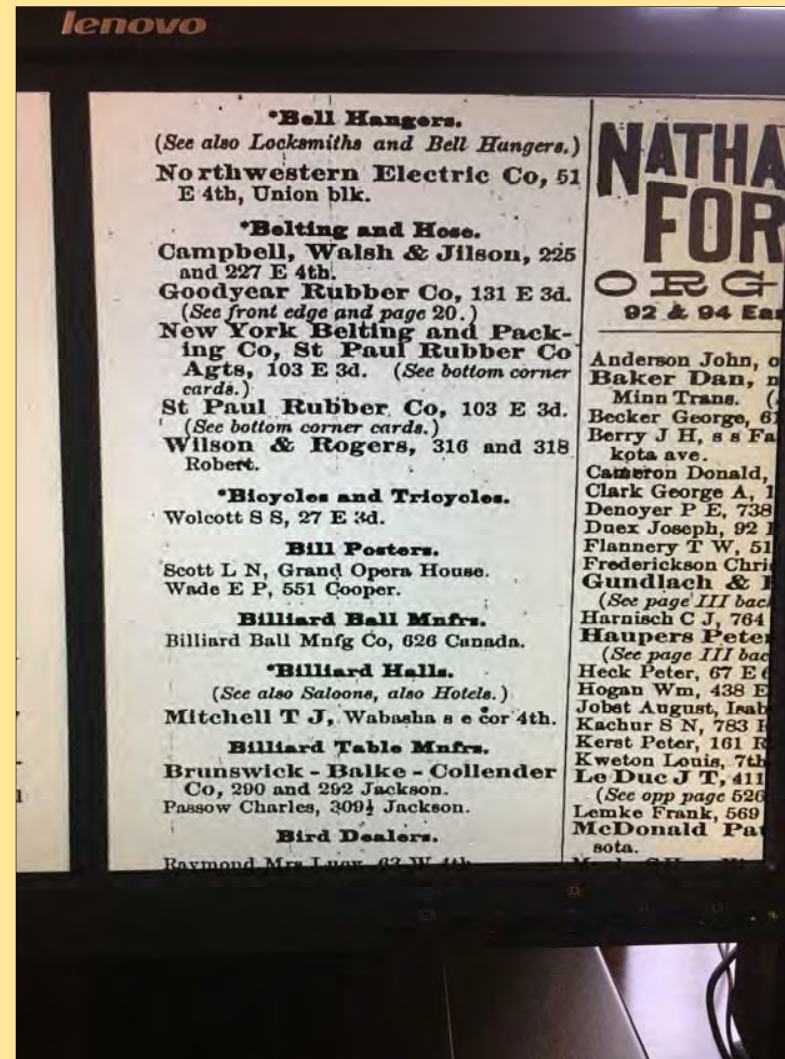
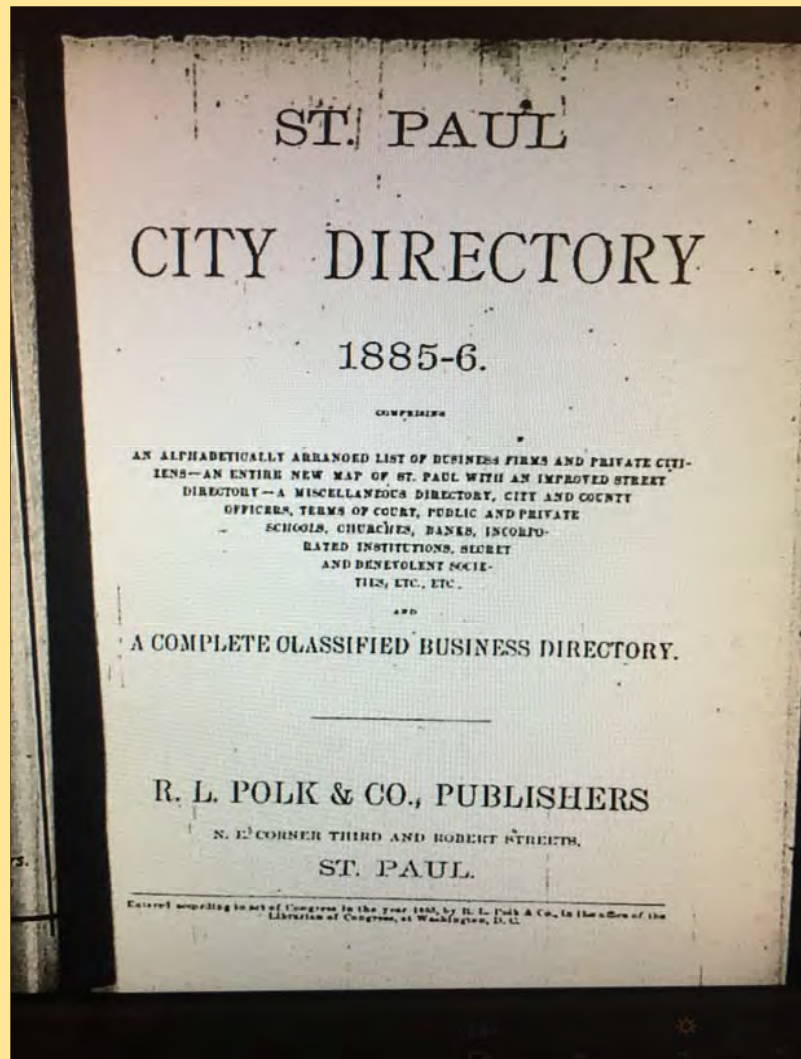
O. Meredith Wilson Library



**STEPHEN P. MORSE GEOCODER APPLICATION**

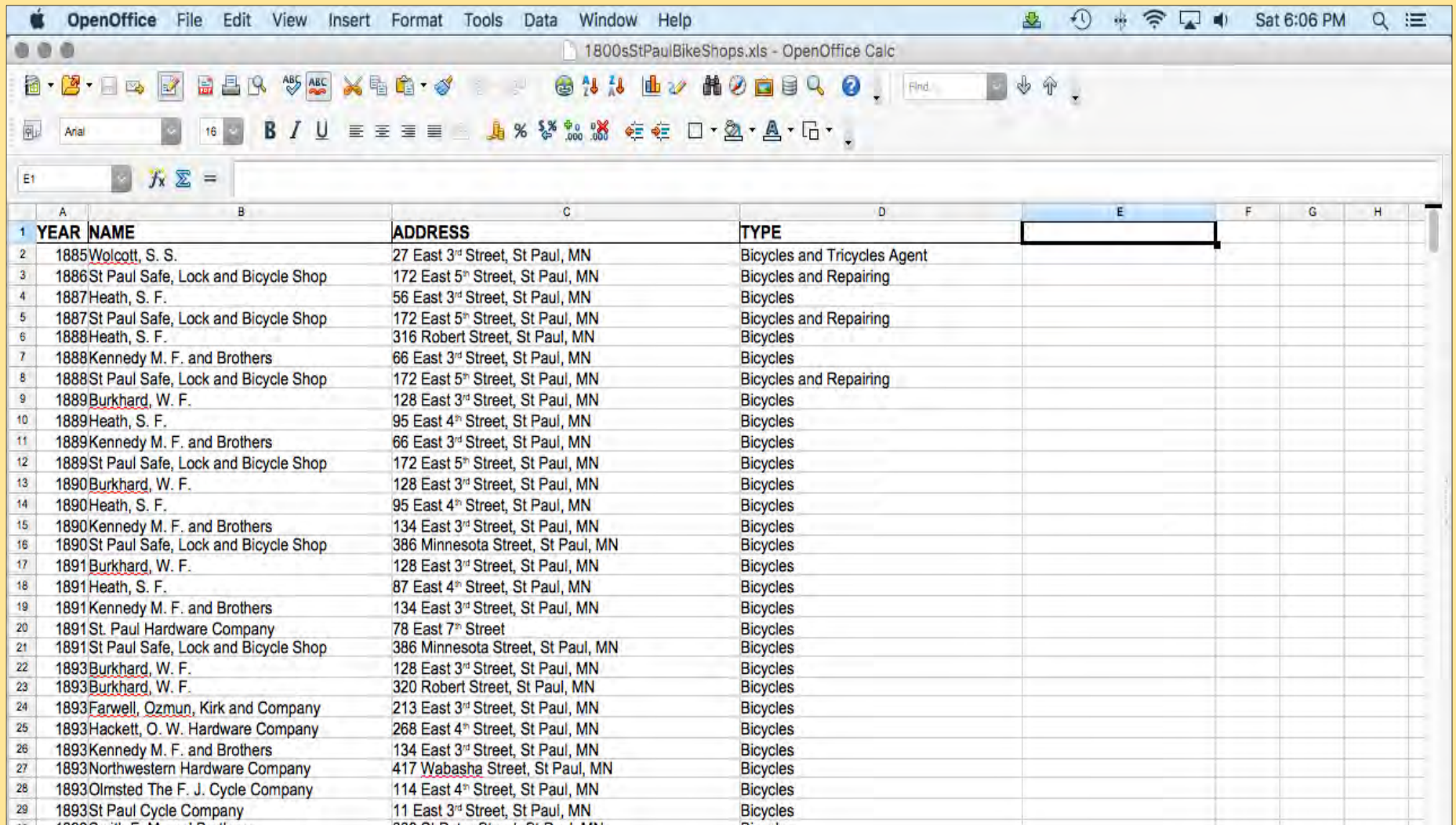


# FIRST PROCESS; GATHER BICYCLE SHOP LISTINGS FROM THE 1800's POLK MINNEAPOLIS AND ST PAUL CITY DIRECTORIES



PICTURES WERE TAKEN OF THE VARIOUS PAGES OF LISTINGS IN THE DIRECTORIES BY YEAR, APPROXIMATELY FOUR OR FIVE PAGES FOR EACH YEAR

## SECOND PROCESS; USING OPEN OFFICE SPREADSHEET, TABULAR DATA WAS CREATED FROM THE LISTINGS; YEAR, BIKE SHOP NAME, ADDRESS AND TYPE OF BUSINESS



The screenshot shows an OpenOffice Calc spreadsheet titled "1800sStPaulBikeShops.xls". The spreadsheet contains a list of bike shops in St. Paul, MN, organized into four columns: YEAR, NAME, ADDRESS, and TYPE. The data is sorted by year, ranging from 1885 to 1893. The TYPE column lists various business types, including "Bicycles and Tricycles Agent", "Bicycles and Repairing", and "Bicycles".

YEAR	NAME	ADDRESS	TYPE
1885	Wolcott, S. S.	27 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles and Tricycles Agent
1886	St Paul Safe, Lock and Bicycle Shop	172 East 5 <sup>th</sup> Street, St Paul, MN	Bicycles and Repairing
1887	Heath, S. F.	56 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1887	St Paul Safe, Lock and Bicycle Shop	172 East 5 <sup>th</sup> Street, St Paul, MN	Bicycles and Repairing
1888	Heath, S. F.	316 Robert Street, St Paul, MN	Bicycles
1888	Kennedy M. F. and Brothers	66 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1888	St Paul Safe, Lock and Bicycle Shop	172 East 5 <sup>th</sup> Street, St Paul, MN	Bicycles and Repairing
1889	Burkhard, W. F.	128 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1889	Heath, S. F.	95 East 4 <sup>th</sup> Street, St Paul, MN	Bicycles
1889	Kennedy M. F. and Brothers	66 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1889	St Paul Safe, Lock and Bicycle Shop	172 East 5 <sup>th</sup> Street, St Paul, MN	Bicycles
1890	Burkhard, W. F.	128 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1890	Heath, S. F.	95 East 4 <sup>th</sup> Street, St Paul, MN	Bicycles
1890	Kennedy M. F. and Brothers	134 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1890	St Paul Safe, Lock and Bicycle Shop	386 Minnesota Street, St Paul, MN	Bicycles
1891	Burkhard, W. F.	128 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1891	Heath, S. F.	87 East 4 <sup>th</sup> Street, St Paul, MN	Bicycles
1891	Kennedy M. F. and Brothers	134 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1891	St. Paul Hardware Company	78 East 7 <sup>th</sup> Street	Bicycles
1891	St Paul Safe, Lock and Bicycle Shop	386 Minnesota Street, St Paul, MN	Bicycles
1893	Burkhard, W. F.	128 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1893	Burkhard, W. F.	320 Robert Street, St Paul, MN	Bicycles
1893	Farwell, Ozmun, Kirk and Company	213 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1893	Hackett, O. W. Hardware Company	268 East 4 <sup>th</sup> Street, St Paul, MN	Bicycles
1893	Kennedy M. F. and Brothers	134 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles
1893	Northwestern Hardware Company	417 Wabasha Street, St Paul, MN	Bicycles
1893	Olmsted The F. J. Cycle Company	114 East 4 <sup>th</sup> Street, St Paul, MN	Bicycles
1893	St Paul Cycle Company	11 East 3 <sup>rd</sup> Street, St Paul, MN	Bicycles



THIRD PROCESS; USING STEPHEN P. MORSE GEOCODER,  
COORDINATE GEOMETRY WAS CREATED FOR ADDRESSES  
COPIED FROM SPREADSHEET AND PASTED INTO GEOCODER

Safari File Edit View History Bookmarks Window Help Sun 7:26 PM

stevemorse.org

### Batch Conversions of Address to Latitude/Longitude (Forward Geocoding)

[Stephen P. Morse](#), San Francisco

Batch Mode (reverse) Batch Mode (altitude) Interactive Mode Frequently Asked Questions My Other Webpages

Display results in ☒ Decimal ☐ Degrees/Minutes/Seconds

Type or Copy-and-Paste addresses into the box below, one address per line  
Street intersections can also be used -- e.g., Hollywood and Vine, Hollywood CA

Enter Mapquest Application key (required)  [What's this?](#)

Monthly limit: 15,000

Addresses ☒ Latitude, Longitude ☐ Longitude, Latitude

27 East 3rd Street, St Paul, MN	???, ???
172 East 5th Street, St Paul, MN	44.9481896315789, -93.0889941052632
56 East 3rd Street, St Paul, MN	???, ???
172 East 5th Street, St Paul, MN	44.9481896315789, -93.0889941052632
316 Robert Street, St Paul, MN	???, ???
66 East 3rd Street, St Paul, MN	???, ???
172 East 5th Street, St Paul, MN	44.9481896315789, -93.0889941052632
128 East 3rd Street, St Paul, MN	???, ???
95 East 4th Street, St Paul, MN	44.9463173684211, -93.0908490526316
66 East 3rd Street, St Paul, MN	???, ???
172 East 5th Street, St Paul, MN	44.9481896315789, -93.0889941052632
128 East 3rd Street, St Paul, MN	???, ???
95 East 4th Street, St Paul, MN	44.9463173684211, -93.0908490526316
134 East 3rd Street, St Paul, MN	???, ???
386 Minnesota Street, St Paul, MN	44.95304, -93.0980839
128 East 3rd Street, St Paul, MN	???, ???
87 East 4th Street, St Paul, MN	44.9462211578947, -93.0910507368421
134 East 3rd Street, St Paul, MN	???, ???
386 Minnesota Street, St Paul, MN	44.95304, -93.0980839

PITFALL – APPROXIMATELY TWO THIRDS OF THE ADDRESS COORDINATE  
GEOMETRY WAS CREATED.  
NULL VALUES DUE TO STREET RENAMES OR VACATED STREETS OR  
GEOCODER BASE MAP DATE

# FOURTH PROCESS; COORDINATE GEOMETRY WAS COPIED FROM GEOCODE RESULTS AND PASTED INTO A NEW SPREADSHEET WITH BIKE SHOP ADDRESS LISTINGS

1800sStPaulBikeShopsGeoCode01312017.xls - OpenOffice Calc

Find

Arial 12 B I U

A1 YEAR

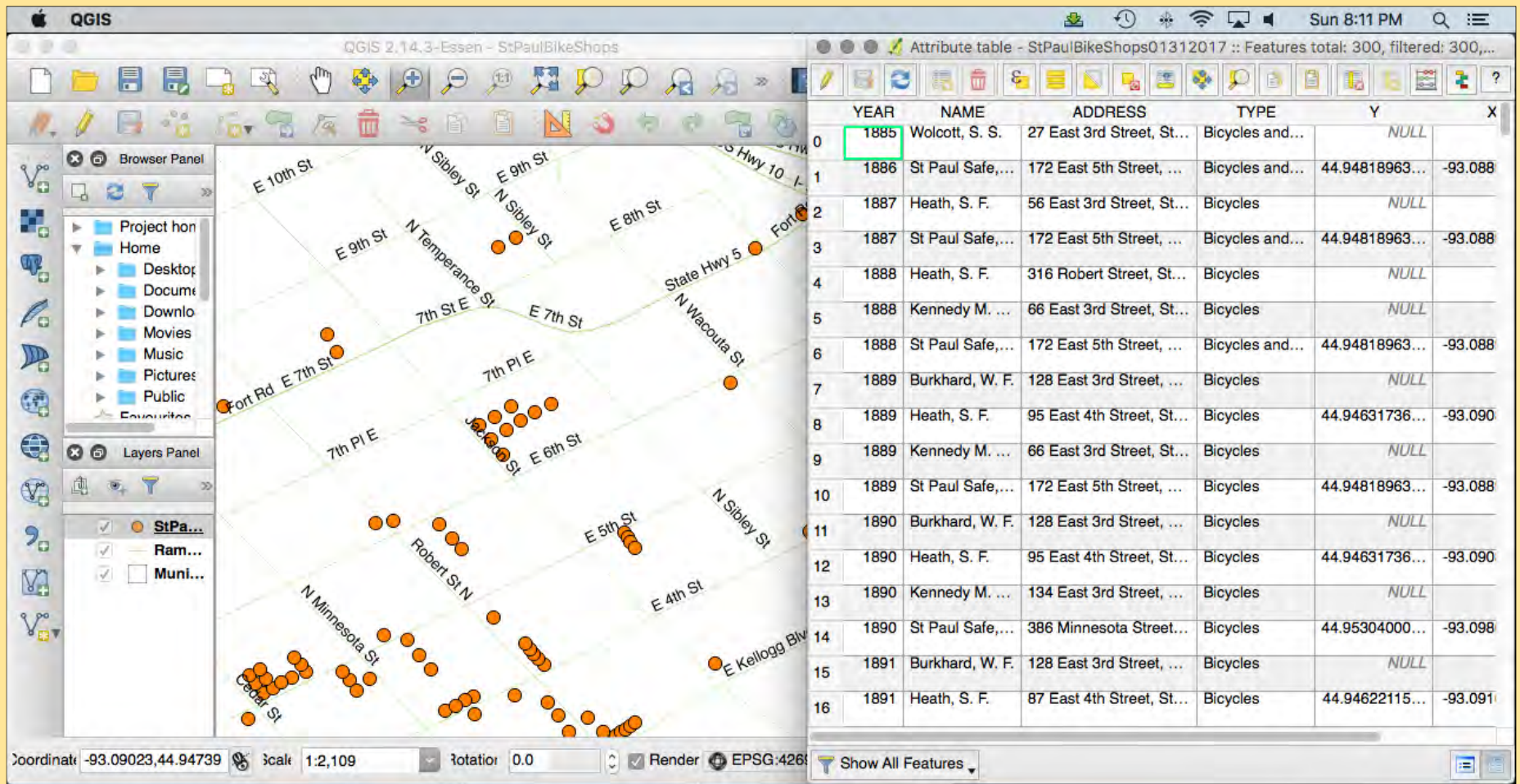
1	A	B	C	D	E	F	G	H	I	J	K
2	YEAR	NAME	ADDRESS	TYPE	Y	X					
3	1885	Volcott, S. S.	27 East 3rd Street, St Paul, MN	Bicycles and Tricycles Agent							
4	1886	St Paul Safe, Lock and Bicycle Shop	172 East 5th Street, St Paul, MN	Bicycles and Repairing	44.9481896316	-93.0889941053					
5	1887	Heath, S. F.	56 East 3rd Street, St Paul, MN	Bicycles							
6	1887	St Paul Safe, Lock and Bicycle Shop	172 East 5th Street, St Paul, MN	Bicycles and Repairing	44.9481896316	-93.0889941053					
7	1888	Heath, S. F.	316 Robert Street, St Paul, MN	Bicycles							
8	1888	Kennedy M. F. and Brothers	66 East 3rd Street, St Paul, MN	Bicycles							
9	1888	St Paul Safe, Lock and Bicycle Shop	172 East 5th Street, St Paul, MN	Bicycles and Repairing	44.9481896316	-93.0889941053					
10	1889	Burkhard, W. F.	128 East 3rd Street, St Paul, MN	Bicycles							
11	1889	Heath, S. F.	95 East 4th Street, St Paul, MN	Bicycles	44.9463173684	-93.0908490526					
12	1889	Kennedy M. F. and Brothers	66 East 3rd Street, St Paul, MN	Bicycles							
13	1889	St Paul Safe, Lock and Bicycle Shop	172 East 5th Street, St Paul, MN	Bicycles	44.9481896316	-93.0889941053					
14	1890	Burkhard, W. F.	128 East 3rd Street, St Paul, MN	Bicycles							
15	1890	Heath, S. F.	95 East 4th Street, St Paul, MN	Bicycles	44.9463173684	-93.0908490526					
16	1890	Kennedy M. F. and Brothers	134 East 3rd Street, St Paul, MN	Bicycles							
17	1890	St Paul Safe, Lock and Bicycle Shop	386 Minnesota Street, St Paul, MN	Bicycles	44.95304	-93.0980839					
18	1891	Burkhard, W. F.	128 East 3rd Street, St Paul, MN	Bicycles							
19	1891	Heath, S. F.	87 East 4th Street, St Paul, MN	Bicycles	44.9462211579	-93.0910507368					
20	1891	Kennedy M. F. and Brothers	134 East 3rd Street, St Paul, MN	Bicycles							
21	1891	St Paul Safe, Lock and Bicycle Shop	386 Minnesota Street, St Paul, MN	Bicycles	44.95304	-93.0980839					
22	1891	St. Paul Hardware Company	78 East 7th Street, St Paul, MN	Bicycles	44.966686	-93.0077899					
23	1893	Burkhard, W. F.	128 East 3rd Street, St Paul, MN	Bicycles							
24	1893	Burkhard, W. F.	320 Robert Street, St Paul, MN	Bicycles							
25	1893	Farwell, Ozmun, Kirk and Company	213 East 3rd Street, St Paul, MN	Bicycles							
26	1893	Hackett, O. W. Hardware Company	268 East 4th Street, St Paul, MN	Bicycles	44.9487814737	-93.0854221579					
27	1893	Kennedy M. F. and Brothers	134 East 3rd Street, St Paul, MN	Bicycles							
28	1893	Northwestern Hardware Company	417 Wabasha Street, St Paul, MN	Bicycles							
29	1893	Olmsted The F. J. Cycle Company	114 East 4th Street, St Paul, MN	Bicycles	44.9463968421	-93.0902662632					
30	1893	Smith, F. M. and Brothers	380 St Peter Street, St Paul, MN	Bicycles	44.9456105882	-93.0959133529					
31	1893	St Paul Cycle Company	11 East 3rd Street, St Paul, MN	Bicycles							
32	1894	Burkhard, W. F.	128 East 3rd Street, St Paul, MN	Bicycles							
33	1894	Farwell, Ozmun, Kirk and Company	213 East 3rd Street, St Paul, MN	Bicycles							
34	1894	Hackett, O. W. Hardware Company	268 East 4th Street, St Paul, MN	Bicycles	44.9487814737	-93.0854221579					

Sheet1

Sheet 1 / 1 PageStyle\_Sheet1 STD Sum=0 100 %



## FIFTH PROCESS; A COMMA SEPARATED VALUE SPREAD SHEET WAS CREATED AND IMPORTED INTO QGIS TO CREATE POINT GEOMETRY



NULL VALUES WERE MANUALLY PLACED  
IN QGIS TO CREATE POINT GEOMETRY

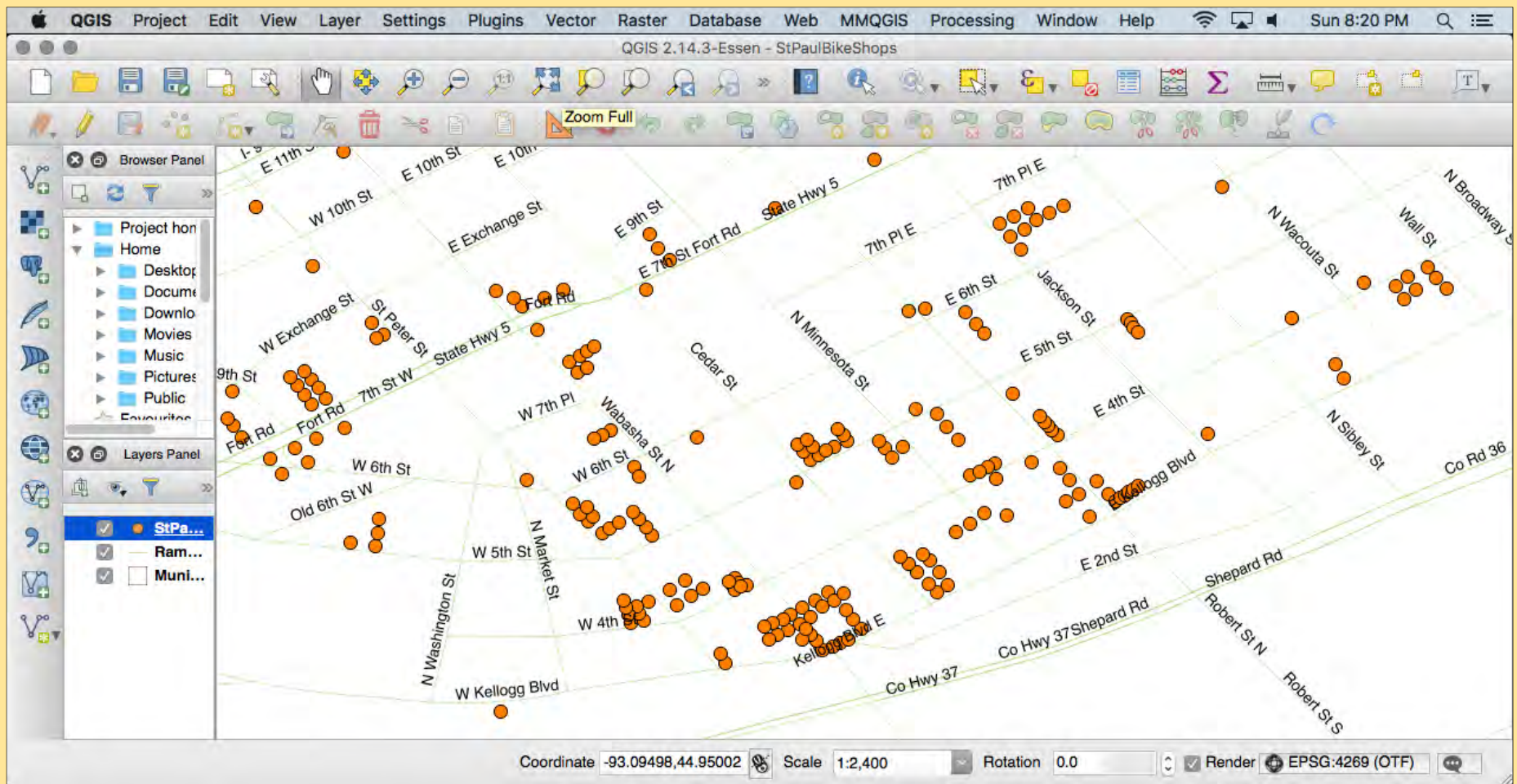


## SIXTH PROCESS; USE GOOGLE STREET VIEW TO VERIFY LOCATIONS OF BIKE SHOP ADDRESSES



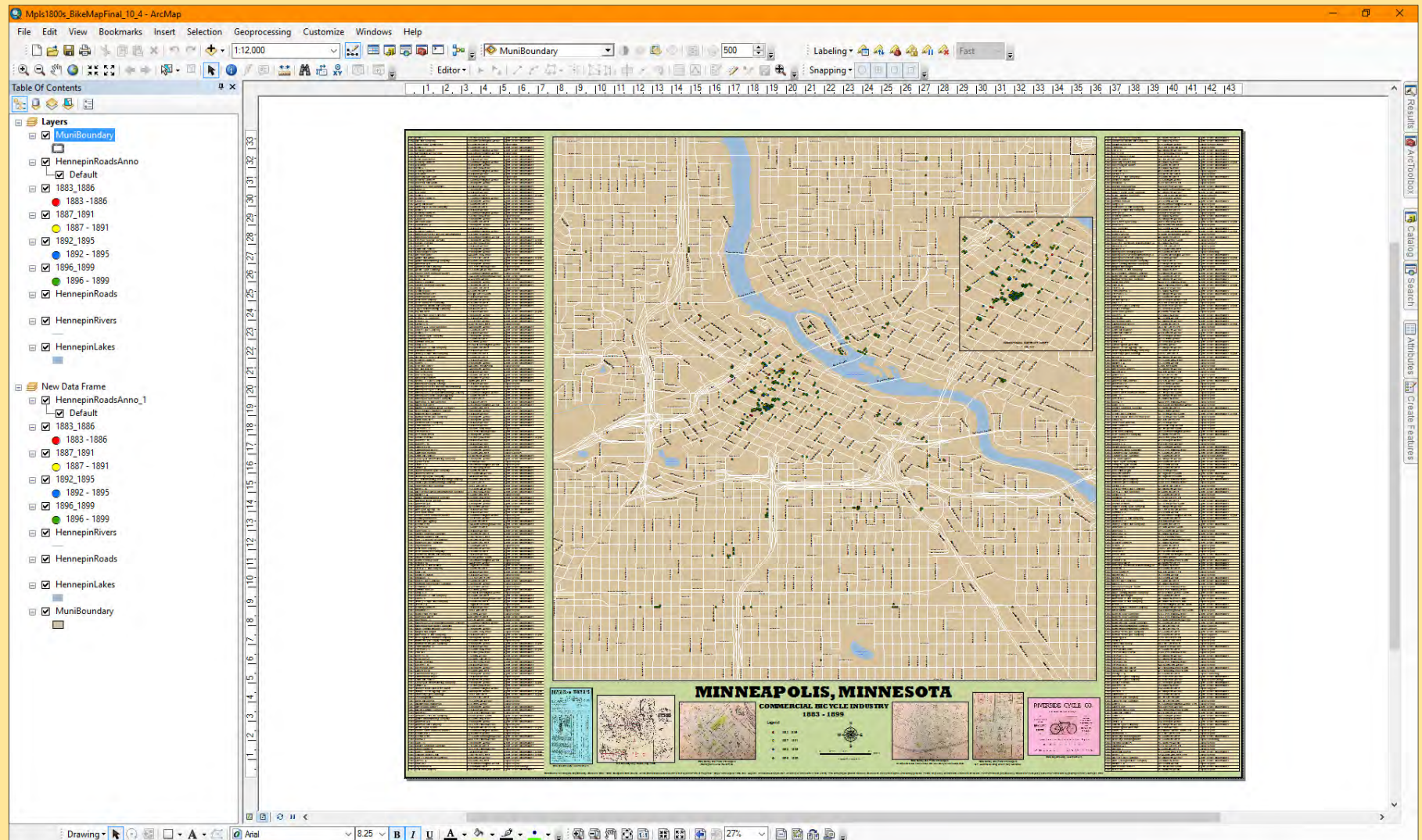
SUMMIT HILL NEIGHBORHOOD, SELBY AVENUE AND WESTERN AVENUE NORTH, ST. PAUL, MINNESOTA

SEVENTH PROCESS; USING QGIS, POINT GEOMETRY WAS MOVED AT LAYOUT SCALE TO CREATE CARTOGRAPHIC ACCEPTANCE





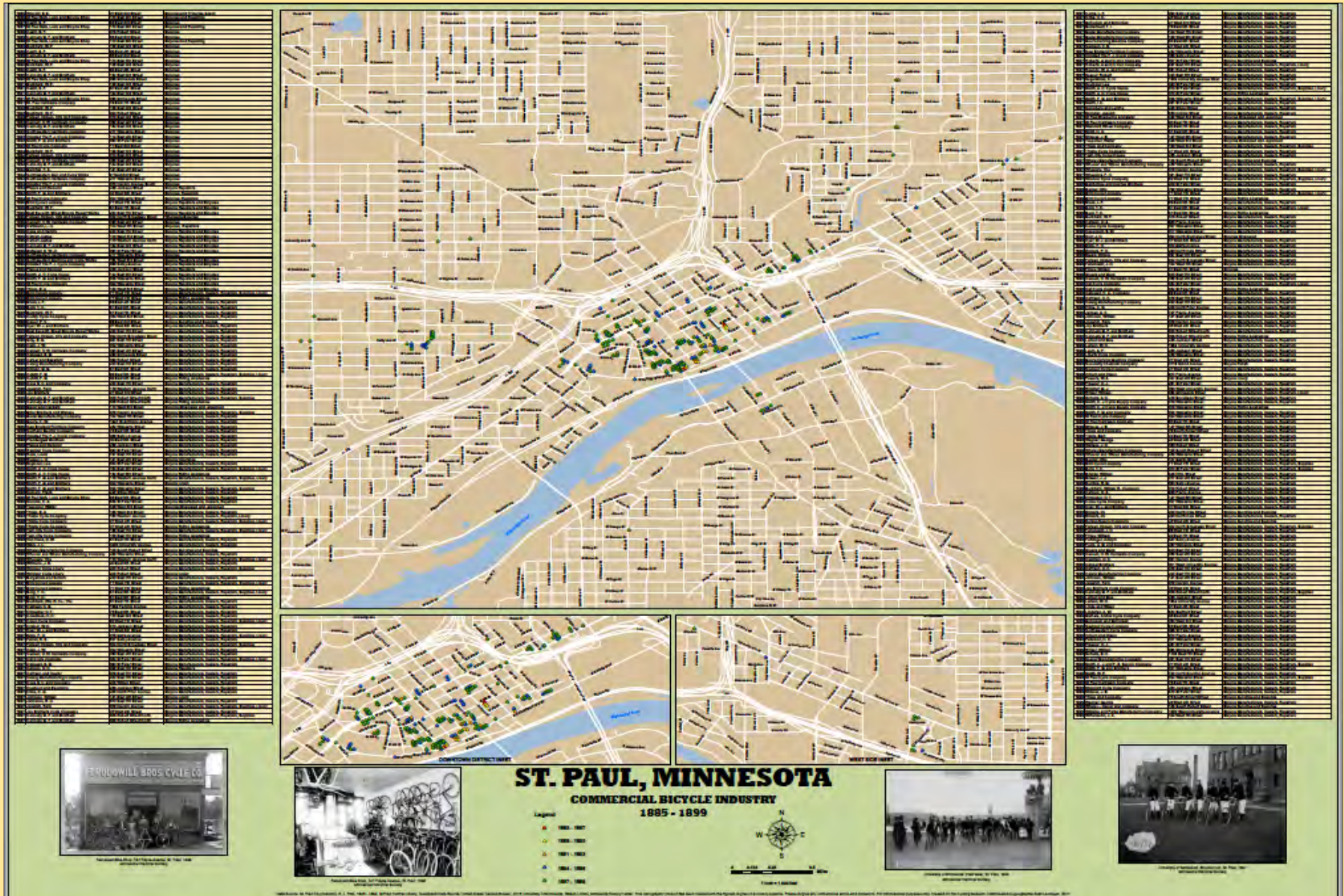
## EIGHTH PROCESS; EXPORT QGIS DATA INTO SHAPE FILE FORMAT TO PERFORM CARTOGRAPHY IN ARCGIS



ARCGIS WAS USED FOR LAYOUT RATHER THAN QGIS DUE TO AUTHOR'S EFFICIENCY

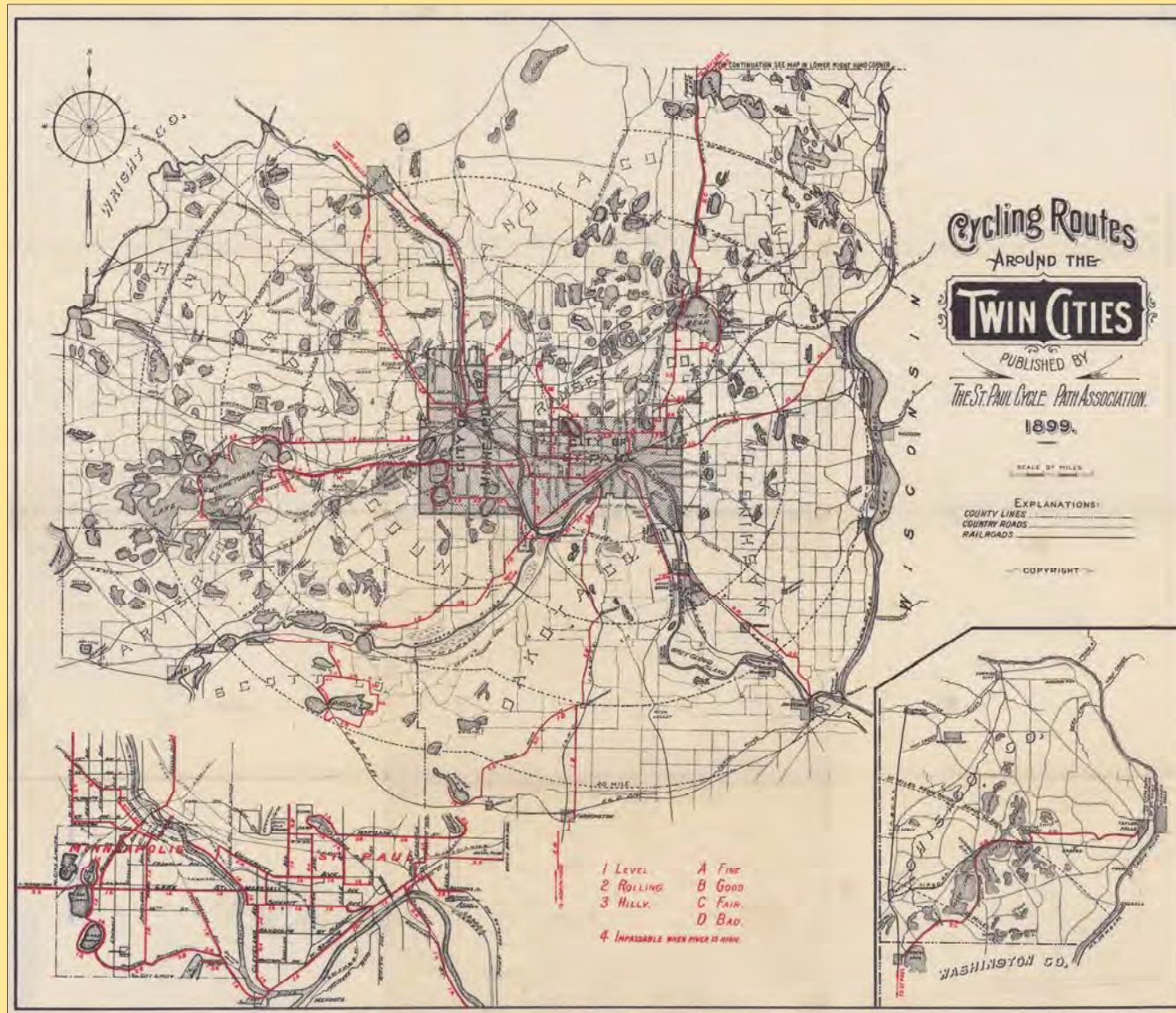


# NINTH PROCESS; EXPORT LAYOUTS INTO PDF FORMAT FOR PRINTING





# 1899 TWIN CITIES BICYCLE ROUTE MAP



PURCHASED FROM THE MINNESOTA HISTORY CENTER



WASHINGTON AVENUE ROLLER RINK,  
SITE OF 'SIX DAY RACES' IN THE LATE 1800'S



MAP FROM THE 1885 SURVEY AND PLATS OF PROPERTIES, MINNEAPOLIS, MINNESOTA, G. M. HOPKINS  
MINNESOTA HISTORY CENTER, GALE LIBRARY



# BICYCLE SHOP ADVERTISEMENT IN 1883-1884 MINNEAPOLIS CITY DIRECTORY

## BICYCLES and TRICYCLES.

S. F. HEATH,

228 Hennepin Av. Minneapolis, Minn

BICYCLES-- SOLE AGENT FOR --TRICYCLES.

"Harvard Special" Roadster.

"British Challenge" Roadster.

"Yale" Roadster and Racer.

"American Rudge" Roadster.

"Shadow Light" Roadster.

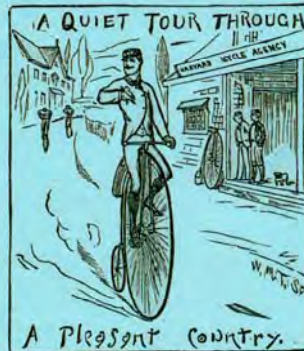
"Harvard."

"Apollo."

"Coventry Convertible."

"Victor."

Price List of any of these Machines sent on  
Receipt of 3 cent stamp.



A Pleasant Country.  
Is, after all, the most perfectly delightful of the many enjoyments which only the hardy cyclist can realize. Fortunate, indeed, is he, who, secure in the possession of his sturdy "Harvard," or speedy "Yale," or symmetrical "Shadow," rises with the lark, straps on his "Mulsom" or his "Takeabout," and leaving the city to its awakening toil and turmoil, glides swiftly out into the purer air and more healthful life beyond. The winding lanes, the sleepy villages, the broad stretches of open country, all develop hitherto unsuspected beauties under the health-giving exercises of the wheel. Are you content with reading this, or will you realize it practically? If the latter, be careful in choosing your bicycle, that you are content with nothing less than the very best that money can procure. You may feel assured that it will prove the truest economy in the end. Find out all you can about bicycles before you make your choice, and if you will send us a three-cent stamp, we will aid you in your search for information, by sending you our large illustrated catalogue by return mail.

THE CUNNINGHAM COMPANY,  
The Pioneer Bicycle House of America.  
[Established 1877.]  
Importing Manufacturers of Bicycles & Tricycles,  
ODD FELLOWS' HALL, BOSTON, MASS.

These Machines are Staunch, Reliable, Easy Running, up to any amount of Rough Work.

A small stock of standard sized kept constantly in stock, both new and second hand.

Machines put down anywhere in North-West at list price.

TERMS: 30 per cent cash, balance C. O. D.

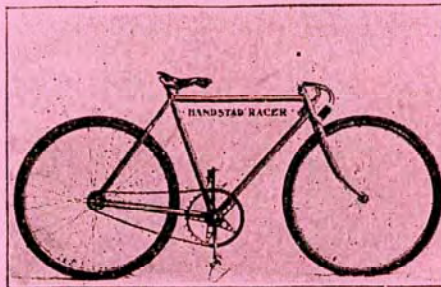
Subscribe for "The Wheelman," 80 page illustrated magazine, \$2.00 per year; 20 cents per number. Guide to Bicycling, post-paid, 85c. "Indispensable" Bicyclist's Hand Book, post-paid 55 cents.

BICYCLE SHOP ADVERTISEMENT IN 1898  
MINNEAPOLIS CITY DIRECTORY

**RIVERSIDE CYCLE CO.**

**J. O. HANDSTAD, Manager.**

MANUFACTURERS  
OF THE  
**HANDSTAD  
RACER.**



WE MAKE  
A SPECIALTY OF  
**REMODELING  
AND  
REPAIRING  
WHEELS.**

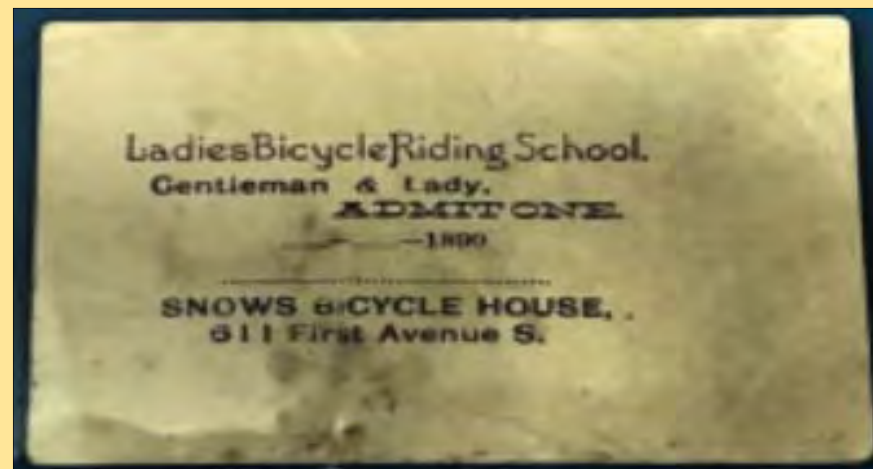
We keep in stock a full line of Sundries at reasonable prices.

Remember we GUARANTEE ALL our work.

1928 Riverside Avenue,

MINNEAPOLIS, MINN.

## SNOW'S BICYCLE HOUSE RIDING SCHOOL TICKET, 1890's



PICTURES COURTESY OF JUSTON ANDERSON, CMM



## BICYCLE RACE, ZUMBROTA, MINNESOTA 1893



PHOTO FROM ZUMBROTA HISTORICAL SOCIETY



# MINNEAPOLIS MAP DONATION KATE AND NINA, CMM



DECEMBER 2016



# ST. PAUL MAP DONATION KATE, CMM



FEBRUARY 2017

CYCLING MUSEUM OF MINNESOTA  
EXHIBIT AT HENNEPIN HISTORY CENTER



THANK YOU. QUESTIONS. [alan.laumeyer@gmail.com](mailto:alan.laumeyer@gmail.com)



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Welcome to the

# CYCLING MUSEUM OF MINNESOTA

[LEARN MORE](#)

## **Mission Statement and Vision**

The Cycling Museum of Minnesota celebrates how cycling has shaped our culture and communities and provides us with tools to transform the future. Through the work of the Cycling Museum of Minnesota, our community will better understand the foundational and central role of cycling and cyclists in our past, present, and future development.

## **Purpose and Activities**

The Cycling Museum of Minnesota's purpose is to be a physical presence for the rich and varied history of cycling in Minnesota and beyond. CMM acquires and maintains collections to support programs including exhibitions, school and public programs, research, advocacy and more. The Cycling Museum of Minnesota is committed to developing strategic partnerships and participating in collaborative opportunities with organizations whose missions are similarly aligned.