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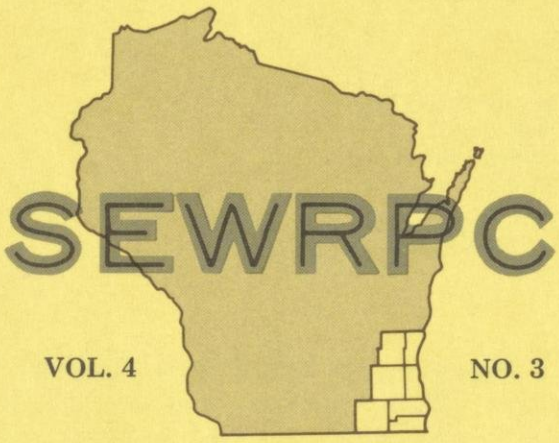
TECHNICAL RECORD



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TECHNICAL RECORD

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Inside Region $1.00
Outside Region $2.00

PRESERVATION OF SCIENTIFICALLY AND HISTORICALLY IMPORTANT GEOLOGIC SITES IN MILWAUKEE COUNTY, WISCONSIN

by Donald G. Mikulic, Staff Geologist, Illinois State Geological Survey; and
Joanne Kluessendorf, Geologic Research Assistant, Illinois State Geological Survey, Champaign, Illinois

INTRODUCTION

Because of a thick covering of glacial deposits, southeastern Wisconsin has few bedrock exposures, either natural or artificial, available for scientific investigation or recreation purposes. Most of the exposures that were formerly available have been destroyed. For example, more than 20 stone quarries have been worked in Milwaukee County, but only two—adjacent quarries in Franklin—remain in operation, and most of the others have been completely covered. Most of the natural exposures are not very extensive, and many of these have also been covered. There has been little, or no, effort in the past to preserve any of these bedrock exposures, whether natural or artificial, even though many were located in public parks. This has been due primarily to lack of appreciation of the value of such rock exposures.

The value of these exposures is demonstrated by the many different usages possible, both actual and potential. Of particular importance is their historic value, from both a scientific and industrial standpoint. The geology of southeastern Wisconsin has been studied by some of the most important nineteenth and twentieth century geologists of the United States. Such individuals as T. C. Chamberlin, A. W. Grabau, James Hall, Increase A. Lapham, James Percival, and R. R. Shrock have examined the bedrock exposures of the area.[1] These exposures have provided significant evidence of value to the understanding of local and regional geology, and to establishing some new geologic concepts such as the presence of fossil reefs. On a local scale it is impossible to study the bedrock geology when there are few, or no, exposures available. This presents problems when new geologic concepts are proposed, since it is important for concerned scientists to be able to reexamine exposures at such times, no matter how thoroughly such exposures may have been studied in the past. Engineering projects, such as current geologic studies for deep tunnel sewer facilities in Milwaukee County, may also involve the utilization of these exposures. In fact, the scarcity of outcrops available for examination has posed a costly problem in that project.

The industrial history of the Region is also related to these rock exposures. Some of the earliest business ventures in Milwaukee County were quarries. These quarries provided commodities, such as dimensional building stone, crushed stone, lime, and natural cement, which were necessary for the development of the Region. Before the use of Portland cement and materials such as cast Portland cement concrete blocks, the functions of these materials were performed by lime and natural stone. Because of the difficulty and expense of transportation, most building materials had to be obtained locally. The importance of these businesses to the development of the Region is often forgotten, but should not be underestimated. For example, the Milwaukee Cement Company, which operated quarries along the Milwaukee River in and around Estabrook Park, was one of Milwaukee's largest manufacturers during the late 1800's. Little historic research has ever been done on the Milwaukee Cement Company or lime and stone quarries of the area, although a research project is currently in progress. Unfortunately, no effort has been made to preserve the vestiges of this once-important industry, even though many sites are located on public lands.

Rock exposures may also play an important role in education. Field trips are an important teaching aid in elementary school, high school, and university science and geology classes. The location of rock exposures near an urban area makes such learning devices available to a large number of students. These rock exposures also provide research material for university-level thesis projects.

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[1] *D. G. Mikulic and J. Mikulic, "History of Geologic Work in the Silurian and Devonian of Southeastern Wisconsin," in* Geology of Southeastern Wisconsin, *ed. K. G. Nelson, 41st Annual Tri-State Field Conference Guidebook, 1977, pp. A1-A5.*

The recreational value of geologic features is significant, but seldom considered. Amateur geology clubs such as the Wisconsin Geological Society utilize the outcrops in Milwaukee County in the pursuit of their activities, and the disappearance of many sites in the area over the last 20 years has probably been a key factor in the decline in membership experienced by this club. In parks, the aesthetic qualities of many of these exposures, whether natural or artificial, are not always adequately appreciated. People travel hundreds of miles to view bedrock exposures in the canyons of western North America. While Milwaukee's "canyons" are on a much smaller scale, the rock exposures give a pleasing, more natural appearance to otherwise less attractive parklands.

The following is a report of important geologic sites in Milwaukee County that should be preserved for historic and scientific purposes. The nine bedrock sites are identified on Map 1. All are bedrock exposures; the important glacial features of Milwaukee County are not considered in this inventory. Most of the sites are immediately threatened by various construction projects, and thus efforts to preserve them must be taken now before the sites are covered or access to them is otherwise lost. Unfortunately, these few sites are nearly all that are known to remain in the County, and are therefore of great importance. It should be possible to readily protect and preserve these sites at relatively little cost for their scientific and historic value.

LINCOLN CREEK EXPOSURES

At Site 1 on Map 1, bedrock is exposed along Lincoln Creek from approximately N. 39th Street to W. Glendale Avenue in the City of Milwaukee in U. S. Public Land Survey Section 1, Township 7 North, Range 21 East (see Map 2). The east bank of the creek from N. 35th Street north to W. Glendale Avenue runs along a nearly continuous exposure, which attains a maximum height of approximately five feet near N. 35th Street (see Figure 1).

The rock exposed here is the Upper Silurian Waubakee[2] Dolomite, which underlies most of the eastern half of Milwaukee County from Wisconsin Avenue north. This is the only exposure of the Waubakee Dolomite in the County, however, and the most important in eastern Wisconsin. The outcrops west of the unincorporated village of Waubeka in Ozaukee County have been almost completely covered for 50 years.

Geologic Importance

Besides being the only exposure of this rock unit in Milwaukee County, this exposure is the only accessible exposure of this type in eastern Wisconsin. It serves, therefore, as an unofficial "type section" for the Waubakee Dolomite. It is important to preserve these beds in a condition readily available for future geologic study.

Historic Importance

The historic importance of this outcrop relates to both the history of geologic work in Milwaukee County and the industrial history of the County. This outcrop was first mentioned in 1851 in geologic literature and has been discussed or described in every study of the bedrock geology of the area published since. It has been examined and described by such eminent geologists as W. C. Alden, T. C. Chamberlin, James Hall, Increase A. Lapham, G. O. Raasch, R. R. Shrock, and others more recently. It has been of prime importance in understanding the bedrock geology in eastern Wisconsin.

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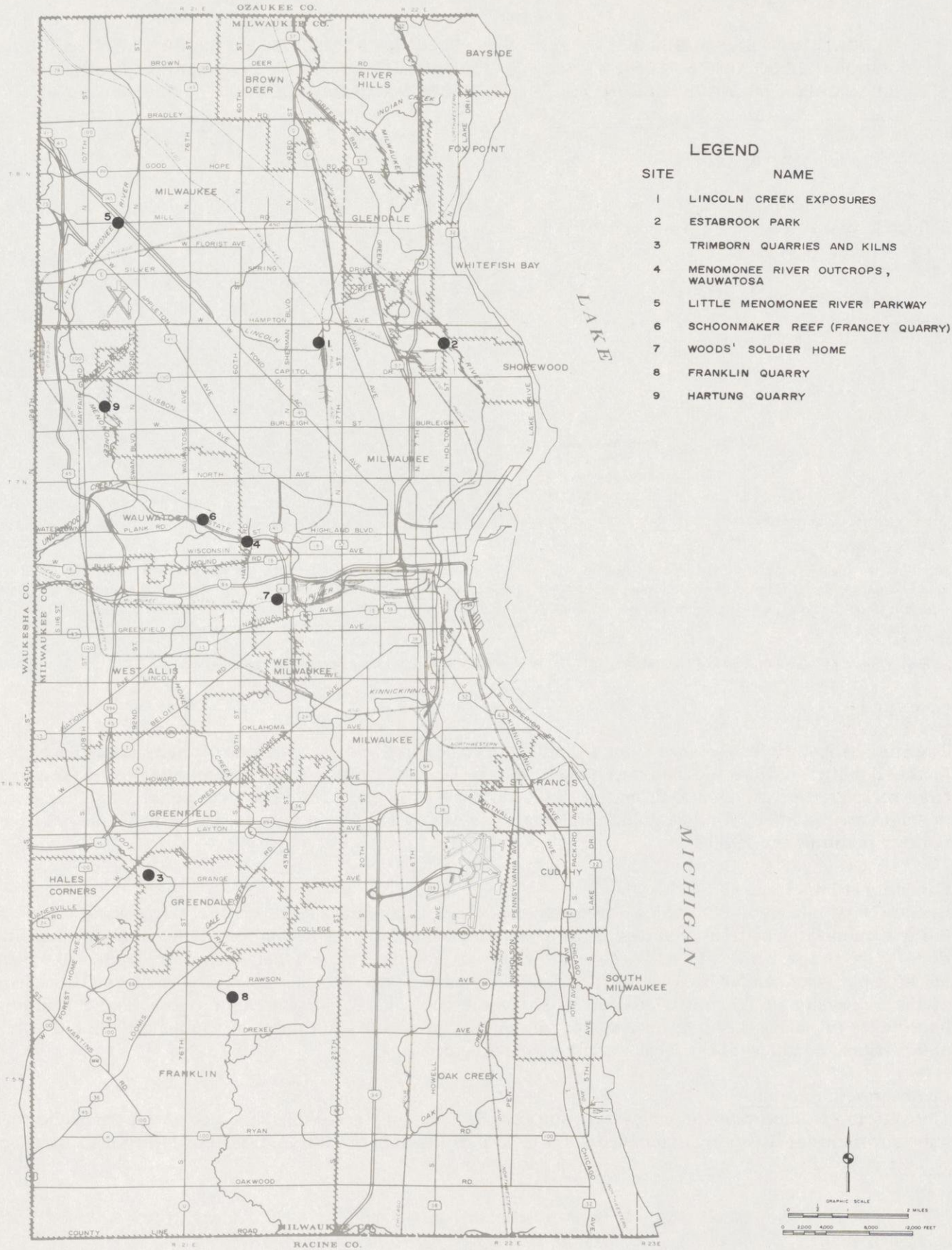
[2] *The initial publication of the name of this formation used this spelling, and thus established the name and spelling which are considered technically correct for this formation. The unincorporated village of Waubeka currently uses a different but similar spelling and pronunciation.*

Map 1

LOCATION OF IMPORTANT GEOLOGIC SITES IN MILWAUKEE COUNTY



LEGEND

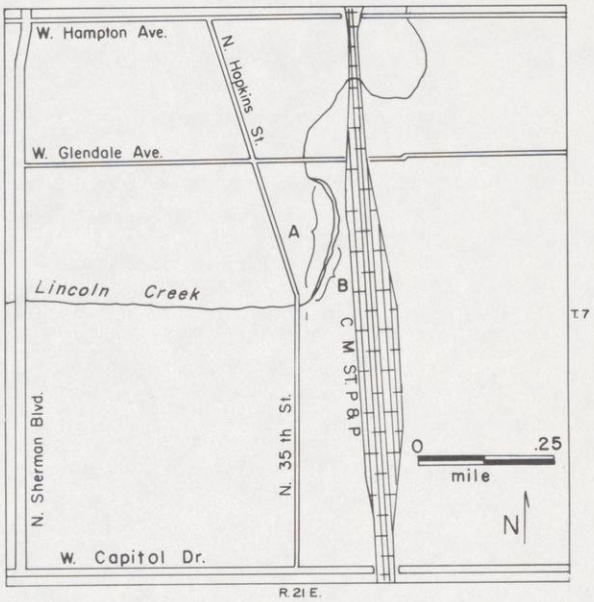
SITE	NAME
1	LINCOLN CREEK EXPOSURES
2	ESTABROOK PARK
3	TRIMBORN QUARRIES AND KILNS
4	MENOMONEE RIVER OUTCROPS, WAUWATOSA
5	LITTLE MENOMONEE RIVER PARKWAY
6	SCHOONMAKER REEF (FRANCEY QUARRY)
7	WOODS' SOLDIER HOME
8	FRANKLIN QUARRY
9	HARTUNG QUARRY

Shown on this map are nine of the most important geologic sites remaining in Milwaukee County. All of these sites are bedrock exposures, and most are currently threatened by construction projects. Because these sites are about all that remain of such geologic sites in Milwaukee County, the rock exposures should be preserved for their scientific, historic, and recreational value.

Source: Donald Mikulic and Joanne Kluessendorf.

Map 2

LOCATION OF EXPOSURES OF WAUBAKEE DOLOMITE ALONG LINCOLN CREEK, MILWAUKEE COUNTY



Site A is the main exposure along Lincoln Creek in Milwaukee County. Site B is the thickest and most important exposure along the creek, which is limited to the east bank of the creek.

Source: Donald Mikulic and Joanne Kluessendorf.

Figure 1

THE MOST IMPORTANT EXPOSURE OF WAUBAKEE DOLOMITE ALONG THE EAST BANK OF LINCOLN CREEK, MILWAUKEE COUNTY: DECEMBER 1980

This photograph, Site B on Map 2, looks southeast at the only Waubakee Dolomite exposure in Milwaukee County. Because it is also the only accessible exposure of Waubakee Dolomite in eastern Wisconsin, it serves as an unofficial type section for the Waubakee Dolomite.

Photo by Donald Mikulic and Joanne Kluessendorf.

The site has historic importance from an industrial standpoint in that it was one of the earliest quarry sites in the County. In 1858 the land was owned by a G. Groose, who operated several kilns for making lime from rock quarried at this site. From the 1870's until the early part of this century, a quarry and kilns were operated at this site by Emil Petzold.[3] Building stone was quarried from here to line parts of Lincoln Creek in the area during the 1930's.

Educational Importance

Besides being important for geologic research, this site is important for educational purposes. It is one of the few publicly owned, easily accessible bedrock outcrops in Milwaukee County. Many educational institutions, such as the University of Wisconsin-Milwaukee and area high schools, need outcrops like these for teaching purposes. As far back as the 1930's, field trips were made to this site by the Geology Department of the University of Wisconsin-Madison to study the geologic features of this outcrop. The educational importance of having this outcrop available for amateur geologists and the general public also should not be underestimated in view of the local scarcity of such features.

Engineering Importance

This outcrop is important for engineering purposes. It is the only accessible exposure of this particular rock unit in Wisconsin. It is fairly extensive, and is typical of the unit as a whole. It is known through subsurface

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[3] *D. G. Mikulic, The paleoecology of Silurian trilobites with a section on the Silurian stratigraphy of southeastern Wisconsin, Ph.D. thesis, Oregon State University, Corvallis, 1979, p. 864.*

records that the Waubakee Dolomite is up to 90 feet thick in Milwaukee County, covering an extensive area of the northeastern part of the County, and forms the bedrock surface in many areas beneath the Quaternary sediments. Therefore, this outcrop is particularly important for engineering studies of sewer tunneling and building foundation construction. During the conduct of the recent geologic studies for the proposed deep tunnel conveyance and storage, separate and combined sewer overflow abatement program in Milwaukee County, the outcrop was visited to obtain information on local geology that was not available elsewhere. Although this outcrop has been extensively examined, it is not possible to anticipate all future geologic or engineering questions, and the outcrop should, therefore, be maintained in a readily available condition.

Potential Threats

Although this exposure is on public land as part of the Lincoln Creek Parkway of Milwaukee County, it is in danger of being destroyed. Plans for flood control along Lincoln Creek are currently being drawn up by the Milwaukee Metropolitan Sewerage District. It is possible that the entire segment of the creek in the vicinity of these outcrops will be widened, deepened, and lined with concrete. The exposures west of N. 35th Street are low and discontinuous, and have little scientific value. Most of the creek segment west of N. 35th Street is already channelized. The most important segment of the creek with respect to preservation of this outcrop is the east bank from approximately W. Congress Street north to about W. Ruby Avenue (see Site B on Map 2). This is the highest continuous section of the outcrop and the most valuable. There would be no objection to deepening the creek here or to any construction on the west side. There would also be little objection to excavations on the east side of the creek if a comparable exposure was permanently left after construction.

The area north of W. Ruby Avenue to W. Glendale Avenue also contains numerous outcrops, but of lesser importance. However, the overall aesthetic appeal of the relatively natural area from W. Congress Avenue north to W. Glendale Avenue (Site A on Map 2) should also be considered. Danger from flooding to the east should be minimized along this section because of the height of the creek banks and the presence to the west of parklands. Reportedly, the major reasons for lining the creek in this area would be to stabilize the banks and prevent erosion and to smooth out the creek bed to reduce resistance on streamflow. Observations over the last 15 years, however, indicate that the rock is relatively resistant to erosion, forming a fairly stable "wall" along the east side of the creek. It is possible that instability might be temporarily increased after excavation, but recent sewer tunneling projects on the northeast side of Milwaukee have shown the rock to be very stable on fresh exposure. The extremely flat, well-bedded characteristics of this rock unit could be used to form a very smooth bed for the creek; and the sides could readily be cut, providing a relatively smooth surface, and diminishing the necessity for covering the rock exposures with concrete.

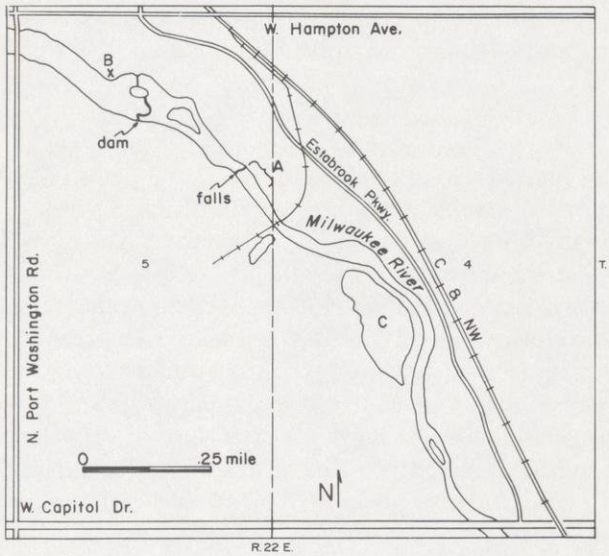
ESTABROOK PARK EXPOSURES

At Site 2 on Map 1, bedrock is intermittently exposed along the east bank of the Milwaukee River in Estabrook Park from the "falls" south to the old swimming beach, located about 500 feet south of the Chicago & North Western Railway bridge. The exposures here and those along the west side of the river constitute the "type section" of the Devonian Milwaukee Formation. (A type section is a rock exposure which can be used to describe a formation. It is a reference section for all future work on related exposures and is needed for comparative purposes. A major effort should be made to preserve all type sections.) Exposures were much more extensive when the rock was mined and quarried around the turn of the century. Almost all the exposures have since been covered, particularly those on the west bank.

The principal areas now in danger of being destroyed are the exposures of the upper shaley beds of the Lindwurm and Berthelet Members of the Milwaukee Formation. These extend from the "falls" south for a distance of about 200 feet (see Site A on Map 3, and Figure 2). A wooden boardwalk has been constructed over this outcrop as part of a park pathway. The supports for the boardwalk may have to be replaced, resulting in excavations in the already limited outcrop and possible covering of much of the exposure. The construction of the present boardwalk involved a significant excavation in these beds which has caused much erosion during periods of high water. This outcrop is further threatened by over-collection by amateur geologists and school groups and, more importantly, by mineral collectors who excavate large amounts of rock.

Map 3

THE IMPORTANT DEVONIAN ROCK SITE ALONG THE MILWAUKEE RIVER IN THE VICINITY OF ESTABROOK PARK, MILWAUKEE

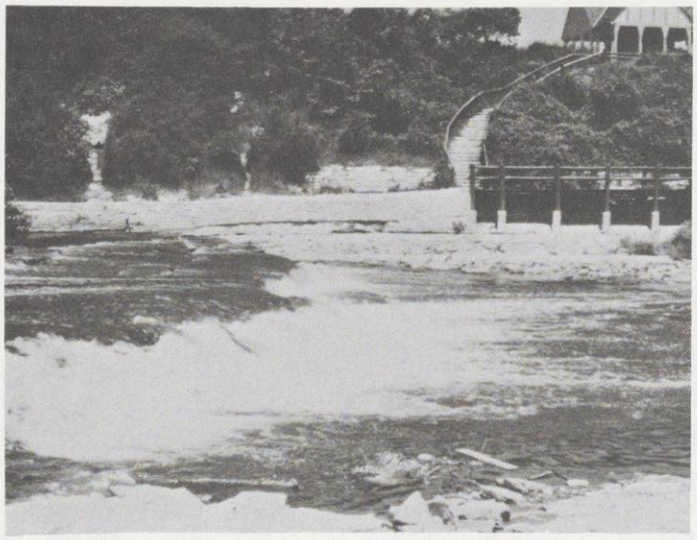


Site A is the main outcrop area on the east bank of the river, at the falls over an old quarry wall. Exposures of the Lindwurm and Berthelet Members of the Milwaukee Formation are present. Site B is a unique exposure of upper Thiensville Formation beds showing a number of large fossil algal stromatolite structures. This site is exposed only when the dam is opened during the winter. Site C is the "Blue Hole" which was the main quarry for Mill No. 2 of the Milwaukee Cement Company. It has been completely filled and is now used as a parking lot.

Source: Donald Mikulic and Joanne Kluessendorf.

Figure 2

THE "FALLS" IN THE MILWAUKEE RIVER IN ESTABROOK PARK, MILWAUKEE



The "falls" in the Milwaukee River at Estabrook Park were created during quarrying operations of the Milwaukee Cement Company. The river was diverted from its natural course to one a short distance east, running through the northern extension of the quarry at Mill No. 1 of the company. This opened up a more extensive area of bedrock for quarrying, including the "Blue Hole" (Site C on Map 3). On the right can be seen the northern one-third of the boardwalk constructed over the upper shaley beds of the Lindwurm and Berthelet Members of the Milwaukee Formation. The contact between the Lindwurm and Berthelet Members of the Milwaukee Formation is approximately at the level of the base of the pillars supporting the boardwalk. The best and most extensive exposure of the Lindwurm Member is located in the shadowed area beneath the boardwalk and continues south to the end of the boardwalk.

Photo by Donald Mikulic and Joanne Kluessendorf.

Geologic Importance

As already noted, the Estabrook Park outcrops constitute the type section of the Milwaukee Formation. The subject section is the most complete and accessible exposure of the beds concerned in eastern Wisconsin. The lower part of the Lindwurm Member and upper part of the Berthelet Member are both exposed in the outcrop at the "falls." Since this formation underlies much of the eastern half of Milwaukee County north of the Menomonee River, it is important that these rocks be accessible for examination for both academic and applied research purposes.

These outcrops are probably the most widely visited bedrock exposures in eastern Wisconsin. Professional geologists, school groups—from the elementary levels through the university level, and amateur geologists visit this exposure on a regular basis. It has been discussed in various theses and professional reports over the years and is a key exposure in current research projects.

Historic Importance

The bedrock exposures at this spot have been important to the geologic research of eastern Wisconsin since 1851. W. C. Alden, T. C. Chamberlin, Edward Daniels, Ira Edwards, James Hall, E. M. Kindle, Increase A. Lapham, G. O. Raasch, R. R. Shrock, E. O. Ulrich, and other important geologists have examined these

outcrops. Fossils and minerals from this site are found in museums throughout the United States. Several recent reports and theses have dealt with the geology and paleontology of this exposure.

The Milwaukee Formation rock was a major source of natural cement in the Midwest in the late nineteenth century. The Milwaukee Cement Company and a few smaller companies conducted extensive quarry and mining operations at this site from 1875 through 1907. As mentioned earlier, this was one of the larger industries in Milwaukee County at the time. An extensive series of kilns, mines, and quarries was once located on both sides of the river in the area south of the railroad bridge.

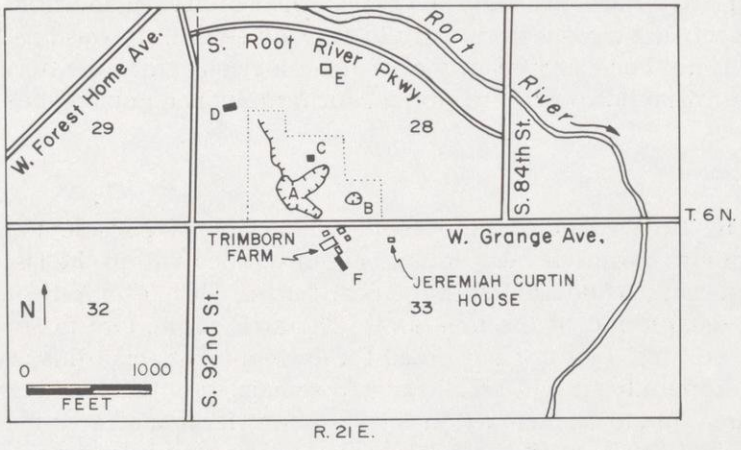
Another significant geologic exposure in Estabrook Park also warrants preservation, but is not currently threatened. On the east bank of the Milwaukee River about 100 feet west of the dam (Site B on Map 3), approximately five feet of the Devonian Thiensville Formation is exposed during the winter months when the dam is opened. This is the only exposure of the Thiensville Formation in Milwaukee County. Even more importantly, these rocks contain a number of small, well-preserved fossil algal domes. This is also the only exposure of this nature in southeastern Wisconsin. The contact between the Milwaukee Formation and Thiensville Formation is also exposed several hundred feet northwest of this outcrop. Fortunately, these outcrops appear to be safe, although under water much of the year.

TRIMBORN QUARRIES AND KILNS

At Site 3 on Map 1, a number of old stone pits are located in an undeveloped area on the south side of the Root River from approximately S. 92nd Street east to S. 84th Street (see Map 4). The site is bordered on the south by W. Grange Avenue and the Trimborn farm, and on the north by the Root River Parkway. The quarries consist of a number of small- and medium-sized pits, the largest of which is partially water filled (see Site A on Map 4) located just north of W. Grange Avenue. The rock is Racine Dolomite (Silurian), which contains a number of small reefs along with more extensive exposures of interreef rock. This is the most extensive and accessible bedrock exposure in Milwaukee County.

Map 4

TRIMBORN QUARRY AREA IN GREENDALE, MILWAUKEE COUNTY

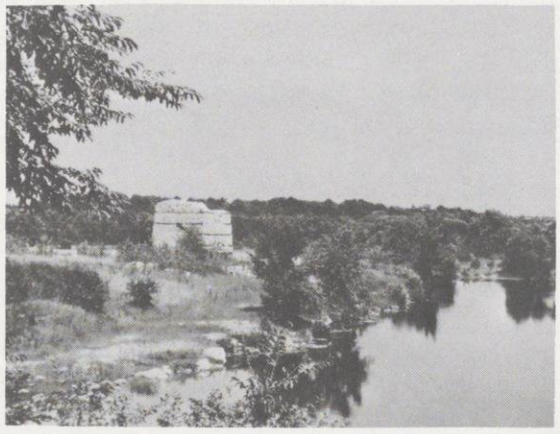


Site A is the main water-filled quarry; Site B is a small quarry; Sites C, D, and F are lime kilns; and Site E is the old Walsh house foundation. The critical area for preservation is outlined by the dotted line.

Source: D. G. Mikulic, The paleocology of Silurian trilobites with a section on the Silurian stratigraphy of southeastern Wisconsin, Ph. D. thesis, Oregon State University, Corvallis, 1979, p. 864.

Figure 3

TRIMBORN QUARRY SITE



This photograph looks east from the top of the west quarry wall at Site A on Map 4. The lime kiln illustrated here is Site C on Map 4. The principal bedrock exposure is found along the west wall of quarry A and extends north almost to the lime kiln at Site D on Map 4.

Photo by Donald Mikulic and Joanne Kluessendorf.

Geologic and Historic Importance

This site is very important from both a geologic and historic standpoint. Geologically, the site is important because of the accessibility and the extensive exposure of the Racine Dolomite. The site has never been thoroughly examined, but has been visited and briefly described by a number of important geologists dating back to T. Hale in 1860 and Increase A. Lapham in 1873. The site has also been visited by T. C. Chamberlin, G. O. Raasch, and R. R. Shrock, and it has served as an important locality in studies of reef development in the Racine Dolomite.[4]

The geologic importance of this site is overshadowed, however, by its historic significance. This site was extensively quarried in the mid- to late 1800's for the manufacture of lime. The quarries were operated primarily by the Trimborn family, whose unique farm buildings constructed of stone from these quarries still stand to the south of W. Grange Avenue. Trimborn's lime business was the largest in Milwaukee County for some time in the late nineteenth century. While many quarries operated in the County at that time, the Trimborn site is unique because it is the only site that has not been severely altered by later quarrying or urban expansion. In other words, it is an intact example of a nineteenth century quarry of southeastern Wisconsin. The only lime kilns remaining in Milwaukee County are also located at this site (see Map 4 and Figure 3). A large square kiln is found on the northeast side of the main quarry (see Site C on Map 4, and Figure 3), and a dilapidated hillside kiln is located on the south side of the Trimborn farm (see Site F on Map 4). A third large kiln that was still standing in the 1930's is located near the golf driving range (see Site D on Map 4); it has completely collapsed, although its access ramp is still intact. The foundation of the old Walsh house is present just east of the driving range (see Site E on Map 4). The owner of the house was probably the first person to operate a lime kiln in this area.

In summary, the site has historic importance because: 1) it was a major nineteenth century Milwaukee County industry; 2) it is the only undisturbed nineteenth century quarry site in Milwaukee County; and 3) it contains the only remaining lime kilns in Milwaukee County. The lime business was an important pioneer industry in this area, but one which seldom receives much attention in historic studies. Besides lime for mortar, building stone was also produced, as is beautifully exhibited by the Trimborn farm buildings. The rebuilding of Chicago after the "Great Fire" was greatly dependent on lime from southeastern Wisconsin quarries, including Trimborn's.

Educational Importance

Unique educational opportunities are presented by the nature of the exposures at this quarry site. The site is readily accessible and contains an extensive rock exposure, probably the best in the County. In addition, the site's historic aspect allows people to experience what a pioneer industry in Milwaukee County was like. The site also has much aesthetic value, since it has not been significantly altered ecologically since the turn of the century. After the quarries closed, the land was used to a limited extent for farming and grazing, but has essentially been left in a natural state.

Potential Threats

There are two significant threats to this site. The first threat is the potential expansion of a residential neighborhood. The area to the south of the Trimborn farm has been intensively developed within the last 10 years, and the area north of W. Grange Avenue may be developed in the near future. This development may result in the filling of the quarries and the destruction of the lime kilns. The area of the two major quarries and intact kiln—outlined by dotted line on Map 4—is not scheduled for development according to the present owner, Grootemaat Corporation, so hopefully, it will be allowed to remain essentially intact. This is the most important area of the site. This area should be included in the Trimborn farm and Jeremiah Curtin County historic sites that are being developed south of W. Grange Avenue. Other than kiln restoration, the site should be left as is. The kiln site (Site D on Map 4) should also be saved, if possible.

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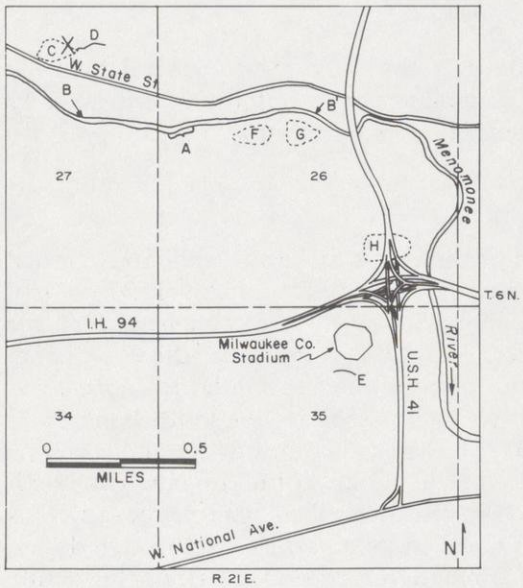
[4] *D. G. Mikulic, "A Preliminary Revision of the Silurian Stratigraphy of Southeastern Wisconsin," in Geology of Southeastern Wisconsin, ed. K. G. Nelson, 41st Annual Tri-State Field Conference Guidebook, 1977, pp. A6-A34; D. G. Mikulic. The paleoecology of Silurian trilobites with a section on the Silurian stratigraphy of southeastern Wisconsin, Ph.D. thesis, Oregon State University, Corvallis, 1979, p. 864.*

Map 5

BEDROCK EXPOSURES AND FORMER QUARRY SITES IN THE CENTRAL PART OF MILWAUKEE COUNTY



Site A is the main outcrop (Site 4 on Map 1) along the Menomonee River. Site B-B' represents the entire extent of exposures along the Menomonee River. Site C is the western half of the Schoonmaker Reef (Site 6 on Map 1), which is now covered. The only remaining outcrop is indicated by the X. Site D is the southward-facing bluff, which is the only remaining portion of nineteenth century quarrying operations at Site 6 on Map 1. Site E is the reef at Soldiers Home (Site 7 on Map 1). Sites F-H are all old, now-filled building stone quarries: Schweickhart (Monarch) Quarry (F), Manegold Quarry (G), and Story Quarry (H).

Source: Donald Mikulic and Joanne Kluessendorf.

Figure 4

INTERREEF OF RACINE DOLOMITE—SOUTH BANK OF THE MENOMONEE RIVER AT 60TH STREET: OCTOBER 1978

This photo illustrates the most important exposure of the series of outcrops exposed along the Menomonee River from N. 64th Street in Wauwatosa to N. 50th Street in Milwaukee. Here, approximately six feet of rock are exposed in a high bluff in the Menomonee River Parkway.

Photo by Donald Mikulic and Joanne Kluessendorf.

The second threat is the possible widening of W. Grange Avenue, which runs along the south edge of the main quarry. If the road is widened, part of the quarry may be covered since road expansion to the south would be limited because of the presence of the Trimborn farm.

MENOMONEE RIVER OUTCROPS, WAUWATOSA

At Site 4 on Map 1, outcrops are exposed intermittently along the Menomonee River from N. 64th Street in Wauwatosa to N. 50th Street in Milwaukee (see Site B-B' on Map 5). The most significant exposure is the outcrop on the south side of the river from N. 59th Street to N. 60th Street (see Site A on Map 5). Here, approximately six feet of rock are exposed in a high bluff in the Menomonee River Parkway. The rock belongs to the interreef beds of the Racine Dolomite.

Geologic and Historic Importance

This exposure is the only remaining outcrop of the building stone that was quarried extensively around the late 1800's. Several large quarries, including Story's (Site H on Map 5), Manegold's (Site G on Map 5), and Schweickhart's (Monarch—Site F on Map 5), quarried the building stone; however, all the quarries have

been completely covered. The building stone industry in Milwaukee County began in the 1830's and became prominent in the late 1800's, but labor problems and the importation of cheaper stone brought an end to this local business. Many Milwaukee area landmark buildings, including the recently razed Plankinton Mansion, were built from this rock. Since the Menomonee River outcrops are the only exposure of these building stone beds remaining, it is important to preserve them for future research purposes.

Aesthetic and Educational Importance

The aesthetic qualities of this particular exposure are great, since it is the only major natural bedrock exposure found along any of Milwaukee's waterways. The educational value of this outcrop is enhanced by its proximity to the Jacobus Park Nature Center, making it convenient for persons using the nature center to learn something about the local geology.

Potential Threats

Even though it is located in a public park, this exposure could be threatened by proposed flood control improvements if the protection of the exposure is not accommodated in the design of the flood control measures. Flood control proposals set forth in SEWRPC Planning Report No. 26, A Comprehensive Plan for the Menomonee River Watershed, call for channel improvements, including floodwalls, dikes, channel deepening, and concrete lining, in this area. The reasons given for this undertaking are similar to those given for the alterations of Lincoln Creek. The most important exposure in the area is the south bank from N. 59th Street to N. 60th Street (see Site A on Map 5, and Figure 4). Since no flood danger exists along the bank to the south, it should be possible to protect the exposure in the design of the project. The north bank could be protected with a dike and floodwall as is suggested in the watershed plan proposals. This would serve to preserve much of the outcrop, at least on the south bank, in its present state through design changes which would be made possible by the watershed plan recommendations derived from the public hearings, at which watershed residents voiced objections to earlier watershed proposals for deepening, widening, and concrete lining.

LITTLE MENOMONEE RIVER PARKWAY

At Site 5 on Map 1, a small bedrock-controlled hill (Site A on Map 6) is located adjacent to Mill Road in the Little Menomonee River Parkway in Milwaukee, and a small shallow quarry (Site B on Map 6) is located to the south, near the river. These exposures have been mentioned on numerous occasions in geologic literature, and have been visited by geologists since 1859.[5] The rock is all Racine Dolomite and exhibits reef characteristics. The research and educational values of these exposures are significant, since they are easily accessible and are in a public park.

Potential Threats

Although these exposures are in a public park, they are in danger of being destroyed. In particular, the most important exposure, which is the mound formed as a result of the presence of a single reef south of Mill Road (Site A on Map 6), could be leveled by the widening of W. Mill Road. Several similar mounds are known to the authors to have been destroyed during the construction of STH 145 through parkland, a short distance to the northeast. Site A on Map 6 is the only mound remaining in the area. W. Mill Road in this area consists of an old rural section with ditches and no sidewalks. It is inevitable that it will be rebuilt in the near future by either the City of Milwaukee or Milwaukee County. Since the main outcrop begins at the existing road ditch, any widening of the road or sidewalk construction will result in at least partial, if not total, removal of the "reef" hill. It is felt by the authors that curving W. Mill Road slightly, through parkland, to the north—approximately 50 feet—would be desirable to preserve the bedrock features. In light of the proximity of this site to the intersection of Mill Road with STH 45/W. Fond du Lac Avenue, a detailed review of the highway project design would be necessary to establish the feasibility of preserving this bedrock feature.

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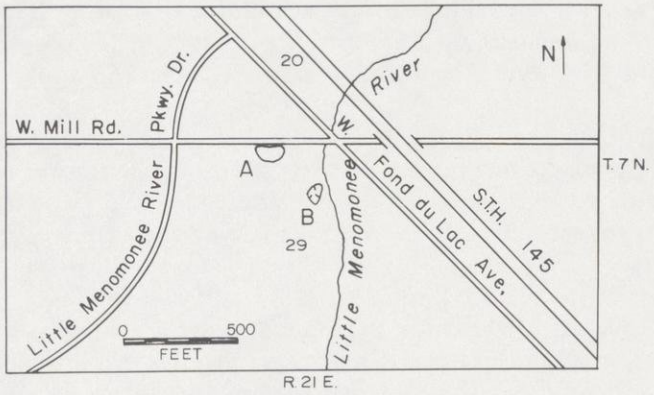
[5] *D. G. Mikulic, The paleoecology of Silurian trilobites with a section on the Silurian stratigraphy of southeastern Wisconsin, Ph.D. thesis, Oregon State University, Corvallis, 1979, p. 864.*

Map 6

BEDROCK EXPOSURES OF RACINE DOLOMITE IN THE LITTLE MENOMONEE RIVER PARKWAY, MILWAUKEE

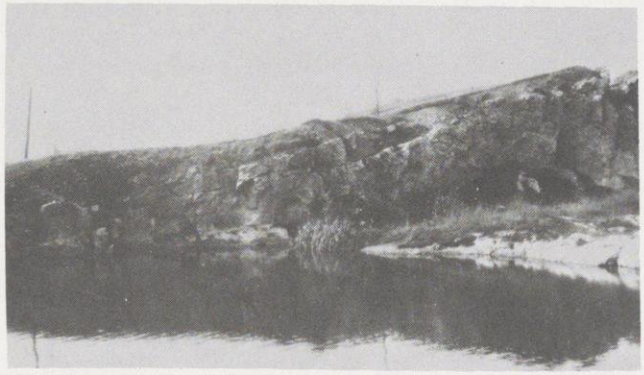


Site A is a small reef-controlled hill; Site B is a shallow stone quarry dating from the mid- to late 1800's.

Source: Donald Mikulic and Joanne Kluessendorf.

Figure 5

WEST WALL OF THE QUARRY IN THE SCHOONMAKER REEF NEAR 68TH STREET, WAUWATOSA



Shown here is an 1899 photo of the first exposure in North America to be interpreted as a "fossil" Paleozoic reef. The interreef beds of the Racine Dolomite are illustrated on the left, grading into massive reef rock on the right. This exposure has since been removed by quarrying.

Photo courtesy of U. S. Geological Survey.

This outcrop has educational, scientific, and historic significance. Since these features also add to the area's natural beauty and are already on parkland, it would be unfortunate if they were destroyed when they could be readily preserved.

OTHER IMPORTANT GEOLOGIC SITES WARRANTING PRESERVATION

Schoonmaker Reef (Francey Quarry)

At Site 6 on Map 1 is one of the most historically and scientifically important geologic sites in Wisconsin—the Schoonmaker Reef (Sites C and D on Map 5), located northeast of the corner of N. 68th Street and W. State Street in Wauwatosa. The rock here consists of reefal Racine Dolomite. This is one of the oldest lime and stone quarry sites in Milwaukee County, first being worked in 1834. The western portion of the old quarry area (Site C on Map 5) has been completely covered, and the site is currently occupied by the Sentry Food Store, owned by the Godfrey Company. The old quarry area to the east (Site D on Map 5) consists of a southward-facing bluff behind the Western Metals company. All of the lime kilns and related structures have been razed.

The geologic importance of this exposure lies in the fact that it was the first exposure in North America to be interpreted as a "fossil" Paleozoic reef.[6] The famous geologist, James Hall, made this interpretation in 1862 while serving as State Geologist of Wisconsin.[7] This interpretation led to the clarification of many stratigraphic problems, both in this and other states. This reef exposure served as the model for Paleozoic reefs in North America for almost 80 years, and photos and drawings of it have been published in a number

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[6] *Ibid.*

[7] *James Hall "Physical Geography and General Geology," in Report of the Geological Survey of the State of Wisconsin, ed. James Hall and J. D. Whitney, 1862.*

of geologic textbooks and research papers (see Figure 5).[8,9] Many distinguished geologists have visited and studied this exposure because of its importance, including T. C. Chamberlin, Edward Daniels, James Hall, and Increase A. Lapham (all of whom were State Geologists of Wisconsin); W. C. Alden; E. R. Cumings; A. W. Grabau; G. O. Raasch; R. R. Shrock; E. Steidtmann; F. Thwaites; and E. O. Ulrich.[10] Numerous field trips have also been made to this exposure. Some of the best Silurian fossils found in Wisconsin have come from here, including specimens presently in the collections of Harvard University, the American Museum of Natural History, and the National Museum of Natural History, as well as other museums in the United States.

Unfortunately, most of the western portion of this exposure (the Francey Quarry site) has been covered and lies under the food store, except for a small knob of rock (indicated by X on Map 5) located just east of the store. The exposure behind the Western Metals property (Site D on Map 5), however, has not been altered to any large extent since the 1800's.

This site is very important, since new ideas on the development of Paleozoic reefs are still being formulated, and is unique, since no similar reefs are known to be exposed in the State. The site is currently the subject of a study by the authors on the geology and history of mining at this site. Because of the nature of the exposures and their location on private property, they should be preserved for scientific research and not used by the general public. Since the remaining outcrops are located in a privately owned bluff adjacent to a well-developed residential and commercial area, it is unlikely that they are in any jeopardy at this time.

Other Sites

Two other important bedrock exposures exist that should be preserved, but are not presently endangered. Both are large reef exposures of the Racine Dolomite, one in the hill at Woods' Soldier Home south of Milwaukee County Stadium (Site 7 on Map 1; Site E on Map 5) and the other in natural outcrops along the Root River at the Franklin quarries south of Rawson Avenue (Site 8 on Map 1). The Soldier Home reef has been mentioned in geologic literature since the 1870's, but has never been quarried or studied to any great extent.

Hartung Quarry

At Site 9 on Map 1 is the Hartung Quarry landfill site, located along the Menomonee River Parkway between W. Keefe Avenue and W. Concordia Avenue. The landfill site is currently operated by the City of Milwaukee and has been filled to about two-thirds capacity.

The importance of this rock exposure is considerable, since it is the best, and only extensive, exposure of the interreef beds of the Racine Dolomite (Silurian) in Milwaukee County. More importantly, it is the only remaining site in Wisconsin where fossil specimens of the trilobite Calymene celebra can still be found in abundance. Milwaukee County is famous for this fossil, and specimens of it have been collected here by professional and amateur geologists since the early nineteenth century. Since the time the City of Milwaukee acquired the quarry in the early 1960's, it has freely admitted fossil collectors on a regular basis. Staff of the City Sanitation Bureau who are responsible for permitting access to the quarry are to be commended for this practice. It is estimated that several thousand visits have been made to the quarry by professional and amateur geologists, both young and old, to look for fossils. Without doubt, it is the most widely used fossil site in southeastern Wisconsin, if not the entire State.

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[8] *R. R. Shrock "Wisconsin Silurian Bioherms," Geol. Soc. of Amer. Bull. L, 1939, pp. 529-562.*

[9] *D. G. Mikulic, The paleoecology of Silurian trilobites with a section on the Silurian stratigraphy of southeastern Wisconsin, Ph.D. thesis, Oregon State University, Corvallis, 1979, p. 864.*

[10] *Ibid.*

For several reasons, it does not appear that it will be easy to preserve the exposures at this site. First, and of most significance, is the fact that the bedrock surface lies 10 or more feet below ground level at its shallowest point along the west side of the quarry and significantly deeper along its east side. It appears that if a bedrock exposure were left, it would be under water in a short time. The second reason is that this is the only existing landfill site left in the City, and is badly needed. The site will probably be utilized as a park when filling has been completed. Although the prospects for preserving any of the rock exposures in this quarry are poor, it is hoped that city officials might look into this matter and possibly find a way to preserve 10 to 20 feet of rock in a small area. It would undoubtedly improve the beauty of any future park. Importantly, the Southeastern Wisconsin Regional Planning Commission has recommended the preservation of this site in its Planning Report No. 26, A Comprehensive Plan for the Menomonee River Watershed.

SUMMARY

In the past, no attempt has been made to preserve important geologic sites in Milwaukee County, even though many such sites are located on publicly owned land. Many of these sites are invaluable for geologic and historic study purposes, purposes apparently overlooked to date in relationship to these sites. Only a few sites remain in the County, and nearly all are threatened with imminent destruction unless steps to protect and preserve them are quickly taken. Of primary importance are the sites containing exposures of rock formations along Lincoln Creek and the Menomonee and Milwaukee Rivers and on the Trimborn farm in Greendale. Most of these sites could be readily preserved at little cost to the public if their significance was brought to the attention of the proper officials. If it is not possible to save individual sites, provisions should be made to have the sites thoroughly studied geologically before construction begins. At that time rock and fossil samples should be collected and deposited in a local institution such as the Milwaukee Public Museum. These sites should also be studied during construction to observe any new features that may be temporarily uncovered.

Most of the important bedrock exposures in Milwaukee County have already been destroyed. Very little, if any, consideration has been given to the preservation of these features, largely because little effort has been made to inform the proper authorities of their value. The scientific, educational, and recreational use of these exposures is considerable, and an effort should now be undertaken to preserve the small number remaining. If no measures are taken to preserve these sites, most will soon be lost. The destruction of most of these sites is not a necessary part of any sound development project affecting the sites. Therefore, their preservation should not cause delays in projects or require the expenditure of large sums of money, as long as a preservation effort is made now, before final plans are drawn and construction begins.

INVENTORY OF SOLID WASTE MANAGEMENT FACILITIES IN SOUTHEASTERN WISCONSIN: 1980

by Robert P. Biebel, Principal Engineer, SEWRPC, and
Joseph E. Stuber, Senior Engineer, SEWRPC

INTRODUCTION

There is growing concern among lawmakers, local administrators, and citizen groups regarding the selection of suitable solid waste management systems and disposal sites, in particular with regard to the disposal of hazardous waste materials. Historically, less attention was given to comprehensive solid waste management planning and to the selection of suitable solid waste disposal sites because of the lower rates of solid waste generation in the past, the ability of local administrators and officials to find areas that were considered at that time to be suitable for solid waste disposal, and the absence of environmental protection criteria for site selection and design.

Increasing awareness of the environmental impacts of landfills has resulted in more stringent regulations regarding the construction and site location of landfills. Simultaneously, changes to a more diffused pattern of urbanization in southeastern Wisconsin have reduced the areas which can be considered for solid waste disposal sites. Thus, there is a demonstrated need for increased planning for future solid waste management. The progressively increasing demand for suitable solid waste disposal sites, in addition to state and federal awareness of the environmental impacts of landfill solid waste disposal, has prompted local, county, and state action for long-range comprehensive solid waste management planning.

This article is intended to provide an inventory of the existing facilities used for carrying out four solid waste management functions: resource recovery, processing, treatment, and disposal. In southeastern Wisconsin such facilities include mainly: recycling centers and commercial recycling operations for resource recovery, incineration as a processing step, composting as a treatment step, and landfilling as a disposal step.

General information is provided for each solid waste management facility where available, including the location, owner, operator, size, service life, and status—i.e., active, inactive, or abandoned—of each facility, and the types of solid waste accepted by each facility. In addition, this article is intended to provide, where known, a very generalized description of the major solid waste transfer and transportation functions in the Region. Facilities and equipment associated with the other solid waste management functions, including source separation, storage, and collection, are not discussed herein because they are variable individual or local practices for which existing inventory data sources are generally not available.

The most prominent method of solid waste resource recovery in southeastern Wisconsin is the separation of recyclable materials prior to mixing with other nonrecyclables, followed by collection, storage, marketing, and recycling of the segregated materials. Recycling operations in southeastern Wisconsin include commercial and nonprofit operations that accept materials commonly found in domestic solid wastes: cardboard and other paper, aluminum cans, glass, metals, rags, and oil. Many of these facilities also collect and recycle industrial waste materials. The principal data source utilized in the recycling operation inventory was the Wisconsin Recycling Directory distributed by the Wisconsin Solid Waste Recycling Authority. Additional information was obtained from solid waste management plans prepared by county and local units of government.

Processing of solid waste is a means of changing the characteristics of the waste to facilitate subsequent uses of disposal. One processing method utilized in southeastern Wisconsin is incineration, or the controlled burning of solid wastes. The main purpose of incineration is to reduce the volume of, and the contaminants in, the solid waste. The incinerators identified in the inventory include both public and private facilities. The principal source of the inventory data was the Wisconsin Department of Natural Resources (DNR) and SEWRPC data developed in conjunction with air quality management programs of both SEWRPC and the DNR.

Composting is a biological degradation process by which organic materials in solid waste are converted to nuisance-free, humus-like material that can be used as a soil conditioner. Both municipal and private commercial composting facilities are operating in southeastern Wisconsin. Inventory data on these facilities were obtained from DNR files.

The inventory of landfills includes data on all types of land disposal sites—from modern sanitary landfills, defined as an engineered method of disposing of solid waste on land in a manner that minimizes environmental hazards and nuisances, to open dumps, which generally have exposed areas of uncovered solid waste throughout the site filling period. Solid waste landfills have been inventoried utilizing DNR file data as the principal source. Additional information was obtained from previous SEWRPC inventories, solid waste management plans prepared by county and local units of government, and soils mapping data prepared by SEWRPC and the U. S. Soil Conservation Service. The landfill inventory includes both public and private facilities at all stages of activity. The activity level or status of each landfill is listed as active, inactive, or abandoned, with abandoned facilities being further categorized as properly or improperly abandoned.

EXISTING AND PROPOSED SOLID WASTE DISPOSAL FACILITIES

Based upon data obtained from the sources described above, the Commission staff conducted an inventory of all known solid waste disposal or landfill facilities and proposed facilities in southeastern Wisconsin. The inventory data include known facilities as of August 1980. Tables 1 and 2 set forth pertinent information on solid waste landfill sites. The locations of these landfills are indicated on Map 1. Data on other solid waste management facilities, including incinerators, recycling operations, and composting facilities, are set forth in Tables 3, 4, and 5. The spatial distribution of the known incinerators and composting operations in southeastern Wisconsin is set forth on Map 2. The following sections summarize the inventory results by county.

Kenosha County

There are presently 16 known landfills in Kenosha County, of which six are considered to be active. There is one active commercial landfill site located in the Town of Paris, which is operated by Waste Management Systems, Inc. The site is currently near its existing capacity; however, Waste Management Systems, Inc., has acquired additional lands adjacent to the existing property that are reported to have potential to be developed to provide additional landfill capacity. The Wisconsin Department of Natural Resources has approved the feasibility study[1] for this landfill expansion. There is also a site in the Town of Pleasant Prairie for which the DNR has approved a preliminary feasibility study.[2] Pertinent information on these existing and proposed landfills is set forth in Tables 1 and 2.

In addition to the landfills noted above, there were five sites in Kenosha County noted as "dumps" on detailed soil survey maps prepared by the U. S. Soil Conservation Service and SEWRPC. Work for this soil survey was completed during 1967. These areas designated as "dumps" on the soil survey maps, and shown on Map 1, are mainly small sites where waste materials have been deposited by individuals prior to the enactment of the licensing requirements of Chapter NR 180 of the Wisconsin Administrative Code. Accordingly, information relating to these "dumps" or landfills is not availabile from the Wisconsin Department of Natural Resources. The location and approximate size of these landfills are set forth in Table 6.

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[1] *Residuals Management Technology, Inc., A Landfill Feasibility Study, a study of N½, Section 32, T2N, R12E, Town of Paris, Kenosha County, December 1978.*

[2] *Warzyn Engineering, Inc., Preliminary Geotechnical Investigation—Proposed Landfill Site; NW¼, Section 28, T1N, R22E, County Trunk Highways M and Q, Kenosha County, Wisconsin, January 1976.*

Table 1

SELECTED CHARACTERISTICS OF KNOWN EXISTING SOLID WASTE LANDFILLS IN SOUTHEASTERN WISCONSIN: 1980[a]

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Kenosha County																
1	Town of Brighton	SW¼, NW¼, Section 31, T2N, R20E	Town of Brighton	0270	7.0	Public general use	Properly abandoned	N/A	--	X	X	X	--	--	--	--	--
2	Town of Bristol	NE¼, NW¼, Section 17, T1N, R21E	Town of Bristol	0732	10.0	Public general use	Active	50-500	N/A	X	--	X	X	--	--	--	--
3	Town of Paris	SW¼, SE¼, Section 32, T2N, R21E	Waste Management of Wisconsin[b]	1739	1.3	Commercial general use	Active	N/A	N/A	X	X	X	X	X	--	--	--
4	Town of Pleasant Prairie	E½, Section 9, T1N, R22E	Wisconsin Electric Power Company	2786	155.0	Private special use	Active	> 500	36	--	--	--	--	--	--	X	Bottom ash and waste-water and cooling tower sludge
5	Town of Pleasant Prairie	SE¼, NE¼, Section 33, T1N, R22E	City of Kenosha	0038	60	Public	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Town of Pleasant Prairie	NE¼, NW½, Section 9, T1N, R22E	Harry Crow & Sons	2413	N/A	Private	Abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Town of Pleasant Prairie	NE¼, NE¼, Section 33, T1N, R22E	Town of Pleasant Prairie	N/A	28.0	Public general use	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Town of Pleasant Prairie	NE¼, NW¼, Section 10, T1N, R22E	Ron's Rubbish	N/A	3.3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
9	Town of Randall	NW¼, NW¼, Section 23, T1N, R19E	Town of Randall	0461	7.2	Public general use	Active	50-500	3	X	X	X	X	X	--	--	--
10	Town of Salem	SE¼, NW¼, Section 8, T1N, R20E	Kenosha County Highway Department	0028	1.0	Private special use	Active	< 50	N/A	--	X	X	X	--	--	--	--
11	Town of Salem	SE¼, SW¼, Section 5, T1N, R20E	Town of Salem	1395	10.0	Public general use	Properly abandoned	N/A	--	X	X	X	X	--	--	--	--
12	Village of Silver Lake	NE¼, SW¼, Section 8, T1N, R20E	Silver Lake Landfill	0235	N/A	Commercial general use	Properly abandoned	N/A	--	--	--	X	--	--	--	--	Commercial wastes
13	Town of Somers	NE¼, NW¼, Section 24, T2N, R22E	Keno Trucking	1661	10.0	Private special use	Properly abandoned	N/A	--	--	X	--	--	--	--	--	--
14	Town of Somers	SE¼, SW¼, Section 15, T2N, R22E	Town of Somers	1070	8.2	Public general use	Properly abandoned[c]	N/A	--	X	X	X	--	X	--	--	--
15	Village of Twin Lakes	SW¼, SE¼, Section 16, T1N, R19E	Village of Twin Lakes	0490	40.0	Public special use	Active	50-500	3	X	X	--	--	X	--	--	--
16	Town of Wheatland	SE¼, SW¼, Section 10, T1N, R19E	Town of Wheatland	N/A	3.0	N/A	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Milwaukee County																
1	City of Cudahy	W½, SW¼, Section 34, T6N, R22E[d]	City of Milwaukee	0428	45.0	Private special use	Active	> 500	N/A	X	--	--	--	X	--	--	--
2	City of Cudahy	NW¼, SE¼, Section 27, T6N, R22E	City of Cudahy	0310	2.5	Public general use	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	City of Franklin	N½, SW¼, Section 31, T5N, R21E	Waste Management of Wisconsin	1099	500	Commercial general use	Active	> 500	N/A	X	X	X	X	X	X	--	--
4	City of Franklin	NE¼, SE¼, Section 4, T5N, R21E	Milwaukee County Highway Department	N/A	70.0	Private special use	Active[e]	N/A	N/A	X	X	--	--	--	--	--	--
5	City of Glendale	NW¼, NW¼, Section 30, T8N, R22E	City of Glendale	1121	20.0	Public general use	Properly abandoned	N/A	--	X	X	X	X	--	--	--	--
6	City of Greenfield	NE¼, SW¼, Section 18, T6N, R21E	City of Greenfield	N/A	N/A	Public general use	Properly abandoned	N/A	--	--	--	X	--	X	--	--	Salvageable material, grass clippings, leaves, dirt
7	City of Greenfield	NE¼, SW¼, Section 18, T6N, R21E	Allis Chalmers	0293	21.2	Private special use	Active	> 500	3	X	--	--	--	--	--	--	Foundry sand
8	City of Milwaukee	NE¼, NW¼, Section 23, T8N, R21E	Village of Whitefish Bay	0356	13.0	Private special use	Abandoned	50-500	--	X	--	--	--	--	--	--	--
9	City of Milwaukee	NW¼, SW¼, Section 29, T6N, R22E	Private contractors retained by Wisconsin Department of Transportation	2586	7.0	Private special use	Properly abandoned	N/A	--	--	--	--	--	X	--	--	--
10	City of Milwaukee	NE¼, NE¼, Section 26, T8N, R21E	City of Milwaukee[f]	0423	40.0	Private general use	Abandoned	N/A	--	X	X	X	--	--	--	--	--
11	City of Milwaukee	SE¼, NW¼, Section 26, T7N, R21E	City of Milwaukee	0426	2.0	Private special use	Properly abandoned	N/A	--	X	X	X	--	--	--	--	--
12	City of Milwaukee	SW¼, NE¼, Section 26, T7N, R21E	Falk Corporation	Unlicensed	--	Private special use	Properly abandoned	N/A	--	--	--	--	--	--	--	--	Foundry sand
13	City of Milwaukee	SW¼, Section 4, T7N, R22E	City of Milwaukee[g]	0424	10	Private special use	Properly abandoned[h]	N/A	--	X	--	X	--	--	--	--	Street sweepings, brush, leaves
14	City of Milwaukee	NE¼, Section 35, T7N, R21E	City of Milwaukee[i]	Unlicensed	N/A	Public general use	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	City of Oak Creek	SW¼, SW¼, Section 10, T5N, R22E	City of Oak Creek	0414	7.0	Public special use	Active	50-500	2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
16	City of Oak Creek	NW¼, SE¼, Section 14, T5N, R22E	City of South Milwaukee	0232	10.7	Private special use	Active	50-500	N/A	X	X	--	--	X	--	--	--
17	City of Oak Creek	NE¼, NW¼, Section 27, T5N, R22E	Gordon Derosso	1979	45.0	Private special use	Active	> 500	N/A	X	--	--	--	--	--	--	--

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Milwaukee County (continued)																
18	City of Oak Creek	SW¼, Section 36, T5N, R22E	Wisconsin Electric Power Company	2357	130.0	Private special use	Active	3,000	5	X	--	--	--	--	--	--	--
19	City of Oak Creek	SW¼, NE¼, Section 36, T5N, R22E	Wisconsin Electric Power Company	0349	42.0	Private special use	Active	> 500	N/A	X	--	--	--	--	--	X	Wastewater treatment solids
20	City of Oak Creek	NE¼, SE¼, Section 23, T5N, R22E	James Manufacturing	Unlicensed	N/A	Private special use	Transition abandonment	N/A	--	--	--	--	X	--	--	--	Foundry sand
21	City of South Milwaukee	SW¼, Section 2, T5N, R22E	Falk Corporation	1882	17.6	Private special use	Active	> 500	N/A	X	--	X	--	--	--	--	--
22	City of South Milwaukee	NE¼, SW¼, Section 2, T5N, R22E	Bucyrus-Erie Company	N/A	N/A	Private special use	N/A	N/A	N/A	--	--	--	--	--	--	--	Foundry sand
23	City of Cudahy	NW¼, Section 35, T6N, R22E	Ladish Corporation	N/A	N/A	Private special use	N/A	N/A	N/A	--	--	--	--	--	--	--	Foundry sand
24	City of Wauwatosa	NE¼, SW¼, Section 8, T7N, R21	City of Milwaukee (Old Hartung Quarry)	1501	17.0	Private special use	Active	> 500	3	X	--	--	--	--	--	--	--
25	City of Wauwatosa	SE¼, SE¼, Section 19, T7N, R21E	City of Wauwatosa	0525	100.0	Public special use	Active	> 500	3	X	X	X	--	--	--	--	--
26	City of Wauwatosa	SE¼, NW¼, Section 20, T7N, R21E	Milwaukee County Institutions	0194	15.0	Private special use	Properly abandoned	N/A	--	X	X	--	--	X	--	--	--
27	City of West Allis	NW¼, NE¼, Section 7, T6N, R21E	City of West Allis	1718	18.0	Private special use	Active	50-500	3	X	--	X	--	--	--	--	Foundry sand
28	City of West Allis	NE¼, NE¼, Section 7, T6N, R21E	N/A	Unlicensed	N/A	Private special use	Inactive	N/A	--	--	--	X	--	--	--	--	Foundry sand
29	City of West Allis	SE¼, SE¼, Section 31, T7N, R21E	N/A	Unlicensed	N/A	Private special use	Abandoned	N/A	--	--	--	--	--	--	--	--	Industrial fill
30	City of West Allis	NE¼, SE¼, Section 6, T6N, R21E	N/A	Unlicensed	N/A	Private special use	Abandoned	N/A	--	--	--	--	--	--	--	--	Industrial fill
31	City of West Allis	SW¼, SE¼, Section 6, T6N, R21E	Maynard Steel Casting Corporation	Unlicensed	N/A	Private special use	Abandoned	N/A	--	--	--	--	--	--	--	--	Foundry sand
32	Village of West Milwaukee	NE¼, SE¼, Section 2, T6N, R21E	Village of West Milwaukee	1272	6.0	Public special use	Active	< 50	3	X	X	X	--	--	--	--	--
33	Village of West Milwaukee	SE¼, Section 2, T6N, R21E	Wehr Steel	Unlicensed[j]	N/A	Private special use	Transition abandonment	N/A	N/A	--	--	--	--	--	--	--	Foundry sand, slag balls, scrap metal

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Ozaukee County																
1	Town of Belgium	NE¼, NE¼, Section 10, T12N, R22E	Town of Belgium	0638	19.2	Public general use	Transition abandonment	N/A	--	--	X	X	X	--	--	--	Paper, cardboard, cans, bottles
2	Town of Cedarburg	NW¼, SE¼, Section 2, T10N, R21E	City and Town of Cedarburg	0271	89.0	Public general use	Active	50-500	2	--	X	X	X	--	--	--	--
3	Town of Cedarburg	SE¼, NE¼, Section 21, T10N, R21E	Marvin Procknow	0751	100.0	Private general use	Abandoned	N/A	--	X	X	X	X	--	--	--	--
4	Town of Cedarburg	NW¼, NE¼, Section 2, T10N, R21E	Wisconsin Electric Power Company	0603	23.2	Private special use	Abandoned	N/A	--	--	--	--	--	--	--	X	--
5	Town of Fredonia	NE¼, SE¼, Section 32, T12N, R21E	Ozaukee County Highway Department	1914	19.8	Private special use	Active	50-500	3	X	X	X	--	--	--	--	--
6	Town of Fredonia	SW¼, SW¼, Section 11, T12N, R21E	Town of Fredonia	911	1.5	Public general use	Active	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Town of Grafton	SE¼, NW¼, Section 1, T10N, R21E	Town of Grafton	1133	10.0	Public general use	Active	50-500	3	X	--	X	X	X	--	--	--
8	Town of Grafton	SW¼, Section 8, T10N, R22E	Wisconsin Electric Power Company	2801	85.0	Private special use	Active	> 500	3	--	--	--	--	--	--	X	Wastewater treatment solids
9	City of Mequon	SW¼, SW¼, Section 2, T9N, R21E	City of Mequon	0429	7.0	Public general use	Active	50-500	N/A	X	X	X	--	X	--	--	--
10	City of Port Washington	SE¼, SE¼, Section 20, T11N, R22E	City of Port Washington	0153	18.0	Public special use	Transition abandonment	N/A	--	X	X	--	--	--	--	--	--
11	Town of Port Washington	NW¼, NW¼, Section 30, T11N, R22E	Town of Port Washington	1098	N/A	Public general use	Properly abandoned	N/A	--	--	X	X	--	--	--	--	--
12	Town of Port Washington	SW¼, SW¼, Section 4, T11N, R22E	N/A	Unlicensed	N/A	Private general use	Abandoned	N/A	N/A	--	--	X	--	--	--	--	--
13	Town of Saukville	SW¼, SE¼, Section 36, T11N, R21E	Town of Saukville	1122	2.0	Public general use	Active	50-500	3	X	X	X	X	X	--	--	--
14	Town of Saukville	NE¼, SW¼, Section 5, T11N, R21E	Laubenstein Sales and Service, Inc.	0270	2.0	Private general use	Active	< 50	3	X	X	X	--	X	--	--	--
15	Village of Saukville	SW¼, NE¼, Section 35, T11N, R21E	Freeman Chemical	No license required	N/A	Private special use	Active	N/A	N/A	--	--	--	--	--	--	--	Inert ash material
16	Village of Saukville	SW¼, NE¼, Section 35, T11N, R21E	Village of Saukville	0856	1.0	Private special use	Properly abandoned	N/A	--	X	X	--	--	--	--	--	--
17	Village of Thiensville	NE¼, SE¼, Section 15, T9N, R21E	Village of Thiensville	N/A	N/A	N/A	Properly abandoned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Racine County																
1	City of Burlington	NE¼, SE¼, Section 29, T3N, R19E	Town of Burlington	0186	N/A	Public general use	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
2	Town of Burlington	SE¼, SE¼, Section 1, T2N, R19E	Town of Burlington	0277	40.0	Public general use	Active	> 500	3	X	X	X	X	X	--	--	--
3	Town of Caledonia	NW¼, SW¼, Section 3, T4N, R22E	Caledonia Corporation	0147	N/A	Private N/A	Improperly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
4	Town of Caledonia	NW¼, SE¼, Section 19, T4N, R23E	Hillside Sand and Gravel	Unlicensed	N/A	Private special use	Active	N/A	N/A	--	--	--	--	--	--	--	Foundry sand and foundry waste
5	Town of Dover	NW¼, SE¼, Section 29, T3N, R20E	N/A	Unlicensed	N/A	Public general use	Inactive	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Town of Dover	SE¼, SW¼, Section 25, T3N, R20E	Center for the Developmentally Disabled	0241	N/A	Private general use	Properly abandoned	N/A	--	--	--	X	--	--	--	--	--
7	Town of Mt. Pleasant	SE¼, NE¼, Section 23, T3N, R22E	Land Reclamation	0572	81.7	Commercial general use	Active	> 500	25	X	X	X	X	X	X	--	Wastewater sludge
8	Town of Mt. Pleasant	SW¼, NE¼, Section 27, T3N, R22E	Town of Mt. Pleasant	1651	12.0	Public general use	Abandoned	N/A	--	--	--	X	--	X	--	--	--
9	Town of Norway	SW¼, NE¼, Section 21, T4N, R20E	Town of Norway	0438	7.0	N/A	Properly abandoned[l]	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
10	Town of Raymond	SE¼, NE¼, Section 2, T4N, R21E	Reclamation, Inc.[k]	1356	46.0	N/A	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
11	Town of Rochester	SE¼, NW¼, Section 11, T3N, R19E	Town of Rochester	1167	4.0	N/A	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
12	Town of Rochester	NW¼, SW¼, Section 10, T3N, R19E	Racine County Highway Department	1893	4.0	Private general use	Active	50-500	N/A	X	X	X	--	X	--	--	--
13	Town of Rochester	NW¼, SE¼, Section 11, T3N, R19E	Town of Rochester	Unlicensed	N/A	Public general use	Abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Town of Waterford	SE¼, NE¼, Section 34, T4N, R19E	Town of Waterford	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
15	Town of Yorkville	SW¼, NW¼, Section 29, T3N, R21E	Village of Union Grove	1324	10.0	Private general use	Active	50-500	4	X	X	X	X	--	--	--	--

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
1	Walworth County Town of Bloomfield	NE¼, SE¼, Section 7, T1N, R18E	City of Lake Geneva	N/A	6.0	Public general use	Improperly abandoned	N/A	--	--	--	--	--	--	--	--	Industrial, commercial, and liquid wastes, salvageable materials
2	Town of Bloomfield	SW¼, NW¼, Section 7, T1N, R18E	Otto Jacobs	N/A	20.0	N/A	Abandoned[1]	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
3	Town of Darien	NE¼, SE¼, Section 29, T2N, R15E	Town of Darien	0334	6.0	Public general use	Transition abandonment	N/A	--	X	X	X	X	--	--	--	--
4	Town of Darien	NE¼, NE¼, Section 9, T2N, R15E	Greidanus Landfill	0140	20.0	Commercial general use	Active	> 500	3	X	X	X	X	X	--	--	--
5	Town of Darien	NW¼, SE¼, Section 36, T2N, R15E	Town of Darien	N/A	4.5	Public general use	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
6	Town of Delavan	SE¼, SW¼, Section 5, T2N, R16E	City of Delavan	N/A	N/A	Public general use	Improperly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	City of Elkhorn	NE¼, SE¼, Section 1, T2N, R16E	City of Elkhorn	1108	14.5	Private special use	Active	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Town of East Troy	SW¼, SW¼, Section 15, T4N, R18E	Town of East Troy	0024	40.0	Public general use	Properly abandoned	N/A	--	X	X	X	X	X	--	--	Hospital wastes
9	City of Elkhorn	SE¼, NW¼, Section 36, T3N, R16E	City of Elkhorn	N/A	14.7	Public general use	Properly abandoned	N/A	--	--	X	X	X	--	--	--	--
10	Town of Geneva	NW¼, NE¼, Section 9, T2N, R17E	Walworth County Highway Department	2109	20.0	Private special use	Active	N/A	N/A	--	X	--	--	--	--	--	Brush
11	Town of LaFayette	NE¼, SW¼, Section 7, T3N, R17E	Mann Brothers Sand and Gravel	1996	6.0	Private special use	Active	50-500	3	--	X	--	--	X	--	--	--
12	Town of LaFayette	NE¼, NW¼, Section 13, T3N, R17E	Town of LaFayette	1136	3.0	Public general use	Properly abandoned	N/A	--	X	X	X	X	--	--	--	--
13	Town of Linn	SE¼, NE¼, Section 12, T1N, R17E	Otto Jacobs	0375	7.0	Commercial general use	Improperly abandoned	N/A	--	X	X	X	X	X	--	--	--
14	Town of Linn	NE¼, SE¼, Section 28, T1N, R17E	Gavins Construction Company	1984	2.0	Private special use	Properly abandoned	N/A	--	--	X	--	--	X	--	--	--
15	Town of Lyons	SW¼, SW¼, Section 26, T2N, R18E	Town of Lyons	1102	4.0	Public special use	Active	50-500	3	--	--	X	--	--	--	--	--

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Walworth County (continued)																
16	Town of Richmond	SE¼, NE¼, Section 29, T3N, R15E	Town of Richmond	1195	10.0	Public general use	Properly abandoned	N/A	--	X	X	X	--	--	--	--	--
17	Town of Sharon	NE¼, NE¼, Section 1, T1N, R15E	Pelishek Contracting, Inc.	0338	4.0	Private special use	Active	50-500	3	X	X	X	--	X	--	--	--
18	Town of Sharon	NE¼, SE¼, Section 1, T1N, R15E	Baker Landfill	0189	35.0	Commercial general use	Transition abandonment	N/A	--	X	X	X	X	X	--	--	Animal carcasses
19	Town of Spring Prairie	SW¼, NW¼, Section 21, T3N, R18E	Town of Spring Prairie	1103	7.0	Public general use	Properly abandoned	N/A	--	X	X	X	--	X	--	--	--
20	Town of Sugar Creek	SW¼, NE¼, Section 9, T3N, R16E	Town of Sugar Creek	1137	4.0	Public special use	Active	50-500	3	X	--	X	--	--	--	--	--
21	Town of Troy	NE¼, NW¼, Section 16, T4N, R17E	Town of Troy	0496	3.0	Public general use	Active	N/A	3	X	X	X	X	X	--	--	--
22	Town of Walworth	SE¼, SE¼, Section 10, T1N, R16E	Village of Fontana	N/A	2.6	N/A	Abandoned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
23	Town of Walworth	NW¼, SE¼, Section 16, T1N, R16E	U. S. Gypsum	N/A	N/A	N/A	Abandoned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	Town of Cold Spring[m]	NW¼, SE¼, Section 33, T5N, R15E	City of Whitewater	N/A	N/A	N/A	Active	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Washington County																
1	Town of Addison	SW¼, SW¼, Section 14, T11N, R18E	Town of Addison	0907	30.0	Public general use	Active	50-500	1	X	--	X	X	--	--	--	--
2	Town of Barton	SE¼, SE¼, Section 1, T11N, R19E	N/A	N/A	N/A	Private special use	Inactive	N/A	--	--	--	--	--	X	--	--	Plastics, fiber pipe
3	Town of Barton	SE¼, NW¼, Section 9, T11N, R19E	City of West Bend	N/A	30.0	Public general use	Active[n]	> 500	2	X	X	X	X	--	--	--	--
4	Town of Farmington	NW¼, SE¼, Section 33, T12N, R20E	Lazy Days Campground	0408	10.0	Private general use	Properly abandoned	N/A	--	--	--	X	X	--	--	--	--
5	Town of Farmington	SE¼, NE¼, Section 8, T12N, R20E	Town of Farmington	0087	1.8	Public general use	Active	< 50	5	X	X	X	X	X	--	--	--
6	Village of Germantown	S½, Section 36, T9N, R20E	Waste Management of Wisconsin (Omega Hills-North)	1678	84.0	Commercial general use	Active	> 500	10	X	X	X	X	X	X	--	--
7	Village of Germantown	NE½, SE¼, Section 36, T9N, R20E	Organic Compost Corporation Al's Disposal, Inc.	N/A	N/A	Private special use	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Washington County (continued)																
8	City of Hartford	NW¼, SE¼, Section 28, T10N, R18E	City of Hartford	0361	63.0	Public general use	Transition abandonment	N/A	N/A	X	X	--	--	X	--	--	--
9	Town of Jackson	SE¼, NW¼, Section 15, T10N, R20E	Town of Jackson	0377	1.8	Public general use	Properly abandoned	N/A	--	--	X	X	X	X	--	--	--
10	Town of Kewaskum	NW¼, SE¼, Section 1, T12N, R19E	Town of Kewaskum	0917	20.0	Public general use	Active	> 500	8	X	X	X	X	--	--	--	--
11	Town of Auburn[o]	SW¼, SE½, Section 31, T13N, R19E	Village of Kewaskum	0977	40.0	Public general use	Active	> 500	5	X	X	X[q]	X[q]	X	--	--	--
12	Town of Polk	NW¼, SE¼, Section 20, T10N, R19E	United Waste Systems[p]	0307	55.0	Commercial general use	Transition abandonment	N/A	--	X	X	X	X	X	--	--	--
13	Town of Polk	NE¼, NE¼, Section 34, T10N, R19E	Leroy Schmidt Dump	N/A	N/A	Private special use	Abandoned	N/A	--	--	--	X	--	X	--	--	Concrete pipes, auto tires
14	Town of Polk	NE¼, SW¼, Section 21, T10N, R19E	N/A	N/A	N/A	Private special use	Abandoned	N/A	--	--	--	--	--	--	--	--	Brewery wastes, oil skimmer wastes
15	Town of Polk	S½, SE¼, Section 20, T10N, R19E	Town of Polk	0951	10.0	Public general use	Abandoned	N/A	--	X	X	X	X	--	--	--	--
16	Town of Richfield	SW¼, NW¼, Section 13, T9N, R19E	Town of Richfield	1093	4.5	Public general use	Abandoned	N/A	1	X	X	X	X	--	--	--	--
17	Village of Slinger	SE¼, NW¼, Section 18, T10N, R19E	Slinger Foundry	2702	4.2	Private special use	Active	< 50	3	X	--	--	--	--	--	--	Foundry sand
18	Town of Trenton	NW¼, SE¼, Section 2, T11N, R20 E	Town of Trenton	0377	5.0	Public general use	Properly abandoned	N/A	--	X	X	X	X	X	--	--	--
19	Town of West Bend	SE¼, NW¼, Section 34, T11N, R19E	Town of West Bend	1160	7.0	Public general use	Active	N/A	5	--	X	X	X	--	--	--	--
20	Town of West Bend	NE¼, SE¼, Section 26, T11N, R19E	N/A	N/A	N/A	Private special use	Properly abandoned	N/A	--	--	X	--	--	X	--	--	Concrete, metal, glass, porcelain
21	Town of Wayne	NE¼, SE¼, Section 24, T12N, R18E	Town of Wayne	0052	10.0	Private general use	Active	N/A	8	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Waukesha County																
1	City of Brookfield	SW¼, SE¼, Section 19, T7N, R20E	City of Brookfield	0474	N/A	Public special use	Abandoned	N/A	--	--	X	--	--	--	--	--	Burning site
2	City of Brookfield	SE¼, SE¼, Section 20, T7N, R20E	United Waste Systems	0001	30.0	Commercial general use	Properly abandoned	> 500	--	X	X	X	X	X	--	--	--
3	Town of Brookfield	NE¼, SE¼, NW¼, Section 6, T7N, R 20 E	Zaretzyke Dump	N/A	10.0	Private general use	Inactive	N/A	--	--	--	X	--	X	--	--	Industrial, commercial wastes
4	Town of Brookfield	SW¼, SW¼, Section 5, T7N, R20E	Master Disposal Corporation	2425	41.5	Commercial general use	Active	> 500	1	X	X	X	--	X	--	--	--
5	City of Delafield	SW¼, Section 22, NW¼, Section 27, T7N, R18E	Sanitary Transfer and Landfill	0719	138.0	Commercial general use	Active[r]	N/A	2	X	X	X	X	X	--	--	--
6	City of Delafield	Section 18, T7N, R18E	St. John's Military Academy	N/A	N/A	Private general use	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Town of Delafield	Section 32, T7N, R18E	Ethan Allen School	0124	N/A	Private general use	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
8	Town of Eagle	SE¼, SW¼, Section 26, T5N, R17E	Town of Eagle	1089	4.9	Public special use	Active	50-500	8	X	X	X	--	--	--	--	--
9	Town of Genesee	NW¼, SE¼, Section 27, T6N, R18E	Town of Genesee	2067	4.5	Public general use	Active	50-500	1	X	X	X	X	X	--	--	--
10	Town of Genesee	SW¼, NW¼, Section 6, T6N, R18E	Waukesha County Highway Department	N/A	1.0	Private general use	Active	< 50	--	--	X	X	--	X	--	--	--
11	Town of Genesee	SE¼, SE¼, Section 29, T6N, R18E	Village of North Prairie	1206	2.0	Public general use	Properly abandoned	N/A	--	--	X	X	X	--	--	--	--
12	Town of Genesee	SE¼, SW¼, Section 17, T6N, R18E	Town of Genesee	N/A	0.7	Public general use	Abandoned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
13	Village of Hartland	SW¼, NW¼, Section 2, T7N, R18E	Village of Hartland	N/A	N/A	Public N/A	Transition abandonment	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
14	Town of Lisbon	NE¼, NW¼, Section 17, T8N, R19E	N/A	N/A	N/A	Private general use	Active	N/A	--	--	X	--	--	X	--	--	Concrete
15	Town of Lisbon	SW¼, NW¼, Section 17, T8N, R19E	Town of Lisbon	1111	26.0	Public special use	Properly abandoned	N/A	--	X	X	X	X	X	--	--	--
16	Town of Lisbon	NW¼, SE¼, Section 17, T8N, R19E	The Milwaukee Road	N/A	N/A	Private general use	Inactive	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
17	Town of Lisbon	SE¼, NW¼, Section 18, T8N, R19E	Village of North Lake	N/A	7.7	Public general use	Abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Waukesha County (continued)																
18	Village of Menomonee Falls	NE¼, SE¼, Section 1, T8N, R20E	Waste Management of Wisconsin (Lauer I)	0011	20.0	Commercial general use	Active	> 500	N/A	X	X	X	X	--	--	--	--
19	Village of Menomonee Falls	SE¼, SE¼, Section 21, T8N, R20E	Industrial Waste Corporation	1203	30.0	Commercial special use	Abandoned	N/A	N/A	X	X	X	--	--	--	--	--
20	Village of Menomonee Falls	E½ of the NE¼, Section 28, T8N, R20E	Mill Lands, Inc.	N/A	18.8	Private general use	Improperly abandoned	N/A	--	--	--	X	X	--	--	--	Brush
21	Village of Menomonee Falls	W½, NW¼, Section 27, T8N, R20E	Miller Brewing Landfill	1026	60.0	Private special use	Properly abandoned	N/A	--	--	--	--	--	--	--	--	Commercial wastes
22	Village of Menomonee Falls	SE¼, SW¼, Section 19, T8N, R20E	Village of Menomonee Falls	1163	50.0	Public general use	Active	50-500	40	X	X	X	--	X	--	--	Animal carcasses
23	Village of Menomonee Falls	SE¼, SE¼, Section 21, T8N, R20E	Village of Menomonee Falls Striblings Sanitary Service	N/A	34.0	Public general use	Transition abandonment	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
24	Village of Menomonee Falls	N½, NE¼, Section 1, T8N, R20E	Waste Management of Wisconsin (Omega Hills-South)	1678	84.0	Public general use	Active	> 500	8	X	X	X	X	X	X	--	--
25	Town of Merton	NW¼, NW¼, Section 16, T8N, R18E	Town of Merton[5]	N/A	N/A	Public general use	Properly abandoned	N/A	--	X	X	X	--	--	--	--	--
26	Town of Merton	NW¼, NE¼, Section 9, T8N, R18E	Village of Chenequa	N/A	0.5	Public special use	Properly abandoned	N/A	--	--	--	--	--	X	--	--	Combustibles
27	City of Muskego	NW¼, SW¼, Section 18, T5N, R20E	Waste Management of Wisconsin (Wauer)	2895	N/A	Commercial general use	Active	> 500	N/A	X	X	X	X	X	--	--	--
28	Town of Vernon	SW¼, SW¼, Section 13, T5N, R19E	Town of Vernon	0009	N/A	Public general use	Transition abandonment	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
29	City of Muskego	NW¼, SE¼, Section 5, T5N, R20E	Hilltop Restoration	2506	16.3	Private special use	Active	N/A	2	--	--	--	--	X	--	--	--
30	Village of Mukwonago	S½, NE¼, Section 26, T5N, R18E	Town of Mukwonago	0595	1.0	Public general use	Properly abandoned	N/A	--	X	X	X	--	--	--	--	--
31	Town of Mukwonago	NW¼, NE¼, Section 35, T5N, R18E	Village of Mukwonago	0468	N/A	Public general use	Properly abandoned	N/A	--	--	--	--	--	--	--	--	--
32	Town of Mukwonago	SW¼, SW¼, Section 16, T5N, R18E	Town of Mukwonago	N/A	1.6	Public general use	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
33	City of New Berlin	SW¼, NE¼, Section 18, T6N, R20E	Jaeger Sand and Gravel	1392	60.0	Private general use	Abandoned	N/A	--	X	X	X	--	--	--	--	--
34	City of New Berlin	NW¼, SE¼, Section 8, T6N, R20E	N/A	N/A	N/A	Private special use	Abandoned	N/A	N/A	--	X	--	--	X	--	--	--

Table 1 (continued)

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area (acres)	Use Classification	Status	DNR Capacity Category (cubic yards x 10^3)	Estimated Remaining Service Life (years)	Solid Waste Type Accepted							
										Noncombustible	Wood Matter	Trash and Refuse	Garbage	Demolition	Toxic and Hazardous	Fly Ash	Other
	Waukesha County (continued)																
35	City of New Berlin	NW¼, SE¼, Section 18, T6N, R20E	Barrett Landfill	N/A	40.0	Private general use	Active	N/A	5	X	X	X	--	X	--	--	Foundry sand
36	City of New Berlin	NE¼, NW¼, Section 4, T6N, R20E	Industrial Waste Corporation	0374	25.0	Commercial special use	Active	50-500	5	X	--	--	--	--	--	--	--
37	City of New Berlin	NW¼, NW¼, Section 9, T6N, R20E	Bodus Landfill	N/A	N/A	Private	Transition abandonment	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
38	Town of Oconomowoc	SW¼, NW¼, Section 4, T8N, R17E	City of Oconomowoc	N/A	N/A	Public general use	Properly abandoned	N/A	--	--	X	X	--	--	--	--	Commercial, industrial wastes
39	Town of Oconomowoc	NW¼, NW¼, Section 18, T8N, R17E	Sanitary Transfer and Landfill-Oconomowoc	0718	N/A	Commercial general use	Transition abandonment	N/A	--	--	--	--	X	--	--	--	Commercial, industrial wastes
40	Village of Pewaukee	NE¼, SE¼, Section 9, T7N, R19E	Besnah Corporation	N/A	N/A	Private special use	Properly abandoned	N/A	--	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
41	Town of Pewaukee	SW¼, NW¼, Section 25, T7N, R19E	Johnson Sand and Gravel	N/A	N/A	Private special use	Transition abandonment	N/A	--	--	--	--	--	--	--	--	Foundry waste
42	Town of Pewaukee	NW¼, SE¼, Section 6, T7N, R19E	Town of Pewaukee	847	17.0	Public general use	Properly abandoned	N/A	N/A	X	X	X	--	--	--	--	--
43	Town of Pewaukee	SW¼, NE¼, Section 6, T7N, R19E	Town of Pewaukee	N/A	3.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
44	Town of Summit	SW¼, Section 20, NW¼, Section 29, T7N, R17E	Town of Summit	N/A	N/A	Public general use	Properly abandoned	N/A	--	--	--	X	--	--	--	--	--
45	City of Waukesha	SW¼, NW¼, Section 1, and the SE¼, NE¼, Section 2, T6N, R19E	City of Waukesha	N/A	N/A	Public general use	Properly abandoned	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
46	City of Waukesha	SW¼, NW¼, SE¼, Section 10, T6N, R19E	City of Waukesha	N/A	N/A	Public general use	Properly abandoned	N/A	--	--	--	X	X	--	--	--	Incinerator ash
47	City of Waukesha	SW¼, NE¼, Section 9, T6N, R19E	Grede Foundry	Unlicensed	10.0	Private special use	Inactive	N/A	--	X	X	X	--	--	--	--	Foundry sand
48	City of Waukesha	SE¼, NW¼ SW¼, SE¼, Section 4 and the NW¼, NE¼, Section 9, T6N, R19E	Dresser Industries	Unlicensed	N/A	Private special use	Inactive	N/A	--	--	--	--	--	X	--	--	--
49	Town of Waukesha	SE¼, NW¼, SW¼, NE¼, Section 1, T6N, R19E	Wisconsin Electric Power Company	0918	29.7	Private special use	Properly abandoned	N/A	--	--	--	--	--	--	--	X	--

Footnotes to Table 1

NOTE: N/A indicates data not available.

[a] *Information presented in this table was obtained collectively from SEWRPC inventories conducted under the areawide water quality management plan, county solid waste management plans for Kenosha, Ozaukee, Racine, Washington, and Waukesha Counties, and information from the Wisconsin Department of Natural Resources files.*

[b] *Formerly the Kenosha Trucking Company landfill site.*

[c] *This site is currently a transfer station for the Town of Somers.*

[d] *The abandoned portion of this landfill is located in SE¼, SW¼, Section 34, T6N, R22E.*

[e] *This landfill was closed in November 1981.*

[f] *Formerly the U. S. Government disciplinary barracks site, now known as Havenwood.*

[g] *Formerly known as the Bluehole site.*

[h] *Currently a University of Wisconsin-Milwaukee parking lot.*

[i] *This landfill lies beneath Milwaukee County Stadium.*

[j] *This landfill is in the process of being licensed.*

[k] *Formerly Ace Sand and Gravel.*

[l] *This landfill site is currently used as a transfer station.*

[m] *The City of Whitewater disposes of its solid waste at a sanitary landfill located in the Town of Cold Spring in Jefferson County. This site is within the city limits and is owned by the City. However, the site is located just outside the Southeastern Wisconsin Region. This site was abandoned in 1981.*

[n] *The West Bend landfill is scheduled to be abandoned.*

[o] *The Village of Kewaskum disposes of its solid waste at a sanitary landfill located in the Town of Auburn in Fond du Lac County. This site is within the village limits and is owned by the Village. However, the site is located just outside the Southeastern Wisconsin Region.*

[p] *Previously owned by Acme Disposal.*

[q] *These waste types were accepted while under the ownership of Acme Disposal.*

[r] *The Sanitary Transfer Service landfill is scheduled for abandonment in 1982.*

[s] *A transfer station is currently operated at this site.*

Source: SEWRPC.

Table 2

SELECTED CHARACTERISTICS OF KNOWN PROPOSED SOLID WASTE LANDFILLS IN SOUTHEASTERN WISCONSIN: 1980[a]

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Operator	License Number	Area	Proposed Use Classification	Status	Capacity Category (cubic yards x 10^3)	Known Special Type of Solid Waste Proposed to be Accepted
1	Kenosha County Town of Pleasant Prairie	NW¼, Section 28, T1N, R22E	Mr. C. Griffin	N/A	N/A	Commercial general use	Proposed new site	N/A	--
2	Town of Paris	SW¼, SE¼, Section 32, T2N, R21E	Waste Management of Wisconsin	1739	30-acre expansion	Commercial general use	Proposed expansion	Approximately 800	--
1	Milwaukee County City of Franklin	NE¼, SW¼, Section 31, T5N, R21E	Waste Management of Wisconsin	1099	40-acre expansion	Commercial general use	Proposed expansion	N/A	Selected toxic and hazardous wastes
2	City of South Milwaukee	W½, Section 2, T5N, R22E	Bucyrus-Erie Company	N/A	N/A	Private special use	Proposed new site	N/A	Foundry sand
1	Ozaukee County Town of Grafton	S½, Section 8, T10N, R22E	Town of Grafton	N/A	N/A	Public special use	Proposed new site	N/A	--
2	Town of Grafton	S½, Section 8, T10N, R22E	Wisconsin Electric Power Company	N/A	N/A	Private special use	Proposed new site	N/A	--
1	Walworth County Town of East Troy	NW¼, NE¼, Section 6 T3N, R18E and SW¼, SE¼,	DMC Corporation	N/A	146-acre site	Commercial general use	Proposed new site	500	--
2	Town of Walworth	Section 31, T4N, R18E	Bakers Sanitary Landfill	0189	67-acre expansion	Commercial general use	Proposed expansion	500	--
3	Town of Darien		Greidanus Landfill	0140	40-acre expansion	Commercial general use	Proposed expansion	N/A	--
1	Waukesha County Town of Lisbon	SW¼, SW¼, Section 24, T8N, R19E	Mammoth Springs Cannery	N/A	N/A	N/A	Proposed new site	N/A	--
2	Village of Menomonee Falls	Section 1, T8N, R20E	Waste Management of Wisconsin (Lauer III)	N/A	N/A	Commercial general use	Proposed new site	N/A	--
3	City of New Berlin	NE¼, NW¼, Section 20, T6N, R20E	City of New Berlin	N/A	N/A	N/A	Proposed new site	N/A	--
4	City of New Berlin	NW¼, Section 20, NE¼, Section 19, T6N, R20E	Wisconsin Electric Power Company	N/A	N/A	Private special use	Proposed new site	N/A	--
5	Town of Pewaukee	Section 23, T7N, R19E	Wisconsin Electric Power Company	N/A	N/A	Private special use	Proposed new site	N/A	--
6	Town of Pewaukee	NE¼, Section 12, T7N, R19E	Wisconsin Electric Power Company	N/A	N/A	Private special use	Proposed new site	N/A	--

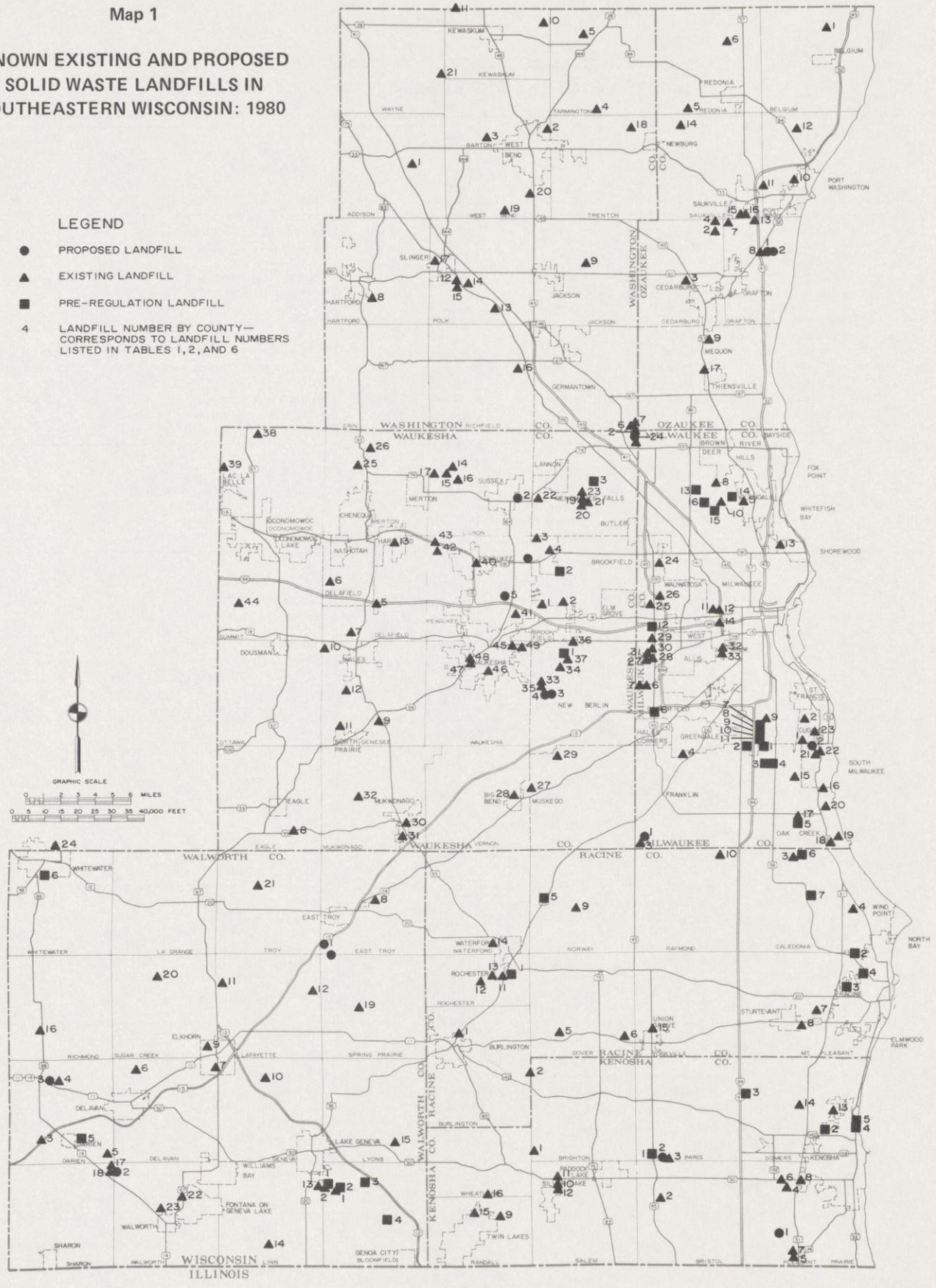
NOTE: N/A indicates data not available.

[a] *Information presented in this table was obtained collectively from SEWRPC inventories conducted under the areawide water quality management planning program, county solid waste management plans prepared for Kenosha, Ozaukee, Racine, Washington, and Waukesha Counties, and information from the Wisconsin Department of Natural Resources files.*

Source: SEWRPC.

Map 1

KNOWN EXISTING AND PROPOSED SOLID WASTE LANDFILLS IN SOUTHEASTERN WISCONSIN: 1980



Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 3

SELECTED CHARACTERISTICS OF KNOWN MUNICIPAL AND PRIVATE SOLID WASTE INCINERATORS IN SOUTHEASTERN WISCONSIN: 1980[a]

Number on Map 2	Civil Division	Location by U. S. Public Land Survey Section	License Number	Operator	Use Classification	Status	Solid Waste Type Accepted						Average Tons per Gallon per Year	Rated Capacity (pounds per hour)	Actual Capacity (pounds per hour)	Percent Combustible
							Wood Matter	Trash and Refuse	Garbage	Pathological[b]	Toxic and Hazardous	Other				
	Kenosha County															
1	City of Kenosha	NW¼, Section 6, T1N, R23E	0830	Anaconda American Brass Company	Private general use	Inactive	X	X	X	--	--	--	--	1,000	1,000	99
2	City of Kenosha	NE¼, NE¼, Section 6, T1N, R22E	2539	Kenosha Memorial Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils, liquid waste, excretory waste	N/A	N/A	N/A	N/A
	Kenosha County Proposed															
3	Town of Somers	SE¼, NE¼, Section 10, T2N, R22E	N/A	Ocean Spray Cranberries, Inc.	Private general use	Proposed	--	X	--	--	--	Organic wastes from canning and bottling processes	--	--	--	--
	Milwaukee County															
1	City of Cudahy	NE¼, SE¼, Section 35, T6N, R22E	2300	Trinity Memorial Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
2	City of Glendale	NE¼, Section 30, T8N, R22E	2301	Glen Field Health Care Center	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
3	City of Glendale	Section 29, T8N, R22E	2380	Lakeside Animal Hospital	Private general use	Active	--	X	X	X	X	--	N/A	N/A	N/A	N/A
4	City of Milwaukee	NE¼, SW¼, Section 33, T7N, R22E	1528	Milwaukee Metropolitan Sewerage District	Private special use	Inactive	--	--	--	--	--	Screening and grit from wastewater treatment	N/A	N/A	N/A	N/A
5	City of Milwaukee	SE¼, SE¼, Section 32, T7N, R22E	2722	Allen-Bradley Company	Private general use	Active	X	X	X	--	--	Commercial wastes, liquid wastes	1,750	1,080	1,080	95
6	City of Milwaukee	NE¼, SE¼, Section 29, T8N, R22E	2830	Goodwill Industries	Private general use	Active	X	X	--	--	--	--	N/A	N/A	N/A	N/A
7	City of Milwaukee	Section 13, T7N, R21E	2223	St. Mary's Nursing Home	Private general use	Active	--	X	X	--	--	Disposable diapers	N/A	N/A	N/A	N/A
8	City of Wauwatosa	Section 29, T7N, R21E	2226	Lakeview Hospital	Private general use	Active	--	X	X	--	X	Disposable utensils	N/A	N/A	N/A	N/A
9	City of Milwaukee	Section 5, T6N, R22E	2228	City of Milwaukee Johnston Community Health Center	Private special use	Active	--	X	X	--	--	--	N/A	N/A	N/A	N/A
10	City of Milwaukee	Section 18, T6N, R22E	2229	St. Francis Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils, liquid waste, excretory waste	N/A	N/A	N/A	N/A
11	City of Milwaukee	NE¼, NE¼, Section 33, T8N, R21E	2232	Northwest Health Center	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
12	City of Milwaukee	Section 25, T7N, R21E	2237	Family Hospital	Private special use	Active	--	--	--	X	X	Disposable utensils	N/A	N/A	N/A	N/A
13	City of Milwaukee	Section 30, T7N, R22E	2238	Lutheran Hospital	Private special use	Active	--	--	--	X	X	Disposable utensils, excretory waste	1	50	5	99

Table 3 (continued)

Number on Map 2	Civil Division	Location by U. S. Public Land Survey Section	License Number	Operator	Use Classification	Status	Solid Waste Type Accepted						Average Tons per Gallon per Year	Rated Capacity (pounds per hour)	Actual Capacity (pounds per hour)	Percent Combustible
							Wood Matter	Trash and Refuse	Garbage	Pathological[b]	Toxic and Hazardous	Other				
	Milwaukee County (continued)															
14	City of Milwaukee	NW¼, Section 29, T7N, R22E	2241	Mount Sinai Medical Center	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
15	City of Milwaukee	SE¼, NE¼, Section 29, T7N, R21E	2244	Bel Air Health Care Center, Inc.	Private general use	Active	--	X	X	X	X	Disposable diapers	N/A	N/A	N/A	N/A
16	City of Milwaukee	Section 12, T6N, R21E	2274	St. Luke's Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils, liquid waste, excretory waste	N/A	N/A	N/A	N/A
17	City of Milwaukee	Section 16, T6N, R22E	2302	Bradley Convalescent Center	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
18	Village of Bayside	SW¼, Section 4, T8N, R22E	2303	North Shore Health Care Center	Private special use	Active	--	--	--	X	X	Disposable utensils	N/A	N/A	N/A	N/A
19	City of Milwaukee	NE¼, Section 8, T7N, R21E	2305	St. Anne's Home for the Elderly	Private special use	Active	--	X	X	--	--	--	N/A	N/A	N/A	N/A
20	City of Milwaukee	Section 31, T8N, R22E	2306	St. Michael Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, liquid waste	N/A	N/A	N/A	N/A
21	City of Milwaukee	SW¼, Section 10, T7N, R22E	2346	Columbia Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils, liquid waste, excretory waste	457	725	425	95
22	City of Milwaukee	SW¼, Section 2, T8N, R21E	2347	Northwest General Hospital	Private general use	Active	--	X	X	X	X	--	N/A	N/A	N/A	N/A
23	City of Milwaukee	Section 30, T7N, R22E	2381	Marion Catholic Home	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
24	City of Milwaukee	NE¼, Section 14, T7N, R21E	2556	St. Joseph's Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils, excretory waste	22,000	800	600	80
25	City of Milwaukee	NW¼, Section 25, T8N, R21E	2669	Plymouth Manor	Private special use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
26	City of Milwaukee	Section 30, T7N, R22E	2670	Deaconess Hospital	Private general use	Active	--	X	X	X	X	--	N/A	N/A	N/A	N/A
27	City of Milwaukee	NE¼, Section 25, T7N, R21E	2800	West Side Hospital	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
28	City of Milwaukee	NW¼, NW¼, Section 29, T7N, R22E	2236	St. Anthony Hospital	Private special use	Inactive	--	--	--	X	X	--	N/A	N/A	N/A	N/A
29	City of Milwaukee	SW¼, SE¼, Section 24, T7N, R21E	2383	St. Mary's Hill Hospital	Private general use	Inactive	--	X	X	--	--	Disposable utensils	N/A	N/A	N/A	N/A
30	City of Milwaukee	SE¼, NE¼, Section 30, T7N, R22E	2824	Marquette University Schroeder Health Services	Private general use	Active	--	X	X	X	X	Excretory wastes	N/A	N/A	N/A	N/A

Table 3 (continued)

Number on Map 2	Civil Division	Location by U. S. Public Land Survey Section	License Number	Operator	Use Classification	Status	Solid Waste Type Accepted						Average Tons per Gallon per Year	Rated Capacity (pounds per hour)	Actual Capacity (pounds per hour)	Percent Combustible
							Wood Matter	Trash and Refuse	Garbage	Pathological[b]	Toxic and Hazardous	Other				
	Milwaukee County (continued)															
31	City of Milwaukee	SE¼, SW¼, Section 21, T8N, R21E	2257[c]	Avon Manor Nursing Home	Private special use	Active	--	X	--	--	--	--	N/A	N/A	N/A	N/A
32	City of Milwaukee	NW¼, Section 12, T7N, R21E	N/A	A. O. Smith Company	Private general use	Inactive[d]	--	--	--	--	--	Commercial and industrial wastes	N/A	N/A	N/A	N/A
33	City of Wauwatosa	SW¼, Section 7, T7N, R21E	2745	Briggs & Stratton	Private general use	Active	X	X	X	--	--	Commercial wastes	N/A	N/A	N/A	N/A
34	City of Wauwatosa	Section 30, T7N, R21E	2243	St. Camillus Health Center	Private general use	Active	--	X	X	--	--	--	N/A	N/A	N/A	N/A
35	City of Wauwatosa	Section 28, T7N, R21E	2717	Medical College of Wisconsin	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
36	City of West Allis	SW¼, Section 9, T6N, R21E	2304	Methodist Manor Health Center	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
37	City of West Allis	T6N, R21E, and T7N, R21E	2360	Villa Clement	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
38	City of West Allis	NW¼, Section 11, T6N, R21E	2385	St. Joseph's Home for the Aged	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
39	City of West Allis	Section 9, T6N, R21E	2596	Methodist Manor	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
40	City of Milwaukee	SE¼, Section 34, T7N, R21E	--	U. S. Veterans Administration	Private special use	Active	--	X	X	--	--	--	2,100	2,000	1,500	99
41	City of Milwaukee	SE¼, Section 12, T6N, R21E	--	The Heil Company—Truck Equipment Division	Private general use	Active	X	X	--	--	--	--	3	250	32	49
42	City of Milwaukee	SE¼, Section 12, T6N, R21E	--	Maynard Steel Casting Company	Private general use	Active	X	X	--	--	--	--	91	350	350	95
43	City of Milwaukee	SW¼, Section 1, T6N, R21E	--	Falk Corporation Plant 1	Private general use	Active	X	X	--	--	--	--	145	500	250	96
44	Village of West Milwaukee	SW¼, Section 1, T6N, R21E	--	Inryco, Inc. Burnham Street	Private general use	Active	X	X	--	--	--	--	200	667	667	99
45	City of Milwaukee	NW¼, Section 33, T7N, R22E	--	Afram Brothers Company	Private general use	Active	X	--	--	--	--	Rubber, plastic	1,250	2,000	2,000	30
46	City of South Milwaukee	NE¼, Section 14, T5N, R22E	--	Appleton Electric Company—Foundry Division	Private general use	Active	X	X	--	--	--	--	30	200	100	98
47	City of Milwaukee	NE¼, Section 21, T6N, R21E	--	St. Joseph's Convent	Private special use	Active	X	X	--	--	--	--	100	625	165	90
	Milwaukee County Proposed															
48	City of Milwaukee	SW¼, NW¼, Section 32, T7N, R22E	N/A	Hydrite Chemical Company	Private general use	Proposed	--	--	--	--	--	Flammable liquids, commercial product waste	--	--	--	--

Table 3 (continued)

Number on Map 2	Civil Division	Location by U. S. Public Land Survey Section	License Number	Operator	Use Classification	Status	Solid Waste Type Accepted						Average Tons per Gallon per Year	Rated Capacity (pounds per hour)	Actual Capacity (pounds per hour)	Percent Combustible
							Wood Matter	Trash and Refuse	Garbage	Pathological[b]	Toxic and Hazardous	Other				
	Ozaukee County															
1	Village of Grafton	Section 24, T10N, R21E	1785	Village of Grafton	Public general use	Inactive	X	X	X	--	--	Licensed to burn municipal and commercial solid waste—presently used only to destroy drugs and other material confiscated by law enforcement agencies	N/A	N/A	N/A	N/A
2	City of Port Washington	Section 28, T11N, R22E	2384	Heritage Nursing Homes	Private special use	Active	--	--	--	--	--	Disposable diapers	N/A	N/A	N/A	N/A
	Racine County															
1	City of Burlington	NE¼, SW¼, Section 32, T3N, R19E	2307	Memorial Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
2	City of Racine	NW¼, SW¼, Section 7, T3N, R23E	2222	St. Mary's Medical Center, Inc.	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
3	City of Racine	SW¼, NE¼, Section 16, T3N, R23E	2235	St. Luke's Hospital	Private special use	Active	--	--	--	X	X	--	N/A	N/A	N/A	N/A
4	City of Racine	NE¼, SW¼, Section 9, T3N, R23E	2308	St. Catherine's Infirmary	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
5	City of Racine	SW¼, Section 16, T3N, R23E	--	S. C. Johnson & Son—Racine Plant	Private general use	Active	X	X	--	--	--	--	16	450	60	80
6	Village of Sturtevant	NE¼, Section 22, T3N, R22E	--	S. C. Johnson & Son—Waxdale Plant	Private general use	Inactive	--	--	--	--	X	By-products gaseous wastes, liquid wastes, semi-liquid wastes	--	167	--	95
7	Village of Sturtevant	NE¼, Section 22, T3N, R22E	--	S. C. Johnson & Son—Waxdale Plant	Private general use	Active	--	--	--	--	X	By-products, gaseous wastes	1,200	335	335	95
	Walworth County															
1	Village of Elkhorn	NE¼, SW¼, Section 4, T2N, R17E	2309	Lakeland Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils	N/A	N/A	N/A	N/A
	Washington County															
1	City of Hartford	Section 20, T10N, R18E	2231	Hartford Memorial Hospital	Private general use	Active	--	X	X	X	X	Disposable utensils	--	--	--	--
2	City of West Bend	NE¼, NW¼, Section 14, T11N, R19E	2239	St. Joseph's Community Hospital	Private general use	Active	--	X	X	X	X	Disposable utensils, disposable diapers	--	--	--	--
3	City of West Bend	SE¼, Section 12, T11N, R19E	2279	The Samaritan Home	Private general use	Active	--	X	X	X	X	Disposable diapers	--	--	--	--
4	Town of West Bend	Section 29, T11N, R19E	2663	Cedar Lake Home Fellowship Hospital	Private general use	Active	--	X	X	--	--	--	--	--	--	--
5	Town of West Bend	Section 29, T11N, R19E	2664	Cedar Lake Home Fellowship Hospital	Private general use	Active	--	X	X	--	--	--	--	--	--	--

Table 3 (continued)

Number on Map 2	Civil Division	Location by U. S. Public Land Survey Section	License Number	Operator	Use Classification	Status	Solid Waste Type Accepted						Average Tons per Gallon per Year	Rated Capacity (pounds per hour)	Actual Capacity (pounds per hour)	Percent Combustible
							Wood Matter	Trash and Refuse	Garbage	Pathological[b]	Toxic and Hazardous	Other				
	Waukesha County															
1	City of Brookfield	NW¼, NE¼, Section 20, T7N, R20E	2233	Elmbrook Memorial Hospital	Private special use	Active	--	--	--	X	X	Disposable diapers, disposable utensils, liquid waste	--	--	--	--
2	Village of Menomonee Falls	SE¼, SW¼, Section 9, T8N, R20E	2281	Community Memorial Hospital	Private special use	Active	--	--	--	X	X	--	--	--	--	--
3	City of New Berlin	SW¼, SW¼, Section 14, T6N, R20E	2794	New Berlin Animal Hospital	Private special use	Active	--	--	--	X	X	--	--	--	--	--
4	City of New Berlin	NW¼, NW¼, Section 13, T6N, R20E	2242	New Berlin Memorial Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers	--	--	--	--
5	City of Oconomowoc	Section 4, T7N, R17E	2258	Oconomowoc Memorial Hospital	Private general use	Active	--	X	X	X	X	--	--	--	--	--
6	Town of Pewaukee	SE¼, Section 28, T7N, R19E	2245	Northview Home	Private general use	Active	--	X	X	--	--	Disposable diapers	--	--	--	--
7	City of Waukesha	NW¼, SE¼, Section 9, T6N, R19E	306	City of Waukesha	Public special use	Inactive	--	--	--	--	--	Liquids	21,562	14,500	14,000	85
8	City of Waukesha	NE¼, SE¼, Section 9, T6N, R19E	2860	City of Waukesha	Public general use	Active	X	X	X	--	--	Commercial wastes, animal carcasses	7,188	14,500	14,000	85
9	City of Waukesha	Section 3, T6N, R19E	2225	Waukesha Memorial Hospital	Private general use	Active	--	X	X	X	X	Disposable diapers, disposable utensils, excretory waste	--	--	--	--
10	City of Waukesha	Section 34, T6N, R19E	2809	Humane Animal Welfare Society of Waukesha County, Inc.	Private general use	Active	--	X	X	X	X	--	--	--	--	--
11	City of Brookfield	SE¼, Section 25, T7N, R20E	--	W. A. Krueger Company	Private general use	Active	X	X	--	--	--	--	1	650	180	99

[a] *Information obtained from SEWRPC inventories conducted under the areawide water quality management planning program and from the Wisconsin Department of Natural Resources files.*

[b] *The pathological waste category includes all or part of the following waste types: laboratory wastes, pathological specimens, surgical wastes, infectious wastes, and/or animal carcasses. These wastes are considered toxic and hazardous.*

[c] *The incinerator operation of the Avon Manor Nursing Home no longer meets the criteria which are required in order to obtain a license from the Wisconsin Department of Natural Resources.*

[d] *The A. O. Smith incinerator is presently inactive; however, it is expected to begin operation in February 1981.*

Source: SEWRPC.

Table 4

SELECTED CHARACTERISTICS OF KNOWN MUNICIPAL AND COMMERCIAL RECYCLING OPERATIONS IN SOUTHEASTERN WISCONSIN: 1980[a]

Name and Address of Operation	Materials Recycled
Kenosha County Municipal City of Kenosha Department of Public Works	A 24-hour drop-off center for used motor oil is located at 6415 35th Avenue
Milwaukee County Municipal Village of Brown Deer 4800 W. Green Brook Drive	A drop-off center for waste oil is located at the fire station tank
City of Cudahy 5050 S. Lake Drive	The City picks up newspapers in conjunction with refuse collection. Special curbside pickup of waste metals and white goods and drop-off center for waste oil at municipal garage, 3555 E. Pabst Avenue, open 24 hours a day, seven days a week
City of Glendale 5909 N. Milwaukee River Parkway	City collects newspapers, bundled, in conjunction with refuse collection, and waste oil in separate containers. Drop-off center for glass, aluminum cans and oil at 7030 N. Port Washington Road, Glendale
City of Milwaukee Bureau of Sanitation 841 N. Broadway Street	Newspapers can be bundled and collected with other waste. If market is good, bundles will be hand separated and recycled. Waste oil recycling drop-off centers are located at: 1. 2931 W. Cameron Street (open 7 a.m.-3:30 p.m. Monday-Friday) 2. 1333 N. 33rd Street (open 7 a.m.-3:30 p.m. Monday-Friday) 3. 4031 S. 6th Street (open 7 a.m.-3:30 p.m. Monday-Friday) 4. 2363 S. 35th Street (open 7 a.m.-3:30 p.m. Monday-Friday) 5. 1136 E. North Avenue (open 7 a.m.-3:30 p.m. Monday-Friday) 6. 6125 W. Burleigh Street (open 7 a.m.-3:30 p.m. Monday-Friday) 7. 1912 W. Pierce Street (open 7 a.m.-3:30 p.m. Monday-Friday) 8. 7717 W. Good Hope Road (open 7 a.m.-3:30 p.m. Monday-Friday)
Schlitz Audubon Center 1111 E. Brown Deer Road Milwaukee	Bundled newspapers, cardboard, and magazines along with aluminum items can be brought to a drop-off point at the Schlitz Audubon Center
Village of Shorewood 3930 N. Murray Avenue	The Village of Shorewood has a mandatory newspaper recycling program
City of St. Francis 4235 S. Nicholson Avenue	Collection sites for waste motor oil are located at St. Francis Auto Salvage Yard, Busse's Service Station, and Dan's Lakeview Service Station. These sites are open during regular working hours
City of Wauwatosa 7725 W. North Avenue	Collection sites for waste motor oil are located at Fire Station No. 1, 1463 Underwood Avenue and Fire Station No. 2, Mayfair Road, north of Capitol Drive, and at the Public Works Building at the incinerator
Village of Whitefish Bay 533 N. Marlborough Drive	Newspapers are collected curbside weekly on scheduled waste collection day. Waste motor oil may be deposited at the Village Garage, 155 W. Fairmount Avenue, Whitefish Bay

Table 4 (continued)

Name and Address of Operation	Materials Recycled
Ozaukee County Municipal Village of Grafton 1102 Bridge Street	There is a curbside collection program for bagged paper, drain oil, glass, and aluminum and steel cans the third Saturday of each month. Collected items are taken by volunteers to Recycling Center, 699 N. Green Bay Road, Grafton. This collection is on the third Saturday of each month
City of Mequon 11333 N. Cedarburg Road 60W	Newspaper may be deposited at the Department of Public Works Yard the first Saturday of every month from 9:00 a.m. to 1:00 p.m.
City of Port Washington 100 W. Grand Avenue	A 24-hour drop off center for used motor oil is at 410 S. Spring Street; another center is open from 7:00 a.m. to 3:30 p.m. Monday through Friday at 333 Moore Road
Village of Saukville 201 Linden Street	Newspaper and aluminum cans are collected once every other month at a dumpster located at 639-A S. Main Street, Saukville. Waste oil may be deposited 24 hours a day at Stevlin's Hardware, 100 Progress Drive, Saukville
Ozaukee County Highway Department Waubeka	A 24-hour drop off center for used motor oil is located at the county highway shop
Racine County Municipal Racine County Highway Department Ives Grove	A waste oil collection site is located at the County Highway Department garage at Highways 20 and C, Ives Grove. The site is lighted and accessible 24 hours a day. A second oil collection site is located at the County Highway Department garage at Highway FF in Rochester. The site is lighted and accessible 24 hours a day
City of Racine 730 Washington Avenue	Newspapers are collected with other household refuse. The Girl Scouts operate a drop-off center at 730 Washington Avenue on Saturday mornings from 8:00 a.m. to noon A drop-off center for used oil is located at 830 S. Marquette Street; open from 7:30 a.m. to 4:00 p.m. Monday through Friday
Walworth County Municipal City of Whitewater 312 W. Whitewater Street	A drop-off center for used motor oil is located at the City Garage, Fremont Street and Starin Road; open 7:00 a.m. to 4:00 p.m., Monday through Friday
Washington County Municipal City of West Bend 251 Municipal Drive	A drop-off center is available for waste motor oil

Table 4 (continued)

Name and Address of Operation	Materials Recycled
Waukesha County Municipal City of Brookfield 2000 N. Calhoun Road	Metal, leaves for the municipal compost pile and brush for the brush chip pile, and steel cans may be deposited at 19450 Riverview Drive, Brookfield, every Saturday from 9:00 a.m. to 5:00 p.m. and on Tuesdays from 2:00 p.m. to 8:00 p.m. during the months of May through October. Waste oil is collected 24 hours a day at three sites: the Highway Department garage, Fire Station No. 2, and Fire Station No. 3. Only city residents with valid permits may deposit the waste oil
Village of Elm Grove 13600 Juneau Boulevard	Newspaper, glass, aluminum cans, metal, other aluminum, and waste motor oil may be deposited at 900 Wall Street, Elm Grove, every Saturday from 9:00 a.m. to 4:00 p.m.
Village of Menomonee Falls W156 N8480 Pilgrim Road	Waste motor oil may be deposited at N72 W15920 Good Hope Road 24 hours a day, seven days a week
City of Muskego W172 S7430 Center Drive	Aluminum cans and glass may be deposited at the Muskego Landfill at S82 W21595 Waver Lane six days a week from 7:00 a.m. to 5:00 p.m. Waste oil is also collected 24 hours a day. Newspapers are collected by the Cub Scouts and the Muskego Historical Society at announced times
City of New Berlin 16320 W. National Avenue New Berlin	Newspaper, magazines, glass, aluminum cans, and other metal may be deposited each Saturday from 8:00 a.m. to 4:30 p.m.
Waukesha County Highway Department	Waste soil may be deposited at the County Highway and Transportation Department substation, Highway R, Nashotah; at the main shop on Highway T, Town of Pewaukee and at the substation in Sussex
City of Waukesha 201 Delafield	City-collected waste is incinerated to produce steam which is used at the sewage treatment plant and sold to a nearby industry
Kenosha County Commercial Industrial Pumping, Inc. 3223 47th Avenue Kenosha	Industrial and automotive oil
Reynolds Aluminum 75th Street and Pershing Boulevard Kenosha	All aluminum

Table 4 (continued)

Name and Address of Operation	Materials Recycled
Milwaukee County Commercial	
A-1 Waste Paper Recycling 2101 W. Morgan Avenue Milwaukee	All grades of paper, all aluminum, batteries, iron, and steel, but no steel cans or cars
Action Salvage 809 S. 10th Street Milwaukee	Iron and steel, aluminum (no cans), brass
Advance Salvage, Inc. 2375 S. 43rd Street Milwaukee	Iron and steel (no cans), aluminum, auto batteries
Afram Brothers Company 900 S. Water Street Milwaukee	Iron and steel, aluminum, batteries, household appliances, copper, brass
American Recycling, Inc. 3015-33 W. Center Street Milwaukee	Iron and steel, aluminum, auto batteries, brass, copper, stainless steel, newsprint, magazines, cardboard
Ames Scrap Iron & Metal Company, Inc. 801 S. 72nd Street Milwaukee	Iron and steel (no cans—4-ton minimum)
Badger Paper Excelsior Corporation 111 W. Olive Street Milwaukee	Aluminum cans, newsprint, cardboard
Badger Salvage & Wrecking Corporation 2335 S. 43rd Street Milwaukee	Iron and steel, aluminum, auto batteries
Balco Metals, Inc. 127 S. 11th Street, P. O. Box 1223 Milwaukee	Aluminum, auto batteries, all nonferrous metals
Bremer Consolidated Industrial Supply Company 1038 W. Bruce Street Milwaukee	Newsprint, cardboard, computer paper, office paper, computer cards, aluminum, batteries, other nonferrous metals
Felix Bandos Waste Materials 1132 S. Barclay Street Milwaukee	Aluminum, iron and steel, auto batteries, brass, copper, all grades of waste paper
Louis Bass, Inc. 331 S. 3rd Street, P. O. Box 04513 Milwaukee	Industrial recyclable materials, all grades of paper except magazines; however, no household waste
Consumers Waste & Paper Corporation 1400 E. Belleview Place Milwaukee	Newsprint and cardboard, trailerloads; iron and steel (4- to 5-ton minimum); aluminum, drive-on trailer; rags; other metal. Primarily wholesale business
Continental Can Company 4700 N. Port Washington Road Milwaukee	Aluminum
Dombek Metals, Inc. 3456A N. Buffum Street Milwaukee	Aluminum and steel from transformers, cast iron, copper, silicon from transformers; heavy-duty industrial furnace to destroy wastes
Environmental Products and Systems, Inc. 10855 W. Potter Road Milwaukee	Insulating and hydraulic oil

Table 4 (continued)

Name and Address of Operation	Materials Recycled
Milwaukee County Commercial (continued)	
Esteck Oil Company 1016 N. Hawley Road Milwaukee	Industrial hydraulic and lubricating oil, and automotive oil
Forman Metal Company 4200 W. Rivers Edge Circle Milwaukee	Aluminum, iron and steel, auto batteries, cardboard, white ledger paper, computer cards
Grossman Brothers Company 1277 S. Barclay Street Milwaukee	Iron and steel (5-ton minimum)
H&R Scrap Metals and Iron Company, Inc. 9000 W. Fond du Lac Avenue Milwaukee	Aluminum, iron and steel (cans, 100-pound minimum), all other ferrous and nonferrous metals
Holzman & Sons Waste Paper 500 W. Florida Street Milwaukee	Newsprint, magazines, cardboard tied or baled
Jacobs Scrap & White Metals Company 538 S. 2nd Street Milwaukee	Aluminum (no cans—500-pound minimum), nonferrous scrap (500-pound minimum)
Katz Brothers, Inc. 504 W. Cherry Street Milwaukee	Iron and steel (no cans), aluminum, auto batteries, newsprint, magazines, cardboard
Klein Industrial Company, Inc. 2001 W. Canal Street Milwaukee	Truckload iron and steel, aluminum (4,000-pound minimum), auto batteries (100 units minimum)
Larry's Salvage 6524 S. 13th Street Oak Creek	Newsprint, corrugated cardboard, iron and steel (no cans), aluminum, rags, auto batteries, household items
Liberty Iron & Rubbish Removal, Inc. 1809 S. 1st Street Milwaukee	Call for information on metal purchasing
Lubricants, Inc. W225 N3120 DuPlainville Road Pewaukee	A 24-hour drop-off center for used motor oil is located at 1910 S. 73rd Street
McKinley's Dismantling, Inc. 2549 N. 30th Street Milwaukee	Aluminum, iron and steel (both 500-pound minimum); batteries
Metal Exchange Corporation 735 N. Water Street Milwaukee	All aluminum (40,000-pound minimum)
Midwest Iron & Metal, Inc. 6760 N. Industrial Road (Green Tree) Milwaukee	Aluminum, iron and steel (no cans or appliances), auto batteries, nonferrous metals
Miller Brewing Company Reclamation Center 4400 W. State Street Milwaukee	Aluminum cans, Miller bottles

Table 4 (continued)

Name and Address of Operation	Materials Recycled
Milwaukee County Commercial (continued)	
Miller Compressing Company P. O. Box 369 Milwaukee	All grades of metal and paper
Milwaukee Scrap Metal Company 1236 W. Pierce Street Milwaukee	Aluminum (10,000-pound minimum); auto batteries, brass, copper, lead, stainless steel (all 5,000-pound minimum)
Milwaukee Waste Paper Company 2342 N. Newhall Street Milwaukee	All grades of paper
National Salvage, Ltd. 6709 W. National Avenue West Allis	Bundled newsprint and cardboard, iron and steel (no cans), aluminum, auto batteries, rags
Northside Salvage 3607 N. Richards Milwaukee	Iron and steel (no cans), aluminum cans, auto batteries, household appliances, newsprint, cardboard, computer paper
Parks Iron & Metal Company, Inc. 4250 N. 35th Street Milwaukee	Iron and steel (no cans), aluminum (100-pound minimum for cans), auto batteries. No cars or large appliances
Peck Metals, Inc. 3002 W. Wright Street Milwaukee	Industrial scrap only
Peltz Brothers Waste Material Company 4875-4900 N. 32nd Street Milwaukee	Iron and steel (no cans), aluminum, auto batteries, all metal household items, newsprint, cardboard, magazines
Peter Wolin Company, Inc. 8520 W. Kaul Avenue Milwaukee	Steel (no cans), aluminum, auto batteries, foils
Pioneer Iron & Metal Company 3310 W. Fond du Lac Avenue Milwaukee	Aluminum (no cans), cast iron porcelain household appliances
Plastics, Inc. 500 W. Florida Street Milwaukee	Buys low- and high-density polyethylene, polypropylene, polystyrene, and flex and rigid PVC, color separated and clean, in no minimum amount
Reynolds Aluminum (at Kohl's) 8338 W. Appleton Avenue Milwaukee	All aluminum
Reynolds Aluminum Recycling Company 119 S. 116th Street West Allis	Aluminum cans, cast and sheet aluminum—no engines, screens, or hubcaps—3-foot length limit
Reynolds Aluminum (at Kohl's) 2901 S. Chicago South Milwaukee	All aluminum
Ruby's H&R Scrap Metals & Iron Company, Inc. 9000 W. Fond du Lac Avenue Milwaukee	Iron and steel (cans in truckload lots), aluminum, auto batteries, large household appliances

Table 4 (continued)

Name and Address of Operation	Materials Recycled
Milwaukee County Commercial (continued)	
Sadoff Iron & Metal Company 813 W. College Avenue Milwaukee	Brass, large aluminum items (mostly industrial)
Schreiner's Waste Oil Service 2026 W. Cedar Milwaukee	Industrial hydraulic and lubricating oil, and automotive oil
Schuster Metals, Inc. 2206 N. 30th Street Milwaukee	Iron and steel (no cans) aluminum, auto batteries, copper, brass, silver, gold
Shapiro Paper & Metal Recycling Corporation 1511 N. 31st Street Milwaukee	Aluminum, auto batteries, newsprint (10,000-pound minimum), cardboard
South Side Waste Materials 127 W. Virginia Milwaukee	Steel pipes, aluminum, auto batteries, rags, lead, copper, brass, newsprint, cardboard
Standard Scrap Metal, Ltd. 1337 N. 6th Street Milwaukee	Newsprint, cardboard, iron and steel (no cans), aluminum, auto batteries. No heavy iron appliances
State Metals Corporation 5403 W. State Street Milwaukee	Iron and steel (no cans—200-pound minimum), aluminum (no cans), brass and copper (50-pound minimum), newsprint
Stimac Brothers Corporation 600 S. 44th Street P. O. Box 19856 Milwaukee	Metals (industrial dealer only)
West Allis Salvage Company, Inc. 1911 S. 80th Street West Allis	Newsprint, cardboard, steel, aluminum, auto batteries. Call for preparation requirements
Western Iron & Metal Company 801 S. 72nd Street Milwaukee	Iron and steel
Wisconsin Metal & Chemical Company c/o Steve Kimmel 8300 W. Florist Avenue Milwaukee	Steel cans (1,000-pound minimum), aluminum cans
Wolinsky Salvage, Inc. 701 S. 11th Street Milwaukee	Iron and steel, aluminum, auto batteries, stoves/refrigerators, newsprint, magazines, cardboard
Ozaukee County Commercial Casper Metals, Ltd. P. O. Box 46 Mequon	Silver and gold
Racine County Commercial Consumers Steel & Supply Company 1339 17th Street Racine	Iron and steel, aluminum (no cans), auto batteries, large household appliances
Continental Can Company 1901 Chickory Road Racine	A 24-hour drop-off center accepts steel and aluminum cans

Table 4 (continued)

Name and Address of Operation	Materials Recycled
Racine County Commercial (continued)	
FCF Metal Salvage 5309 Mormon Road Burlington	Aluminum, iron and steel, auto batteries, autos, copper, brass
Foster-Forbes Glass Company S. McHenry Street Burlington	All colors of container glass, color separated
Johnson Metal Company 3506 Hamilton Avenue Racine	Aluminum, auto batteries, brass, copper, electric motors, starter generators
Kraft Industrial Salvage 1308 Frederick Racine	Iron, steel, and aluminum (no cans); industrial scrap
Matagrano's, Inc. 2065 N. Memorial Drive Racine	Aluminum cans
Reynolds Aluminum (at Zayre Department Store) Durand and Lathrop Streets Racine	All aluminum
Schwartz Scrap Metals 5316 Wright Avenue Racine	Industrial scrap only
Stern Waste Paper & Iron Company, Inc. 1415 Durand Avenue Racine	Iron and steel, aluminum, auto batteries, waste oil, newsprint, magazines, cardboard
Walworth County Commercial	
Kienbaum Iron & Metal, Inc. 564 N. Jefferson Street Whitewater	Iron and steel, aluminum, auto batteries, household appliances
Richmond Iron & Metal N. Main Street Walworth	Aluminum cans, other
Walter Dorn Beer Distributing Company Highway 36 North Lake Geneva	Buys aluminum cans
Washington County Commercial	
Bermico Company 2100 Northwestern Avenue West Bend	Newsprint, magazines, some cardboard
Herriges Oil Company 1245 Fond du Lac Avenue Kewaskum	Waste oil can be brought to Herriges Oil Company for recycling
Kettle Moraine Electric, Inc. 1261 Fond du Lac Avenue Kewaskum	Newsprint, aluminum cans
Lynn's Waste Paper Company, Inc. 121 Island Avenue West Bend	Aluminum, auto batteries, copper, brass, lead, stainless steel, newsprint, cardboard. Will take, but not pay for, steel cans and magazines

Table 4 (continued)

Name and Address of Operation	Materials Recycled
Washington County Commercial (continued)	
Reynolds Aluminum West Bend Mall 1701 S. Main Street West Bend	All aluminum
Waukesha County Commercial	
Carnation Company 520 W. Second Street Oconomowoc	A 24-hour drop-off center is available for steel and aluminum cans
Filmite Oil Corporation 12733 W. Arden Place Butler	Industrial hydraulic and lubricating oils
Kard Recycling Service, Inc. 2925 S. 163rd Street New Berlin	All paper except magazines
Kohne Salvage Company W200 S7203 Williams Drive Muskego	Newsprint, cardboard, auto batteries, iron and steel (no cans), aluminum, copper, brass, lead, rags. Will take, but not pay for, magazines
Lubricants, Inc. W225 N3120 Duplainville Road Pewaukee	Industrial hydraulic and lubricating oil, and automotive oil
Mill Valley Salvage 1339 E. Main Street Waukesha	Iron and steel (no cans), aluminum (no cans), auto batteries. White enamel household items will be taken but not paid for
Recom, Inc. 3655-A N. 126th Street Butler	All colors of container glass, steel, and aluminum cans
Spring City Salvage Company 931 Niagara Waukesha	Newsprint, cardboard, iron and steel, aluminum, auto batteries, household appliances

[a] *Obtained from Wisconsin Recycling Authority, The Wisconsin Recycling Directory, Third Edition, March 1981.*

Source: SEWRPC.

Currently, the majority of solid waste from communities east of IH 94 is reportedly transported to Browning-Ferris Industries, Inc., a landfill in Lake County, Illinois. In 1975 a solid waste management plan[3] was conducted for the Kenosha Urban Planning District. That plan recommended that a landfill site be obtained and operated to serve the District for at least 10 years, and that future solid waste processing and recycling processes be further evaluated.

There are two incinerators known to exist in the County, one of which is owned by a medical institution, and the other by an industry. Selected characteristics of these facilities are presented in Table 3, with the approximate locations shown on Map 2. There is one known municipal recycling operation and there are two known commercial solid waste recycling operations in Kenosha County that accept a variety of waste materials. Selected characteristics of this facility are set forth in Table 4. There are two composting operations in the County, both of which are privately owned and operated. Selected characteristics of these operations are set forth in Table 5.

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[3] *Havens and Emerson, Inc., Report on Regional Solid Waste Management for the Kenosha Planning District, August 1975.*

Table 5

SELECTED CHARACTERISTICS OF KNOWN EXISTING COMPOSTING OPERATIONS IN SOUTHEASTERN WISCONSIN: 1980[a]

Civil Division	Location by U. S. Public Land Survey Section	Operator	Number	Area (acres)	Status	Solid Waste Type Composted
Kenosha County						
Town of Bristol	N/A	Bristol Mushroom Farm	N/A	N/A	N/A	N/A
Town of Wheatland	N/A	William B. Rose Compost Factory	N/A	N/A	N/A	N/A
Milwaukee County						
City of Franklin	N/A	Pochowski Trucking	0288	13.5	Properly abandoned	Manure and wood chips
City of Milwaukee	S½, Section 33, T7N, R22E	Milwaukee Metropolitan Sewerage District	2793	0.2	Properly abandoned	Wood chips and sewage sludge
City of Wauwatosa	NW¼, SW¼, Section 20, T7N, R21E	Milwaukee County Park Commission	1990	4.0	Active	Manure and wood chips
Washington County						
Village of Germantown	SE¼, Section 36, T9N, R20E	Organic Compost Corporation	N/A	N/A	Active	Manure

NOTE: N/A indicates data not available.

[a] *Information obtained from inventories conducted under the areawide water quality management planning program and from the files of the Wisconsin Department of Natural Resources.*

Source: SEWRPC.

Milwaukee County

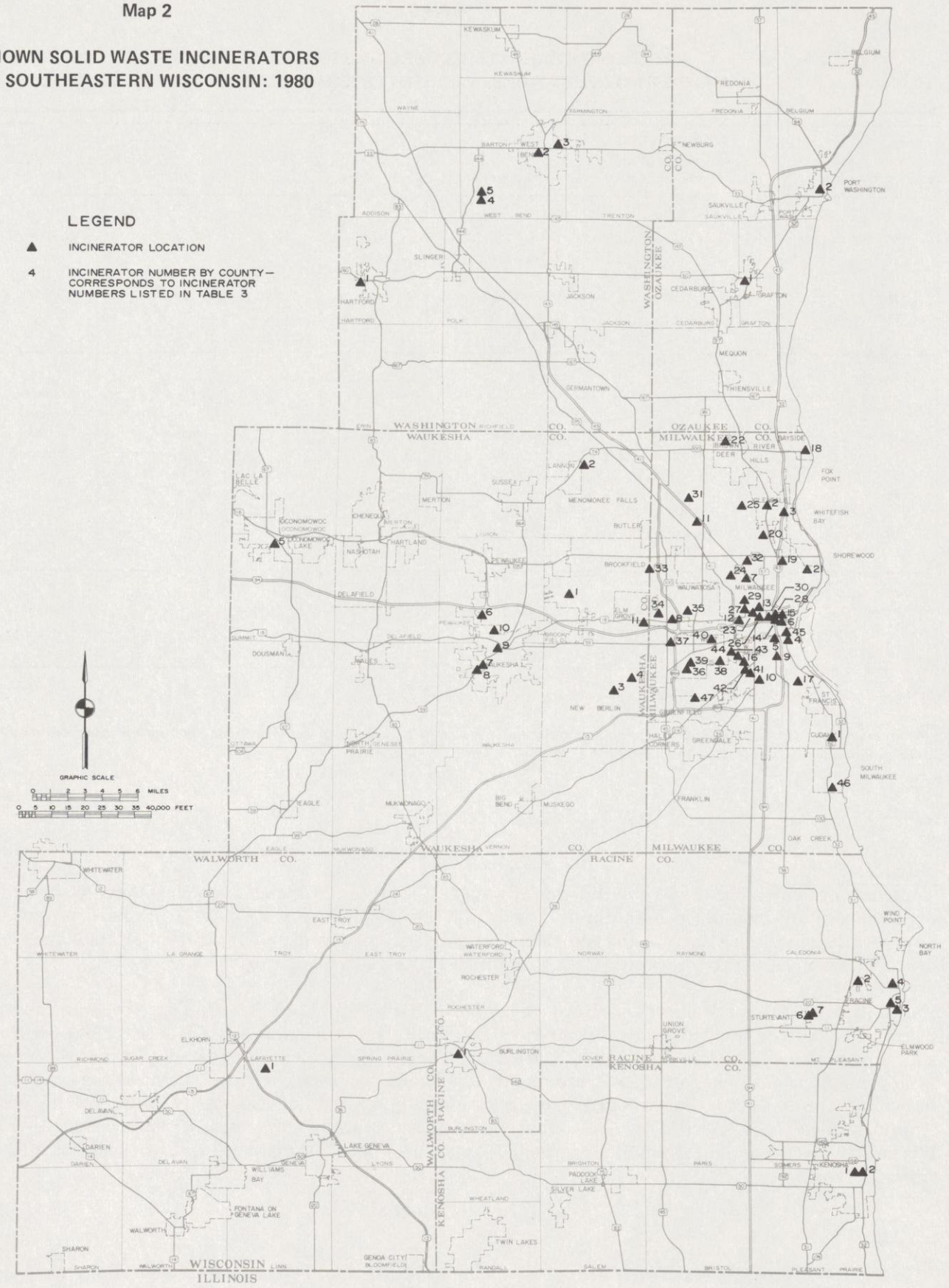
There are presently 33 known landfills in Milwaukee County, of which 14 are considered to be active. An expansion of the landfill in Franklin operated by Metro Disposal Service, Inc.,[4] has been proposed. One new private, special use landfill has also been proposed in the County by industry. Selected characteristics of these existing and proposed landfills are set forth in Tables 1 and 2.

In addition to the landfills noted above, there were 16 sites in Milwaukee County noted as "dumps" on detailed soil survey maps prepared by the U. S. Soil Conservation Service and SEWRPC. Field work for this soil survey was conducted during 1963, 1964, and 1965. These areas designated as "dumps" on the soil survey maps, and shown on Map 1, are mainly small sites where waste materials have been deposited by individuals prior to the enactment of the licensing requirements of Chapter NR 180 of the Wisconsin Administrative Code. Accordingly, information on these "dumps" or landfills is not available from the Wisconsin Department of Natural Resources. The location and approximate size of these landfills are set forth in Table 6.

[4] *During 1981, landfill was purchased by Waste Management, Inc. The proposed expansion plans have been approved.*

Map 2

KNOWN SOLID WASTE INCINERATORS IN SOUTHEASTERN WISCONSIN: 1980



Source: Wisconsin Department of Natural Resources and SEWRPC.

Table 6

PREREGULATION LANDFILLS OR "DUMPS" THAT ARE KNOWN TO EXIST IN SOUTHEASTERN WISCONSIN[a]

Number on Map 1	Civil Division	Location by U. S. Public Land Survey Section	Size (acres)
	Kenosha County		
1	Town of Brighton	NE¼, SE¼, Section 30, T2N, R20E	2
2	Town of Somers	NE¼, NE¼, Section 26, T2N, R22E	2
3	Town of Somers	SE¼, NW¼, Section 18, T2N, R22E	3
4	City of Kenosha	SW¼, SE¼, Section 19, T2N, R23E	10
5	City of Kenosha	SW¼, NE¼, Section 19, T2N, R23E	3
	Milwaukee County		
1	City of Oak Creek	NE¼, NW¼, Section 5, T5N, R22E	7
2	City of Oak Creek	NE¼, NW¼, Section 6, T5N, R22E	6
3	City of Oak Creek	NE¼, NW¼, Section 8, T5N, R22E	11
4	City of Oak Creek	NE¼, NE¼, Section 8, T5N, R22E	2
5	City of Oak Creek	SE¼, NW¼, Section 27, T5N, R22E	4
6	City of Greenfield	NW¼, NW¼, Section 29, T6N, R21E	1
7	City of Milwaukee	SW¼, SW¼, Section 29, T6N, R22E	19
8	City of Milwaukee	NW¼, NW¼, Section 32, T6N, R22E	3
9	City of Milwaukee	SW¼, NW¼, Section 32, T6N, R22E	6
10	City of Milwaukee	NW¼, SW¼, Section 32, T6N, R22E	6
11	City of Milwaukee	SW¼, SW¼, Section 32, T6N, R22E	4
12	City of West Allis	NE¼, Section 31, T7N, R21E	60
13	City of Milwaukee	SE¼, NW¼, Section 22, T8N, R21E	22
14	City of Milwaukee	SE¼, SW¼, Section 24, T8N, R21E	35
15	City of Milwaukee	NE¼, SW¼, Section 26, T8N, R21E	25
16	City of Milwaukee	NE¼, NE¼, Section 27, T8N, R21E	20
	Racine County		
1	Town of Rochester	NE¼, SE¼, Section 11, T3N, R19E	0.5
2	Town of Mt. Pleasant	NW¼, NE¼, Section 6, T3N, R23E	7
3	City of Racine	SW¼, SW¼, Section 7, T3N, R23E	25
4	City of Racine	NW¼, SW¼, Section 8, T3N, R23E	1
5	Town of Norway	SW¼, SE¼, Section 18, T4N, R20E	1
6	Town of Caledonia	SW¼, NE¼, and NW¼, SE¼, Section 3, T4N, R22E	25
7	Town of Caledonia	SW¼, SW¼, Section 14, T4N, R22E	2
	Walworth County		
1	Town of Bloomfield	SW¼, NW¼, Section 7, T1N, R18E	2
2	Town of Bloomfield	NE¼, SE¼, Section 7, T1N, R18E	3
3	Town of Bloomfield	NE¼, NW¼, Section 9, T1N, R18E	1
4	Town of Bloomfield	SW¼, NE¼, Section 22, T1N, R18E	1
5	Town of Darien	NW¼, SW¼, Section 26, T2N, R15E	1
6	City of Whitewater	SW¼, NW¼, Section 9, T4N, R15E	2
	Waukesha County		
1	City of New Berlin	SE¼, SE¼, Section 5, T6N, R20E	2
2	City of Brookfield	NW¼, NE¼, Section 17, T7N, R20E	1
3	Village of Menomonee Falls	SE¼, SW¼, Section 15, T8N, R20E	6

[a] *Based on information obtained from soils maps published by the U. S. Department of Agriculture, Soil Conservation Service.*

Source: SEWRPC.

Milwaukee County has not developed a comprehensive solid waste management plan. The solid waste disposal needs of the area are largely met by three commercial landfills—one located in Milwaukee County, and two located in adjoining counties. The large commerical operation in Milwaukee County—located in the City of Franklin—is operated by Waste Management of Wisconsin. This landfill is rapidly approaching the limits of its capacity under the current approved operating plan. Detailed studies have been conducted by the operator to determine the suitability for expansion at this site. A proposal for a 40-acre expansion is presently (1980) being reviewed by the Wisconsin Department of Natural Resources.

The Americology facility—a solid waste processing facility—operates in conjunction with metropolitan landfills and serves to separate solid waste into recyclable fractions. One of the products is a shredded material known as refuse-derived fuel (RDF) which can be used as a supplement to coal in steam generating boilers. Americology is considered to be a recycle/reuse facility, as there is no actual solid waste disposal at that facility. When in operation, the Americology facility processes about 800 tons of solid waste per day, on an average annual basis, with a maximum capacity of 1,500 tons per day. Americology is under contract to handle all the solid waste generated in the City of Milwaukee, and was in the process of negotiating a contract to handle solid wastes for the Cities of West Allis and West Milwaukee. However, realization of the full potential of the existing facility is presently limited because of the lack of market outlets and uses for the fuel fraction (RDF) of the recycling plant. For this reason, operation of the Americology facility has been suspended, with the Milwaukee solid wastes being hauled directly to landfills. In order to ensure that the Americology facility can run on a full-time basis with long-term economic incentives to produce RDF, Americology is considering several alternatives for improving the solid waste fuel marketability, such as the development of a methane gas generator, development of an onsite steam generating facility, or use of a system of smaller steam generating facilities that would be designed to burn RDF at industrial sites near Americology. Under all the potential alternatives considered, there would continue to be a nonfuel fraction generated that would require disposal at a landfill.

Of the 33 landfills in Milwaukee County, two have been reported to contain toxic and hazardous materials in a report prepared by the U. S. Department of Housing and Urban Development.[5] One of these sites is the Waste Management of Wisconsin landfill located in the City of Franklin. This site is currently licensed to accept some types of toxic and hazardous materials. The other site which has been reported to contain toxic and hazardous materials is the Milwaukee County Highway Department Landfill located in the City of Franklin. Selected characteristics of these existing and proposed landfills are presented in Table 7.

There are 47 incinerators known to exist in the County, of which 36 are owned by medical institutions, 10 are owned by industries, and 1 is owned by the Milwaukee Metropolitan Sewerage District. Selected characteristics of these facilities are set forth in Table 3, and their approximate locations are shown on Map 2. There are 9 known municipal recycling operations and 58 known commercial solid waste recycling operations in Milwaukee County that accept a variety of waste materials. Selected characteristics of these facilities are set forth in Table 4. There are three composting operations in the County, of which two are publicly owned and one is privately owned. Pertinent information on these operations is provided in Table 5.

Ozaukee County

There are presently 17 known landfills in Ozaukee County, of which nine are considered to be active. There are proposals for two new landfill sites within the County at this time. Selected characteristics of these existing and proposed landfills are set forth in Tables 1 and 2.

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[5] *U. S. Department of Housing and Urban Development memorandum, dated June 14, 1977. The memorandum is based upon a nationwide survey, with data furnished by 53 of the largest chemical companies in the country on the locations of disposal sites that were utilized for chemical process wastes produced between 1950 and 1978.*

Table 7

SOLID WASTE DISPOSAL SITES IN SOUTHEASTERN WISCONSIN KNOWN TO CONTAIN TOXIC AND HAZARDOUS MATERIALS[a]

Civil Division	Location by U. S. Public Land Survey Section	License Number	Status	Source of Toxic and Hazardous Waste Material	Operator
Milwaukee County					
City of Franklin	NE¼, SE¼, Section 4, T5N, R21E	N/A	Active, scheduled to be abandoned in 1981	Koppers Company, Inc., Universal Refractories, Division of Thiem Corporation	Milwaukee County Highway Department
City of Franklin	NE¼, SW¼, Section 31, T5N, R21E	1099	Active	Koppers Company, Inc., Universal Refractories, Division of Thiem Corporation	Metro Disposal Landfill
Racine County					
Town of Caledonia	NW¼, SW¼, Section 3, T4N, R22E	0147	Abandoned	PPG Industries, Inc., Coatings and Resins Division	Caledonia Corporation
Town of Mt. Pleasant	SE¼, NE¼, Section 23, T3N, R22E	0572	Active	Koppers Company, Inc., Universal Refractories, Division of Thiem Corporation	Land Reclamation, Ltd.
Washington County					
Village of Germantown	SE¼ and the SW¼, Section 36, T9N, R20E	1678	Active	Gulf Oil Chemicals Company—PPG Industries, Inc., Adhesives and Resins; Hercules, Inc.	Waste Management of Wisconsin (Omega Hills-North)
Waukesha County					
Village of Menomonee Falls	N½, NE¼, Section 1, T8N, R20E	1678	Active	Hercules, Inc.	Waste Management of Wisconsin (Lauer III)
City of Muskego	NE¼, SW¼, Section 18, T5N, R20E	0141	Active	Koppers Company, Inc., Universal Refractories, Division of Thiem Corporation	Waste Management of Wisconsin
City of New Berlin	NE¼, SE¼, Section 8 and NW¼, Section 9, T6N, R20E	N/A	In court 1980	Koppers Company, Inc., Universal Refractories, Division of Thiem Corporation	Dan Bodus Landfill
City of New Berlin	NE¼, SE¼, Section 18, T6N, R20E	1392	Abandoned	Koppers Company, Inc., Universal Refractories, Division of Thiem Corporation	Jaeger Sand & Gravel
City of Waukesha	SW¼, SE¼, Section 10, T6N, R19E	N/A	Properly abandoned	Koppers Company, Inc., Universal Refractories, Division of Thiem Corporation	City of Waukesha

NOTE: N/A indicates data not available.

[a] *Based upon information from a U. S. Department of Housing and Urban Development memorandum by the Assistant Secretary, dated June 14, 1977, on the subject of hazardous waste dumps. These locations were reported by a nationwide survey conducted by the U. S. House of Representatives Subcommittee on Oversight and Investigations. The information on disposal sites that were utilized for chemical process wastes produced between 1950 and 1978 was furnished by 53 of the largest chemical companies in the country.*

Source: SEWRPC.

Ozaukee County is in the process of developing a county solid waste management plan. A preliminary draft of that plan has been completed and is currently being reviewed by the County and the Wisconsin Department of Natural Resources.

The largest landfill site in operation is located in the Town of Cedarburg and is operated jointly by the City and Town of Cedarburg. This site has limited capacity, and is expected to be operational at the existing loading rate for less than three years. Many of the communities within the County depend upon commercial haulers to handle their waste disposal needs, with the majority of that waste going to the Waste Management, Inc., site located in the Village of Germantown, Washington County.

There are two incinerators known to exist in the County, one of which is owned by a medical institution and one by a municipality. Selected characteristics of these facilities are set forth in Table 3, with the approximate locations shown on Map 2. There are five known municipal recycling operations and one known commercial recycling operation in Ozaukee County that accept a variety of waste materials. Selected characteristics of these facilities are set forth in Table 4. There are no known composting operations in the County.

Racine County

There are presently 15 known landfills in Racine County, of which four are considered to be active. Selected characteristics of these existing landfills are set forth in Table 1. There are no known proposed landfill sites within the County at this time.

In addition to the landfills noted above, there were seven sites in Racine County noted as "dumps" on detailed soil survey maps prepared by the U. S. Soil Conservation Service and SEWRPC. Field work for this soil survey was conducted during 1967. These areas designated as "dumps" on the soil survey maps, and shown on Map 1, are mainly small sites where waste materials have been deposited by individuals prior to the enactment of the licensing requirements of Chapter NR 180 of the Wisconsin Administrative Code. Accordingly, information on these "dumps" or landfills is not available from the Wisconsin Department of Natural Resources. The location and approximate size of these landfills are set forth in Table 6.

Racine County has one large commercial landfill, located in the Town of Mt. Pleasant. The site is owned and operated by Land Reclamation, Ltd. Another landfill is located in the Town of Burlington; however, solid waste disposal at this landfill is restricted to materials generated within the Township only. There is also a transfer station located in the City of Burlington that is restricted to use by city residents, commerce, and industries. Solid waste is transported from this transfer station to the Greidanus Enterprises landfill in Walworth County.

In 1978, the County completed a study encompassing the solid waste disposal needs for the entire County. The plan recommended landfilling as the best short-term and long-term solid waste management alternative through the year 2000. This study is now being updated[6] to meet new requirements of Chapter NR 185 of the Wisconsin Administrative Code.

Of the 15 landfills in Racine County, two have been reported to contain toxic and hazardous materials. These landfills are listed in Table 6. One of these sites is the Land Reclamation, Ltd., site in the Town of Mt. Pleasant. This landfill is currently licensed to accept some types of toxic and hazardous materials.

There are seven incinerators known to exist in the County, three of which are owned by industries, and four of which are owned by medical institutions. Selected characteristics of these facilities are set forth in Table 3, and their approximate locations are shown on Map 2. There are two known municipal recycling operations and 10 known commercial solid waste recycling operations in Racine County that accept a variety of waste materials. Selected characteristics of these facilities are set forth in Table 4. There are no known composting operations in the County.

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[6] *The updated county study, which was completed in 1981, recommends that the County proceed to develop a new landfill and an incineration system with heat recovery.*

Walworth County

There are presently 24 known landfills in Walworth County, of which seven are considered to be active. Two of the active landfills are commercial facilities. One is the Greidanus landfill located in the Town of Darien and the other is the Baker landfill located in the Town of Sharon. The other landfills generally serve a single unit of government, or are special-use landfills. There are presently proposals for major expansions of the Greidanus and Baker landfills and a proposal for one new landfill in the County. The new landfill site—Troy Area landfill—would be located in the northeastern portion of the County. These proposals are presently being reviewed by the DNR and by county and local units of government. Selected information on these existing and proposed landfills is set forth in Tables 1 and 2.

In addition to the landfills noted above, there were six sites in Walworth County noted as "dumps" on detailed soil survey maps prepared by the U. S. Soil Conservation Service and SEWRPC. Field work for this soil survey was conducted during the years 1959 through 1964. These areas designated as "dumps" on the soil survey maps, and shown on Map 1, are mainly small sites where waste materials have been deposited by individuals prior to the enactment of the licensing requirements of Chapter NR 180 of the Wisconsin Administrative Code. Accordingly, information on these "dumps" or landfills is not available from the Wisconsin Department of Natural Resources. The location and approximate size of these landfills are set forth in Table 6.

There is one incinerator known to exist in the County. The incinerator is owned by a medical institution. Selected characteristics of this facility are set forth in Table 3, and its location is shown on Map 2. There is one known municipal recycling operation and there are three known commercial solid waste recycling operations in Walworth County that accept a variety of waste materials. Selected characteristics of these facilities are set forth in Table 4. There are no composting operations in the County.

Walworth County does not currently have a solid waste management plan; however, a prospectus for such a study has been completed, with work on the plan expected to begin in 1981.

Washington County

There are presently 21 known landfills in Washington County, of which eight are considered to be active. Selected information on these landfills is set forth in Table 1.

The largest major active site is the Waste Management of Wisconsin (Omega Hills-North site) located in the Village of Germantown. The facility encompasses a total of 84 acres and has an estimated service life of 10 years at the current use load. Other major landfill sites are operated by United Waste Systems in the Town of Polk, the City of West Bend, and the Town of Kewaskum. The City of West Bend also operates a relatively large landfill which serves the City, the Village of Jackson, the Town of Barton, and local industries in the West Bend area. This landfill is currently operating under the conditions of an abandonment plan which allows filling activity in order to achieve surface grades for proper surface water drainage from the site. The other licensed landfill sites within the Washington County area have only limited remaining service life. In 1980, Washington and Waukesha Counties jointly conducted a solid waste planning study. That study recommended that each county utilize a single landfill for solid waste disposal. Source separation and recycling were also recommended as a component of the solid waste management plan for Washington County.

Of the 21 landfills in Washington County, one has been reported to contain toxic and hazardous materials. This landfill is presented in Table 7. The landfill is the Omega Hills-North site operated by Waste Management of Wisconsin in the Village of Germantown. This landfill is currently licensed to accept some types of toxic and hazardous waste materials.

There are five incinerators known to exist in the County, all of which are owned by medical institutions. Selected characteristics of these facilities are presented in Table 3, and their approximate locations are shown on Map 2. There is one known municipal recycling operation and there are five known commercial solid waste recycling operations in Washington County that accept a variety of domestic-type waste materials. Selected characteristics of these facilities are set forth in Table 4, and their approximate locations are shown on Map 3. There is one composting operation in the County which produces a bagged and bulk compost for distribution. Selected information on this operation is provided in Table 5.

Waukesha County

There are presently 49 known landfills in Waukesha County, of which 12 are considered to be active. In addition, there are proposals for six new landfills in the County. Pertinent information on these active and proposed landfills is provided in Tables 1 and 2.

In addition to the landfills noted above, there were an additional three sites in Waukesha County noted as "dumps" on detailed soil survey maps prepared by the U. S. Soil Conservation Service and SEWRPC. Field work for this soil survey was conducted during the years 1963, 1964, and 1965. These areas designated as "dumps" on the soil survey maps, and shown on Map 1, are mainly small sites where waste materials have been deposited by individuals prior to the enactment of the licensing requirements of Chapter NR 180 of the Wisconsin Administrative Code. Accordingly, information on these "dumps" or landfills is not available from the Wisconsin Department of Natural Resources. The location and approximate size of these landfills are set forth in Table 6.

The largest major active landfill site is the Sanitary Transfer and Landfill, Inc., site located in the City of Delafield. Other major landfill sites are the Village of Menomonee Falls landfill, Barrett Landfill, Inc., in the City of New Berlin, Master Disposal Corporation in the City of Brookfield, Industrial Waste Corporation in the City of New Berlin, United Waste Systems, Inc., in the City of Brookfield, United Waste Systems, Inc., in the City of Muskego, and Hilltop Restoration Company in the City of Muskego. Waukesha County depends quite heavily upon the Sanitary Transfer and Landfill, Inc., site located in the City of Delafield. This facility is scheduled to be closed in 1982 because of groundwater contamination problems. Another heavily used commercial landfill in the County is the United Waste Systems landfill located in the City of Muskego. The City of Waukesha operates an incinerator as a means of reducing the solid waste disposal needs of the City. The incinerator currently burns approximately 110 tons of solid waste per day, and has a maximum capacity of 350 tons per day. Heat from the process is planned to be converted to steam and distributed to industrial users in the adjacent industrial park. The steam also is planned to be utilized as an energy source for the City's expanded sewage treatment plant. As previously mentioned, Waukesha and Washington Counties have jointly completed a solid waste management plan. The plan recommends that Waukesha County continue to landfill its solid waste and to operate the Waukesha incinerator, and that source separation and recycling be promoted. One new landfill to serve the County is proposed in the plan.

Of the 49 landfills in Waukesha County, five have been reported to contain toxic and hazardous materials. These landfills are listed in Table 7.

There are 11 incinerators known to exist in the County, eight of which are owned by medical institutions, two by municipalities, and one by an industry. Selected characteristics of these facilities are presented in Table 3, and their approximate locations are shown on Map 2. There are seven known municipal recycling operations and eight known commercial solid waste recycling operations in Waukesha County that accept a variety of domestic-type waste materials. Selected characteristics of these facilities are set forth in Table 4. There are no known composting operations in Waukesha County.

SUMMARY

An inventory of solid waste management facilities in southeastern Wisconsin indicated that there are 175 existing solid waste landfills in the Region, of which 60 are considered to be active; the remaining 115 are considered to be inactive or at some stage of abandonment. There are 15 proposed landfills in southeastern Wisconsin. In addition to the landfills noted above, there are 37 sites in southeastern Wisconsin that are noted as "dumps" on detailed soil survey maps prepared by the U. S. Soil Conservation Service.

Of the existing 175 solid waste landfills, only three are licensed to accept some hazardous materials. However, it should be noted that 10 landfills have been reported to contain toxic and hazardous materials. This information was obtained as part of a nationwide survey, as of 1978, conducted by the U. S. House of Representatives Subcommittee on Oversight and Investigations. The study notes that these sites are not necessarily a public health or environmental hazard.

There are 75 known incinerators within the Region, of which 15, or 20 percent, are owned by industries, 56, or 75 percent, are owned by health care facilities; and 4, or 5 percent, are owned by municipalities. Of the total of 75 facilities, 66 are considered to be active.

There are 26 known municipal recycling operations and 87 known commercial solid waste recycling operations in the Region that accept a variety of solid waste materials such as paper, aluminum cans, glass, metals, plastics, and oil. There are six composting operations in the Region, two of which are municipally owned and four of which are privately owned.

On the county level, solid waste management plans, as defined in Chapter NR 185 of the Wisconsin Administrative Code, have been completed or are in the process of being prepared for Ozaukee, Racine, Washington, and Waukesha Counties. A solid waste management plan has also been prepared for a portion of Kenosha County east of IH 94 known as the Kenosha Urban Planning District. Walworth County has completed a prospectus for a solid waste management plan and is expected to begin analyses in 1981.

Planning for future conditions within southeastern Wisconsin is necessary as the demand for efficient and environmentally safe solid waste management methods increases. It is important that these studies recognize the increasingly areawide nature of solid waste disposal problems and solutions, and identify alternative solid waste disposal methods that seek to provide responsible, timely, and cost-effective service to the citizens and industries of the Region; to protect the natural resource values; to provide maximum economic, energy, and resource conservation; and to minimize land use conflicts and the pressure to commit valuable open space or agricultural lands to solid waste disposal facilities. The inventory set forth in this article is designed to provide information on the current status of solid waste disposal, and could be updated and refined as more information becomes available or is required.

INVENTORY FINDINGS OF CANNONBALL PASSENGER SURVEYS: 1980 and 1971

by Jean M. Lusk, SEWRPC Planner

INTRODUCTION

The "Cannonball," a commuter rail service operated by the Chicago, Milwaukee, St. Paul & Pacific Railroad (the Milwaukee Road) until July 31, 1972, provided weekday interregional transportation between the Milwaukee central business district (CBD) and the City of Watertown in Jefferson County. Other stops along the route were Wauwatosa, Elm Grove, Brookfield, Duplainville, Pewaukee, Hartland, Nashotah, Okauchee, Oconomowoc, and Ixonia (see Map 1). The Milwaukee Road was granted permission by the Wisconsin Public Service Commission to discontinue this intrastate service in July of 1972. Recently, there has been a movement to reinstate the Cannonball. During the week of October 13, 1980, an experimental run of a commuter train along the old Cannonball route[1] was sponsored by a private group known as the Revive the Cannonball Committee, Inc. The objective of this experimental run was to demonstrate that reactivating the commuter rail service would be popularly supported.

During the trial run, a survey of the passengers was conducted by the Wisconsin Department of Transportation, in cooperation with the Revive the Cannonball Committee, Inc. The survey, which was directed at identifying the travel habits, socioeconomic characteristics, and pertinent attitudes of the passengers, was constructed, in part, to be parallel to a similar survey conducted by the Regional Planning Commission in late 1971, prior to the abandonment of the Cannonball service. The purpose of this article is to present the findings of the 1980 Cannonball survey and, where parallel or similar data are available, to compare those findings with the findings of the 1971 Cannonball survey.

Sampling

The 1971 Cannonball survey consisted of a 100 percent sampling of the passengers using the Cannonball on one weekday. The 1980 Cannonball survey consisted of a 100 percent sampling of the passengers using the train on a Tuesday, and a partial sampling of passengers using the train on Wednesday and Thursday. On Wednesday and Thursday, the only passengers sampled were individuals who had not previously completed a questionnaire.

Frequency distributions of the responses to each of the survey questions for the total Tuesday through Thursday sample and for the Tuesday sample alone were compiled and reviewed. There was little notable variation between the response pattern arrays for the two data sets. The only basic differences between the two data sets that readily emerged appeared to be a product of the sampling methodology. In comparison to the "Tuesday only" set of data, the "Tuesday through Thursday" set of samples produced arrays indicating lower frequencies of anticipated use of the Cannonball, a lower proportion of trips made for work purposes, and a higher proportion of trips made for social-recreational purposes. Such differences between the data sets could easily arise if passengers destined for work who anticipated using a reinstated Cannonball service daily also utilized the Cannonball trial run on a daily basis, consequently completing a single questionnaire on Tuesday, with no follow-up questionnaires on Wednesday or Thursday. Conversely, all those individuals who utilized the train on a one-time basis during the three survey days were sampled, accounting for the lower rates of anticipated use and the increased incidence of social-recreational tripmaking in the frequency distribution of the total sample. Therefore, for purposes of this article, the data

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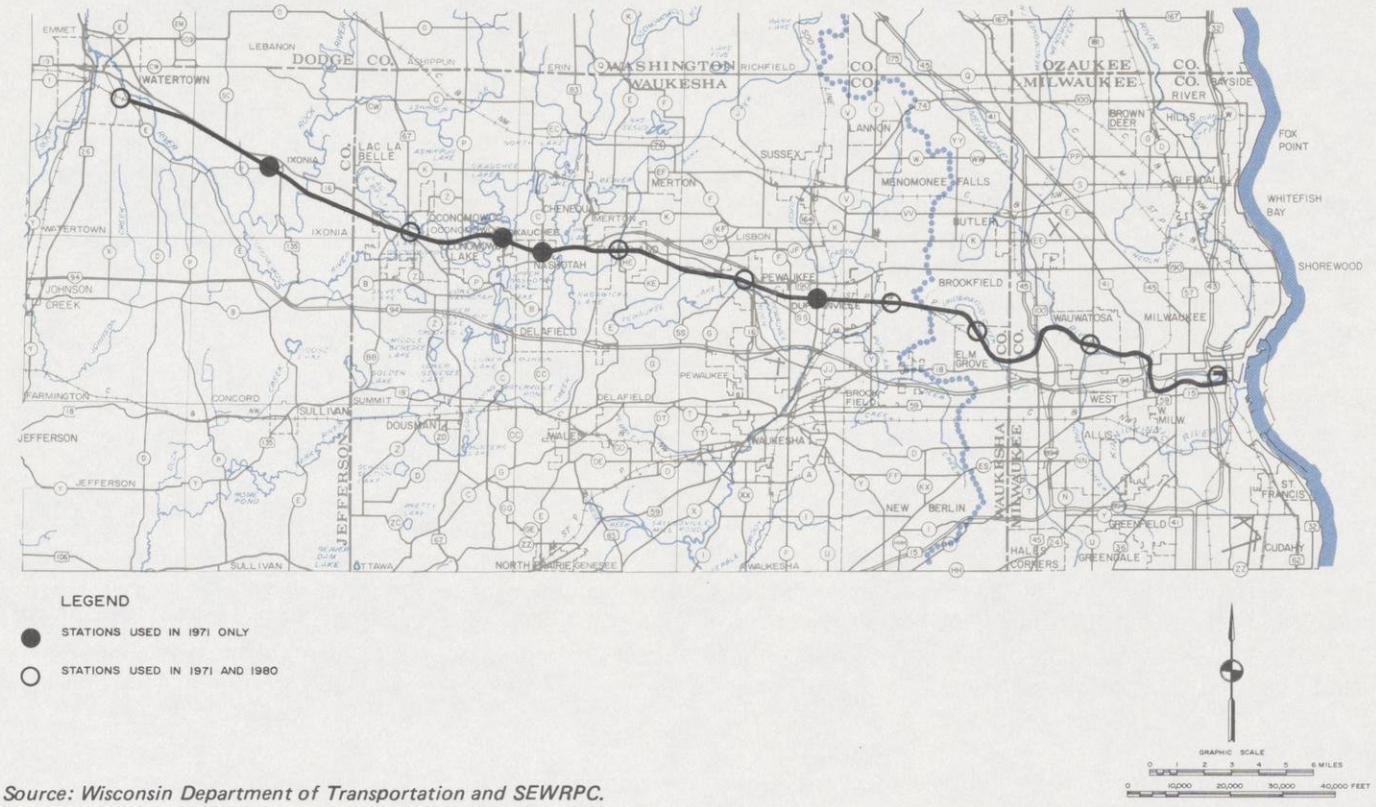
[1] *The experimental run did not provide for stops at Duplainville, Nashotah, Okauchee, and Ixonia. Another difference between the 1971 and 1980 schedules was the number of round trips per day. The "Cannonball" provided one round trip per day, beginning and ending the day in Watertown. The experimental run, which started and ended the day in Milwaukee, was available for flag stops on the early morning westbound and late evening eastbound runs, thereby providing for two round trips per day.*

Map 1

THE COMMUTER ROUTE



Source: Wisconsin Department of Transportation and SEWRPC.

collected on Tuesday only are used in the analysis of the travel characteristics, attitudes, and socioeconomic characteristics of the Cannonball passengers. The total Tuesday through Thursday sample is utilized only in the construction of the demand estimates, for which the sampling methodology was well designed.

Format of Presentation

The following article consists of four sections and a summary. The first section delineates the characteristics of the total trips via the Cannonball made by the passengers on the 1980 and 1971 survey days. The second section presents the responses of the surveyed passengers to the attitudinal or hypothetical questions of the survey. The third section describes the socioeconomic characteristics of the Cannonball passengers in 1980 and 1971. The fourth section consists of the demand estimates of daily passengers and trips on a reactivated Cannonball commuter train service. Located in Appendix A and Appendix B are copies of the 1980 and 1971 survey questionnaires.

TRIP DATA

The trip data collected in the 1980 and 1971 Cannonball surveys relate to the location of travel, the trip purposes, the travel modes used in addition to the train in order to complete the trip, and the distance traveled on the nontrain portion of the trip.

Ideally, travel data are best discussed in terms of the number of trips occurring with a given set of characteristics. Both the 1971 and 1980 surveys were constructed and sampled in a manner which allows the total number of trips occurring on the survey day and the characteristics of those trips to be derived from the

survey data. On the survey day in 1980, 73 questionnaires were distributed, 67 were collected, and 62 complete or usable samples were obtained. In 1971, on the survey day, 60 complete or usable samples were obtained. As shown in Table 1, through the process of reciprocating the round trip data and adding the one-way trip data, the 62 samples obtained in 1980 were found to represent a total of 117 passenger trips on the Cannonball on the survey day, and the 60 samples obtained in 1971 were found to represent a total of 97 passenger trips on the survey day. Upon appropriate allocations of data concerning origin and destination trip characteristics, a total picture of eastbound and westbound tripmaking on the Cannonball emerges for both the 1980 and 1971 survey days.

Table 1

THE NUMBER OF TRIPS REPRESENTED BY SAMPLES DRAWN DURING 1980 AND 1971 CANNONBALL SURVEYS

Direction and Type of Sample	Number of Trips Represented by One-Day Cannonball Surveys	
	1980 Survey	1971 Survey
Eastbound Round Trip Samples		
Eastbound Trips	48	37
Westbound (reciprocated) Trips	48	37
Westbound Round Trip Samples		
Westbound Trips	7	--
Eastbound (reciprocated) Trips	7	--
Eastbound One-Way Samples (trips)	2	14
Westbound One-Way Samples (trips)	5	9
Subtotal Eastbound Trips	57	51
Subtotal Westbound Trips	60	46
Total Trips	117	97

Source: Wisconsin Department of Transportation and SEWRPC.

Location of Travel

Shown in Table 2 are the number of trips by deboarding station for eastbound, westbound, and total travel on the Cannonball on the survey days in 1980 and 1971. In both years, most of the eastbound train trips ended at the Milwaukee station. The final destinations upon leaving the station of these eastbound trips are graphically displayed on Maps 2 and 3. Most of these trips in both years were destined for the Milwaukee central business district (CBD). Westbound train travel was found to be more concentrated at the outlying stations in 1980 than in 1971. In 1980, about 40 percent of the westbound train trips ended at the Oconomowoc station and about 30 percent ended at the Watertown station. In contrast, in 1971 about 22 percent of the westbound train trips were found to end at the Brookfield Station, about 20 percent at the Hartland station, and about 20 percent at the Oconomowoc station, with only about 9 percent at the Watertown station.

Displayed on Maps 4 and 5 are the home locations of the passengers using the train in 1980 and 1971, respectively. The circles surrounding each station and its nearby home locations indicate the home-based boarding or deboarding stations used by the passengers. In 1980, the home locations are not concentrated as closely to the stations as in 1971. Wider areas of attraction are most strikingly shown at the Oconomowoc station. Four stations, Ixonia, Okauchee, Nashotah, and Duplainville, which were scheduled or flag stops in 1971 and were not included in the 1980 schedule, showed very little activity in 1971, accounting for the train trip destinations of only four tripmakers.

Trip Purpose

As shown in Table 3, home-to-work and work-to-home travel accounted for most of the surveyed train trips in both 1980 and 1971. The destination trip purpose to return home constituted 100 percent of the westbound train trips recorded by the 1971 survey. Of 1971 eastbound trips, 96 percent were made to attend work, 2 percent were made to attend school, and 2 percent were made to conduct personal business. The 1980 survey revealed a slightly wider variety of trip purposes. In 1980, about 86 percent of the westbound trips were for the purpose of returning home, about 7 percent were for social-recreational purposes, about 5 percent were for other purposes, and about 2 percent were to conduct personal business. Of the eastbound train trips sampled in the 1980 survey, about 74 percent were made for the purpose of attending work, about 16 percent were made for shopping purposes, about 5 percent were made for social-recreational purposes, about 3 percent were made to conduct personal business, and about 2 percent were made to return home.

Table 2

NUMBER OF TRIPS BY DEBOARDING STATION OF EASTBOUND, WESTBOUND, AND TOTAL TRAVEL ON THE CANNONBALL ON THE SURVEY DAY: 1980 AND 1971

Stations Used for Deboarding the Train	1980 Survey						1971 Survey					
	Eastbound		Westbound		Total		Eastbound		Westbound		Total	
	Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent
Watertown . . .	--	--	18	30.0	18	15.4	--	--	4	8.7	4	4.1
Oconomowoc .	--	--	24	40.0	24	20.5	--	--	9	19.6	9	9.3
Hartland	--	--	7	11.7	7	6.0	--	--	9	19.6	9	9.3
Pewaukee . . .	--	--	6	10.0	6	5.1	--	--	3	6.5	3	3.1
Brookfield . . .	--	--	3	5.0	3	2.6	--	--	10	21.8	10	10.3
Elm Grove . . .	1	1.8	2	3.3	3	2.6	--	--	5	10.9	5	5.1
Wauwatosa. . .	4	7.0	--	--	4	3.4	2	3.9	2	4.3	4	4.1
Milwaukee . . .	52	91.2	--	--	52	44.4	49	96.1	--	--	49	50.5
Ixonia	--	--	--	--	--	--	--	--	--	--	--	--
Okauchee . . .	--	--	--	--	--	--	--	--	2	4.3	2	2.1
Nashotah. . . .	--	--	--	--	--	--	--	--	2	4.3	2	2.1
Duplainville . .	--	--	--	--	--	--	--	--	--	--	--	--
Total	57	100.0	60	100.0	117	100.0	51	100.0	46	100.0	97	100.0

Source: Wisconsin Department of Transportation and SEWRPC.

Mode of Travel Upon Leaving the Train

As shown in Table 4, about 88 percent of the eastbound Cannonball trips made in 1971 were completed by the tripmaker walking to his or her final destination, about 10 percent were completed by using a bus, and about 2 percent were completed by becoming auto passengers. Of the westbound trips made in 1971, about 33 percent were completed by walking, about 35 percent were completed by using the auto driver mode, about 30 percent were completed by using the auto passenger mode, and about 2 percent were completed by using other modes.

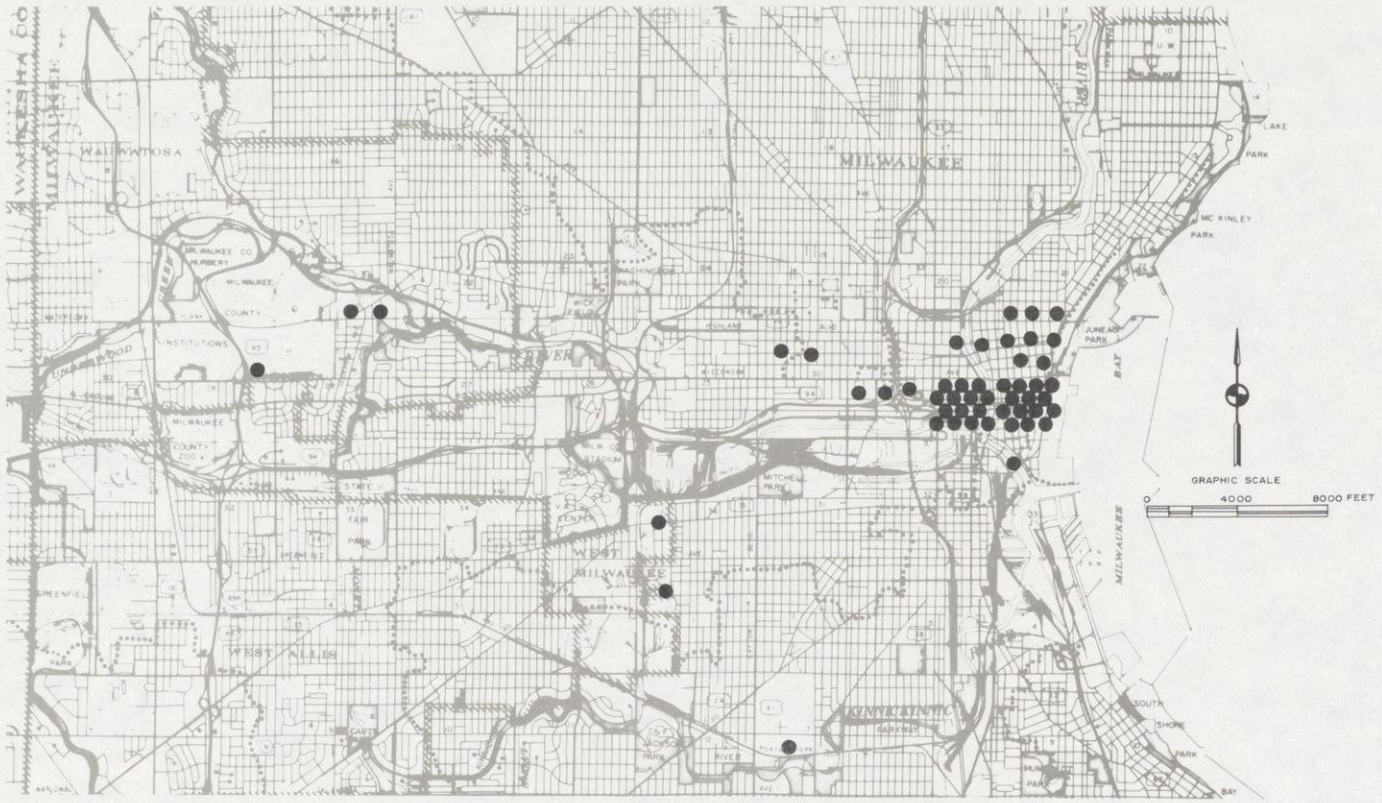
The question asked on the 1980 Cannonball survey concerning the mode of travel used upon departing the train also identified whether or not an automobile was parked at the station. As shown in Table 5, in 1980 about 79 percent of the eastbound trips were completed by walking. About 14 percent of the eastbound tripmakers drove in a car parked at the station upon deboarding the train, about 5 percent used the bus, and about 2 percent were picked up in a car. Of the westbound trips made in 1980, about 16 percent were completed by walking. About 46 percent of the westbound tripmakers drove an auto parked at the station upon deboarding the train, and another 11 percent rode as passengers with a driver who had parked a car at the station. About 20 percent of the westbound tripmakers completed the trip by being picked up in a car, and about 7 percent used the bus. In summary, of the total westbound trips sampled in 1980, about 57 percent were completed through utilization of an auto parked at the station, about 23 percent were completed without the use of an auto, and about 20 percent were completed through the use of an auto traveling to the station specifically to pick up the train passengers.

Distance From Station to Final Destination

The distances traveled between the stations and the final destinations of both eastbound and westbound Cannonball tripmakers, respectively, are presented in Table 6. About 65 percent of the eastbound trips were completed within a walking distance of 11 blocks; about 36 percent were completed in one to six blocks; and about 29 percent were completed in seven to eleven blocks. About 35 percent of the eastbound tripmakers indicated that their final destinations were one or more miles from the station. About 19 percent of the eastbound trips were completed within one or two miles of the station; about 8 percent were completed within three to six miles of the station; and about 8 percent were completed within seven

Map 2

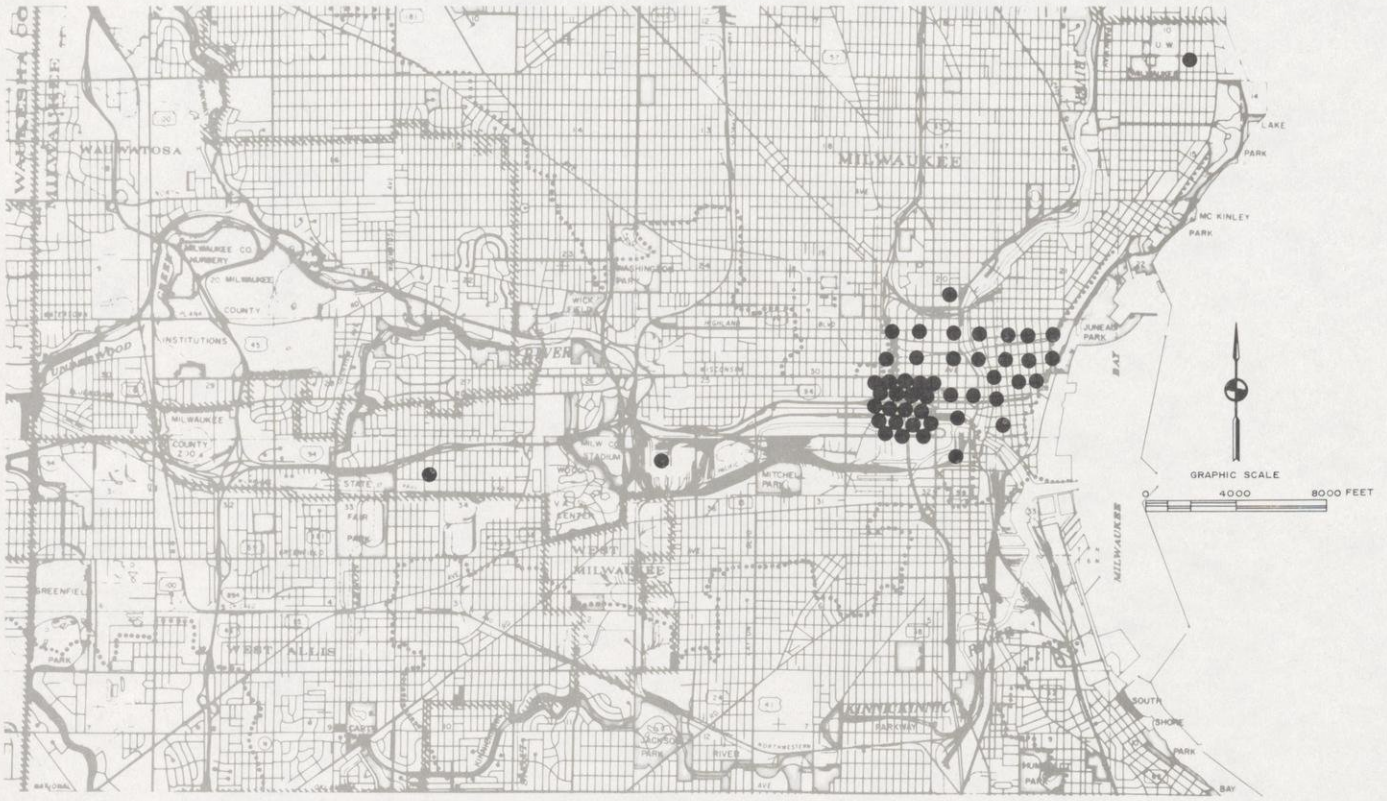
THE LOCATION OF EASTBOUND TRIP ENDS OF CANNONBALL PASSENGERS IN 1980



Source: Wisconsin Department of Transportation and SEWRPC.

Map 3

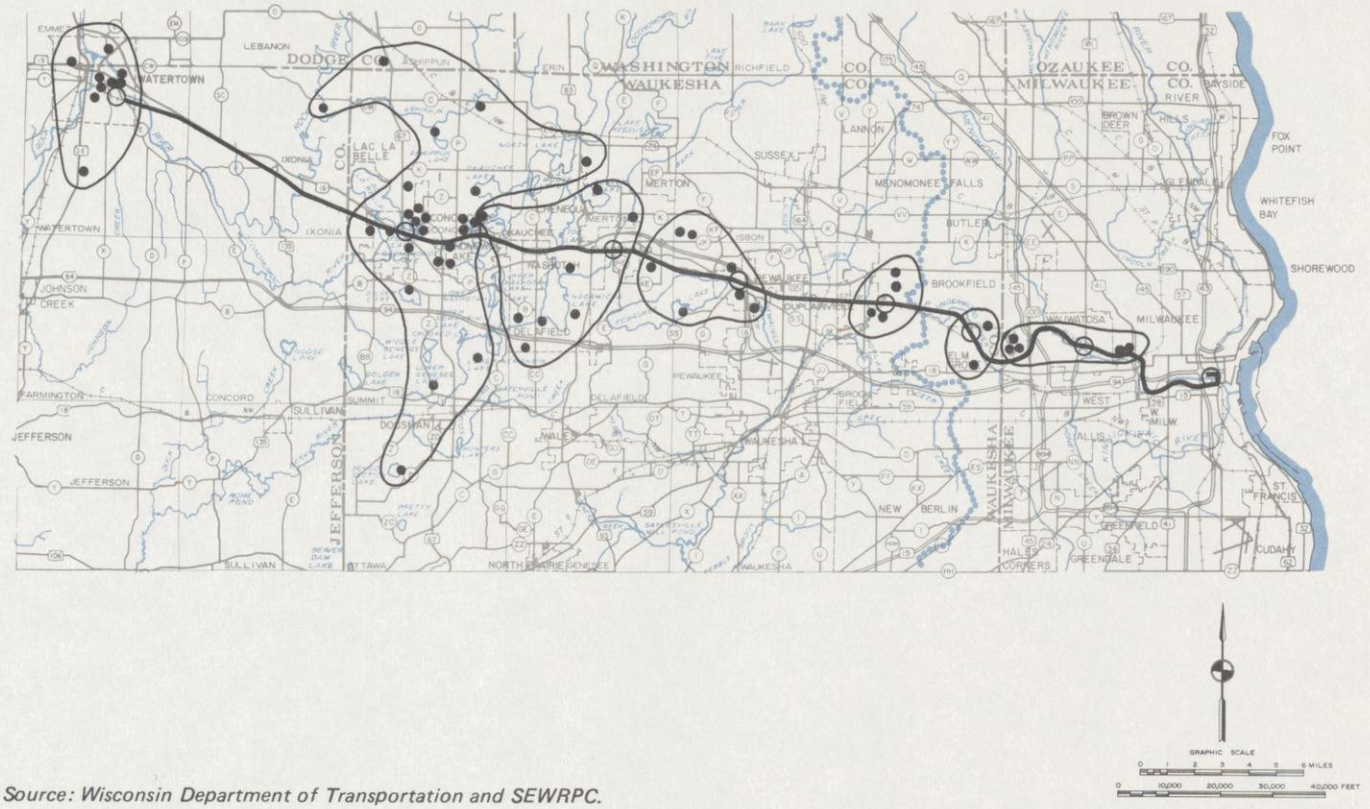
THE LOCATION OF EASTBOUND TRIP ENDS OF CANNONBALL PASSENGERS IN 1971



Source: Wisconsin Department of Transportation and SEWRPC.

Map 4

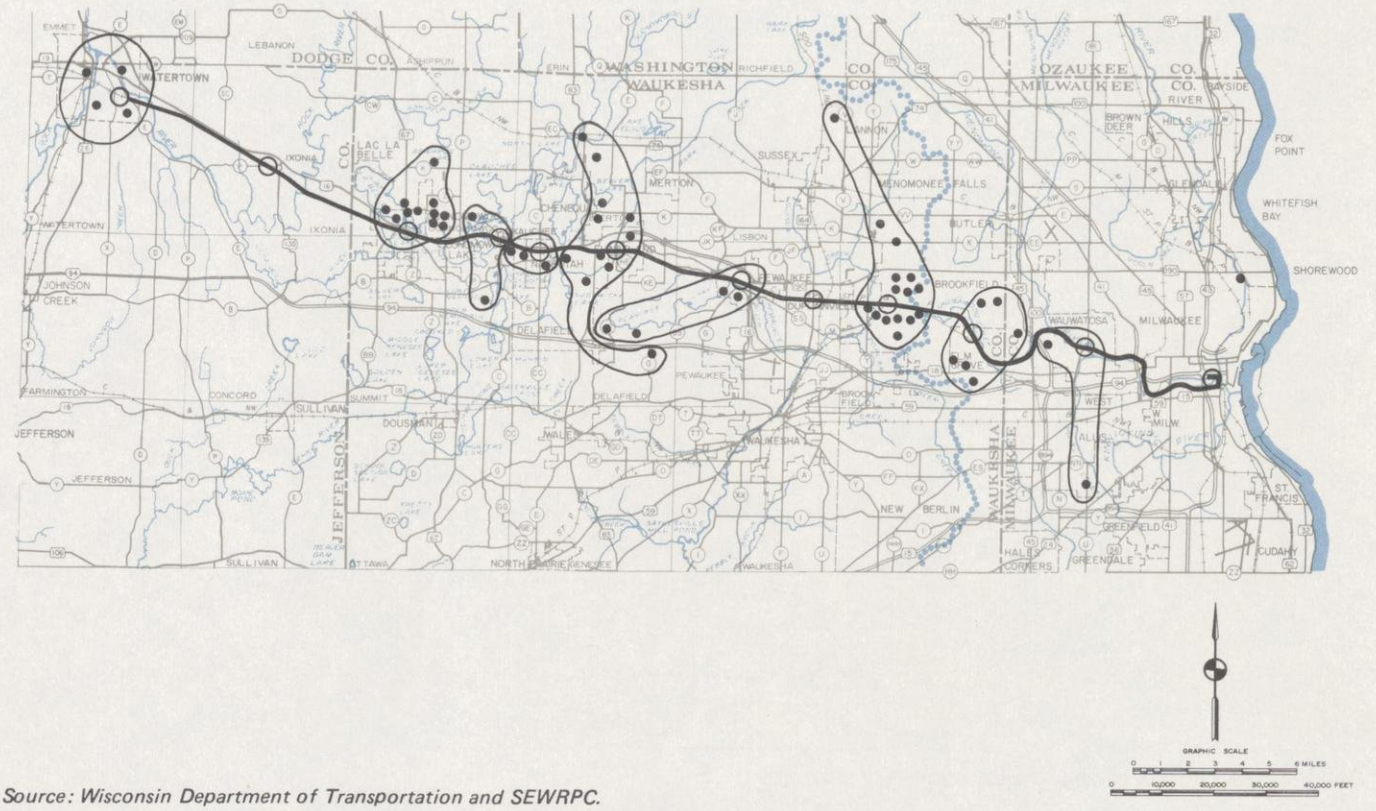
HOME LOCATIONS OF PASSENGERS USING THE CANNONBALL IN 1980



Source: Wisconsin Department of Transportation and SEWRPC.

Map 5

HOME LOCATIONS OF PASSENGERS USING THE CANNONBALL IN 1971



Source: Wisconsin Department of Transportation and SEWRPC.

Table 3

DESTINATION TRIP PURPOSE OF EASTBOUND, WESTBOUND, AND TOTAL TRIPS ON THE CANNONBALL ON THE SURVEY DAY: 1980 AND 1971

Destination Trip Purpose	1980 Survey						1971 Survey					
	Eastbound		Westbound		Total		Eastbound		Westbound		Total	
	Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent	Trips	Percent
Home	1	1.7	52	86.6	53	45.3	--	--	46	100.0	46	47.5
Work	42	73.7	--	--	42	35.8	49	96.0	--	--	49	50.5
School	--	--	--	--	--	--	1	2.0	--	--	1	1.0
Shopping	9	15.8	--	--	9	7.7	--	--	--	--	--	--
Social-Recreational	3	5.3	4	6.7	7	6.0	--	--	--	--	--	--
Personal Business	2	3.5	1	1.7	3	2.6	1	2.0	--	--	1	1.0
Other	--	--	3	5.0	3	2.6	--	--	--	--	--	--
Total	57	100.0	60	100.0	117	100.0	51	100.0	46	100.0	97	100.0

Source: Wisconsin Department of Transportation and SEWRPC.

or more miles. Much greater distances were required to complete the westbound trips. Only 20 percent of the westbound tripmakers indicated that their final destinations were within 11 blocks of the station; about 18 percent of the trips were completed within six blocks. Of the remaining westbound trips, about 40 percent were completed within two miles; about 18 percent were completed in three or four miles; about 11 percent were completed in five or six miles; and another 11 percent were completed in seven or more miles.

ATTITUDINAL DATA

A number of questions on the two surveys requested the respondents to anticipate their responses to given hypothetical situations and to share their opinions concerning the structuring of various elements of the Cannonball service. Included in this section are arrays of the passenger responses concerning anticipated use of a revived service, alternative modes of travel, desired arrival and departure times, fare levels, subsidy levels, and ancillary services such as an express bus, a shuttle bus, and an additional train.

Trip Frequency and Anticipated Use

Of the 62 Cannonball passengers in 1980, about 69 percent indicated that they made such a trip between the same points for the same purposes on a daily basis. About 9 percent make such a trip three or four times a week, about 3 percent one or two times a week, and about 19 percent less than once a week. Of those who make such a trip daily, about 68 percent, or 27 passengers, indicated that they would use the train daily if the schedule were convenient and the fare reasonable, and 25 percent, or 10 passengers, stated that they would use the train three or four times a week, given the same criteria, as shown in Table 7. All the persons who regularly make such a trip three or four times a week expected to use the train three or four times a week and, similarly, persons who make such a trip one or two times a week expected to use the train on all those trips. About 70 percent of the passengers who make such a trip less than once a week anticipated using the train less than once a week; whereas 30 percent apparently anticipated increasing their tripmaking, with expectations of daily train travel by two such persons and one or two uses per week of the train by another such person. In total, although 69 percent of the passengers make such a trip daily, only 49 percent anticipate using the train daily if the fare is reasonable and the schedule convenient; about 25 percent would use the train three or four times a week; about 9 percent would use it one or two times a week; and about 17 percent would use it less than once a week.

Table 4

THE MODE OF TRAVEL USED UPON DEBOARDING THE TRAIN BY EASTBOUND, WESTBOUND, AND TOTAL TRIPS ON THE CANNONBALL ON THE SURVEY DAY: 1971

Mode of Travel Upon Deboarding the Train	1971 Survey					
	Eastbound		Westbound		Total	
	Number of Trips	Percent	Number of Trips	Percent	Number of Trips	Percent
Walk	43	87.8	15	32.6	58	61.0
Auto Driver	--	--	16	34.8	16	16.8
Auto Passenger	1	2.0	14	30.4	15	15.8
Bus	5	10.2	--	--	5	5.3
Taxi	--	--	--	--	--	--
Other	--	--	1	2.2	1	1.1
No Response	2	--	--	--	2	--
Total	51	100.0	46	100.0	97	100.0

Source: SEWRPC.

Table 5

THE MODE OF TRAVEL USED UPON DEBOARDING THE TRAIN BY EASTBOUND, WESTBOUND, AND TOTAL TRIPS ON THE CANNONBALL ON THE SURVEY DAY: 1980

Mode of Travel Upon Deboarding the Train	1980 Survey					
	Eastbound		Westbound		Total	
	Number of Trips	Percent	Number of Trips	Percent	Number of Trips	Percent
Walk	44	78.6	9	16.1	53	47.3
Drive In Car Parked at Station	8	14.3	26	46.4	34	30.3
Ride with Other Driver Who Parked Car at Station	--	--	6	10.7	6	5.4
Be Picked Up in a Car	1	1.8	11	19.7	12	10.7
Bus	3	5.3	4	7.1	7	6.3
Taxi	--	--	--	--	--	--
Other	--	--	--	--	--	--
No Response	1	--	4	--	5	--
Total	57	100.0	60	100.0	117	100.0

Source: Wisconsin Department of Transportation and SEWRPC.

Of the 60 passengers interviewed in the 1971 survey, 55 passengers, or about 92 percent, indicated that they solely used the Cannonball to make a trip with the endpoints and trip purpose of the trip mode on the survey day. If one assumes that persons interviewed in 1980 who indicated they would use the train as frequently as they made such a trip would thereby use the Cannonball as their sole mode of travel for such a trip, then a total of 44 of the 62 interviewed passengers, or about 71 percent, could be expected to utilize a revived Cannonball service as the sole mode of travel for such a trip. As shown in Table 8, of the 60 passengers surveyed in 1971, about 37 passengers, or 66 percent, made the Cannonball trips daily; about 13 passengers, or 23 percent, made the train trip three or four times a week; and six passengers, or about 11 percent, made the train trip one or two times a week.

Table 6

DISTANCES TRAVELED TO DESTINATION UPON DEBOARDING THE TRAIN BY EASTBOUND, WESTBOUND, AND TOTAL TRIPS ON THE CANNONBALL ON THE SURVEY DAY: 1980

Distance Traveled at Destination	1980 Survey					
	Eastbound		Westbound		Total	
	Trips	Percent[b]	Trips	Percent[b]	Trips	Percent[b]
Blocks Walked						
1	1	1.9	--	--	1	1.0
2	3	5.8	1	2.2	4	4.1
3	3	5.8	2	4.4	5	5.2
4	6	11.6	3	6.8	9	9.3
5	4	7.7	--	--	4	4.1
6	2	3.8	2	4.4	4	4.1
7	1	1.9	--	--	1	1.0
8	4	7.7	--	--	4	4.1
9	1	1.9	1	2.2	2	2.1
10	8	15.4	--	--	8	8.3
11	1	1.9	--	--	1	1.0
Subtotal	34	65.4	9	20.0	43	44.3
Miles Traveled						
1	4	7.7	8	17.8	12	12.3
2	6	11.7	10	22.2	16	16.5
3	--	--	6	13.4	6	6.2
4	2	3.8	2	4.4	4	4.1
5	--	--	2	4.4	2	2.1
6	2	3.8	3	6.7	5	5.2
7	2	3.8	3	6.7	5	5.2
8	--	--	--	--	--	--
9	--	--	--	--	--	--
10 or More	2	3.8	2	4.4	4	4.1
Subtotal	18[a]	34.6	36	80.0	54	55.7
No Response	5	--	15	--	20	--
Total	57	100.0	60	100.0	117	100.0

[a] *Six persons who indicated that they walked to their eastbound destination recorded the distance in miles.*

[b] *Percents are adjusted to omit the no response category.*

Source: Wisconsin Department of Transportation and SEWRPC.

Alternate Mode of Travel

Half of the passengers interviewed on the 1980 Cannonball survey indicated that if the Cannonball were not available, the trip would have been made as an auto driver. About 24 percent indicated that they would not have made the trip if the train had not been available, almost 15 percent would have used a carpool, about 8 percent would have used the bus, and only 2 percent would have traveled as auto passengers. As shown in Figure 1, a much greater proportion of passengers who would use the train three or more times a week than passengers who would use the train fewer than three times a week would use the alternative modes of auto driver and carpool, about 61 percent and 18 percent, respectively, compared with about 22 percent and 6 percent, respectively. Almost 67 percent of the passengers who would use the train less than three times a week simply would not have made the trip.

Table 7

FREQUENCY WITH WHICH 1980 CANNONBALL PASSENGERS MAKE SUCH A TRIP BY THE FREQUENCY WITH WHICH PASSENGERS ANTICIPATE USING A REVIVED CANNONBALL SERVICE

Frequency With Which Passengers Make a Trip Between the Same Points for the Same Purposes as the Train Trip	Frequency With Which the Passengers Would Use the Train if the Schedule Were Convenient and the Fare Were Reasonable										
	Daily		Three or Four Times a Week		One or Two Times a Week		Less Than Once a Week		No Response	Total	
	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]		Number of Responses	Percent[a]
Daily	27	67.5	10	25.0	2	5.0	1	2.5	1	41	100.0
Three or Four Times a Week	--	--	5	100.0	--	--	--	--	--	5	100.0
One or Two Times a Week	--	--	--	--	2	100.0	--	--	--	2	100.0
Less Than Once a Week	2	20.0	--	--	1	10.0	7	70.0	1	11	100.0
No Response	--	--	--	--	--	--	2	100.0	1	3	100.0
Total	29	49.2	15	25.4	5	8.5	10	16.9	3	62	100.0

[a] *Percent is adjusted to omit the no response category.*

Source: Wisconsin Department of Transportation and SEWRPC.

The responses concerning alternate mode to Cannonball service of the 1980 surveyed passengers were fairly similar to the responses concerning mode prior to using the Cannonball of the 1971 passengers, as shown in Figure 2. Such similarity would be expected, since the 1980 passengers did not have the opportunity during the trial run period to develop a reliance, over time, on the Cannonball as a primary travel mode and their responses would, thereby, be greatly influenced by the type of mode that they used prior to the week of the trial run. Of the 1971 passengers, about 48 percent had previously been auto drivers, about 35 percent had not made the trip except by the Cannonball, about 7 percent had been bus passengers, about 5 percent had been auto passengers, and about 5 percent had used a carpool. The most notable difference between the 1980 and 1971 arrays is the increased use of carpooling among the passengers, from about 5 percent in 1971 to about 15 percent in 1980. This finding is in concurrence with the findings of recent studies on the use of carpooling in the Region. Such studies indicate that carpools constitute about 18 percent of average weekday person travel to and from work.

Table 8

FREQUENCY WITH WHICH 1971 PASSENGERS USED THE CANNONBALL COMMUTER TRAIN

1971 Survey		
Number of Times per Week the Cannonball Was Used[a]	Number of Responses	Percent[b]
Daily	37	66.1
Three or Four Times	13	23.2
One or Two Times	6	10.7
No Response	4	--
Total	60	100.0

[a] *Of the 60 passengers, 55 indicated that they used the Cannonball solely to make such a trip between the same points for the same purposes; one passenger occasionally used the bus instead of the Cannonball; one passenger occasionally used an auto part-way and a bus part-way instead of the Cannonball; and three passengers did not indicate whether they used alternative modes during an average week.*

[b] *Percent is adjusted to omit the no response category.*

Source: SEWRPC.

The responses of the 1971 passengers to a question concerning the alternate mode of travel they would use in the event that Cannonball service was eliminated demonstrated the effect of reliance upon the train service. Most passengers felt they would make the trip either as auto drivers, about 65 percent, or bus passengers, about 24 percent, if service were eliminated. Only 5 percent considered using a carpool, about 4 percent expected to become auto passengers, and about 2 percent thought they would discontinue making the trip.

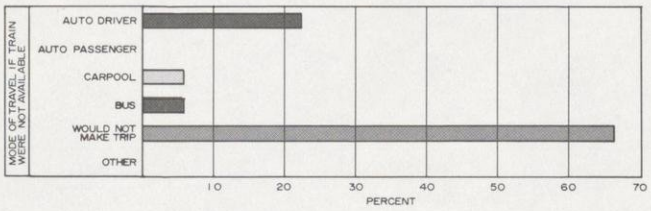
Ancillary Services

The Cannonball passengers interviewed in the 1980 survey were requested to respond to a series of questions concerning the probable use of certain ancillary services which could be provided in addition to, or

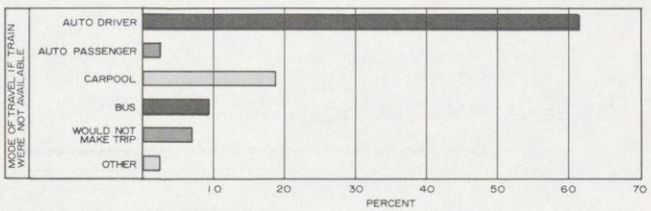
Figure 1

ALTERNATE MODES OF TRAVEL USED BY CANNONBALL PASSENGERS: 1980

PERCENT OF PASSENGERS WHO WOULD USE THE CANNONBALL FEWER THAN THREE TIMES A WEEK (NUMBER OF RESPONSES: 18)



PERCENT OF PASSENGERS WHO WOULD USE THE CANNONBALL THREE OR MORE TIMES A WEEK (NUMBER OF RESPONSES: 44)

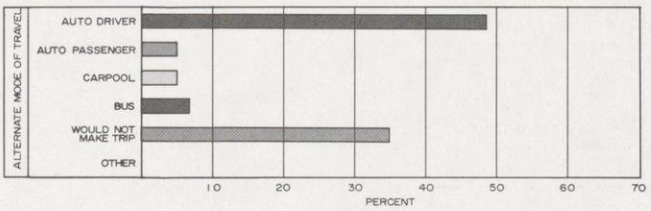


Source: Wisconsin Department of Transportation and SEWRPC.

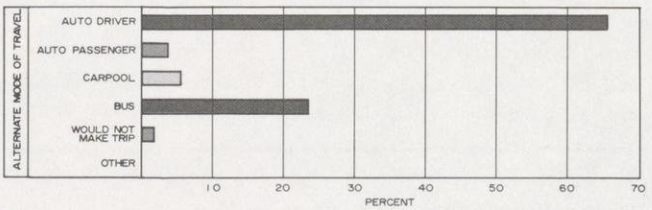
Figure 2

ALTERNATE MODES OF TRAVEL USED BY CANNONBALL PASSENGERS IN 1971 PRIOR TO REGULARLY USING THE TRAIN AND UPON ELIMINATION OF THE TRAIN SERVICE

PERCENT OF PASSENGERS PRIOR TO REGULARLY USING THE TRAIN (NUMBER OF RESPONSES: 60)



PERCENT OF PASSENGERS UPON ELIMINATION OF THE TRAIN SERVICE (NUMBER OF RESPONSES: 55)



Source: Wisconsin Department of Transportation and SEWRPC.

instead of, the standard Cannonball runs, i.e., express bus service, shuttle bus service, and additional midday train runs. In general, fewer than half of the responding passengers felt that they would use any of these services or that such services would increase their use of the train.

As shown in Table 9, about 46 percent of the passengers thought that they would use an express bus which would run between the points they were traveling on the survey day. About 52 percent of the passengers who anticipated using the Cannonball three or more times a week felt they would use the express bus as opposed to only 25 percent of the passengers who anticipated using the Cannonball fewer than three times a week.

As shown in Table 10, about 47 percent of the passengers responding in the 1980 survey felt that they would use the Cannonball more often if a downtown shuttle bus met the train in Milwaukee. About 52 percent of the passengers who anticipated using the Cannonball three or more times a week felt they would use the train more often if the shuttle bus were provided, in contrast to only 27 percent of the passengers who anticipated using the Cannonball fewer than three times a week. The actual effect of shuttlebus service on train ridership is difficult to ascertain from the responses to this question. Of the 44 passengers anticipating using the train three or more times a week, 29 passengers expected to use it daily, without the shuttlebus being offered, leaving only 15 passengers who could realistically be expected to increase their usage. Furthermore, there may be an unknown portion of the population who did not utilize the Cannonball during the trial run specifically because they would not have transportation available to them at the Milwaukee end of the trip and felt that the walking distance was too great.

Table 9

ANTICIPATED USE OF AN EXPRESS BUS IN LIEU OF THE CANNONBALL BY THE CANNONBALL PASSENGERS: 1980

1980 Survey						
If Express Bus Service Were Provided Between the Points You Are Traveling Would You Use the Bus?	Passengers Who Would Use the Cannonball Fewer Than Three Times a Week		Passengers Who Would Use the Cannonball Three or More Times a Week		All Passengers	
	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]
Yes	3	25.0	23	52.3	26	46.4
No	9	75.0	21	47.7	30	53.6
No Response	6	--	--	--	6	--
Total	18	100.0	44	100.0	62	100.0

[a] *Percent is adjusted to omit the no response category.*

Source: Wisconsin Department of Transportation and SEWRPC.

Table 10

ANTICIPATED INCREASED USE OF THE CANNONBALL BY 1980 PASSENGERS IF A MILWAUKEE SHUTTLE BUS WERE PROVIDED

1980 Survey						
Would You Ride the Train More Often If a Downtown Shuttle Bus Met the Train in Milwaukee?	Passengers Who Would Use the Cannonball Fewer Than Three Times a Week		Passengers Who Would Use the Cannonball Three Or More Times a Week		All Passengers	
	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]
Yes	3	27.3	23	52.3	26	47.3
No	8	72.7	21	47.7	29	52.7
No Response	7	--	--	--	7	--
Total	18	100.0	44	100.0	62	100.0

[a] *Percent is adjusted to omit the no response category.*

Source: Wisconsin Department of Transportation and SEWRPC.

About 47 percent of the passengers felt that a member of their families would use an additional Cannonball run if it were scheduled to arrive in Milwaukee between 9:00 a.m. and 10:30 a.m. and to depart from Milwaukee between 2:00 p.m. and 3:30 p.m., as shown in Table 11. About 45 percent of the passengers who intended to use the Cannonball three or more times a week felt that a family member would use such an additional train. Of the three questions concerning ancillary services, the idea of the additional train was of most interest to the passengers who anticipated using the Cannonball fewer than three times a week. About 50 percent of these passengers indicated that a family member would use such an additional train. It should be noted that this survey question did not attempt to define the actual frequency of use of the additional train.

Table 11

ANTICIPATED USE OF AN ADDITIONAL TRAIN ON THE CANNONBALL ROUTE BY FAMILY MEMBERS OF 1980 CANNONBALL PASSENGERS

If An Additional Train Were Scheduled to Arrive in Milwaukee Between 9:00 a.m. and 10:30 a.m. and to Depart from Milwaukee Between 2:00 p.m. and 3:30 p.m., Would Any Member of Your Family Use Such a Train?	1980 Survey					
	Passengers Who Would Use the Cannonball Fewer Than Three Times a Week		Passengers Who Would Use the Cannonball Three Or More Times a Week		All Passengers	
	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]
Yes	7	50.0	20	46.5	27	47.4
No	7	50.0	23	53.5	30	52.6
No Response	4	--	1	--	5	--
Total	18	100.0	44	100.0	62	100.0

[a]*Percent is adjusted to omit the no response category.*

Source: Wisconsin Department of Transportation and SEWRPC.

Desired Arrival and Departure Times

The time schedule of the trial run of the Cannonball in 1980 was very similar to the Cannonball schedule which was effective when service was discontinued in 1972. In 1972, the Cannonball left Watertown at 6:35 a.m., as opposed to 6:30 a.m. in 1980, and arrived in Milwaukee at 7:40 a.m. in both years. On the westbound run, the 1971 Cannonball was scheduled to depart the Milwaukee station at 5:25 p.m., as opposed to 5:30 p.m. in 1980, and to arrive in Watertown at 6:35 p.m., as opposed to 6:40 p.m. in 1980.

Passengers on the 1980 Cannonball were asked to identify the arrival and departure times for trains at the Milwaukee Amtrak Station which would be most convenient for their regular use of the service. A few passengers also indicated second or third choices which would be desirable. The 1980 scheduled arrival time at the Milwaukee station of 7:40 a.m. was not one of the choices offered on the questionnaire.

As shown in Table 12, the plurality of passengers, about 37 percent, preferred, as a first choice, the arrival of the train at the Milwaukee station at 7:30 a.m. Other prominent desired arrival times were 7:45 a.m., selected by about 19 percent of the passengers, and 7:15 a.m., selected by about 17 percent of the passengers. Of the total second and third choice selections, the most desired arrival times were also 7:30 a.m., which represented about 31 percent of such selections, and 7:45 a.m., which represented 29 percent of the selections. No clear comparison between the desires of persons anticipating using the train three or more times a week and those persons who would use the train fewer than three times a week could be drawn because of a rather high rate of nonresponse to the item by persons who would use the train fewer than three times a week.

As shown in Table 13, the plurality of passengers, about 37 percent, preferred, as a first choice, the departure of the train from the Milwaukee station at the scheduled time of 5:30 p.m. The other prominent desired departure times were 5:00 p.m., selected by 24 percent of the passengers, and 4:30 p.m., selected by about 15 percent of the passengers. The array of second and third choice selections of desired departure times indicates that passengers with secondary choices generally selected departure times which were 15 minutes later than the primary desired departure time. Of the total second and third choice selections, the most desired departure times were 5:45 p.m., which was specified in about 30 percent of such selections, and 5:15 p.m., which was noted in 26 percent of the selections.

Fare

The passengers on the 1980 trial run of the Cannonball were asked to identify the amount they would be willing to pay to ride the train on a regular basis between the stations they were using on the survey day.

Table 12

DESIRED ARRIVAL TIMES OF THE CANNONBALL AT THE MILWAUKEE STATION BY ANTICIPATED FREQUENCY OF USE BY THE CANNONBALL PASSENGERS: 1980

1980 Survey						
Primary Desired Arrival Time	Passengers Who Would Use the Cannonball Fewer Than Three Times a Week		Passengers Who Would Use the Cannonball Three or More Times a Week		All Passengers	
	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]
7:15 a.m.	2	15.4	7	17.1	9	16.7
7:30 a.m.	4	30.7	16	39.0	20	37.0
7:45 a.m.	1	7.7	9	22.0	10	18.5
8:00 a.m.	--	--	5	12.2	5	9.3
8:15 a.m.	1	7.7	--	--	1	1.8
8:30 a.m.	3	23.1	2	4.9	5	9.3
9:00 a.m.	2	15.4	1	2.4	3	5.6
Other	--	--	1	2.4	1	1.8
No Response	5	--	3	--	8	--
Total	18	100.0	44	100.0	62	100.0

Total Second and Third Choice Selections of Desired Arrival Times (nonresponses omitted)[b]	Passengers Who Would Use the Cannonball Fewer Than Three Times a Week		Passengers Who Would Use the Cannonball Three or More Times a Week		All Passengers	
	Number of Selections	Percent	Number of Selections	Percent	Number of Selections	Percent
7:15 a.m.	--	--	5	12.8	5	11.9
7:30 a.m.	1	33.4	12	30.7	13	30.9
7:45 a.m.	1	33.3	11	28.2	12	28.6
8:00 a.m.	--	--	6	15.4	6	14.3
8:15 a.m.	--	--	3	7.7	3	7.1
8:30 a.m.	--	--	1	2.6	1	2.4
9:00 a.m.	1	33.3	1	2.6	2	4.8
Total	3	100.0	39	100.0	42	100.0

[a] *Percent is adjusted to omit the no response category.*

[b] *Thirty-five respondents did not indicate a second choice arrival time and 47 respondents did not indicate a third choice arrival time.*

Source: Wisconsin Department of Transportation and SEWRPC.

Although not specifically stated, the intention of the question was to measure desired round-trip fare levels. The interviewer has indicated that he informed respondents to the survey who inquired about this question that the question concerned round-trip fares. The question specifies that the fare would apply to a trip between the stations the respondent was using on the survey day. In the analysis of the response to this question, the distance between the boarding and deboarding stations was calculated for each trip and the responses were then arrayed by the one-way trip distance in miles. Therefore, the total miles traveled on the train on a round-trip ticket would be double the amount shown in Table 14.

The donation requested of passengers intending to use the Cannonball for a round trip during the trial run was $5[2] and a plurality of the passengers, about 41 percent, indicated that they would be willing to pay $5 per round trip to ride the train on a regular basis. About 26 percent of the passengers would be willing

[2] *In 1971, the round-trip coach fare for a passenger traveling from Watertown to Milwaukee was $3.85.*

Table 13

DESIRED DEPARTURE TIMES OF THE CANNONBALL FROM THE MILWAUKEE STATION BY ANTICIPATED FREQUENCY OF USE BY THE CANNONBALL PASSENGERS: 1980

1980 Survey						
Primary Desired Departure Time	Passengers Who Would Use the Cannonball Fewer Than Three Times a Week		Passengers Who Would Use the Cannonball Three or More Times a Week		All Passengers	
	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]
4:00 p.m.	1	7.7	1	2.4	2	3.7
4:30 p.m.	4	30.7	4	9.8	8	14.8
5:00 p.m.	3	23.1	10	24.4	13	24.1
5:15 p.m.	1	7.7	3	7.3	4	7.4
5:30 p.m.	3	23.1	17	41.5	20	37.0
5:45 p.m.	1	7.7	3	7.3	4	7.4
6:00 p.m.	--	--	2	4.9	2	3.7
Other	--	--	1	2.4	1	1.9
No Response	5	--	3	--	8	--
Total	18	100.0	44	100.0	62	100.0

Total Second and Third Choice Selections of Desired Departure Times: (nonresponses omitted)[b]	Passengers Who Would Use the Cannonball Fewer Than Three Times a Week		Passengers Who Would Use the Cannonball Three or More Times a Week		All Passengers	
	Number of Selections	Percent	Number of Selections	Percent	Number of Selections	Percent
4:00 p.m.	--	--	--	--	--	--
4:30 p.m.	--	--	3	7.0	3	6.4
5:00 p.m.	--	--	4	9.3	4	8.5
5:15 p.m.	--	--	12	27.9	12	25.5
5:30 p.m.	2	50.0	4	9.3	6	12.8
5:45 p.m.	1	25.0	13	30.2	14	29.8
6:00 p.m.	1	25.0	5	11.6	6	12.8
Other	--	--	2	4.7	2	4.2
Total	4	100.0	43	100.0	47	100.0

[a] *Percent is adjusted to omit the no response category.*

[b] *Thirty-two respondents did not indicate a second choice departure time and 45 respondents did not indicate a third choice departure time.*

Source: Wisconsin Department of Transportation and SEWRPC.

to pay $4 per round trip; about 14 percent, $3 per round trip; about 12 percent, $6 per round trip; about 3 percent, $7 per round trip; and about 3 percent indicated other fares. As would be expected, the greater the distance traveled on the train, the greater the fare the passengers indicated they would be willing to pay for the trip.

Desired Subsidy Levels

Most of the passengers responding to the 1980 Cannonball survey wished to see the larger proportion of operating costs for the train be borne by the fares. About 48 percent of the passengers felt that more than half of the operating costs should be covered by fares; about 35 percent of the passengers felt that the costs should be covered equally by fares and subsidies; and only 17 percent of the passengers felt that subsidies should provide more than 50 percent of the costs (see Table 15). Concerning this issue, there was a marked difference of opinion between persons who anticipated using the Cannonball three or more times a week and those passengers who anticipated using the Cannonball fewer than three times a week. Of the passengers who anticipated using the train three or more times a week, about 56 percent felt that more than half

Table 14

FARE PASSENGERS WOULD PAY BY THE DISTANCE TRAVELED ON THE CANNONBALL: 1980

Amount of Fare Passengers Would Pay to Ride the Train Round Trip Between the Stations Used on the Survey Day	1980 Survey											
	One-Way Distance Traveled on Cannonball Train Trip (miles)											
	Less Than 10		10.0 - 19.9		20.0 - 29.9		30.0 - 39.9		40.0 or More		All Distances	
	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent	Number of Responses	Percent
$3.00	1	50.0	5	38.5	1	16.7	1	4.8	--	--	8	13.8
$4.00	--	--	5	38.5	2	33.3	7	33.3	1	6.3	15	25.9
$5.00	1	50.0	2	15.3	3	50.0	10	47.6	8	50.0	24	41.4
$6.00	--	--	1	7.7	--	--	1	4.8	5	31.2	7	12.1
$7.00	--	--	--	--	--	--	--	--	2	12.5	2	3.4
Other	--	--	--	--	--	--	2	9.5	--	--	2	3.4
No Response	--	--	--	--	--	--	2	--	2	--	4	--
Total	2	100.0	13	100.0	6	100.0	23	100.0	18	100.0	62	100.0

Source: Wisconsin Department of Transportation and SEWRPC.

Table 15

DESIRED SUBSIDY LEVELS FOR THE CANNONBALL OPERATING COSTS BY ANTICIPATED FREQUENCY OF USE BY THE CANNONBALL PASSENGERS: 1980

Proportion of Total Train Service Cost Which Should be Covered by Fares and Government Subsidy (percent fare/percent subsidy)	1980 Survey					
	Passengers Who Would Use the Cannonball Fewer Than Three Times a Week		Passengers Who Would Use the Cannonball Three or More Times a Week		All Passengers	
	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]
20/80 through 29/71	1	9.1	3	7.3	4	7.7
30/70 through 39/61	--	--	1	2.4	1	1.9
40/60 through 49/51	2	18.2	2	4.9	4	7.7
50/50 through 59/41	6	54.5	12	29.3	18	34.6
60/40 through 69/31	--	--	11	26.8	11	21.2
70/30 through 79/21	--	--	5	12.2	5	9.6
80/20 through 89/11	--	--	4	9.8	4	7.7
90/10 through 99/01	--	--	1	2.4	1	1.9
100/0	2	18.2	2	4.9	4	7.7
No Response	7	--	3	--	10	--
Total	18	100.0	44	100.0	62	100.0

[a] *Percent is adjusted to omit the no response category.*

Source: Wisconsin Department of Transportation and SEWRPC.

of the cost should be covered by fares; about 29 percent felt that the cost should be borne equally by fares and subsidies; and about 15 percent felt that subsidies should provide for more than half of the costs. In contrast, of passengers who anticipated using the train fewer than three times a week, only 18 percent felt that more than half of the cost should be covered by fares; about 55 percent felt that the cost should be borne equally by fares and subsidies; and about 27 percent felt that subsidies should cover most of the cost.

Levels of Government as Subsidy Sources

Generally, the Cannonball passengers felt that the federal and state governments should be the primary sources of needed subsidy to assist in operating the Cannonball. As shown in Table 16, about 35 percent of the passengers felt that local governments should contribute no portion of the needed subsidy; about 23 percent of the passengers believed that local government should contribute from 1 percent through

Table 16

PROPORTIONS OF SUBSIDY TO BE PROVIDED BY LOCAL, STATE, AND FEDERAL LEVELS OF GOVERNMENT: 1980 CANNONBALL SURVEY

Proportion of Needed Subsidy to be Provided by Levels of Government (percent)	1980 Survey					
	Levels of Government Which Could Provide Subsidy					
	Local		State		Federal	
	Number of Responses	Percent[a]	Number of Responses	Percent[a]	Number of Responses	Percent[a]
0	17	35.4	1	2.1	5	10.5
1-9	3	6.3	--	--	1	2.1
10-19	8	16.6	3	6.3	4	8.3
20-29	10	20.8	10	20.8	6	12.5
30-39	4	8.3	6	12.5	4	8.3
40-49	2	4.2	8	16.6	4	8.3
50-59	2	4.2	8	16.6	12	25.0
60-69	--	--	2	4.2	6	12.5
70-79	2	4.2	3	6.3	4	8.3
80-89	--	--	1	2.1	1	2.1
90-99	--	--	2	4.2	1	2.1
100	--	--	4	8.3	--	--
No Response	14	--	14	--	14	--
Total	62	100.0	62	100.0	62	100.0

[a]*Percent is adjusted to omit the no response category.*

Source. Wisconsin Department of Transportation and SEWRPC.

19 percent of the subsidy; about 21 percent felt that local government should contribute from 20 percent through 29 percent of the subsidy; and about 13 percent felt that local government should contribute from 30 percent through 49 percent of the subsidy. Only 8 percent of the passengers felt that local government should be responsible for one-half or more of the needed subsidy.

In contrast, about 42 percent of the passengers felt that the state government should provide one-half or more of the needed subsidy. Only 2 percent of the passengers felt that the State should provide none of the subsidy; about 6 percent felt that the State should provide from 10 to 19 percent of the subsidy; about 21 percent wished the State to contribute from 20 through 29 percent of the subsidy; about 29 percent felt the State should provide from 30 through 49 percent; about 17 percent believed the State should provide from 50 through 59 percent; another 17 percent believed the State should provide from 60 through 99 percent; and about 8 percent of the passengers wished to see the State as the only subsidy source for the Cannonball.

Although no persons wished to see the federal government provide 100 percent of the needed subsidy, about 50 percent of the passengers felt that the federal government should be responsible for providing one-half or more of the subsidy. About 25 percent of the passengers believed the federal government should provide from 50 through 59 percent of the subsidy; about 21 percent felt that from 60 through 79 percent of the subsidy should come from federal sources; and about 4 percent felt that the federal government should provide from 80 through 99 percent of the subsidy. About 50 percent of the passengers believed that the federal government should provide less than half of the subsidy. About 11 percent wished to see the federal government make no contributions to the system. About 10 percent felt that from 1 through 19 percent of the subsidy should be of federal origin. About 13 percent of the passengers believed the federal government should contribute from 20 through 29 percent of the subsidy, and about 16 percent of the passengers wished the federal government to provide from 30 through 49 percent of the subsidy.

SOCIOECONOMIC CHARACTERISTICS OF CANNONBALL PASSENGERS

Presented in Figure 3 are graphic presentations of Cannonball passengers interviewed in both 1980 and 1971 by sex, licensed driver status, age, number of automobiles available for personal use, and occupation. The typical Cannonball passenger in 1971 was a male licensed driver between 45 and 54 years of age who lived in a one- or two-auto household and was employed in a professional capacity. In 1980, the typical Cannonball passenger was also a male licensed driver who was somewhat younger, between 25 and 44 years of age, who lived in a two-auto household and was employed in either a professional or managerial capacity. The increase shown in the number of autos per household is representative of an increase in multi-auto households in the general population during the past decade.

No single household size was prevalent among the 1980 Cannonball passengers, as shown in Figure 4. About 22 percent of the respondents indicated that they were members of one-person households; about 27 percent were members of two-person households; about 12 percent, three-person households; about 19 percent, four-person households; and about 20 percent, five-or-more-person households.

In 1980, the majority, about 53 percent, of the Cannonball passengers were members of households earning annual incomes of $30,000 or more, as shown in Figure 5. About 12 percent of the passengers were members of households with annual incomes of between $20,000 and $24,999. No other income group was represented by more than 7 percent of the passengers interviewed in the 1980 survey. The median income of the passengers in 1971 was about $15,400. However, upon conversion to 1980 constant dollars of the income data collected in the 1971 survey, it is shown the economic levels of the Cannonball passengers were very similar in both years. In 1971, about 66 percent of the Cannonball passengers were members of households earning the 1980 equivalent of $30,000 or more, and about 13 percent were members of households earning the 1980 equivalent of $25,000 through $29,999. No no other income group was represented by more than 7 percent in 1980 constant dollars.

ESTIMATES OF PASSENGER DEMAND

For planning purposes, it is preferable to obtain reasonable estimates of passenger demand for a given transportation system. Through use of data from the total sample acquired during the three survey days on the Cannonball, such estimates were obtained. Although the Tuesday only sample presents the most complete representation of commuter train passenger travel habits, attitudes, and socioeconomic characteristics in terms of frequency distributions, it is desirable when obtaining estimates of average use of a transportation system to utilize more than one day of survey information if it is available. The 1980 Cannonball survey was sampled in such a manner that the three-day sample provides the best data for determining an average estimate of passenger demand. Furthermore, through use of the data from the total sample, those persons who anticipated using the train on a daily basis but did not use the trial run until Wednesday or Thursday are incorporated into the demand estimates. The following section presents the methodology used to obtain the passenger demand estimates.

During the three-day survey, 211 questionnaires were distributed; 151 questionnaires were returned with sufficient responses to be analyzed. It is assumed in the forthcoming demand estimates that anticipated use of a revived Cannonball service by these 151 responding passengers is representative of the 211 passengers using the train on the survey days. During the three-day survey, 54 passengers, or 36 percent, indicated that they anticipated using the Cannonball on a daily basis if the schedule were convenient and the fare reasonable; 32 passengers, or 21 percent, would use the train three or four times a week; 15 passengers, or 10 percent, would use the train one or two times a week; and 37 passengers, or 25 percent, would use the train less than once a week. The remaining passengers would not use the train on a regular basis, would only use a weekend service, or gave other nonapplicable responses. Low, medium, and high estimates of basic daily passenger demand were obtained from these data. It is assumed in the medium estimate that one-half of the passengers in the three or four times a week range will use the Cannonball three times a week and one-half will use the Cannonball four times a week. For the medium estimate, the same assumption also was applied to the one to two times a week range. The assumption of the high estimate is that all passengers selecting these ranges will use the Cannonball the maximum amount indicated by the range and, conversely, the

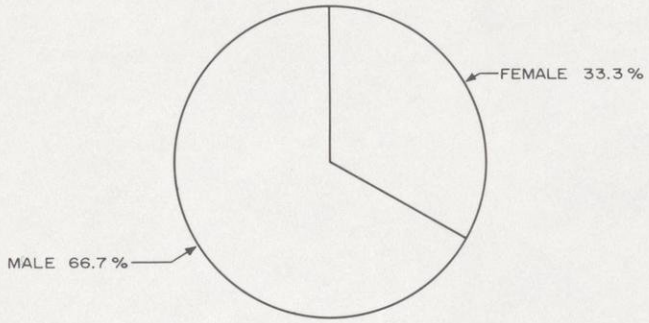
Figure 3

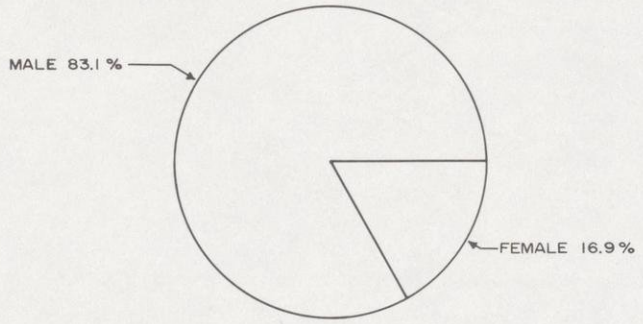
SOCIOECONOMIC CHARACTERISTICS OF PASSENGERS ON THE CANNONBALL IN 1980 AND 1971

1980 SURVEY

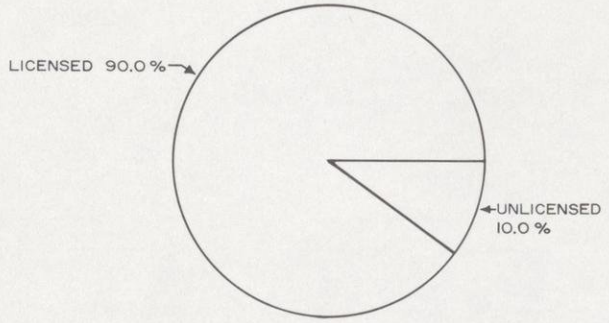
1971 SURVEY

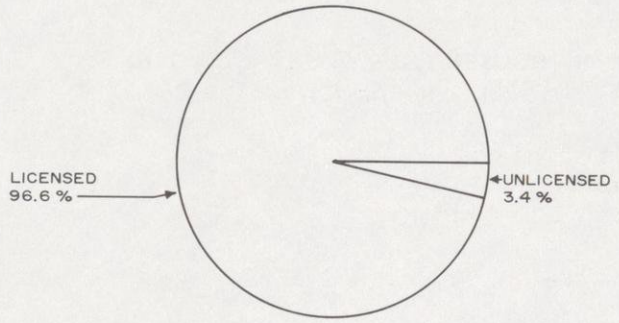
SEX



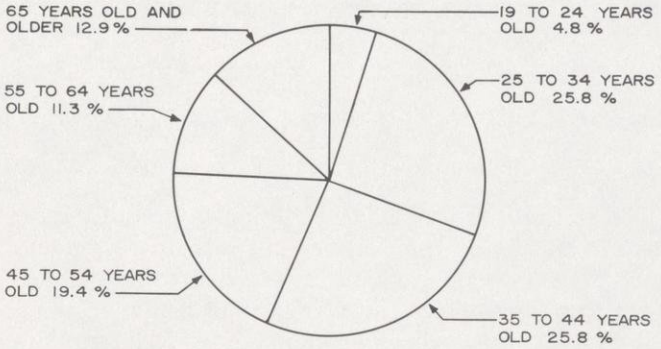


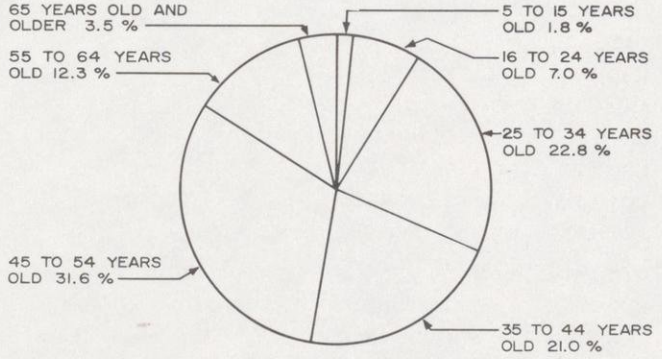
LICENSED DRIVER STATUS



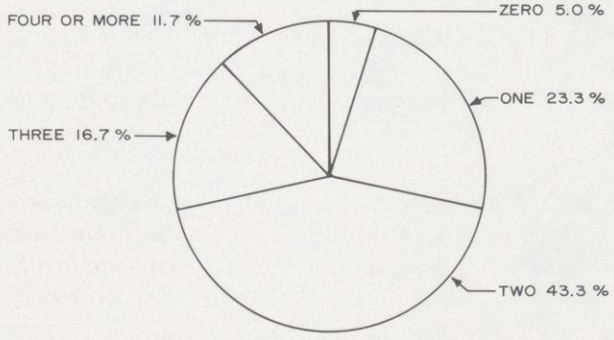


AGE





NUMBER OF AUTOS AND TRUCKS AVAILABLE



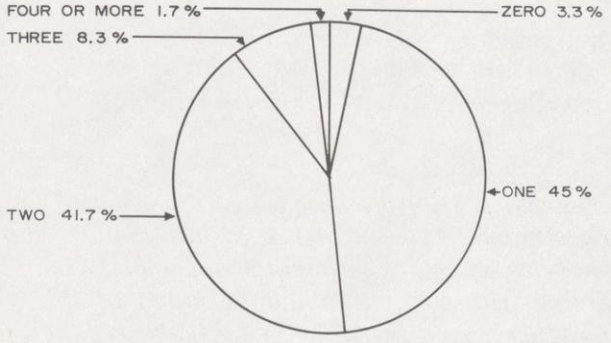
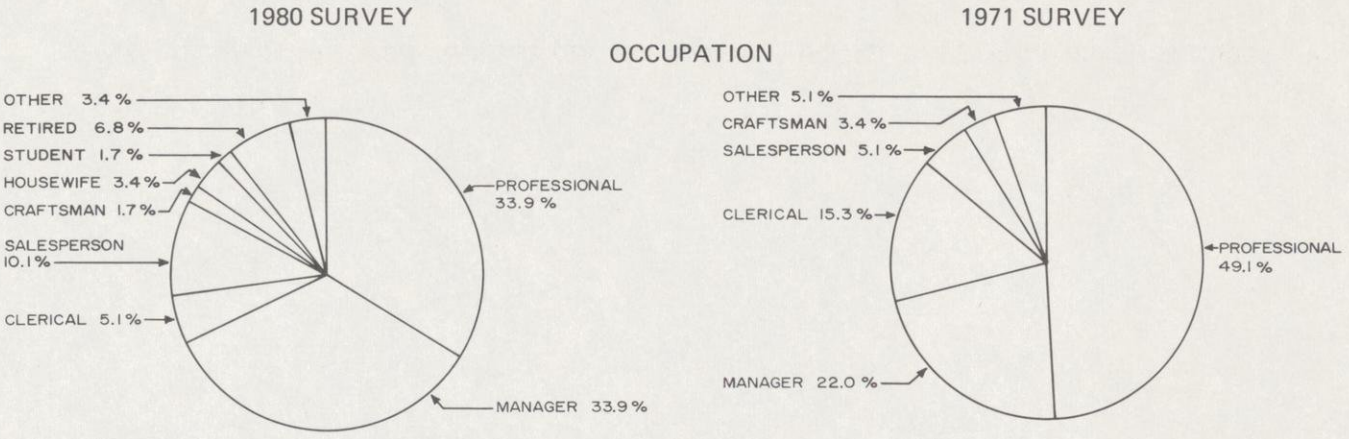


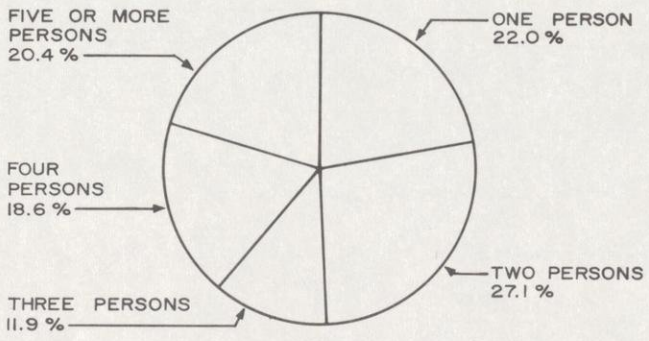
Figure 3 (continued)



Source: Wisconsin Department of Transportation and SEWRPC.

Figure 4

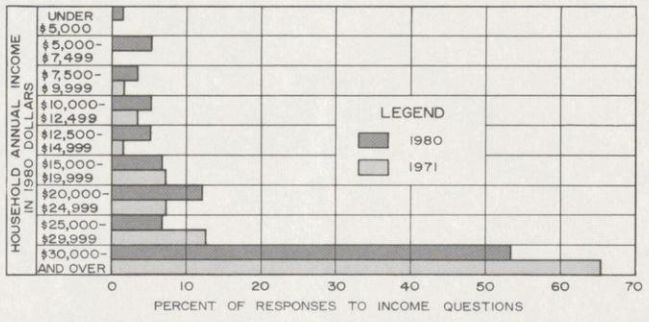
HOUSEHOLD SIZE OF PASSENGERS ON THE CANNONBALL: 1980



Source: Wisconsin Department of Transportation and SEWRPC.

Figure 5

1980 AND 1971 HOUSEHOLD ANNUAL INCOME OF PASSENGERS ON THE CANNONBALL IN 1980 CONSTANT DOLLARS



Source: Wisconsin Department of Transportation and SEWRPC.

assumption of the low estimate is that the passengers will use the Cannonball the minimum amount indicated by the ranges. A five-day week was used as the base in obtaining the daily averages from passengers who indicated they would use the Cannonball one or more times a week. A simple average of the three-day sample run was obtained for the passengers who indicated they would use the Cannonball less than once a week.[3] As shown in Table 17, the total resulting estimates of basic passenger demand if all passengers found the schedule to be convenient and the fare reasonable are: low estimate, 123 passengers a day; medium estimate, 130 passengers a day; high estimate, 137 passengers a day.

To determine the effect of scheduling on these base estimates, the data obtained concerning desired arrival and departure times at the Milwaukee station were reviewed. This analysis indicated that scheduling of desired departure times was a less critical factor than scheduling of desired arrival times. Such a finding is

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[3] *It is necessary, in the absence of data to the contrary, to assume that these estimated 52 passengers are representative of the incidence of infrequent use of the train by the general population. The influence of the novelty of the experimental run in artificially inflating this figure cannot be determined from the available data. However, it should be noted of the 60 passengers using the train on the survey day in 1971, 56 passengers used the train on a weekly basis and four passengers did not respond to the question.*

Table 17

ESTIMATES OF DAILY PASSENGERS AND NUMBERS OF TRIPS WHICH WOULD BE MADE ON A REINSTATED CANNONBALL SERVICE

Criteria for Estimates of Daily Ridership on a Revived Cannonball	Low Estimate	Medium Estimate	High Estimate
Anticipated Use of the Cannonball:			
Daily	75	75	75
3-4 Times a Week	27	31	37
1-2 Times a Week	4	7	8
Less Than Once a Week	17	17	17
Total: Base Daily Passenger Estimate	123	130	137
Ratio for Critical Factor of Convenient Arrival Time	0.815	0.815	0.815
Estimated Daily Passengers if Convenient Arrival Time is Critical Factor	100	106	112
Ratio for Critical Factor of Reasonable Fare	0.690	0.690	0.690
Estimated Daily Passengers if Fare Level is Critical Factor	85	90	95
Ranges of Estimated Daily Passengers if Schedule is Convenient and Fare is Reasonable	85 to 100	90 to 106	95 to 112
Number of Trips Generated Daily by Estimated Numbers of Passengers	155 to 186	165 to 196	176 to 207

Source: Wisconsin Department of Transportation and SEWRPC.

not unexpected in view of the work-oriented purpose of most of the trips. It is assumed in this estimate that the Cannonball would arrive at the Milwaukee station at 7:30 a.m., the primary desired arrival time most frequently indicated by the passengers. It is also assumed that persons preferring to arrive at the Milwaukee station from 7:15 a.m. through 8:00 a.m. could adjust their schedules in such a way as to find the 7:30 a.m. arrival time convenient. Based on these assumptions, it was found that 81.5 percent of the passengers would find the 7:30 a.m. arrival time to be convenient and 18.5 percent would find such a schedule inconvenient. Application of the 0.815 ratio to the base passenger estimates indicates that if scheduling is the critical factor influencing ridership, reasonable estimates of daily passenger demand are: low estimate, 100 passengers; medium estimate, 106 passengers; high estimate, 112 passengers.

To determine the effect of fare levels on the base passenger estimates, a review was made of the data concerning the amount the passengers would be willing to pay for a round trip of the same distance as the trip made on the survey day. For purposes of deriving this estimate, the following round-trip fares were assumed: a 40-mile trip (one-way distance) would cost $6 per round trip ticket; a 30- through 39-mile trip would cost $5; a 20- through 29-mile trip would cost $4; a trip of 19 or fewer miles would cost $3 or less. Analysis of the data, based upon these criteria, indicates that 69 percent of the passengers would be willing to pay the above fare, and 31 percent would be willing to pay lesser amounts. Application of the 0.690 ratio to the base passenger estimates indicates that if fare level is the critical factor influencing ridership, reasonable estimates of daily passenger demand are: low estimate, 85 passengers; medium estimate, 90 passengers; high estimate, 95 passengers.

It is important to note, however, that the fare levels utilized in this estimate appear to be located at a critical point. An increase in the fares of one dollar per round trip ticket—i.e., a 40-mile trip (one-way distance) would cost $7 per round-trip ticket; a 30- through 39-mile trip would cost $6; a 20- through 29-mile trip would cost $5; a 10- through 19-mile trip would cost $4; and a trip of less than 10 miles would cost $3—would result in a severe reduction in anticipated ridership such that the low estimate would be 38 daily passengers, the medium estimate would be 40 daily passengers, and the high estimate would be only 42 daily passengers. Only 31 percent of the passengers indicated that they would be willing to pay the above fares; 69 percent would be willing to pay lesser amounts. These ratios, which are exactly the converse of those used in the development of the demand estimates, underscore the fact that determination of an appropriate fare structure would be a critical element in any attempt to revive the commuter train service.

In the estimating methodology, the interplay between the two critical factors of scheduling and fares was not assumed. Therefore, the final estimates of passenger demand are best expressed as ranges. The final estimates of daily passenger usage of a Cannonball service which would arrive in Milwaukee at 7:30 a.m., depart at 5:30 p.m., and have a maximum round-trip fare of $6 per 40-mile trip (one-way distance) are: low estimate, 85 to 100 passengers; medium estimate, 90 to 106 passengers; high estimate, 95 to 112 passengers. In total, if scheduling is the critical factor, from 100 to 112 passengers a day may be expected to use the train; if fare is the critical factor, from 85 to 95 passengers a day may be expected to use the train.

The number of trips to be made by the estimated daily passengers was derived by application of the ratio of one-way and round-trip passengers, as found by the 1980 Cannonball survey. Of the surveyed passengers, 14.7 percent were making one-way trips and 85.3 percent were on round trips. Application of these data to the estimated numbers of daily passengers indicates the total numbers of trips which may be anticipated to be made daily via the Cannonball: low estimate, 155-186 daily trips made by the 85 to 100 passengers; medium estimate, 165-196 daily trips made by the 90 to 106 passengers; high estimate, 176-207 daily trips made by the 95 to 112 passengers.

SUMMARY

A trial run of a commuter train along the route of the Cannonball commuter rail service which was discontinued by the Chicago, Milwaukee, St. Paul & Pacific Railroad on July 31, 1972, was conducted during the week of October 13, 1980. This article has presented the findings of a passenger survey taken during the trial run and, where parallel or similar data were available, the comparative findings of a passenger survey conducted in 1971 on the Cannonball. On the survey day in 1980, 67 questionnaires were distributed and 62 complete or usable samples were obtained. In 1971, 60 samples were obtained. These samples represent a total of 117 passenger trips in 1980 and 97 passenger trips in 1971.

In both years, most of the eastbound train trips ended at the Milwaukee station, with final trip destinations located in the Milwaukee central business district (CBD).

In both years, most of the tripmaking consisted of home-to-work or work-to-home travel. In 1971, about 96 percent of the eastbound trips were made to attend work and 100 percent of the westbound trips were made to return home. In 1980, about 74 percent of the eastbound trips were made to attend work and about 87 percent of the westbound trips were made to return home.

Most of the eastbound trips were completed by the passenger walking to his or her final destination—about 88 percent of the trips in 1971 and about 79 percent in 1980.

In 1971, about 65 percent, and in 1980, about 77 percent of the westbound trips were completed through utilization of an automobile. Of the total westbound trips sampled in 1980, about 57 percent were completed through utilization of an auto parked at the station; about 23 percent were completed without the use of an auto; and about 20 percent were completed through the use of an auto traveling to the station specifically to pick up the train passenger.

Although 69 percent of the passengers surveyed in 1980 make such a trip daily, only 49 percent anticipated using the train daily if the fare were reasonable and the schedule convenient; about 25 percent would use the train three or four times a week; about 9 percent would use it one or two times a week; and about 17 percent would use it less than once a week.

Half of the passengers interviewed in the 1980 Cannonball survey indicated that if the Cannonball had not been available, the trip would have been made as an auto driver; about 24 percent would not have made the trip; about 15 percent would have used a carpool; about 8 percent would have used the bus; and only 2 percent would have traveled as auto passengers.

About 46 percent of the passengers said that they would use an express bus if it would run between the points they were using on the survey day. About 47 percent of the passengers said that they would use the Cannonball more often if it were met by a downtown shuttle bus at the Milwaukee station. Also, about 47 percent of the passengers said that a member of their families would use an additional midday Cannonball run.

The most preferred arrival time of the Cannonball at the Milwaukee station was 7:30 a.m. and the most desired departure time was 5:30 p.m.

In general, the greater the distance traveled on the train, the greater the fare the passengers indicated they would be willing to pay for the trip. A plurality of the passengers, about 41 percent, indicated that they would be willing to pay $5 per round trip to ride the train on a regular basis.

Most of the passengers responding to the 1980 survey wished to see the larger proportion of operating costs for the train borne by the fares. About 48 percent of the passengers felt that more than half of the operating costs should be covered by fares; about 35 percent of the passengers felt that the costs should be covered equally by fares and subsidies; and only 17 percent of the passengers felt that subsidies should provide more than 50 percent of the cost. The Cannonball passengers felt that the federal and state governments, as opposed to local governments, should be the principal sources of any needed subsidy.

The typical Cannonball passenger in 1971 was a male licensed driver between 45 and 54 years of age who lived in a one- or two-auto household and was employed in a professional capacity. In 1980, the typical Cannonball passenger was also a male licensed driver who was somewhat younger, between 25 and 45 years of age, who lived in a two-auto household and was employed in either a professional or managerial capacity. The median income of the passengers in 1971 was about $15,400. In 1980, the median income of the passengers fell within the $30,000 and over range. Upon conversion of the 1971 income data to 1980 constant dollars, it was shown that the economic levels of the Cannonball passengers were very similar in both years.

The final estimates of average daily passenger usage of a Cannonball service which would arrive in Milwaukee at 7:30 a.m., depart at 5:30 p.m., and have a maximum round-trip fare of $6 per 40-mile trip (one-way distance) were: low estimate, 85 to 100 passengers; medium estimate, 90 to 106 passengers; high estimate, 95 to 112 passengers. In total, if scheduling is the critical factor, from 100 to 112 passengers a day may be expected to use the train; if fare is the critical factor, from 85 to 95 passengers a day may be anticipated to use the train.

Appendix A

THE 1980 CANNONBALL SURVEY

COMMUTER RAIL SURVEY
State of Wisconsin/Department of Transportation
and Revive Cannonball Committee, Inc.

Please do not write in this space.

Results of this survey will be used to plan better transportation services. Your reply will be confidential and compiled with other replies for statistical analyses only. Your name is not required. Thank you for your cooperation.

Please answer questions 1 to 10 for your current direction of travel only.

1. Where was your starting point on the pre-train part of your trip today? _____
(Street No.) (Street Name) (City, Village, Town)

2. This trip began at:(check one)

☐ Home ☐ School ☐ Social-Recreational Activity

☐ Work ☐ Shopping ☐ Personal Business

☐ Other (please specify) _____

3. At what station-stop did you board this train? (check one)

☐ Watertown ☐ Oconomowoc

☐ Hartland ☐ Pewaukee

☐ Brookfield ☐ Elm Grove

☐ Wauwatosa ☐ Milwaukee

4. How did you get from your starting point to this train and what was the distance?

A. Means of Travel (check one)

☐ Walked ☐ Drove and Parked Car at Station ☐ Rode with Other Driver who Parked at Station ☐ Rode in Car & was Dropped Off

☐ Bus ☐ Taxi ☐ Other (specify) _____

B. Approximate distance in miles (blocks if walked) _____

5. If this train had not been available, how would you have made this trip? (check one)

☐ Auto Driver ☐ Auto Passenger ☐ Car pool ☐ Bus

☐ Would not make Trip ☐ Other (specify) _____

Please do not write in this space.

6. How often do you make such a trip between the same points for the same purposes? (check one)

☐ Daily Mon-Fri ☐ 3-4 Times per week ☐ 1-2 Times per week ☐ Less than Once per week

7. At what station-stop will you depart this train?

☐ Watertown ☐ Oconomowoc

☐ Hartland ☐ Pewaukee

☐ Brookfield ☐ Elm Grove

☐ Wauwatosa ☐ Milwaukee

8. What will be your final destination after you leave the train today? _____
(Street No.) (Street Name) (City, Village, Town)

9. This trip is to end at:(check one)

☐ Home ☐ School ☐ Social-Recreational Activity

☐ Work ☐ Shopping ☐ Personel Business

☐ Other (please specify) _____

10. When you depart, how will you get to your destination and what is the distance?

A. Means of Travel (check one)

☐ Walk ☐ Drive Car Which is Parked at Station ☐ Ride with Someone Car Parked at Station ☐ Be Picked Up in Car

☐ Bus ☐ Taxi ☐ Other (specify) _____

B. Approximate distance in miles (blocks if walked) _____

11. Are you traveling one-way or round trip on the train today?

(check one) ☐ One-Way ☐ Round Trip

12. I am: (check one) ☐ Male ☐ Female

13. My age is: (check one)

☐ 5 to 15 ☐ 16 to 18 ☐ 19 to 24

☐ 25 to 34 ☐ 35 to 44 ☐ 45 to 54

☐ 55 to 64 ☐ 65 or over

Please do not write in this space.

14. I am a licensed driver: (check one) ☐ Yes ☐ No

15. Our household has ____ autos and trucks available for personal use.

16. The number of persons living in our household is _____ .

17. Our yearly household income is: (check one)

☐ Under $ 5,000 ☐ $ 5,000-$ 7,499 ☐ $ 7,500-$ 9,999

☐ $10,000-$12,499 ☐ $12,500-$15,999 ☐ $14,000-$19,999

☐ $20,000-$24,999 ☐ $25,000-$29,000 ☐ $30,000 or over

18. My occupation is: (check one)

☐ Clerical ☐ Craftsman ☐ Housewife

☐ Manager ☐ Professional ☐ Retired

☐ Salesperson ☐ Student ☐ Other

19. My home address is: (please enter here if not reported under questions No. 1 or No. 9)

_____

(Street Address) (Street Name) (City, Village, Town)

20. Please indicate by placing a "1" in the box of the arrival and departure times for trains at the Milwaukee AMTRAK station which would be most convenient for your regular use of the service. If a second or third train would be desirable, indicate its arrival/departure time by the use of a "2" and "3", respectively.

ARRIVAL

☐ 7:15 am ☐ 7:30 am ☐ 7:45 am ☐ 8:00 am

☐ 8:15 am ☐ 8:30 am ☐ 9:00 am ☐ Other (specify) _____

DEPARTURE

☐ 4:00 pm ☐ 4:30 pm ☐ 5:00 pm ☐ 5:15 pm

☐ 5:30 pm ☐ 5:45 pm ☐ 6:00 pm ☐ Other (specify) _____

21. I regularly used the Cannonball Commuter Service before it was discontinued in 1971. (check one)

☐ Yes ☐ No

Please do not write in this space.

22. What would you be willing to pay to ride this train on a regular basis between the stations you are using today? (check one)

☐ $3 ☐ $4 ☐ $5 ☐ $6 ☐ $7 ☐ Other (specify) _____

23. How often would you use the train if the schedule were convenient and the fare reasonable? (check one)

☐ Daily Mon-Fri ☐ 3-4 Times per week ☐ 1-2 Times per week ☐ Less Than Once per week

☐ On Weekends Only ☐ Would not Use Train

24. If express bus service were provided between the points you are traveling today, would you use the bus? (check one)

☐ Yes ☐ No

25. Would you ride the train more often if a downtown shuttle bus met the train in Milwaukee? (check one)

☐ Yes ☐ No

26. If an additional train were scheduled to arrive in Milwaukee between 9:00 am and 10:30 am and were scheduled to depart Milwaukee between 2:00 pm and 3:30 pm, would any of your family members use such a train? (check one)

☐ Yes ☐ No

27. Assuming that revenue from passenger fares will not equal the cost of providing the train service, what proportion of the total cost should be covered by fares versus government subsidy?

Fares _____%
Subsidy _____%

28. Which levels of government should provide the needed subsidy with tax dollars and in what proportion?

Local (County, City, Town)	_____%
State	_____%
Federal	_____%
TOTAL	100 %

We sincerely appreciate your cooperation in completing this questionnaire. Thank you.

COMMENTS: _____

Appendix B

THE 1971 CANNONBALL SURVEY

Train Numbers 12 & 23 (Cannonball) Survey
Conducted by The Southeastern Wisconsin Regional Planning Commission
In Cooperation With
The Chicago, Milwaukee, St. Paul & Pacific Railroad Company For
The State of Wisconsin Department of Transportation

Results of this survey will be used to plan better transportation service. Your reply will be confidential and will be compiled with others for statistical analysis only. Your name is not required. Thank you.

1. This trip began at _____
(Street No. / Street Name / City, Village, Town)

2. I came from:

___home ___school ___social-recreation activity
___work ___shopping ___conducting personal business
other _____ (please specify)

3. I boarded the Cannonball at: (Please check one)

___Watertown ___Ixonia ___Oconomowoc
___Okauchee ___Nashotah ___Hartland
___Pewaukee ___Duplainville ___Brookfield
___Elm Grove ___Wauwatosa ___Milwaukee

4. I came to the Cannonball stop: (Please check one)

___as an auto driver ___by bus ___by taxi
___as an auto passenger ___by walking other _____ (please specify)

If as an auto driver, will the auto be parked at the station all day?

___Yes ___No

If by walking, please estimate number of blocks walked_____

5. Before I began using the Cannonball service, I usually made this trip:

___as an auto driver ___by bus
___as an auto passenger ___by car pool
___did not make this trip before other _____ (please specify)

6. If the Cannonball service were eliminated, I would make this trip:

___as an auto driver ___by bus
___as an auto passenger ___by car pool
___would not make this trip other _____ (please specify)

7. On the average, I make this trip:

___times per week via the Cannonball ___times per week as an auto driver
___times per week by bus ___times per week as an auto passenger
___times per week by other means _____ (please specify)

If you do not use the Cannonball every weekday, please indicate why you do not.

_____
_____

8. I normally use the Cannonball: (Please check one)

___both in the morning and evening ___in the morning only
___in the evening only

If you do not use the Cannonball both morning and evening, please indicate why you do not.

_____
_____

(over)

9. I have been using the Cannonball regularly since _____ (month, year)

10. I will leave the Cannonball at: (Please check one)

___Watertown ___Ixonia ___Oconomowoc
___Okauchee ___Nashotah ___Hartland
___Pewaukee ___Duplainville ___Brookfield
___Elm Grove ___Wauwatosa ___Milwaukee

11. If the present Cannonball schedule could be expanded, I would prefer to arrive at my station at ____a.m. and to depart from my station at ____p.m.

12. After leaving the train, I will go to _____
(Street No., Street Name, City, Village, Town)

13. I am going to:

___work ___shop ___conduct personal business
___school ___home ___social-recreation activity
other _____ (please specify)

14. I will go there from the station:

___by walking ___as an auto passenger ___by taxi
___by bus ___as an auto driver other _____ (please specify)

If by walking, please estimate number of blocks walked_____

15. I _____ have a license to drive an auto.
(do, do not)

16. There is (are) _____ auto(s) owned in my household.
(number)

17. If I had so chosen, I could have made this trip as an auto driver.

___Yes ___No

18. I am _____ and my age group is: (please circle appropriate group)
(male, female)

5-15 16-24 25-34 35-44 45-54 55-64 65+

19. My occupation is _____
(If a housewife, student, or retired, please so indicate)

20. My home address is _____
(Street No. / Street Name / City, Village, Town)

21. My household annual income is: (Please check one)

___$ 0 - $ 3,999 ___$16,000 - $19,999
___ 4,000 - 7,999 ___ 20,000 - 23,999
___ 8,000 - 11,999 ___ 24,000 and over
___ 12,000 - 15,999

22. I would be willing to pay _____ much more per trip to preserve the service.

23. Please offer any comments, suggestions, or criticisms you may have concerning the Cannonball._____

_____
_____
_____

We sincerely appreciate your cooperation in completing this questionnaire.
Thank you.

A BACKWARD GLANCE—HISTORIC EVOLUTION OF THE LOCAL GOVERNMENTAL STRUCTURE IN SOUTHEASTERN WISCONSIN

by Eileen Hammer

FORMATION OF TOWNS

Many people in Wisconsin confuse towns with townships. The distinction is blurred because town and township boundaries are often coterminous. Still, they are two distinct entities that both hold importance in the evolution of southeastern Wisconsin's most fundamental unit of government.

Wisconsin has no "civil townships," as do some New England states. Instead, Wisconsin has "civil towns," which somewhat resemble the townships of New England in that residents hold annual and special "town" meetings to decide on important issues, and elect a small number of officials to handle routine administrative affairs.

Wisconsin does have "congressional townships," which are surveyed geographical divisions of territory that form the basis for land description and records. Townships are generally six miles square and contain 36 approximately one-mile-square sections each containing about 640 acres. Townships are bounded on the north and south by township lines, and on the east and west by range lines. Townships are always identified by tier and range numbers rather than by name.

Congressional townships emerged long after civil townships had established roots in New England. In the survey of the public lands carried out by the federal government prior to the disposal of such lands for settlement, the term township was adopted to designate one of the basic units of land division—the 36-square-mile survey township. Civil townships or towns, in turn, often adopted congressional township boundaries out of convenience, thus giving the boundary lines two functions.

Towns in Wisconsin differ somewhat from their parents in New England, where the township is the only unit of local government, and even villages are unincorporated and subject to township governance. Counties in New England are little more than a grouping of townships assembled for judicial purposes. Wisconsin has a dual town-county form of government that copies the New England township system in form, but differs in that municipalities are separate entities and in that Wisconsin towns share with the counties certain responsibility for taxation, public improvements, and other governmental functions.

The type of town-county government found in Wisconsin is not very common. It is used in New York State, where it originated, as well as in Michigan and in part in Illinois and Nebraska. Until the U. S. Supreme Court decision on the "one man-one vote" principle in 1964, its main distinction was that town supervisors were elected to sit on the county boards. The more common arrangement is one adopted first in Pennsyl-

Editor's Note: This article is the second in a three-part series examining the historic development of the local governmental structure in the Region. The first article, published in SEWRPC Technical Record Vol. 4, No. 2, described the development of the governmental structure in the Region from pre-statehood through the establishment of the seven county boundaries as they exist today. This second article examines the development of the boundaries of the civil towns in the Region. The third and final installment in the series will examine the historic development of incorporated municipalities.

vania, where towns have less significance than counties, whereby county governments are usually headed by a small board of commissioners elected at large. Seven midwestern states have variations of this system. Most southern and western states have no town government at all. Instead, counties serve as the local unit of government outside municipalities.

Settlers in some parts of Wisconsin initially were influenced by the southern practice of local rule exclusively through county government, while others preferred some form of town government. In 1838, the Wisconsin Territorial Legislature created towns as an optional form of local government. The Legislature reserved the authority to establish the names, boundaries, and functions and duties of town units, upon petition by local residents. Some counties petitioned immediately for establishment of towns, while others waited. When Wisconsin became a state in 1848, the state constitution incorporated a territorial law calling for a uniform network of town-county government, which forced a handful of southwestern counties into the system.

It is common for Wisconsin town boundaries to be coterminous with township boundaries. This practice began in 1836 when Wisconsin became a territory. Federal surveys of the State had begun several years earlier and were completed shortly before the first Territorial Legislature voted to divide Milwaukee and Brown Counties into four of the seven counties that now comprise the Region.

Formation of towns began soon after, in 1838. While the Territorial Legislature, and subsequently the State Legislature, retained the power to establish town units of government, territorial and state statutes also gave that power to county boards of supervisors. The county franchise granted by the Territorial Legislature was vague in terminology, and it appears that no southeastern Wisconsin counties used that power during the territorial period. The Revised Statutes of the State of Wisconsin in 1849 gave the counties specific power "to set off, organize and change the boundaries of towns." Several southeastern Wisconsin counties exercised that option during the 1850's and 1860's.

For the most part, today's town boundaries were established by the State and Territorial Legislatures. Towns were established as relatively large units initially, and then usually were subdivided along township and range lines. This orderly approach to forming towns, however, was not followed in Racine and Kenosha Counties, where boundary lines were shuffled frequently and without an apparent pattern. Town boundary changes described in the following text were enacted by the Territorial and State Legislatures unless otherwise indicated.

Milwaukee and Waukesha Counties

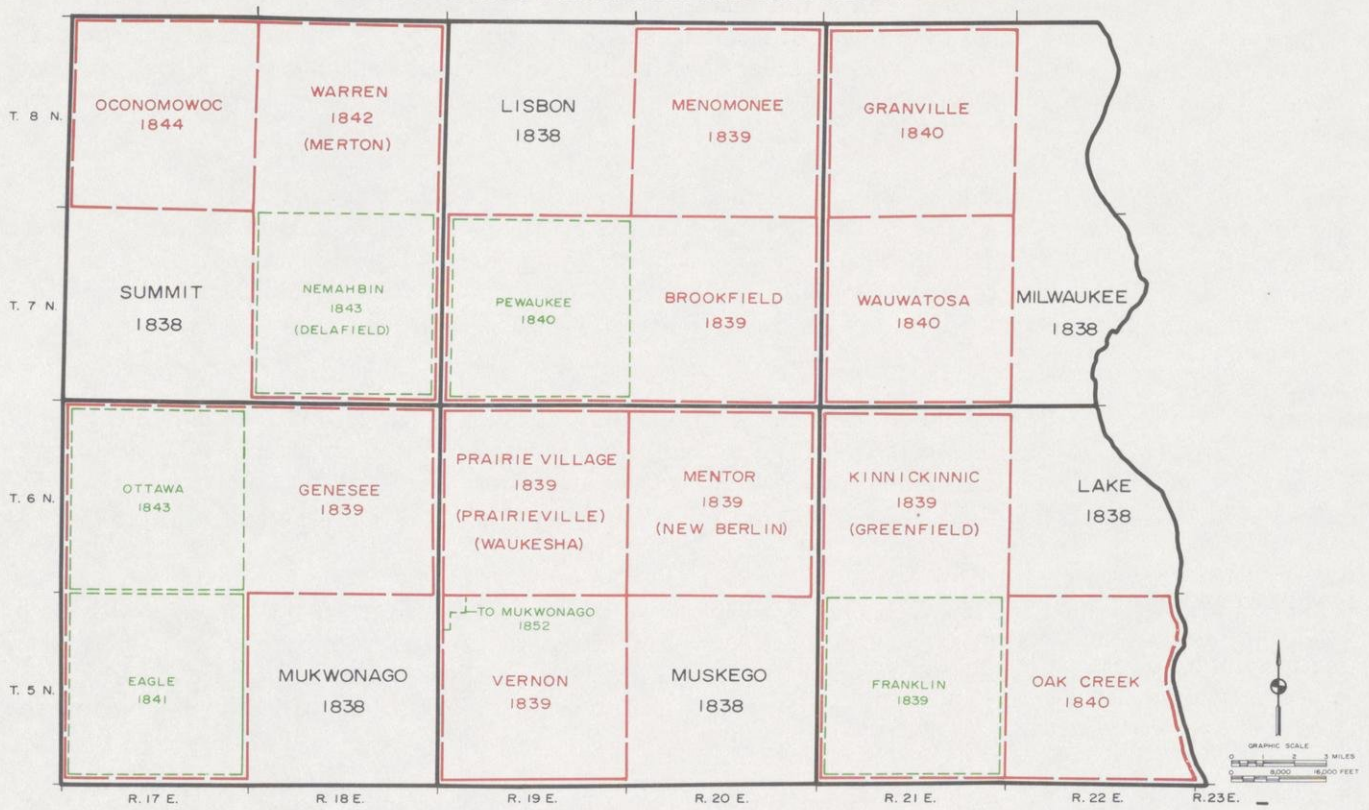
Town government was established early in Milwaukee County, which at that time included land now occupied by Milwaukee and Waukesha Counties. In 1838 the land that is presently in Milwaukee County was divided into two towns, Milwaukee to the north, and Lake to the south (see Map 1).

The Town of Milwaukee at that time consisted of Townships 7 and 8 North in Range 21 East, as well as Townships 7 and 8 North in Range 22 East, both of the latter being partial units because they lie along Lake Michigan. In 1840 the Town of Granville was created in Township 8 North, Range 21 East, and the Town of Wauwatosa was created in Township 7 North, Range 21 East. That left the Town of Milwaukee as a long, slender strip of land along Lake Michigan. By 1960, all of these had disappeared, having been fully incorporated into the City of Milwaukee and its suburbs.

The Town of Lake originally consisted of Townships 5 and 6 North in Ranges 21 and 22 East. In 1839 the Town of Kinnickinnic was created in the two western townships. Later that year it was divided in half. The southern unit became the Town of Franklin in Township 5 North, Range 21 East. The northern unit of Township 6 North, Range 21 East, remained the Town of Kinnickinnic, later to be renamed the Town of Greenfield. In 1840 the Town of Oak Creek was created in partial Township 5 North, Range 22 East, leaving the Town of Lake occupying partial Township 6 North, Range 22 East. Thus were created the four towns in the southern half of Milwaukee County. By 1960, all four of these towns had also disappeared, having been fully incorporated into the City of Milwaukee and its suburbs.

Map 1

CIVIL TOWNS IN MILWAUKEE AND WAUKESHA COUNTIES



Source: Session Laws of Wisconsin Territory, 1838-1848.

The division of towns in what is now Waukesha County took place during and after the formation of the Milwaukee County towns. In 1838 there were only four towns, each consisting of four townships, in the square county. Lisbon was in the northeast corner, Muskego in the southeast, Mukwonago in the southwest, and Summit in the northwest.

Lisbon was divided in two in 1839, with the southern half becoming the Town of Brookfield, located in Township 7 North, Ranges 19 and 20 East. Brookfield was divided in 1840 when its western half became Pewaukee, located in Township 7 North, Range 19 East. In late 1839, the Town of Menomonee was created north of Brookfield in Township 8 North, Range 20 East. This left the Town of Lisbon with only Township 8 North, Range 19 East. During the 1950's, the Town of Menomonee disappeared, having been totally incorporated into the Villages of Menomonee Falls, Lannon, and Butler.

The large Town of Muskego, created in 1838, was divided the following year, leaving Muskego in Township 5 North, Range 20 East. In the northeast, the Town of Mentor (later New Berlin), was created in Township 6 North, Range 20 East. To the west the Town of Vernon was created in Township 5 North, Range 19 East. And in Township 6 North, Range 20 East, today's Town of Waukesha was created, originally known as Prairie Village and then Prairieville. The Town of New Berlin disappeared in 1959 when it was incorporated into the City of New Berlin. The Town of Muskego disappeared in 1964, when it was incorporated into the City of Muskego.

In 1839, a year after the Town of Mukwonago was created, the Legislature established the Town of Genesee to cover three-fourths of Mukwonago. In 1841 the Town of Eagle was created in the far southwestern corner of the County, in Township 5 North, Range 17 East. Two years later, in 1843, the Town of Ottawa was created in Township 6 North, Range 17 East. That left Genesee in Township 6 North, Range 18 East, and Mukwonago in Township 5 North, Range 18 East.

In late 1852, the Waukesha County Board made a small change in the boundary between the Towns of Mukwonago and Vernon (see Map 1). Practicality and expediency prompted the change, which gave Mukwonago three-fourths of a section in the northwest corner of Vernon. The land transferred lies west of the Fox River and the Vernon Marsh, and is not readily accessible from most areas in the Town of Vernon. Voters at the time complained that it was difficult to get to the polling place, and town officials found it difficult to provide services to the isolated area. Specifically, the Town of Vernon territory that was transferred to the Town of Mukwonago consisted of the northeast, northwest, and southwest one-quarters of Section 6 in Township 5 North, Range 19 East.

The last of Waukesha County's large towns to be divided was Summit. The Town of Warren (now Merton) was created in the two eastern townships in 1842. A year later, Warren was halved, with the southern town called Nemahbin (now Delafield), located in Township 7 North, Range 18 East. Warren then comprised Township 8 North, Range 18 East. In 1844, the Town of Oconomowoc was established in Township 8 North, Range 17 East, leaving Summit in Township 7 North, Range 17 East.

Walworth County

Walworth County was divided much the same as Waukesha County was. It, too, is a square consisting of 16 townships, each of them a town. There is one oddity, however. Several years after the 16 towns were formed, a tiny 17th town was created out of four sections at the very center of the County to serve as the county seat. It later became the Village and then the City of Elkhorn.

The County's five original towns were created in 1838, the same year as the first towns appeared in Milwaukee and Waukesha Counties (see Map 2). The Town of Troy in the northeast originally consisted of Township 4 North, Ranges 17 and 18 East. In 1843 East Troy was created from the eastern half. Directly south of the original Troy was the original Town of Spring Prairie, also comprised of two townships and also divided in 1843. This division left Spring Prairie as Township 3 North, Range 18 East, and created the new Town of Lafayette in Township 3 North, Range 17 East.

The Town of Geneva originally made up the entire southeastern quarter of Walworth County. It was subdivided in 1844, leaving Geneva located solely in Township 2 North, Range 17 East. The Town of Hudson (later Lyons) was established in Township 2 North, Range 18 East; the Town of Bloomfield in Township 1 North, Range 18 East; and the Town of Linn in Township 1 North, Range 17 East.

The southwestern quarter of Walworth County initially was occupied entirely by the Town of Delavan, which now occupies Township 2 North, Range 16 East. The original Town was divided in 1839 when the southern half became the Town of Walworth. That Town was divided in 1843, its western half becoming the Town of Sharon in Township 1 North, Range 15 East. Walworth was left in Township 1 North, Range 16 East. Earlier, in 1840, the rectangular Town of Delavan was divided when its western half—Township 2 North, Range 15 East—became the Town of Darien.

The name Elkhorn was originally attached to the entire northwest quarter of Walworth County. Later it became a much smaller entity at the very center of the County. The original Town of Elkhorn was first divided in two in 1840, when Whitewater was created out of the two townships to the west. A further subdivision occurred in 1841, when the Town of Richmond was established in Township 3 North, Range 15 East. That left the Town of Whitewater in Township 4 North, Range 15 East. LaGrange was formed in 1843 in Township 4 North, Range 16 East. That left the Town of Elkhorn in Township 3 North, Range 16 East.

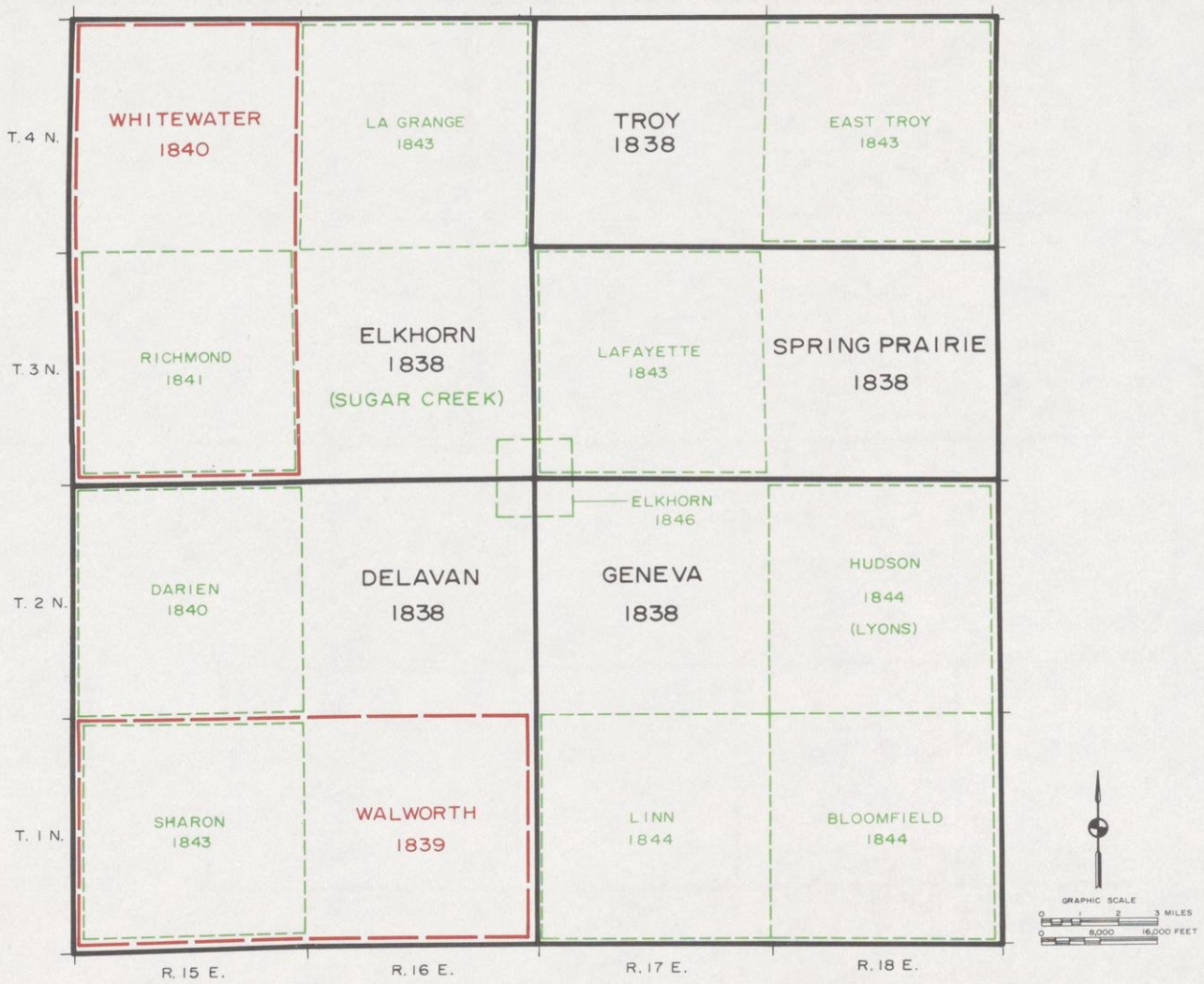
A modification occurred in 1846 when a new town was created out of four sections at the County's center. One section each was taken from LaFayette, Geneva, Delavan, and Elkhorn at their common corner. The new miniature town was named Elkhorn, which was incorporated as a village in 1857. The former Town of Elkhorn, minus its southeastern section, was renamed Sugar Creek.

Washington and Ozaukee Counties

Town government began slowly in Washington County, which initially included what is now Ozaukee County. When the Territorial Legislature established town government in 1838, it named the entire Washington County region as one town. Finally, in 1846, as the territory was moving toward statehood and a uniform system of town government, Washington County was subdivided.

Map 2

CIVIL TOWNS IN WALWORTH COUNTY



Source: Session Laws of Wisconsin Territory, 1838-1848.

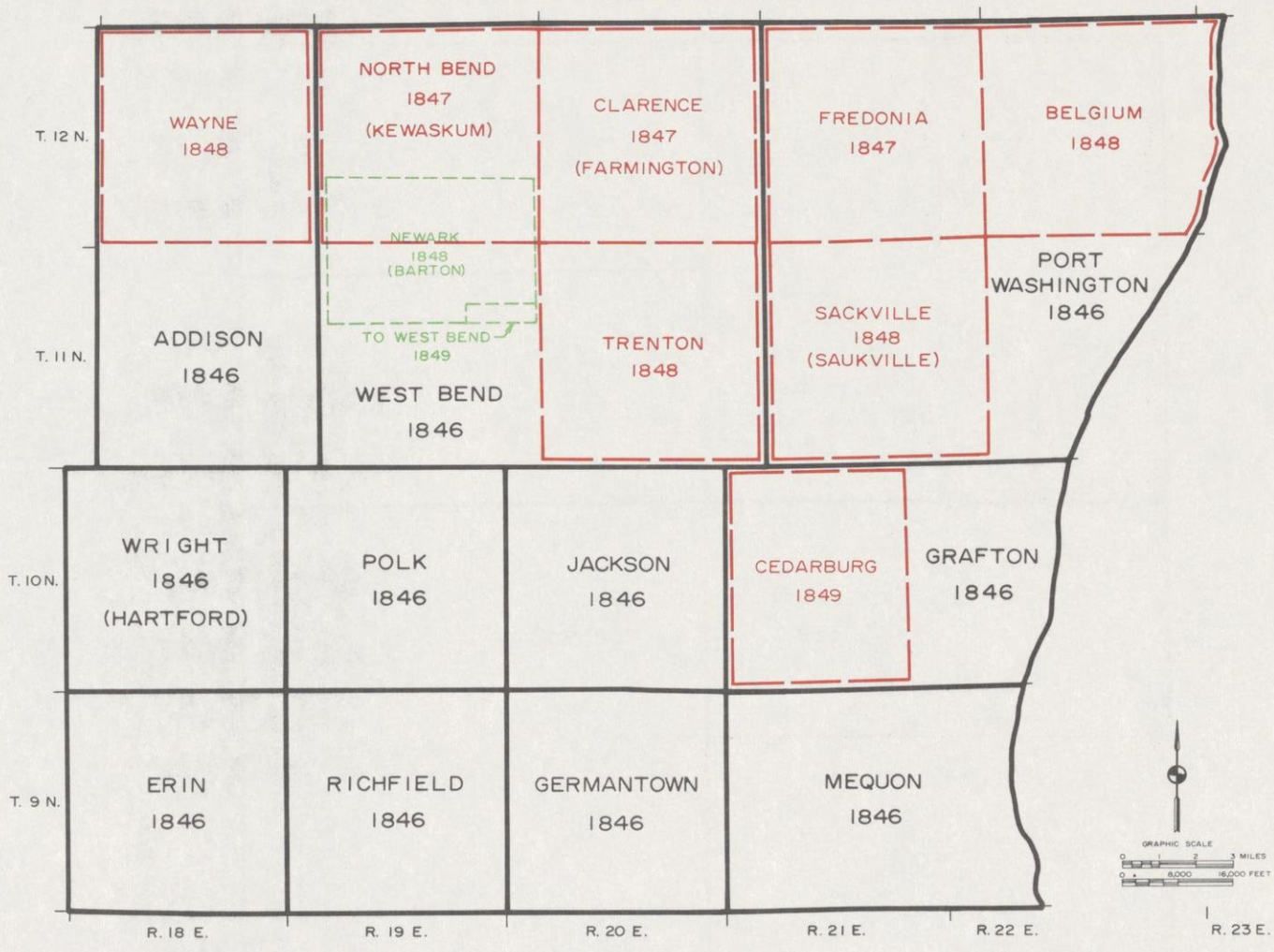
The 12 congressional townships that comprise what is now Washington County initially were divided in 1846 into eight towns, six of which had boundaries coterminous with township lines. Those six towns remain unchanged today (see Map 3). They are Erin in Township 9 North, Range 18 East; Richfield in Township 9 North, Range 19 East; Germantown in Township 9 North, Range 20 East; Wright (now Hartford) in Township 10 North, Range 18 East; Polk in Township 10 North, Range 19 East; and Jackson in Township 10 North, Range 20 East. They form the southern two tiers of towns in Washington County.

In 1846 the northern half was divided into the Town of Addison, covering, Townships 11 and 12 North in Range 18 East, and the even larger Town of West Bend, covering Townships 11 and 12 North in Ranges 19 and 10 East. Addison was divided in 1848 when the Town of Wayne was established from its northern half.

The large Town of West Bend was first divided in 1847, when the Town of Clarence (now Farmington) was created in Township 12 North, Range 20 East, and the Town of North Bend (now Kewaskum) was created in Township 12 North, Range 19 East. In 1848, the Town of Trenton was created in Township 11 North, Range 20 East and the Town of Newark (now Barton) was formed from Sections 25 through 36 of

Map 3

CIVIL TOWNS IN WASHINGTON AND OZAUKEE COUNTIES



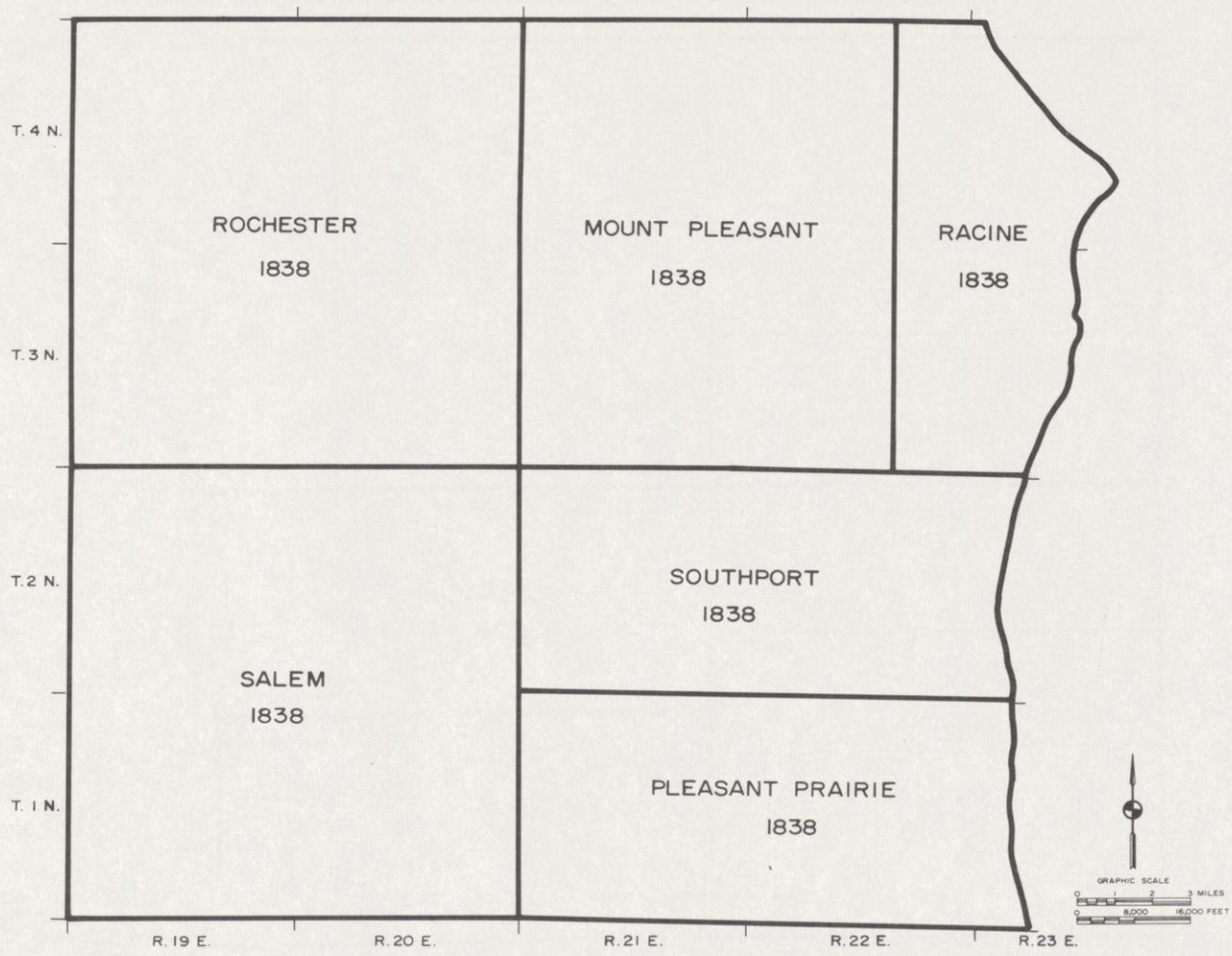
Source: Session Laws of Wisconsin Territory, 1838-1848, and Washington County Board Proceedings, 1849.

Township 12 North, Range 19 East—the southern one-third of the Town of North Bend—and Sections 1 through 12 of Township 11 North, Range 19 East. These changes reduced the Town of West Bend to Sections 13 through 36 of Township 11 North, Range 19 East. A year later, in 1849, the Washington County Board altered the line separating the Towns of West Bend and Newark by giving the Town of West Bend the southern half of Sections 11 and 12 in Township 11 North, Range 19 East. Those half sections were attached to the northeast corner of the Town of West Bend in order to avoid any possible misunderstandings or disputes over sawmill and gristmill property located along the Milwaukee River in that area.

Ozaukee County was first divided in 1846, when three towns were created: Mequon, Grafton, and Port Washington. The Town of Mequon in the south was established in Township 9 North, Range 21 East, and partial Range 22 East. The Town disappeared in 1957 when residents voted to incorporate the remainder of the town into the City of Mequon. Small portions of the original Town of Mequon had been previously incorporated into the Villages of Bayside and Thiensville and the City of Cedarburg. The Town of Grafton was originally formed in 1846 from Township 10 North, Ranges 21 and partial 22 East. Three years later, in 1849, Grafton was divided to create the Town of Cedarburg, comprised of Township 10 North, Range 21 East, minus the eastern tier of Sections 1, 12, 13, 24, 25, and 36. Grafton thus was reduced in size to Township 10 North, partial Range 22 East, along with one tier of sections from Town 10 North, Range 21 East.

Map 4

CIVIL TOWNS IN RACINE AND KENOSHA COUNTIES: 1838



Source: Session Laws of Wisconsin Territory, 1838-1848.

The Town of Port Washington was created in 1846 as the entire northern half of the present Ozaukee County. In 1847 the Town of Fredonia was created in Township 12 North, Range 21 East. In 1848 the Town of Sackville (now Saukville) was formed in Township 11 North, Range 21 East. Also that year, the Town of Belgium was formed from Township 12 North, Range 22 East and partial Range 23 East. That left the Town of Port Washington as Township 11 North, partial Ranges 22 and 23 East.

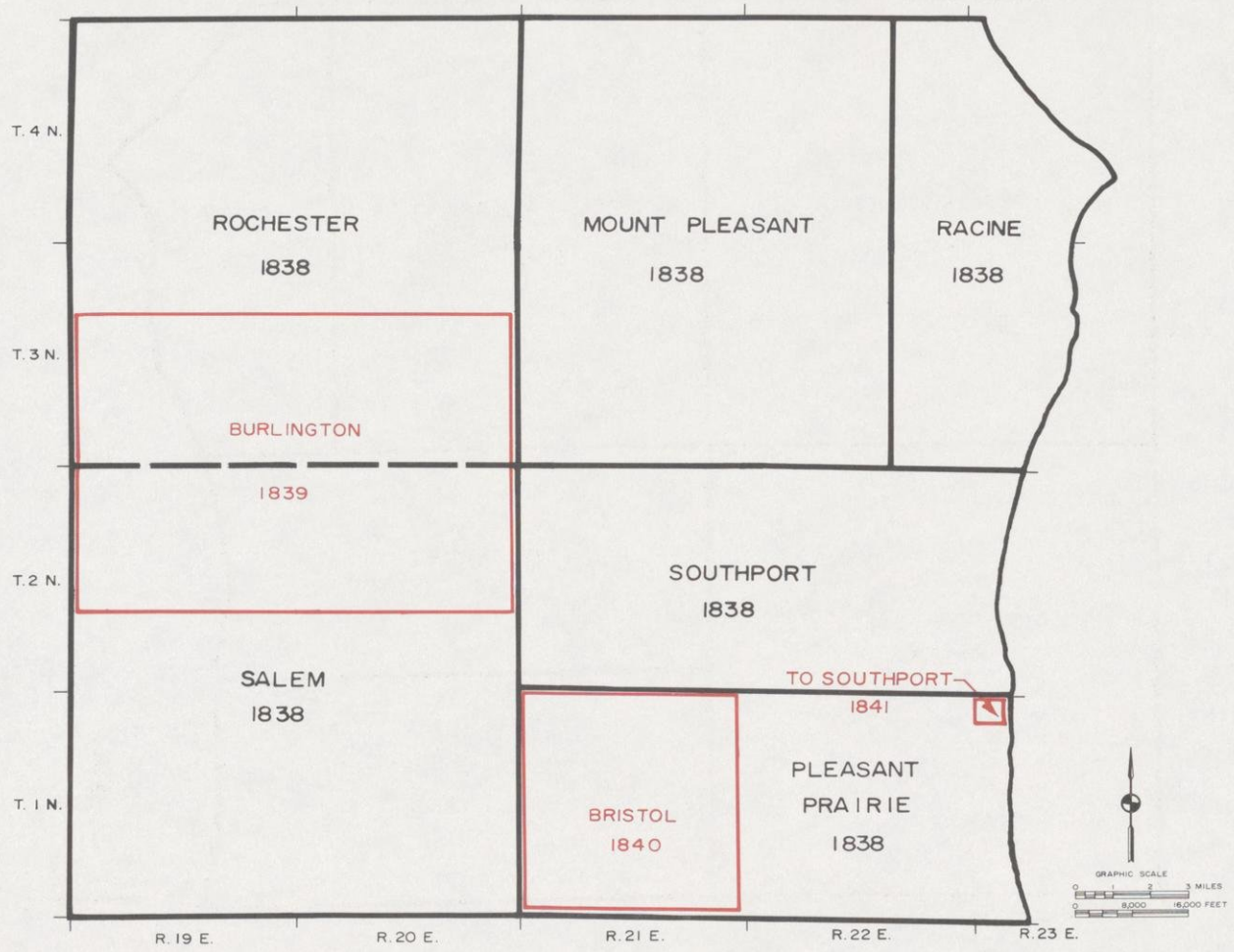
Racine and Kenosha Counties

The alterations of town boundaries in Racine and Kenosha Counties were so numerous that most local historians decline to describe the fluctuations and dismiss the matter by saying that a mix of politics and men's desires for personal advantage caused the frequent boundary changes.

The two Counties initially were one unit known as Racine County. The first towns appeared in 1838, when six of them were created, mostly along township and range lines: Rochester in the northwest, consisting of Townships 3 and 4 North, Ranges 19 and 20 East; Salem in the southwest, comprised of Townships 1 and 2 North, Ranges 19 and 20 East; Pleasant Prairie in the southeast in Township 1 North, Ranges 21, 22, and partial 23 East; Southport to the north of that, in Township 2 North, Ranges 21, 22, and partial 23 East; Racine in the northeast in Townships 3 and 4 North, partial Range 23 East, as well as in the eastern two tiers of sections (the eastern one-third) of Townships 3 and 4 North, Range 22 East; and finally, Mt. Pleasant in Townships 3 and 4 North, Range 21 East and in the western two-thirds of Townships 3 and 4 North, Range 22 East (see Map 4).

Map 5

CIVIL TOWNS IN RACINE AND KENOSHA COUNTIES: 1839-1841



Source: Session Laws of Wisconsin Territory, 1838-1848.

More than a dozen boundary changes took place subsequent to that first division before the towns in Racine and Kenosha Counties took their present form. Between 1839 and 1860, the following changes were made:

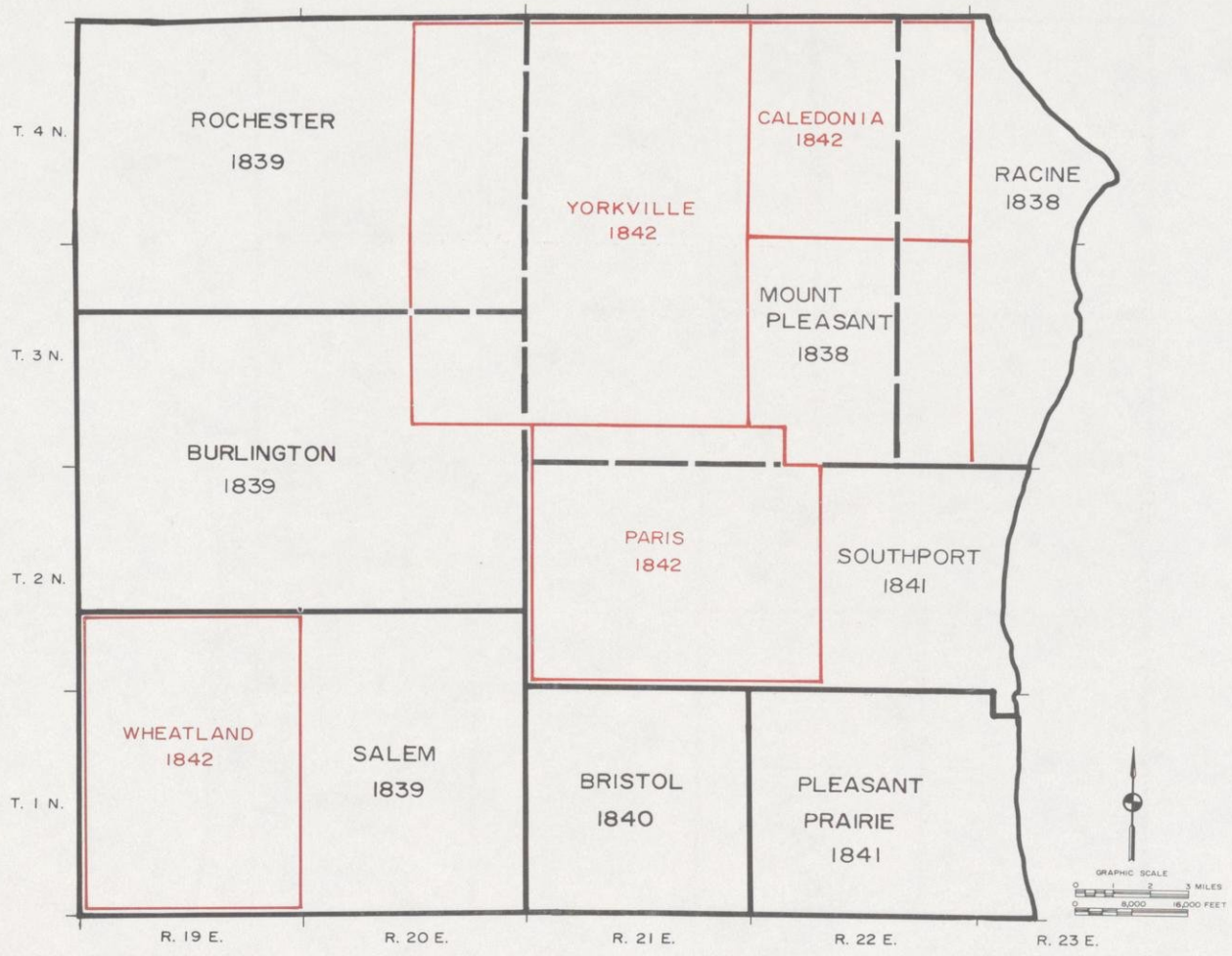
1839—The Towns of Rochester and Salem were divided to create the Town of Burlington in Sections 13 through 36 of Township 3 North, Ranges 19 and 20 East, and Sections 1 through 24 of Township 2 North, Ranges 19 and 20 East (see Map 5).

1840—The Town of Pleasant Prairie was divided to form the Town of Bristol in Township 1 North, Range 21 East (see Map 5).

1841—A minor change was made in the boundary between the Towns of Southport and Pleasant Prairie, giving Southport a small area of land near the bay in what is now the City of Kenosha. Specifically, the Town of Southport gained the northeast one-quarter of Section 6 and that part of Section 5 located due east of this one-quarter section, all in Township 1 North, Range 23 East (see Map 5).

Map 6

CIVIL TOWNS IN RACINE AND KENOSHA COUNTIES: 1842



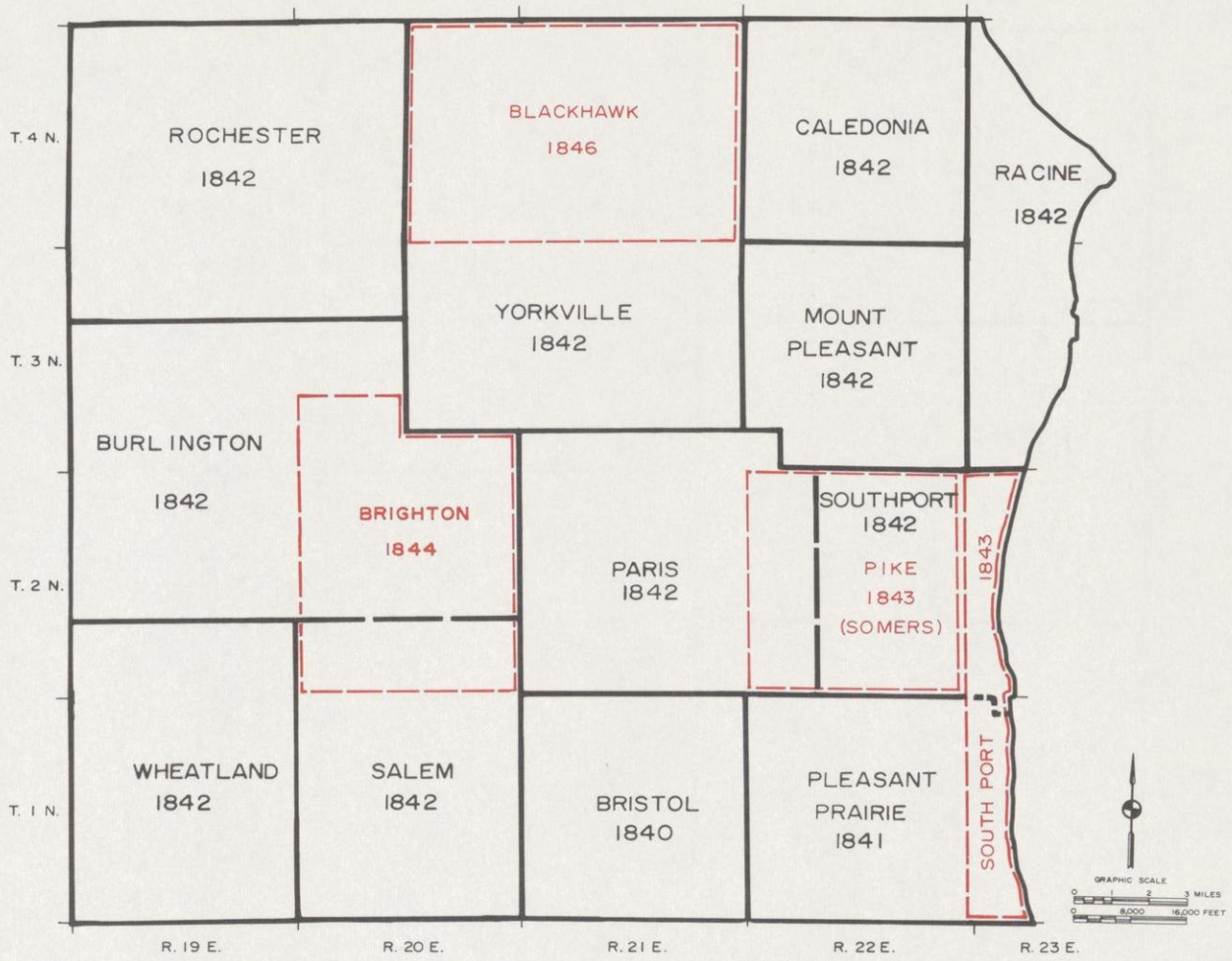
Source: Session Laws of Wisconsin Territory, 1838-1848.

1842—Four new towns were created, many of them along section lines instead of township and range lines. The Town of Salem was divided to form the Town of Wheatland in Township 1 North, Range 19 East, and Sections 25 through 36 in Township 2 North, Range 19 East. The Town of Paris was created in Township 2 North, Range 21 East; Sections 31 through 36 in Township 3 North, Range 21 East; Section 31 in Township 3 North, Range 22 East; and Sections 5, 6, 7, 8, 17, 18, 19, 20, 29, 30, 31, and 32 in Township 2 North, Range 22 East. The Town of Yorkville was established in Township 4 North, Range 21 East; the eastern half of Township 4 North, Range 20 East; Sections 1 through 30 in Township 3 North, Range 21 East; and Sections 1, 2, 3, 10, 11, 12, 13, 14, 15, 22, 23, 24, 25, 26, and 27 in Township 3 North, Range 20 East. The Town of Caledonia was formed from Township 4 North, Range 22 East. These changes reduced the Town of Racine to Townships 3 and 4 North, partial Range 23 East. These changes also reduced the Town of Mt. Pleasant to Township 3 North, Range 22 East, minus Section 31 (see Map 6).

1843—The Town of Pike (now Somers) was created in Township 2 North, Range 22 East, reducing the size of the Town of Paris. The Town of Southport took an entirely new form, lying in a thin strip along Lake Michigan in Townships 1 and 2 North, partial Range 23 East. That change also reduced the Town of Pleasant Prairie to Township 1 North, Range 22 East (see Map 7).

Map 7

CIVIL TOWNS IN RACINE AND KENOSHA COUNTIES: 1843-1846



Source: Session Laws of Wisconsin Territory, 1838-1848.

1844—The Town of Brighton was created from parts of the Towns of Burlington and Salem. It consisted of Township 2 North, Range 20 East, and Sections 28 through 36 in Township 3 North, Range 20 East (see Map 7).

1846—The Town of Blackhawk (later called Raymond) was formed from the northern part of the Town of Yorkville, specifically Township 4 North, Range 21 East, and the eastern half of Township 4 North, Range 20 East (see Map 7).

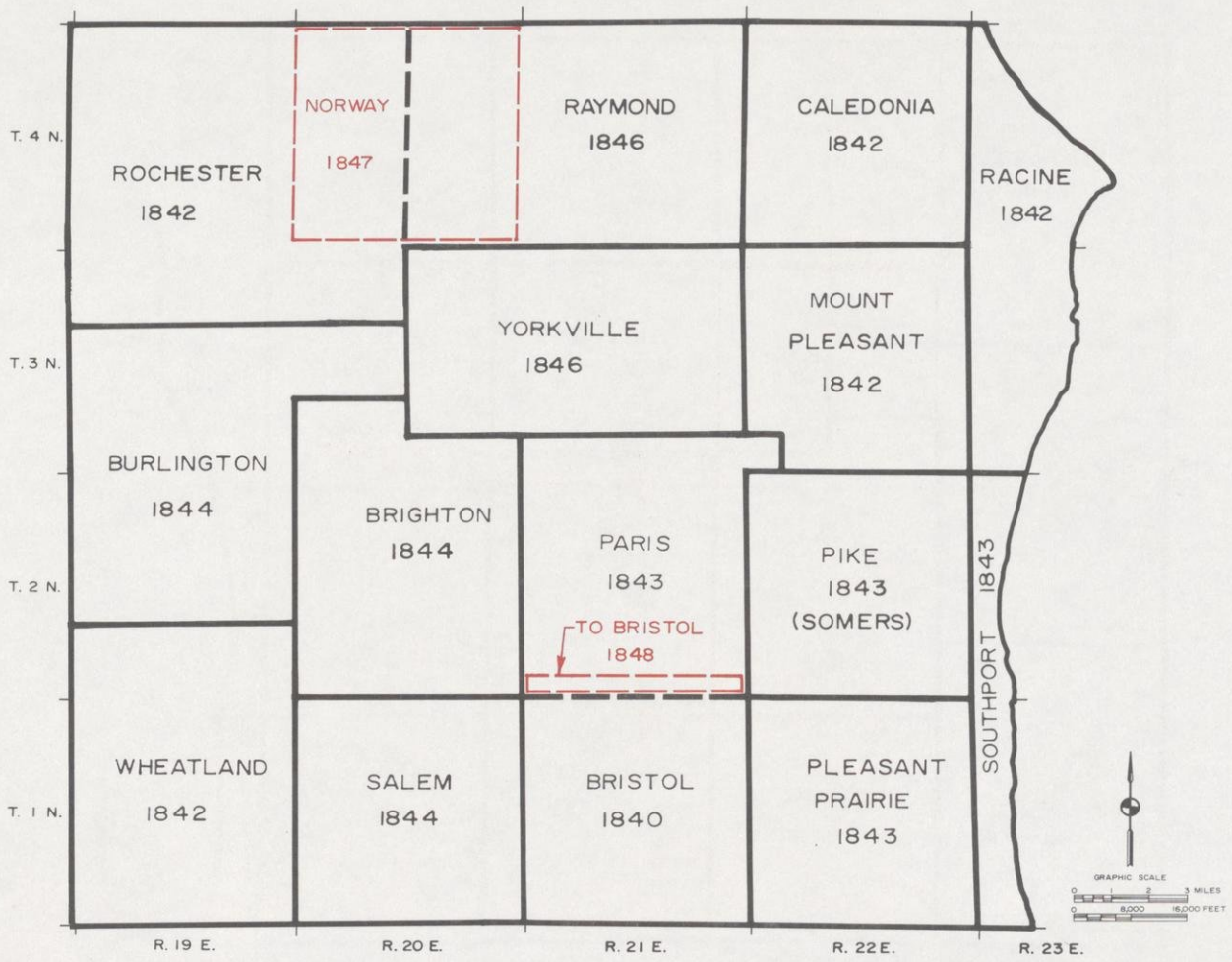
1847—The Town of Norway was created in Township 4 North, Range 20 East, taking land from the Towns of Raymond and Rochester (see Map 8).

1848—The boundary line between the Towns of Bristol and Paris was moved north a half-mile, giving the Town of Bristol the southern half of Sections 31 through 36 in Township 2 North, Range 21 East (see Map 8).

1850—The Racine County Board created the Town of Dover in Township 3 North, Range 20 East, taking land from the Towns of Yorkville, Brighton, Burlington, and Rochester. The same County Board action made a number of other changes. The Town of Yorkville was reduced in size to Township 3 North,

Map 8

CIVIL TOWNS IN RACINE AND KENOSHA COUNTIES: 1847-1848



Source: Session Laws of Wisconsin Territory, 1838-1848, and Session Laws of the State of Wisconsin, 1848-1860.

Range 21 East. The Town of Paris lost its northern tier of sections and regained its southern tier of half sections, which standardized its form to consist of Township 2 North, Range 21 East. The Town of Bristol resumed its original shape of Township 1 North, Range 21 East. Those changes also standardized the Town of Mt. Pleasant's form to consist of Township 3 North, Range 22 East (see Map 9).

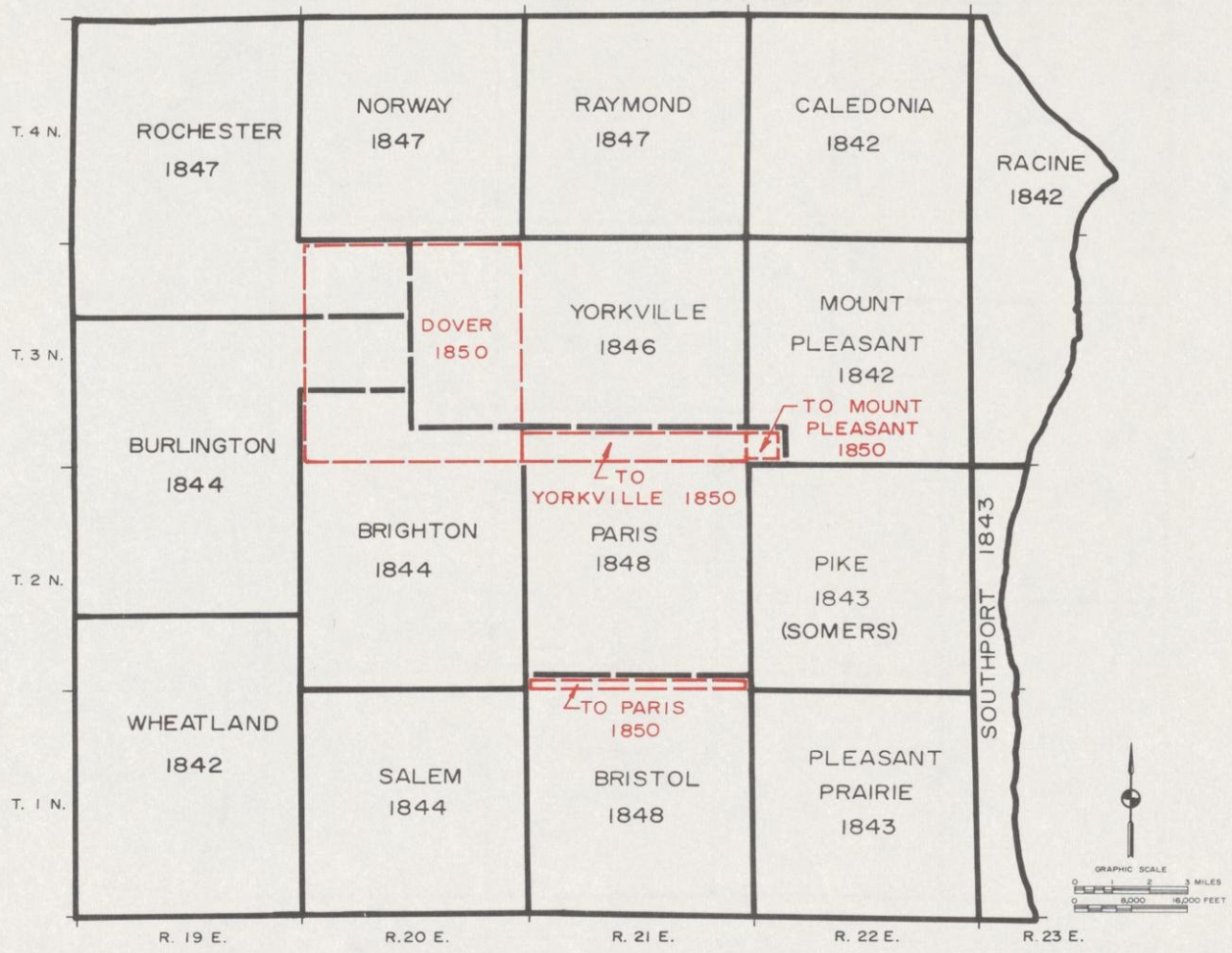
Later in 1850, Racine County was divided into Racine and Kenosha Counties. The dividing line between the two Counties was established to extend from Lake Michigan west along the southern line of Township 3 North to the western line of Range 20 East, thence south four miles and thence west six miles to the western line of Range 19 East. Within the now smaller Racine County, three more boundary changes were made before the present arrangement of towns was achieved. The changes were:

1852—The Towns of Rochester and Burlington were reorganized by the County Board to form the Town of Waterford in Township 4 North, Range 19 East, the Town of Rochester, located in the northern half of Township 3 North, Range 19 East, and the Town of Burlington, located in the southern half of Township 3 North, Range 19 East, and the northern two-thirds of Township 2 North, Range 19 East (see Map 10).

1856—The boundaries of the Towns of Caledonia, Racine, and Mt. Pleasant were shuffled by the County Board. Caledonia assumed all of Sections 1 through 24 in Township 4 North, Range 22 East, and all of Sections 6 through 8 and 16 through 22 in Township 4 North, partial Range 23 East. Mt. Pleasant assumed

Map 9

CIVIL TOWNS IN RACINE AND KENOSHA COUNTIES: 1850



Source: Racine County Board Proceedings, 1853-1860.

all of Sections 13 through 36 in Township 3 North, Range 22 East; and all of Sections 16 through 21 and 28 through 32 in Township 3 North, partial Range 23 East. The Town of Racine took all the land between the new Caledonia and Mt. Pleasant. For a short time in 1859 and 1860, the Town of Racine's name was changed by the County Board to the Town of Orwell (see Map 10).

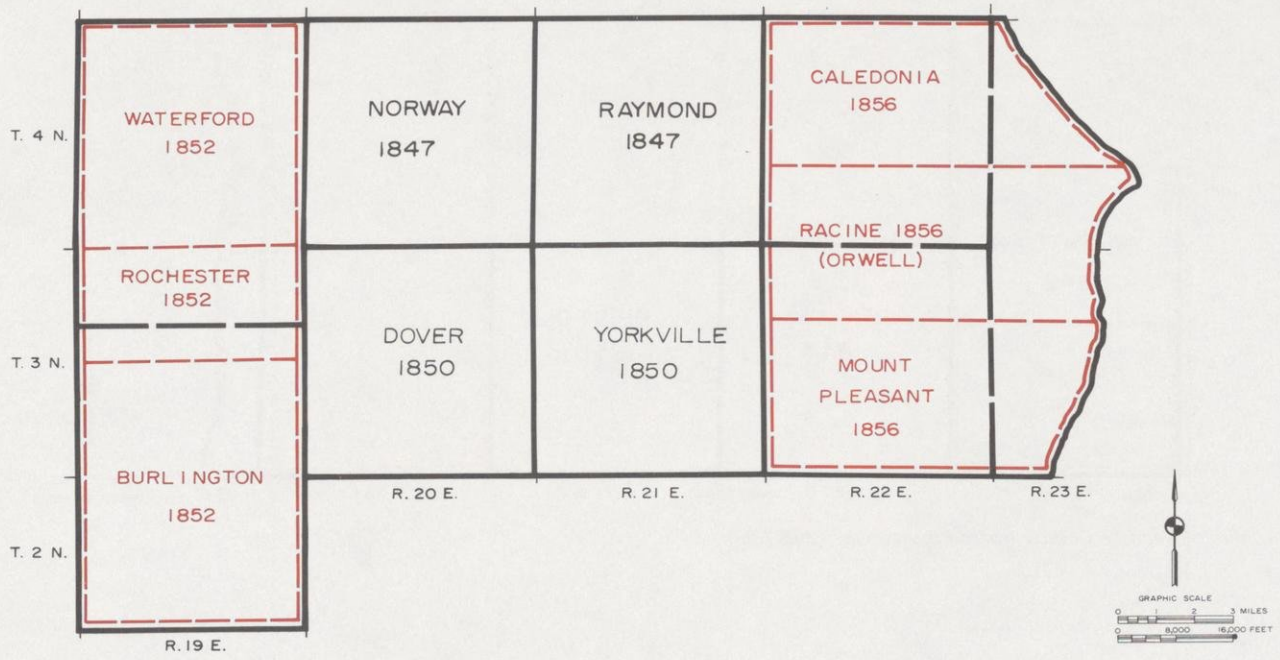
1860—The Town of Orwell was dissolved by the State Legislature, and the land was given to the Towns of Caledonia and Mt. Pleasant. Caledonia assumed all the land north of the line dividing Townships 3 and 4 North in Ranges 22 and 23 East, and Mt. Pleasant took all the land south of that line (see Map 11).

The 1860 action placed Racine County's town boundaries along the lines that exist today. The two final boundary changes in Kenosha County were enacted by the Kenosha County Board. They were:

1853—The Town of Southport was vacated and absorbed by the Towns of Somers and Pleasant Prairie. Somers assumed all the land north of the line dividing Townships 1 and 2 North in Ranges 22 and 23 East, and Pleasant Prairie took all the land south of that line (see Map 12).

Map 10

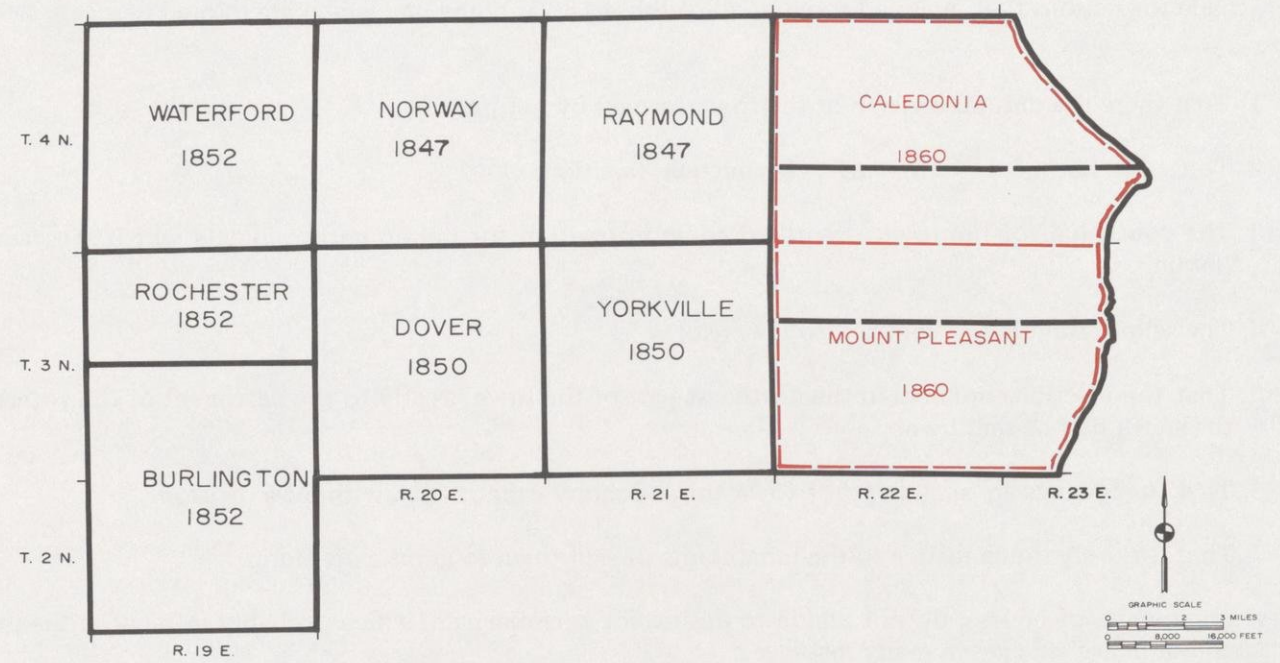
CIVIL TOWNS IN RACINE COUNTY: 1852-1856



Source: Racine County Board Proceedings, 1853-1860.

Map 11

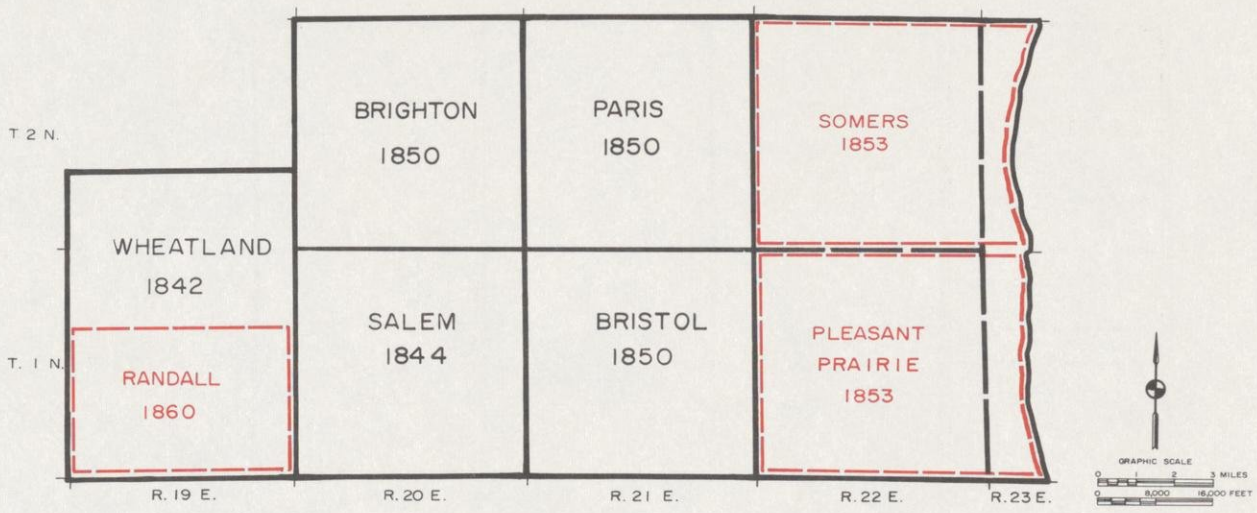
CIVIL TOWNS IN RACINE COUNTY: 1860



Source: Session Laws of the State of Wisconsin, 1848-1860.

Map 12

CIVIL TOWNS IN KENOSHA COUNTY: 1853-1860



Source: Kenosha County Board Proceedings, 1853-1860.

1860—The Town of Wheatland was divided to form the Town of Randall, consisting of the southern two-thirds of Township 1 North, Range 19 East (see Map 12).

Rarely can reasons be found in historical records for the numerous boundary changes in Racine and Kenosha Counties. During the creation of the Town of Randall, however, the Kenosha County Board proceedings did include a text of a petition requesting the change. It is likely that most boundary changes were made for reasons that included some or all of those 1860 arguments, which are quoted here:

1. That there is a natural division of the town formed by nature.

2. The south half of the town suffers by unequal taxation.

3. The south half of the town is entitled to appropriation for public improvements which she cannot obtain.

4. The school fund is and contrary to law. (sic)

5. That the elections are held in the northeast part of the town greatly to the detriment of the voters of the south half of the town.

6. That the feelings are such in [the] town that harmony cannot exist without a division.

7. That it is only doing justice to the inhabitants of said town to grant a division.

These arguments, of course, do not allude to desires for personal gain, which probably influenced the push for town boundary changes in many instances.

CONCLUDING COMMENT

After the town boundaries in Racine and Kenosha were established in 1860, there appears to have been no subsequent alterations to boundary lines between towns in southeastern Wisconsin. This does not mean, however, that town boundary lines remained unaltered during the last 120 years. For well over a century, cities and villages have been extending their municipal boundaries by annexing town territory in the manner prescribed by state law. Towns lose their governmental authority over land when it is annexed to cities and villages. Although many towns have been reduced in size and some dissolved as a result of the incorporation and subsequent expansion of cities and villages in southeastern Wisconsin, towns remain a strong element of local government in Wisconsin. It is highly unlikely that they will ever disappear from the maps of the State.

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