APPENDIX I

EVALUATION OF POTENTIAL BENEFITS AND IMPACTS OF RECONSTRUCTING WITH WIDENING AND NOT WIDENING IH 43 BETWEEN HOWARD AVENUE AND SILVER SPRING DRIVE

INTRODUCTION

The Advisory Committee on Regional Transportation Planning requested, for their review of the Preliminary Plan, an evaluation comparing the potential benefits and impacts associated with widening and not widening IH 43, upon its reconstruction, between Howard Avenue and Silver Spring Drive in Milwaukee County. The 10-mile segment of IH 43 between Howard Avenue and Silver Spring Drive is an important element of the Region's freeway network, moving people and goods to and through the downtown Milwaukee area. Both the current and forecast future year 2050 traffic volumes substantially exceed the existing design capacity of this segment of IH 43, even with the implementation of the proposed fixed-guideway transit lines parallel to this freeway and other substantial improvements in transit service under the Preliminary Plan. However, input from the public and some members of the Advisory Committees guiding the VISION 2050 planning effort indicated opposition, particularly in Milwaukee County, to the widening of freeways, as well as surface arterials, especially in corridors where fixed-guideway transit service is proposed.

There has been opposition expressed over the years by the City of Milwaukee and Milwaukee County to widening the freeway system in Milwaukee County, particularly within the City of Milwaukee. Specifically, during the development of the regional freeway reconstruction plan completed in 2003, there was opposition expressed by the City and County of Milwaukee to the reconstruction with additional lanes of 19 miles of freeway in Milwaukee County, including this 10-mile segment of IH 43. In determining the final regional freeway reconstruction plan in 2003, the Commission staff had recommended to the Advisory Committee guiding the effort that the final plan not include a recommendation for these segments of freeway. How these segments would be reconstructed—either with the existing number of lanes or with additional lanes—would be determined at the conclusion of the preliminary engineering for the reconstruction of each segment of freeway. However, the Advisory Committee guiding that effort determined that the final regional freeway reconstruction plan should recommend the widening of these segments of freeway. The final plan did, however, specifically note that all 127 miles of freeway widening proposed in the plan, and in particular the 19 miles of widening in the City of Milwaukee (IH 94 between the Zoo and Marquette interchanges and IH 43 between the Mitchell and Silver Spring interchanges), would be required to undergo preliminary engineering and environmental impact study by the Wisconsin Department of Transportation. The plan further recommended that during preliminary engineering, alternatives be considered, including rebuild-as-is, various options of rebuilding to modern design standards, compromises to rebuilding to modern design standards, rebuilding with additional lanes, and rebuilding with the existing number of lanes. Only at the conclusion of the preliminary engineering, upon detailed corridor-level consideration

of alternatives including environmental impacts, would a determination be made as to how the freeway would be reconstructed. If the preliminary engineering concluded that the freeway segment would be reconstructed without widening, the regional transportation plan would be amended to incorporate the conclusions of the preliminary engineering study.

Table I.1 summarizes the potential benefits and impacts associated with widening and not widening IH 43 upon its reconstruction between Howard Avenue and Silver Spring Drive. The data presented in Table I.1 indicate that the cost of reconstructing this 10-mile segment of IH 43 with additional lanes represents an estimated 17 percent increase in the cost of reconstructing to modern design standards, and that the additional lanes can largely be built within the existing right-of-way. The additional lanes would provide a 33 percent increase in traffic carrying capacity that would be expected to reduce traffic congestion, travel delay, and the diversion of freeway traffic to surface arterial streets. Also, traffic safety would be improved with the widening of these 10 miles of freeway, as congestion-related crashes would be reduced and traffic would be diverted from surface arterial streets to the freeway (a safer facility).

Reconstructing IH 43 with additional traffic lanes would not be expected to require any acquisition of additional right-of-way, and, therefore, no acquisition of homes or businesses, or impacts on environmental corridor or natural resources, would be expected. However, reconstructing this segment of IH 43 with additional lanes would be expected to increase impervious area by 30 acres (12-foot lane in each direction for 10 miles), with resulting impacts on storm water absorption and water quality. These 30 acres of impervious area would represent about 0.6 percent of the total estimated increase in impervious area under the Preliminary Plan within the Milwaukee, Menomonee, and Kinnickinnic watersheds that this 10-mile segment of IH 43 freeway is located.

This 10-mile segment of IH 43 (along with the segment of IH 94 between the Zoo and Marquette Interchanges) is unique among the 270 miles of freeways in the Region and the 111 total miles proposed for reconstruction with widening in the Preliminary Plan in that densely populated residential neighborhoods are located along much of this segment of freeway. The concern and opposition to the widening of these segments of freeway is in part due to the perceived negative impacts on the neighborhoods immediately adjacent to the freeways. While analyses indicate that the populations that reside near this 10-mile segment of IH 43 would benefit from the improved accessibility and traffic safety resulting from its widening upon reconstruction, these populations would as well experience the impacts of being located adjacent to a heavily traveled freeway. A total of 73,800 residents live within one-half mile, and a total of 33,900 residents live within one-quarter mile, of this segment of IH 43. About 74 percent of residents within one-half mile and about 76 percent of residents within one-quarter mile are minorities, which exceeds the 29 percent minority population of the Region and the 54 percent minority population of Milwaukee County. A total of 14,700 families reside within one-half mile, and a total of 6,400 families reside within one-quarter mile, of this segment of IH 43. About 32 percent of the families within one-half mile and about 34 percent of the families within one-quarter mile are families in poverty, which exceeds the 10 percent families in poverty in the Region and 16 percent families in poverty in Milwaukee County.

As a result, when considering all freeway widening upon reconstruction proposed in the Preliminary Plan—including this segment of IH 43—the

proportions of minority population within one-half mile and one-quarter mile of a freeway widening exceed that of the non-minority population: 14 percent minority and 9 percent non-minority within one-half mile and 7 percent minority and 4 percent non-minority within one-quarter mile. Similar conclusions are reached for families in poverty. If the widening of IH 43 is not included in the plan, then the proportions of non-minority population within one-half mile and one-quarter mile of a freeway widening exceed that of the minority population: 7 percent non-minority and 5 percent minority within one-half mile and 3 percent non-minority and 2 percent minority within one-quarter mile. Similar conclusions are reached for families in poverty.

Table I.1
Costs and Benefits of Widening and Not Widening the IH 43 Freeway from Six to Eight Lanes Between Howard Avenue and Silver Spring Drive

Construction Cost

The estimated cost for the reconstruction of this segment of IH 43 to modern design standards without widening is $818 million (excluding the Marquette Interchange). The estimated cost to widen upon reconstruction of IH 43 between Howard Avenue and Silver Spring Drive (excluding the Marquette Interchange) from six to eight travel lanes is approximately $985 million, representing an additional cost of about $168 million, or a 17 percent increase, over the cost to reconstruct to modern design standards only.

Traffic Carrying Capacity

Widening IH 43 from six to eight lanes will expand traffic carrying capacity of the freeway by 33 percent.

Traffic Congestion

Year 2050 Average Hours of Freeway Congestion on an Average Weekday[a]

IH 43 Between Howard Avenue and the Marquette Interchange	Total	Extreme	Severe	Moderate
With Widening	4	--	1	3
Without Widening	6	1	2	3

IH 43 Between the Marquette Interchange and Silver Spring Drive	Total	Extreme	Severe	Moderate
With Widening	6	1	2	3
Without Widening	11	2	4	5

[a] *Extreme traffic congestion is characterized by stop-and-go bumper-to-bumper traffic operating at speeds of 20 to 30 miles per hour or less. Severe congestion is characterized by traffic operating at speeds of 5 to 15 miles per hour below free-flow speed and no gaps in traffic for lane changing. Moderate traffic congestion is characterized by traffic operating at speeds of 1 to 5 miles per hour below free-flow speed and substantial restrictions on the ability to change lanes.*

Congestion on Surface Arterials

While freeway traffic would be diverted to surface arterial streets without widening upon reconstruction of the 10-mile segment of IH 43, most of the affected segments of arterial streets would have adequate capacity for the increased traffic. However, the increased traffic would be expected to trigger congestion or worsen the level of congestion on a few of the adjacent arterial streets:

- Teutonia Avenue between North Avenue and Silver Spring Drive
- 20th Street between Locust Street and Hopkins Street
- 27th Street between Center Street and Capitol Drive
- 35th Street between Lisbon Avenue and Vliet Street
- 27th Street between Burnham Street and St. Paul Street
- Cesar Chavez Drive between Burnham Street and Clybourn Street
- 6th Street between Lincoln Street and Lapham Boulevard
- Lincoln Memorial Drive between Michigan Street and Lafayette Hill Road

Travel Times

Year 2050 Peak Hour Travel Time (minutes)

Segment of Freeway	With IH 43 Widening	Without IH 43 Widening
IH 43 between Howard Avenue and Marquette Interchanges (free flow travel time of 6 minutes)	8	9
IH 43 between Marquette Interchange and Silver Spring Drive (free flow travel time of 7 minutes)	10	13

Table continued on next page.

Table I.1 (Continued)

Additional Traffic on Surface Streets Without Widening of IH 43[b]

Between Downtown and Silver Spring Drive:

- Martin Luther King, Jr. Drive (north of McKinley Avenue) – 200 to 4,000 vehicles per weekday
- 6th Street/7th Street/Halyard Street (McKinley Avenue-North Avenue) – 200 to 2,000 vehicles per weekday
- Holton Street (Brady Street-Capitol Drive) – 400 to 1,300 vehicles per weekday
- Lincoln Memorial Drive/Lake Drive – 300 to 700 vehicles per weekday
- Port Washington Road – 1,000 to 1,700 vehicles per weekday
- Roosevelt Drive – 700 to 1,500 vehicles per weekday
- Teutonia Avenue/12th Street (north of Highland Avenue) – 500 to 2,700 vehicles per weekday
- Hopkins Street (Locust Street-Capitol Drive) – 100 to 1,700 vehicles per weekday
- 20th Street – 100 to 1,800 vehicles per weekday
- 27th Street (North of IH 94) – 200 to 1,600 vehicles per weekday
- 35th Street/Hopkins Street (IH 94-Sherman Boulevard) – 300 to 800 vehicles per weekday
- Fond du Lac Avenue (IH 43-Capitol Drive) – 100 to 1,300 vehicles per weekday

Between Downtown and Howard Avenue:

- Lake Parkway (south of Carferry Drive) – 500 to 2,000 vehicles per weekday
- Kinnickinnic Avenue – 100 to 400 vehicles per weekday
- Water Street/1st Street/Chase Avenue/Howard Avenue (south of IH 94) – 400 to 1,200 vehicles per weekday
- 6th Street (south of IH 94) – 100 to 1,200 vehicles per weekday
- 11th Street/Windlake Avenue/20th Street (south of National Avenue) – 200 to 900 vehicles per weekday
- 16th Street/Cesar Chavez Drive (south of IH 94) – 200 to 800 vehicles per weekday
- 27th Street (south of IH 94) – 700 to 1,400 vehicles per weekday
- 35th Street (south of IH 94) – 200 to 1,600 vehicles per weekday
- Forest Home Avenue – 200 to 800 vehicles per weekday
- Muskego Street – 100 to 300 vehicles per weekday
- Loomis Road (43rd Street-27th Street) – 200 to 800 vehicles per weekday
- 43rd Street – 200 to 1,300 vehicles per weekday

[b] *The forecast additional traffic on surface streets would be expected during periods of extreme and severe congestion on the freeway system.*

Vehicular Crashes

The widening of IH 43 from six to eight lanes as part of freeway reconstruction will provide some traffic safety improvement by reducing traffic congestion and shifting travel from adjacent surface arterials to the freeway (a safer facility), resulting in a reduction of about 200 crashes per year.

Impacts to Natural Resource Areas

It is not anticipated that there would be any impacts to environmental corridors and other natural resource areas with widening IH 43 between Howard Avenue and Silver Spring Drive, as additional lanes can largely be built within the existing right-of-way.

Homes, Businesses, Land, and Parkland Acquired

It is not anticipated that there would be any acquisition of homes and businesses with widening IH 43 between Howard Avenue and Silver Spring Drive, as additional lanes can largely be built within the existing right-of-way.

Impervious Surface

The increase in impervious area associated with the widening of IH 43 between Howard Avenue and Silver Spring Drive with two additional travel lanes is estimated to be about 30 acres over the 10.2-mile length of freeway. This increase would represent only about 0.6 percent of the estimated increase in impervious area of about 5,280 acres by the year 2050 within the three watersheds that this segment of IH 43 is located within—Kinnickinnic River, Menomonee River, and Milwaukee River watersheds—based on the planned development and highway improvements (widenings as part of reconstruction of existing facilities or new facilities) proposed in the Preliminary Plan.

Greenhouse Gas Emissions and Other Air Pollutants

There is almost no difference in system-wide greenhouse gas and other air pollutant emissions between widening and not widening IH 43, as similar levels of vehicle traffic are expected with or without additional lanes—more will be on freeways with added lanes and more will be on parallel surface arterials without new lanes. Transportation-generated ozone-related air pollutant emissions have been declining, and are projected to continue to decline by the year 2050 by about 65 to 90 percent (along with about a 30 percent decline in transportation-generated greenhouse gas emissions), even with increasing traffic, due primarily to cleaner fuels and more stringent emission standards for new motor vehicles.

Table continued on next page.

Table I.1 (Continued)

Benefits and Impacts to Minority Populations and Families in Poverty Residing in Proximity to IH 43 Between Howard Avenue and Silver Spring Drive[c]

Proportion of Trips by Traffic Analysis Zone (TAZ) that Would Utilize IH 43 Between Howard Avenue and Silver Spring Drive

Map I.1 shows the percentage of automobile trips within each TAZ that would utilize the 10-mile segment of a widened IH 43. Comparing this map to locations of current concentrations of minority populations and low-income populations (as shown on Maps I.2 and I.3) indicates that this 10-mile segment of IH 43 would directly serve areas of minority populations and low-income populations, particularly those residing adjacent to this freeway segment. Thus, the population that resides near this 10-mile segment of IH 43 would be expected to benefit from the improved accessibility and traffic safety resulting from its widening upon reconstruction. However, these residents would also experience the impacts of being located adjacent to a heavily traveled freeway.

Minority Population and Families in Poverty Residing in Proximity to IH 43 Between Howard Avenue and Silver Spring Drive

Distance	Non-Minority Population	Minority Population		Families Not in Poverty	Families in Poverty	
		Population	Percent of Total Population		Families	Percent of Total Families
Within One-Half Mile	19,100	54,700	74.1	10,000	4,700	32.0
Within One-Quarter Mile	8,200	25,700	75.8	4,200	2,200	34.4

Percent of Total Minority/Non-Minority Population and Families in Poverty/ Families Not in Poverty Residing in Proximity to a Freeway Widening

Population and Families Within One-Half Mile

Preliminary Plan	Minority Population	Non-Minority Population	Families in Poverty	Families Not in Poverty
With IH 43 Widening	14	9	14	10
Without IH 43 Widening	5	7	5	8

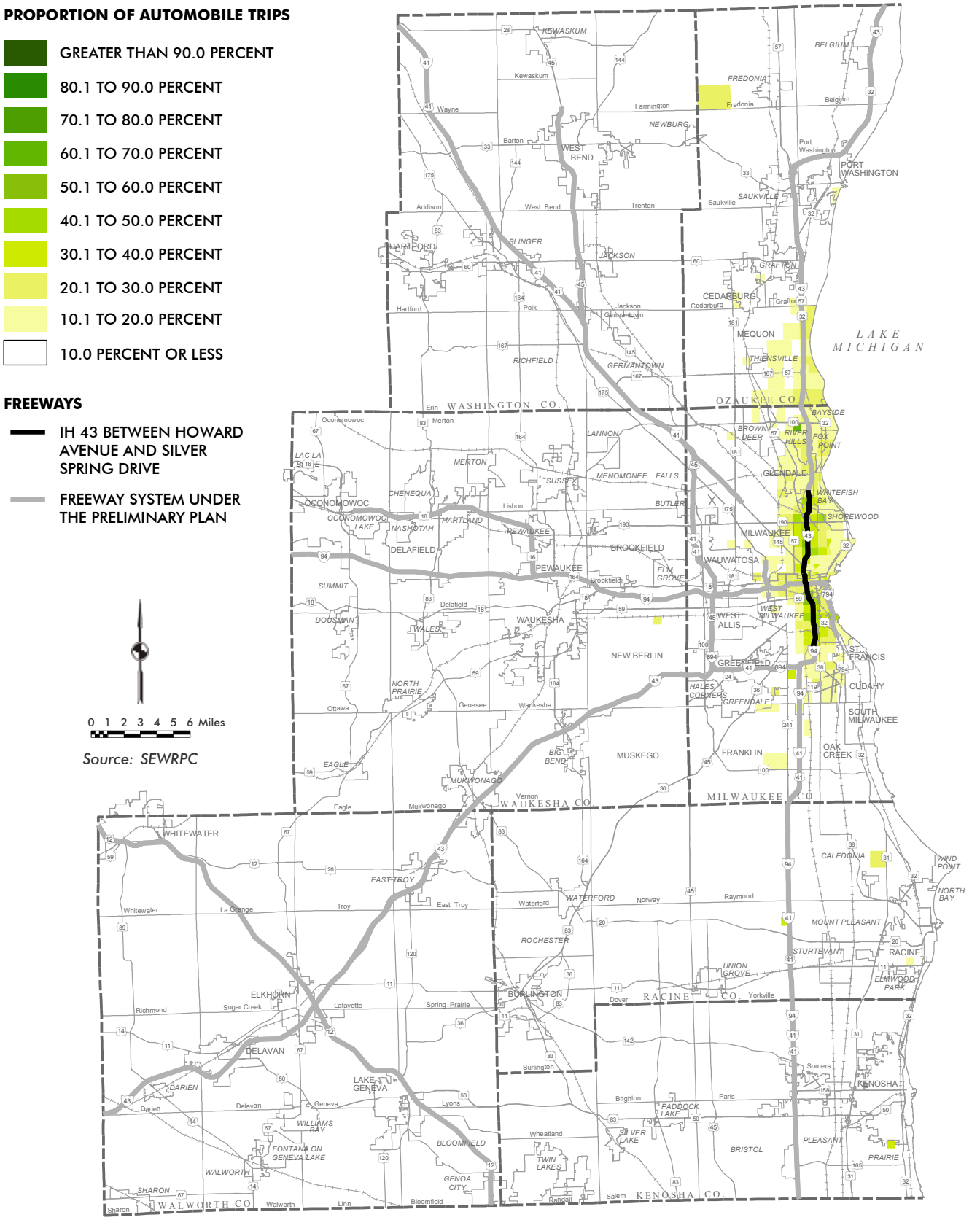
Population and Families Within One-Quarter Mile

Preliminary Plan	Minority Population	Non-Minority Population	Families in Poverty	Families Not in Poverty
With IH 43 Widening	7	4	7	5
Without IH 43 Widening	2	3	3	4

[c] *Minority and non-minority population are based on the 2010 U.S. Census and families in poverty and families not in poverty are based on the 2008-2012 American Community Survey.*

Source: U.S. Bureau of the Census, U.S. Census and American Community Survey; and SEWRPC

Map I.1
Proportion of Automobile Trips Using IH 43 Between Howard Avenue and Silver Spring Drive Within Each Traffic Analysis Zone: Preliminary Plan



Map I.2
Concentrations of Total Minority Population in the Region (2010) in Relation to IH 43 Between Howard Avenue and Silver Spring Drive

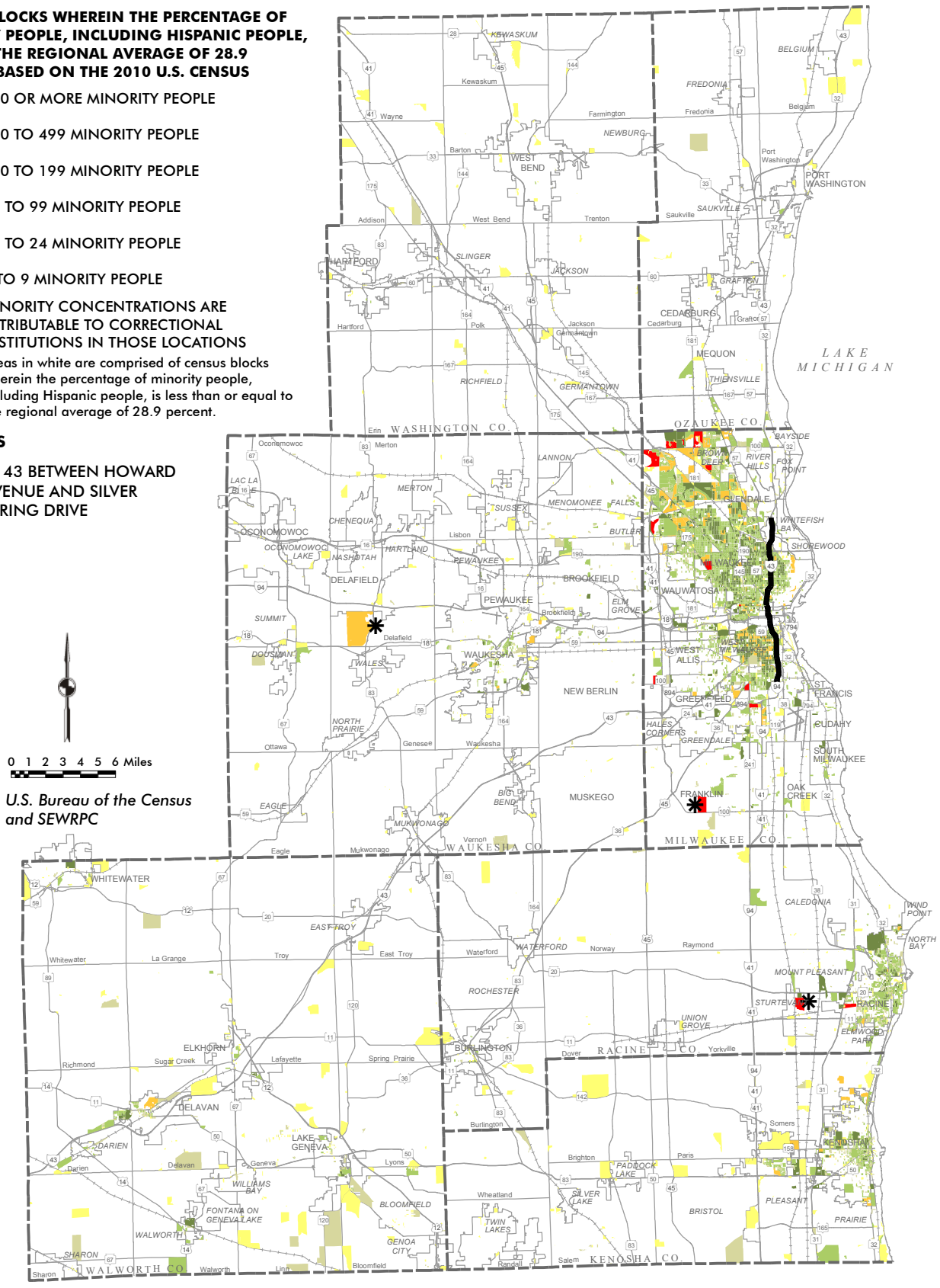
CENSUS BLOCKS WHEREIN THE PERCENTAGE OF MINORITY PEOPLE, INCLUDING HISPANIC PEOPLE, EXCEEDS THE REGIONAL AVERAGE OF 28.9 PERCENT BASED ON THE 2010 U.S. CENSUS

- 500 OR MORE MINORITY PEOPLE
- 200 TO 499 MINORITY PEOPLE
- 100 TO 199 MINORITY PEOPLE
- 25 TO 99 MINORITY PEOPLE
- 10 TO 24 MINORITY PEOPLE
- 1 TO 9 MINORITY PEOPLE
- ✱ MINORITY CONCENTRATIONS ARE ATTRIBUTABLE TO CORRECTIONAL INSTITUTIONS IN THOSE LOCATIONS

Note: Areas in white are comprised of census blocks wherein the percentage of minority people, including Hispanic people, is less than or equal to the regional average of 28.9 percent.

FREEWAYS

- IH 43 BETWEEN HOWARD AVENUE AND SILVER SPRING DRIVE



Source: U.S. Bureau of the Census and SEWRPC

Map I.3
Concentrations of Families in Poverty in the Region (2008-2012) in Relation to IH 43 Between Howard Avenue and Silver Spring Drive

CENSUS TRACTS WHEREIN THE PERCENTAGE OF FAMILIES IN POVERTY EXCEEDS THE REGIONAL AVERAGE OF 10.3 PERCENT BASED ON THE 2008-2012 U.S. CENSUS AMERICAN COMMUNITY SURVEY

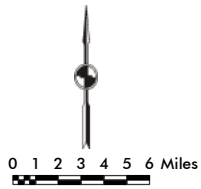
- FEWER THAN 100 FAMILIES IN POVERTY
- 100-199 FAMILIES IN POVERTY
- 200-299 FAMILIES IN POVERTY
- 300 OR MORE FAMILIES IN POVERTY

Notes: Areas in white are comprised of census tracts wherein the percentage of families in poverty is less than or equal to the regional average of 10.3 percent.

The information reflected on this map is from the American Community Survey, which is based on sample data from a small percentage of the population. Consequently, the data has a relatively large margin of error that can result in larger census tracts being identified as having concentrations of families in poverty even though there are only small enclaves of such families located within the tract identified.

FREEWAYS

- IH 43 BETWEEN HOWARD AVENUE AND SILVER SPRING DRIVE



Source: U.S. Bureau of the Census American Community Survey and SEWRPC