

Minutes of the Thirteenth Joint Meeting of the

**ADVISORY COMMITTEES ON REGIONAL LAND USE PLANNING
AND REGIONAL TRANSPORTATION SYSTEM PLANNING**

DATE: September 23, 2015

TIME: 9:30 a.m.

PLACE: West Allis City Hall
7525 W. Greenfield Avenue
West Allis, Wisconsin

Members Present

Committee on Regional Land Use Planning

Robert J. Bauman Alderman, City of Milwaukee

Andy M. Buehler Director, Division of Planning and Development, Kenosha County

Charles Erickson Community Development Manager, City of Greenfield

Daniel F. Ertl Director of Community Development, City of Brookfield

Jason Fruth Planning and Zoning Manager, Waukesha County

Maria Pandazi (alternate for Jennifer Andrews) City Planner, City of Waukesha

Mark Piotrowicz City Planner/Operations Manager, City of West Bend

Steven J. Schaer Manager of Planning and Zoning, City of West Allis

Rich Schroeder (alternate for Jeffery B. Labahn) Deputy Director,
Community Development and Inspections, City of Kenosha

Debora Sielski Deputy Planning and Parks Administrator,
Manager of Planning Division, Washington County

Todd Stuebe Director of Community Development, City of Glendale

Committee on Regional Transportation System Planning

Fred Abadi Director of Public Works, City of Waukesha

Donna Brown-Martin Director, Bureau of Planning and Economic Development,
Division of Transportation Investment, Wisconsin Department of Transportation

Kevin M. Brunner Director of Central Services, Walworth County Public Works Department

David Cox Village Administrator, Village of Hartland

Peter Daniels (alternate for Michael Lewis) Principal Design Engineer, City of West Allis

Jon Edgren (alternate for Robert Dreblow) Assistant Director,
Ozaukee County Department of Public Works

Michael Friedlander (alternate for Bart Sponseller) Bureau of Air Management,
Wisconsin Department of Natural Resources

Thomas Grisa Director, Department of Public Works, City of Brookfield

Jennifer Gonda Legislative Liason Director, City of Milwaukee

T.J. Justice City Administrator and Director of Development, City of West Bend

Nik Kovac Alderman, City of Milwaukee

Dwight E. McComb Planning and Environmental Manager/Team Leader,
Federal Highway Administration, U.S. Department of Transportation

Jeff Polenske City Engineer, City of Milwaukee

Committee on Regional Transportation System Planning (continued)

William D. Sasse..... Director of Engineering, Village of Mt. Pleasant
Jeff Sponcia (alternate for Daniel Boehm) Transit Planner, Milwaukee County Transit System

Guests and Staff Present

Anthony J. Barth Systems Planning Supervisor, Wisconsin Department of Transportation
Michael G. Hahn Deputy Director, SEWRPC
Christopher Hiebert..... Chief Transportation Engineer, SEWRPC
Ryan W. Hoel..... Principal Engineer, SEWRPC
Andrew Levy Urban and Regional Planner – Freight Transportation,
Southeast Region, Wisconsin Department of Transportation
Eric D. Lynde..... Principal Transportation Planner/Engineer, SEWRPC
Benjamin R. McKay Principal Planner, SEWRPC
Aaron Michelson..... Urban and Regional Planner,
Wisconsin Department of Transportation DTSD Systems Planning, Southeast Region
Kevin J. Muhs Principal Transportation Planner, SEWRPC
Jennifer Sarnecki..... Urban and Regional Planning Supervisor,
Southeast Region, Wisconsin Department of Transportation
David A. Schilling Chief Land Use Planner, SEWRPC
Matthew Schreiber Urban and Regional Planner,
Division of Transportation Investment Management,
Bureau of Statewide Planning & Economic Development, Wisconsin Department of Transportation
Kerry Thomas Executive Director, MetroGo!
Kenneth R. Yunker Executive Director, SEWRPC

CALL TO ORDER

Mr. Yunker called the joint meeting of the Advisory Committees on Regional Land Use Planning and Regional Transportation System Planning to order at 9:35 a.m., welcoming those in attendance. Mr. Yunker noted that neither Ms. Anderson nor Mr. Dranzik could attend, and he would chair the meeting. Mr. Yunker stated that roll call would be accomplished through circulation of a sign-in sheet.

REVIEW AND APPROVAL OF MINUTES OF THE JOINT MEETING OF THE ADVISORY COMMITTEES ON REGIONAL LAND USE PLANNING AND REGIONAL TRANSPORTATION SYSTEM PLANNING HELD ON AUGUST 19, 2015

Mr. Yunker asked if there were any questions or comments on the August 19, 2015, meeting minutes. There were none. On a motion by Mr. Cox seconded by Mr. Buehler, the August 19, 2015, meeting minutes were approved unanimously.

DISCUSSION OF SCHEDULE AND LOCATION OF FUTURE JOINT ADVISORY COMMITTEE MEETINGS

Mr. Yunker noted that members of the Committees were provided a tentative schedule for future meetings in their meeting packets. Mr. Yunker requested that members of the Committees mark the dates on their calendars and notify Commission staff of any conflicts. He then noted that staff is proposing monthly meeting dates through June 2016 to keep the VISION 2050 planning process on schedule. He stated that

not all of the meetings may be needed, and notice will be provided so members of the Committees may remove a meeting from their calendars in the event staff determines it is unnecessary.

REVIEW AND CONSIDERATION OF THE PRELIMINARY DRAFTS OF VOLUME II, CHAPTER III AND APPENDIX F OF SEWRPC PLANNING REPORT NO. 55, *VISION 2050: A REGIONAL LAND USE AND TRANSPORTATION SYSTEM PLAN FOR SOUTHEASTERN WISCONSIN*

Mr. Yunker noted that members of the Committees received copies of the preliminary drafts of Volume II, Chapter III, “Alternative Land Use and Transportation System Plans” and Appendix F, “Complete Alternative Plan Evaluation Results” in their meeting packets. He also noted that a summary PowerPoint handout of the alternative plan evaluation results was distributed to members at the meeting (these materials are available on both Committee pages through the [SEWRPC website](#)).

Mr. Yunker stated that the purpose of the alternatives is to examine the outcomes and consequences of following recent trends in land use development and transportation system investment over the next 35 years compared to possible outcomes and consequences of alternative land use development patterns and transportation system investments. Mr. Yunker stated that the evaluation of the alternatives will be the focus of a series of public meetings/workshops later in the fall. He then stated that input from those workshops will be incorporated into the next step of the VISION 2050 planning process, which is to develop a preliminary recommended regional land use and transportation system plan. Mr. Yunker stated that the preliminary recommended plan may draw from elements of multiple alternatives as well as from concepts that may not have been included in the alternatives.

Volume II, Chapter III, “Alternative Land Use and Transportation System Plans”

Mr. Yunker asked Mr. McKay of the Commission staff to review the preliminary draft of Volume II, Chapter III of the VISION 2050 report. The following comments and discussion points were made:

1. Mr. Polenske asked if the potential impact of bike share programs could be considered when estimating the number of non-motorized trips under the alternatives. He noted that bike share programs could increase non-motorized travel. Mr. Muhs responded that bike share programs were considered when developing the alternatives, but their impact on the number of non-motorized trips in each alternative was not estimated due to data limitations.

[Secretary’s Note: The following text is included in Criterion 4.1.3 (Impacts of Technology Changes):

“Bike sharing programs tend to attract people who would not typically consider riding a bicycle—short-distance commuters, people running errands, and tourists—as well as those who would prefer to commute via bicycle without worrying about maintaining and securing their own bicycle. Potential benefits of bike sharing programs include a reduction in personal automobile trips and an increase in transit trips, leading to reductions in traffic congestion and an improvement in public health. Successful programs, like Denver’s B-Cycle sharing program, attracted 102,000 rides in the first 7 months, with 43 percent of those riders reporting that they were replacing car trips with bicycle trips. The

British Medical Journal studied the health impacts of London's Santander Cycle Hire program, showing that members of the program experienced a reduction in obesity, heart disease, type II diabetes, and other diseases caused typically caused by sedentary lifestyles.

Alternative Plans I and II envision the development of enhanced bicycle facilities, which would aid in addressing the needs of the growing bike sharing industry. The envisioned land development patterns under Alternatives I and II area at higher densities in the urban areas of the Region than under the Trend, with the urban areas in the Region envisioned as being more walkable and bicycle-friendly.”]

2. Mr. Justice asked if utilitarian bicycle trips and recreational bicycle trips could be reported separately for the alternatives. Mr. Yunker responded that staff will determine whether the trips can be reported separately.

[Secretary's Note: Based on the Commission's household travel survey, there were an estimated 68,300 bicycle trips on an average weekday in the year 2011. Of these trips, about 40,500 were for work or school purposes and 27,800 were for non-work purposes. The travel demand models were developed based on travel data collected in 2011 and 2012. As there were no enhanced bicycle facilities in Southeastern Wisconsin at the time these inventory data were collected, the relationships established in the models are not sensitive to the presence of enhanced bicycle facilities. As a result, the models are unable to estimate the impact on the bicycle mode share and trip purpose due to the inclusion of enhanced bicycle facilities in Alternative Plans I and II.]

3. Mr. Bauman noted that forecast population, households, and employment for the Region are the same under each alternative. He suggested that Alternative Plans I and II include characteristics that may make the Region more attractive than the Trend. Mr. Yunker responded that the potential of each alternative to attract residents and businesses to the Region is discussed in Criterion 3.1.4. He noted that staff will present this discussion during the overview of the alternatives evaluation.
4. Mr. Grisa suggested presenting the incremental household and employment data by planning analysis area visually (see Attachment 1).

Appendix F, “Complete Alternative Plan Evaluation Results”

Mr. Yunker reiterated that the purpose of the alternatives stage of the VISION 2050 planning process is to examine the consequences of continuing to follow the trend in land use and transportation system development – including continued lower density development and declines in public transit service – and to compare the consequences to those of higher density development and significant increases in public transit service, represented by Alternative Plans I and II. Mr. Yunker asked Mr. Lynde and Mr. Muhs of the Commission staff to provide an overview of the alternative plan evaluation results using the summary PowerPoint handout. He noted that Appendix F includes a detailed discussion of each of the 50 evaluation criteria. The following comments and discussion points were made:

1. Mr. Grisa asked if the supportive infrastructure costs presented in Criterion 3.4.1 are separate from the average annual investment costs presented in Criterion 3.2.1. Mr. Yunker responded that the costs presented in the two criteria are separate. He explained that the costs presented in Criterion 3.4.1 are related to the capital costs of extending sewer, water, and local roads to new development, which is typically borne by the developer and passed on to the consumer. These costs are higher under the Trend than the Alternative Plans because the Trend includes lower density residential development with wider frontages and deeper setbacks than residential development under the Alternative Plans. The costs presented in Criterion 3.2.1 include the public capital and operating costs for arterial streets and highways, public transit, and bicycle facilities.
2. Mr. Fruth noted that the year 2035 regional land use plan recommends preservation of significant natural resources such as primary environmental corridors and asked if this recommendation is incorporated in the 2050 alternatives. Mr. Lynde noted that no incremental households or jobs were allocated to significant natural resource areas under any of the alternatives, including primary environmental corridors, secondary environmental corridors, and isolated natural resources areas. Incremental households and jobs were also excluded from other wetlands, woodlands, natural areas, critical species habitat sites, and park and open space sites outside of environmental corridors. Mr. Yunker noted that the Trend includes lower density development than the Alternative Plans, which results in conversion of more agricultural land to urban development. He added that there is some difference in the impacts of the alternatives on natural resource areas because of the differences in arterial street and highway capacity expansion (widening or new facilities) under the alternatives. Mr. Yunker stated that transportation system impacts to specific types of natural resource areas are shown in the table presented in Criterion 1.3.2.
3. Ms. Brown-Martin noted that increased traffic congestion was identified as a disadvantage of Alternative II when evaluated without highway improvements. She asked if economic impacts were considered, such as the impacts to freight traffic. Mr. Lynde responded that impacts to freight traffic were not monetized; however, transportation system reliability and congestion on the regional freight network were evaluated for each of the alternatives. Mr. Yunker noted the evaluation of the impacts of the alternatives on freight traffic is presented in Criterion 4.6.3. Mr. Bauman suggested evaluating the economic impact of an improved transit system. Mr. Yunker responded that potential impacts of transit improvements on the ability of the Region to attract residents and business and potential impacts on property values are presented under the Costs and Financial Sustainability theme.
4. Mr. Grisa referred to the crashes by mode evaluation under Criterion 1.6.1, noting that congestion levels impact crash rates. He asked if congestion was considered in evaluating crash rates. Mr. Yunker responded that the evaluation is based on vehicle-miles of travel (VMT); however, staff is working to refine the methodology to incorporate congestion levels. Mr. Yunker responded that staff will attempt to refine the method for estimating the number of crashes for the evaluation of the preliminary recommended plan.
5. Mr. Ertl asked if the criteria would be weighted for importance when presented to the public. Mr. Yunker responded that staff is developing a method for presenting the evaluation of the alternatives. He noted that there are significant differences between the alternatives under some

criteria and very little difference under other criteria. Staff will attempt to clearly illustrate the magnitude of any differences when presenting the evaluation results.

6. Mr. Justice asked if the emphasis on bicycle facilities is primarily intended to reduce automobile work trips. Mr. Lynde noted that non-motorized trips are a very small percentage of work trips, and the intent is to provide residents with options for utilitarian trips as well as recreational opportunities. Mr. Yunker noted the potential corridors for enhanced bicycle facilities shown on Map III-16 in the chapter and stated that improving safety for bicyclists is another intent of the bicycle and pedestrian element. He noted that the enhanced facility corridors located in denser urban areas shown in red on the map would include a physical separation between bicycle lanes and automobile travel lanes. An enhanced facility may also be provided on a parallel nonarterial street in a corridor if it is not feasible to do so on the arterial. He added that continued expansion of the on-street network is envisioned under each alternative because of Federal requirements that bicycle and pedestrian accommodations be provided in all new highway construction and reconstruction projects using Federal funds, unless demonstrated to be prohibitive. Mr. Grisa stated that a one foot buffer is not enough protection to ensure the safety of bicyclists on an arterial with high-speed automobile traffic. Mr. Yunker responded that the plan recommendations would attempt to address this concern. Mr. Kovac noted that volume of traffic can also impact comfort level for bicyclists. Mr. Yunker responded that bicycle level of service, which was calculated for each alternative under Criterion 1.2.1, considers traffic volume.
7. Mr. Polenske asked if the severity of crashes could be evaluated for the alternatives. He noted that there may be more crashes under congested conditions; however, they may be less severe. Mr. Yunker responded that staff will attempt to analyze crash severity in the evaluation of the preliminary recommended plan.
8. Mr. Grisa asked if potential impacts on stormwater are included in the evaluation of the alternatives. Mr. Muhs responded that groundwater recharge potential, impervious surface, and overall impacts to water resources and water quality were evaluated for each of the alternatives.
9. Mr. Friedlander referred to Criterion 1.4.4 “Greenhouse gas emissions and other air pollutants” and stated that Wisconsin Department of Natural Resources staff would have some technical language suggestions regarding upcoming changes to emissions standards from the Environmental Protection Agency (EPA). Mr. Friedlander stated that he would email the language to Commission staff.

[Secretary’s Note: Commission staff has revised the evaluation of Criterion 1.4.4 in the revised version of Appendix F (see highlighted text in Attachment 2).]

10. Mr. Yunker referred to slide 12 of the PowerPoint handout and asked Mr. Muhs to define very good and excellent transit service quality for the members of the Committees. Mr. Muhs responded that areas with excellent transit service are within walking distance of both fixed-guideway transit and multiple, frequent local bus routes. Areas with very good transit service are within walking distance of either fixed-guideway transit service or multiple, frequent local bus routes, but not both.
11. Mr. Kovac asked for clarification regarding the legends of maps related to the highway and transit elements of the Equitable Access theme presented in Appendix F-2. Mr. Yunker responded that

census blocks where the percentage of minority population, or census tracts where the percentage of families in poverty, exceeds the regional average are shaded with one of the colors in the legend. The colors correspond to the number of minority residents or families in poverty living in the census blocks/tracts that exceed the regional average. He stated that the map legends would be revised to clarify this and text would be added to the relevant criteria write-ups to clarify that the analyses are based on the existing location of the minority population and families in poverty. Mr. Yunker added that staff has prepared existing population race and ethnicity dot density versions of the applicable maps included in the highway and transit elements of the Equitable Access theme (see Attachment 3). Mr. Yunker asked staff to distribute preliminary versions of these maps to members of the Committees. Mr. Kovac noted that the distribution of the existing minority population in the Region shown on the maps is stark.

[Secretary's Note: The following note was added to the maps showing concentrations of total minority persons in Appendix F-2:

“Areas in white are comprised of census blocks wherein the minority population, including Hispanic persons, is less than or equal to the regional average of 28.9 percent.” The notes in the maps showing concentrations of families in poverty were also revised to indicate the regional average is 10.3 percent.]

12. Mr. Polenske asked where data are provided regarding use of automobile and transit by the white non-Hispanic population and the minority population of the Region. Mr. Yunker responded that these data are presented in the write-up for Criterion 2.1.1 “Level of Accessibility to Jobs and Activity Centers for Minority and Low-Income Populations by Mode.”
13. Mr. Bauman noted the evaluations conducted under the Equitable Access theme were limited to minority and low-income populations. Mr. Yunker responded that those populations were the focus of the defined Equitable Access criteria, and are addressed in Title VI and the environmental justice executive order. Staff will attempt to assess the benefits and impacts of the preliminary recommended plan on moderate-income populations and people with disabilities.
14. Mr. Grisa asked if the construction costs included in Criterion 3.2.1 “Average Annual Transportation System Investment” are annualized. Mr. Yunker responded that the construction costs are annualized for the years 2015 through 2050. He added that the operating costs are for the year 2050.
15. Mr. Muhs, referring to Mr. Bauman’s earlier comments regarding regional forecasts and the economic impacts of an improved transit system, noted that key conclusions of Criterion 3.1.4 “Potential for Attracting Residents and Businesses” were that the increased transportation options, housing options, and walkable areas under the Alternative Plans may attract population, new workers, and businesses to the Region. He noted that Alternative I would result in the least amount of congestion and greatest transportation system reliability, which is particularly important to businesses that need to ship their goods. He also noted that studies discussed under Criterion 3.1.1 “Impact of the Distribution of Growth on Property Values” concluded that residential and commercial property values may experience a significant increase near fixed-guideway transit stations and in walkable areas. Mr. Ertl suggested adding more information to the text regarding gentrification in the write-up for Criterion 3.1.1. Mr. Muhs responded that staff

would review available research from other regions with fixed-guideway transit systems. He noted it is possible that more extensive systems may be able to accommodate a greater supply of housing in transit station areas, which may temper housing demand and prices to reduce displacement of existing lower income populations. Mr. Kovac noted that widespread displacement of lower income populations is typically limited to the Country's most expensive real estate markets, such as New York and San Francisco.

[Secretary's Note: Additional text regarding gentrification has been added to the Criterion 3.1.1 write-up (see highlighted text in Attachment 4)]

16. Mr. Muhs noted a correction in the write-up for Criterion 3.3.1 "Private Transportation Costs per Capita." He stated that the Region's residents would save \$185 million annually under Alternative II compared to the Trend and \$130 million annually under Alternative I compared to the Trend.
17. Mr. Bauman suggested adding more conclusions regarding peer metropolitan area transportation systems to relevant evaluation criteria under the Mobility theme from Appendix A of the VISION 2050 report, "A Comparison of the Milwaukee Metropolitan Area to its Peers."

[Secretary's Note: Additional text regarding peer comparisons has been added to the Criterion 4.4.2 and 4.5.1 write-ups (see highlighted text in Attachment 5).]

18. Mr. Kovac referred to slide 23 and asked if population with access to 100,000 or more jobs within 30 minutes via transit is a standard measure in transit planning, and if there are similar data available from peer regions. Mr. Muhs responded that it is not a standard measure and noted that Criterion 4.5.3 "Transit Service Quality" presents ranges, including population with access to 10,000 to 49,999 jobs, and 50,000 to 99,999 jobs. Mr. Muhs stated that staff would research if similar measures have been used to evaluate transit service quality in other regions (see Attachment 6).

Mr. Yunker thanked the members of the Committees for their questions and comments regarding the evaluation of the alternatives. He noted that the information presented in the PowerPoint is a small fraction of the total amount of information regarding the evaluation of the alternatives, and Commission staff must work to develop an efficient method to present the data at the next series of workshops.

Mr. Yunker asked if there were any further questions or comments on Volume II, Chapter III or Appendix F of the VISION 2050 report. There were none. Mr. Yunker asked for a motion to approve Volume II, Chapter III and Appendix F of the VISION 2050 report and to proceed with the workshops. Mr. Bauman moved and Mr. Cox seconded to approve Volume II, Chapter III and Appendix F of the VISION 2050 report and to proceed with the workshops. The motion was approved unanimously.

PUBLIC COMMENTS

Mr. Yunker asked if there were any public comments. There were none.

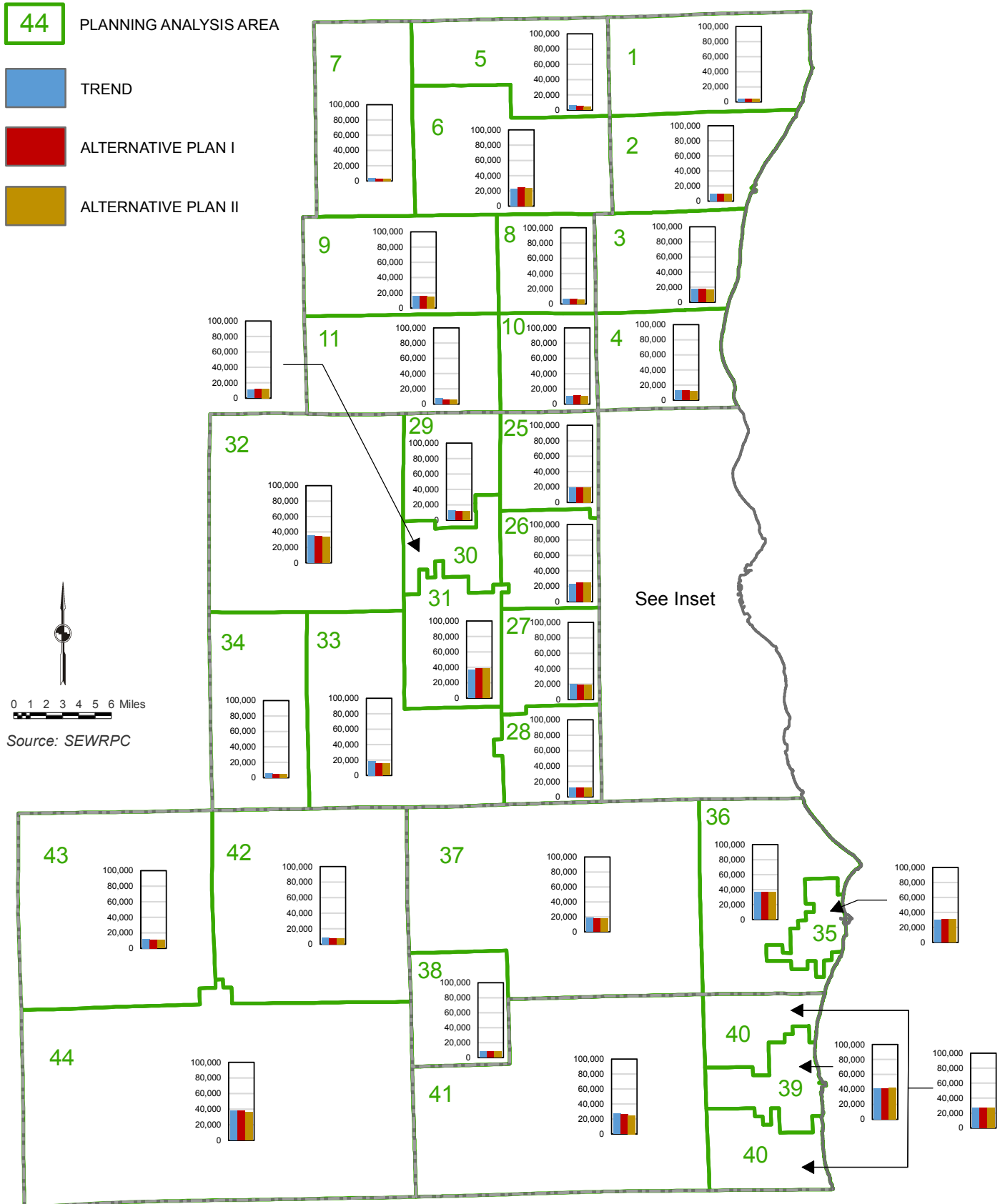
ADJOURNMENT

Mr. Yunker thanked everyone for attending and asked for a motion to adjourn the meeting. Mr. Cox moved and Mr. Buehler seconded the motion to adjourn. The meeting was adjourned at 11:35 a.m.

Respectfully submitted,

Benjamin R. McKay
Recording Secretary

TOTAL HOUSEHOLDS BY PLANNING ANALYSIS AREA: 2050



Attachment 1 (continued)

Milwaukee County Inset

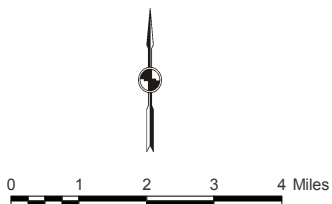
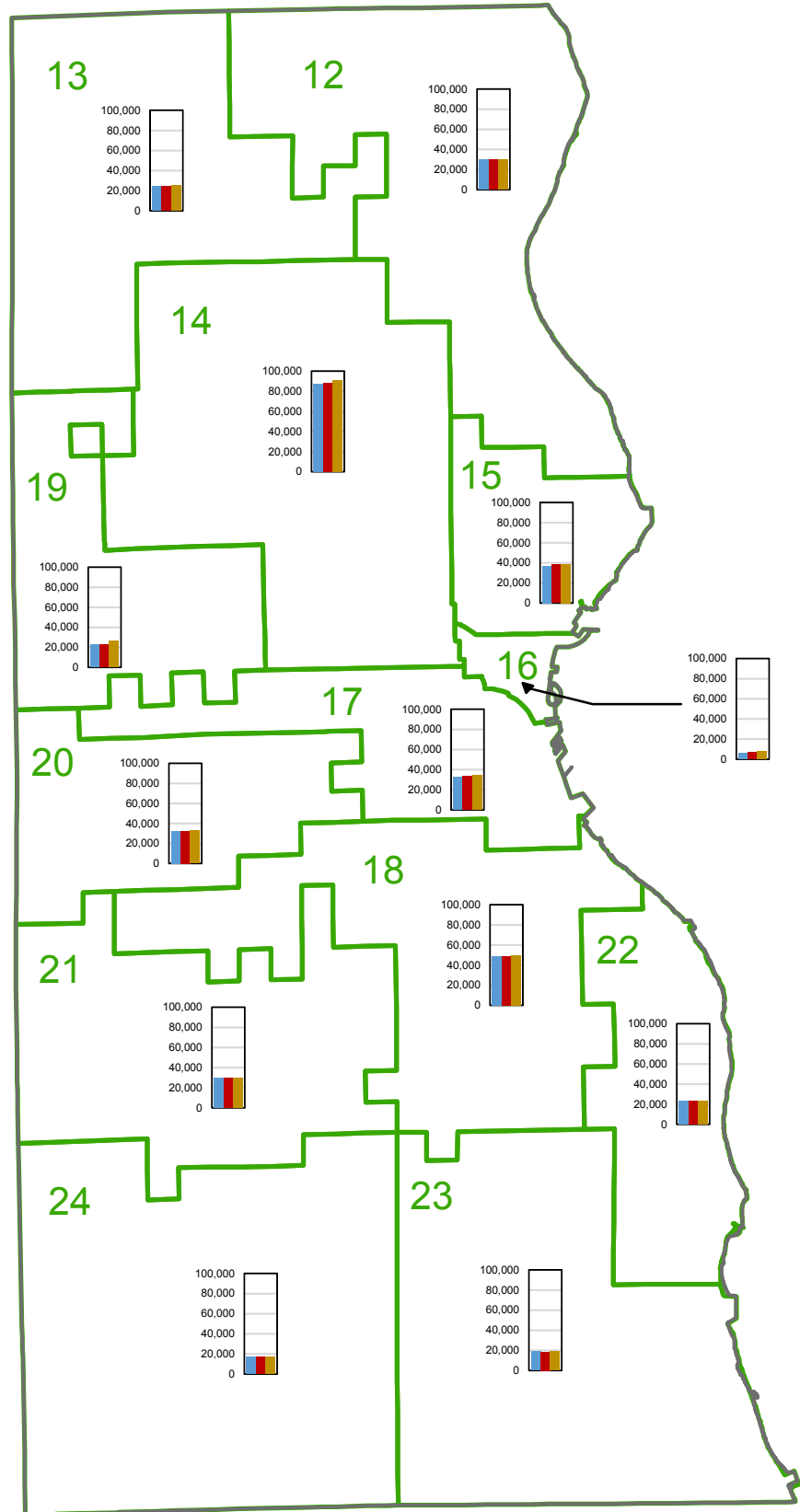
TOTAL HOUSEHOLDS BY PLANNING ANALYSIS AREA: 2050

44 PLANNING ANALYSIS AREA

TREND

ALTERNATIVE PLAN I

ALTERNATIVE PLAN II

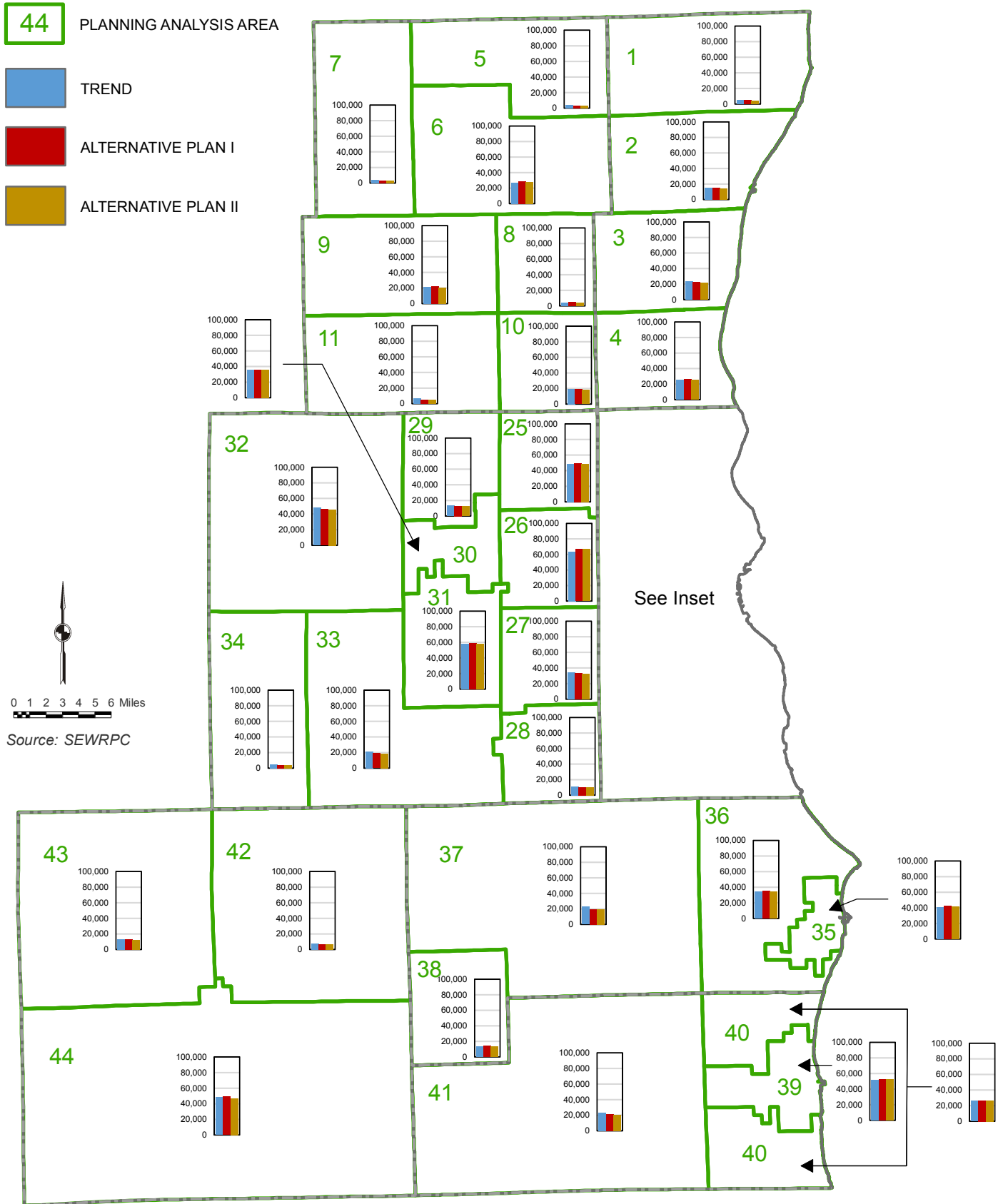


Source: SEWRPC

Source: SEWRPC.

Attachment 1 (continued)

TOTAL EMPLOYMENT BY PLANNING ANALYSIS AREA: 2050

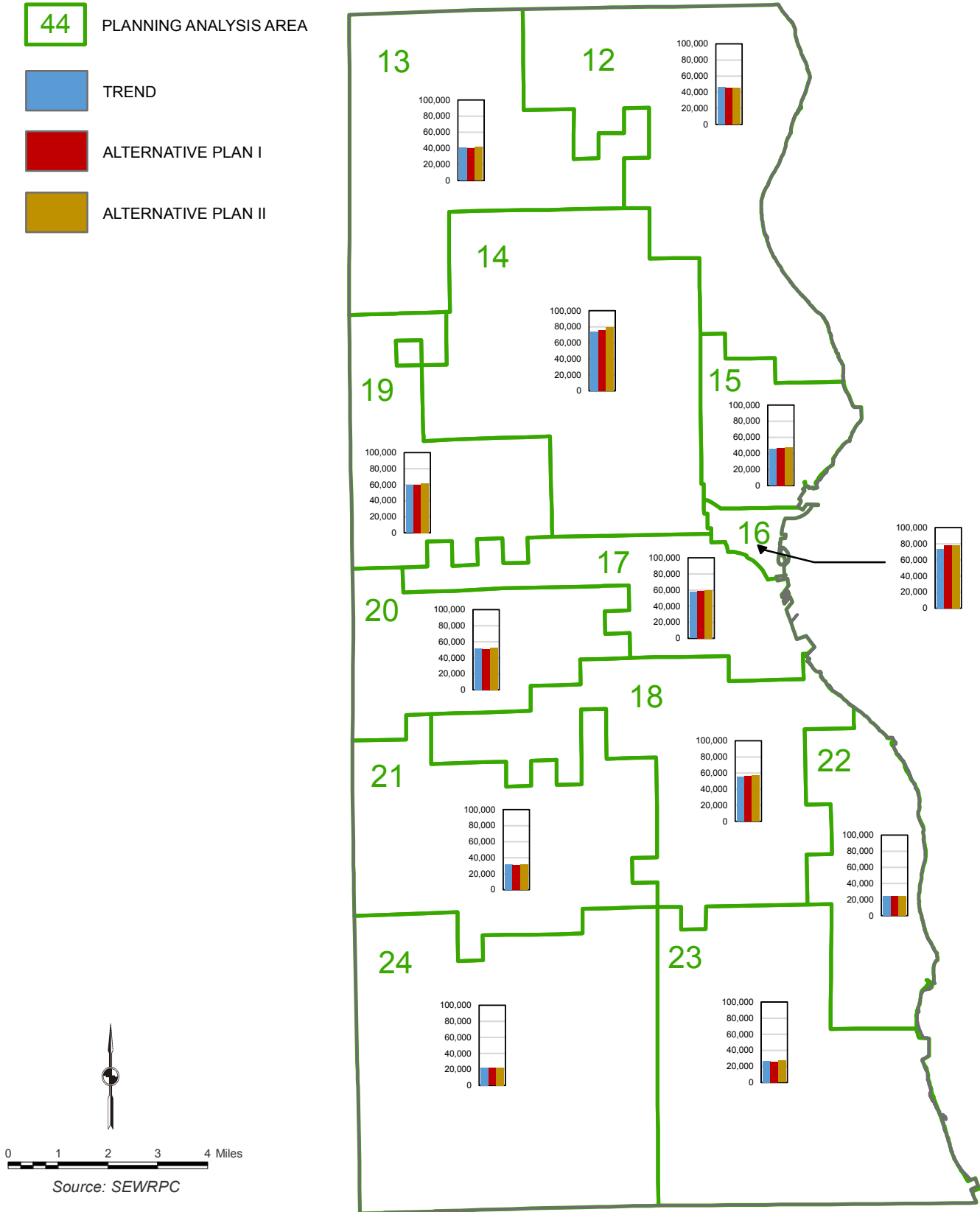


Source: SEWRPC.

Attachment 1 (continued)

Milwaukee County Inset

TOTAL EMPLOYMENT BY PLANNING ANALYSIS AREA: 2050



Source: SEWRPC.

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CRITERION 1.4.4: GREENHOUSE GAS EMISSIONS AND OTHER AIR POLLUTANTS**KEY CONCLUSIONS**

- Transportation air pollutant emissions are projected to significantly decline from current levels due to Federal fuel and vehicle fuel economy standards and improved vehicle emissions controls, even with forecast increases in regional travel and traffic.
- Transportation air pollutant emissions are lowest under Alternative II, generally about 1 to 2 percent lower than the Trend. Transportation air pollutant emissions under Alternative I are generally less than 1 percent lower than the Trend.
- Residential development would be projected to result in less greenhouse gas emissions under Alternative II. The CO₂ emissions per household added to the Region through the year 2050 would be 12 percent less than under the Trend, and 7 percent less than under Alternative I.

Reducing air pollution caused by human activity is important to not only ensure the health and welfare of the Region's residents, but it also can have the added benefit of reducing unintended economic impacts caused by the effects of air pollutants. These impacts include the accelerated deterioration of building facades and structures, crop damage, water quality impacts, elevated pollutant levels in fish and wildlife, and increased hospital visits by sensitive individuals. In addition, assessments by the Intergovernmental Panel on Climate Change (IPCC) suggest that the Earth's climate has warmed by 1.53°F over the past 130 years. Studies have linked this increase in the average surface temperature of the Earth to an increase in greenhouse gas (GHG)¹ concentrations observed in the atmosphere. Rising temperatures have been linked to changes in precipitation patterns, storm severity, and sea levels. These conditions are collectively referred to as climate change, which is described in more detail under Criterion 1.4.6 (Ability to Address Issues Related to Climate Change). IPCC assessments also suggest that human activity is an important factor in climate change, with GHG emissions caused by human activity coming primarily from the burning of fossil fuels.

The EPA also establishes human health-based and/or environmentally-based National Ambient Air Quality Standards (NAAQS) for a number of "criteria" pollutants. Nonattainment areas are defined based on a monitored pollutant level exceeding the relevant NAAQS. A plan is then prepared to describe the specific actions a nonattainment area will take to achieve the NAAQS. Once an area achieves the NAAQS, a plan is prepared to show what actions the area will take to ensure continued maintenance of the NAAQS and the area is redesignated as a maintenance area. Once designated as either nonattainment or maintenance, an analysis must be prepared to show that the regional transportation plan will not prevent an area from either achieving or maintaining the relevant NAAQS. Within Southeastern Wisconsin, Milwaukee, Racine, and Waukesha Counties are currently designated as a PM_{2.5} (fine particulate matter) maintenance area and Kenosha County east of IH 94 is designated as an ozone (O₃) nonattainment area.² In addition to GHG and criteria pollutants, there are several

¹ A greenhouse (GHG) allows sunlight to enter the Earth's atmosphere, but prevents heat from escaping. Examples of important GHGs include carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O).

² As pollutant levels and the standards themselves change over time, areas identified as meeting or not meeting a standard can also change. EPA periodically updates standards for criteria pollutants based on current research on the impacts of each pollutant. These updates have typically resulted in more stringent standards. Most recently, on October 1, 2015, EPA set more stringent standards for ground-level ozone. While the exact impacts are unknown, based on current monitor data it is anticipated that under the new

Attachment 2 (continued)

additional transportation-related air pollutants, referred to as “mobile source air toxics.” These air toxics are known or suspected to cause cancer or other serious health effects, such as reproductive effects, birth defects, or adverse environmental effects.

Scientific studies have indicated that air pollution exposure can be a trigger for a variety of health issues, including premature death in people with heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravation of asthma, decreased lung function, and increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing. In addition, as fine particles travel and settle, they can have other environmental impacts, such as increasing lake and stream acidity; changing the nutrient balance in coastal waters and large river basins; depleting the nutrients in soil; damaging sensitive forests and farm crops; and affecting the diversity of ecosystems.

The following describes how each of the alternatives address the reduction of the various pollutants described above.

- **Transportation:** From a transportation perspective, Federal standards on the sulfur content in fuel, and vehicle fuel economy and improved vehicle emissions controls have been the primary drivers in the reduction of vehicle-related air pollution. Estimated air pollutant and air toxic emissions have declined in recent years due to cleaner, more efficient vehicles and lower sulfur fuels. Based on the current Federal standards, which are assumed to be the same under all three alternatives, fuels are expected to continue to become cleaner and vehicles are expected to become more fuel efficient, resulting in the continued significant decline of transportation-related emissions. As discussed under Criterion 1.4.3 (Energy Use), the average fuel economy of the Region’s vehicle fleet is anticipated to increase from 23.4 mpg in 2015 to 43.5 mpg by 2050.

Two transportation-related criteria pollutants of particular concern in Southeastern Wisconsin are ozone and PM_{2.5}. Depending on its location in the atmosphere, ozone can be good (located in the upper atmosphere) or bad (located at ground level) for people’s health and for the environment. The primary pollutants from motor vehicles are unburned volatile organic compounds (VOCs), nitrogen oxides (NO_x), and carbon monoxide (CO). VOCs and NO_x emissions can combine in a complex series of reactions, catalyzed by sunlight, to produce photochemical oxidants, including ozone. The focus on monitoring and regulating ozone, since it is a byproduct of a photochemical reaction, is on its precursors, VOCs and NO_x.

Table F-8 presents existing and future levels for a range of criteria pollutants, mobile source air toxics, and GHG emissions. Levels were estimated using MOVES2014, EPA’s most recent emission modeling system for transportation sources. Given the expected downward trend in transportation-related emissions, there is a relatively large difference between existing and future levels for several emission types, regardless of the alternative. Between the alternatives, the differences are comparatively small, but the variations in the development pattern and transportation system still have an impact. Alternatives I and II would further reduce transportation-related GHG emissions by providing more transportation options as alternatives to driving and the more compact development patterns envisioned in Alternatives I and II would also reduce the distance required to travel. This would reduce the length of auto trips, make public transit a more viable alternative to driving, and encourage biking and walking trips, all of which would reduce transportation-related emissions.

ozone standards more areas within Southeastern Wisconsin and throughout the State will be designated as not attaining the new standards.

Table F-8
Transportation-related Greenhouse Gas Emissions and Other Air Pollutants

Pollutant Name	Type	Average Annual Emissions from Transportation Sources (tons)			
		Existing (2010)	Trend (2050)	Alt I (2050)	Alt II (2050)
Carbon Dioxide (CO ₂)	GHG	10,435,000	7,369,000	7,232,000	7,189,000
Methane (CH ₄) (in CO ₂ equivalents)	GHG	10,200	8,400	8,200	8,200
Nitrous Oxide (N ₂ O) (in CO ₂ equivalents)	GHG	100,300	35,200	34,500	34,300
Carbon Monoxide (CO)	Criteria	124,200	26,400	26,000	25,700
Fine Particulate Matter (PM _{2.5})	Criteria	1,382	231	226	226
Sulfur Dioxide (SO ₂)	Criteria and precursor for PM _{2.5}	182	54	53	53
Nitrogen Oxides (NO _x)	Precursor for Ozone/PM _{2.5}	28,460	3,640	3,580	3,570
Volatile Organic Compounds (VOC)	Precursor for Ozone/PM _{2.5}	12,740	2,120	2,070	2,060
Acetaldehyde (C ₂ H ₄ O)	Air toxic	150	30	30	30
Acrolein (C ₃ H ₄ O)	Air toxic	15	3	3	3
Ammonia (NH ₃)	Air toxic	704	480	471	468
Benzene (C ₆ H ₆)	Air toxic	309	33	32	32
Butadiene (C ₄ H ₆)	Air toxic	47	4	3	3
Formaldehyde (CH ₂ O)	Air toxic	233	68	66	66

- Building Type and Development Pattern:** The alternatives with more compact development patterns and that provide for more multifamily housing would reduce the amount of energy used by the Region's households, and in doing so would also reduce air pollutant emissions. Multifamily housing tends to be more energy efficient than single-family housing because multifamily housing units typically have shared ceilings/floors and walls. About 26.1 tons of CO₂ (per year in the year 2050) would be produced per household added under the Trend (25 percent multifamily housing units), based on structure type and the primary sources of energy used by electrical power plants in the Region. Alternative I (39 percent multifamily housing units) and Alternative II (46 percent multifamily housing units) perform somewhat better at 24.3 tons and 23.3 tons of CO₂ produced per new household (per year in the year 2050), respectively.³ The alternatives compare similarly regarding the amount of other GHG emissions and air pollutants produced by the energy used per new household.

* * *

For staff use

Table F-8: #224299 (tab 1.4.4)

³ Emissions per housing unit are based on the end use energy consumed. End use refers to the energy content of electricity and other fuels at the point of use by customers, such as households.

**COMPARISON OF LOCATION OF CONCENTRATIONS OF YEAR 2010
RACES/ETHNICITIES IN THE REGION TO PUBLIC TRANSIT ELEMENT: EXISTING**

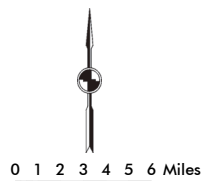
1 DOT REPRESENTS 25 PEOPLE

- WHITE ALONE, NOT HISPANIC
- BLACK ALONE, NOT HISPANIC
- ASIAN ALONE, NOT HISPANIC
- SOME OTHER RACE ALONE, OR TWO OR MORE RACES NOT HISPANIC
- HISPANIC

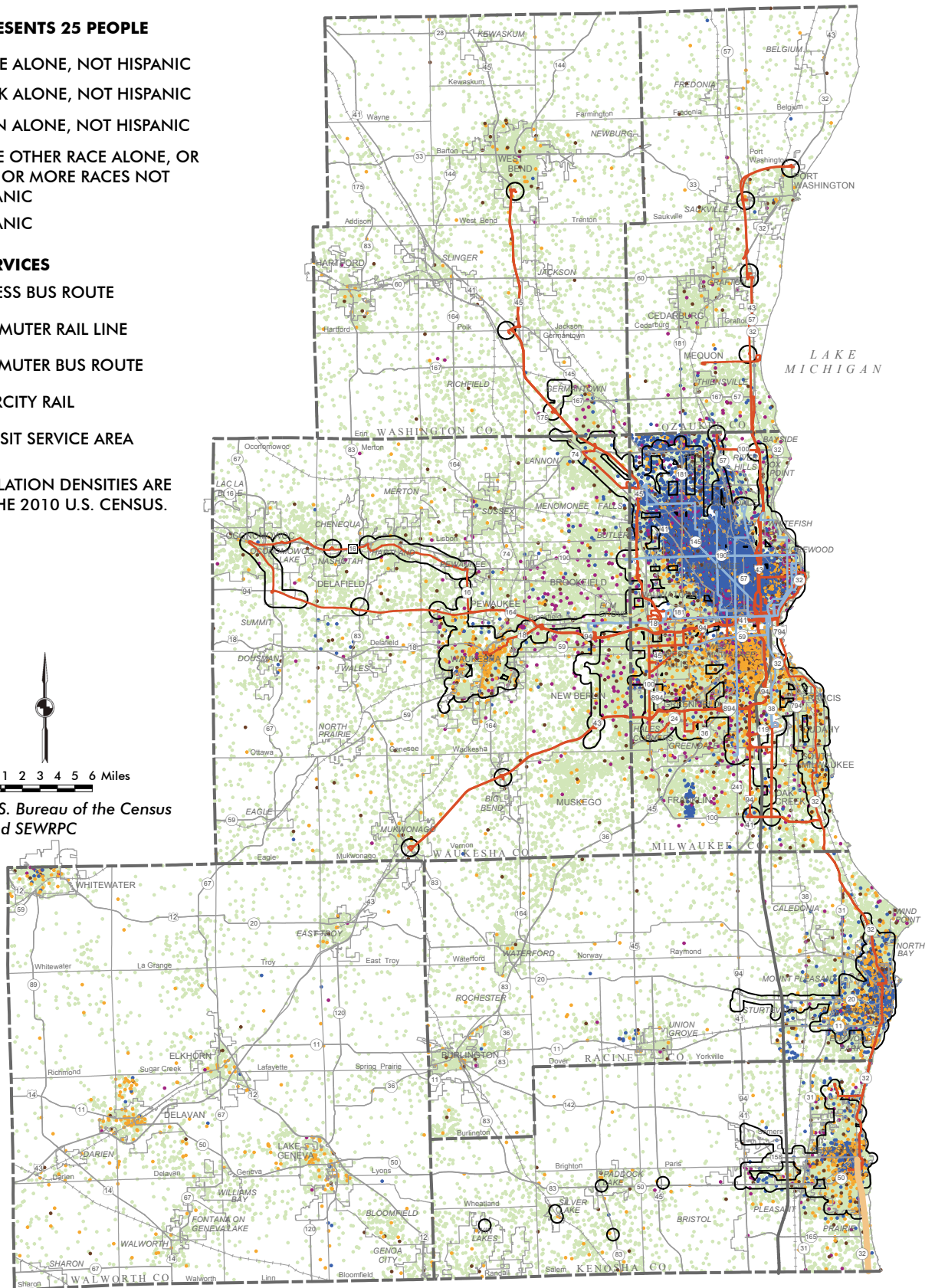
TRANSIT SERVICES

- EXPRESS BUS ROUTE
- COMMUTER RAIL LINE
- COMMUTER BUS ROUTE
- INTERCITY RAIL
- TRANSIT SERVICE AREA

NOTE: POPULATION DENSITIES ARE
BASED ON THE 2010 U.S. CENSUS.



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



Attachment 3 (continued)

COMPARISON OF LOCATION OF CONCENTRATIONS OF YEAR 2010 RACES/ETHNICITIES IN THE REGION TO PUBLIC TRANSIT ELEMENT: TREND

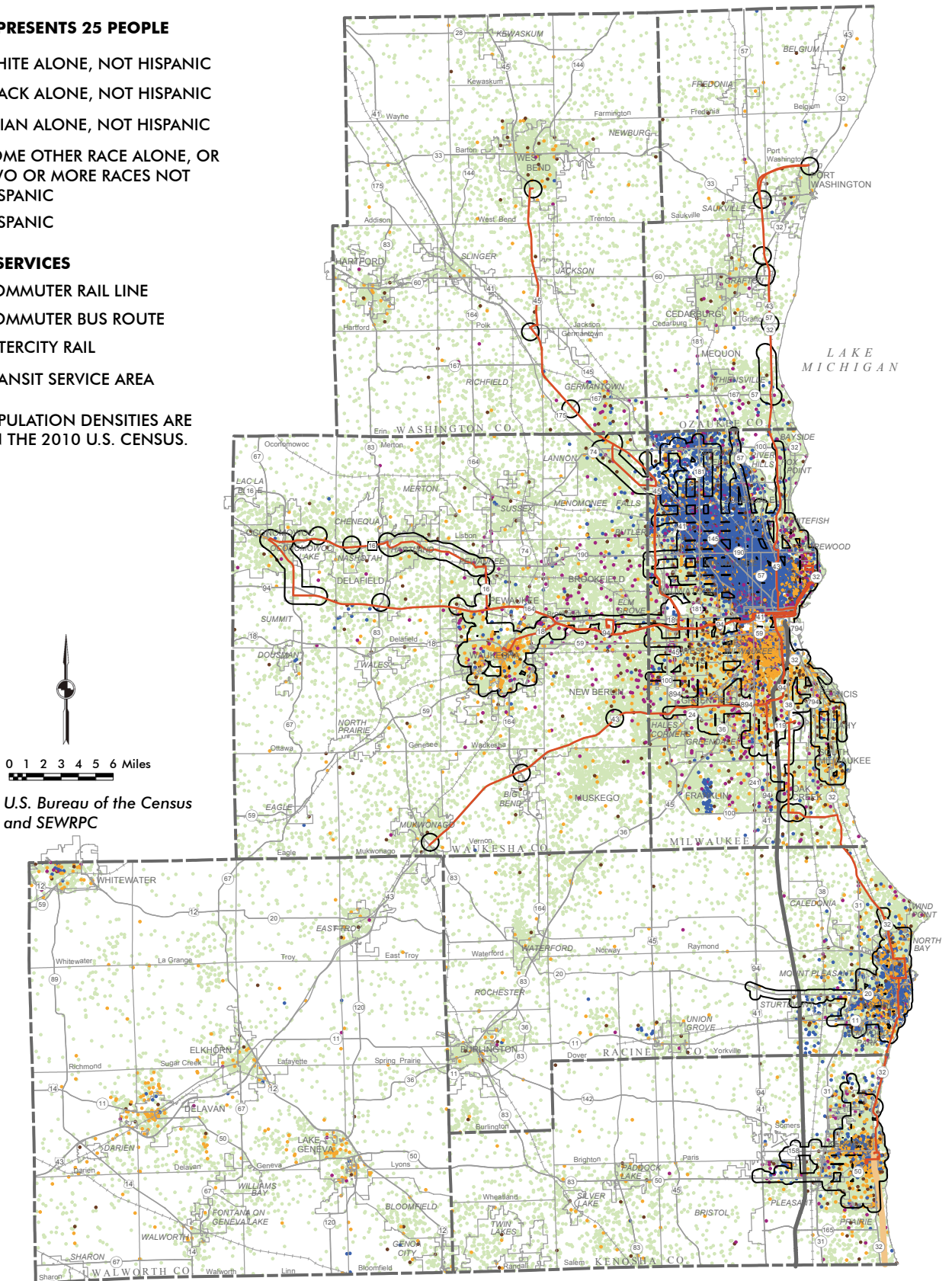
1 DOT REPRESENTS 25 PEOPLE

- WHITE ALONE, NOT HISPANIC
- BLACK ALONE, NOT HISPANIC
- ASIAN ALONE, NOT HISPANIC
- SOME OTHER RACE ALONE, OR TWO OR MORE RACES NOT HISPANIC
- HISPANIC

TRANSIT SERVICES

- COMMUTER RAIL LINE
- COMMUTER BUS ROUTE
- INTERCITY RAIL
- TRANSIT SERVICE AREA

NOTE: POPULATION DENSITIES ARE BASED ON THE 2010 U.S. CENSUS.



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

Attachment 3 (continued)

COMPARISON OF LOCATION OF CONCENTRATIONS OF YEAR 2010 RACES/ETHNICITIES IN THE REGION TO PUBLIC TRANSIT ELEMENT: ALTERNATIVE I

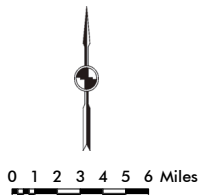
1 DOT REPRESENTS 25 PEOPLE

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- BLACK ALONE, NOT HISPANIC
- ASIAN ALONE, NOT HISPANIC
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- HISPANIC

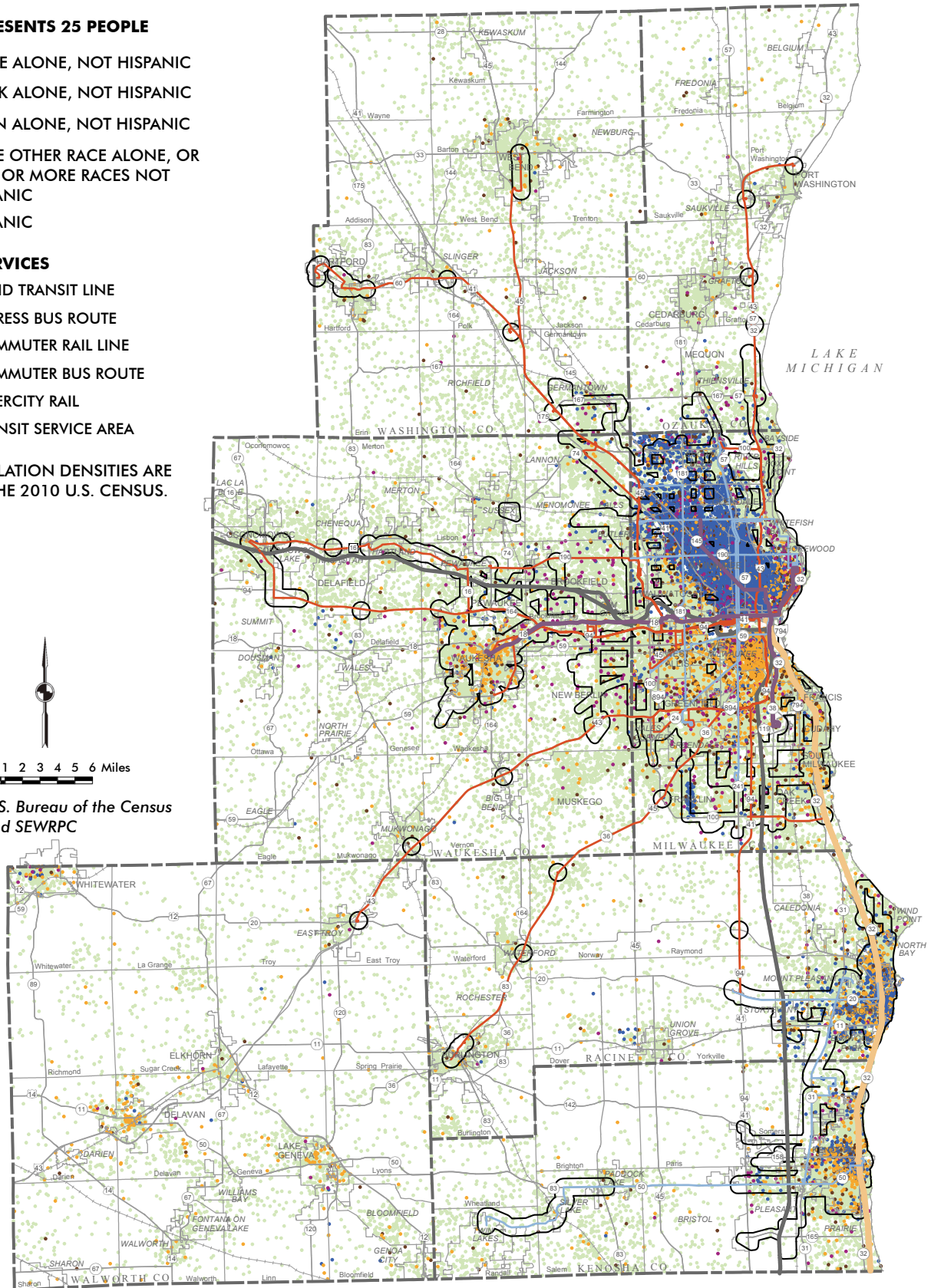
TRANSIT SERVICES

- RAPID TRANSIT LINE
- EXPRESS BUS ROUTE
- COMMUTER RAIL LINE
- COMMUTER BUS ROUTE
- INTERCITY RAIL
- TRANSIT SERVICE AREA

NOTE: POPULATION DENSITIES ARE BASED ON THE 2010 U.S. CENSUS.



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



Attachment 3 (continued)

COMPARISON OF LOCATION OF CONCENTRATIONS OF YEAR 2010 RACES/ETHNICITIES IN THE REGION TO PUBLIC TRANSIT ELEMENT: ALTERNATIVE II

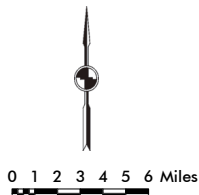
1 DOT REPRESENTS 25 PEOPLE

- WHITE ALONE, NOT HISPANIC
- BLACK ALONE, NOT HISPANIC
- ASIAN ALONE, NOT HISPANIC
- SOME OTHER RACE ALONE, OR TWO OR MORE RACES NOT HISPANIC
- HISPANIC

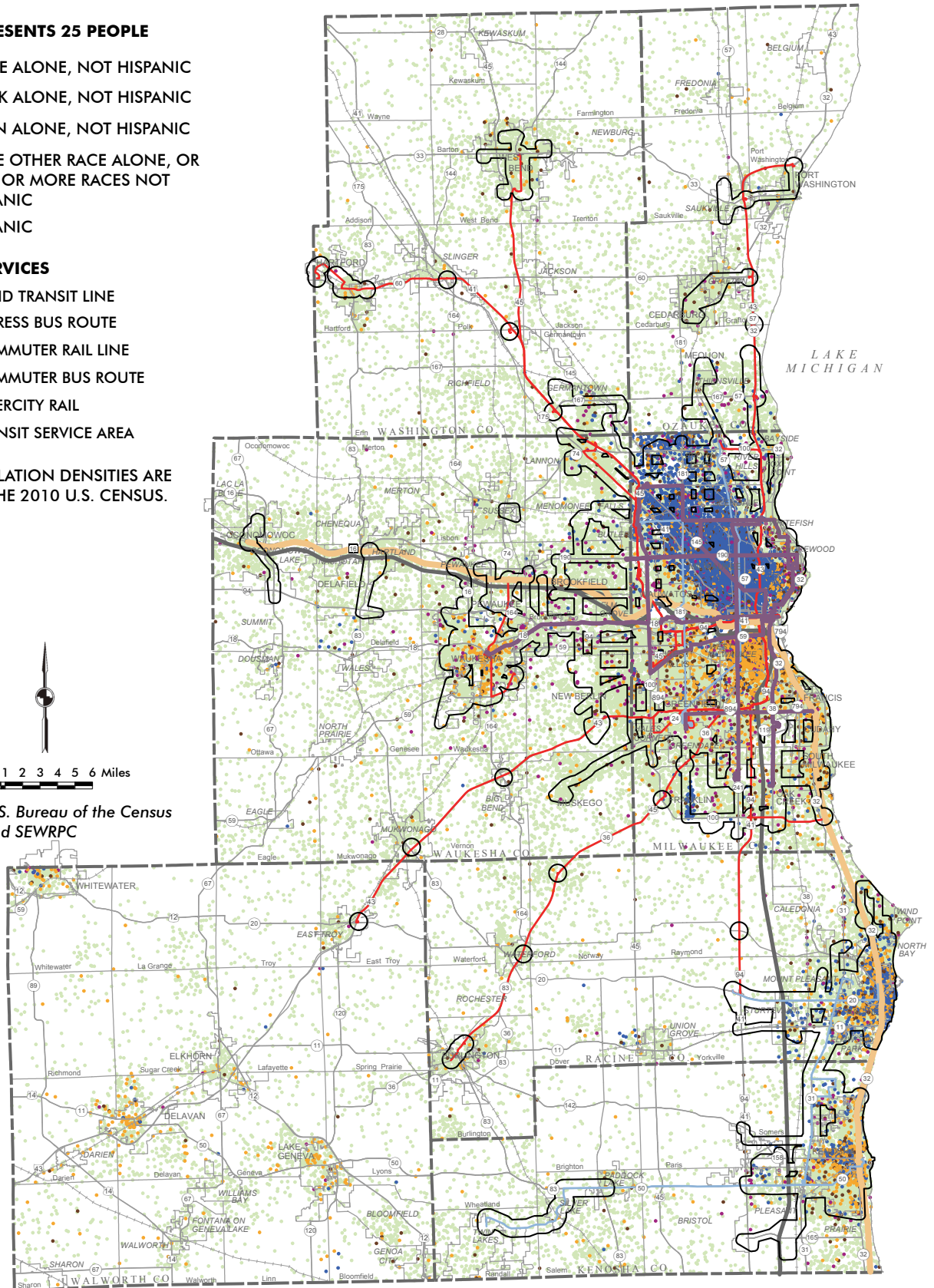
TRANSIT SERVICES

- RAPID TRANSIT LINE
- EXPRESS BUS ROUTE
- COMMUTER RAIL LINE
- COMMUTER BUS ROUTE
- INTERCITY RAIL
- TRANSIT SERVICE AREA

NOTE: POPULATION DENSITIES ARE BASED ON THE 2010 U.S. CENSUS.



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



Attachment 3 (continued)

COMPARISON OF LOCATION OF CONCENTRATIONS OF YEAR 2010 RACES/ETHNICITIES IN THE REGION TO HIGHWAY ELEMENT: TREND

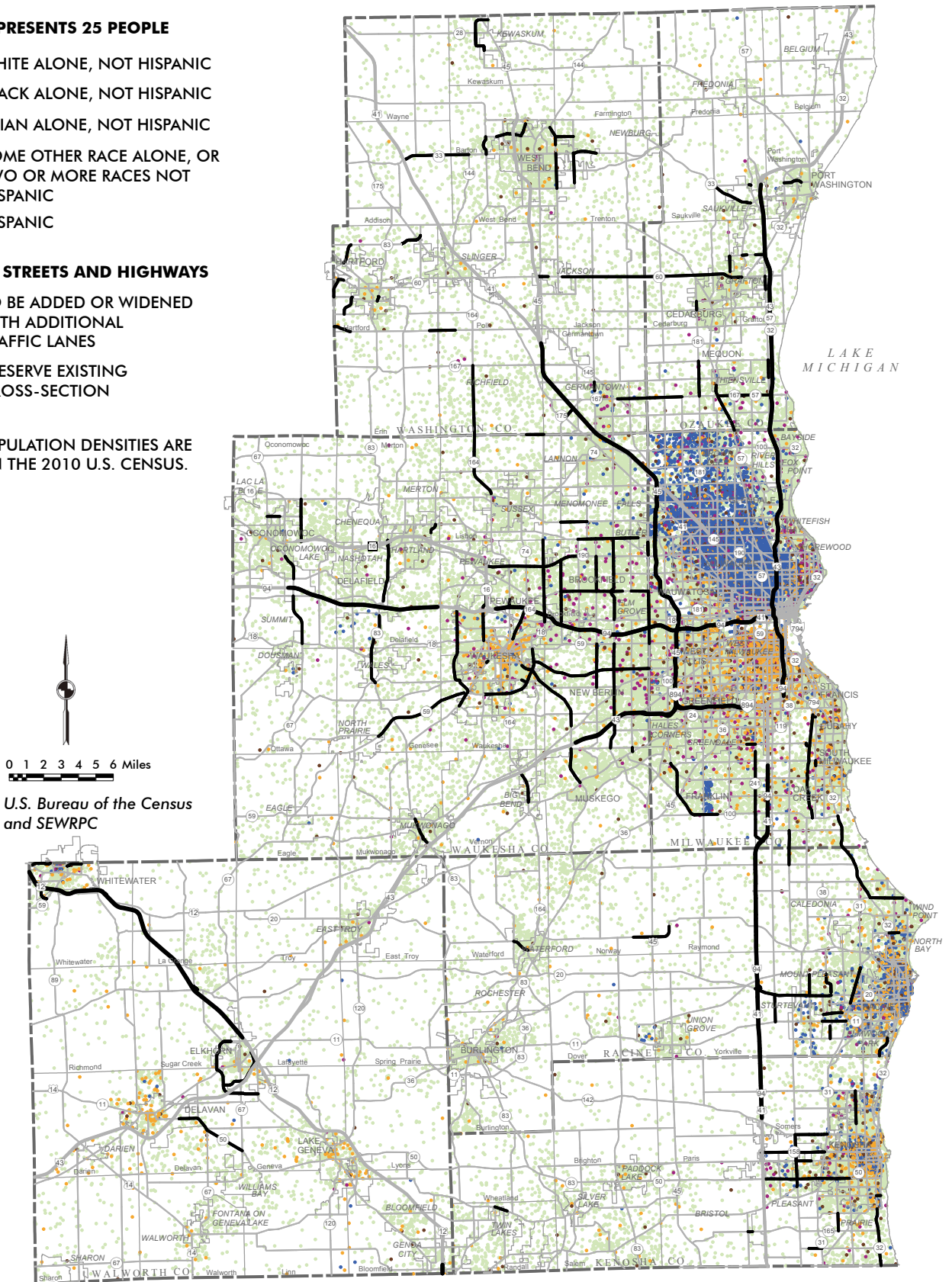
1 DOT REPRESENTS 25 PEOPLE

- WHITE ALONE, NOT HISPANIC
- BLACK ALONE, NOT HISPANIC
- ASIAN ALONE, NOT HISPANIC
- SOME OTHER RACE ALONE, OR TWO OR MORE RACES NOT HISPANIC
- HISPANIC

ARTERIAL STREETS AND HIGHWAYS

- TO BE ADDED OR WIDENED WITH ADDITIONAL TRAFFIC LANES
- PRESERVE EXISTING CROSS-SECTION

NOTE: POPULATION DENSITIES ARE BASED ON THE 2010 U.S. CENSUS.



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

Attachment 3 (continued)

COMPARISON OF LOCATION OF CONCENTRATIONS OF YEAR 2010 RACES/ETHNICITIES IN THE REGION TO HIGHWAY ELEMENT: ALTERNATIVE I

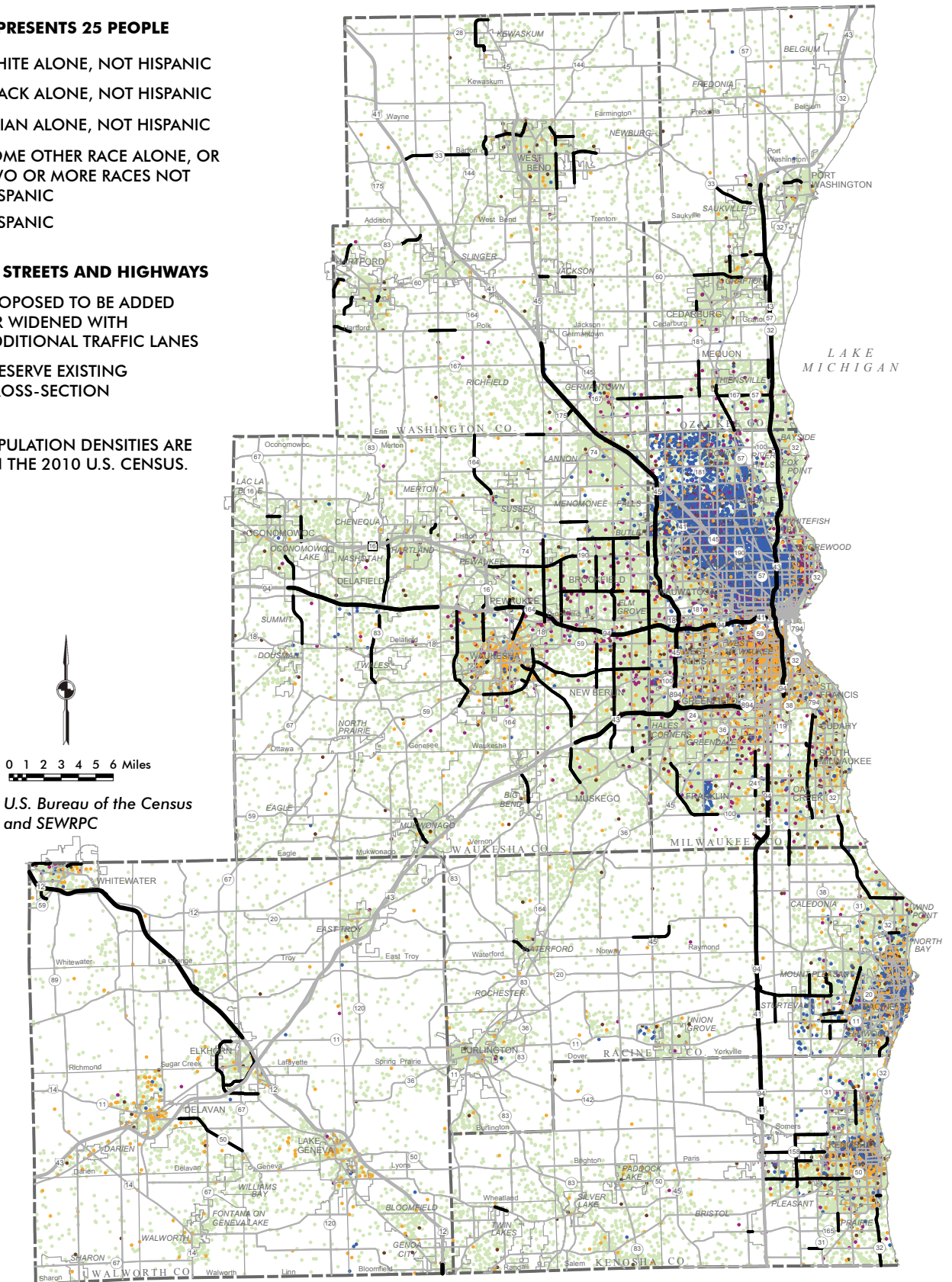
1 DOT REPRESENTS 25 PEOPLE

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- ASIAN ALONE, NOT HISPANIC
- SOME OTHER RACE ALONE, OR TWO OR MORE RACES NOT HISPANIC
- HISPANIC

ARTERIAL STREETS AND HIGHWAYS

- PROPOSED TO BE ADDED OR WIDENED WITH ADDITIONAL TRAFFIC LANES
- PRESERVE EXISTING CROSS-SECTION

NOTE: POPULATION DENSITIES ARE BASED ON THE 2010 U.S. CENSUS.



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

Attachment 3 (continued)

COMPARISON OF LOCATION OF CONCENTRATIONS OF YEAR 2010 RACES/ETHNICITIES IN THE REGION TO HIGHWAY ELEMENT: ALTERNATIVE II

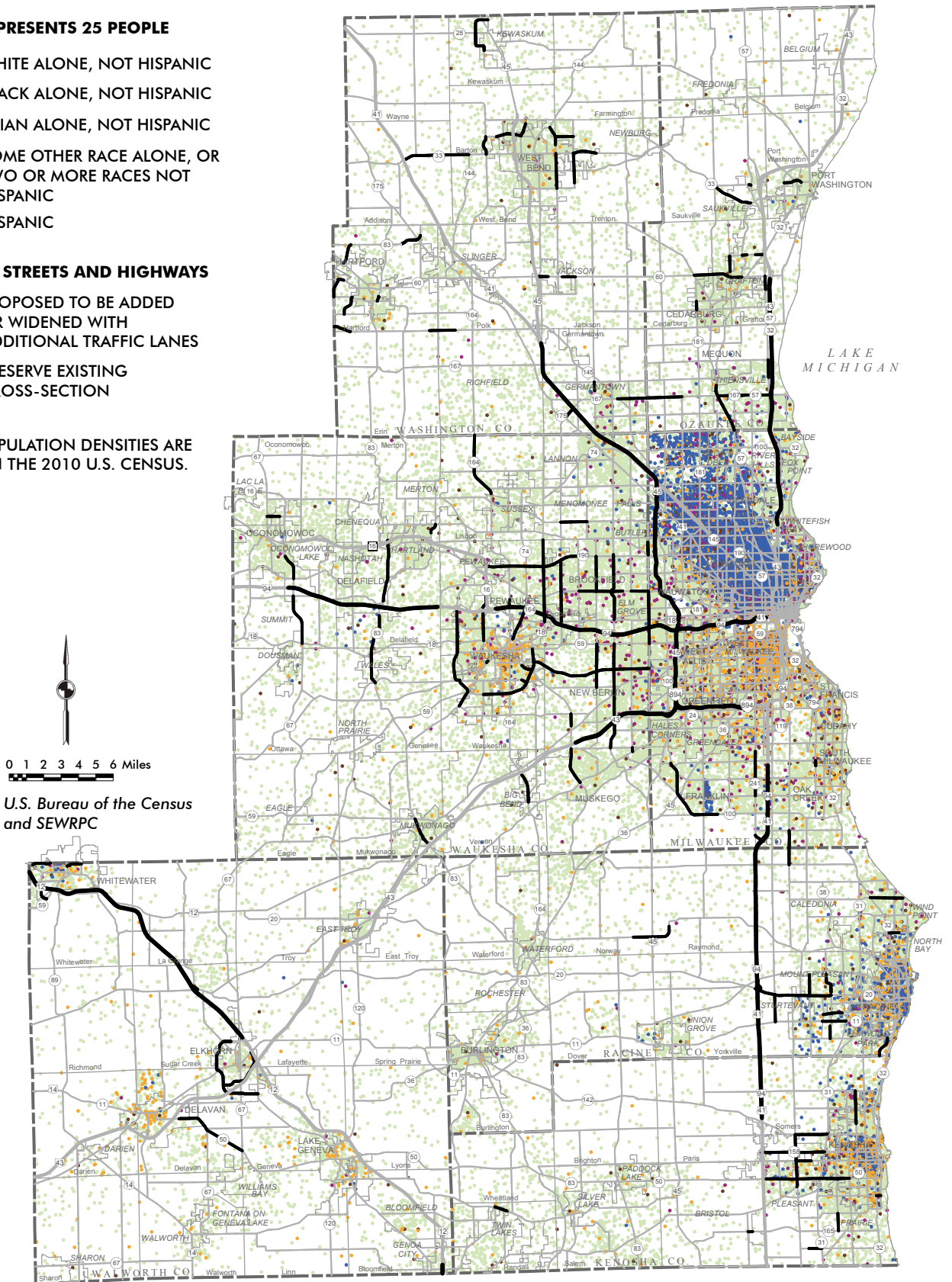
1 DOT REPRESENTS 25 PEOPLE

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- HISPANIC

ARTERIAL STREETS AND HIGHWAYS

- PROPOSED TO BE ADDED OR WIDENED WITH ADDITIONAL TRAFFIC LANES
- PRESERVE EXISTING CROSS-SECTION

NOTE: POPULATION DENSITIES ARE BASED ON THE 2010 U.S. CENSUS.



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

CRITERION 3.1.1: IMPACT OF THE DISTRIBUTION OF GROWTH ON PROPERTY VALUES**KEY CONCLUSIONS**

- Areas with TOD and walkable neighborhoods have seen increases in property values in other regions. There would be a significant increase in TODs and walkable areas under Alternative Plans I and II over the Trend. Alternative II could have more than twice as many TODs as Alternative I.
- Increased property values can result in increased housing costs.
- The public service costs of farmland are low compared to scattered lower-density residential development.
- Compact development or redevelopment provides an opportunity for communities with little developable land to increase their tax base.

The alternatives are designed to accommodate the year 2050 population, household, and employment projected by the Commission. While the alternatives accommodate the same amount of growth regionwide, the development patterns and transportation systems designed to serve this growth vary between alternatives. The Trend represents a continuation of overall decline in density across the Region. Alternatives I and II include more compact, walkable development than the Trend with a focus on TOD around fixed-guideway transit stations. Alternative II includes more than twice as many station areas as Alternative I.

- **Development in Urban Areas:** The change in TODs and walkable areas under Alternatives I and II is expected to impact property values in those areas. There would be very few fixed-guideway transit station areas that could support TOD under the Trend. In addition, fewer of the Region's residents (724,600) would live in walkable neighborhoods under the Trend than Alternatives I and II. There would be 65 rapid transit stations and nine commuter rail stations that could potentially support TOD under Alternative I, and 769,500 residents would live in walkable neighborhoods. There would be 185 rapid transit stations and 18 commuter rail stations that could potentially support TOD under Alternative Plan II, and 863,100 residents would live in walkable neighborhoods.

Studies acknowledge that it is difficult to determine the exact impact of transit stations on development potential and property values within a station area in light of other factors such as the overall strength of the local and regional real estate market; strength of the economy/job market; and other planning and development initiatives. Despite this uncertainty, a number of previous studies in metropolitan areas with fixed-guideway transit networks have shown a range of property value increases in station areas. Three examples include:

- 2 to 18 percent for condominiums within a ½ mile of a station (San Diego)
- 15 percent for office development within a ½ mile of a station (Santa Clara County)
- 30 percent for retail development within ¼ mile of a station (Dallas)

Studies have also found that walkable neighborhoods have a positive impact on residential property values. A 2009 CEOs for Cities study of 15 metropolitan areas found that homes in areas with above average walkscores sell for \$4,000 (Dallas) to \$34,000 (Sacramento) more than comparable homes in areas with average walkscores.

- **Challenges:** Housing costs may increase as a result of increased property values. This increase is of particular concern for redevelopment in areas with concentrations of low-income

Attachment 4 (continued)

households, as it may lead to the displacement of existing residents of a neighborhood if it becomes unaffordable for them to stay. Displacement may be one of the elements of a phenomena commonly referred to as gentrification, which has been studied in detail by many experts for decades.

Unfortunately, the conclusions of those decades of research are mixed, and occasionally contradictory. Some studies indicate displacement due to housing in a neighborhood becoming unaffordable is relatively rare, occurring at a rate of about one percent of longtime residents per year, while others find a displacement rate of up to 10 percent in some cities with significant economic growth and high demand for urban living. In addition, there is some evidence that in areas where local governments relax limitations on the height and density of new developments within certain areas of high demand, nearby neighborhoods experience less gentrification, new development, and displacement.

Some strategies for encouraging mixed-income housing in compact, walkable redevelopment areas include:

- Density bonus and reduced parking requirements as incentives for affordable housing
 - Incentives to use Low Income Housing Tax Credits in TODs
 - Public/private partnerships through options including acquiring and assembling land, streamlining rezoning and permitting processes, and assistance with brownfield mitigation grants
 - Developing enough new housing and preserving existing affordable housing to meet the potential demand (a review of nationwide studies conducted for the FTA estimates that demand for housing in transit station areas could grow 150 percent by 2030)
- **Development in Rural Areas:** The public service costs of farmland are low compared to scattered lower-density residential development. In general, the tax returns to a community from farms are greater than the public service and facilities costs that farms require. Costs to provide public services and facilities to scattered residential development generally exceed tax revenues. Converting productive farmland can increase the cost of public services and impact a community's character. There would be significantly more farmland converted to urban development under the Trend (77 square miles) than Alternative I (32 square miles) or Alternative Plan II (26 square miles).
- **Levy Limits:** The emphasis on compact development in Alternatives I and II may also have a positive impact on community property tax revenues, particularly in communities that have very little developable land. A community is allowed to increase its levy over the amount it levied in the prior year by the percentage of increase in equalized value from net new construction with few exceptions. If no new construction occurred in a community, then the allowable tax levy increase is zero percent.¹ Compact development or redevelopment provides an opportunity for communities with otherwise very little developable land to maximize the amount of new construction that may occur.

* * *

¹ *League of Wisconsin Municipalities.*

CRITERION 4.4.2: TRAVEL TIME DELAY

KEY CONCLUSIONS

- Alternative I would be expected to result in the lowest average annual minutes of travel time delay for total personal and commercial travel in the Region (1,467 million minutes), about 4 percent lower than the Trend (1,473 million minutes) and 6 percent lower than Alternative II (1,554 million minutes).

The estimated minutes of travel time delay¹ under each alternative are largely influenced by the number of average weekday trips for each transportation mode and the level of congestion on the arterial street and highway system (congested roadway conditions increase the time it takes to travel). As described in Criterion 4.1.1 (Trips per Day by Mode), the average number of weekday automobile trips is expected to increase under all three alternatives, with automobile trips continuing to account for the vast majority of trips made in the Region. The average number of weekday trips using transit is expected to decline from existing levels under the Trend, but is expected to substantially increase under Alternatives I and II (46 percent and 61 percent increase compared to the Trend, respectively). As described in Criterion 4.4.1 (Congestion on Arterial Streets and Highways), **congestion and associated travel time delays in the Region are relatively low compared to other midwest metro areas and metro areas across the nation, and have increased slower than nearly all other metro areas over the last 30 years.**² Criterion 4.4.1 also estimated that Alternative I would be expected to have the least overall congestion on the arterial street and highway system, followed by the Trend, and then Alternative II.

Table F-50 presents a comparison of estimated minutes of travel time delay (both on an average weekday and on an average annual basis³), for automobile, transit, and commercial travel under existing conditions, the Trend, and Alternatives I and II. Also included in Table F-50 are the estimated minutes of travel time delay with the highway improvements under Alternatives I and II not being implemented, except for committed highway improvements and freeway modernization.

- Total Travel:** Alternative I would be expected to result in the lowest average annual minutes of travel time delay for total personal and commercial travel in the Region (1,467 million minutes), about 4 percent lower than the Trend (1,473 million minutes) and 6 percent lower than Alternative II (1,554 million minutes). The lower average annual minutes of travel time delay under Alternative I is a result of a combination of this alternative proposing more arterial street and highway expansion than Alternative II and proposing more compact land use development and transit service expansion than the Trend. Not including highway improvements (except for currently committed projects) under Alternative I and Alternative II would be expected to increase average annual minutes of travel time delay under these alternatives by about 41 percent and 32 percent, respectively.
- Automobile Travel:** Alternative I would be expected to result in the lowest average annual minutes of travel time delay for automobile travel in the Region (1,154 million minutes), about 4 percent lower than the Trend (1,198 million minutes) and 6 percent lower than Alternative II (1,234 million minutes). Similar to total travel, the lower average annual minutes of travel time delay for automobile travel under Alternative I is a result of a combination of this alternative

¹ Travel time delay is defined as the difference in travel time between congested and uncongested conditions.

² SEWRPC Memorandum Report No. 221, A Comparison of the Milwaukee Metropolitan Areas to Its Peers, May 2015.

³ Average annual delay is based on average weekday delay multiplied by the number of weekdays in a year.

CRITERION 4.5.1: ACCESS TO TRANSIT

KEY CONCLUSIONS

- Alternative II provides the most residents with access to transit and makes the most jobs accessible via transit when compared to Alternative I and the Trend.
- 60 percent of the Region's population would be a short walk from transit under Alternative II, while 56 percent and 44 percent of the Region's population would be a short walk from transit under Alternative I and the Trend, respectively.
- Alternative II provides transit riders access to 74 percent of the Region's jobs via transit, while Alternative I serves 70 percent and the Trend serves 52 percent of the Region's jobs with transit.

Access to transit service provides choices to residents of the Region, allowing them to travel farther distances than they could by walking or biking, and providing an alternative to driving. In addition to giving residents of the Region an additional choice for travel, there are numerous other benefits associated with transit. Studies have shown that:

- Employers with transit service to their business experience lower employee turnover rates;
- Transit service in mid- to large-sized metropolitan areas provides significant congestion relief;
- People with access to reliable transit service are less likely to forgo healthcare appointments and therefore transit service lowers society's overall healthcare costs; and
- Household costs associated with transportation are significantly lower for households that replace one or more personal automobiles with transit use.

In addition to providing an alternative to driving for many residents of the Region, access to transit service is vitally important for residents who don't own their own car. About 1 in 10 households in the Region do not have any cars, and for the residents of those households, access to transit means access to jobs, healthcare, education, retail centers, and recreation.

The Region has historically had among the highest transit service levels per capita compared to other midwest metro areas and metro areas across the nation, but it has experienced among the most severe declines in transit service and ridership—20 percent and 40 percent, respectively, since 2000—compared to its peers.¹ Currently, about 55 percent of the Region's residents have access via a short walk to fixed-route transit such as a local bus route or a commuter service from a suburban community to downtown Milwaukee. About 63 percent of the Region's jobs are accessible via current transit services, an amount recently increased by new bus routes to suburban job centers. Of the three alternatives, Alternative II has the most extensive transit service and the most compact land use development pattern, which results in the best access to transit for the Region's residents, and the best access to jobs via transit among the alternatives (as shown in Table F-57). More than 300,000 more people would have access to fixed-route transit and nearly 300,000 more jobs would be accessible by transit under this alternative than in 2015.

Alternative I would stop the Region's decline in urban density and expand transit service, resulting in approximately 230,000 more people in the Region with access to transit and 230,000 additional jobs being accessible via transit than in 2015. In contrast, under the Trend, the declines in urban density seen in recent decades would continue and transit service would decline due to the limitations of reasonably expected future funds to support transit. Therefore, the Trend results in slight decreases in people with

¹ SEWRPC Memorandum Report No. 221, A Comparison of the Milwaukee Metropolitan Areas to Its Peers, May 2015.

Study Regarding Job Accessibility via Transit

A few studies compare job accessibility via transit across metropolitan areas in the United States, with the most recent, rigorous analysis produced by the University of Minnesota's Accessibility Observatory at the Center for Transportation Studies.¹ Using 2014 transit schedules and data from the U.S. Census Bureau's Longitudinal Employer-Household Dynamics program, the study's authors determined how many jobs are accessible via transit by 10, 20, 30, 40, 50, and 60 minutes to the average worker in 46 of the largest 50 metropolitan areas in the United States. Using this information, the study determined that the average worker in the Milwaukee metropolitan area has access to 19,216 jobs within a 30 minute journey via transit, which is 10th highest among the metropolitan areas included in the study. Table 3 from the study shows the rank of each metropolitan area included in the study by the number of jobs accessible via transit to the average worker under the six different time categories listed previously. The relatively high ranking of the Milwaukee area may be attributed to the comparatively higher density historic growth pattern within the metropolitan area, the continued strength of the downtown Milwaukee employment market, and the good base coverage provided by the transit systems within the metropolitan area. However, the decline of Milwaukee's rank as the length of travel time rises—from ninth in jobs accessible within 10 minutes to fourteenth in jobs accessible within 60 minutes—reflects the lack of speed provided by current transit services when compared to other metropolitan areas. Unfortunately, this information is not comparable to the analyses of job accessibility via transit across the Region completed by Commission staff for VISION 2050, but it does provide a good comparison of transit service and job density within the Milwaukee metropolitan area to other areas within the United States.

229727-1

¹ Owen, Andrew and Levinson, David. *Access Across America: Transit 2014*. Accessibility Observatory, Center for Transportation Studies, University of Minnesota: September 2014.

Attachment 6 (continued)

Table 3: Rank of Accessibility by Metropolitan Area, 2014

Rank	Weighted Average	10 min	20 min	30 min	40 min	50 min	60 min
1	New York	New York	New York	New York	New York	New York	New York
2	San Francisco	San Francisco	San Francisco	San Francisco	San Francisco	San Francisco	Los Angeles
3	Los Angeles	Boston	Boston	Boston	Washington	Los Angeles	San Francisco
4	Washington	Chicago	Chicago	Chicago	Los Angeles	Washington	Washington
5	Chicago	Washington	Washington	Washington	Chicago	Chicago	Chicago
6	Boston	Seattle	Los Angeles	Los Angeles	Boston	Boston	Boston
7	Philadelphia	Los Angeles	Philadelphia	Philadelphia	Philadelphia	Philadelphia	Philadelphia
8	Seattle	Philadelphia	Seattle	Seattle	Seattle	Seattle	San Jose
9	Denver	Milwaukee	Denver	Denver	Denver	San Jose	Seattle
10	San Jose	Denver	Milwaukee	Milwaukee	Portland	Denver	Denver
11	Portland	Portland	Portland	Portland	Milwaukee	Portland	Portland
12	Milwaukee	Miami	Miami	Minneapolis	San Jose	Baltimore	Baltimore
13	Minneapolis	San Diego	Minneapolis	San Jose	Minneapolis	Milwaukee	Minneapolis
14	Baltimore	Sacramento	San Jose	Miami	Baltimore	Minneapolis	Milwaukee
15	Miami	San Jose	Houston	Houston	Houston	Salt Lake City	Salt Lake City
16	Houston	Baltimore	San Diego	Baltimore	Miami	Houston	Houston
17	Salt Lake City	Providence	Baltimore	Salt Lake City	Salt Lake City	Miami	Miami
18	San Diego	Minneapolis	Salt Lake City	San Diego	San Diego	San Diego	San Diego
19	Phoenix	Pittsburgh	Sacramento	Pittsburgh	Pittsburgh	Phoenix	Phoenix
20	Sacramento	Houston	Pittsburgh	Sacramento	Phoenix	Las Vegas	Las Vegas
21	Dallas	Salt Lake City	Buffalo	Buffalo	Dallas	Dallas	Dallas
22	Pittsburgh	New Orleans	Hartford	Dallas	Sacramento	Sacramento	San Antonio
23	San Antonio	Dallas	Providence	Phoenix	San Antonio	San Antonio	Sacramento
24	Las Vegas	Austin	Dallas	San Antonio	Buffalo	Pittsburgh	St. Louis
25	Buffalo	Hartford	Columbus	Hartford	Las Vegas	Buffalo	Cleveland
26	Cleveland	Buffalo	New Orleans	Columbus	Cleveland	Cleveland	Pittsburgh
27	Columbus	Columbus	San Antonio	Cleveland	Columbus	St. Louis	Buffalo
28	St. Louis	Cleveland	Phoenix	New Orleans	St. Louis	Columbus	Atlanta
29	Hartford	San Antonio	Austin	Providence	Hartford	Atlanta	Columbus
30	Atlanta	St. Louis	Cleveland	Las Vegas	Atlanta	Hartford	Detroit
31	Providence	Kansas City	Raleigh	St. Louis	New Orleans	Detroit	Tampa
32	New Orleans	Nashville	St. Louis	Austin	Providence	Tampa	Hartford
33	Tampa	Charlotte	Las Vegas	Atlanta	Tampa	Charlotte	Indianapolis
34	Detroit	Phoenix	Kansas City	Tampa	Charlotte	Louisville	Charlotte
35	Charlotte	Tampa	Tampa	Kansas City	Louisville	Indianapolis	Louisville
36	Louisville	Detroit	Charlotte	Charlotte	Detroit	New Orleans	Kansas City
37	Kansas City	Cincinnati	Atlanta	Louisville	Kansas City	Kansas City	Orlando
38	Indianapolis	Indianapolis	Detroit	Detroit	Indianapolis	Providence	Providence
39	Austin	Atlanta	Louisville	Raleigh	Austin	Austin	New Orleans
40	Raleigh	Louisville	Indianapolis	Indianapolis	Cincinnati	Cincinnati	Cincinnati
41	Cincinnati	Virginia Beach	Cincinnati	Cincinnati	Raleigh	Orlando	Austin
42	Orlando	Las Vegas	Nashville	Nashville	Orlando	Raleigh	Raleigh
43	Nashville	Orlando	Virginia Beach	Orlando	Nashville	Nashville	Virginia Beach
44	Virginia Beach	Raleigh	Orlando	Virginia Beach	Virginia Beach	Virginia Beach	Riverside
45	Riverside	Riverside	Riverside	Riverside	Riverside	Riverside	Nashville
46	Birmingham	Birmingham	Birmingham	Birmingham	Birmingham	Birmingham	Birmingham