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PRELIMINARY DRAFT

Appendix E

EVALUATION OF ALTERNATIVE FREEWAY SYSTEM IMPROVEMENTS

INTRODUCTION

The Advisory Committee requested that three alternative freeway system improvements be examined. City of Milwaukee representatives requested that the current plan recommendation to widen from six to eight lanes 19 miles of freeway within the City of Milwaukee be re-examined—IH 94 between the Marquette and Zoo Interchanges and IH 43 between the Mitchell Interchange and Silver Spring Drive. City of Milwaukee representatives also requested that the implications of building a new freeway connecting IH 43 and USH 45 near the Milwaukee County-Ozaukee County line be examined. The third alternative freeway system improvement requested by the Advisory Committee to be examined was a new freeway connecting IH 94 in Kenosha or Racine County and IH 94 in western Waukesha County.

WIDENING FROM SIX TO EIGHT TRAFFIC LANES OF IH 94 BETWEEN THE ZOO AND MARQUETTE INTERCHANGES AND IH 43 BETWEEN THE MITCHELL INTERCHANGE AND SILVER SPRING DRIVE

The widening upon reconstruction from six to eight lanes of these 19 miles of freeway in the City of Milwaukee was the most controversial recommendation of the regional freeway system reconstruction plan completed in the year 2003. The City of Milwaukee Common Council and Mayor by resolution formally opposed the widening from six to eight traffic lanes of these 19 miles of freeway while indicating support for rebuilding the freeway system to modern design standards upon its reconstruction and providing additional traffic lanes on the other 108 miles of freeway proposed to be widened. With respect to Milwaukee County, no official position on the regional freeway system reconstruction plan recommendations was provided since the legislative and executive branches of County government could not reach agreement. However, the actions of the Milwaukee County Board of Supervisors and the Milwaukee County Executive may be interpreted to indicate agreement also on rebuilding the freeway system to modern design standards and providing additional traffic lanes on 108 of the 127 miles of freeway proposed for widening, and opposition by the County Board to the proposed widening of the 19

miles of freeway including IH 94 from the Marquette to the Zoo Interchange and IH 43 from the Mitchell Interchange to Silver Spring Drive.

The Regional Planning Commission staff recommendation to the Advisory Committee for the final regional freeway system reconstruction plan was that these 19 miles of freeway widening not be included in the final plan, but rather be addressed as an alternative as the Wisconsin Department of Transportation conducts preliminary engineering and environmental assessments attendant to the reconstruction of these 19 miles of freeway. Should the final recommendation from the preliminary engineering and environmental assessment include the widening of some or all of these 19 miles of freeway from six to eight traffic lanes, the regional transportation plan would be amended by the Commission at that time. The Commission staff made this recommendation given the opposition by the City of Milwaukee and the Milwaukee County Board, and further given that traffic analyses indicated that operations on the remainder of the freeway system would not be significantly affected by not widening these 19 miles of freeway. Finally, the Commission staff recommendation recognized that the widening could still be considered as an alternative in preliminary engineering, where the impacts could be reviewed in greater detail. On a split vote, the Advisory Committee for the regional freeway system reconstruction study—an Advisory Committee which largely consisted of the Region's elected officials appointed on a population proportional basis—rejected the Commission staff recommendation and determined to place the 19 miles of freeway widening in the final recommendations of the regional freeway reconstruction plan along with the almost unanimously supported rebuilding of the freeway system to modern design standards and the rebuilding of 108 miles of freeway with additional lanes upon their reconstruction. The Regional Planning Commission accepted that Advisory Committee's recommendation.

Table E-1 summarizes the costs and benefits broadly defined of widening upon reconstruction of the 19 miles of freeway in the City of Milwaukee from six to eight traffic lanes, specifically on IH 94 between the Marquette and the Zoo Interchanges and on IH 43 between the Mitchell Interchange and Silver Spring Drive. The data presented in Table E-1 indicates that the cost of constructing the additional lanes represents an estimated 20 percent increase in the cost of reconstructing these 19 miles of freeway, and 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, and would reduce traffic congestion and the attendant diversion of freeway traffic to surface arterial streets and congestion on those surface streets. Also, traffic safety would be improved on these 19 miles of freeway.

Table E-1

COSTS AND BENEFITS OF WIDENING 19 MILES OF FREEWAY FROM SIX TO EIGHT LANES – IH 94 BETWEEN MARQUETTE AND ZOO INTERCHANGES AND IH 43 BETWEEN MITCHELL INTERCHANGE AND SILVER SPRING DRIVE

Construction Cost

Additional cost of \$268 million for widening. (Represents 20 percent increase in estimated cost of reconstruction of these 19 miles of freeway to modern design standards without widening.)

Right-of-Way Acquisition^a

21 residences

3 commercial buildings

(Additional lanes can largely be built within the existing right-of-way.)

Traffic Carrying Capacity

Widening IH 94 and IH 43 from six to eight lanes will expand traffic carrying capacity by 33 percent.

Traffic Congestion^b

IH 94 between Marquette and Zoo Interchanges
 Year 2035 Average Weekday Hours of Congestion

	<u>Total</u>	<u>Extreme</u>	<u>Severe</u>	<u>Moderate</u>
With No Added Lanes	16	4	5	7
With Added Lanes	13	2	5	6

IH 43 between Mitchell and Marquette Interchanges
 Year 2035 Average Weekday Hours of Congestion

	<u>Total</u>	<u>Extreme</u>	<u>Severe</u>	<u>Moderate</u>
With No Added Lanes	13	2	5	6
With Added Lanes	4	--	2	2

IH 94 between Marquette and Silver Spring Drive
 Year 2035 Average Weekday Hours of Congestion

	<u>Total</u>	<u>Extreme</u>	<u>Severe</u>	<u>Moderate</u>
With No Added Lanes	8	2	4	5
With Added Lanes	4	--	2	2

Travel Times

Year 2035 Peak Hour Travel Time (minutes)

	<u>With Added Lanes</u>	<u>Without Added Lanes</u>
IH 94 – between Marquette and Zoo Interchanges (Free flow travel time of 6 minutes)	14	19
IH 43 – between Mitchell and Marquette Interchanges (Free flow travel time of 6 minutes)	9	14
IH 43 – between Marquette Interchange and Silver Spring Drive (Free flow travel time of 6 minutes)	10	13

Additional Traffic on Surface Streets^c

- Wisconsin Avenue – 1,000 to 5,000 vehicles per weekday
- Greenfield Avenue – 1,000 to 3,000 vehicles per weekday
- St. Paul Avenue – 200 to 1,000 vehicles per weekday
- Lisbon Avenue – 200 to 2,000 vehicles per weekday
- 27th Street – 1,000 to 4,000 vehicles per weekday
- Fond du Lac Avenue – 2,000 to 4,000 per weekday
- Capitol Drive – 1,000 to 4,000 vehicles per weekday
- National Avenue – 2,000 to 3,500 vehicles per weekday
- Forest Home Avenue – 1,000 to 3,000 vehicles per weekday
- Howell Avenue – 1,000 to 2,000 vehicles per weekday
- Lincoln Memorial Drive – 1,000 to 3,000 vehicles per weekday
- Port Washington Road – 1,000 to 3,000 vehicles per weekday
- 43rd Street – 1,000 to 3,000 vehicles per weekday
- Bluemound Road – 1,000 to 3,000 vehicles per weekday
- North Avenue – 1,000 to 2,000 vehicles per weekday

Traffic Safety

The widening of IH 94 and IH 43 from six to eight lanes as part of freeway reconstruction will provide traffic safety improvement by reducing traffic congestion. Rear-end accident rates are five to 15 times higher on congested freeways, as compared to uncongested freeways. The most extremely congested freeways experience the highest rear-end crash rates. On these freeway segments, rear-end accidents represent 70 percent of all accidents.

Air Pollutant Emissions and Motor Fuel Consumption and Impacts on Air Quality

Almost no difference between alternatives. Similar levels of vehicle traffic 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 2035 by about 70 percent (along with most other pollutant emissions), even with increasing traffic, due primarily to more stringent standards for new motor vehicles.

Land Use Impacts

No major impact on land use decentralization or centralization expected, as future year 2020 traffic congestion with additional lanes will only be modestly less than current traffic congestion, and transportation is one of many possible causes, and is not considered a principal or significant cause of land use decentralization.

Induced Travel

No significant additional travel is expected to be induced by additional freeway lanes, as future year traffic congestion with additional lanes may be expected to be only modestly less than current levels of traffic congestion.

^a*The widening of IH 94 to eight lanes between Mitchell Boulevard and Hawley Road—where Wood National Cemetery and other cemeteries are located adjacent to the freeway—will not require the acquisition of any new right-of-way nor the relocation or disturbance of any graves. The land dedicated to freeways and streets within Wood National Cemetery may decrease, as the proposed design for this freeway segment includes the construction of a structure between Mitchell Boulevard and Hawley Road to elevate the westbound IH 94 freeway lanes. The elevated westbound lanes would overlap the eastbound lanes and potentially the adjacent cemeteries. Construction of the proposed structure would require the acquisition of air rights and permanent easements for maintenance should any portion of the structure overhang the cemeteries. This freeway redesign may be considered whether additional lanes are provided on IH 94, or it is rebuilt with design improvements only.*

^b*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 ability to change lanes.*

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

Source: SEWRPC.

The 19 miles of freeway are relatively unique among the 270 miles of freeways in the Region and the 127 total miles proposed for widening in the regional freeway reconstruction plan in that along much of these 19 miles, densely populated residential neighborhoods are located immediately adjacent to the freeways. The concern and opposition to these 19 miles of freeway widening is attendant to the perceived negative impacts on the neighborhoods immediately adjacent to the freeways. The Commission staff proposal to the regional freeway system plan Advisory Committee was one of recognizing the strong opposition from the City of Milwaukee and the strongly split opinion within Milwaukee County, and was based on a recognition that the decision of whether to include the widening in the regional plan could be made after the completion of more detailed preliminary engineering and environmental assessment studies which would more precisely define the impacts on the neighborhoods adjacent to the 19 miles of freeway.

**CONSIDERATION OF POSSIBLE NEW FREEWAY SEGMENT
CONNECTING IH 43 AND USH 45 IN NORTHERN
MILWAUKEE COUNTY/SOUTHERN OZAUKEE COUNTY**

At the request of the City of Milwaukee, consideration was given to construction of a new segment of freeway connecting IH 43 and USH 45 in a corridor located from three to six miles north or south of the Milwaukee County/Ozaukee County line. A traffic impact analysis was conducted of the potential new freeway with respect to the existing freeway system and the surface arterial system. The intent of this analysis was to assess whether the proposed new freeway would have a significant impact on reducing traffic volumes and congestion, and the need to consider widening of 19 miles of existing freeway, and thereby, potentially alleviate the need in the City of Milwaukee—IH 94 between the Marquette and Zoo Interchanges and IH 43 between the Mitchell Interchange and Silver Spring Drive. Three alternative conceptual locations for the freeway were identified for analysis of traffic impacts: one near Good Hope Road, one near County Line Road, and one near Pioneer Road. The forecast year 2035 average weekday traffic on these three possible alternative freeway alignments is as follows:

- Good Hope Road Alternative—70,000 to 75,000 vehicles per average weekday
- County Line Road Alternative—45,000 to 55,000 vehicles per average weekday
- Pioneer Road alternative—25,000 to 30,000 vehicles per average weekday

With respect to the traffic impact on the surface arterial street system, each alternative may be expected to result in a significant reduction of traffic on parallel surface arterial streets, providing a higher level of service to traffic (faster speeds and increased safety) and a reduction in congestion on certain of those streets. Selected forecast reductions in year 2035 average weekday traffic on surface arterial streets under each possible freeway alternative are listed below:

- Good Hope Road Alternative
 - Good Hope Road—10,000 to 16,000 vehicles per average weekday
 - Silver Spring Road—4,000 to 9,000 vehicles per average weekday
 - Capitol Drive—2,000 to 3,000 vehicles per average weekday
 - Hampton Avenue—2,000 to 3,000 vehicles per average weekday
 - Brown Deer Road—5,000 to 14,000 vehicles per average weekday
 - Bradley Road—1,000 to 6,000 vehicles per average weekday
 - County Line Road—1,000 to 3,000 vehicles per average weekday
 - Mequon Road—2,000 to 5,000 vehicles per average weekday
 - Fond du Lac Avenue—4,000 to 11,000 vehicles per average weekday

- County Line Road Alternative
 - STH 60—1,000 vehicles per average weekday
 - Pioneer Road—1,000 to 3,000 vehicles per average weekday

- Highland Road—2,000 to 4,000 vehicles per average weekday
- Mequon Road—6,000 to 13,000 vehicles per average weekday
- County Line Road—1,000 to 3,000 vehicles per average weekday
- Brown Deer Road—4,000 to 14,000 vehicles per average weekday
- Bradley Road—1,000 to 2,000 vehicles per average weekday
- Good Hope Road—2,000 to 3,000 vehicles per average weekday
- Silver Spring Road—1,000 to 3,000 vehicles per average weekday
- Hampton Avenue—1,000 to 2,000 vehicles per average weekday
- Fond du Lac Avenue—2,000 to 4,000 vehicles per average weekday

- Pioneer Road Alternative
 - STH 60—1,000 to 3,000 vehicles per average weekday
 - Pioneer Road—1,000 to 4,000 vehicles per average weekday
 - Highland Road—1,000 to 3,000 vehicles per average weekday
 - Mequon Road—2,000 to 4,000 vehicles per average weekday
 - County Line Road—1,000 to 2,000 vehicles per average weekday

- Brown Deer Road—1,000 to 2,000 vehicles per average weekday
- Good Hope Road—1,000 to 2,000 vehicles per average weekday

With respect to the impacts of the possible new freeway on the existing freeway system, the proposed new freeway may be expected to modify the routing of traffic, or traffic patterns, on the existing freeway system; however, the net impact on reducing or increasing freeway traffic volume may be expected to be modest, as shown in Table E-2.

Table E-2

**PROJECTED CHANGE IN YEAR 2035 AVERAGE WEEKDAY TRAFFIC VOLUMES
ATTENDANT TO POSSIBLE NEW FREEWAY CONNECTING IH 43 AND USH 45 IN
NORTHERN MILWAUKEE COUNTY/SOUTHERN OZAUKEE COUNTY**

Existing Freeways	Amount of Change in Year 2035 Average Weekday Traffic	Percent of Total Year 2035 Average Weekday Traffic
IH 94—Marquette Interchange to Zoo Interchange.....	- -	- -
IH 94—Marquette Interchange to Mitchell Interchange	-3,600 to -8,000	2.5 to 5 percent
IH 894— Mitchell Interchange to Hale Interchange.....	-6,500 to -7,500	4 to 4.5 percent
IH 894— Hale Interchange to Zoo Interchange.....	-300 to +2,400	less than 1 percent to 1 percent
USH 45— Zoo Interchange to Capitol Drive	+5,600 to +11,000	4 percent to 5.5 percent
IH 43— Marquette Interchange to Capitol Drive	+3,800 to +6,000	2.5 to 4 percent

Source: SEWRPC

Because the possible new freeway connecting IH 43 and USH 45 in northern Milwaukee County and southern Ozaukee County would have little impact on reducing or increasing freeway traffic volume on any segment of the existing freeway system, it would also have little impact on the need to address existing freeway system design, safety, and congestion problems. All three alternatives of the proposed new freeway connection may be expected to reduce average weekday traffic on selected parallel surface arterials, as previously noted. However, none of the arterials expected to experience reduced traffic volumes were identified for future widening.

Construction of any of the alternative freeway connections would likely require the acquisition of a right-of-way corridor generally 240 feet to 300 feet or more in width. Additional right-of-way would be required at both USH 45 and IH 43 to provide system interchanges and at selected surface arterial streets to provide service interchanges. Accordingly, because the proposed freeway connection would have minimal impact on the existing freeway system, and require acquisition of a new right-of-way corridor, the provision of the proposed freeway connection is not recommended.

**CONSIDERATION OF POSSIBLE NEW FREEWAY SEGMENT CONNECTING
IH 94 IN KENSOHA COUNTY WITH IH 94 IN WESTERN WAUKESHA COUNTY**

[TO BE COMPLETED]