APPENDIX H: TRAVEL MODEL SUMMARY STATISTICS

Model Summary Statistics

MPO staff ran multiple roadway and transit project scenarios using the Dane County Travel Demand Model (TDM) as part of the plan development process. The final set of scenarios are listed below and depicted in Figures H-1 to H-3.

- 2050 Existing and Committed Projects (Scenario 1)
- 2050 Potential Capacity Expansion Projects (Scenario 2) (Final Plan Scenario)
- 2050 Potential Capacity Expansion Projects (Scenario 3) (Final Plan Plus WisDOT projects)

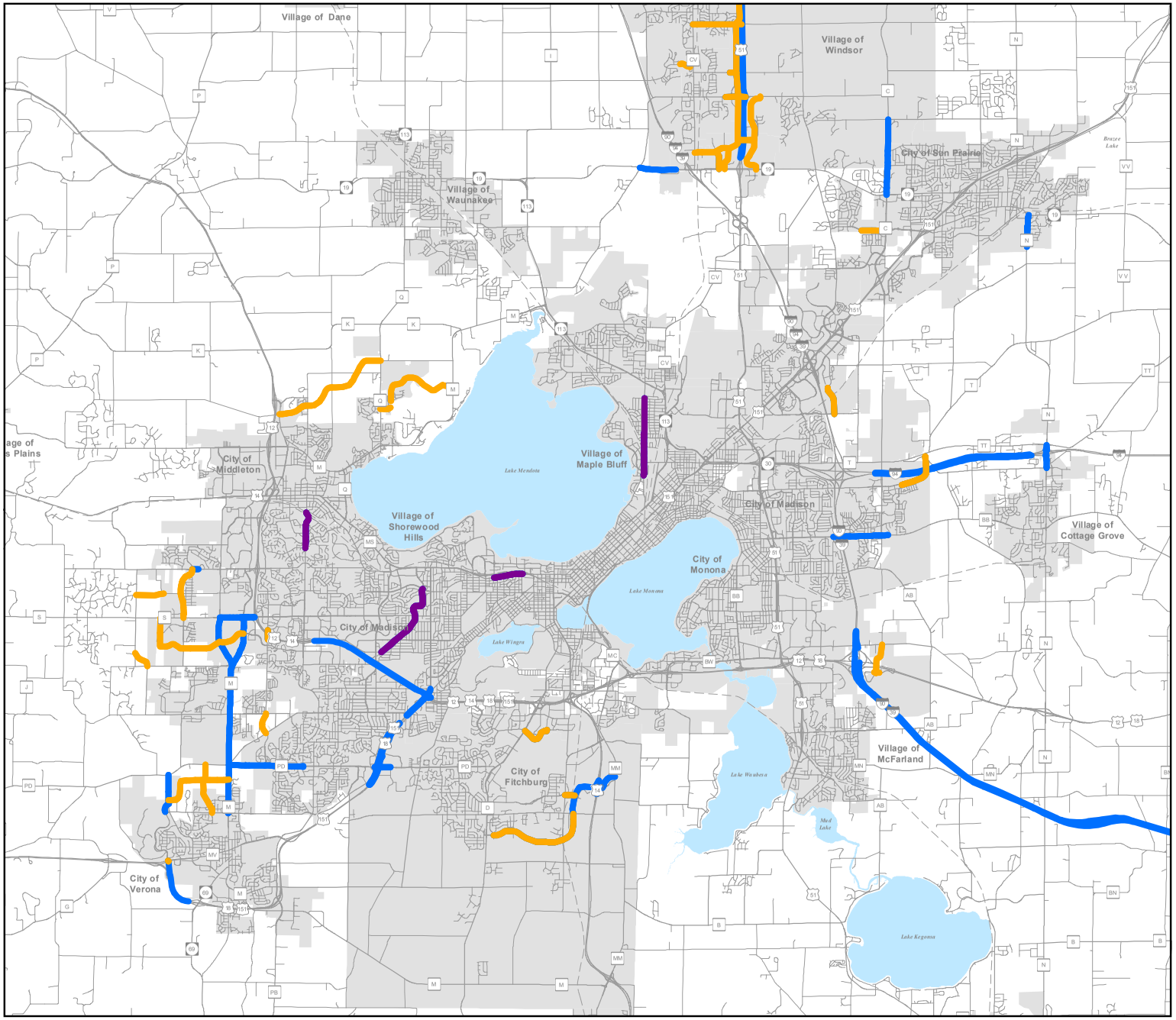
Scenario 1 only includes existing (built after 2010 base year) and committed (programmed) projects and assumes existing Metro Transit service levels. Scenario 2 adds the capacity expansion roadway projects included in the final financially constrained plan along with the transit service improvements (BRT, express commuter service, and other local service improvements and expansion) included in the recommended regional transit system. This system is not part of the financially constrained plan. Scenario 3 contains the Scenario 2 roadway and transit projects plus capacity expansion improvements to Stoughton Road (US 51) and the Beltline (US 12/14/18/151).

Model summary statistics were compiled for the base year (2010) and for each scenario. Vehicle miles traveled (VMT), vehicle hours traveled (VHT) and average vehicle delay are summarized in Figures H-4 to H-6 according to each roadway functional class. Scenario 2, the Final Plan scenario, contains the lowest VMT and VHT figures of any plan horizon year scenario, while Scenario 3 with the WisDOT projects has the lowest average vehicle delay. Scenario 3 has the lowest average vehicle delay due to the Stoughton Road and Beltline capacity expansion projects, which improve the anticipated horizon year levels of service on these heavily traveled highways, but does slightly increase VMT and VHT due to traffic using these now faster routes versus in some cases more direct routes.

Boardings for the AM (6am – 9am), Midday (9am – 3pm), and PM (3pm – 6pm) time periods for each scenario, classified by service type (i.e., BRT, Express, and Standard Local Service), are summarized in Figure H-7 to H-9. Figure H-10 to H-17 denotes total trips, boardings, and the transfer rate for each time period of each scenario. Total boardings and trips will increase more than 100% between 2010 and 2050 if the Final Plan scenario with the recommended regional transit system is implemented.

Regional Transportation Plan 2050
Madison Area
Charting Our Course

Existing and Programmed Projects and New/Planned Collector Streets Scenario 1



- Capacity Reduction
- New/Programmed/Planned Collector Street
- Existing or Programmed Capacity Expansion

Prepared by staff to the:
Madison Area T•P•B Transportation Planning Board
A Metropolitan Planning Organization (MPO)

Source Info:
Level of Service: 2016 (MATPB).
Street Base: 2016 (MATPB, DCLIO).
Hydrography: 12/00, 1:24,000 (WDNR).
Civil Division Limits: 2016, Annexation Records (DCLIO).

Author: jmiles
Date Printed: 3/31/2017
Date Saved: 3/31/2017 10:07:33 AM
Path: M:\MPO_GIS\GIS_Data\Scenario\RTP_2050\LOS_Analysis\Final MXD as PDF Files\Projects_Map_ECC_Scenario1_1_031917.mxd

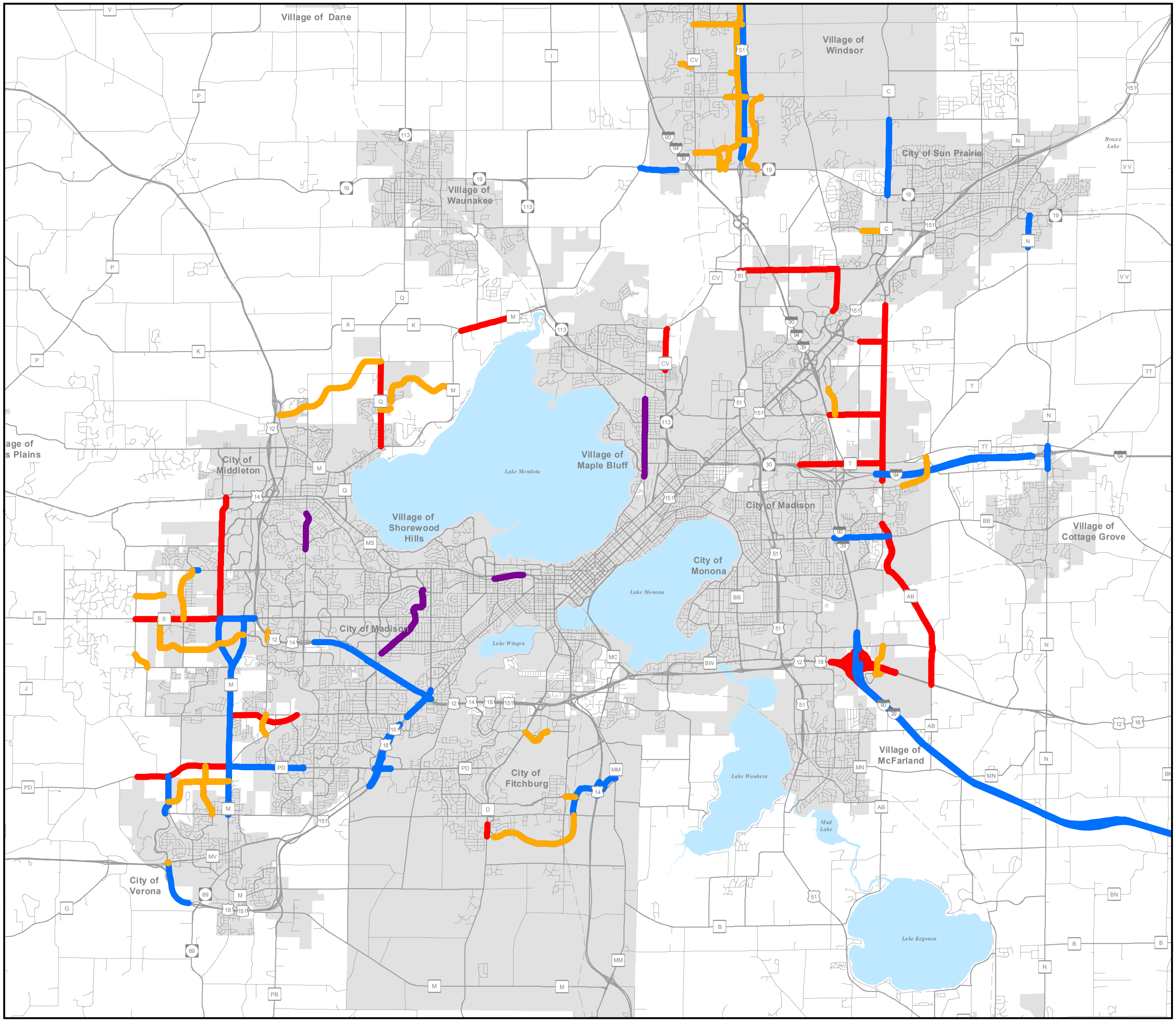
0 0.75 1.5
Miles

Date Revised: 3/31/2017

Lambert Conformal Conic Projection
WISCRS- Dane, NAD 83(91)

Regional Transportation Plan 2050
Madison Area
Charting Our Course

Potential Capacity Expansion Projects Scenario 2 (Final Alternative)



Capacity Reduction
New/Programmed/Planned Collector Street
Existing or Programmed Capacity Expansion
Potential Capacity Expansion

Prepared by staff to the:
Madison Area T•P•B Transportation Planning Board
A Metropolitan Planning Organization (MPO)

Source Info:
Level of Service: 2016 (MATPB).
Street Base: 2016 (MATPB, DCLIO).
Hydrography: 12/00, 1:24,000 (WDNR).
Civil Division Limits: 2016, Annexation Records (DCLIO).

Author: pldek
Date Printed: 3/31/2017
Date Saved: 3/31/2017 9:09:07 AM
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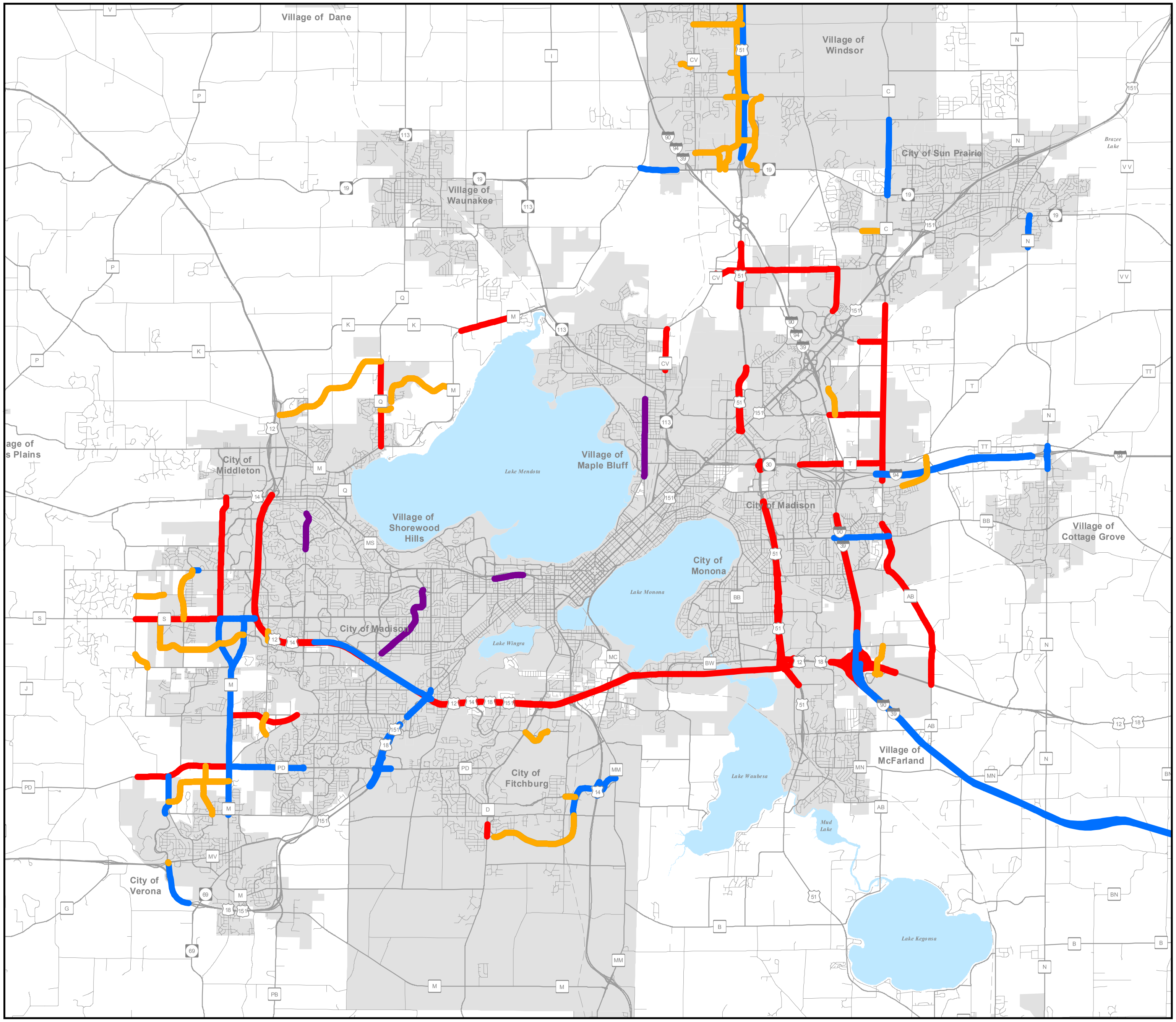
Miles

Date Revised: 3/31/2017

Lambert Conformal Conic Projection
WISCRS- Dane, NAD 83(91)

Regional Transportation Plan 2050
Madison Area
Charting Our Course

Potential Capacity Expansion Projects Scenario 3 (Final Alternative with WisDOT Projects)



- Capacity Reduction
- New/Programmed/Planned Collector Street
- Existing or Programmed Capacity Expansion
- Potential Capacity Expansion

Prepared by staff to the:
Madison Area T•P•B Transportation Planning Board
A Metropolitan Planning Organization (MPO)

Source Info:
Level of Service: 2016 (MATPB).
Street Base: 2016 (MATPB, DCLIO).
Hydrography: 12/00, 1:24,000 (WIDNR).
Civil Division Limits: 2016, Annexation Records (DCLIO).

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Miles

Date Revised: 3/27/2017

Author: pldek
Date Printed: 3/31/2017
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Lambert Conformal Conic Projection
WISCRS- Dane, NAD 83(91)

Figure H-4

Weekday Vehicle Miles Traveled (VMT) by Functional Class

from the Dane County Travel Demand Model

Functional Classification	Base Scenario	Percent	Existing and Committed Scenario	Percent	Final Plan Scenario	Percent	Plan Scenario Plus DOT Projects	Percent
Urban/Rural Interstate	2,443,379	17.8%	4,416,750	22.3%	4,390,015	22.1%	4,422,251	22.1%
Urban/Rural Freeway	2,628,719	19.1%	3,608,829	18.2%	3,605,447	18.2%	3,804,345	19.0%
Urban/Rural Ramp	409,325	3.0%	615,523	3.1%	646,440	3.3%	680,554	3.4%
Urban/Rural Expressway	1,553,257	11.3%	2,215,321	11.2%	2,232,225	11.3%	2,207,702	11.0%
Urban Principal Arterial	1,898,826	13.8%	2,354,945	11.9%	2,358,496	11.9%	2,329,546	11.6%
Urban Minor Arterial	1,398,825	10.2%	1,780,257	9.0%	1,784,526	9.0%	1,791,163	8.9%
Urban Collector	670,653	4.9%	850,932	4.3%	837,949	4.2%	838,335	4.2%
Urban Local Roadway	36,248	0.3%	86,663	0.4%	67,374	0.3%	74,134	0.4%
Rural Principal Arterial	994,661	7.2%	1,257,079	6.3%	1,266,627	6.4%	1,265,930	6.3%
Rural Minor Arterial	857,068	6.2%	1,263,628	6.4%	1,257,094	6.3%	1,245,775	6.2%
Rural Major Collector	580,272	4.2%	920,641	4.6%	924,139	4.7%	911,677	4.6%
Rural Minor Collector	205,123	1.5%	309,859	1.6%	305,322	1.5%	301,966	1.5%
Rural Local Roadway	77,159	0.6%	163,850	0.8%	161,958	0.8%	159,960	0.8%
Grand Total	**13,753,515**	**100.0%**	**19,844,277**	**100.0%**	**19,837,611**	**100.0%**	**20,033,338**	**100.0%**

Figure H-5

Weekday Vehicle Hours Traveled (VHT) by Functional Class

from the Dane County Travel Demand Model

Functional Classification	Base Scenario	Percent	Existing and Committed Scenario	Percent	Final Plan Scenario	Percent	Plan Scenario Plus DOT Projects	Percent
Urban/Rural Interstate	36,499	12.0%	64,116	14.5%	63,621	14.5%	63,732	14.5%
Urban/Rural Freeway	45,447	15.0%	64,560	14.6%	64,272	14.6%	65,884	15.0%
Urban/Rural Ramp	11,142	3.7%	17,583	4.0%	17,725	4.0%	18,994	4.3%
Urban/Rural Expressway	30,350	10.0%	44,246	10.0%	44,377	10.1%	43,799	10.0%
Urban Principal Arterial	55,909	18.5%	74,772	16.9%	74,421	17.0%	72,969	16.6%
Urban Minor Arterial	42,563	14.0%	56,822	12.9%	56,437	12.9%	56,817	12.9%
Urban Collector	22,794	7.5%	30,563	6.9%	30,087	6.9%	30,071	6.8%
Urban Local Roadway	1,405	0.5%	3,432	0.8%	2,588	0.6%	2,782	0.6%
Rural Principal Arterial	20,097	6.6%	26,984	6.1%	26,888	6.1%	26,805	6.1%
Rural Minor Arterial	17,776	5.9%	27,393	6.2%	27,208	6.2%	26,927	6.1%
Rural Major Collector	12,494	4.1%	20,336	4.6%	20,424	4.7%	20,077	4.6%
Rural Minor Collector	4,545	1.5%	6,906	1.6%	6,801	1.5%	6,729	1.5%
Rural Local Roadway	1,959	0.6%	4,264	1.0%	4,212	1.0%	4,158	0.9%
Grand Total	**302,981**	**100.0%**	**441,976**	**100.0%**	**439,062**	**100.0%**	**439,743**	**100.0%**

Figure H-6

Weekday Average Vehicle Delay in Hours

from the Dane County Travel Demand Model

Functional Classification	Base Scenario	Percent	Existing and Committed Scenario	Percent	Final Plan Scenario	Percent	Plan Scenario Plus DOT Projects	Percent
Urban/Rural Interstate	41	0.3%	1,101	3.0%	1,014	3.0%	658	2.1%
Urban/Rural Freeway	2,138	13.6%	5,669	15.6%	5,450	15.9%	3,782	11.9%
Urban/Rural Ramp	649	4.1%	1,966	5.4%	1,665	4.9%	2,048	6.4%
Urban/Rural Expressway	865	5.5%	2,464	6.8%	2,404	7.0%	2,324	7.3%
Urban Principal Arterial	5,744	36.6%	11,520	31.6%	11,132	32.6%	10,422	32.8%
Urban Minor Arterial	4,126	26.3%	7,535	20.7%	7,056	20.6%	7,254	22.8%
Urban Collector	1,100	7.0%	2,305	6.3%	2,099	6.1%	2,106	6.6%
Urban Local Roadway	37	0.2%	314	0.9%	195	0.6%	202	0.6%
Rural Principal Arterial	394	2.5%	1,382	3.8%	1,129	3.3%	1,073	3.4%
Rural Minor Arterial	437	2.8%	1,426	3.9%	1,317	3.9%	1,268	4.0%
Rural Major Collector	155	1.0%	607	1.7%	604	1.8%	566	1.8%
Rural Minor Collector	10	0.1%	48	0.1%	45	0.1%	44	0.1%
Rural Local Roadway	16	0.1%	71	0.2%	72	0.2%	70	0.2%
Grand Total	**15,712**	**100.0%**	**36,411**	**100.0%**	**34,182**	**100.0%**	**31,817**	**100.0%**

Figure H-7

Weekday Vehicle Miles Traveled (VMT) by Functional Class

from the Dane County Travel Demand Model

Functional Classification	Percent Growth from Base Scenario to Existing and Committed Scenario	Percent Growth from Base Scenario to Final Alternative Scenario	Percent Growth from Base Scenario to Final Alternative Scenario w/ DOT Projects
Urban/Rural Interstate	80.8%	79.7%	81.0%
Urban/Rural Freeway	37.3%	37.2%	44.7%
Urban/Rural Ramp	50.4%	57.9%	66.3%
Urban/Rural Expressway	42.6%	43.7%	42.1%
Urban Principal Arterial	24.0%	24.2%	22.7%
Urban Minor Arterial	27.3%	27.6%	28.0%
Urban Collector	26.9%	24.9%	25.0%
Urban Local Roadway	139.1%	85.9%	104.5%
Rural Principal Arterial	26.4%	27.3%	27.3%
Rural Minor Arterial	47.4%	46.7%	45.4%
Rural Major Collector	58.7%	59.3%	57.1%
Rural Minor Collector	51.1%	48.8%	47.2%
Rural Local Roadway	112.4%	109.9%	107.3%
Grand Total	**44.3%**	**44.2%**	**45.7%**

Figure H-8

Weekday Vehicle Hours Traveled (VHT) by Functional Class
from the Dane County Travel Demand Model

Functional Classification	Percent Growth from Base Scenario to Existing and Committed Scenario	Percent Growth from Base Scenario to Final Alternative Scenario	Percent Growth from Base Scenario to Final Alternative Scenario w/ DOT Projects
Urban/Rural Interstate	75.7%	74.3%	74.6%
Urban/Rural Freeway	42.1%	41.4%	45.0%
Urban/Rural Ramp	57.8%	59.1%	70.5%
Urban/Rural Expressway	45.8%	46.2%	44.3%
Urban Principal Arterial	33.7%	33.1%	30.5%
Urban Minor Arterial	33.5%	32.6%	33.5%
Urban Collector	34.1%	32.0%	31.9%
Urban Local Roadway	144.3%	84.2%	98.0%
Rural Principal Arterial	34.3%	33.8%	33.4%
Rural Minor Arterial	54.1%	53.1%	51.5%
Rural Major Collector	62.8%	63.5%	60.7%
Rural Minor Collector	51.9%	49.6%	48.0%
Rural Local Roadway	117.6%	114.9%	112.2%
Grand Total	**45.9%**	**44.9%**	**45.1%**

Figure H-9

Weekday Average Vehicle Delay in Hours
from the Dane County Travel Demand Model

Functional Classification	Percent Growth from Base Scenario to Existing and Committed Scenario	Percent Growth from Base Scenario to Final Alternative Scenario	Percent Growth from Base Scenario to Final Alternative Scenario w/ DOT Projects
Urban/Rural Interstate	2606.9%	2392.2%	1516.8%
Urban/Rural Freeway	165.2%	154.9%	76.9%
Urban/Rural Ramp	203.2%	156.8%	215.8%
Urban/Rural Expressway	184.8%	177.8%	168.6%
Urban Principal Arterial	100.6%	93.8%	81.5%
Urban Minor Arterial	82.6%	71.0%	75.8%
Urban Collector	109.6%	90.9%	91.5%
Urban Local Roadway	746.8%	426.3%	445.7%
Rural Principal Arterial	250.7%	186.5%	172.3%
Rural Minor Arterial	226.6%	201.5%	190.3%
Rural Major Collector	291.2%	289.0%	264.9%
Rural Minor Collector	372.3%	337.4%	326.4%
Rural Local Roadway	338.6%	348.0%	332.7%
Grand Total	**131.7%**	**117.6%**	**102.5%**

Figure H-10

Total Transit Boardings - Base Scenario
from the Dane County Travel Demand Model

Service Type	AM	MD	PM	Total
Standard	13,121	12,772	15,163	41,056

Figure H-11

Total Transit Boardings - Existing and Committed Scenario
from the Dane County Travel Demand Model

Service Type	AM	MD	PM	Total
Standard	15,782	24,621	24,240	64,643
Express	443	0	608	1,051
Total	**16,225**	**24,621**	**24,848**	**65,694**

Figure H-12

Total Transit Boardings - Final Plan Scenario
from the Dane County Travel Demand Model

Service Type	AM	MD	PM	Total
BRT	5,840	12,004	8,484	26,328
Express	3340	0	5292	8632
Standard	13,594	25,864	21,077	60,535
Total	**22,774**	**37,868**	**34,853**	**95,495**

Figure H-13

Total Transit Boardings - Final Plan Scenario Plus WisDOT Projects
from the Dane County Travel Demand Model

Service Type	AM	MD	PM	Total
BRT	5,845	12,014	8,510	26,369
Express	3347	0	5299	8646
Standard	13,596	25,820	21,076	60,492
Total	**22,788**	**37,834**	**34,885**	**95,507**

Figure H-14

Base Year Scenario Transit Stats
from the Dane County Travel Demand Model

Model	AM	MD	PM	Total
Trips	11,796	11,768	13,626	37,190
Boardings	13,121	12,772	15,163	41,056
Transfer Rate	1.11	1.09	1.11	1.10

Figure H-15

Existing and Committed Scenario Transit Stats
from the Dane County Travel Demand Model

Service Type	AM	MD	PM	Total
Trips	13,770	21,281	20,594	55,645
Boardings	6,226	24,621	24,848	65,695
Transfer Rate	1.18	1.16	1.21	1.18

Figure H-16

Final Alternative Scenario Transit Stats
from the Dane County Travel Demand Model

Service Type	AM	MD	PM	Total
Trips	18,675	31,319	28,483	78,477
Boardings	22,774	37,868	34,853	95,494
Transfer Rate	1.22	1.21	1.22	1.22

Figure H-17

Final Alternative Scenario Plus WisDOT Projects - Transit Stats
from the Dane County Travel Demand Model

Service Type	AM	MD	PM	Total
Trips	18,668	31,264	28,476	78,408
Boardings	22,787	37,834	34,885	95,506
Transfer Rate	1.22	1.21	1.23	1.22

Note: Model is likely over-estimating the express route trips. Attempts to make input changes to remedy this were unsuccessful. A more realistic ridership total is in the 4,000 range based on service levels.