



Chapter 5:

Funding the Plan: Financial Capacity Analysis

Funding the Plan: Financial Capacity Analysis

Introduction

Federal transportation planning rules require that regional transportation plans include a financial capacity analysis to demonstrate that the plan is fiscally constrained. That is, it must be demonstrated that the estimated costs of recommended capital projects in the federally recognized, fiscally constrained plan and maintenance of the transportation system can be covered using available and projected revenue sources. If projected funding shortfalls exist, new sources of revenue must be identified. While projecting revenue and project costs out for such a long period is very difficult, the purpose of the analysis is to ensure the plan doesn't just include a wish list of projects. Rather, potential projects need to be prioritized, realistically assessing the ability to fund them, and balancing the needs of new facilities or capacity expansion projects with system preservation needs.

The plan may identify recommended or needed projects, but if it cannot be demonstrated that funding is reasonably likely to be available for the projects or the scope and cost of projects is uncertain, they cannot be included in the federally recognized plan. For example, later phases of the planned

Bus Rapid Transit (BRT) system are not part of the fiscally constrained plan. The currently budgeted East-West Route and the planned North/South route are included. The major state highway projects that will come out of the current Beltline and Stoughton Road studies are also not included due to the uncertain scope and cost of those projects. The same is true of project(s) to come out of the Interstate study, although as an inter-city project it would not need to be part of the MPO's fiscally constrained plan.

The financial capacity analysis takes into account recent trends in sources and uses of funds and currently programmed projects,

and estimates the ability of anticipated funding sources to meet the maintenance, preservation, and capacity expansion needs of the transportation system. Average annual program funding amounts were estimated based on recent trends. The analysis also accounts for the large increase in federal transportation formula program funding in federal fiscal years (FFY) 2022-2026 under the recently passed Infrastructure Investment & Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL).

The IIJA included the reauthorization of the federal surface transportation legislation. The law maintains the same basic formula



funding programs, but also includes some new formula and discretionary grant programs that allow states, MPOs, and local governments to apply directly to USDOT for funding. The Federal Highway Administration (FHWA) recently released the state and MPO federal formula program allocations for FFY 2022. For the two existing programs for which the MPO receives a suballocation of funding – Surface Transportation Block Grant (STBG) Urban and Transportation Alternatives Program (TAP) – those FFY 2022 amounts were assumed as average annual funding moving forward. For the two programs allocated to states – National Highway Performance Program (NHPP) and Highway Safety Improvement Program (HSIP) – the same percentage increase in program funding for Wisconsin was assumed for the Madison Metropolitan Area. A 2.0% annual inflationary increase in these funding amounts was assumed into the future. No additional funding was assumed from the new discretionary program funding.

The IJA provides the federal transportation funding program and planning framework for the next five years. While the IJA and other recent transportation bills have made some changes in programs, the current basic formula program framework has been in place since 1991 when the landmark ISTEA legislation was passed. Therefore, it is safe to assume that this basic framework will continue. As noted, IJA added numerous discretionary grant programs. While it is safe to assume at least some of those will continue

in the future and the greater Madison region will be able to secure some of those funds, this hasn't been factored into the analysis. While short-term funding methods using general revenue were employed to provide the necessary funding for the IJA, it is assumed that a long-term solution will be developed to maintain those funding levels with the assumed inflationary increases.

The financial capacity analysis assumes that state funding will increase around 2% annually. This has not been the trend for highway construction funding. From 2006 – the last year the state gas tax was increased – to 2021 highway construction funding (including state highways and local road and bridge assistance) actually decreased 15% or an average of 1% per year in constant dollars. In contrast, highway operations (maintenance) funding increased 32% or 2.1% per year. Transit aids decreased almost 24% or 1.6% per year.¹ This plan assumes that in the long term, the state transportation funding situation will be addressed and that inflationary increases to recent spending levels in the Metropolitan Planning Area will be provided.

In the long run, additional or alternative transportation funding source(s) to the gas tax will be needed at both the state and federal levels with the electrification of the fleet. The most logical is some sort of road

user charge. While the future source(s) of revenue is uncertain, an assumed continuation of current federal funding levels under the IJA and recent state funding levels with future inflationary increases to both is reasonable.

Estimated project costs must be in year-of-expenditure dollars, reflecting an assumed inflationary factor. An inflationary factor of 1.74% was used for project costs. As noted, a 2.0% inflationary factor was used for program funding in accordance with WisDOT and USDOT guidance.

¹ Transportation Budget Trends: 2000–2021, WisDOT Bureau of Budget (<https://wisconsindot.gov/Documents/about-wisdot/performance/budget/TransportationBudgetTrends2020-21.pdf>).



Funding Trends in the Metropolitan Planning Area

COUNTY AND MUNICIPAL STREETS/ROADWAYS

Municipal streets are mostly financed by local funding sources. These include general revenues (mostly from the property tax) and bonds and, in the case of municipalities, also special assessments, impact fees, and tax increment financing. Counties cost share with municipalities on some projects. WisDOT distributes state funding to counties and municipalities through the state's General Transportation Aids and Connecting Highway Aids programs, and through other local programs such as the Local Road Improvement Program.

Figure 5-a, Historical County and Local Street/Roadway Expenses, shows the expenditures for operations and maintenance, construction, and other street related facilities (e.g., lighting, sidewalks, storm sewers) by municipalities in the Metropolitan Planning Area from 2015 to 2019, the last year for which data was available.² The expenses include those from local revenues as well as state and federal programs. Total annual costs for Dane County and all municipalities within the Metropolitan Planning Area increased significantly over this 5-year period from \$117.9 million in 2015 to \$181.4 million in 2019 with the largest increases in 2018-'19. This was due in part

to sharp increases in the cost of roadway construction materials. The annual average over the 5-year period was \$149.5 million. This includes an average of \$88.1 million for construction and \$61.4 million for operations and maintenance.

FEDERAL AND STATE FUNDING FOR STREETS/ROADWAYS

Federal and state funding accounts for 25.5% and 64.7% of revenues, respectively, in the WisDOT 2021-'23 biennial budget with bond funds (3.6%) and other funds (3.5%) accounting for the remainder. Federal funding is derived primarily from the federal motor fuel tax and then allocated to the states and large urban areas. Federal program funding sources under the current surface transportation legislation, the IIJA, that are used for roadway improvements include the following:

- National Highway Performance Program (NHPP);
- Surface Transportation Program Block Grant (STBG) Program (formerly Surface Transportation Program) – includes three categories of funding (Urban, Rural/Small Urban, and State Flexibility); and
- Highway Safety Improvement Program (HSIP) – also includes three categories.

The NHPP and STBG – State Flexibility programs have been used exclusively for state highway projects, while the HSIP program is available for funding both state and local projects. The STBG – Urban

and Rural/Small Urban programs are for county and local roadway projects. For the Metropolitan Planning Area, the STBG Urban Program is the most significant of these federal programs for local projects. Most of the funding has been used for county and local road projects, but the program has also been used for other capital projects such Metro Transit bus purchases and an ITS project. A bicycle/pedestrian project was approved in the last application cycle. The MPO also funds its Transportation Demand Management (TDM) program primarily with this funding.

The Greater Madison MPO receives an allocation of STBG – Urban Program funding and selects county and local projects for funding based on approved policies and project evaluation criteria. The MPO's annual allocation had been \$6.86 million in the recent past, but will increase to \$8.99 million in FFY 2022 under the IIJA. A further small increase is expected in FFY 2023 and beyond once 2020 Census urban area population data is factored into the funding allocations. That has not been factored into the revenue estimate. The higher STBG – Urban program funding level in FFY 2022 under the IIJA is assumed to continue into the future with inflationary adjustments as with other programs.

State transportation funding is derived primarily from the state motor fuel tax, driver license fees, and vehicle registration fees. Funding for state highways is distributed through several programs, including the following:

² Source: [County and Municipal Revenues and Expenditures by Wisconsin Cities, Villages & Towns](#) reports published by the Wisconsin Department of Revenue.

Historical County and Municipal Street/Roadway Expenses (\$1,000's) within the Madison Metropolitan Planning Area

	2015				2016				2017				2018				2019			
County/ Municipality	O & M ¹	Const. ²	Other ³	Total	O & M ¹	Const. ²	Other ³	Total	O & M ¹	Const. ²	Other ³	Total	O & M ¹	Const. 2	Other ³	Total	O & M ¹	Const. ²	Other ³	Total
Dane County ⁴	8,060.19	5,674.18	1,531.21	15,265.58	8,528.88	5,996.33	932.39	15,457.61	9,422.83	16,249.97	815.55	26,488.36	11,455.30	11,016.93	879.24	23,351.46	9,813.66	17,687.89	357.92	27,859.48
C. Fitchburg	1,734.30	2,616.90	185.30	4,536.50	1,799.30	2,643.40	205.50	4,648.20	1,884.60	4,597.10	218.50	6,700.20	1,917.90	2,723.00	889.70	5,530.60	2,293.20	7,431.30	633.70	10,358.20
C. Madison	25,480.00	16,425.30	6,937.20	48,842.50	23,837.50	16,117.50	6,202.20	46,157.20	24,588.60	27,064.50	6,511.90	58,165.00	25,880.70	35,961.60	8,536.30	70,378.60	29,897.90	35,821.90	10,310.10	76,029.90
C. Middleton	2,122.60	3,015.20	2,027.70	7,165.50	2,545.70	2,364.50	254.10	5,164.30	2,868.10	2,018.50	500.20	5,386.80	3,036.50	3,730.40	225.10	6,992.00	3,311.90	3,234.90	171.50	6,718.30
C. Monona	1,117.80	439.40	129.20	1,686.40	927.60	627.50	91.50	1,646.60	782.70	1,042.90	325.60	2,151.20	843.80	1,177.20	98.30	2,119.30	897.30	4,473.10	102.20	5,472.60
C. Stoughton	1,296.60	1,935.00	233.50	3,465.10	1,278.10	5,091.60	1,159.80	7,529.50	2,823.60	2,208.80	122.40	5,154.80	9,477.90	2,513.40	399.10	12,390.40	2,003.90	2,684.40	1,108.30	5,796.60
C. Sun Prairie	2,681.60	2,374.90	1,174.80	6,231.30	2,316.60	4,171.00	912.30	7,399.90	1,905.70	4,832.00	1,066.50	7,804.20	2,243.30	9,809.50	1,608.00	13,660.80	3,158.40	6,868.10	1,232.30	11,258.80
C. Verona	1,130.30	3,578.70	224.20	4,933.20	2,071.60	1,808.70	212.70	4,093.00	2,430.30	3,086.60	271.10	5,788.00	1,473.10	7,500.10	169.70	9,142.90	4,179.90	6,191.30	246.80	10,618.00
Cities Total	35,563.20	30,385.40	10,911.90	76,860.50	34,776.40	32,824.20	9,038.10	76,638.70	37,283.60	44,850.40	9,016.20	91,150.20	44,873.20	63,415.20	11,926.20	120,214.60	45,742.50	66,705.00	13,804.90	126,252.40
V. Cottage Grove	1,429.60	10.70	111.70	1,552.00	712.10	223.60	116.20	1,051.90	857.00	1,615.40	113.80	2,586.20	638.60	30.40	339.60	1,008.60	825.40	1,176.20	134.50	2,136.10
V. Cross Plains	423.00	1,179.70	74.80	1,677.50	513.20	895.10	-	1,408.30	569.80	235.90	124.60	930.30	410.70	2,722.70	81.90	3,215.30	607.00	436.90	67.00	1,110.90
V. DeForest	375.70	2,147.20	348.50	2,871.40	519.30	2,217.60	883.00	3,619.90	644.00	1,796.30	155.90	2,596.20	654.80	6,107.10	853.50	7,615.40	776.60	2,568.00	192.30	3,536.90
V. Maple Bluff	201.00	292.50	57.10	550.60	153.00	300.90	58.90	512.80	134.70	9.00	33.00	176.70	172.50	8.10	28.50	209.10	160.80	3.00	34.00	197.80
V. McFarland	747.90	420.60	114.00	1,282.50	682.80	868.90	119.90	1,671.60	890.00	1,924.20	109.60	2,923.80	781.90	3,629.30	524.50	4,935.70	763.50	568.90	189.50	1,521.90
V. Oregon	794.80	883.70	719.60	2,398.10	715.00	1,589.50	340.30	2,644.80	833.00	913.20	207.40	1,953.60	858.20	2,284.60	250.80	3,393.60	985.40	482.50	409.30	1,877.20
V. Shorewood Hills	214.60	1,019.60	22.40	1,256.60	211.40	650.10	32.60	894.10	770.80	289.40	26.10	1,086.30	194.80	96.30	21.90	313.00	279.20	1,966.30	24.60	2,270.10
V. Waunakee	1,109.30	901.50	499.60	2,510.40	1,237.70	5,048.80	853.80	7,140.30	1,134.30	3,157.10	559.70	4,851.10	1,374.70	2,366.20	486.90	4,227.80	1,367.90	1,036.80	483.50	2,888.20
V. Windsor ⁵	371.05	1,235.54	88.19	1,694.79	294.41	484.41	36.87	815.69	565.64	643.20	40.08	1,248.93	387.73	416.79	36.56	841.08	756.87	474.24	42.07	1,273.18
Villages Total	5,666.95	8,091.04	2,035.89	15,793.89	5,038.91	12,278.91	2,441.57	19,759.39	6,399.24	10,583.70	1,370.18	18,353.13	5,473.93	17,661.49	2,624.16	25,759.58	6,522.67	8,712.84	1,576.77	16,812.28
T. Berry ⁶	44.25	25.90	0.05	70.20	80.47	41.71	0.05	122.23	39.81	53.10	0.05	92.96	120.29	228.21	-	348.50	45.40	37.89	0.05	83.34
T. Blooming Grove	149.60	247.90	25.00	422.50	181.40	271.80	35.20	488.40	205.60	202.50	22.50	430.60	354.60	248.70	83.70	687.00	173.10	154.40	21.20	348.70
T. Bristol ⁷	236.73	296.42	9.33	542.48	241.94	570.8	9.41	308.43	151.07	154.97	9.33	315.37	391.05	-	2.53	393.58	363.34	-	13.24	376.58
T. Burke	264.30	255.90	11.10	531.30	225.30	96.00	13.30	334.60	397.90	662.70	12.40	1,073.00	232.00	597.90	7.30	837.20	271.20	383.20	6.00	660.40
T. Cottage Grove ⁸	592.07	262.18	1.39	855.65	483.42	398.18	1.47	883.08	396.46	368.21	1.47	766.15	441.66	395.40	1.64	838.70	529.52	760.50	1.47	1,291.49
T. Cross Plains ⁹	106.74	-	0.56	107.30	92.58	6.20	0.59	99.37	687.84	-	0.59	688.42	134.36	0.89	0.59	135.85	118.44	64.50	0.62	183.56
T. Dunkirk ¹⁰	164.09	89.89	5.01	258.99	201.91	92.75	5.14	299.80	217.47	127.77	4.36	349.60	185.77	166.63	7.55	359.95	199.70	78.17	4.30	282.17
T. Dunn	657.30	844.50	13.00	1,514.80	631.20	216.10	13.00	860.30	663.80	268.40	13.20	945.40	636.40	382.60	12.40	1,031.40	772.40	339.90	12.00	1,124.30
T. Madison	350.70	-	49.10	399.80	295.00	165.80	39.30	500.10	243.80	-	41.40	285.20	277.90	24.80	36.50	339.20	318.40	-	37.20	355.60
T. Middleton	834.10	498.40	53.60	1,386.10	639.10	559.50	77.30	1,275.90	680.70	1,402.60	251.20	2,334.50	641.80	941.30	305.30	1,888.40	741.40	418.90	184.60	1,344.90
T. Oregon ¹¹	145.10	109.78	-	254.88	161.40	94.79	-	256.19	165.69	127.85	-	293.54	167.36	273.90	-	441.26	138.14	94.11	-	232.26
T. Pleasant Springs ¹²	386.62	209.56	1.82	598.00	447.24	-	0.65	447.90	435.65	-	0.52	436.17	722.83	-	0.59	723.42	726.02	-	0.65	726.67
T. Rutland ¹³	169.44	93.34	1.05	263.83	85.37	101.67	1.05	188.09	90.08	105.15	0.76	195.99	87.69	90.91	1.56	180.16	85.26	124.67	0.83	210.76
T. Springfield ¹⁴	340.89	151	1.46	343.87	289.96	3.63	1.46	295.06	343.52	7.27	1.46	352.25	239.88	-	1.26	241.14	123.07	105.71	1.51	230.29
T. Sun Prairie ¹⁵	264.46	-	-	264.46	245.26	8.56	-	253.82	391.37	2.54	-	393.91	397.79	11.84	2.01	411.64	177.02	123.70	-	300.72
T. Verona ¹⁶	180.96	259.61	2.42	442.99	1,272.46	220.04	2.26	1,494.76	185.24	235.95	0.32	421.52	253.96	277.54	1.05	532.55	327.04	151.00	1.94	479.98
T. Vienna ¹⁷	491.42	75.26	1.90	568.58	247.44	107.41	2.77	357.62	290.69	110.32	2.17	403.17	276.27	184.43	0.54	461.24	363.51	356.13	1.96	721.60
T. Westport	1,109.20	-	3.90	1,113.10	1,350.00	-	3.70	1,353.70	684.60	-	4.60	689.20	496.60	-	4.10	500.70	634.70	875.10	3.30	1,513.10
Towns Total	6,487.98	3,270.15	180.70	9,938.83	7,171.45	2,441.24	206.66	9,819.35	6,271.28	3,829.34	366.34	10,466.95	6,058.21	3,825.05	468.61	10,351.87	6,107.66	4,067.89	290.88	10,466.42
MPO PL Area Total	55,778.3	47,420.8	14,659.7	117,858.8	55,515.6	53,540.7	12,618.7	121,675.0	59,377.0	75,513.4	11,568.3	146,458.6	67,860.6	95,918.7	15,898.2	179,677.5	68,186.5	97,173.6	16,030.5	181,390.6

¹ (Highway Maintenance and Administration) Roadway operations and maintenance costs, including costs for engineering, highway equipment, and buildings. For county, includes depreciation for equipment and buildings.

² (Highway Construction) Includes operating expenditures and capital costs for constructing roadways. ³ (Road Related Facilities) Includes operating expenditures and capital costs for road related facilities costs, including limited purpose roads, street lighting, sidewalks, storm sewers, and parking facilities.

⁴ Area in MPO area estimated at 89.19%.

⁹ Area in MPO area estimated at 30.86%.

¹⁴ Area in MPO area estimated at 50.48%.

⁵ Area in MPO area estimated at 76.49%.

¹⁰ Area in MPO area estimated at 65.09%.

¹⁵ Area in MPO area estimated at 66.90%.

⁶ Area in MPO area estimated at 24.93%.

¹¹ Area in MPO area estimated at 45.16%.

¹⁶ Area in MPO area estimated at 80.75%.

⁷ Area in MPO area estimated at 72.35%.

¹² Area in MPO area estimated at 65.12%.

¹⁷ Area in MPO area estimated at 67.68%.

⁸ Area in MPO area estimated at 81.88%.

¹³ Area in MPO area estimated at 36.22%.

Note: Costs rounded to nearest \$1,000. ⁴² indicates zero or no data available.

Source: Wisconsin Dept. of Revenue, County and Municipal Revenues and Expenditures Reports.

Figure 5—a Historical County and Municipal Street/Roadway Expenses (\$1,000's) within the Madison Metropolitan Planning Area

- State Highway Rehabilitation (SHR) program, which funds maintenance work on existing state highways along with safety and minor capacity improvements;
- Highway System Management and Operations (HSMO) program, which funds activities to ensure the proper functioning and safety of the state highway system, including traffic operations and management of the State Traffic Operations Center; and
- Majors program, which funds the most complex and costly projects, often involving capacity expansion, to address the most serious deficiencies on the most important state highways.

Figure 5-b shows the annual federal and state funding program revenue estimates (in current dollars), in most cases based on recent funding levels over the past 5-6 years (2016-2021), but modified by the federal program funding increases provided by the IIJA, which are assumed to continue moving forward. WisDOT provided the data on recent federal and state program funding. For state highway construction, estimated annual funding for Majors program, backbone and non-backbone highway projects, and bridge projects is \$52.7 million, while estimated funding for state highway maintenance and operations is \$9.1 million, for a total of \$61.8 million. Estimated annual federal funding for local roadway and bridge construction projects is \$13 million, including \$9 million in STBG Urban funding through the MPO.

Annual State Highway and Local Roadway Revenue Estimates (\$1,000s) for the Metropolitan Planning Area

Roadway Construction	Funding Program	Avg. Annual Funding (\$1,000s)
State Highways		
Federal/State Funding	STH Expansion - Majors Program	\$23,932
	Combined Backbone and non-Backbone	\$27,547
	State Highway Rehabilitation Bridges	\$1,213
Subtotal of State Highways		\$52,692
Local Roadways		
Federal Funding	Surface Transportation Block Grant (STBG) Urban	\$8,986
	Highway Safety Improvement Program (HSIP)	\$1,488
	Bridge Program	\$2,480
State Funding	70 % General Transportation Aids (GTA)	\$18,739
	70% Connecting Highway Aids (CHA)	\$420
	Local Road Improvement Program	\$658
Local Funding	Total County/Local Revenue (from State Department of Revenue) less Federal/State Funding Estimate	\$59,003
Subtotal of Local Roadways		\$91,774
Subtotal		\$144,466
Roadway Maintenance and Operations	Funding Program	Avg. Annual Funding (\$1,000s)
State Highways		
Federal/State Funding	State Highway Maintenance and Operations	\$9,060
Local Roadways		
State Funding	30% General Transportation Aids	\$8,031
	30% Connecting Highway Aids	\$180
Local Funding	Total County/Local Revenues (from State Department of Revenue) less Federal/State Funding Estimate	\$53,189
Subtotal of Local Roadways		\$61,400
Subtotal		\$70,460
Total		\$214,926

Figure 5-b Annual State Highway and Local Roadway Revenue Estimates (\$1,000s) for the Metropolitan Planning Area

Estimated annual state funding is \$19.8 million with the vast majority of this coming from the General Transportation Aids program. Estimated annual local funding is \$59 million for a grand total of \$91.8 million. Estimated annual funding for local roadway maintenance and operations is \$61.4 million, including \$8.2 million in state funding and the rest local. Estimated local funding for local roadway construction and operations and maintenance was estimated by subtracting past federal/state funding from total average revenues from 2015–2019, the latest years for which data was available.

PUBLIC TRANSIT FUNDING

The major transit operator in the Madison area is Metro Transit, which is owned by the City of Madison and operates within the oversight of the Mayor, Common Council, and the City’s Transportation Commission. Metro contracts with other municipalities and public institutions (including UW–Madison, UW Health, and the Madison Metropolitan School District) to provide service for their constituents.

Metro’s capital and operating costs are funded through a combination of federal funding, state operating assistance, passenger fares, and local funds primarily derived from the property tax. Federal funding may be used for capital project expenses, preventive maintenance costs, and a portion may be used for complementary paratransit service for persons unable to use fixed-route transit.

The majority of Metro’s federal funding comes from the Section 5307 Urbanized Area Formula Program (UAFP), which is apportioned based on revenue vehicle-miles, population, and population density. Metro’s FFY 2021 apportionment of Section 5307 UAFP funding was \$7.2 million. Metro also receives Federal Section 5337 State of Good Repair and Section 5339 Bus and Bus Facilities Formula Program funding. Funding for the Section 5337 program is based on the miles of bus lanes and other dedicated transit facilities, such as the State Street pedestrian and transit mall, while funding for the Section 5339 program is based on urbanized area population and bus passenger-miles traveled divided by operating costs. Metro’s FFY 2021 apportionment for these two programs combined was \$1.7 million. Two discretionary components to the Section 5339 program were added under the FAST Act: a bus and bus facilities program based on asset age and condition and a low or no emissions bus deployment program. The Infrastructure Investment and Jobs Act (IIJA) adds 27% to Metro’s 5307 program allocation and

24% to the 5339 program allocation beginning in FFY 2022. Inflationary increases to these higher program allocations are assumed moving forward.

Funding, in particular operating funds, has been and continues to be a major challenge for Metro. At one time in the mid-1990s state operating assistance covered 45% of Metro’s operating budget; however, state funding has been relatively flat and in 2019 state assistance covered just 31.5% of operating expenses for the system. Figure 5-c shows the distribution of Metro’s operating revenue from 2016–2020. In the 2016–2019 period, the percent covered by local funding decreased slightly from 33.2% to 29.8%, and the percent covered by fares increased from 23.8% to 27.0%. The COVID-19 pandemic resulted in very different 2020 operational funding, with fares and directly generated funding decreasing to 16.3%, local funding decreased

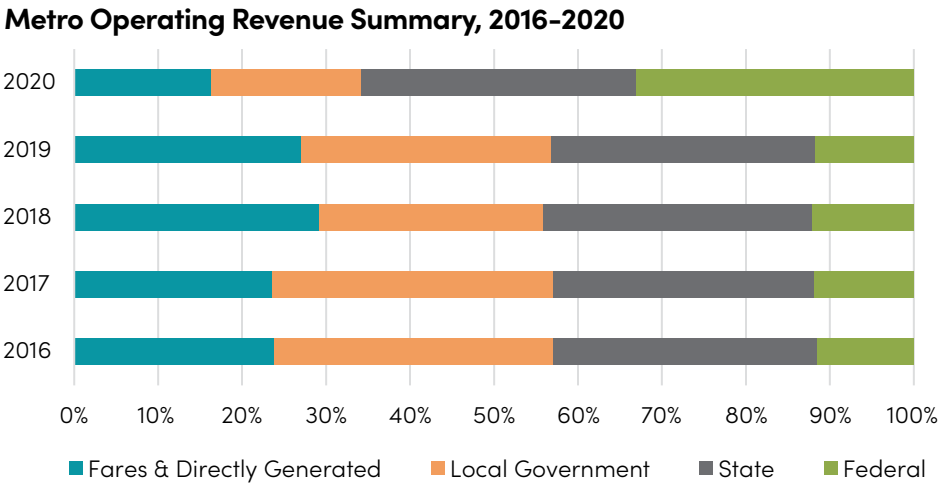


Figure 5-c Metro Operating Revenue Summary, 2016–2020

to 17.9%, and federal support increased to 33.0%.

Given flat state funding and tight local budgets, in part due to the state expenditure restraint program, and the many other competing demands for property taxes, it will become increasingly difficult for Metro to cover inflationary operating cost increases in the future let alone meet the service improvement and expansion needs of the growing metro area and address its capital needs, including bus replacements. Because Metro has had to use the majority of its federal funding for eligible operating expenses, this has put a squeeze on its capital budget. A regional transit governance structure with a dedicated local source of transit funding will be required in order to make major regional service improvements such as building out the full BRT system, initiating express commuter service to outlying communities, and increasing service frequency in the core area.

The state legislature adopted legislation in 2009 authorizing the creation of the Dane County Regional Transit Authority (DCRTA) with the authority to implement a local sales tax of up to ½ percent. The DCRTA was formed in 2010 and, with the help of City of Madison, Metro, and MPO staff, developed a draft short-term plan for improved transit service to support a referendum on a ¼ percent sales tax. However, Assembly Bill 40 (Act 32) was passed in 2011, eliminating the RTA authorizing legislation and dissolving the DCRTA.

Lacking enabling legislation for a regional transit authority, in 2020 the City of Madison adopted a new motor vehicle registration fee (VRF), which replaces \$3.6 million/year in Metro funding that had previously come from property tax revenue, adds \$2.7 million to address increasing operational costs, and provides \$1.5 million for expanded transit service including BRT.³ Dane County also collects a VRF, a portion of which could conceivably be used to support the provision

³ See <https://www.cityofmadison.com/transportation/documents/VRF/VRF.pdf>

of transit service to areas and communities outside the current Metro service area. While regressive, VRFs have the potential to close the funding gap for incremental system growth while a long-term funding solution to regional transportation needs is secured.

Figure 5-d shows Metro Transit's average annual capital and operating revenue estimates based on 2016–2019 funding taken from the agency's National Transit Database (NTD) reports and an adjustment to federal formula program funding (Section 5307, 5337, and 5339) to reflect IIJA increases, which are

Annual Transit Revenue Estimates for the Metropolitan Planning Area

Metro Transit	Funding Program	Avg. Funding ¹
Capital		
Federal Funding	Urbanized Area Formula Program (5307), State of Good Repair Formula Program (5337), Bus & Bus Facilities Formula Program (5339)	\$5,819,008
Local Funding	City of Madison Property Taxes and Cooperative Agreements with Neighboring Municipalities	\$4,751,550
<i>Subtotal</i>		\$10,570,558
Operating		
Federal Funding	Urbanized Area Formula Program (5307), Special Needs/ADA (5310)	\$8,076,490
State Funding	State Operating Assistance	\$17,373,811
Local Funding	City of Madison Property Taxes and Cooperative Agreements with Neighboring Municipalities, and Other Revenues	\$16,974,631
Fares & Directly Generated	Collections on Buses, Transit Passes, Advertising, etc.	\$14,235,511
<i>Subtotal</i>		\$56,660,444
Total		\$67,231,002

¹ Includes adjustment to federal funding to reflect increases in Federal funding under IIJA.

Figure 5-d Annual Transit Revenue Estimates for the Metropolitan Planning Area

assumed to carry forward into the future. Between 2016 and 2019, capital revenues fluctuated considerably year-to-year, ranging from a low of \$6.8 million in 2016 to a high of \$14.4 million in 2019, averaging \$9.4 million annually. Operating revenues were held relatively flat year-to-year, ranging from \$54.2 million in 2018 to \$55.8 million in 2017, with a 4-year average of \$55 million. This mirrored relatively small changes in service hours between 2016 and 2019, with a high of 406,400 in 2018 and a low of 403,600 in 2019. The four-year average for capital and operating revenues combined was \$64.4 million. Including increased formula funding under the IIJA, which will increase 24-27%, the average annual combined capital and operating revenues are estimated to increase to \$67.2 million.

BICYCLE AND PEDESTRIAN FUNDING

Local sources provide most of the funding used for off-street bicycle and pedestrian facilities. This includes Dane County’s PARC & Ride grant program, which has provided a total of over \$2 million in three of the past six years⁴ for grants to local communities for bicycle trail projects or an average of \$333,000 per year. Federal funding for off-street bicycle and pedestrian facilities is provided primarily through the Transportation Alternatives Program (TAP). The MPO receives an allocation of TAP funds, which it directs towards projects it selects. The

⁴ 2015, 2018, and 2021; 2022 awards were being finalized at the time of this writing.

MPO’s annual allocation of funding has been \$617,000, but will double to \$1.24 million under the IIJA. WisDOT also receives a TAP funding allocation, which it uses to fund projects throughout the state. Madison area projects are also eligible for this statewide pool of funds, and at least one Madison area project has been awarded statewide funding in each of the past two program cycles, with total TAP funding for area projects averaging approximately \$200,000 in each of the last four years. The state’s allocation of TAP funding will also double under IIJA. Factoring in the increases in IIJA funding for the MPO and state, it is estimated that the average annual TAP funding will be around \$1.64 million.

Off-street bicycle facilities, such as grade-separated crossings and side paths, have also been included in recent years as part of street construction projects funded by the MPO through the federal STBG (formerly STP) Urban program. However, this funding through street or highway projects has not been included as part of the revenue estimate.

Annual Off-Street Bicycle and Pedestrian Facilities Funding Estimates (\$1,000s) for the Metropolitan Planning Area

Bicycle and Pedestrian Facilities	Funding Program	Average Annual Funding
State and Local Funding	DNR, Dane County PARC and Ride Bicycle Grant Program, Local municipal, Other	\$7,019
Transportation Alternatives	STBG - Transportation Alternatives Program (TAP) Set Aside (MPO and WisDOT)	\$1,640
Total		\$8,659

Figure 5-e Annual Off-Street Bicycle and Pedestrian Facilities Funding Estimates (\$1,000s) for the Metropolitan Planning Area

Figure 5-e shows the estimated annual revenue for off-street bicycle facility projects based on the average annual amount of local, state, and other funding for new path projects programmed in the TIP from 2018 to 2022 and the expected TAP funding with the increase in funding under IIJA.

Projected Revenues through 2050

Figure 5-f shows the projected total transportation revenues for state highway, local roadway, transit, and bicycle/pedestrian facility projects for the next 28-year period from 2022 to 2050. The estimated revenues are based on the average annual estimates in Figures 5-b, 5-d, and 5-e, which, as noted, are based on recent and programmed funding levels, as well as the federal funding program increases in IIJA. Inflationary increases to the revenue sources are assumed. It is estimated that a total of almost

Estimated Transportation Revenue, 2022 – 2050 (\$1,000s) for the Metropolitan Planning Area

Source	2022-2026	2027-2035	2036-2050	Total
Roadway Construction				
State Highways				
Federal/State Funding	\$274,211	\$567,487	\$1,202,342	\$2,044,040
Local Roadways				
Federal Funding	\$67,413	\$139,513	\$295,588	\$502,515
State Funding	\$103,128	\$213,427	\$452,190	\$768,746
Local Funding	\$319,579	\$759,698	\$2,045,892	\$3,125,170
<i>Subtotal of Local Roadways</i>	<i>\$490,121</i>	<i>\$1,112,639</i>	<i>\$2,793,671</i>	<i>\$4,396,430</i>
Subtotal of Roadway Construction	\$764,332	\$1,680,126	\$3,996,012	\$6,440,471
Roadway Maintenance and Operations				
State Highways				
Federal/State Funding	\$47,149	\$97,575	\$206,734	\$351,458
Local Roadways				
State Funding	\$42,730	\$88,432	\$187,361	\$318,523
Local Funding	\$285,224	\$654,997	\$1,661,295	\$2,601,517
<i>Subtotal of Local Roadways</i>	<i>\$327,955</i>	<i>\$743,429</i>	<i>\$1,848,656</i>	<i>\$2,920,040</i>
Subtotal of Maintenance and Operations	\$375,103	\$841,004	\$2,055,390	\$3,271,497
Metro Transit				
Capital				
Federal Funding	\$167,128	\$188,500	\$271,530	\$627,158
Local Funding	\$95,548	\$109,344	\$103,822	\$308,713
<i>Subtotal of Capital</i>	<i>\$262,676</i>	<i>\$297,844</i>	<i>\$375,352</i>	<i>\$935,872</i>
Operating				
Federal Funding (does not include capital funds used for eligible operating expenses)	\$8,770			\$8,770
State Funding	\$81,642	\$187,111	\$396,434	\$665,187
Local Funding	\$105,884	\$186,471	\$395,079	\$687,434
Farebox	\$80,735	\$177,849	\$379,090	\$637,673
<i>Subtotal of Operating</i>	<i>\$277,030</i>	<i>\$551,431</i>	<i>\$1,170,603</i>	<i>\$1,999,065</i>
Subtotal of Metro Transit	\$539,706	\$849,275	\$1,545,955	\$2,934,936
Bicycle and Pedestrian Facilities				
On-Street Facilities	----included as part of street project funding----			
Off-Street Facilities				
Federal/State Funding	\$8,705	\$18,016	\$38,170	\$64,892
Local Funding	\$37,259	\$77,108	\$163,370	\$277,736
<i>Subtotal of Off-Street Facilities</i>	<i>\$45,964</i>	<i>\$95,124</i>	<i>\$201,540</i>	<i>\$342,628</i>
Subtotal of Bicycle and Pedestrian Facilities	\$45,964	\$95,124	\$201,540	\$342,628
Total Projected Revenue	\$1,725,105	\$3,465,529	\$7,798,897	\$12,989,532

Figure 5-f Estimated Transportation Revenue, 2022 – 2050 (\$1,000s) for the Metropolitan Planning Area

\$13 billion will be available to finance projects over the 28-year planning period. This includes \$6.4 billion for roadway construction, \$3.3 billion for roadway operations and maintenance, \$2.9 billion for transit, and \$343 million for multi-use path construction.

The average annual federal and state roadway revenue estimates are based on a 6-year rolling average⁵ of expended funds between 2016 and 2021 obtained from WisDOT. A percentage increase in the federal funding was applied based on the percentage increase in federal programs (NHPP, HSIP) funding under the IIJA. Local roadway revenue estimates are based on the 5-year average of expended funds from 2015–2019 obtained from State Department of Revenue reports, subtracting out federal and state funding received. An additional 2% annual increase beyond the 2% inflationary factor (4% total) was assumed for local construction funding and 1.5% for operations and maintenance funding, reflecting additional property tax revenue from new growth. The increases were necessary to provide sufficient revenues to cover estimated expenses accounting for the growth in street lane miles.

Metro Transit capital (federal and local) and operating (federal, state, local) revenues are based on programmed expenditures for years 2022–2026 due to the unique nature of these years with the East-West BRT project. Revenues are based on the 4-year average from 2015–2019 in the agency's National Transit Database (NTD) reports for remaining years, with an adjustment to the federal funding to account for increases under IIJA.⁶ As noted above, federal funding for off-street bicycle and pedestrian facilities is based on the MPO's FY 2022 allocation of TAP funding under IIJA and estimated amount of statewide TAP funding the region will receive with the increase under IIJA and recent experience with local projects receiving grants. State, local, and other funding is based on the average funding programmed from 2018–2022 for bicycle path projects.

Average annual funding levels were extrapolated to 2050 using an inflation rate of two percent. Funds were then divided into three time

⁵ 5-year rolling average period for the General Transportation Aids and Connecting Highway Aids programs. Local Bridge program funding is based on average annual project funding programmed for FY 2021–25. Majors program funding is based on average annual amount enumerated for projects from FY 2022–2026.

⁶ Year 2020 data was excluded due to the unique budget situation that year due to COVID-19.

periods (2022–2026, 2027–2035, and 2036–2050) reflecting programmed projects over the next five years, the following eight (8) years to 2035, and the final fifteen (15) years to 2050. A larger increment was used for the final 15 years due to the greater uncertainty that far out into the future.

Projected Expenses through 2050

Figure 5-g shows projected transportation expenses. Expenses are estimated at \$12.5 billion for the planning period. Separate methodologies, detailed below, were developed to determine future expenses for roadway construction, maintenance, and operations; Metro Transit capital and operating costs; and off-street multi-use path and grade-separated bicycle/pedestrian crossing facilities.

ROADWAY CONSTRUCTION, MAINTENANCE, AND OPERATIONS

To begin the process of projecting expenses for construction and maintenance and operations of the roadway network in the region, the revenue analysis was coupled with a pavement condition analysis to compare funding levels from 2015 to 2019 with the trend in pavement conditions over that same time period for all roadways by jurisdiction (state, local) and functional classification (arterial, collector, local). For the state highway system, Interstate and U.S. Highway pavement conditions in the Metropolitan Planning Area

improved over this time period, while State Trunk Highway pavement conditions got worse. The measure used to assess the condition of state highways is Pavement Condition Index (PCI), which reflects the structural integrity of the roadway. PCI was developed by the US Army Corps of Engineers, and is based on a visual survey of the number and types of distresses in the pavement.⁷

⁷ The federally mandated performance measures for pavement condition are the percentage of Interstate Highway and non-Interstate National Highway System (NHS) highways in good and poor condition. Good and poor condition is determined based on three metrics: cracking percent, international roughness index (IRI), and rutting (for asphalt pavement sections) or faulting (for joined concrete pavement sections). The MPO has thus far been unable to calculate the federal pavement measure due to issues regarding data quality and extent of data coverage. The PCI measure has been used by the state for many years and was determined to be most appropriate for this analysis. The MPO will begin tracking and reporting on the federal measure when the data issues have been resolved.

Estimated Transportation Expenses, 2022 – 2050 (\$1,000s) for the Metropolitan Planning Area

Source	2022 2026	2027 2035	2036–2050	Total
Roadway Construction				
State Highways	\$274,211	\$567,487	\$1,202,342	\$2,044,040
Local Roadways	\$482,098	\$1,097,591	\$2,801,400	\$4,381,089
Subtotal	\$756,309	\$1,665,078	\$4,003,741	\$6,425,129
Roadway Maintenance and Operations				
State Highways	\$47,149	\$97,575	\$206,734	\$351,458
Local Roadways	\$333,308	\$741,813	\$1,828,269	\$2,903,390
Subtotal	\$380,456	\$839,388	\$2,035,003	\$3,254,848
Metro Transit				
Capital Expenses	\$211,954	\$536,808	\$270,694	\$1,019,455
Operating Expenses	\$200,880	\$412,190	\$846,489	\$1,459,559
Subtotal	\$412,834	\$948,997	\$1,117,183	\$2,479,015
Bicycle and Pedestrian Facilities				
On-Street Facilities	----included as part of street project funding----			
Off-Street Facilities	\$25,280	\$95,124	\$201,540	\$321,944
Subtotal	\$25,280	\$95,124	\$201,540	\$321,944
Total Projected Expenses	\$1,574,879	\$3,548,588	\$7,357,467	\$12,480,935

Figure 5-g Estimated Transportation Expenses, 2022 – 2050 (\$1,000s) for the Metropolitan Planning Area

Local roadway pavement conditions — as measured by a similar rating system as PCI called Pavement Surface Evaluation and Rating or PASER—got worse overall from 2015 to 2019. There was a small improvement for arterial roadways, but the percentage of collectors and local roadways — which

make up the vast majority of mileage — in fair and poor condition increased. In 2019 the percentage of the local roadway system in poor condition ranged from 5% for arterials to 16% for local roads. The percentage of the local system in fair condition ranged from 16% for arterials to 38% for local roads. The percentage of the local system in fair condition ranged from 31% for arterials to 38% for local roads. The overall much better condition of state highways can be tied to state funding priorities and local funding challenges. The state has just recently increased the percent of the state transportation budget going to local roadway programs.

Figure 5-h shows the pavement condition of state highways by type and local roadways by functional classification in 2015 and 2019.

Next, average per lane mile roadway construction and maintenance and operations costs were calculated for local roadways within the City of Madison, other metropolitan area cities and villages, area towns, and county highways by taking the total lane miles and dividing that by the annual costs in 2015, 2017, and 2019 and then averaging the cost per mile for those years. Average construction cost was highest for Dane County at \$29,360 per lane mile. City of Madison and suburban city/village costs were similar at \$20,750 and \$22,290 respectively while town costs were much cheaper at \$3,800. Dane County also spent the most per lane mile on maintenance and operations at \$19,020 followed by Madison at \$16,160, suburban cities and villages at \$12,170, and towns at \$5,940. The much lower town costs reflect the rural nature of those roads

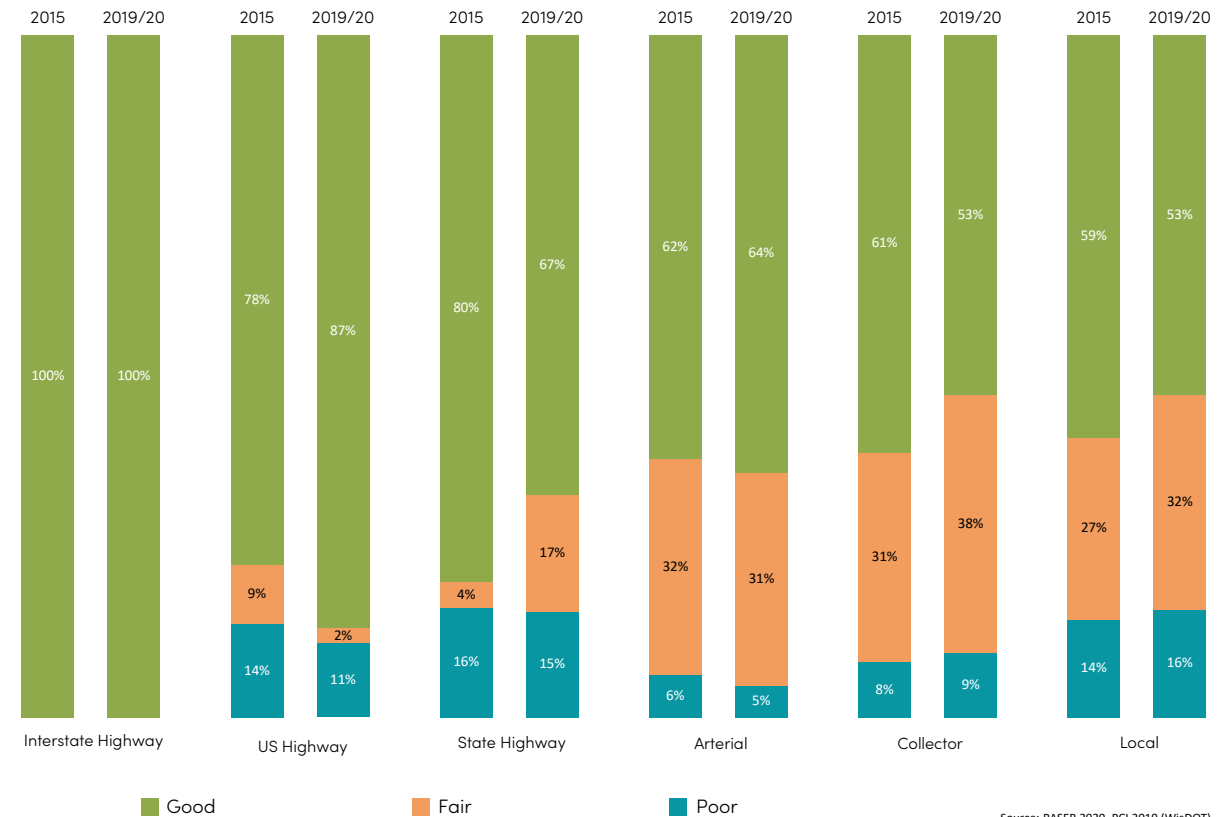
without pedestrian and bicycle facilities, street lights, etc.

A lane mileage growth factor was calculated by comparing year-over-year growth of the local roadway network (arterials, collectors, local streets) for Dane County, City of Madison, suburban cities and villages, and towns. The mileage in towns actually showed a declining trend due to annexations. The number of lane-miles grew at a rate of 0.88%

in the City of Madison and 2.99% in suburban cities and villages, reflecting the faster percentage growth in the suburbs and in particular peripheral growth with new street construction. The growth rates, lane mileage costs, and inflation factor of 2 percent were applied for construction and operations and maintenance and extrapolated out to 2050.

Using these assumptions, it is projected that \$4.4 billion will be needed for local roadway

Pavement Condition by Roadway Type in the Madison Metropolitan Planning Area



Source: PASER 2020, PCI 2019 (WisDOT)

Figure 5-h Pavement Condition by Roadway Type in the Madison Metropolitan Planning Area

construction over the 28-year planning period to 2050, while \$2.9 billion will be needed for maintenance and operations. As noted, local roadway revenue will need to increase 4% annually (including a 2% inflationary factor) for construction and 3.5% annually for operations and maintenance from the recent annual average in order to provide sufficient revenue to cover expenses. With this assumption, projected local roadway revenues are \$4.4 billion for construction and \$2.9 billion for maintenance and operations. However, this would result in a continued slow deterioration of local roadway conditions based on recent trends. Revenue and spending would need to be increased in order to improve or even maintain current roadway conditions. That increased spending would help ensure that roadways receive preventive maintenance before significant deterioration, which can add 15-20 years of useful life at a substantial cost savings over reconstruction. Even with timely maintenance, streets eventually need to be reconstructed and utilities replaced.

Figures A-c and A-d in Appendix A include lists of programmed, planned, and other potential needed future local arterial reconstruction projects based on current roadway condition, the year a roadway was originally constructed (where that data was available), and assumed future development. The figures also include some programmed and planned projects to improve traffic operations and safety. The total inflation adjusted cost of these local roadway projects

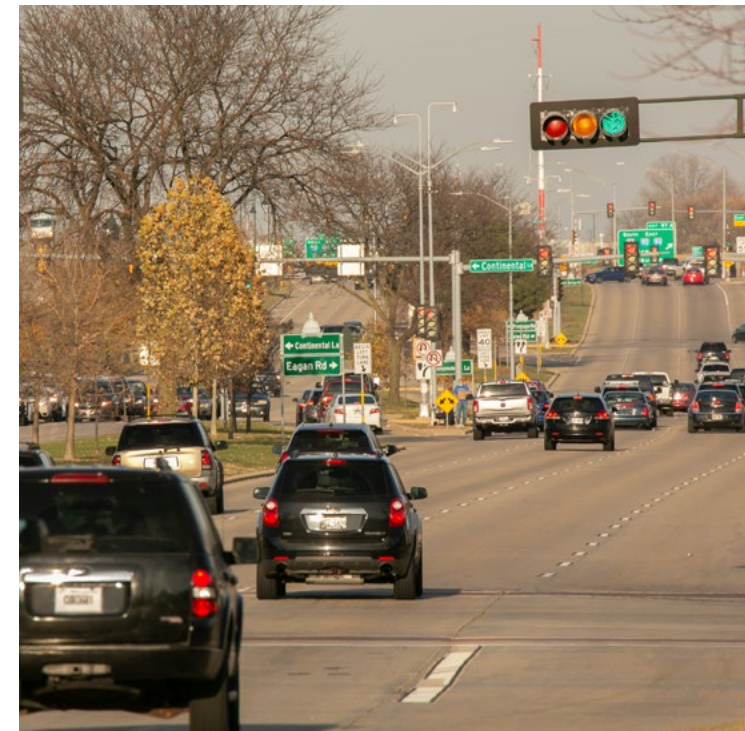
over the planning period is \$441 million. This includes some programmed and planned intersection and bridge projects. Some of the identified potential roadway reconstruction projects are in peripheral developing or planned development areas that will need to be reconstructed to urban standards, but many are in existing older already developed areas.

Figures A-a and A-b include lists of programmed and planned local arterial capacity expansion projects. The cost of these projects totals \$232 million in inflation adjusted dollars over the planning period. The estimated expenses for local roadway construction accounts for growth in lane miles so the cost of these capacity projects as well as the preservation projects should be accounted for in the estimated expenses.

The major source of funding for local arterial reconstruction projects is the Surface Transportation Block Grant (STBG) (formerly STP) Urban program for which the MPO receives an allocation of funding for each multi-year program cycle. The total amount of STBG Urban funding projected to be available over the 28-year planning period is \$349 million, assuming 2% annual inflationary increases in funding. Using the current 60/40 cost share policy of the MPO, this would fund projects totaling \$582 million. This would cover 89% of the local arterial reconstruction projects (both capacity expansion and preservation) identified. Some of the projects listed will be funded locally and so even though some STBG Urban funding has been

and will be used for other types of projects, this demonstrates the feasibility of funding the major regional local arterial reconstruction project needs.

Recent trends demonstrate excellent pavement conditions on the Interstate system and improving conditions on U.S. Highways, but declining conditions on the State Trunk Highway System. This analysis assumes that construction and maintenance and operations will continue at recent expenditure levels, but with an increase in federal funding as included in the IIJA and with a 2% inflationary growth factor. As previously noted, state funding for roadway





construction has actually been declining in constant dollars since 2006 when state gas tax indexing was eliminated. The trend in pavement condition of the state and local roadway systems will continue to be monitored to determine whether the trend of declining condition is reversed or if the current condition can at least be maintained. This will require increased investment in roadway preservation.

For state highway construction expenditures, programmed and other near-term planned projects have been identified with costs estimated using the 2% annual inflationary factor. The projects are included in the

Figures A-a through A-d in Appendix A. The programmed major projects include the Beltline Flex Lane project, which is almost completed, the U.S. Highway (USH) 51 (McFarland to Stoughton) project which is scheduled for construction in phases in 2025–2028, and the USH 12/18 and CTH AB interchange. A major planned project is the reconstruction of Park Street (USH 151), a state connecting highway, which will need to be coordinated with the planned North/South BRT project.

Future Major Highway Development program projects, which often involve a capacity expansion and must be recommended for enumeration by the state Transportation Projects Commission (TPC) and enumerated by the Legislature and Governor, are not known at this time. Studies are currently ongoing for the Beltline, Stoughton Road (USH 51), and the Interstate north of the Beltline. The recommended scope of improvements for these corridors have not been determined. Once the studies are completed, the specific improvements identified, costs estimated, and Major Highway Development program funding either secured or determined to be reasonably likely to be available, the plan will be amended to add the project(s) with an updated financial analysis. The plan does recommend one additional major corridor study for the STH 19/STH 113/CTH M/CTH K corridor at some point in the future, likely after 2035. The plan does include a capacity expansion in the CTH K corridor, potentially

off alignment, with an interchange at USH 12, which is part of this longer corridor.

Based on the funding for the Madison area projects enumerated in the Major Highway Development program for FYs 2022–2026 for the USH 51 and Interstate, if averaged out over five years, a total of \$928 million in inflation adjusted funding could be expected to be available during the planning period. Depending upon the scope of improvements, this could potentially cover some or all of the costs of two major projects, but probably not projects in all three corridors currently being studied. However, Major funding is awarded on a competitive basis statewide and both the Interstate and Beltline projects would rate high in terms of importance. Given the needs in the rest of the state, including the southeast area freeway system, it is probably safe to say additional state funding would be needed to cover the cost of major projects in all three corridors, not to mention any major improvements in the STH 19 corridor while at the same time addressing preservation needs on the state highway system.

It is estimated that a total of \$2.04 billion in funding will be available for state highway construction over the planning period and another \$351 million for maintenance and operations. The total cost of programmed state highway projects and studies for 2022–2026 is \$181 million. The cost of other near-term planned projects is another \$158 million. Because the list of Major Highway Development program projects and other state highway construction projects



addressing safety and preservation is very incomplete, and there is no way to realistically estimate all future state highway system expenses, it is assumed that all available funding for construction will be expended and thus expenditures were set to match revenues. If the average annual programmed funding was extrapolated out for the 28-year planning period it would result in expenditure of a little over \$1 billion, leaving another \$1 billion available for Major Highway projects that come out of the current Beltline, Stoughton Road, and Interstate studies.

PUBLIC TRANSPORTATION

Capital Costs

The single largest recurring capital expense for Metro Transit is for the purchase of replacement buses. Metro typically replaces buses on a cycle of about 15 years. With a fleet of just over 200, it purchases about 15 new buses per typical year. The usual 2021 bus procurement was deferred to support the purchase of 43 60-foot articulated buses for the BRT system in 2022. Metro currently “retires” older buses from all-day service to peak-only or other limited services, allowing them to minimize new bus purchases. The draft plan in the Metro Network Redesign dramatically reduces peak-only service and expands the number of buses that will be in service all day, which will result in Metro’s needing to replace vehicles more frequently than is currently the practice. Although the number of buses in service for the full service day will increase, the total number of buses required to provide peak period service will be reduced by flattening service levels throughout the day. This will reduce Metro’s required fleet size, offsetting the higher cost to replace buses more frequently.

Other major capital costs include: the ongoing renovation of Metro’s East Washington Ave. maintenance facility; the remodeling of Metro’s new satellite facility on Hanson Road; the construction of East/West Bus Rapid Transit (BRT) facilities; the planning, design, and construction of North/South BRT; and, implementation of new fleet technology

and fare collection systems. Maintaining Metro’s fleet replacement schedule, facility renovation and remodeling, both the East/West and North/South BRT routes, technology upgrades, and other usual capital expenses can be covered with projected revenues based on recent funding trends and the adopted 2022–2026 TIP.⁸ This assumes that Metro is successful in obtaining another Small Starts grant to cover an assumed 50% of the North/South BRT project. FTA awarded Metro a \$6.4 million Buses and Bus Facilities grant for East Washington Ave. maintenance and administrative facility renovations in March 2022.⁹

There are some major new capital costs that will require significant additional funding in order to fully implement the recommended transit system improvements. New buses in the future will be predominantly electric, and will require the construction of charging infrastructure in strategic locations to support the use of these vehicles throughout the system. With more buses in service throughout the day, keeping electric buses charged may require the operation of additional vehicles to provide service during charging periods.

⁸ Due to the historic level of funding required to implement East/West BRT and the unique changes in 2020 funding resulting from the Covid-19 pandemic and federal stimulus packages, figures in the 2022–26 TIP were used for those years; projections for 2027 and beyond are based on 2016–19 averages from annual NTD agency reports adjusted for inflation.

⁹ This grant is not reflected in Figure 5–i, as the TIP will not be amended to include it until after this RTP Update has been adopted.

The extent to which charging requirements drive future fleet needs will depend greatly on charging and battery technology, as well as the provision of adequate charging facilities at strategic locations in the network.

The first phase of the planned BRT system, the East/West corridor, is currently in environmental review and design, with funding for roadway improvements including Transit Signal Priority (TSP), the construction of stations, the first order of 60-foot articulated buses obligated in 2022, and the Hanson Rd renovation project (\$160.8 million total). Additional articulated buses will be ordered in 2023 and 2024 (\$18.1 million), and planning and design for the North/South corridor will begin in 2023 (\$4 million).

Capital funding for East/West BRT is anticipated to be provided in part through a federal Small Starts program grant covering 50% of project costs, which in combination with Metro's formula funding bring the federal share to \$107 million, with a local share of \$53 million. For the North/South BRT corridor, the city is seeking an Areas of Persistent Poverty planning grant, and anticipates construction funding through a federal Small Starts program grant. The City of Madison has included required local match funding for East/West BRT project and required facilities in its multi-year capital budget. Cost estimates for the East/West corridor were used to estimate costs for the North/South corridor, which is part of the fiscally constrained, federally recognized plan. The new Hanson Rd. facility is necessary for

Metro to be able to efficiently service the fleet, and to house and maintain articulated buses, which will be needed for the BRT system. As part of the BRT system, funding of the Hanson Rd. project (\$21.1 million) is considered part of the local 50% match for Small Starts funding of the East/West BRT.

New articulated and electric buses, as recommended in the plan, are more expensive than the standard 40-foot diesel buses and hybrid-electric buses currently in use. Electric buses have become more common as the technology improves and the price drops. Articulated buses have been in use in the industry for many years. With the new service planned (bus rapid transit, new all-day service, frequency improvements, and regional express service), the fleet size would generally be expected to grow by 2050; however, the Network Redesign draft plan (2022) calls for significantly flattening service levels throughout the day, and re-allocating much of the "extra" 2019 peak service hours to all-day service. This results in a smaller number of vehicles being required to operate peak period service, and accordingly the number of service vehicles in Metro's fleet is not expected to need to grow substantially by 2050. Where 183 buses were in service during peak periods in 2019, only 190 are anticipated to be required for planned 2050 service; many of these will be larger 60-foot articulated

vehicles with increased capacity over the standard 40-foot vehicles that currently compose the fleet.

Figure 5-i lists the major capital expenses — including buses — necessary to fully implement the recommended transit improvements. The projected revenue vehicle (bus) replacement cycle will not meet the TAMP Useful Life Benchmark (ULB) performance measure target of no more than 11% of the revenue fleet being beyond the ULB of 14 years in 2024–2027; however, the percentage of the fleet past the ULB generally declines through the rest of the planning horizon and is not projected to exceed the adopted performance measure after 2027.

The recent average annual spending on capital needs is about \$10 million,¹⁰ which is

¹⁰ 2016–19 TIP averages

Estimated Expenses for Major Transit Capital Projects to Fully Implement the Regional Transit Plan

Capital Projects	Estimated Costs (\$1,000s)
East/West BRT	\$143,000
North/South BRT	\$124,684
Southwest/East BRT	\$162,636
Middleton BRT	\$121,676
Hanson Road Satellite Facility Remodel	\$21,115
East Washington Facility Renovations	\$10,124
Transit Coaches	\$489,756
Total	\$1,072,991

Figure 5-i Estimated Expenses for Major Transit Capital Projects to Fully Implement the Regional Transit Plan

generally sufficient for meeting Metro's bus replacement needs, but not for expanding or upgrading the fleet. Some expansion of the fleet for new service and/or upgrading of the fleet to electric buses has been made feasible with other federal funding and increased local funding, but implementation of the full suite of planned improvements will not be possible given currently available funding. Metro will need to continue its phased renovation of the East Washington facility and the remodel of the Hanson Road facility in order to meet PTASP and TAM goals, regardless of whether or not North/South BRT or other system expansions are implemented.

While Metro has been able to secure discretionary federal grants for the East-

West BRT, and is leveraging the Hanson Rd facility's purchase and renovation expenses as part of the local match for Small Starts funding, funding the complete list of capital needs identified in the plan — particularly the Southwest/East and Middleton BRT routes — will require a regional funding mechanism.

Operating Costs

Implementing the service improvements recommended in this plan will require an estimated additional 393,000 annual service hours, a 127% increase over the current 309,000 annual service hours. See Figure 5-j. This planning-level estimate includes expansion of BRT service, new all-day service, frequency improvements in developing areas,

and the network of regional express bus routes. Assuming the service improvements are phased in over the approximately 28-year plan timeframe, the increase translates to about 4.5% per year.

This 4.5% growth rate is considerably higher than Metro's historical service hour growth rate of about 0.8% per year 2010 - 2019. During

that time, Metro Transit's operating funding increased an average of 2.4% per year. This increase allowed for some increased service, such as new express service to Sun Prairie, but was only slightly higher than the rate of inflation. Between 2015 and 2019, service hours fluctuated slightly but remained essentially flat; beginning in 2020, the COVID-19 pandemic resulted in a service hour reduction to 77% of the 2019 service level, but this is considered a short-term reduction and Metro anticipates returning to 2019 service levels in the summer 2023.

Historical levels of annual funding increases will not provide the resources necessary to support the transit service recommendations in this plan. If the number of service hours was to increase at the same rate as operating funding has risen — 2.4% per year — Metro would be able to operate about 69,500 additional annual service hours by 2050, about 18% of the new service hours recommended in this plan. The remaining unfunded 314,500 annual service hours will require a new funding source.

Figure 5-k identifies the types of potential revenue generation mechanisms that might be used to fund the expansion of the transit system as well as the estimated annual revenue generation of these sources. An increased vehicle registration fee alone would not be enough to fund the planned transit system, but would allow Metro to make targeted service expansions and pursue needed capital improvements. A ¼ percent sales tax would likely be sufficient to fund

Estimated Annual Service Hours for Recommended Future Regional Transit System

Service Category	Estimated Annual Revenue Service Hours	Estimated Cost (\$1,000s)(2019 \$)
Existing Metro Transit Service	309,446	\$35,370
Future Transit Network		
East/West BRT	58,984	\$6,742
North/South BRT	56,551	\$6,464
Southwest/East BRT	54,896	\$6,275
Middleton BRT	75,336	\$8,611
All-Day non-BRT Service	412,426	\$47,140
Regional Express & Other Peak-Only Service	44,648	\$5,103
All BRT	245,093	\$28,014
Net Additional Service Hours	393,394	\$44,965

Figure 5-j Estimated Annual Service Hours for Recommended Future Regional Transit System

Potential Funding Mechanisms for Transit Expansion (\$1,000s)

Total Expenses and Funding Gap					
Total Expenses by 2050				\$5,668,053	
Projected Funding Gap				\$2,485,766	
Funding Mechanism	Duration/Qty	Per	Increment	Funds	Difference
½ % RTA Funding	15	YR	\$57,236	\$858,547	\$1,627,219
¼ % RTA Funding	15	YR	\$28,618	\$429,273	\$2,056,493
Madison Vehicle Registration Fee (VRF)	28	EA/YR	\$0.008	\$30,936	
Dane County VRF (Potential \$5)	16	EA/YR	\$0.005	\$26,289	
New Service Partner Funding (OP)	16	YR	\$11,336	\$181,381	
VRF and Service Partner Total:				\$238,606	\$2,247,161

Figure 5-k Potential Funding Mechanisms for Transit Expansion (\$1,000s)

steady increases in service, while a ½ percent sales tax would act as a safeguard against future state and federal funding reductions, and allow faster expansion of service. Neither a ¼ nor a ½-percent sales tax would raise the required amount of funding over a 15-year period for full implementation of the planned system. It is important to note that an RTA could be used to fund transit alone or all modes of transportation depending on the statutory language in the enabling legislation. The recommendations above assume all funds are allocated to transit. If funds are divided between modes, additional funding may be required to implement the planned transit system.

BICYCLE PROJECTS

New urban arterial streets and high-volume collector streets are almost universally built with bicycle facilities. Urban arterial street reconstruction projects generally include

bicycle facilities, where feasible, given right of way constraints and competing demands for the space. The cost of these facilities is included in the budget for street projects. Therefore, no additional need for funding is anticipated for on-street bicycle facilities beyond that projected for the roadway system. Major regional off-street facilities, such as shared-use paths, are generally stand-alone projects, although some side paths and grade-separated crossings are now being funded as part of roadway projects. Recent examples include the S. Pleasant View Rd/CTH M (West), McKee Road/CTH PD, and Johnson Street projects.

The RTP identifies a network of planned regional priority paths. See Figure 4-l on page 4-44. Figure A-e in Appendix A lists these projects and the planning level cost estimate for them. There are also some major shared-use path and grade-separated crossing recommendations that have been

identified as part of major state highway corridor studies, most notably the Beltline and Stoughton Road. It is expected that at least some of those projects would be funded as part of those projects.

Bicycle project costs for programmed projects were taken from the current TIP with an inflationary factor applied. Planned project costs were estimated based on planning-level cost assumptions, taking into account the length of the path, character of the corridor, and presence of bridges and underpasses. Planned projects beyond the 5-year TIP were assigned to one of two time periods – 2027 to 2035 and 2036 to 2050. Project costs include



a 1.74% per year inflationary factor. The total cost of these regional priority projects is \$128 million in inflation adjusted dollars. This includes \$27 million in programmed projects in 2022–2026, \$34 million in 2027–2035, and \$67 million in 2036–2050. The total cost of the projects and the cost within the different time periods is well within the funds projected to be available. Total estimated funding is \$342 million, including \$95 million in 2027–2035 and \$202 million in 2036–2050. The additional funding would allow other path projects beyond the regional priority path projects listed to be completed. Thus, path expenses in the two later time periods in Figure 5-g have been set to equal revenues.

Conclusion

The financial capacity analysis for the RTP assumes a 2% annual inflationary increase in federal, state, and local funding. However, the state gasoline tax rate will need to be increased and eventually other new revenue sources (e.g., mileage based registration fee) created in order to offset lost gas tax revenue from electrification of the fleet and inflationary increases in project costs and address long-term system preservation needs. The state gas tax hasn't been increased since 2006 when the automatic indexing of the gas tax and vehicle registration fees to the inflation rate was eliminated. The State Commission on Transportation Finance and Policy's report, *Keep Wisconsin Moving – Smart Investments, Measurable Results*, published back in 2013,

provided recommendations for generating additional revenue, but thus far the state legislature has not addressed the long-term solvency of the state transportation fund. While the IIJA provided historic levels of new federal transportation program funding for the next five years, the bill is being funded with general revenues, which is neither wise nor sustainable.

An increase in funding levels is necessary to maintain and gradually improve the existing condition of the region's roadway system, which based on recent trends has been declining. Increased funding is also needed to fully implement the planned regional transit system, in particular the latter two phases of the BRT system and most of the additional service hours from frequency improvements, new service to developing areas, and commuter express service to suburban communities.

The financial analysis indicates that projected revenues will be sufficient to implement the local arterial roadway capacity expansion projects identified in Figure 4-d in Chapter 4 and listed in Figures A-a and A-b in Appendix A while at the same time funding identified potential arterial street reconstruction needs identified in Figures A-c and A-d in Appendix A and addressing other roadway preservation needs in a manner similar to recent trends. However, this means that local roadway conditions will continue to slowly deteriorate. Major capacity improvements in two state highway corridors (Stoughton Road, Beltline) may or may not be able to be fully

funded based on the funding for currently programmed Major Program projects carried forward into the future. This would depend upon the scope of those projects. It is forecast that \$1 billion would be available for those projects beyond the needs for other state highway construction projects, if currently programmed spending was carried forward into the future.

Significant new transit funding will be needed to implement the recommended regional transit plan, including the latter two phases of BRT, new regional commuter service, and increased local service frequencies. The largest gap is in operating funding. Based on recent trends from 2010–2019 in terms of service hour increases, only about 18% of the recommended service hours in the regional plan could be funded. Implementation of the plan would require a new regional funding mechanism, such as a regional transit authority, with the ability to levy a sales tax. Increases in the current City of Madison vehicle registration fee would not be sufficient.

Estimated future revenues for multi-use path projects based on recent funding levels would be more than sufficient to fund the major regional priority path projects illustrated in Map 4-l in Chapter 4 and listed in Figure A-e in Appendix A. These projects were identified as needed to address key missing links and complete key segments of the planned regional bikeway network illustrated in Map 4-j in Chapter 4. On-street facilities are assumed to be included as part of roadway projects.