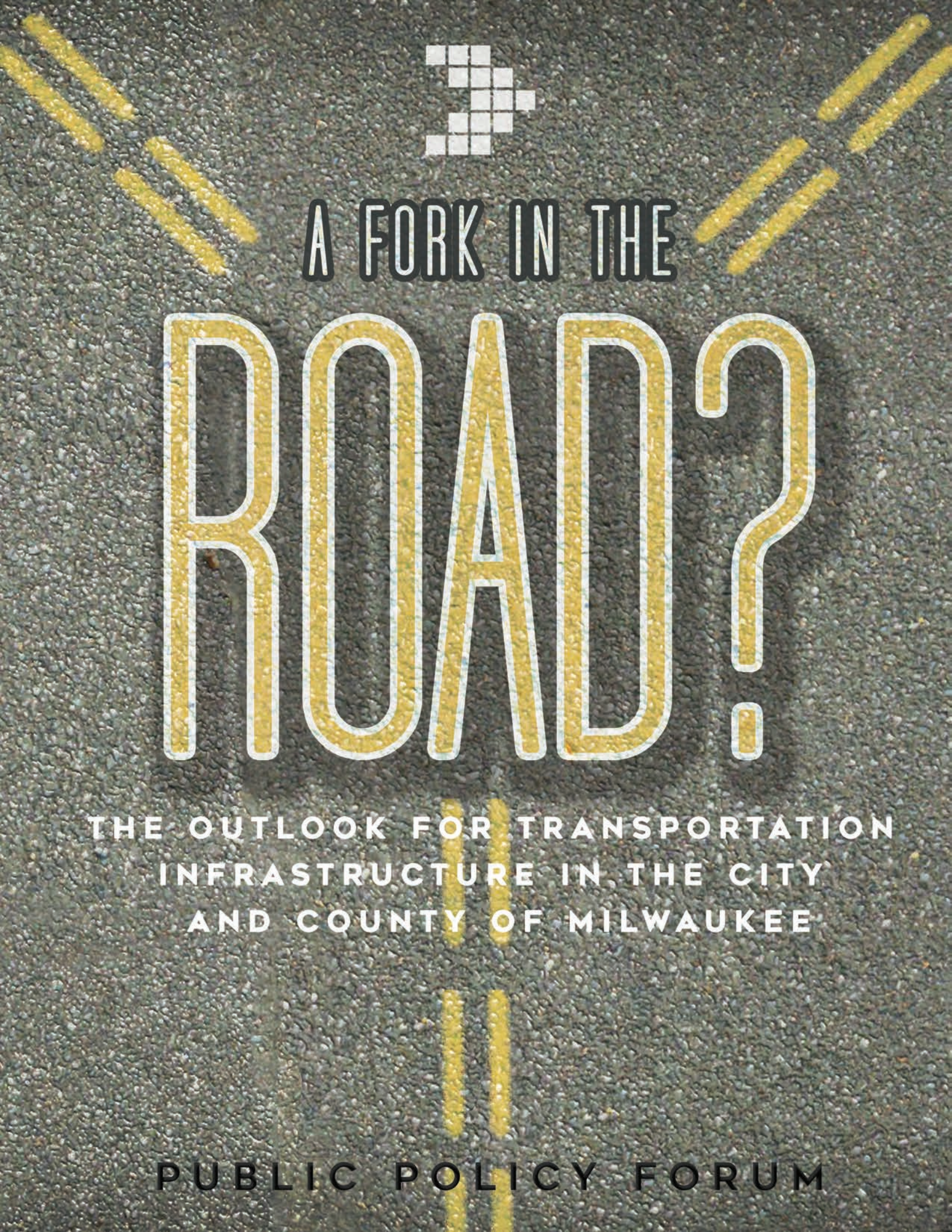

A FORK IN THE ROAD?

THE OUTLOOK FOR TRANSPORTATION INFRASTRUCTURE IN THE CITY AND COUNTY OF MILWAUKEE

PUBLIC POLICY FORUM

About the Public Policy Forum

The Milwaukee-based Public Policy Forum, established in 1913 as a local government watchdog, is a nonpartisan, nonprofit organization dedicated to enhancing the effectiveness of government and the development of Southeastern Wisconsin through objective research of regional public policy issues.

Preface and Acknowledgments

This report was undertaken to provide citizens and policymakers in the Milwaukee region with an understanding of the condition of transportation assets owned by the City of Milwaukee and Milwaukee County and the financial capacity of each government to finance rehabilitation and replacement of those assets in the near-term future. We hope that policymakers and community leaders will use the report's findings to inform discussions during upcoming policy debates and budget deliberations at the City, County, State, and Federal levels.

Report authors would like to thank officials and staff from the City of Milwaukee and Milwaukee County for their assistance in providing information on infrastructure condition and financial matters, and for patiently answering our questions. Those include the directors and staff from the City of Milwaukee Department of Public Works and Budget and Management Division, and from the Milwaukee County Department of Transportation and Division of Performance, Strategy, and Budget.

In addition, we wish to acknowledge and thank the several entities that are providing financial support for our series of reports on local infrastructure condition and need. They are the Herzfeld Foundation, Wisconsin Housing and Economic Development Authority, Milwaukee Metropolitan Sewerage District, City of Milwaukee, and Fund for Lake Michigan. We also thank the Northwestern Mutual Foundation and the Rockwell Automation Charitable Corporation for their long-standing support of our local government finance research.

A FORK IN THE ROAD?

The outlook for transportation infrastructure in the City and County of Milwaukee

September 2016

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Introduction

While citizens have varying views and expectations regarding the role and responsibilities of local governments, most would agree that providing, maintaining, and updating public infrastructure is a fundamental governmental responsibility. On the local level, that responsibility extends from streets and buses, to sewer and water systems, to fire and police equipment, to parks and cultural facilities, to public buildings that citizens use to access government services.

Unfortunately, budgetary pressures and expanding needs have called into question the ability of many local governments to appropriately fulfill this critical part of their mission. In a May 2016 report, the National League of Cities asserted that "declining funding, increasing mandates, and misaligned priorities at the federal and state levels have placed responsibility squarely on local governments to maintain roads, upgrade water and wastewater systems, and accommodate growing transit ridership."[1] Yet, according to the report, the ability of many local governments to meet their growing infrastructure obligations is restricted by statutory limitations on the amounts of local tax revenues they can raise.

To what extent have local governments in Greater Milwaukee effectively addressed their infrastructure needs and challenges? The answer to that question likely will differ among individual governments and among different types of infrastructure.

In *Pulling Back the Curtain,* a December 2013 report on the condition of Milwaukee County's cultural and recreational facilities, the Public Policy Forum examined one small subset of local government capital assets in our region. We identified a daunting set of infrastructure needs, as well as a potential funding "gap" of more than $140 million over a five-year period to address those needs.[2]

We are now expanding our research to assess infrastructure challenges for the full range of capital assets owned by the three largest local governments in Milwaukee County. We plan a series of reports that will detail the condition and needs of major capital assets owned not only by Milwaukee County government, but also by the City of Milwaukee (including the Milwaukee Water Works) and the Milwaukee Metropolitan Sewerage District. In our final report, we will provide policy options and recommendations to address perceived challenges.

In this, the first in our report series, we focus on transportation infrastructure owned by the County and City. In examining city streets and bridges, county trunk highways and bridges, and Milwaukee County-owned buses, we focus on the following research questions:

- How do the two governments identify and assess their transportation infrastructure needs, and what is the general condition of that infrastructure?
- How are transportation capital projects financed and what are the funding trends over the past several years?

[1] "Paying for Local Infrastructure in a New Era of Federalism," National League of Cities, May 2016.
[2] This "gap" was derived from comparing the total needed capital expenditures for the County-owned parks and cultural facilities for the 2013-2017 timeframe ($246 million) to the amount spent on capital needs for the same facilities during the previous five-year period ($103 million).

- How much would it cost to fully fund identified repairs and improvements over the next several years, and what is the capacity of each government to cover future costs while complying with capital budgeting and debt management pressures and policies?

The overall intent of this report – and our full series – is to catalogue and describe the infrastructure challenges of the major local governments in our region and to assess the resulting financial implications. We hope this research will be used as a tool for policymakers and civic leaders as they consider local government spending priorities and the larger revenue structure that is used to support local governments in Wisconsin.

Data and Methodology

All of the data utilized for this report were provided by City of Milwaukee and Milwaukee County staff or publicly available financial documents. We conducted no original research or inspections related to the state of transportation infrastructure, facilities, or equipment. While this limited our analysis of current asset condition and future needs to those identified and communicated to us by the two governments, the fact that we are policy researchers – and not engineers – restricted us in this regard.

For the purposes of this report, transportation infrastructure is defined as capital assets owned by the City of Milwaukee or Milwaukee County and utilized by public and private vehicles and/or public and private individuals for transportation purposes. Capital assets in this definition include City of Milwaukee streets, Milwaukee County trunk highways, City and County-owned bridges, and County-owned buses.

This report relies on best practices cited by the Government Finance Officers Association (GFOA) on asset maintenance and replacement as a standard to understand how Milwaukee County and the City of Milwaukee maintain and replace capital assets. We couple those best practices with publicly available ratings for roads, bridges, and buses to help understand the methods employed by public infrastructure inspectors to document and assess the condition of capital assets.

Finally, in assessing the needs of the City and County with regard to their transportation assets, we focus on "capital" needs, as opposed to minor repair and maintenance needs that would be addressed in operating budgets. Capital needs typically refer to major repairs, rehabilitation, reconstruction, or replacement of facilities or equipment, and projects associated with those needs typically have a useful life of several years (and often several decades). In contrast, minor repairs and maintenance projects are included in annual operating budgets and typically include items like crack filling, painting, and pothole patching.

Capital Asset Management: A Brief Overview

The Government Finance Officers Association (GFOA) defines capital assets as "major facilities, infrastructure, equipment, and networks that enable delivery of public sector services."[3] Effectively managing capital assets involves rigorous and time-consuming effort to continuously assess their condition; plan for their maintenance, repair, and replacement; and develop sustainable financial mechanisms to assure that needed work is conducted on a timely basis.

The Public Policy Forum often uses documented best practices prescribed by respected organizations like the GFOA to serve as a measuring stick when assessing the performance of local governments. The GFOA issued a "best practice" memo on asset maintenance and replacement in 2010. That memo describes a series of practices that local governments should establish for assessing and managing their capital assets, including the following:

- *Inventory* – it is important for local governments to keep useful inventories of capital assets that include a regular assessment of the condition of each asset. GFOA suggests that a formal policy be developed to spell out inventory requirements and how measurement of the physical condition of assets will take place. Condition ratings should be updated every one to three years.
- *Reporting* – regular and effective communications on the state of capital assets is an integral part of effective management. In order to allocate funding for necessary projects, decision-makers must be fully aware of infrastructure needs. An effective reporting structure and strategy ensures that policymakers and the public have up-to-date information and understanding of capital assets' states of repair.
- *Capital planning and budgeting practices* – GFOA suggests that local governments prepare multi-year capital plans and establish ongoing sources of funds for repair and renewal needs. Capital plans and annual budgets should include sufficient funds not only for new projects and major repairs and replacement, but also for condition assessment and preventative maintenance.

GFOA Best Practice	Description
Capital inventory	A catalog(s) of publicly owned capital assets containing information describing the type of asset, value, costs, rating, usage, useful life, etc.
Reporting	Structure and plan to report current conditions to public officials.
Capital planning/budgeting	A plan that budgets for capital projects in a span of several years in order to maintain infrastructure at useful and safe levels.
Financial policies	Dedicated fees or other revenues solely for capital projects.

[3] GFOA, "Best Practice: Asset Maintenance and Replacement," 2010. Accessed at: http://www.gfoa.org/asset-maintenance-and-replacement

Transportation Asset Management at the City of Milwaukee and Milwaukee County

Both the City of Milwaukee and Milwaukee County conduct extensive record-keeping with regard to their transportation-related capital assets. In fact, we find that both governments generally adhere to the GFOA capital asset management best practices referenced above.

For the City, the Department of Public Works (DPW) catalogs bridges and streets, along with other infrastructure. Milwaukee County's Department of Transportation (MCDOT) keeps a catalog of its county trunk highways and bridges, while the Milwaukee County Transit System (MCTS) keeps a catalog of buses and their maintenance needs.

With regard to condition assessment, the City and County use distinct rating systems for their roads, but they use the same rating system and funding guidelines for bridges. The City uses the Pavement Quality Index (PQI) rating system and the County uses the Pavement Surface Evaluation and Rating (PASER) system for the measurement of street and highway condition. The American Association of State Highway and Transportation Officials (AASHTO) recommends a methodology for government engineers to use to measure bridge deficiencies and establish sufficiency ratings; both the City's and County's engineers adhere to that methodology for their bridges.

Additionally, both local governments prepare and maintain multi-year Capital Improvement Plans (CIPs). Milwaukee County updates its five-year plan in its Capital Improvements Budget on a yearly basis, while the City of Milwaukee prepares its CIP outside of the adopted budget and also updates the CIP annually.

With regard to financing, the City of Milwaukee does not have a specific source of funding dedicated to capital improvements overall. The City has implemented a $20 annual vehicle registration fee, however, the proceeds of which help support transportation infrastructure maintenance work in the Department of Public Works' operating budget. Milwaukee County, meanwhile, has declared that the first use of the annual proceeds from its half-cent sales tax is to pay debt service incurred from issuing bonds for its capital program, and that the second use is to cash finance capital improvements.

We provide extensive additional detail on asset condition assessments and capital planning and budgeting at the City and County in later sections of this report.

Capital Finance Policy and Practice: A Brief Overview

Most local governments that own large inventories of physical assets maintain separate capital budgets and rely on financing strategies to support those assets that are distinct from those used to support general operations. The key distinction is the use of borrowing – typically in the form of issuing General Obligation bonds[4] – to ensure that investment in asset creation, repair, or replacement can be paid off over multiple years. This means both today's taxpayers and future taxpayers pay for infrastructure assets, which is logical as both will benefit.

What is a capital project?
There is often confusion among non-government finance experts regarding capital versus operating budgets and projects. Generally speaking, capital projects (i.e. projects that appear in capital budgets as opposed to operating budgets) are those that involve construction, expansion, renovation, or replacement of a new or existing facility; purchase of a major piece of equipment that has a useful life of several years; or a major maintenance or rehabilitation project that has an economic life of several years. In each of these cases, there often is a dollar threshold (i.e. the project or equipment purchase has to exceed $10,000 or $50,000). In contrast to capital projects, "maintenance" projects are included in annual operating budgets and include minor repairs such as crack filling, painting, and pothole patching.

There are several reasons why most large governmental entities maintain separate processes for planning, budgeting, and financing capital projects – and why they engage in borrowing to support those projects – including the following:

- Infrastructure, equipment, and other physical assets can be very expensive to acquire, repair, or replace, and such costs can be prohibitive if addressed in a single payment in an annual operating budget.
- Capital assets have useful lives that can extend for decades. Consequently, multi-year forms of financing ensure that those benefiting from the assets in the years following their creation or replacement share in their costs.
- There often is a significant unplanned component to capital budgets, as the need to replace or repair assets can emerge quickly despite best efforts to monitor their condition and plan for replacement. Consequently, it would be difficult to accommodate such needs in the annual operating budget, where resources typically do not grow significantly from year to year and where most new resources are needed for ongoing service delivery.

[4] General Obligation (G.O.) bonds are municipal bonds commonly used by local governments that are secured by the government's pledge to use its taxing power to repay bond holders. These differ from "revenue bonds" in that they are not secured with a specific form or revenue (such as fees from users of the capital project), but instead are backed with the government's general credit and taxing authority.

- Launching and completing infrastructure projects can take several years, which means that a financing mechanism that provides expenditure authority over a multi-year period can be more suitable that an up-front cash payment in an annual operating budget.

In determining how often to issue debt and how much debt is affordable to issue, local governments take into account a variety of considerations, including the size of their tax base and the ability of annual operating budgets to accommodate principal and interest payments. Often, the ability to issue new debt in a given year is predicated by the amount of old debt that is retired in that year. Also, in many jurisdictions – including municipalities and counties in the State of Wisconsin – state law prescribes debt limits for local governments.

Capacity for future borrowing often is gauged with multi-year capital plans and budgetary forecasts, which catalog future capital needs and project how they will need to be financed. Borrowing projections can be compared to projections of future debt service payments and the amount of debt that is scheduled to come off the government's books. Borrowing capacity also can be impacted by the interest rates associated with G.O. bonds and other forms of debt, as those determine the affordability of annual debt service payments.

It should be noted that the amount of local government borrowing required for capital projects – particularly with regard to transportation infrastructure – often is determined by the availability of federal and/or state aids. Many road, bridge, and transit-related projects can access funding of up to 80% from federal sources, though the size of such projects often means that the local government still must budget (and often borrow) for the 20% match.

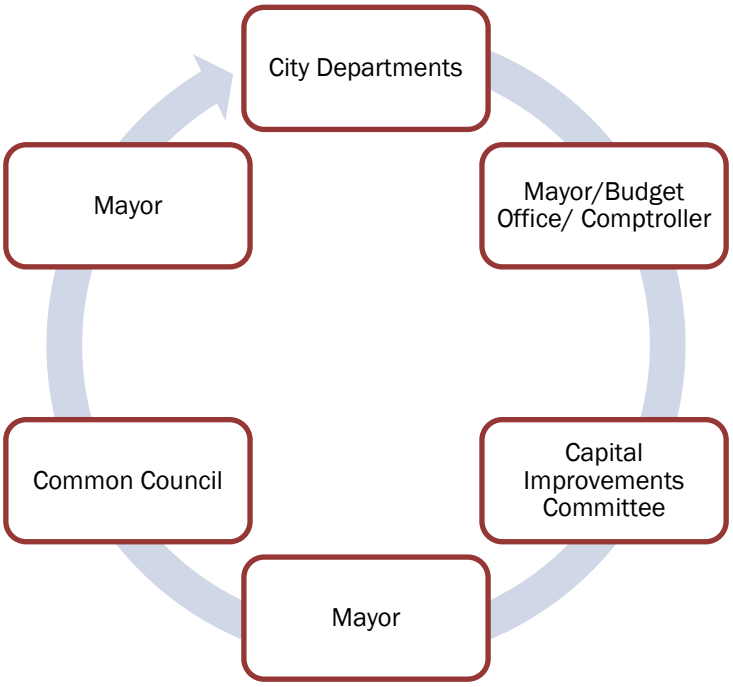
Capital Finance – City of Milwaukee

Capital Budget Process and Policies

The City of Milwaukee's annual budget includes funding allocations for capital projects. While some local governments publish distinct operating and capital budgets, the City's capital and operating appropriations are contained in a single budget document.

The capital budget is adopted after submission by the Mayor and review and approval by the Finance and Personnel Committee and the full Common Council. At the start of the process, the Mayor, Comptroller's office, and budget office receive capital funding requests from the City's various departments. Those requests are reviewed by a Capital Improvements Committee – comprised of three aldermen, two administration officials, the Comptroller, and a private citizen – which can offer and vote on modifications to the requests. **Figure 1** depicts the process.

Figure 1: City of Milwaukee capital improvements budgeting process



City of Milwaukee departments each have their own processes for prioritizing capital funding requests. The Department of Public Works (DPW) considers three questions:

1. The ratings of various capital assets and how they compare to other assets in need of rehabilitation and/or replacement.
2. The extent to which individual capital assets are eligible for funding from an entity that is not the City.
3. After considering outside funding sources, will the City be able to afford all projects for which funding was requested, or can only a subset be selected based on budgetary constraints?

The amount of capital funding available each year is constrained by a formal debt service limit and by an informal policy goal regarding property tax levy-supported debt. The debt service limit is established by the Wisconsin Statutes and prohibits the City from holding an amount of debt for City purposes that exceeds 5% of the value of its taxable property. As of May 2016, Milwaukee's G.O. debt holdings of $932 million were $367 million below the legal limit.[5]

More relevant to the City's annual capital budget is the informal goal cited in the City budget, which states that the amount of property tax levy-supported debt issued in a given year should not exceed the amount of such debt retired in that year. That goal is intended to protect against sharp annual swings in levy-supported debt, which can have a negative impact on the operating budget. According to the most recent annual report on debt and debt service from the City's Comptroller, the City has retired an average of $60 million of levy-supported debt during the past five years.[6]

[5] Official Public Statement for issuance of City of Milwaukee notes and bonds, May 5, 2016.
[6] Report of Projected Debt & Debt Service for 2011-2020, Milwaukee Comptroller, August 11, 2016.

2016 City of Milwaukee Capital Budget

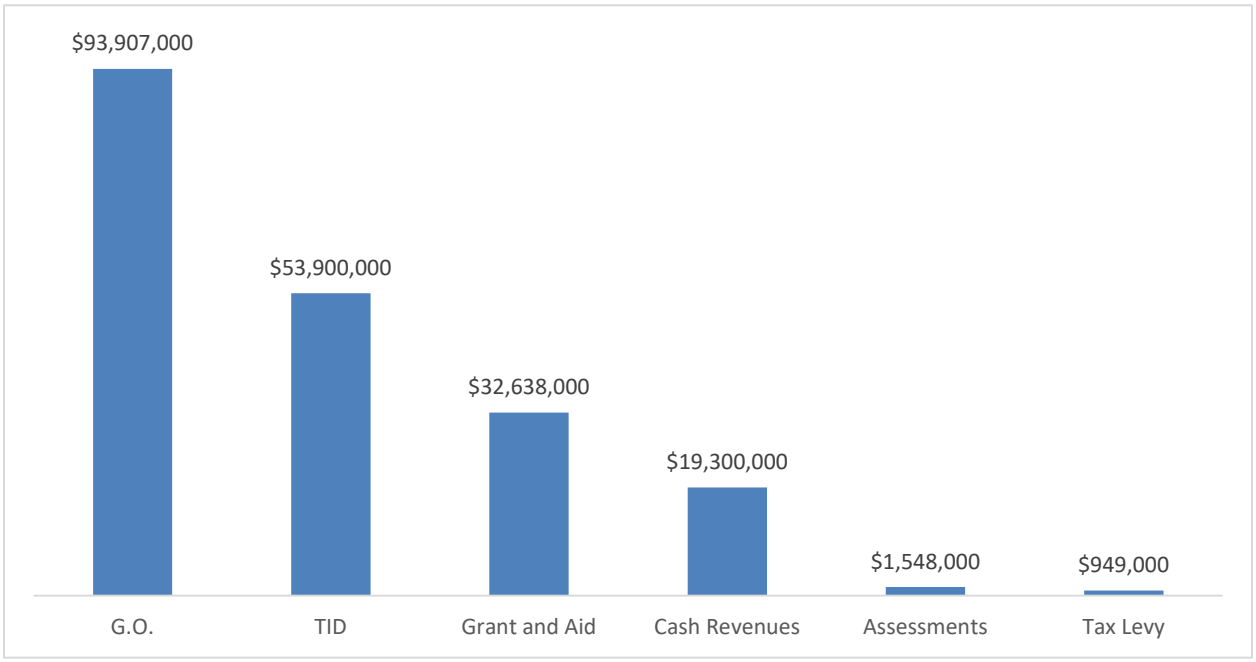
A brief overview of the City of Milwaukee's 2016 capital improvements budget illustrates the resources that are used to finance capital repairs, purchases, and improvements and their distribution across the various functions of City government.

The City's overall capital improvements budget in 2016 totals $275.3 million. Of that amount, $73 million is for the City's "enterprise funds." Those funds – including the City's water works, sewer maintenance fund, and parking fund – technically are part of the City budget, but they function as independent business enterprises with their own dedicated sources of funding. Consequently, debt service on bonds issued to pay for capital projects associated with those funds is paid with revenues derived from their independent activities.

The remaining $202.2 million in the 2016 capital budget is earmarked for projects that affect City departments. Of that amount, $32.6 million comes from grants and aids from State and federal sources, while $169.6 million is financed with locally-generated resources. Of that portion, $94.9 million is supported by the City's property tax levy – with about $94 million coming from new tax levy-supported G.O. borrowing and $949,000 as a direct cash contribution.

Tax-levy supported G.O. borrowing is perhaps the most closely-watched element of the capital budget by policy-makers, as the need to service debt with property tax resources precludes the use of such resources to support City operations. As shown in **Chart 1**, other sources of funding for capital improvements include funds generated via tax increment districts (TIDs),[7] and other smaller sources.

Chart 1: Sources of funds in 2016 City of Milwaukee general purpose capital budget

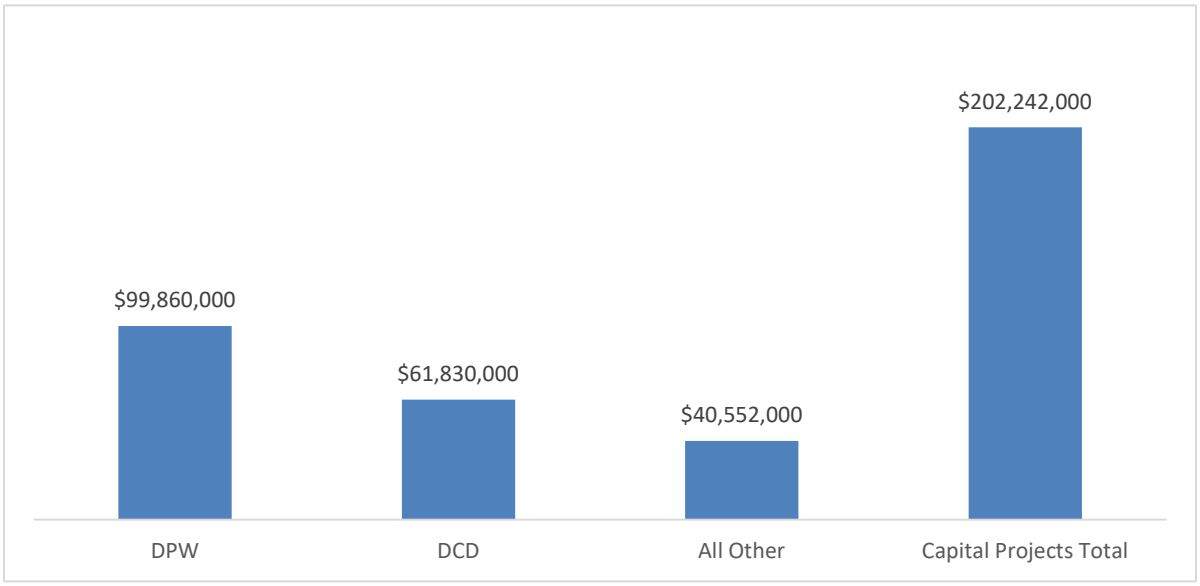


Source: City of Milwaukee 2016 Adopted Budget

[7] For more information on TIDs, go to the City's website:
http://city.milwaukee.gov/ImageLibrary/Groups/cityDCD/business/TIF/pdfs/TIFExplanation.pdf

As shown in **Chart 2**, the Department of Public Works (DPW) comprises the highest percentage of capital funding for departmental purposes, with $99.8 million budgeted in 2016 (accounting for 49% of the capital budget). In fact, DPW and the Department of City Development (whose projects are mostly related to TIDs) comprise about 80% of the total general purpose capital budget in 2016. The portion of the DPW capital budget that is directed toward bridges and streets – the subject of this report – totals $71 million.

Chart 2: Functional breakdown of 2016 City of Milwaukee capital budget



Source: City of Milwaukee 2016 Adopted Budget

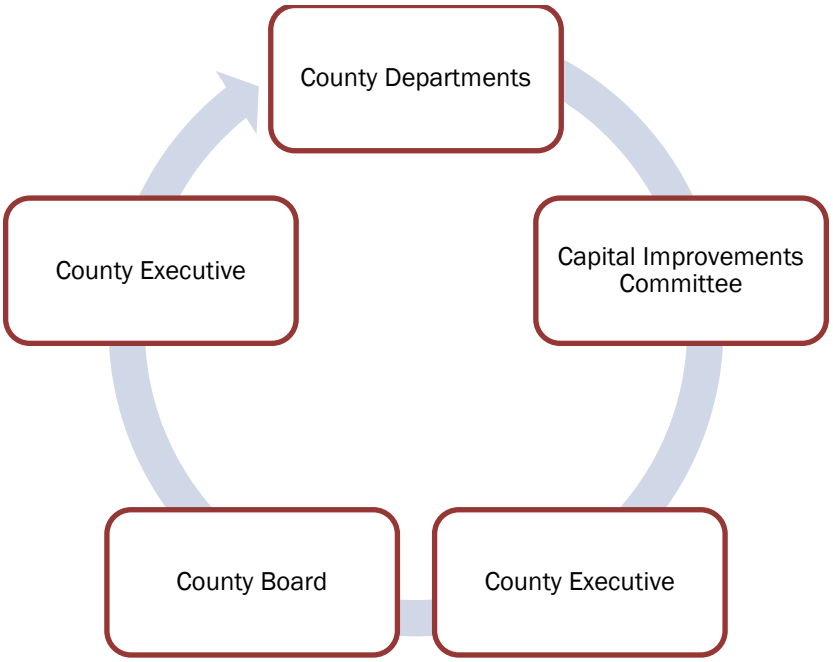
Capital Finance – Milwaukee County

Capital Budget Process & Policies

Every year, the Milwaukee County Executive recommends a Capital Improvements Budget (CIB) for County Board consideration and approval. The County's CIB is a distinct document from its operating budget. It includes not only the recommended budget for the upcoming year, but also an updated five-year capital improvements plan.

The process begins with the submission of requested capital projects by County departments. Departmental requests are considered first by the County's Capital Improvements Committee (CIC), which consists of three members of the County Board, two County department heads, the County Comptroller, and two municipal officials appointed by the Intergovernmental Cooperation Council. The CIC recommends projects for inclusion in the County Executive's recommended budget, but he is not required to adhere to those recommendations. The County's capital budgeting process is depicted in **Figure 2**.

Figure 2: Milwaukee County capital improvements budgeting process



Departmental capital requests are judged by the CIC based on specific criteria and a scoring system that prioritizes immediate need and public safety. Other criteria include annual impact on operating costs; impact on deferred maintenance; whether the project is necessary to address Americans with Disabilities Act (ADA) requirements and/or building code violations; the availability of non-County funding; and whether the requested project is a continuation of a project initiated in a prior year.

Like the City, Milwaukee County must adhere to debt limits stipulated by the Wisconsin Statutes. The statutes prescribe both a limit on overall G.O. debt, which cannot exceed 5% of the County's property value; and on the annual amount of property tax levy that can be used to support G.O. debt. Also, like the City, the County is well below its overall debt limit; at the end of 2015, the County's $697 million of outstanding G.O. debt amounted to only 24% of its $2.9 billion debt limit.

Milwaukee County also has a series of informal policy goals regarding capital spending and borrowing levels that are cited in the capital budget each year. More important is a formal policy established by County Board resolution that establishes an annual bonding cap. That cap dictates that the bonding amount in a given year not exceed a 3% increase over the previous year's amount. If that policy is followed, then Milwaukee County will be able to issue about $40 million of G.O. debt in 2017, with that number rising to about $44 million by 2020.

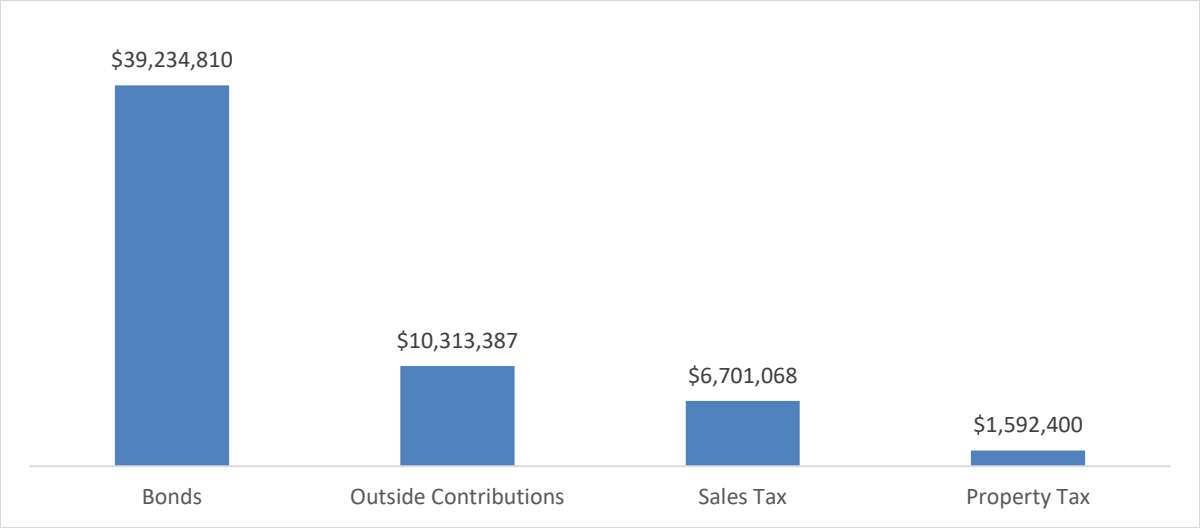
2016 Milwaukee County Capital Budget

Milwaukee County's capital budget is smaller than that of the City of Milwaukee, totaling $80 million in 2016 (as compared to $275 million for the City). Of that amount, $22.2 million is for General Mitchell International Airport, which functions as an enterprise fund. While the County pays for capital projects and issues debt on behalf of the Airport, debt service is paid by the airlines that use

GMIA as part of their lease agreements, and cash-financed projects are fully reimbursed through federal and State sources and passenger fees.

The remaining $57.8 million for non-Airport capital projects is financed with a mix of G.O. bonds, grants or contributions from other governmental or private entities, and sales and property tax revenue. As with the City's capital budget, G.O. bonds comprise the biggest portion of the County's capital revenue mix, totaling $39.2 million (68%), as shown in **Chart 3**.

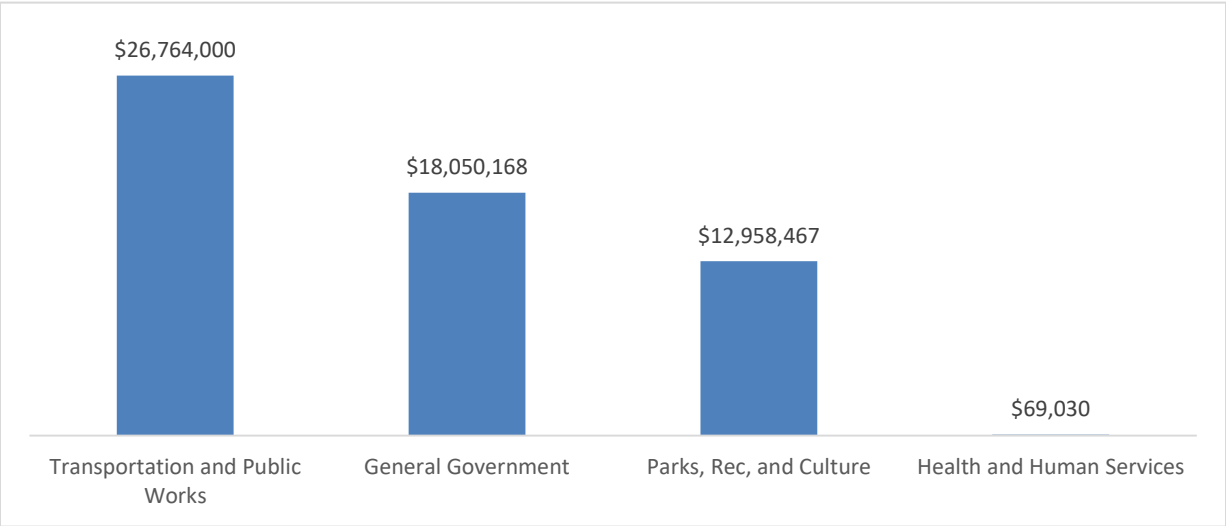
Chart 3: Sources of funds in 2016 Milwaukee County capital improvements budget



Source: Milwaukee County 2016 Capital Budget

Breaking down the County's non-Airport capital budget by function, **Chart 4** shows that like the City, the largest functional category is Public Works at $26.8 million (46% of the total). Of that amount, $10.7 million is directed toward trunk highways/bridges and $14.5 million toward new buses for the Milwaukee County Transit System (MCTS), which are the two areas we analyze in this report.

Chart 4: Functional breakdown of 2016 Milwaukee County capital improvements budget



Source: Milwaukee County 2016 Capital Budget

Transportation Infrastructure Condition

In this section, we provide a broad overview of the current condition of City of Milwaukee and Milwaukee County streets, highways, bridges, and buses. It is important to note that we did not conduct independent inspections or undertake original research for this assessment; instead, we relied upon inspection/evaluation methodologies used by each government and the condition data they provided to us. Nevertheless, the analysis in this section provides a realistic condition assessment that offers useful context for our subsequent fiscal analysis of the transportation infrastructure needs of each government and their financial capacity to address those needs.

The box below summarizes our findings. We then provide additional details regarding the methodologies used and what they tell us.

Snapshot: Condition of City and County Streets, Highways, Bridges, and Buses

City of Milwaukee Streets

Pavement Quality Index ratings for the City's 1,415 miles of streets indicate that while 43% are rated "good," 33% are rated "fair" and 24% are rated "poor."

Milwaukee County Trunk Highways

The County's PASER ratings system shows that 71% of its 84.5 miles of county trunk highways are in "good" condition or better, while 16% are rated "fair" and 13% are rated "poor."

City of Milwaukee Bridges

33% of the City's 157 rated bridges have sufficiency ratings at or below 80 (suggesting some level of rehabilitation soon may be needed), while 15% have deficiencies (suggesting near-term major repair or replacement work is needed).

Milwaukee County Bridges

38% of the County's 47 rated bridges have sufficiency ratings at or below 80, but zero have deficiencies.

Milwaukee County Buses

26% of the County's 412 active buses have exceeded the minimum 500,000 revenue mile threshold that qualifies them for federal replacement funding.

Condition of City of Milwaukee and Milwaukee County Streets and Highways

Streets – City of Milwaukee

The City of Milwaukee is responsible for maintaining, repairing, and replacing about 1,415 miles of roads and streets, which are classified in four categories per **Table 1**. According to the most recent data, 71% (1004 miles) of City-maintained streets are local streets, 18% (253 miles) are minor arterials, 6% (82 miles) are collectors, and 5% (76 miles) are major arterials.

Table 1: City of Milwaukee street categories

Road Type	Description/Service
Local Streets	Consist of all roads not defined as arterials or collectors; primarily provide access to land at a slow rate of speed.
Minor arterials	Minor roads that deliver traffic from collector roads to freeways.
Collectors	Low-to-moderate capacity roads that move traffic from local streets to arterial roads at a lower speed and shorter distance.
Major arterials	Principal roads that deliver traffic from collector roads to freeways.

It also should be noted that for budgetary purposes, the City groups its streets into two categories: major streets, which are about a fifth of the total and consist of major and minor arterials that are part of the Federal Aid Transportation System and are eligible, therefore, for County, State and federal funding; and local streets, which are the remainder and are deemed to be collector and local streets that are not eligible for funding under the State transportation program. These designations take on particular relevance in our fiscal analysis later in this report.

To assess and characterize the condition of its road network, the City's DPW uses a Pavement Quality Index (PQI).[8] The PQI, in turn, is determined by a combination of two indexes: the Ride Comfort Index (RCI) and the Surface Distress Index (SDI). For the sake of simplicity, this report utilizes PQI as the main indicator for overall current health and safety of City streets.

PQI ratings are scaled from 0, which is a failed street; to 10, which is a street in brand new or perfect condition. Per a rating scale that was updated in 2015, the City designates roads as "good," "fair," or "poor" based on the scale shown in **Table 2**.

[8] A 2008 report by the Milwaukee Comptroller defines PQI as "An index ranging from 10 to 0 that is used to characterize pavement condition for a pavement segment…The index was developed by Stantec, Inc., the vendor of Milwaukee's Pavement Management Application and consultant for implementation and data collection." The Comptroller's report can be accessed at: http://www.milwaukee.gov/ImageLibrary/User/pmensa/MilwStPvgAudit2008.pdf.

Table 2: PQI ratings scale

Designation	Ratings
"Good"	PQI greater than 7
"Fair"	PQI between 4.5 and 7
"Poor"	PQI less than 4.5

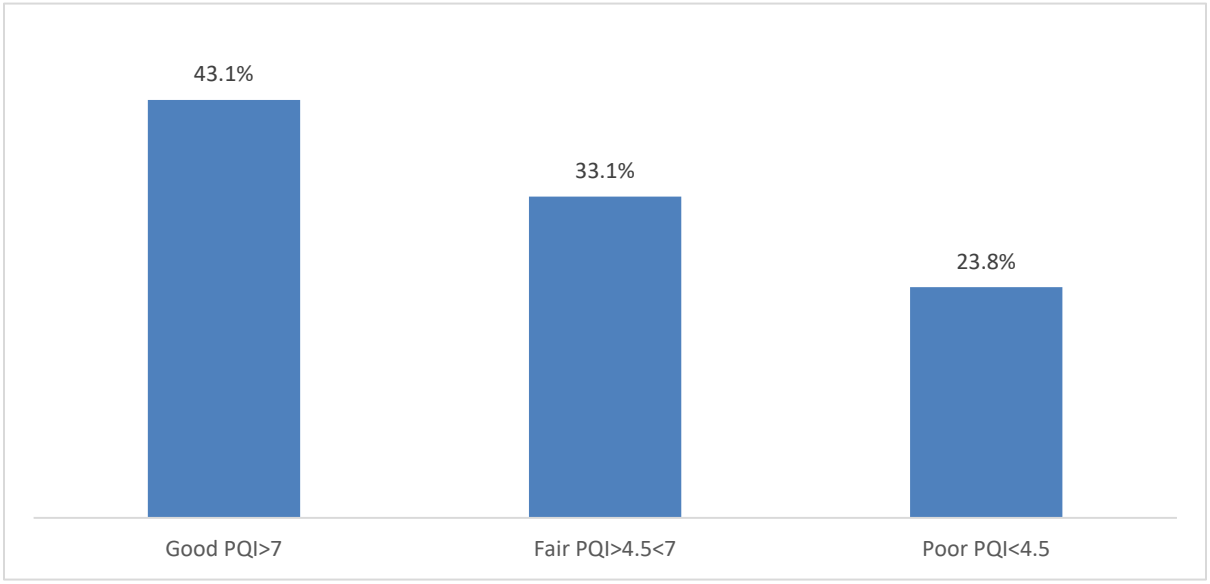
While the PQI gives a good assessment of current pavement condition, it is not a predictor of deterioration over time. Pavement thickness, traffic volumes, and sub-grade strength are additional factors used by City engineers to develop deterioration models for a street. The models are useful for determining when engineers should schedule inspections and/or maintenance, and to help identify the life spans of streets.

According to City engineers, the generally accepted engineering standard for street replacement is every 50 years, although that number may differ depending on the pavement thickness, traffic volumes, subgrade strength, water table, and many other factors, including weather. Currently, the City of Milwaukee is at a 60-year replacement cycle, which is an improvement over the 67-year replacement cycle in 2011.[9]

Current condition

An analysis of 2015 PQI ratings for all 1,415 miles of City of Milwaukee streets shows that 337 miles were rated as being in "poor" condition; 468 miles were in "fair" condition; and 610 miles were in "good" condition (including newly constructed streets). As shown in **Chart 5**, that means that 43% of all City streets are in "good" condition, while 57% are rated either "fair" or "poor."

Chart 5: Percentage of all City of Milwaukee streets in PQI ratings categories (2015)

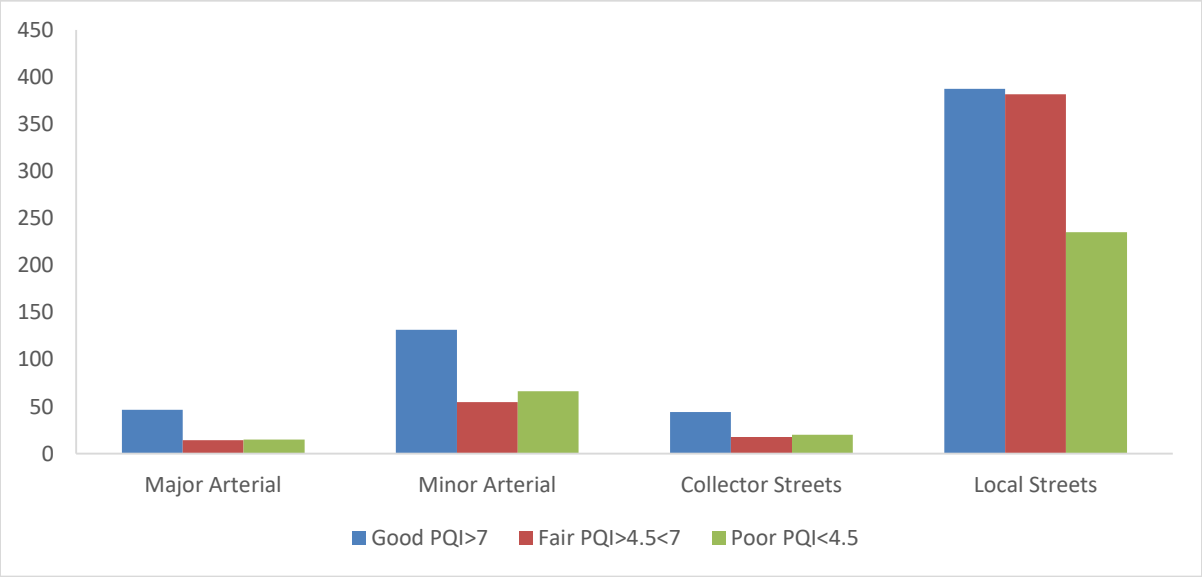


Source: City of Milwaukee, Department of Public Works

[9] Replacement cycles are calculated by dividing total miles of City streets by miles rehabilitated in that budget year.

When we break down these PQI ratings by type of street, we see that the largest category – Local Streets – has the lowest percentage of its road segments in "good" condition (38%). **Chart 6** shows the four road/street types and the number of miles in each ratings category for each type.

Chart 6: 2015 PQI ratings by type of City of Milwaukee street (miles)



Source: City of Milwaukee, Department of Public Works

For further context regarding the condition of City streets, we analyzed the date for each street on which any form of rehabilitation last occurred. We found that more than four-fifths (87%) of the City's streets last received rehabilitation work before 2000, and 30% were last rehabilitated or reconstructed 50 or more years ago. While not necessarily reflective of when those streets will need to be fully reconstructed/replaced, that finding suggests that **the vast majority of City streets will merit attention in the not-too-distant future**.

County Trunk Highways (CTHs) – Milwaukee County

Milwaukee County – through its Department of Transportation (MCDOT) – is responsible for the maintenance of 84.5 miles of county trunk highways (CTHs), which are highways that have been designated by the State of Wisconsin as being under county control. Examples of such highways in Milwaukee County are Good Hope Road in the northern part of the county and Rawson Avenue in the southern portion. MCDOT also is responsible for maintaining State highways within the county per a contractual arrangement with the State, and the County's Parks Department maintains an extensive network of parkways. For purposes of this report, we analyze the CTHs that are under the purview of MCDOT.[10]

Milwaukee County utilizes the Pavement Surface Evaluation and Rating (PASER) system, a pavement evaluation system developed by the Transportation Information Center at the University of

[10] We do not include state highways within Milwaukee County because the focus of this analysis is local infrastructure; and we do not include parkways because they are not a transportation function, but fall instead under the jurisdiction of the County's Parks, Recreation, and Culture function.

Wisconsin-Madison, to analyze the condition of its CTHs. The system is a visual rating method of paved concrete and asphalt roads using a scale that ranges from 10 (Excellent - new construction) to 1 (Poor – needs full reconstruction). It was developed as a tool for local agencies seeking to save money on cataloging and rating their roads as an alternative to comprehensive pavement management systems, which can be labor intensive and costly. **Table 3** breaks down the PASER ratings categories.

Table 3: PASER ratings categories

Surface Rating	General Condition/treatment measures
10 – Excellent	New construction
9 – Excellent	Recent overlay. Like new.
8 – Very Good	Recent sealcoat or new cold mix. Little to no maintenance required.
7 – Good	First signs of aging. Maintain with routine crack filling.
6 – Good	Shows signs of aging. Sound structural condition. Could extend life with sealcoat.
5 – Fair	Surface aging. Sound structural condition. Needs sealcoat or thin non-structural overlay (less than 2")
4 – Fair	Significant aging and first signs of need for strengthening. Would benefit from a structural overlay (2" or more).
3 – Poor	Needs patching and repair prior to major overlay. Milling and removal of deterioration extends the life of overlay.
2 – Very Poor	Severe deterioration. Needs reconstruction with extensive base repair. Pulverization of old pavement is effective.
1 - Failed	Failed. Needs total reconstruction.

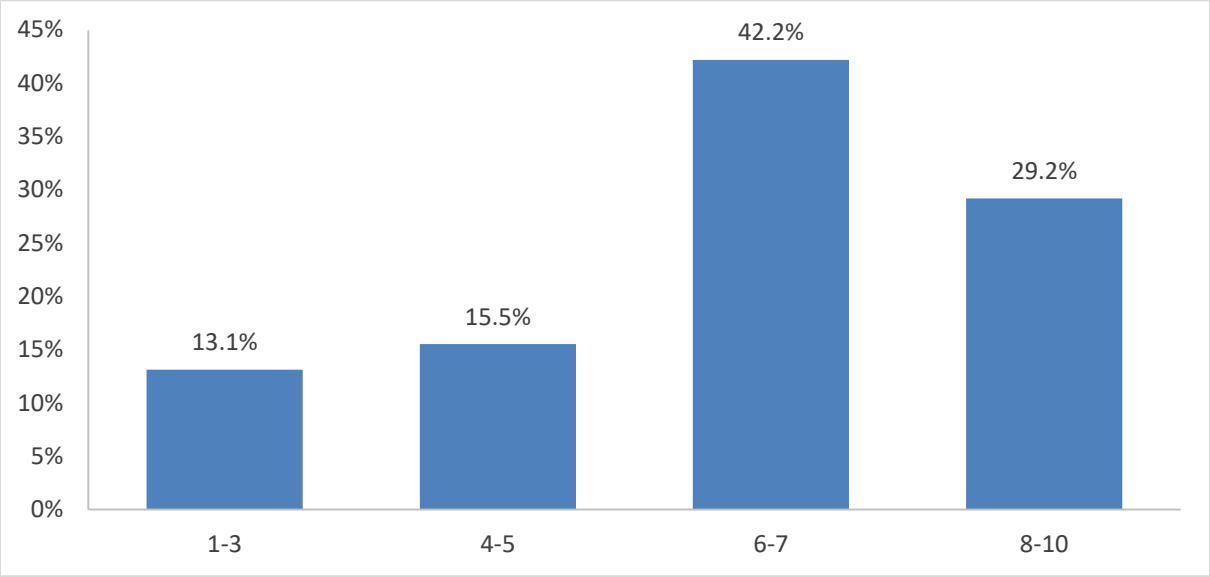
PASER relies on visual inspections to determine whether there are surface defects, surface deformation, cracks, or potholes/need for patches. Inspectors determine a rating based on how much surface distress they detect, using the aforementioned categories as guides to rating.

MCDOT is required to submit pavement ratings to the Wisconsin Department of Transportation (WisDOT) biennially, per the Wisconsin State Statutes. To meet this mandate, the County dedicates two inspectors to conduct the evaluations during odd-number years. For this report, we analyzed ratings for CTHs from 2015.

Current condition

Inspectors rated 822 CTH road segments in 2015. Of the 84.5 miles of CTHs, 24.7 miles were in the 8 to 10 range, or "very good" to excellent;" 35.7 miles were in the 6 to 7 range, or "good;" 13.1 miles were in the 4 to 5 range, or "fair;" and 11.1 miles were in the 1 to 3, or "poor" to "failed." **Chart 7** shows the percentage of CTHs that fell into each of these categories and reveals that 71% were rated at least in "good" condition in 2015.

Chart 7: Percentage of Milwaukee County trunk highways in PASER ratings categories (2015)



Source: Milwaukee County, Department of Transportation

As we did for the City, we also explored the last time there had been substantial rehabilitation work on each CTH. In this case, it should be noted that the last rehabilitation date is not documented for all CTHs. However, we can glean from the data that 58% of the County's trunk highways last received rehabilitation work before 2000, as compared to 87% of City streets. Furthermore, only 13% of CTHs last experienced rehabilitation or reconstruction 50 or more years ago, and only a half-mile of CTHs will reach the 50-year benchmark within the next five years.

Condition of City of Milwaukee and Milwaukee County Bridges

Milwaukee County and the City of Milwaukee both assess the condition of their street and highway bridges using multiple formulas recommended by the American Association of State Highway and Transportation Officials (AASHTO). Those include the use of inputs provided by bridge inspections mandated by the Federal Highway Administration (FHWA) that allow for the calculation of a **bridge sufficiency rating**. The sufficiency rating is based on the following factors:

- Structural Adequacy and Safety (55%)
- Serviceability and Functional Obsolescence (30%)[11]
- Essentiality for Public Use (15%)

Bridge sufficiency ratings use a scale of 0–100, where 0 is an insufficient/deficient bridge, and 100 a completely sufficient bridge. It is important to note that the rating is not a definitive measure of a bridge's safety. Rather, the FHWA uses bridge sufficiency ratings to determine eligibility for repair and replacement funding for publicly-owned bridges. Ratings at or below 80 qualify certain bridges for FHWA rehabilitation funding, and those below 50 are eligible for funding to support replacement

[11] Per DPW, functionally obsolete bridges are those that do not have adequate lane widths, shoulder widths, or vertical clearances to serve current traffic demand, or those that may be occasionally flooded.

and rehabilitation (in all cases, bridges also must have at least one structural deficiency or be classified as functionally obsolete to qualify for FHWA funds).

To assess the condition of City and County bridges, we use both sufficiency ratings and counts of structural deficiencies. According to FHWA, a deficiency implies that a key element of a bridge is rated "poor." Inspectors identify structural deficiencies in four distinct bridge elements: substructure, deck, superstructure, and culvert. **Figure 3** shows the location of the first three elements on a typical bridge. **Figure 4** shows a culvert, which can be part of a bridge or can function on its own.

The generally accepted engineering standard for bridge replacement is every 75 years, although, similar to streets, that number may differ depending on the pavement thickness, traffic volumes, substructure strength, superstructure strength, and many other factors, including weather.

Figure 3: Three elements of a typical bridge

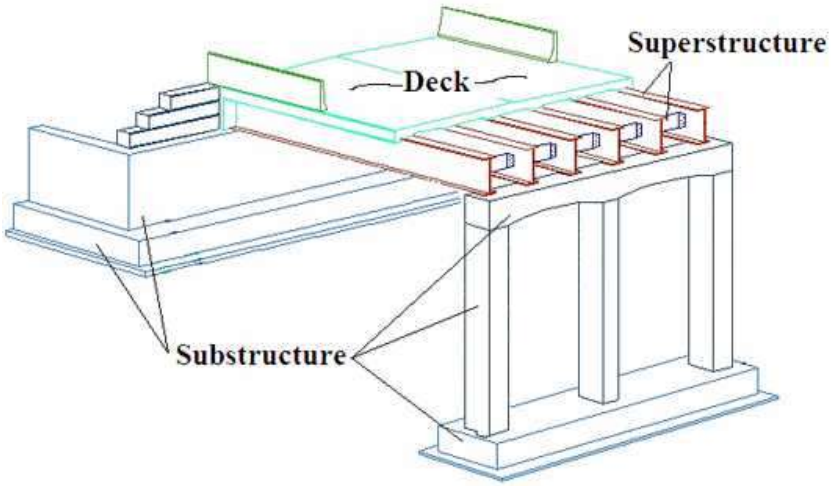


Figure 4: Culvert example

City of Milwaukee

DPW maintains and inspects 157 City-owned bridges.[12] As with streets, the City categorizes bridges into two categories for budgetary purposes: major bridges are those that the City believes are eligible for federal or State aid; and local bridges are those that are not deemed eligible for such aid, or those for which aid is not available at the time that major repair or reconstruction is needed.

Table 4 provides a snapshot of bridge ages and sufficiency ratings as of the end of 2015. As shown in the table, 130 (78%) of the City's bridges were built before 2000. The average age of the City's bridges is 41 years and the median age is 44 years. With regard to sufficiency ratings, 52 bridges (33%) have sufficiency ratings at or below 80, while seven of those (5%) are rated below 50. In other words, about a third of the City's bridges have sufficiency ratings that would qualify them for federal assistance if they also were classified as structurally deficient or functionally obsolete.

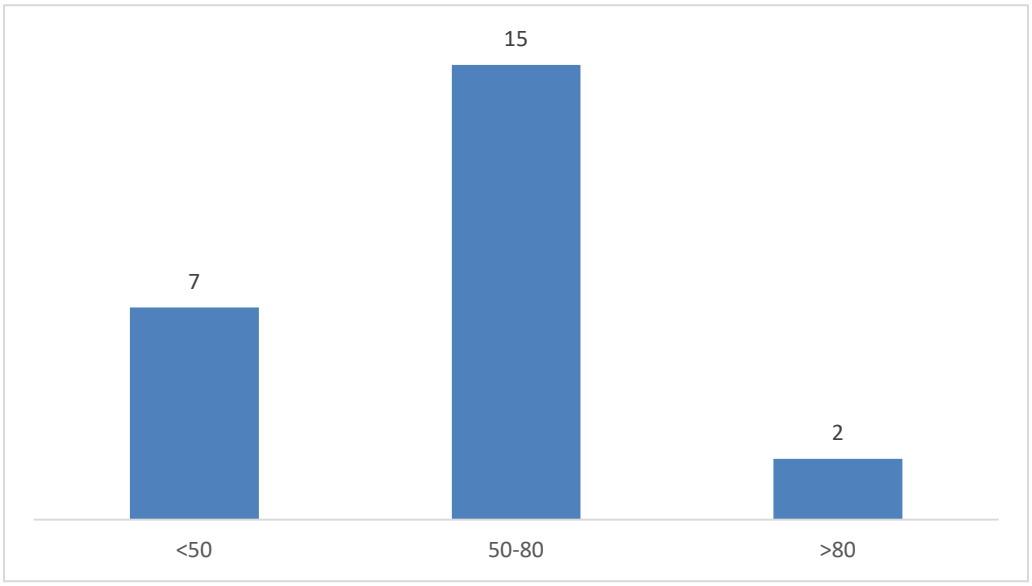
Table 4: City bridges snapshot (2015)

City automobile traffic bridges	Amount
Built before 2000	125 (80%)
Built on or after 2000	32 (20%)
Built after 2010	6 (4%)
Average age	41.2
Median age	44
Sufficiency Rating at or below 80	52 (33%)
Sufficiency Rating at or below 50	8 (5%)

With regard to structural deficiencies, 24 of the City's bridges (15%) contain one or more structural deficiencies, with 43 different deficiencies in total. In **Chart 8**, we break down the 24 bridges by sufficiency rating (SR), showing those above 80, between 50 and 80, and below 50.

[12] In the City's reporting to FHWA, bridges that include several segments may be considered as multiple separate bridges. After consultation with DPW, we arrived at our total by combining those bridge segments and counting them as single bridges. Also, our total does not include 21 bridges inspected by DPW that only serve foot traffic.

Chart 8: Breakdown of deficient City bridges by sufficiency rating (2015)



Source: City of Milwaukee, Department of Public Works

The fact that two bridges with deficiencies also have an SR that is greater than 80 illustrates our earlier point that a bridge can have a high sufficiency rating and still need major repairs due to deficiencies in one or more of its key elements. Conversely, a bridge with a low sufficiency rating as a result of it being functionally obsolete but no deficiencies may need only minimal maintenance.

Overall, we see that 15 bridges with deficiencies have sufficiency ratings between 50 and 80, suggesting they are in need of rehabilitation; while another seven bridges with deficiencies have sufficiency ratings at or below 50, suggesting they soon may be in need of full reconstruction.

Data provided by the City indicates there has been considerable bridge rehabilitation work performed in recent years. Between 2000 and 2015, 41 bridge rehabilitation projects were conducted, including 18 since 2010. Of the 17 bridges that are 75 years of age or older, we found that four received rehabilitation between their build date and 2015. The City does not expect any additional bridges to reach or surpass the age of 75 in the next five years.

Milwaukee County

Milwaukee County owns and maintains 98 bridges. For this report, we focus on the 47 that are on CTHs and that are maintained by MCDOT's Highway Maintenance Division. (Of the remaining 51 bridges, 45 are in County parks or parkways, five are at General Mitchell International Airport, and one is at the Milwaukee County Zoo.)

Table 5 provides a snapshot of the age of the County's CTH bridges as well as their sufficiency ratings as of the end of 2015. We see that 35 (74%) were built before 2000, and that the average age of CTH bridges is 33 years, while the median age is 29 years. Eighteen (38%) of the CTH bridges

have a sufficiency rating of 80 or less, while no CTH bridges were rated at 50 or less, and none have deficiencies. This contrasts sharply with the City, which has 24 bridges with structural deficiencies. [13]

Table 5: Snapshot of County bridges (2015)

CTH Bridges	Amount
Built before 2000	35 (74%)
Built on or after 2000	12 (26%)
Average age	33
Median age	29
Sufficiency Rating at or below 80	18 (38%)
Sufficiency Rating at or below 50	0

Data provided by the County show that there have been 11 bridge rehabilitation projects since 2000, but none in the past five years. It is important to note that rehabilitation projects differ from maintenance projects in that rehabilitation projects have a much larger size and scope. Milwaukee County has no bridges that have a build date of 75 years of age or over and anticipates that no CTH bridges will reach that age in the next five years.

Condition of Milwaukee County Buses

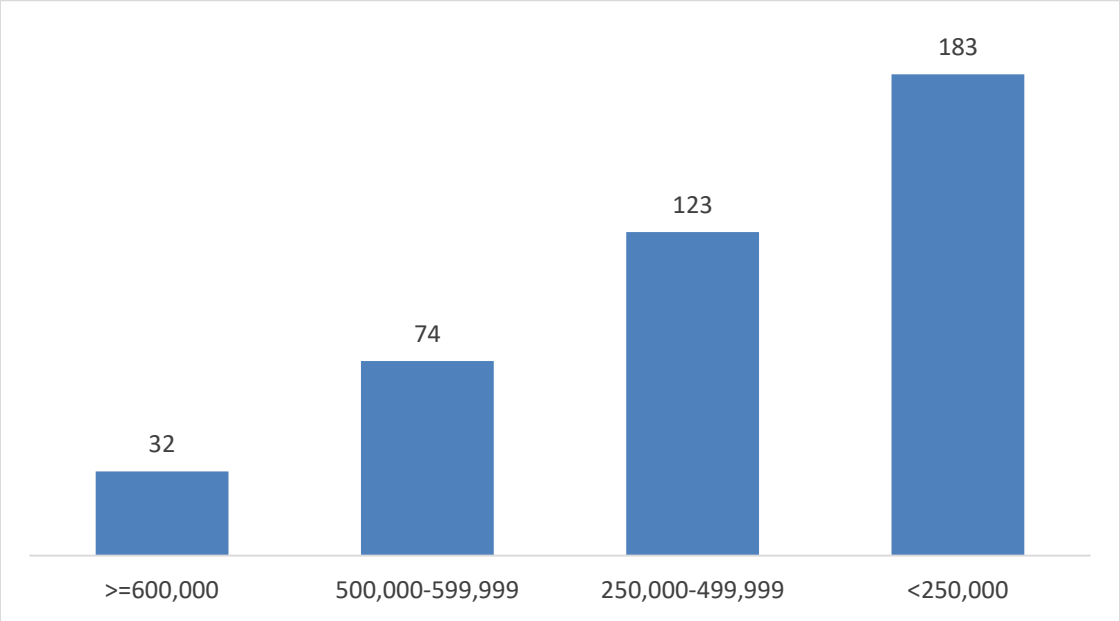
While the Milwaukee County Transit System (MCTS) is managed and operated by a private nonprofit corporation (Milwaukee Transit Services, Inc.), the system's capital assets, including its bus fleet and facilities, are owned by Milwaukee County. MCDOT facilitates capital budget requests for MCTS, the vast majority of which involve bus replacement.

As with highways and bridges, federal funding criteria provide good parameters to assess the condition of MCTS' fleet of 412 full-size active buses.[14] The Federal Transit Administration (FTA) stipulates that large, heavy-duty transit buses qualify for federal replacement funding once they have reached a minimum useful life of 500,000 revenue miles or 12 years of revenue service.[15]

As shown in **Chart 9**, as of the spring of 2016, 106 (26%) of MCTS' 412 buses had exceeded the federal funding threshold of 500,000 miles, including 32 that have exceeded 600,000 miles. This finding suggests that there is a pressing need for bus replacement. Moreover, we find that 123 (30%) of the buses that have not yet reached 500,000 revenue miles have exceeded 250,000 miles, meaning that they are more than halfway toward the federal funding threshold.

[13] There is one CTH bridge that is co-owned by the County and the City of Milwaukee that does have a deficiency. However, because inspection and maintenance of that bridge is the responsibility of the City, we do not cite it as a County bridge with a deficiency.
[14] At the time that data were provided to us, MCTS owned a fleet of 436 full-size buses, with 412 in active use and 24 inactive.
[15] Federal Transit Administration Circular FTA C 5010.1D, Subject: Grant Management Requirements.

Chart 9: Breakdown of Milwaukee County buses by revenue miles operated (2016)



Source: Milwaukee County, Department of Transportation

Financial Capacity to Address Transportation Infrastructure Needs

In this section, we analyze how the City of Milwaukee and Milwaukee County have been financing capital repairs and improvements to their transportation infrastructure and what that tells us about their ability to address their future needs. First, we provide context by briefly considering the specific fiscal environment for each government in terms of current debt loads and competing capital needs. Then, we review capital spending over the past several years and multi-year capital plans. The box below summarizes our findings.[16]

Snapshot: Fiscal Outlook for Transportation Infrastructure Needs

City of Milwaukee Bridges

DPW anticipates needing an average of $12.5 million per year from 2017-2020, which exceeds the $5.4 million budgeted for bridges in 2016 by a wide margin, but which is in line with averages from 2012-2015.

City of Milwaukee Streets

DPW anticipates needing an average of $63.4 million per year from 2017-2020, which is slightly less than the amount appropriated for 2016. However, G.O. bonding needs grow in 2019 and 2020, and it is questionable whether flat funding will be sufficient to meet repair/reconstruction needs.

Milwaukee County Bridges

MCDOT anticipates needing about $4 million from 2017-2020, which appears reasonable given the healthy condition of CTH bridges and affordable despite the County's overall capital needs.

Milwaukee County Trunk Highways

MCDOT anticipates needing an average of $9.6 million per year from 2017-2020, which is consistent with previous spending levels. However, given the expectation of substantial increases in federal funding (which may or may not materialize) and the County's capital budget pressures, this is an area that bears monitoring.

Milwaukee County Buses

MCDOT anticipates needing an average of $13.3 million per year of *local* funds from 2017-2020 to replace MCTS buses, which is a formidable challenge in light of the County's $40-$44 million annual bonding cap and its other capital needs.

[16] It is important to note that our assessment of financial capacity is limited to our analysis of fiscal issues, and does not reflect the human resource capacity of each government to perform needed infrastructure work. An analysis of staffing/human resource capacity was beyond the scope of this report.

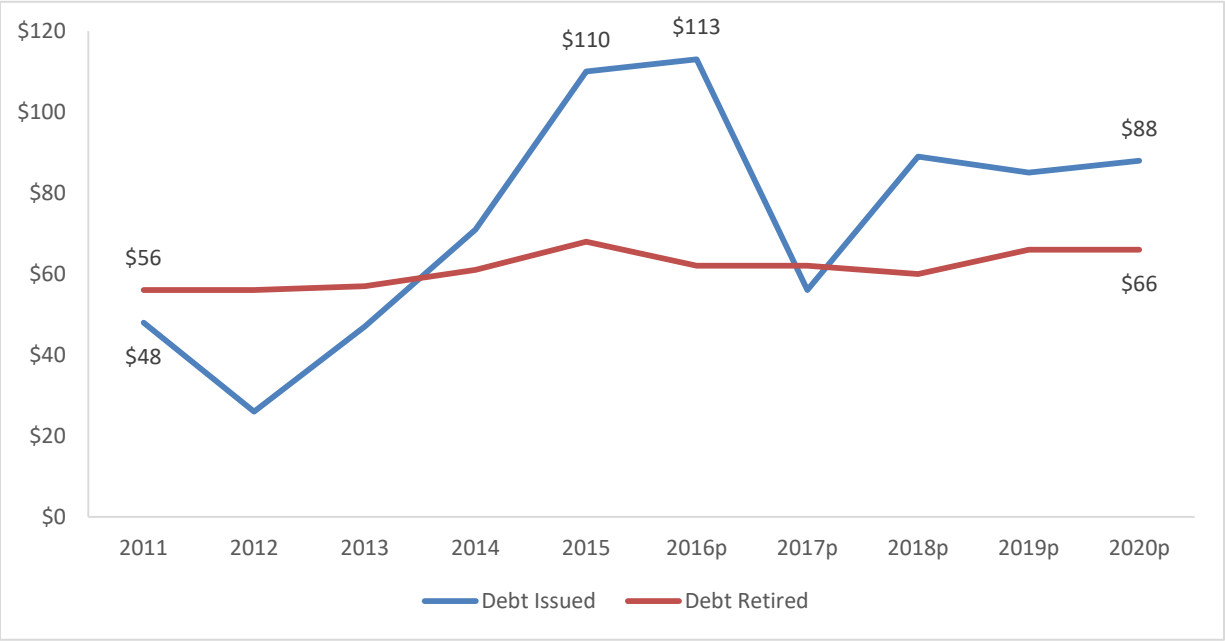
Capital Finance Environment

As noted earlier in this report, the City of Milwaukee's ability to finance its transportation infrastructure needs is impacted by a debt service limit prescribed by State law and by a need to control the amount of property tax levy that is dedicated annually to debt service payments. The debt service limit does not pose a significant obstacle to future borrowing for transportation needs given that the City's current outstanding debt has reached only about 50% of the limit. The need to control levy-supported debt to preserve sufficient tax levy resources for City operations poses a much bigger problem, however.

Per its 2016 budget, the City will use $61.2 million (24%) of its $256.7 million property tax levy for debt service payments. To prevent debt service from eating up an even bigger share of the overall levy, the City has established a goal of limiting the issuance of new levy-supported debt in a given year to the amount of levy-supported debt retired in that year.

Chart 10 shows how the City has fared in meeting that goal in recent years – and how it is expected to fare through 2020 – per the debt report referenced earlier that was issued by the City Comptroller in August 2016. It is important to note that this chart includes debt issued for TIDs, which contributed substantially to the sharp increase in debt issued in 2015 and 2016, but which is not reflected in the City's policy goal. Still, the 2018-2020 figures, while only estimates, indicate that the City likely would need to *reduce* projected tax-levy supported borrowing for its overall capital program in those years in order to meet its policy goal. Also, it should be noted that the City's ability to meet its goal in 2011-12 likely was attributed to the receipt of federal stimulus funds.

Chart 10: Tax levy-supported debt issued and retired (in millions)



Source: City of Milwaukee, Office of the Comptroller

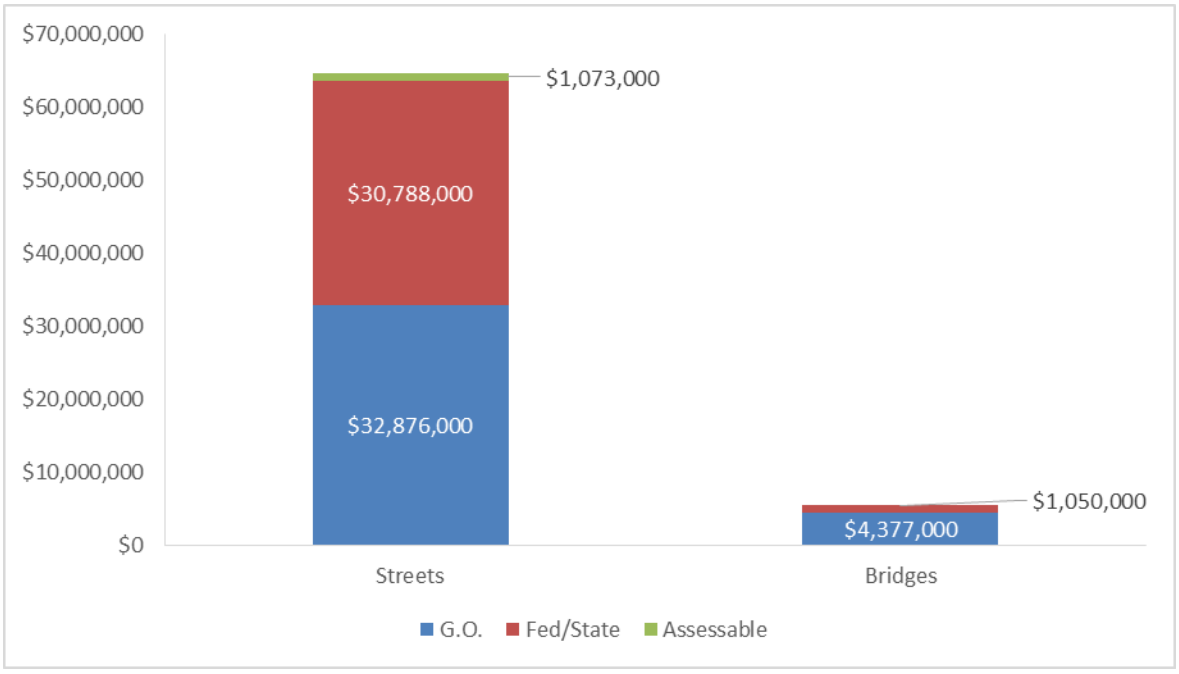
The need to limit levy-supported debt heightens the competition that transportation infrastructure needs will face from other areas of City government. That competition includes the need for major repairs to the foundation of City Hall, which is estimated to require $42 million of locally-generated capital funds from 2017-2020 per the City's multi-year capital plan; remodeling of the Police Administration building, which is estimated to require $20 million; and new Fire Department equipment, which is estimated to require $10 million.

Overall, the multi-year plan indicates relatively flat local funding for capital projects over the 2017-2020 timeframe. It is possible that scenario would allow transportation infrastructure projects to command the levels of G.O. bonding to which DPW has become accustomed in previous years. However, **whether that will be enough to meet the high level of need of streets and bridges is questionable** and will be discussed in the pages that follow.

Streets and Bridges

In 2016, the City of Milwaukee is budgeted to spend about $71 million on the type of street and bridge infrastructure projects analyzed in this report. As shown in **Chart 11**, the bulk of that spending is on City streets, and nearly half of the revenues to support such spending come from federal and State reimbursement. The City is budgeted to borrow $37.3 million to support bridge and street projects this year.[17]

Chart 11: Budgeted sources of funds for City of Milwaukee streets and bridges, 2016



Source: City of Milwaukee budget documents

[17] Proceeds from the City's $20 vehicle registration fee are not shown because they are considered miscellaneous revenue in the City budget and indirectly offset a portion of street expenditures.

The manner in which the City obtains federal and State support for streets and bridges is rather complex. A relatively steady source of State revenue for City streets comes from the State's General Transportation Aids program and its Connecting Highway Aids program, which appropriate aid payments based on amounts allocated in the State budget to local governments to partially offset the cost of local street construction, maintenance, and related activities. The City receives an allotment based on its eligible miles of streets and past spending levels, which has been in the $24 to $25.5 million range during the past five years. Those funds are used for both maintenance and capital projects. The City also receives a much smaller amount of Local Roads Improvement Program funds from the State every even year.

In addition, the City requests Federal funds on a project-specific basis through the Southeast Wisconsin Regional Planning Commission (SEWRPC), which has established a process by which it distributes federal Surface Transportation Program funds to municipalities and counties within the region based on need and eligibility. The City also requests federal funds on a project-specific basis from the Highway Safety Improvement Program, Connecting Highway Improvement Program, Transportation Investment Generating Economic Recovery Program, Congestion Mitigation/Air Quality Improvement program, and Transportation Alternatives Program.

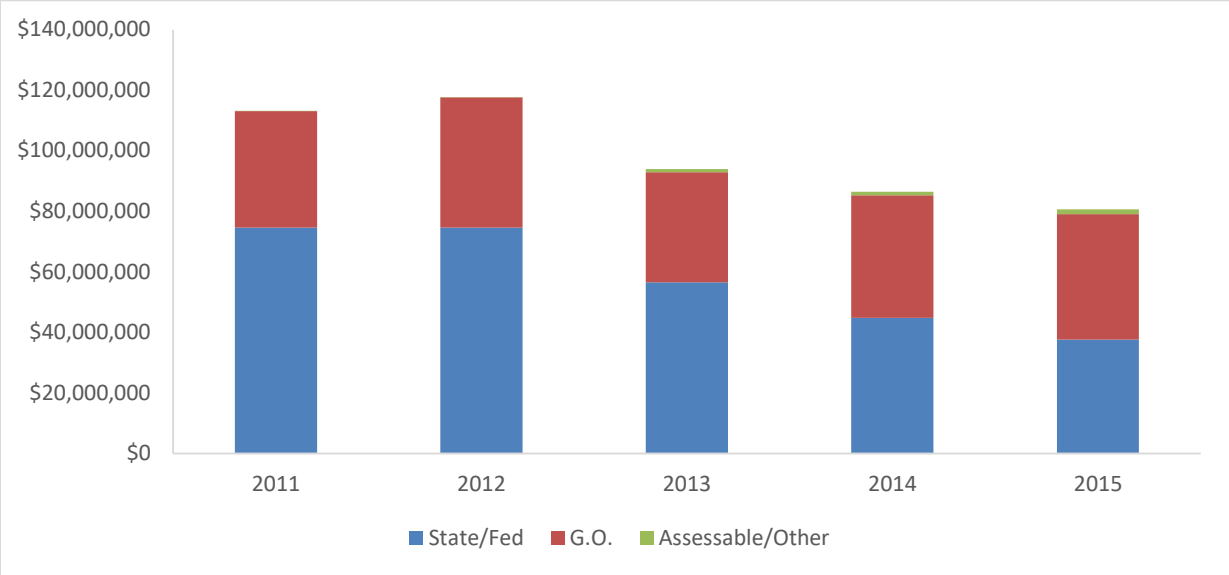
The funds received through SEWRPC and specific federal programs are less consistent than the sources discussed above in that the City must compete with other jurisdictions, and funding requests are based on needed projects that are deemed eligible in a given year. Also, it is important to note that ***if*** the City does not receive federal funds through the SEWRPC distribution process for a major construction project it wishes to undertake, then it defers the project until such funds are allocated.

The process for receiving bridge funding for capital projects is similarly complex. Every other year, the City – as well as other municipalities in Milwaukee County – submits bridge funding requests to the County, which prioritizes those requests and sends them to the Wisconsin Department of Transportation (WisDOT). WisDOT then appropriates the funding on a statewide basis for projects based on budgeted appropriations, perceived need, and a formula that considers prior year funding. The City also requests State/federal funds on a bridge project-specific basis for Connecting Highway Improvement Program projects.

Looking back over budgeted street and bridge funding from the previous five years, we see in **Chart 12** that budgeted spending has decreased substantially, from a peak of $117.7 million in 2012 to $80.6 million in 2015 (we see a further decline to $70.2 million in 2016).[18] Closer analysis reveals that the sharp decline is attributed mostly to diminished federal/State funding, as annual G.O. bonding amounts did not vary widely during the period, ranging from $36 million to $43 million.

[18] Unless otherwise noted, our fiscal analysis in this section relies on budgeted capital spending amounts, as opposed to actual spending. We decided to use budgeted figures because capital projects can transcend several years, and delays in planning and design can cause monies budgeted in one year to be spent in the following year. Consequently, we believe that analyzing capital *budgets* is a better way to gain insight into the government's willingness and capacity to address its infrastructure needs.

Chart 12: City of Milwaukee budgeted spending for streets and bridges, 2011-2015

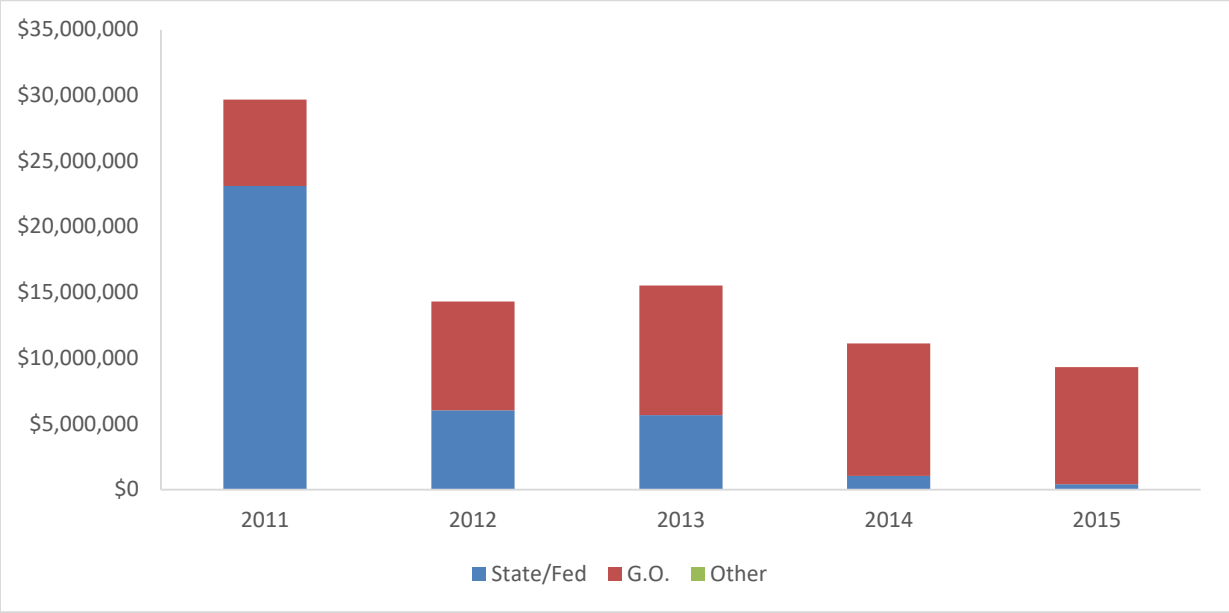


Source: City of Milwaukee budget documents

A closer look reveals that the enhanced levels of spending in 2011 and 2012 largely were attributed to the City's ability to secure federal "stimulus" funds under the American Resource and Recovery Act (ARRA). As shown in **Charts 13** and **14**, in 2011, the City budgeted $23.1 million in federal/State aids to support bridge projects, an amount that far exceeded the average of $3.3 million per year received from 2012-2015. Meanwhile, in 2012, the City budgeted $68.6 million in federal/State aids for street projects, which far exceeded the average of $45.9 million received in the other four years of the 2011-2015 timeframe. Yet, even accounting for the impact of ARRA funding, we see that total street and bridge funding trended downward over the 2013-2015 time frame. Furthermore, this downward trend continued in the 2016 budget.[19]

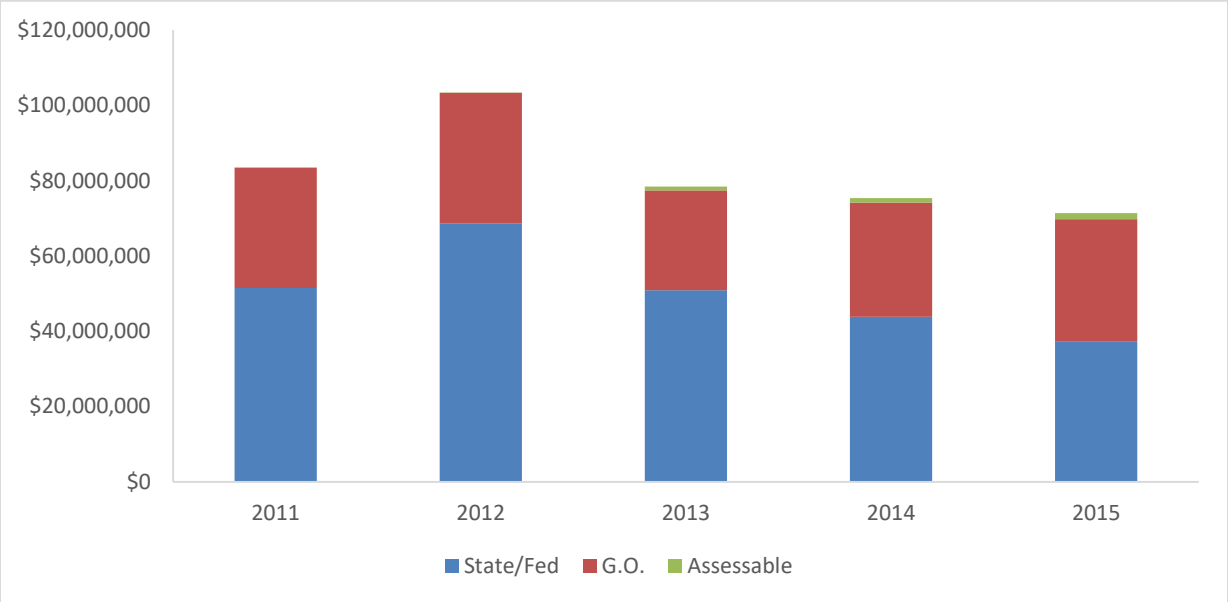
[19] With regard to State and federal aids, bridge funding accounts for much of the decrease in the total.

Chart 13: City of Milwaukee budgeted spending for bridges, 2011-2015



Source: City of Milwaukee budget documents

Chart 14: City of Milwaukee budgeted spending for streets, 2011-2015



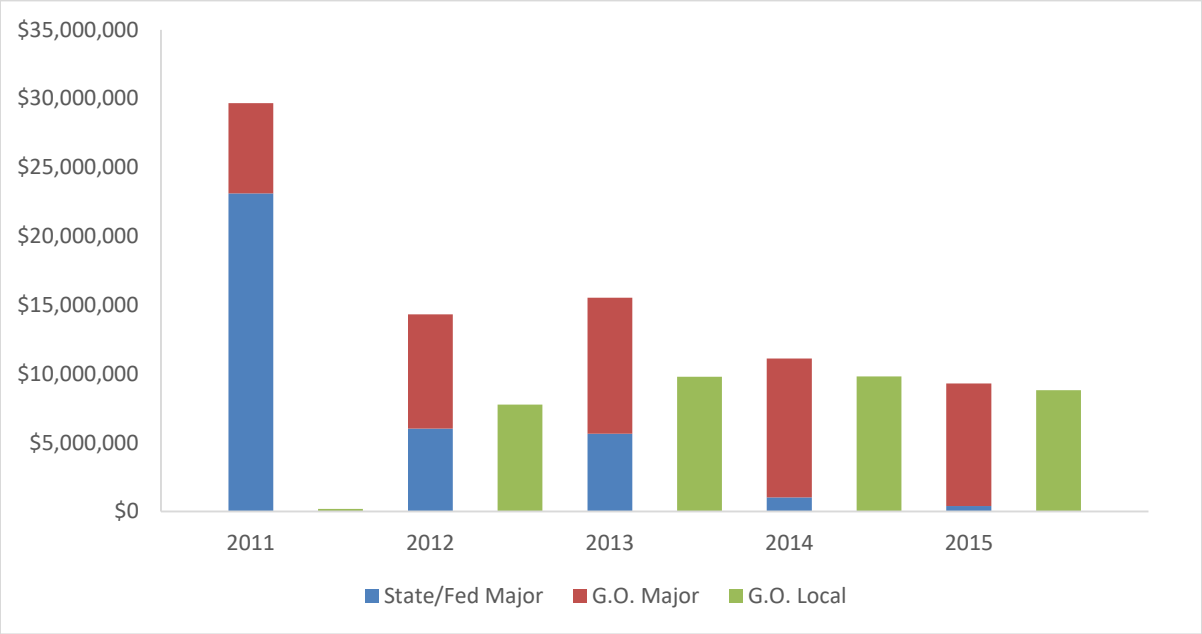
Source: City of Milwaukee budget documents

Future Outlook for Bridge Funding

As discussed earlier, the City has both a major bridge program, which includes projects deemed eligible for federal/State aid; and a local bridge program, which includes projects that require a full local funding commitment. When we examine the breakdown of City capital funding for bridges over the 2011-2015 time frame (**Chart 15**), we see that the major bridge program shrunk considerably

because of a severe decline in State/federal aids, while the City's G.O. bond commitment through the local bridge program grew substantially in 2012 and remained relatively robust through 2015.[20]

Chart 15: City of Milwaukee budgeted spending for major and local bridges, 2011-2015



Source: City of Milwaukee budget documents

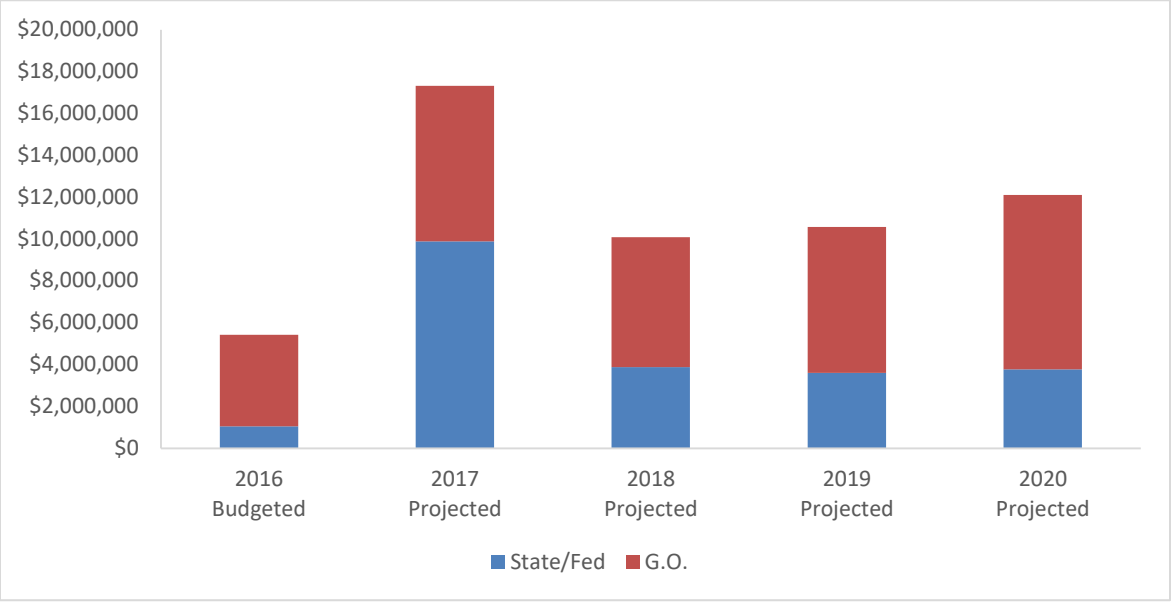
Unfortunately, in the 2016 budget, the City was unable to maintain its G.O. bond commitment from previous years, as its budgeted G.O. bond amount for local bridges decreased from $8.8 million to $4.1 million. The 2016 budget document explains that "the funding decrease results from pressures on the overall capital budget primarily by increased information technology and facility projects." Meanwhile, the budgeted amount for major bridges increased from $500,000 to $1.3 million, but that amount pales in comparison to the amounts spent from 2011-2013. Overall, **this suggests that the City's ability to meet its major and local bridge needs is being challenged**.

When we explore DPW's multi-year capital spending plan for bridges, we see that the Department hopes to see a sharp increase in funding in 2017 to address the funding shortage experienced the previous year and to catch up on needed bridge projects. As shown in **Chart 16**, G.O. bonding would increase from $4.1 million to $7.4 million, and the City has agreements in place for its federal/State aids to jump from $1.1 million to $9.9 million.

Anticipated total bridge spending for 2018-2020 declines from the 2017 peak, but remains at levels that exceed the 2015 and 2016 budgeted amounts. Anticipated G.O. bonding for 2018-2020 is below the average annual amounts from the 2011-2015 timeframe but above the 2016 amount. An important consideration in contemplating these figures is that planned spending for 2018-20 may increase as the need for additional bridge repairs and replacement is identified in the intervening years.

[20] It should be noted that because bonding amounts can be carried over from year to year, the budgeted level of bonding in a given year may be impacted by such carryovers.

Chart 16: Projected spending for City of Milwaukee bridges, 2017-2020



Source: City of Milwaukee, Budget & Management Division

Overall, the future outlook for bridge funding appears challenging. DPW anticipates a need for average annual appropriations for bridges of $12.5 million from 2017-2020, an amount that significantly exceeds the 2016 appropriation of $5.4 million, but one that is consistent with the 2012-2015 average of $12.6 million (we exclude 2011 because of the City's one-time access to stimulus funds).

In light of the decrease in funding in 2016 and the 24 bridges that have been identified as having deficiencies, there is a clear *need* for increased appropriations in the next four budgets. A key question is whether anticipated annual bonding amounts – which appear reasonable in the context of bonds issued from 2011-2015 – would need to increase if hoped-for federal/State aids do not materialize, or whether projects simply would be deferred. In either case, the impacts bear careful monitoring.

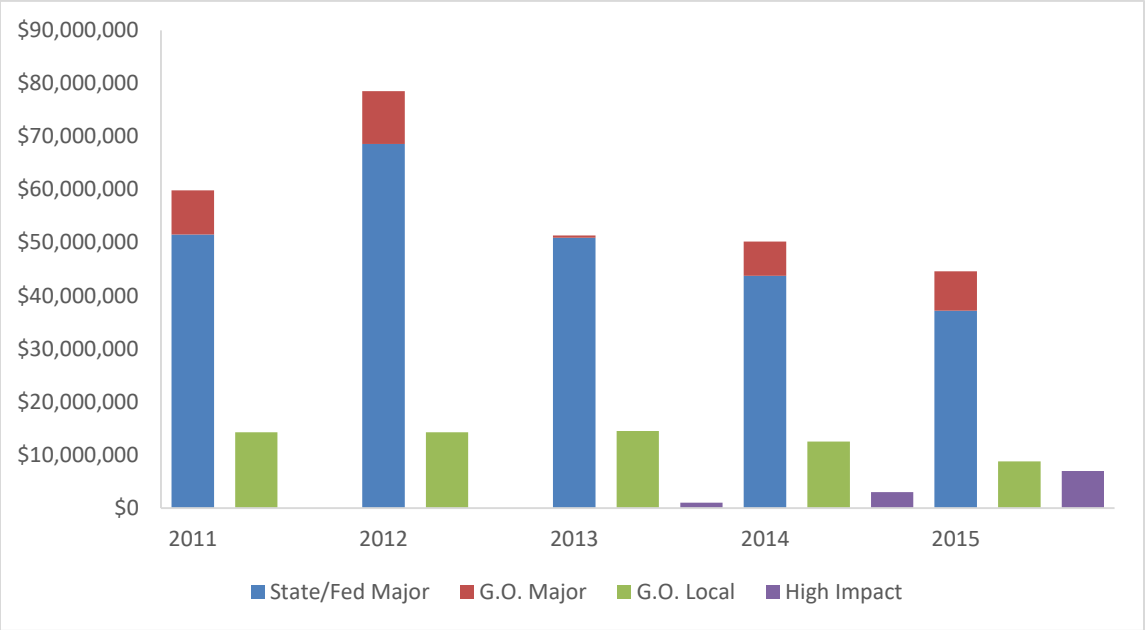
Future Outlook for Street Funding

As noted above, the City made a major commitment to street repairs in the 2012 budget based on the availability of federal stimulus dollars and the capacity in that year to provide required local match dollars. After the spike caused by stimulus dollars, total capital funding for streets declined from $103.4 million in 2012 to $71.3 million in 2015. In 2016, the streets budget declined further to $65.2 million.[21]

[21] Our budget totals for City streets include capital budget amounts not only for major and local streets, but also for street lighting, traffic control facilities, and similar street-related investments.

When we examine the trends for the individual components of the streets program, a few interesting insights emerge. **Chart 17** shows how major streets and local streets fared during the 2011-2015 timeframe, and also reveals the emergence of the High Impact Street Program.[22]

Chart 17: City of Milwaukee budgeted spending for major streets, local streets, and High Impact program, 2011-2015*



** This chart does not include the relatively small amount of street expenditures financed annually by special assessments, which were insignificant in the context of overall spending totals.*
Source: City of Milwaukee budget documents

We see that the decline in funding over the five-year period was shared by both the major and local streets programs; the budgeted appropriation for major streets was $14.8 million (25%) lower in 2015 than in 2011, while the appropriation for local streets diminished by $4.3 million (30%). The decline in major streets funding was linked entirely to the drop in federal/State aids, as bonding for major streets was about the same in 2015 as in 2011. Local streets, however, saw a decrease in bonding in 2014 followed by an even sharper decline in 2015. While not shown in the chart, these trends continued in the 2016 budget, with a $6.5 million decline in federal/State aids for major streets and a $1.8 million decrease in bonding for local streets.

Important context for these trends, however, is the development of the High Impact Streets Program, which received its first appropriation in 2013. Per the 2016 budget document, the High Impact Streets Program "uses a curb-to-curb asphalt resurfacing approach that improves three miles of roadway for the same cost as one mile of traditional reconstruction." The program – which has focused on high-traffic streets – has allowed DPW to address the needs of a far greater number of

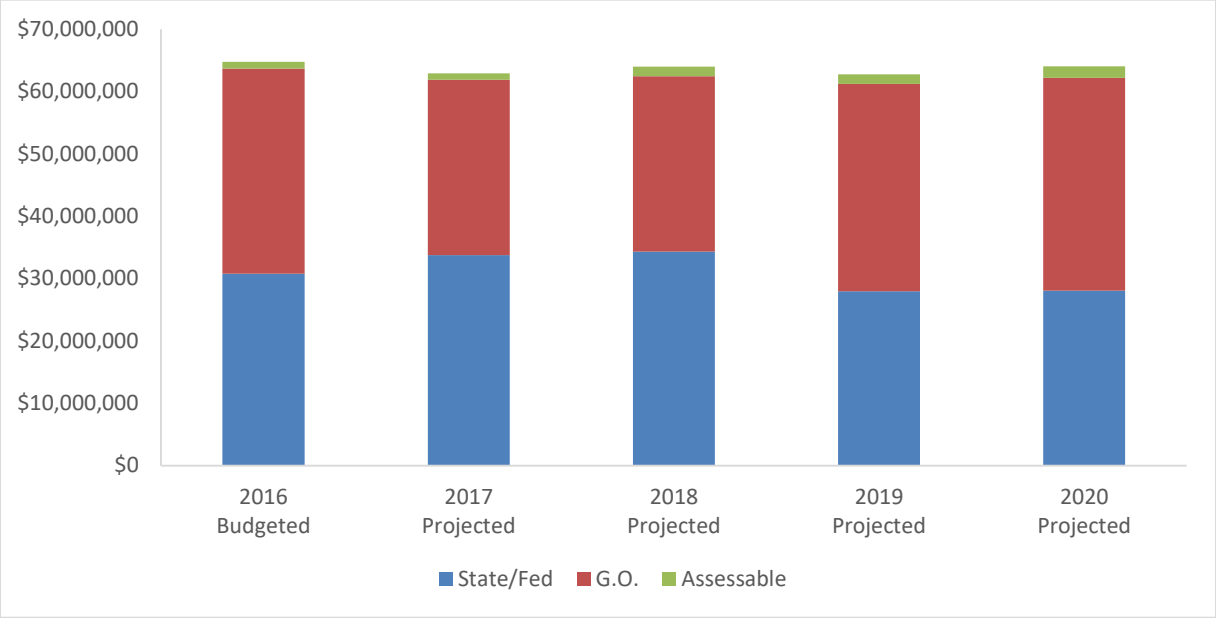
[22] For purposes of the analysis in this section of the report, we omit appropriations for street lighting and traffic control facilities, which are included in our street funding totals in our earlier analysis. We do so because street lighting is essentially level funded at about $9.2 million per year and traffic control facilities are only a small component of the budget.

streets with its limited resources than otherwise would be possible. The City has been funding the High Impact program exclusively with local dollars – a combination of bonding and property tax levy.

A drawback is that the asphalt resurfacing approach is not a substitute for full reconstruction. Consequently, while it can be used to improve the condition of streets that are deemed in "fair" condition and thereby delay by several years the need for full reconstruction, it cannot be used as a substitute for reconstruction for streets that already are in poor condition and require such action. Also, according to city engineers, the asphalt resurfacing is projected to last for seven to 10 years, after which the streets that have been included in the High Impact program may require renewed attention, which likely will entail full reconstruction to address the root cause of the original failure.

Looking to the future, we see in **Chart 18** that DPW's multi-year capital plan anticipates relatively flat funding for streets for the 2017-2020 timeframe. After increases in 2017-18, the Department anticipates a decline in federal/State aids in the following two years. G.O. borrowing is anticipated to exhibit the opposite trend, with a $4 million decline in 2017-2018 from the 2016 amount, followed by a $5 million increase in 2019.

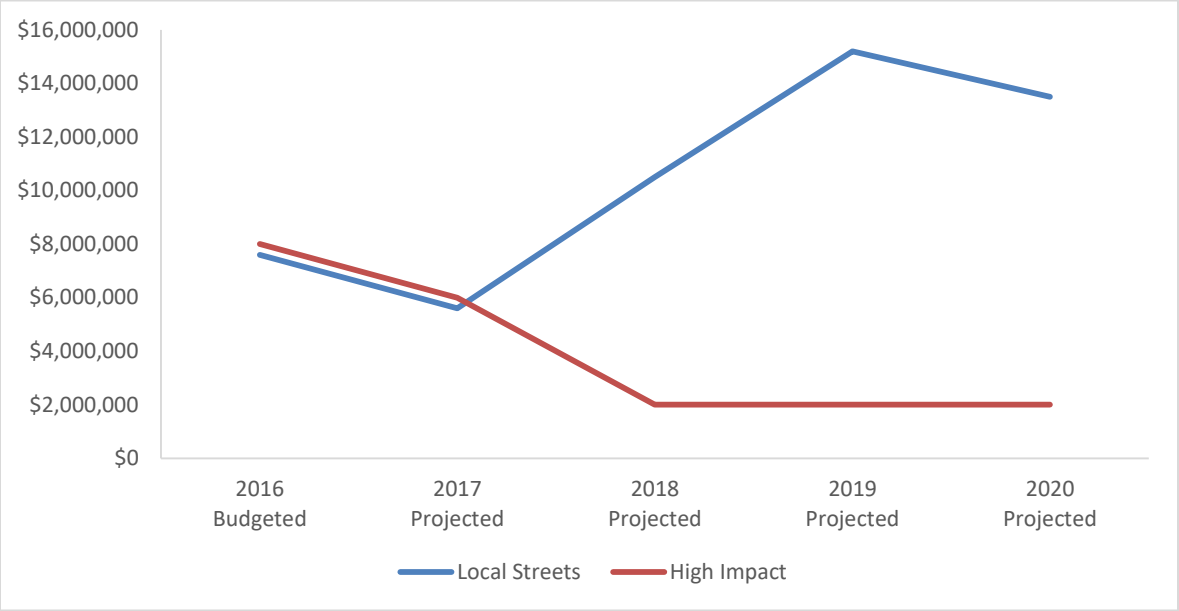
Chart 18: Projected spending for City of Milwaukee streets, 2017-2020



Source: City of Milwaukee, Budget & Management Division

Overall, the promise of only flat funding would have conveyed a bleak future outlook for City streets if not for the implementation of the High Impact Street Program. Because of aggressive investment and use of that program from 2013-2016 (with an expectation of another $6 million investment in 2017), the City has been able to dramatically reduce the number of streets in "fair" condition. As shown in **Chart 19**, the multi-year plan calls for ramping down the High Impact program from 2018-2020, which then would allow DPW to dedicate considerably more resources to local streets that are in poor condition during those same years. (According to DPW officials, while this is the current plan, it is possible that this change will not occur until 2019 or 2020.)

Chart 19: Current and projected budgeted spending for City of Milwaukee local streets and High Impact program



Source: City of Milwaukee, Budget & Management Division

The fact that DPW is able to anticipate steady (but flat) funding for the next several years is beneficial in terms of its ability to plan its multi-year capital budget and prioritize its most critical projects. However, given that nearly one quarter (24%) of City streets were considered to be in "poor" condition as of 2015 – and the reality that the High Impact program provides only a temporary fix for streets in "fair" condition – **flat funding may not be sufficient to meet growing needs**.

It is also clear that the City does not completely control its own destiny with regard to its ability to meet those needs. While DPW can project State/federal aid levels for the next four years, future State and federal budgets, as well as its ability to compete with needed projects in other southeast Wisconsin jurisdictions, will substantially impact its capacity to finance and undertake necessary projects. As with bridges, what cannot be predicted at this time is whether the City would need to use local funds to address critical capital projects that do not receive requested State/federal aids, or whether it would simply defer those projects until such funding does materialize.

Milwaukee County

Capital Finance Environment

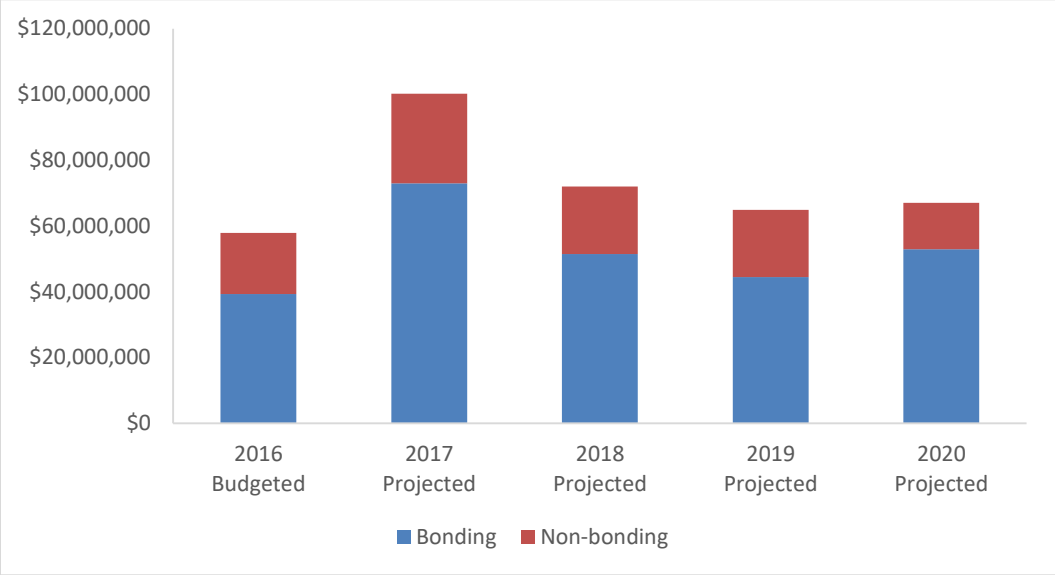
The County's ability to finance its transportation infrastructure needs is threatened by a capital finance environment that is even more turbulent than the City's. The primary factors contributing to that turbulence are its self-imposed bonding cap and the even fiercer competition among its various departmental needs.

As discussed earlier in this report, the County's cap dictates that non-Airport G.O. bonding will not increase by more than 3% annually from the previous year. The cap was established in an effort to

ensure that G.O. debt service obligations would not threaten the County's ability to sufficiently finance its operational needs. Based on the 2016 G.O. bonding amount of $39.2 million, the County will be able to issue $40.4 million of non-Airport G.O. bonds in 2017.

When viewed in the context of the County's capital needs, the severity of that bonding limit comes into focus. **Chart 20** shows both total annual non-Airport capital budget projections and projected annual non-Airport G.O. bond amounts for the 2017-2020 timeframe per the County's current five-year Capital Improvements Plan. To fund all of the projects contained in the plan, the County would need to issue $73 million in G.O. bonds in 2017, and between $44 and $53 million in each of the following three years. The 2017 projection is almost double the amount allowed under the cap; and, while the 2018-2020 projections come closer, the number of projects in those years is likely to grow as new needs emerge.

Chart 20: Projected Milwaukee County Non-Airport Capital Spending, 2017-2020



Source: Milwaukee County 2016 Capital Budget

To make matters worse, the five-year CIP does not yet include a new criminal courthouse plan recommended by consultants that is estimated to cost up to $184 million, which would demolish the decaying Safety Building and replace it with a new 10-story facility. That project – as well as the infrastructure needs of County parks and cultural facilities, which have been documented in previous Forum research[23] – **provide stiff competition for the County's limited G.O. bonding capacity and call into question its ability to finance its transportation infrastructure needs**.

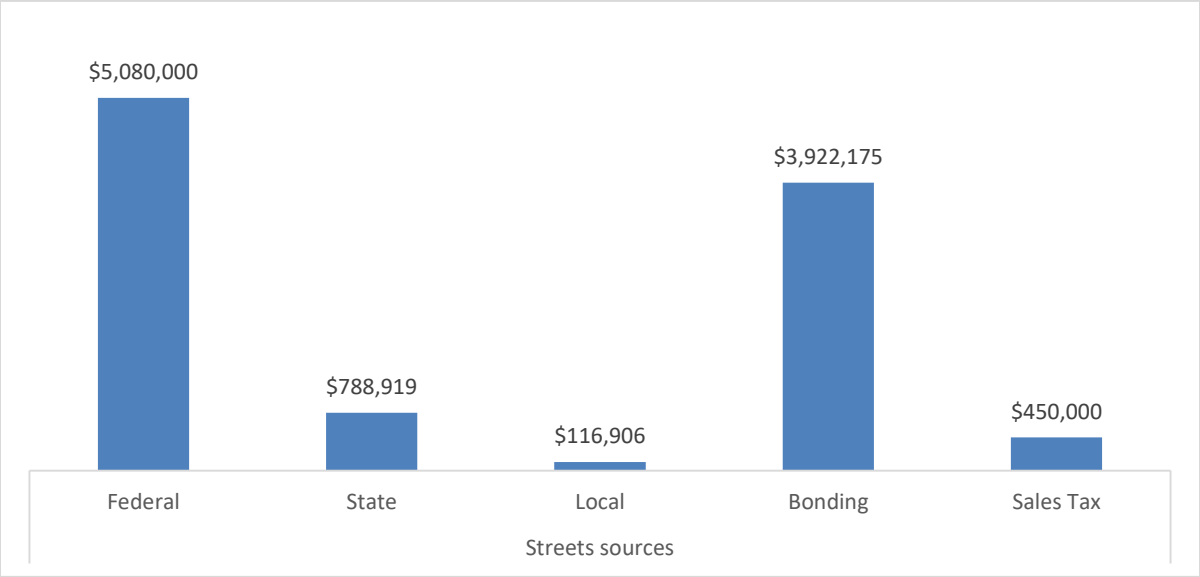
Highways and Bridges

In 2016, Milwaukee County is budgeted to spend about $10.4 million on County trunk highways. No funds are appropriated for CTH bridges in the 2016 budget. As shown in **Chart 21**, nearly half of the funds appropriated for CTHs in 2016 come from federal sources, while nearly 40% is supported

[23] Our most recent analysis can be accessed at http://publicpolicyforum.org/research/pulling-back-curtain-assessing-needs-major-arts-cultural-recreational-and-entertainment.

through G.O. bonding. The County also anticipates receiving nearly $800,000 from the State and $117,000 from municipal governments. The remaining $450,000 comes from the County's half-cent sales tax which, as discussed earlier, is used primarily to support debt service and to cash finance capital projects.

Chart 21: Sources of funds for Milwaukee County trunk highways, 2016 budget



Source: Milwaukee County 2016 Capital Budget

As with the City, the manner in which the County obtains federal and State support for CTHs and CTH bridges is complicated. Like the City, the County receives an annual appropriation from the State's General Transportation Aids (GTA) program. MCDOT's share has averaged about $2 million per year, which it has used for minor repairs and maintenance in its operating budget, and not for capital projects.

For capital needs, the County receives State funding every two years from the County Highway Improvement Program (CHIP), which is the county version of the aforementioned Local Roads Improvement Program that provides a minor source of funding to municipal governments. CHIP funding is based on the size of a county's population, and tends to match funding for capital projects on a 50/50 basis, although the match may vary from 60/40 to 70/30.[24]

In addition, like the City, the County requests federal funds on a project-specific basis through the SEWRPC process described above. The County also requests federal funds on a project-specific basis from the Highway Safety Improvement Program (mostly going toward traffic signals), Transportation Investment Generating Economic Recovery program, Congestion Mitigation/Air Quality Improvement program, and Transportation Alternatives Program. County officials report that the SEWRPC evaluation process has become more competitive in recent years and have expressed concern about their ability to secure funds for needed projects as routinely as they had in the past.

It is important to note that ***if*** the County does not receive federal funds through the SEWRPC distribution process for a major construction project it wishes to undertake, then it likely will consider

[24] The County uses tax levy or G.O. bonding to match the granted dollars.

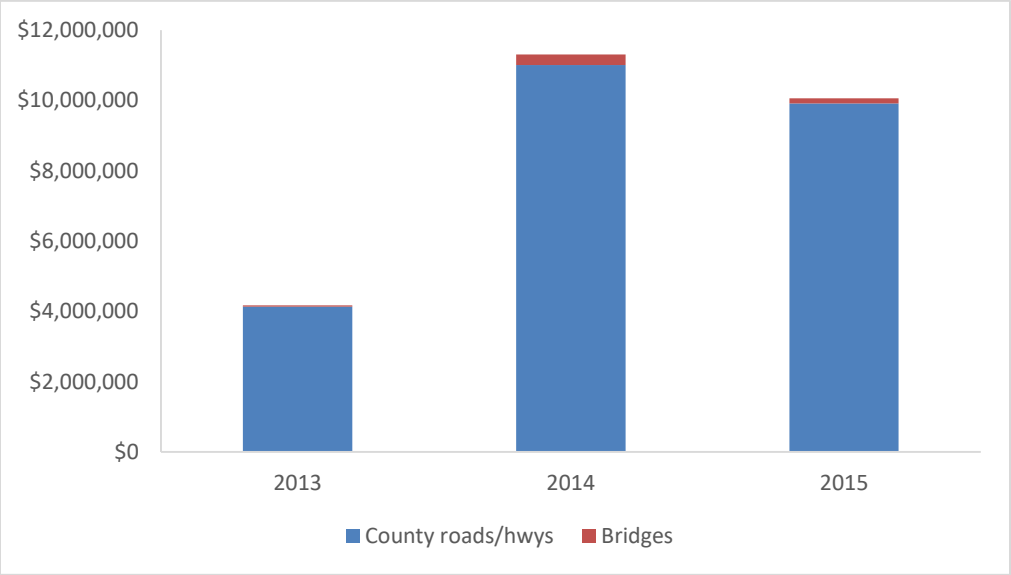
short-term rehabilitation in an effort to defer full reconstruction until such funds become available. MCDOT recently established a "Highway Short-Term Capital Program" that provides an annual allotment for short-term rehabilitation of CTHs that are in dire need, but for which federal funds for reconstruction have not yet been secured. The rehabilitation approach provides "limited preservation" according to the County budget, which can extend the highway's useful life for three to seven years. The 2016 budget provides $450,000 in sales tax revenue for this program.

With regard to bridges, as discussed earlier, municipalities in Milwaukee County submit bridge funding requests to the County each year, and the County sends a prioritized list of those requests to WisDOT along with any proposed bridge projects it may have. WisDOT then appropriates the funding on a statewide basis for projects based on budgeted appropriations, perceived need, and a formula that considers prior year funding. The County, like the City, also requests federal funds on a project-specific basis for Local Bridge Program projects.

To analyze recent trends for County trunk highway and bridge funding, we look back on the three-year period from 2013-2015, as opposed to the five-year snapshot we used for City streets and bridges. That is because the County took advantage of special borrowing opportunities provided under ARRA to borrow for three years of capital projects in 2010. Consequently, the 2011 and 2012 capital budgets contained few projects and virtually no borrowing; using those years in our trend analysis would have skewed the analysis.

Chart 22 shows budgeted highway and bridge appropriations for the 2013-2015 timeframe. We see that highway spending jumped from about $4 million in 2013 to just over $11 million in 2014 and $10 million in 2015. Hence, when taking into account the $10.4 million budgeted in 2016, we see that CTH spending has been steady over the past three years. CTH bridges received a total of only $488,000 over the three years, which is not surprising given their healthy condition, as described in the previous section.

Chart 22: Milwaukee County budgeted spending for county trunk highways and bridges, 2013-15

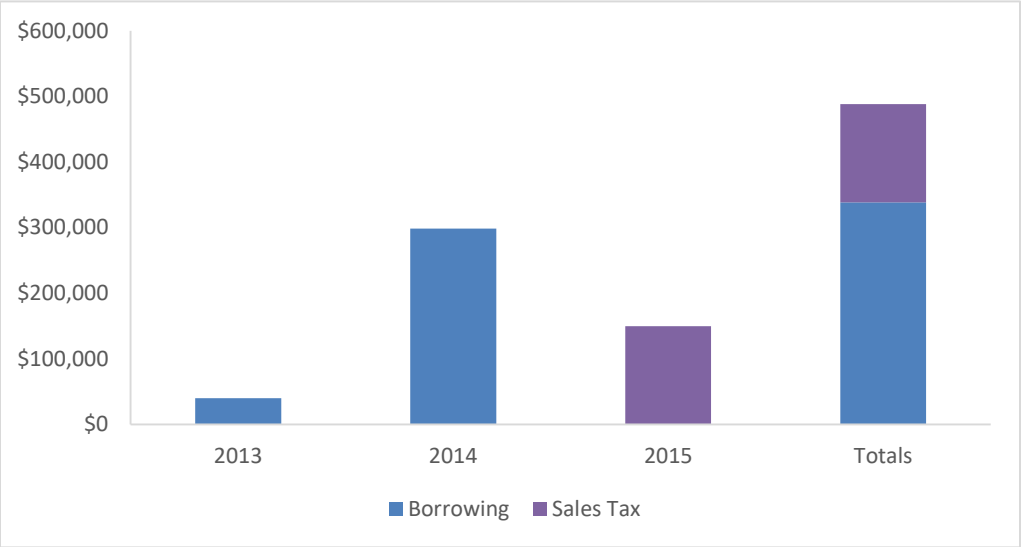


Source: Milwaukee County budget documents

Future Outlook for County Trunk Highway Bridge Funding

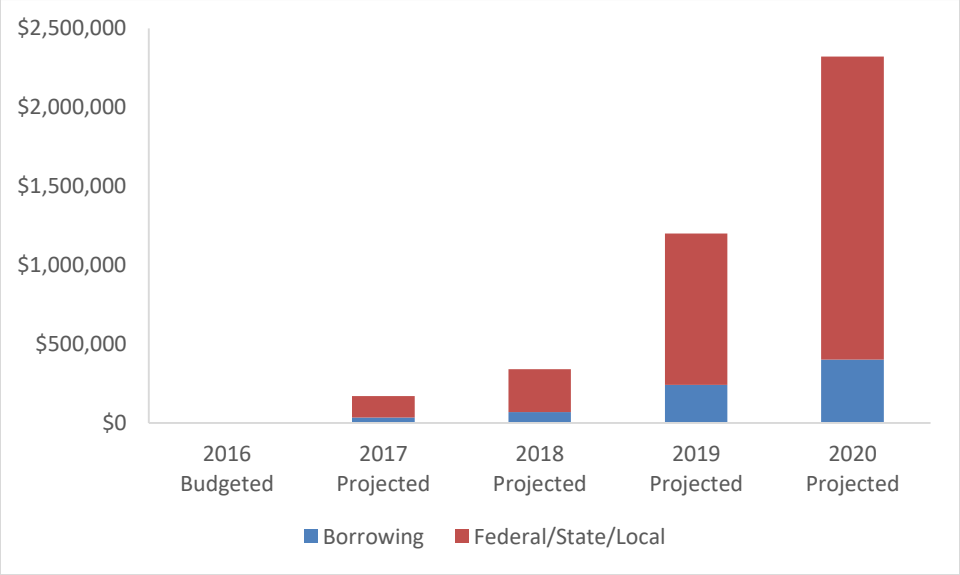
The small amount of funding budgeted for CTH bridges in recent years was derived entirely from County sources through a combination of borrowing and sales tax revenue, as shown in **Chart 23**. The County's five-year capital plan shows that such will not be the case for the 2017-2020 timeframe, however, as $3.3 million from other levels of government is anticipated in addition to a small amount of G.O. borrowing ($742,000).[25] **Chart 24** shows that breakdown.

Chart 23: Sources of budgeted spending for Milwaukee County CTH bridges, 2013-15



Source: Milwaukee County budget documents

Chart 24: Projected spending for Milwaukee County CTH bridges, 2017-2020



Source: Milwaukee County 2016 Capital Budget

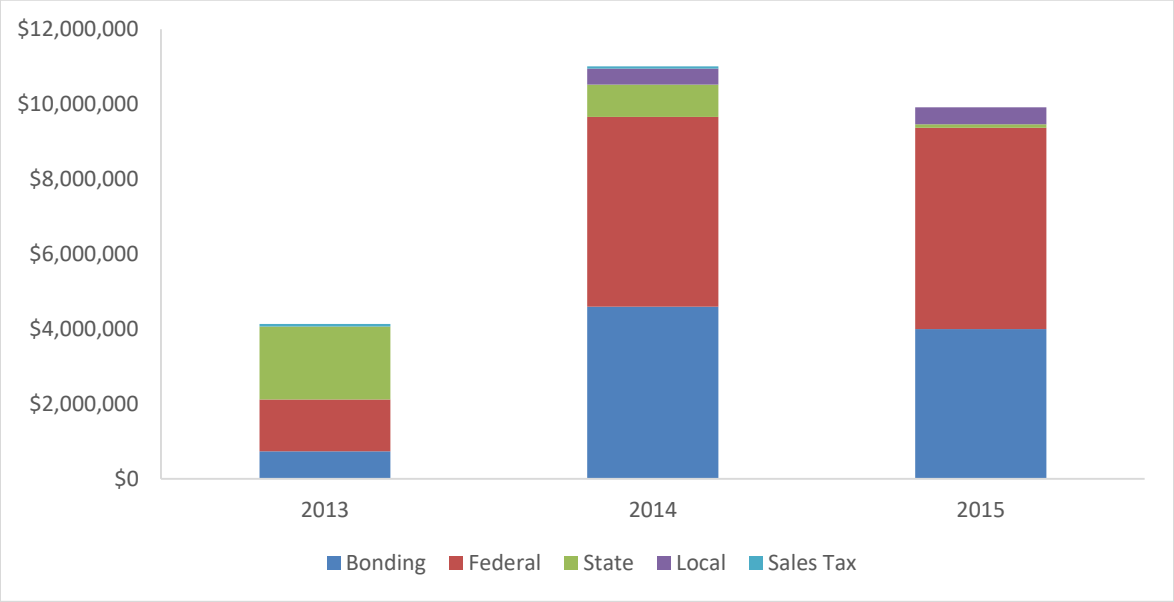
[25] The County's five-year capital plan groups federal, State, local, and other non-County funding sources into one category and does not distinguish between them.

Overall, given the healthy condition of CTH bridges, the amount of funding anticipated for the next four years (about $4 million) appears to be reasonable. In addition, despite the strict limits on the County's annual borrowing and the fierce competition for capital resources among the various County functions, it would appear reasonable to expect that the small amount of anticipated borrowing could be accommodated. It should be noted, however, that the projected jump in funding in 2020 is reflective of the fact that the list of needed CTH bridge reconstruction and rehabilitation projects is anticipated to grow between now and that time. That means the projected 2020 funding level likely will need to be sustained (or perhaps enhanced) in the years following.

Future Outlook for County Trunk Highway Funding

Unlike CTH bridges, CTHs have relied heavily on funding from other levels of government during the past three years. As shown in **Chart 25**, the proportional breakdown of funding sources in 2014-2015 (i.e. more than half coming from the federal government and about 40% from borrowing) was consistent with the breakdown shown earlier for 2016.

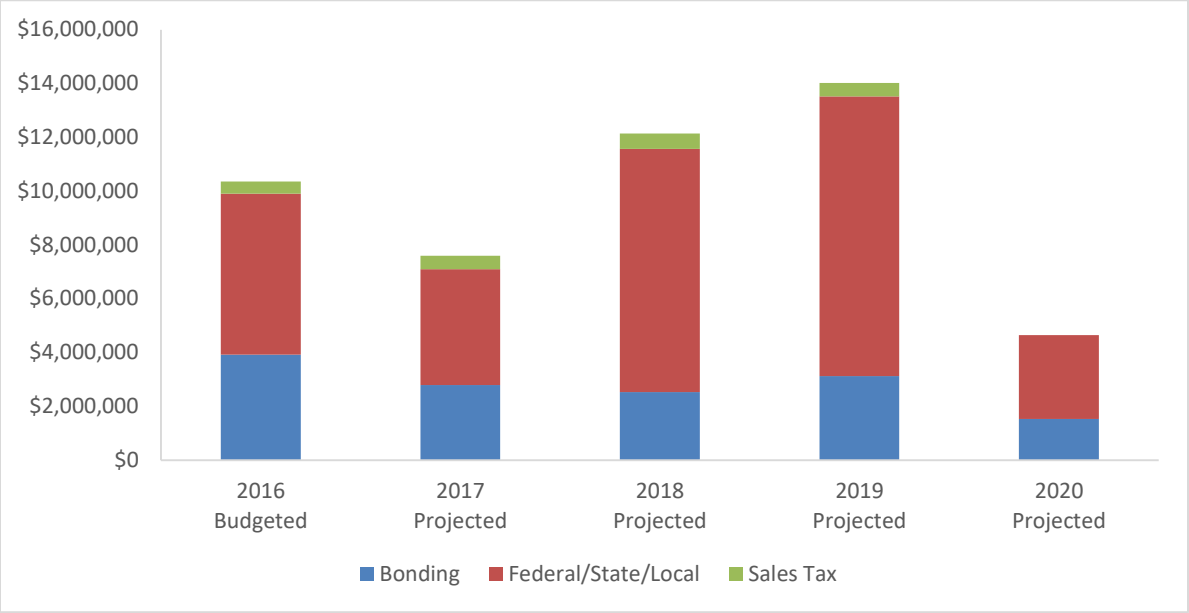
Chart 25: Sources of budgeted funds for Milwaukee County trunk highways, 2013-15



Source: Milwaukee County budget documents

As shown in **Chart 26**, the County's five-year capital plan anticipates a need for $38.4 million for CTH projects from 2017 through 2020, or an average of $9.6 million per year. This is slightly lower but generally consistent with the amounts budgeted from 2014-2016. However, we see that the average is lowered by the substantial decline in anticipated funding for 2020. That decline does not reflect a reduced need for projects in 2020, but rather reflects uncertainty regarding the specific projects that will need to be addressed that far into the future.

Chart 26: Projected spending for Milwaukee County trunk highways, 2017-2020



Source: Milwaukee County 2016 Capital Budget

With regard to sources of funds, the County plans to maintain a slightly lower annual level of G.O. bonding from 2017-2019 (about $2.5-$3.1 million per year) than in the previous three years, when budgeted bonding amounts ranged from $3.9 to $4.6 million. Anticipated funding from outside sources would increase substantially in 2018 and 2019.

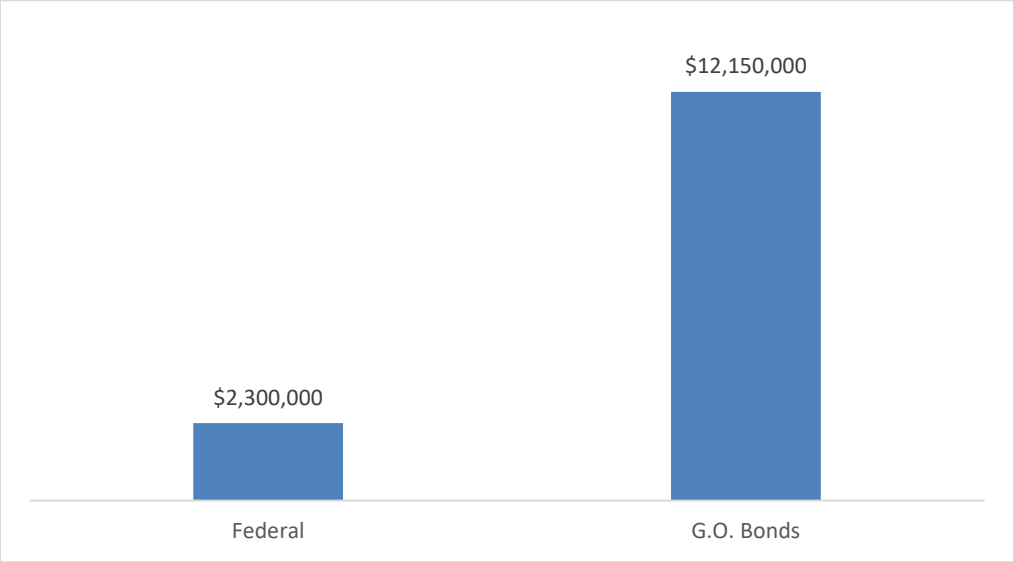
As with City bridges and streets, a key question for the County is whether it would need to use local resources to finance the CTH projects that need to be addressed in 2018-2019 if the increased amounts of outside revenues do not materialize (which is a distinct possibility given increased competitiveness for STP funds within the region). If federal funds are not granted for a major CTH project, then MCDOT likely would attempt to pursue short-term rehabilitation, assuming that strategy would be effective for the roadway in question. Yet, while that strategy would buy some time, it also could begin to create a formidable backlog of projects a few years down the road.

This will be an important question for County policymakers, as borrowing demands associated with other functions of County government (and with County buses, as will be discussed below) would make the prospect of substantial additional borrowing for CTHs a difficult one to accommodate.

Milwaukee County Buses

In 2016, Milwaukee County is budgeted to spend $14.5 million to purchase new buses. As shown in **Chart 27**, $12.2 million of that amount is to be financed with G.O. bonds, while the remaining $2.3 million will come from the federal government. The County's G.O. bond appropriation for buses comprises 31% of its overall G.O. bonding amount for non-Airport purposes in the 2016 Capital Budget, which is remarkable in light of the County's other capital needs in areas like parks, cultural institutions, and corrections.

Chart 27: Sources of funds for Milwaukee County buses, 2016 budget



Source: Milwaukee County 2016 Capital Budget

The County is able to utilize certain sources of federal funds (many of which are competitive in nature) to offset the cost of bus replacement provided that the buses to be replaced have reached their federally-defined useful life of 500,000 revenue miles and provided – in most cases – that it can afford a 20% match. Also, MCTS receives $18 to $20 million per year in federal funding under the Urbanized Area Formula Grants program that can be used for bus replacement. However, as the Forum first documented in a 2008 report that shed light on MCTS' structural deficit,[26] MCTS has been forced to use the bulk of those monies to support ongoing maintenance in the operating budget, as opposed to bus purchases.

Neither three- nor five-year trend analysis reveals an accurate picture of the County's bus purchasing capacity, as the County benefited from several one-time sources of federal funds totaling more than $60 million that allowed it to replace more than 250 buses from 2010 through 2013. About $25 million of those funds came from ARRA, while $36.6 million resulted from a 2011 act of Congress that released funds originally earmarked for light rail or other transit improvements in the East-West Corridor to the County. County leaders hoped that the infusion of these funds would allow it to eliminate a severe backlog of bus replacement needs, after which it was anticipated that the County could re-establish a schedule of replacing buses every 10 to 12 years.[27]

Consequently, no additional funds were budgeted for bus purchases in 2013 and 2014. In 2015, the County pieced together $8.4 million of federal funds from various sources and matched that with $4.8 million in G.O. bonds to replace 30 buses. The $14.5 million appropriation in 2016 similarly will

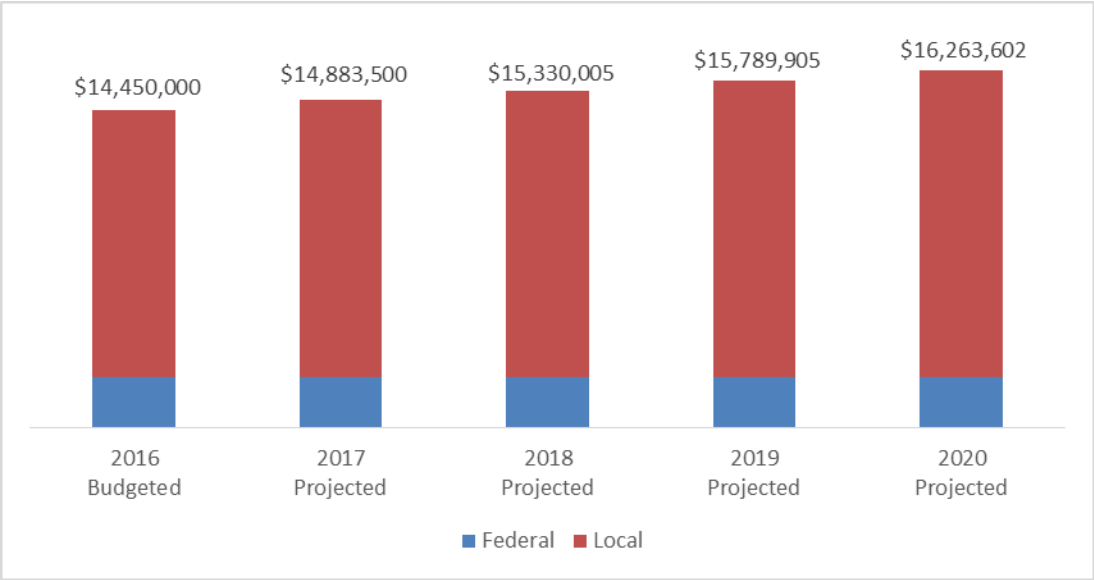
[26] "Milwaukee County's Transit Crisis:" How did we get here and what do we do now?" available at http://publicpolicyforum.org/research/milwaukee-countys-transit-crisis-how-did-we-get-here-and-what-do-we-do-now.
[27] Sandler, Larry, "Milwaukee County approves 136 new buses," Milwaukee Journal Sentinel, December 19, 2011.

be used to replace 30 buses, thus seeking to establish a regular schedule that would roughly be equivalent to a 14-year replacement cycle.

Future Outlook for County Bus Funding

Looking ahead to the next four years, recent projections provided by MCDOT estimate a need for $62.3 million for bus replacements from 2017-2020, as shown in **Chart 28**. The County hopes to use $2.3 million per year in federal funds, with the remaining $53.1 million needed from G.O. bonding. The magnitude of the $13.3 million annual G.O, bonding average comes into focus when considering that the County's annual bonding cap is roughly $40 million in 2017 (growing to about $44 million in 2020).

Chart 28: Projected capital spending for Milwaukee County buses, 2017-2020



Source: Milwaukee County Department of Transportation

Assuming that projection is accurate – which appears reasonable given the condition of the current bus fleet as discussed earlier in this report – it is difficult to see how the County can fulfill its bus replacement needs without exceeding its self-imposed bonding cap or somehow identifying additional federal or new sources of funds. While it is not inconceivable that either of those options could materialize, **a scenario in which a single capital need is projected to exhaust about one third of the borrowing capacity of a government with such a substantial breadth and volume of capital needs is highly problematic, to say the least**.

Shortly before our analysis was completed, the notion of a vehicle registration fee was suggested by the Milwaukee County Executive as a potential means of helping to finance transportation infrastructure needs. The fee would be applied to each vehicle registered in the county and would be added on to the $75 fee charged by the State and – for City of Milwaukee residents – the $20 fee charged by the City. According to a June 2016 report submitted to the County Board by the Director of Performance, Strategy, & Budget, a $20 fee would generate about $10.8 million per year, and a

$50 fee about $27.2 million. (Revenue estimates may be refined by budget officials if this initiative moves forward.)

It is beyond the scope of this report to analyze the pros and cons of various policy options to address gaps in infrastructure funding (we will conduct such analysis in the final installment of our multi-part series on the entirety of the region's local infrastructure needs). However, it is worth pointing out that a vehicle registration fee is the *only* local revenue option available to the County under State statutes that could generate sufficient revenues to comprehensively address its bus replacement needs as an alternative to issuing G.O. debt and using local sales and property tax resources to service that debt.

Whether this truly would be a comprehensive solution is not known at this time. The answer to that question would be determined by the size of the fee; whether it would be used to cash finance bus purchases or instead be directed toward debt service on bonds issued for such purchases; and whether/how the fee proceeds would impact the County's G.O. bonding cap (i.e. would the fee be viewed simply as a means of replacing and reducing annual borrowing, or would it be seen as an add-on that could provide greater overall capital finance capacity for the County).

Conclusion

Our analysis of transportation infrastructure owned by the City of Milwaukee and Milwaukee County shows that both governments face formidable challenges in appropriately addressing their future repair and replacement needs. That is not a reflection of failed infrastructure management practices, as we find that both governments adhere to governmental best practices in terms of conducting sufficiency ratings and cataloging needs. Rather, it is a reflection of aging infrastructure and financial challenges generated by borrowing limitations and the competing capital needs of other governmental functions.

With regard to roads and bridges, given that Milwaukee County has significantly fewer assets to maintain – 86 miles of trunk highways and 47 bridges on those highways versus the City's 1,400 miles of streets and 188 bridges – it should be no surprise that the County's challenges are less pressing than the City's. The City's challenges also are compounded by the fact that it cannot access federal dollars to pay for many of its road and bridge needs. However, despite *it*s opportunity to access federal monies, the County's need to maintain a regular replacement cycle for its fleet of 412 buses is perhaps the single biggest transportation-related capital infrastructure challenge facing either government.

Specific key findings emanating from our review of transportation infrastructure assets owned by Wisconsin's two largest local governments include the following:

- **Milwaukee County bridges are in healthy condition overall, while several City bridges have a pressing need for rehabilitation.** Bridge inspectors give sufficiency ratings to bridges on a scale of 0–100 (with 100 representing a completely sufficient bridge) and also cite structural deficiencies. Our analysis finds that no County trunk highway bridges currently have deficiencies, although over a third (18) of those 47 bridges do have sufficiency ratings of 80 or less, meaning that some rehabilitation may need to occur in the near future. Similarly, nearly a third (51) of City bridges have sufficiency ratings at or below 80, but in the City's case, 24 bridges have structural deficiencies and are in need of near-term rehabilitation or reconstruction.

- **Both the County and City have substantial road repair needs, though the City's are far more substantial.** We find that 29% (24 miles) of County trunk highways are rated in poor or fair condition, compared to 56% (792 miles) for the City. The City recently implemented a High Impact Streets Program that is being used to address heavily-travelled streets in fair condition in an expeditious manner and prevent them from falling into poor condition. While effective for such streets, that approach cannot be used for the 337 miles (24%) of streets that already are in poor condition, for which the City soon must identify resources to pursue full reconstruction. Similarly, the County has been using short-term rehabilitation on trunk highways when federal resources are not available for full reconstruction. Again, while effective in buying time, this strategy sets up a potential future backlog.

- **More than a quarter (106) of Milwaukee County's large buses are at or above 500,000 revenue miles, meaning they have reached the federal threshold for replacement funding.** Moreover, 32 of those buses have surpassed the 500,000 revenue mile mark by more than 100,000 miles, and another 123 buses are at or above 250,000 revenue miles and will be in need of replacement in the relatively near future. Given the average bus replacement cost of $475,000, this represents a substantial financial challenge for the County.

- **The City of Milwaukee has limited capacity to expand its capital budget to accommodate its transportation infrastructure needs.** The City's operating budget pressures suggest that it should not be issuing annual amounts of tax levy-supported debt that exceed the amount of debt it is retiring annually. For the past three years, the City has fallen short of that goal. Efforts to meet it from 2017-2020 may conflict with the City's ability to secure the average of $76 million annually that has been projected as necessary to support street and bridge capital needs, particularly if funding from the State and federal governments do not meet the City's hopes and expectations.

- **Milwaukee County has even less capacity to expand its capital budget to accommodate its bus replacement needs.** Like the City, Milwaukee County must limit its amount of annual borrowing to ensure that debt service requirements do not crowd out operational needs. The County places even more stringent limits on annual borrowing, however, and faces a huge array of capital needs from its public safety, parks, and cultural functions. Yet, despite those limitations, it projects the need for $13.3 million per year in locally-supported borrowing from 2017-2020 – which would comprise nearly a third of its annual borrowing cap – to maintain a healthy bus replacement schedule.

Overall, it would be inappropriate to view either the City's or County's transportation infrastructure as being in a state of crisis. Both governments have been managing to address their foremost needs on an annual basis despite the capacity limitations outlined in this report.

Also, it is important to recognize that the severity of both governments' challenges will be impacted significantly by the availability of support from Madison and Washington, as well as the degree of competition for funds from other local governments in the region. While it is disconcerting that neither the City nor County controls its own destiny, their fortunes could break negatively or positively; for example, both presidential candidates have noted the need for infrastructure investment, and a new stimulus package could sharply alter the portrayal we provide in this report.

Nevertheless, **it is also clear that unmet needs are building at the same time that financial capacity appears to be shrinking.** This places local transportation infrastructure in the City of Milwaukee and Milwaukee County on the same uncertain and concerning path that is being travelled by the federal government and the State with regard to their highway and transit needs and responsibilities.

This report is the first in a series of reports on local government infrastructure. Our objective was to identify the current state of local transportation infrastructure and the near-term challenges faced by the City of Milwaukee and Milwaukee County in meeting identified needs. Consequently, while we raise several important questions, we do not provide answers.

In future reports, we will conduct similar analyses of water and sewer infrastructure, buildings, and other infrastructure owned by our largest local governments. After we have a sense of the state of this collective set of local government infrastructure, we then will turn to the question of what new policies or strategies might be considered to address current needs and future challenges.