DEPARTMENT OF TRANSPORTATION

Local Contributions to State and Regional Transportation Facilities in Minnesota

Jerry Zhirong Zhao, Principal Investigator
Humphrey School of Public Affairs
University of Minnesota

May 2020

Research Project
Final Report 2020-12

LRRB
LOCAL ROAD RESEARCH BOARD

To request this document in an alternative format, such as braille or large print, call 651-366-4718 or 1-800-657-3774 (Greater Minnesota) or email your request to ADArequest.dot@state.mn.us. Please request at least one week in advance.

Technical Report Documentation Page

1. Report No.	2.	3. Recipients Accession No.	
MN 2020-12			
4. Title and Subtitle Local Contributions to State and Regional Transportation Facilities in Minnesota		5. Report Date May 2020 6.	
7. Author(s) Jerry Zhirong Zhao, Camila Fonseca, Raihana Zeerak, and Nathan Bean		8. Performing Organization Report No.	
9. Performing Organization Name and Address Humphrey School of Public Affairs University of Minnesota 301 19th Avenue South, Minneapolis, MN, 55455		10. Project/Task/Work Unit No. CTS#2019008 11. Contract (C) or Grant (G) No. (c) 1003325 (wo) 69	
12. Sponsoring Organization Name and Address Local Road Research Board Minnesota Department of Transportation Office of Research & Innovation 395 John Ireland Boulevard, MS 330 St. Paul, Minnesota 55155-1899		13. Type of Report and Period Covered Final Report 14. Sponsoring Agency Code	
15. Supplementary Notes http://mndot.gov/research/reports/2020/202012.pdf			

16. Abstract (Limit: 250 words)

Highway construction, maintenance, and improvements are supported by federal, state, and local funding. States use a combination of state funding and federal dollars to invest in highways and to provide aid to local governments. In recent years, federal and state governments have had challenges keeping up with transportation needs. These challenges affect funding for roadways, including the share of funding going to local governments. However, there is limited research on the impact of changes in federal and state funding on local spending, particularly the share of local government spending on state and regional highway infrastructure. This research aims to fill that gap by assessing the contributions of local expenditures to state and regional transportation facilities in Minnesota. Our findings show that while cooperative agreements can be mutually beneficial for both local and state governments, they can also carry the risk of unexpected costs for local governments. Therefore, local governments should be aware of the risks of entering into cooperative agreements, particularly when state funding totals are capped. Effective communication during planning and construction can mitigate some of the risk of cost increases as well as uncertainties around cost coverage by MnDOT. The use of state contingency funds to reimburse local governments for unexpected trunk highway expenses could also provide additional financial security for local governments.

17. Document Analysis/Descriptors		18. Availability Statement	
Government funding, Costs, Local transportation, Local government agencies, State government agencies			
19. Security Class (this report)	20. Security Class (this page)	21. No. of Pages	22. Price
Unclassified	Unclassified	83	

LOCAL CONTRIBUTIONS TO STATE AND REGIONAL TRANSPORTATION FACILITIES IN MINNESOTA

FINAL REPORT

Prepared by:

Jerry Zhirong Zhao
Camila Fonseca-Sarmiento
Raihana Zeerak
Nathan Bean
Institute for Urban and Regional Infrastructure Finance
Humphrey School of Public Affairs

May 2020

Published by:

Minnesota Department of Transportation
Office of Research & Innovation
395 John Ireland Boulevard, MS 330
St. Paul, Minnesota 55155-1899

ACKNOWLEDGMENTS

We wish to thank all the members of the technical advisory panel who provided us with invaluable support and advice.

Russ Matthys, director of public works, Eagan

Ross Beckwith, director of public works and parks, West St. Paul

Margaret Donahoe, executive director, MN Transportation Alliance

Julie Dresel, engineer, Metro State Aid Program, MnDOT

Brian Gage, program director for programming and performance management, MnDOT

Kevin Hansen, director of public works, Columbia Heights

Mark Krebsbach, engineer, Dakota County

Ron Seymour, capital investment coordinator, Red Wing

Cindy Voigt, engineer, Duluth

We also wish to thank Thomas Johnson-Kaiser for his invaluable help as project coordinator, as well as the staff from local governments and MnDOT that contributed important information to our case studies.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

LIST OF ABBREVIATIONS

ADA	Americans with Disabilities Act
CBO	Congressional Budget Office
CEAM	City Engineers Association of Minnesota
CIMS	Corridor Investment Management Strategy
CIP	Capital Improvement Plan
DEED	Department of Employment and Economic Development
DPS	Department of Public Safety
CSAH	County State-Aid Highway
FHWA	Federal Highway Administration
HFT	Highway Trust Fund (federal fund)
HUTDF	Highway User Tax Distribution Fund (state fund)
LPP	Local Partnership Program
LRIP	Local Roads Improvement Program
MCEA	Minnesota County Engineers Association
MnDOT	Minnesota Department of Transportation
MSAS	Municipal State-Aid Street
MVLST	Motor Vehicle Lease Sales Tax
MVST	Motor Vehicle Sales Tax
NRTS	Northern Rochester Transportation Study
SIB	State Infrastructure Bank
STP	Surface Transportation Program
Tab fee	Motor Vehicle Registration Tax
TAP	Transportation Alternatives Program
TED	Transportation Economic Development
TEDI	Transportation Economic Development Infrastructure
TIF	Tax Incremental Financing
TRLF	Transportation Revolving Loan Fund
VMT	Vehicle Miles Traveled

EXECUTIVE SUMMARY

Highway construction, maintenance, and improvements are supported by federal, state, and local funding. At the federal level, the Highway Trust Fund (HTF), supported primarily by motor fuel tax, plays an important role in the country's roadway system. States use a combination of state funding and federal dollars to invest in highways and provide aid to local governments. In Minnesota, most state highway funding comes from the Highway User Tax Distribution Fund (HUTDF), which is mainly distributed to the Trunk Highway Fund, County State-Aid Highway (CSAH) fund, and the Municipal State-Aid Street (MSAS) fund. Counties use the CSAH funds while cities use the MSAS funds to complement local efforts. Appropriations from the local general fund are the primary local sources of roadway funding for cities and townships. Table 1 provides a brief summary of federal, state, and local sources of highway funding along with their usage.

In recent years, federal and state governments have had challenges keeping up with transportation needs. These challenges affect funding for roadways, including the share of funding going to local governments. However, there is limited research on the impact of changes in federal and state funding on local spending, particularly the share of local government spending on state and regional highway infrastructure. This research aims to fill that gap by assessing the contributions of local expenditures to state and regional transportation facilities in Minnesota.

Highway Funding in Minnesota

Federal and state funding make up a significant portion of Minnesota's transportation budget. The primary source of federal funds is the federal motor fuel tax, but other funds such as a tax on tires and trucks contribute in smaller amounts. These funds are deposited into the Highway Trust Fund (HTF), and then distributed to states for highway, transit, and other programs. In Minnesota, federal funds are allocated to the trunk highway system. In addition, the federal government awards grants to states, and rural and tribal projects, based on a competitive process.

At the state level, the major sources of revenue are the state motor fuel tax, the motor vehicle sales tax (MVST), and the motor vehicle registration tax (tab fee). The state motor fuel tax, tab fee, and 60 percent of the MVST are dedicated to the Highway User Tax Distribution Fund (HUTDF), which is distributed through a constitutional formula to the Trunk Highway Fund, CSAH fund, and MSAS fund. Additional revenue for the highway system is generated through statutorily dedicated state sales taxes on leased and rented vehicles and auto parts.

Bonding, a financing tool, also provides resources for highway purposes in Minnesota, but bonds have to be repaid in the future. General obligation (GO) bonds can provide funding for local roads and bridges, while trunk highway bonds — a special type of GO bond paid out of the Trunk Highway Fund — can only be used for highway purposes.

Local funding comes from local general funds consisting of property taxes and special assessments, sales taxes, and miscellaneous revenue. In addition to these funds, counties in Minnesota are authorized to

levy a wheelage tax, excise tax, a local option sales tax, and gravel tax to address their transportation needs. Local efforts are the single largest contributor to roadway funding in Minnesota.

Intergovernmental Arrangements on State-Aid Roads

MnDOT administers the CSAH and MSAS funding systems through its State Aid for Local Transportation (SALT) program. The CSAH fund is distributed among counties on a formula basis for the construction, improvement, and maintenance of county highways included in the state-aid system. Revenues include those from the HUTDF formula distribution and the motor vehicle lease sales tax (MVLST). To receive this funding, counties are required to spend 60 percent on construction projects and 40 percent on maintenance. The MSAS fund is distributed among cities with populations greater than 5,000 for the construction and maintenance of city state-aid roads.

State transportation agencies often enter into cooperative construction projects with local units of government where mutual benefit and demonstrated transportation needs exist. The Minnesota *Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities between MnDOT and Local Units of Government* policy determines MnDOT's participation in cooperative projects based on the Minnesota Constitution, shared benefits of activities on the trunk highway system, and the scope of the project. This last one must be consistent with priorities established in the 20-year Minnesota State Highway Investment Plan (MnSHIP). The state's level of participation is required to be commensurate with the amount of benefits accruing to the trunk highway system. MNDOT participation amounts identified in the manual are maximums, but its actual participation may be less depending on its investment priorities and available funding. The Minnesota Cost Participation policy was updated in 2016 to minimize local costs for construction and maintenance of trunk highways while maintaining compliance with the state constitution.

Trends of Federal, State, and Local Roadway Funding

Overall, funding for highway and roadways has increased over time in Minnesota. However, between 2008 and 2017, federal contributions declined slightly as a share of the total, while state contributions were stable and local contributions increased.

Highway user taxes have increased over time, mainly driven by revenues from the MVST and the tab fee. However, revenues from the federal and the state motor fuel taxes have decreased as a share of total dedicated highway revenues. Overall, the state motor fuel tax has remained the single largest source of state revenue despite its decline as a share of total dedicated highway revenues.

According to the data from Minnesota Transportation Finance Database, while total state spending on road construction increased between 2000 and 2017, there is significant variation by county depending on its ongoing projects, its use of local sales tax, and additional bonding. Similarly, spending on road operations and maintenance has increased slightly since 2000, with the Metro District experiencing the biggest increases and districts 7 and 8 the smallest.

Local transportation spending has been continuously growing with some fluctuations since 2008. Spending by MnDOT transportation districts has increased since 2008, with District 8 experiencing the biggest increase and District 7 experiencing the smallest. Similarly, local revenues used for state-administered highways have increased in recent years in Minnesota.

Trends of Transportation Funding

Resources allocated through the HUTDF have been increasing consistently since 2008, when the last bill that raised the state gas tax was passed. Despite this, between 2008 and 2017, local efforts provided more funding for local roadways in all counties. Combined intergovernmental funding to local governments has been stagnant since 2011. Comparing funding for the periods 2008-2012 and 2013-2017, we found that federal support for local roadways is much lower than state and local support. Most counties received less federal funding on average between 2013 and 2017 than they did over the five previous years. When considering state funding, the metro counties receive fewer state dollars per capita than the rest of Minnesota, but they receive more per lane mile. The metro counties also received comparatively little state funding for local roadways per VMT. Western counties received the most state support per capita. This is because they have the most lane miles and bridges per capita in the state.

Effects of Allocation on Local Funding

State and federal allocations have the potential to affect local government spending in two ways. One possible effect is that federal and state funding substitutes for local efforts, which allows local governments to use those funds somewhere else or cut taxes. In this case, the increase in total local roadway funding caused by intergovernmental funding would be limited. Alternatively, higher levels of intergovernmental funding could lead to an increase in local efforts as a result of formal or informal matching.

Local efforts for transportation increased faster than federal and state funding between 2008 and 2017. We used the fixed effects method to estimate the relationship between federal and state transportation funding and local efforts controlling for time and individual fixed effects. The results suggest that an increase in federal funding decreases local efforts across both metro and non-metro counties. However, when comparing metro and non-metro counties separately, we found that state funding has a significant impact in metro counties, while federal funding has a significant impact in non-metro counties. We observe a similar pattern when we run the calculations using per-capita amounts.

Local Funding Spent on Non-Local Systems

This report features six case studies of cities and counties that engaged in cooperative agreements with MnDOT since 2013 to understand the cost burden on local units of government from cooperative trunk highway projects. The local governments' contributions were mainly for the local match requirements of federal and state funding, intersection expenses, or unexpected increases in project costs.

Of the six cases, four local governments experienced additional financial burdens. Three of them received state funding through the CIMS program in 2013. The fixed nature of CIMS grants placed the risk of unexpected costs on the municipalities that received them. All three recipients of CIMS grants faced unexpected cost increases that led to a larger than expected local share of trunk highway construction costs. In two of the cases, the low initial estimates resulted in a higher local cost-share than expected.

The outcomes of these cases show the importance of producing conservative project estimates when applying for capped funding. Competitive grants incentivize local governments to make low cost estimates because higher estimates can hurt projects when competing for federal or state grants. As a result, competitive grants can leave recipients responsible for unforeseen costs. While overall all of the featured projects brought benefits to municipalities, they often came at a higher cost than expected to the localities involved. Therefore, it is important for local governments to take the associated risks into account when considering participating in cooperative agreements.

In addition, localities highlighted the importance of communication between MnDOT and local governments throughout the project. Communication between the involved parties can be key to project success and mitigating uncertainties around cost coverage.

Survey of Local Governments

Based on the case studies, the research team developed and administered a survey to city and county engineers to better understand the experiences of local government agencies with MnDOT cooperative trunk highway projects. Respondents from a total of 37 counties and 41 cities completed the survey.

Below are some of the key findings from the survey:

- Most respondents believed that there were important differences based on whether MnDOT or the local agency initiates a project. These differences were in project management, project execution, cost participation, funding sources, project priority, and ease of "dealing with MnDOT."
- A few of the respondents experienced additional project costs mostly due to unexpected project work or much higher than expected bids. In several cases, additional costs were paid for by the local governments, while other times costs were split based on the original agreement percentage or language, split 50/50 between parties, or dependent on the work.
- Overall, respondents believed that the availability of MnDOT contingency funds for project cost increases and improved communication between MnDOT and local agencies could improve trunk highway cost-sharing agreements.
- Common reasons for local governments not participating in cooperative projects include the lack of need to participate in trunk highway projects and insufficient funding.

Conclusions

With federal and state revenue not keeping up with transportation needs, local government contributions for the roadway system have increased in recent years. This includes local spending on trunk highways through cooperative agreements, which can improve trunk highways that are part of local transportation systems but also limit the ability of local governments to address the needs of their own roads.

The results of the case studies and survey show that while cooperative agreements can be mutually beneficial for both local and state governments, they can also carry the risk of unexpected costs for local governments. Therefore, local governments should be aware of the risks of entering into cooperative agreements, particularly when state funding totals are capped. Effective communication during planning and construction can mitigate some of the risk of cost increases as well as uncertainties around cost coverage by MnDOT. The use of state contingency funds to reimburse local governments for unexpected trunk highway expenses could also provide additional financial security for local governments.

Based on the findings, we make the following recommendations:

1. To disclose project requirements during the planning phase
2. To discuss funding conditions of state funds or grants
3. To include the distribution of unexpected costs in the contract
4. To maintain regular communication between MnDOT and local governments
5. To enable the use of state contingency funds to share unexpected cost overruns
6. To track local spending on the trunk highway system

Table 1: Funding Descriptions

Funding	Includes	Deposited into	Revenue Use
Federal funding	Federal fuel tax, tax on tires and trucks	Highway Trust Fund (HTF)	Distributed to states for highway, transit, and other programs
State funding	State fuel tax	Highway User Tax Distribution Fund (HUTDF)	**95%:** 62% to the Trunk Highway Fund, 29% to the CSAH fund, and 9% to the MSAS fund. **5%** is set aside: for the Flexible Account (53.5%), the Town Road Account (30.5%), and the Town Bridge Account (16%)
	Motor vehicle sales tax (MVST)	**60%** into HUTDF	
	Motor vehicle registration tax (tab fee)	HUTDF	
Local funding	County State-Aid Highway (CSAH)	Distributed to counties	Construction, improvement, and maintenance of highways in the state-aid system
	Municipal State-Aid Streets (MSAS)	Distributed to cities with populations greater than 5,000	Construction and maintenance of city state-aid roads
	Property tax, special assessments, sales tax, and other miscellaneous income	General funds	Transportation funding
	Gravel tax	All counties and few towns	**42.5%** dedicated to county road and bridge fund **42.5%** to the city or town where the mine is located for maintenance and construction of roads, highways, and bridges
	Local Road Improvement Program (LRIP)	- Trunk Highway Corridor Account - Routes of Regional Significance Account - Rural Road Safety Account	- Assist in paying the local share of trunk highway projects - Assistance for the costs of constructing city streets, county highways, and town roads - Projects to reduce traffic, crashes, etc.
	Transportation Revolving Loan Fund (TRLF)	Low interest loans to cities, counties or other governmental entities	Any eligible projects except for toll facilities or congestion pricing projects
	Grants	Better Utilizing Investments to Leverage Development (BUILD)	Grants intended for investments in surface transportation infrastructure
	Bonding		Limited to capital projects related to trunk highway system
	Wheelage tax	County road and bridge fund	County road and bridge fund
	Local option tax		Payment of capital costs of a specific transportation project or improvement; capital and operating costs of a specific transit project or improvement; capital costs of the Safe Routes to School program, and transit operating costs

CHAPTER 1: INTRODUCTION

Highway construction, maintenance, and improvements are supported by three levels of government funding: federal, state, and local. Typically, the federal government funds a relatively small share of the total highway spending. For instance, in 2014, the federal government contributed 21.2 percent of the total highway expenditures in the United States, while state and local governments contributed 50 and 28.8 percent, respectively (U.S. Department of Transportation, 2019).

At the federal level, the Highway Trust Fund (HTF), supported primarily by motor vehicle fuel tax, plays an important role in the country's roadway system. States use a combination of state funding and federal dollars to invest in highways and provide aid to local governments (The Pew Charitable Trusts, 2014). In Minnesota, the majority of the state-level funding for highway construction, maintenance, and improvements comes from the Highway User Tax Distribution Fund (HUTDF) that has constitutionally dedicated funding sources of motor fuel taxes, motor vehicle registration fees, motor vehicle sales tax revenues (MnDOT, 2014), and since 2017, dedications from the state sales tax on leased and rental vehicles and the sales tax on auto parts (Burress, 2018a). The HUTDF is mainly distributed to the County State-Aid Highway (CSAH) fund and the Municipal State-Aid Street (MSAS) fund. Counties use the CSAH funds while cities use the MSAS funds to complement local efforts. Local general fund appropriations are the primary sources of roadway funding for cities and townships, with revenue that comes from property taxes, sales taxes, and special assessments (Zhao, Lari, & Fonseca, 2018).

In recent years, the federal government has had difficulties maintaining funding due to the declining purchasing power of federal motor vehicle fuel tax revenue. The federal motor fuel tax rate was last adjusted in 1993 and lost 40 percent of its purchasing power by 2018 even as nominal revenue increased slightly (Peter G. Peterson Foundation, 2018). Inflation, rising road construction costs, improved vehicle fuel-efficiency, and alternative energy sources have jeopardized the ability of the motor fuel tax to generate enough revenue to maintain the national transportation system (National Surface Transporation Policy and Revenue Study Commission, 2007; Institute on Taxation and Economic Policy, 2013). Since 2008, revenue in the Highway Trust Fund has been less than expenditures, which has been compensated for with transfers from the general trust fund. As the gap continues to increase, the fund is estimated to be exhausted in 2022 (Congressional Budget Office, 2018).

Minnesota faces similar challenges to providing adequate future funding for its transportation systems. The same trends that affect the federal motor fuel tax have weakened the purchasing power of the state motor fuel tax as well. In its 20-year funding plan released in 2017, MnDOT estimated it would need $39 billion in capital funding to support the state highway system, yet only has $21 billion to meet that need. The $18 billion dollar estimated deficit is projected to result in declining pavement and bridge conditions, increasing commute times (MnDOT, 2017a). The Minnesota House passed HF 1555 in 2019, which increased the gas tax, tab fee, and MVST. The bill, however, failed to clear the Senate (Loughead, 2019). These challenges at the federal and state level affect funding for roadways, including the share of funding going to local governments. However, there is limited research on the impact of changes in federal and state funding on local spending, particularly on the share of local government spending on state and regional highway infrastructure (non-local systems). This research aims to fill that gap by

assessing the contributions of local expenditures to state and regional transportation facilities in Minnesota.

This report is structured as follows: Chapter 2 includes the literature review. Chapter 3 includes an analysis of how state, regional, and local transportation funding has changed over time. Chapter 4 discusses the trends of transportation funding and their potential consequences on local transportation efforts. Chapter 5 presents six case studies of cooperative agreements between the state and local governments between 2013 and 2018. Chapter 6 discusses the results of a survey administered to city and county engineers about their experiences with MnDOT cooperative agreement projects. And lastly, in Chapter 7, we present conclusions and recommendations.

CHAPTER 2: LITERATURE REVIEW

2.1 HIGHWAY FUNDING IN MINNESOTA

2.1.1 Federal and State Funding

Federal and state funding make up a significant portion of Minnesota's transportation budget. The primary source of federal funds is the federal motor fuel tax (amounting to 85- 90 percent), but other sources such as a tax on tires and trucks contribute in smaller amounts (Peter G. Peterson Foundation, 2018). These funds are deposited into the Highway Trust Fund (HTF), and then distributed to states for highway (88%) and transit (12%) (Federal Highway Administration, 2018; Congressional Budget Office, 2018). In Minnesota, some of these federal funds are allocated to the trunk highway system and state-aid roads (Burress, 2018a). In addition, federal roadway aid to counties and cities is awarded to projects on a competitive basis through participation in one of Minnesota's eight Area Transportation Partnerships. According to the Census Bureau's Annual Survey of State Government Finances, federal funding contributed one-fifth of highway funding in the state in 2015.[1]

At the state level, the major sources of revenue are the state motor fuel tax, the motor vehicle sales tax (MVST), and the motor vehicle registration tax (tab fee) (Zhao, Das, & Becker, 2010). The state motor fuel tax, tab fee, and 60 percent of the MVST[2] are dedicated to the Highway User Tax Distribution Fund (HUTDF). The HUTDF is distributed in two parts. First, 95 percent of the funds are distributed through a constitutional formula: 62 percent goes to the Trunk Highway Fund, 29 percent goes to the County State-Aid Highway (CSAH) fund, and 9 percent goes to the Municipal State-Aid Street (MSAS) fund (State Constitution, Article XIV: Public Highway System, Section 5: Highway user tax distribution fund). The Trunk Highway Fund is used for MnDOT's operation and construction programs. The construction program is referred to as the State Road Construction Program (SRC) and its funds can only be used for transportation projects within the state trunk highway right-of-way (MnDOT, 2018a). Second, the remaining 5 percent is set aside for one of the three previous funds. Currently, it is allocated to CSAH fund and then split between the Flexible Highway Account (53.5%), the Town Road Account (30.5%), and the Town Bridge Account (16%) (Minn. Stat. § 161.081; Burress, 2018a).

The Motor Vehicle Lease Sales Tax (MVLST) is an additional source of state funding (Minn. Stat. § 297A.815). Leases of more than 28 days are taxed at 6.875 percent, which includes the general sales tax of 6.5 percent, plus an additional tax of 0.375 percent. Revenues from the additional tax are not dedicated to transportation purposes (Dalton, 2018). Total revenues raised under the general tax are allocated as follows: 38 percent to the CSAH fund, 38 percent to the Greater Minnesota transit fund, 13

[1] Information retrieved from http://www.governing.com/topics/finance/gov-state-budgets-federal-funding-2015-2018-trump.html

[2] The remainder 40 percent is dedicated to public transit assistance.

percent to the local bridge program, and 11 percent to the HUTDF (Burress, 2018a).[3] Prior to a 2017 legislation, $32 million of MVLST revenue was deposited into the general fund and the remainder was divided even between the CSAH fund and HUTDF.

Short-term vehicles rentals of 28 days or less carry an additional 9.2 percent tax and 5 percent fee, adding to the 6.875 percent tax for a total 21.075 percent tax. All tax revenue from short-term rentals, except for the 0.375 percent tax, is allocated to the HUTDF (Dalton, 2018).

Since 2017, a fixed amount of revenue from general state sales tax on auto parts has also been dedicated to the HUTDF. This amount increased from $31.4 million annually to $145.6 million annually in 2020 (Burress, 2018). As of 2020, slightly over 50 percent of the revenue raised through auto parts sales taxes was deposited into the HUTDF (Minnesota Transportation Alliance, 2018).

The state also provides funding for local roads through the Local Road Improvement Program (LRIP), Local Bridge Replacement Program, and the Transportation Revolving Loan Fund (TRLF) (Zhao, Das, & Becker, 2010). The LRIP provides funding assistance to local agencies for constructing or reconstructing local roads. MnDOT provided a total of $257.8 million in LRIP funding to local governments between 2014 and 2018. The program initiated in 2002 with two accounts and a third account was added in 2005 (MnDOT, 2018b).

- Trunk Highway Corridor account: Grants to cities, towns, and counties to assist in paying the local share of trunk highway projects that have local costs related to trunk highway improvement and are not funded or are partially funded with other state and federal funds.
- Routes of Regional Significance account: Grants to cities, towns, and counties for the costs of constructing and reconstructing city streets, county highways, or town roads with statewide or regional significance.
- Rural Road Safety account: Grants to counties for constructing or reconstructing projects that are intended primarily to reduce traffic crashes, fatalities, injuries, and property damage on rural County State Aid Highways.

MnDOT operates the Local Bridge Replacement Program to provide state aid to local governments for the reconstruction, rehabilitation, or removal of bridges on local road systems. This program receives funding from state GO bonds and made $94.6 million available to local governments between 2014 and 2018 (MnDOT, 2020).

The TRLF is the Minnesota State Infrastructure Bank (SIB) and provides low-interest loans to cities, counties, and other governmental entities for eligible projects (MnDOT, 2018e). Eligible projects include pre-design studies; acquisition of right-of-way; road and bridge maintenance, repair, improvement, or

[3] Prior to a 2017 legislative change, half of the MVLST was dedicated to Greater Minnesota Transit and half to five of the seven metro area counties for highway purposes after dedicating the first $32 million in revenue to the general fund (Burress & Zewers, 2008).

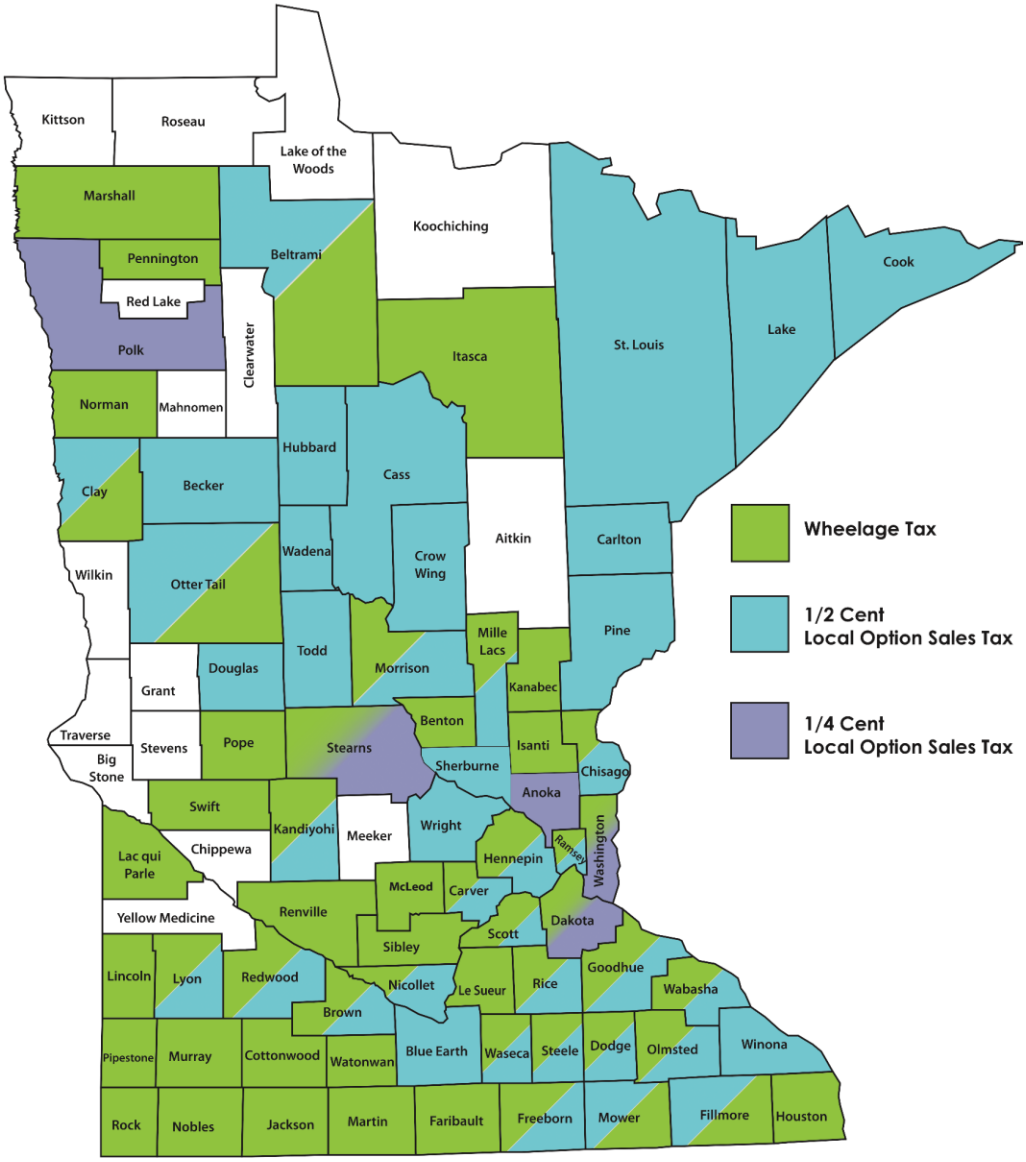
construction; enhancement items; rail safety projects; transit capital purchases and leases; airport safety projects; and drainage structures, signs, guardrails among others. The TRLF funding is available on a first come first served basis until all funds available are committed. Reimbursement of such loans are financed through the local governments' general funds. MnDOT made $33.9 million available for road and bridge projects through the TRLF in 2019 (MnDOT, 2019c).

2.1.2 Local Funding

Local transportation funding is the single largest contributor to transportation funding in Minnesota, accounting for more than 45 percent of the total funding (Zhao, Lari, & Fonseca, 2018). Local transportation funding comes from local general funds constituted of property taxes, special assessments, sales taxes, and miscellaneous income (Ryan, 2006; Zhao, Das, & Becker, 2010). Property taxes are typically the largest contributor to general funds, so they make a significant contribution to overall state funding.

In addition to these funds, Minnesota cities can use bonds for capital construction costs of transportation projects (Zhao, Das, & Becker, 2010).[4] Similarly, counties in Minnesota are authorized to levy a wheelage tax, a local option sales tax, an excise tax on motor vehicle purchases, and a gravel tax to address their transportation needs (see Figure 2.1). The wheelage tax is added to the tab fee paid to counties to provide funding for local transportation (Minn. Stat. § 163.051; Association of Minnesota Counties, 2019). Taxes are collected by the state and paid to the counties on a monthly basis. Counties deposit revenues from this tax into the county road and bridge fund. The wheelage tax was at a rate of $10 per year for each county that authorized the tax between January 2014 and December 2017 and increased to a maximum of $20 after January 2018. According to the Minnesota Transportation Finance Database, wheelage taxes raised $43.5 million for roadway projects in 2019.

[4] Bonding does not generate money, instead it spreads the cost of an improvement over its expected life.



Source: *Map retrieved form the Association for Minnesota Counties, last updated in February 2019.*

Figure 2.1 Wheelage and Local Options Taxes in Minnesota

The local option sales tax is an additional 0.25 or 0.50 percent tax in addition to the statewide general sale tax rate (Minn. Stat. § 297A.993). This tax is collected by the state and remitted to counties on a quarterly basis. Counties must dedicate the proceeds of a local option sales tax to pay for capital costs of a specific transportation project or improvement, capital and operating costs of a specific transit project or improvement, capital costs of the Safe Routes to School program, or transit operating costs (Dalton, 2018). Counties generated $333.6 million from local option sales taxes in 2018, according to the Minnesota Transportation Finance Database.

Minnesota Statute 297A.993 also authorizes counties to impose an excise tax of $20 on motor vehicle purchases. According to the Minnesota Transportation Finance Database, 12 counties levied the tax and raised a total of $7.7 million for transportation projects in 2018.

Local governments also receive a small amount of funding from gravel taxes (Minn. Stat. § 298.75). All counties, and a few towns, are authorized to collect this tax on non-metallic mined materials inside their borders. The tax is set at 21.5 cents per cubic yard or 15 cents per ton by state statute. After an administrative fee is deducted from the revenue, 42.5 percent of the remainder must be dedicated to the county road and bridge fund, while another 42.5 percent must be added to the general fund of the city or town where the mine is located, also to be dedicated for maintenance and construction of roads, highways, and bridges (Kleman, 2018). The remaining 15 percent of the funds are used for the restoration of abandoned pits, quarries, or deposits. Thirty-five counties and one township authorized a gravel tax in 2017 (Minnesota Department of Revenue, 2017). According to the Minnesota Transportation Finance Database, local gravel taxes raised $3.3 million in 2017.

2.1.3 Grants and Bonding

The federal government makes some discretionary grant programs available to states, metropolitan planning organizations, units of local governments, and tribal governments. These grants are highly competitive, so they are an infrequent source of funding in Minnesota. Important federal grant programs include the Infrastructure for Rebuilding America (INFRA), the Transportation Infrastructure Finance and Innovation Act (TIFIA), and the Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants program.

The INFRA program provides an average of $900 million per year in competitive grants for nationally and regionally significant freight and highway projects to states, MPOs, local governments, and other public entities. It leverages non-federal funding to increase total investment by state, local, and private partners. The TIFIA program provides loans and lines of credit for a variety of surface transportation projects undertaken or sponsored by public authorities. The program had $300 million of funding in 2020. The INFRA and TIFIA programs are funded by allocations from the HTF (Congressional Research Service, 2020).

The BUILD grant program was introduced to replace the Transportation Investment Generating Economic Recovery (TIGER) Discretionary Grant program. BUILD grants are intended for investments in surface transportation infrastructure including roads, transit, and railroads, and are awarded based on a competitive process to projects that will have notable rural or regional impacts. Funding for BUILD grants comes from the Consolidated Appropriations Act of 2018, rather than the HTF (U.S. Department of Transportation, 2018).

Bonding also provides resources for highway purposes in Minnesota in the short-term, but they have to be repaid in the future and thus do not contribute additional revenue. In Minnesota, general obligation (GO) bonds can provide funding for local roads and bridges (Minnesota Transportation Alliance, 2018),

while trunk highway bonds are limited to capital projects related to the trunk highway system (Burress, 2018a). Trunk highway bonds are a special type of GO bonds paid out of the Trunk Highway Fund and provided $146.6 million in 2019.

2.2 INTERGOVERNMENTAL ARRANGEMENTS ON STATE-AID ROADS

MnDOT is divided into eight regional districts areas or area transportation partnerships (ATP) (see Figure 2.2). Most of the day-to-day operations are managed at the district level, including highway construction projects, maintenance, and highway right-of-way.

Figure 2.2 MnDOT Transportation Districts

Source: *Minnesota Department of Transportation.*

MnDOT provides funding, technical assistance, and overall management of state aid for highway construction and maintenance to local units of government through the State Aid for Local Transportation (SALT) program (MnDOT, 2018c). The state-aid division of MnDOT administers the CSAH and MSAS funding systems on behalf of local governments. Figure 2.3 shows the distribution process for Minnesota state highway revenue.

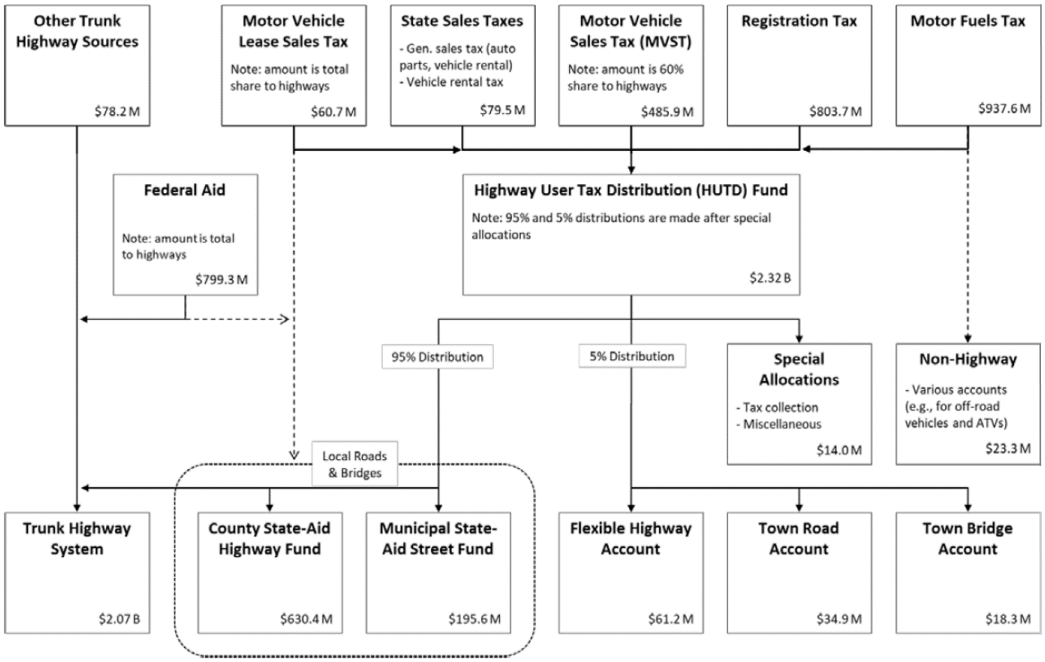


Figure 2.3 Minnesota State Highway Revenue Distribution

Source: *(Burress, 2020)*

2.2.1 County State-Aid Highway (CSAH)

Counties have jurisdiction over County State-Aid Highways (CSAH) and county highways. About two-thirds of county highway miles come from CSAH (Public Health Law Center, 2014). The CSAH fund is distributed among counties on a formula basis for the construction, improvement, and maintenance of county highways included in the state-aid system (State Constitution, Article XIV Public Highway System, Section 7 County State-Aid Highway Fund). CSAH revenues come from the HUTDF formula distribution. Counties are required to spend 60 percent of this funding on construction projects and 40 percent on maintenance. In addition, counties must spend a share of the aid on stretches of state-aid highways located within "small cities" with populations under 5,000. The required share is proportional to the share of construction needs for county state-aid highway segments located in the city.
CSAH funds are allocated as follows (Burress, 2018b):

1. Deductions for county highway purposes, including MnDOT administrative costs equal to two percent of the funds. From that balance, one percent is subtracted for a disaster account. From the remaining balance, no more than one-half of one percent is subtracted for the research account. Finally, three-quarters of one percent is subtracted for the state park roads account (Minn. Stat. § 162.06).
2. Thirty-eight percent of the MVLST is allocated by formula to Twin Cities metropolitan area counties in proportion to the population of each county. The distribution excludes Hennepin and Ramsey counties (Minn. Stat. § 297A.815).

3. The set-aside portion is allocated to county road turnbacks, that is, trunk highway segments that are improved and turned over to become part of the county state-aid highway.
4. CSAH allocation includes the apportionment sum and the excess sum is distributed by formula (see Table 2.1).

Table 2.1 CSAH Allocation

Core Aid	Percentage	Distribution Basis
Apportionment Sum	10%	Equal Distribution to all counties
	10%	Proportionally based on vehicle registration
	30%	Proportionally based on county's state aid lane-miles
	50%	Proportionally based on construction needs
Excess Sum	60%	Proportional to county's share of construction needs
	40%	Proportional to county's share of total motor vehicle registered

Note: *Apportionment Sum correspond to 68% of the CSAH allocation and Excess Sum to 32% of the CSAH allocation.*

2.2.2 Municipal State-Aid Street System (MSAS)

Municipal State-Aid Street (MSAS) fund receives 9 percent of the 95 percent HUTDF distribution and supports the construction and maintenance of city state-aid roads in cities with a population greater than 5,000[5] (State Constitution, Article XIV Public Highway System, Section 8 Municipal State-Aid Street Fund). After deductions, aid is apportioned among cities by formula: 50 percent proportionally based on the population and 50 percent proportionally based on construction needs of each city (Burress, 2018c). The deductions include: 1) MnDOT administrative costs equal to two percent of the funds. 2) From the balance, two percent is subtracted for the disaster account. 3) From the balance, no more than one-half of one percent is subtracted for the research account (Minn. Stat. § 162.12). Cities can request a minimum of $1,500 per improved mile or up to 35% of the total of the allocation to be deposited into their maintenance account. The rest of the allocation for the MSAS goes to the construction account (MnDOT, 2018c).

2.2.3 Townships

Townships are the smallest unit of local government, but they have authority over town roads that make up about 39.5 percent of Minnesota's total roadway miles (MnDOT, 2017c). Property tax levies are the largest source of revenue for town roads (Minnesota Association of Townships, 2019). Additionally, the town road and bridge accounts are allocated a combined 2.325 percent of the state HUTDF as mandated in Minn. Stat. § 162.081. Townships are eligible for some federal aid programs, but must have their applications sponsored by a qualifying county or city (MnDOT, 2019a). Counties, cities, and townships are eligible for funding through the Local Road Improvement Program and Local Bridge Program, when funding is available. These programs are usually supported by GO bonds.

[5] Smaller cities are eligible for state funding under the Small Cities Assistance program when funding is available (Burress, Municipal State-Aid Street System, 2018c).

2.3 LOCAL CONTRIBUTIONS TO TRUNK HIGHWAYS

State transportation agencies often enter into cooperative construction projects with local units of government where mutual benefit and demonstrated transportation needs exist (Athey Creek Consultants, 2013). States such as Missouri, Utah, Wisconsin, Indiana, Iowa, and Minnesota have a cost sharing/cost participation policy. Minnesota's policy is called *Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities between MnDOT and Local Units of Government* and it is used along with the Cost Sharing Policy Manual for equal and uniform implementation of cooperative highway projects. This manual determines MnDOT's participation in cooperative projects based on the Minnesota Constitution, shared benefits of activities on the trunk highway system, and the scope of the project. This last one must be consistent with priorities established in the 20-year Minnesota State Highway Investment Plan (MnSHIP) (MnDOT, 2017a).

This policy provides a framework for determining the potential expenditure of trunk highway funds on elements of cooperative construction projects and maintenance. MnDOT endorses cooperative construction projects with local governments where a mutual benefit and a demonstrated transportation need exists. The cooperative construction project may be initiated by MnDOT requesting local participation in a trunk highway project or by a local unit of government requesting improvements, indicating its willingness to share the cost of a MnDOT project, or requesting MnDOT cost participation in a locally initiated project. MnDOT participation is limited to the project scope necessary to address the trunk highway purposes. This policy applies to all trunk highway funds.

According to MnDOT policy, its level of participation should be commensurate with the benefits accruing to the trunk highway system with due respect given to the restrictions in law, applied engineering principles, and the context in which the project is located. MNDOT participation amounts identified in the manual are maximums (see Table 2.2), but the actual participation may be less. When the project has both trunk highway and local purposes and is not easily assigned as MNDOT or local responsibility, costs are assigned on the basis of jurisdictional ownership, or as a cooperative construction item. MnDOT's ability to participate in eligible costs may also be limited by its investment priorities and available funding. MnDOT must also balance available funding between construction and maintenance and preservation activities, which could lessen the available funding for cooperative highway projects (MnDOT, 2019b).

The Minnesota Cost Participation policy was updated in 2016 in response to legislation. The purpose of the update was to minimize local costs for construction and maintenance of trunk highways while maintaining compliance with the state constitution (MnDOT, 2016a; MnDOT, 2016b). The updated policy increased the share of the maximum state contribution from 60 percent to 90 percent, thereby reducing minimum local costs to 10 percent (for all local units of government). In addition, it allows for increased MnDOT participation when a trunk highway safety benefit justifies the costs, as well as raising MnDOT's share of participation for items such as roundabouts, interchanges, lighting, signals, and sidewalks.

Table 2.2 State-Local Cost Sharing Responsibilities

Item	Details	MnDOT Share (1)
Construction		
Roadways	Trunk Highways (TH)	Up to 100%
	Trunk Highway parking	Up to 100% for reconditioning Up to 90% for reconstruction
	Frontage roads	MnDOT road part=MnDOT base part + (access ratio*0.10) Up to 90-100% (2)
Interchanges and Grade Separations	TH-to-TH	Up to 100%
	New road interchanges on freeways	Up to 100%
	New road interchanges on expressways	Starting at 50% up to 85%
	Roadway interchange with TH bridge	% = 143*(Current Age/Exp. Life) - 28.6
	Roadway interchange without TH bridge	Up to 100%
Drainage	Drainage	Up to 100%
	Stormwater treatment	% = Runoff coeff * contributing area
Lighting and traffic control signals	Lighting	Up to 100%
	Traffic control signal system	Up to 100%
	Intelligent transportation systems	Handled on a case-by-case basis
Sidewalks, Bikeways, and Shared Use Paths	Sidewalks	Up to 100%
	Bikeways and shared use paths	Up to 100%
Aesthetic Elements		Depends on the level of impact, item category, and project type
Maintenance		
Roadway and Shoulder	If under MnDOT jurisdiction	100%
Bridge	If under MnDOT jurisdiction	100%
Retaining Wall	Repairs, replacement, and painting	100%

Drainage	On TH	100%
Lighting and traffic control signals	Lighting	Shared between MnDOT and local governments
	Control signals on TH	100%
	Signs by MnDOT	100%
	Markings	Up to 100%
Sidewalks, Bikeways, and Shared Use Paths	On TH	Up to 100%
Aesthetic Elements	On TH	Up to 100%

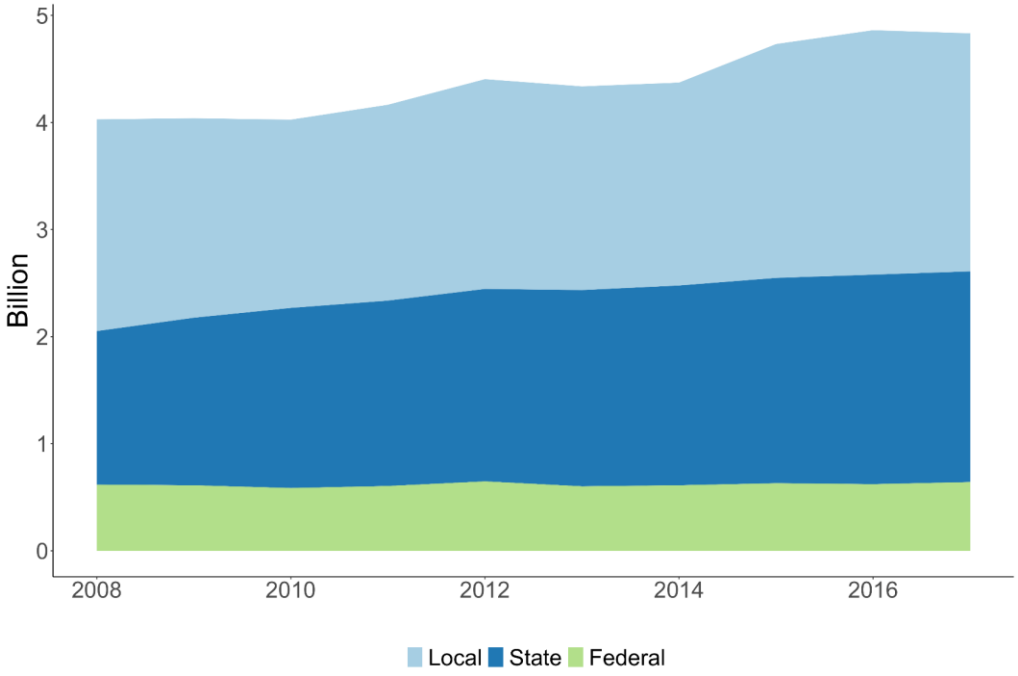
***Note**: (1) MnDOT participation amounts stated as in the participation policy, but the actual participation may be less. (2) MnDOT's base participation is 90% and may increase based on compliance with the MnDOT Access Management Manual. **Source**: Cost Participation and Maintenance Responsibilities with Local Units of Government* (MnDOT, 2017).

CHAPTER 3: STATE, REGIONAL AND LOCAL TRANSPORTATION FUNDING IN MINNESOTA

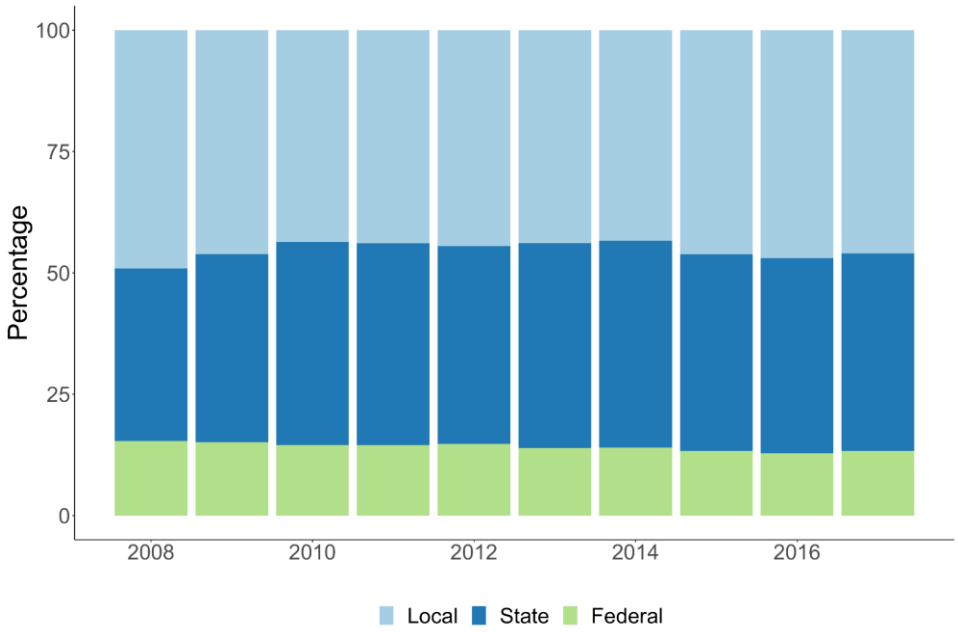
3.1.1 Trend of Federal, State, and Local Roadway Funding

Overall, funding for highways and roadways has increased over time in Minnesota (Figure 3.1a). Between 2008 and 2017, federal contributions were relatively constant, growing only 2.1 percent. Local and state contributions grew at a higher rate in the same period, increasing by 34.6 and 33.7 percent, respectively.

Local contributions are the largest contributor to transportation funding in Minnesota as a share of total funds (Figure 3.1b). Together, federal and state funds, known as dedicated highway revenues, provide over 50 percent of total roadway funding. Between 2008 and 2017, the share of federal contributions declined slightly while the share of local contributions increased. State contributions as a share of the total were more stable. During this period, local, state and federal contributions represent, on average, 45.3, 40.5, and 14.1 percent of the total funding, respectively.



a) *Highway and Roadway Funding*



b) *Highway and Roadway Funding as a share of the Total*

Figure 3.1 Federal, State, and Local Highway and Roadway Funding

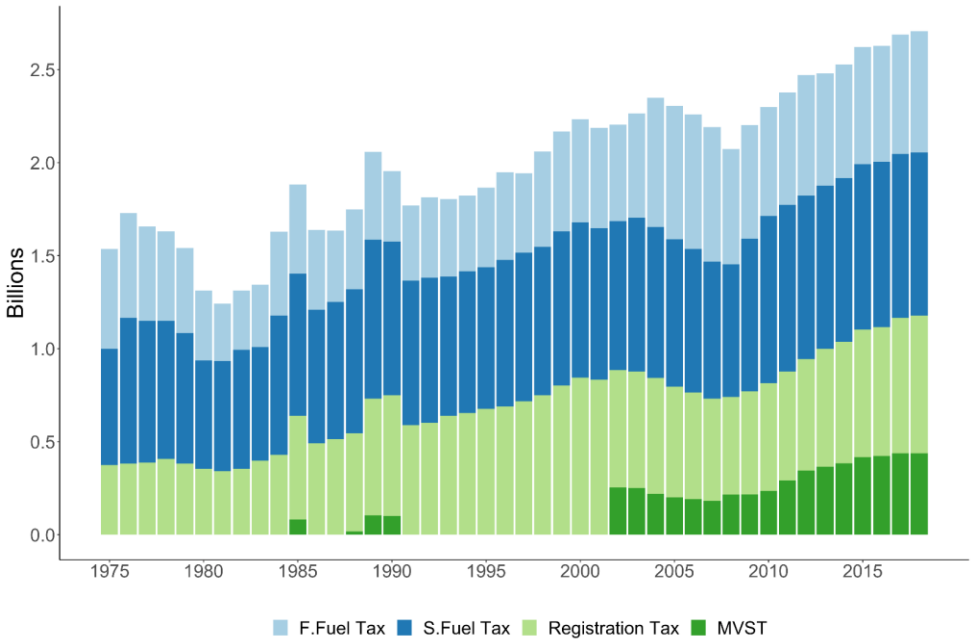
Note: *Values in 2015 constant dollars.* ***Source:*** *Authors' calculations following* Zhao, Lari, & Fonseca (2018). *Data from the Minnesota Transportation Finance Database.*

3.1.2 Federal and State Revenue Sources

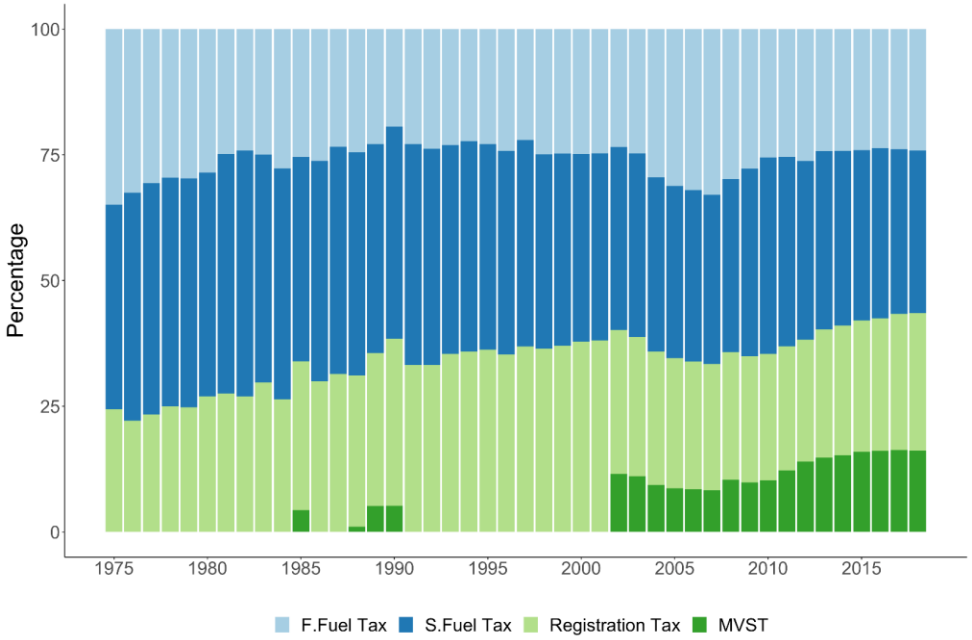
Dedicated highway revenues have increased over time (Figure 3.2a). The increase is mainly driven by revenues from the MVST and the tab fees. Revenues from the federal and the state motor fuel taxes have decreased as a share of total dedicated highway revenues (Figure 3.2b). Continued improvements to vehicle fuel efficiency and the adoption of hybrid and electric vehicles have put greater downward pressure on the motor fuel tax base. In addition, the total motor fuel tax rate has remained relatively constant in the last decades. The federal motor fuel tax rate has been the same since 1993,[6] while the motor fuel tax rose 8.5 cents between 2008 and 2012 in Minnesota.[7] In 2008, the Minnesota Legislature passed a transportation omnibus bill that authorized the motor fuel tax increase as well as the removal of caps on revenue collected by the motor vehicle registration tax. As of 2020, the federal motor fuel tax is 18.4 cents per gallon, and the Minnesota state motor fuel tax is 28.5 cents per gallon.[8] Previous to that, the state motor fuel tax increased in 1988. Information from the History of Mn/DOT Revenue

[6] The federal gas tax increased through the Omnibus Budget Reconciliation Act of 1993. Information available in the Federal Highway Administration retrieved from https://www.fhwa.dot.gov/infrastructure/gastax.cfm
[7] In 2008, the Minnesota Legislature passed a transportation omnibus bill that authorized the motor fuel tax increase as well as the removal of caps on revenue collected by the motor vehicle registration tax.
[8] Previous to that, the state motor fuel tax increased in 1988. Information from the History of MnDOT Revenue Changes retrieved from http://www.dot.state.mn.us/about/pdfs/historychart.pdf

Changes retrieved from http://www.dot.state.mn.us/about/pdfs/historychart.pdfOverall, the state motor fuel tax has remained the single largest source of state revenue for highway construction, maintenance, and operations in Minnesota despite its decline as a share of total dedicated highway revenues.



a) *Dedicated Highway Revenues*



b) *As a share of Dedicated Highway Revenues*

Figure 3.2 Federal and State Transportation Revenues

Note: *Values in 2015 constant dollars.* ***Source:*** *Authors' calculations. Data from the Minnesota Transportation Finance Database.*

3.1.3 State Expenditures on Roads

The two largest sources of spending from the Trunk Highway Fund are road construction and operations and maintenance (O&M) expenditures. Other smaller expenditures include public safety,[9], administration, and debt service (Zhao, Das, & Becker, 2010). According to data from Minnesota Transportation Finance Database, state total spending on road construction increased from $668.3 million in 2000 to $927.6 million in 2017 (Zhao, Lari, Fonseca, & Bean, 2019). Figure 3.3 shows how road construction spending has changed across Minnesota counties, using a five-year average to control for the high yearly variation by county. While overall spending has increased, there is significant variation by county depending on its ongoing projects, its use of local sales tax, and additional bonding.

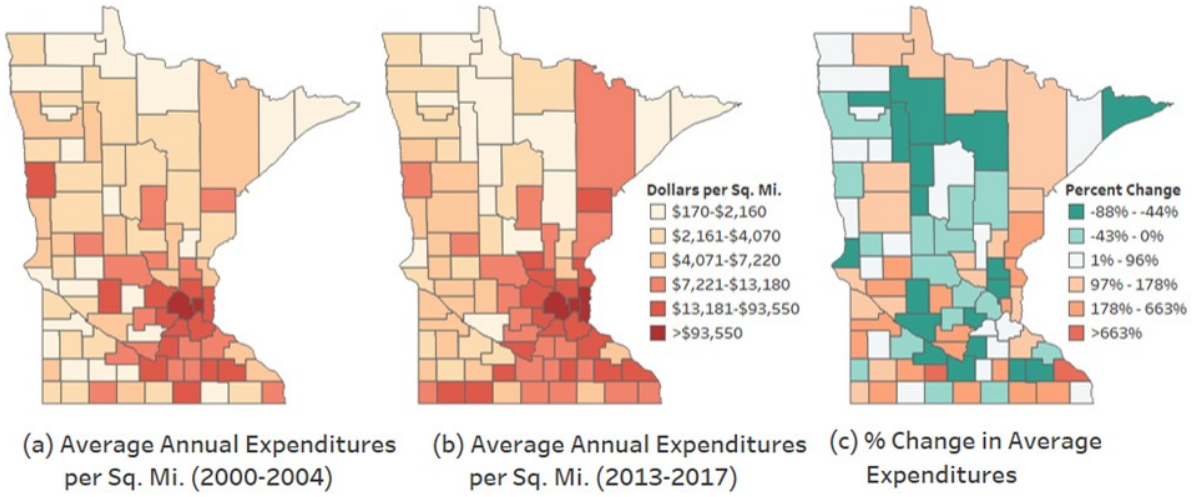


Figure 3.3 State Road Construction Expenditures by County

Note: *Values in 2015 constant dollars.* ***Source:*** *Authors' calculations. Data from the Minnesota Transportation Finance Database.*

Similarly, spending on road operations and maintenance has increased slightly since 2000. Figure 3.4 shows the percentage change in spending by each of Minnesota's eight transportation districts. The Metro District experienced a 13.8% increase in O&M expenditures, the largest among all districts. Meanwhile, the southwestern districts experienced the smallest increases.

[9] A portion of the funds goes to the Department of Public Safety for law enforcement on the trunk highway system.

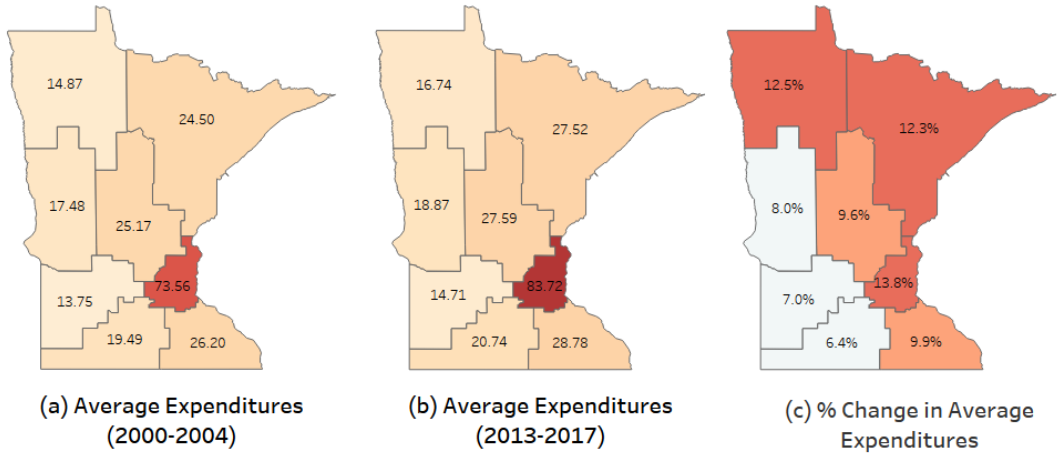


Figure 3.4 State Road Operations and Maintenance Expenditures by District

Note: *Values in millions of 2015 constant dollars.* ***Source:*** *Authors' calculations. Data from the Minnesota Transportation Finance Database.*

3.1.4 Local sources

Local contributions primarily come from general funds and account for more than 30 percent of all transportation funding in the state (Zhao, Das, & Becker, 2010; Zhao, Lari, & Fonseca, 2018).

Between 2008 and 2017, the amount of local transportation funding increased, with some fluctuations, from $1.97 billion to almost $2.22 billion, growing by 12.4 percent (see Figure 3.5). As observed in Figure 3.1, local contributions declined by 11 percent between 2008 and 2010, which can be partially explained by the 2008 economic crisis.

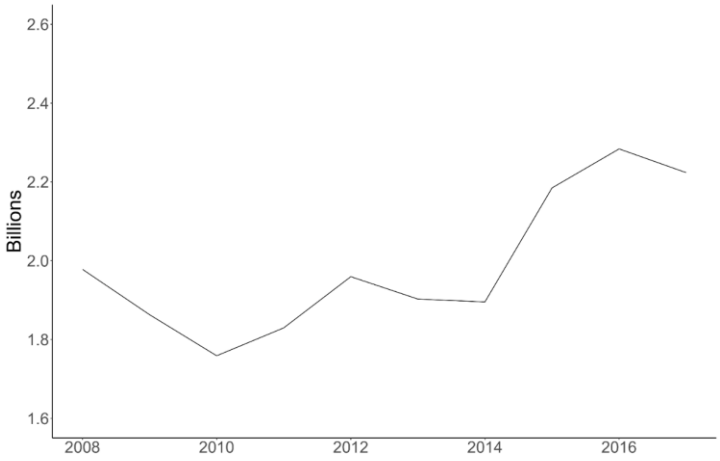


Figure 3.5 Local Contributions to Roadway Funding

Note: *Values in 2015 constant dollars.* ***Source:*** *Authors' calculations following Zhao, Lari, & Fonseca (2018). Data from the Minnesota Transportation Finance Database.*

Local contributions on a MnDOT district basis have increased since 2008 as depicted in Figure 3.6. Between 2008 and 2015, District 8 experienced an increase of 77.6 percent, the highest in the state, followed by District 6 and the Metro District with an increase of 44.4 and 40.2 percent, respectively. Meanwhile, District 7 experienced the smallest increase of 10.8 percent. According to data provided by MnDOT, local governments also planned to contribute $26.9 million for trunk highway projects in 2019 and $25.8 million in 2020.

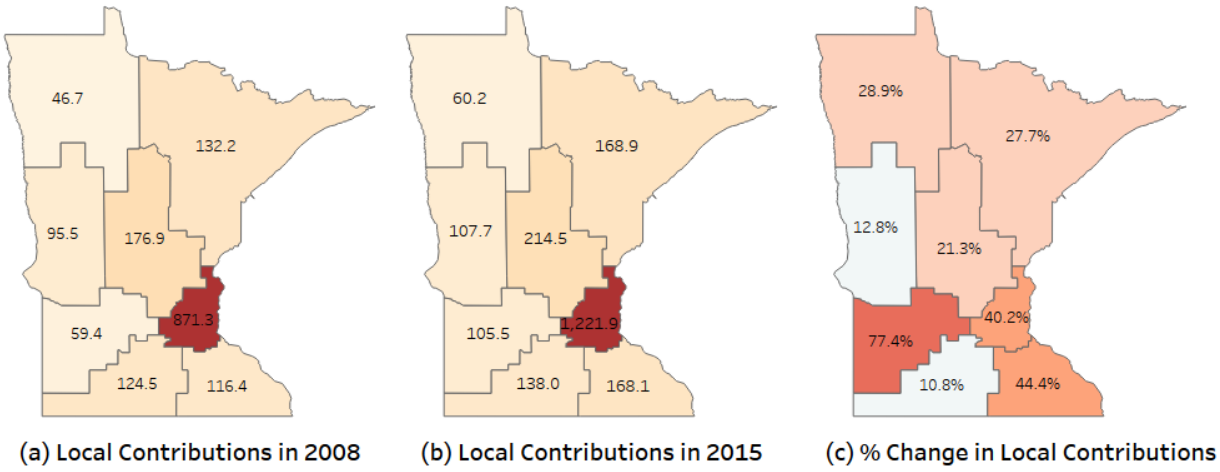


Figure 3.6 Local Contributions by MnDOT Transportation District

Note: *Values in millions of 2015 constant dollars.* ***Source:*** *Authors' calculations following* Zhao, Lari, & Fonseca (2018). *Data from the Minnesota Transportation Finance Database.*

CHAPTER 4: TRENDS OF TRANSPORTATION FUNDING

4.1.1 Local Roadway Funding Trends in Minnesota

Counties, cities, and townships have jurisdiction over local roadways in Minnesota and are responsible for their construction, maintenance, and improvement. According to data available through the Minnesota Transportation Finance Database, these units of local government spent over 3 billion dollars on local roads in 2016. Much of this funding was directly generated by local efforts, while additional funding came from federal and state transportation aid. In 2018, counties received over $730 million from the CSAH fund while cities received $192.3 million through the MSAS fund.

Figure 4.1 presents the HUTDF distributions to the Trunk Highway Fund, CSAH fund, and MSAS fund. Between 2005 and 2008, resources distributed through the HUTDF decreased. Since 2008, the amount of money has increased consistently, partly due to that year's transportation omnibus bill that authorized an increase in the motor fuel tax, removed caps on revenue collected by the motor vehicle registration tax, and dedicated additional MVLST revenue to highway purposes (see Chapter 3).

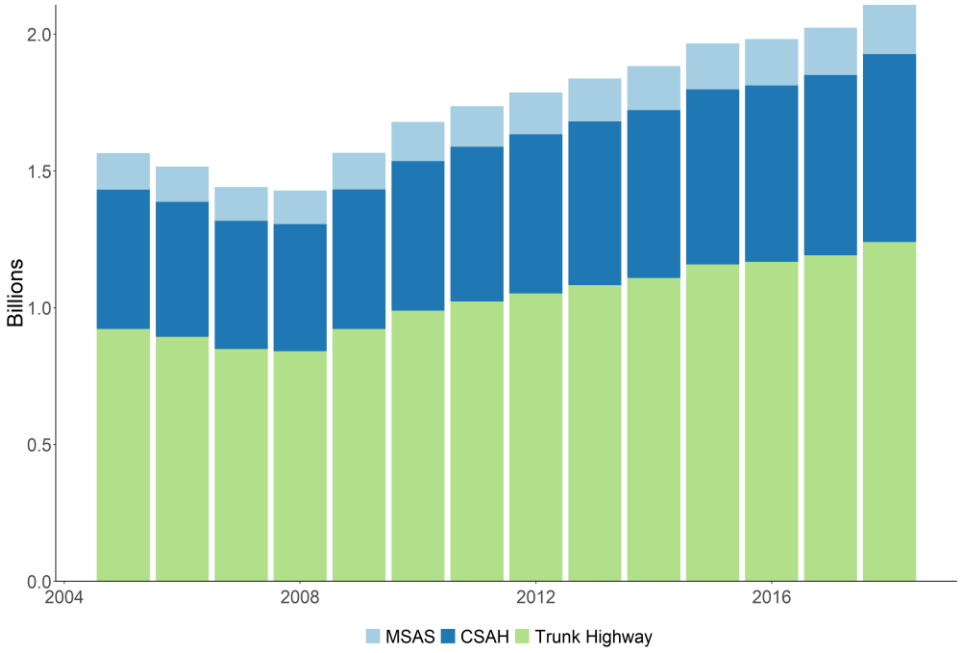


Figure 4.1 HUTDF Distributions

Note: *Values in 2015 constant dollars.* ***Source:*** *Author's Calculations. Data from the Minnesota Transportation Finance Database.*

Figure 4.2 shows the trend of local efforts and state and federal funding between 2008 and 2017 in all counties in Minnesota. The Minnesota Office of the State Auditor (OSA) reports federal and state funding for transportation to individual counties, cities, and townships. Local efforts are calculated as the difference between total local road expenditures and the sum of federal and state transportation funding. We observe that local efforts provide the most local roadway funding. Between 2008 and 2011,

local efforts declined 18 percent, but afterward grew at an average annual rate of 4.6 percent to $1.87 billion in 2017.

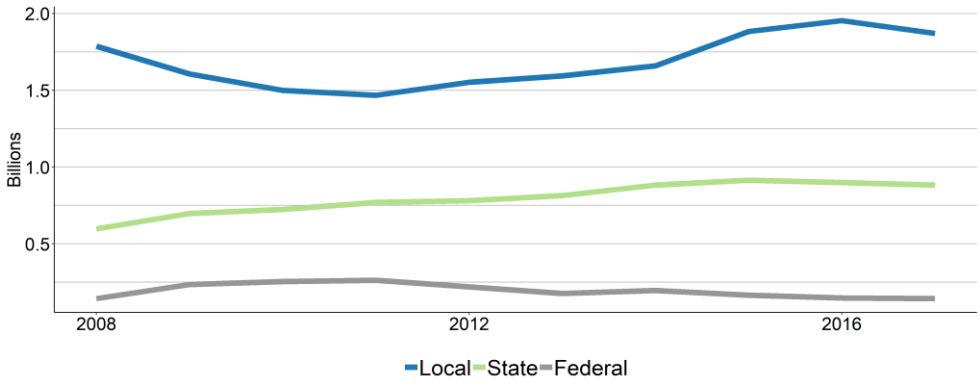


Figure 4.2 Local Roadway Funding Sources

Notes: *Values in constant 2015 dollars.* ***Source****: Author's Calculations. Data from the Minnesota Transportation Finance Database.*

While local efforts declined between 2008 and 2011, state and federal funding increased by 21 and 84 percent over the same period, respectively. However, the trends of these funding sources diverged after 2011. State funding further increased by 14.6 percent by 2017, while federal funding declined by 45.6 percent. As a result, combined intergovernmental funding to local governments has been stagnant since 2011, neither experiencing significant losses nor growth.

Changes in federal and state policies had an impact on funding between 2008 and 2017. The 2009 American Recovery and Reinvestment Act (ARRA) awarded an extra $502 million of federal transportation funding to Minnesota, with $155 million designated specifically for local roadways (Zhao, Das, & Becker, 2010). Therefore, while federal aid declined between 2011 and 2017, some of that decrease is likely federal spending returning to normal after the stimulus package, rather than a decrease in regular allocations. In addition, the 2008 omnibus bill also gave counties the authority to establish a local option sales tax of up to 0.5 percent dedicated to transportation and transit purposes. As of August 2018, 40 counties had imposed a local option sales tax (Dalton, 2018). Counties raised $221.3 million from these taxes in 2017, although a significant amount of this money went to transit rather than roadway projects (Minnesota Department of Revenue, 2017).

Local roadway spending from counties, cities, and townships varies widely in composition. Figure 4.3 compares the sources of local government funding between two 5-year periods: 2008-2012 and 2013-2017. The vast majority of funding for city and township transportation expenditures came from their own source revenues. Townships do not receive federal transportation funding. State funding provided about 50% of county funding on average for both 5-year periods, while local efforts made up 38 percent over each period. Average county funding increased by 12 percent and average city funding grew by 13 percent between the two periods.

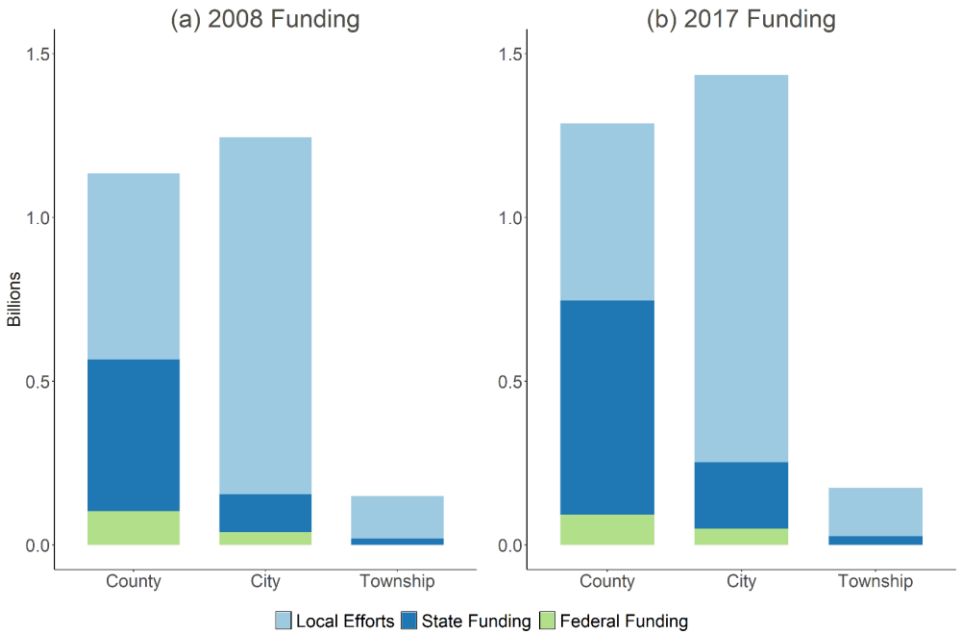


Figure 4.3 Sources of Local Government Funding

Note: *Values in constant 2015 dollars. Townships do not receive federal transportation funding.* ***Source:*** *Author's Calculations. Data from the Minnesota Transportation Finance Database.*

In the following paragraphs we present the trends of federal and state transportation funding and local efforts from 2008 and 2017. We present the data in two periods to smooth out outliers: 2008-2012 and 2013-2017. For each map, panel (a) shows average funding for the 2013-2017 period and panel (b) shows the percent change between the average funding from 2008-2012 and 2013-2017. We present the analysis by county in three ways: average funding per capita, average funding per lane miles, and average funding per vehicle miles traveled (VMT).

Federal Transportation Funding by County

Federal transportation funding is presented by county in Figure 4.4, Figure 4.5, and Figure 4.6. The figures include all federal aid received by units of local government within each county. Federal support for local roadways is much lower than state and local support, as previously seen in Figure 4.2. Most counties received less federal funding on average between 2013 and 2017 than they did over the five previous years.

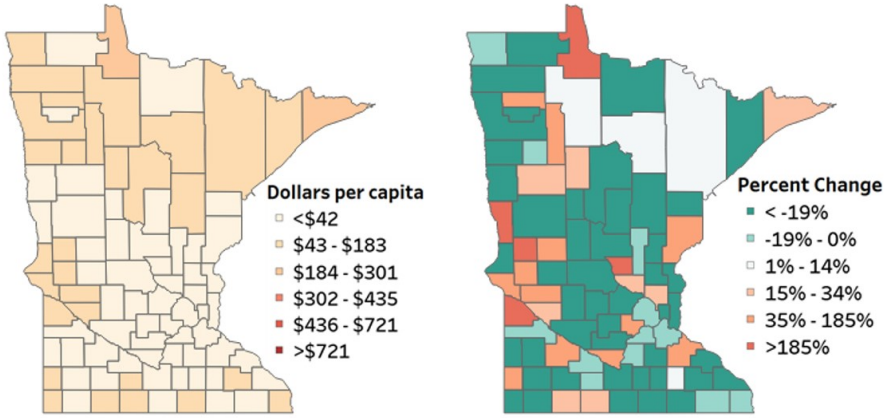


Figure 4.4 Federal Transportation Funding per Capita

***Note**: Values in constant 2015 dollars per person. Panel a) presents the average federal transportation funding per capita for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods.*
***Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*

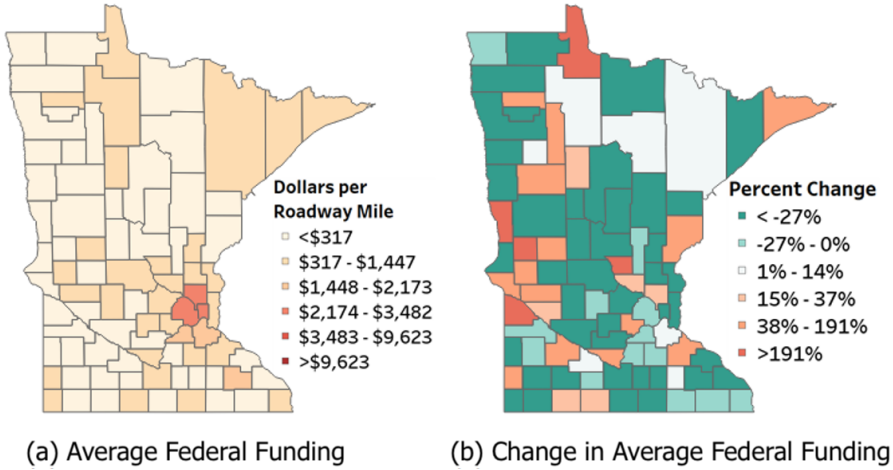


Figure 4.5 Federal Transportation Funding per Lane Mile

***Note**: Values in constant 2015 dollars per lane mile. Panel a) presents the average federal transportation funding per lane mile for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods.*
***Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*

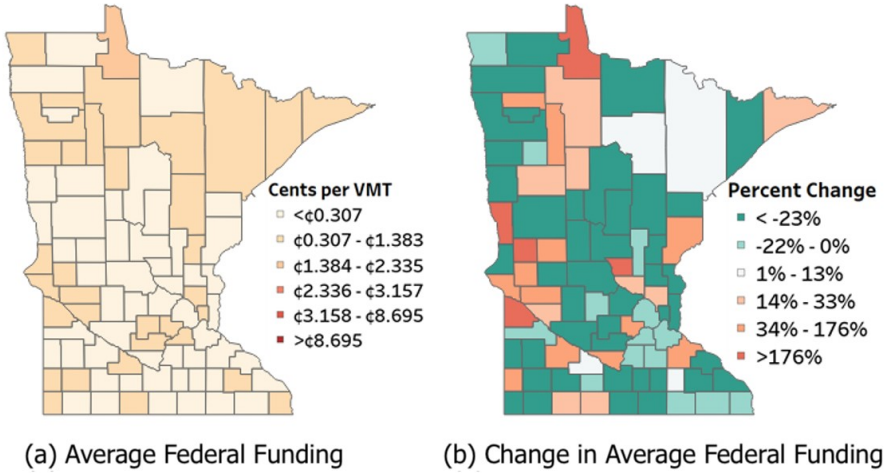


Figure 4.6 Federal Transportation Funding per VMT

***Note**: Values in constant 2015 dollars per VMT. Panel a) presents the average federal transportation funding per VMT for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods. **Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*

State Transportation Funding by county

State transportation funding by county is presented in Figure 4.7, Figure 4.8, and Figure 4.9. The metro counties receive fewer state dollars per capita than the rest of Minnesota, but receive more per lane mile. The metro counties also received comparatively little state funding for local roadways per VMT. Western counties received the most state support per capita and VMT, although they also have the most lane miles and bridges per capita (MnDOT, 2019d). Most counties experienced an increase in state funding over the two periods studied, particularly those in the metro area and central Minnesota.

> The figure presents state transportation funding per capita by county in 2015 constant dollars. The figure has two panels. The first panel presents a map of the average annual state funding per capita between 2013 and 2017. Western Minnesota received the most per capita funding while central Minnesota received the least. The second panel shows a map of the change in average funding between the periods 2008-2012 and 2013-2017. Most counties received more funding between 2013 and 2017.

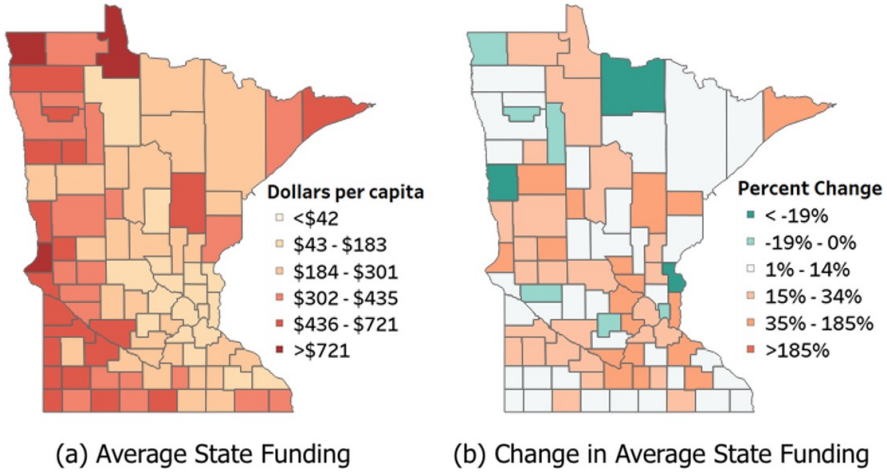


Figure 4.7 State Transportation Funding per Capita

***Note**: Values in constant 2015 dollars per person. Panel a) presents the average state transportation funding per capita for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods.*
***Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*

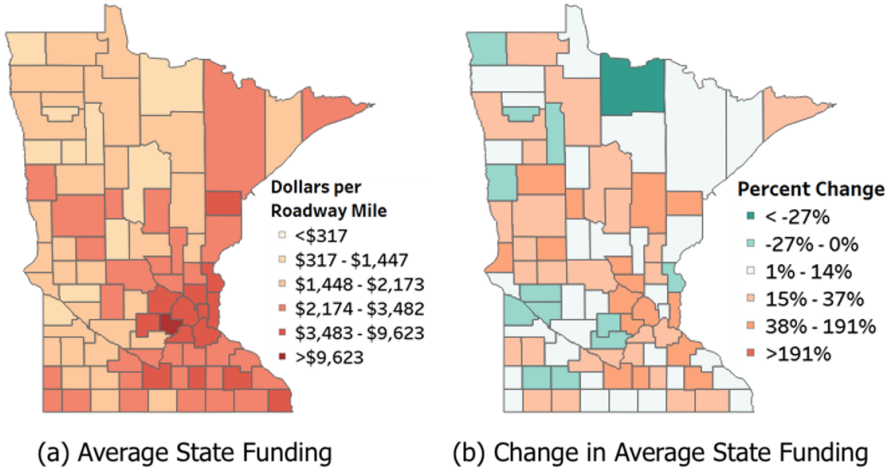
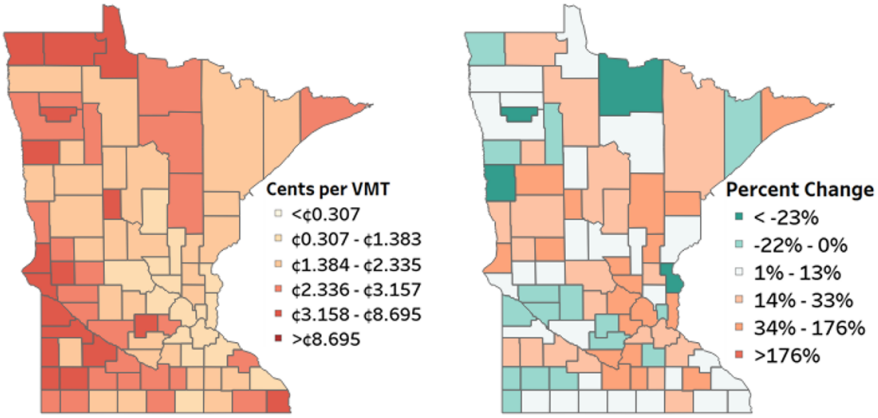


Figure 4.8 State Transportation Funding per Lane Mile

***Note**: Values in constant 2015 dollars per lane mile. Panel a) presents the average state transportation funding per lane mile for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods.*
***Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*



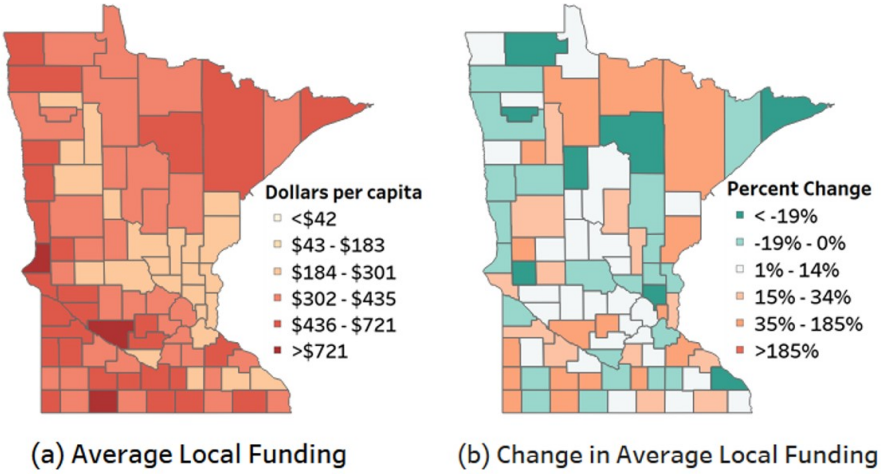
(a) Average State Funding (b) Change in Average State Funding

Figure 4.9 State Transportation Funding per VMT

***Note**: Values in constant 2015 dollars per VMT. Panel a) presents the average state transportation funding per VMT for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods. **Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*

Local Transportation Efforts by county

While overall levels of local funding increased slightly between 2008 and 2017, funding trends by county varied significantly. East-Central Minnesota, including the metro area, generated the least local efforts per capita between 2013 and 2017 (see Figure 4.10). However, Figure 4.11 shows that units of local government in the metro counties generated the most local efforts per lane mile in Minnesota over the same time period. When local efforts are compared to VMT, the local metro governments generated fairly average local efforts compared to the rest of the state (see Figure 4.12). Across the two five-year periods studied, counties experienced a mix of increases and decreases in local efforts depending on roadway projects (see Figure 4.10b).



(a) Average Local Funding (b) Change in Average Local Funding

Figure 4.10 Local Transportation Efforts per Capita

***Note**: Values in constant 2015 dollars per person. Panel a) presents the average local roadway funding per capita for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods. **Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*

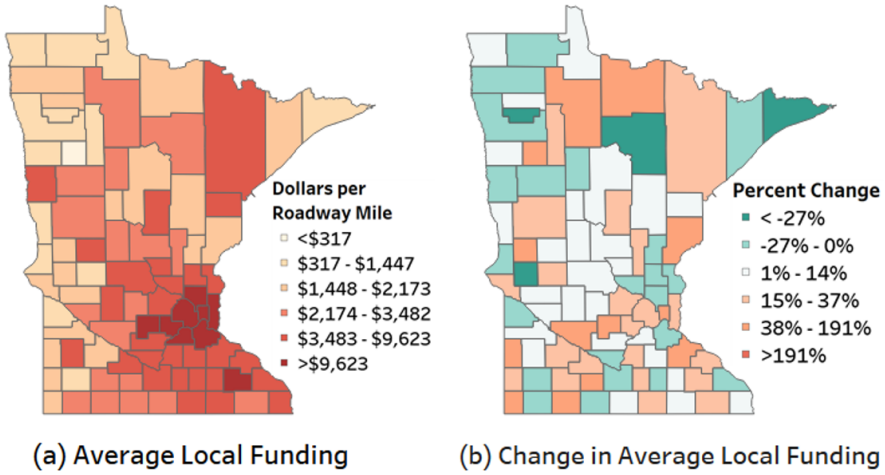


Figure 4.11 Local Transportation Efforts per Lane Mile

***Note**: Values in constant 2015 dollars per lane mile. Panel a) presents the average local roadway funding per lane mile for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods. **Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*

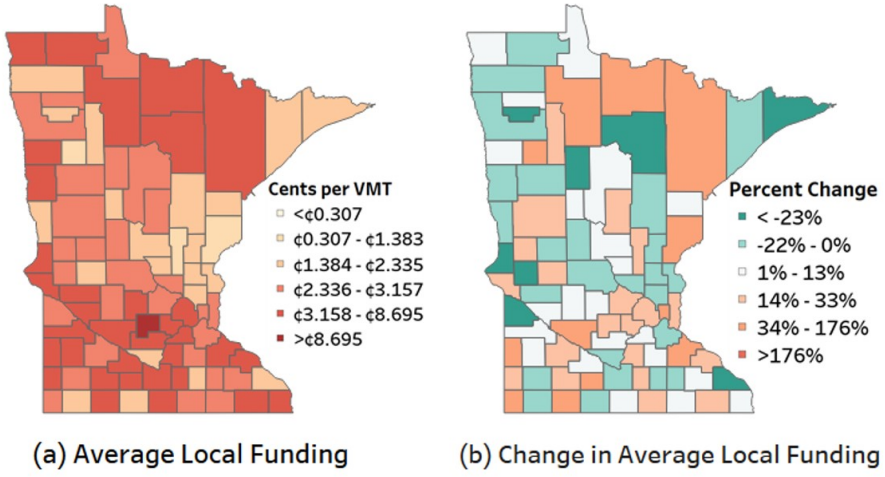


Figure 4.12 Local Transportation Efforts per VMT

***Note**: Values in constant 2015 dollars per VMT. Panel a) presents the average local roadway funding per VMT for the 2013-2017 period. Panel b) represents the change between 2008-2012 and 2013-2017 periods. **Source**: Author's calculations. Data from the Minnesota Transportation Finance Database.*

4.1.2 Effects of Federal and State Funding on Local Efforts

State and federal funds have the potential to affect local government spending in two ways. One possible effect is that they substitute for local efforts, which allows local governments to use those funds somewhere else or cut taxes. In this case, the increase in total local roadway funding caused by intergovernmental funding would be limited. Alternatively, higher levels of intergovernmental funding could lead to an increase in local efforts as a result of formal or informal matching. Many times, federal and state funding explicitly require a local match of at least some portion of the awarded funds, which could cause local governments to increase their own efforts. Even when federal or state funding lack an explicit matching requirement, it is possible that the funding will enable projects that then require an increase in local efforts to support.

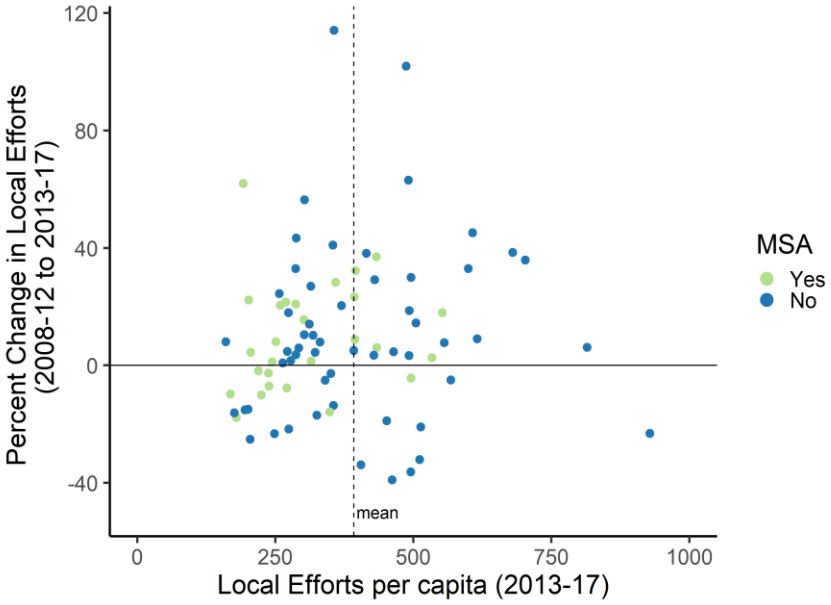
There is limited research regarding the effect of federal and state local roadway funding on local efforts. Past research has explored the impact of federal highway funding on state and local funding. While results from these studies suggest that federal highway funding partially substitute for state and local highway spending, the usefulness of these studies is limited in current years due to outdated information. For instance, with data from 1983 to 1997, Knight (2002) found that each dollar of federal funding substituted for 90 cents of state funding. This indicated that each dollar of federal money created only ten cents of additional aggregate spending. Later, Gamkhar (2003) found that each dollar of federal highway obligations substituted for 22 cents of state and local funding. The Government Accountability Office also found evidence that state and local governments substituted federal funding for their own spending, with an effect size of 66 cents per federal dollar (Government Accountability Office, 2004).

Other studies have analyzed the effect of additional federal highway funding from the ARRA on state spending. For instance, Dupor (2017) found that each federal dollar crowded out 81 cents of state highway capital funding. Leduc & Wilson (2017) estimated the effect of federal funding on both state spending and state transfers to local governments. The authors found that federal funding was associated with a slight decrease in state funding over a one-year period. Although these studies focus on the impact of federal highways funding on state and local highway spending, they offer some insight about the potential effects of intergovernmental funding on local roadway spending.

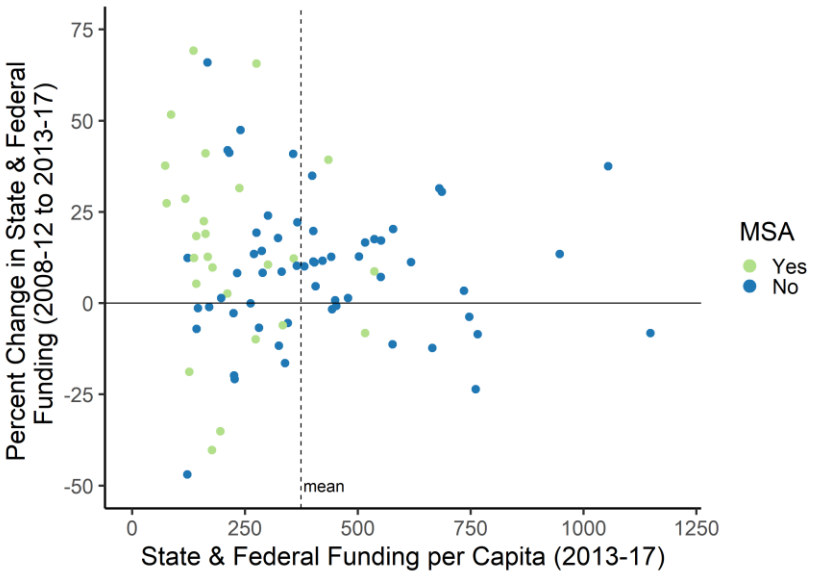
Using panel data for Minnesota counties between 2008 and 2017, we explore the relationship between local funding efforts and federal and state transportation funding to local governments. Figure 4.13a shows the relationship between average local funding from 2008-12 and the change in the average local funding between 2008-12 and 2013-17. We observe that local efforts in most counties increased over the period. In addition, we observe that local efforts per capita for most of the counties outside metropolitan statistical areas (MSA)[10] are above the mean. Similarly, Figure 4.13b presents the

[10] In Minnesota there are 27 counties in the metropolitan statistical areas of Minneapolis-St. Paul-Bloomington, MN-WI; Duluth, MN-WI; St. Cloud, MN; Rochester, MN; Mankato-North Mankato, MN; LaCrosse-Onalaska, WI-MN; Grand Forks, ND-MN; and Fargo, ND-MN.

relationship between average federal and state funding between 2008 and 2012 and their average change between 2008-12 and 2013-17. We observe that federal and state funding increased in this period, but less than local efforts. In addition, we observe that counties in metropolitan statistical areas are below the mean.



a) Local Efforts



b) Federal and State Funding

Figure 4.13 Relationship between Local Funding and Federal and State Funding

Note: MSA corresponds to Metropolitan Statistical Areas. Cook, Kittson, and Lake of the Woods were excluded as outliers. Values in constant 2015 dollars. **Source**: Authors' calculations. Data from the Minnesota Transportation Finance Database.

We used the fixed effects method to estimate the relationship between federal and state transportation funding and local efforts using the following equation:

$$Local\ Effort_{i,t} = \beta_0 + \beta_1 Federal\ Grant_{i.t} + \beta_2 State\ Grant_{i.t} + \varepsilon_{i,t}$$

where i represents the county, and t the period between 2008 and 2017. We control for time and individual fixed effects.

The results are shown in Table 4.1. We present results for all counties, metro counties (counties in metropolitan statistical areas), and non-metro counties (counties outside metropolitan statistical areas). Model 1 includes the annual change in all variables. The results suggest that an increase in federal funds decreases local efforts, and that reduction is significant at the 99 percent level. One percentage change in federal funding decreases local efforts by 0.01 percent. The results are similar when taking into account all metro and non-metro counties. When considering only metro counties, an increase in state funding decreases local efforts. An increase of one percent in state funding decreases local efforts by 0.26 percent. These results suggest that state funding has a significant impact in metro counties, while federal funding has a significant impact in non-metro counties. In Model 2 we include all variables in per capita amounts. Similarly, the results suggest that an increase in federal or state funding reduces local efforts (significant at the 90 percent level). An increase of one dollar of federal funding decreases local efforts by 14 cents and an increase of one dollar of state funding reduces local efforts by 12 cents. When taking into account metro counties and non-metro counties only the effect of state funding is significant and the reduction is higher for metro counties.

Table 4.1 Panel Data Fixed Effects Estimates

	Model 1: Percentage Change			**Model 2: Per Capita**		
Variables	All counties	Metro Counties	Non-Metro Counties	All Counties	Metro Counties	Non-Metro Counties
Federal Funding	-0.0145***	-0.0003	-0.0144***	-0.1353*	-0.2021	-0.1282
	(0.0044)	(0.0025)	(0.0054)	(0.074)	(0.165)	(0.0875)
State Funding	-1.1002	-0.2609***	-7036	-0.1198**	-0.4125***	-0.1035*
	(3.0651)	(0.0713)	(4.8494)	(0.0466)	(0.1114)	(5.379)
Observations	870	270	600	783	243	540
R-Squared	0.0134	0.0667	0.0113	0.0165	0.0631	0.0166
Number of Counties	87	27	60	87	27	60

***Note**: Standard errors in parentheses. ***p<0.01, **p<0.005, *p<0.1. Model 1 controls for population.*

CHAPTER 5: LOCAL FUNDING SPENT ON NON-LOCAL SYSTEMS

5.1.1 Cooperative Agreements

Trunk highways make up less than ten percent of overall road miles in Minnesota, but support the majority of the state's annual VMT. A portion of the HUTDF is constitutionally dedicated to state maintenance and construction along Minnesota's trunk highways, mostly made up of revenues from the state highway user taxes. Although trunk highways are under state jurisdiction, they are an essential part of the road systems in many localities. Accordingly, local governments may fund the construction of highway features that meet local roadway needs, like streetscaping, or participate in trunk highway construction that creates mutual benefits for local and regional road systems.

Local governments contribute to trunk highway improvements through cooperative agreements with the state. Cost-sharing for cooperative trunk highway projects is guided by a MnDOT policy called Cost Participation for Cooperative Construction Projects and Maintenance Responsibilities between MnDOT and Local Units of Government. This policy outlines standards for the appropriate division of project costs between MnDOT and local governments. Trunk highway funds are constitutionally restricted to constructing, improving, and maintaining the trunk highway system, so MnDOT is limited to funding items it considers necessary for trunk highway purposes.

State funding for cooperative trunk highway projects can come from multiple sources. MnDOT may use trunk highway funds to support locally initiated programs, but has also offered other funding opportunities. One prominent funding program was the Corridor Investment Management Strategy (CIMS) pilot initiative that provided $30 million in grants to locally initiated trunk highway projects in 2013 (MnDOT, 2013). CIMS grants were awarded to locally initiated highway projects that “improve quality of life, environmental health, or economic competitiveness”. However, MnDOT's ability to fund cooperative trunk highway projects is limited by projected budget shortfalls. The 2017-2037 Minnesota State Highway Plan estimated $39 billion was needed to meet state highway goals over its timeframe, but available revenue would only be $21 billion (MnDOT, 2017a).

Cooperative agreements can create important benefits for the parties involved and the state road system itself. They enable mutually beneficial projects by expanding the available funding sources for trunk highway projects and improve coordination of the state road network. In addition, these agreements allow local governments to make desired improvements that otherwise would not be a state priority.

However, cost-sharing agreements for trunk highways can also be a source of additional costs for local governments. In particular, local governments risk providing significant funding for trunk highway expenses that are the constitutional responsibility of the state. MnDOT revised its cost participation policy in 2016 to minimize the local cost share of cooperative trunk highway projects, but there have still been some cases in which local governments perceived that they contributed a significant portion of the funding for trunk highway improvements.

5.1.2 Case Studies

This section presents six case studies of cooperative agreements between the state and local governments between 2013 and 2018 (see Table 5.1). Information for the case studies was retrieved from documents provided by the local governments including their cooperative agreements, internal budgeting documents, and city council and county board records. Further information was obtained through interviews with local government staff with knowledge of the projects.

Table 5.1 List of Projects

Location	Project Number	Date
City of Red Wing	SP 2514-122/2513-92	2015-2016
City of West St. Paul	SP 1908-84	2015-2017
City of Eagan	SP 1909-95/SP 1917-44	2014
City of Rochester	SP 5508-117	2013
City of Duluth	SP 6910-89/6910-95	2015
City of Duluth	SP 6910-96	2016
Becker County	SP 0301-70	2018
Becker County	SP 0304-34	2017

5.1.2.1 City of Red Wing: Main Street Reconstruction, 2015-2016 (SP2514-122)

Red Wing's Main Street Reconstruction project involved a complete reconstruction of a stretch of Trunk Highway 61 inside the city along with aesthetic, pedestrian, and storm sewer improvements (see Figure 5.1). The construction was jointly funded by the state and city, yet ultimately required more local funding than expected. This project illustrates the mutual benefits that can be created through cooperative agreements, but also some of the risks they create for municipalities.

Figure 5.1 Main Street Reconstruction in Red Wing

Red Wing received $1.1 million through MnDOT District 6's Municipal Solicitation Program in 2011 for mill and overlay on Main Street along with pedestrian, aesthetic, and storm sewer improvements. Then, the City was awarded an additional $2.5 million to expand the project through MnDOT's CIMS initiative in 2013. This additional funding allowed the project to transition into a complete reconstruction, with the additional help of a state Americans with Disabilities Act (ADA) grant for sidewalk and curb replacement in downtown Red Wing. The project was a valuable chance to improve a heavily traveled street in Red Wing, and also allowed the City to replace water mains and sewers installed in the 1880s.

In addition to the three grants, the State provided funding for a portion of a new signal system, a small stretch of additional Trunk Highway 61 mill and overlay beyond the original project scope, and contract administration. MnDOT's total funding for the project was awarded as a $4.6 million lump-sum payment to the City, of which $4.1 million was capped, meaning the amount awarded would not change with the project costs. Only funds for the additional mill & overlay and a signal system, plus construction engineering fees, were uncapped. Table 5.2 shows the distribution of the estimated project costs according to the initial cooperative agreement.

Table 5.2 Initial Estimate of Main Street Reconstruction Costs

Category	City		State	
	Contribution	**Share**	**Contribution**	**Share**
Capped Items				
Roadway and associated items			$4,770,698	100%
Sidewalks and Parking Lanes	$124,205	40%	$186,307	60%
Storm Sewer	$393,144	75%	$131,048	25%
State costs for standard sidewalk			$259,335	100%
State share of COBRA safety lights			$52,000	100%
Capped Item Costs	$517,349		$5,399,388	91%
Subtotal for Capped Items	$1,821,737		$4,095,000	69%
Uncapped Items				
Mill & Overlay and Signal System			$170,668	100%
Mill & Overlay Design			$15,000	100%

Construction Engineering (1)	$291,947	46%	$345,312	54%
Land Acquisition	$173,000	100%		
Consultant Fees	$1,526,690	100%		
City Work (1) (2)	$1,830,000	100%		
Subtotal for Uncapped Items	$3,821,637		$530,979	
Grand Total	$5,643,374		$4,625,979	

Notes: *All costs are estimated at the point of Red Wing's initial 2015 cooperative agreement with MnDOT. (1) Estimated using available data by the researchers. (2) Includes city utilities and aesthetics as well as general city work.*

Costs increased significantly in 2014 when MnDOT told the city to use concrete rather than bituminous for the reconstruction after the state funding had already been determined. The City of Red Wing estimated that the use of concrete created between $750,000 and $1 million in additional costs. Red Wing officially entered into a cooperative agreement with MnDOT on February 23, 2015, and was in charge of project planning and construction. The project's initial cost estimate was $7.93 million, but the lowest bid came at $9.62 million, 21.2 percent higher than expected. The high bid amounts were driven by the demand for construction services and the complexity of the urban reconstruction project. According to MnDOT, one reason for the cost increase was that the City used average statewide construction costs to inform its initial estimate, while the actual project involved complex, urban construction.[11] MnDOT staff considered the original estimate to be low and the bids to be reasonable.

MnDOT funding increased slightly from $4.59 million to $4.63 million to account for the higher than anticipated costs of its uncapped items, but the City bore the brunt of the additional costs because most state funding was capped. According to the City of Red Wing, $1.1 million of the cost increases from the bidding process were attributable to MnDOT construction items and $600,000 to the city. MnDOT agreed to provide an additional $500,000 in FY2016 in response to the high bids, but stated that was all it had available.

Forty-two work and change orders were made over the course of the construction, totaling over $340,000 in additional costs. The City also faced unforeseen ancillary costs stemming from its use of concrete pavement. Consulting and staff costs increased due to the additional complexities of design and construction of a concrete roadway. Construction plans were modified to include concrete jointing and reinforcement details, and significant time was added to develop staging and traffic control

[11] Information based on a conversation with Gregory Paulson, MnDOT District 6 Assistant District Engineer for Program Delivery, on 8/27/2019.

alternatives to allow for concrete cure times and maintaining local access to main street businesses. The city had not previously used concrete for road reconstruction on a road with such a high traffic volume.[12]

Work on the project ended in fall 2016, except for a few small clean-up items and repairs. The final construction costs were $9.58 million, slightly lower than the bid amount despite the additional costs incurred throughout the project. This was primarily because the project required less rock excavation than expected and the contractor was assessed $75,000 in liquidated damages. The total project cost was $12.6 million compared to the $10.2 million in Red Wing's 2015 Capital Improvement Plan, including consultant fees, engineering costs, and land acquisition.

Even after MnDOT's additional $500,000 contribution to the project, the City was still paying for $968,000 in cost increases solely attributable to state highway items. After MnDOT expressed that it did not have adequate funds to contribute further, legislators from Red Wing introduced bills in the Senate and House that would have reimbursed the city for the additional costs attributed to trunk highway improvements. The Governor and MnDOT Commissioner opposed the legislation, and representatives from Red Wing worked with their offices to solve the problem. Ultimately, MnDOT offered Red Wing an additional $381,000 from the Trunk Highway Fund on the condition the legislation would be withdrawn. The City accepted this offer. The additional funding created a 60/40 split between the state and city for the additional $1.5 million of trunk highway expenses.

The Red Wing Main Street Reconstruction Project was ultimately a success. State funding allowed the City to initiate construction on a roadway which could have gone unrepaired for quite some time. It also allowed the City to replace aging infrastructure and make pedestrian improvements. However, because most state funding was capped the city bore an unexpected portion of costs that are usually state responsibility. MnDOT was willing to work with the city to more fairly distribute costs, but the compromise solution only came after much effort on the part of Red Wing.

5.1.2.2 City of West St. Paul: Robert Street Improvement Project, 2015-2017 (SP1908-84)

Robert Street is a stretch of Trunk Highway 3 that serves as a major retail corridor in West St. Paul (see Figure 5.2). The City recently managed the $45.5 million Robert Street Improvement Project on 2.4 miles of the street within its limits, supported by federal, state, and county funding. It was the largest public works project ever undertaken by West St. Paul and its higher than expected construction costs saddled the City with a significant amount of debt.

[12] The City of Red Wing's Main Street carries 22,000 vehicles per day.

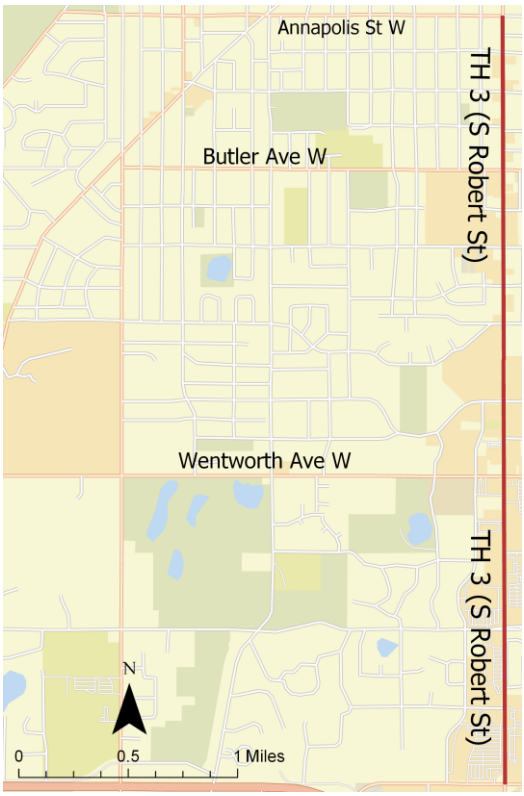


Figure 5.2 Robert Street Improvement Project

Prior to the project, the highway was in serious disrepair that negatively affected business development in the important retail area (Dupuy, 2016). It ranked in the top 5 Minnesota highways for vehicle crashes and had a pavement rating in the bottom eight percent of all state roads. Repairs to Robert Street were not included in the State Transportation Improvement Program despite its poor condition. According to the MnDOT, a major reason why repairs to Robert Street were not a higher state priority is that the road is a minor arterial, and the district's largest focus is on primary arterials.[13] Given limited MnDOT funding, other projects were prioritized. As a result, West St. Paul went ahead with its own project and secured a federal grant of $8 million in 2010 for the reconstruction of the state-owned road. The City later secured another $8 million in state support.

The reconstruction project was divided into two phases in 2013. Phase I contained much of the actual road work including pavement repair, elimination of left-turn lanes, installation of a landscaped median, utility replacement, and streetlight construction. About 40 percent of the pavement work was total reconstruction and 60 percent was mill and overlay. Phase II focused on improving pedestrian experiences and street aesthetics and included sidewalk construction and landscaping. The construction included in Phase II is beyond MnDOT's responsibility for a trunk highway and would have always been financed by the City, even if the state funded all repairs to Robert Street. The project was split so that

[13] Information from a conversation with Jon Solberg, Planning, Program Management, and Transit Director for MnDOT Metro District on 8/27/2019

additional time could be taken to plan the sidewalk and landscaping work without delaying the road reconstruction. Delayed construction could have risked the $8 million federal grant, which required the project be started within one year after state approval in 2014.

Phase I was financed by a combination of federal, state, and local funds. Federal and state grants each contributed about $8 million to the project, while Dakota County contributed an additional $2 million. A CIMS grant made up $3.5 million of the state funds. The City also received over $1 million from St. Paul Regional Water Services for water main construction. This construction was completed over 2015 and 2016. Phase II was entirely financed by the City and was completed in 2017.

There were separate bidding processes for both phases. Prior to bids for Phase I, estimated construction costs had already increased from $16.4 million in July 2012 to $20.2 million in the city's 2014 Capital Improvement Plan (CIP). The City received bids of $28.5 and $31 million in fall 2014, significantly higher than its estimate. High bids were driven by demand for construction services and high concrete prices. The city council rejected the proposals and elected to rebid Phase I the following January. In November 2014, estimated costs increased again to $24.2 million. The second round of bidding was more successful for the city, and the low bid of $23.1 million was accepted.

Phase II bids were also higher than anticipated. The lowest bid of $4.4 million was over $1 million higher than estimated. In response, the city council cut nearly $667,000 in work items from the contract, including the construction of entrance monuments, above ground receptacles for tree lighting, and most underground wiring. The altered bid was then accepted.

In addition to the construction costs for both parts of the project, the City estimated it would pay about $3 million in legal and acquisition costs for project right-of-way in its 2014 CIP. However, these costs have increased to $10 million, with some negotiations with property owners still ongoing. The City incurred all right-of-way expenses, despite its position that they should have been MnDOT's responsibility. MnDOT contends that it would have completed the project within the existing right-of-way and avoided these additional costs. The City, however, argues that the right-of-way expansion was necessary to fulfill the terms of its federal grant. There were also increases in construction costs during the project, most notably over $1 million in additional expenses from additional muck excavation.

While West St. Paul dealt with some unforeseen costs, much of the cost increase compared to early estimates was because the project scope was not fully defined when it first received federal funding. MnDOT suggested that a joint future planning study between the City and State before the project's submittal for federal funding could have put the city in a better position to control costs. A more comprehensive planning process before securing funding could have led the city to reduce the size of the project, or take other measures to limit its expenses.

The City of West St. Paul was financially responsible for the unexpected cost increases because federal and state contributions to the project were fixed. The City estimates that it paid for 63 percent of the

repairs to the state-owned highway and contends that the state should have paid $17.1 million[14] more than their $8.1 million contribution. This number includes highway expenses like mainline construction costs, right-of-way acquisition, construction management, and engineering from the Phase I construction. The costs of the Phase II project and utility construction are not included in the estimate because they are beyond the scope of MnDOT's responsibility for the trunk highway. Overall, the City's contribution to the project was about $26.4 million, $21.2 million of which was financed by debt. The debt incurred on the project is now a primary consideration for the City and has set back its financial and capital plans. It is projected to be paid off by 2034.

The City of West St. Paul has made continuing efforts to deal with the financial burden of the Robert Street Improvement Project. There have been several legislative attempts to get additional state funding for the project. Most recently, twin House and Senate bills were introduced in 2019. The bills called for a one-time payment of $3.68 million to the City for traffic light costs in addition to an increase in annual local government aid to West St. Paul of $1.84 million between 2020 and 2034. The City also implemented a 0.5 percent local option sales tax that will go into effect in 2020 to help fund future road projects despite the City's debt.

Cooperation between the City and State made the Robert Street project possible, but West St. Paul ultimately bore the majority of the construction costs on the state-owned highway. While the project greatly improved Robert Street, it also placed the burden of its repair on the City and local taxpayers.

5.1.2.3 City of Eagan: Highway 149 Expansion, 2014 (SP1909-95 & SP1917-44)

The City of Eagan has been involved in a few large cooperative trunk highway projects since the 1990s. The City most recently led a 2014 cooperative project for the expansion and repair of Highways 149 and 55.

The 2014 highway expansion began as two separate projects spurred by the City's traffic forecasts. The first project was the expansion of Highway 149 from four to five lanes between I-494 and its north intersection with Highway 55. The second project was for the expansion of a common section of Highways 149 and 55 from four to six lanes. The City also included trail construction in each project. The two plans were merged in 2014 to minimize expenses and traffic disruptions. The combined project area is highlighted in Figure 5.3.

[14] This includes the disputed right-of-way costs.

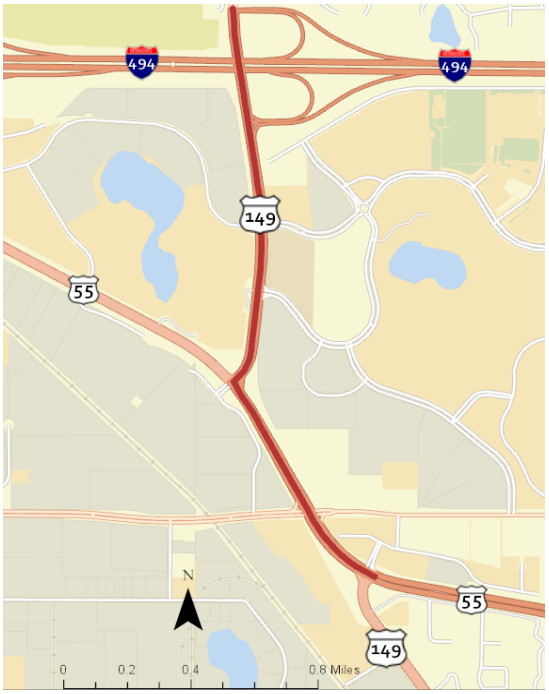


Figure 5.3 Highway 149 Expansion

Eagan secured federal support to get the projects started. The City applied for federal funds for the first project in 2009 and was awarded $1.8 million in Surface Transportation (STP) funding after a slight reduction in project scope.[15] The second project received a $2.4 million federal grant from the 2011 STP solicitation. In both cases, the federal grants came with a 20 percent local match requirement.

The City began discussions with MnDOT about state funding after the federal funds had been awarded. The two parties signed a cooperative agreement in May 2014 in which MnDOT agreed to participate in the costs of mill and overlay, storm sewer work, pavement striping, and traffic signal construction. Only the section of Highway 149 north of Highway 55 was overlaid, not their common section, due to funding limits. The State paid 100 percent of the costs associated with mill and overlay, storm sewer work, and the construction of three signal systems. Including a lump sum of $300,000 for construction of three additional signal systems, MnDOT agreed to provide $1.6 million for the project. The City and State entered into a separate agreement for preliminary engineering and environmental documentation. These expenses were split 50/50, at a cost of $67,626 to the City. In addition to its monetary contribution, MnDOT agreed to provide final design and construction administration services valued at $1.4 million to the City at no charge. Dakota County also entered into a cooperative agreement with the City for traffic signal construction and intersection revision costs at the intersection of Highway 55 and CSAH 26. Federal funds covered 75 percent of the work and the remainder was divided 55/45 between

[15] This section of Highway 149 was originally planned to be expanded to six lanes, but it was reduced to five later in the planning process.

the County and City as was specified in Dakota's cost-sharing policy, leaving the City with an estimated cost of $106,869.

Federal funding covered about $4.2 million of the project's $7.3 million construction costs.[16] The City paid for $1.5 million of the costs for highway expansion and trail creation, after subtracting state funding. Eagan also incurred additional costs for non-construction related expenses like right-of-way acquisition and consulting.

Eagan's 2014 Highway 149 expansion project served its local needs and enhanced the state highway system by addressing future traffic projections. The city made the locally desired expansion feasible by using federal and local funding to attract state support for the project that otherwise would not have been a MnDOT priority. The City's construction costs were generally in keeping with what it expected. According to Eagan Public Works Director, Russ Matthys, Eagan's share of the project's costs was more equitable than in previous cooperative construction projects, which was attributed to good communication with MnDOT throughout the planning and construction stages of the project.

5.1.2.4 City of Rochester: 65th Street Interchange Construction, 2013 (SP5508-117)

The City of Rochester and MnDOT entered into a cooperative agreement in 2013 for the construction of an interchange and associated work within city limits along Highway 52. The project was part of the Northern Rochester Transportation Study (NRTS), a city-funded effort to improve the road system in the growing area. The City was the lead agency for the project and provided all funding, but it still entered into a cooperative agreement with the State because MnDOT is required to oversee all construction on the state highway system. While Rochester did pay for construction on the state highway, the interchange was largely considered beneficial to its local road network rather than the highway.

The Northern Rochester Transportation Study was conducted to address existing capacity and congestion issues in northern Rochester around an existing interchange at 55th Street NW (Northern Rochester Transportation Study, 2015). A primary cause of the congestion between 55th and 65th Streets was the absence of a frontage road on the western side of the highway. The necessary land for a frontage road had been developed for housing instead, so nearby homeowners had limited highway access.

The first project recommended through the NRTS was the construction of a folded-diamond interchange at 65th Street, one mile north of the existing 55th Street interchange (see Figure 5.4). In addition, the State required the City to pay for construction of southbound and northbound auxiliary lanes on the stretch of highway between the two interchanges. This increased the highway from 4 to 6 lanes. The project also included the realignment of a frontage road northwest of the new interchange, along with smaller items like stormwater pond construction.

[16] All costs are estimates from original federal aid awards and the initial cooperative agreement between MnDOT and Eagan in May 2014.

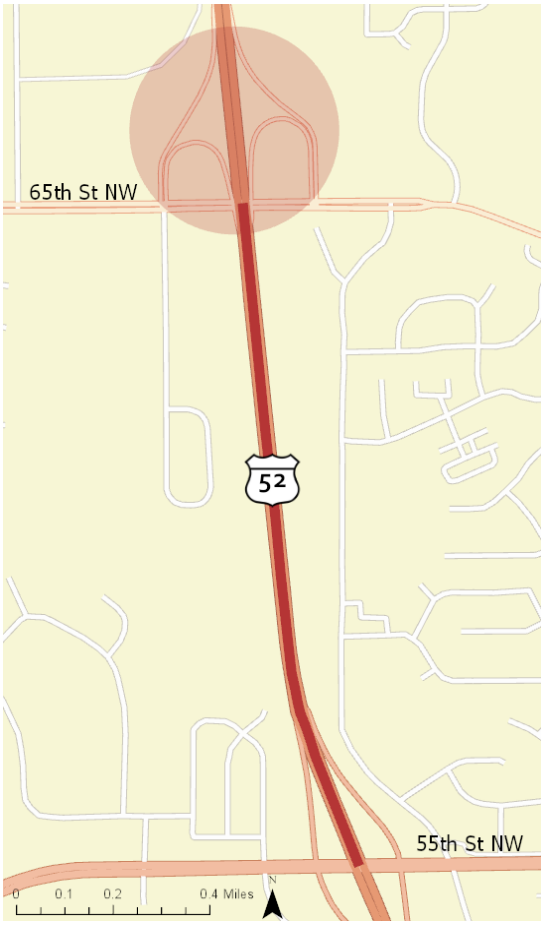


Figure 5.4 65th Street Interchange Construction

Rochester bore all costs associated with the project and generated its funding through its half-cent local sales tax. The City also paid MnDOT a sum equal to one percent of the total construction expenses for oversight. The State agreed to contribute a piece of land from its existing right-of-way to the project at no cost and received some existing city right-of-way in return. The project was put out for bids, and the low bid of $8.1 million was accepted in April 2013 (Northern Rochester Transportation Study, 2015). The project was completed the same year at a slightly higher construction cost of $8.2 million. The city incurred additional costs for non-construction related expenses such as consulting.

The 100 percent city cost share for this project is consistent with MnDOT policy, even though it included significant construction along Trunk Highway 52. According to MnDOT policy, the construction of new interchanges along existing freeways requested by local governments is typically 100 percent local responsibility, including any necessary auxiliary lanes (MnDOT, 2017). MnDOT is responsible for up to 100 percent of costs in other circumstances, such as for interchanges between local roads and new highways.

In some cases, MnDOT may pay a portion of the interchange construction costs between a local road and an existing trunk highway based on its benefits for congestion or safety along the highway. However, this project served mainly to increase local highway access and MnDOT did not recognize any

benefits to the state highway system. The new interchange was also in conflict with MnDOT's preference for two-mile spacing between interchanges and the state considered the lack of a western frontage road along the highway to be a local issue that prompted the new construction. The Federal Highway Administration had the same concerns about increasing local traffic access to the freeway, and its input further impacted MnDOT's decision not to provide funding for the project.[17]

Despite the scale of interchange construction and highway expansion, MnDOT did not conclude that the project had enough positive impact on the trunk highway system to warrant state funding. Rather than improving traffic flow along the highway, the project served to increase highway access from local roads. As a result, the City of Rochester bore all construction costs associated with the 65th Street Interchange.

5.1.2.5 City of Duluth: Trunk Highway 23 Construction

The City of Duluth entered into 15 cooperative agreements with MnDOT between 2013 and 2018. The majority of these agreements were for the inclusion of city requested items in state projects. Common requests included highway lighting beyond MnDOT standards and construction of local utilities. Duluth fully funded these items in keeping with MnDOT's cost-sharing policy. MnDOT was also frequently responsible for relocating or adjusting utilities as a result of its projects. This case study focuses on two construction projects along Trunk Highway 23 in which the City and the State shared the costs.

Project 1: Trunk Highway 23 from Beck's Road to Interstate 35, 2015 (SP 6910-89 & SP 6910-95)

The first project involved state construction on Trunk Highway 23 from Beck's Road to Interstate 35 in 2015. The City signed a cooperative agreement to fund items including the construction of two traffic signal systems, utilities, and a pond. In addition, the City used state CIMS funds to pay MnDOT for multimodal improvements to the highway including sidewalk reconstruction, streetscaping, and trail improvement.

The costs for the two traffic signals were split equally between the City and the State because each party controlled two legs of the intersections. Federal STP funds were used to cover 80 percent of the costs for both parties. The federal aid money covered $202,780 of signal costs, leaving the State and City responsible for the remaining federal match of $50,695 each. The City paid 100 percent of the utility, pond, and miscellaneous construction costs, which were $843,225 in total.

State CIMS funds covered most of the multimodal improvements to Trunk Highway 23. Duluth had $3 million in CIMS funds available and planned to use $2.7 million of those according to the cooperative agreement. The grant came with a local match requirement of 10 percent, which obligated Duluth to pay about $270,000 for the highway improvements. The City was responsible for some costs associated with the multimodal improvements not covered by CIMS funds such as right-of-way acquisitions. The

[17] This information is based on a conversation with Gregory Paulson, MnDOT District 6 Assistant District Engineer for Program Delivery, on 8/27/2019.

City expected all acquisition costs and other expenses to be eligible for CIMS funds, but it ultimately paid for any costs that ran over the cap on the CIMS funds. In total to date, the City has contributed $699,933 for trunk highway purposes and $1.4 million for the total project.

Project 2: Construction of Bridge 69091 on Trunk Highway 23, 2016 (SP 6910-96)

MnDOT directed a 2016 project that included grading, mill & overlay, and construction of Bridge 69091 along Trunk Highway 23. The City agreed to participate in the costs of a traffic control signal system, and included utility work and paving construction around the utilities in the project. The City controlled one of the three intersection legs, so it was responsible for one-third of the signal system cost. MnDOT used federal aid funds to cover 80 percent of those expenses, leaving it responsible for the remaining 20 percent federal match (which resulted in Duluth's contribution of 6.7 percent). Duluth was also responsible for the construction engineering charges for its portion of the project as stipulated in the cost-sharing policy. In addition, the City paid for 100% of the local utilities and utility restoration paving expenses, which are not considered trunk highway expenses. MnDOT managed the construction process, and the City contributed $15,061 in Municipal State-Aid funds for the signal system along with $518,480 for utilities and associated pavement construction and construction engineering fees for a total cost of $534,746.

Based on the two projects studied, Duluth generally split the costs of projects that created combined highway and local road benefits according to MnDOT's cost-sharing policy. However, as was the case in Red Wing and West St. Paul, Duluth faced unexpected costs from highway-related expenses that were not covered by the CIMS grant. The City contributed significantly more than its local match requirement for trunk highway expenses.

5.1.2.6 Becker County

Becker County has been involved in four cooperative agreements with MnDOT for trunk highway construction projects since 2013. This case study includes two cooperative projects that illustrate Becker County's experience with cooperative trunk highway projects.

Project 1: Highway 10 Lighting and Signal Construction, 2018 (SP 0301-70)

Becker County participated in a cooperative project with MnDOT and the City of Lake Park for state work along Highway 10 in 2018. The County and City agreed to participate in lighting and signal construction during highway improvements near CSAH 7 and Lake Park as part of the agreement. In addition, the County requested construction of a turn lane on CSAH 7 and the city requested sidewalk construction.

Table 5.3 shows the breakdown of the estimated construction costs. The County and City each funded 100 percent of their requests while lighting and signal costs were divided between the three parties. Both the State and the County paid for 33 percent of the lighting costs and the City paid for 34 percent. This cost division was established to reflect that the lighting provided equal benefits to all parties. The state contributed half the funding necessary for signal construction, and the County and City each

contributed 25 percent because two legs of the intersection were under state control while the City and County each controlled one leg.

Table 5.3 Highway 10 Construction Costs

Category	State		County		City	
	Contribution	Share	Contribution	Share	Contribution	Share
Lighting	$5,395	33%	$5,395	33%	$5,558	34%
Signal System	$154,336	50%	$77,168	25%	$77,168	25%
Turn Lane			$41,613	100%		
Sidewalk					$21,969	100%
Total	**$159,731**	**41%**	**$124,176**	**32%**	**$104,695**	**27%**

Project 2: Intersection of Trunk Highway 59 and CSAH 22, 2017 (SP 0304-34)

Becker County and MnDOT signed a cooperative agreement in 2017 for construction of a roundabout at the intersection of Trunk Highway 59 and CSAH 22. This project was made possible by federal funds available through the Department of Public Safety (DPS) Section 164.[18] The funds were awarded to MnDOT and distributed to the County. Typically, the cost of a roundabout is divided between the State and other party depending on the number of intersection legs each controls, with MnDOT paying for the center of the roundabout. In this project, the State and County each controlled two legs of the intersection, so without DPS funding the leg costs would have been evenly split. However, the DPS funding covered the entire projected cost of $512,866, so the County was merely responsible for future maintenance.

Overall, the cooperative projects undertaken by Becker County and MnDOT since 2013 have been limited, but have created benefits for the county road system and trunk highway network. The County only participated in infrastructure costs along trunk highways for traffic signal construction, which also directly benefited county roads. Costs for those projects were consistent with MnDOT policy.

5.1.2.7 Summary of Key Findings

Local governments contributed funding to local and regional road systems in the cooperative agreements studied in this report. The local governments featured in the report each provided funding for trunk highway projects between 2013 and 2018. Their contributions were mainly for the local match requirements of federal and state grants, intersection expenses, or unexpected increases in project costs.

[18] These funds are federal funds available under the repeat offender transfer program and must be spent on i) programs for alcohol-impaired driving countermeasures, ii) state and local enforcement of laws prohibiting driving while intoxicated, and iii) hazard elimination and other safety improvements on the roadways.

Locally initiated projects in Red Wing and Duluth were enabled by state funding through the CIMS pilot program. West St. Paul also received CIMS funding, but it was awarded after the project had already secured significant federal funding and made up less than half of the project's state support. CIMS funding was awarded to collaborative trunk highway projects in 2013, and there has not been another solicitation for CIMS funds since. In contrast, Eagan first received federal support for its project and then secured state Trunk Highway Funds. Although Rochester undertook significant construction along Highway 52, its project received no state funding because MnDOT did not recognize direct benefits to the trunk highway system.

The fixed nature of CIMS grants placed the risk of unexpected costs on the municipalities that received them. All three recipients of CIMS grants faced unexpected cost increases, and those expenses led to a larger than expected local share of trunk highway construction costs. After lobbying and legislation from the City of Red Wing, MnDOT eventually contributed nearly $1 million in extra Trunk Highway funds to its Main Street Reconstruction Project. The extra funding created a 60/40 cost share between the State and City. West St. Paul faced much larger cost increases, and ultimately estimated it bore 63 percent of its project's trunk highway-related expenses.[19] In both cases, the projects were initiated due to the poor condition of state roads that were essential to transportation inside the cities.

The outcomes of these projects show the importance of producing conservative project estimates when applying for capped funding. The low initial estimates in Red Wing and West St. Paul were an important reason why their projects ultimately involved a higher local cost-share than expected. However, a higher estimate could hurt projects that are competing for state or federal funding. As a result, competitive grant programs like the CIMS initiative create incentives for local governments to make low estimates that could leave them responsible for unforeseen costs.

The City of Eagan did not take on the same risks as the CIMS recipients because MnDOT paid for its portion of the construction with Trunk Highway Funds, which were not capped. As a result, cost overruns on state construction items did not create financial risks for the City. Projects like Eagan's can come with their own difficulties, though, especially because they rely on MnDOT shifting its spending from higher priority projects.

Local governments should be aware of the risks of entering into cooperative agreements, and the importance of communication with MnDOT for making them successful. Cost increases after the contract is signed may lead local governments to spend significant amounts on state highways, particularly when state funding totals are capped. Some of that risk could be mitigated through the use of state contingency funds that reimburse local government for unexpected trunk highway expenses. MnDOT's projected 20-year budget shortfall of $18 billion is important to understand the limits of its

[19] MnDOT would dispute this estimate, as it did not consider the city's right of way expenses to be necessary for the project.

ability to provide funding for cooperative trunk highway projects, particularly additional funding to meet unexpected construction costs.

Communication between MnDOT and local governments, was frequently cited as a key determinant of project success. Good communication was cited as the reason why Eagan's 2014 Highway Expansion project was more financially successful than past projects, and more effective communication between MnDOT and Red Wing could have lessened the unexpected costs of the state's concrete requirement. Better communication between Duluth and MnDOT could also have mitigated some uncertainty around which items would have been covered by the CIMS grant.

The featured projects did bring benefits to municipalities. By contributing some of their own money, cities were able to secure MnDOT funding for highway projects that were very locally important, but not a top state priority. However, these benefits often came at a higher cost than expected to the cities involved.

CHAPTER 6: SURVEY OF LOCAL GOVERNMENTS

6.1.1 Survey Administration

The research team conducted six case studies of cities and counties that engaged in cooperative agreements with MnDOT since 2013 to understand the cost burden on local units of government from cooperative trunk highway projects. The case studies involved a review of cooperative agreements, internal budgeting documents, and city council and county board records in addition to conducting interviews with local government staff. This information informed the development of a survey that was distributed to city and county engineers.

The survey was developed to better understand the experiences of local government agencies with MnDOT cooperative trunk highway projects. It consisted of nineteen questions that included single-choice, multiple-choice, and open-ended questions. Respondents were asked questions related to their agency, their involvement in cooperative agreements with MnDOT, their experiences with core capacity trunk highway expenses, and factors that could improve the development of cooperative projects.

The survey was developed in Qualtrics and was distributed through the City Engineers Association of Minnesota (CEAM) and Minnesota County Engineers Association (MCEA) email lists to cities and counties. The survey was available from September 9 to September 23, 2019 (see Appendix A to see the survey).

6.1.2 Survey Results

6.1.2.1 Agency Characteristics

The research team received 80 responses and analyzed a total of 78 surveys. Two surveys were empty and were removed from the analysis. Of the 78 respondents, 37 represented counties and 41 represented cities. The response rate for this survey was 43 percent for counties, and we received responses from 41 cities, which is about 5 percent of cities in the state.[20] At the city level the response rate was low, but there are many small cities that do not engage in cooperative agreements with MnDOT.

Of the total city respondents, 32 were small urban cities (with a population of less than 50,000) and 9 were large urban cities (population of 50,000 or more). The majority of the cities were located in the seven-county metro area, while most of the counties were located in Greater Minnesota (see Figure 6.1).

[20] There are 853 cities and 87 counties in Minnesota.

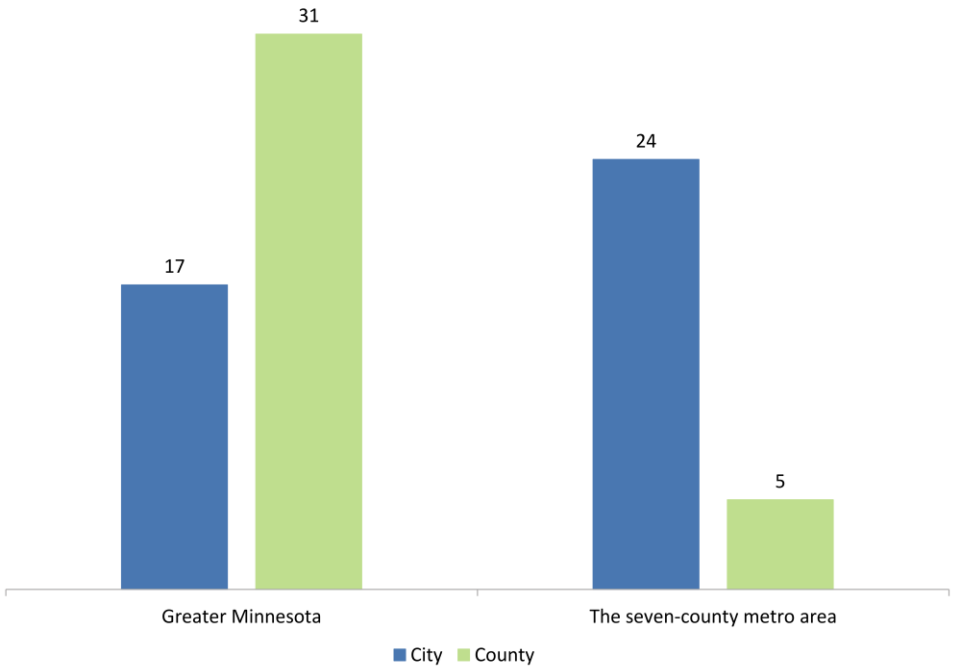


Figure 6.1 Respondents' Characteristics

6.1.2.2 Involvement in Cooperative Agreements

Overall, 74 percent of respondents participated in a cooperative agreement for trunk highway projects with MnDOT since 2013. This percentage was similar across counties and cities. Most of these agencies participated in a small number of cooperative projects with MnDOT, usually one to three projects. A plurality of respondents participated in only one agreement (46 and 36 percent, for cities and counties respectively). Very few had more than ten projects, and all three of those that did, were county respondents (see Figure 6.2).

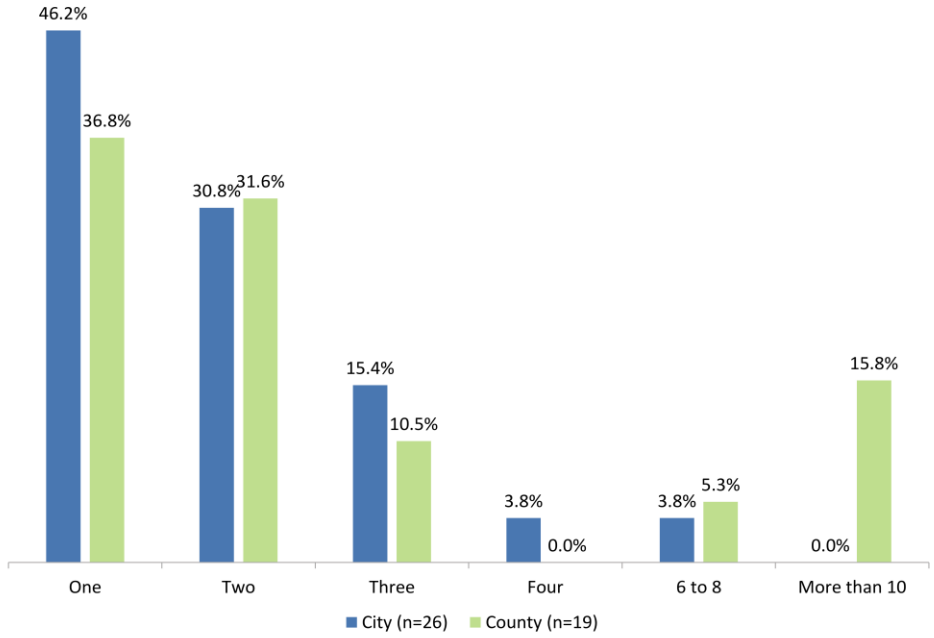
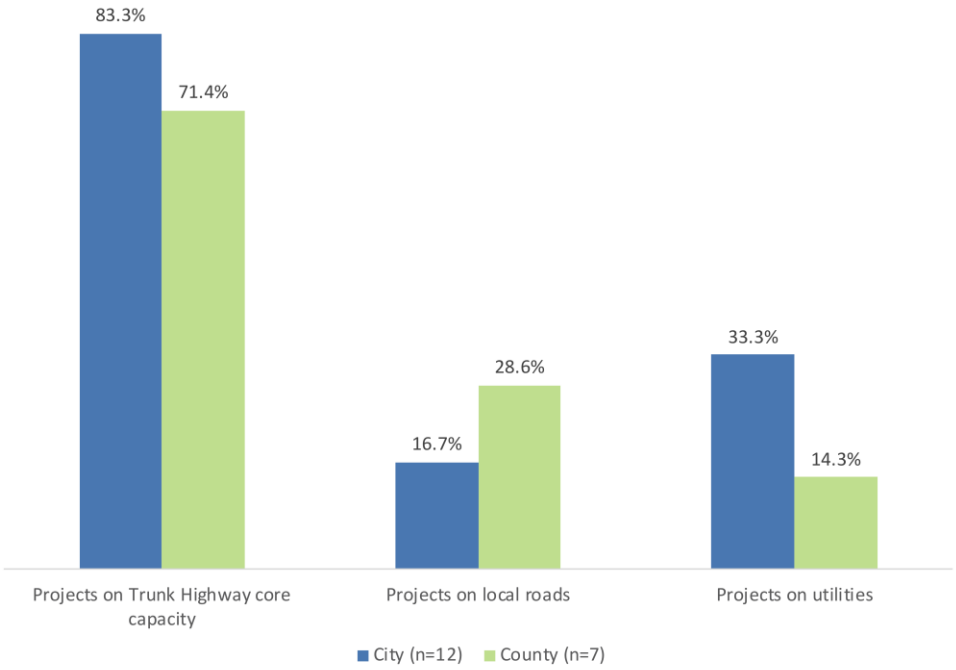


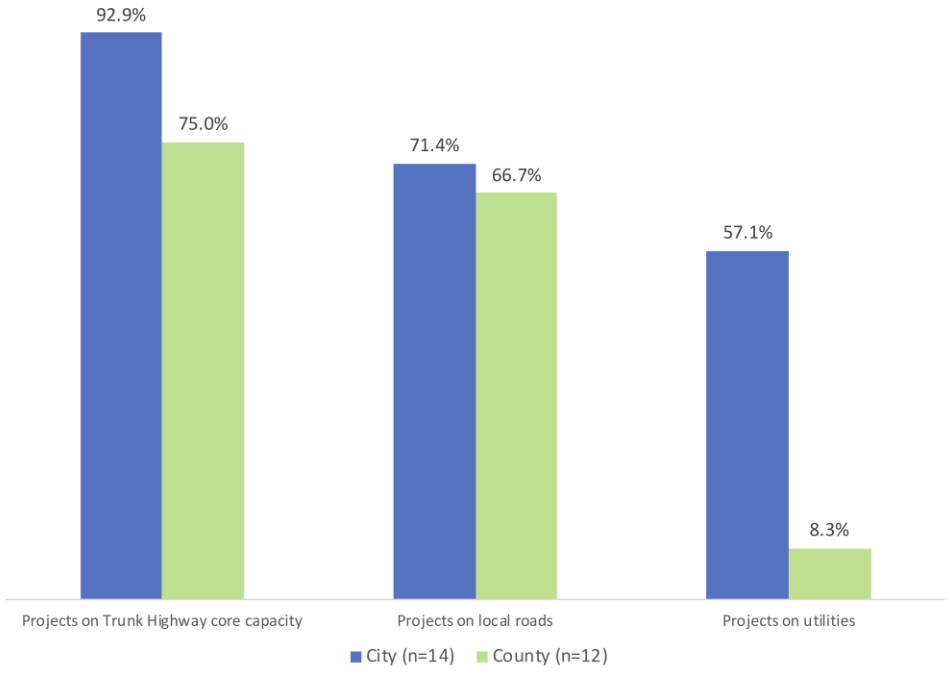
Figure 6.2 Number of Cooperative Agreements since 2013

Based on the case studies we completed in the previous section, we divided trunk highway projects in three categories: Trunk highway core capacity, local road improvements, and utilities. Trunk highway core capacity projects involve expenses that are directly related to the trunk highway and are not related to local roads, utilities, or other facilities commonly understood to be the responsibility of local governments. While MnDOT can only spend trunk highway funds on trunk highway projects, sometimes cities or counties are involved in trunk highway cooperative projects even if they are only participating in utilities or local roads reconstructions. Therefore, we used these categories in order to capture only local spending on trunk highway core capacity.

Overall, most cities and counties participated in cooperative projects on trunk highway core capacity. However, while counties participated more in local road projects, cities participated more on utility projects. More than 70 percent of the agencies (both cities and counties) that participated in only one cooperative agreement were involved in projects on trunk highway core capacity (see Figure 6.3). A total of 12 respondents (7 cities and 5 counties) participated solely in projects on trunk highway core capacity.



a) One Project



b) Multiple Projects

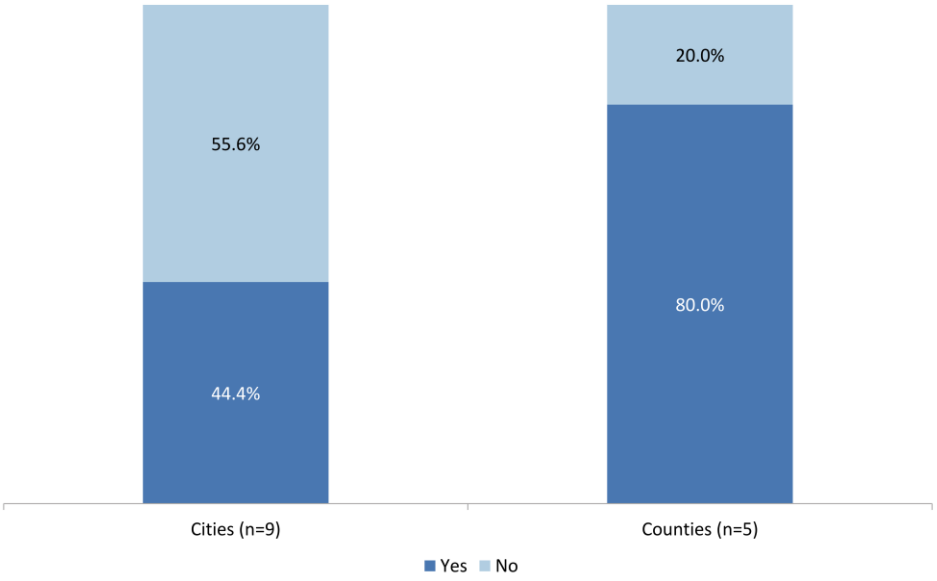
Figure 6.3 Participation in Cooperative Agreements by Type

We were particularly interested in local governments that had cooperative projects on trunk highway core capacity because costs are shared between the state and the local government in these projects. The survey included specific questions related to project development and experiences for this specific group of respondents. In the sample, a total of 15 counties and 23 cities had these types of projects. Most of the agencies that had participated in only one project were invited by MnDOT to participate, while a high percentage of agencies with two projects had initiated the projects.

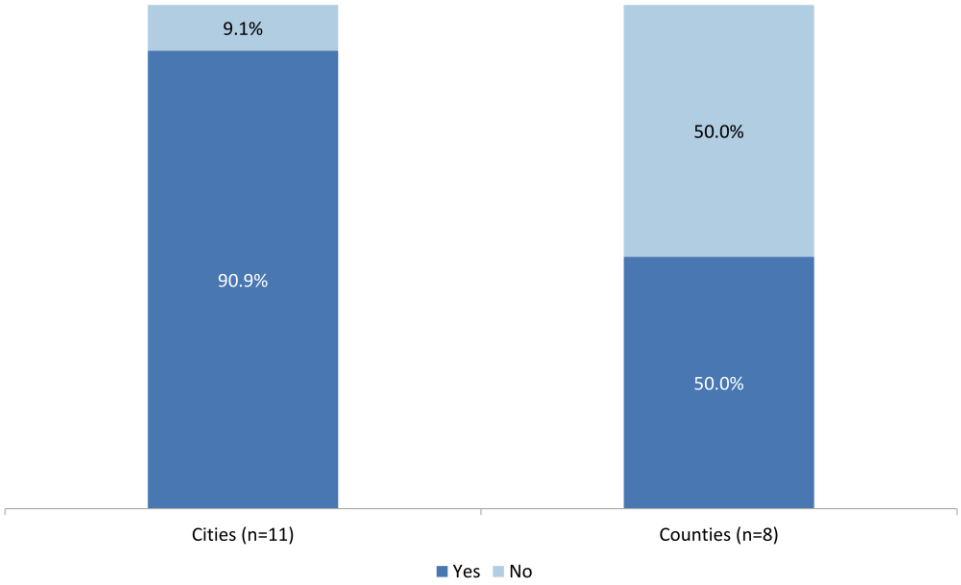
About two-thirds of the respondents perceived that there were important differences between projects initiated by MnDOT and those initiated by local agencies. This pattern was consistent among local governments that participated in one and multiple cooperative projects (see Figure 6.4). According to these respondents, they perceived there were important differences in project management, project execution, cost participation, funding sources, project priority, and interaction with MnDOT. Below are some of the comments from the survey related to project priority and interaction with MnDOT:

"(...) For projects initiated by the local agency, the MnDOT cost participation policy is not used to determine cost splits between the agencies. Because the project is typically a priority of the local agency and not MnDOT, the local agency typically pays for more of the MnDOT eligible cost items."

"Dealing with MnDOT is difficult when it is a local agency-initiated project. Especially if the DOT is lukewarm about the project."



a) One Project



b) Multiple Projects

Figure 6.4 Perceived Differences in Projects depending in its Initiator

During the case studies, we found that funding for trunk highway cooperative projects comes from federal, state, and local governments. We categorized federal grants into those that require a local match or have some other requirements and grants without requirements. At the state level, we included state trunk highway funds supported by Highway User Tax Distribution Fund (HUTDF), state Corridor Investment Management Strategy grants (only in 2013), and other state grants. A category for local funding sources was also included (this includes CSAH and MSAS funds, and any other local funding sources). The majority of respondents stated that local funding sources and state Trunk Highway funds were the main sources of funding for cooperative projects (see Figure 6.5). Most cities relied on local funding (17 cities out of 21). Of this number, six mentioned using MSAS funds while the rest of them relied on general funds, bonding, utility funds, tax increment financing (TIF), local levy, transportation sales tax, or city internal roadway funds. Counties relied equally on state and local funding (10 counties out of 13). All counties that mentioned using local funding sources relied on CSAH funds.

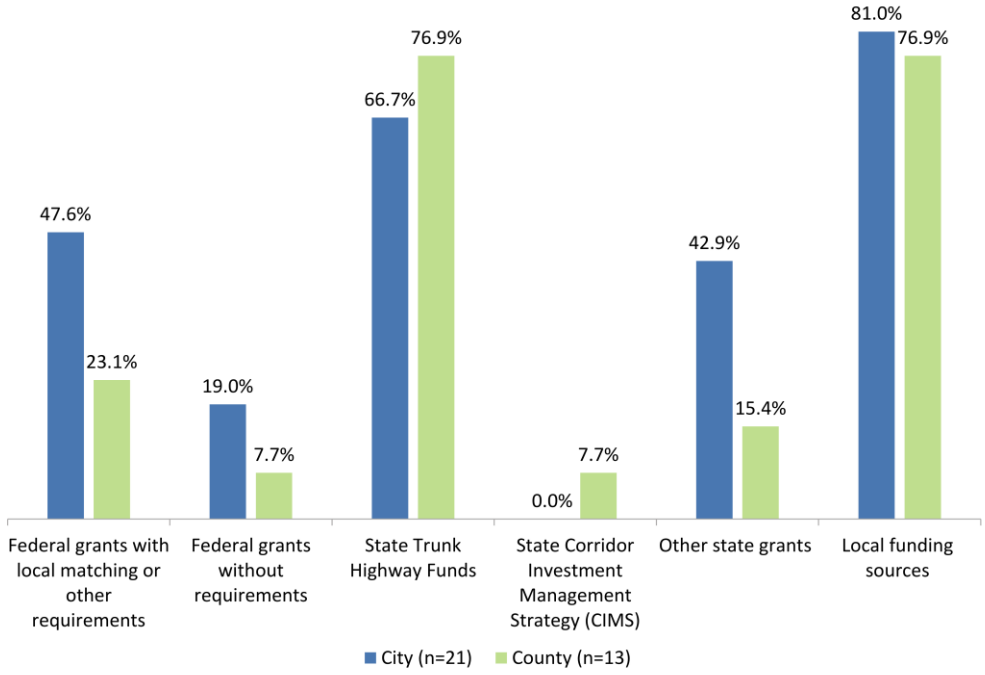


Figure 6.5 Funding Sources for Cooperative Agreements

Other funding sources included federal grants with matching requirements and other state grants. Respondents who selected other state grants mentioned the use of funds from the Transportation Economic Development (TED) program and the Transportation Economic Development Infrastructure (TEDI) program, both administered by the Department of Employment and Economic Development (DEED) as well as funds from the Local Road Improvement Program (LRIP), the Local Partnership Program (LPP), and the Transportation Alternative Programs (TAP) – all of them administered by MnDOT.

A minority of local government respondents experienced higher than estimated project costs. A higher percentage of county respondents have experienced costs above project estimates than city respondents (46.2 and 36.4 percent respectively). The percentage of local governments that have experienced additional costs was a little higher among those who have had multiple cooperative projects. The two primary factors that caused additional costs were unexpected project work and much higher than expected bids, selected by 62 percent and 38 percent of respondents, respectively. These two were the most important factors for counties, but for cities unexpected project work is followed by changes in project scope and 'other', which consisted of higher right-of-way (ROW) costs, additional work required by MnDOT, and additional design costs due to MnDOT process.

There were variations in how additional costs are shared among state and local agencies (see Table 6.1). Five respondents said that the local government paid the additional costs. In one of these cases, the respondent stated that the local government covered all of the additional costs because the additional item was not part of the original agreement. In the other four cases, however, it was not clear whether

the additional costs covered by the local government were from items included in the original agreement. Two respondents mentioned that additional costs were split using the same percentage as in the original agreement. Only one of the respondents mentioned that they were paid by the state while the rest of them said that the additional costs were split 50/50 between both parties or depending on the work. Respondents typically used reallocation of funds, additional revenues from tax increases, and financing schemes such as bonding and tax increment financing (TIF) to cover additional project costs.

Table 6.1 Cost Sharing and Funding of Additional Project Costs

Additional Cost Sharing	Funding Sources	Number of respondents
Local government paid the additional costs *"with Cooperative agreements, MnDOT has the final say and agencies are required to pay their portion upfront. So there is little room to discuss the costs"*	TIF, local bonding, tax increase, more MSA used than expected	4
Costs were split with the same percentage as originally agreed in the cooperative agreement	General funds	2
Costs were split 50/50	Unused funds from other projects	2
It depends: *On the additional work *On the way the cooperative agreement is written. *"If it is written as a not-to-exceed amount that MnDOT will contribute, then any additional costs are borne by the county (this is also true in reverse). If the agreement uses the Schedule I and is based on bid tab information, then the costs are split accordingly."*	General and enterprise funds	2
State paid the additional costs		1
Local agency paid extra costs as the item was not part of the original agreement	Local levy funding	1
Still under consideration *"...but MnDOT seems to be reasonable"*	Utility funds	1

Respondents with cooperative projects considered the availability of MnDOT contingency funds for project cost increases as well as improved communication between MnDOT and local agencies as factors that could improve trunk highway cost-sharing agreements. When comparing respondents from cities and counties, those from cities believe that the availability of MnDOT contingency funds is more important while those from counties favor improved communication (see Figure 6.6). In addition, some respondents from counties also believe that potential project risks (such as additional costs) and the responsibility of each party should be further clarified. Other factors mentioned by some of the respondents included flexibility around plans initiated by local agencies, less MnDOT bureaucracy, and more MnDOT contribution (payment of a "fair share").

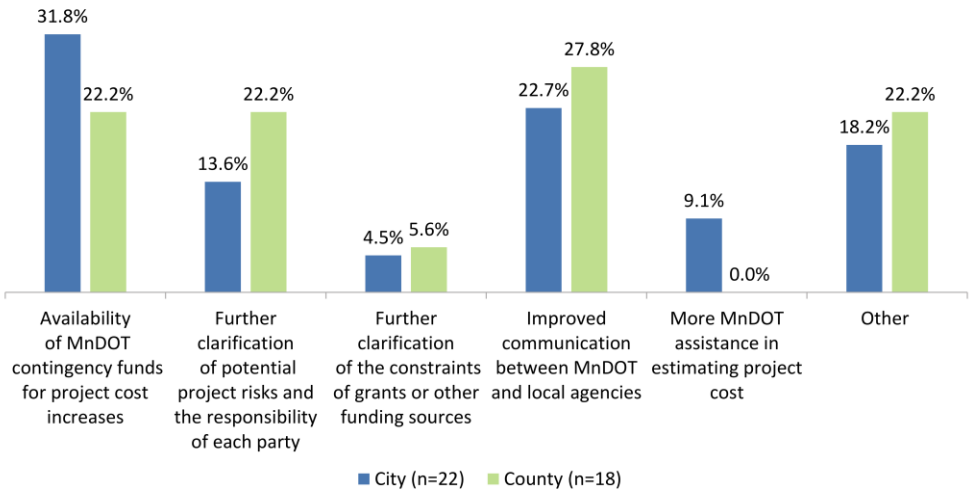


Figure 6.6 Factors that can Improve Trunk Highway Cost-Sharing Agreements

The importance of factors that could improve trunk highway cost-sharing agreements varies with the number of projects that local governments have had. For instance, according to respondents from cities with one project, the availability of MnDOT contingency funds is the most important, while respondents from cities with two projects consider further clarification of potential risks or additional costs to be the most important. This trend is similar when comparing cities and counties based on project type. The majority of all cities and counties with projects on trunk highway core capacity believe the availability of MnDOT contingency funds can improve cost-sharing agreements between MnDOT and local agencies. On the other hand, most cities and counties with projects on local roads consider improved communication as the most important factor.

According to the case studies, local governments considered improved communications as a key factor for improving trunk highway cost-sharing agreements. The research team included a question in the survey to gather information about how to improve communications. The majority of respondents consider timely communication including timely follow-up and check-ins and early notification of project costs to be paid by local agencies to be important factors for successful communication between MnDOT and local agencies. Other factors mentioned included clarity of who is responsible for additional costs, flexibility to adjust costs after receiving bids, clarity about additional work required by MnDOT, transparency, and MnDOT's willingness to adapt to change.

Respondents with no participation in cooperative projects

Twenty-six percent of the total survey respondents had not participated in cooperative projects. These respondents were asked a separate set of questions related to their reasons for not participating, willingness to participate in future projects, and reasons for their unwillingness to participate in future projects.

Regarding the primary reasons for not engaging in cooperative agreements, 67 percent of the respondents from both counties and cities mentioned that their agencies do not need to participate in

trunk highway projects. In addition, a high percentage of respondents, especially from counties, mentioned that their agencies do not have enough local funding to participate in trunk highway projects (see Figure 6.7). Similarly, several counties and cities found it hard to obtain state funding due to the burdensome process.

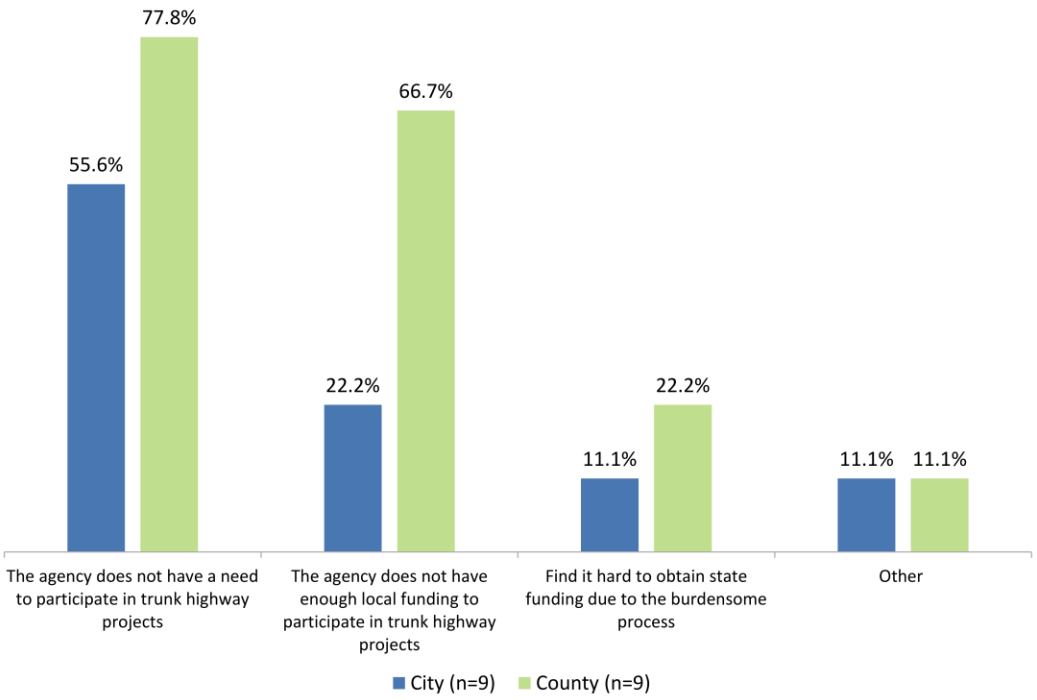


Figure 6.7 The Primary Reasons for Not Participating in Trunk Highway Projects

When asked about their willingness to participate in future cooperative agreements for trunk highway projects, 12 of the respondents expressed interest in participating in these types of projects. Cities were more willing to participate in future cooperative agreements compared to counties as shown in Figure 6.8. On the other hand, respondents who were not willing to participate in future cooperative agreements mentioned several arguments for not wanting to participate including insufficient local funding, lack of need, poor coordination between the state and local agencies, or the difficulty of dealing with MnDOT.

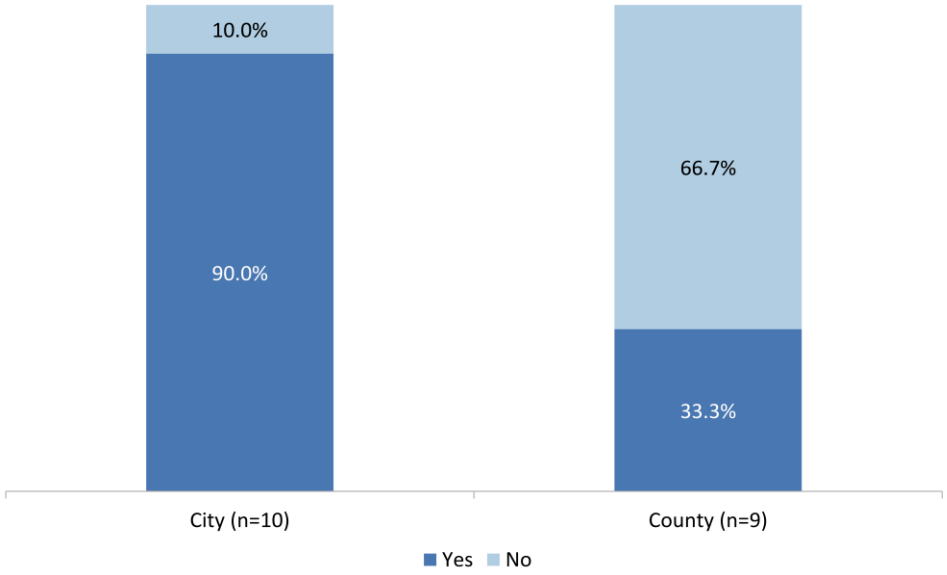


Figure 6.8 Willingness to Participate in Future Cooperative Agreements for Trunk Highway Projects

6.1.2.3 Additional Comments and Suggestions

Finally, the survey included an open question where respondents can add more information related to the topic. Nine respondents included additional comments. In particular, some respondents mentioned that local participation in cooperative projects is affected by MnDOT's slow and cumbersome process of reviewing plans as well as MnDOT's unwillingness to participate in improvements that benefit the state highway system.

"Very frustrating when a local project has no proposed changes to a MnDOT controlled intersection yet MnDOT required our local project to verify turning radius and MnDOT ultimately required adjusting curb line, full pavement replace, ADA upgrades and MnDOT indicated that they were a no cost participant on the local project so they contributed nothing. What made the project worse was that MnDOT made ADA and bridge improvements only 3 years before our local project yet the MnDOT project didn't have to verify the turning radius as part of their project so it was passed on to our local project."

"On federal aid project[s] that involve a state road, it is difficult to get state participation even on improvements that benefit the state highway. We've all heard "there is no money," but that doesn't relieve the frustration of state funding shortages on projects that improve the state highway system."

In addition, participants mentioned some suggestions for MnDOT including having a partnership mentality and supporting counties and cities in other ways different than funding.

"MnDOT needs to realize that Cities and Counties can be true partners in delivering significant improvements on the Trunk Highway system"

"There are times when MnDOT will not be able to contribute funding for construction but they can contribute construction inspection services instead"

6.1.3 Summary of Survey Key Findings

A total of 41 cities and 37 counties responded to the survey, with the majority of the counties from Greater Minnesota and cities from the seven-county metro area. The percentage of local governments with cooperative agreements was similar across cities and counties and many of them had only one project since 2013. While overall, most cities and counties participated in cooperative projects on trunk highway core capacity, there were variations in their participation in local road and utility projects. More counties participated in projects on local roads while cities generally participated more in projects on utilities.

Most of the respondents with only one project were invited by MnDOT to participate, while a high percentage of agencies with two projects initiated those projects. Most respondents from cities and counties believed that there were important differences based on whether MnDOT or the local agency initiates the project. These differences were in project management, project execution, cost participation, funding sources, project priority, and interaction with MnDOT.

Based on survey results, MSAS funds, general funds, bonding, utility funds, tax increment financing (TIF), local levies, transportation sales taxes, and city internal roadway funds were the sources of funding used by cities. Counties generally relied on CSAH funds to fund cooperative projects.

A few of the respondents, particularly from counties and those with multiple projects, experienced additional project costs mostly due to unexpected project work or much higher than expected bids. In several cases, additional costs were paid for by the local governments, while other times costs were split based on the original agreement percentage or language, split 50/50 between parties, or depended on the work.

Overall, respondents believed that the availability of MnDOT contingency funds for project cost increases and improved communication between MnDOT and local agencies could improve trunk highway cost-sharing agreements. Similarly, most of the respondents considered timely communication including timely follow-up and check-ins and early notification of project costs to be paid by local agencies, as important factors for successful communication between MnDOT and local agencies.

Common reasons for not participating in cooperative projects include the lack of need to participate in trunk highway projects and insufficient funding. However, cities were more willing to participate in future cooperative agreements compared to counties. Respondents who were not willing to participate in future cooperative agreements mentioned the lack of coordination between the state and local agencies, lack of local funding, difficulty of dealing with MnDOT, and not feeling the need to participate as the main reasons they are unwilling to participate.

CHAPTER 7: CONCLUSIONS

With federal and state revenues not keeping up with transportation needs and overall stagnant levels of intergovernmental grant funding to local governments, local government contributions for highway and roadways have been increasing in recent years. One area of local contributions in Minnesota are cooperative agreements in which local governments contribute to trunk highway improvements in coordination with the state. This study featured six case studies of such agreements. Based on these cases, local governments contribute mainly for the local match requirements of federal and state grants, intersection expenses, or unexpected increases in project costs. In many of these cases, local governments faced unexpected cost increases, which they ultimately bore the responsibility for. In other cases, costs were consistent with the MnDOT cost-sharing policy and were split based on the policy.

The outcome of the case studies and survey responses show that while cooperative agreements can be mutually beneficial for both local and state governments, they can also create the risk of unexpected cost increases for local governments. Local governments should be aware of the risks of entering into cooperative agreements, particularly when state funding totals are capped. Communication between MnDOT and local governments was frequently cited as an important factor in both the case studies and the survey. Effective communication during planning and construction can mitigate the risk of increasing additional costs as well as uncertainties around cost coverage by MnDOT. The use of state contingency funds that reimburse local government for unexpected trunk highway expenses could also provide additional security to local governments.

Some local governments are wary of engaging in cooperative agreements with MnDOT due to lack of coordination between the state and local agencies, lack of sufficient local funding, and "difficulty of dealing with MnDOT." In addition, most surveyed local government officials believe there are important differences in project management, execution, cost participation, and interaction with MnDOT based on whether the state or the local agency initiated the project. Therefore, it is imperative to improve communication and coordination between state and local governments to encourage and improve participation in cooperative agreements.

Based on the research findings, we make the following recommendations:

1. **To disclose project requirements during the planning phase**

   MnDOT should disclose all project requirements during the planning phase of a project. MnDOT should specify project requirements like the use of specific materials, project timelines, etc. in related project documents. This information should be available to MnDOT and local government officials so that they can create a more accurate and comprehensive budget.

2. **To discuss funding conditions of state funds or grants**

   When entering into a cooperative agreement, MnDOT and local governments should discuss specific funding conditions tied to different state funds or grants. MnDOT and local government officials should understand funding caps, local match requirements, and other funding

limitations that may apply to the project. This will allow local governments as well as MnDOT to better budget and plan for unexpected costs.

3. **To include the distribution of unexpected costs in the contract**

   Currently, MnDOT cooperative agreement project contracts disclose the allocation of expected costs. The contracts, however, should include a clause that specifically discusses guidelines for the allocation of unexpected costs (costs not initially stipulated in the contract or cost increases) experienced during the lifetime of the project. Having a clear understanding of cost expectations and responsibilities of each party can help MnDOT and the local government to inform decision-making on joining/implementing a project and to better plan for contingencies.

4. **To maintain regular communication between MnDOT and local governments**

   MnDOT and local governments should maintain regular communications to timely follow up and check in on the project progress throughout the planning and construction stages. This will help MnDOT and local governments better plan and coordinate for unforeseen events.

5. **To enable the use of state contingency funds to share unexpected cost overrun**

   MnDOT should consider making the use of state contingency funds smoother to assist local governments involved in cooperative agreement projects with MnDOT that experience unexpected trunk highway costs. Using such funds will be beneficial to MnDOT for budgetary purposes because it evens-out the fluctuations of capital outlays due to unforeseen changes.

6. **To track local spending on the trunk highway system**
   MnDOT should track all local money spent on the trunk highway systems and disclose information about local efforts on regional highways on an annual basis. Periodically, MnDOT should conduct research to review what affects local efforts have on regional highways.

REFERENCES

Association of Minnesota Counties. (2019). Local Option Sales Tax for Transportation: Frequently Asked Questions. Association of Minnesota Counties, St. Paul, MN.

Association of Minnesota Counties. (2019). Wheelage Tax: Frequently Asked Questions. Association of Minnesota Counties, St. Paul, MN.

Athey Creek Consultants. (2013). *Cost Sharing Policies of State Transportation Agencies.* Athey Creek Consultants, Maplewood, MN.

Burress, M. (2018a). *Highway Finance Overview.* Minnesota House Research, St. Paul, MN.

Burress, M. (2018b). *County State-Aid Highway System.* Minnesota House Research, St. Paul, MN.

Burress, M. (2018c). *Municipal State-Aid Street System.* Minnesota House Research, St. Paul, MN.

Burress, M., & Zewers, K. (2008). *2008 Transportation Finance Legislation: Laws 2008, Chapter 152.* Minnesota House Research, St. Paul, MN.

Congressional Budget Office. (2018). *The Budget and Economic Outlook: 2018- 2028.* Congressional Budget Office, Washington, DC.

Congressional Research Service. (2020). *Federal-Aid Highway Program (FAHP): In Brief.* Congressional Research Service, Washintgon, DC.

Dalton, P. (2018). *Local Sales Taxes in Minnesota.* Minnesota House Research, St. Paul, MN.

Dupor, B. (2017). *So, Why Didn't the 2009 Recovery Act Improve the Nation's Highways and Bridges?* Federal Reserve Bank of Saint Louis Review, St. Louis, MO.

Dupuy, B. (2016-April, 15). West St. Paul Seeks Relief from State on Rising Robert Street Construction Costs. *Star Tribune,* Minneapolis, MN.

Federal Highway Administration. (2018). Table FE-9. *Highway Statistics*. Retrieved from https://www.fhwa.dot.gov/policyinformation/statistics/2018/fe9.cfm

Gamkhar, S. (2003). The Role of Federal Budget and Trust Fund Institutions in Measuring the Effect of Federal Highway Grants on State and Local Government Highway Expenditure. *Public Budgeting and Finance*. Wiley-Blackwell Publishing, Hoboken, NJ. 23(1):1-21.

Government Accountability Office. (2004). *Federal Aid Highways: Trends, Effect on State Spending, and Options for Future Program Design.* Government Accountability Office, Washington, DC.

Institute on Taxation and Economic Policy. (2013). *A Federal Gas Tax for the Future.* Institute on Taxation and Economic Policy, Washington, DC.

Kleman, C. (2018). *Aggregate Tax.* Minnesota House Research Department, St. Paul, MN.

Knight, B. (2002). Endogenous Federal Grants and Crowd-out of State Government Spending: Theory and Evidence from the Federal Highway Aid Program. *American Economic Review,* Nashville, TN. 92(1): 71-92.

Leduc, S., & Wilson, D. (2017). Are State Governments Roadblocks to Federal Stimulus? Evidence on the Flypaper Effect of Federal Grants in the 2009 Recovery Act. *American Economic Journal: Economic Policy*, Pittsburgh, PA. 9(2):253-292.

Loughead, K. (2019). Minnesota House and Senate at Odds Over Gas Tax Increase. Retrieved from https://taxfoundation.org/minnesota-gas-tax-increase/

Minnesota Association of Townships. (2019). Town Roads. In *Manual of Town Government.* Minnesota Association of Townships, St. Michael, MN.

Minnesota Department of Revenue. (2017). 2017 Aggregate Tax Collected Form. Minnesota Department of Revenue, St. Paul, MN.

Minnesota Transportation Alliance. (2018). *Local Option Transportation Funding Sources for Minnesota Counties: An Examination of the Local Option Wheelage Tax, the Sales Tax, the Vehicle Excise Tax, and the Aggregate Tax.* Minnesota Transportation Alliance, St. Paul, MN.

MnDOT. (2013). Corridor Investment Management Strategy Pilot Solicitation. MnDOT, St. Paul, MN.

MnDOT. (2014). *2016-17 Binnial Budget*. MnDOT, St. Paul, MN.

MnDOT. (2016a). *MnDOT Cost Participation Policy - 2016 Update, Summary of Revisions.* MnDOT, St. Paul, MN.

MnDOT. (2016b). *Report on the 2016 MnDOT Cost Participation Policy Update.* MnDOT, St. Paul, MN.

MnDOT. (2017a). *20-Year State Highway Investment Plan 2018-2037.* MnDOT, St. Paul, MN.

MnDOT. (2017b). C*ost Participation and Maintenance Responsibilities with Local Units of Government.* MnDOT, St. Paul, MN.

MnDOT. (2017c). Miles and Lane Miles by Route System for each County. MnDOT, St. Paul, MN.

MnDOT. (2018a, October). How Does MnDOT Fund Transportation Projects. Retrieved from http://www.dot.state.mn.us/planning/program/stipfunding.html

MnDOT. (2018b). Local Road Improvement Program. Retrieved from http://www.dot.state.mn.us/stateaid/admin/info/lrip.pdf

MnDOT. (2018c). *State Aid Manual*. MnDOT, St. Paul, MN.

MnDOT. (2018d). State Aid for Local Transportation. Retrieved 2018, from http://www.dot.state.mn.us/stateaid/

MnDOT. (2018e). Transportation Revolving Loan Fund (TRLF). Retrieved from https://www.dot.state.mn.us/planning/program/trlf.html

MnDOT. (2019c). Transportation Revolving Loan Fund (TRLF) Open Solicitation Announcement. MnDOT, St. Paul, MN.

MnDOT. (2019a). Central Minnesota Area Transportation Partnership. Retrieved from www.dot.state.mn.us/d3/atp/about.html

MnDOT. (2019b). *Transportation Asset Management Plan.* MnDOT, St. Paul, MN.

MnDOT. (2020). *Local Bridge Replacement Program - State Transportation Funds.* MnDOT, St. Paul, MN.

National Surface Transporation Policy and Revenue Study Commission. (2007). *Report of the National Surface Transportation Policy and Revenue Study Commission: Transportation for Tomorrow.* U.S. Department of Transportation, Washington, DC.

Northern Rochester Transportation Study. (2015). Northern Rochester Transportation Study. Rochester, MN. Retrieved from https://www.rochestermn.gov/home/showdocument?id=20815

Peter G. Peterson Foundation. (2018). *The Highway Trust Fund Explained*. Retrieved from https://www.pgpf.org/budget-basics/budget-explainer-highway-trust-fund

Public Health Law Center. (2014). *Responsibility for Minnesota Roads.* Public Health Law Center, St. Paul, MN.

Ryan, B. (2006). *Local Road Tax Options: Is Minnesota Really that Different.* MnDOT, St. Paul, MN.

The Pew Charitable Trusts. (2014). *Intergovernmental Challenges in Surface Transportation Funding.* The Pew Charitable Trusts, Philadelphia, PA.

U.S. Department of Transportation. (2018). BUILD Discretionary Grants. Retrieved from https://www.transportation.gov/BUILDgrants

U.S. Department of Transportation. (2019). *Status of the Nation's Highways, Bridges, and Transit-Conditions and Performance.* U.S. Department of Transportation, Washington, DC.

Zhao, J. Z., Das, K. V., & Becker, C. (2010). *Funding Surface Transportation in Minnesota: Past, Present, and Prospects.* Center for Transportation Studies, University of Minnesota, Minneapolis, MN.

Zhao, J. Z., Lari, A., & Fonseca, C. (2018). *Minnesota Transportation Funding Redistribution (2010-2015). Who Contributes more and who receives more?* Humphrey School of Public Affairs and the Center for Transportation Studies, University of Minnesota, Minneapolis, MN.

Zhao, J. Z., Lari, A., Fonseca, C., & Bean, N. (2019). *Minnesota Transportation Finance Database*. Retrieved from the Transportation Policy and Economic Competitiveness Program, Humphrey School of Public Affairs and the Center for Transportation Studies, University of Minnesota, Minneapolis, MN.

APPENDIX A: SURVEY QUESTIONS

This survey is part of research about the impact of local expenditures on the state trunk highway system conducted by the Institute for Urban and Regional Infrastructure Finance (IURIF) at the Humphrey School of Public Affairs. This research is funded by the Local Road Research Board (LRRB). The objective of this survey is to better understand the experiences of local government agencies with MnDOT cooperative trunk highway projects. This survey is anonymous and will take approximately 10 minutes to complete. You can leave and resume the survey at any time. If you have any questions about this survey or general research please contact Nate Bean at bean@umn.edu. We greatly appreciate you taking the time to respond to this survey. If you wish to take part in this survey, please click 'Continue'.

1. Which type of government agency do you represent?
    a. City (go to question 2)
    b. County (go to question 3)
2. City characteristics
    a. Small Urban City (less than 50,000 people)
    b. Large Urban City (50,000 people or over)
3. Where is your agency located?
    a. Greater Minnesota
    b. The seven-county metro area
4. Has your agency engaged in any cooperative agreements for trunk highway projects (e.g. construction, repairs) with MnDOT since 2013?
    a. Yes (continue with the next question)
    b. No (continue in question 5)
5. What is the primary reason your agency has not engaged in recent cooperative agreements for trunk highway projects with MnDOT? (check all that apply)
    - The agency does not have a need to participate in trunk highway projects
    - The agency does not have enough local funding to participate in trunk highway projects
    - Previous attempts to secure state funding have failed
    - Believe that the agency cannot compete with other projects at the state level
    - Find it hard to obtain state funding due to local administrative constraints
    - Find it hard to obtain state funding due to the burdensome process
    - Other (please specify) _____
6. Would your agency like to participate in future cooperative agreements for trunk highway projects with MnDOT?

a. Yes (go to end question)

b. No (go to 7.)

7. Why is your agency not interested in engaging in cooperative agreements for trunk highway projects with MnDOT? (please explain)

   _____
   _____

   (Go to end question)

8. How many cooperative agreements for trunk highway projects has your agency participated in since 2013? (please complete)

   _____
   _____

9. What type of cooperative agreements has your agency had (please select all that apply).

   a. Projects on Trunk Highway core capacity (go to question 10)

   b. Projects on local roads (go to question 15)

   c. Projects on utilities (go to question 15)

The following questions are related to projects that involved local spending on trunk highway expenses on core capacity. These expenses are not directly related to local roads, utilities, or other facilities commonly understood to be the responsibility of local governments.

10. Did your agency initiate the project(s)?

    a. Yes

    b. No, MnDOT has contacted us to join the project

    c. Sometimes the local government, sometimes MnDOT

11. From your perspective, are there important differences between projects initiated by MnDOT compare to those initiated by local agencies (e.g. communication, funding, cost-share, execution)?

    a. Yes (please explain)_____

    b. No

12. What were the main sources of revenue for the project(s)? (select all that apply)

    - Federal grants without requirements
    - Federal grants with local matching or other funding requirements
    - State Trunk Highway Funds
    - State Corridor Investment Management Strategy (CIMS)

- Other state grants (please specify) _____
- Local funding sources (please specify): _____

13. Did your agency experience additional project costs compared to the estimated project costs?
    a. Yes (question 14)
    b. No (question 17)
14. What caused these additional costs? (select all that apply)
    - Much higher than expected bids
    - Changes in project scope
    - Unexpected project work (i.e. additional excavation, environmental evaluation)
    - Other (please explain) _____
15. How were additional costs shared among parties (state and local)?
    _____
    _____
16. How did your local agency fund the additional expenses?
    _____
    _____
17. Based on your experience, what could improve trunk highway cost-sharing agreements between MnDOT and local agencies?
    - Further clarification of potential project risks (i.e. additional costs) and the responsibility of each party
    - Further clarification of the constraints of grants or other funding sources
    - Availability of MnDOT contingency funds for project cost increases
    - More MnDOT assistance in estimating project cost Improved communication between MnDOT and local agencies
    - Other (please specify): _____
18. What factors do you consider important for successful communication between MnDOT and local agencies during cooperative projects?
    _____
    _____
19. Please leave any additional comments or information you wish to share below.
    _____
    _____

Thank you for taking the time to complete this survey