Financing Public Transit in Metro Detroit

Supervised Research Project submitted in partial fulfillment of the
Masters of Urban Planning degree

Prepared by: Christina Peltier
Supervised by: Professor Ahmed El-Geneidy

School of Urban Planning
McGill University
Montréal, Quebec
September 2012

ACKNOWLEDGEMENTS

First, I would like to thank Professor El-Geneidy for his patience and support as I explored the complexity of public transit funding. Special thanks to my second reader, Professor Naveen Eluru. I would also like to thank Megan Owens, Executive Director of Transportation Riders United, for her helpful insight into local transportation politics. I am grateful to the public transit leaders and policy experts who took time out of their busy schedules to meet with me and discuss public transit financing.

My gratitude to all my friends, especially Amelia Bishop, Rachel Fulton and Desmond Bostick-Kispert, who let me talk through problematic sections of the paper. I would like to thank Brendan Azim, Kathleen Day, Stina Hanson, Elaine Higden, Laura Pfeifer, Karen Uchic and Kevin Zajac for their help with editing page after page of public transit finance policy. Also, thanks to George Boukas, Chris Jaszczak, Daniel Martinez, Jane Orr and Crystal Starr for the coffee and hours they let me spend in their businesses, typing away.

Finally, special acknowledgment to my grandfather, Al Peltier, who, even in his last days, kept telling me to stop talking to him and start working on my paper. His support, the stories of his own challenges in life, and his memory helped carry me to the completion of my studies at McGill University. Special thanks to my family, who provided me with love and support throughout all my struggles.

ABSTRACT

The Governor of Michigan and several state legislators are proposing the creation of a Regional Transit Authority, which would be authorized to collect new revenue for public transit in Metro Detroit, possibly from a fuel tax or from a vehicle registration fee. This study reviews 5 primary and 18 secondary sources of public transit funding, as well as analyzes 5 case studies. To determine the feasibility of the funding sources in Metro Detroit, each funding source is evaluated based on five indicators, drawn from a literature review, as well as interviews with policymakers and other experts. Based on this analysis, the author makes recommendations for modifying existing funding sources and for developing new public transit revenue. The paper concludes with a discussion of the challenges that Metro Detroit faces as a region to fund public transit.

KEYWORDS

Transportation, Funding, Metro Detroit, Urban Planning

ABRÉGÉ

Le gouverneur et des plusieurs législateurs de l'état du Michigan proposent la création d'une commission de transport régionale avec le droit de lever des impôts afin de financer et superviser les fournisseurs du transport collectif à la région métropolitaine de Détroit. Une taxe sur l'essence et un droit d'immatriculation des véhicules sont deux options de financement proposées. Cette étude évalue 5 sources de financement primaires et 18 sources de financement secondaires, et comprend 5 études de cas sur les sources de financement du transport collectif. Afin de déterminer leur faisabilité dans le contexte du Michigan, les sources de financement sont évaluées selon cinq indicateurs pris d'une analyse documentaire, ainsi que des entretiens auprès des décisionnaires et des autorités. Sur cette base, l'auteur recommande que les sources de financement actuelles soient modifiées et que d'autres soient rajoutées. L'étude conclut avec une discussion des défis que confronte la région métropolitaine de Detroit en ce qui concerne le transport collectif régional.

MOTS-CLÉ

Transport, Financement, Région Métropolitaine de Detroit, Urbanisme

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS AND ABBREVIATIONS

American Association of State Highway and Transportation Officials **(**AASHTO**)**
American Planning Transportation Association (APTA)
Ann Arbor Transportation Authority (AATA)
Citizens Research Council of Michigan (CRC)
Comprehensive Transportation Fund (CTF)
Department of Transportation (DDOT)
Detroit Transportation Corporation (Detroit People Mover)
Federal Transit Administration **(**FTA**)**
Greater Cleveland Regional Transit Authority (GCRTA)
High Occupancy Vehicle (HOV)
Institute on Taxation and Economic Policy (ITEP)
Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA)
Local and Regional Funding Mechanisms for Public Transportation (TCRP 129)
Metropolitan area of Detroit (Metro Detroit)
Metropolitan Atlanta Regional Transit Authority (MARTA)
Michigan Transportation Fund (MTF)
National Transit Database (NTD)
Port Authority of Allegheny County (Port Authority)
Public Transportation Assistance Fund (PTAF)
Regional Transit District (RTD)
Southeast Michigan Council of Governments (SEMCOG)
Suburban Mobility Authority for Regional Transportation (SMART)
Tax-Increment Financing District (TIF)
Transportation Cooperative Research Program (TCRP)
Transportation Equity Act for the 21st Century of 1998 (TEA-21)
Transportation Research Board (TRB)
Transportation Riders United (TRU)
Tri-County Metropolitan Transportation District of Oregon (TriMet)
Urban Mass Transportation Act (UMTA)
United Sates Government Accountability Office (GAO)
Vehicle Miles Traveled (VMT)

1 INTRODUCTION

In the 1940s and 50s, Southeast Michigan had one of the finest multimodal transit systems in North America. The City of Detroit operated over 20 streetcar lines, along with electric trolley-coaches and buses. Interurban streetcars extended as far as 75 miles from Downtown Detroit to the cities of Ann Arbor, Jackson, Port Huron and Saginaw (Detroit Free Press, 2001).

Public transit services in the metropolitan area of Detroit (Metro Detroit) and Southeast Michigan began to decline after World War II. Most streetcar services ended on April 7, 1956, when the City sold the vehicles to Mexico City and replaced them with diesel buses. Interurban bus services were eliminated when the license plate fee legislation, which funded the buses, expired. Additional public transit services were cut as operating costs increased and ridership declined (Detroit Transit History, 2006; Swatosh, 2012).

What remains of Metro Detroit's public transit is an underfunded, disjointed system with multiple service providers. The major transit systems in Metro Detroit are City of Detroit Department of Transportation (DDOT), Detroit Transportation Corporation (Detroit People Mover), Suburban Mobility Authority for Regional Transportation (SMART) and the Ann Arbor Transportation Authority (AATA). AATA and SMART are locally funded through property taxes. This is problematic because property values in Southeast Michigan have declined drastically in the last decade (Klinefelter, 2012; Southeast Michigan Council of Governments, 2012). The Detroit People Mover and DDOT are subsidized from the City of Detroit's general fund. The City of Detroit is on the verge of bankruptcy and has been steadily cutting public transit, along with other public services. DDOT has lost almost 50% of its bus service since 2004 because of escalating operating costs, aging infrastructure and cuts in subsidies (Roseboom, 2012; Transportation Riders United, 2012).

This paper identifies state and local funding mechanisms that generate public transit revenue in other regions and determines the feasibility of their implementation in Metro Detroit. This study begins by reviewing the history of transit funding and current trends in the cost of public transit and by describing the different mechanisms which

state, local and regional transit providers can use to fund public transit. Next, several case studies across the United States, as well as the mechanisms by which they are funded, are examined. A full review of Metro Detroit's public transit systems is presented, followed by a feasibility analysis of the funding mechanisms in regards to the region. This paper concludes with a discussion of current challenges that Metro Detroit faces regarding financing public transit.

2 HISTORY OF PUBLIC TRANSIT FINANCING

Streetcars were the most popular form of public transit in North America during the first half of the twentieth century. Initially, streetcars were operated by private companies and funded using farebox collection. By the 1950s, many of the transit systems were in need of renovation and upgrades due to neglect during the Great Depression and heavy ridership during World War II (Baldwin-Hess & Lombardi, 2005). Metro Detroit's public transit followed this pattern of neglect, and as a result, by the 1950s ridership began to decline (Detroit Transit History, 2006).

Across the United States, net operating revenues for street cars declined by over 50% from 1945 to 1956 (Sussna, 1959). Simultaneously, operating expenses increased and ridership waned because of growing preference for and ownership of automobiles to augment affordable suburban lifestyles. Operating costs rose as routes became longer in order to accommodate urban sprawl and ridership declined further as these longer routers were no longer convenient. This, in turn, lowered the amount collected from fareboxes, further delaying much needed infrastructure improvements (Baldwin-Hess & Lombardi, 2005)

2.1 Emergence of Federal and State Subsidies

In 1961, the United States Government began subsidizing the public transit industry, specifically commuter rail systems, through the Housing Act .The first federal transit program was the Urban Mass Transportation Act (UMTA) of 1964. The initiative authorized $2.23 billion (in 2003 dollars) over three years in discretionary federal grants to cover up to two-thirds of capital costs for the construction, reconstruction, or

acquisition of transit facilities and equipment. The federal grants required local and state sources to match one-third of federal contributions (Baldwin-Hess & Lombardi, 2005).

This pattern of subsidizing public transit continued throughout the next few decades, even as ridership decreased. During the 1960s and 1970s, the assistance of federal grants caused the number of publicly-owned transit agencies to grow from 58 to 308. In 1974, the National Mass Transportation Assistance Act was passed to further supplement capital costs at a lower match rate for local and state financing. Also, for the first time, federal funding could be applied to operating costs (Baldwin-Hess & Lombardi, 2005). Critics were concerned that this controversial move to fund both capital and operating costs at such high levels would lead to inefficiencies of operation without normal market checks and balances (Pickrell, 1985; Puncher, Anders, & Hirschman, 1983). In the 1980s, during the Reagan Administration, federal subsidies dropped for both operating and capital costs. To compensate for lost federal programs, state and local subsidies tripled (Baldwin-Hess & Lombardi, 2005).

2.2 Recent History and Trends

By the 1990s, federal funding for public transit had declined and had been replaced with increased state and local revenue. State and local funding provided 60% of transit funding, followed by 15% from federal sources distributed specifically for capital improvements. The Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA) and Transportation Equity Act for the 21st Century of 1998 (TEA-21) allowed states and metropolitan areas more flexibility with how they prioritized transportation funding, including highway development and public transportation. TEA-21 phased out federal operating subsidies, further leaving state and local sources to reconcile operational deficits (Baldwin-Hess & Lombardi, 2005; Cambridge Systematics Inc., 2008).

In 2008, the recession had a negative impact on both federal and state subsidies. The combination of substantial increases in fuel and wage costs and large budget shortfalls, caused both federal and state funding public transit to fall (American Planning Transportation Association, 2009). When surveyed in 2011, transit agencies reported that state subsidies for public transit had remained flat or had decreased from the year before (American Planning Transportation Association, 2011). In 2009, the highest percentage

of public transit funding came from local revenue sources, as shown in the figure below. The second highest percentage, listed as "Other," consists of directly generated revenues, such as fare revenue, auxiliary transportation funds, subsidies from other operations, or revenue from transportation agreements. State subsidies followed at 21.9%. Federal subsidies were the lowest revenue source at 18.8% (National Transit Database, 2009a).

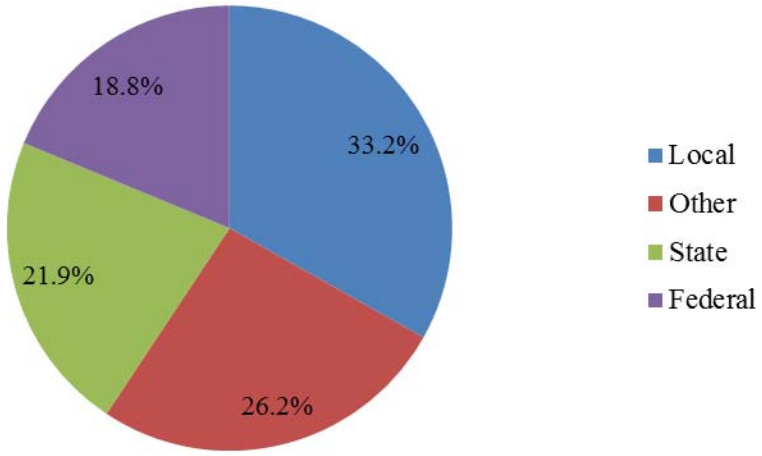

Figure 1: **Sources of public transit funding revenue (2009)**

Note: Adapted from TS1.1 - Total funding time-series, National Transit Database, 2009.

The sections above profiled the evolution of transit funding away from federal funding and towards locally based sources. As noted, this transition has been problematic for Metro Detroit given its depressed real estate values. For this reason, this study explores other North American cities' models, which draw from a broader revenue base.

3 METHODOLOGY

The purpose of our study is to review the different funding sources for public transit in other United Sates cities and to determine the feasibility of their application for public transit in Metro Detroit. I hope this study will inform policy changes in Michigan, as the 2008 Comprehensive Regional Transit Service Plan for Southeast Michigan

concluded that the implementation of any new taxes to fund public transit in Southeast Michigan needs to be carefully examined.

3.1 Literature Review

The first section of my paper describes past research reviewing federal and state funding sources. Some studies are nationwide while others are specific to a region or stakeholder. Indicators used in these studies will be the basis of a feasibility analysis later in this paper.

3.2 Descriptions of Funding Sources

The second section defines the most common funding sources at both the state and local levels, and how they are typically administered. If available, average charges are included for fees and taxes. This section also describes several of the advantages and disadvantages of each funding source, along with several brief examples of implementation within transit systems.

3.3 Selection of Case Studies

Case studies are used for a qualitative comparison of the implementation of funding sources. Transit agencies collect revenue from multiple funding sources at both the state and local levels. Case studies for this report are listed in Table 1. Cleveland, Ohio, and Pittsburg, Pennsylvania, were selected for having similar characteristics to Detroit, such as a decreasing population and economic decline (Sherman, 2009). Denver, Colorado, and Portland, Oregon, were selected based on their success as transit systems and the variety of funding sources implemented at both the state and local levels (Kurtzleben, 2011). The final case study, Atlanta, Georgia, was selected for having a regional population of over 1 million people with relatively low density, as this is comparable to Metro Detroit's population. Case study information was compiled from transit agencies' websites, budget records and past national studies.

Table 1: ***Selected case studies of regional transit systems***

Local System Name	Location	Category	Funding Sources
Greater Cleveland Regional Transit Authority (GCRTA)	Cleveland, OH	Rustbelt	• Sales tax • Advertising • Fare revenue
Port Authority of Allegheny County (Port Authority)	Pittsburgh, PA	Rustbelt	• Advertising • Contract • Liquor tax • Excise tax • Fare revenue • Lottery and gambling • Rental car fee • Toll road
Regional Transit District (RTD)	Denver, CO	Success	• Sales tax • Advertising • Contract • Fare revenue • Lease revenues • Parking fees
Tri-County Metropolitan Transportation District of Oregon (TriMet)	Portland, OR	Success	• Payroll tax • Advertising • Cigarette tax • Contract • Fare revenue
Metropolitan Atlanta Rapid Transit Authority (MARTA)	Atlanta, GA	Low density	• Sales tax • Advertising • Fare revenue

3.4 Feasibility Indicators

The final section of this report reviews measures of feasibility for funding sources against five indicators developed from previous studies mentioned in section 3.1. These indicators are revenue yield, cost efficiency, technical feasibility, equity, and political feasibility (Transportation Cooperative Research Program, 2009; TranSystems, 2008). The first four indicators are explored through previous research, along with policy analysis specific to the state of Michigan. Political feasibility is evaluated based on recent transportation news and interviews from transit experts, at both the state and local level. The following public transit experts were interviewed:

- Terri Blackmore, Executive Director for the Washtenaw Area Transportation Study;
- Thomas Casperson, Michigan Senate, primary sponsor of the Regional Transit Authority Bill, 2012 SB 909;
- Bert Johnson, Michigan Senate, sponsor of the Regional Transit Authority Bill, 2012 SB 909;
- Richard Olson, Michigan Representative, suggested by Dennis Schornack as an expert on Vehicle Miles Traveled (VMT) fees;
- Megan Owens, Executive Director of Transportation Riders United;
- Carmine Palombo, Director of Transportation Programs of Southeast Michigan Council of Governments;
- Dennis Schornack, Governor of Michigan's Senior Adviser for Strategy on Transit; and
- One local transit expert who requested to be interviewed anonymously.

4 COMPREHENSIVE STUDIES EXAMINING STATE AND LOCAL FUNDING SOURCES

This section briefly summarizes important studies related to financing public transit. Few studies have comprehensively analyzed the best methods for financing public transit at the state and local levels. A single model cannot be applied to every public transit agency due to the complexities of state law, local restrictions, equity issues, existing administration, potential yield and political environment. Each potential funding source needs to be evaluated via these basic measures.

The most comprehensive and consistent study of financing public transit is the American Association of State Highways and Transportation Officials (AASHTO) *Survey of State Funding for Public Transportation Final Report*. This survey has been compiled over 30 times, most recently in 2012, generated by fiscal data collected in 2010. The survey provides self-reported data from every state regarding funding mechanisms, funding trends across the state, new state legislation regarding public transit and the major sources of overall transit funding. The disadvantage to the AASHTO survey is that it only examines public transit funding from a state level. Transit funding is not examined by regional or individual transit organizations (American Association of State Highway and Transportation Officials, 2011).

Released in 2005, *Show Me the Money: A Decision-Maker's Funding Compendium for Transportation Systems Management and Operations* is a less comprehensive study than the AASHTO survey. This compendium's intended audience is federal, state, and local policy makers. The publication is flashy but does not include a complete study of funding sources or transit agencies. Instead, it offers policy makers a brief description of funding sources and examples of specific "creative" approaches to funding public transit. Instead of including sources, the compendium provides contact information for public transit administrators, which could be helpful for future studies (The Public Technology Institute, 2005).

The 2002 paper, *Unconventional Funding of Urban Public Transport* uses a cross-section analysis approach to determine which funding types are the most successful for financing public transit. The authors are vague regarding their criteria for successful

cases, only mentioning that they performed an extensive literature search and conducted expert interviews. The analysis is extremely complicated, requiring a special modular software system. The authors conclude that a successful unconventional funding mechanism depends on public support and the convenience of implementation (Ubbels & Nijkamp, 2002).

Multiple reports have been written on financing public transit specific to a state or a local government. The most comprehensive local study is *Developing a Stabilized Public Transportation Revenue Source*, released in January 2007. The report, sponsored by the Arizona Department of Transportation, provides regional and local case studies of multiple local funding sources, along with current state legislation. The report describes the advantages and disadvantages of the different funding sources. The authors were unable to survey every state regarding new funding as they had hoped to (Ernzen & Ernzen, 2007).

In the Washington Metropolitan Area, *Mass Transit: Issues Related to Providing Dedicated Funding for the Washington Metropolitan Area Transit Authority* was released May 2006. This study thoroughly details the complexity of funding public transit in a regional system that crosses the state line and provides service for the District of Columbia. The authors reviewed the following funding sources: sales tax; payroll or personal income tax; motor vehicle sales tax; property tax; access fees; and vehicle registration fees. Research was supported by transit agency interviews, FTA officials and National Transit Data (US Government Accountability Office, 2006).

Finally, the 2009 study *Local and Regional Funding Mechanisms for Public Transportation*, also known as *TCRP 129*, is a very complete and well organized report meant for a wide audience base. T*CRP 129* includes a summary of nationwide transit funding; typology of the different funding sources; guidance for evaluating and implementing funding sources; and a full analysis based on select criteria. Data was collected through an extensive nationwide survey of individual transit agencies. The list of cities and metropolitan regions is not comprehensive but does include a range of population sizes. The *TRCP 129* is currently being updated with an additional section that suggests the best financing sources when there is an economic downturn. The updated

study should be released in several months (Transportation Cooperative Research Program, 2009).

TranSystems developed the *Comprehensive Regional Transit Service Plan for Southeast Michigan* for Southeast Michigan Regional Transit Coordinating Council in 2008. The plan clearly outlines both the criteria that should be used to determine funding sources and current related Michigan legislation. The authors include a brief appendix with potential funding sources for regional transit, delineated by state, and potential financial yields. The *Comprehensive Regional Transit Service Plan for Southeast Michigan* suggests that funding sources should be further examined (TranSystems, 2008). This study attempts to do this by following suggested guidelines from the previously mentioned reports.

5 FUNDING SOURCES

The distribution of funding for public transit is complex. Funds are applied to either operating costs or capital costs. They also come from both state and local revenue sources. Funds sometimes originate from a general fund or a transportation fund, where they are in competition with other services; however, they can also be specifically dedicated to public transit. Although some funds are classified as local revenue, they are sometimes collected at the state level and redistributed to the local entity.

5.1 Operating and Capital Funds

State and local funding sources are distributed to both operating and capital expenses. Operating expenses include salaries, benefits, and goods and services that have a lifespan of less than one year. Capital expenses include transit equipment, such as vehicles, buildings, stations, and fixed guideways or other properties that have a lifespan of more than one year (National Transit Database, 2011). Figure 2 shows the nationwide distribution of public transit funds reported by transit agencies in 2009 (National Transit Database, 2009b, 2009c, 2009d, 2009e).

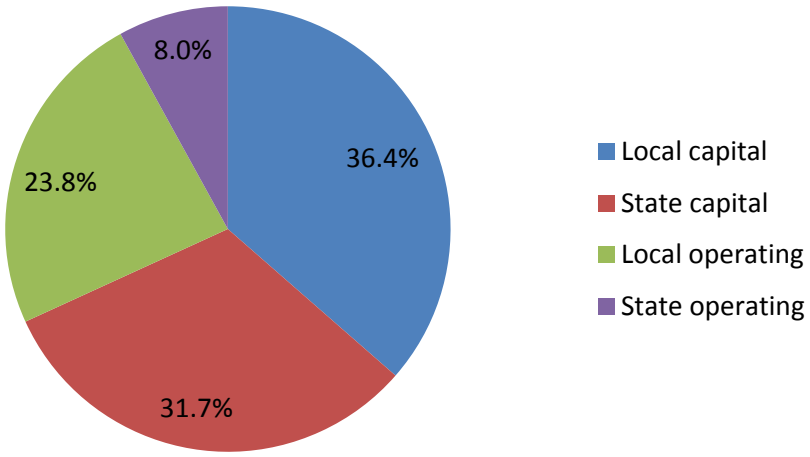

Figure 2: **State and local funding distribution by percentage (2009)**

Note: Adapted from TS1 - Operating and Capital Funding, National Transit Database, 2009.

5.2 Explanation of Funding Sources

My study examines 23 different funding sources ordered by the government level that collects them. There are multiple state and local funding sources for public transit, ranging from a state excise tax on tires to a dedicated local sales and use tax. The amount of revenue generated is contingent on the amount of the tax or fee, size of the population base, frequency of the collection, or the method by which the fee or tax is implemented. For example, some funding sources are negatively impacted as more people switch to public transit. Funding sources can be dedicated to public transit or incorporated into a general fund that subsidizes public transit. This list of funding sources includes most funding options, but it is not comprehensive: it excludes bonds, interest payments and very uncommon or small sources of revenue.

Several agencies collect information on state and local funding sources for public transit. Association of State Highway and Transportation Officials *(*AASHTO) collects limited information on state funding sources. Congress established the National Transit Database (NTD) to be the nation's primary source for information and statistics on the transit systems of the United States. All transit agencies that accept federal public transit funding are required to report public transit data annually to the NTD. Only popular funding sources are reported; most other funding sources are classified as "other".

Another survey commissioned by the Transportation Research Board (TRB), collects local funding information at the regional and local level.

As mentioned, AASHTO annually collects information on the most common primary methods of funding public transit in the United States. These funding methods include gas tax, motor vehicle/rental car sales taxes, registration/title/licenses fees, and general sales tax, as shown in the table below. In several cases, states implement multiple funding sources (American Association of State Highway and Transportation Officials, 2011).

Table 2: ***Common state funding sources***

Funding type	Number of states
Fuel tax	16
General fund	12
General sales tax	8
Motor vehicle/ rental car sales taxes	8
Registration/title/license fees	7
Other	10

Note: Adapted from *Survey of State Funding for Public Transportation*, American Association of State Highway and Transportation Officials, 2011.

As mentioned, the NTD assembles general information from transit agencies regarding state and local funding. In 2009, 605 transit agencies reported funding information to the NTD. All beneficiaries of Federal Transit Administration **(**FTA**)** grants are required by statute to submit transit data to NTD on an annual basis. The most common funding sources were a local sales tax followed by state sales tax and property tax, as shown in Table 3 (National Transit Database, 2009b, 2009c, 2009d, 2009e).

Table 3: ***Number of transit organizations that use common state and local funding sources***

Funding type	State	Local
Fuel tax	70	20
Income tax	7	3
Property tax	85	7
Sales tax	86	123

Note: Adapted from TS1 - Operating and Capital Funding, National Transit Database, 2009.

In 2009, Transportation Research Board (TRB) sponsored a study that surveyed over 60 transit agencies about local funding sources, but the study does not list revenue figures (See Appendix A).

5.3 Dedicated Funding Sources

Transit agencies with dedicated state and local funding sources have an advantage in supporting and expanding public transit. Undedicated transit funding fluctuates depending on budget surplus and scarcity (Baldwin-Hess & Lombardi, 2005). In 2009, 29 states reported that their transit funding was dedicated, accounting for 77.4% of all public transit funding (AASHTO, 2011). Dedicated funding often improves the bond ratings of transit agencies. Of the 25 largest transit agencies that report to the National Transit Database, only Maryland Transit Administration and the Port Authority Trans-Hudson Corporation reported not receiving dedicated funding (US Government Accountability Office, 2006).

5.4 State and Local Funding Sources

A clear delineation between state and local funding sources does not always exist. Many funding sources can be implemented at both the state and local levels, reliant on existing laws. In some cases, the state collects the revenue and distributes it back to the locality. Legislation involving the financing of public transit frequently changes and policymakers continuously look for new funding revenue. Table 4 displays the most common breakdown of funding sources by government level, yet there are exceptions (American Association of State Highway and Transportation Officials, 2011; Transportation Cooperative Research Program, 2009; US Government Accountability Office, 2006). For example, most liquor, beer, and wine taxes are collected statewide; however, the downtown area of Minneapolis collects a local liquor tax, and Allegheny County, Pennsylvania, collects a local alcohol tax on poured drinks (Transportation Cooperative Research Program, 2009).

Table 4: ***Funding sources and their administration by level of government***

Type	Funding Source	State	Local
Primary	Fuel taxes and Vehicle Miles Traveled (VMT)	√	√
	General revenue	√	√
	Payroll and employer taxes	√	√
	Property taxes	√	√
	Sales and use taxes	√	√
Secondary	Advertising revenue		√
	Cigarette taxes	√	
	Concessions and rental income		√
	Congestion pricing		√
	Contract and purchase of service revenue		√
	Excise taxes and fees	√	
	Fare revenue		√
	Hotel room, occupancy and resort sales tax	√	√
	Impact fees		√
	Liquor, beer, and wine taxes	√	
	Lottery and gambling taxes	√	
	Parking fees and fines		√
	Tax-Increment Financing districts (TIFs)		√
	Toll roads and High Occupancy Vehicle (HOV) lanes	√	√
	Utility fees		√
	Vehicle lease fees and taxes	√	
	Vehicle registration, title, and license fees	√	
	Vehicle rental fees	√	√

Note: Adapted from *Survey of State Funding for Public Transportation*, American Association of State Highway and Transportation Officials, 2011; *Mass transit: Issues related to provided dedicated funding for the Washington Metropolitan Area Transit Authority*, US Government Accountability Office, 2006; and *Local and Regional Funding Mechanisms for Public Transportation*, Transportation Cooperative Research Program, 2009.

5.4.1 State Funding Sources

State funding of public transit has been steadily increasing in the past several decades, as shown in Figure 3. State funding derives from multiple sources including but not limited to fuel tax, general revenue, sales tax, cigarette tax, excise taxes, lottery revenue, and vehicle-related fees and taxes. Five states do not receive any state funding towards public transit. State funds are assigned for either operating or capital expenses, or

in rare cases, both, depending on state requirements (American Association of State Highway and Transportation Officials, 2011).

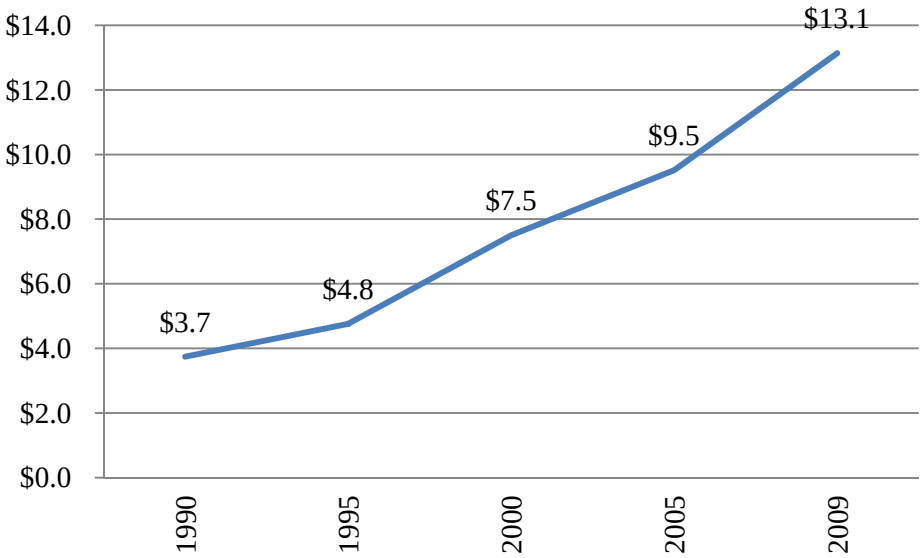

Figure 3: **Nationwide state funding of public transit by the millions (2011)**

Note: Adapted from *Survey of State Funding for Public Transportation*, American Association of State Highway and Transportation Officials, 2011.

Cigarette Taxes

Cigarette taxes for public transit tend to only be implemented at the state level as an excise tax levied on the sales of cigarettes at the time of purchase. Typically, revenue is collected at the state government level and is dedicated for a specific use (University Transportation Center for Mobility, 2012). Cigarette taxes range from $.07 cents to $2.46 per pack and support a variety of state services (Taxation Foundation, 2012). The revenue from cigarette tax is very narrow. The population of smokers varies state to state, so revenue is relative not only to population size but also lifestyles. Tri-County Metropolitan Transportation District of Oregon (TriMet) is the only example of a transit agency that collects a cigarette tax which was to fund public transit. In 2007, Portland, Oregon, collected $844,000 of cigarette tax reserved for public transit in Portland, Oregon (Transportation Cooperative Research Program, 2009) .

Excise Taxes and Fees

An excise tax or fee is a charge placed on the sale of specific items such as tires, batteries or water bottles. This fee is often collected at the state level, is not indexed for inflation, and is supported by a very narrow tax (Transportation Cooperative Research Program, 2009). Excise taxes or fees can be dedicated to a specific expense or directed to general revenue or transportation fund. The State of Pennsylvania collects a one-dollar fee per tire that is deposited into the Public Transportation Assistance Fund (PTAF), which partially funds public transit (Pennsylvania Department of Revenue, 2012).

Liquor, Beer and Wine Taxes

Liquor, beer and wine taxes are excise taxes levied on the sales of alcohol at the time of purchase or pour. Normally, revenue is collected at the state government level (US Government Accountability Office, 2006). Liquor taxes range from $1.50 to $12.80 per gallon, depending on volume, alcohol content and price. Liquor taxes are seldom used as a dedicated source of funding for public transit. As with cigarette taxes, alcohol use is impacted by population size and lifestyle choices. Taxes are calculated as a flat fee connected to volume, or as a percentage. Allegheny County in Pennsylvania, for example, collects a 10% tax on alcoholic drink profits that is dedicated to the Port Authority for public transit (Transportation Cooperative Research Program, 2009).

Lottery and Gambling Taxes

Lottery and gambling taxes are collected at the state-government level. They are generated from a narrow tax base and are influenced by lifestyle choices (Tax Foundation, 2012a; Transportation Cooperative Research Program, 2009). Taxes can be collected in a lump sum amount or installment payments, often dedicated to support state education programs or directed to general revenue and, in several cases, public transit. Some amount of the revenue is withheld by the government before distribution to the winner. The percentage of tax varies from zero to 12%. New Jersey, for example, dedicates 8% of gross revenues from casinos to a revenue fund. A portion of the fund is available for the Senior Citizens and Disabled Residents Transportation Assistance Program. Pennsylvania's lottery revenue provides over $60 million towards specialized senior transit (Transportation Cooperative Research Program, 2009).

Vehicle Lease Fees and Taxes

Vehicle lease fees and taxes are usually a fee or sales tax levied in a monthly vehicle lease payment. This tax or fee is typically collected at the municipal or regional government level on monthly payments. These taxes and fees reach a narrow tax base, but they do adjust for inflation depending on the price of the vehicle (Transportation Cooperative Research Program, 2009; University Transportation Center for Mobility, 2012). The State of Pennsylvania imposes a 3% tax on the vehicle price for leases over 30 days. This tax is dedicated to the PTAF (Pennsylvania Department of Revenue, 2012)

Vehicle Registration, Titles and License Fees

Vehicle registration, title and license fees are charged in a variety of methods to vehicle owners and operators by state governments. The amount is usually a percentage dependent on characteristics of the vehicle, such as weight or age. The next table shows the states that use vehicle registration fees as a means of generating revenue for public transit (American Association of State Highway and Transportation Officials, 2011). The advantage of collecting registration fees for public transit is that they are a stable source of revenue; however, they do not always adjust for inflation, they affect a narrow section of the population, and they may decrease during economic downturns. Very few transit agencies obtain dedicated funding at the local level with this mechanism. Most often, the revenue is directed to a state transportation fund, with a percentage, dedicated specifically to public transit that is redistributed as a subsidy to local agencies. In the rare case that funding is collected as dedicated revenue for a locality, the state government collects the revenue and distributes a percentage back to the locality (Transportation Cooperative Research Program, 2009).

Table 5: ***States that fund public transit with vehicle registration, title, or license fee (2011)***

State	Percentage of total public transit revenue from vehicle registration fees
North Dakota	100.0%
Montana	83.2%
Iowa	82.8%
Florida	41.4%
Michigan	35.6%
Maryland	21.4%
Nebraska	9.1%

Note: Adapted from *Survey of State Funding for Public Transportation,* American Association of State Highway and Transportation Officials, 2011.

5.4.2 Local Funding Sources

Local and regional funding of public transit has also been steadily increasing in the past several decades. From 1995 to 2005, local funding increased 15% adjusted to inflation, and in most cases, as a dedicated funding source. Local funding is generated from multiple sources including but not limited to advertising, concessions, congestion pricing, purchases of service, parking fees and fines, market-based revenue and utility fees. Local funds are typically assigned to operating expenses (Transportation Cooperative Research Program, 2009).

Advertising Revenue

Almost all transit agencies solicit advertising on their vehicles, stations, shelters and materials. Advertising establishes support from the business community for public transit and fluctuates depending on the economy. Most often, transit agencies contract advertising agencies but a few manage contracts in-house. Advertising revenue ranges from thousands to millions of dollars and is most often applied to operating costs. It does not generate large yields of revenue, normally only 0.1% to over 3.0% of operating revenue, depending on the size of the transit system and the frequency of application (Transportation Cooperative Research Program, 2009).

Concessions and Rental Income

Transit agencies that operate large stations with high passenger volume supplement their transit funding with concessions. A wide array of businesses rent from transit agencies, including newsstands, food stands, ATMs, sales shops, vending machines, florists, and so on. Contracts are usually established for multiple years, and revenues tend to be applied to capital improvements. Concessions can improve the appearance of public transit, providing riders with the added advantage of being able to complete errands directly at the transit stops depending on their lifestyles (Transportation Cooperative Research Program, 2009).

Transit agencies can also generate revenue through the leasing of parking facilities, terminal stations, and private interests such as telecommunication companies in high-growth areas. Leases are typically annual or multi-year with rate adjustments (Transportation Cooperative Research Program, 2009; University Transportation Center for Mobility, 2012).

Congestion Pricing

Congestion pricing is a technique for reducing traffic in congested cities and generating revenue for alternatives to private vehicles. A select region is cordoned off by boundaries, either natural (such as waterways) or manmade. Prices are charged for the cordoned area at varying rates depending on time of day, type of vehicle, or traffic flow. In 2003, congestion pricing was implemented successfully in London, England. Congestion pricing revenue went to financing public transit. Although New York City and San Francisco have considered congestion pricing as a method to control traffic and fund public transit, currently, no North American cities use congestion pricing. Implementation of a congestion pricing system can be very expensive, requiring equipment for fee collection and monitoring. Critics of congestion pricing have raised privacy concerns regarding the process of monitoring where people drive (Transportation Cooperative Research Program, 2009).

Contract/Purchase of Service Revenue

Transit agencies provide services under contract to businesses, social service agencies, and educational institutions (Transportation Cooperative Research Program, 2009). These services are typically attractive in high-growth areas. Genetech in South San Francisco, California, for example, offer employees public transit subsidies as a compromise for the city reducing parking requirements (Genetech Inc., 2012). In Los Angeles, California, the University of California has a program called Un-limited Access, in which the University pays the local transit agency, Santa Monica Municipal Bus Lines, for transit rides taken by eligible students and faculty (Brown, Baldwin-Hess, & Shoup, 2003). In Tulsa, Oklahoma, participating businesses offer "Bonus Bucks" to employees to encourage them to take public transit. Employers pay 50% of the cost to Tulsa Transit and deduct the this payment as a business expense (Public Transportation Partnership for Tomorrow, 2012).

Fare Revenue

Fare collection rarely covers the entire cost of providing transit services. Transit agencies collect fares in a variety of methods including cash, credit card, debit card, smartcard, or pre-purchased tickets. The majority of transit agencies collect fare. Some transit agencies offer discounted fares for specific groups of riders. Fare recovery rates vary dramatically (University Transportation Center for Mobility, 2012).

Impact Fees

Impact fees are a one-time charge levied against new developments to pay for the construction or expansion of public facilities or services that will benefit the development. There must be a clear balance between the need for new development in relation to the cost of infrastructure development, resulting in impact fees only as viable funding sources in high growth markets (Transportation Cooperative Research Program, 2009).

Parking Fees and Fines

Parking fees and fines are collected at the municipal level or from a parking authority through the use of parking structures, surface lots or meters. Revenues typically go to a municipal general fund or road related expenses. In some cases, a transit agency directly collects revenue from an agency-owned parking structure or surface lot. Modern payment equipment can be used to vary rates based on the time of day and usage, optimize the revenue generated and encourage public transit use instead of privately owned vehicles. Parking fees reach a narrow section of the population. In 2007, voters in San Francisco, California, passed Proposition A, which dedicated 80% of parking revenue to support transportation programs, including public transit (Transportation Cooperative Research Program, 2009).

Tax-Increment Financing Districts

A Tax-Increment Financing district (TIF) is a predefined district that captures the future incremental increase of property value due to public investment, therefore working well in high growth areas. The municipality secures bonds to pay for the initial public investment, and the debt is paid back with the excess tax increments over a time period of five to 30 years (University Transportation Center for Mobility, 2012; US Government Accountability Office, 2010). Cedar Rapids, Iowa, implemented a TIF to finance an intermodal transit terminal. A TIF directly pays for infrastructure improvements, such as public transit, in high growth areas. A criticism of TIFs is that they borrow against future revenues which are not guaranteed (Transportation Cooperative Research Program, 2009).

Utility Taxes and Fees

Utility taxes and fees are levied on public services, such as telephone, water, sewage, gas, telephone, garbage and electricity. Revenues are typically directed to a municipal or regional government general fund. Rates vary from 0.01% to 5.00%. The advantage to utility taxes and fees is they reach a broad audience. Both St. Joseph, Missouri, and Pullman, Washington, collect a utility tax for public transit (Transportation Cooperative Research Program, 2009; University Transportation Center for Mobility, 2012).

5.4.3 Both State and Local Funding Sources

A multitude of funding sources can be applied at either the state or local level depending on state and municipal laws. These funding sources are listed below and when applicable, include examples from both the state and local levels.

Vehicle Rental Fees

Both state and local governments can impose taxes and fees on rental vehicles. Customers pay vehicle rental fees to the rental company. Rental companies report the fee to the government collection agency. Vehicle rental fees are very susceptible to economic fluctuations. Also, increased transit use negatively impacts fuel tax revenue, especially high level transit, such as rail systems. (Transportation Cooperative Research Program, 2009).

As of 2006, Enterprise Rent-a-car estimated that there were 80 vehicle rental fees and 44 proposed vehicle rental fees dedicated to a variety of uses, including public transit (Chamberlain, 2006). Local and state governments increasingly use this 1% to 2% fee to fund large municipal transportation projects (Transportation Cooperative Research Program, 2009). For example, the Pennsylvania Department of Revenue collects a $2 fee per day on vehicle rentals of less than 30 days which is distributed to PTAF for capital projects (Pennsylvania Department of Revenue, 2012).

Fuel Taxes

Both local and state governments levy fuel taxes, which are commonly paid by the consumer at the point of sale. Fuels taxes are levied at a fixed rate, a percentage, or adjusted to the price of inflation (Institute on Taxation and Economic Policy, 2011). They are levied by cents per gallon or at the wholesale price ("Rick Snyder to propose wholesale tax on fuel in Michigan," 2011).

Every state collects a fuel tax in order to fund transportation infrastructure and operations, along with public transit. The state of Oregon levied the first fuel tax in 1919. By 1930, all of the 50 states implement some form of a fuel tax (Puentes & Price, 2003). There are 36 states that levy their fuel tax at a fixed rate, as shown in white, in the next figure. Four additional states collect a fixed-rate fuel tax, and add a general sales tax. Nine states adjust the fuel tax to the price of gas, and only Florida varies the tax with the

Consumer Price Index, as shown in Figure 4 (Institute on Taxation and Economic Policy, 2011). Revenues from fuel taxes steadily grew until the 1990s, when funds eventually leveled off. States which apply a fixed-rate fuel tax have not increased their fuel tax in about 15 years (when adjusted for inflation) despite increased construction and public transit expenses (Institute on Taxation and Economic Policy, 2011; Puentes & Price, 2003). In 2009, 70 transit agencies reported revenue for public transit from state fuel taxes (National Transit Database, 2009c, 2009d).

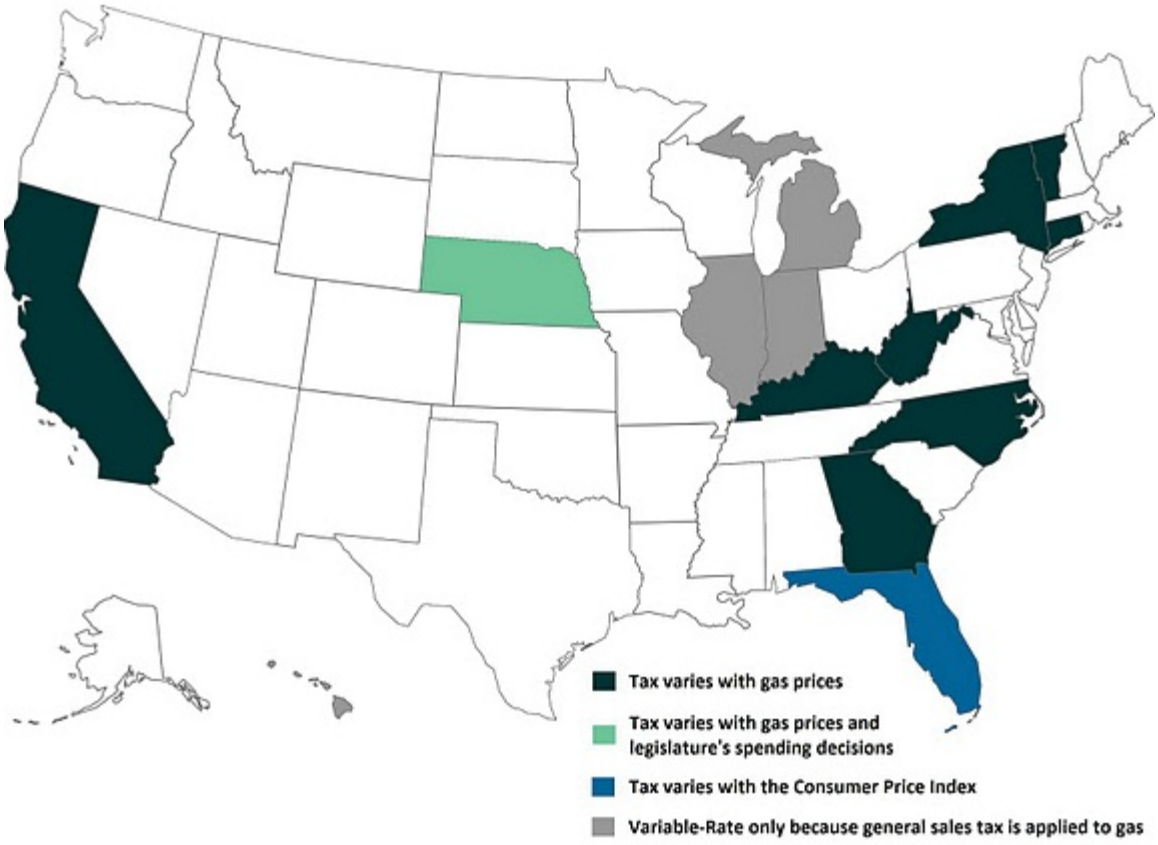

Figure 4: **States that levy fuel taxes**

Source: *Building a Better Gas Tax: How to fix one of the state government's least sustainable revenue sources,* Institute and Tax and Economic Policy, 2011.

Only a few transit agencies generate dedicated revenue from local or regional fuel taxes (Wachs, 2008). Before the 1980s, most state governments prohibited localities or regions from levying their own transportation taxes (Wachs, 2003b). In 2009, only 18 transit agencies collected local fuel taxes, as seen in Table 6 (National Transit Database, 2009b, 2009d).

Table 6: *Transit agencies that fund a percentage of their public transit with local fuel tax revenue (2009)*

System Name	Location	Percentage
City of Redondo Beach - Beach Cities Transit	Los Angeles-Long Beach-Santa Ana, CA	69.3%
City of Porterville	Porterville, CA	37.1%
Broward County Transportation Department	Miami, FL	32.7%
Board of County Commissioners, Palm Beach County, PalmTran, Inc.	Miami, FL	32.5%
City of Lompoc - Lompoc Transit	Lompoc, CA	31.0%
Jacksonville Transportation Authority	Jacksonville, FL	28.4%
Montebello Bus Lines	Los Angeles-Long Beach-Santa Ana, CA	25.6%
Broward County Community Bus Service	Miami, FL	21.5%
Metropolitan Bus Authority	San Juan, PR	12.7%
Fredericksburg Regional Transit	Fredericksburg, VA	11.3%
City of Santa Fe - Social Services Transportation Program	Santa Fe, NM	3.2%
Rhode Island Public Transit Authority	Providence, RI-MA	3.1%
City of Elk Grove	Sacramento, CA	2.7%
Lee County Transit	Cape Coral, FL	2.6%
Miami-Dade Transit	Miami, FL	2.5%
Washington Metropolitan Area Transit Authority	Washington, DC-VA-MD	1.9%
South Bend Public Transportation Corporation	South Bend, IN-MI	1.6%
Manatee County Area Transit	Sarasota-Bradenton, FL	0.7%
San Mateo County Transit District	San Francisco-Oakland, CA	0.1%
LaCrosse Municipal Transit Utility	La Crosse, WI-MN	0.1%

Note: Adapted from TS1 - Operating and Capital Funding, National Transit Database, 2009.

Fuel taxes have several advantages and disadvantages. For example, fuel tax revenue fluctuates based on economic conditions. Fuel sales decrease as more people use public transit or purchase fuel-efficient vehicles (Ernzen & Ernzen, 2007) . As of 2007, multiple states have considered replacing fuel tax with a Vehicle Miles Traveled (VMT) fee in order to anticipate lost revenue from decreased fuel sales. For example, Portland, Oregon, is currently evaluating a pilot VMT fee (Transportation Cooperative Research Program, 2009).

General Revenue

Local and state general revenues are made up of a combination of sources that support public services. Funds are generated at an annual, biennial or at irregular time periods. General revenue is not specifically dedicated to public transit, but instead subsidizes public transit, along with other public services (e.g. police, fire, education). It can be composed of sales tax, property tax, income tax and/or a variety of other funding sources (University Transportation Center for Mobility, 2012). In times of budget shortfalls, funds are easily transferred from public services to pay off budget deficits (Transportation Cooperative Research Program, 2009). At the state level, 12 states—which are listed in the table below—use general revenue to subsidize public transit (American Association of State Highway and Transportation Officials, 2011).

Table 7: ***States that subsidize public transit with general revenue (2011)***

State	Percentage of public transit revenue from general revenue
Mississippi	100.0%
Ohio	100.0%
West Virginia	100.0%
Wisconsin	100.0%
Alaska	98.7%
D.C.	78.1%
Oklahoma	50.2%
Minnesota	41.4%
New Hampshire	25.2%
Rhode Island	17.9%
Massachusetts	4.5%
New York	2.2%

Note: Adapted from *Survey of State Funding for Public Transportation,* American Association of State Highway and Transportation Officials, 2011.

Fifteen cities, with populations over 500,000, subsidize public transit with general revenue, as shown in the next table (Transportation Cooperative Research Program, 2009). The majority of transit agencies have switched from general revenue subsidies to a dedicated funding source, such as a local sales tax (American Association of State Highway and Transportation Officials, 2011).

Table 8: ***Cities and regions (populations over 500,000) that subsidize public transit with general revenue (2009)***

Region	State
Allentown	PA
Chicago	IL
Detroit	MI
Durant	OK
Gulfport-Biloxi	MS
Lubbock	TX
Miami-Dade County	FL
Oklahoma	OK
Orlando	FL
San Francisco	CA
Virginia Beach/Hampton Roads	VA
Washington	DC
Jefferson City	MO
Licking County	OH
Waterloo	IA

Note: *Local and regional funding mechanisms for public transportation*, Transportation Cooperative Research Program, 2009.

Employer and Payroll Taxes

Employer taxes for public transit are levied within a transit district, against both the employer and the employee, at a percentage of the employee's gross income. Payroll taxes are levied against the employee's gross income, and collected by the state and, then, redistributed to the locality (Transportation Cooperative Research Program, 2009). Employer or payroll taxes can subsidize public transit from general revenue or be a dedicated public transit funding source. Employer or payroll taxes are indexed to inflation, and are moderately impacted by changes in the economy (American Association of State Highway and Transportation Officials, 2011). In 2009, only three transit agencies levied state income tax and seven transit agencies levied local income tax to fund public transit, as shown in the following two tables (National Transit Database, 2009b, 2009c, 2009d, 2009e).

Table 9: *Percentage of state funding from income taxes (2009)*

System Name	Location	Percentage
MTA New York City Transit	New York-Newark, NY-NJ-CT	7.9%
Rogue Valley Transportation District	Medford, OR	5.7%
New York City Department of Transportation	New York-Newark, NY-NJ-CT	2.1%

Note: Adapted from TS1 - Operating and Capital Funding, National Transit Database, 2009.

Table 10: *Percentage of local funding from income taxes (2009)*

System Name	Location	Percentage
Southwest Ohio Regional Transit Authority	Cincinnati, OH-KY-IN	40.0%
New York City Department of Transportation	New York-Newark, NY-NJ-CT	27.8%
Clermont Transportation Connection	Cincinnati, OH-KY-IN	18.7%
Fort Wayne Public Transportation Corporation	Fort Wayne, IN	4.9%
South Bend Public Transportation Corporation	South Bend, IN-MI	4.8%
Bloomington Public Transportation Corporation	Bloomington, IN	4.2%
Greater Lafayette Public Transportation Corporation	Lafayette, IN	2.9%

Note: Adapted from TS1 - Operating and Capital Funding, National Transit Database, 2009.

In 2009, only Hood River, Oregon; Portland, Oregon; and Louisville, Kentucky, levied local payroll taxes as a dedicated funding source for public transit (Transportation Cooperative Research Program, 2009).

Portland, Oregon, is the most often referenced example of a payroll tax used as a funding source for public transit. In 2003, the Oregon Legislature provided Tri-County Metropolitan Transportation District of Oregon (TriMet) with the authority to increase the payroll rate over 10 years to help pay for new public transit. As of 2012, TriMet's payroll tax rate was collected at $7.018 per $1,000 (Tri-County Metropolitan Transportation District of Oregon, 2012c).

Hotel Room, Occupancy and Resort Sales Tax

Hotel room, occupancy and resort sales taxes are levied by state or county governments in many different variations. They are not limited solely to hotel rooms, but are also applied to motels, private campgrounds, RV parks and other occupancy enterprises. Rates vary, depending on the length of stay, size of the facility and day of the week.

Hotel room, occupancy and resort sales taxes are collected in two different ways. In some cases, the state collects the tax and redistributes it to the locality for a dedicated use; however, sometimes a locality directly collects the tax. Taxes are susceptible to fluctuations in the economy, and vary year to year. At the state level, Washington levies a hotel tax to promote tourism. A local example of a hotel tax is Allegheny County, which also uses revenue to promote tourism (Transportation Cooperative Research Program, 2009; University Transportation Center for Mobility, 2012). In the state of Utah, 14 cities charge a resort community tax that can be applied to local public transit: Alta, Boulder, Brian Head, Garden City, Green River, Kanab, Moab, Monticello, Orderville, Panguitch, Park City, Park City East, Springdale and Tropic (Kroes & Houston, 2004).

Property Taxes

Property taxes are a levy, placed by a state or municipality on land and buildings, in the form of a percentage of the value. As of 2009, only a limited number of states collected property tax to subsidize public transit. Property taxes have a broad tax base that is indexed to inflation, usually directed to a general fund, not to a specific public service (Transportation Cooperative Research Program, 2009). In previous studies, there was not a consensus regarding the stability of property taxes (Transportation Cooperative Research Program, 2009; US Government Accountability Office, 2006). Agencies which reported using state property taxes for public transit are listed in the table below (National Transit Database, 2009b, 2009c, 2009d, 2009e).

Table 11: ***Percentage of state funding from property taxes (2009)***

System Name	UZA Name	Percentage
City of Long Beach	New York-Newark, NY-NJ-CT	41.8%
Coralville Transit System	Iowa City, IA	33.7%
Northern Indiana Commuter Transportation District	Chicago, IL-IN	7.4%
Central Contra Costa Transit Authority	Concord, CA	7.2%
Ohio Valley Regional Transportation Authority	Wheeling, WV-OH	2.2%
City of Valparaiso	Chicago, IL-IN	1.9%
Metro Mobility	Minneapolis-St. Paul, MN	0.1%

Note: Adapted from TS1 - Operating and Capital Funding, National Transit Database, 2009.

Property taxes are the primary source of funding for local governments, usually ranging from between 0.2% and 4.0% (Tax Foundation, 2012b). A millage tax rate is applied to the assessed value of real estate at a percentage of 1/1000 of a dollar (Michigan Department of Treasury, 2012a). These revenues support public services, including police, sanitation, schools and other municipal functions (Transportation Cooperative Research Program, 2009; US Government Accountability Office, 2006). In 2009, a total of 85 transit agencies (population greater than 500,000) levied local property taxes for public transit, as shown in Table 12 (National Transit Database, 2009b, 2009d).

Table 12: ***Percentage of local funding from property taxes for metropolitan areas with populations greater than 500,000 (2009)***

System Name	UZA Name	Percentage
King County Ferry District	Seattle, WA	82.6%
Toledo Area Regional Transit Authority	Toledo, OH-MI	64.1%
Prince George's County Transit	Washington, DC-VA-MD	60.6%
Ride-On Montgomery County Transit	Washington, DC-VA-MD	59.1%
Pinellas Suncoast Transit Authority	Tampa-St. Petersburg, FL	56.2%
Transit Authority of Omaha	Omaha, NE-IA	43.0%
Suburban Mobility Authority for Regional Transportation	Detroit, MI	42.9%
Hillsborough Area Regional Transit Authority	Tampa-St. Petersburg, FL	40.9%
Jefferson Parish Department of Transit Administration	New Orleans, LA	39.9%
Arlington Transit - Arlington County	Washington, DC-VA-MD	37.3%
Alameda-Contra Costa Transit District	San Francisco-Oakland, CA	36.5%
New York City Department of Transportation	New York-Newark, NY-NJ-CT	34.2%
Ozaukee County Transit Services	Milwaukee, WI	32.6%
Fort Bend County Public Transportation	Houston, TX	31.0%
Birmingham-Jefferson County Transit Authority	Birmingham, AL	29.0%
Clermont Transportation Connection	Cincinnati, OH-KY-IN	27.7%
Indianapolis and Marion County Public Transportation	Indianapolis, IN	27.5%
Gary Public Transportation Corporation	Chicago, IL-IN	22.2%
Interurban Transit Partnership	Grand Rapids, MI	22.0%
Opportunity Enterprises, Inc.	Chicago, IL-IN	20.2%
Metropolitan Council	Minneapolis-St. Paul, MN	13.2%
Niagara Frontier Transportation Authority	Buffalo, NY	11.1%
MTA Bus Company	New York-Newark, NY-NJ-CT	6.5%
Orange County Transportation Authority	Los Angeles-Long Beach-Santa Ana, CA	6.3%
San Francisco Bay Area Rapid Transit District	San Francisco-Oakland, CA	5.5%
Western Contra Costa Transit Authority	San Francisco-Oakland, CA	5.4%
Metro Transit	Minneapolis-St. Paul, MN	3.9%
City of Alameda Ferry Services	San Francisco-Oakland, CA	1.1%
Tri-County Metropolitan Transportation District of Oregon	Portland, OR-WA	0.3%
MTA Long Island Rail Road	New York-Newark, NY-NJ-CT	0.1%
Chicago Transit Authority	Chicago, IL-IN	0.1%

Note: Adapted from TS1 - Operating and Capital Funding, National Transit Database, 2009.

Sales and Use Taxes

A sales and use tax is applied to the cost of an item purchased or a service, and collected directly from the retailer. Some items—for example, food, prescriptions and clothing—are sometimes exempt, depending on the state or local law. Sales and use taxes can be continuous, or in some cases, requires a popular vote to be extended past an expiration date (Tax Foundation, 2012c). Sales and use tax is collected from a broad tax base, and fluctuates year to year (Transportation Cooperative Research Program, 2009).

A sales and use tax can be collected by a state or a locality. A total of 45 states collect a general sales tax ranging from 4.0% to 7.25%, for a variety of state services. According to AASHTO in 2011, only the seven transit agencies, shown in the table below, relied on state a sales tax for transit funding (American Association of State Highway and Transportation Officials, 2011). According to NTD in 2009, 26 states levied state sales tax for public transit (National Transit Database, 2009c, 2009e). The discrepancy between the two agencies is most likely due to different reporting requirements, such as sales and use tax revenue directed to general revenue.

Table 13: ***Percentage of funding from state general sales tax (2009)***

State	Percentage of public transit revenue from sales tax
Georgia	100.0%
Illinois	100.0%
Indiana	90.5%
California	83.8%
Massachusetts	59.9%
Colorado	59.8%
Pennsylvania	37.7%
Maryland	7.9%

Note: Adapted from *Survey of State Funding for Public Transportation*, American Association of State Highway and Transportation Officials, 2011.

The most commonly used tax for public transit funding is a local sales and use tax. Local sales and uses taxes enacted for public transit first appeared in the late 1960s (Goldman & Wachs, 2003). Local sales and use taxes span from 0.25% to 1.00% (US Government Accountability Office, 2006). In 2009, a total of 126 transit agencies levied a local sales tax (See Appendix B) (National Transit Database, 2009b, 2009d).

Tolls Roads and High Occupancy Vehicle (HOV) lanes

Toll roads are used to not only generate revenue for transportation, but to also manage congestion. Toll rates can be adjusted by time of day and the level of traffic. Most often, the toll road revenue is dedicated for transportation. Public transit usage negatively impacts toll road revenue. An example of toll road revenue directed to public transit is the New York Metropolitan Transportation Authority (MTA). Virginia Department of Transportation, Maryland Department of Transportation and San Diego Association of Governments (SANDAG) have proposed using toll roads and High Occupancy Vehicle (HOV) to fund public transit (Transportation Cooperative Research Program, 2009).

Summary

As briefly mentioned in each funding source description, every funding source for public transit has both advantages and disadvantages. The following table shows the benefits and drawbacks associated with all the listed funding sources.

The descriptors, broad or narrow, refer to the size of the tax base. Does it reach the entire population or only a small segment of the population? The larger the population is, the higher the revenue. If a tax base is broad, a smaller fee or tax generates more revenue than a large fee or tax on a narrow tax base.

Revenue from a funding source might fluctuate from year to year, depending on the payers' disposable income and the economy. These revenue fluctuations affect how far ahead a transit agency can develop its long term plans. A stable revenue stream allows for longer term planning.

A funding source should be indexed to inflation. This allows the revenue to grow at the same rate of inflation. If a tax or fee is not linked to inflation, it will generate less money in future years, as the cost of materials and operations increase.

If a funding source is dedicated, it cannot be applied to other services. In times of economic decline, sometimes revenue is pulled from other departments, in order to support competing services, or resolve budget deficits.

Vehicle-related taxes and fees are negatively impacted by increased transit use. As more people ride public transit and choose to not own or rent vehicles, they are not purchasing fuel, paying registration or rental fees, or parking vehicles.

In some cases, people can avoid taxes and fees by making changes in their lifestyles. For example, people can chose to not contribute to a cigarette tax by not smoking. Drivers can avoid a toll road by taking a local road instead. In relation to public transit funding, these lifestyle choices can be both positive and negative. A person may voluntarily live in a dense urban area and forgo owning a vehicle. They would pay more in transit fares, but, less in vehicle-related taxes or fees.

Some funding sources only generate revenue in high growth areas. If a person choses to forgo owning a car, this might increase property values, and create a vibrant market where impact fees and TIFs could be viable funding sources. As more riders take transit in the area, concessions might also increase.

Table 14: ***Advantages and disadvantages to funding sources for public transit***

Funding sources	Tax base	Susceptible to economic fluctuations	Variability year to year	Indexed to inflation	Dedicated funding source	Impacted negatively by transit use	Impacted by lifestyle choices	Beneficial in high growth areas
Fuel taxes/VMT	Broad	Low	Medium			Yes	Yes	
General revenue	Broad	Medium	High					
Payroll/ Employer taxes	Broad	High	Medium	Yes	Yes			
Property Taxes	Broad	Medium	Medium	Yes				
Sales/Use taxes	Broad	Medium	Low		Yes			
Advertising revenue	NA	Medium	Medium		Yes			
Cigarette taxes	Narrow	Low	Low				Yes	
Concessions/ Rental income	Narrow	Low	Medium		Yes		Yes	Yes
Congestion pricing	Narrow	Low			Yes	Yes	Yes	
Impact fees	Narrow	High						Yes
Excise taxes/fees	Narrow	Low	Low				Yes	
Fare revenue	NA				Yes			
Hotel room/ Occupancy/ Resort sales tax	Narrow	High	Medium				Yes	
Liquor/Beer/ Wine taxes	Narrow	Low	Low				Yes	
Lottery/ Gambling taxes	Narrow	Low	Low				Yes	
Contract/ Purchase of service revenue	NA	Medium	Medium		Yes			Yes
Parking fees/fines	Narrow						Yes	
TIFs	Narrow	High	Low	Yes			Yes	Yes
Toll roads/ HOV Lanes	Narrow	Low	Low		Yes	Yes	Yes	
Utility fees	Broad							
Vehicle lease fees/ taxes	Broad	High				Yes	Yes	
Vehicle registration/ Title/ License fees	Narrow	Low	Low		Yes	Yes	Yes	
Vehicle rental fees	Narrow	High	Medium	Yes		Yes	Yes	

Note: Only funds that are often dedicated are marked as yes, however, there are exceptions. Funds can be dedicated at either the state or local level. Adapted from *Survey of State Funding for Public Transportation*, American Association of State Highway and Transportation Officials, 2011; *Mass transit: Issues related to provided dedicated funding for the Washington Metropolitan Area Transit Authority*, US Government Accountability Office, 2006; and *Local and regional funding mechanisms for public transportation*, Transportation Cooperative Research Program, 2009.

6 CASE STUDIES

Case studies are provided as a qualitative approach to evaluating the use of a variety of different funding sources. Each case study will briefly describe the establishment of the transit agency, the governance system, modes of operation and related statistics. Next, the operating and capital revenue will be summarized. Finally, details of each funding source will be outlined.

Transit agencies were chosen under three different criteria: successfulness at providing effective public transit, economic similarities to Metro Detroit and geographic similarities to Metro Detroit. Denver and Portland are recognized as top cities for public transit (Kurtzleben, 2011). Cleveland and Pittsburgh are both former industrial cities that have experienced economic and population decline in the last half century (Sherman, 2009). Atlanta has a reputation as a large, sprawling city.

6.1 Greater Cleveland Regional Transit Authority (GCRTA) – Cleveland, Ohio

In 1974, the Ohio Senate passed SB 544, which permitted the creation of a regional transit authority funded by a dedicated tax base (Greater Cleveland Regional Transit Authority, 2012a). In 1974, legislation enacted by the Cuyahoga County Commissioners and the City of Cleveland created Greater Cleveland Regional Transit Authority (GCRTA), with a 10-member Board of Trustees, composed of four members selected by the Mayor of Cleveland, three members appointed by the Mayors and City Managers of neighboring suburbs, and three members appointed by the County Executive. Trustees are appointed for overlapping 3-year terms (Greater Cleveland Regional Transit Authority, 2012b).

As of 2011, the GCRTA serviced 457 square miles, 59 municipalities, and 1.28 million people. The GCRTA operates 454 buses on 63 lines, 81 paratransit vehicles, 2 downtown trolley lines, and several rapid bus lines, and one bus rapid transit line (Greater Cleveland Regional Transit Authority, 2011). As of 2010, GCRTA reported 1,509,986 average vehicle revenue hours and an average weekday ridership of 143,428 (National Transit Database, 2010e).

6.1.1 Budget Summary

GCRTA operating costs have increased in the past few years. In 2008, fuel prices increased dramatically. A service reduction was implemented to cover rising operating costs. In 2009, operating expenses increased again because of the nationwide economic recession. Northeast Ohio experienced 11% unemployment and expected fare revenue dropped 8.6% from budgeted levels. In April of 2010, GCRTA further lowered service levels by a 12% service reduction. For multiple years, the Authority had to borrow from prior year funds, to balance operating expenses for the current year. For fiscal year 2010, GCRTA decided to invest $4.6 million in reserves, to prepare for future recessions. In 2012, GRCTA is still paying down debt and monitor operating costs (Greater Cleveland Regional Transit Authority, 2012c).

Operating Funds

Operating revenue is generated primarily from fare revenue and dedicated local sales and use tax. Local revenues are expected to increase by 3%. Ninety percent of sales and use tax is applied to operating expenses. In 1998, federal funding for operating expenses was eliminated, however, the GCRTA can use flexible capital grant awards to reimburse the operating budget for preventive maintenance expenditures. From 2006 to 2011, the GCRTA applied capital grant awards in this manner to the operating budget. Almost all of the state's public operating assistance; and also state funds for elderly and handicapped fare assistance have been eliminated. In the future, the State may provide additional funding to public transit; however, it is also suffering from declining tax revenue from the economic downturn. "Reimbursed expenditures" include state and federal program reimbursements, for example, the Access to Jobs program; HealthLine and trolley operations; paratransit service; fuel tax refunds and several non-traditional capital grants (Greater Cleveland Regional Transit Authority, 2012c).

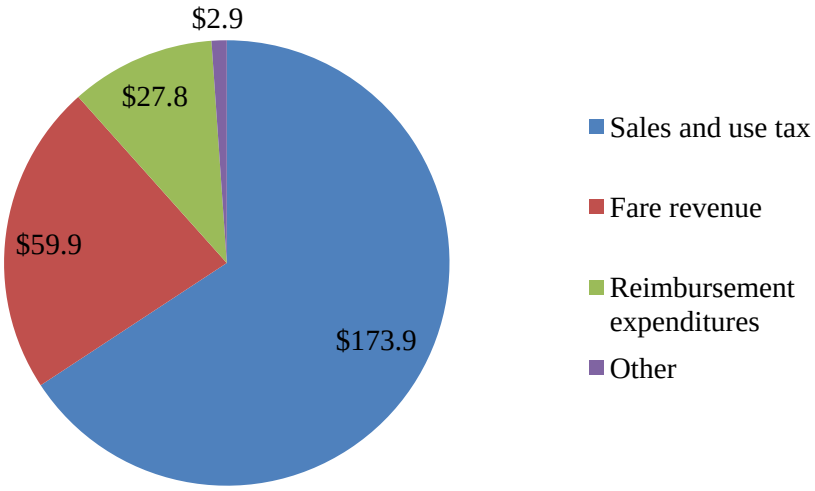

Figure 5: **GCRTA operating budget by the millions (2012)**

Note: Adapted from *Operating and Capital Budget for the Year 2012*, Greater Cleveland Regional Transit Authority, 2012.

Capital Funds

The Capital Improvement Plan is composed of both federal grant funded projects, as well as locally funded projects. As mentioned previously, the GCRTA has transferred federal capital funds to maintain operations. This transfer of funds has led to disinvestment in capital infrastructure. The Capital Improvement Plan is split between two smaller funds, the RTA Development Fund and the RTA Capital Fund. The RTA Development Fund is dedicated for projects over $150,000 and supported by federal grants. The RTA Capital Funds program is reserved for projects under $150,000. Both of these funds are funded by only 10% of Ohio's sales and use tax revenue (Greater Cleveland Regional Transit Authority, 2012c). 2010 capital funds are shown in the next figure. State revenue was only $1.4 million of the capital budget (National Transit Database, 2010e).

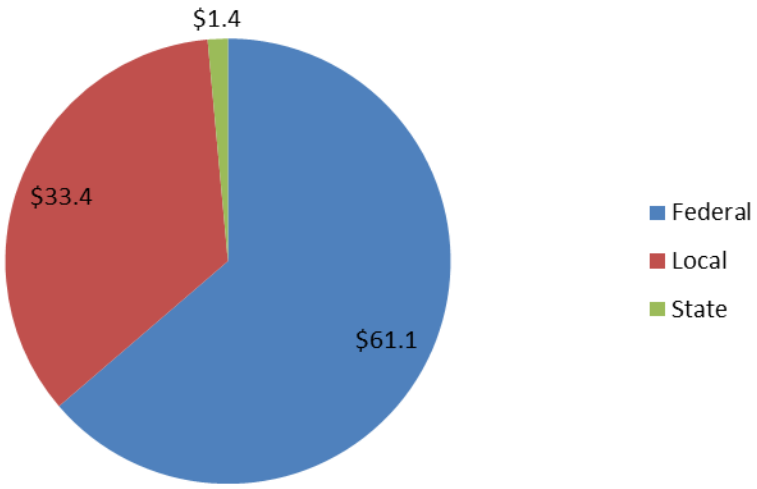

***Figure 6:* GCRTA capital funds by the million (2010)**

Note: The Greater Cleveland Regional Transit Authority (GCRTA), National Transit Database, 2010.

6.1.2 Funding Sources

All of the funding for GCRTA's operating budget is funded through local sources. These funding sources include sales and use tax, advertising, concessions, and fares (Greater Cleveland Regional Transit Authority, 2012c).

Table 15: *GCRTA funding sources*

Local
Sales and use tax
Advertising
Concessions
Fare revenue

Fare Revenue

Fare revenue is the second highest contributor to the operating budget. Because of increased operating costs, The Board of Trustees approved a two-phase fare increase, the first phase effective in July 2006 and the second phase in January 2008. In October of 2008, a fuel surcharge of $0.25 was added to fares, along with an additional increase of $0.25 in 2009 (Greater Cleveland Regional Transit Authority, 2012c). The next figure

shows the changes in fare revenue, including the increase of revenue from the fare increase.

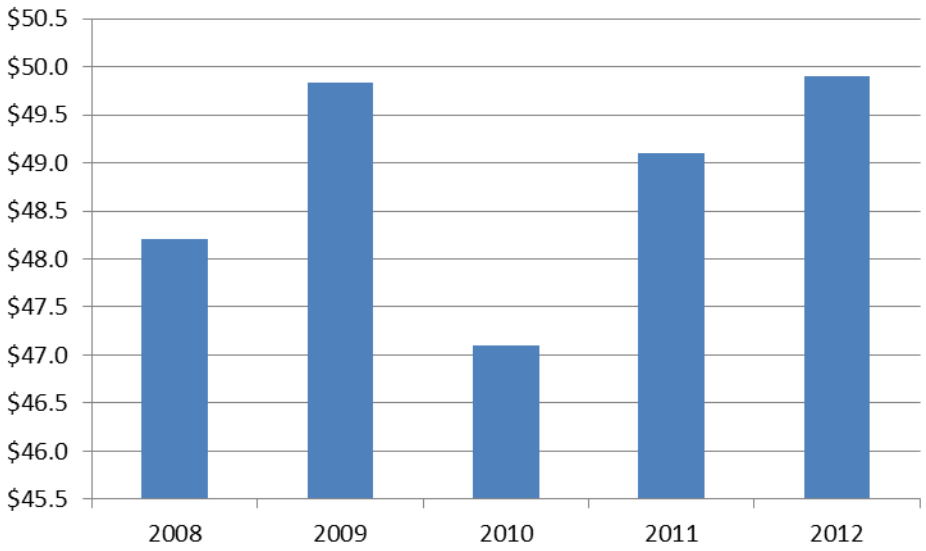

***Figure 7:* GCRTA fare revenue (2012)**

Note: Note: 2011 revenue was estimated and 2012 revenue was budgeted. Adapted from the *Operating and Capital Budget for the Year 2012*, Greater Cleveland Regional Transit Authority, 2012.

Sales Tax

Overall, sales tax revenue as a funding source has performed well for the GCRTA, even during slow growth periods. The GCRTA receives a 1% regional sales tax dedicated to public transit. In 2006, sales tax revenue decreased 0.2%. Sales tax revenue decreased the most, at 11%, during the 2009 economic recession. All other years, 2004 to 2005, 2007 to 2008, and 2010 to 2012, saw an increase in sales tax revenue, ranging from 1.1% to 5.6%. Sales tax revenue increased $8.1 million in 2011 and is projected to only increase 1.5% in 2012 (Greater Cleveland Regional Transit Authority, 2012c).

Advertising and Concessions

GCRTA contracts their advertising out to Blue Line Advertising (Blue Line Media, 2012). The 2011contract for advertising on buses and trolleys guaranteed GCRTA $725,000 in revenue. The Authority also received $175,000 from the HealthLine naming rights deal on their BRT line. GCRTA expects $900,000 worth of

advertising revenue in 2012. Advertising revenue appears consistent for future years. GCRTA generates a small amount of revenue from concessions. (Greater Cleveland Regional Transit Authority, 2012c).

Summary

The GCRTA experienced operating budget shortfalls because of increased operational expenses and decreased federal and state funding. GCRTA recently transferred federal capital funds to its operating budget, in order to maintain existing services. Despite these capital fund transfers, GCRTA still raised fares and cut service. GCRTA also increased advertising and sold naming rights on their BRT lines. The majority of its operating budget is now generated from local revenues.

6.2 Port Authority – Pittsburgh, Pennsylvania

The Pennsylvania Legislature created the Port Authority in 1959, and by 1964, with the consolidation of 33 private transit agencies, began providing public transit services. The Port Authority is governed by a nine-member, unpaid Board of Directors. The Directors are appointed by the Allegheny County Executive and approved by the Allegheny County Council (Port Authority, 2012).

The Port Authority of Allegheny County operates a multimodal transit system. The system is made of 700 bus lines, 3 bus ways, 26.2 miles of light rail service with 83 vehicles, two inclines, and paratransit service. As of 2011, the Authority reported 214,160 average weekday riders and 775 square miles of service. At the end of 2011, a total of 63 million riders were served(Port Authority, 2012) for a total of 2,587,194 annual vehicle revenue hours (National Transit Database, 2010g).

6.2.1 Budget Summary

The operating budget for fiscal year 2012 is $370.2 million. This increased 3.8% from 2011, because of increasing wages, pension benefits, medical expenses and fuel costs. In 2011, transit services were cut by 15%, along with the dismissal of approximately 260 employees. Cuts in service and increased fares led to a drop of 2.6 million riders, 4.2% of ridership. More service cuts are anticipated for 2013.

Operating Funds

Operating revenue is generated at the state, county, and local level and equal to $370.1 million. Before 2007, the Port Authority received 25.3% of the Pennsylvania Department of Transportation's mass transit assistance pool. State funding for public transit was consolidated into the State Operating Assistance classification, as a new funds formula, created by 2007 Act 44. In 2011, state funding for operating revenue decreased by 19%, well over 50% of the original operating budget. If additional revenue is not found, the Port Authority will have to cut service by an additional 40%, and also increase fares. The Board of Directors is currently exploring more sustainable transportation funding sources that adjust for inflation (Port Authority of Allegheny County, 2012).

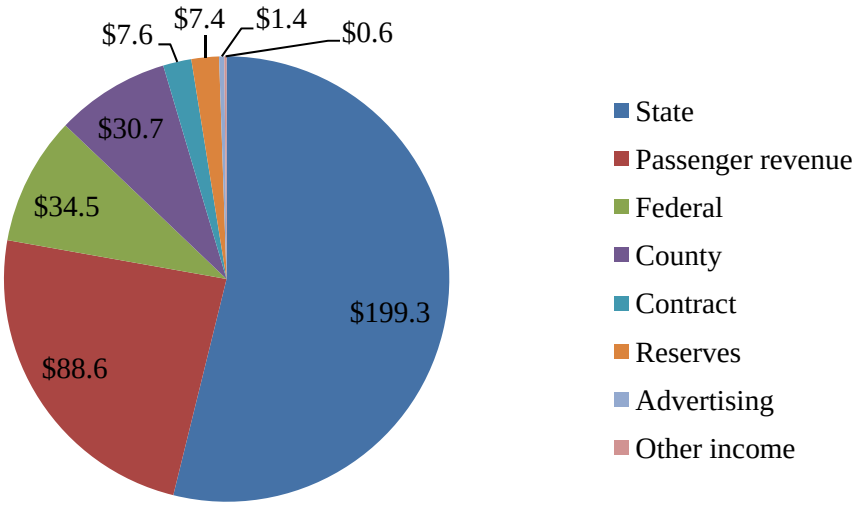

Figure 8: **Port Authority operating fund by the millions (2012)**

Note: Adapted from *Operating and Capital Improvement Budgets Fiscal Year 2012,* the Port Authority of Allegheny County, 2012.

Allegheny County provides funding to the Port Authority. The Allegheny County Council appropriates funds through the county budget process. The Council matches State Operating Assistance by 15%, accounting for $30.7 million in the 2012 budget (Port Authority of Allegheny County, 2012).

Other local operating revenue is generated from contract services, fare revenue, advertising and "other" income.

Capital Funds

Capital funds are dependent on federal grants, with matching funds from the state and county. The total capital budget for 2012 was $182.9 million. The funding split for capital funds was 80% federal, 16.67% state and 3.33% county (Port Authority of Allegheny County, 2012). State contributions are funded from the State Capital Bonds and Public Transportation Assistance Fund (PTAF), under Act 44 Section 1514. Allegheny County funds are generated from the annual bond issuance proceeds. The Port Authority is currently using capital funds for the 1.2 mile expansion of the North Shore Connector light rail, Mount Washington repairs, demolition, bridge rehabilitation, repaving and other projects (Port Authority of Allegheny County, 2012).

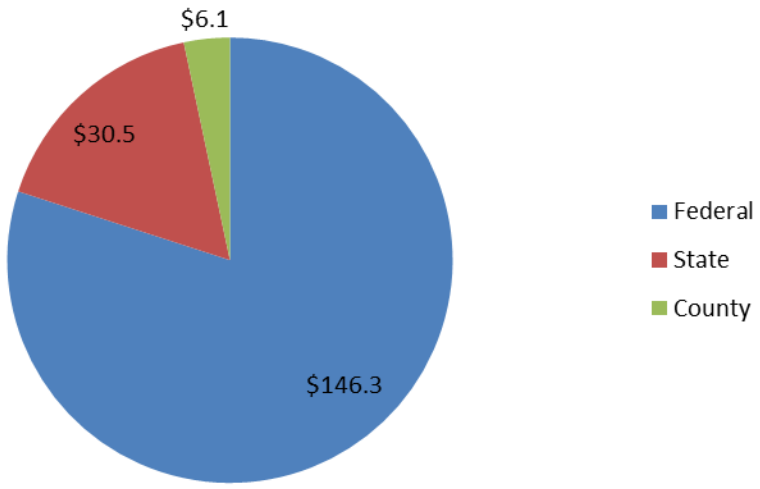

Figure 9: **Port Authority capital funds by the millions (2012)**

Note: Adapted from *Operating and Capital Improvement Budgets Fiscal Year 2012,* the Port Authority of Allegheny County, 2012.

6.2.2 Funding Sources

As shown in the next table, the Port Authority collects revenue from multiple state and local sources including sales and use tax, excise tax, liquor tax, advertising, contract services, vehicle rentals, hotel tax, lottery and gambling taxes and toll roads (Transit Cooperative Research Program, 2009).

Table 16: ***Port Authority funding sources***

State	Local
Liquor tax	Advertising
Hotel tax	Contract
Lottery and gambling	Motor vehicle rental fee
Toll roads	Fare revenue
Motor vehicle rental fee	
Excise tax	

The Public Transportation Assistance Fund (PTAF)

PTAF is a state revenue source for both operating and capital costs. In 1991, the first dedicated funding source, PTAF, was created with Pennsylvania Act 26 for public transit from: a $1 fee on new tires, a 3% motor vehicle lease tax, a $2 per day motor vehicle rental fee, a 6% periodical tax, and a 12 mills property rate on the public utility tax. Act 40 of 1991 directed 0.44% of the sales and use tax to PTAF. Act 48 of 1994 eliminated the 3% lease tax from class 4 or larger trucks, but compensated by providing PTAF additional 0.09% revenue of sales and use tax. Act 46 of 2003 eliminated utility taxes from PTAF and replaced them with an additional 0.417% transfer of sales and use tax revenue (Pennsylvania House Appropriations Committee, 2011).

In 2007, the General Assembly restructured public transit funding by dedicating 4.4% of the sales and use tax to PTAF (Pennsylvania House Appropriations Committee, 2011) along with the $1 fee per tire sale, vehicle lease tax, and a motor vehicle rental fee of $2 per day. The Port Authority collects about 25.4% annually from PTAF (Port Authority of Allegheny County, 2012).

Lottery and Gambling Taxes

The Pennsylvania Lottery Fund was created in 1971 to benefit older residents. This fund provides free or reduced transit for seniors, through ACCESS, along with other benefits, including prescription and welfare programs. ACCESS is a door-to-door, advance reservation, transportation system for seniors and the disabled (Lottery, 2012; Port Authority of Allegheny County, 2012). In fiscal year 2009 , the lottery fund generated $82,160,000 of operating revenue (American Association of State Highway and Transportation Officials, 2011).

Toll Roads

Pennsylvania Act 44 of 2007 would have allowed for revenue from tolling on Interstate 80 to be dedicated to PTAF. Under Section 1517, revenue would have been reserved for public transit capital improvement assistance. The Federal Highway Administration (FHWA) denied the State of Pennsylvania's application for tolling on I-80, creating a $47 million gap in capital funding for the Port Authority's 2012 budget (Allegheny County Transit Council, 2012; American Association of State Highway and Transportation Officials, 2011).

County Liquor and Car Rental Fee

The county generally matches the total amount of capital investments by 3.33%, in order to help leverage federal funding for capital projects (Port Authority of Allegheny County, 2012). In 2007, Allegheny County implemented the Allegheny County Alcoholic Beverage Tax, spanning from $0.11 to $2.50 a gallon of liquor. Combined with a county car rental fee, the tax generates $30 to $40 million for the County, but only about $2 million for the Port Authority (Schmitz, 2012a).

Fare Revenue

Fare revenue has decreased slightly, in part, because of decreased ridership. In January 2011, bus fares were increased by $0.25 in city, and $0.50 for travel to outlying, in an effort to mollify the decrease in revenue. This equated to an increase of 0.9% from fiscal year 2010 to 2011 ("Port Authority fares increase with new year," 2011; Port Authority of Allegheny County, 2012). Since the 2011 fare increase, fares have increased four times in the past 4 ½ years, with more fare increases on the horizon (Schmitz, 2012b). Changes in fare revenue are shown in the figure below. The Port Authority is updating fareboxes on vehicles and implementing ConnectCard, a smart card fare system, to improve overall efficiency and service (Port Authority of Allegheny County, 2012).

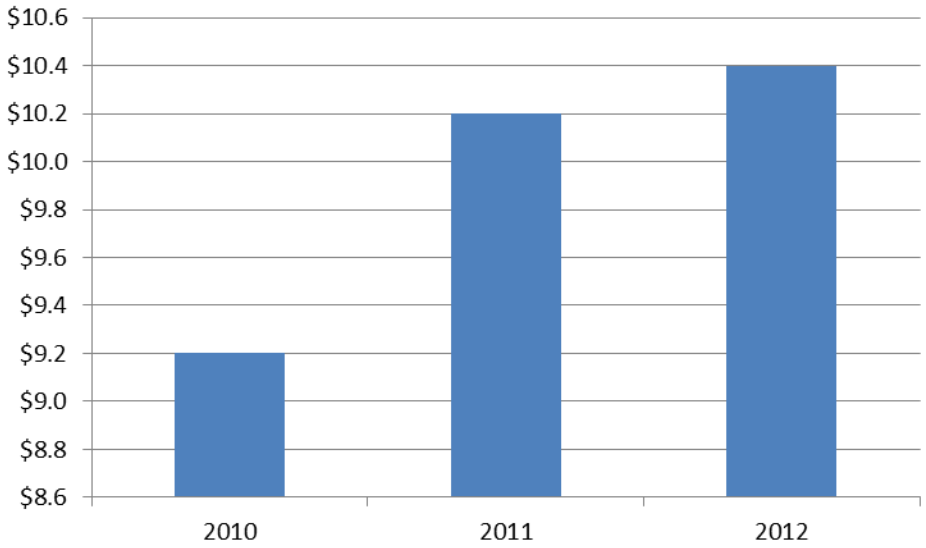

Figure 10: **Port Authority fare revenue by the millions (2012)**

Note: 2012 column us budgeted, not actual. Adapted from *Operating and Capital Improvement Budgets Fiscal Year 2012*, the Port Authority of Allegheny County, 2012.

Advertising

As of 2011, the Port Authority is trying new approaches to increase advertising revenue. The common approach to generating advertising revenue is to install advertising on the exterior and interior of buses and rail fleet. In addition to this revenue, the transit agency hired Titan Advertising to attract national advertisers. Vivid Digital Concepts is piloting a video advertising program with the installment of video screens in Steel Plaza Station. The Port Authority is holding conversations with businesses for naming rights of the North Shore Connector (Port Authority of Allegheny County, 2012).

Contract Services

The Port Authority contracts service to three universities: Carnegie Mellon University, University of Pittsburgh and Chatham University. University faculty and students show their school identification for free transit on Port Authority vehicles. This program was introduced in the 1990s as a partnership between the Port Authority and universities (Carneige Mellon, 2012; Port Authority of Allegheny County, 2012).

Other Funds

"Other" funds are a small percentage of operating revenue at only $0.6 million. These funds are comprised of concession revenue, real estate rental and Medicare reimbursements from the federal government (Port Authority of Allegheny County, 2012).

Summary

In comparison to the GCRTA, the Port Authority's budget has fared much worse from the 2008 economic downtown. The Port Authority has cut service by 15%, with more cuts on the horizon. Fares were recently raised and 260 employees were laid off to help reduce the budget deficit. Almost one-half of the Port Authority's operating budget is made of state funds, and their capital budget is three-quarters federal funds. Less than 25% of their operating funding and only 3% of capital funding comes from revenue sources. As with the GCRTA, the Port Authority is also expanding their advertising options and improving the efficiency of fare collection by switching to a smartcard system.

6.3 Regional Transportation District (RTD) – Denver, Colorado

In 1969, the Colorado General Assembly created the Regional Transportation District (RTD). The RTD serves portions of 8 counties and 40 municipalities (Regional Transportation District, 2012c). RTD is governed by a 15-member Board of Directors elected to a four-year term by district (Regional Transportation District, 2012d).

As of 2011, RTD served approximately 2.7 million people and 2,348 square miles. RTD operates 148 bus routes including 5 express bus routes to the airport, 5 light rails, a free downtown shuttle service, demand response services, and 74 Park-n-Rides, along with seasonal services to sporting events or winter sport facilities (Regional Transportation District, 2012e). As of 2010, RTD reported 3,817,991 average vehicle revenue hours and an average weekday ridership of 322,942 (National Transit Database, 2010c).

As with the previous case studies, RTD has cut services to create long-term system stability. In 2011, they proposed the elimination of 20 bus lines and decreased light rail service. RTD has managed to avoid layoffs through normal attrition, despite

requiring 110 fewer bus operators (Leib, 2011). In January of 2012, and only 13 bus lines were eliminated (Jing, 2012).

6.3.1 Budget Summary

RTD's funding system is split between two programs, the base system and Fas Tracks. Funding comes from both federal and local sources. Neither program budgeted for state funds in 2012 (Regional Transportation District, 2012a).

Base System

The Base System is the existing public transit system operated by the RTD prior to 2004. The total budget for the Base System in 2012 was $487.2 million. The Base System is funded by a 0.6% sales and use tax, approved in 1974 (Regional Transportation District, 2012a). As shown in the table below, sales and use tax is over half of the Base System budget.

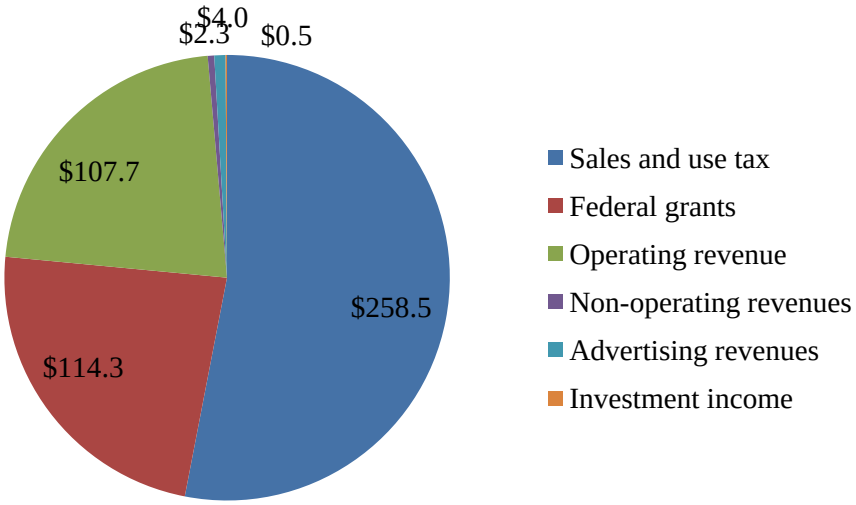

***Figure 11:* RTD Base System budget revenue by the millions (2012)**

Note: Adapted from the *Adopted Budget 2012*, Regional Transportation District, 2012.

Fas Tracks

In 2004, voters passed a ballot initiative creating the Fas Tracks Program, funded by a 0.4% sales and use tax. The Fas Tracks program proposes to expand and operate an additional 28 miles of light rail and 94 miles of commuter rail. Also, between 2005 and 2020, Fas Tracks will have built 18 additional miles of bus rapid transit. The total budget

in 2012 was $389.2 million, primarily funded by the sales and use tax, as shown in the next figure. The Fas Tracks plan depends on a complicated model of financial projections, developed using cost estimations, and predictions of RTD sales tax, fare collections, and federal funding (Regional Transportation District, 2012a).

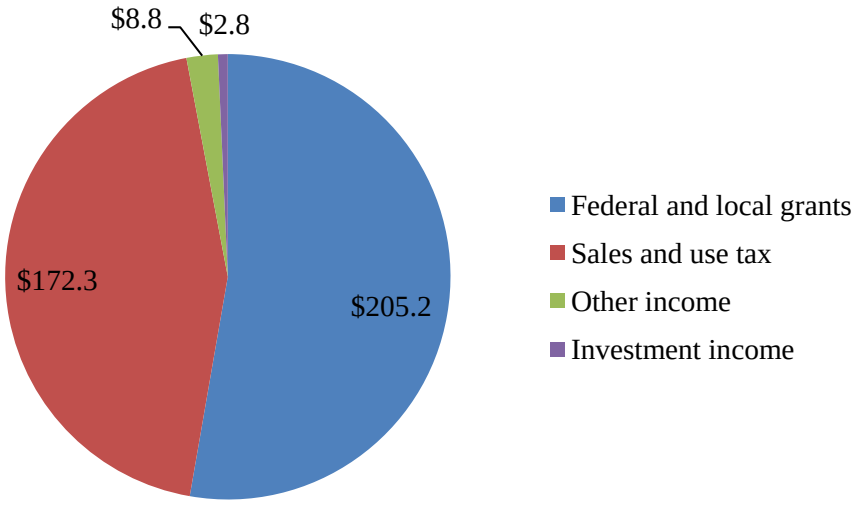

***Figure 12:* RTD Fas Tracks budget revenue by the millions (2012)**

Note: Adapted from the *Adopted Budget 2012*, Regional Transportation District, 2012.

Operating Funds

In 2010, RTD had an operating budget of $441.6. RTD did not receive any state funds for operating expenditures. The primary revenue source for operating expenses was local funds, as shown in the next figure (National Transit Database, 2010c).

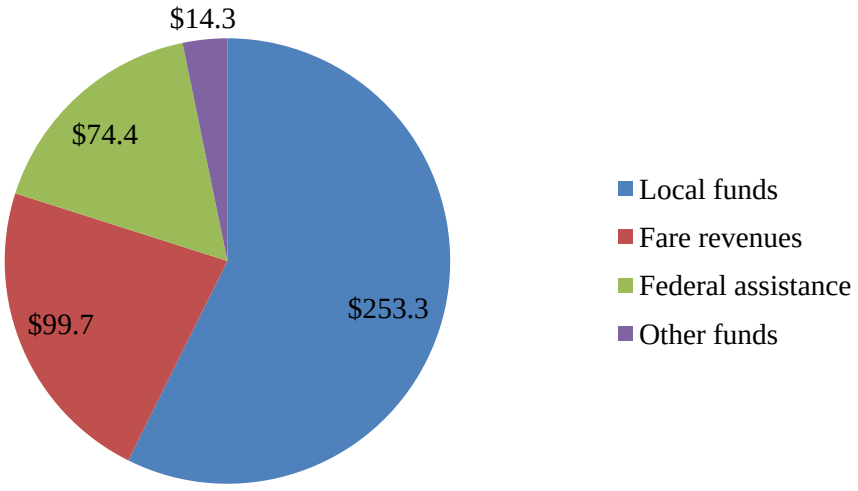

Figure 13: **RTD operating funds by the millions (2010)**

Note: Adapted from the Denver Regional Transportation District (RTD) National Transit Database, 2010.

Capital Funds

In 2010, RTD had a capital budget of $712.5 million. RTD did not receive any state funds for capital expenditures. As with the operating budget, local funds were the primary revenue source for capital expenses, as shown the figure below (National Transit Database, 2010c).

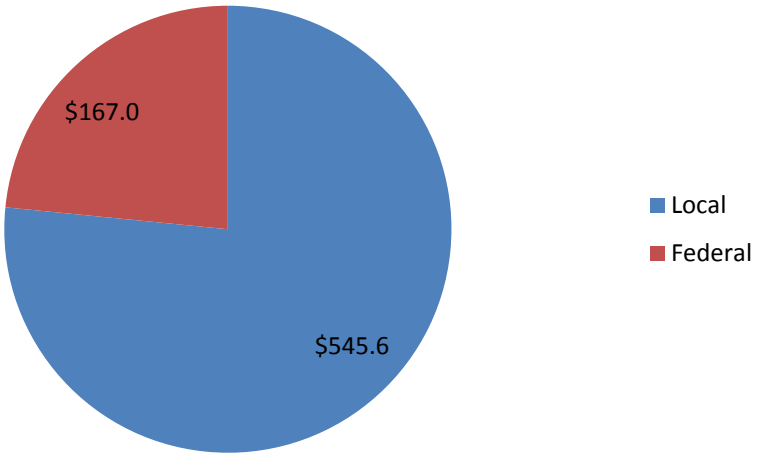

Figure 14: **RTD capital funds by the millions (2010)**

Note: Adapted from the *Adopted Budget 2012*, Regional Transportation District, 2012.

6.3.2 Funding Sources

RTD generated funding for public transit from a variety of local sources. The funding sources are listed below.

Table 17: *RTD funding sources*

Local
Sales and use tax
Parking fees
Advertising
Lease revenue
Air rights
Fare revenue

Sales and Use Taxes

RTD collects a combined sales and use tax of 1.0%, levied within the service area. The Base System is supported by 0.6% sales and use tax and an additional 0.4% is dedicated to the Fas Tracks Program (Regional Transportation District, 2012a).

Sales and use tax revenue has fluctuated dramatically in the last few years, as shown in the next two figures. In 2008, the sales tax declined 1.5% and further decreased in 2009 by 9.4%, due to the economic recession. As the economy rebounded in 2010, sales tax revenue increased by 6.4%. From 2008 to 2009, use tax revenue decreased by 16.5 % and increased by 14.2% from 2009 to 2010 (Regional Transportation District, 2012a).

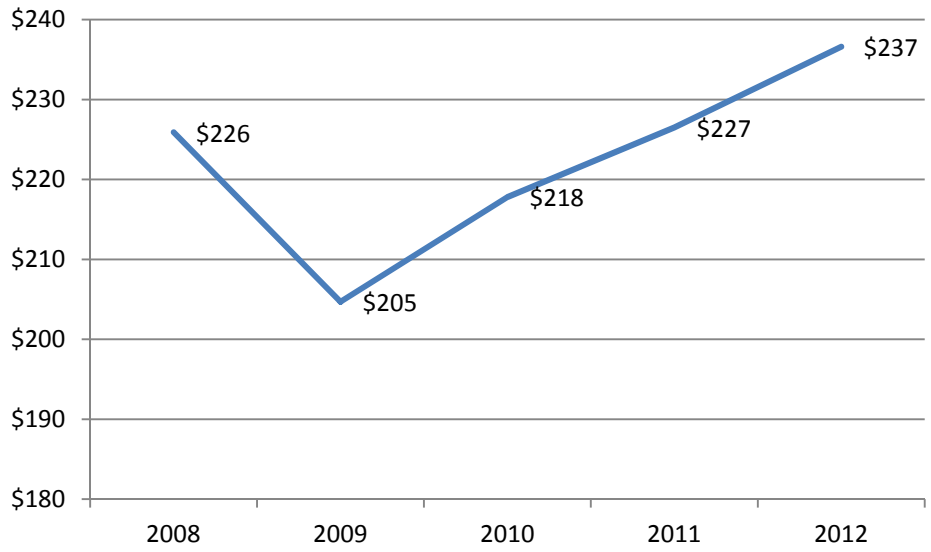

Figure 15: **RTD sales tax revenue by the millions (2012)**

Note: 2011 revenue was estimated. 2012 revenue was budgeted. Adapted from the Adopted Budget 2012, Regional Transportation District, 2012.

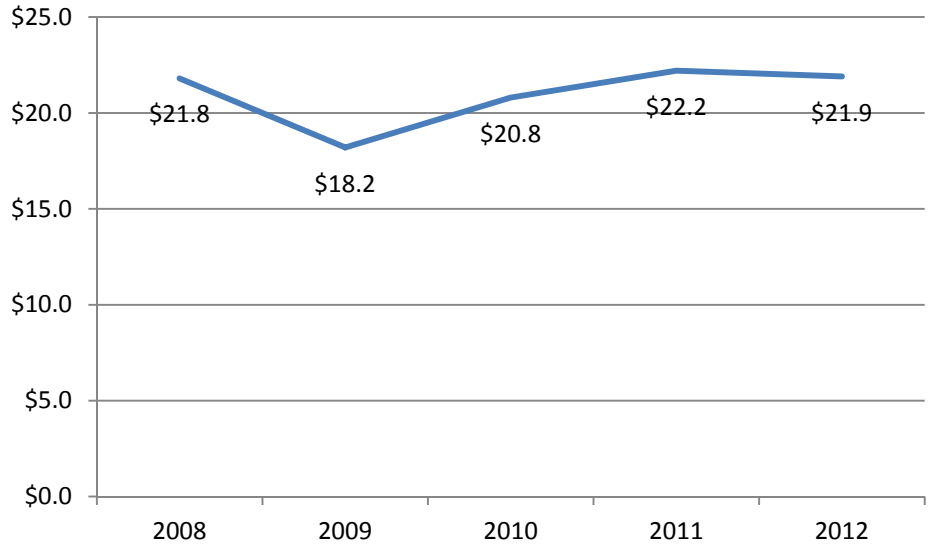

Figure 16: **RTD use tax revenue by the millions (2012)**

Note: 2011 revenue was estimated. 2012 revenue was budgeted. Adapted from the *Adopted Budget 2012*, Regional Transportation District, 2012.

Fare Revenue

On January 1, 2011, RTD implemented a fare increase of 12.5%. This large increase in fare can be seen in the revenue increase shown in the next figure (Regional Transportation District, 2012a, 2012b).

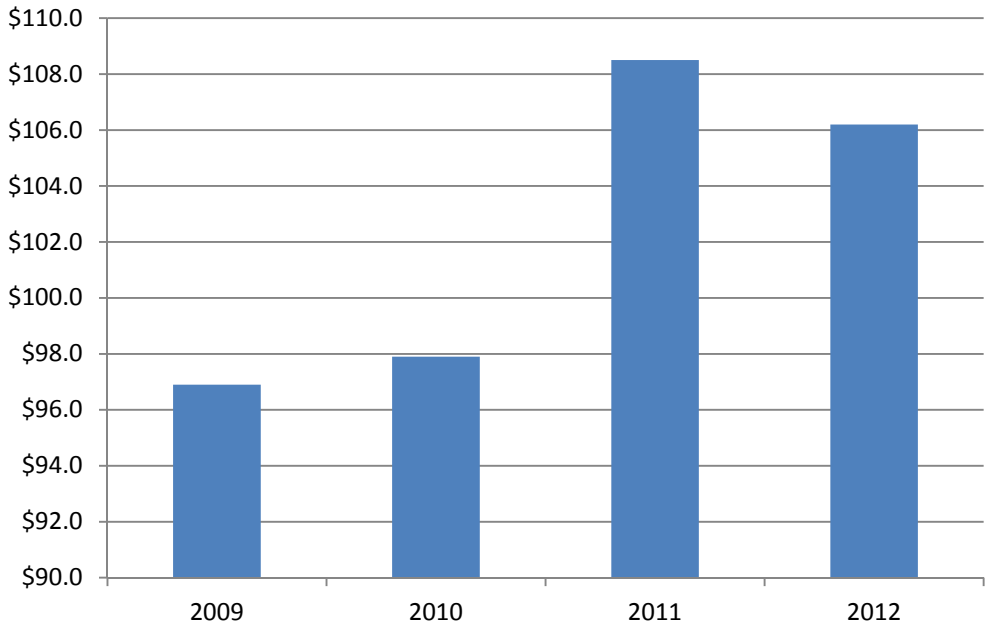

***Figure 17:* RTD fare revenue by the million (2012)**

Note: 2011 revenue was estimated. 2012 revenue was budgeted. Adapted from *Adopted Budget 2012*, Regional Transportation District, 2012 and the Comprehensive Annual Financing Report - Fiscal Year Ended December 31, 2011, Regional Transportation District, 2012.

Advertising

In 2010, RTD hired an agency under a five-year contract to manage advertising. Advertising income is generated from advertisements on buses, both interior and exterior, along with external wraps on light rail vehicles (Regional Transportation District, 2012a, 2012b). The 2012 budget estimated $4.0 million in advertising revenue (Regional Transportation District, 2012a).

Other Income

RTD also receives rental income from retail space, parking, air-rights, and other items (Regional Transportation District, 2012b). For the 2012 budget, RTD anticipates $400,000 in revenue from air rights of an office building. The RTD's 2012 budget

estimates $558,000 revenue from the parking fees at the Civic Center Station parking facility. RTD also receives $50,000 a year in lease revenue from a street level retail building at the Civic Center (Regional Transportation District, 2012a).

Summary

RTD has had to reduce service and raise fares because of loss of sales tax revenue from the economic recession, as with the previous two case studies. The majority of the service cuts took place on routes connecting cities or in more rural areas. Service cuts were smaller than initially predicted.

RTD is considered to be one of the nation's best transit agencies despite service cuts during the economic downturn (Kurtzleben, 2011). Sales and use tax revenue rose steadily in the past few years. Funding is primarily collected through federal grants and local sales and use taxes. Funds are split between maintaining existing operations and the expansion of new rail services. Long-term planning for the Fas Tracks system is adjusted depending on financial projection, cost estimations, federal funding, sales and use tax, and fare collection predictions.

6.4 Tri-County Metropolitan Transportation District of Oregon (TRIMET) – Portland, Oregon

In 1969, the Oregon Legislature passed House Bill 1808, creating TriMet, a transportation district, composed of portions of Clackamus, Multnomah, and Washington counties. TriMet was given the power to generate revenue through a payroll tax (Smith, 2010; Tri-County Metropolitan Transportation District of Oregon, 2012f). The district is governed by a seven-member Board of Directors, which is appointed by the Governor.

As of fiscal year 2011, TriMet served approximately 1.5 million people and 570 square miles. The District operates a multimodal transit system made of 79 bus lines with 625 buses and 6,800 stops, 52 miles of light rail, 14.7 miles of commuter rail, and one million paratransit rides with its LIFT paratransit program (Tri-County Metropolitan Transportation District of Oregon, 2012d). As of 2010, TriMet reported 2,873,427 average vehicle revenue hours and an average weekday ridership of 330,382 (National Transit Database, 2010i).

6.4.1 Budget Summary

TriMet experienced budget shortfalls of $31 million in 2009, and $27 million in 2010 (Tri-County Metropolitan Transportation District of Oregon, 2012d). The public transit budget is negatively affected by anticipated cuts in federal funding, increasing costs of employee benefits, and loss of payroll revenue (Tri-County Metropolitan Transportation District of Oregon, 2012b). In 2009, 4 bus lines were cut, and frequency of service was reduced on 20 other lines. In 2010, two more bus lines were cut, and frequency was reduced on an additional 16 bus lines. For both years, all light rail lines saw reductions in service frequency. For the 2012 budget, no additional cuts were proposed; instead, TriMet recommended increased frequency of light rail vehicles to alleviate overcrowding (Tri-County Metropolitan Transportation District of Oregon, 2012d).

Operating Funds

TriMet's operating budget for FY 2012 is $472 million. The majority of operating revenue is generated with a local payroll tax, as shown in the figure below. For 2013, TriMet is facing a $17 million deficit, because of lower-than-expected revenue from payroll taxes (Tri-County Metropolitan Transportation District of Oregon, 2012b). State funding for TriMet is $446,731, which is only 0.09% of the operating budget (Tri-County Metropolitan Transportation District of Oregon, 2011).

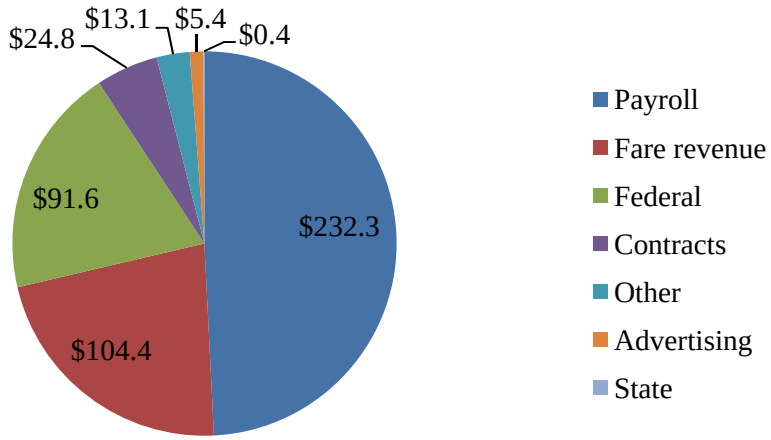

Figure 18: TriMet operating funds by the millions (2012)

Note: Adapted from the *Adopted Budget 2011-2012*, Tri-County Metropolitan Transportation District of Oregon, 2011.

Capital Funds

In 2010, total capital funds for TriMet were $75.5 million. Local funds represented the largest amount of revenue for capital expenditures, as shown in the next figure. TriMet is replacing 51 of their 40-foot buses, adding 4 hybrid buses and replacing 30% of their LIFT fleet (paratransit service). TriMet is also performing $402,000 of repairs on their light rail system, paid for by federal funds and matched with TriMet's general funds. Streetcar expenses will be funded in the amount of $727,000 from the City of Portland, City of Lake Oswego, and bond proceeds. In addition to all of these developments, TriMet has an additional three major light rail projects planned (Tri-County Metropolitan Transportation District of Oregon, 2012d).

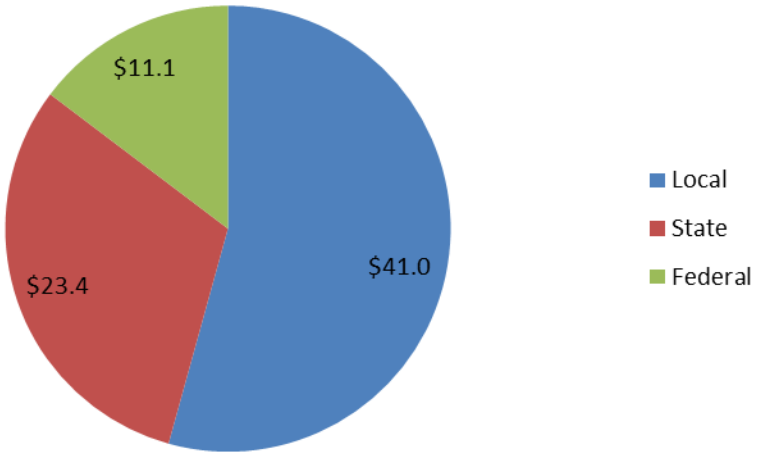

Figure 19: TriMet capital funds by the millions (2010)

Note: Adapted from the Tri-County Metropolitan Transportation District of Oregon (TriMet) National Transit Database, 2010.

6.4.2 Funding Sources

TriMet collects revenue from both state and local sources, including payroll taxes and self-employment taxes; advertising; and contract services, as shown in the next table (Tri-County Metropolitan Transportation District of Oregon, 2011).

Table 18: *TriMet funding sources*

State	Local
Cigarette tax	Payroll tax and self-employment taxes Advertising Contracts Fare revenue

Fare Revenue

TriMet has experienced a steady increase of fare revenue in the last few years, as shown in the next figure. From 2009 to 2012, fare revenue had increased by $14.5 million (Tri-County Metropolitan Transportation District of Oregon, 2011).

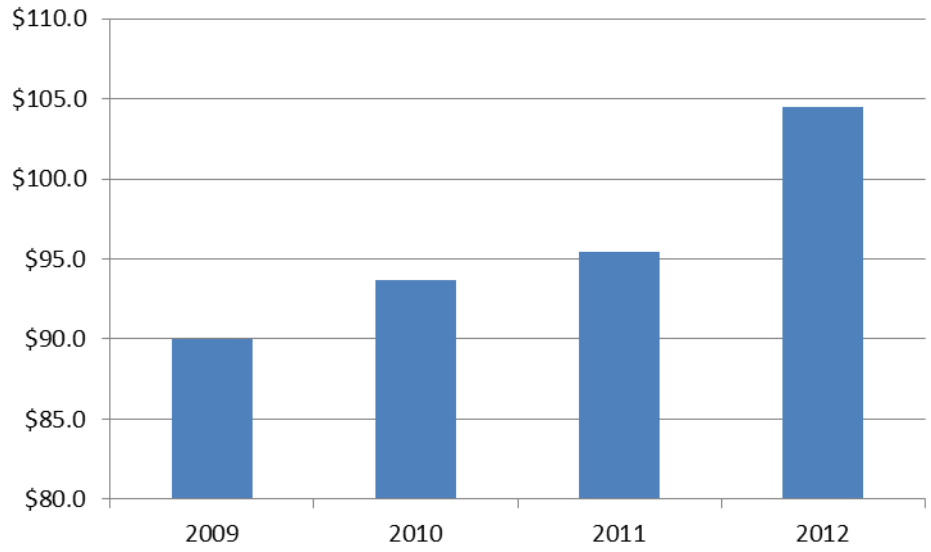

***Figure 20:* TriMet fare revenue by the millions (2012)**

Note: For 2011 and 2012, the fare revenue is budgeted, not actual. Adapted from the *Adopted Budget 2011-2012*, Tri-County Metropolitan Transportation District of Oregon, 2011.

Despite the steady increase of fare revenue, TriMet recently raised its fares, and is considering changes to the fee structure, in order to combat increasing operating costs. In 2008, it raised fares $0.20, of which $0.05 was to compensate for inflation (Tri-County Metropolitan Transportation District of Oregon, 2012b). Currently, TriMet is considering a change from a zone system, to a flat fee of $2.50 per transit ride. The task force maintains that this change will generate an estimated increase of $6 million in fare revenue, and benefit low income riders who pay a larger fare to reach essential services such as employment. TriMet also wants to restrict passes to only 2-hour one-way

transfers and remove the old tear off transfer system to prevent lost fare revenue. A day pass would be added, to benefit passengers who are making multiple trips in a single day (Tri-County Metropolitan Transportation District of Oregon, 2012b; TriMet General Manager's Budget Task Force, 2012).

Payroll Tax

The payroll transit tax is levied directly on the employer for services performed within the TriMet or Lane Transit Districts (Oregon Department of Revenue). On January 1, 2012, payroll tax was increased to 0.7018% ($7.018 per $1,000) within the TriMet area. In 2003, the Oregon Legislature decided to allow TriMet to increase the payroll rate over ten years annually by 1/100% (Tri-County Metropolitan Transportation District of Oregon 2012).

Contract Services

Universities can sign an annual contract with TriMet to provide services for students through the Universal Term Pass Program. Students apply a sticker to their student identification allowing them full access to buses, light rail, commuter rail and streetcar service for the entire term (Tri-County Metropolitan Transportation District of Oregon, 2012e).

Advertising

TriMet advertises on buses, trains, shelters and benches (Tri-County Metropolitan Transportation District of Oregon, 2012a). TriMet has considered adding advertising to their website and TransitTracker software, which could generate an additional $0.3 million in revenue (Tri-County Metropolitan Transportation District of Oregon, 2012b; TriMet General Manager's Budget Task Force, 2012).

Cigarette Tax

The cigarette tax is collected by the State of Oregon. Two percent of the tax is deposited in the Elderly and Disabled Special Transportation Fund and redistributed to transit districts for the operation and improvement of senior citizen public transit services (Oregon Department of Revenue, 2012; OregonLaws.org, 2012a, 2012b).

Other Funds

A small percentage of operating revenue is "other" funds, at only $0.3 million. These funds are comprised of interest, bonds, and other miscellaneous taxes (Tri-County Metropolitan Transportation District of Oregon, 2011).

Summary

TriMet receives the majority of its funding from a dedicated local payroll tax. This is subsidized by state and federal funding, along with other common secondary funding sources. As mentioned in section 5.4.3, payroll taxes are not as stable in times of economic downturn as property taxes or sales and uses taxes. This vulnerability has required TriMet to raise fares and cut services.

6.5 Metropolitan Atlanta Rapid Transit Authority (MARTA) – Atlanta, Georgia

The Georgia Legislature passed the Metropolitan Atlanta Rapid Transit Authority Act in 1965, overseeing the City of Atlanta and four counties. However, MARTA did not officially provide transit services until they purchased the Atlantic Transit System in 1972 (Metropolitan Atlanta Rapid Transit Authority, 2012c). MARTA is led by the Executive Management Team and a 12-member Board of Directors (Metropolitan Atlanta Rapid Transit Authority, 2012e).

MARTA is the 9th largest public transit system in the United States, operating a multimodal transit system of 615 buses along 131 fixed bus routes, 338 rail cars covering 48 miles, and an extensive paratransit service (Metropolitan Atlanta Rapid Transit Authority, 2012a, 2012b). As of 2011, the Authority reported serving over half a million passengers. In 2010, there were a total of 470,195 average weekday riders and a total of 3,291,041 annual vehicle revenue hours (National Transit Database, 2010f).

6.5.1 Budget Summary

From 2002 to 2011, MARTA claims to have consistently been able to report positive balances of net assets (Metropolitan Atlanta Rapid Transit Authority, 2011). However, MARTA experienced deficits in both 2009 and 2010 because of the economic downturn. MARTA avoided cutting services by raising fares and tightening operational

costs, such as removing merit increase for non-represented employees and a reduction in non-labor expenses (Metropolitan Atlanta Rapid Transit Authority, 2012d). In 2010, MARTA cut service by 23.4% and increased wait times on trains to five minutes ("MARTA service cuts coming tomorrow!," 2010).

The operating budget for fiscal year 2012 is $370.2 million. From 2011, this increased 3.8% at $13.6 million, because of increasing wages, pension benefits, medical expenses and fuel costs. Transit services were cut by 15% in 2011, along with the dismissal of approximately 260 employees. More service cuts are anticipated for 2013. Reduced service and increased fares led to a drop of 2.6 million riders, 4.2% of MARTA's ridership (Metropolitan Atlanta Rapid Transit Authority, 2011).

Operating Funds

There are 3 main sources for operating funds: sales tax, operating revenue, and federal grants, as shown in the figure below. MARTA does not receive any state subsidies for operating costs. Operating revenue includes fares, concessions, advertising, and parking revenue, as shown in the figure below (Metropolitan Atlanta Rapid Transit Authority, 2012d).

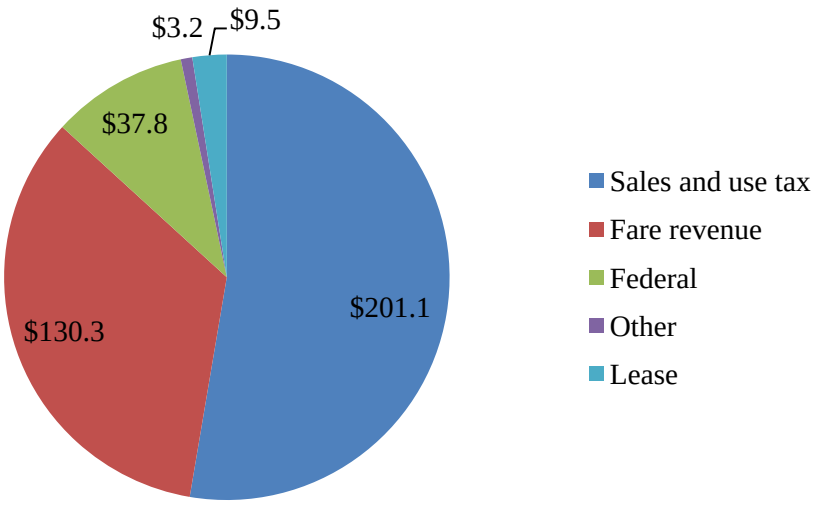

***Figure 21:* MARTA operating budget by the millions (2012)**

Note: Adapted from the *Adopted Operating and Capital Funds Budget Fiscal Year 2012*, Metropolitan Atlanta Rapid Transit Authority, 2012.

Capital Funds

MARTA's capital budget in 2010 totaled $137.5 million. As was the case with the GCRTA, MARTA receives a very small amount of state funds for capital expenses. The primary funding source is local funds, as shown in the next figure (National Transit Database, 2010e).

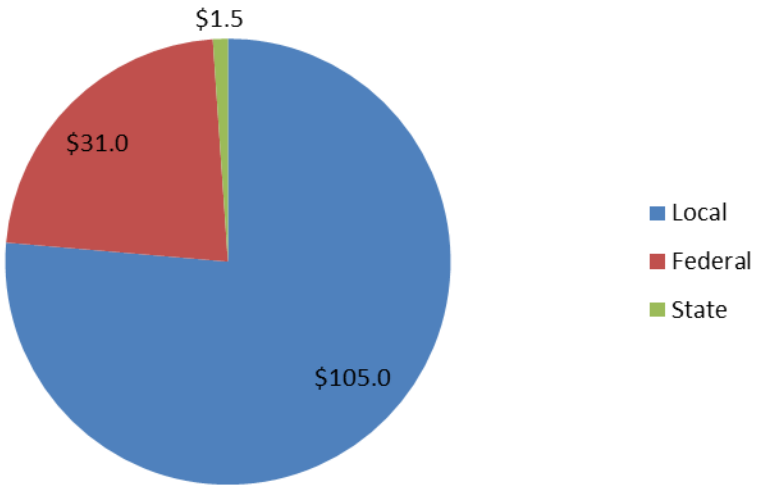

***Figure 22:* MARTA capital funds by the millions (2010)**

Note: Adapted from Metropolitan Atlanta Rapid Transit Authority (MARTA), National Transit Database, 2010.

6.5.2 Funding Sources

MARTA mostly receives funding at the local level, as shown in the table below. The majority of funding comes from dedicated local sales tax (Greater Cleveland Regional Transit Authority, 2012c).

Table 19: *MARTA funding sources*

State	Local
Sales tax	Sales tax
	Advertising
	Concessions
	Parking
	Fare revenue

Local Sales Tax

The City of Atlanta, Fulton County and DeKalb County pay a 1% sales tax that is dedicated to public transit. For the annual budget for Fiscal Year 2010, the local sales tax totaled $436 million, 60% of public transit revenue (Greater Cleveland Regional Transit Authority, 2012c).

Fares

MARTA replaced its token fare system with an electronic smart card. This system was also expanded to neighboring transit organizations in 2009 (Hart, 2011). In October 2009, one-way fares increased from $1.75 to $2.00 (Metropolitan Atlanta Rapid Transit Authority, 2011). In October 2011, fares were raised to $2.50 (Metropolitan Atlanta Rapid Transit Authority, 2012b). In both years, fares were raised to compensate for expected federal funding cuts, in an effort to avoid cutting services. Passenger revenue is expected to decrease by 11.8% from fiscal year 2011, as shown in the next figure (Metropolitan Atlanta Rapid Transit Authority, 2012b).

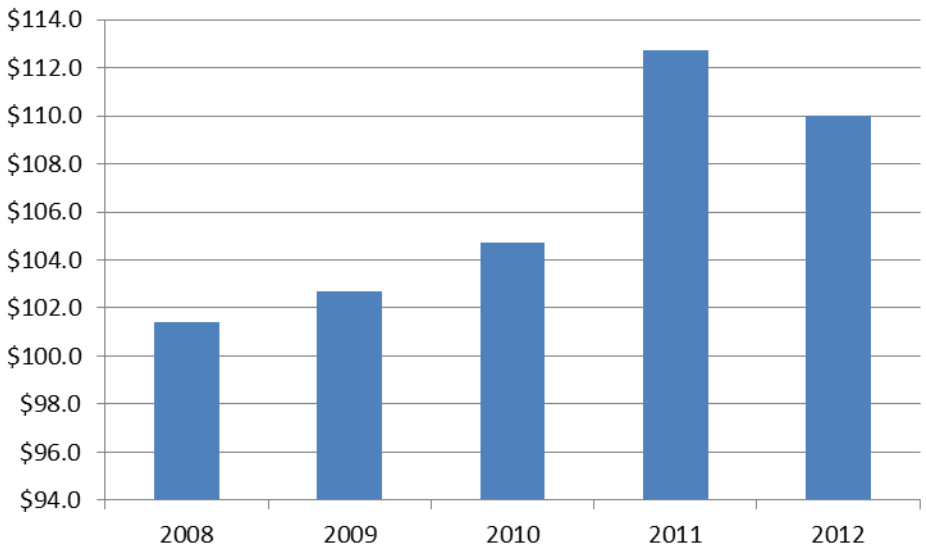

Figure 23: MARTA fare revenue by the millions (2012)

Note: 2012 Revenue is budgeted, not actual. Adapted from the *Adopted Operating and Capital Funds Budget* Atlanta, Metropolitan Atlanta Rapid Transit Authority, 2012.

Concessions

In 2010, MARTA began a new concessions and vending program. Previously, there were only newspaper and payphone services (Metropolitan Atlanta Rapid Transit Authority, 2012b). Vending machines will be placed at 38 transit stations (Metropolitan Atlanta Rapid Transit Authority, 2012d).

Advertising

MARTA contracts CBS Outdoor to sell advertising on buses, trains, paratransit buses, rail stations and bus shelters. MARTA also offers advertising options on in-car televisions on their trains (Metropolitan Atlanta Rapid Transit Authority, 2012b).

Summary

MARTA is predominately funded by a local sales tax; however, it is also expanding concessions and advertising to increase revenue. As with the other case studies, MARTA has also had to cut service and raise fares. MARTA improved efficiencies in their operations in an effort to reduce costs by replacing their token system with smartcards.

6.6 Summary of Case Studies

By the 1970s, all five regional transit agencies began providing services. All five are governed by a Board of Directors which varies in size depending on how large the service area is, and how much representation from local municipalities is required. All of the transit agencies experienced budget shortfalls, due to increasing operating costs and decreases in state and federal subsidies in the last five years. This resulted in all the transit agencies raising fares and cutting services. These characteristics are summarized in the table below.

Table 20: *Characteristics of transit agency case studies*

Transit agency	Major city	Board of directors	AVRH	Annual average weekday ridership
GCRTA	Cleveland	10	1,509,041	143,428
Port Authority	Pittsburgh	9	2,587,194	214,160
RTD	Denver	15	3,817,041	322,942
TriMet	Portland	7	2,873,427	330,382
MARTA	Atlanta	12	3,291,041	470,195

The primary source of operating and capital funds varied among the five transit agencies. Four out of five agencies were most dependent on dedicated local revenues, such as a local sales tax or local payroll tax. Only one transit agency, Pittsburgh, relied heavily on state subsidies. Capital funding varied dramatically between the different transit agencies. Federal and state funding for capital projects are often cyclical or project based, so these results don't tell us much. For a full summary, see the following table.

Table 21: ***Funding summary of transit agency case studies***

	Operating Funds	Capital Funds		
Transit Agency	**Primary Funding Source**	**Federal**	**State**	**Local**
GCRTA	Sales and use tax	63.7%	1.5%	33.4%
Port Authority	State subsidy	80.0%	16.7%	3.3%
RTD	Payroll	44.3%	0.0%	53.7%
TriMet	Sales and use tax	14.7%	30.1%	54.2%
MARTA	Sales and use tax	22.5%	1.1%	76.4%

7 METRO DETROIT'S PUBLIC TRANSIT SYSTEMS

Metro Detroit's boundaries can be defined multiple ways, depending on the context. According to Southeast Michigan Council of Governments (SEMCOG), Southeast Michigan is composed of seven independent counties: Livingston, Macomb, Monroe, Oakland, St. Clair, Washtenaw, and Wayne counties. SEMCOG is a metropolitan planning organization in Southeast Michigan which brings together all of the region's governments on transportation issues (SEMCOG, 2012a).

An Urbanized Area (UZA) as defined by the U. S. Census, is an area composed of one or more incorporated cities or villages with a population greater than 50,000 (Michigan Department of Transportation, 2012). SMART, DDOT and the Detroit Transportation Corporation (DTC) service the same UZA, the Detroit Tri-County Area, which includes multiple municipalities, and covers a service area of 1,262 miles (National Transit Database, 2010b, 2010d, 2010h). AATA operates in Washtenaw County, a UZA stretching 129 miles (National Transit Database, 2010a). FTA funds are distributed to UZAs under the Urbanized Area Formula Grants Program (National Transit

Database, 2007). SMART and DDOT split FTA capital funds, 35% to SMART and 65% to DDOT. This funding formula is supposed to be updated regularly with a needs analysis based on revenue miles of service and population but hasn't since 2008 (D. Schornack, personal communication, 28 August 2012).

In this paper, Metro Detroit will be defined as Macomb, Oakland, Wayne, and Washtenaw County. Currently, in the Michigan Senate, the Regional Transit Authority (RTA), Senate Bill 909, is under review to create a regional transit authority which would oversee public transit in these four counties and two UZAs. If the RTA bill passes both the Michigan House and Senate, the next step would be to secure a dedicated funding source to fund a regional transit system (Senate Bill 909, 2012). The analysis in this paper has been restricted to these four counties as an exploratory review of potential primary funding sources for a future regional transit authority.

7.1 State Funding

The Michigan Transportation Fund (MTF) funds transportation programs as governed by Public Act 51 of 1951. The MTF is composed of auto related sales taxes, and interest. Auto-related sales taxes are tax levied on motor fuels, motor vehicles, and other related products.

State funding for public transit in Michigan comes from the Comprehensive Transportation Fund (CTF), which is revenue transferred from the MTF (Hamilton, 2006). A small percentage of the state sales tax is redirected to urban bus systems (McHugh, 2012).

In the most recent AASHTO study, the Michigan Department of Transportation reported public transit funding in Michigan as dedicated; however, this description is questionable (American Association of State Highway and Transportation Officials, 2011). CTF revenue is statutorily restricted, unlike other transportation funds which are restricted by the state constitution as dedicated only to transportation funding. This means that the full amount of the CTF is not guaranteed to public transit and can be redirected to the State General Fund. In fiscal year 2003, Public Act 139 reduced CTF revenue from 25% percent to 24%, a decrease of $0.3 million. In the fiscal year 2005-2006, $11.1

million of auto-related sales taxes were redirected to the State General Fund through the enactment of Public Act 69 of 2006 (Hamilton, 2006).

7.2 Local Systems

As mentioned in the introduction, there are four transit providers in Metro Detroit: City of Detroit Department of Transportation (DDOT), Detroit Transportation Corporation (Detroit People Mover), Suburban Mobility Authority for Regional Transportation (SMART) and the Ann Arbor Transportation Authority (AATA). The Detroit People Mover and DDOT are subsidized from the City of Detroit's general fund. SMART and AATA are locally funded through millage rates on property value. Below is a figure showing how SMART and AATA millage rates compare to other Michigan cities (Gallagher, 2010; HDR Engineering Inc; King, 2011).

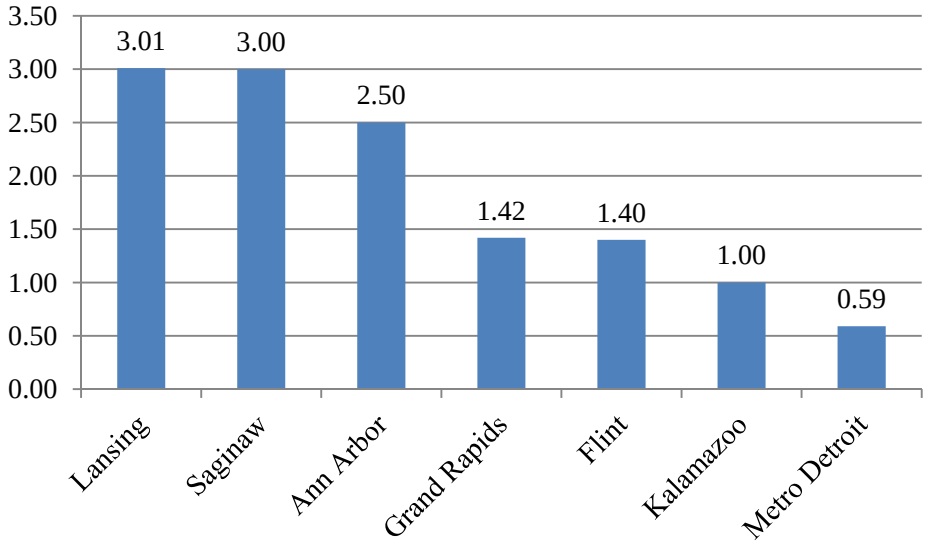

Figure 24: Millage rates for public transit in major cities in Michigan

Note: The Rapids's 2030 Transit Master Plan Final Report, HDR Engineering,Inc, 2012.

7.2.1 Detroit Department of Transportation (DDOT)

DDOT operates bus service only in the City of Detroit, a total of144 square miles, and 1,130,871 Average Vehicle Revenue Hours (National Transit Database, 2010b). DDOT is the largest transit provider in the State of Michigan and serves 38 million riders. DDOT operates 262 buses on 48 bus routes, provides 1,000 paratransit rides daily, and maintains approximately 6,000 bus stops and 174 bus shelters. DDOT provides 121,013

average weekday unlinked trips. They also provide administrative services to the Detroit People Mover mentioned below (City of Detroit, 2012).

DDOT has drastically cut bus services in the last decade. The City of Detroit has lost close to a quarter of its population in the last 12 years but almost 60% of its Average Vehicle Revenue Hours as shown in the figure below (Roseboom, 2012; Transportation Riders United, 2012).

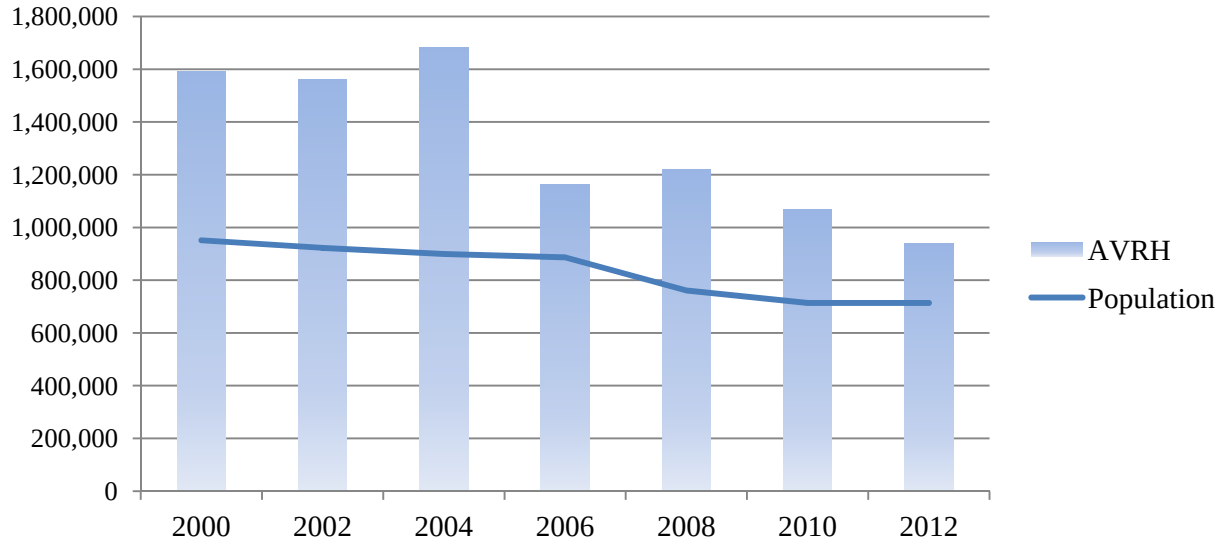

Figure 25: **Average vehicle revenue hours compared to service are population**

Note: *Broken Promises: DDOT still failing to provide adequate bus service*, Transportation Riders United, 2012.

At the local level, the City of Detroit funds public transit through a subsidy from the general fund, instead of a dedicated funding source. The 2012 to 2013 Transportation Budget for the City of Detroit reports revenue at $130.5 million. Over three-quarters of funding came from transportation appropriations, from the City's general fund, as shown in the next figure (City of Detroit, 2012). This is dramatically lower than the $208.1 million reported to the National Transit Database in 2010 (National Transit Database, 2010b).

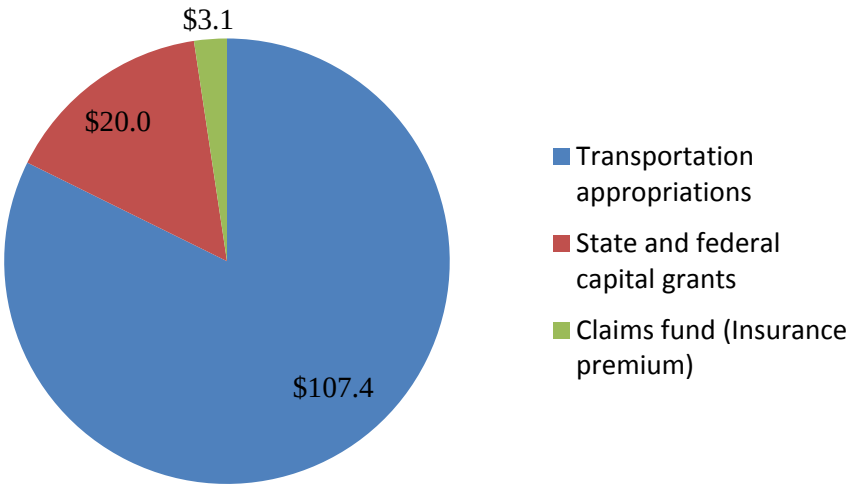

***Figure 26*: City of Detroit transportation budget by the millions (2012 - 2013)**

Note: Adapted from the *2012 - 2013 Agency Budget*, City of Detroit, 2012.

Operating Funds

In 2005, DDOT received $89,599,684, or 47% of its operating funds, from the City of Detroit. Without dedicated local funding, the City of Detroit can continue to cut public transit funding in order to balance the city budget. As of 2010, the primary source of funds for operating expenses was local funds, appropriated from the City of Detroit's general fund, as shown in the next figure (National Transit Database, 2010b). The proposed 2012-13 fiscal year budget suggested cutting the general fund subsidy from its current budget of $55.6 million down to $43 million (Helms, 2012).

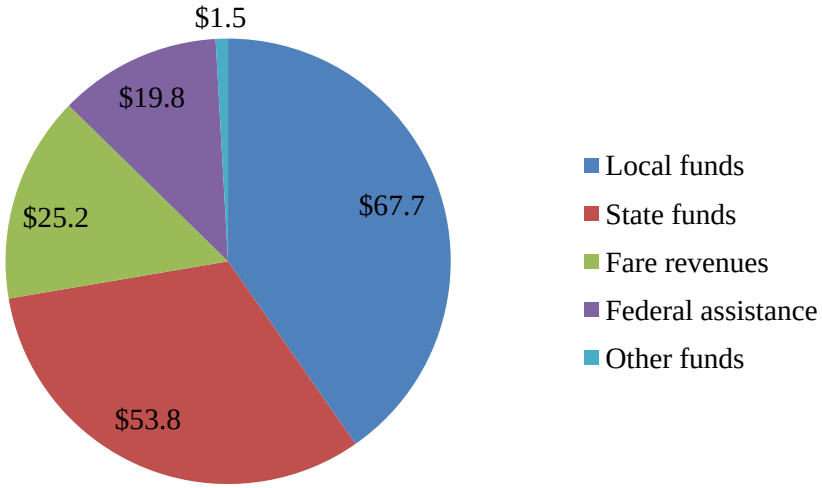

***Figure 27:* DDOT operating funds by the millions (2010)**

Note: Adapted from the City of Detroit Department of Transportation (DDOT), National Database, 2010.

In 2010, DDOT fares generated $25.2 million (National Transit Database, 2010b). Fares are primarily collected as cash. Adult fares are only $1.50 and $0.25 for a transfer (Detroit Department of Transportation, 2012). DDOT also offers monthly passes and $10 value cards.

Capital Funds

DDOT received $40.1 million federal funds for capital improvements in 2010. They did not receive any local or state funds (National Transit Database, 2010b).

7.2.2 Detroit Transportation Corporation (Detroit People Mover)

The Detroit People Mover is an automated guideway transportation system with 13 stations. It circulates 3 miles around the downtown area of Detroit and has been operating for 25 years (Detroit Transportation Corporation, 2012b). Initially it was supposed to connect to a large system of rails and subways that would have led out to the suburbs, however, this larger system never materialized ("After 25 years, unfulfilled hope for transit still rides the People Mover," 2012). The Detroit People Mover fleet consists

of twelve driverless vehicles. The People Mover's operating budget for 2011-2012 was $19,725,000, $0.42 million less than the previous year.

The Detroit Transportation Corporation (DTC), the owner and operator of the Detroit People Mover, was created by the City of Detroit by PA 7 of 1967 (Irvin Corely, 2011). DTC is composed of four Board members and the Mayor of Detroit. Operations are overseen by the General Manager (Detroit Transportation Corporation, 2012b).

Operating Funds

The operating budget for 2011-2012 was $1.085 million. As with DDOT, the Detroit People Mover's operating revenue is generated from fares and a subsidy from the City's general fund. Mayor Bing suggested a $4.4 million subsidy for the 2011-2012 Budget from the City's general fund, which was the same subsidy it received the previous year. After the subsidy and non-operating revenue, the People Mover had a deficit of $6.6 million (Irvin Corely, 2011).

Part of the deficit was caused by a decrease in ridership. Fare revenue decreased by $50,000 between 2011 and 2012 (Irvin Corely, 2011). The People Mover requires tokens for fares. One token can be purchased at a station for $.75. Fares were raised last year from $.50 on November 7, 2011 to compensate for the loss. This was the first fare increase in the history of the Detroit People Mover. Monthly passes, seasonal, annual and convention passes are also available for purchase (Detroit Transportation Corporation, 2012c).

Non-Operating Revenue

Detroit Transportation Corporation classifies other revenue as non-operating revenue. This revenue totaled $5.6 million in the 2011-2012 Budget. Non-operating revenue, shown in the next table, includes interest, rental income, grants and advertising (Detroit Transportation Corporation, 2012a). The People Mover 2011-2012 Budget decreased by $220,000 from interest and rental income and lost $239,000 from grants, a total decrease of $459,211 (Irvin Corely, 2011).

Table 22: *Non-Operating Revenue for the Detroit People Mover (2011-2012)*

Type	Amount
Rental income	$22,000
Interest income	$200,000
Advertising income	$200,000
Misc revenue	$30,000
ACT 51 Grant revenue	$3,600,000
FTA Grant revenue	$1,320,000
SEMCOG Grant revenue	$74,400
CMAQ Grant revenue	$120,000
City Bond revenue	$2,024,000

Note: Adapted from *Comparative Budget: Fiscal years 2011 and 2012*, the Detroit Transportation Corporation, 2012.

7.2.3 Suburban Mobility Authority for Regional Transportation (SMART)

SMART is a regional bus system that connects Metro Detroit's suburbs and the City of Detroit, a total of 75 municipalities (Suburban Mobility Authority for Regional Transportation, 2012d). The bus system serves 1,074 square miles and 3.2 million people. SMART's average weekday unlinked trips are 40,992, and it operates 879, 185 annual vehicle revenue hours. Smart provides both bus and paratransit service (National Transit Database, 2010h). SMART operates 234 buses on 43 bus routes, 5,325 bus stops and 111 paratransit vehicles (Suburban Mobility Authority for Regional Transportation, 2012e).

SMART was created in created in 1967 under Public Act 204 as Southeastern Michigan Transportation Authority (SEMTA). Public Act 204 was amended with 1989 Public Act 481 1988, renaming SMETA as SMART and removing the City of Detroit (Suburban Mobility Authority for Regional Transportation, 2012d). SMART is governed by a 7-member Board of Directors which meets quarterly (Suburban Mobility Authority for Regional Transportation, 2008). SMART began using property tax millage as its primary funding source in 1995 (Suburban Mobility Authority for Regional Transportation, 2012a). As a result of the drop in Metro Detroit property values, SMART had to cut 22% of its service in 2011 (Suburban Mobility Authority for Regional Transportation, 2012c).

SMART millage rates are renewed by the voters every two to four years, depending on the county. Oakland County votes on renewal every two years. On August 7, 2012, Oakland County renewed the SMART millage of 0.59 mil tax rate (Crumm, 2012). In Oakland County, a home with a taxable value of $100,000 will pay $59 annually, generating $16 million (Suburban Mobility Authority for Regional Transportation, 2012f). Both Macomb and Wayne County renewed a 0.59 mil tax rate in 2010, for four years. As of 2010, millage revenue provided 42% of SMART's annual budget (Gallagher, 2010). Despite the renewal of the millage in all three counties, SMART faces ongoing budget problems. Operating expenses increased $4.9 million due to rising fuel and insurance costs (Plante and Moran LLC, 2011).

Operating Revenue

SMART's operating revenue has steadily increased in the last several years, as shown in the next table. This is primarily due to an increase in fares to $2.00 per ride. Fare revenue in 2011 was $14.5 million. Fares are accepted as cash, monthly passes, or value passes with a predetermined amount (Suburban Mobility Authority for Regional Transportation, 2012b). Other revenue, for example, advertising produced an additional $0.8 million (Plante and Moran LLC, 2011).

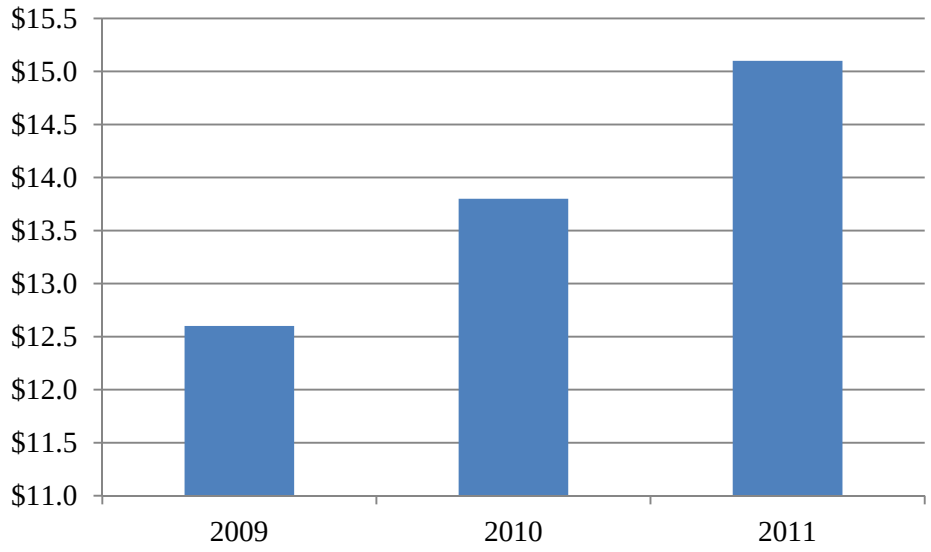

Figure 28: **SMART operating revenue by the millions (2009 - 2011)**

Note: Adapted from Suburban Mobility Authority for Regional Transportation - Financial Report with Supplement Information, Plante and Moran, LLC, 2011.

In 2010, SMART's capital funds were $108.7 million. The majority of operating revenue was supplied by local funds, primarily millage revenue. State operating funds were one third of the total amount.

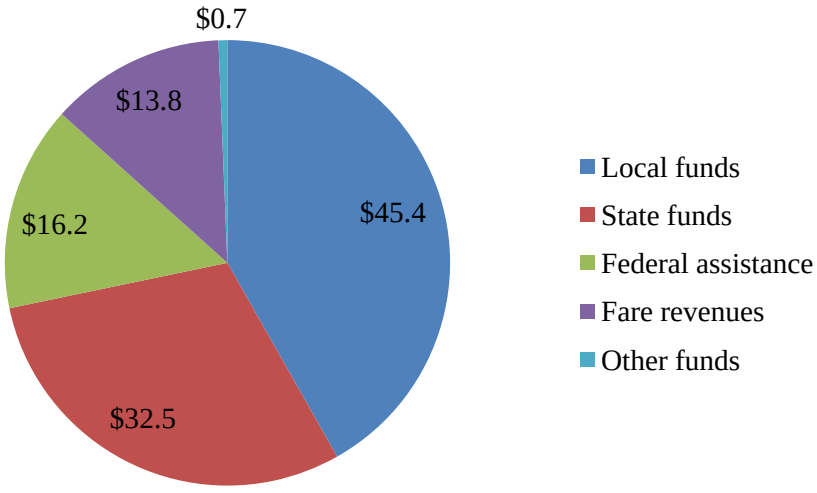

Figure 29: SMART operating funds by the millions (2010)

Note: Adapted from Suburban Mobility Authority for Regional Transportation (SMART), National Transit Database, 2010.

Capital Funds

In 2010, SMART's capital funds totaled $10.7 million. SMART received over 50% of its capital funds from the federal government. Only 1.4% of capital funds came from state funding, as shown in the figure below.

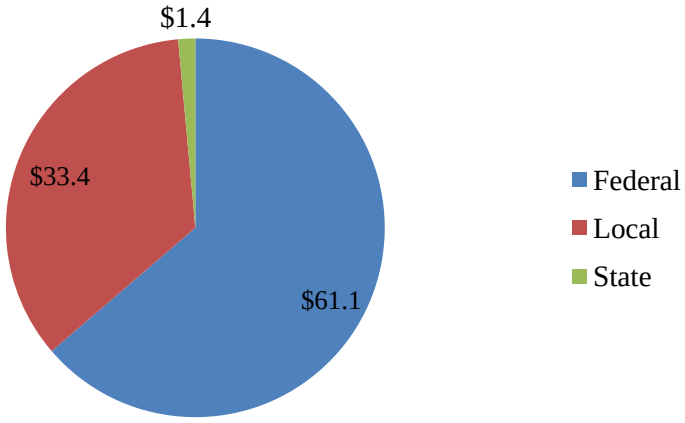

Figure 30: SMART capitals funds by the millions (2010)

Note: Adapted from Suburban Mobility Authority for Regional Transportation (SMART), National Transit Database, 2010.

7.2.4 Ann Arbor Transit Authority (AATA)

The Ann Arbor Transportation Authority provides public transit for the cities of Ann Arbor, Ypsilanti and Pittsfield, Ypsilanti and Superior townships (Ann Arbor Transit Authority, 2012b). This is a total service area of 81 square miles (National Transit Database, 2010a). Currently the AATA is governed by a 7-member board (Ann Arbor Transit Authority, 2012a).

The AATA provides 288, 957 Annual Vehicle Revenue Hours and a total of 20,950 average weekday trips (National Transit Database, 2010a). It operates bus service on 27 routes, of which six routes provide service every 15 minutes. AATA also provides door-to-door services with buses, vans and participating taxicabs for those riders with disabilities and seniors over the age of 65 years old. AATA riders can also use a shared-ride night taxicab service or holiday ride service when regular bus service is not in operation. It also operates a park-and-ride service and shuttle event service for special events, for example, fairs or sporting events. AATA is currently coordinating a commuter rail service called WALLY, from Ann Arbor to Howell Michigan (Ann Arbor Transit

Authority, 2012b). This year, the Board approved a public-private partnership with Michigan Flyer, to provide services from Ann Arbor to Metro Airport (Authority, 2012).

AATA has been trying to reduce costs to compensate for decreasing revenue and increasing operating costs. Ridership has increased by 40% in the last five years, generating increased fare revenue. However, state funding has remained stagnant since 1997. The primary funding source for AATA is property taxes, which has declined with property values (Ann Arbor Transit Authority, 2012c). In reaction to fuel costs, AATA purchased ten new hybrid buses for a total of 41 hybrid buses, a total of 51% of the entire fleet (Solis, 2012). The Board is limiting health contributions to 80% in order to comply with Michigan Act 152 and also increasing copays for non-union employees (Askins, 2012).

Local Funding

AATA local funding equals $15.3 million. The highest revenue generator for AATA transit service is property tax, followed by fare revenue, as shown in the figure below. Unlike the case studies, AATA only reports fare revenue as operating funds, classifying all other funds as non-operating revenue, which includes advertising, property tax, purchase of service revenue and downtown development funds.

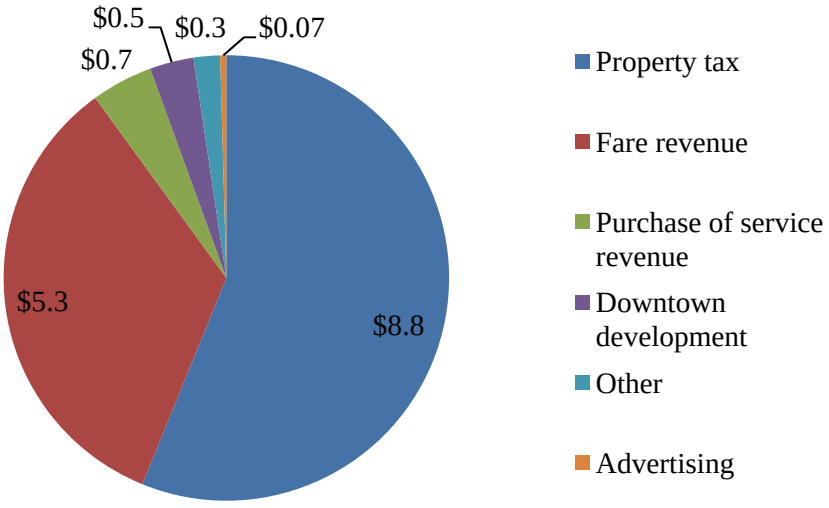

***Figure 31:* AATA local funding sources by the millions (2011)**

Note: Adapted from *Audited financial statements for fiscal year 2011*, Ann Arbor Transportation Authority, 2011.

AATA partners with local townships, universities, schools and businesses to expand public transit ridership. AATA provides transit services under a purchase of service agreement to the City of Ypsilanti, Pittsfield, Superior and Ypsilanti townships (Ann Arbor Transit Authority, 2012c). They also provide fare discounts to Ann Arbor Public Schools, Eastern Michigan University, University of Michigan, and Washtenaw Community College (Ann Arbor Transportation Authority, 2011). All employees in the Downtown Development Authority's boundaries qualify for a GoPass, which provides them with free transit. This program is a partnership between the City of Ann Arbor, the Ann Arbor Downtown Development Authority and the Ann Arbor Transportation Authority (Ann Arbor Downtown Development Authority, 2012).

At the end of September of 2011, advertising revenues totaled $72,636. AATA recently hired Quack! Media and Pace& and Partners Inc. for a three-year contract, with the possibility to extend for two additional years (Askins, 2012).

Capital Funds

Almost all capital expenses were subsidized by federal funds.

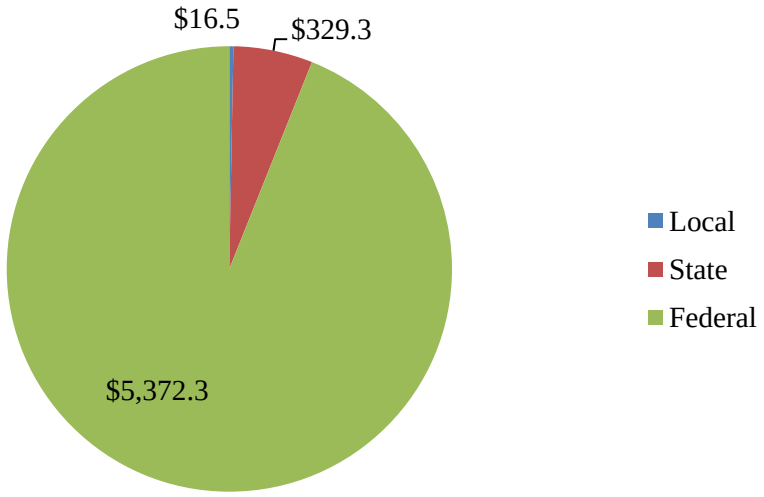

***Figure 32:* AATA capital funds by the thousands (2010)**

Note: Adapted from Ann Arbor Transportation Authority (AATA), National Transit Database, 2010.

7.2.5 Summary of Findings from Metro Detroit Transit Systems

All four systems are underfunded, requiring severe service cuts and fare increase in comparison to the case studies. Unlike the case studies, with the Port Authority being the exception, Metro Detroit systems depend too heavily on state subsidy for operating expenses. Their primary local funding sources are millage rates, which dropped significantly because of the economic recession and housing collapse. Only Ypsilanti and Ann Arbor have a permanent millage rate. Metro Detroit counties require a renewal by public vote every two to four years, creating difficulties creating in long-term transit plans. AATA is the only system that has switch to smartcard technology, offers free rides to downtown businesses as incentives, and contracts with local universities. Unlike the Metro Detroit systems, AATA's budget information, bus arrival times, schedules and system updates are easily accessible on their website.

8 FEASIBILITY STUDY

Several criteria need to be considered and balanced when choosing funding sources for public transit. The most common criteria used are revenue yield, cost efficiency, equity, fit/legality and political/popular feasibility (Transportation Cooperative Research Program, 2009; TranSystems, 2008). In some cases, a funding source may be preferred by the majority of transit agencies (e.g. regional sales tax); however, it may not be legal. A user fee may provide a direct correlation to public transit, but it may have high administrative and implementation costs.

The characteristics of revenue yield need to be reviewed. Only a few funding sources provide a large enough tax base to generate a high yield with a small tax. These are the preferred primary funding source for public transit. The funding source should also be relatively stable in economic downturns and should not fluctuate dramatically from year to year, so that public transit agencies can successfully develop long-term plans (Transportation Cooperative Research Program, 2009; TranSystems, 2008).

The cost efficiency of implementing a specific funding source is extremely important. Funding sources are more likely to be implemented if there is an existing local or state infrastructure for collection already in place. The process should be relatively simple so that it can be transparent. Further, systems to prevent evasion should be put in

place. If the tax or fee is easy to avoid, it will be levied inconsistently from users and the revenue generated will decrease (Transportation Cooperative Research Program, 2009; TranSystems, 2008; US Government Accountability Office, 2006).

The feasibility criterion of equity concerns the burden of the tax on different users. The burden of the tax or fee should be carried by all users, but at different rates depending on the amount users benefit (TranSystems, 2008). The tax structure can be progressive or regressive. A progressive tax is proportionate to a person's income and helps to balance income inequalities. Conversely, a regressive tax is a fee or tax that is implemented at the same rate for all payers, creating a heavier burden for those with a lower income. The benefits and disadvantages of progressive and regressive taxes are viewed differently depending on political leanings (Encyclopedia of Britannica, 2012).

Another consideration when assessing equity is whether all users contribute to the tax or fee in proportion to the indirect benefits of public transit. If nonusers benefit from public transit (e.g. reduced traffic congestion, improved air quality, improved economy), to what extent should they be required to subsidize it? Several public transit experts maintain that those who directly benefit from public transit should pay a higher percentage of the cost, including tourists, business travelers and commuters who do not necessarily live in the area of the services (TranSystems, 2008; US Government Accountability Office, 2006). Others argue that tourists, business travelers or commuters should not carry the same burden as residents, due to concern that these taxes or fees would discourage vacationers and businesses from investing in the area (R. Olson, personal communication, 30 August 2012). However, some believe that public transit is an asset to visitors and businesses; therefore they would pay willingly and, in doing so, help to increase economic development. For example, the M-1 light rail advocacy group in Detroit, composed of business leaders and local foundations, is advocating for the construction of a streetcar from Downtown Detroit to New Center along Woodward, a major thruway in Detroit. They have raised $84 million for the construction and are seeking an additional $25 million from the FTA (Shepardson, 2012; The Kresge Foundation, 2012). In another example, the AATA recently passed two resolutions to establish bus service from Ann Arbor to Detroit Metropolitan Airport (Chronicle Staff, 2012)

A funding source may fulfill all the previously mentioned criteria, but it must also fit the legal structure of the locality or state. For example, existing laws may prohibit or restrict changes to the tax structure, requiring either that the legislature propose a variation or that there be a popular vote. In some cases, a board may need to approve the funding source, or a locality needs to vote on a local ballot measure (Transportation Cooperative Research Program, 2009; TranSystems, 2008; US Government Accountability Office, 2006). Sometimes a governmental entity may need to be formed in order to collect and distribute funds ("Regional Transit Authority," 2012).

Finally, funding sources must be supported by both political and public will. Public transit budgets, formulas and revenue must be reported in a transparent method. The benefits to public transit must be clearly explained, especially in cities like Metro Detroit, where a "car culture" reigns. In the case of Metro Detroit, many in the region may not fully understand the benefits of public transit until they experience them directly (B. Johnson, personal communication, 27 August 2012). A strong public transit informational campaign is needed in order for any public transit funding source to gain political and public support (M. Owens, personal communication, 25 August, 2012; T. Casperson, personal communication, 29 August 2012; B. Johnson, personal communication, 27 August 2012).

8.1 Primary Funding Sources

8.1.1 Fuel Taxes

Fuel taxes are a commonly discussed funding source for transportation, especially at the state level. Fuel taxes would affect a broad range of the population and would generate a high revenue yield. The tax is a flat fee added when the consumer purchases fuel at the pump. Typically, fuel taxes are the most stable revenue source for transportation funding (Ernzen & Ernzen, 2007; US Government Accountability Office, 2006). However, as drivers switch to more fuel efficient vehicles, this tax base will continue to narrow. The fuel tax in Michigan was raised in 2008 to $0.19 per gallon (Michigan Department of Treasury, 2012b).

Despite the high yield, fuel tax revenue is not completely or directly disbursed for public transit. In Michigan, the revenue from the fuel tax is restricted to transportation funding; however, as previously noted; only about 10% of the fuel tax is permitted to be directed to public transit. Furthermore, this funding is not guaranteed (Hamilton, 2006). On top of the flat fee is a $.06 sales tax, of which $.04 goes to the state, with a very small amount to public transit, and $.02 is earmarked for education (Citizens Research Council of Michigan, 2012; McHugh, 2012, T. Casperson, personal communication, 29 August 2012). Inflation and increased road construction costs have devalued the fuel tax (Institute on Taxation and Economic Policy, 2011).

Fuel taxes are not always equitable. Fuel taxes are regressive in nature (e.g. all users are taxed the same) and are less beneficial when there is no quality public transit alternative. Often, low-wage workers have to drive farther for employment; however, states can offer tax credits to low-income families to counter balance the added burden (Institute on Taxation and Economic Policy, 2011). In regards to overall transportation funding, when compared to rural areas, urban areas tend to pay higher amounts because of population but receive less of the funding. This happens even at the national level, where certain states such as Michigan are known as “donor” states. In 2003, Michigan was only allocated 93.15% of the tax revenue it paid (Wachs, 2003b). The cost of road construction and paratransit service per person are much higher in rural areas. Transit riders do not pay for fuel, so they receive the greatest benefit and pay the least amount (Puentes & Price, 2003). Finally, as vehicles become more fuel efficient or convert to electric energy, drivers pay less for their use of the road while still contributing to congestion.

Administration and implementation costs of a fuel tax are relatively low. The infrastructure for collecting the tax is already in place, and tax evasion is low. However, drivers who live near borders of neighboring states can drive over state lines for cheaper gas (R. Olson, personal communication, 30 August 2012).

Changing the fuel tax in Michigan would require action from the legislature. For example, Richard Olson, with the support of Governor Snyder, is sponsoring Senate Bill 918, which would change the existing fuel tax from a cents-per-gallon formula to a percentage wholesale tax on fuel. Governor Snyder has suggested altering the formula, so

that the fuel is taxed at the wholesale level instead of at the pump. There would be a cap on the tax at $.40 per gallon. The tax would not fluctuate more than $.01 per year. This would link the tax to the cost of fuel instead of to the number of gallons purchased (McHugh, 2012; Wittrock, 2012). Administration costs would likely be reduced, because instead of collecting the tax at the pump, the tax would be collected from a smaller number of wholesale distributors. The sales tax of 6% would still be collected at the pump.

The political feasibility of increases or structural changes to the fuel tax is low. Gas prices currently hover close to $4 per gallon. The current bill to change the structure has bipartisan support; however, there is a contingency of legislators who are opposed on principle to taxes of any sort, despite the current $1.4 billion deficit in transportation infrastructure. Redirecting the sales tax portion on the fuel tax from public education to transportation would also be difficult, due to the potential for strong opposition from school unions and other recipients (T. Casperson, personal communication, 29 August 2012).

8.1.2 General Revenue

General revenue is the one of the most unpopular and unstable methods for funding public transit. General revenue is used to support police, lighting and other necessary public services. In times of economic downturn and declining tax bases, public transit will likely lose revenue to more essential services (Helms, 2012).

Local general revenue can vary in terms of equitability. Funds may not always be distributed equally throughout a city or region. Politicians who approve the budget may appropriate funds to neighborhoods in which they reside or services they favor.

Implementation costs are minimal. Funds are appropriated during the regular budget approval process. Legally, municipalities are allowed to appropriate funds from general revenue to subsidize public transit.

Political feasibility depends on the existing economic conditions and how favorable municipal leaders are to public transit in relation to other competing services.

8.1.3 Payroll and Employer Taxes

Payroll or employer taxes for public transit can generate high revenue yields with a very small tax rate because of the wide tax base (US Government Accountability Office, 2006). However, they are more susceptible to fluctuations in revenue than property or fuel taxes, especially during economic downturns, as mentioned in the TriMet case study (Ernzen & Ernzen, 2007; US Government Accountability Office, 2006).

From an equity standpoint, payroll taxes are very progressive (Ernzen & Ernzen, 2007). They capture both residents and commuters, but not visitors (Transportation Cooperative Research Program, 2009). Additionally, commuters to a city and visitors do not have representation in the decision to implement a local income tax (Citizens Research Council of Michigan, 2011).

Typically, payroll or employer taxes for public transit are collected at the state level and distributed to the localities. Therefore, implementation and administration costs are relatively low and evasion is difficult (Transportation Cooperative Research Program, 2009).

The Uniform City Income Tax Act of 1964 allowed cities to levy income taxes. A total of 22 cities in Michigan have implemented a local income tax. The rates for income taxes vary depending on residency or non-residency in the city. However, the income-tax rate levied on non-residents may not exceed one-half the rate levied on residents. Approval of a local income-tax is a two-step process requiring the adoption of an ordinance by legislative action of the city council and a vote to impose the tax by city voters. Without the state legislature proposing a change to the State Constitution, a regional transit authority would not have the power to implement a regional income tax (Citizens Research Council of Michigan, 2011).

Public transit experts interviewed for this paper unanimously agreed that a local income tax is not politically feasible in Michigan at this time. The State of Michigan is the only state with a decrease in population. A payroll or employer tax would discourage businesses and residents from remaining in or returning to the state.

8.1.4 Property Taxes

Property taxes generate high revenue yields and require a small tax rate (Transportation Cooperative Research Program, 2009). However, property taxes are the primary funding source for local governments, and therefore public transit, competes with other essential city services such as police and fire services (Transportation Cooperative Research Program, 2009; US Government Accountability Office, 2006). Property taxes can also vary dramatically between localities and are reduced during bad economic times when transit service is most needed (T. Blackmore, personal communication, 27 August 2012; B. Johnson, personal communication, 27 August 2012). For example, the value of property taxes as a funding source will be much different in Detroit as opposed to Ann Arbor.

Property taxes are not necessarily equitable. Owners pay taxes on their property but may not use public transit services. Renters are more likely to use public transit but may not pay a fair portion of their rent to the landlord's property taxes. Farmers and rural property owners pay a much higher amount of property tax and most likely cannot access public transit and gain the same benefits as property owners in an urban area tax (state-level transit expert, personal communication, 29 August 2012).Senior citizens who have paid off their homes have to pay the same amount of property tax even though they have a limited income.

Administrative costs for property taxes are low because the collection process is already established (Ernzen & Ernzen, 2007).

Voters decide to renew or to increase the millage rate on their property taxes for public transit. Oakland County votes on public transit millage every two years. This year, the most recent renewal passed by 79% (Ramirez & Pardo, 2012). Macomb County and Wayne County vote on public transit millage every four years. In 2010, both counties voted over 70% to renew the public transit millage (Pardo, 2010). Voters appear to understand the need for public transit and the relationship to their property taxes. In the last few years, Ypsilanti and Ann Arbor have both amended their charter so that millage public transit taxes will not expire as they do in the tri-county region (Stanton, 2012b).

Transit professionals interviewed for this study had mixed reactions to the use of property taxes as a funding source for public transit. Several thought that the tax is

appropriate, because public transit is a form of infrastructure. Most agreed that property tax millage rates for public transit are very low in Metro Detroit. Millage renewals for public transit overwhelmingly pass (Gallagher, 2010; Pardo, 2010; Ramirez & Pardo, 2012; Stanton, 2012a). One transit professional said that passing a millage for public transit is dependent on the language; for example, most voters in Metro Detroit will support a renewal of the existing millage rate but are reluctant to vote for an increase (local-level transit expert, personal communication, 22 August 2012).

8.1.5 Sales and Use Taxes

The sales and use tax is one of the most common funding sources for public transit, and the number of localities implementing it is increasing. The tax base is very broad, requiring a very small tax percentage to generate a large amount of revenue. As mentioned previously, sales and use tax is more susceptible to economic fluctuations when compared to income or property tax. In Michigan, the $.06 sales tax is split 73.3% to School Aid Fund; 23.7% to units of local government; 1.7% to General Fund; and 1.3% to Comprehensive Transportation Fund (Citizens Research Council of Michigan, 2012; Ernzen & Ernzen, 2007; Transportation Cooperative Research Program, 2009; US Government Accountability Office, 2006; Wachs, 2003a, 2003b).

In the existing literature, there is no clear consensus on the question of whether sales and use tax is equitable. Sales tax is regressive. Critics of applying sales tax revenue to support public transit, and transportation in general, do not recognize a clear relationship between sales tax and users of public transit (Institute on Taxation and Economic Policy, 2011). Some also argue that earmarking sales tax to public transit shrinks the pool for other public services, such as education and safety (Institute on Taxation and Economic Policy, 2011; R. Olson, personal communication, 30 August 2012. Those who support sales tax as a funding source for public transit disagree, arguing that residents, commuters and visitors all pay and take part in the benefits of public transit (B. Johnson, personal communication, 27 August 2012; M. Owens, personal communication, 25 August 2012).

In Metro Detroit, sales tax would have low implementation and administrative costs, because it would rely on the existing state sales tax collection system

(TranSystems, 2008). Evasion rates are relatively low. However, consumers can cross the border of the locality or region to avoid paying the sales tax (Ernzen & Ernzen, 2007).

Legally, implementation of a local or regional sales and use tax is difficult, as noted by the Citizens Research Council of Michigan: "Public Act 180 of 1991 authorizes certain eligible municipalities to impose an excise tax at a rate not to exceed one percent of the gross receipts of restaurants and hotels, and not to exceed 2% of the gross receipts of automobile rental companies" (Citizens Research Council of Michigan, 1992). A constitutional amendment would have to create a special tax district (TranSystems, 2008). The new tax district, governed by a regional transit authority, would need to acquire voter approval for the local sales and use tax (Citizens Research Council of Michigan, 1992). Most likely, any approved local sales and use tax would face legal challenges because of several ambiguities in the Michigan constitution. Section 8 of Article 9 restricts the rate of sales tax that the Legislature may impose to six percent of their gross taxable sales of tangible personal property. The Constitution does not clearly explain if this limitation is on state sales tax or also includes local sales tax. Article 9, Sections 10 and 11, require all sale and use taxes, including local, be split 15% to townships, cities and villages and 60% to the state school-aid fund (Citizens Research Council of Michigan, 1992). According to the Michigan Constitution, Article 12, Section 1 and 2, a rate change would need to be proposed by the legislature and approved by the voters (*Constitution of Michigan of 1963*, 1963).

Passing a local regional sales tax would most likely be politically unfeasible at this current time, especially with all the required changes previously mentioned. The expense of the ballot initiative alone could total over $5 million, would require five percent of the population's signatures, and could take several years 2008 (D. Schornack, personal communication, 28 August 2012).

8.2 Secondary Funding Sources

Policymakers in Metro Detroit should consider a variety of secondary funding sources to pay for public transit. Diversified public transit funding packages tend to mitigate changes in primary funding sources that fluctuate year to year, although they do not generate as high a yield as primary sources. These secondary sources are sometimes

subsidized by those who benefit from public transit but do not pay the primary funding sources. Secondary sources can be more politically feasible, because they often do not require major legislative change.

8.2.1 Vehicle Registration

A vehicle registration fee could generate a high yield statewide or locally in Metro Detroit. Vehicle ownership is high in the region. In many cases, households own multiple cars (C. Palombo, personal communication, 25 August 2012, D.Schornack, personal communication, 28 August 2012).

A vehicle registration fee is not necessarily equitable. As previously mentioned, vehicle registration fees vary based on the cost, weight and size of the vehicle. A low-income driver is more likely to drive an older vehicle, whereas a high-income driver is more likely to own luxury vehicles. Issues related to equity arise in cases where households with poor access to public transit must own multiple vehicles. As a result, these households pay a larger contribution to a system from which they cannot fully benefit (D. Schornack, personal communication, 28 August 2012). This situation is common in more rural areas of Metro Detroit.

A vehicle registration fee is not necessarily fair, as it would charge the same rate for all drivers regardless of the distance they drive, the amount of pollution they generate and how much they contribute to congestion (Institute on Taxation and Economic Policy, 2011). The example of recreational vehicles (RVs) serves to illustrate this point. The value of a RV is significantly higher than a passenger car, and RVs are not typically driven as frequently vehicles as used for transportation to a job. Yet, owners of RVs carry a heavier tax burden, because they pay a higher vehicle registration fee (R. Olson, personal communication, 30 August 2012).Vehicle emission tests could serve to calibrate vehicle registration fees, but usage was repealed by Michigan Governor John Engler in the 1990s (The Associated Press, 1995).

The administration and implementation of a local vehicle registration fee in Metro Detroit would be minimal, because the structure for collecting the fee is already in place at the state level (Ernzen & Ernzen, 2007). The Michigan Secretary of State would collect

the local vehicle registration fee at the same time that it collects the state vehicle registration fee. The state would then distribute the local portion to the proper authority.

The vehicle registration fee can be changed either by legislative action or by popular vote. Senator Gilbert is sponsoring Senate Bill 919, which would increase the vehicle registration fee by 67% for all transportation in general (e.g. roads, infrastructure, public transit). Registration for a car worth $20,000 would increase from $103 to $172 (Michigan Votes, 2012). The revenue generated would be directed to the Michigan Transportation Fund (MTF), with a small percentage to the Comprehensive Transportation Fund (CTF).

Governor Snyder has asked the legislature to consider allowing regions or counties to charge an additional vehicle registration fee as high as $40 to fund public transit at a local level (Oosting, 2011). For example, if the Regional Transit Authority (RTA) Bill, Senate Bill 909 passes, a regional transit authority would be established to oversee public transit in the Detroit Tri-County Area and Washtenaw County. The RTA could propose an increase in the vehicle registration fee that would be subject to a popular vote (McHugh, 2012).

In general, vehicle registration fees to support public transit are considered to be more politically feasible than an increase in taxes (Institute on Taxation and Economic Policy, 2011). Most of the local- and state-level public transit experts interviewed for this study commented that they thought an increase in the vehicle registration fee was politically feasible. Despite this support, there is a strong anti-tax sentiment from Tea Party legislators in the State of Michigan 2008 (D. Schornack, personal communication, 28 August 2012). If the decision to raise the registration fee is left to the popular vote, passage could be difficult. A large lump sum fee is not as easily passed as an incremental fee spread over time (M. Owens, personal communication, 25 August 2012). Furthermore the vehicle registration fee is paid on a driver's birthday, and makes for an unappealing birthday gift from the State of Michigan 2008 (D. Schornack, personal communication, 28 August 2012).

8.2.2 Traditional Secondary Funding Sources

Most transit agencies collect revenues from advertising, concessions, rental income and purchase of service revenue. These traditional secondary funding sources do not produce high revenue yields and don't support long term planning or system growth. Equitability and implementation vary on the fairness and complexity of contracts. Local communities approve contracts at the local level, and the complex approval process depends on the intricacies of the government structure. All of the transit experts interviewed agreed that they were viable and politically feasible means to generate revenue for reliable public transit.

8.2.3 Revenue Stream Fees

Revenue-based fees are mechanisms implemented to capture revenue from development activities located near public transit. The logic is that businesses and developments that benefit from public transit infrastructure should be made to carry some of the burden. These fees tend to yield a moderate amount of revenue (Transportation Cooperative Research Program, 2009). The public transit experts interviewed did not provide information regarding the political feasibility of implementing revenue stream fees. They only found tax-increment financing (TIF) districts to be a relevant source of public transit funding when constructing high-level forms of rapid transit that will substantially increase the value of property (B. Johnson, personal communication, 27 August 2012; M. Owens, personal communications, 25 August 2012).

Impact Fees

As previously mentioned, impact fees are used as a tool to curb sprawl and to fund infrastructure required for new developments. They are not a common revenue generator for public transit and they compete with other infrastructure needs (Transportation Cooperative Research Program, 2009).

Impact fees are equitable in the sense that the developer, rather than the locality, assumes the capital expense of required public transit infrastructure. Impact fees encourage developers to build dense developments in order to recover infrastructure costs.

For a county to impose an impact fee, the fee must pass a complicated, two-part legal test. The legal test requires that the impact fee not be a tax and that it be equally distributed to all parties under the equal protection test. All new developments must be charged at the same rate. If all elements of the impact fee do not satisfy the legal tests, developers can sue the municipality, which increases the expense of administering impact fees. To protect counties that want to implement impact fees to curb sprawl, the legislature should pass legislation to grant municipalities the power to impose impact fees (Imus & Coyne, 2003).

Tax Increment Financing

TIFs are used as a tool to borrow revenue from increases in property values before they increase. The Tax Increment Financing Authority Act of 1980 permits the use of tax increment financing ("The Tax Increment Financing Authority Act," 1980). Cities across Michigan currently struggle to pay back bonds for TIFs due to the collapse of property values (Haglund, 2012).

8.2.4 User Fees

User fees are paid directly by those who use the provided public service and are invested in the operations and maintenance of the specific service (Goldman & Wachs, 2003). For the purpose of this study they include, but are not limited to, fare revenue, VMT fees, parking fees, toll roads and congestion pricing (Institute on Taxation and Economic Policy, 2011).

Fare revenue

Fare revenue is considered the perfect user fee. Those who use the public service pay directly for the service as needed. Revenue is equitable and seniors, disabled people, and children get discounted passes. Michigan transit agencies could, however, save money by switching to a cashless fare system. Currently, the amounts of fare recovered from farebox collection at DDOT and SMART are low compared to other transit agencies (Applegate, 2011). DDOT only recovers two-thirds of fares and fareboxes are often broken (Wattrick, 2012).

Vehicle Miles Traveled (VMT) Fees

VMT fees could generate a large revenue yield, and if implemented properly, could eventually replace fuel taxes. VMT fees would be very equitable, charging drivers for the exact distance they drive. VMT fees could be collected in three different methods: mileage metering depending on fuel usage, an onboard unit, or GPS monitoring (Transportation Cooperative Research Program, 2009). The legal framework for developing a VMT fee in Michigan is not clearly defined (Olson, 2011). Critics raise privacy concerns related to where and when people drive. At this time, increased fuel taxes are more politically feasible; however, this situation will probably change in the future as more people purchase fuel-efficient or electric vehicles (R. Olson, personal communication, 30 August 2012)

Parking Fees and Fines

Parking fees and fines sometimes fund public transit, indirectly from downtown development funds or directly from commuters driving to public transit stations. In Michigan, both Ann Arbor and Royal Oak direct parking revenue to a fund that improves their respective downtown areas. This fund can be used to improve public transit facilities in the downtown cores or to subsidize transit fares for downtown employees (Downtown Development Authority of Royal Oak, 2012; T. Blackmore, personal communication, 27 August 2012). The revenue levels are relatively low due to the narrow tax base. Parking fees are considered equitable when public transit riders use the parking facilities. Parking fees are highly progressive and can be adjusted to alter drivers' behaviors by increasing rates at certain times of the day. Legally, parking fees are easily adjusted by municipal departments without serious opposition. The political feasibility depends on demand for parking. Small towns with an abundance of free parking, such as Eastpointe, would not benefit from this type of funding source, whereas cities with many cultural and sporting events, such as Detroit or Ann Arbor, would benefit greatly.

Toll Roads

Toll roads are a poor choice for funding public transit in Michigan, as they do not generate a high yield. Public transit riders do reap the benefits when toll road funds are applied to public transit, but they do not share the cost burden of tolls. Drivers benefit

from such a system when traffic on the roads is reduced due to increased public transit use. The infrastructure for toll roads can be expensive. However, Tim Hoeffner, the Administrator of The Office of Project Advancement for the Michigan Department of Transportation (MDOT), states that costs are decreasing due to improvements in technology (MichiganNow.org, 2010). There is also the need for added administration with respect to implementing toll roads. Toll roads can be evaded or completely avoided. Further, in Michigan, they are illegal according to the constitution.

Overall, toll roads are viewed as being more politically feasible than other funding sources, especially if the charges are low (Institute on Taxation and Economic Policy, 2011; MichiganNow.org, 2010). The MDOT views them as being prohibitive for commerce, industry, tourism and general economic development (Transportation, 2012) In 2008, the Michigan Transportation Funding Task Force suggested toll roads as a funding source for transportation (MichiganNow.org, 2010). Interviewees had a wide variety of opinions regarding the political feasibility of implementing tolls for public transit.

Congestion Pricing

Implementing congestion pricing in Metro Detroit is not an option at this time. No North American cities have been able to implement congestion pricing. Congestion is not currently a serious problem in Metro Detroit, and therefore would not generate substantial revenue. The region is losing population, a condition which could be accelerated with the implementation of congestion pricing. Additionally, implementation is expensive. None of the transit experts interviewed saw congestion pricing as a viable option.

8.2.5 Sin Taxes

Sin taxes include cigarette taxes; liquor, beer and wine taxes; and gambling and lottery taxes. These taxes can generate significant revenues but are seldom distributed to public transit. Typically, these taxes are applied to support specific health or educational programs. Most of the interviewees did not see these taxes as appropriate sources of revenue for public transit. However, some thought that all funding possibilities should be pursued.

8.2.6 Visitor Taxes and Fees

For the purpose of this paper, secondary funding sources that primarily collect from tourists and business travelers are classified as visitor taxes and fees. These sources include hotel room and occupancy taxes, resort sales taxes and vehicle rental fees. The implementation cost of these taxes and fees is relatively low (Transportation Cooperative Research Program, 2009). However, visitor taxes and fees do not generate large yields. Supporters maintain that visitors and business travelers should also have to pay into public transit. Critics argue that such taxes and fees discourage tourism or business travelers from frequenting a region.

8.2.7 Other Taxes and Fees

The feasibility of excise taxes and utility fees is dependent on what the actual tax or fee is attached to. Yield, equity, legality, cost efficiency and political feasibility would vary based on each individual item or service.

9 SUGGESTED FUNDING SOURCES FOR METRO DETROIT

There is no single funding source that will stabilize and expand public transit in Metro Detroit. All of the transit experts interviewed felt that a diverse revenue package should be developed to fund public transit in Metro Detroit. As suggested by the case studies and summary of Metro Detroit's transit agencies, new funding sources should be designated and collected at the local level, which will reduce the region's dependency on state subsidies. Ideally, the funding sources should have a clear relationship to public transit.

The Michigan Constitution and Act 51 strongly restrict the possibility of new state and local funding sources for public transit in Michigan (Hamilton, 2007). Local governments are constrained in regards to how they can levy new taxes for public transit (D. Schornack, personal communication, 28 August 2012). Most funding sources will require the introduction and passage of new legislation.

9.1 Fuel Taxes and Registration Fees

At the state level, increases to the fuel taxes and vehicle registration tax should be made first to balance the statewide $1.4 billion shortfall for road and bridge repairs (Wittrock, 2012). A current proposal to use both statewide fuel and vehicle registration taxes to contribute to transportation funding has bipartisan support and is politically feasible. Both Michigan Republicans and Democrats agree on the need for increased transportation funding. If fuel taxes are increased, public transit would receive up to 10% of the new revenue from the MTF, distributed to the CTF Fund. In addition, a motion should be presented to change CTF to a dedicated funding source to prevent transfers to the state general budget, as was done in past years of economic decline.

In the long term, the fuel tax must be restructured so as to support related transportation services. This restructuring could be accomplished by adjusting the tax for inflation, transferring the tax from a cents-per-gallon collection method to a wholesale tax as Governor Snyder has proposed, and by removing the $.06 sales tax. New funding sources for education will need to be found in this scenario, most likely redirected from State General Revenue.

Changes to the fuel tax are a short-term solution and will not solve the problem of decreased revenue from the increase of fuel efficiency in cars. Switching from a fuel tax to VMT would be a more equitable system. However, it would be more expensive to implement, and publicly unfavorable because of privacy concerns. Initial implementation may be costly. Michigan leaders should closely monitor Portland, Oregon's VMT pilot program (R. Olson, personal communication, 30 August 2012).

Regarding local vehicle registration and license plate fees, a very modest fee adjusted for inflation, as opposed to dependent on the weight or value of vehicles, would be a strong secondary funding source. The fee should require renewal every few years to make adjustments based on the economic climate and on the need for capital funding. Historically, there was a small license plate fee that generated a large yield because of high car ownership. However, this program expired and was not renewed (C. Palombo, personal communication, 25 August 2012). Such a fee would be more palatable to the public and a steady revenue source for public transit. The legislature's current proposal for a local vehicle registration fee up to $40 will be cost-prohibitive to families with

multiple cars and RV owners. The higher the fee, the less likely it will gain both political and popular acceptance.

9.2 Property Tax

Property tax should continue to be collected in order to cover a portion of the operating costs of public transit. Macomb, Oakland and Wayne counties should amend their charters to prevent public transit millage from requiring renewal, as Ann Arbor and Ypsilanti have done. Property values do indirectly benefit from effective public transit, but in order to remain equitable, especially for seniors and large property owners, the millage should not be increased. Property tax should be viewed as a secondary funding source for existing operating costs in the full funding package, especially considering the recent collapse of housing values.

9.3 Sales and Use Tax

A long-term plan should be developed for the implementation of a dedicated local sales and use tax. A format similar to RTD's would be ideal. A segment of the sales and use tax should be dedicated to maintaining existing operations, while the remaining funds should go to capital expansions. When drafted, the ballot measure should provide alternatives instead of a "yes or no" answer. For example, instead of asking whether there should be a local sales and use tax for public transit, the ballot should give a choice, such as local regional sales and use tax that will be created for both existing public transit and capital expansion, or only for capital expansion.

At this time, implementing a regional sales tax is highly improbable. Too many steps are required even to simply allow for the creation of such a tax. The political climate in Michigan is very negative towards any new additional taxes and hostile to any alterations to the Michigan Constitution.

Public transit experts believe that once the population understands the benefits of public transit, especially through personal experience riding public transit, they might be more likely to support additional funding measures. Any new investment in public transit will require an extensive marketing campaign to change existing perceptions of public transit (B. Johnson, personal communication, 27 August 2012; R. Olson, personal

communication, 30 August 2012; M. Owens, personal communication, 25 August 2012; T. Casperson, personal communication, 29 August 2012).

9.4 Fare Revenue

As public transit services increase, fare revenue will most likely need to be increased, as was the case in almost every case study. Following the Port Authority's and MARTA's examples, Metro Detroit must improve its fare collection process, by implementing smartcards. Pre-boarding fare collection stations would also increase lead times for public transit, further benefiting riders and possibly increasing ridership.

9.5 Payroll Tax

As noted in the TriMet case study, the payroll tax is not as stable as other primary funding sources. Also, with the poor economic climate in Michigan, and because the state is still losing population, income or payroll taxes would not be desirable dedicated funding sources.

9.6 Other Secondary Funding Sources

Secondary funding sources that balance equitability issues of transit funding should be pursued. Visitors, commuters, residents and business owners should all pay their fair share for the benefits of public transit that they enjoy. These secondary funding sources should be levied in small increments to reduce the burden and avoid repelling visitors. A small hotel tax, parking fee, pour tax on liquor, or gambling fee would not discourage visitors and would offset some of the costs of public transit.

As services improve, traditional funding sources, such as advertising, concessions and service contracts will also need to be increased. Advertising will strengthen the link between the business community and public transit. Concessions will generate added benefits to riders, increasing the appeal of transit and giving options for riders to complete errands as they travel. Service contracts with universities and businesses will increase ridership and promote public transit use.

TIFs are not recommended as a secondary funding source for Metro Detroit. The region is not faring well economically, and borrowing revenue against future property values is a recipe for disaster, as mentioned earlier in the paper. Localities that actively

pursued TIF funding are struggling to pay back the bonds they borrowed because of low property values.

10 FUTURE CHALLENGES

In deciding how Metro Detroit should fund public transit, the region must come to an agreement regarding their priorities. What are reasonable expectations for public transit in the region? Who benefits and who should bear the costs? This is a difficult question to answer, because Metro Detroit is divided in several ways: between urban and rural areas; between urban and suburban areas; between Detroit and the suburbs; and along economic, political and racial lines. These divisions complicate the process of forming a consensus on how the region perceives the need for public transit. Thus, the debate concerning funding of public transit becomes an ideological fight (B. Johnson, personal communication 29 August 2012; R. Olson, personal communication, 30 August 2012; T. Casperson, personal communication, 29 August 2012).

Many residents have not used public transit on a regular basis. Without the public understanding the benefits of additional funding to public transit and knowing how efficient systems can operate, the public will continue to be reluctant to increase revenues. An extensive campaign is needed to explain the extended benefits of improved funding and the consequences of inadequate public transit. Public transit can help break down some of previously mentioned divisions (B. Johnson, personal communication 29 August 2012). A cultural shift must occur.

The Michigan Legislature is polarized on the issue of increasing taxes and fees. Lawmakers are hesitant to create major changes in the existing tax structure by altering the Michigan Constitution. They are also reluctant to bring the vote to the people (B. Johnson, personal communication 29 August 2012).

Finally, the collection and use of funding revenue should be more transparent, especially transit agency budgets and their distribution to operating and capital costs. Without these changes, it is very unlikely that any of these funding sources will have popular acceptance or be politically feasible.

REFERENCES

After 25 years, unfulfilled hope for transit still rides the People Mover. (2012). *Detroit Free Press*. Retrieved from http://www.freep.com/article/20120801/OPINION01/308010037/Editorial-After-25-years-unfulfilled-hope-for-transit-still-rides-the-People-Mover?odyssey=mod|newswell|text|FRONTPAGE|s

Allegheny County Transit Council. (2012, 29 May 2012). May 2012 - Transit news and events Retrieved 7 July 2012, from http://actransitcouncil.blogspot.com/

American Association of State Highway and Transportation Officials. (2011). *Survey of State Funding for Public Transportation*. 4 May 2012. Washington, D.C. Retrieved from http://scopt.transportation.org/Documents/2011%20Survey%20of%20State%20Funding%20for%20Public%20Transportation%20-%20FY%202009%20data.pdf

American Planning Transportation Association. (2009). *Challenges of State and LocalFunding Constraints on Transit Systems: Effects on service, fares, employment and ridership*. Washington, D.C.

American Planning Transportation Association. (2011). *Impacts of the Recession on Public Transportation Agencies: 2011 update*. Retrieved from http://www.apta.com/resources/reportsandpublications/Documents/Impacts-of-Recession-August-2011.pdf

Ann Arbor Downtown Development Authority. (2012). Alternative transportation Retrieved 8 August 2012, from http://www.a2dda.org/parking__transportation/alternative_transportation/

Ann Arbor Transit Authority. (2012a). About the AATA Retrieved 8 August 2012, from http://www.theride.org/board.asp

Ann Arbor Transit Authority. (2012b). Frequently asked questions Retrieved 7 August 2012, from http://www.aata.org/faq.asp

Ann Arbor Transit Authority. (2012c). Overview for the web Retrieved 8 August 2012, from http://www.aata.org/pdf/AATA%20overview%20for%20web.pdf

Ann Arbor Transportation Authority. (2011). *Audited financial statements for fiscal year 2011*. Retrieved from http://www.theride.org/pdf/FinancialStatements.pdf

Applegate, C. (2011). *Transit in Metro Detroit: An analysis of problems and solutions.* Wayne State University, Detroit, Michigan.

Askins, D. (2012). AATA Grapples With Health Care Issue. *Ann Arbor Chronicle*. Retrieved from http://annarborchronicle.com/2012/07/20/aata-grapples-with-health-care-issue/

Authority, A. A. T. (2012). *AATA Board approves public transit service between Ann Arbor and Detroit Metro Airport* Press Release. Ann Arbor, Michigan. Retrieved from http://www.theride.org/PRAirRide.asp

Baldwin-Hess, D., & Lombardi, P. (2005). Governmental Subsidies for Public Transit: History, current issues, and recent evidence. *Public Works Management & Policy, 10*(2).

Blue Line Media. (2012). Transit advertising in Cleveland, OH. Retrieved 21 July 2012, from http://www.bluelinemedia.com/transit-advertising/cleveland-oh

Brown, J., Baldwin-Hess, D., & Shoup, D. (2003). Fare-free Public Transit at Universities: An evaluation. *Journal of Planning Education and Research 23*(1), 69-82.

Cambridge Systematics Inc. (2008). *State and national public transportation needs analysis*. Bethesda, MD. Retrieved from http://www.apta.com/gap/policyresearch/Documents/transit_needs_studies.pdf

Carneige Mellon. (2012). Transportation options. Retrieved 7 July 2012, from http://www.cmu.edu/parking/options/index.html/

Chamberlain, A. (2006). *The case against special rental car excise taxes*. Tax Foundation. Retrieved from http://taxfoundation.org/blog/case-against-special-rental-car-excise-taxes

Chronicle Staff. (2012). AATA OKs Ann Arbor-Detroit Metro Service. *Ann Arbor Chronicle*. Retrieved from http://annarborchronicle.com/2012/02/16/aata-oks-ann-arbor-detroit-metro-service/

Citizens Research Council of Michigan. (1992). *Issues relative to the constitutionality of local sales taxation in Michigan*. Lansing, Michigan. Retrieved from http://www.crcmich.org/PUBLICAT/1990s/1992/rpt305.pdf

Citizens Research Council of Michigan. (2011). *Local-Option city income taxation in Michigan*. Memorandum. Retrieved from http://www.crcmich.org/PUBLICAT/2010s/2011/memo1103.pdf

Citizens Research Council of Michigan. (2012). *Outline of the Michigan tax system*. Retrieved from http://www.crcmich.org/TaxOutline/TaxOutline.pdf

City of Detroit. (2012). *2012 - 2013 Agency Budget* Transportation. Budget Department. Detroit, Michigan. Retrieved from http://www.detroitmi.gov/DepartmentsandAgencies/BudgetDepartment/20122013AdoptedBudget/20122013AgencyBudget.aspx

. *Constitution of Michigan of 1963*. (1963). Lansing, Michigan: Retrieved from http://www.legislature.mi.gov/%28S%28tlggdt2apvlahs45urpfylqk%29%29/mileg.aspx?page=GetObject&objectname=mcl-Constitution.

Crumm, C. (2012). Oakland voters pick nominees for November; Weigh in on tax proposals. *Oakland Press*. Retrieved from http://www.theoaklandpress.com/articles/2012/08/09/news/doc50227c1abc89d491494925.txt?viewmode=fullstory

Detroit Department of Transportation. (2012). Fares Retrieved 4 May 2012, from http://www.ci.detroit.mi.us/DepartmentsandAgencies/DetroitDepartmentofTransportation/BusSchedules/Fares.aspx

Detroit Free Press. (2001). *The Detroit Almanac: 300 years of life in the motor city*. Detroit, MI.

Detroit Transit History. (2006). A Brief Look-Back at Detroit's Transit History. Retrieved 7 July 2012, from http://www.detroittransithistory.info/index.html

Detroit Transportation Corporation. (2012a). *Comparative Budget: Fiscal years 2011 and 2012*. Detroit, Michigan. Retrieved from http://www.detroitmi.gov/LinkClick.aspx?fileticket=bJiC8SEaB5w%3D&tabid=3137&mid=4449

Detroit Transportation Corporation. (2012b). Overview Retrieved 8 August 2012, from http://www.thepeoplemover.com/Overview.id.26.htm

Detroit Transportation Corporation. (2012c). Riding info Retrieved 7 July 2012, from http://www.thepeoplemover.com/Schedule.id.19.htm

Encyclopedia of Britannica. (2012). Taxation: Proportional, progressive, and regressive taxes Retrieved 7 August 2012, from http://www.britannica.com/EBchecked/topic/584578/taxation/72006/Proportional-progressive-and-regressive-taxes

Ernzen, K., & Ernzen, J. (2007). *Developing a stabilized public transportation revenue source*. Arizona Department of Transportation. Tempe, AZ.

Gallagher, J. (2010). SMART bus millage is renewed decisively. *Detroit Free Press*. Retrieved from http://www.freep.com/article/20100804/NEWS15/8040508/SMART-bus-millage-renewed-decisively

Genetech Inc. (2012). Your commute just became easier Retrieved 24 August 2012, from http://www.gene.com/gene/careers/gride.html

Goldman, T., & Wachs, M. (2003). A Quiet Revolution in Transportation Finance: The rise of local option transportation taxes. *Transportation Quarterly, 57*(1).

Greater Cleveland Regional Transit Authority. (2011). About RTA: RTA facts 2011., from http://www.riderta.com/ar_RTAfacts.asp

Greater Cleveland Regional Transit Authority. (2012a). About RTA: History of public transit in Greater Cleveland. Retrieved 21 July 2012, from http://www.riderta.com/ar_RTAhistory.asp

Greater Cleveland Regional Transit Authority. (2012b). About the RTA. Retrieved 21 July 2012, from http://www.riderta.com/ar_organization.asp

Greater Cleveland Regional Transit Authority. (2012c). *Operating and Capital Budget for the Year 2012*. Retrieved from http://www.riderta.com/budget/2012/

Haglund, R. (2012). Tax Increment Financing Authorities (TIFAs) across the state in financial trouble, looking to taxpayers for help *MLive*. Retrieved from http://www.mlive.com/politics/index.ssf/2012/08/tax_increment_financing_author.html

Hamilton, W. E. (2006). *Comprehensive transportation fund revenue issues*. Michigan House Fiscal Agency. Lansing, Michigan.

Hamilton, W. E. (2007). *Act 51 Primer: A guide to 1951 Public Act 51 and Michigan transportation funding*. Michigan House Fiscal Agency.

Hart, A. (2011). MARTA fares to jump to $2.50, among highest in nation. *The Atlanta Journal-Constitution* Retrieved from http://www.ajc.com/news/atlanta/marta-fares-to-jump-984396.html

HDR Engineering Inc. *Transit Master Plan Final Report*. Ride the Rapid,. Atlanta, GA. Retrieved from http://www.ridetherapid.org/assets/files/8b/transitmasterplanfinalreport_071210.pdf

Helms, M. (2012). Detroit proceeds with 2012-13 budget. *Detroit Free Press*. Retrieved from http://www.freep.com/article/20120523/NEWS01/205230390/1001/news

Imus, B., & Coyne, W. (2003). *Development of Impact Fees in Michigan: A tool to stop sprawl subsidies and promote efficient growth*. PIRGIM Education Fund. Ann Arbor, Michigan. Retrieved from http://www.policyarchive.org/handle/10207/bitstreams/5494.pdf

Institute on Taxation and Economic Policy. (2011). *Building a Better Gas Tax: How to fix one of the state government's least sustainable revenue sources*. Washington, D.C. Retrieved from http://www.itepnet.org/bettergastax/bettergastax.pdf

Irvin Corely, J. (2011). *2011-2012 Budget Analysis*. Budget Analysis. Detroit Transportation Corporation. Retrieved from http://www.detroitmi.gov/LinkClick.aspx?fileticket=bJiC8SEaB5w%3D&tabid=3137&mid=4449

Jing, J. (2012). RTD bus service cuts, route changes coming. *KDVR.com*. Retrieved from http://kdvr.com/2012/01/09/rtd-bus-service-cuts-route-changes-coming/

King, K. (2011). The Rapid millage increase approved by 136 votes. *The Grand Rapids Press*. Retrieved from http://www.mlive.com/news/grand-rapids/index.ssf/2011/05/the_rapid_millage_increase_app.html

Klinefelter, Q. (2012). Commuters suffer As Detroit cuts bus service. *National Public Radio*. Retrieved from http://www.npr.org/2012/03/08/148225070/commuters-suffer-as-detroit-cuts-bus-service.

Kroes, L. R. S., & Houston, J. (2004). *Utah's tax situation*. Utah Foundation. Retrieved from http://www.utahfoundation.org/img/pdfs/rr666.pdf

Kurtzleben, D. (2011). 10 Best cities for public transportation. *US News*. Retrieved from www.usnews.com/news/articles/2011/02/08/10-best-cities-for-public-transportation

Leib, J. (2011). http://www.denverpost.com/news/ci_18752052. *Denver Post*. Retrieved from http://www.denverpost.com/news/ci_18752052

Lottery, P. (2012). Where does my money go. Retrieved 7 July 2012, from http://www.palottery.state.pa.us/content.aspx?id=60

MARTA service cuts coming tomorrow! (2010). *Decatur Metro*. Retrieved from http://www.decaturmetro.com/2010/09/24/marta-service-cuts-coming-tomorrow/

McHugh, J. (2012, 2 February 2012). Nation's Highest Gas Tax Coming To Michigan? , 7 July 2012, from http://www.mackinac.org/16407

Metropolitan Atlanta Rapid Transit Authority. (2011). *This is my MARTA: Annual Report*. Retrieved from http://www.itsmarta.com/uploadedFiles/About_MARTA/Reports/PAFR_2011%20final.pdf

Metropolitan Atlanta Rapid Transit Authority. (2012a). About MARTA. Retrieved 22 July 2012, from http://www.itsmarta.com/advertising-on-marta.aspx

Metropolitan Atlanta Rapid Transit Authority. (2012b). *Adopted Operating and Capital Funds Budget* Atlanta, Georgia. Retrieved from http://www.itsmarta.com/uploadedFiles/About_MARTA/Reports/FY%202012%20Budget%20Book.pdf

Metropolitan Atlanta Rapid Transit Authority. (2012c). MARTA's past and future. Retrieved 21July 2012, from http://www.itsmarta.com/marta-past-and-future.aspx

Metropolitan Atlanta Rapid Transit Authority. (2012d). MARTA enhances customer amenities with the launch of its concessions and vending program. Retrieved 21 July 2012, from http://www.itsmarta.com/concessions.aspx

Metropolitan Atlanta Rapid Transit Authority. (2012e). MARTA leadership. Retrieved 24 July 2012, from http://www.itsmarta.com/board-of-directors.aspx

Michigan Department of Transportation. (2012). Federal-aid highways in Michigan Retrieved 8 August 2012, from http://www.michigan.gov/mdot/0,4616,7-151-9622_11033_11155---,00.html

Michigan Department of Treasury. (2012a). Frequently asked questions Retrieved 8 August 2012, from http://www.michigan.gov/taxes/0,1607,7-238-43715-154015--F,00.html

Michigan Department of Treasury. (2012b). Michigan Taxes: Motor fuel Retrieved 7 July 2012, from http://www.michigan.gov/taxes/0,1607,7-238-43542_43544---,00.html

Michigan Votes. (2012). 2012 Senate Bill 919: Increase state vehicle registration tax Retrieved 7 July 2012, from http://www.michiganvotes.org/2012-SB-919

MichiganNow.org. (2010, 23 December 2010). Toll Roads: Too far out for Michigan? Retrieved 8 August 2012, from http://www.michigannow.org/2010/12/23/toll-roads-too-far-out-for-michigan/

National Transit Database. (2007). Federal Register (Vol. 72).

National Transit Database. (2009a). TS1.1 - Total funding time-series. Retrieved 7 July 2012 http://www.ntdprogram.gov/ntdprogram/data.htm

National Transit Database. (2009b). TS1.4 - Sources of local operating funds time-series. http://www.ntdprogram.gov/ntdprogram/data.htm

National Transit Database. (2009c). TS1.5 - Sources of state operating funds time-series. http://www.ntdprogram.gov/ntdprogram/data.htm

National Transit Database. (2009d). TS1.6 - Sources of local capital funds time-series. http://www.ntdprogram.gov/ntdprogram/data.htm

National Transit Database. (2009e). TS1.7 - Sources of state capital funds time-series. Retrieved 7 July 2012 http://www.ntdprogram.gov/ntdprogram/data.htm

National Transit Database. (2010a). Ann Arbor Transportation Authority (AATA). Retrieved 7 July 2012 http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2010/agency_profiles/5040.pdf

National Transit Database. (2010b). City of Detroit Department of Transportation (DDOT). Retrieved 7 July 2012 http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2010/agency_profiles/5119.pdf

National Transit Database. (2010c). Denver Regional Transportation District (RTD). http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2010/agency_profiles/8006.pdf

National Transit Database. (2010d). Detroit Transportation Corporation (Detroit People Mover). Retrieved 7 July 2012 http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2010/agency_profiles/5141.pdf

National Transit Database. (2010e). The Greater Cleveland Regional Transit Authority (GCRTA). http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2010/agency_profiles/5015.pdf

National Transit Database. (2010f). Metropolitan Atlanta Rapid Transit Authority (MARTA).

http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2010/agency_profiles/4022.pdf

National Transit Database. (2010g). Port Authority of Allegheny County (Port Authority). http://www.ntdprogram.gov/ntdprogram/pubs/top_profiles/2010/agency_profiles/3022.pdf

National Transit Database. (2010h). Suburban Mobility Authority for Regional Transportation (SMART). Retrieved 7 July 2012 http://www.ntdprogram.gov/ntdprogram/pubs/profiles/2010/agency_profiles/5031.pdf

National Transit Database. (2010i). Tri-County Metropolitan Transportation District of Oregon (TriMet). http://www.ntdprogram.gov/ntdprogram/pubs/top_profiles/2010/agency_profiles/0008.pdf

National Transit Database. (2011). *NTD Glossary*. Retrieved from http://www.ntdprogram.gov/ntdprogram/Glossary.htm

Olson, R. (2011). *Mechanism for Mileage Based User Fee Collection*.

Oosting, J. (2011). Snyder: 'Continued failure not an option' for regional transportation in Metro Detroit. *MLive*. Retrieved from http://www.mlive.com/news/detroit/index.ssf/2011/10/snyder_continued_failure_not_a.html

Oregon Department of Revenue. Transit payroll taxes for employers. Retrieved 7 July 2012, from http://cms.oregon.gov/dor/BUS/Pages/IC-211-503.aspx

Oregon Department of Revenue. (2012). Tobacco tax overview. Retrieved 7 July 2012, from http://cms.oregon.gov/dor/TOB/Pages/tobacco-products-tax.aspx

OregonLaws.org. (2012a). Elderly and Disabled Special Transportation Fund. Retrieved 7 July 2012, from http://www.oregonlaws.org/ors/391.800

OregonLaws.org. (2012b). Use of funds to finance and improve transportation for elderly individuals and individuals with disabilities. Retrieved 7 July 2012, from http://www.oregonlaws.org/ors/391.830

Pardo, S. (2010). SMART millage passes easily. *Detroit News*. Retrieved from http://www.detroitnews.com/article/20100804/POLITICS02/8040368

Pennsylvania Department of Revenue. (2012). *Public Transportation Assistance Fund Taxes and Fees*. Retrieved from http://www.portal.state.pa.us/portal/server.pt/community/public_transportation_assistance___vehicle_rental_tax/14501.

Pennsylvania House Appropriations Committee. (2011). *Budget Primer: Transportation*. Pennsylvania: Retrieved from http://www.pahouse.com/HACD/series/37/BP_TransMassTransit_Feb2011.pdf.

Pickrell, D. H. (1985). Rising deficits and the uses of transit subsidies in the United States. *Journal of Transport Economics and Policy*, *19*(3), 281-298.

Plante and Moran LLC. (2011). *Surban Mobility Authority for Regional Transportation - Finacial Report with Supplement Information*. Retrieved from http://www.smartbus.org/SiteCollectionDocuments/Financial%20and%20Annual%20Reports/FY2011%20SuburbanMobilityAuthforRegionalTransportation.pdf

Port Authority. (2012). Agency profile. Retrieved 7 July 2012, from http://www.portauthority.org/paac/CompanyInfoProjects/AgencyProfile.aspx

Port Authority fares increase with new year. (2011). *WPXI.com*. Retrieved from http://www.wpxi.com/news/news/port-authority-fares-increase-with-new-year/nGy5w/

Port Authority of Allegheny County. (2012). *Operating and Capital Improvement Budgets: Fiscal Year 2012*. Pittsburgh, Pa. Retrieved from http://www.portauthority.org/paac/portals/Capital/2012Budget/2012BudgetBook.pdf

Public Transportation Partnership for Tomorrow. (2012). *Ten Ways to Enhance your Community: Unleash the power of public transportation*. Washington, D.C. Retrieved from http://www.apta.com/resources/reportsandpublications/Documents/10ways.pdf

Puentes, R., & Price, R. (2003). Fueling Transportation Finance: A primer on the gas tax *Transportation Reform Series*. Washington, D.C.: The Brookings Institution.

Puncher, J., Anders, M., & Hirschman, I. (1983). Impacts of subsidies on the costs of urban public transport. *Journal of Transport Economics and Policy, 17*(2), 155-176.

Ramirez, C. E., & Pardo, S. (2012). Millages for Wayne County jails, Warren police services pass. *Detroit News*. Retrieved from http://www.detroitnews.com/article/20120808/POLITICS01/208080364#ixzz24bapN9kU

Regional Transit Authority, Senate Bill 909, SB 909, Michigan Senate (2012).

Regional Transportation District. (2012a). *Adopted Budget* Denver, Colorado. Retrieved from http://www.rtd-denver.com/PDF_Files/Financial_Reports/Adopted_2012.pdf

Regional Transportation District. (2012b). *Comprehensive Annual Financing Report: Fiscal Year ended December 31, 2011*. Denver, Colorado. Retrieved from http://www.rtd-denver.com/PDF_Files/Financial_Reports/2011Comprehensive_Annual_Financial_Report.pdf.pdf

Regional Transportation District. (2012c). Facts and figures. Retrieved 7 July 2012, from http://www.rtd-denver.com/factsAndFigures.shtml

Regional Transportation District. (2012d). RTD Board of Directors. Retrieved y July 2012, from http://www.rtd-denver.com/BoardDirectors.shtml

Regional Transportation District. (2012e). Services. Retrieved 7 July 2012, from http://www.rtd-denver.com/SystemInfo.shtml

Rick Snyder to propose wholesale tax on fuel in Michigan. (2011). *HuffPost Detroit*. Retrieved from http://www.huffingtonpost.com/2011/10/26/rick-snyder-wholesale-tax-fuel-michigan_n_1032464.html

Roseboom, T. (2012). Bus Data (City of Detroit, Trans.). In Detroit Department of Transportation (Ed.). Detroit, Michigan.

Schmitz, J. (2012a). Allegheny County drink tax wasn't meant for Port Authority. *Pittsburgh Post-Gazette*. Retrieved from http://www.post-gazette.com/stories/local/neighborhoods-city/allegheny-county-drink-tax-wasnt-meant-for-port-authority-275636/

Schmitz, J. (2012b). More Port Authority transit cuts ahead. *Pittsburgh Post-Gazette*. Retrieved from http://www.post-gazette.com/stories/news/transportation/more-port-authority-transit-cuts-ahead-218080/

Shepardson, D. (2012). LaHood reports progress on regional transit. *The Detroit News*. Retrieved from http://www.detroitnews.com/article/20120822/METRO05/208220340/LaHood-reports-progress-regional-transit?odyssey=mod|newswell|text|FRONTPAGE|s

Sherman, L. (2009). America's downsized cities. *Forbes.com*. Retrieved from http://www.forbes.com/2009/03/19/downsized-cities-population-lifestyle-real-estate-cities.html

Smith, M. R. (2010). *Public Transit in Portland: A history*. Tri-County Metropolitan Transportation District of Oregon. Portland, Oregon. Retrieved from http://trimet.org/pdfs/publications/Public-Transit-in-Portland.pdf

Solis, B. (2012). Hybrid movement: AATA adds 10 new hybrid fuel buses to fleet. *The Washtenaw Voice*. Retrieved from http://www.washtenawvoice.com/2012/01/hybrid-movement-aata-adds-10-new-hybrid-fuel-buses-to-fleet/

Southeast Michigan Council of Governments. (2012). Quick Facts: Housing valuation and Its impact on the Michigan economy. Retrieved 7 July 2012, from http://www.semcog.org/uploadedFiles/Programs_and_Projects/Quick_Facts/HousingValuationDocument.pdf

Stanton, R. J. (2012a). AATA financial task force: Countywide transit plan could be funded with 0.5-mill tax. *AnnArbor.com*. Retrieved from http://annarbor.com/news/aata-financial-task-force-countywide-transit-plan-could-be-funded-with-05-mill-tax/?cmpid=mlive#.UDmEW6Os-S0

Stanton, R. J. (2012b). Mayor Paul Schreiber thinks countywide transit tax would pass comfortably in Ypsilanti. *AnnArbor.com*. Retrieved from http://www.annarbor.com/news/ypsilanti/mayor-paul-schreiber-thinks-countywide-transit-tax-for-washtenaw-ride-would-pass-comfortably-in-ypsi/#.UEZce5as-S0

Suburban Mobility Authority for Regional Transportation. (2008). *By-laws and rulses of procedures of the Suburban Mobility Authority for Regional Transportation*. Retrieved from http://www.smartbus.org/SiteCollectionDocuments/aboutus/SMARTBYLAWSANDRULESOFPROCEDURE51608.pdf

Suburban Mobility Authority for Regional Transportation. (2012a). Board of Directors Retrieved 7 July 2012, from http://www.smartbus.org/aboutus/overview/Pages/boardofdirectors.aspx

Suburban Mobility Authority for Regional Transportation. (2012b). Fares and passes Retrieved 7 August 2012, from http://www.smartbus.org/faresandpasses/overview/Pages/default.aspx

Suburban Mobility Authority for Regional Transportation. (2012c). History of transit in Southeast Michigan region Retrieved 8 July 2012, from http://www.smartbus.org/aboutus/overview/Pages/History-of-Transit-in-Southeast-Michigan-Region-.aspx

Suburban Mobility Authority for Regional Transportation. (2012d). Overview and history, from http://www.smartbus.org/aboutus/overview/Pages/default.aspx

Suburban Mobility Authority for Regional Transportation. (2012e). SMART facts Retrieved 8 August 2012, from http://www.smartbus.org/aboutus/overview/Pages/smartfacts.aspx

Suburban Mobility Authority for Regional Transportation. (2012f). SMART Millage on the ballot in Oakland County on August 7, 2012 Retrieved 12 August 2012, from http://www.smartbus.org/newsinfo/pressreleases/Pages/SMART-Millage-on-the-Ballot-in-Oakland-County-on-August-7,-2012.aspx

Sussna, E. (1959). Costs, productivity and welfare problems of the local transit industry. *Land Economics, 35*(3), 243-254.

Swatosh, J. (2012). *History of public transit in Southeast Michigan*. Compilation. Suburban Mobility Authority for Regional Transportation.

Tax Foundation. (2012a). Lottery and gambling taxes. Retrieved 7 July 2012, from http://taxfoundation.org/tax-topics/lottery-and-gambling-taxes

Tax Foundation. (2012b). Property taxes. Retrieved 7 July 2012, from http://taxfoundation.org/tax-topics/property-taxes

Tax Foundation. (2012c). Sales and use taxes. Retrieved 7 January 2012, from http://taxfoundation.org/tax-topics/sales-use-taxes

The Tax Increment Financing Authority Act, 45 C.F.R. (1980).

Taxation Foundation. (2012). Cigarette taxes. Retrieved 7 July 2012, from http://taxfoundation.org/tax-topics/cigarette-taxes

The Associated Press. (1995, 27 September 1995). Engler to kill southeast Michigan EPA-ordered tailpipe emmisions tests, *Ludington Daily News*. Retrieved from http://news.google.com/newspapers?nid=110&dat=19950927&id=-zRQAAAAIBAJ&sjid=pVUDAAAAIBAJ&pg=2372,8219735

The Kresge Foundation. (2012, 4 June 2012). Kresge and M-1 RAIL partners pledge to resolve last issues surrounding Detroit light rail project, 28 August 2012, from http://www.kresge.org/news/kresge-and-m-1-rail-partners-pledge-resolve-last-issues-surrounding-detroit-light-rail-project

The Public Technology Institute. (2005). *Show Me the Money: A decision-maker's funding compendium for transportation systems management and operations*. Washington, D.C.

Transit Cooperative Research Program. (2009). Local and Regional Funding Mechanisms for Public Transportation. Washington, DC: Federal Transit Administration.

Transportation Cooperative Research Program. (2009). *Local and regional funding mechanisms for public transportation*. Washington, D.C. Retrieved from http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_129.pdf

Transportation, M. D. o. (2012). Frequently asked questions Retrieved 8 August 2012, from http://www.michigan.gov/mdot/0,4616,7-151-14013-28071--F,00.html

Transportation Riders United. (2012). *Broken Promises: DDOT still failing to provide adequate bus service*. Detroit, Michigan. Retrieved from http://www.detroittransit.org/UserFiles/TRU%20DDOT%20Bus%20Timeliness%20Report%20May%202012.pdf

TranSystems. (2008). *Comprehensive Regional Transit Service Plan Final Report*. Regional Transit Coordinating Council.

Tri-County Metropolitan Transportation District of Oregon. (2011). *Adopted Budget 2011-2012*. Retrieved from http://trimet.org/pdfs/publications/fy12-adopted-budget.pdf

Tri-County Metropolitan Transportation District of Oregon. (2012a). Advertising on TriMet. Retrieved 7 July 2012, from http://trimet.org/advertising/index.htm

Tri-County Metropolitan Transportation District of Oregon. (2012b). Challenges and choices, a budget discussion guide. Retrieved 7 July 2012, from http://trimet.org/choices/why-is-there-a-budget-shortfall.htm

Tri-County Metropolitan Transportation District of Oregon (2012). Payroll and Self-Employment Tax Information Retrieved 7 July 2012, from http://trimet.org/taxinfo/index.htm

Tri-County Metropolitan Transportation District of Oregon. (2012c). Payroll and self-employment tax information., from http://trimet.org/taxinfo/index.htm

Tri-County Metropolitan Transportation District of Oregon. (2012d). *Transit Investment Plan FY 2012*. Portland, Oregon. Retrieved from trimet.org/tip

Tri-County Metropolitan Transportation District of Oregon. (2012e). Transit pass programs for colleges. Retrieved 7 July 2012, from http://trimet.org/colleges/index.htm

Tri-County Metropolitan Transportation District of Oregon. (2012f). The TriMet story. Retrieved 7 July 2012, from http://trimet.org/about/history/trimet_story.htm

TriMet General Manager's Budget Task Force. (2012). *FY13 Budget recommendations*. Retrieved from http://trimet.org/pdfs/publications/fy13-budget-task-force-recommendations.pdf

Ubbels, B., & Nijkamp, P. (2002). Unconventional funding of urban public transport. *Transportation Research Part D, 7*, 317-329.

University Transportation Center for Mobility. (2012). A guide to transportation funding options. Retrieved 7 July 2012, from http://utcm.tamu.edu/tfo/transit/summary.stm

US Government Accountability Office. (2006). *Mass transit: Issues related to provided dedicated funding for the Washington Metropolitan Area Transit Authority*. Washington, D.C. Retrieved from http://www.gao.gov/assets/260/250094.pdf

US Government Accountability Office. (2010). *Federal role in value capture strategies for transit is limited, but additional guidance could help clarify policies*. Washington, D.C. Retrieved from http://www.gao.gov/products/GAO-10-781

Wachs, M. (2003a). A dozen reasons for raising the gasoline taxes. *Public Works Management and Policy, 7*(4), 235-242.

Wachs, M. (2003b). *Improving efficiency and equity in transportation finance*. Transportation Reform Series. The Brookings Institution. Washington, D.C. Retrieved from http://www.brookings.edu/~/media/research/files/reports/2003/4/transportation%20wachs/wachstransportation.pdf

Wachs, M. (2008). *Options for metropolitan transit funding*. Testimony. New York State Commission on MTA Financing.

Wattrick, J. T. (2012). Michigan Transportation Odyssey: Broken fare boxes, race relations and DDOT's 53 bus. *Detroit News*. Retrieved from

http://www.mlive.com/news/detroit/index.ssf/2012/03/michigan_transportation_odysse.html

Wittrock, A. (2012). Gov. Snyder calls for $1.4 billion in road investment, eliminating gas tax. *MLive*. Retrieved from http://www.mlive.com/news/index.ssf/2011/10/gov_snyder_calls_for_14_billio.html

APPENDIX A: LOCAL AND REGIOANL FUNSING SOURCES FOR PUBLIC TRANSIT

Funding Source	Selected Applications			
	Major Metro	**Large Metro**	**Small Urban**	**Rural**
	>1.0 Million	**>200,000-1.0 Million**	**50,000-200,000**	**<50,000**
Traditional Taxes and Fees				
General Revenues	Chicago, IL (PACE)	Allentown, PA	Durant, OK	Baldwin County, AL
	Miami-Dade County, FL	Gulfport-Biloxi, MS	Jefferson City, MO	Eureka Springs, AR
	Orlando, FL	Lubbock, TX	Licking County, OH	Ft. Morgan, CO
	San Francisco, CA (MUNI)	Oklahoma City, OK	Waterloo, IA	Paducah, KY
	Virginia Beach/ Hampton Roads, VA			Sturgis, SD
	Washington, DC (PRTC)			
Sales Taxes	Chicago, IL (RTA)	Austin, TX	Athen-Clark County, GA	Park City, UT
	Denver, CO	Corpus Christi, TX	Durant, OK	
	Houston, TX	Dayton, OH	Jefferson City, MO	
	Las Vegas, NV	Reno, NV	St. Clair County, MO	
	Miami-Dade County, FL	Salt Lake City, UT	St. Joseph, MO	
	New York, NY	Spokane, WA		
	San Francisco, CA (BART)			
	San Francisco, CA (MUNI)			
	St. Louis, MO (City)			
	St. Louis, MO (St. Clair County, IL)			
	Seattle/ King County, WA			
	Seattle, WA (Sound)			
	Tampa, FL			
	Washington, DC (NVTA)			
Property Taxes	Las Vegas, NV	Ann Arbor, MI	Athen-Clark County, GA	Hanover, NH

Appendix A (Continued).

Funding Source	Selected Applications			
	Major Metro	**Large Metro**	**Small Urban**	**Rural**
	>1.0 Million	**>200,000-1.0 Million**	**50,000-200,000**	**<50,000**
Traditional Taxes and Fees				
Property Taxes	Minneapolis/ St.Paul, MN (Metro Transit)	Flint, MI	Lafayette, IN	Harper County, KS
	San Francisco, CA (BART)	Grand Rapids, MI	Licking County, OH	Hood River, OR
	Tampa, FL	Lansing, MI	Van Buren County, MI	Marshalltown, IA
		Minneapolis/ St.Paul, MN (Minnesota Valley Transit)		Ontonagon, MI
				Ottawa County, OH
				Van Buren, MI
				White River Junction, VT
Contract/ Purchase-of-Service Revenue	Chicago, IL (PACE)	Austin, TX	Annapolis, MD	Eureka Springs, AR
	Denver, CO (RTD)	Allentown, PA	Athen-Clark County, GA	Ft. Morgan, CO
	Orlando, FL	Ann Arbor, MI	Durant, OK	Hanover, NH
	San Francisco, CA (MUNI)	Corpus Christi, TX	Jefferson City, MO	Hood River, OR
	Tampa, FL	Dayton, OH	Lafayette, IN	Ontonagon, MI
	Virginia Beach/ Hampton Roads, VA	Flint, MI	Licking County, OH	Ottawa County, OH
		Grand Rapids, MI	Pullman, WA	Paducah, KY
		Oklahoma City, OK	Waterloo, IA	Park City, UT
		Lansing, MI		Sturgis, SD
		Lubbock, TX		White River Junction, VT
		Syracuse, NY		
Lease Revenue	Chicago, IL (CTA)	Lansing, MI		
	Denver, CO	Grand Rapids, MI		
	Minneapolis/ St.Paul, MN (Metro Transit)			
	Orlando, FL			
	San Francisco, CA			

Appendix A (Continued).

Funding Source	Selected Applications			
	Major Metro	**Large Metro**	**Small Urban**	**Rural**
	>1.0 Million	**>200,000-1.0 Million**	**50,000-200,000**	**<50,000**
Traditional Taxes and Fees				
Vehicle Fees (title, registration, tags, and inspections)	Chicago, IL (CTA)			White River Junction, VT
	Denver, CO			
	Minneapolis/ St.Paul, MN (Metro Transit)			
	Orlando, FL			
	San Francisco, CA (BART)			
Advertising Revenues	Chicago, IL (CTA, Metra)	Corpus Christi, TX	Lafayette, IN	Baldwin County, AL
	Denver, CO	Dayton, OH		Park City, UT
	Las Vegas, NV	Flint, MI		Ontonagon, MI
	Minneapolis/ St.Paul, MN (Minnesota Valley Transit)	Grand Rapids, MI		
	Orlando, FL	Lubbock, TX		
	Portland, OR	Salt Lake City, UT		
	San Francisco, CA (BART)	Spokane, WA		
	San Francisco, CA (MUNI)	Syracuse, NY		
	Virginia Beach/ Hampton Roads, VA			
Concession Revenues	Chicago, IL (CTA)			Eureka Springs, AR
	New York, NY (MTA)			
	San Francisco, CA (BART)			
Employer/ Payroll Taxes	Portland, OR	Louisville, KY		Hood River, OR
Car Rental Fees	Seattle, WA (Sound)			Eureka Springs, AR
	Washington, DC (NVTA)			

Appendix A (Continued).

Funding Source	Selected Applications			
	Major Metro	**Large Metro**	**Small Urban**	**Rural**
	>1.0 Million	**>200,000-1.0 Million**	**50,000-200,000**	**<50,000**
Traditional Taxes and Fees				
Vehicle Lease Fees				
Parking Fees at Transit Facilities	Chicago, IL (CTA, Metra)	Grand Rapids, MI	Annapolis, MD	Eureka Springs, AR
	Denver, CO			
Mortgage Recording Taxes	New York, NY (MTA)	Syracuse, NY		
Realty Transfer Taxes	Washington, DC (NVTA)			
	Chicago, IL (CTA-2008)			
Corporate Franchise Taxes (oil, transportation, transmission)	New York, NY (MTA)			
Room/ Occupancy Taxes				Park City, UT
Business License Fees		Louisville, KY		Park City, UT
Utility Fees/ Taxes			St. Joseph, MO	
			Pullman, WA	
Income Taxes - Business		Louisville, KY (corporate profits)		
Cigarette Taxes	Portland, OR (State)			
Donations	Lynx-Orlando, FL	Grand Rapids, MI (foundation grants)	Licking County, OH	Park City, UT
		Lubbock, TX		Ft. Morgan, CO
		Salt Lake City, UT		Hanover, NH
				Sturgis, SD
				White River Junction, VT
	St. Louis, MO	Grand Rapids, MI (pollution fines)		Ottawa County, OH (Sr. Service Levy)
Other Business Taxes				Park City, UT (resort tax)

Note: Only includes surveyed transit agencies. *Local and regional funding mechanisms for public transportation*, Transportation Cooperative Research Program, 2009.

APPENDIX B: LOCAL SALES TAX AND PERCENTAGE OF TOTAL REVENUE

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
ABQ Ride	Albuquerque, NM	224	$7,167,773.0	$37,575,062.0	19.1%
Access Services Incorporated	Los Angeles-Long Beach-Santa Ana, CA	1,668	$34,897,393.0	$35,179,791.0	99.2%
Alameda-Contra Costa Transit District	San Francisco-Oakland, CA	527	$49,176,972.0	$238,635,483.0	20.6%
Antelope Valley Transit Authority	Lancaster-Palmdale, CA	90	$8,915,415.0	$9,712,665.0	91.8%
Asheville Transit System	Asheville, NC	207	$24,475.0	$2,948,283.0	0.8%
Ben Franklin Transit	Kennewick-Richland, WA	85	$22,773,709.0	$26,510,326.0	85.9%
Bi-State Development Agency	St. Louis, MO-IL	829	$4,755,813.0	$175,854,246.0	2.7%
Brunswick Transit Alternative	Cleveland, OH	647	$239,020.0	$361,345.0	66.1%
Cache Valley Transit District	Logan, UT	38	$2,408,818.0	$2,408,818.0	100.0%
Capital Metropolitan Transportation Authority	Austin, TX	318	$163,967,157.0	$163,969,211.0	100.0%
Central Contra Costa Transit Authority	Concord, CA	176	$16,437,717.0	$23,912,444.0	68.7%
Central Ohio Transit Authority	Columbus, OH	398	$77,947,669.0	$80,663,654.0	96.6%
Central Puget Sound Regional Transit Authority	Seattle, WA	954	$122,163,315.0	$421,693,062.0	29.0%
Charleston Area Regional Transportation Authority	Charleston-North Charleston, SC	231	$7,606,720.0	$8,377,986.0	90.8%
Charlotte Area Transit System	Charlotte, NC-SC	435	$61,743,347.0	$105,848,542.0	58.3%

Appendix B (Continued).

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
Chicago Transit Authority	Chicago, IL-IN	2,123	$319,437,316.0	$807,601,280.0	39.6%
City of Alameda Ferry Services	San Francisco-Oakland, CA	527	$934,084.0	$2,781,170.0	33.6%
City of Commerce Municipal Buslines	Los Angeles-Long Beach-Santa Ana, CA	1,668	$3,085,623.0	$3,560,724.0	86.7%
City of Elk Grove	Sacramento, CA	369	$4,681,904.0	$7,718,684.0	60.7%
City of Fairfield - Fairfield and Suisun Transit	Fairfield, CA	26	$2,151,440.0	$2,151,440.0	100.0%
City of Gardena Transportation Department	Los Angeles-Long Beach-Santa Ana, CA	1,668	$4,069,730.0	$11,486,103.0	35.4%
City of Glendale Transit	Phoenix-Mesa, AZ	799	$4,772,512.0	$8,047,664.0	59.3%
City of Jefferson	Jefferson City, MO	38	$18,618.0	$1,237,991.0	1.5%
City of La Mirada Transit	Los Angeles-Long Beach-Santa Ana, CA	1,668	$924,774.0	$1,064,564.0	86.9%
City of Lawrence - Lawrence Transit System	Lawrence, KS	23	$1,759,306.0	$1,887,593.0	93.2%
City of Lompoc - Lompoc Transit	Lompoc, CA	60	$7,721.0	$1,473,695.0	0.5%
City of Los Angeles Department of Transportation	Los Angeles-Long Beach-Santa Ana, CA	1,668	$65,865,809.0	$65,865,809.0	100.0%
City of Murfreesboro	Murfreesboro, TN	88	$151,186.0	$302,373.0	50.0%
City of Petaluma	Petaluma, CA	18	$202,454.0	$1,777,395.0	11.4%

Appendix B (Continued).

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
City of Phoenix Public Transit Department dba Valley Metro	Phoenix-Mesa, AZ	799	$114,663,698.0	$155,257,488.0	73.9%
City of Santa Rosa	Santa Rosa, CA	102	$561,175.0	$7,250,184.0	7.7%
City of Scottsdale - Scottsdale Trolley	Phoenix-Mesa, AZ	799	$1,085,888.0	$2,618,102.0	41.5%
City of Tempe Transit Division - dba Valley Metro	Phoenix-Mesa, AZ	799	$23,548,932.0	$24,732,112.0	95.2%
City of Tucson	Tucson, AZ	291	$32,877,004.0	$73,534,584.0	44.7%
City of Union City Transit Division	San Francisco-Oakland, CA	527	$579,366.0	$3,740,003.0	15.5%
City of Vallejo Transportation Program	Vallejo, CA	34	$2,636,787.0	$14,478,559.0	18.2%
City of Visalia - Visalia City Coach	Visalia, CA	40	$1,748,209.0	$3,795,262.0	46.1%
Clark County Public Transportation Benefit Area Authority	Portland, OR-WA	474	$24,612,135.0	$25,606,949.0	96.1%
Corpus Christi Regional Transportation Authority	Corpus Christi, TX	110	$19,362,621.0	$22,882,422.0	84.6%
Culver City Municipal Bus Lines	Los Angeles-Long Beach-Santa Ana, CA	1,668	$8,600,316.0	$9,702,580.0	88.6%
Dallas Area Rapid Transit	Dallas-Fort Worth-Arlington, TX	1,407	$378,420,792.0	$943,159,367.0	40.1%
Denton County Transportation Authority	Denton-Lewisville, TX	122	$5,094,441.0	$68,637,935.0	7.4%

Appendix B (Continued).

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
Denver Regional Transportation District	Denver-Aurora, CO	499	$520,415,246.0	$524,711,634.0	99.2%
Everett Transit	Seattle, WA	954	$15,304,997.0	$18,336,911.0	83.5%
Foothill Transit	Los Angeles-Long Beach-Santa Ana, CA	1,668	$26,705,410.0	$50,177,068.0	53.2%
Fort Smith Transit	Fort Smith, AR-OK	55	$451,403.0	$850,020.0	53.1%
Fort Worth Transportation Authority	Dallas-Fort Worth-Arlington, TX	1,407	$35,776,180.0	$36,016,203.0	99.3%
Gold Coast Transit	Oxnard, CA	76	$8,439,681.0	$9,504,803.0	88.8%
Golden Empire Transit District	Bakersfield, CA	110	$12,468,500.0	$12,480,984.0	99.9%
Greater Dayton Regional Transit Authority	Dayton, OH	324	$29,034,419.0	$34,498,012.0	84.2%
Intercity Transit	Olympia-Lacey, WA	92	$22,315,932.0	$23,986,036.0	93.0%
Jacksonville Transportation Authority	Jacksonville, FL	411	$18,094,913.0	$53,573,441.0	33.8%
Kansas City Area Transportation Authority	Kansas City, MO-KS	584	$40,568,481.0	$45,728,848.0	88.7%
King County Department of Transportation - Metro Transit Division	Seattle, WA	954	$281,394,923.0	$287,728,251.0	97.8%
Kings County Area Public Transit Agency	Hanford, CA	25	$83,908.0	$4,092,901.0	2.1%
Kitsap Transit	Bremerton, WA	118	$22,486,762.0	$27,215,645.0	82.6%
LACMTA - Small Operators	Los Angeles-Long Beach-Santa Ana, CA	1,668	$53,890,253.0	$54,197,013.0	99.4%

Appendix B (Continued).

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
Laketran	Cleveland, OH	647	$7,157,306.0	$8,274,520.0	86.5%
Laredo Transit Management, Inc.	Laredo, TX	43	$4,626,600.0	$6,364,979.0	72.7%
Link Transit	Wenatchee, WA	27	$7,728,597.0	$7,899,695.0	97.8%
Livermore / Amador Valley Transit Authority	Concord, CA	176	$10,997,057.0	$11,719,696.0	93.8%
Long Beach Transit	Los Angeles-Long Beach-Santa Ana, CA	1,668	$31,410,037.0	$55,269,170.0	56.8%
Los Angeles County Metropolitan Transportation Authority	Los Angeles-Long Beach-Santa Ana, CA	1,668	$774,915,195.0	$1,145,094,876.0	67.7%
Madison County Transit District	St. Louis, MO-IL	829	$6,416,430.0	$20,796,495.0	30.9%
Mass Transit Department - City of El Paso	El Paso, TX-NM	219	$29,194,575.0	$29,194,575.0	100.0%
Metro Regional Transit Authority	Akron, OH	308	$24,381,064.0	$26,557,353.0	91.8%
Metro Transit	Minneapolis-St. Paul, MN	894	$61,556,202.0	$269,121,570.0	22.9%
Metropolitan Atlanta Rapid Transit Authority	Atlanta, GA	1,963	$324,493,711.0	$399,589,083.0	81.2%
Metropolitan Council	Minneapolis-St. Paul, MN	894	$5,458,919.0	$63,545,022.0	8.6%
Metropolitan Transit Authority of Harris County, Texas	Houston, TX	1,295	$266,263,077.0	$462,013,954.0	57.6%
Miami-Dade Transit	Miami, FL	1,116	$98,435,941.0	$515,750,493.0	19.1%
Montebello Bus Lines	Los Angeles-Long Beach-Santa Ana, CA	1,668	$9,976,447.0	$18,920,436.0	52.7%

Appendix B (Continued).

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
Monterey-Salinas Transit	Seaside-Monterey-Marina, CA	41	$8,102,146.0	$10,463,988.0	77.4%
Mountain Metropolitan Transit	Colorado Springs, CO	197	$5,367,397.0	$13,895,468.0	38.6%
Napa County Transportation Planning Agency	Napa, CA	24	$2,592,099.0	$3,455,549.0	75.0%
New Orleans Regional Transit Authority	New Orleans, LA	198	$48,309,046.0	$53,341,265.0	90.6%
New York City Department of Transportation	New York-Newark, NY-NJ-CT	3,353	$12,994,213.0	$143,323,080.0	9.1%
Niagara Frontier Transportation Authority	Buffalo, NY	367	$17,367,679.0	$87,424,570.0	19.9%
North County Transit District	San Diego, CA	782	$65,989,012.0	$77,585,867.0	85.1%
Northeast Illinois Regional Commuter Railroad Corporation	Chicago, IL-IN	2,123	$331,377,898.0	$337,282,487.0	98.2%
Northern Arizona Intergovernmental Public Transportation Authority	Flagstaff, AZ	32	$3,664,011.0	$3,833,246.0	95.6%
Norwalk Transit System	Los Angeles-Long Beach-Santa Ana, CA	1,668	$5,457,485.0	$8,941,873.0	61.0%
Omnitrans	Riverside-San Bernardino, CA	439	$7,425,081.0	$54,194,617.0	13.7%
Orange County Transportation Authority	Los Angeles-Long Beach-Santa Ana, CA	1,668	$3,730,240.0	$156,615,377.0	2.4%
Port Authority of Allegheny County	Pittsburgh, PA	852	$27,668,700.0	$320,778,086.0	8.6%

Appendix B (Continued).

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
Portage Area Regional Transportation Authority	Akron, OH	308	$3,949,856.0	$4,276,085.0	92.4%
Riverside Transit Agency	Riverside-San Bernardino, CA	439	$27,263,000.0	$31,296,524.0	87.1%
Sacramento Regional Transit District	Sacramento, CA	369	$76,360,257.0	$112,954,654.0	67.6%
San Diego Metropolitan Transit System	San Diego, CA	782	$22,337,803.0	$168,796,008.0	13.2%
San Francisco Bay Area Rapid Transit District	San Francisco-Oakland, CA	527	$176,537,601.0	$516,392,206.0	34.2%
San Francisco Municipal Railway	San Francisco-Oakland, CA	527	$20,036,413.0	$446,752,992.0	4.5%
San Joaquin Regional Transit District	Stockton, CA	74	$19,222,098.0	$23,089,170.0	83.3%
San Mateo County Transit District	San Francisco-Oakland, CA	527	$76,550,810.0	$109,893,726.0	69.7%
San Mateo County Transit District	San Francisco-Oakland, CA	527	$76,550,810.0	$109,893,726.0	69.7%
Santa Barbara Metropolitan Transit District	Santa Barbara, CA	60	$157,348.0	$9,653,911.0	1.6%
Santa Barbara Metropolitan Transit District	Santa Barbara, CA	60	$157,348.0	$9,653,911.0	1.6%
Santa Clara Valley Transportation Authority	San Jose, CA	260	$274,902,569.0	$426,269,353.0	64.5%
Santa Clara Valley Transportation Authority	San Jose, CA	260	$274,902,569.0	$426,269,353.0	64.5%

Appendix B (Continued).

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
Santa Clarita Transit	Santa Clarita, CA	54	$16,060,881.0	$16,842,686.0	95.4%
Santa Cruz Metropolitan Transit District	Santa Cruz, CA	55	$23,813,435.0	$32,755,675.0	72.7%
Santa Fe Trails - City of Santa Fe	Santa Fe, NM	45	$3,350,391.0	$3,622,013.0	92.5%
Santa Maria Area Transit	Santa Maria, CA	36	$2,503,884.0	$2,923,737.0	85.6%
Santa Monica's Big Blue Bus	Los Angeles-Long Beach-Santa Ana, CA	1,668	$27,645,165.0	$73,976,076.0	37.4%
Sarasota County Area Transit	Sarasota-Bradenton, FL	270	$937,263.0	$17,657,363.0	5.3%
Skagit Transit	Mount Vernon, WA	32	$6,651,128.0	$9,737,825.0	68.3%
Snohomish County Public Transportation Benefit Area Corporation	Seattle, WA	954	$77,677,305.0	$85,993,714.0	90.3%
Sonoma County Transit	Santa Rosa, CA	102	$8,570,900.0	$12,651,862.0	67.7%
Southern California Regional Rail Authority	Los Angeles-Long Beach-Santa Ana, CA	1,668	$136,103,884.0	$155,692,352.0	87.4%
Spokane Transit Authority	Spokane, WA-ID	143	$40,537,607.0	$41,466,511.0	97.8%
St. Joseph Transit	St. Joseph, MO-KS	39	$739,486.0	$2,509,949.0	29.5%
Stark Area Regional Transit Authority	Canton, OH	143	$9,880,087.0	$10,531,347.0	93.8%
SunLine Transit Agency	Indio-Cathedral City-Palm Springs, CA	99	$20,267,731.0	$30,261,091.0	67.0%

Appendix B (Continued).

Transit Agency	Location	UZA Square Miles	Sales	Total Revenue	Percentage of Total Revenue
The Eastern Contra Costa Transit Authority	Antioch, CA	60	$1,181,935.0	$14,446,018.0	8.2%
The Greater Cleveland Regional Transit Authority	Cleveland, OH	647	$154,913,953.0	$180,003,613.0	86.1%
Thousand Oaks Transit	Thousand Oaks, CA	86	$1,786,364.0	$1,870,405.0	95.5%
Transfort	Fort Collins, CO	84	$166,308.0	$5,013,096.0	3.3%
Unitrans - City of Davis/ASUCD	Davis, CA	14	$634,518.0	$3,048,231.0	20.8%
Valley Metro Rail, Inc.	Phoenix-Mesa, AZ	799	$86,910,786.0	$87,471,095.0	99.4%
Ventura Intercity Service Transit Authority	Oxnard, CA	76	$383,916.0	$2,639,006.0	14.5%
VIA Metropolitan Transit	San Antonio, TX	408	$99,855,434.0	$99,855,434.0	100.0%
Victor Valley Transit Authority	Victorville-Hesperia-Apple Valley, CA	124	$1,019,163.0	$9,551,548.0	10.7%
Western Contra Costa Transit Authority	San Francisco-Oakland, CA	527	$1,942,905.0	$7,511,216.0	25.9%
Western Reserve Transit Authority	Youngstown, OH-PA	228	$2,667,224.0	$3,924,842.0	68.0%
Whatcom Transportation Authority	Bellingham, WA	35	$17,844,828.0	$27,886,831.0	64.0%
Yakima Transit	Yakima, WA	50	$4,630,671.0	$4,952,212.0	93.5%
Yolo County Transportation District	Sacramento, CA	369	$5,512,106.0	$5,512,106.0	100.0%

Note: Adapted from TS1 - Operating and Capital Funding, National Transit Database, 2009.

APPENDIX C: ETHICS REVIEW

McGill

Research Ethics Board Office
James Administration Bldg, room 429
845 Sherbrooke St West
Montreal, QC H3A 0G4

Tel: (514) 398-6831
Fax: (514) 398-4644
Ethics website:www.mcgill.ca/research/researchers/compliance/human/

Research Ethics Board I
Certificate of Ethical Acceptability of Research Involving Humans

REB File #: 47-0612

Project Title: Financing Public Transit in Southeast Michigan

Principal Investigator: Christina Peltier **Department:** Urban Planning

Student Status: Master's Student **Supervisor:** Prof. A. El-Geneidy

This project was reviewed by delegated review.

Deanna Collin, Ethics Review Administrator, on behalf of:

Lisa Stevenson, Ph.D.
Delegated Reviewer, REB I

Approval Period: ___20 Aug. 2012___ **to** ____19 Aug. 2013_____

This project was reviewed and approved in accordance with the requirements of the McGill University Policy on the Ethical Conduct of Research Involving Human Subjects and with the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans.

---

* All research involving human participants requires review on an annual basis. A Request for Renewal form should be submitted 2-3 weeks before the above expiry date.
* When a project has been completed or terminated a Study Closure form must be submitted.
* Should any modification or other unanticipated development occur before the next required review, the REB must be informed and any modification can't be initiated until approval is received.