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GO TO 2040 FINANCIAL PLAN FOR TRANSPORTATION

Technical Document

Contents

EXECUTIVE SUMMARY

The development of a realistic and relevant regional transportation plan requires estimates of the funds expected to be available for transportation purposes and the costs expected to be incurred. To fulfill this goal, *GO TO 2040* includes a constrained financial plan for its transportation elements. Federal planning regulations require such a plan in order to compare the estimated revenue from existing and proposed funding sources with the estimated costs of constructing, maintaining and operating the total transportation system. CMAP analysis concludes that the plan be fiscally constrained at a level of **$385 billion,** in year of expenditure dollars, for the 2011-2040 planning horizon.

CMAP has worked closely with representatives from United States Department of Transportation (USDOT), the Illinois Department of Transportation (IDOT), the Illinois State Toll Highway Authority (ISTHA), the Regional Transportation Authority (RTA), the transit service boards, county highway departments and a number of municipalities in preparing forecasts of revenues and expenditures. At various points throughout the process, CMAP staff has briefed the Transportation Committee on the assumptions and figures utilized for constructing the plan's fiscal constraint. For more information on these interim staff reports, please consult the Transportation Committee page on the CMAP Website: http://www.cmap.illinois.gov/transportation/minutes.aspx

The following table summarizes GO TO 2040's fiscal constraint for transportation. Please note that all estimates of revenues and costs are stated in *year of expenditure* dollars – in other words, inflation as well and other forecasted revenue/cost increases have already been assumed in these figures.

FISCAL CONSTRAINT FOR *GO TO 2040*
(All Numbers in Year of Expenditure for Period 2011-2040. Numbers are in Billions of Dollars)

REVENUES	
Core Revenues	
Federal	$66.3
State	$94.7
Local	$189.3
Subtotal- Core Revenues	**$350.4**
Reasonably Expected Revenues	
Motor Fuel Tax Increase	$19.4
Revenues from Congestion Pricing	$12.0
Variable Parking Pricing	$2.0
Transportation Allowances- Federal Climate Change Legislation	$1.2
Public Private Partnerships	$0.0
Value Capture- Transit Facilities	$0.0

Subtotal- Reasonably Expected Revenues	**$34.6**
TOTAL REVENUES	**$385**
EXPENDITURES	
Operating Expenditures	
Transit	$116.7
Highway	$56.9
Safe and Adequate (Capital Maintenance)	
Transit	$31.6
Highway	$127.5
Subtotal- Operating and Safe and Adequate Expenditure	**$332.7**
Moving the System Toward a State of Good Repair/Systematic Enhancements	**$41.8**
Major Capital Projects	**$10.5**
TOTAL EXPENDITURES	**$385**

The fiscal constraint for *GO TO 2040* has been constructed somewhat differently than in past plans. The first difference is the use of "year of expenditure" dollars, rather than constant dollars. This is commensurate with the federal requirement for MPO long range plans. The second difference is the analysis of local "own-source" revenues. These are non state and federal sourced revenues used by municipalities, counties and townships for transportation purposes. These revenues would include local sources like property and sales tax, state and local revenue sharing, as well as bond revenue for local capital projects. Given the inclusion of all transportation revenues, the expenditure forecasts also include resurfacing and reconstruction on all local roads and bridges, down to the level of municipal and township. Please see the full financial plan document for more information.

Core Revenues

Forecasting core revenues is meant to provide a benchmark from which additional funding can be identified. A clear description of funding sources and historical dollar amounts helps to ground the regional dialogue around matters of transportation policy and finance. Providing this information requires identifying and analyzing historical trends across varying revenue sources and making a series of different assumptions based upon these trends. In many cases, CMAP has consolidated certain funding sources, particularly at the federal and local levels, to simplify the exposition. Please see the core revenues table and accompanying descriptions and assumptions in the full financial plan document for more detail.

The overriding assumptions used to forecast core revenue trends include the following:

• Northeastern Illinois anticipates continued revenues from federal, state, and local sources for the building, operations, and maintenance of the current roadway and transit systems over the long range planning horizon;

• Over the planning horizon, the various sources of transportation revenues and allocation mechanisms are assumed to remain the same as today. Thus, the core forecast does not include any new sources, or any tax increases or alterations to funding formulas above and beyond historical trends;

• For the different revenue sources, historical trends are used to predict future revenues. Different revenue sources are assumed to grow at different rates, based upon these trends.

CMAP has worked closely with representatives from the RTA, IDOT, ISTHA, and others in preparing these forecasts. In total the amount of core revenues available between 2011 and 2040 is estimated to be **$350.4 billion**.

Reasonably Expected Revenues

The level of core revenues, which largely reflects current revenue trends, will not allow the region to make much progress in addressing our substantial transportation needs given expected population growth. FHWA/FTA guidance on the fiscal constraint permits MPOs to calculate revenues that can "reasonably be expected". What is "reasonable" usually constitutes a judgment call, based upon the current political and policy climate at various levels of government. The inclusion of "reasonably expected revenues" is vital for the region to make additional needed investments, though it still will not be enough to move the system to a state of good repair, make all of the strategic improvements or construct all of the major capital projects that are desired.

CMAP has worked closely with the Transportation Committee, FHWA and the MPO consultation team in addressing the feasibility of reasonably expected revenue sources. "Reasonably expected" sources generating considerable revenues include an 8-cent increase (and subsequent annual inflation indexing) of the State motor fuel tax and revenues from the institution of congestion pricing on some segments of the region's expressway system. Smaller revenue generators which CMAP assumes to be "reasonably expected" include transportation allowances from federal climate change as well as revenues from more aggressive pricing of parking in the region. The latter strategy holds the promise of generating considerable revenues for local governments in the region.

The sum of these "reasonably expected revenues" totals an additional **$34.6 billion.**

Expenditures

With the assistance of transportation implementers, CMAP has also estimated the cost of operating, maintaining, enhancing, and expanding the system. The projected costs are organized into four overall categories:

- Maintenance and operations of the transportation system at a "safe and adequate" level;
- Moving the system to a "state of good repair";
- Systematic enhancements and improvements;
- Major capital projects

The total of transportation expenditures in these four categories must be constrained by the predicted amount of future funding. CMAP estimates that while the total of core and reasonably expected revenues will be sufficient to operate and maintain the system safely and adequately, they will prove insufficient in bringing the system to a state of good repair or approach the desired level of enhancements and expansions. CMAP estimates that the first category (maintenance and operations of the transportation system at a "safe and adequate" level) will cost **$332.2 billion** over the 30 year planning horizon. This number does not include assumptions of shorter lifecycles on maintenance schedules, upgrades to capital materials, equipment, rolling stock or facilities or any enhancements or expansions to the system.

To address "year of expenditure" dollars, capital maintenance costs are estimated by applying inflation rates for each year in the plan period. The current estimate of future highway expenditures applies a 3% rate of inflation in all years except 2012 through 2014 (2012 - 4%; 2013 - 6.5%; 2014 - 5.5%). This estimate is based on a recent transportation-specific analysis of construction prices in the article "*Construction Economic Review & Highway Cost Escalation Forecast*" in the December 2009 edition of Economic Forecasting Review, published by the Strategic Consulting Group of Parsons Brinckerhoff. The current estimate of future transit expenditures is based on capital funds available 2010-2014 information from RTA's most recent adopted budget. Those amounts include the impacts of inflation for years 2011 through 2014 and the 3% factor was applied through the remainder of the plan horizon.

The remaining **$52.8 billion (13.7% of total funding)** will be used to bring the system toward a state of good repair, enhance the system, and expand the system via the construction of major capital projects. This remaining envelope of funding constitutes the "regional budget", over the next 30 years, for maintaining or operating the system at a higher level, modernizing, enhancing, or expanding the system. While it is important to acknowledge the overall scale of

the estimated investment, CMAP stresses that regardless of any estimated funding totals, the paramount challenge for the region is to set priorities.

The priorities of *GO TO 2040's* preferred scenario are to maintain the existing system and make systematic improvements. The bulk of the region's transportation investment should be to maintain, improve, and modernize our infrastructure. Pursuing new major capital projects, while important, should remain a lower priority than these other activities. Achieving a "world-class" transportation system necessitates improving, modernizing, and increasing service on existing assets, rather than building expensive new projects which will be difficult to finance, operate and maintain over the long term.

Given the policy direction of *GO TO 2040* and CMAP's charge to establish regional priorities, the recommendation is for **$41.8 billion (10.9% of total funding)** of the remaining funding be allocated toward "state of good repair" capital maintenance and strategic enhancement projects and **$10.5 billion (2.7% of total funding)** toward major capital projects.

Other Innovative Financing

CMAP also stresses the importance of other innovative financing mechanisms in the full financial plan, and many of these sources will be recommended as part of the transportation finance recommendation in *GO TO 2040.* While these sources are not included as "reasonably expected" in the fiscally constrained plan, it is still vital for the region to advocate for these sources in order to maintain, enhance, and expand the transportation system. These other potential sources include public private partnerships, value capture for transit projects, a vehicle miles traveled tax (VMT), and an alteration to the current "55-45 split" in the State of Illinois, the informal agreement which allocates highway funding on the basis of 45 percent to northeastern Illinois and 55 percent to the remainder of the state.

See the full financial plan for a more comprehensive exposition of these sources, including best practices on where these sources have been utilized in the U.S. and abroad.

"Unconstrained" Expenditures

The total of core and reasonably expected funding will not be enough to bring the system to a state of good repair or make all the enhancements or expansions that are desired. CMAP has made some progress in estimating the amount of incremental funding necessary to bring the system to a state of good repair and make all desired enhancements and expansions. While more refinement of these numbers is needed, CMAP estimates that between **$100 and $200 billion** of additional funding is required over the next 30 years to bring the system to a state of good repair, strategically enhance, and expand the system.

CORE REVENUES

Background

For *GO TO 2040*, CMAP is preparing a forecast of both *core* as well as *reasonably expected* revenue sources. This breakdown reflects the current guidance from FHWA and FTA for the preparation of a fiscal constraint in long range transportation plans.

Forecasting core revenues is meant to provide a benchmark from which additional funding, or so-called "reasonably expected revenues" can be identified. The overriding assumptions used to forecast core revenue trends include the following:

- Northeastern Illinois anticipates continued revenues from federal, state, and local sources for the building, operations, and maintenance of the current roadway and transit systems over the long range planning horizon;

- Over the planning horizon, the various sources of transportation revenues and allocation mechanisms are assumed to remain the same as in recent years. Thus, the core forecast does not include any tax increases, fare increases or alterations to funding formulas, unless such increases or alterations have proven relatively commonplace in recent years.

- For the different revenue sources, historical trends are used to predict future revenues. Different methods are utilized for different revenue sources. This reflects the differing levels of variance among these sources throughout recent years.

All core revenue sources, whether federal highway and transit funds, State motor fuel tax funds, or local sales tax funds, reflect policy decisions made by various units of government. These decisions are nearly impossible to predict. One way to compensate for this uncertainty in a long range forecasting exercise is to divorce the revenue totals from their sources by consolidating most or all revenue sources into one regional number. This would assume the continued flow of dollars to northeastern Illinois based on historical trends but make no assumptions regarding the delivery systems of these revenues.

However, it is similarly important for CMAP to provide its partners and the public with the most up-to-date information on existing revenue sources and their historical trends. A clear exposition of funding sources and historical dollar amounts helps to ground the regional dialogue around matters of transportation policy and finance. Providing this information requires identifying and analyzing historical trends across varying revenue sources and making a series of different assumptions based upon these trends. In many cases, CMAP has

consolidated certain funding sources, particularly at the federal and local levels.[1] Please see the fiscal constraint table and accompanying descriptions and assumptions for more detail.

Comparison to Past Financial Plans

The revenue forecast for *GO TO 2040* has been constructed somewhat differently than in past plans. The main two differences are 1) the use of "year of expenditure" (YOE) dollars rather than constant dollars and 2) considerably more attention paid to analyzing local "own-source" revenues.

The use of year of expenditure dollars is commensurate with the federal requirement for MPO long range plans. Expressing revenues and expenditures in YOE is consistent with forecasting in "real dollars" or "the money of the day", as opposed to "constant dollars", which expresses the purchasing power of money in some single year. "Year of expenditure" adjusts for expected inflation as well as expected revenue increases above and beyond inflation, which typically occur given growth in the population and the regional economy. Historically, many revenue sources for transportation, such as the sales tax or federal aid, have grown at rates slightly higher than inflation. Other revenue sources, like the state motor fuel tax, have grown at rates lower than inflation. These historical trends are accounted for in the core revenue forecast.

"Local own source revenues" are non-state and federal sourced revenues used by municipalities, counties and townships for transportation purposes. These include local revenues such as the property tax, local sales tax, local disbursements of various state collected taxes like the sales, income or personal property replacement tax, as well as other local revenues allocated to funds used for the purposes of operating, maintaining, reconstructing, or expanding local roads, bridges, or for other transportation purposes. Local governments make large expenditures on transportation, relative to other expenditures. Based on CMAP analysis of available data, transportation composes roughly one quarter of municipal spending, one tenth of county spending, and over sixty percent of township spending.[2]

Overview of Core Revenues

CMAP estimates just over $350 billion in revenues for transportation over the planning horizon of 2011-2040. Roughly 54% of these revenues are expected to be locally-sourced. These local revenues include the RTA sales tax, the local allotment of the state motor fuel tax, transit farebox revenues, and other local revenues including the collar county transportation empowerment program, local option gas taxes, and other local own source revenues. Roughly

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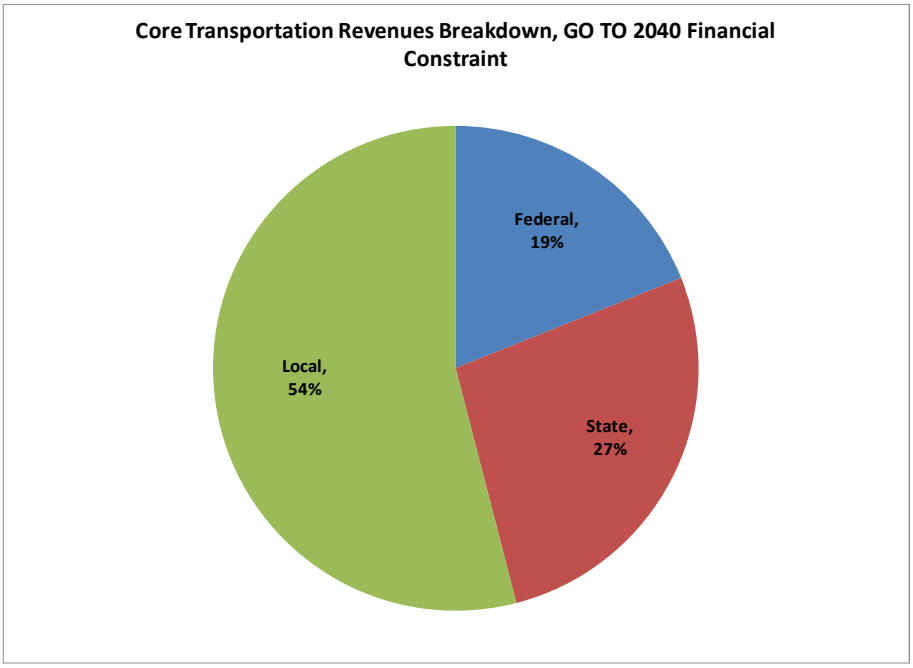
[1] For instance, many federal programs such as Highway Bridge Replacement and Rehabilitation Program, Highway Earmarks, National Highway System program, and the Federal Aid-Interstate program, are consolidated and referred to in the fiscal constraint as "other federal highway". In addition, local own-source revenues for transportation come from an exhaustive variety of sources and is consolidated rather than broken out.

[2] Source: U.S. Census of Governments, 2006. Figures reflect transportation operations, construction, and other capital outlay, relative to other expenditures, not including debt service.

27% of the revenues are expected to be state-sourced. These include state motor fuel tax and motor vehicle registration fee revenue flowing into the State Road and Construction Fund accounts, toll revenue collected by the Illinois Tollway, and expected revenues from future State of Illinois capital programs. Roughly 19% of revenues are expected to be federally sourced. These include federal aid programs for highways and transit.



The majority of transportation revenues flowing to Northeastern Illinois are generated by user fees. In this circumstance, "user fees" reflect expenditures made directly by users for the privilege of using the transportation system. "Non user fees" reflect other tax revenues that, while generated for the purposes of funding transportation, do not accrue based on any direct transaction for the privilege of using the system.

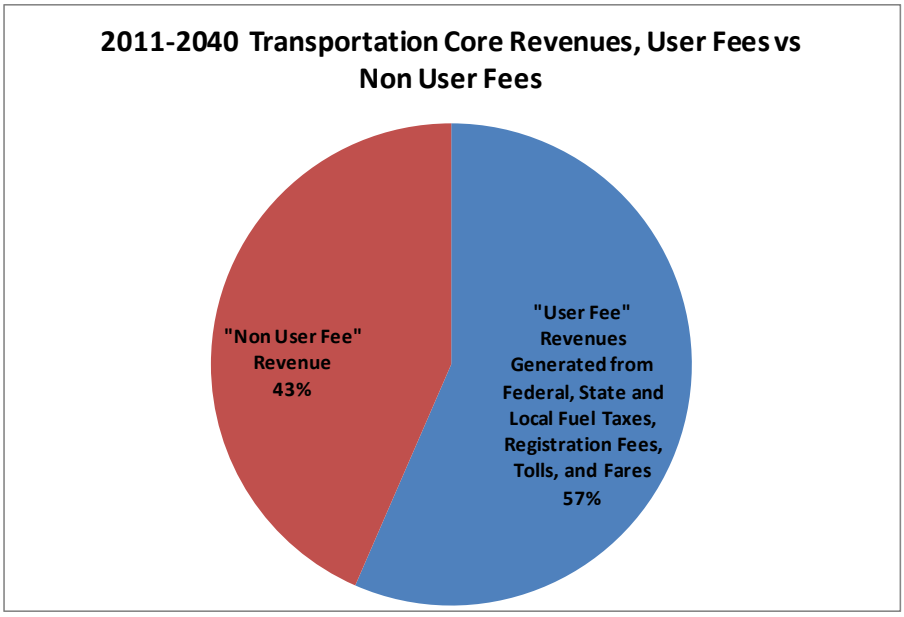
"User fee" revenues include:

- Federal Highway and Transit Aid, which is largely composed of Federal Motor Fuel Tax Revenues flowing to the Highway and Mass Transit accounts
- Transit farebox revenues
- Toll revenues
- State and local motor fuel tax revenues[3]
- State Motor Vehicle Registration fees
- State capital program bonding financed through fee increases[4]

[3] There is disagreement, especially among academic circles, as to whether motor fuel taxes indeed constitute a "user fee". As the Tax Foundation says, "If the revenue from motorists' gasoline taxes is directed to exclusively pay for the roads they use, gasoline taxes can serve as a pure "user fee" and the benefit principle is met. When taxes are levied in direct proportion to the benefit the taxpayer receives, economists say this is an efficient distribution of a public good." (see the Tax Foundation "Gasoline Taxes: User Fees or Pigouvian Levies?" http://www.taxfoundation.org/research/show/2048.html). However, motor fuel is also used for non-highway purposes (lawnmowers, tractors and generators, for instance). Furthermore, vehicles powered by alternative sources do not pay a direct user fee for the privilege of using the federal, state, or local highway network.

"Non user fee" revenues include:

- The RTA sales tax
- State operating assistance for transit
- The Real Estate Transfer Tax
- Other local revenues such as the property tax, local sales tax, state revenue sharing disbursement, or other locally generated revenues used for transportation purposes.



Federal Transportation Revenues

Federal transportation revenues are awarded to implementers in the Chicago metropolitan area through a variety of funding sources administered by the Federal Highway Administration (FHWA) and the Federal Transit Administration (FTA). Funding programs vary widely in terms of available dollars and criteria, and whether they are appropriated through formula or discretionary means. Discretionary programs utilize a variety of different criteria for project selection, and formula grants are allocated to states largely on the basis of highway or transit mileage and use, such as road mileage, miles driven, fuel consumed, fixed guideway route miles, etc.

The federal highway trust fund is the source of federal funding for transportation. Federal motor fuel tax revenues make up the primary revenue source for the Trust fund. The federal tax of 18.4 cents per gallon accumulates in both the Highway Account (15.5 cents) and Mass

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[4] For the purposes of this analysis, CMAP assumes half of the debt service for bonding would be financed through user fee increases.

Transit Account (2.8 cents). As is the case with the State Motor Fuel Tax, the federal motor fuel tax remains a cents-per-gallon tax and typically does not grow along with inflation. The federal gas tax has not been raised since 1993.

Federal funds awarded to the Chicago metropolitan area for highway and transit purposes have shown a fair degree of variance over time, particularly on the highway side. Federal highway and transit fund awards to regional entities have averaged a total of around $900M annually in 2008 dollars between the years 1997 and 2008. Federal funding for transit has been on the rise, in nominal terms, due in large part to the discretionary New Starts program, which funds capital expansions.

There remains significant uncertainty about the composition of the next federal transportation authorization. As of this writing, several frameworks for a bill have been proposed, but none offer any insight into new revenue sources.

Federal Highways

The Federal Highway Administration appropriates funding to states under a number of grant programs. In most cases, the Illinois Department of Transportation is the primary recipient of these highway funds and holds the most responsibility of programming, financing, and implementation. Most funding is allocated to State Departments of Transportation based on formula, which differs by program but typically includes criteria like total lane miles and vehicle miles traveled. Some programs or program set-asides are allocated at the discretion of the Secretary of Transportation or by Congressional earmark.

While most of these federal highway revenues flow to the State Road and Construction Accounts, some funds devolve project selection authority to CMAP (which houses the region's MPO) or to the Subregional Councils of Mayors. A prime example is the Regional Surface Transportation Program (STP). Under the regional STP, the State suballocates 62.5% of total STP funds (after a 10% Transportation Enhancement set-aside) to sub-State areas, based on population. In the Chicago region, regional STP is administered through CMAP and IDOT. Each of the 11 subregional councils and the City of Chicago receives individual funding and each council has a self determined methodology for selecting the most beneficial projects.[5] CMAP also manages and monitors the federal Congestion Mitigation and Air Quality Improvement (CMAQ) program through the CMAQ Project Selection Committee, which recommends CMAQ projects in northeastern Illinois.

The following table details some of the major federal highway grant programs, including project purpose and eligibility.

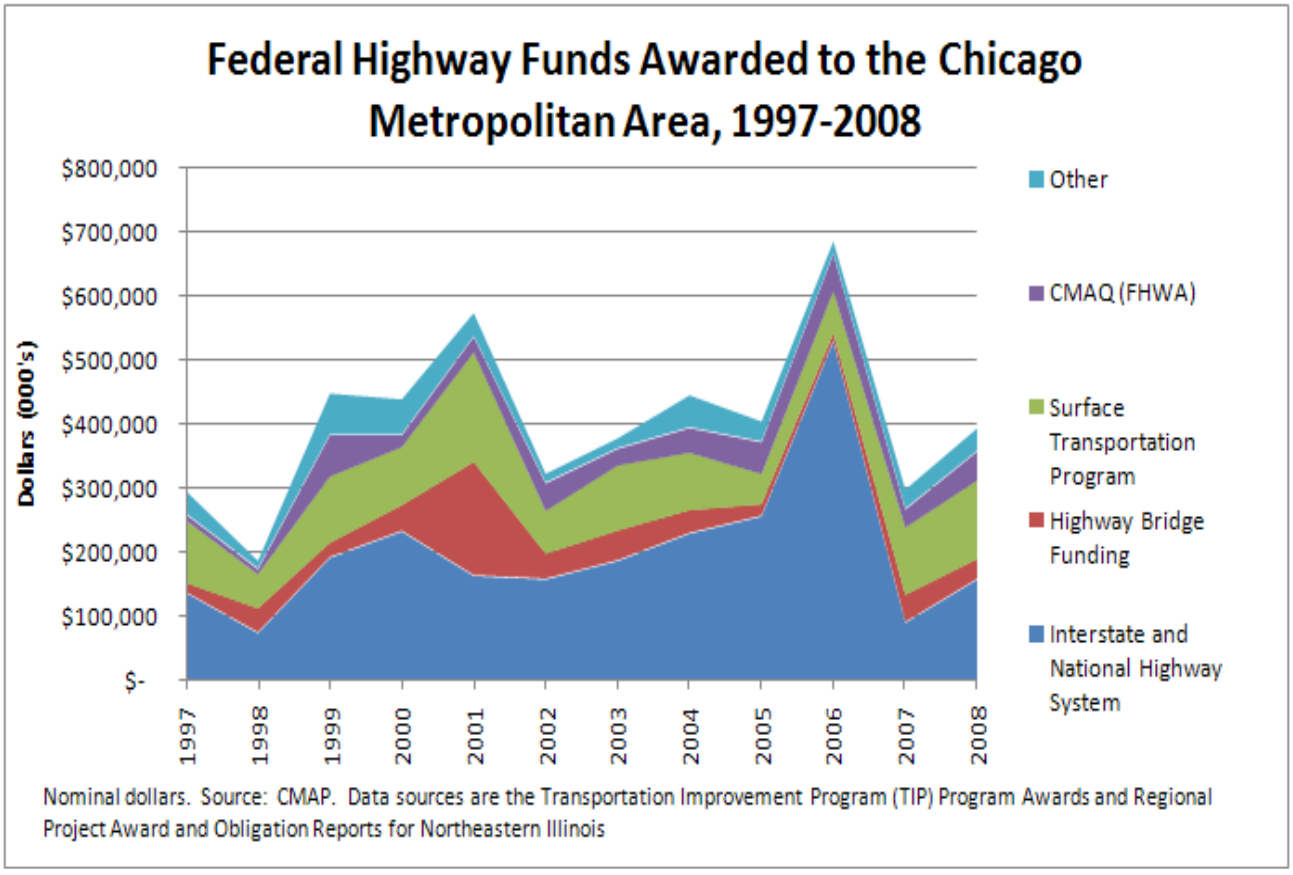
[5] See http://www.cmap.illinois.gov/stpresources.aspx for more about STP as well as links to subregional criteria for project selection under this grant program.

MAJOR FEDERAL HIGHWAY GRANT PROGRAMS UNDER SAFETEA-LU

Federal Grant Program	Program Purpose & Eligibility	Federal Funding Allocation/Criteria	Federal Share
INTERSTATE MAINTENANCE (IM)	Resurfacing, restoring, rehabilitating and reconstructing routes on the Interstate System. IM funds may not be used on toll roads. Add lanes projects in air quality sensitive areas are eligible to use funding if conformity criteria is meet.	Apportionment to States is based on three equally weighted factors: 1) lane miles on interstate system 2) total vehicle miles traveled on interstate system 3) contribution to highway account of HTF attributable to commercial vehicles. Furthermore, the Secretary of DOT can distribute a portion ($100M annual under SAFETEA-LU) on a discretionary basis. States may transfer up to 50% of IM to NHS, STP, CMAQ, HBR, or Recreational Trails apportionment.	90%, and certain safety improvements have 100% federal share.
NATIONAL HIGHWAY SYSTEM (NHS)	Improvements to National Highway System roads (rural and urban). Under certain circumstances, NHS funds can be used to fund transit improvements and can be used for environmental restoration and pollution abatement.	Apportionment to States is based on four factors: 25%: on total lane miles of principal arterials 35% :total vehicle miles traveled on principal arterials 30%: diesel fuel used on highways 10%: total lane miles of principal arterials, per capita. States can transfer apportionments to other programs, similar to IM program. Up to 100% may be transferred to STP if approved by Secretary and if opportunity for public comment is given.	80%. May be 90% for HOV lanes, and certain safety improvements have 100% federal share.
HIGHWAY BRIDGE PROGRAM	Improvements to Highway bridges through replacement, rehabilitation, and systematic preventive maintenance.	After some discretionary set-aside, funds for apportioned to States based on State's relative share of the total cost to repair or replace deficient highway bridges.	80%. Increases to 90% for interstate system.

CONGESTION MITIGATION/AIR QUALITY (CMAQ)	Funds transportation projects that reduce emissions in nonattainment and maintenance areas.	Apportionment to States/MPOs is based on population and severity of pollution in ozone and carbon monoxide areas. Funds can be used for a variety of activities, including transit service expansion, diesel retrofits, management and operations improvements, bike/pedestrian programs, outreach activities. Evaluation and assessment of CMAQ projects to determine impacts on air quality and congestion is required.	Generally 80%. 90% for interstate projects and 100% for certain other activities.
SURFACE TRANSPORTATION PROGRAM (STP)	Flexible funding for States and localities for projects on any federal-aid highway including NHS, bridge projects, transit capital projects and bus facilities.	Apportioned funds are based on three factors: 25% on total lane miles of federal aid highways 40% on vehicle miles traveled on lanes on federal aid highways 35% on estimated tax payments attributable to highway users into the Highway Trust Fund.	Generally 80%. Can be 90% for HOV projects and 100% for certain safety improvements.
TRANSPORTATION ENHANCEMENT PROGRAM (STP-TE)	Funding to enhance the environmental, scenic, or cultural quality of a site or of an area. Eligible projects include ped/bike, acquisition of scenic easements and scenic or historic sites, historic preservation, mitigation of water pollution due to highway runoff.	10% of State's STP apportionment.	Generally 80%

The amount of Federal Highway funds flowing to northeastern Illinois projects has demonstrated a wide degree of variance over recent years. Based on annual program awards, total federal highway revenues have ranged from roughly $200 to $700 million annually.



CMAP has based its revenue forecasts for federal highway funds on annual awards over the last ten years. Through 2011, these revenues are assumed to stay the same as the inflation-adjusted average of 1997-2008. After 2011, revenues are assumed to grow at a rate of 4.84% annual, which is commensurate with IDOT assumptions regarding growth in federal aid.[6]

Federal Transit

The Federal Transit Administration sponsors a number of grant programs, some allocated by formula and some allocated on a discretionary basis. While upwards of nineteen different

[6] Illinois Department of Transportation's FY 2005-2030 Multi-Year Forecast similarly assumes no growth in federal aid until the end of FY 2011. After that, revenues are assumed to grow at 4.84% per year. IDOT's guidance on these forecasts suggests that "this method assumes that there will be subsequent State and federal adjustments to keep the program growing at historical rates in the aggregate without having to model specific initiatives or guess about the timing".

programs currently exist[7], a smaller number of these programs typically provide funds to the RTA and service boards of northeastern Illinois. The major funding programs include Urban Formula (Sec 5307), Fixed Guideways Modernization, Bus & Bus Facilities, and New Starts (Fixed Guideways) (all are Sec 5309 funds).

The New Starts program provides funds for construction of new fixed guideway systems or extensions to existing fixed guideway systems. Projects become candidates for funding under this program by successfully completing the appropriate steps in the major capital investment planning and project development process. Funding allocation recommendations are made in an annual report to Congress: "Annual Report on New Starts." While the statutory match for New Starts funding is 80 percent Federal, 20 percent local, it should be noted that the Congressional Conference Report that accompanied the FY 2002 Department of Transportation Appropriations Act instructs "FTA not to sign any new full funding grant agreements after September 30, 2002 that have a maximum Federal share of higher than 60 percent."[8]

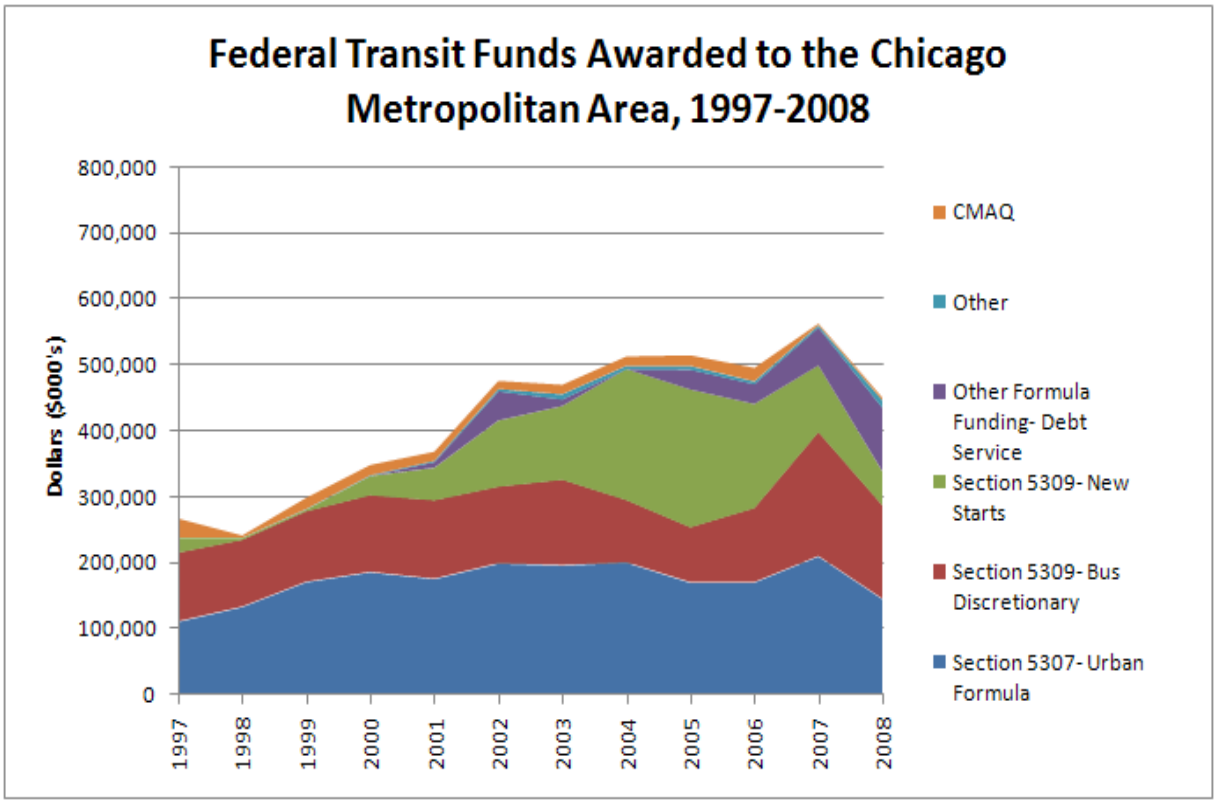
The following table details some of the major federal transit grant programs, including project purpose and eligibility.

[7] See http://www.fta.dot.gov/funding/grants_financing_263.html for a current list of FTA grant programs.
[8] http://www.fta.dot.gov/funding/grants/grants_financing_3590.html

MAJOR FEDERAL TRANSIT GRANT PROGRAMS UNDER SAFETEA-LU

Federal Grant Program	Program Purpose & Eligibility	Federal Funding Allocation/Criteria	Federal Share
URBAN FORMULA (FTA Sec 5307)	For transit capital assistance. Eligible purposes include capital investments and manitenance of rolling stock, track and other capital investments. In large urbanized areas, operating assistance is not an aligible expense.	Formula is based on a combination of bus revenue vehicle miles, bus passenger miles, fixed guideway revenue vehicle miles, and fixed guideway route miles as well as population and population density.	Not to exceed 80% of project cost, but may increase to 90% for the cost of equipment to comlpy with ADA and Clean Air Act.
RAIL AND FIXED GUIDEWAY MODERNIZATION (FTA Sec 5309)	Capital projects to modernize or improve fixed guideway systems (heavy rail, commuter rail, light rail, etc). Three primary activities are: -Modernization of existing rail systems -New and replacement buses and facilities -New fixed guideway systems	Seven-tiered formula. The allocation of funding under the first four tiers is based on data used to apportion the funding in fiscal year 1997. Funding under the last three tiers is apportioned based on the latest available route miles and revenue vehicle miles on segments at least seven years old as reported to the National Transit Database.	80%
FTA BUS & BUS FACILITIES (FTA Sec 5309B)	Capital assistance for new and replacement buses, related equipment and facilities.	The Secretary of Transportation has the discretion to allocate funds, although Congress fully earmarks all available funding	80%
FTA NEW STARTS (FIXED GUIDEWAYS) (FTA Sec 5309C)	Funds for construction of new fixed guideway systems or extensions to existing fixed guideway systems. Eligible purposes are light rail, rapid rail (heavy rail), commuter rail, and others. Projects become candidates for funding under this program by successfully completing the appropriate steps in the major capital investment planning and project development process.	The Secretary has the discretion to allocate funds, although Congress fully earmarks all available funding. The statutory match for New Starts funding is 80 percent Federal, 20 percent local. However, the Congressional Conference Report that accompanied the FY 2002 Department of Transportation Appropriations Act instructs "FTA not to sign any new full funding grant agreements after September 30, 2002 that have a maximum Federal share of higher than 60 percent."	80% Federal. However, the Congressional Conference Report that accompanied the FY 2002 Department of Transportation Appropriations Act instructs "FTA not to sign any new full funding grant agreements after September 30, 2002 that have a maximum Federal share of higher than 60 percent."
FTA NEW STARTS/SMALL STARTS (FIXED GUIDEWAYS) (FTA Sec 5309C)	A project must met one of the following guideway criteria: be a fixed guideway for at least 50% of project length in peak period and/or be a cooridor-based bus projects with subatanial transit stations, signal priority/pre=emption, low floor/ level boarding vehicles, specail branding service, frequent service - 10 min peak/15 off peak. Service offered at least 14 hours per day.	The project must have been approved to enter into project development; The project must be "ready" to be implemented within the fiscal year the project is proposed for funding and the project must be rated at least "medium." This projects will be eligible to receive Section 5309 Capital Investment Grant funds, but are not guaranteed to receive any funding in the President's Budget.	Total project cost must be less than $250 million, with no greater than $75 million in requested Section 5309 Capital Investment Grant funding.

The amount of Federal Transit funds flowing to northeastern Illinois projects has also varied quite a bit over recent years, but has generally been on the rise. However, it is important to note that most major federal transit funding sources can only be used for capital maintenance or improvements, and New Starts funds can only be used for system expansions. Most federal funds cannot be used for operating expenses. Thus, while federal revenues may be increasing in recent years (largely due to the New Starts program), these do not help cover the most major expense to RTA and the service boards- operating the system safely and adequately.



Federal Transit revenue forecasts were provided by the RTA. Major formula programs, including Sec 5309 Rail Modernization and Sec 5307/5340 Urban Formula funds, are projected to grow at a long term average rate for formula programs (4%). Discretionary funds, which include Sec 5309 New Start programs, are similarly projected to grow at a rate of 4%. These rates are derived from historical trends over the period 1992-2009.

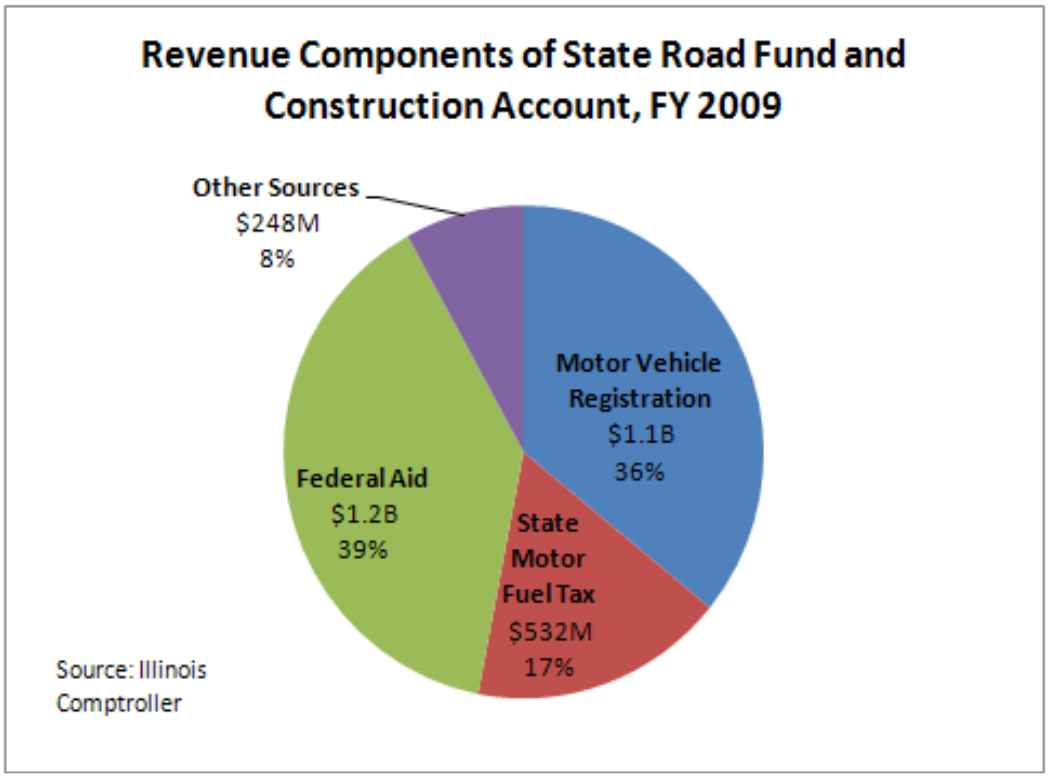
State of Illinois Revenues

Motor Fuel Tax and Motor Vehicle Registration

The two primary state generated sources of funding for transportation are the State Motor Fuel Tax and Motor Vehicle Registration Fees. The State Motor Fuel Tax has a current rate of 19

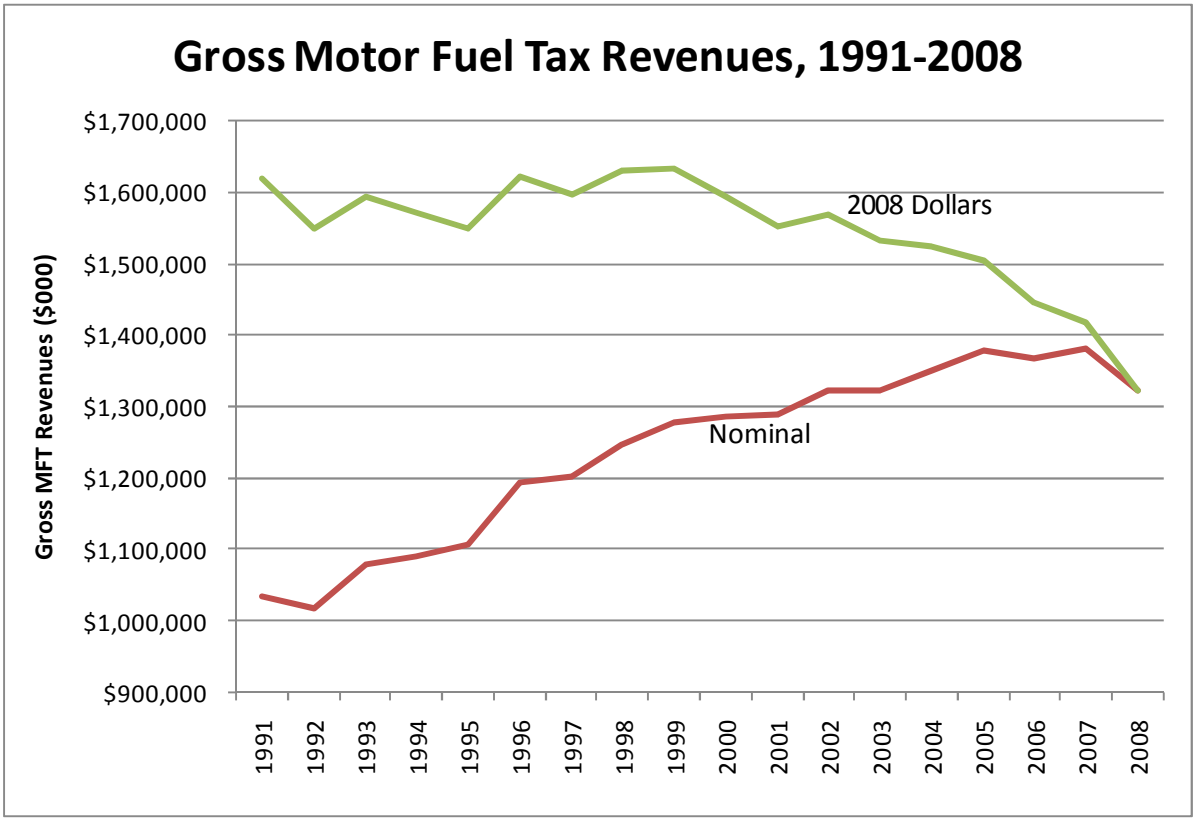
cents per gallon plus an additional 2.5 cents per gallon for diesel. After a variety of deductions, 45.6% of the MFT revenues are allocated to the Illinois Department of Transportation's Road Fund and State Construction Fund, and the remaining 54.4% allocate to local governments[9]. Motor Vehicle Registration Fees vary according to vehicle type and weight. Unlike State MFT, these revenues are not shared with local governments by formula. They accrue directly to the State Road Fund and Construction Accounts.

The IDOT Road Fund and Construction Accounts receive revenue from MFT transfers, vehicle registration revenue, and federal highway reimbursement (many of these federal sources are explained in the preceding section). The Road Fund is used to pay for IDOT's operating expenses, debt service on highway bonds, some other agency operations and highway construction. The Construction Fund receives revenue from the same sources as the Road Fund, but is restricted by law to paying for highway construction expenses on the State system. The Illinois Department of Transportation notes that managing two separate accounts "has been a problem" due to the added complexity of managing separate appropriations and cash flows and that two funds "are not needed for accountability of highway user fees or to maximize highway construction and repair"[10]. Just over $3.1 billion was appropriated to the Road Fund and Construction Accounts in FY 2009[11].



[9] Please see larger section on the State Motor Fuel Tax for more information.
[10] Illinois Department of Transportation, "Inside and Out". Annual Report, 2008.
[11] Illinois Comptroller.

Historically, revenues from the state MFT have not kept pace with inflation, and the rate of 19 cents per gallon has remained unchanged since 1991. Illinois also collects sales tax on motor fuel. State legislation in 1979 directed a percentage of sales tax revenues, estimated to be roughly equal to that collected from the gas pump, to highway funding. However, subsequent legislation lessened this percentage and the passage of Illinois FIRST in FY 2000 eliminated it.



Motor vehicle registration fees have been raised a bit more often in recent years, in 1983, 1999 (to support Illinois FIRST), in 2003, and again most recently in July 2009 (to support the new State capital bill *Illinois Jobs Now!*). For instance, auto license plate fees were raised to $78 in 1999, and again to $98 in 2009. At the time of this writing, the increases to the motor vehicle title, license plate, and drivers' license fees under *Illinois Jobs Now!* are scheduled to be used for debt service on 20-year bonds. The fee increases will help pay for public transit, as well as for education, economic development, higher education, state facilities, environment, energy, and technology. [12]

Highway funding from the Road Fund and Construction Accounts has traditionally been allocated on the basis of an informal agreement that sends 45% of the state's funding to

[12] *Illinois Jobs Now!* Revenue Summary.

northeastern Illinois and 55% to downstate districts. This decision is arbitrary and is not supported by state statute.

CMAP has constructed forecasts for both the State Motor Fuel Tax and Motor Vehicle Registration fees. The State Motor Fuel Tax is broken out into the "state" portion and the "local" portion. The State portion is the allocation to the State's Road and Construction fund. IDOT retains 45.6% of Motor Fuel Tax revenues after various deductions. The assumption for State MFT core revenues is that the current 19 cent/gallon rate remains unchanged throughout the Plan period. Gross revenues from 1991-2008 and a linear trendline were plotted. The linear trendline has an R squared of .9 and a slope of $21.6 million. The forecast assumes growth of 1.48% in 2011, falling to growth of 1% by 2040, in nominal dollars. The reader will note that these revenues are not forecast to keep pace with inflation. NE Illinois is assumed to "receive" a portion of the State revenues (roughly 19% of the gross, or 45% of the Road and Construction fund accounts) as well as the local allocation to counties, municipalities, and townships (roughly 26.1% of the gross)[13].

Almost all revenue from annual registration fees for vehicles is retained by IDOT for the Road Fund and Construction Account. These revenues have been fairly stable over time. The financial plan forecasts Vehicle Registration Fees to increase at a rate of 3% per year over the plan horizon.

Illinois Tollway

The Illinois Tollway includes 286.5 miles of limited access highways. Tolls are collected at 22 mainline plazas and 49 ramp plazas. Toll rates are defined for various vehicle classes. Tolls for passenger cars did not change much at all between 1959 (30 cents) and 2004 (40 cents). A new rate structure went into place on January 1, 2005. Cash tolls for passenger cars are now $0.80, while tolls for I-PASS customers remain $0.40. The Tollway also instituted time-of-day pricing for commercial vehicles. While daytime rates for small, medium and large commercial vehicles range from $1.50 to $4.00, overnight rates drop to a range of $1.00-$3.00[14].

Wilbur Smith and Associates prepared revenue estimates for the Illinois Tollway system for the years 2009-2034. The projections were prepared using a series of assumptions, including the continuation of the current rate structure. The projections to 2034 follow a logarithmic function with an R-squared value surpassing .99. For the purposes of continuing the projections out to 2040, CMAP simply utilized the same logarithmic function fit to the Wilbur Smith/Tollway projections.

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[13] It is important to remember that a variety of deductions are made to the gross MFT, before allocations to the State Road and Construction Account or to local governments.

[14] Illinois State Toll Highway Authority, Traffic Engineers Report- Traffic and Revenue Estimates. Prepared by Wilbur Smith Associates. May 5, 2009.

State Funding for Public Transportation

The State of Illinois has historically provided some revenues for the region's transit system. A detailed description of many of these revenue sources and others can be found in the Regional Transportation Authority's 2009 Proposed Operating Budget, Two-Year Financial Plan and Five –Year Capital Program[15]. The following will simply paraphrase much of what is included in more detail in that document.

The State Public Transportation Fund (PTF) provides the Regional Transportation Authority (RTA) with a 30% match of its sales tax revenues, equivalent to 1.25% of sales in Cook and .75% of sales in each of the collar counties. In addition, the PTF also matches the recent increase of the City of Chicago's Real Estate Transfer Tax (RETT) at 30%[16]. Although RTA sales taxes are covered in the local revenue section, it is also important to recognize that the tax is authorized by state statute.[17]

The State also provides revenues in the form of State-authorized assistance to reimburse the debt service expenses for RTA Strategic Capital Improvement Program (SCIP). Furthermore, the State provides operating assistance in the form of reduced fare reimbursement, a partial reimbursement from the State of Illinois to the transit service boards for discounts provided to elderly passengers, students, and disabled riders.

State capital funds have historically been awarded to the transit service boards in the form of IDOT's Series B Bond program and RTA's Strategic Capital Improvement Program. These have been used primarily for federal match purposes and are issued on a discretionary basis as part of State capital plans, such as Illinois Jobs First and Illinois FIRST.

All transit forecasts were prepared by the RTA. Please see the summary table at the end of the document for more information about the forecasts and assumptions used.

State Capital Program Funding

Roughly once every 10 years, the State of Illinois provides a state capital funding package for transportation and other infrastructure projects. The most recent packages, enacted in April and July 2009, provide over $9.5 billion in bonds for state and local roads, transit, high speed rail, the CREATE freight initiative, and airports. The bonds must be paid down through debt service from existing and new funds, including the General Revenue Fund, Road Fund, and new "Capital Projects Fund," which is to be financed through increased motor vehicle fees, video gaming, lottery, and other sources.

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[15] http://www.rtachicago.com/CMS400Min/uploadedFiles/2009_GFOA_web3.pdf
[16] The PTF match of the RETT funds only the CTA.
[17] For more information on the sales tax and State public transportation fund, see the Regional Transportation Authority 2009 Proposed Operating Budget, Two-Year Financial Plan and Five-Year Capital Program.

Estimated regional revenues from the current Illinois Jobs Now! and Illinois Jump Start program were used to make future projections. Revenues from State of Illinois capital programs are provided by a combination of state debt and federal and local matching funds.

Local Revenues

While federal and state aid play a large and important role in financing the transportation system, the majority of revenues are generated through local sources. The public transportation system is largely operated through a mix of farebox and local option sales tax revenues. Furthermore, the local system of nearly 20,000 miles of arterials, collectors and unclassified roads depends largely on local own-source revenues such as property tax, sales tax, State income tax and sales tax disbursements, among other sources, for financing.

County Highway Revenues

County governments have jurisdictional responsibility over nearly 2000 miles of roads. While counties use various sources to fund transportation, the largest revenue driver remains the State allotments of the Motor Fuel Tax. Since the year 2000, the seven counties have generally received around $140,000,000 annual in this disbursement. Disbursements are made on a formula basis. Counties above 1,000,000 in population (Cook) receive 16.74% of the motor fuel tax fund balance, while other counties across the state receive 18.27% of the motor fuel tax balance, based upon vehicle registrations[18].

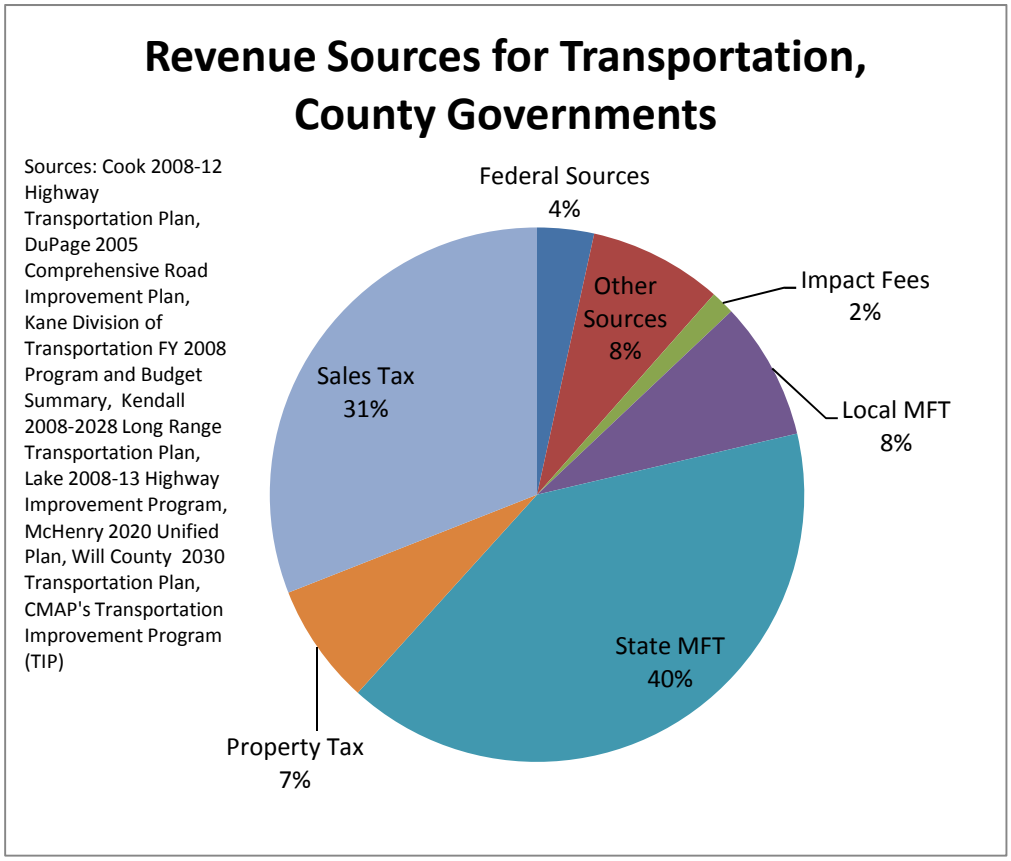
ROAD MILES - COUNTY SYSTEM[19]

Cook	562.78
DuPage	230.29
Kane	303.12
Kendall	125.06
Lake	269.59
McHenry	224.66
Will	284.16
Total	**1999.66**

Cook, DuPage, Kane, and McHenry counties impose additional local option motor fuel taxes. Cook County's rate is 6 cents per gallon. DuPage, Kane, and Lake's rates are four cents a gallon. The Cook County gas tax is used exclusively for public safety. This includes funding for the courts, county police and the county correctional facilities. DuPage, Kane, and Lake's local

[18] Illinois Department of Transportation. Bureau of Local Roads and Streets. Motor Fuel Tax Funds: Source, Distribution and Uses.
[19] Illinois Department of Transportation. Office of Planning and Programming. Highway and Street Mileage Statistics, December 31, 2008.

option gas tax revenues are collected and disbursed by the Illinois Department of Revenue. These revenues are used for transportation purposes in these counties.



The other major source of revenue for county transportation is the sales tax. Effective January 11, 2008, the RTA Funding and Reform Act has provided the collar counties (excluding Kendall) with new funds from a 1/4 cent increase in the sales tax, collected in each county by the Illinois Department of Revenue. The first disbursements to the collar counties were made in the summer of 2008. The so-called "Collar County Transportation Empowerment Funds" totaled $107 million in fiscal year 2009 disbursements.

COLLAR COUNTY TRANSPORTATION ENPOWERMENT FUND DISBURSEMENTS, FY 2009[20]

DuPage	41,117,036.62
Kane	14,123,330.68
Lake	25,645,187.52

[20] Illinois Department of Revenue, Local Government Monthly Disbursement data.

McHenry	8,609,354.47
Will	18,170,232.00
TOTAL	**107,665,141.29**

Kendall County imposes its own sales tax for transportation. In November 2006, voters in Kendall County approved an increase of ½ cent in the local sales tax for these purposes. Revenues from this fund were expected to approach $4 million in 2008, its first full year of collection[21]. In addition, DuPage and Kane Counties both collect impact fees from new traffic generating development. Combined revenues generated from these fees are not large, and total near $5 million per year, based on recent annual collections[22].

RTA Sales Tax

Sales taxes are imposed by the State of Illinois, counties, various municipalities, and special districts across the state, including the Regional Transportation Authority (RTA). These funds are distributed by formula or location, in the case of locally imposed sales taxes, and are generally determined by the value of sales made within particular jurisdictions. The state currently levies Occupation Taxes with a base rate of 6.25 percent on general merchandise and titled or registered items. The state retains 5.0 percent (80 percent of the total 6.25 percent tax) for its own uses and distributes the remaining 1.25 percent to local governments. The latter portion is returned to the local governments in which the sale took place. Thus, all municipalities (or counties, in the case of sales made in unincorporated areas) receive 1.0 percent of the value of relevant taxable sales within their borders. The remaining 0.25 percent goes to county government in all counties except Cook, where these funds have been diverted to support the Regional Transportation Authority (RTA) and compliment the separately imposed RTA sales tax.

The RTA sales tax is applied at the rate of one and one quarter percent in Cook County and one-half percent in the collar counties, and a real estate transfer tax applied only within Chicago. The majority of this funding is then allocated based on geography, with funds collected in Chicago, suburban Cook County, and the collar counties being distributed to the service boards at varying rates.

Sales tax forecasts to 2040 were provided by the Regional Transportation Authority. They are assumed to grow 2.9% in 2011 and 2012 and 3.2% per year throughout the remainder of the Plan period.

[21] Kendall County 2008-2028 Long Range Transportation Plan, January 15, 2008.
[22] Annual impact fee reports are available on the Kane and DuPage County Web sites.

Municipal and Township Revenues

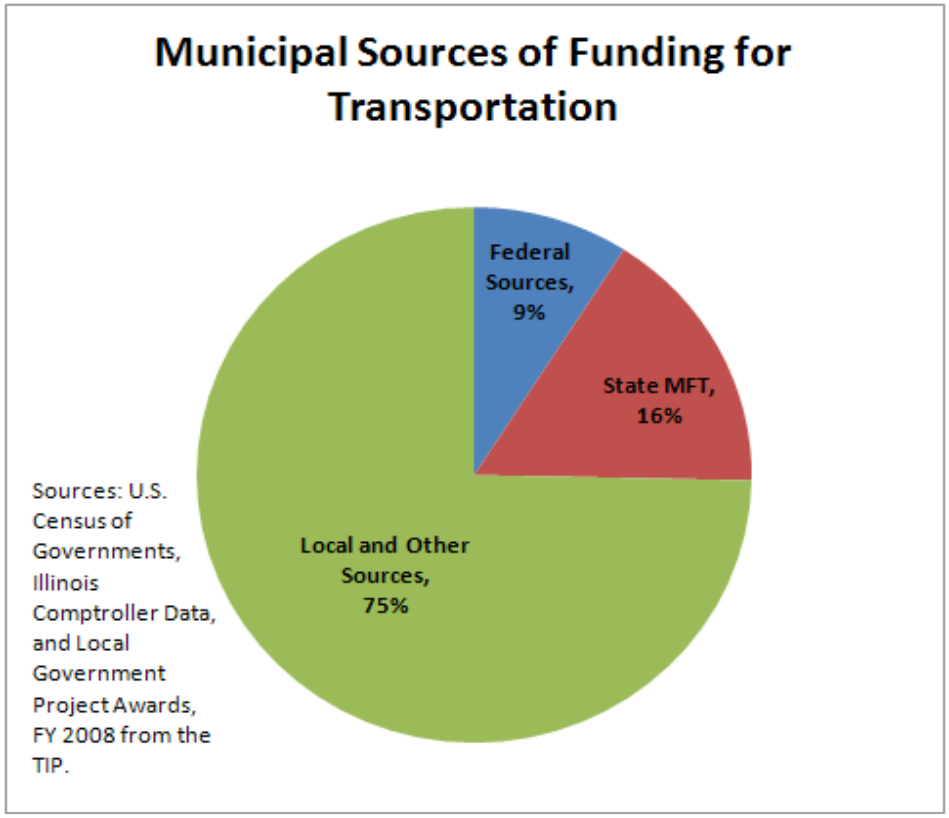
Municipal governments have jurisdiction over 15,733 miles of roads. While municipalities use various revenue sources for transportation, the most prevalent are own-source general revenues, primarily from sources like the property tax, state and local sales tax, or bonding for local capital projects. Estimating revenues and expenditures for over 280 municipalities is difficult. While CMAP did not conduct a survey of municipalities regarding this issue, reasonable estimates can be made using data from the U.S. Census of Governments, Illinois Comptroller, as well as historical data collected on these matters by CMAP and predecessor agencies.

ROAD MILES – MUNICIPAL SYSTEM[23]

Cook	8924.53
DuPage	2163.50
Kane	1025.83
Kendall	321.80
Lake	1572.60
McHenry	613.66
Will	1111.56
Total	**15,733.48**

Like County governments, State Motor Fuel Tax disbursements are important to municipalities. However, while this funding source makes up roughly 40% of county government expenditures on transportation, CMAP estimates that these disbursements make up only around 16% of total municipal revenues for transportation. To illustrate further, State Motor Fuel Tax allotments to municipalities total about $12,700 per municipal road mile, compared to $51,500 per county road mile[24].

[23] Illinois Department of Transportation. Office of Planning and Programming. Highway and Street Mileage Statistics, December 31, 2008.
[24] Based on 2008 State MFT Disbursement figures, divided by total road miles from IDOT Highway and Street Mileage Statistics.



CMAP has calculated municipal and township own-source revenues by using the latest U.S. Census of Governments sample data (2006), which includes recent figures on Chicago area municipal and township revenues and expenditures. The Census data set includes data on 55 municipalities and 43 townships, and includes transportation revenues received from the federal and State governments, as well as transportation expenditures made on operations, construction and other capital outlay. The municipal sample contains 64.1% of the region's municipal population, and the township sample contains 54% of the region's township population.

Since State and Federal revenues are being forecasted elsewhere, the technique employed to estimate "local own-source" funding on transportation is to subtract the State and Federal intergovernmental transportation revenues from the total amount expended on transportation by this sample of 55 municipalities. Expenditure on transportation correlates reasonably well with population (R-squared of just over .62). Thus, the remaining own source revenues for local and township were calculated by assuming a similar relationship between transportation own source revenue and population for the remaining municipalities and townships in the region. County own-source revenues were calculated in a similar fashion, except local option gas taxes were also excluded from the revenues, in addition to state and local assistance, since local option gas taxes are already being forecasted as a stand-alone item.

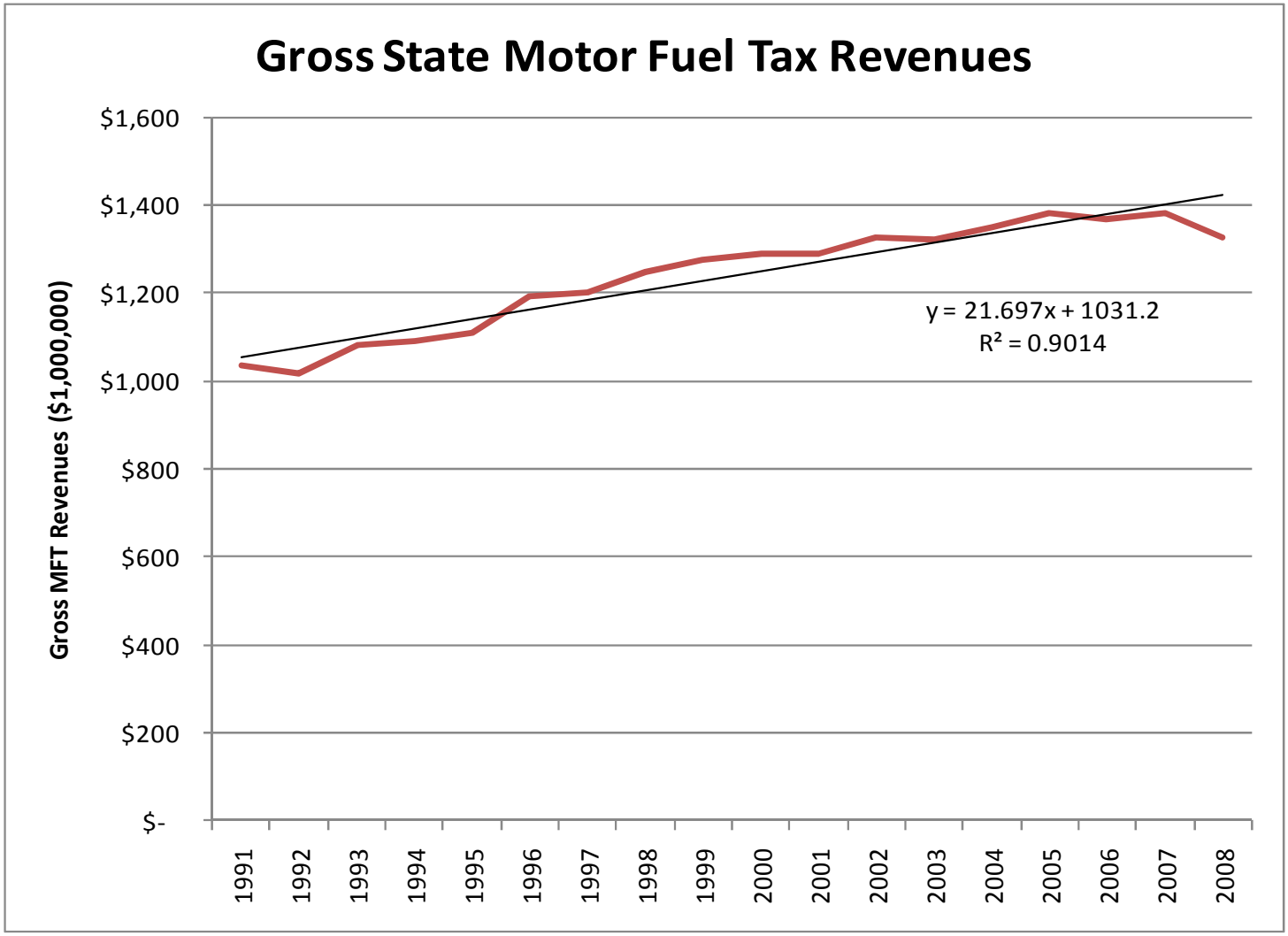
CORE REVENUES APPENDIX

Federal Highway Revenues- Awards to Northeastern Illinois, 1997-2008 (Numbers in $000s)

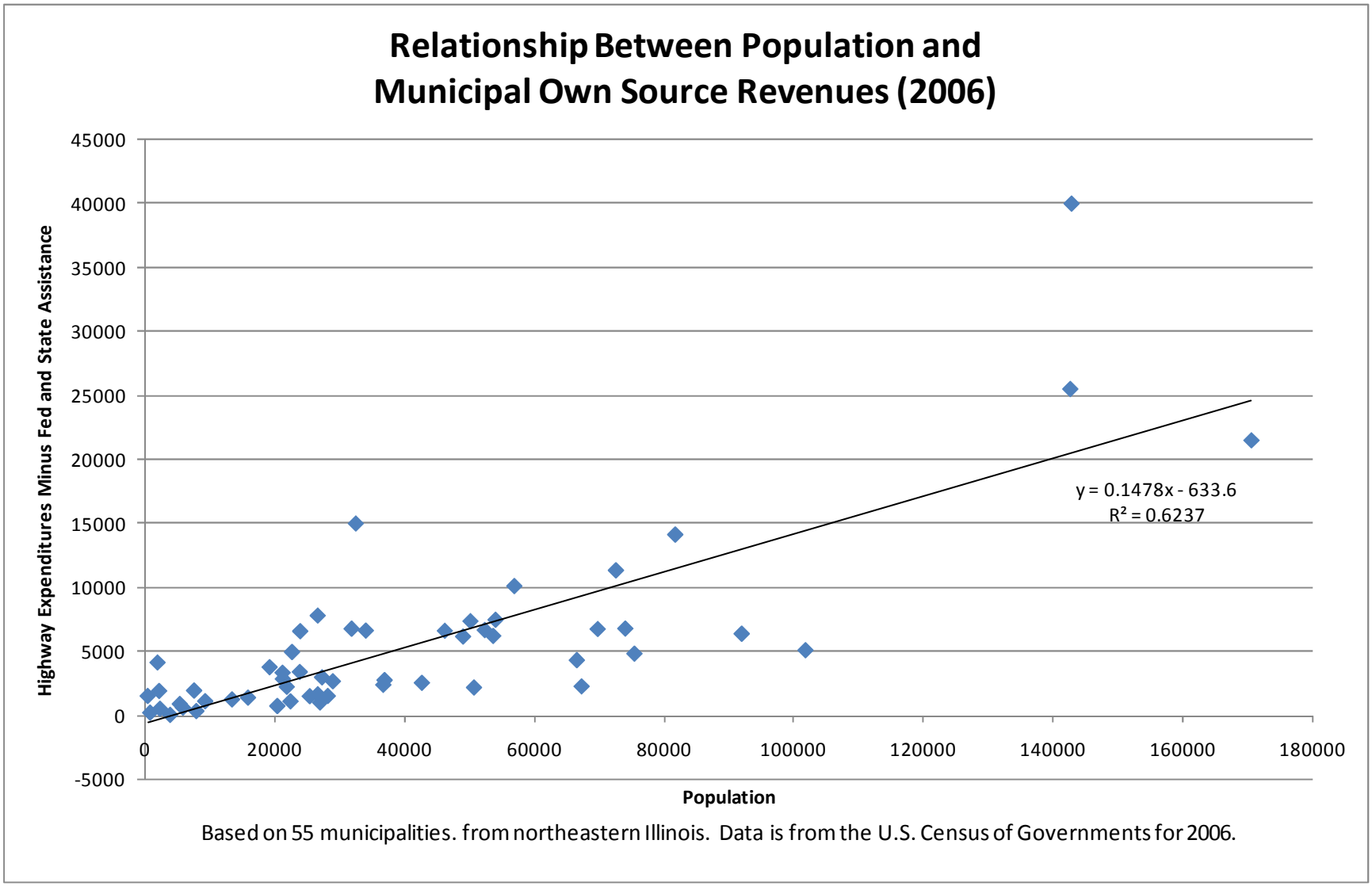
Year	Interstate and National Highway System	Highway Bridge Funding	Surface Transportation Program	CMAQ (FHWA)	Other	Total	Total (2008 Dollars)
1997	$ 137,499	$ 14,678	$ 98,078	$ 9,140	$ 34,630	$ 294,025	$ 390,471
1998	$ 74,739	$ 37,579	$ 53,557	$ 7,809	$ 11,313	$ 184,997	$ 241,826
1999	$ 192,097	$ 22,420	$ 104,142	$ 64,195	$ 63,419	$ 446,273	$ 570,682
2000	$ 233,134	$ 39,878	$ 91,309	$ 18,403	$ 54,419	$ 437,143	$ 541,019
2001	$ 163,738	$ 176,640	$ 171,725	$ 24,123	$ 35,809	$ 572,035	$ 688,369
2002	$ 158,336	$ 39,167	$ 67,446	$ 42,829	$ 13,073	$ 320,851	$ 380,155
2003	$ 187,079	$ 46,562	$ 102,098	$ 25,693	$ 14,804	$ 376,236	$ 435,963
2004	$ 229,713	$ 35,635	$ 90,200	$ 38,579	$ 49,276	$ 443,403	$ 500,455
2005	$ 256,625	$ 18,029	$ 47,782	$ 49,348	$ 30,928	$ 402,712	$ 439,642
2006	$ 529,169	$ 11,365	$ 67,115	$ 57,858	$ 18,372	$ 683,879	$ 722,916
2007	$ 90,948	$ 42,557	$ 105,383	$ 28,126	$ 29,386	$ 296,400	$ 304,625
2008	$ 158,206	$ 31,068	$ 123,063	$ 45,066	$ 34,659	$ 392,062	$ 392,062

Federal Transit Revenues- Awards to Northeastern Illinois, 1997-2008 (Numbers in $'000s)								
Year	Section 5307- Urban Formula	Section 5309- Bus Discretionary	Section 5309- New Starts	Other Formula Funding- Debt Service	Other	CMAQ (FTA)	Total	Total (2008 Dollars)
1997	$ 110,619	$ 104,086	$ 22,343	$ -	$ 818	$ 28,992	$ 266,858	$ 354,393
1998	$ 132,996	$ 101,265	$ 2,990	$ -	$ 356	$ 3,575	$ 241,182	$ 315,271
1999	$ 170,667	$ 106,832	$ 2,978	$ -	$ 975	$ 16,990	$ 298,442	$ 381,639
2000	$ 185,557	$ 116,471	$ 29,248	$ -	$ 1,371	$ 15,706	$ 348,354	$ 431,131
2001	$ 175,281	$ 119,004	$ 49,532	$ 8,400	$ 2,452	$ 13,908	$ 368,578	$ 443,535
2002	$ 198,700	$ 116,224	$ 100,752	$ 44,517	$ 3,782	$ 12,172	$ 476,147	$ 564,155
2003	$ 195,859	$ 129,599	$ 112,194	$ 10,000	$ 8,385	$ 14,181	$ 470,218	$ 544,865
2004	$ 200,281	$ 94,289	$ 199,482	$ -	$ 5,262	$ 13,972	$ 513,285	$ 579,329
2005	$ 169,822	$ 83,428	$ 209,539	$ 30,335	$ 5,981	$ 16,115	$ 515,220	$ 562,468
2006	$ 170,060	$ 112,276	$ 158,460	$ 30,332	$ 4,531	$ 20,476	$ 496,135	$ 524,455
2007	$ 209,510	$ 188,151	$ 101,803	$ 57,946	$ 3,596	$ 2,349	$ 563,354	$ 578,987
2008	$ 145,048	$ 141,501	$ 51,708	$ 96,842	$ 11,623	$ 4,087	$ 450,808	$ 450,808

Gross State Motor Fuel Tax Collections, 1991-2008		
Year	Gross MFT (Statewide)	
1991	$ 1,035,200	
1992	$ 1,018,500	
1993	$ 1,080,700	
1994	$ 1,091,400	
1995	$ 1,107,900	
1996	$ 1,192,889	
1997	$ 1,201,241	
1998	$ 1,247,379	
1999	$ 1,276,796	
2000	$ 1,286,867	
2001	$ 1,288,841	
2002	$ 1,322,966	
2003	$ 1,321,258	
2004	$ 1,350,283	
2005	$ 1,378,420	
2006	$ 1,367,232	
2007	$ 1,380,165	
2008	$ 1,323,103	

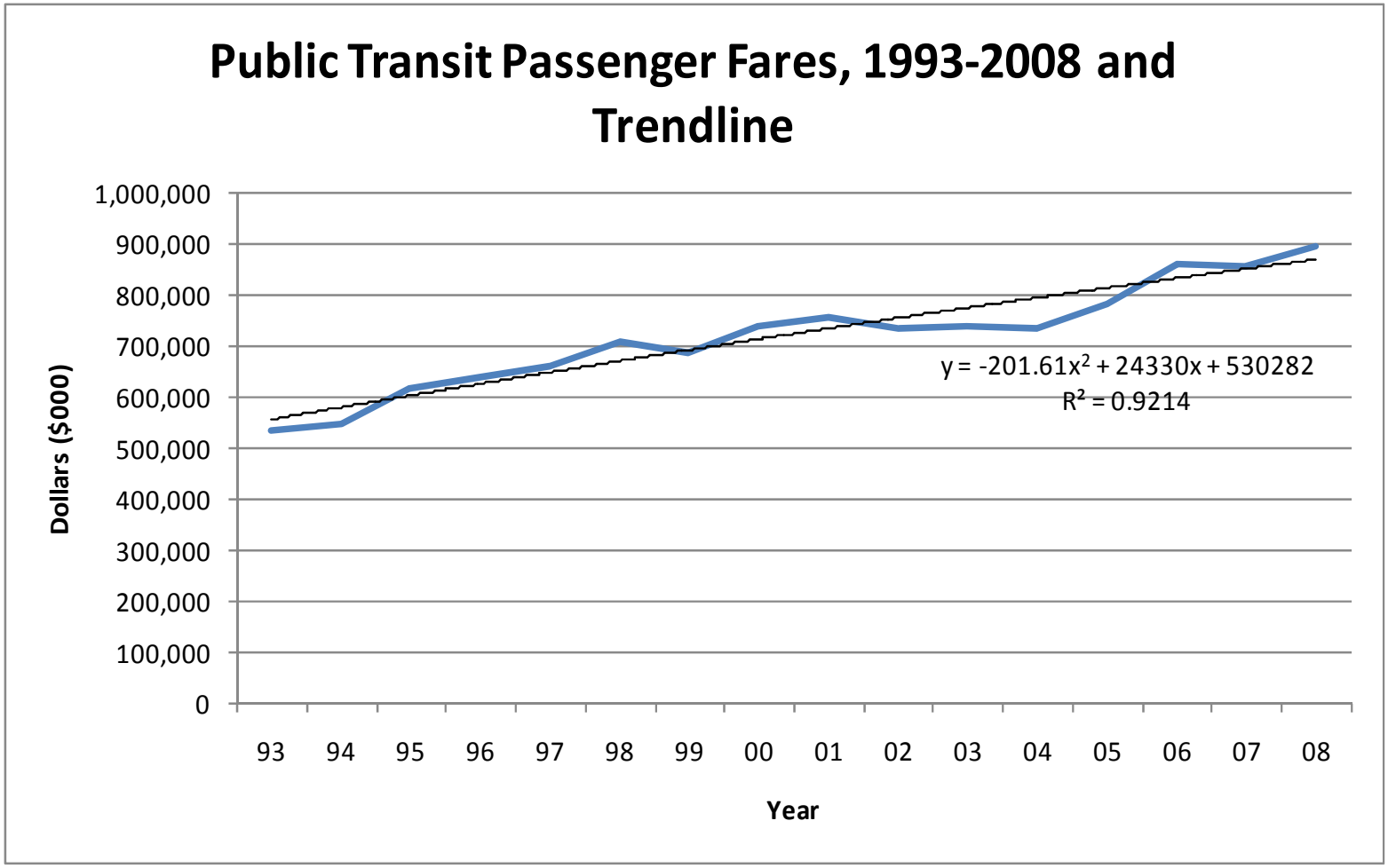

Gross State Motor Fuel Tax Revenues
Gross MFT Revenues ($1,000,000)
$1,600
$1,400
$1,200
$1,000
$800
$600
$400
$200
$-
y = 21.697x + 1031.2
R² = 0.9014
1991
1992
1993
1994
1995
1996
1997
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008

State Motor Vehicle Registration Revenue ($000), 1991-2007	
Year	Motor Vehicle Registration Revenue
1991	$586,122
1992	$603,429
1993	$635,500
1994	$673,000
1995	$681,500
1996	$565,778
1997	$563,524
1998	$592,302
1999	no data
2000	no data
2001	$922,808
2002	$1,005,029
2003	no data
2004	no data
2005	$1,083,166
2006	$1,215,145
2007	$1,212,494



Based on 55 municipalities. from northeastern Illinois. Data is from the U.S. Census of Governments for 2006.

State Operating Revenue Sources for Public Transit, 1989-2008 ($000)			
Year	Public Transportation Fund	Reduced Fare Reimbursement	Additional State Assistance
1989	$107,294	$16,090	
1990	$110,855	$39,646	
1991	$109,195	$35,267	
1992	$109,843	$27,924	$6,016
1993	$115,771	$23,410	$11,656
1994	$124,002	$24,861	$22,647
1995	$129,866	$22,520	$32,417
1996	$133,044	$20,435	$35,678
1997	$139,093	$19,243	$37,953
1998	$144,847	$19,837	$39,435
1999	$153,343	$19,386	$39,446
2000	$162,247	$38,759	$41,839
2001	$164,987	$39,531	$43,662
2002	$165,665	$36,260	$67,455
2003	$164,739	$39,662	$85,226
2004	$170,397	$40,153	$86,785
2005	$175,668	$37,127	$111,419
2006	$186,136	$37,327	$112,743
2007	$188,931	$36,678	$117,807
2008	$227,201	$28,919	$121,870


Public Transit Passenger Fares, 1993-2008 and Trendline
1,000,000
900,000
800,000
700,000
600,000
500,000
400,000
300,000
200,000
100,000
0
Dollars ($000)
y = -201.61x² + 24330x + 530282
R² = 0.9214
93
94
95
96
97
98
99
00
01
02
03
04
05
06
07
08
Year

RTA Sales Tax Revenue, 1989-2008 ($000)			
	Year	Sales Tax Revenue	
	1989	$429,988	
	1990	$444,110	
	1991	$425,173	
	1992	$445,891	
	1993	$462,393	
	1994	$497,698	
	1995	$513,301	
	1996	$532,305	
	1997	$555,496	
	1998	$576,704	
	1999	$613,514	
	2000	$650,284	
	2001	$653,522	
	2002	$647,686	
	2003	$654,988	
	2004	$675,628	
	2005	$700,395	
	2006	$746,829	
	2007	$752,922	
	2008	$949,616	

EXPENDITURES

Background

For *GO TO 2040*, CMAP is preparing a forecast of expected transportation expenditures throughout the plan period. The projected costs will be organized into four major categories:

1. Maintenance and operations of the transportation system at a level that is safe and adequate.
2. Maintenance and operations of the transportation system at a state of good repair level.
3. Systematic enhancements/improvements.
4. Major capital project expansions and additions.

This section of the financial plan provides the procedural background, i.e. methods, sources and assumptions, for the development of 30-year estimates for transportation expenditures for *GO TO 2040*.

Year of Expenditure Dollars and Construction Cost Trends

Federal Planning requirements set forth in SAFETEA-LU mandate that both expenditures and revenues are estimated for each year in "Year of Expenditure" dollars, i.e. with the effect of inflation applied, rather than constant dollars. Recent trends have shown rapidly increasing construction costs. Until 2002, construction costs (measured by the Engineering News Record (ENR) construction cost index (CCI)) mostly followed general inflation trends, as measured by the consumer price index (CPI). Since then, construction costs have significantly outpaced inflation. Economists believe this dynamic has been caused largely by volatility in global prices of steel and oil (which drives asphalt prices to a large extent). Other analyses of construction costs that focus on primary transportation inputs, like asphalt, steel, concrete, and the cost of labor and equipment, actually find that these costs are even outpacing construction costs as a whole.[25]

For forecasting annual increases in highway construction costs, CMAP assumed that unit costs collected in 2008 and 2009 would approximate 2011 prices with some adjustments. There was a large spike in construction costs in mid and late 2008 due to increased material and energy costs related to petroleum prices and high global demand for raw materials. More recently, the global economic downturn has depressed labor costs and other aspects of construction, and has reduced recent bid prices. CMAP assumes that at the combined effect will balance out and that by the beginning of the plan period, prices will have normalized. Rather than use the high bid

[25] Gunasekera, Kumudu and Brad Ship. December 2009. *Construction Economic Review and Highway Cost Escalation Forecast*. Parsons Brickerhoff. Economic Forecasting Review. Volume 3 Issue 2.

costs of 2008 or the low bids of 2009 & 2010 – blended rates were developed. To further refine the unit costs, a working group of state, tollway, county and local highway professionals from the CMAP region was convened in January of 2010 to review the unit costs and other aspects of the maintenance costing effort.

From 2012 to 2014, inflation rates of 4%, 6.5% and 5.5% were applied for years 2012, 13 and 14, respectively, based on a recent transportation specific analysis of construction prices.[26] For the remainder of the plan period (2015-2040), CMAP assumes a return to historic cost patterns (pre-2002) where construction costs and Consumer Price Index (CPI) increases were very similar, as advances in construction practices or new sources for construction materials will be able to curb the dramatic increases in construction costs. Therefore, CMAP assumes that construction costs will rise at a rate equal to the expected CPI, or 3% per year.

Operating Costs for Highway Agencies and Local Governments

The cost of administration and operations for the various agencies and levels of government that are responsible for roadway maintenance was estimated based on extrapolation of expenditures from recent years or agency provided projections when available. IDOT District One operations costs for 1996 through 2008 were obtained from the State Comptroller's office and extrapolated from 2011 through 2040. Historical operating costs for the Illinois State Toll Highway Authority (ISTHA) were also collected from the State Comptroller's office and the Tollway Authority provided operating projections for 2009 to 2021. CMAP extrapolated from the Tollway's data to cover the remainder of the plan period. IDOT and Tollway staff have reviewed and agreed on the projections.

The county, municipal and township operations costs were derived from the US Census Bureau's Report on Local Governments. The US Census Bureau's definition of "operating expenditures" was culled down for the aspects that specifically related to "highways": *"Current Operations Direct expenditure for compensation of own officers and employees and for supplies, materials and contractual services except any amounts for capital outlay (i.e. for personal services or other objects used in force account construction of permanent and for acquisition of property and equipment). It includes: repair and maintenance services (e.g., contracts and agreements, materials, and supplies) for the upkeep of buildings, infrastructure, and equipment to maintain required standards of compliance for their intended use."*[27]

The US Census Bureau's Report on Local Governments provided data on all of our counties, the City of Chicago but only provided information on 55 municipalities and 43 townships. The municipal sample contains 64.1% of the region's municipal population (44% of suburban municipal population) and the township sample contains 54% of the region's township population. The city information was trended out directly over time. The suburban and township data was observed to correlate reasonably well with population (R-squared of just over .62) so a factor for the region's municipal population was used to extrapolate the 2011

[26] Gunasekera, Kumudu and Brad Ship. December 2009.
[27] See http://www.wwwcensusgov.zuom.info/govs/www/06classificationmanual/chapter05.html

operations cost for our region's local governments. The US Census data is from 2005. CMAP used a 2% a year inflation factor out to 2040 for all governments. The County operations cost numbers for this US Census report on Local Governments were vetted directly with several of the counties and found to be representative. The 30-year estimate for highway operations is $56.9 billion, in year of expenditure dollars.

Operations Costs for Transit Agencies

The Regional Transportation Authority (RTA) supplied 30 year estimates for operations costs for the three service boards (CTA, Pace and Metra) in year of expenditure dollars. The projections assume no new funding sources and, therefore, do assume operational changes (such as service adjustments, efficiency enhancements) to keep deficits in line with available resources.) Combining the annual projections resulted in a 30-year estimate for transit operations of $ 116.7 billion, in year of expenditure dollars.

Levels of Maintenance - Safe and Adequate vs. State of Good Repair

Because maintenance can be performed on a more aggressive or less aggressive basis, CMAP makes a distinction between maintaining our region's transportation system at the "safe and adequate" (S&A) level and to a "state of good repair" (SGR) level. Safe and adequate is characterized as performing sufficient maintenance to assure the safety of the system's users and the general public, but will result in a backlog of facilities that are in fair or poor condition at any given time. In this application, it was assumed that the region's transportation network would remain in roughly the same condition in 2040 as it is today.

The consensus among highway professionals from IDOT, the Tollway, and several county and local governments was that the calculations of future maintenance costs at the safe and adequate level should be based on actual current practice, that is, the typical cycles or frequencies with which roadway resurfacing and reconstruction projects, etc. are performed today. Agencies currently provide an adequate level of maintenance, and any stepping down of maintenance levels from today's practices would be unacceptable to the public and the responsible agencies.

Among transit professionals from the RTA and three service boards, there is a consensus that chronic funding shortfalls have resulted in maintenance practices that have produced a significant backlog of needed rolling stock replacement and facility and infrastructure work. However, the resulting system condition remains safe and adequate. Therefore, the participants agreed that using current practice costs of maintenance provides a suitable basis to estimate future maintenance costs at the safe and adequate level.

Performing maintenance at levels necessary to assure a "state of good repair" (SGR) would mean that the facilities and equipment that are not in good or better condition would be brought up to that level and from that point into the future, maintenance would be scheduled and performed on a basis so that no significant backlog would arise.

For highways, determining maintenance practices required to produce a system in a state of good repair is still under discussion. At this time, a bandwidth approach is presented in the

Maintenance to a State of Good Repair section below outlining a range of possible thinking on the topic.

For transit, at the time of this writing the RTA is in the final stages of a completing an asset condition study. Upon its completion, RTA will be able to estimate quite accurately the level of effort needed to bring the transit system up to a state of good repair. There seems to be consensus on what the industry standards are for replacing and maintaining rolling stock, and for repairing and upgrading passenger and maintenance facilities, track, and electrical systems, etc. See the *Maintenance to a State of Good Repair* – Transit section below for the particular thinking on the topic.

No capacity additions are assumed in either of the maintenance categories.

Maintenance to a Safe and Adequate Level for Highways

The region is estimated to have 3,233 lane miles of expressway, 18,719 lane miles of arterial and collector roads (6,955 centerline miles); 17,781 miles of local roads, 311 interchanges, 3,281 bridges, and 7,732 signalized intersections. Basic maintenance such as resurfacing, bridge deck overlays and signal modernization is required to maintain a safe and adequate system for all users. All facilities will require major reconstruction, rehabilitation or replacement at some point over the next thirty years. For highway costs, CMAP staff has consulted with various agencies such as IDOT, the Toll Highway Authority, and county and municipal governments to collect typical costs, i.e. "unit costs" and useful life/maintenance cycles for these types of activities. CMAP has compiled information on:

- Resurfacing and reconstruction of expressways, arterial and collector roads, and local and unclassified roads,
- Bridge deck overlays, deck replacements, and major bridge rehabilitation or replacement,
- Traffic signal retiming and signal modernization, and,
- Associated engineering and environmental studies for the above

Using this information, CMAP staff has constructed an estimate of the maintenance cost category for the 30-year planning cycle.

To develop the maintenance costs, we multiplied unit costs of the above listed typical work types by the magnitude of work involved. The magnitude of work consists of factors for both the size of the given system (lane miles, centerline miles, signalized intersections and bridges, etc) and the frequency with which each work type must be performed. The useful life of a particular segment of infrastructure will, in reality, vary with the amount and type of traffic and sometimes weather conditions. However, for this planning effort, an even distribution of roads in all age/wear categories along with typical frequencies for maintenance cycles was assumed. Frequencies for each work type were identified for three roadway functional classifications

(expressways; arterials/collectors; local roads) and unique unit costs were identified for each of the roadway functional classifications.

A series of formulae were applied, combining unit costs based on recent local bid experience, volume of the relevant facility type, and typical maintenance work type frequency. The resultant 30-year costs were broken out into even 1 year increments and then factors for construction cost increases were applied to each year in order to provide "year of expenditure" estimates, as required by federal planning regulations. The resultant costs were then combined into 5-year increments for ease of review.

The principal components of the formulae are described below and the development of the particular values is described under each facility type and maintenance work type following that.

Unit Costs

Cost information was collected from IDOT, ISTHA, and a sampling of counties and municipalities, as well as published sources. A blended cost number was used where there were differences in estimates. These estimates are considered appropriate for "planning level work", but are not be suitable for project programming or budgeting purposes. Maintenance of bicycle and pedestrian facilities within the right-of-way of roadways is included within these cost estimates.

Volume of Facilities

Roadway Volume (miles and lane miles) by roadway classification. The Illinois Department of Transportation publishes estimates of roadway mileage by classification each year. The December 31, 2008 version of Illinois Highway and Street Mileage Statistics available on IDOT's website and a parallel version which provided the statistics by "lane miles" rather than lineal miles were utilized.

Traffic Signals - number of signalized intersections. As of December 2007, the CMAP traffic signal inventory included 7,732 signalized intersections. This was based on data collected from operating agencies in the CMAP planning region during 2007. This included approximately 2,900 reported by the City of Chicago as of March 2007.

*Bridges***.** Information on the number, size, and age of bridges was collected from FHWA's National Bridge Inventory – 2007.

Changes to volume of facilities during the plan period. No factor for transportation system growth over the planning period has been applied to the volume of infrastructure to be maintained (i.e. miles of roads, and number/surface area of bridges, and number of traffic signals were considered constant). The cost impacts for maintenance and operation of systemwide/strategic improvements which increase the system size (add lanes, intersection improvements, etc) and major capital projects will be captured in the calculation of costs for those two categories of improvements.

Useful Life Estimates /Frequency or Repair and Replacement

Useful life information was collected from IDOT, ISTHA, and a sampling of counties and municipalities, as well as published sources. Useful life was the guide for the calculation of how often each maintenance function would take place. The findings were vetted and adjusted through an ad hoc committee of agency experts in January 2010. At that point it was determined that actual current practice would be appropriate for maintenance at the safe and adequate level as opposed to textbook or industry standards.

Bridges were handled somewhat differently as the need for repairs is spread over a much longer period and actual age information is available through the National Bridge Inventory (NBI). A detailed explanation of the methodology is provided in the Bridge Maintenance section after roadway maintenance.

The following abbreviations will be useful for the reader before reviewing the particulars for each facility type and work type.

BR	Bridge Replacement (or major structural rehab with new deck)
C-D Sections	Collector-Distributor Sections or Lanes (C-D Roads)
CL Mile	Centerline Mile (i.e. linear miles of roadway)
DO	Deck Overlay
DR	Deck Replacement
IDOT	Illinois Dept. of Transportation
ISTHA	Illinois State Toll Highway Authority
LM	Lane Miles (equals CL miles times average number of lanes)
NBI	National Bridge Inventory
RS	Resurfacing
RC	Reconstruction
S&A	Safe and Adequate
SGR	State of Good Repair

For roadway maintenance, our table breaks roadways maintenance down into two work types – resurfacing and reconstruction and three categories of facilities:

- Expressways and Expressway Interchanges
- Arterials and Collectors
- Unclassified and Local roads

Bridge maintenance, traffic signal maintenance and the associated cost of engineering and environmental studies are also included in the cost calculations. Regular routine maintenance such as pot hole filling, patching, and crack sealing is a part of the highway agencies and local governments' transportation operations costs.

The number of miles, both centerline miles and lane miles, for expressways and roadways of all classifications is taken from the Illinois Department of Transportation's report titled "Illinois Highway and Street Mileage Statistics – December 31, 2008". The roadway statistics that were used include mainline lanes, ramp lanes and C-D Roads. The number of expressway

interchanges (311) was derived from the National Bridge Inventory for 2007 and is comprised of 183 full interchanges and 128 partial interchanges. Of the 183 full interchanges, 24 connect an interstate highway to another interstate highway and 13 other were described as complex.

Roadway Resurfacing Cycles and Costs

Typically a roadway takes the brunt of wear at the surface level. Wear and tear from constant loadings (i.e. passes of vehicles) and from weather conditions (freeze-thaw cycles and road salt) contribute to a roadway's deterioration. The condition of the subsurface also effects how well the pavement will hold up under these dynamics. Because a brand new roadway has good subsurface condition as well as a new surface, the time period before the first resurfacing, given regular routine maintenance i.e. pot hole filling and crack sealing, is generally longer than that of subsequent resurfacings.

Expressway and Expressway Interchanges. Based on a survey of multiple expressway agencies in northeast Illinois, a span of 20 years before the first resurfacing and 8 years for subsequent resurfacings is assumed. Based on the same survey, a blended value of **$400,000 per lane mile** was assumed as the cost for expressway resurfacing.

Arterials and Collectors. Based on a small informal survey of IDOT, county and municipal agencies in northeast Illinois, a span of 12 years for all resurfacings is assumed. Based on the same survey a blended value of **$250,000 per lane mile** was assumed.

Unclassified and Local Roads. In general, local roads and unclassified roads experience much less traffic loading, so they last longer than arterial roads and expressways. Because trucks are so much heavier than cars they do much more damage to the road (1 large truck does the damage of 5,000 cars) the percentage of truck traffic is a large factor in roadway wear and the full size trucks are a rarity on local roads. Based on a sampling of IDOT, county and municipal agencies in northeast Illinois, a span of 15 to 25 years between resurfacings was experienced with preponderance in the 20 year area. For calculations we assumed 20 years.

Based on the same sampling a blended value of **$375,000 per centerline mile** was assumed. Centerline miles was used as the measure of volume rather than lane miles as that was the format that most of the contributing agencies were comfortable with for providing cost generalizations. Also the number of lanes on local and unclassified roads is relatively consistent (2 lanes, one in each direction).

Roadway Reconstruction Cycles and Costs

An expressway that has had regular routine maintenance, pot hole filling, patching, crack sealing and resurfacing when conditions warrant, will still eventually experience wear at a deeper level. At the point when the road shows significant deterioration at the subsurface level, it will need a full reconstruction.

The cost of reconstruction is very expensive and varies with conditions. Reconstruction costs are often 10 times that of resurfacing, and the work usually addresses additional problems that have developed, beyond surface and subsurface condition. Such problems include operational

inadequacies, and bringing the facility up to safety and performance standards that have evolved over time. The unit costs used in this maintenance costing effort assume that no additional mainline lanes are added during reconstruction. The marginal costs for addressing capacity deficiencies are identified in the Systematic Improvements and Strategic Enhancements section.

While reconstruction costs for expressways can be estimated on the basis of length and width of the subject roadway section (i.e. number of lane miles) with relative consistency, the cost to reconstruct interchanges varies widely with the complexity of the interchange, which can be as simple as two short ramps (a "partial interchange") on embankment or as extensive as eight long, nested ramps "stacked" on several levels of structures. For purposes of estimated expressway maintenance costs, the lane miles of mainline roadway as well as ramps and collector-distributor (CD) sections were multiplied by the unit cost. Interchange bridges are included in the bridge maintenance calculations. Full interchange reconstruction costs with operational improvements often including reconfiguration of ramps, are provided in the Systematic Improvements and Strategic Enhancements section.

Expressways and Interchanges. Based on an informal survey of multiple expressway agencies in northeast Illinois, the typical time period before an expressway reconstruction is needed can generally vary from 40 to 60 years. For costing out maintenance a blended value for the life span was assumed to average 50 years.

The same survey resulted in blended value of **$4.0 million per lane-mile** as the cost for expressway reconstruction. That unit cost value does not include the cost of reconstructing the associated interchanges which are generally bid as separate contracts. The cost to reconstruct an interchange can range from $8.5 million to $50 million or more, depending on complexity (even reaching $500 million for major complex interchanges in the Chicago Area.) However, operational and capacity issues are usually addressed during the reconstruction of an interchange which brings the cost up. For purposes of estimating maintenance costs alone, it is believed that because the expressway reconstruction mileage includes ramps mileage and the bridge maintenance numbers cover structures of the ramps that are not built on an embankment, a separate a category for interchange maintenance is not needed.

Reconstructed interchanges usually include major operational changes: additional lanes on ramps, additional ramps and /or and consolidating of turn movements into fewer ramps. Interchange reconstruction costs representing operational improvements or reconfiguration of ramps are provided in the Systematic Improvements and Strategic Enhancements section.

Arterials and Collectors. Based on an informal survey of IDOT, county and municipal agencies the typical time period between when a road is newly constructed or reconstructed and when the road would need its next reconstruction can vary greatly. Even though this class of roadways experiences much lighter traffic loadings than expressways, they have a similar life span because the expressways are built to withstand higher traffic volumes and heavier loads. Collector roads (typically subdivision spine roads) collect traffic from local roads and carry it to arterials, and so have less total traffic and lower truck traffic than arterials. Because of this, the

collectors typically experience a somewhat longer life span than arterials. However, our data for volume of roadways combines "arterials' and collectors'" centerline miles. The cost of maintenance of arterial and collector roadways was therefore a blended value for the life span of both roadway functional classes and was assumed to be an average of 50 years.

The same survey indicated that reconstruction of an arterial roadway can cost from $1.2 million to $8.4 million per centerline mile, depending on the project size and complexity. For purposes of estimating maintenance costs, an assumed value of **$4.1 million per centerline mile** was agreed to by the ad hoc highway cost vetting group convened in January.

Unclassified and Local Roads. In general local roads and unclassified roads get the lowest level of general traffic and especially lower heavy truck loading. Because of this, the subbase, or roadway "foundation," generally lasts a very long time. Based on an informal survey of counties and municipalities in northeast Illinois, the typical time period before a local road would need a reconstruction is around 75 years and the reconstruction would be accomplished at a unit cost of **$1.1 million per centerline mile**.

Bridge Maintenance

As of the 2007, FHWA's National Bridge Inventory (NBI) for the CMAP region has 3,281 bridges with a total deck area of 44.6 million square feet (average size 195' by 70'). Some of the bridges that are in use today were built in the 1800s. Bridge maintenance is more complicated to estimate than roadway maintenance; the bridge superstructures, generally made of concrete, and the substructures, made of concrete or steel, are built to last 75 to 100 years. Bridges built recently will not need significant maintenance work for another 20 or 30 years.

Because of the long life span of a bridge, the bridge's current condition is an important factor in estimating when and how much maintenance will need to be performed. CMAP has data for the region on bridge age and dates of past repair work from the National Bridge Inventory (NBI). The NBI data covers public bridges over 20 ft in length. Using this inventory data, we can estimate the number bridges requiring various work types in the plan period. The inventory provides size factors for each bridge including deck area (square footage) which is the best way to estimate the cost of the work – so this document and the associated calculations use square footage rather than number of bridges.

Because the NBI data and the CMAP bridge data does not include short span bridges (i.e. 20 ft and less), research was done to determine if cost adjustments should be made for undercounting of short span bridges. Investigation determined that the vast majority of short spans are culverts, not structures. These pipe culverts or box culverts have much simpler maintenance procedures and that work is already accounted for in the unit costs of road reconstruction. The amount of work (based on number and size) of actual short span structures is miniscule compared to the work related to structures in the NBI database, so with the help of the ad hoc highway vetting committee it was determined that no adjustment was warranted.

The following methodology for estimating bridge maintenance work (deck overlays, deck replacements and full bridge replacements) was developed in discussion with the programming

engineer for bridges at IDOT District One. This consultation resulted in estimates for both life span and for the unit cost numbers for the various work types.

Initial Deck Overlay. At 30 years of age there is a 75% chance of a bridge needing a deck overlay. However, bridges older than that would probably skip the deck overlay and wait for a full deck replacement at the early end of the 40-50 years of age spectrum. CMAP used a factor of 0.75 multiplied by the deck area of bridges that turn 30 years old between January 2011 and December 2040, which are all bridges built in the years 1981 through 2010. This amounts to 75% of 861 bridges, and is shown as the "1st deck overlay" in the summary table.

The unit costs range from $20 per square foot for a thin overlay to $65 per square foot for a 2¼" thick overlay with hydro-scarification (high pressure water treatment used to blow loose concrete and aggregate off the surface of the deck). Since CMAP is estimating the costs for overlays intended to significantly extend the service life of the bridge, which will also tend to be the more expensive type of overlay, CMAP used a unit cost of **$50 per square foot**.

Deck Overlays Following a Full Deck Replacement. A bridge that has aged to 30 years past its deck's replacement may get a deck overlay, but is less likely to receive one because of concerns about the condition of the substructure. Engineers expect that by then the bridge soon will need a full bridge replacement or major superstructure and substructure rehabilitation. CMAP used a factor of 0.50 multiplied by the deck area of bridges that hit the benchmark of "30 years after a full deck replacement" between January 2011 and December 2040, which are all bridges with a full deck replacement in the years 1981 through 2010. This amounts to 50% of 1,519 bridges, and is shown as the **"**2nd deck overlay" in the summary table. The same unit cost as above, **$50 per square foot** is used. The database does not include bridges built in the years 2007 to 2010, so the deck square footage number is slightly lower than the actual regional total.

Deck Replacements. As a generalization, bridges need a deck replacement at 40 or 50 years of life, regardless of whether or not they've had a deck overlay. CMAP is using 45 years of age as our trigger for deck replacements for the planning level maintenance cost analysis. Hence the calculation is 100% of the number representing deck area of bridges that turn 45 years of age between January 2011 and December 2040, or all bridges built in 1966 through 1995. This amounts to 965 bridges. The unit cost ranges from $180 per square foot for urban steel beams to $100-$110 per square foot for other materials. We were advised by a local bridge expert to use the **$180 per square foot** as the best approximation.

Bridge Replacements. On average, all bridges need to be replaced or undergo a major structure and substructure rehabilitation with a new deck, at 75 to 100 years of life, regardless of having had a deck replacement or not. Replacement and major structure rehabilitation cost nearly the same amount.

CMAP is using 90 years as the age that triggers bridge replacements in our planning level maintenance cost analysis.

In the NBI database, 64 bridges have information for date of reconstruction, but no information on date built. In those cases we have worked from the reconstruction date and are assuming that the bridge replacement is needed 45 years later.

These two categories of bridges combined make up the bridge replacement number:

- Square footage for any bridge that becomes 90 years or older during our plan period (January 2011 and December 2040), which are all bridges built in 1950 or earlier that have had no reconstruction as shown in the data base.
- Square footage for any bridge that had a reconstruction 45 or more years earlier during our plan period, which are all bridges with a reconstruction in 1995 or earlier.

Hence the calculation is 100% of the number representing deck area of bridges that turn 90 years of age or hit 45 years after a reconstruction (if date of construction is unknown) during our plan period. This amounts to 857 bridges. In reality, when a bridge is scheduled for major maintenance work – a thorough review of surface condition, structure and substructure is done to determine the actual scope of the work. The unit cost developed is purely an estimation of typical work. The costs range from $300 per square foot of deck area to $450 per square foot of deck area. The higher cost reflects changes to the proposed deck area if there are roadway issues to be addressed such as changing the roadway's profile, or higher costs for small projects that require higher mobilization and traffic control costs. A blended unit cost of **$375.00 per square foot** was used as an average.

Traffic Signal Maintenance / Concurrency to Standards and Conditions

Signals control the flow of traffic through thousands of intersections in our region. When not designed or timed well, they can cause bottlenecks hindering safe and convenient personal travel and goods movement. As development, recession or changes to the transportation network affect travel patterns, it is important to adjust the timing of traffic signals on a regular basis in order to keep the traffic moving through signalized intersections flowing smoothly.

Signal Retiming or Optimization. Adjustments to the timing of traffic signals can be accomplished within a range of levels of effort. Some agencies complete retiming projects in-house, with a limited review of traffic conditions, and staff technicians make adjustments in the signal controller box. More extensive efforts can result in a full re-timing plan developed through an engineering study which would include the collection of existing traffic volumes and turning movements (16 hour traffic counts), review and analysis of the data to determine which intersection approaches should be given more green time or turning arrow time, etc., and then the actual timing adjustments are made by a licensed technician at the signal's controller box. Based on an informal survey of IDOT, county, municipal and consulting engineers specializing in signal work, a full study to accomplish signal timing optimization can cost $6,000 to $7,000 but a simple timing adjustment can often be done for around $2,500.

In areas of growth or redevelopment where traffic patterns are changing, signal retiming would be needed more often, perhaps even every 3 years, but in areas with relatively consistent traffic patterns this would not be necessary. Also because some of this work is included in transportation agency operations budgets – we opted for conservative cost and frequency

estimates. For costing out maintenance at a "safe and adequate" level, a cost of **$2,500 per intersection** was used with a frequency of every 7.5 years.

Signal Modernization. Based on an informal survey of IDOT, county, municipal and consulting engineers specializing in traffic signalization, signal modernization is needed some time after the signals get to be 20 years old. Signal modernizations can cost $300,000 to $350,000 for a typical 4 legged intersections in the Chicago region, even more if temporary signals have to be strung during construction. The costs are higher where there are traffic management centers (TMC) involved, which require appropriate signal and communications technology providing the ability for the signal to communicate to the center.

For estimating maintenance needs at a "safe and adequate" level, a cost of **$300,000 per intersection** was assumed and a frequency of every thirty years. However, because much of the time signal modernization is done within other projects (roadway reconstructions, add lanes, signal interconnections, and intersection improvements) we reduced the number of locations by 50% to avoid potential double counting.

Volume of Traffic Signals / Signalized Intersections. Data was collected from operating agencies in the CMAP planning region during 2007. As of December 2007, the CMAP traffic signal inventory showed 7,732 signalized intersections. This included approximately 2,900 reported by the City of Chicago. For purposes of estimating maintenance costs, the value for the number of signals by the end of 2007 was not been increased to account for signal installations which occurring between 2007 and 2011, the start of the plan period. Nor has a factor for the expected growth in the number of signalized intersections over the plan period ending December 2040 been applied. The increases cost for maintenance due to an increased volume of signals during the plan period will be addressed in the systematic improvements analysis separate from these safe and adequate maintenance calculations.

<u>Engineering and Environmental Studies</u>

Before a road or bridge improvement can be built, it must be designed and bid. This entails several steps: phases I, II and III engineering. Phase I Engineering includes scoping the project, identifying alternative designs, conducting environmental studies and holding public meetings, selecting the preferred alternative and identifying the right of way needs. The design must meet applicable state and federal laws and standards; assess and reduce, where possible, potential damage caused to the environment; and where practical, take into account the needs and preferences of the community. Phase II Engineering, includes the development of job site construction plans and construction material requirements in order for the project to be bid by contractors and built by the selected contractor. Agreements for land acquisition, utility relocations and local agencies are also developed. Finally, Phase III Engineering is engineering oversight that takes place during construction.

The cost of these engineering and environmental aspects for all the above work types is estimated in a separate line item on the spreadsheet. Based on an informal survey of highway agencies and local governments, an average cost for these engineering and environmental studies along with engineering oversight during construction was estimated at **30% of**

construction cost for most work types, but estimated at **15% of construction cost in the case of simpler work types: resurfacing and signal modernization**. Zero additional study cost was added for signal retiming and optimization projects as the engineering work is already included in the unit cost.

A summary of the parameters discussed above is presented in the following table.

Facility Type	Work Type	Typical years (useful life)	Volume	Units	Volume Notes	Unit Cost ($1,000s)
Expressways (IDOT, ISTHA)	Resurfacing (including interchanges)	20 1st, then 8 ea thereafter (2.25 in 30 yr)	3,233	Lane Miles	Mainline, ramps & C-Ds	$400
	Reconstruction (w/out add lanes or interchanges)	Range 40-60 yrs. For calculations use 50	3,233	Lane Miles	Mainline, ramps & C-Ds	$4,000
Arterial & Collector Roads	Resurfacing	every 12 yr (2.5 in 30yr)	18,719	Lane Mile	Lane Miles	$250
	Reconstruction	50 years	6,955	CL Mile	Centerline miles	$4,100
Unclassified & Local Roads	Resurfacing	20 (1.5 in 30 yr)	17,781	CL Mile	Centerline miles	$400
	Reconstruction	75 yrs	17,781	CL Mile	Centerline miles	$1,100
Roadway Bridges (by age) Total = 3,281 in NBI (ave 195' by 70')	1st deck overlay	for calc's use 75% of bridges at 30 yrs old	9,173,000	Square Ft *(=861 bridges)*	75% deck area (sq ft) hitting 30 yrs	$0.05
	2nd deck overlay	50% of bridges at 25 yrs past deck replacement	25,663,000	Square Ft *(=1519 bridges)*	deck area (sq ft) hitting 25 yrs past deck replacement	$0.05
	Deck replc't & some rehab	40-50 yrs old: use 45 yrs as trigger	11,030,000	Square Ft *(=965 bridges)*	deck area (sq ft) hitting 45 yrs	$0.18
	Bridge replacem't (or major rehab)	75-100 yrs; used 90 yrs old as trigger	11,857,000	Square Ft *(=857 bridges)*	deck area (sq ft) 90 yrs or older	$0.375
Traffic signals	Retiming	every 7.5 years	7,732	Signalized Intersections	12/2007 inventory	$2.5
	Modernization (TSM)	50% every 30 years	7,732		12/2007 inventory	$300
Expressways, roads, bridges & TSM	Engineering & Environmental studies	n/a	n/a	% of Construction Cost	study costs are in the above unit costs for signals	30% for RC & bridges; 15% for RS & TSM

The total annual maintenance cost for all of the above work types is approximately $2.5 billion. The 30 year cost without the effects of inflation totals $75.5 billion. Figuring the effect of construction costs increases for the 30 years, yields a total "highway maintenance to a safe and adequate level" cost for in "year of expenditure" dollars of 127.0 billion dollars.

Maintenance to a Safe and Adequate Level for Transit

The region is estimated to have nearly 1,500 miles of passenger rail track, over 6,000 transit and rail vehicles (rolling stock), and 332 passenger stations. Much of the system is old and will require significant reconstruction or rehabilitation work at some point during the *GO TO 2040* planning period. Typical maintenance work types in our analysis include:

- Replacing and rehabilitating rolling stock,
- Maintenance of transit passenger facilities,
- Maintaining transit signals, electrical, and communications,
- Maintaining track and bridges, and,
- Maintenance of equipment maintenance garages and storage facilities.

As with the characterization that current highway maintenance practices constitute a "safe and adequate" level, transit maintenance is currently being performed at a "safe and adequate" level as well. The RTA and the service boards recommended using RTA provided information for maintenance and operations cost, as it would be more accurate and consistent than what CMAP could develop internally.

To develop cost estimates for a safe and adequate level of transit maintenance based on current practice, we utilized the projected capital funds available for each service board for the years 2011-2014 included in the December 17, 2009 RTA adopted budget. The published numbers include several sources, including funding made available through the State of Illinois Bond Program. Because this State funding source may not continue to be available, the projected amounts were reduced for the years beyond 2014. While we used 2011 through 2015 full funding numbers for the projections, for years 2015 through 2040 the amount of capital funding from the State was reduced by one half. This is the mathematical counterpart to the revenue estimate discussion earlier where the assumption was made that such a capital program is reasonably expected to be in effect 5 of every 10 years for the remainder of the plan period. This resulted in a 30-year estimate of $31.7 billion in year of expenditure dollars for transit maintenance costs at the "safe and adequate" level.

Maintenance to a State of Good Repair for Highways

Three analytical approaches were used to prepare an initial 30 year State of Good Repair cost estimate for roadways:

- Doubling the region's maintenance effort for the first 5 years of the plan period and then continued maintenance at frequencies commensurate with current practice.

- No increased levels for specific years, but ongoing maintenance work at higher frequencies – periods more commensurate with industry standards.
- Doubling the region's maintenance effort for the first 5 years of the plan period and then continued maintenance at frequencies commensurate with industry standards.

The result of this cursory analysis was a range of increased costs over the Safe and Adequate maintenance costs of: $10.4B, $58.3B and $78.5 billion respectively.

Given available revenues, *GO TO 2040* is unable to constrain the full cost of bringing the highway system to a state of good repair. However, these types of activities are a regional priority, and a portion of an available $41.8 billion should be used for these types of activities.

Maintenance to a State of Good Repair for Transit

Initial estimates for "state of good repair" transit maintenance were developed based on the RTA's 2006 report "Moving Beyond Congestion" effort. However The RTA is currently working with the three service boards to finalize a major study effort to determine the volume, age and condition of the region's transit assets. Within the RTA's Asset Condition Assessment study, the costs to bring the system into a "state of good repair" and to then keep the system at that level will be developed. At the time of this writing, that information is not available, but is expected to be shortly.

Given available revenues, *GO TO 2040* is unable to constrain the full cost of bringing the transit system to a state of good repair. However, these types of activities are a regional priority, and a portion of an available $41.8 billion should be used for these types of activities.

Systematic Improvements/Strategic Enhancements for Highways and Transit

Strategic improvements and enhancements include projects that improve system performance or expand its capacity but are not major capital projects. Projects in this category include arterial add-lanes projects, transit operations improvements, new or expanded bus services, pedestrian or bicycle improvements, Intelligent Transportation Systems (ITS) projects, transportation demand management, and many others. The link above contains a longer list of these project types. Projects in this category are addressed systematically rather than individually.

Types of Activities in this section include:

- Transit System Operations Improvements
- Other Systematic Capital Improvements to Transit Facilities (e.g. Queue Jump Lanes, Designated Bus Only Lanes, Transit Signal Priority)
- Pedestrian and Bicycle Improvements
- Expansion of Paratransit Service

- Arterial Widenings and Operational Improvements in Redeveloping and Congested Areas
- Traveler Information Services
- Variable Pricing on Expressways
- Interchange Reconstructions with Operational Improvements
- Roundabouts and Other Intersection Treatments
- Signal Interconnects

Given available revenues, GO TO 2040 is unable to constrain the full cost of making all desired systematic improvements and strategic enhancements. However, these types of activities are a regional priority, and a portion of an available $41.8 billion should be used for these types of activities.

Major Capital Projects - Highways and Transit.

"Major capital projects" are large projects with significant effect on the capacity of the region's transportation system, including extensions or additional lanes on the interstate system, entirely new expressways, or similar changes to the passenger rail system. Arterial expansions and intersection improvements are not defined as major capital projects; neither are bus facilities, unless they involve a dedicated lane on an expressway. This definition is consistent with federal guidance as well as the definition of major capital projects used in past regional transportation plans prepared by CATS.

Types of activities in this section include:

- Extensions or Additional Lanes on the Interstate System
- New Expressways
- Transit System Extensions
- Major New Expressway Interchanges

$10.5 billion is allocated toward major capital projects. Major capital projects are described in *GO TO 2040* here.

"REASONABLY EXPECTED" REVENUES AND OTHER INNOVATIVE FINANCING

Background

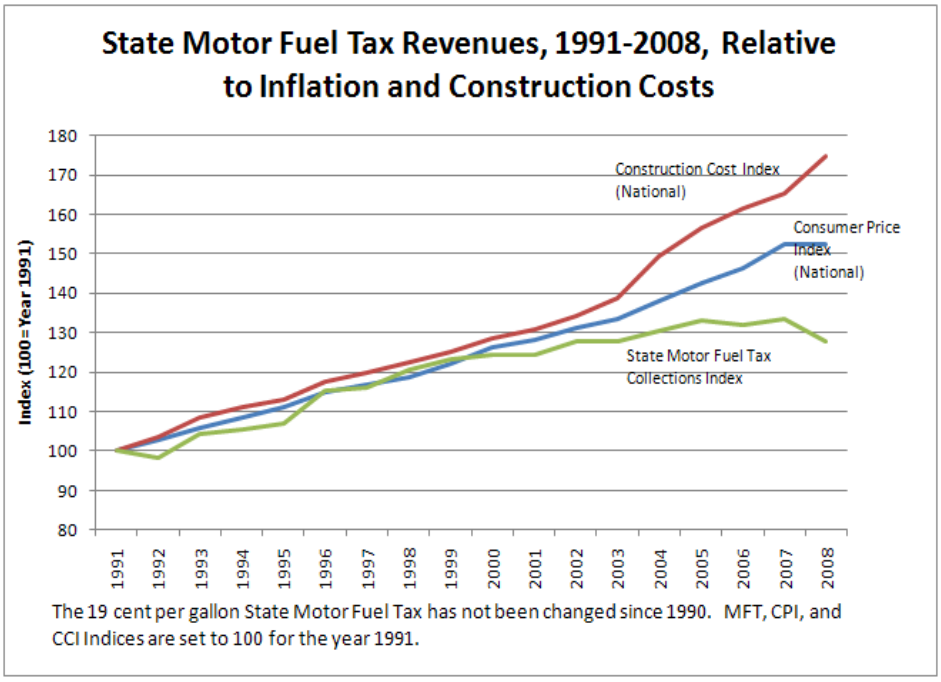
FHWA/FTA guidance on the fiscal constraint permits MPOs to calculate revenues that can "reasonably be expected". What is "reasonable" usually constitutes a judgment call, based upon the current political and policy climate at various levels of government. The following sections explain the "reasonably expected revenues" that CMAP is including in *GO TO 2040*'s financial constraint. It also explains other potential innovative revenue sources that while not included the fiscal constraint, remain important items for regional implementers to consider for the maintenance, enhancement, and expansion of the system.

The level of core revenues, which largely reflects current revenue trends, will not allow the region to make much progress in addressing our substantial transportation needs given expected population growth. The inclusion of "reasonably expected revenues" is vital for the region to make additional needed investments, though it still will not be enough to move the system to a state of good repair, enhance and modernize the system, or construct all of the major capital projects that are desired.

Reasonably Expected Revenue Sources (Fiscally Constrained)

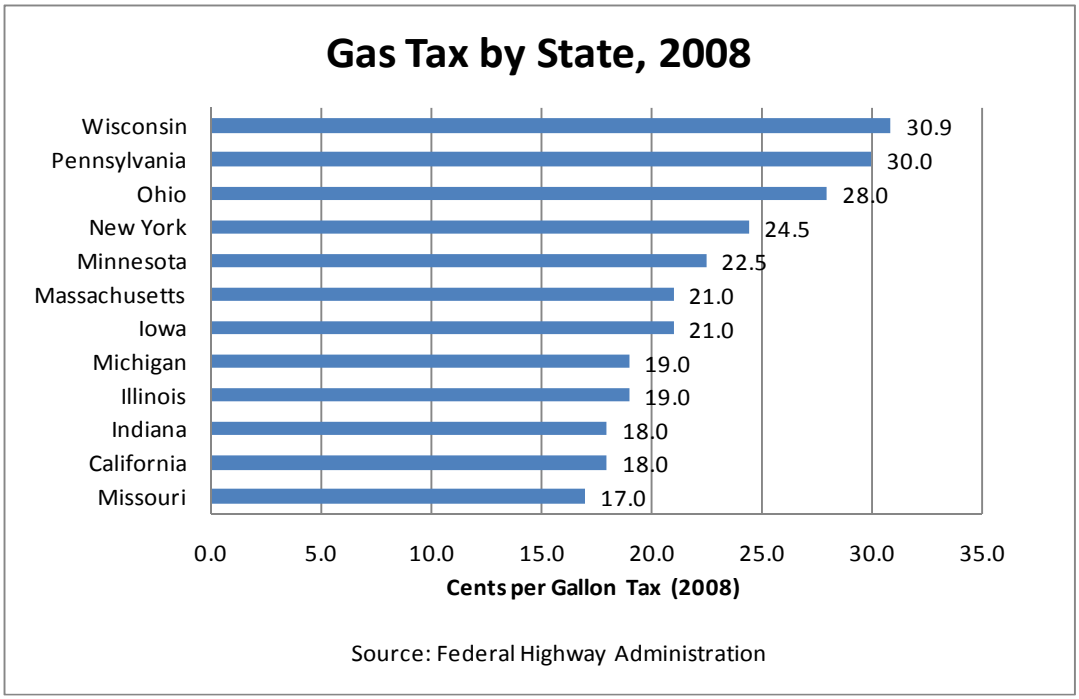
State Motor Fuel Tax Increase

While the State of Illinois motor fuel tax has remained $0.19 per gallon since 1990, rate increases do have historical precedent. Since 1929, the tax rate has been increased nine times- five of these increases occurred between the years 1983-1991, in response to steadily declining revenues during the 1970s. Since the tax is imposed "per gallon" rather than "per dollar", State MFT revenues



have failed to keep pace with inflation and the cost of construction materials as expressed through the construction cost index (CCI). Since both state and federal motor fuel tax revenues must be used for transportation-related expenditures, a lack of MFT inflation indexing will continue to impact the ability of the State and local governments to maintain and enhance the system. The following graph sketches out how the state motor fuel tax revenue has fared, relative to the CPI and CCI since 1991.

To date, the CMAP Board has formally supported an Illinois House Bill (House Bill 1 (Bradley)) amending the motor fuel tax law by raising the rate by 8 cents to 27 cents per gallon. A number of transportation policy advocates in northeastern Illinois have also advocated various similar measures for raising the state MFT tax, as well as indexing the rate to inflation.[28] The Motor Fuel Tax in Illinois remains low, compared to other Midwestern and other competitive states.



It should be mentioned that unlike most other states, Illinois (and its local governments) also impose a sales tax on the price of gasoline. While this increases the gas taxes paid in Illinois by consumers, sales tax revenues are not dedicated to transportation infrastructure. Most sales tax revenues allocates to the State General Fund and to disbursements to counties and municipalities.

[28] See Chicago Metropolis 2020 "A Case for Raising the State Motor Fuel Tax", http://www.chicagometropolis2020.org/documents/ACaseforRaisingtheMotorFuelTaxinIllinois.pdf

Some states, including Florida and New York, index their state gas taxes to inflation. Florida indexes its tax annually based upon the consumer price index while New York indexes its gas tax based upon the refined products category of the producer price index.

The following table explains the amount of revenues forecast to flow to northeastern Illinois from an 8 cent State MFT increase which is indexed to an inflation rate of 3% annual. The table also includes the core revenues (state and local government allocation), which have already been forecasted. CMAP estimates that an 8-cent gas tax adjustment, indexed to inflation and assumed to begin in 2012, would yield **$19.4 billion in new revenue** for transportation in northeastern Illinois over the planning horizon.

State Motor Fuel Tax Revenues to Northeastern Illinois, Core and Reasonably Expected (Millions $)

REVENUE SOURCE	FY 11-15	FY 16-20	FY 21-25	FY 26-30	FY 31-35	FY 36-40	TOTAL
State Motor Fuel Tax (MFT)-Road & Construction Fund to NE Illinois (CORE)	$1,454	$1,557	$1,660	$1,763	$1,866	$1,969	**$10,268**
Local Allotment of State MFT (CORE)	$1,997	$2,139	$2,280	$2,422	$2,563	$2,705	**$14,105**
8- cent increase in State MFT, indexed to inflation (State and Local)	$1,152	$1,609	$2,129	$2,851	$3,727	$4,781	**$19,414**

Congestion Pricing

Congestion pricing seeks to apply economic principles of supply and demand to efficiently allocate scarce road space. Congestion pricing can take many forms, from variable pricing in which toll rates are predetermined according to time of day to truly dynamic pricing in which toll rates are set real-time in response to market demand. Experience from other places shows that congestion pricing can raise considerable revenues by forcing travelers to consider the true marginal cost of their travel through direct user pricing; correspondingly some travelers choose to change their time, mode, or route of travel, or choose not to travel at all. CMAP has studied "managed lanes" strategies as part of the *GO TO 2040* process. If included as a reasonably expected revenue source, congestion pricing would be considered as a strategic enhancement within the Plan's preferred scenario and assume no additional expressway capacity, unless included as part of a specific major capital project proposal.

While the implementation of congestion pricing in northeastern Illinois is not unanimously supported, there has been a considerable level of coordination among local transportation agencies in studying its impacts and proposing specific projects to the federal government for implementation dollars. In December 2007, CMAP, in coordination with the Illinois Tollway, Illinois Department of Transportation, Regional Transportation Authority, and Pace submitted a Congestion Reduction Demonstration proposal to the United States Department of Transportation. The submittal proposes congestion pricing along the I-90/Jane Addams Memorial Tollway. The proposal can be found here: http://tinyurl.com/2m2bxu. While the proposal was not selected by USDOT for funding, it demonstrates a regional commitment among both planners and implementing agencies to a careful implementation of congestion pricing.

Furthermore, The Illinois Tollway, in partnership with the Metropolitan Planning Council and Wilbur Smith Associates (WSA), is in the final stages of a two-year study to develop strategies that will reduce congestion in the region. The study models the impacts of congestion pricing on the Tollway, as well as IDOT expressways, and considers the diversion to local roads. It considers a range of scenarios, routes, and configurations to help reach desired goals. This study has included outreach to a range of local implementers and the general public. Initial results have been shared with CMAP's Transportation Committee. See more information about this study here: http://www.cmap.illinois.gov/WorkArea/DownloadAsset.aspx?id=16529

The Tollway study includes a range of evaluation measures for prioritizing congestion pricing on different expressway segments across the region. The measures include weekday congestion, constructability, peak period traffic management potential, and revenue potential (net, including operating costs). CMAP used revenue estimates from this study to construct forecasts, which also assume no additional added capacity. In other words, these are simply based upon conversions of existing lanes. The estimates assume a conservative $0.15 per mile toll rate. CMAP assumes revenues from congestion pricing will flow to the region beginning in the year 2020.

Projects scoring "medium to high" in terms of overall implementation potential comprise roughly 2.5% of the region's total expressway lane miles. Based on the study, these projects are estimated to generate roughly $343,000 net annual revenue per lane mile. In this scenario, anticipated revenues total **$1.6 billion** over the planning horizon. A more aggressive forecast could assume that 20% of the expressway network's lane miles will be priced. In this scenario, anticipated revenues would total **$13.2 billion** over the planning horizon.

Variable Parking Pricing

Like other parking management strategies, applying variable rates to parking can be used to influence traveler mode choice, time and amount of travel, and to shift drivers from a congested location. Variable pricing seeks to apply a free market-inspired pricing system to more efficiently allocate parking supply, with higher prices charged at times and locations of peak demand. Variable pricing has the promise of both effective congestion mitigation and the ability

to raise considerable revenues for the public sector. Like other strategies listed in this memo, CMAP intends to advocate for the careful implementation of parking pricing in local municipalities, where appropriate. Revenues from parking can help local governments fund a variety of services, including transportation improvements.

CMAP recently analyzed the revenue potential of variable parking pricing in a strategy report entitled *Parking Management Strategies*. In variable pricing scenarios, it is estimated that variable pricing could raise considerable revenues for northeastern Illinois. Given 3.2 million off-street spaces, and numerous on-street spaces, the report makes the conservative estimate that 2 million of the spaces are free. Charging a nominal fee of $1 / day for weekdays only would provide $520 million in annual revenues for the region. These estimates are for illustrative purposes only; pricing should be determined on a local level, with consideration of transit facilities, bicycling and walking amenities, land value, and demand.

For purposes of the *GO TO 2040* fiscal constraint, CMAP again chose to analyze potential parking revenues in a very conservative fashion. A beginning assumption is that 1% of the above spaces would be priced in the first year. Thus, $5.2 million in new revenues would be generated. Each subsequent year would price an additional 1% of spaces- thus by the year 2040, 30% of these currently free spaces would be priced. With a final assumption that 50% of these revenues would be used for transportation purposes by local governments, implementation of this above strategy would yield just over **$1.2 billion** in new revenues for transportation.

A more aggressive approach could simply assume that the quantity of priced parking spots will increase at a rate of 2% per year. Thus, by the year 2040, 60% of these currently free spaces would be priced (again, assuming $1 a day, with 50% of revenues be used for transportation). The aggressive approach would yield around **$2.4 billion** in new revenues for transportation.

Transportation Allowances from Federal Climate Change Legislation

H.R. 2454 (the American Clean Energy and Security Act of 2009) passed the full House of Representatives on June 26, 2009. S. 1733 (the Clean Energy Jobs & American Power Act) passed out of the Senate Environment and Public Works Committee on November 5, 2009. Both pieces of legislation would limit greenhouse gas emissions via a cap –and-trade system and require the use of more renewable energy. The time horizon for both bills extends to the year 2050.

These proposed cap-and-trade systems would work by setting annual limits on GHG emissions. Entities would comply by either reducing emissions, holding an allowance for each ton of GHG emitted, or acquiring an offset credit. The federal government would sell a portion of the allowances and distribute the remainder to various entities including the private sector, households, and units of government. The Congressional Budget Office, in their analysis of H.R. 2454, estimates that the total value of allowances in the year 2020 will be just over $100 billion. Roughly 50% of the allowances would be directed to U.S. businesses and 30% would be directed to households. About 10% of the allowance value would be allocated to the federal

and state governments to be spent on technology development and energy efficiency improvements.[29]

A percentage of these allowances would be distributed through States and MPOs for the purposes of "clean transportation". The H.R. 2454 and S. 1733 language differs somewhat in the percentage of allowances allocated to transportation. The House version allocates 1% of allowances toward transportation while the Senate version allocates roughly 2.8% of allowances toward transportation. Programs receiving these allowances would include state and metropolitan transportation planning and public transit urbanized area formula grants, among others.

While it is difficult to forecast how final legislation will eventually proceed, CMAP believes that some percentage of these proposed allowances can be considered "reasonably expected" based upon the policy climate surrounding the climate change legislation. While CMAP will continue to monitor this ongoing legislation, it can be expected that a 2% transportation allowance allocation would result in roughly $2 billion annual for transportation nationwide. Of this total, the State of Illinois could be expected to receive 3.5%, or $70 million annual, which is a percentage commensurate with SAFETEA-LU transportation appropriations. If we assume 45% of the state total will flow to northeastern Illinois transportation projects, this totals $31.5 million in new transportation funding. At a 3% annual rate of inflation between 2012 (the beginning of the cap-and-trade time horizon) and 2040, this totals roughly **$1.2 billion** in new revenues for transportation.[30]

Other Innovative Financing Sources

Public-Private Partnerships

Public Private Partnerships (PPPs) offer several different approaches for funding transportation infrastructure improvements and operations.[31] Currently the State of Illinois lacks the necessary enabling legislation that would allow the State broad authority to enter into PPPs. Individual cities and municipalities do have the ability to execute these financing agreements.

PPP comprises a range of different strategies, from "design-build," which works to consolidate typically disparate engineering and construction processes into one contract, to "design-build-operate-maintain," where responsibilities for designing, building, financing and/or operating a new transportation facility are bundled together and transferred to private-sector partners. Long-term lease agreements (like the leasing of the Chicago Skyway) involve a publicly-financed transportation facility that is leased to a private-sector entity for a prescribed period of

[29] Congressional Budget Office. June 19, 2009. The Estimated Costs to Households from the Cap-And-Trade Provisions of H.R. 2454.
[30] Assuming $31.5 million in 2020. Inflation rate of 3% is used to forecast forward, and back, from this number.
[31] For more information, see the Public Private Partnership strategy report, produced by the Volpe Center for CMAP: www.goto2040.org/WorkArea/DownloadAsset.aspx?id=14844

time during which the private entity has the right to collect revenue from the operation of the facility. In exchange, the private entity must operate and maintain the facility, and in some cases make improvements to it.

The focus of PPPs should not only be on the leasing or privatization of transportation infrastructure assets and their revenue-generating aspects. Several of the PPP strategies are concerned with shifting financial risk from the public to the private sector, leveraging private dollars and realizing cost savings from reduced project construction schedules. A range of pros and cons exist for each kind of PPP strategy, and contracts between public and private entities can be extremely complicated and costly to enact. However, some PPP strategies are worth exploring -- in particular, the most simple strategy -- "design-build" -- has shown the ability to reduce costs and drastically shorten the duration of projects, due to the elimination of a second procurement process for the construction contract.[32]

The following offers more detail about specific types of PPP arrangements:

Design-Build Contracting (D-B)

Under "Design-Build", engineering and construction processes are combined into one contract allowing a contractor to do some of the tasks simultaneously. Under standard design, bid, and build arrangements there would be two different contracting periods. The design services (architecture/engineering) would be a negotiated price while the construction services would be handled through a lowest bid price process. A 2006 FHWA study found that while the cost savings of design-build projects was hard to estimate due to the amount of variables involved, it did conclude that "the greatest motivation and realized benefit to a project contracting agency of using design-build instead of design-bid-build contracting is the ability to reduce the overall duration of the project development process by eliminating a second procurement process for the construction contract, reducing the potential for design errors and omissions, and allowing for more concurrent processing of design and constructing activities for different portions of the same project"[33]. Some of the pros and cons of design-build are:

- The public benefit of the design-build process is achieved through a time-cost savings and providing flexibility to the design of a project.
- The public entities involved still bear the financial funding burdens and must be actively involved in a coordinating role between the public and the private contractor.
- Works well with large projects that are complex, under time constraints and have a dedicated revenue stream linked with completion.

[32] See http://www.fhwa.dot.gov/reports/designbuild/designbuild.htm
[33] http://www.fhwa.dot.gov/reports/designbuild/designbuild.htm

One example of design-build would be the Transportation Expansion Project (T-Rex) in Denver, Colorado that involved the expansion of I-25 and I-225 along with the construction of a new light rail line connecting the Denver Tech Center and downtown. The cost of the project was $1.18 billion and had a seven year time frame for completion. The project was completed 22 months ahead of schedule and 3.2% under budget. The project sponsors estimated that the whole project would have taken 20 years or more to construct under a standard design, bid, and build process.[34]

There are over 34 highway and 13 major transit projects in the U.S. constructed using design-build. Other examples include the I-35 St Anthony Falls Bridge and Hiawatha Light Rail line both in Minneapolis, the I-15 reconstruction through Salt Lake City, and the Rail Runner Express Extension between Bernalilo and Santa Fe, NM.

A+B Contracting (Cost+Time Bidding)

A+B Contracting is a method of awarding a project based on both the cost and time to complete a project. Public and private entities enter into a contract with set goals and monetary incentives for meeting those goals in specified time frame. This method encourages private contractors to develop even more detailed bids, maximize the efficiency of workers and equipment and develop new and innovative construction methods in order to meet time deadlines. Contractors have been known to cut corners in the quality department as well to meet deadlines. Plus making changes to the project scope can be difficult to obtain because of the contracting agreements. Numerous state DOTs have successfully bid projects using this method including Florida, Arizona, Indiana, Washington, New York, Minnesota, and North Dakota.

Long-Term Lease Agreements

A long term lease agreement involves an existing, publicly-financed transportation facility that is leased to a private sector entity for a prescribed period of time during which the private entity has the right to collect revenue from the operation of the facility. In exchange, the private entity must operate and maintain the facility and in some cases make improvements to it. The private entity must also pay an upfront concession fee. Because of the long term nature of the leases used so far the pros and cons of this method can only be speculated. Some potential benefits would include:

- The ability to utilize private sector operational and maintenance efficiencies;

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[34] 2007. "Transportation Expansion Project (T-REX) Project Fact Book, 1999-2006." Metro Denver, Colorado Department of Transportation, Regional Transportation District. http://www.metrodenver.org/news-center/metro-denver-news/T-REX.html

- Produce large up-front lease payments that can be used to fund badly needed transportation improvements;
- Escape the politically unpopular process of raising facility fees/tolls;
- Reduce the public sector's operating, maintenance and capital improvement costs.

Some potential risks would include:

- Fees/tolls being transferred away from transportation purposes;
- Loss of public control over toll rates and revenue streams;
- Private sector increasing burdensome tolls that could create equity issues;
- Public sector undervaluing assets.

This type of PPP is probably most familiar to the residents of northeastern Illinois due to the City of Chicago's 99-year lease of the 7.8 mile Chicago Skyway for a fee of $1.8 billion in January 2005. Some other projects of note are the 75-year lease of the Indiana Toll Road for a fee of $3.85 billion and the 99-year lease of the Pocahontas Parkway in Richmond, Virginia for $548 million. Long-term lease projects will either involve the collection of fares or tolls for the use of the facility.

Design-Build-Operate-Maintain (DBOM) or Design-Build-Finance-Operate-Maintain (DBFOM)

With DBOM and DBFOM procurements, the responsibilities for the designing, building, financing and/or operating a new transportation facility are bundled together and transferred to private sector partners. These types of projects are often referred to as a "Greenfield" project. The private sector assumes the most amount of risk under this arrangement especially when private financing is involved. Because of the complicated nature of the public-private contracts for these projects, contractual cost can be extremely high. The use of "non-compete" clauses has caused controversy because of the public sectors other responsibilities to provide other transportation services. There is the possibility of the public sector having to take over projects that default.

The types of projects that are accomplished under this method will either involve the collection of fares or tolls for the use of the facility. The Dulles Greenway, a DBFO, is a toll road in the Washington, D.C. area that was one of the first U.S. projects to embody the basis concept of project revenue finance. The $350 million project was financed and constructed by a limited private partnership that has the rights to operate the facility until 2056. While the facility initially had some financial difficulties, the private partnership was able to refinance and make operational changes to the facility such as variable tolling that allow for the venture to be profitable. The private partnership was bought out by another firm in 2005 for $617.5 million.

A transit example of DBOM is the Las Vegas Monorail project completed in 2004 at a cost of $650 million. While no public subsidies were utilized in the operation of the facility, the private

partnership that operated the facility declared bankruptcy in late 2009 and it appears that the State of Nevada and the City of Las Vegas will be responsible for the debt burden remaining on the project. The project was going to expand to the Las Vegas airport but due to low ridership and lack of funding, the FTA pulled the plug on the extension.

Some other Greenfield toll facility projects include the Camino Colombia Tollroad (DBFO) near Laredo, TX, SR 91 Express Lanes (DBFO) in Orange County, CA and SR 125 South Bay Expressway (DBFO) in San Diego, CA. It should be noted that the SR 91 Express Lanes project had to be purchased from the private operator by the Orange County Transportation Authority due to a non-compete clause. Orange County wanted to add lanes to non-HOT portion of the highway that was under public authority but the non-compete clause would not let them. Some other transit examples include NJ Transit Hudson-Bergen LRT MOS-1 and MOS-2 (DBOM) and the JFK Airtrain (DBOM).

Performance-Based Maintenance Contracts (PBMC) or Asset Management Maintenance Contracts

PBMC is a method for public operating agencies to handle the maintenance of transportation facilities. PBMC generally consists of identifying the maintenance needs, setting performance-based requirements and bundling them together to allow a private contractor to manage and direct the work effort to meet the standards. The public entity will still need to perform oversight duties. An example of this is the District of Columbia Division of Transportation entered into a five year $96.6 million contract with a private asset management firm for the maintenance of the city's transportation infrastructure (excluding transit).

Value Capture

"Value capture" refers to a range of financing strategies by which the transportation implementers (particularly transit operators) can acquire capital or operating revenues from increases in property values caused by the transportation infrastructure investment. Access to transportation is a valued amenity in the real estate market. When transportation access becomes available, land prices are bid up by residents who value it, or by speculators buying the option value of the access. Numerous studies have found that property values increase in proximity to rail and highway access points (though not immediately adjacent to them due to noise pollution and congestion issues). These impacts dissipate as the distance from the transportation access grows.[35]

[35] For a review of studies that look at railroad access, and an explanation in the variation in findings, see Ghebreegziabiher, Derezion, Erik Pels, and Piet Rietveld (2007) "The Impact of Railway Stations on Residential and Commercial Property Value: A Meta-Analysis," *Journal of Real Estate Finance and Economics*, vol. 35, pp. 161-180.

Value capture instruments need to be carefully crafted because, as recent trends have shown, property values can rise and fall in unpredictable ways. However, the difference in prices from proximity to transportation access will be capitalized into land values. If land values fall following construction of an access point, they are likely falling in many other places as well, and are failing due to some larger economic trend. The properties with access to the transportation will still have higher values than those properties without that access.

Several mechanisms have been proposed and/or used for enabling the public sector to capture some portion of the value increases of surrounding properties (usually received by the public sector). These mechanisms and several of their attributes are summarized in the following table.[36]

Types and Attributes of Value Capture Mechanisms

Value Capture Strategies	Contribution		Coordination			Timing		Space			Basis		Cost		Transport Ownership		Level of Govt.	
	Landowners	Developers	Taxing Authority	Negotiation	Partnership	Before Transp. Improvement	After Transp. Improvement	On-site	Restricted Off-site Area	Entire Jurisdiction	New Development	Old Development	Upfront (Capital)	Ongoing (O&M)	Public	Private	State	Local
Land Value Tax	●		●			●	●			●	●	●	●	●	●			●
Tax Increment Financing	●		●			●			●		●	●	●		●			●
Special Assessments	●		●			●			●			●	●		●		●	●
Transp. Utility Fees	●		●			●	●		●	●	●	●	●	●	●			●
Development Impact Fees		●	●				●		●		●		●		●			●
Negotiated Exactions		●		●		●		●			●	●	●		●	●	●	●
Joint Development		●			●	●	●	●	●		●	●	●	●	●	●	●	●
Air Rights		●		●			●	●			●		●		●	●	●	●

Land Value Tax

[36] Adeel, Lari, David Levinson, Zhiron Zhao, Michael Iacono, Sara Aultman, Kirti Vardhan Sas, Jason Junge, Kerstin Larson, and Michael Scharenbroich (2009) "Value Capture for Transportation Finance: Technical Report," University of Minnesota Center for Transportation Studies Report number CTS 09-18.

A land value tax is assessed on landowners and should capture the value associated with the transportation access by being proportional to value increases. The tax can be assessed before or after the project is developed (or both). The land price will capitalize the expected value of the impact before construction, so taxation before construction will raise project-associated revenues. A difficulty with this mechanism may be in determining what areas to tax; it may require taxation of an entire jurisdiction, including areas not apparently benefited by the improvement. Tax revenue can fund construction and/or operational costs, and usually accompanies local ownership of the transit mode.

A land value increment tax can also be instituted which will only tax gains in property values associated with the construction of a new facility. This can be problematic if the construction occurs in a depressed market; value increases from transit access may not be immediately apparent. A land value tax can also be applied to the land only, which will more specifically target the transportation access increases to land values. Such a tax can be made revenue neutral to existing property taxes by a carefully coordinated phase-in, and can result in a higher taxation rate (or valuation rate) for the structures relative to the land (Lam and Tsui, 1998).

One application of Value Capture has been the "Betterment Tax" employed in the United Kingdom (Doherty 2004). This betterment tax captures the increase in property values that arise from new transit access. The value increase can be hard to measure or identify at specific points in time, which makes assigning the assessment of tax to specific property owners problematic. Taiwan has both a land tax and land increment value tax which captures property improvement values but both are used for general revenues; transportation access is financed through eminent domain and sales of improved properties (Lam and Tsui. 1998). Dade County, Florida has raised several million dollars toward capital costs from fees assessed on properties near transit (Massey, 1999). Land value taxation has also been effective for financing road construction; in 1969 Uruguay had generated 33% of highway capital costs with a modest frontage tax (Smith and Gihring, 2006), and in 1995, Bogota, Colombia had generated 80% of construction capital costs from land taxation (Smith and Gihring, 2006).

Tax Increment Financing (TIF)

Tax Increment Financing impacts landowners as their property values rise. This mechanism, which must be instituted prior to construction on areas adjacent to the improvement, derives revenues from improvements to existing development and from new development. Costs are borne initially, the public sector retains control of the mode, and the TIF is instituted by local government. TIFs have been successful in several instances, but must be carefully constructed so as not to be made insolvent by any decrease in local property values. TIF funding has been widely used to support municipal development, but has also been used to support transportation infrastructure. In Chicago, TIFs were used to fund several projects including several railroad station renovations.

Special Assessment Districts

Special assessment districts have been used for decades to finance both transportation

investments and general government revenues for location-specific purposes. These special assessment districts derive funding from landowners, are run by taxing authorities and are instituted before construction of the improvement. The districts constitute the neighboring properties and affect pre-existing development; as a result all costs are before construction. The public retains ownership and control of the mode, and administration is often local, state, or both.

Special Assessment Districts have been used successfully in California in many cases, including the generation of $130 million per year to retire transportation funding bonds in Los Angeles (Ohland, 2003). A referendum backed district was used in Portland, Oregon, where they raised 25% of total capital costs (Smith and Gihring, 2006). Special Assessment District funding provided 46% of capital costs for the the South Lake Union Street Car in Seattle (Adeel et al, 2009).

Transportation Utility Fees

Transportation utility fees are based on the premise that transportation agencies are similar to water and sewer utilities and provide municipal, use-based services. As such, fees are tailored toward collecting marginal cost impacts from transportation users. Fees are often based on property types; properties that generate more traffic are assessed higher fees. The application of the charge as a fee does not require the public referendum that adopting a new tax would, hence these fees are often instituted to cover short-term budget shortfalls. Transportation utility fees impact landowners and must be assessed by the local taxing authority. These fees are generally applied before and after construction of the transportation project, and can be applied to transportation-adjacent areas as well as entire taxation jurisdictions. The fees apply to both existing and new development, and can fund capital and ongoing operational costs. Transportation projects remain in the public sector. These fees are generally assessed by local governments.

These fees have been used in Colorado, Florida, Idaho, Oregon, Texas, Washington, and Wisconsin, but through legal invalidation or simple abandonment, are only in use in Colorado and Oregon currently.

Development Impact Fees and Negotiated Exactions

Impact fees are a one-time tax assessed on property development. These fees must pass a "rational nexus" test that matches the fee to the intended usage. Exactions are similar to impact fees but often result from negotiation between developers and municipal planners in order to obtain or expedite construction approval. Impact fees can cover multiple local services including transportation. Impact fees are assessed on developers (though ultimately passed through to land owners and house buyers), are instituted by taxing authorities, assessed before the property is developed but often after the transportation infrastructure is, and usually must be applied to on-site properties or those immediately adjacent. Impact fees affect new development, as do exactions, but some exactions may elicit revenue from existing developed properties as well. The rational nexus requirement directs money to transportation capital costs

exclusively. Impact fees are assessed locally, but there must be enabling legislation at the state level. Jurisdiction using transportation impact fees include Arlington, Texas; Altanta, Georgia; Orlando, Florida; Phoenix, Arizona; and Portland, Oregon (Adeel et. al., 2009). Illinois has enabling legislation for impact fees in Home Rule communities; DuPage County also assess transportation related impact fees (Baden and Coursey, 2000).

Joint Development

Joint development is a widely used form of value capture, and can involve outright purchase of land, condemnation of land through eminent domain, leasing of land, privatization, and public private partnerships. Many joint development strategies involve the acquisition of land in advance of construction, which can then allow the transit developer / funder to sell or lease the proceeds of value increases from the transit project. Joint development obtains funding from developers as part of public private partnerships, and can raise revenue before and after construction of the transportation improvement. To elicit developer support, joint development projects relate to specific sites or immediately adjacent areas, and impact both existing and new development. Joint development also has the advantage of being able to fund both initial capital and operating expenses.

There are multiple international examples of joint development. In Japan, railway development corporations buy the land surrounding new construction and the construction and operation are in private hands (Doherty, 2004). In Hong Kong, leasing agreements to private vendors on state owned land surrounding transportation access points have generated up to 22% of operating costs (Adeel et al, 2009). In Taiwan, private land for transit production is acquired through eminent domain. Upon completion of development 40% to 60% of the land is returned to previous landowners, and approximately 35% of the land is sold to raise funds for the transit construction (Lam and Tsui 1998). The land value appreciation of the 40% to 60% returned has historically been much greater than the amount taken.

There are examples in the US as well, though these primarily involve leasing out portions of the new development and/or its operation. Payment of 3% to 5% of capital costs were paid to New Jersey Transit for installation of new track; the developers will build, design, and operate the new track and station, then turn it back over to NJ Transit at a specified time. $28 million of capital costs were paid by developers to extend a rail line from Portland to its airport based on an agreement that transferred development rights to the private sector (Adeel, 2009). Station improvements have frequently used this method of finance, including Grand Central Station in New York City and stations in Atlanta (Massey, 1999), Philadelphia (Adeel et. al, 2009), Albuquerque, Los Angeles, and Contra Costa County, California (Ohland, 2003).

Air Rights

Air rights agreements raise money from developers by leasing development rights above transportation access points. These are public private partnerships that can raise capital costs and operating costs both before and after construction. These agreements address properties on-site only, and generally affect only new development. This type of value capture agreement

basically builds commercial and residential space immediately above train stations, creating high accessibility housing in congested urban areas. The best examples of such developments have been from the Washington DC WMATA deals in Arlington, Virginia, and Ballston and Bethesda, Maryland, which together generated $60 million from the mid-1980s through 1999.

The following table describes several applications of the mechanisms in the context of different projects around the world. Only projects where a specific percentage of capital costs or a estimate of total dollar benefits could be identified are included in Table 2. While there are multiple reports claiming benefits from different financing mechanisms, there are few that provide specific details of projects, costs, and cost shares. The mechanisms are described in detail below:

Evidence from Implemented Value Capture

Infrastructure	Study	Area	Costs Recovered	Mechanism
Light Rail Construction	Massey, 1999	10 miles of new track and service in New Jersey	Savings of 3% to 5% of total costs	Private sector firm designs, builds, operates, and maintains entire project. After some period of time, the project is turned back over to the public sector transit agency.
Light Rail	Adeel, et al, 2009	Portland, Oregon	A portion of capital construction costs ($28 million).	Portland gave development rights on 120 acres surrounding the project – a light rail extension to the airport.
Mass Transit Rail	Dalvi 1996*	Hong Kong	22% of Operating Costs	Rental income from owned land around the site
Streetcar Line	Adeel, 2009	Seattle, WA	46% of capital construction costs	Special Assessment District funding supported by local interest by property owners.
Public Transit Development	Massey, 1999	Grand Central Station, NYC	$7 million in 1987; $20 million projected for subsequent years	Leasing of commercial space in the newly refurbished terminal
		Dade County, FL	$7 million of fees and $20 million of capital costs (totals)	Assessment of fees on properties near transit access, fees are adjusted annually to calibrate to value changes
Transit Facilities	Adeel, 2009	Chicago, IL	$38 million in capital construction costs	TIF financing for station improvements
Transit Facilities	Renne and Neman, 2002; Masey, 1999	Washington Metro	Arlington, VA ($0.2 M in 1994; Bethesda, MD ($1.6 M in 1994)	Transit agency identifies economically depressed areas for new services leases out space near stations, leasing of air rights for construction over the station. $60 million was raised through 1999
Transit Facilities	Howard, 1984*	Portland, OR	25% of Capital Costs	Local Improvement District that resulted from a local referendum.
Station	Masey,	Atlanta	$1.06 million annually for	Transit agency leases out space near stations

Improvement	1999		leased space (in 2001)	
Station Improvement	Ohland, 2003	Albuquerque	25% of revenues years 6 to 12, 50% of revenues years 12 to 20	The city contributed land and built a parking garage near an Amtrak station and is receiving revenues from the private operation.
		Los Angeles	$130 million per year to retire bonds	Benefit Assessment Districts surrounding five subway stations
		Contra Costa County, CA	67% of construction costs	Prepaid annual assessments by developers for road and structure improvements around a BART station
Station Improvement	Adeel et al, 2009	Philadelphia, PA	$2.4 million	SEPTA leases commercial spaces to private vendors in train stations
Road Construction	Ortiz, 1996*	Bogota, Colombia	80% of capital costs	Valorization tax of properties where values are likely to increase from road construction; collected prior to construction.
Road Construction	Prest, 1969*	Uruguay	33% of capital costs	Land value tax for frontage.
* These titles were unavailable; the findings in this table attributed to these papers are from Smith and Gihring, 2006.				

Allocation of Other Tax Revenues for Other State Transportation Purposes

While most states allocate "highway user revenue" such as motor fuel tax and vehicle registration fees to funds used for transportation infrastructure, a handful of states also use a percentage of other taxes, such as sales and property taxes, for transportation. Until 2000, Illinois had allocated a portion of its sales tax on motor fuel to its motor fuel tax fund, which then disbursed revenues to the state and local governments. The following summarizes some other state's revenue sources which are specifically allocated to transportation funds by formula[37]:

SUMMARY OF STATES ALLOCATING NON-HIGHWAY USER REVENUE SOURCES TO TRANSPORTATION PURPOSES

State	Sales Tax- Motor Fuel	Sales or Excise Tax- Motor Oil	Sales or Use Tax- Vehicle Sales	Sales Tax-General	Sales Tax- Other	Property Tax	Personal Property or Ownership Tax	Rental Car Tax or Fee	Income Tax	Severance Tax on Natural Resources	Gaming Tax	Other Tax or Fee
AL		x										x
AZ				x								x
AK										x		
CA	x											
CO							x				x	
FL								x				x
GA	x											
HI								x				x
IA							x	x				x
KS				x		x						
KY										x		
LA												x
MD									x			
MI	x		x		x							
MS		x		x	x							
MO			x									
MT												x
NV				x		x		x				x
NM										x		
NC			x									
ND												x
OK								x		x		x
SD			x					x				x
TN										x		x
TX		x										x
UT				x				x				x
VA				x								x
WV												x
WY										x		x

[37] Federal Highway Administration, "Provisions Governing the Allocation for Highway Purposes of Certain State Taxes, Fees, and Appropriations (Other than Highway User Revenues". http://www.fhwa.dot.gov/ohim/hwytaxes/2008/s106.pdf

The "55/45" Split for Northeastern Illinois

State of Illinois highway funding from the Road Fund and Construction Account has traditionally been allocated on the basis of an informal agreement that sends 45 percent to northeastern Illinois and 55 percent to the remainder of the state. A breakdown of the highway awards for IDOT District 1 (includes both federal and State funds for IDOT highways and local roads) compared to the statewide resources since 1992 shows that District 1 has received 43 percent, relative to the rest of the State. IDOT District 1 covers the CMAP planning area except for Kendall County, which is located in District 3. The CMAP Board believes that decisions on the division of transportation funding should be based on clear criteria and performance measures, rather than on such an arbitrary allocation.

While not necessarily "innovative" as a financing source, the revenue potential for northeastern Illinois from such a change would be quite large. CMAP estimates that shifting the allocation to 50/50 could yield an additional **$3 billion** or more in year of expenditure dollars for the region between 2011 and 2040.

CORE REVENUES AND EXPENDITURES- DETAILED TABLES

GO TO 2040 PLAN (RTP) REGIONAL REVENUES- "YEAR OF EXPENDITURE" DOLLARS (Millions)								
	REVENUE SOURCES	**FY 11-15**	**FY 16-20**	**FY 21-25**	**FY 26-30**	**FY 31-35**	**FY 36-40**	**TOTAL**
Federal	Surface Transportation Program	$600	$760	$963	$1,220	$1,545	$1,956	**$7,044**
	Congestion Mitigation and Air Quality Program	$302	$383	$484	$614	$777	$984	**$3,544**
	Other Federal Highway	$1,907	$2,415	$3,059	$3,875	$4,908	$6,216	**$22,380**
	Federal Transit Funding- Major Formula Programs	$2,401	$2,921	$3,554	$4,324	$5,261	$6,401	**$24,863**
	Federal Transit Funding- Discretionary Programs	$827	$1,006	$1,224	$1,489	$1,812	$2,204	**$8,562**
	Federal Subtotal							**$66,392**
State	Public Transportation Fund (PTF)	$1,502	$1,757	$2,057	$2,408	$2,818	$3,299	**$13,841**
	State Motor Fuel Tax (MFT)	$1,454	$1,557	$1,660	$1,763	$1,866	$1,969	**$10,268**
	Motor Vehicle Registration Fees Component of Road/Construction Fund	$2,953	$3,423	$3,969	$4,601	$5,333	$6,183	**$26,461**
	Toll Revenues- Illinois Tollway	$3,905	$4,402	$4,675	$4,883	$5,015	$5,123	**$28,004**
	State Capital Program Revenues	$4,362	$0	$5,519	$0	$6,296	$0	**$16,177**
	State Subtotal							**$94,751**
Local	RTA Sales Tax	$4,872	$5,700	$6,672	$7,810	$9,143	$10,702	**$44,899**
	Local Allotment of State Motor Fuel Tax	$1,997	$2,139	$2,280	$2,422	$2,563	$2,705	**$14,105**
	Collar County Transportation Empowerment Program	$589	$686	$799	$931	$1,084	$1,263	**$5,353**
	County Option Motor Fuel Taxes	$160	$168	$177	$186	$195	$205	**$1,091**
	Other Local Own Source Revenues	$6,921	$8,340	$10,050	$12,110	$14,593	$17,584	**$69,599**
	Real Estate Transfer Tax	$133	$157	$184	$215	$252	$295	**$1,237**
	Transit Passenger Fares	$4,606	$5,590	$6,509	$7,619	$8,919	$10,440	**$43,684**
	Other Transit Operating Revenue	$1,025	$1,177	$1,389	$1,625	$1,903	$2,227	**$9,346**
	Local Subtotal							**$189,316**
	TOTAL	**$39,491**	**$41,405**	**$53,835**	**$56,470**	**$72,380**	**$77,532**	**$350,459**

	REVENUE SOURCES	Description and Revenue Projection Assumptions
Federal	Surface Transportation Program (STP)	**Description:** The Surface Transportation Program consists of the local program, state STP funds expended in the region, the transportation enhancements program, and safety funds. The STP-L, STP-U, STP-R, and STP-C portions of these funds are distributed by formula and may be used for roads not classified as local or rural minor collectors, bridges on a public road, or transit capital projects. 10% of the state's STP allocation must be used for safety projects and 10% must be used for enhancement projects. **Assumption:** HIstorical annual revenues have shown a high degree of variance. Revenue forecasts are based upon annual awards over the last ten years. Through 2011, these revenues are assumed to stay the same as the inflation-adjusted average of 1997-2008. After 2011, revenues are assumed to grow at a rate of 4.84% annual, which is commensurate with IDOT assumptions regarding growth in federal aid.
	Congestion Mitigation and Air Quality Program (CMAQ)	**Description:** Program to reduce congestion and improve air quality in non-attainment areas. **Assumption:** Revenue forecasts are based upon annual awards over the last ten years. Through 2011, these revenues are assumed to stay the same as the inflation-adjusted average of 1997-2008. After 2011, revenues are assumed to grow at a rate of 4.84% annual, which is commensurate with IDOT assumptions regarding growth in federal aid.
	Other Federal Highway	**Description:** Includes other federal highway programs including but not limited to the Highway Bridge Replacement and Rehabilitation Program, Highway Earmarks, National Highway System program, and the Federal Aid-Interstate program. **Assumption:** Revenues are based upon annual awards over the last ten years. Through 2011, these revenues are assumed to stay the same as the inflation-adjusted average of 1997-2008. After 2011, revenues are assumed to grow at a rate of 4.84% annual, which is commensurate with IDOT assumptions regarding growth in federal aid.
	Federal Transit Funding- Major Formula Programs	**Description:** Includes Sec 5309 Rail Modernization and Sec 5307/5340 Urban Formula funds. **Assumption:** Revenues were projected by the RTA. 2011-2040 is forecast to grow at a long term (1992-2009) avg rate for formula programs (4.0%).
	Federal Transit Funding- Discretionary	**Description:** Includes Sec 5309 New Start programs, which provide funding primarily for major fixed guideway capital investment projects. **Assumption:** Revenues were projected by the RTA. 2011-2040 is forecast to grow at a long term (1992-2009) avg rate for formula programs (4.0%)

	REVENUE SOURCES	Description and Revenue Projection Assumptions
State	Public Transportation Fund	**Description:** State Public Transportation Fund (PTF) receipts equal 30% of RTA sales tax and Real Estate Transfer Tax receipts. **Assumption:** PTF revenues will continue to equal 30% of projected RTA sales tax and RETT revenues throughout the plan period.
	State Motor Fuel Tax (MFT)	**Description:** Portion of 19 cent/gallon excise tax retained by IDOT for the Road Fund and Construction Account. This tax was last raised in 1990. After various deductions, IDOT retains 45.6% of MFT revenues. **Assumption:** The current 19 cent/gallon rate remains unchanged throughout the Plan period. Revenues are assumed to grow via a linear trendline based on collections from 1991-2008. Annual growth rates range from 1.48% (in 2011) to 1% (in 2040). Of the portion retained by IDOT in the Road and Construction funds, NE Illinois is assumed to "receive" 45% of these revenues in State road construction and maintenance projects.
	State Motor Vehicle Registration Fees	**Description:** Annual registration fees for vehicles- almost all of this amount is retained by IDOT for the Road Fund and Construction Account. Recent state-wide revenues have totaled just over $1B annual. Fees include $38 for motor cycle and $98 for auto license plates. Fees were recently raised in 2009. **Assumption:** Revenues have been fairly stable over time. A 3% annual growth rate was used to forecast revenues out to 2040. Similar to the State MFT, NE Illinois is assumed to "receive" 45% of these revenues in State road construction and maintenance projects.
	Toll Revenues- Illinois Tollway	**Description:**Toll revenues forecasted to be collected on the 286.5 mile system. The current toll rate structure went into effect on January 1, 2005. **Assumption:** Revenue projections were prepared through 2034 by Wilbur Smith Associates for the Illinois Tollway. CMAP continued these projections out to 2040. The projections assume retaining the rate structure currently in effect. The annual revenue growth is 4.97% between 2009 and 2016 and 0.94% between 2016 and 2034, reflecting a maturing Tollway service area.
	State Capital Program Revenues	**Description:** Revenues from State of Illinois capital programs are provided by a combination of state debt and federal and local matching funds. **Assumption:** Historically, state capital programs have occurred every ten years. They are typically five or six year programs. These funds are assumed to be awarded every ten years throughout the planning period and last for a period of five years. Estimated regional revenues from the current Illinois Jobs Now! and Illinois Jump Start program were used to make future projections.

	REVENUE SOURCES	Description and Revenue Projection Assumptions
Local	RTA Sales Tax	**Description:** The RTA sales tax is the equivalent of 1.25% of sales in Cook County and 0.75% of sales in DuPage, Kane, Lake, McHenry, and Will counties. Of the collar county amount, the collar counties receive 0.25% and the RTA 0.75%. The collar county 0.25% portion is listed under the "collar county transportation empowerment program" line item. **Assumption:** RTA sales tax revenues are assumed to grow 2.9% in 2011 and 2012 and 3.2% per year throughout the remainder of the Plan period.
	Local Allotment of State Motor Fuel Tax	**Description:** Municipalities, Counties, and Township Allotment of the State Motor Fuel Tax. **Assumption:** Municipal Population, Township Road Miles, and County Vehicle Registrations relative to the rest of the State are assumed to remain constant. Revenues are assumed to grow via a linear trendline based on collections from 1991-2008. Annual growth rates range from 1.48% (in 2011) to 1% (in 2040).
	Collar County Transportation Empowerment Program	**Description:** ¼% of sales tax, disbursed from the Illinois Department of Revenue to DuPage, Kane, Lake, McHenry, and Will Counties, to be spent under the stewardship of the individual county boards for roads, transit or public safety purposes. **Assumption:** Similar to the assumptions underlying the RTA's portion of the sales tax, these revenues are assumed to grow 1.1% in 2010, 2.1% in 2011, 2.7% in 2012, and 3.1% per year throughout the remainder of the Plan period.
	County Option Motor Fuel Taxes	**Description:** DuPage, Kane, and McHenry Counties impose a 4 cent/gallon gas tax. These revenues are used by the county divisions of transportation for maintaining county road networks. **Assumption:** The 4 cent/gallon tax remains the same as today throughout the plan period. The assumption is 1% annual growth after 2011, similar to recent trends.
	Other Local Own Source Revenues	**Description:** These are local revenues used for transportation projects other than state or federal funds or locally imposed motor fuel taxes or sales taxes. Local units of government with jurisdiction over transportation include municipalities, counties, and townships. **Assumption:** These revenues are assumed to remain at 2008 levels through 2011. After this point, revenues are forecast to grow at 3.8% annual, which assumes 3% annual inflation plus 0.8% population growth per year.
	Real Estate Transfer Tax	**Description:** On April 1, 2008, the Real Estate Transfer Tax in the City of Chicago was increased by $1.50 per $500 to help fund the CTA. **Assumption:** 2011 forecasted revenues are from the RTA 2010 budget and 2011-2012 financial plan. Revenues are assumed to grow by 3.2% per year, which is what the RTA financial plan forecasts as annual growth between 2013 and 2040.
	Transit Passenger Fares	**Description:** Farebox revenues collected by the Chicago Transit Authority, Metra, and Pace. **Assumption:** The farebox revenue forecast was provided by the RTA. Revenues are assumed to grow based on historical trends and assume periodic fare increases which cover a constant portion of operating costs over the plan period.
	Other Transit Revenue	**Description:** Other revenues for the Regional Transportation Authority and Service Boards. Comprises non-fare revenue including reduced fare reimbursement from the State of Illinois, advertising revenue, investment income, facility and lease revenue, and capital credits. **Assumption:** The forecast was provided by the RTA. Revenues are assumed to grow based on historical trends.