

# Twin Cities Transit -- a Three Century perspective

by bobagain

## Three Centuries of Transit – an idea map

Century	Modes	Buzz/Social Glue	Transit Time Tax
19 <sup>th</sup> (1800s)	Streetcars (new), horses & carts, walking, bikes, trains, barges	compact cities, mass transit, neighborhood stores -- <b>Judeo/Christian morality (ascending)</b>	<b>Low</b> – transit is best available mode, it is competitive
20 <sup>th</sup> (1900s)	Freeways (rock) & cars (roll), buses, trucks, trains, planes, barges	sprawl, transit = inner city = bus, cars = “freedom”, gas + ICE, malls -- <b>Judeo/Christian morality (declining) “culture wars”</b>	<b>High</b> – cars are best and dominate; transit is uncompetitive
21 <sup>st</sup> (2000s)	<b>Self-driving</b> , cars, planes, trucks, trains, barges & “not invented yet”	<b>Automated everything</b> , shared, electric, sustainable, equality, gadgets, internet retail – <b>Moral flux, behavior management, omni-surveillance &amp; monitoring</b>	<b>Transit Time Tax must be slashed to compete</b>

## Met Council Thrive 2040 Current Revenue Scenario – Metro Area

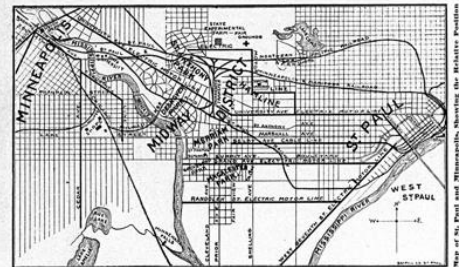
- Time span: 2015 to 2040, \$'s in billions; all sources (fed/state/local/farebox) both capital & operating
- Transit spending: **\$31.2B**
  - Farebox \$'s: 5.3B
- Roads and bridges: **\$52.5B**
- Other: **\$ .2B**
- Transit spending is **37%** of all spending
- Transit is **2%** of all trips
- \$'s/trip is 10+ times higher for transit vs roads & bridges
- Fare box recovery is **15%** of all costs (capital & operating)
- This is crazy!

## “Transit State?” -- 2040



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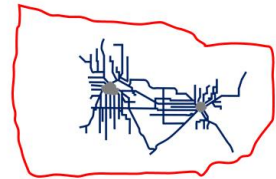
## 1890 – from “Peak Poop” to our first electric transit revolution



Horses & Mules: 1,915  
Cars/track miles: 377 / 120

A switch to electric streetcars started in 1889, it was done by 1892

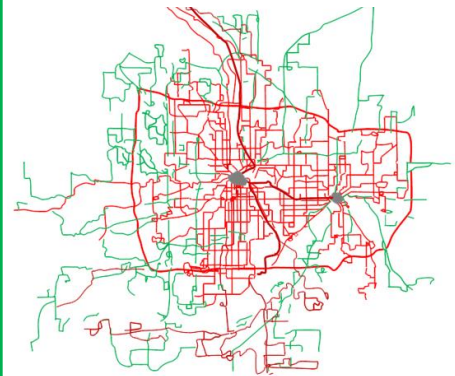
## “Peak Transit” – 1920



Riders/yr (millions): 238  
Streetcars: 1,021  
Track miles: 265  
Farebox Recovery<sup>(1)</sup>: over 100%  
Transit Time Tax<sup>(2)</sup>: 5

- 1) Capital and operating expenses
- 2) Maximum wait time, minutes, best times

## From “Suburbanization of Transit” to “Peak Crazy?” 1970--2017



Riders/yr (millions): 99  
Farebox Recovery<sup>(1)</sup>: under 30%  
Transit Time Tax<sup>(2)</sup>: 10 to 60+

- 1) Operating expenses only
- 2) Maximum wait time, minutes, best case

## Three Centuries of Transit – an idea map

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## Three Centuries -- simple

### Century Mode/Buzz

19 <sup>th</sup> (1800s)	<b>Rail &amp; Streetcar</b>
20 <sup>th</sup> (1900s)	<b>Freeways (rock) Cars (roll)</b>
21 <sup>st</sup> (2000s)	<b>Automated Everything</b>

In this chapter our goal is to see and understand the big picture for Transit in the Twin Cities. One aspect is time – to both observe history and consider our future potential in terms of decades and centuries. But a second aspect is a societal perspective, including modes, cities, major “buzz” concepts, and what I call social glue – with a very frank focus on how our society manages and controls behavior.

I also introduce the **Transit Time Tax**. This crucial metric helps us understand how people perceive transit, whether or not they will use it, and the *extent* to which they will use it. Here’s the definition: the **Transit Time Tax** is the maximum time a person will wait for their ride to show up. For scheduled service this is measured as the interval from one vehicle to the next. Notice: we’re *not* measuring the *average* wait time – we’re measuring the maximum possible wait time -- after you “just missed one.”

This is crucial for two reasons. First, what people find most memorable – what shapes our perception – is that time we just missed a bus in January -- when it was

15 below zero -- and we had to wait half an hour for the next one. Second, with a grid system and transfers, the **Transit Time Tax** measures service variability. Just add up the **Transit Time Tax** for each transfer route. Your trip length can vary that much depending whether you “just catch” or “just miss” the transfers. With a 30 minute **Transit Time Tax** and two transfers trip length can vary by a hour.

The **Three Centuries – Simple** graphic really brings everything to a sharp focus. Rail dominated the 19<sup>th</sup> century -- with Streetcars added towards the end. Freeways (rock) and Cars (roll) dominated the 20<sup>th</sup> century. **Automated Everything** will dominate the 21<sup>st</sup> century. Designing and building a truly 21<sup>st</sup> century system **must** be rooted in the premise of **Automated Everything**. Self driving vehicles are the biggest buzz right now -- but this is only a part of our emerging reality. The ways in which our concept of work itself is now obsolete is our biggest looming challenge.

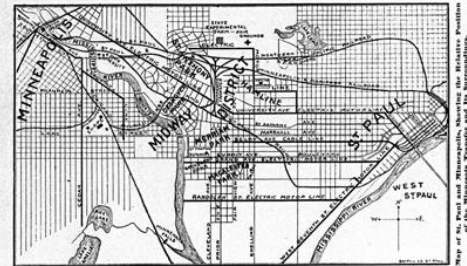
## A graphic look at the development of Twin Cities Transit

### “Peak Poop” – the start-up era and our first electric transit revolution

Well... ok... there is an element of middle school humor here – but why not include something for the youngsters? (and let’s face it, this is pretty darn mild compared to the current media menu). Seriously, horse droppings were a real health menace -- and the emission free new electric streetcar technology was literally a breath of fresh air.

More generally the great private sector tradition of a continuous series of American Revolutions was in the air of Minneapolis throughout this period. Electric power generation was brand new – the world’s first Edison hydroelectric generator (12.5 KW) was built in Appleton Wisconsin in 1882. Fortunately for Minneapolis, Saint Anthony Falls, with a capacity of 30 MW, was and is the largest Mississippi basin source of hydropower. (The 5,000 barrel a day Pillsbury “A” was the biggest mill in the world – but needed only about 1 MW of power.) Both telegraph and railroad technology were linking a Minneapolis hub to a continent sized region to the North and West, bringing raw materials – logs and grain – to both massive milling capacity and to the equally massive market reached via the Mississippi basin. For all these reasons, the 1880 was the start of a Twin Cities economic boom. Minneapolis jumped in U.S. metro population rankings from #20 in 1880 to #9 in 1890, only slowly dropping to #12 by 1940. Business and political leaders of the time – and “combos” like George Pillsbury, who was elected Mayor at age 68 -- understood the combinations and implications of these strategic elements. They could and did think and plan with a time perspective of generations, rooted in the near certainty there would be strong population and economic growth for decades.

### 1890 – from “Peak Poop” to our first electric transit revolution



Horses & Mules: 1,915  
Cars/track miles: 377 / 120

A switch to electric streetcars started in 1889, it was done by 1892

But the biggest and longest running revolution of that time wasn’t just private – it was a unique public/private revolution, including both the shaping and building of our amazing Minneapolis Parks system, and the rapid construction of one of the world’s first and biggest metropolitan regions built from the ground up by, for and with transit.

Many people don’t realize the unique public/private origins of our Parks system – as a unique combination of outstanding stewardship for future generations and a gigantic real estate scheme. The real estate scheme was (and still is) simple and powerful: rapid economic growth plus new streetcar technology would make commutes to downtown work of five miles and more practical; therefore, if the land around the lakes was put in the public domain, the combo of incredible parks and a great transit system would make land southwest of downtown uniquely valuable. This was no accident -- it was clearly understood, planned and launched in 1883.

## A graphic look at the development of Twin Cities Transit -- continued

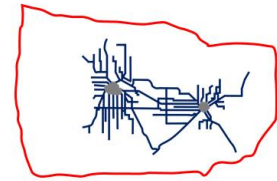
### “Peak Transit” – 1920

As noted, the Twin Cities’ growth spurt was from 1880 to 1890, when we reached our high mark of #9 among population of U.S. metropolitan areas. Growth remained strong up to 1920 – during that time our population doubled, from 305,000 to 626,000, and we hit “Peak Transit”. But another transportation Revolution – cars – was coming on strong. Detroit went from a population ranking of #15 in 1890 to #5 by 1920.

Several things stand out about 1920. First, as you can see from the 1914 transit map inside today’s I-494/I-694 footprint, the transit system essentially covered the area of Minneapolis and Saint Paul (the 1914 Minneapolis south city boundary was at 54<sup>th</sup> Street, today it extends to 62<sup>nd</sup> Street from Xerxes Ave. east – Saint Paul’s is unchanged). Another crucial point: of the 626,000 Twin Cities population in 1920, 98% lived within Minneapolis and Saint Paul. This meant that everyone was within walking distance (about a quarter mile) of a streetcar. At the peak annual ridership of 238 million, streetcars provided an average of 380 rides a year for every man, woman and child. The population per square mile density back then was about 7,000 for Minneapolis, and about 4,000 for Saint Paul.

In short, the Twin Cities and our transit system were literally made for each other – from the ground up – from population density, to the grid pattern of our streets. With over 1,000 streetcars and only 530 miles of track (265 route miles two way routes) during busy times there were about two streetcars per mile. Schedules weren’t published for busy times – with a **Transit Time Tax** of under 5 minutes, if you missed

### “Peak Transit” – 1920



Riders/yr (millions):	238
Streetcars:	1,021
Track miles (two way):	530
Farebox Recovery <sup>(1)</sup> :	over 100%
Transit Time Tax <sup>(2)</sup> :	under 5
Twin Cities pop. thous.	626
Avg. rides/yr per person:	380

1) Capital and operating expenses

2) Maximum wait time, minutes, best case

one, you could literally see the next one coming, since they were about four long blocks apart. Because of this, multiple transfers were practical – there was no worry about missed connections and long wait times.

Farebox recovery (including capital costs) was over 100% by definition, since the system was private and it was making a profit.

There were larger stores downtown, but neighborhoods were served with grocery and hardware stores within walking distance.

Motor vehicles and cars shared the streets – but due the large streetcar ridership, congestion was certainly less of a problem than it can be today in Minneapolis/Saint Paul. Going forward this is a crucial point – if we can get back to an under 5 minute **Transit Time Tax**, our urban cores can support a significant increase in density without a serious congestion problem.

## A graphic look at the development of Twin Cities Transit -- continued

### Polaroid snapshots: Private to Public – 1970

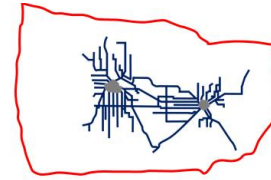
Pop. (1,000's)	1920	1950	1960	1970	2015
Minneapolis	381	522	483	434	411
St. Paul	235	311	313	310	301
Core Cities:	615	833	796	744	712
Twin Cities	626	987	1,377	1,701	3,525
suburbs (subtotal)	11	154	581	957	2,813
Core Cities/ Twin Cities	98%	84%	58%	44%	20%

Our focus here is on some “Polaroid snapshots” of Twin Cities Transit circa 1970 – a pivotal year when the system “went public” – bought from its private owners with cash and promises of new buses and a better ability to sustain service. This section relies significantly on data from “Transit Problem in the Twin Cities Area” -- Citizens League Report #178 (1965).

Since “Peak Transit” in 1920, the macro trend for Twin Cities Transit had been a long term decline – but with rebounds prompted first by the Great Depression, and then by World War II, when rationing caused a significant uptick. As you can see from the chart above, the Twin Cities was still dominated by Minneapolis and Saint Paul as recently as 1950 – so the vast majority of people had Transit as an option up to then. But the suburban population exploded in the post-war years. While suburbs were only 16% in 1950, by 1970 the Twin Cities had suddenly become mostly suburban – surging to 957,000 people, more than the combined Minneapolis and Saint Paul populations. Today suburbs represent a full 80% of population in the Twin Cities.

However, as this surge was taking over, Twin Cities Transit in 1964 was still almost entirely in Minneapolis

### “Private to Public” – 1970 (updated map would be preferable)



Data is M/StP only, for year 1964  
 Riders/yr (millions): 60  
 Buses: 710  
 Route miles (one way)<sup>(3)</sup>: 509  
 Farebox Recovery<sup>(1)</sup>: over 100%  
 Transit Time Tax<sup>(2)</sup>: N/A

- 1) Capital and operating expenses
- 2) Maximum wait time, minutes, best case.
- 3) Similar to 1920 streetcar, but longer routes (Excelsior, Stillwater, probably not included).

and Saint Paul. In terms of routes it was essentially the same service we had in 1920, although buses had replaced streetcars. Ridership was way down -- to 60 million – only about a quarter of “Peak Transit”. The buses were old, but with the electrical lines gone overhead costs dropped, so it was still making a profit. The fare in 1964 was \$.25 – that’s \$1.90 in today’s inflation adjusted dollars – but with no subsidy that fare paid for everything.

Looking back, it seems the sudden and huge expansion of the suburbs, and the complete vacuum of Transit service in those communities, was an overpowering factor behind the decision to “go Public.” Due to the extraordinarily low suburban ridership, significantly lower population densities, and the onslaught of cars, freeways and malls, it was simply impossible to provide unsubsidized Transit for suburbs outside the core cities of Minneapolis and Saint Paul.

## A graphic look at the development of Twin Cities Transit -- continued

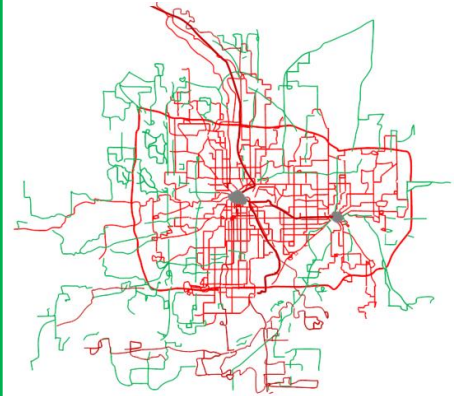
### From the “Suburbanization of Transit” in 1970 to “Peak Crazy?” – 2017

When we consider the development of Twin Cities Transit from “going Public” in 1970 to “Peak Crazy” – 2017, the dominant, decisive trend can be best described as the “Suburbanization of Transit.” Of course, as already suggested, this goes hand in hand with the “Suburbanization (and exurbanization) of the Twin Cities – today only 20% of us live in the Core Cities.

I use the term “Peak Crazy” in a way that is ultimately intended to be hopeful. Very simply, a big part of the Transit program since 1970 has been a valiant, determined, but ultimately doomed attempt to apply a “conventional big city mass transit model” to a uniquely sprawling metropolis that simply lacks the necessary density to make the attempt economically viable. But there is of course, a second element: a perceived public obligation to provide at least some level of Transit service **throughout** the metro area to “the least among us” – people who simply lack the means to get around any other way. I personally am convinced we are called by both justice and mercy to do this. To a more limited extent, liberty calls us too – people aren’t really “free” if they lack a basic ability to get around in their community -- especially during our extreme winters – something probably best understood by people who haven’t lived their whole lives here.

Our “Suburbanized” Transit system is somewhat successful at providing a basic level of access to all – and I think that has been a good thing. But we have lost sight of a basic economic reality: how extraordinarily expensive our system has become. More important, we have become so accustomed to doing things in little tiny baby steps... incrementally... with “pilot programs” and

### From “Suburbanization of Transit” to “Peak Crazy?” 1970--2017



Riders/yr (millions) <sup>(3)</sup> :	91
Farebox Recovery <sup>(1)</sup> :	under 30%
Transit Time Tax <sup>(2)</sup> :	10 to 60+
Twin Cities pop. thous.	3,525
Avg. rides/yr per person:	28

1) Operating expenses only

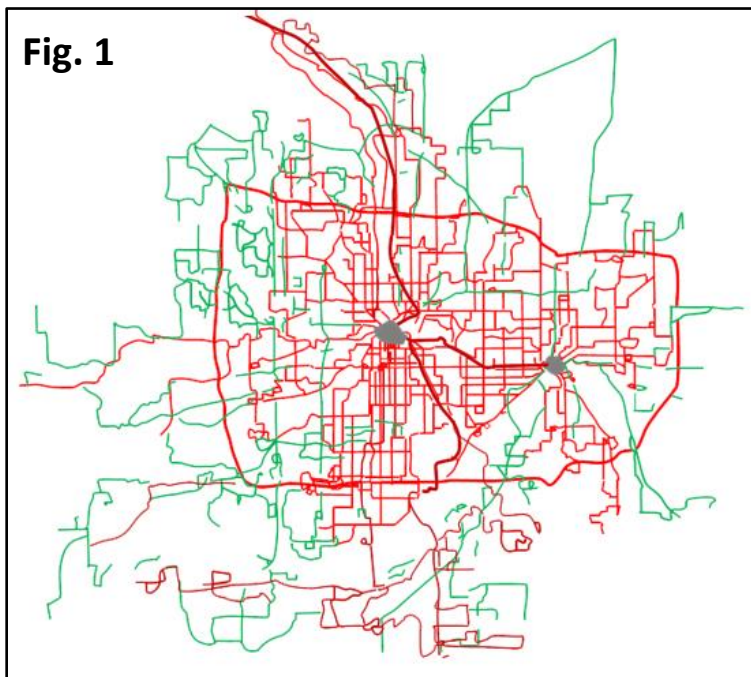
2) Maximum wait time, minutes, best case

3) Includes opt-outs & Metro Mobility

so forth, that we have lost – or lost sight of – a crucial ability we clearly had in the 1880’s. As we’ve seen, back then Minneapolis jumped on opportunities presented to us: build an incredible park system, **and** an incredible Transit system, **and** an incredible City – all together and all at once. All three were conceived of, designed and built from the ground up – and with a public/private coordination that epitomized good stewardship of the Earth.

We’ll be looking ahead to doing this again. But first, we need to graphically (geographically) examine exactly what kind of Transit system we’ve ended up with today -- what its defining characteristics are -- and crucially: the truly revolutionary character of the coming decades.

## 1970-2017: The “Suburbanization of Transit” to “Peak Crazy?”... continued



**Fig. 1** above gives us a full view of the extent of our route based “Peak Crazy” Transit service in the Twin Cities in 2017. When compared to the 1920 “Peak Transit” system, the first and most obvious difference is the much greater geographic area covered by today’s system. While the 1920 system was essentially co-terminus with the City boundaries of Minneapolis and Saint Paul, today’s system goes way beyond the I-494/I-64 beltway in all directions except to the east of Saint Paul.

**Fig. 1** is color coded. Regular route day and evening service is shown in red – the thicker red lines represent the two Light Rail lines and the Northstar Commuter Rail service. The key feature for these red routes is that there is at least some level of service throughout the day, although in many cases the **Transit Time Tax** ranges from half an hour, to an hour or more. The quality of the service – in terms of both the **Transit Time Tax** and

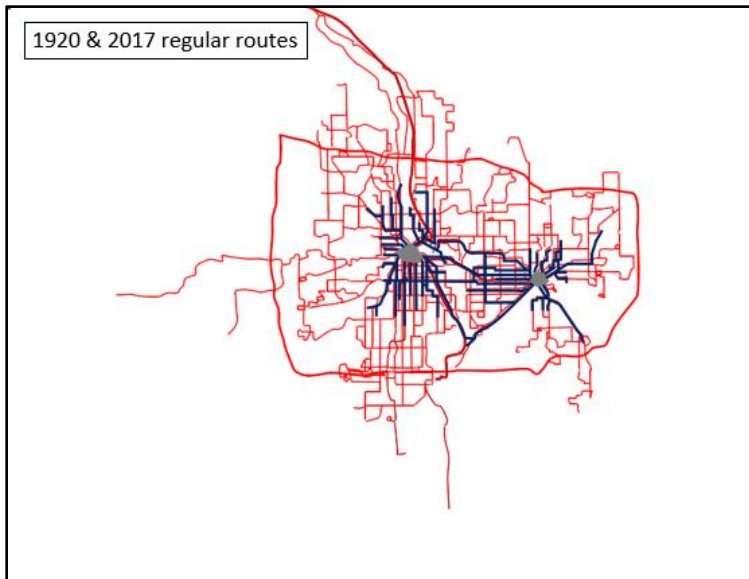
how far you may have to walk, is often significantly worse as you leave the cities of Minneapolis and Saint Paul.

There is a second set of commuter routes, shown in Green. These routes provide commuter service during rush hours – mostly to downtown Minneapolis, but also to Saint Paul to a lesser extent. However, these routes typically have either no mid-day service, or one or two buses at best. Here are two more crucial facts about these commuter routes:

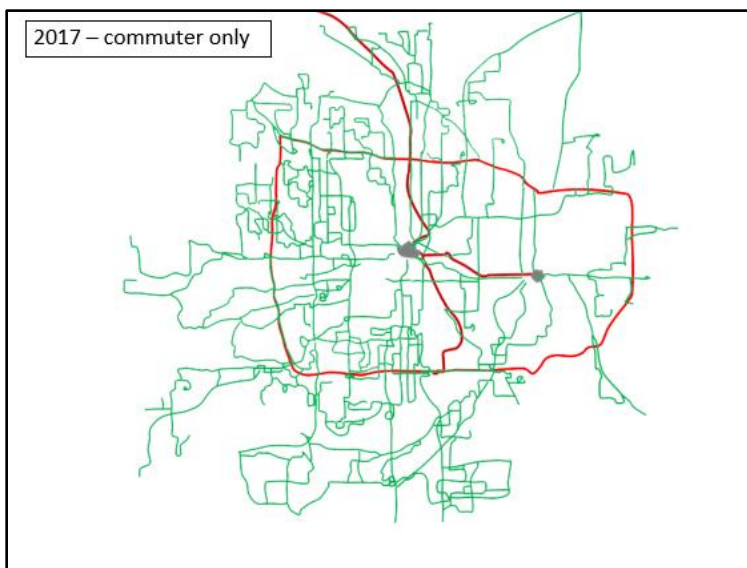
First, the commuter system has a huge built in bias: it is overwhelmingly designed and scheduled to bring workers from the suburbs to work in the downtowns, and to then return them home in the evening. It is essentially a one way system. The idea of bringing workers from Core Cities to suburban jobs is called **reverse commuting**. When I last studied this system in detail, I found there were over 700 commuter buses coming to downtown Minneapolis each morning, but only about 90 of these run a reverse commute route to jobs in the suburbs. There is a huge equity issue here – transit dependent people living near downtowns have limited transit access to suburban jobs.

Second, people who commute to and from downtown using Transit typically first drive to a park-and-ride location, and then board Transit from there. Because people living in the suburbs need a car for non-commuting trips, there is thus limited impact from commuter Transit in terms of reducing car ownership and car dependence.

## 1970-2017: The “Suburbanization of Transit” to “Peak Crazy?”... continued



**The Regular Routes illustration** shows downtown centered regular route service, with an overlay of the 1920 “Peak Transit” system. Regular route service from Suburban “Opt out” providers, and some service north of Northtown is not shown – those aren’t one-seat rides to the Urban Core downtowns. **The Commuter Only illustration** highlights the commuter route system, and includes the Light Rail and Commuter Rail service.



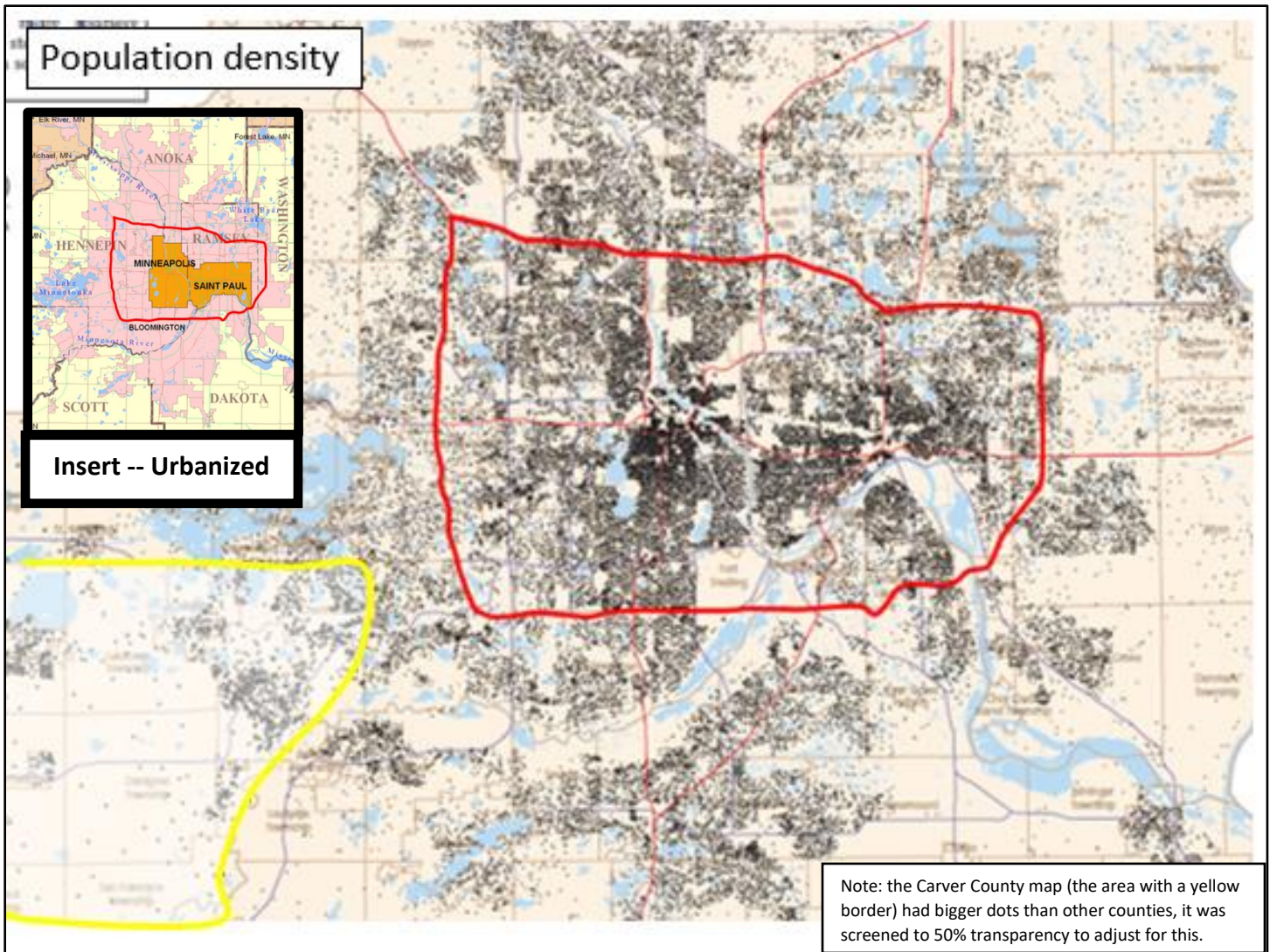
As noted, one point quickly becomes obvious from the **Regular Routes illustration** – we see how much more area is included today than in the 1920 “Peak Transit” system. With less than half the ridership today the inevitable result is a much higher **Transit Time Tax** than we had in 1920. Notice also that the routes go well beyond the I-494-I-694 beltway in all directions but east. Except for the south – where city street service reaches some of Bloomington, and the north, which reaches Northtown, Anoka, Brooklyn Center and Brooklyn Park, the service beyond the beltway typically becomes freeway service to downtown Minneapolis at some point.

We can see from the **Commuter Only illustration** that there are significant gaps in the Urban Cores – of course this is to be expected because these are served by regular day and evening routes.

But another visible aspect to this system is how heavily it is tilted to the Minneapolis side. There is frankly not very much service in any direction headed for downtown Saint Paul, although we would expect a gap to the west because the Urban Core regular routes cover that. By contrast, there is quite a thick network of commuter routes to downtown Minneapolis from all directions except the east – where again the regular routes provide service. While a total of over seven hundred commuter buses come into Minneapolis every morning (and of course about the same number leave every evening), far fewer go in and out of downtown Saint Paul.



## 1970-2017: The “Suburbanization of Transit” to “Peak Crazy?”... continued



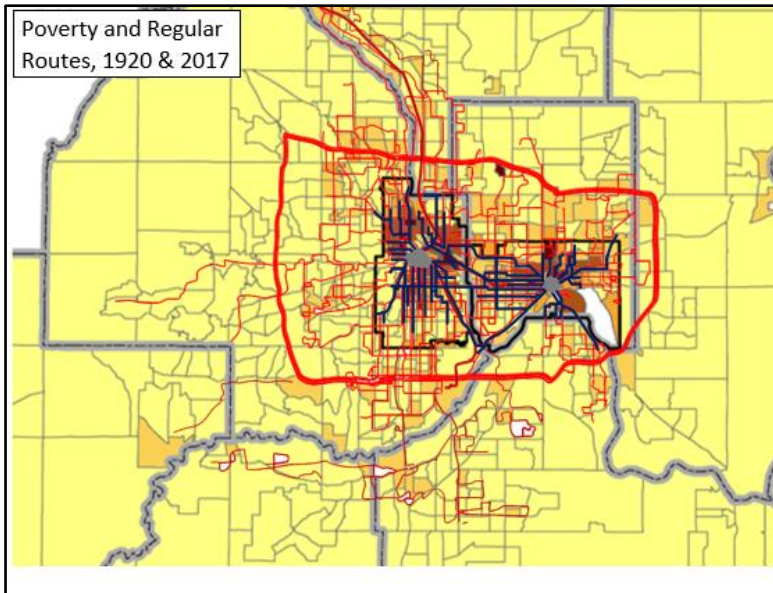
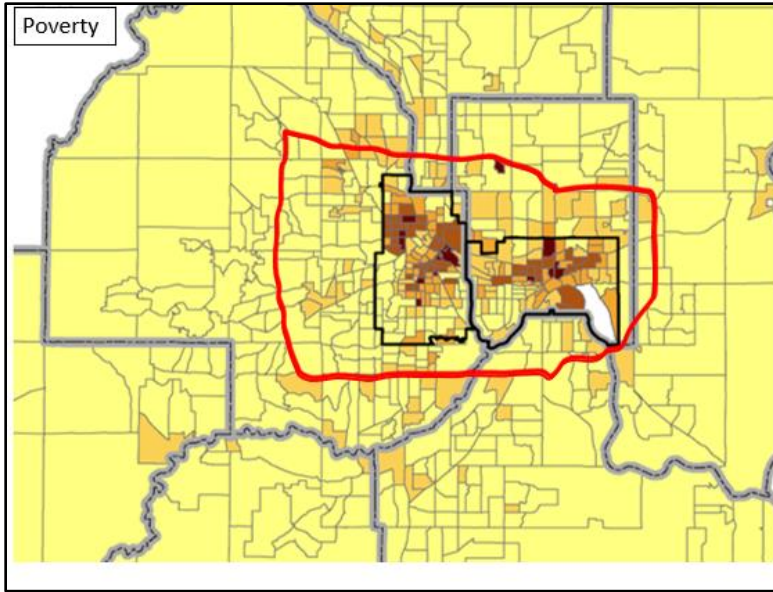
Population density merits an enlarged view – this is a crucial aspect to Transportation. An insert showing the continuous “Urbanized Area” in pink is also included.

Minneapolis is tops for density, with 7,037 people per square mile (including lakes). Saint Paul follows with 5,353 people per square mile. In the insert the entire contiguous Urbanized Twin Cities (pink), is 1,022 square miles, with a population of 3,112,117 and an average density of 3,046 people per square mile.

As we’ve seen the Core Cities can (and once did) support a robust route based Transit system; they were designed for it, they have sufficient density, and the streets form a grid pattern.

But for lower density areas – especially those well outside the Core Cities footprint of the 1920 Peak Transit system, prospects for a successful high volume route based service such as Light Rail are dim -- unsupported by any historical evidence that such service would be successful or sustainable.

## 1970-2017: The “Suburbanization of Transit” to “Peak Crazy?”... continued

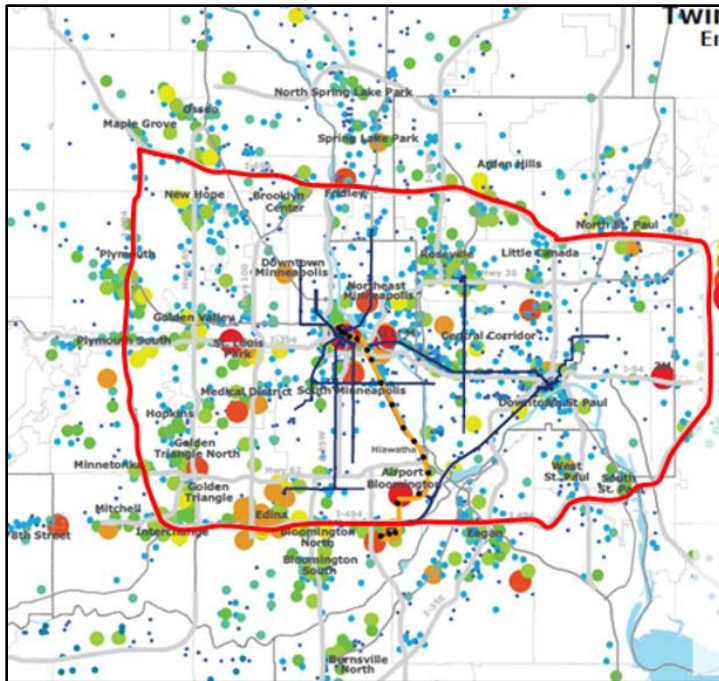


The two maps above show the relationship between areas of poverty, the Core Cities, and Transit. As we see, almost all the areas of highest poverty are within the Core Cities, where transit service has historically been the best – **relatively speaking**. This is not surprising – **especially** with the emphasis on relative. Here’s what we must understand: good **or** bad transit is simply *a very limited and managed location-determining factor* for the dominant majority of households with the means to own and use a car.

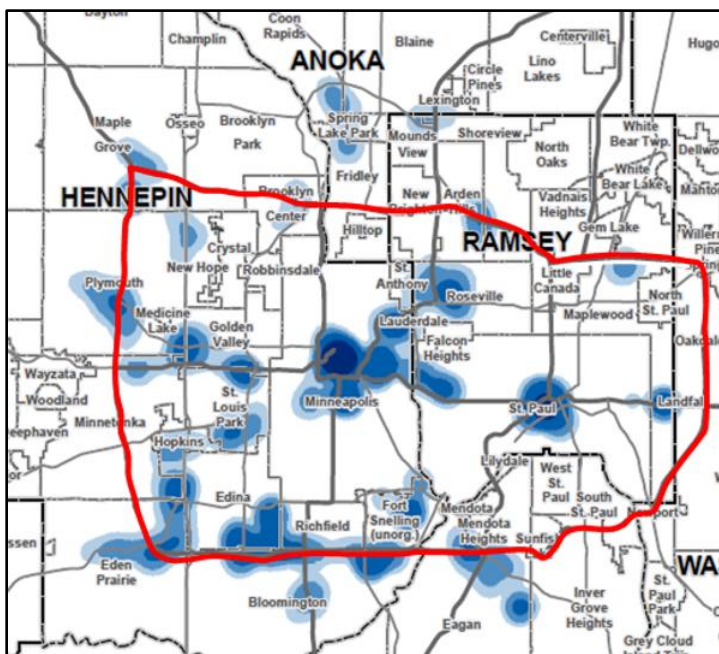
This is a big part of why the Suburbanization of Transit since 1970 is such a decisive phenomena. As an across the board, all-purpose competitor to freeways (rock) and cars (roll) – Transit is hopeless – it is a choice of last resort. But for commuting to work, especially to downtowns, it can still be – and is – moderately competitive (with a heavy subsidy that is justified by various benefits such as congestion reduction). For housing and location choices, the key point is: for non-car-dependent people, proximity to downtown is simply not a very important factor when considering Transit as an option. With the entire, and separate, commuter network we’ve looked at – market rate housing that includes a reasonable Transit-to-work-downtown option is available both throughout the I-494/I-694 beltway, and in many areas outside the beltway.

As we’ve seen, while the regular route transit network is much more geographically limited than the commuter coverage, regular routes do serve the highest concentrations of Core City poverty. Although service is worse – the **Transit Time Tax** is higher and walks are longer – Regular Routes also reach most of the newer areas of suburban poverty, especially neighborhoods to the north of the Green Line in Saint Paul... Brooklyn Park and Brooklyn Center on the Minneapolis side... and the Mississippi corridor up to Anoka. However, as also noted, the **Reverse Commuting** system is far from adequate – meaning that Transit Dependent communities are effectively cut off from much of the Twin Cities job market. We’ll look at this next.

## 1970-2017: The “Suburbanization of Transit” to “Peak Crazy?” ... continued



The final two maps show employment opportunities in the Twin Cities. The top scattergram highlights individual employers by size, while the lower map highlights major employment clusters. Reaching the individual employer sites shown at the top with Reverse Commuting should be right at the top of the priority list for Twin Cities Transit as we head towards the future.



Three Centuries Transit perspective

The scattergram on the top will be very useful in planning out a Reverse Commuting. But the lower map – showing major concentrations – is more helpful in showing us the big picture for Twin Cities employment.

Outside of the downtowns, the essentially residential character of Minneapolis and Saint Paul really stands out in the lower map. Because these Core Cities are “employment deserts” outside of their downtowns, the ability of Transit Dependent communities to access jobs suffers another severe limitation: while regular route service is relatively good in the non-downtown Urban Cores, there is a general lack of jobs. When you combine this reality with the fact that our Commuter Transit system has such a woefully inadequate Reverse Commute element, the full impact of limited job access for people living in high poverty neighborhoods comes clearly into view.

At the same time, it’s equally clear that if we can simply establish Reverse Commuting as a normal part of our extensive and quite excellent Transit Commuter system, this can have a major impact on communities with high concentrations of poverty, because Transit access to jobs can be radically increased for these communities.

Beyond that fact, we need to consider what could be done to expand the Commuter system to include at least once an hour service during the M-F work week. It might emerge as a real surprise how easily we could do this. That “add on” feature greatly increases the potential that a robust Reverse Commuting service offers us.

## Circa 2017 -- Metro Transit and Metro Council budget data

Metro Transit (excludes Metro Mobility)			
2016 Operating Revenue & Expenses			
Revenue	(millions)	\$'s	%
MVST		\$ 205.1	53.4%
Fares		94.8	24.7%
State General Fund		38.0	9.9%
CTIB		30.0	7.8%
Local Partners		9.6	2.5%
Federal Grants		6.5	1.7%
	<b>Total:</b>	<b>\$ 384.0</b>	<b>100%</b>
Expenses (millions)			
Salaries		\$ 265.7	69.2%
Fuel, mat'l's, supplies		45.7	11.9%
Utilities & other exp.		43.8	11.4%
Central Support		28.4	7.4%
	<b>Total*:</b>	<b>\$ 404.8</b>	<b>100%</b>
* Note: deficit includes use of Metro Council reserves			

Three measures of Metro Council Budget			
2016 Budget in Brief, Metro Council website			
Transportation:		\$ 595	million
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Revenues, Met Council Unified Budget, 2016:			
MVST, includes opt-outs		\$ 258.3	million
MVST, unallocated, \$13.6 M, not in total			
State GF, Metro Mobility		52.4	
State GF, Metro Transit		37.9	
Fares, excluding Metro Mobility		99.5	
Metro Mobility Fares		8.0	
All other operating revenues:		111.7	
	<b>Total op. revenues:</b>	<b>\$ 567.7</b>	<b>million</b>
Debt service		44.9	
	<b>Total op. &amp; debt service:</b>	<b>\$ 612.6</b>	<b>million</b>
Data from unified budget, 2016, Table C-1			
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State budget, w/ Met Council data			Data from
MVST, includes opt-outs (millions)	\$ 258.3		Met Council
MVST, unallocated, \$13.6 M, not in total			Met Council
Fares, inc. Metro Mobility	107.5		Met Council
State GF, forecast base	89.8		Legislaature
Other revenue	67.0		Met Council
Onetime, debt reduction	25.0		Legislaature
	<b>Total oper. revenues:</b>	<b>\$ 547.6</b>	
Debt service	44.9		Met Council
	<b>Total op. &amp; debt service:</b>	<b>\$ 592.4</b>	<b>million</b>

Metro Council: Average of three measures			
debt reduction for limited capital expenses			
2016 Budget in Brief	\$ 595		
2016 Unified Budget, revenue:	613		
2017 State budget, w/ Met Council data	592		
	<b>Average, including debt service:</b>	<b>600</b>	
	<b>Average, operating only</b>	<b>\$ 555</b>	<b>million</b>

The tables on the left give us a somewhat fuzzy still useful picture of the current level of funding for Twin Cities Transit operations. There are four fundamental “takeaways” from this.

First, regarding “regular bus service” – excluding Metro Mobility and the Suburban opt-out providers – Metro Transit is currently spending about \$400 million a year on operations.

Second, regarding the bigger picture, including both the fast-growing and expensive Metro Mobility service, and the opt-out, total operating spending for Twin Cities Transit is about \$550 million a year.

Third, “farebox recovery” – the percent of total operating costs paid directly by customers – is quite low – about 25% for Metro Transit, and even lower... about 20%... when Metro Mobility and the opt-out providers are included. For Metro Mobility alone – a service that typically provides door-to-door service for individual passengers with qualifying disabilities, farebox recovery is only 15%.

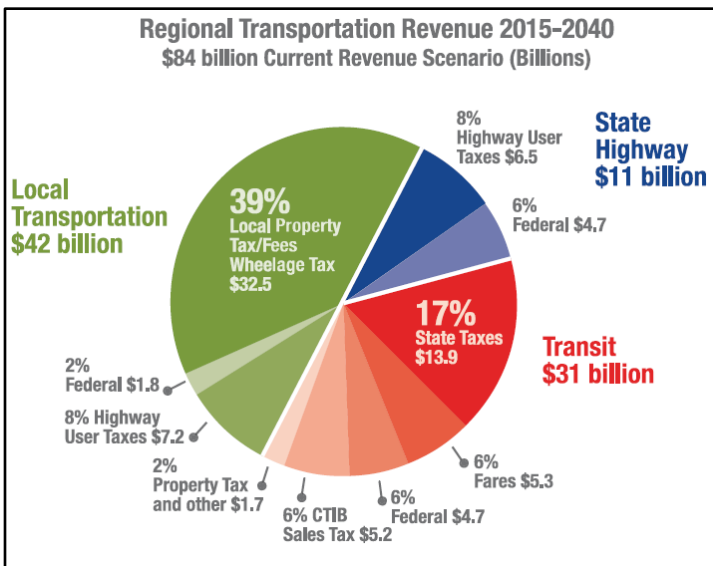
Keep in mind: capital costs -- including replacement buses and other vehicles, and the enormous cost of new Light Rail lines – is excluded from these numbers. The next section includes capital costs as part of all projected revenue and expenses for the 2015 to the 2040 time period.

Fourth and finally, when we hearken back to the Citizens League 1964 data, the total bus company expenses... operating *and* capital: was \$12.7 million. That’s \$97 million indexed from 1964 \$’s, or 17% of *operating only* costs today. If we adjust for population growth, spending would be \$219 million, or 40% of *operating only* costs today.

# The Metro Council's "Thrive 2040" Twin Cities Transportation & Transit plan

**Table 4-1: Metropolitan Area Projected Revenues, 2015-2040 (year of expenditure, in millions)**

REVENUE SOURCES	Calendar Years			Total Current Revenue Scenario
	2015-2024 (10 years)	2025-2034 (10 years)	2035-2040 (6 years)	
<b>State Highway Revenues</b>				
Highway User Taxes	2,100	2,500	1,900	6,500
Federal	1,600	1,900	1,200	4,700
<b>Subtotal State Highway Revenues</b>	<b>\$3.7 B</b>	<b>\$4.4 B</b>	<b>\$3.1 B</b>	<b>\$11.2 B</b>
<b>Transit Revenues</b>				
Motor Vehicle Sales Tax	2,875	3,691	2,694	9,261
State General Fund	1,064	1,719	1,379	4,162
State Bonds	396	58	38	491
Fares	1,509	2,171	1,601	5,280
Federal (CMAQ, 5307, 5340)	1,021	1,164	780	2,965
Federal New Starts (5309)	1,774	-	-	1,774
Sales Tax (CTIB)	1,480	2,043	1,670	5,193
Property Tax and Other	891	703	512	2,106
<b>Subtotal Transit Revenues</b>	<b>\$11.0 B</b>	<b>\$11.5 B</b>	<b>\$8.7 B</b>	<b>\$31.2 B</b>
<b>Local Transportation Revenues</b>				
Highway User Taxes/Veh. lease Tax	2,400	2,800	2,000	7,200
Federal (STP, TAP, HSIP)	600	700	500	1,800
Wheelage Tax	190	240	170	600
Property Tax	9,700	12,800	9,400	31,900
<b>Subtotal Local Transportation Revenues</b>	<b>\$12.9 B</b>	<b>\$16.5 B</b>	<b>\$12.1 B</b>	<b>\$41.5 B</b>
<b>TOTAL REVENUES</b>	<b>\$27.6 B</b>	<b>\$32.4 B</b>	<b>\$23.9 B</b>	<b>\$83.9 B</b>



The total "Transit Revenues" is a whopping \$31.2 billion over the 26 year time period. Crucially – this includes **both** operating and capital costs, and part of those capital costs are for what I call "giant construction boondoggles" to build Light Rail lines.

The second graphic is a pie chart, designed to give us some perspective on the relationship between Twin Cities "Transit" spending and what is typically called "Roads and Bridges" spending. From this, we see that the Roads and Bridges total is \$53 billion (\$42 billion + \$11 billion) for the same 26 year time period.

Let's stop and pick this data apart. Roads and Bridges is the necessary infrastructure for **all** non-rail travel – and **cars are 98.6% of all travel** (transit is 1.4%). But when we compare the spending, we find the 2040 Metro Council plan is to spend 37% of the total ( $31 / (31 + 53) = 37%$ ) on "transit". Since we're really concerned about money collected as taxes, let's back out fares: but even with that adjustment we're still spending  $(31 - 5.3) / (31 - 5.3 + 53) = 33%$  -- **one third! – of all public dollars on "transit"... which yields 1.4% of all trips.**

In terms of trips, we spend  $(33% / 1.4%) = 24$  **times as much public money per transit trip as we spend per person trip in private autos!**

The two graphics on this page are from Chapter 4 of the Metro Council's Thrive 2040 Transportation Policy Plan (Ver 1.0). Frankly, both the numbers and the general outlook & demeanor of this plan are pretty shocking. Both graphics are from the Current Revenue Scenario – defined as: "revenues that the region can reasonably expect to be available based on past experience and current laws and allocation formulas."

But wait... there's more! The Metro Council says the Current Revenue Scenario **isn't enough!** They "need" an additional \$7 billion to \$9 billion in new revenue over this 26 year time period.

Let's take a deep breath. In this chapter we're trying to understand how we got into this incredibly disastrous situation – and more important, how we can get *out* of this disastrous situation.

## The Metro Council's "Thrive 2040" Twin Cities Transportation & Transit plan... cont'd

Approximate division of capital and operating expenses			
Metro Council Table 4-1	2015-2024	Operating portion (note b)	Capital portion (note a)
<b>Transit Revenues</b>			
Motor Vehicle Sales Tax	\$ 2,875	\$ 2,875	
State General Fund	1,064	1,064	
State Bonds	396	396	
Fares	1,509	1,509	
Federal CMAQ, 5307, 5340)	1,021	263	\$ 758
Federal New Starts (5309)	1,774		1,774
Sales Tax (CTIB)	1,480	428	1,052
Property Tax and Other	891	178	713
Transit Revenues:	\$ 11,010	\$ 6,713	\$ 4,297
(a based on text of Metro Council's Chapter 4, Thrive 2040 Policy Plan, and add'l data on projected CTIB operating expenses			
b) If the operating total is increased in equal annual amounts for the ten year period, with 2016 set at the \$555 operating costs per the previous page, the average annual increase is 5.3% compounded.			

The graphic above focuses on the first ten years of the Metro Council's Thrive 2040 plan – two of these years (2015-16) have already passed. But this data helps us to understand the real impact of including capital costs – and especially the cost of the Light Rail boondoggles. For each spending category, I relied on the Metro Council chapter to approximate how much of the money for that category was capital, and how much was operating. The operating money totaled to \$6.7 billion. I then used some financial techniques to link this to the \$555 million in annual operating costs we determined a few pages back. I found that if you apply a 5.3% compounded growth rate to the \$555 million amount over the ten years, you arrive at the \$6.7 billion total. This shows that my approximate split of capital and operating costs is a reasonable estimate.

This leaves us with \$4.3 billion over ten years representing the capital portion. Some of this is for replacement buses and other “normal” capital expenses, on replacement schedules in the range of about 10 years. But most of it – by far – represents the money the Metro Council plans to spend during this time period for just two new Light Rail line extensions – Southwest (Green) and Bottineau (Blue). Using the same procedure to link the \$555 million 2016 operating amount, we find that with the same average 5.3% compounded annual increase, capital spending is an additional (millions)  $(\$555 \times (1 + (\$4,297/11,010))) = \$772$  million.

Of course, the useful life of capital invested in new Light Rail lines is expected to be decades. But in considering our direction, we're at least as concerned with cash flow trends as we are with long term depreciation. As already noted, the Metro Council plan calls for an additional \$7 billion to \$9 billion in spending from 2015 to 2040, and the bulk of that is capital for more giant Light Rail and dedicated bus guideway projects. Therefore, we can conclude **the Metro Council currently plans to spend about three quarters of billion dollars each year forever on “transit”**. When 2040 rolls around the Blue Line will be needing a complete overhaul.

What would we get with this plan? Essentially, a regular route and commuter bus system very similar to what we have now, plus a dozen or so new-but-obsolete “mass transitways” centered on the Core Cities. Transit in 2040 is forecast at 2% of all trips -- up from 1.4% today. In short, the plan is: negligible improvement in productivity or service -- a strong and steady rise in already crazy costs – and a solid-and-sturdy bridge to the 19<sup>th</sup> century.