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Structural Funding Problems at the CTA: A commentary on the RTA funding structure and regional economic benefits

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Introduction

The Chicago Transit Authority currently faces what it describes as a “structural funding shortfall.” The CTA faces an annual shortfall in operating fund of \$75 to \$100 million dollars by 2005, despite a recent fare hike and cost control initiatives – the latter yielding over \$100 million in operating savings per year. The reason for this shortfall is that public operating funds have grown at less than the rate of inflation. According to CTA, if public operating funds had kept pace with inflation since 1985 they would be higher by \$90 million per annum; roughly enough to close the imminent funding gap.¹

The decline in real public operating funds may be attributed to two causes: the elimination of federal operating subsidies for urban transit systems and a regional funding structure that has distributed an ever declining share of the funds available for transit to the CTA. Two other factors contribute in a significant way to the funding shortfall. The first is a decline in ridership, which has cut into fare box revenue. The second is unfunded federal mandates for paratransit which cost CTA about \$45 million per year, but for which no explicit adjustment to regional funding formulae has been made or additional funds provided.

The purpose of this commentary is to examine the current funding structure for public transportation in the Chicago metro area to see whether it meets the current and future transit needs of the region. I will begin with a brief background on the structure of transit funding in the region, followed by more detailed consideration of two elements of that structure: the 50% cost recovery requirement and the formulae for revenue generation and distribution. I will then consider the benefits of transit that are not considered in funding and distribution formulae, stressing the fact that these benefits accrue on a region-wide basis and cannot be meaningfully assigned to sub-regional political jurisdictions. I will also discuss the importance of transit as a means to help low income people participate fully in the economy. I will address two critical policy questions: whether chronic funding shortfalls at the CTA can be adequately offset with fare hikes and whether CTA should make service cuts in light of the current financial crisis. I will conclude with some recommendations as to how the current financial structure may be amended to better meet the transit needs of the Chicago region.

¹ Chicago Transit Authority, Funding Briefing, August 2004.

Background: The RTA

There are three public transportation service boards in the Chicago metropolitan region: Pace, which provides suburban bus service in suburban Cook County (excluding Chicago) and the “collar” counties²; Metra, which provides commuter rail service between suburban areas and downtown Chicago; and the CTA which provides bus and rail service in Chicago and suburban Cook County.

Since 1974, public operational funding (the difference between system-generated revenue and total operating costs) has been administered by the Regional Transportation Authority (RTA). Originally the revenues distributed by RTA were drawn from a regional gasoline tax and a vehicle registration charge in the City of Chicago only. Since 1979, however, most RTA funds have come from a regional sales tax of 1% in Cook County (including Chicago) and % in the collar counties. This is supplemented by a Public Transportation Fund (PTF) from the state. The RTA distributes the sales tax funds to the service boards according to a formula whereby revenues generated in each political jurisdiction are assigned to the service boards that residents of that jurisdiction use most intensively. (This formula is discussed in more detail below.)

In 1983 a set of amendments to the *RTA Act* imposed a requirement on the combined budgets of the service board that 50% of all operating costs must be met by systems-generated revenues including fares, concessions, advertising and investments. As a result, the public transportation system in the Chicago metropolitan area has one of the highest cost recover ratios in the United States.

The 50% recovery requirement

The requirement that fare box and other revenues cover 50% of operating costs was included in the amendments to the *RTA Act* to impose some discipline on the public transportation system at a time when transit subsidies had been growing rapidly. One could argue that the 50% level is severe, given that few other major transit systems in the US meet it, but it was clearly the intention of the Illinois General Assembly to set a high bar on cost recovery. A 50% recovery rate is an easily measured criterion with considerable intuitive appeal, but I would argue that it is a blunt instrument in that it does not provide a good measure of system-wide efficiency and may even lead to significant distortions and inflexibility in the allocation of public transportation resources.

There are two reasons for this: the first is the fact that it is defined as a percentage rather than as an absolute subsidy level and the second is the fact that it includes only operating costs, so it does not reflect capital costs. These reasons combine to paint a more favorable picture for commuter rail and heavy rail than for bus.

Setting a percentage subsidy limit can favor expensive options over inexpensive ones. For example, a rider may be served by a bus with an operating cost of \$3 per trip or a train with an operating cost of \$6 per trip. Because the train is faster, the customer may

² The five counties contiguous to Cook County: Lake, McHenry, Kane, DuPage, and Will

be willing to pay a higher price, say \$3 for the train vs. \$1 for the bus. In this case the cost recovery for the train is 50% while the cost recovery for the bus is only 33%. Yet the train rider is receiving a \$3 operating subsidy, as compared with a \$2 subsidy for the bus rider. Clearly if train service were provided for all customers the 50% recovery target would be met, but the total subsidy would be 50% higher than if all trips were served with buses. Such a comparison would not apply across modes within the CTA system because it has a single fare. But it does apply when comparing services provided across the CTA, Pace and METRA systems. Commuter rail subsidies can be higher on a per person basis while performing better on a percent of cost recovery basis.

It is understandable that operating costs rather than total costs are used for defining an indicator of cost recovery. Operating and capital funds come from different sources under different funding formulae and the RTA principally oversees operating funds. Also capital costs are generally more difficult to measure on an annual basis and more variable from year to year. However, focusing on a recovery rate for operating costs rather than total costs again implies a bias in favor of rail service. Bus service is labor intensive and labor accounts for 70% or more of operating costs. So the ratio of operating to total costs is greater for buses. To extend the example above, suppose that the bus service has capital cost of \$1 per trip while the rail service has capital cost of \$4 per trip. Now the gap in *total* cost recovery narrows to 30% for rail vs. 25% for bus, while the gap in total subsidy increases to \$7 for rail vs. \$3 for bus.

Table 1 illustrates the points made above using aggregate national data for commuter rail, heavy rail and bus services in 2002. Here, by the criterion of fare revenues as a proportion of operating expense, commuter rail with 48.2% looks much better than bus service with only 29.2%. But this measure conceals as much as it reveals. It implies that bus riders are more heavily subsidized than commuter rail riders, but since the latter service is much more expensive, the average operating subsidy per commuter rail trip (\$3.76) is more than twice as high as the operating subsidy per bus trip (\$1.70). Furthermore, since commuter rail is more capital intensive, the total subsidy (operating + capital – fare) per trip for commuter rail (\$9.50) is over four times as high as for bus (\$2.30).

Table 1. Subsidy Comparison of Commuter Rail, Heavy Rail and Bus Systems, Fiscal year 2002, source APTA web site -- all figures are national totals

	Commuter Rail	Heavy Rail	Bus
Operating Expense	\$3,003,211,000	\$4,267,460,000	\$14,065,603,000
Capital Expense	\$2,378,021,000	\$4,564,159,000	\$3,513,161,000
Unlinked Passenger Trips	414,253,000	2,687,973,000	5,867,945,000
Fare Revenues	\$1,447,377,000	\$2,492,287,000	\$4,106,215,000
Total Expense	\$5,381,232,000	\$8,831,619,000	\$17,578,764,000
Operating Expense per trip	\$7.25	\$1.59	\$2.40
Expense per Trip	\$12.99	\$3.29	\$3.00

Operating as % Total Expense	55.8%	48.3%	80.0%
Fares as % Operating Expense	48.2%	58.4%	29.2%
Fares as % Total Expense	26.9%	28.2%	23.4%
Operating Subsidy Per Trip	\$3.76	\$0.66	\$1.70
Total Subsidy per Trip	\$9.50	\$2.36	\$2.30

A striking feature of this table is the relative efficiency and high cost recovery of heavy rail, which has much lower operating costs per trip than bus. Even when capital costs are included it is barely more expensive to provide a heavy rail trip than a bus trip, despite the fact that most would consider the former a superior product. It is important to bear in mind, however, that this level of efficiency is achieved through huge scale economies along very high density routes. Our low density urban growth patterns make good candidates for heavy rail corridors increasingly rare. Thus, for example, it would not be possible to substitute a heavy rail corridor for a commuter rail corridor and achieve such high levels of efficiency.

For the purpose of this commentary I will focus hereafter on operating costs, largely because accurate capital cost comparisons are hard to make. Still, I wish to suggest briefly that the funding structure in US public transportation – whereby capital projects are largely from federal funds while operations are a state and local responsibility – can lead to some perverse incentives. For example, Bus Rapid Transit (BRT) has been adopted in many parts of the world as a way to provide service of comparable quality to rail at a much lower price. Since BRT can have higher operating costs than heavy rail, however, agencies may be tempted to lobby for the more expensive option because it will be cheaper to operate once it is constructed.

Looking specifically now at the Chicago area, the basic argument about the cost recovery rule can be illustrated by comparing Metra, which is a commuter rail agency and Pace which is predominantly a bus agency (with some demand response service). For the average unlinked Metra trip, fare and other internally generated revenue covered 56.6% of operating cost in 2002 while for Pace the corresponding value was 40%³. However, the average operating subsidy per trip was \$2.48 per unlinked trip for Metra vs. \$2.29 for Pace. The fact that operating subsidy for Pace is higher than the national average for buses from Table 1 probably reflects the fact that its suburban routes operate with low load factors over low density corridors.

For CTA, which is a mixture of about 66% bus trips and 33% rail trips (with some demand response) internal revenues were 54% of operating costs and operating subsidy per trip was \$0.93.⁴ It is clear that CTA could violate the 50% rule and still have a much lower subsidy per trip than either Metra or Pace.

³ The fact that a 50% operating cost recovery is very difficult to achieve with bus service is not lost on RTA, as indicated by the fact that Pace is assigned a much lower recovery rate mark than the other two agencies.

⁴ All values are derived from *Regional Transportation Authority 2004 Annual Budget and Five-Year Plan*.

One might argue that since CTA has managed to exceed the 50% requirement in every year it does not constitute a binding constraint, so there is no need to tamper with it. However CTA currently finds itself in a position of financial crisis while operating close to the edge of this constraint. (In 2003 revenues covered only 51% of operating costs.) If more adequate funding is forthcoming in the future, for example as a result of rapid growth in sales tax revenues, the 50% recovery rule might represent a binding constraint. If CTA were to spend incremental funds on improvements that do not immediately generate increased revenue, such as improved safety or reduced noise pollution, it would probably run afoul of the 50% rule.

One can also envision a situation where CTA plans are driven not by the needs of the traveling public, but by the 50% rule. Suppose the CTA planners and board conclude that the best way to serve the needs of the traveling public is to expand bus service. If the share of bus rides rises from 66% to 70%, the fare recovery percentage will go down because of the higher operating costs of bus service. In order to meet the 50% rule, CTA may therefore have to expand rail service instead, even though it will be less responsive to the demand and much more expensive to the American taxpayer.

While this hypothetical scenario may never occur, my main point is that the 50% operating cost recovery requirement limits the flexibility of all the service agencies in meeting demand efficiently and effectively. This is not to suggest that all conditions for cost recovery should be abandoned. Perhaps a more flexible condition, such as a requirement that each agency must recover 50% of operating costs *or* run operating deficits of less than \$1.50 per trip, would be more conducive to effective planning.⁵

The Sales Tax Funding Formula

In 2004 85% of the revenues of RTA will come from the sales tax and the State Public Transportation Funds (PTF)⁶. Since the level of the PTF is directly tied to the amount of sales tax collected (at 25 cents on the dollar), sales tax revenue is clearly the main determinant of the amount of money available for operating subsidy. These sales tax revenues are collected only in the City of Chicago, the remainder of Cook County, and the five “collar counties:” Lake, McHenry, Kane, DuPage, and Will.

The level of sales tax varies across counties. It appears to have been set according to the principal that those counties using transit more intensively should pay the most. Thus, residents of Cook County (including Chicago) contribute a 1% sales tax to the RTA while residents of the collar counties contribute only a __% sales tax to the RTA.

The distribution of the sales tax revenues among the three service agencies appears to have been determined according to the services that residents of each area are most likely to use. RTA reserves 15% of sales tax revenues for discretionary use and distributes the

⁵ Alternatively, RTA might set a lower ratio for CTA just as it currently does for Pace. This, however, would require a very large increase in the ratio of Metra in order to meet the RTA-wide requirement of 50%.

⁶ RTA 2004, Exhibit 1-4.

remainder according to the following formula: 100% of revenue collected in the City of Chicago go to CTA; of the revenues collected in the remainder of Cook County, 30% go to CTA, 55% go to Metra and 15% go to Pace; for the collar counties, 70% goes to Metra and 30% goes to Pace. In recent years, most or all of the 15% discretionary reserve funds of RTA have been allocated to the CTA.

The underlying principle that has guided the design of both the revenue and distribution formulae is clear – *residents of each area should pay according to the amount and type of transit services they actually consume*. I will argue below that this principle is too narrow. But for the moment I will focus on whether the formulae are consistent with this narrow principle.

A crude way to judge whether the sales tax revenue formula is appropriate is to compare the propensity of workers to use public transportation in the collar counties vs. Cook County. According to the 2000 Census⁷, the percentage of workers using public transportation is as follows: Cook County, 17.3%; DuPage, 6.7%; Lake, 4.6%; Will, 4.1%; McHenry, 3.1%; and Kane, 2.7%. A weighted average of the collar counties (with weights based on the number of workers in each county) is 4.8%. This is 28% of Cook County's 17.3%. Since the sales tax rate for the collar counties is only 25% of the rate for Cook County, it would appear that there is justification for a modest increase.

This doesn't tell the whole story, however. Most of the people in the collar counties who use public transportation use the Metra system, which has a higher subsidy per trip than either CTA or Pace.⁸ The fact that the typical transit rider from the collar counties is more heavily subsidized than the typical rider from Cook County suggests that the sales tax rate for the collar counties should be even higher.

Turning now to the distribution of the sales tax revenues to the service boards, a precise accounting of which services are used by people living in different areas is beyond the scope of this commentary. However, there are two elements of the distribution formula that seem anomalous: the fact that no collar county revenues are contributed to CTA and the fact that no City of Chicago revenues are contributed to Metra.

In the first case, it is certain that a substantial number of collar county residents who arrive in Downtown Chicago via Metra take further trips on CTA to reach their final destinations. Many major attractors in Chicago (sports venues, Medical District, McCormick Place) cannot be reached via Metra without an additional trip on CTA. In the second case, there is a certain amount of reverse commuting, whereby Chicago residents use outgoing Metra trains to reach destinations in suburban Cook County or the collar counties.

It is unlikely that these two effects "net out." For one thing, the number of collar county residents using CTA service is probably much larger than the number of reverse

⁷ 2000 Census of Population and Housing, *Illinois 2000: Summary of Social, Economic and Housing Characteristics, Part 1, Table 7*. U.S. Bureau of the Census, March 2003.

⁸ Chicago Transit Authority Funding Briefing, August 2004.

commuters on Metra. More importantly, reverse commuters are using chronically excess capacity – outbound trains in the morning and inbound trains in the evening. Their marginal cost to Metra is therefore very low. Since their marginal cost is probably lower than the fares they pay, they are not effectively receiving a subsidy.

In summary, the formula for both the generating sales tax revenue appears to be unjustifiably favorable to the collar counties and the formula for distributing that revenue appears to be unjustifiably unfavorable to CTA.

To summarize CTA’s situation, the fastest growing revenues are in the collar counties, where the greatest amount of economic growth is occurring. CTA receives none of those revenues. Furthermore, about two thirds of CTA’s share of the sales tax revenue originates in the City of Chicago. Retail trends such as the “big box” retailing in low density areas are attracting ever more Chicago residents to shop outside the city limits, therefore eroding the base for this critical source of funding. In recent years, the operating shortfalls have been managed by transferring all the RTA discretionary funds to CTA. Since this funding is not guaranteed, however, it makes it next to impossible for CTA to make firm plans beyond the next fiscal year.

On the principle that residents of each area should pay according to the amount and type of transit services they actually consume, there is a strong argument for increasing the contribution of sales tax revenues by the collar counties to the RTA and for allocating a portion of those incremental funds to CTA.

Thinking Regionally About Public Transportation

While an accounting of revenue contribution and transit use by residents of the different political subdivisions of Metropolitan Chicago indicates certain inequities in existing RTA financial formulae, I do not believe it is the best way to look at the challenges that face all three service boards in the coming years. Many of the most profound benefits of an efficient, reliable and affordable public transportation system accrue to the metropolitan region as a whole in ways that are not easily “shared out” among jurisdictions. Ultimately, it will be in the best interest of all for decision makers to think regionally about the future of the system.

To begin, consider the question “Why do we subsidize public transportation in the first place?” There are basically two types of reasons. The first is that there is a significant component of the population who are not able to afford either private transportation or public transportation if it were priced at its full cost. Without public transportation such people could not be productive members of the community. The second is that public transportation has social benefits⁹ in addition to the private benefits that accrue directly to

⁹ I use the term social benefits here to be roughly synonymous with “non-user benefits” or “external benefits.” The main point is that they are enjoyed by people who do not use transit as well as those who do. If the fare were set at the full cost transit provision, fewer would take transit and therefore these social benefits would decline.

riders. In this section I will focus on the latter reasons, leaving the former for the following section.

Certain social benefits of public transportation are well known. Two in particular – congestion relief and pollution reduction – are generally included in cost-benefit analyses for capital projects and in policy debates. Congestion relief is a benefit that is enjoyed primarily by people who *do not* use public transportation. If fewer people used transit there would be more cars on the road and everyone would suffer more delay. Ground level ozone is an example of an air quality problem that is metro-wide rather than local. If there were fewer people taking transit, then air quality would be degraded even for people who neither live nor work near a transit route! The point here is that neither one of these benefits can be assigned to political jurisdictions in any meaningful way.

Both of these benefits should be central to policy formulation in the six-county area. Chicago is one of the most congested cities in America and has been designated as a severe ozone non-attainment area. The fact that total weekday ridership has declined by 875,000 over the past 25 years means that there are (conservatively) a half million extra cars on the road during daily commutes, adding to congestion and pollution.

It is not easy to say how much of that reduction is due to inadequate operational funding, but it is not imprudent to speculate that if operational funding had at least kept pace with inflation there would be more riders on CTA and less congestion and pollution. It is paradoxical that issues of congestion and pollution are central to the justification of new capital projects, but appear to be given no explicit consideration in the distribution of operational funds.

I would argue that some of the most important social benefits of public transportation are generally neglected, even in cost-benefit analyses for capital projects. Specifically, the availability of high-quality transit has a positive effect on economic development by increasing the productivity (and thereby the competitiveness) of the entire metropolitan area¹⁰. This economic stimulus effect can occur through a number of mechanisms. The following three are neither mutually exclusive nor exhaustive.

- *Job-worker matching.* One of the advantages of large urban areas over small ones is that with a larger labor market it is more likely that an employer will find a worker whose skill profile matches the job on offer. A major region like Chicago is so large, however, that it may be difficult to “match up” workers and jobs if there are not adequate transportation services to get people from their places of residence to their places of work. Affordable mobility helps create a more efficient labor market.
- *Rational Land Development.* Most metropolitan areas have adopted the notion of “smart growth” as an alternative to urban sprawl. This is not just a social, environmental and aesthetic issue, but also an economic issue as many public services (waste collection, schools, fire, police, etc.) are more efficiently provided

¹⁰ Here I am referring the benefits from having high quality service available. The economic benefits of the construction projects that make that service possible may also be substantial.

- to populations in compact, rationally structured communities. Public transportation is a cardinal prerequisite to smart growth.
- *Developing and maintaining a strong commercial core.* A handful of American cities dominate the market for class A downtown commercial space. Chicago is second only to New York in this regard. The commercial core is critical to the economic well being of the region not only because it generates a great deal of income but also because the presence of the high order services (financial, consulting, law, etc.) that demand such space give a competitive advantage to the entire metropolitan economy. High quality, high capacity public transportation is a prerequisite to super high density commercial cores because it is practically impossible to assemble, let alone store, the number of cars it would take to access such an area by private transportation.

To expand on the last of these points, Chicago is in a unique position among American cities in that it has a very large downtown high-rise district with room to expand directly adjacent to it. The Chicago Central Area Plan¹¹ calls for major expansion in downtown commercial space which is to be served primarily by public transportation. The plan outlines a very ambitious program of expansion in public transportation infrastructure, including new transitways and a major hub to serve both CTA and Metra rail. For this plan to succeed, it will first be necessary to solve the ongoing financial crisis in which the CTA finds itself.

It is important to note that even though this is a downtown development plan, its benefits will accrue to the entire region. The collar counties are in a particularly good position to benefit from downtown development because expansion of the Metra system has given residents of these counties access to downtown employment opportunities that they didn't have in the past. Downtown commercial space supports high income jobs, and as the number of jobs expands, more affluent people will seek homes toward the far end of the Metra lines, thus stimulating home construction and driving up real estate values in the collar counties.

In summary, the benefits described in this section are regional in nature and cannot be meaningfully assigned to political jurisdictions. To reap these benefits all three service boards must have adequate funding. It is important to bear in mind, however, that CTA provides 80% of all transit trips in the region (including 46% of the suburban trips.) It therefore may reasonably be argued that CTA makes the greatest contribution to these regional benefits. This is not reflected in the regional funding formulae, however, because they are not based on total ridership.

Public Transit and Low Income Populations

It is not realistic to address the funding of public transportation without considering its special role in providing mobility to low income people. In the US, low income people disproportionately live in cities and use public transportation for journey to work and

¹¹ City of Chicago, *The Chicago Central Area Plan: Preparing the Central City for the 21st Century*, Draft Final Report to the Chicago Plan Commission, May 2003.

other necessary trips. Thus in Chicago poor people are most likely to make short, within city trips on the CTA. Since incomes in the collar counties are higher than in Cook County, it is reasonable to assume that Metra riders are among the highest income transit riders in the RTA area. Thus, while a precise analysis is beyond the scope of this commentary, it is highly likely that the level of subsidy per trip is *inversely* related to the traveler's income.

Economic need does not appear to have had much influence in the design of the funding formulae that determine average operating subsidies per rider. This may simply reflect the fact that social equity arguments have little weight in many areas of policy in recent years. But no measure of altruism is necessary to justify providing transit subsidies for those who are unable to pay. As in the cases of reducing pollution and congestion, enhancing the mobility of the poor is an outcome of transit that benefits everyone. Today, large metropolitan areas have major labor market imbalances whereby unskilled labor is in short supply at the same time that many able-bodied and willing poor people remain unemployed. This is because low wage jobs, especially in the service sector, have grown increasingly dispersed away from inner city areas where low income people live. To address this problem, CTA is faced with the challenge of serving ever more dispersed employment locales in the City of Chicago and suburban Cook County. Since dispersed patterns of supply and demand are often most efficiently served by buses, the problem of high operating costs gets worse through time.

Labor market imbalances are a general drag on the regional economy to which efficient and *affordable* public transit is the only solution. The recent process of welfare reform, which seeks to complete the "welfare-to-work" transition for as many poor urban residents as possible, adds to the urgency that policy makers should not forget the traditional role of transit in enhancing the mobility of the poor. This role should be reflected in every aspect of transit policy, including public funding of operational costs.

Are Fare Increases the Solution?

The main components of CTA operating revenue are fares and funds transferred from RTA. An obvious question is therefore why the funding gap cannot be made up with increased fares. While fare hikes may be part of the solution, they are not the whole solution for two reasons. The first is that to close the gap the fare hikes would need to be unrealistically large. The second is that in the long run fare increases inevitably lead to loss in ridership, which in turn increases the per-trip operating cost.

In 2004 CTA instituted its first fare increases in 12 years. The increase affected 77% of all riders (monthly passes were excluded) and varied between 11% and 17%.¹² A hike of this magnitude is naturally a difficult political hurdle to clear, yet it was only projected to generate \$30 million. This is only about one third of the funding gap that is currently

¹² *President's Report on CTA's Fares and Proposal for the FY2004 Budget*, Chicago Transit Authority, October 9, 2003.

forecast for 2005 – so an additional fare hike of three times this magnitude would be necessary to close the gap.¹³

The fare increases of 2004 have not yet resulted in an appreciable decline in ridership. But short term results can be deceiving. The decision whether or not to take transit interacts with a number of other decisions – whether to own a second car, where to live, whether to accept a job in a particular location – that are not made instantaneously. The higher the cost of transit the less likely it is that an individual or household will make choices consistent with using public rather than private transit. A recent study by the Victoria Transport Policy Institute found that price elasticities for transit range from about -.2 to -.5 in the short term and from -.6 to -.9 in the long term.¹⁴ Recent elasticity estimates specific to the CTA are -.26 for rail and -.46 for bus.¹⁵ An elasticity of -.5 means that a 10% increase in the fare results in a 5% decrease in ridership. Thus a 10% fare increase would result in only a 5% revenue increase because of the lost ridership.

These relatively high price elasticities also imply that fare increases could exacerbate the problem they are meant to address: high operational costs. For transit vehicles that are not filled to capacity, the marginal cost of additional passengers is close to zero, so loss of riders results in loss of revenue without much reduction in costs. Suppose a bus carrying 40 people has an operating cost of \$2 per passenger trip. If the fare increases from \$1 to \$1.15 and the price elasticity is .5, we will expect the number of riders to decline to 37. There will be no appreciable effect on operating costs per vehicle trip (aside from the extra fuel cost of carrying 5 people) so the operating cost per passenger trip will increase to \$2.16.

In this admittedly contrived example the fare increase would not cover the increase in operating cost and five people will either be unable to make their trip or will shift to travel by car, increasing pollution and congestion. Reality may not be so harsh, but the point is that fare increases are no panacea.

Are Service Cuts the Solution?

Ian Savage of Northwestern University recently completed a very rigorous analysis of CTA operations and finances over the period from 1948 to 1997.¹⁶ His general conclusion is that throughout its history, when faced with financial crisis, the CTA has chosen to increase fares rather than eliminate poorly performing services because “It appears to be more politically palatable to share the misery among many anonymous people by means of a fare increase than to affect a smaller, identifiable, group by a

¹³ The estimate gap of \$75 to \$100 million is with the 2004 fare increase already in place. In other words, were it not for that increase, the funding gap for 2005 would range from \$105 to \$135 million.

¹⁴ Todd Litman (2004) Transit Price Elasticities and Cross-Elasticities, Victoria Transport Policy Institute (forthcoming in the Journal of Public Transportation), see table 11.

¹⁵ Ian Savage, Management Objectives and Causes of Mass Transit Deficits, *Transportation Research Part A*, Volume 388 (2004), pages 181-199.

¹⁶ Ibid.

service cut.”¹⁷ His analysis indicates that this reluctance to cut service has worked to the detriment of overall social welfare.

While Savage does not make explicit policy recommendations, his results suggest that the best course for CTA is to close its budgetary gaps via elimination of the poorest performing bus routes. A specific analysis is beyond the scope of this commentary, but it is likely that those routes would be through relatively low density area in the outskirts of the region served by CTA. This conclusion should be tempered, however, by three considerations:

1. Peripheral routes carry mostly “choice” riders. This means that if service is eliminated nearly 100% of the riders will switch to the auto mode, and they will make relatively long trips. Thus, the negative externalities of incremental pollution and congestion will be especially high for elimination of these services.
2. The profile in terms of ridership and cost of those routes that would be eliminated would probably be quite similar to many routes in the Pace system (as well as many operating routes in other cities). To suggest that underperforming CTA bus routes should be eliminated would imply that many if not most of the routes in the Pace systems should also be eliminated. There appears to be a political mandate for the continued operation of Pace, so it would be hard to justify the elimination of low density lines in the CTA.
3. Because of their high capital costs, rail transit systems have relatively sparse networks. They depend, therefore, on feeder bus services in order to achieve the scale economies that result in their low operating costs per trip. Substantial cuts to bus service in the CTA would therefore result in significant deterioration in the cost performance of the heavy rail components of the system.

Conclusions and Recommendations

CTA faces a financial crisis that cannot be resolved either by additional fare hikes or by the temporary expedient of discretionary funds from the RTA. Elimination of some services might make good economic sense, but it would probably be imprudent given the political realities faced by CTA management. Ambitious capital expansions, including those that are critical to the Central Area Plan, add to the urgency of finding a resolution to the problem of inadequate operating costs.

The ideal solution would be a thorough reevaluation of the funding system based on the principle that the six counties constitute a functional region with common economic interests. A comprehensive analysis of transit benefits and costs – including external benefits and capital costs – could be made to provide the necessary information to make welfare maximizing decisions. Substantial public input and participation from all levels of government would be needed. In addition to improving the funding scheme, such an evaluation might promote greater integration of the three service boards to provide seamless service throughout the six county region.

¹⁷ Ibid. page 196.

Failing anything so ambitious, the following three adjustments to the current structure should be considered:

1. *Flexibility in cost recovery targets*: The current 50% requirement favors expensive rail options over bus options. A requirement to meet 50% cost recovery *or* to keep the operating subsidy per passenger below some designated value would provide more scope for efficient planning.
2. *Increased revenue from the collar counties*: The current scheme whereby Cook County residents pay a sales tax four times as high as collar county residents is no longer defensible. It was perhaps more appropriate at an earlier time, but the number of collar county residents using public transportation and the services available to them have increased in recent years.
3. *An adjusted distribution formula*: The purpose of the adjustments should be to expand the scope of factors considered in the distribution of funds. As an example, 50% of sales tax revenues could continue to be distributed under the current formula, 15% could be retained as discretionary funds by RTA (consistent with current practice) and the remaining 35% could be distributed according to a new formula based on factors such as total ridership, the proportion of low income riders and measures of pollution and congestion reduced due to transit service.