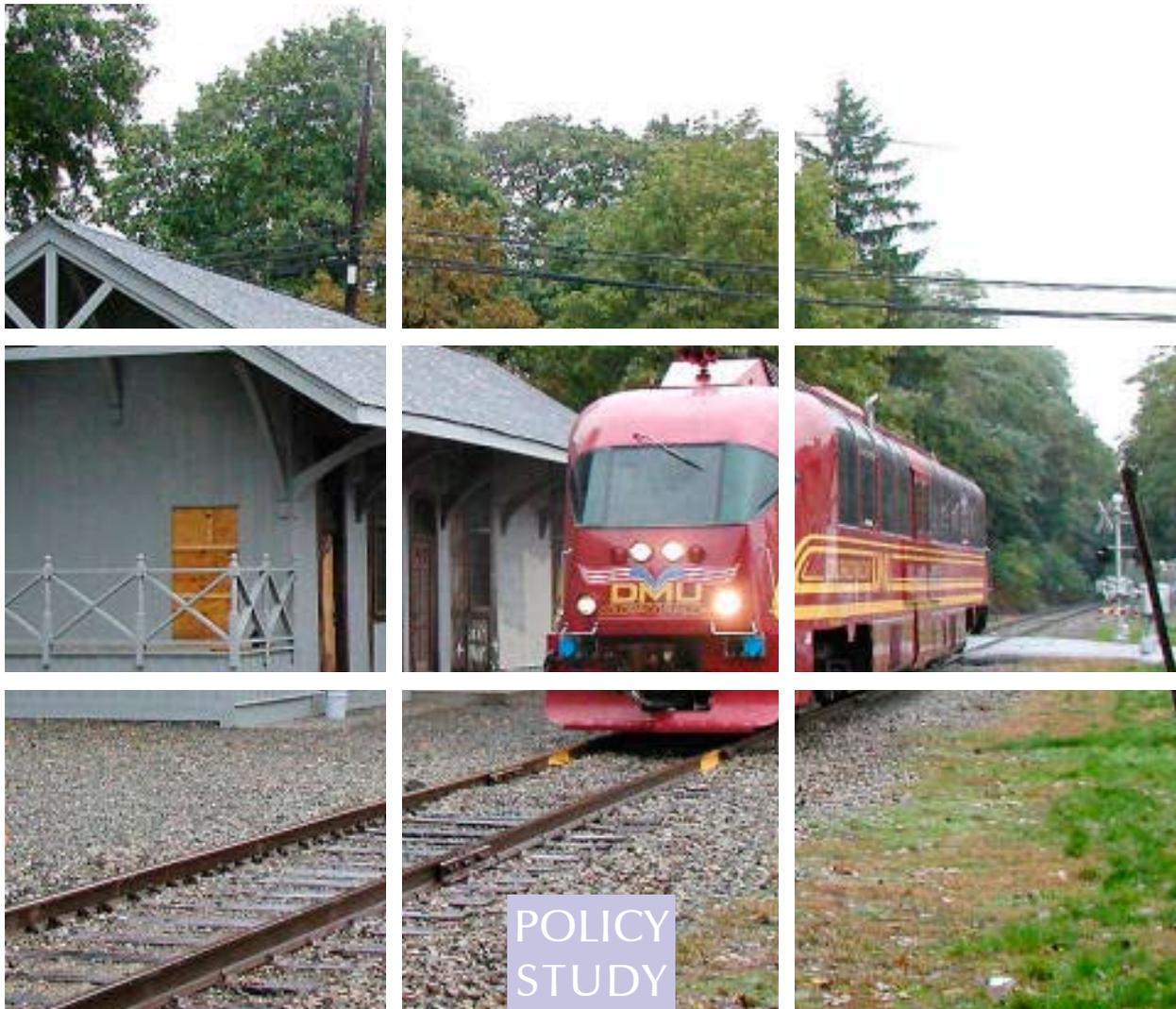




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KENOSHA-RACINE-MILWAUKEE (KRM) CORRIDOR TRANSIT SERVICE OPTIONS: AN INVESTIGATION AND ANALYSIS

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Kenosha-Racine-Milwaukee (KRM) Corridor Transit Service Options: An Investigation and Analysis

By **Thomas A. Rubin**

Project Director: Robert W. Poole, Jr.

Executive Summary

What sort of improvements to transit service would make sense in the north-south corridor from Kenosha to Racine to Milwaukee (the KRM corridor)? An alternatives analysis carried out by the Southeastern Wisconsin Regional Transit Authority (SWRTA) selected a commuter rail system using two-car diesel multiple units (DMUs), rejecting a bus rapid transit (BRT) alternative and a transportation systems management (TSM) alternative. This study reviews and critiques that decision process and offers several additional alternatives which may be more cost-effective.

The case for commuter rail in the KRM corridor rests on the lack of limited-access highway along the lake shore, where the larger fraction of population lives and where most of the activity centers are. The only such highway is I-94, which lies to the west. For service between and among the central business districts (CBDs) of the three cities, commuter rail offers a faster alternative than bus service, whether those buses would use existing highways or a hypothetical exclusive bus lane that could be added to highways near the lake shore.

But the proposed commuter rail service comes with a high taxpayer cost. SWRTA projects that by 2035, the commuter rail system would attract 4,817 new passengers each weekday. For each net new (one-way) passenger boarding, the cost would be \$28—meaning that the annual cost for each working weekday round-trip commuter the system attracts would be over \$14,000. That is a large sum for a very small improvement in transit. (Passengers would pay only \$2.92 per boarding, compared with the \$28 boarding cost.)

The particular form of BRT which SWRTA considered as an alternative consisted of an exclusive bus lane in each direction added to a local highway route connecting the three CBDs along the lake shore. The capital cost would have been comparable to that of the commuter rail service, but its trip

time would be nine minutes longer from Kenosha to Milwaukee (62 minutes vs. 53) and would have attracted fewer riders. Hence, that alternative was rejected.

Not studied by SWRTA were several other promising alternatives that would have far lower capital costs. One such service is commuter express bus service on I-94, from park & ride lots adjacent to the Interstate. While such service would not be time-competitive for CBD to CBD trips, it would be attractive for trips from Kenosha and Racine's western suburbs to destinations such as downtown Milwaukee, the University of Wisconsin-Milwaukee campus, and locations in Waukesha. Data from New Jersey, where long-haul commuter express buses operate along with commuter rail, show that express bus has far lower subsidy levels: the commuter rail subsidy per passenger is 5.5 times that of express bus.

A second alternative is called BRT Lite—semi-express bus service operated on arterial roadways with traffic signal preference. In Los Angeles, the introduction of such service on Wilshire Blvd. led to a 40% increase in bus ridership, at dramatically lower subsidy levels than either BRT on exclusive lanes or any form of rail transit. While BRT Lite would not be time-competitive with commuter rail between the three CBDs, it could offer improved bus service on both north-south and east-west routes, at modest cost.

A third alternative is expanded vanpool programs, some sponsored by employers and others operated by transit agencies. Milwaukee County Transit Service (MCTS) operates a 27-van fleet, with passenger fares covering 100% of the operating costs. The federal transportation grant formula funding generated by vanpool operations can often pay for the capital costs of the vehicles.

Another advantage of transit alternatives using rubber-tire vehicles is that they can be expanded or contracted in proportion to actual demand. SWRTA's projections of commuter rail ridership are somewhat questionable, and if actual demand turns out to be lower than projected, over \$250 million will have been spent before this knowledge exists. And due to quirks in federal funding, at that point if the system were to be shut down, much of the federal grant money would have to be repaid. The practical consequence is that such systems—no matter how unsuccessful—are virtually never shut down.

Finally, the arguments cited by SWRTA alleging major job creation and economic growth due to implementing commuter rail are difficult to justify. First, much of the capital spending (e.g., on the DMU rolling stock) will take place in other states or other countries, and the construction jobs (for new stations and sidings) would be temporary. And the idea that a few thousand rail transit riders per day would lead to a \$2.1 billion increase in property values cannot be taken seriously.

Decisions about transportation improvements should be based on whether they produce enough improvements in transportation to be worth what they cost. SWRTA is proposing an approach with high costs and only modest transportation benefits. More cost-effective alternatives, such as those suggested in this study, deserve serious consideration.

Table of Contents

Introduction.....	1
Setting for this Study	4
A. Geographic Area	4
B. Transportation: Inter-City Roadways.....	6
C. Transportation: Public Transit in the KRM Corridor.....	6
D. Railroad Trackage in the KRM Corridor.....	12
E. The State of the Commute	13
Officially Studied Transit Alternatives	14
A. Commuter Rail.....	14
B. Bus Rapid Transit Alternative	21
C. Transportation Systems Management.....	23
Other KRM Corridor Alternatives.....	24
A. I-94 Commuter Express Bus.....	24
B. BRT Lite	29
C. Carpool and Vanpool	30
D. No Project (Retain <i>Status Quo</i>).....	32
Other Issues.....	33
A. Access to Stops and/or Stations.....	33
B. Transit Station/Stop Parking	35
C. Feeder/Distributor Transportation.....	36
D. I-94 Express Toll Lanes	37
E. KRM-Specific Concerns:.....	38
F. Inability to Discontinue Failed Rail Service	41
Land Use and Real Estate Development	43
Conclusions	48
About the Author.....	49
Related Reason Studies	50
Endnotes.....	52

Part 1

Introduction

The Southeastern Wisconsin Regional Transit Authority (SWRTA) was formed to study public transit improvements in the Kenosha-Racine-Milwaukee lakeside corridor, with the primary emphasis being on a commuter rail service that would start in the city of Kenosha, where the Metra UP-North commuter rail line from Chicago terminates. The proposed new service would operate north to the Amtrak Depot in the Milwaukee central business district (CBD) primarily along the Union Pacific-Kenosha Subdivision (UP Kenosha Sub) line, now used relatively lightly for freight.

SWRTA has studied several alternatives for transit service in this corridor, narrowing it down to three:

- Commuter rail operations on the UP Kenosha Sub;
- Bus Rapid Transit (BRT): reduced-stop, higher-speed bus service on semi-dedicated lanes on existing state highways along the lakeside;
- The federally required Transportation Systems Management alternative, basically “the best that can be done” without building a new transit system.

From these options, SWRTA has selected one form of the commuter rail service, using two-car, self-powered Diesel Multiple Units (DMU) trains, rather than the much longer commuter rail trains with separate locomotives as operated by Metra from Chicago to Kenosha.

A key part of the decision-making process should be whether the service is worth the public sector investment to make it happen, given the costs, benefits and risks of the proposed commuter rail and other alternatives.

The three major cities—Kenosha, Racine and Milwaukee—are all located close to the lakefront, particularly their CBDs, but for the two southern cities there is no freeway near the lake, and it can take up to 10 miles of east-west travel to reach I-94, the main north-south road through the region. With the exception of the short stub of I-794/State Highway 794 near the lakefront, which extends only to the southern edge of the Milwaukee airport, the north-south roads through this corridor have low speed limits, few lanes and many traffic lights and stop signs. The distance between the Kenosha and Milwaukee city centers is in excess of 30 miles.

With the exception of a bus line operated by Wisconsin Coach Lines, which takes an hour and 44 minutes from the Kenosha Metra station to the University of Wisconsin-Milwaukee campus north of downtown Milwaukee, there is currently no north-south transit service in this corridor connecting the three cities.

The SWRTA Board has selected DMU commuter rail as the locally preferred alternative to study for potential funding from the federal New Starts grant program. SWRTA studied Metra-style commuter rail trains and found them less desirable than the DMU operation, particularly given the need for lower-capacity trains than those operated between Chicago and Kenosha. The DMU commuter rail plan would require a high degree of coordination between KRM and Metra service, with both timed to provide across-the-platform transfers from one to the other, as well as coordination between commuter rail and the proposed expanded commuter rail feeder bus service.

In its study of alternatives, SWRTA considered variations of BRT, primarily an alignment composed of non-grade-separated exclusive lanes sharing (and, in most of the route, expanding) the existing highway alignments through the cities of Kenosha and Racine CBDs and near their lakefronts. The many at-grade intersections posed both speed restrictions and risk of collisions, while the conversion of many former through streets to right-turn-in, right-turn-out intersections, loss of curb parking and other characteristics combined to produce significant community impacts, slower speed than the commuter rail option and an initial capital cost almost as high.

Several other transit alternatives were either not considered at all in the alternatives analysis or were given short shrift. In view of the high costs and limited ridership of the KRM DMU alternative, these overlooked alternatives deserve further consideration, which this study provides.

In this policy study we review surface transportation improvement alternatives in the KRM corridor with a focus on public transit. We analyze the proposed KRM commuter rail project and other transit alternatives in this three-county area, including both those considered in the 2007 *Alternatives Analysis/Draft Environmental Impact Statement (EIS)*¹ and others not included therein.

The *EIS* is being prepared by SWRTA, a three-county entity created by the legislature and governor in July 2005 to serve the counties of Kenosha, Milwaukee and Racine. The principal duty of the RTA is to “recommend to the State Legislature and Governor a permanent dedicated funding source for the local share of capital and operating costs of commuter rail and public transit.”² As of the writing of this study (September 2008), SWRTA is working with the Southeastern Wisconsin Regional Planning Council (SEWRPC), the metropolitan planning organization (MPO) for the larger seven-county area,³ to complete the Draft *EIS*. SWRTA anticipates requesting permission from the Federal Transit Administration (FTA) to enter into preliminary engineering in the summer of 2009.⁴

The primary federal program for funding major fixed guideway transit capital investments, such as commuter rail and the guideway transit forms of BRT, is the 49 USC 5309 New Starts program.

This is a discretionary program, which means that funding is provided for specific projects that have gone through an extensive competitive vetting process.⁵ While there are several other federal funding programs which can be used for such projects, all the other major ones are formula grant programs, which means that the SEWRPC area would be receiving the same amount of funds, whether a major capital project is underway or not. If funds from those formula programs are utilized for a major transit capital project, other projects will likely suffer, specifically including the on-going maintenance and capital renewal and replacement of the region's roadways and transit asset base.

The standard New Starts grant planning process requires that this project proceed through several phases: alternatives analysis, preliminary engineering, final design and full-funded grant agreement. In order to progress to each of the last three of these four phases, there must be specific authorization by Federal Transportation Authority (FTA), and for the last, Congress. In general, New Starts projects must also go through the National Environmental Policy Act (NEPA) Environmental Impact Statement (EIS) process.⁶

Part 2

Setting for this Study

A. Geographic Area

The study area is basically the same as that for the *Draft EIS*, as shown on the map in Figure 1.⁷ However, it also comprises the portions of Kenosha and Racine Counties located to the west of I-94 and to a limited extent portions of the other four Southeastern Wisconsin counties (Ozaukee, Walworth, Washington, and Waukesha).

The population and jobs for the three counties and their largest cities for 2006⁸ are shown in Table 1 (employment is for the *residents* of each political subdivision, *not* the number of jobs in each city or county).

Table 1: Population and Employment, 2006				
COUNTY/City	Population	Employment	% Transit Commute	Metro Area Unemployment ⁹
KENOSHA	157,459	78,307	1.0%	
Kenosha	91,988	44,656	1.1%	
MILWAUKEE	889,898	417,759	6.7%	5.2%
Milwaukee	545,823	245,021	10.0%	
RACINE	187,759	92,981	1.3%	6.0%
Racine	75,060	34,621	2.9%	
Three-County Total	1,235,116	589,047	5.1%	
United States				6.0%

Of the total 33,041 transit work commute trips in the three-county area, 74% were taken by residents of the city of Milwaukee and 94% were taken by residents of Milwaukee County.

Figure 1: KRM Area Map



B. Transportation: Inter-City Roadways

The most important road in the study area is I-94, connecting Milwaukee to Chicago, approximately 85 miles to the south. There is no other major freeway to the east of I-94, with the exception of I-794, the short Lake Freeway, which transitions into State Highway 794, the Lake Parkway. Together, they extend approximately 7.5 miles in a general north-south direction from the Milwaukee CBD to East College Avenue at the south border of General Mitchell Field, the primary commercial airport in the area. There is no access to the airport terminal area from I-794/794.

I-794 was originally intended to be a freeway/parkway extending all the way to the Illinois line and beyond, but after significant opposition from residents and major delays and construction problems it was significantly reduced in scope.¹⁰ In conversations with elected governmental officials and planning and transportation staffs, we were unable to discover any significant effort to extend it at this time.

As shown on the map in Figure 1, south of Mitchell Field and east of I-94, the inter-city roads are limited in speed and capacity. The main north-south routes are State Highways 31 and 32, which are generally two-lane roads with speed limits rarely above 35 mph, except in the cities of Kenosha and Racine, where they are arterial streets with more lanes, traffic, traffic signals and slower operating speeds. There are east-west roads about every mile from south of Mitchell Field to the Illinois state line. Most are two-lane, except those that run into the Racine and Kenosha CBDs, which generally have higher capacities near the CBDs. The speed limits generally increase as they go through the more rural areas approaching I-94.

The strongest argument for KRM commuter rail is the lack of any higher-speed north-south roadway inland for miles from the shoreline, where the majority of activity centers are found, which means there is a significant east-west travel penalty to reach I-94 for north-south travel.

C. Transportation: Public Transit in the KRM Corridor

There are three main public sector transit operators in the corridor:

- Belle Urban System (BUS), a unit of the city of Racine
- The Milwaukee County Transit System (MCTS), a unit of Milwaukee County
- Kenosha Transit (KT), part of the city of Kenosha Department of Transportation

Table 2 presents comparative statistics for the bus services operated by these three from the National Transit Database, the primary source of data on U.S. transit operations.¹¹

Table 2: Transit Operators in the KRM Counties			
	BUS	MCTS	KT
Annual Unlinked Passenger Trips	1,519,468	47,905,017	1,608,552
Annual Passenger-Miles	5,370,830	130,904,772	5,951,232
Annual Vehicle Revenue Hours	85,596	1,338,403	70,581
Total Number of Buses, Including Spares	36	488	56
Annual Operating Expense	\$6,378,064	\$125,557,107	\$5,566,981
Operating Cost Per Passenger	\$4.20	\$2.62	\$3.46
Operating Cost/Vehicle Revenue Hour	\$74.51	\$93.81	\$78.87
Farebox Recovery Ratio	14%	40%	9%
Average Fare/Boarding	\$0.59	\$0.92	\$0.30
Boardings/Hour	17.8	35.8	22.8
Number of Routes (2008) ¹²	10	72	10

1. MCTS

MCTS is the primary transit agency in the region, carrying almost 90% of the unlinked passenger trips in the seven-county area and almost 65% of the transit trips in the state.¹³

MCTS also coordinates a small but very cost-effective vanpool service, operating 27 vans in 2006. With fare revenues equal to operating expenses, the public sector investment is limited to the purchase of the vehicles. There were slightly over 300,000 vanpool passengers in 2006.¹⁴ In the 49 USC 5307 Formula Grant Program, vanpool vehicle revenue miles are worth the same as bus vehicle revenue miles, approximately \$.42/mile in federal fiscal year 2008 (FY08),¹⁵ so the 308,484 vanpool vehicle revenue miles¹⁶ generated almost \$130,000 in additional grant funding, sufficient to pay for the major share of the capital costs of the vans.

MCTS was the main subject of a recent Wisconsin Policy Research Institute report.¹⁷ The primary findings were that MCTS is providing generally good service at low cost to the public for a public transit system of its type. However, it is subject to major financial problems because it depends upon Milwaukee County general tax revenues for financing. The county is experiencing financial problems, producing significantly reduced transit subsidies. As a result, from 2000 to 2007 vehicle revenue miles operated dropped by 17%, average fare per boarding increased by 92% (70% inflation-adjusted), and unlinked passenger trips fell by 39%. Many transit routes have been terminated or reduced, particularly those at the extreme edges of the county, with reductions in frequency of service and hours and days of service on most other routes. Without a significant change in financial status, MCTS and its riders are facing further reductions in service provided and transit trips taken.

Several transit improvement projects have been proposed for Milwaukee County:

- Restoration of the service reduced in recent years;
- Extensions of bus lines into nearby counties for job access and other trip purposes;
- BRT routes for higher-speed service in major transit corridors;¹⁸

- A streetcar route around the central business district (CBD)¹⁹ from the University of Wisconsin-Milwaukee to the Amtrak Station and Marquette University and then West to Miller Park; and
- A streetcar route out Fond Du Lac Avenue to the Northwest of the CBD.²⁰

A brief, initial review leads to a belief that certain of these projects have the potential to be valuable, but until the basic MCTS financial problems are resolved, these are going nowhere.

A recent report on MCTS by the Public Policy Forum projected that, to eliminate the “structural deficit” that was causing the reduction in service, fare increases, and other financial ills *and* to eliminate the property tax as a funding source for MCTS, a 0.33% sales tax or a 10.8 cents per gallon motor vehicle fuel tax for the County would be necessary.²¹ There are several major problems with a Milwaukee County sales (or gas) tax in a transit scenario, however. For example:

1. Would such a sales tax be approved by the voters? An “advisory” ballot measure including such a sales tax has been passed by the County Board of Supervisors, vetoed by the county Executive, and then the veto was overridden by the Board and placed on the November ballot²² and passed 51%/49%, with 99% of votes counted. As an advisory vote, the measure is intended primarily to demonstrate to the state legislature that the Milwaukee County electorate is in favor of higher taxes for the specified purposes. Assuming that legislators would agree to the tax, this would leave the legislature to determine how such a tax would be enacted: by direct action of the state legislature establishing it, by allowing the County Board to establish it by its own actions, or by allowing the County Board to place a binding action referendum for such a tax (or taxes) before the electorate.
2. Even if the above issues were resolved, it is unclear how much sales tax would go for transit. The referendum question was, “Shall the State of Wisconsin grant Milwaukee County the authority to provide property tax relief of at least sixty-seven million dollars (\$67 million) by levying a one percent county use and sales tax to be used to remove the following three items for the property tax levy: parks, recreation and culture; transit and emergency medical services (EMS)?” If these important three functions wind up competing for their shares of the same funding source, there is significant potential for conflict and for not satisfying all the needs and wants of each. One might assume that an actual sales/use tax enactment measure or ballot measure would be specific as to the uses of the tax, but that is far from a certainty at this point.
3. Any additional costs of the Milwaukee County contribution to the KRM commuter rail or BRT options would, almost certainly, have to be met from what was allocated for transit in Milwaukee County from such a sales tax. This could set up competition between MCTS and KRM for Milwaukee County transit funding. Although such funding is not currently contemplated, the recent history of such projects has many examples of major capital cost and operating subsidies in excess of initial projections. A 2007 FTA report to Congress reported on 21 “New Starts” transit programs. The average cost was 20.6% higher than projected and average ridership was only 63.6% less than projected.²³

While the KRM corridor offers interesting and potentially valuable opportunities for new types of transit service, the importance of MCTS to Milwaukee County transportation and regional transportation and its precarious financial condition makes its stabilization and turnaround a higher order of importance than funding for KRM.

2. Belle Urban System (BUS)—City of Racine

BUS is a typical size and type of transit system for a city of Racine’s size and type, and one that performs acceptably compared to its peers in comparable cities.²⁴ As a component of the city government of Racine, its service area focus is on the city, not the other incorporated areas or the entire county, but it does operate some lines outside the city limits, notably the 20 Express, an east-west route that operates primarily on Washington Avenue to the Highway 20 Park/Ride and Grandview west of I-94.

BUS also operates trolley service in the CBD, including the “Pub & Grub Trolley” operated on Friday and Saturday nights. Two replica trolleys (motor buses specifically designed to have the appearance of vintage streetcars) were provided through donations from downtown businesses.²⁵ There is a special cash fare of \$.25 for the Trolleys, compared to the normal bus fare of \$1.50.²⁶

3. Kenosha Transit (KT)—City of Kenosha

Like BUS, KT is a typical and well-run transit system providing services appropriate to the area it serves. It is also a city department that concentrates its service almost entirely within the city it is a part of.

KT also operates a vintage streetcar system. Located on 1.9 miles of a one-way loop through the downtown and along the lakefront,²⁷ operating cars obtained from the Toronto Transit Commission—and revitalized by volunteers, even including retrofitted wheelchair lifts—the system is arguably less of a transportation system component than a destination in and of itself (the average operating speed is approximately eight mph for a maximum possible trip length of one mile and it carries an average of 145 trips per day²⁸), but it is a rare and interesting attribute for the city and evidently a great source of civil pride.²⁹

4. Kenosha-Racine-Milwaukee Bus Line

None of the three public transit operators above operate direct service very far into each other’s territories. Wisconsin Coach Lines does operate such a line from Kenosha to the Milwaukee Amtrak Station (and limited service to the University of Wisconsin-Milwaukee campus). There are eight working weekday trips a day in each direction, originating from 5:15 a.m. to 6:50 p.m., northbound. The service is operated with three-axle, single-door, over-the-road coaches with an end-to-end scheduled travel time of approximately 90 minutes to the Milwaukee Amtrak Station and 105 minutes to the UW-M campus.³⁰ The line serves Kenosha, Racine, Caledonia, Mitchell

Field, Oak and Oak Creek, and mainly follows Wisconsin Highway 32 south of Mitchell Field, then uses I-94 to the Milwaukee CBD before proceeding on surface streets to UW-M. The schedule is designed to make connections with Metra service in Kenosha. The service is operated under contract with the city of Racine, which in turn is funded by Wisconsin DOT (WSDOT).

5. Others Transit Operators in the Seven-County Region

There are several other public transit operators in the region, mostly fairly small, which is consistent with U.S. norms for suburban counties and their incorporated cities of the sizes found in this region.

Outside of Milwaukee City and County, transit is not currently widely utilized. For home-to-work trips in 2006, transit was used by 0.8% of respondents in Ozaukee County, 0.6% in Walworth County, 0.7% in Washington County, and 1.5% in Waukesha County. In these four counties combined, there were 4,283 reported transit home-to-work commuters, with over 70% of these in Waukesha County.³¹

From our discussions with both elected officials and transportation staffs in several cities and counties within and outside of the KRM corridor, there is a desire for transit service that crosses county lines, with work trips being the major need, but little service of this kind is now provided. A regional approach to transit, as a component of a regional surface transportation plan, would be desirable, but, at present, the political structure and will to provide such services and the funding to do so are non-existent.

A KRM corridor body to plan, design, construct and operate service in the three-county area is seen by some local decision makers as a potential step in teaming arrangements for the other counties. In suburban areas such as these, providing productive and cost-effective transit service can be difficult; frequently, the best available alternatives are *not* traditional 40-foot buses operated by governmental agencies on fixed routes.

a). Inter-City Rail Service: Amtrak

Amtrak operates 7 trains in each direction each weekday, from 6:00 a.m. to 7:30 p.m. (Chicago northbound scheduled departure times) on its Hiawatha service, with a scheduled end-to-end travel time of 89 minutes, making three stops (Mitchell Field and Sturtevant in Wisconsin and Glenview, Illinois) in between.³²

While the Hiawatha service is very well utilized (Amtrak's third busiest corridor, after the Northeast Corridor and San Diego-Los Angeles) and there are those who do use it for home-to-work commuting, it is overwhelmingly an inter-city, not a transit, service, and many of the characteristics that make it successful for inter-city travel are the same reasons why the use of this line for true transit service would be problematic.

First, the alignment, as Amtrak uses the Canadian Pacific (CP) track, the westernmost of the three rail tracks in Figure 1. It is well outside of the Kenosha and Racine CBDs, and it is much closer to I-94 than to the lakeshore where most of the existing population and jobs are located.

Second, there are only three intermediate stops between Milwaukee and Chicago, and two in Wisconsin. In this type of passenger rail service, minutes are lost for each stop, so the requirement for end-to-end travel speed requires inter-city rail stops to be kept to a minimum. However, what is proper for inter-city rail works against commuter rail and other types of transit, where it is important to minimize the access travel times and distances and where multiple stops along a commuter rail alignment are the norm, generally spaced every few miles.

Third, it would be difficult to integrate additional trains along this alignment to provide a commuter rail service with more stops. This track is heavily utilized for freight movements and Canadian Pacific is likely to be reluctant to take on more trains if it believes that this could have a negative impact on freight movement capacity. Having trains stopping several times between the Illinois border and downtown Milwaukee would, in itself, pose problems with maximizing train throughput, both freight and passenger.

b). Inter-city Rail Service: Metra

Metra, formally the Northeast Illinois Regional Commuter Railroad Corporation, is the commuter rail operator for the six-county Northeast Illinois area. It operates services on 11 lines centered on the three Chicago CBD passenger rail stations, plus coordinating service on the South Shore Line from South Bend to Chicago.³³ Metra is one of the three transit operating entities within the Regional Transportation Authority (RTA)—the planning, financing and oversight entity for transit in the six-county area—along with the Chicago Transit Authority and Pace (legally, the Suburban Bus Division of the RTA).

Metra is one of the most heavily utilized U.S. commuter rail services. In 2006, it carried over 72 million passengers over 1.6 billion passenger miles on 1,156 passenger vehicles, at an operating cost of over \$472 million, covering 45% of its operating costs through passenger fares.³⁴ A 2007 performance audit found Metra to be performing very productively and cost-effectively relative to its peer governmental commuter rail operators, although, along with the other RTA operators, subject to very significant financing problems,³⁵ which have since been partially addressed by actions of the Illinois General Assembly and local units of government.³⁶

Of specific importance to this study is the Metra Union Pacific North Line, which operates from the Chicago CBD north, close to the Lake Michigan shorefront, to Waukegan, with limited service to Kenosha, with nine out of a total of 35 working weekday round trips.³⁷ The service to Kenosha is operated by Metra at no cost to Wisconsin taxpayers.³⁸

While both Amtrak and Metra operate rail passenger service on freight rail lines, they serve what are mostly two different markets. The main difference is in the trip length, which influences the

speed of travel and therefore the number of stops. Amtrak travels from the Chicago CBD to the Milwaukee CBD in 89 minutes (scheduled), making only three intermediate stops. Metra takes 105 minutes between Chicago and Kenosha with 12 to 15 intermediate stops. As the crow flies, Chicago-Milwaukee is 81 miles; Chicago-Kenosha is 50, so the Amtrak average speed of (straight line) travel is 55 mph, compared to 29 mph for Metra on its route.

It is doubtful if many time-critical trips between Milwaukee and Chicago would be taken on proposed KRM service, regardless of the ease of transfer between trains. The proposed KRM commuter rail alternative could, however, provide an option for Wisconsin residents who have destinations along the Illinois lakefront north of Chicago, and for Illinois residents of this area who have destinations in the KRM lakefront corridor. A KRM corridor bus option that served the Kenosha Metra station would provide similar benefits.

D. Railroad Trackage in the KRM Corridor

As shown in Figure 1, there are three primary north-south rail lines between I-94 and Lake Michigan in this corridor, which are, from east to west:³⁹

- UP Kenosha Sub (Union Pacific Kenosha Subdivision) — This is the main line proposed for KRM commuter rail service. It was formerly the historic Chicago & Northwestern Railway, originally double-tracked and providing high-speed passenger transportation between Chicago and Milwaukee, including both the Kenosha and Racine CBDs. It is now single-track-only for the alignment being examined (with passing sidings), and, while utilized for the Metra UP-North service between Chicago and Kenosha, is otherwise exclusively used for freight. There is one general freight and occasional trains for small shippers and an irregular number of unit coal trains, usually two or more per day. Without automatic train stop and signaling north of Kenosha, the speed limit is 59 mph for passenger trains and 49 mph for freights.⁴⁰ Because it is the extension of the alignment already being utilized by Metra service, it is the only one of these three rail alignments that could provide fast, direct rail connectivity for travelers from north of Kenosha to south of Kenosha and vice versa.
- UP Milwaukee Sub (Union Pacific Milwaukee Subdivision) — This is the former Chicago & Northwestern Railway freight alignment between Milwaukee and Chicago, which is its purpose today, with approximately 14 freight trains per day.⁴¹ There has been no serious discussion of use of this line for passenger service, as the Kenosha Sub is far superior for this purpose, being aligned through the city centers where the people are and actually having stations and station sites still available.
- CP (Canadian Pacific [Chicago-Milwaukee-St. Paul alignment]) — This is the alignment utilized by Amtrak, as well as for heavy freight traffic. For the reasons discussed above, it is also inferior to the Kenosha Sub for KRM corridor commuter rail purposes.

E. The State of the Commute

One of the more interesting aspects of transit planning in the greater Milwaukee area is that the home-to-work commute and peak period travel is relatively easy when compared to other medium- and large-sized urbanized areas.

Perhaps the best known road congestion statistic is the Texas Transportation Institute's Travel Time Index (TTI), which has followed congestion in major U.S. communities for over two decades. For 2005, the most recent data, metropolitan Milwaukee received a TTI score of 1.13. This means, on average, travel during peak travel periods takes 13% longer than off-peak. Greater Milwaukee tied for the 18th lowest score of the 69 urbanized areas rated with 2000 populations over 500,000. The TTI index for Milwaukee has actually been improving in recent years, compared to the 1.15 scores received from 1999 to 2002.⁴²

Another important national transportation statistic is the home-to-work travel time data developed by the U.S. Census Bureau. For 2005, the Milwaukee urbanized area (which includes the suburbs of Milwaukee but does not extend to Racine or Kenosha) commute time was 20.8 minutes, which tied for 12th lowest of the 69 urbanized areas.⁴³ Finally, *Forbes* Magazine recently ranked Milwaukee's commute as the third best of the 75 major U.S. cities it surveyed.⁴⁴

For Racine County, the average travel time to work in 2006 was 21.2 minutes; for Kenosha County, 26.3 minutes; and for the nation, 25.0 minutes. With the important exception of Kenosha County residents, the population of the KRM corridor counties have commutes to work that are very good in comparison to commutes to most other U.S. communities and, in general, that are either not getting worse or even getting a bit better. This is relevant to the problem of finding funding for the KRM Corridor alternatives as well as for other transit projects in the region, since the relatively low level of congestion, coupled with the relatively low use of transit, makes gaining popular support for new transit funding more difficult.

Part 3

Officially Studied Transit Alternatives

A. Commuter Rail

1. Overview⁴⁵

Although there is a fairly fine degree of detail in the *EIS* as it now exists, it is still a work-in-process, and if commuter rail is ultimately implemented there will likely be significant changes in many of the specific details as the planning, design, construction and operations process continues.

The primary element of the proposed DMU commuter rail service is the operation of 14 round-trips per working weekday between the current Metra UP-North Line northern terminus in Kenosha into the downtown Milwaukee Amtrak Depot, a distance of 32.6 miles. An additional element is the extension of three round-trips to Waukegan, Illinois, on the UP-North line, where Metra operates a higher level of service than to Kenosha (35 daily trips each way vs. nine for Kenosha), an added distance of 15.7 miles, and one round-trip a day to Chicago.

Projected ridership is 5,966 for the year 2000 (that is, using data from the 2000 Census) and 7,392 for 2035—4,817 (65%) of which would be new to transit.⁴⁶

The service would be operated by a fleet of twelve FRA-compliant double-deck diesel multiple units (DMUs) operating in five two-car consists, with two spares. DMUs are specialized self-propelled passenger cars which can be operated as single-car trains or in longer trains. “FRA-compliant” means that the DMUs comply with the Federal Railroad Administration requirements for sturdier cars, if they are to share alignments with freight vehicles, to provide a higher level of protection for passengers in the event of collision.

Nine stations are proposed, including several new ones to be constructed and upgrades at existing facilities, as described below.

The KRM corridor commuter rail option includes bus services changes, primarily to bring more people to, and to improve connections from, the rail stations. SWRTA estimates a \$1 million annual operating expense to operate the additional bus service after subtracting operating expenses

of bus services that will be eliminated because they would be replaced by the commuter rail service.

2. Operations

The DMU working weekday schedule would consist of:⁴⁷

- Ten one-way trips in each direction between Milwaukee and Kenosha with an end-to-end travel time of 53 minutes;
- Three one-way trips in each direction between Milwaukee and Waukegan with end-to-end travel times of 77 minutes; and
- One one-way trip in each direction between Milwaukee and Chicago with an end-to-end travel time of two hours and 22 minutes.

The service is designed to provide cross-platform transfers at Kenosha and Waukegan, making connections from KRM DMUs to Metra trains, and vice versa, as quick and easy as possible.

3. Passenger Stations

For the KRM Corridor Commuter Rail alternatives, nine stations are proposed (from south to north):⁴⁸

- Kenosha Metra Station (existing station)
- Somers (to be constructed, 200-spot parking lot, bus transfer facility, kiss-and-ride)
- Racine Transit Center (existing station, proposed 110-space parking and kiss-and-ride)
- Caledonia (to be constructed, 100-spot parking lot, bus transfer facility, kiss-and-ride)
- Oak Creek (to be constructed, two alternative locations, both with 100-spot parking lot, bus parking, and kiss-and-ride)
- Cudahy/St. Francis (to be constructed, 104-spot parking lot, bus stops, and kiss-and-ride)
- South Side Milwaukee (to be constructed, 147-spot parking lot [plan is unclear, it is possible that there are two 147-spot parking lots], bus stops, and kiss-and-ride)
- South Side Milwaukee/South Bay Street (to be constructed, 100-spot parking lot, bus stops, and park-and-ride)
- Downtown Milwaukee (existing station, upgrade plans, including unspecified parking)

4. Capital Upgrades

In order to operate the proposed service safely at the desired speed and times, there are a number of requirements for improvements of the existing facilities:

- Buying the vehicles;
- Building an operations and maintenance facility, as well as an administrative facility;
- Design and construction of several new passenger stations and related facilities, such as bus transfer facilities and parking lots;
- Addition of passing sidings to allow simultaneous operation of train in opposite direction on the existing single rail track;
- Upgrading the track itself, including, for much of the alignment, replacing joined rail with continuously welded track, as well as changes to the alignment and elevation;
- Significant upgrades of signals, interlockings, and supervisory control and data acquisition (SCADA) systems;
- Ticketing/fare collection equipment; and
- Significant upgrades of at-grade crossings, which evidently does not currently include changing to grade separation.

5. Costs

The capital budget by line item (in year-of-expenditure dollars, with the overwhelming majority of the work performed during 2011 and 2012) is as follows:⁴⁹

Guideway & Track Elements	\$ 62,841,757
Stations, Stops, Terminals, Intermodal	15,270,607
Support Facilities: Yards, Shops, Administrative Buildings	9,342,302
Sitework and Special Conditions	11,932,663
Systems	52,059,059
Right-of-Way, Land, Existing Improvements	5,349,785
Vehicles	49,039,747
Professional Services	30,259,734
Unallocated Contingency	11,939,858
Finance Charges	<u>1,724,797</u>
Project Total	<u>\$249,760,309</u>

The contingency factor in the above is 17.5% of the construction charges.⁵⁰ The size of this contingency is of some concern for several reasons:

1. This is still a fairly early stage of the planning and design process and there are many unknown factors that can become important prior to the completion of construction.
2. Cost elements other than construction are subject to increase.
3. Recent years have seen very rapid and significant increases in construction costs and, while recent national economic events have had a massive short-term impact on the construction

industry, there is no consensus what the impacts may be two or three years out, when KRM construction would be underway, particularly if there is a massive Federal program for public sector infrastructure improvements as part of an economic recovery package.

The *Financial Plan* responds to concerns about cost increases by observing that SWRTA would have significant unused debt capacity, which appears to be a reasonable response if the overruns are within limits.

Unfortunately, significant cost overruns on rail projects are hardly rare. For example, the Denver Regional Transportation District is attempting to determine how it will deal with what is currently projected as another shortfall of at least \$2.3 billion on its FasTracks,⁵¹ with total overruns now totaling 79% more than the \$4.7 billion total cost that was promised to the voters when the local sales tax increase for it was approved in 2004.⁵²

The FasTracks result is in no way unique. Don Pickrell, of the U.S. DOT Transportation System Center in Boston, wrote the classic work on cost overruns—every project studied had major overruns—and ridership shortfalls in federally funded rail transit programs of the 1980s.⁵³ On an international level, Bent Flyvbjerg has extensively documented consistent overestimation of ridership and underestimation of costs in rail transit projects.⁵⁴ There are simply no guarantees that the final costs of the project will be even close to those that were developed at an early stage of the planning process.

The KRM capital financial plan includes the usage of \$3 million per year for six years, or \$18 million, of Congestion Mitigation and Air Quality (CMAQ) funds for the initial capital costs.⁵⁵ While it is certainly possible to use these funds for this purpose, CMAQ grants are formula funds, allocated to each region by automatic action of the federal transportation funding allocation process, and can be used for any of a very wide range of projects that are determined by the regional decision-making process. Therefore, these are *not* new funds that are obtained for the sole purpose of commuter rail and would not exist otherwise, but funds that are coming to the area in any case for the locals to determine how to spend. This will mean that \$3 million a year that had been spent on a series of on-going transportation projects will not be available for at least that six-year period.

The *AA/EIS* operating cost projection methodology is complex⁵⁶ and, because of the difficulties of attempting to perform detailed cost analyses of a proposed system currently in a preliminary phase of design, we decided to do a reasonableness test by comparing the calculated costs per vehicle revenue hour for KRM service to that for the U.S. commuter rail industry average, both for 2006.

For KRM, the average annual operating cost per revenue vehicle hour was \$608,⁵⁷ 48% above the national average of \$411.⁵⁸ It appears that much of the difference is due to different definitions of vehicle revenue hours; because of differences in how the data are used, the definitions are not consistent and cannot be reconciled.⁵⁹ It appears that the adjustment would be fairly significant, perhaps enough to increase the KRM vehicle revenue hours by 10% to 20%, but the resulting cost

per vehicle revenue hour will still be significantly higher than either the national average or the Metra statistic. One possible reason is that, as a fairly small operation, the KRM corridor commuter rail operation would have fewer units of output, or vehicle revenue hours to spread fixed costs over.

Another reasonableness test is to compare boardings per vehicle revenue hour for the proposed commuter rail service to the national commuter rail average. For KRM, using the projected 2035 ridership, the value was 100,⁶⁰ compared with the 2006 national average of 48, and for Metra, 54.⁶¹ Here, we have a significant variance—the KRM projection of 100 boardings/hour is 209% of the national average of 48 and 185% of Metra’s 54 for 2006. Obviously, the KRM boardings per hour are far higher than the peer values. Making this variance more difficult to reconcile are the characteristics of the proposed vehicles. The DMUs are described as nominal length 90 feet, nominal width nine feet, bi-directional with operator cabs at each end (which reduces passenger capacity slightly), and double-decked;⁶² many commuter rail vehicles, while slightly shorter (85 feet), are considerably wider, and many are double-decked, offering more room for passengers.⁶³

Using data from the same sources, here are the comparative statistics for two other key indicators (national data for 2006, KRM data for 2035):⁶⁴

	<u>National</u>	<u>KRM</u>
Annual Boardings/Station	377,369	209,440
Annual Boardings/Bi-Directional Track Mile	126,551	57,821

The projected KRM 2035 performance is well below the 2006 national commuter rail averages, but this can be partially explained by the lower level of service and shorter trains assumed to be operated.

We also performed a comparison of the average fare per boarding and found the KRM projection to be slightly under the national average and the Metra average. This may be consistent with what appears to be an average KRM trip length that is shorter than the national commuter rail and Metra averages. The 2006 national average commuter rail trip length was 23.5 miles,⁶⁵ Metra’s was 22.7 miles for the same year,⁶⁶ but the KRM average trip length for trips within Wisconsin was 12.3 miles⁶⁷ (data not available for KRM commuter rail service in Illinois, which would likely increase the above value, but probably not hugely).

Getting back to the boardings/hour statistic, the shorter trip length would tend to free up more space for additional boardings through higher turnover of seats for each trip. Also, KRM is intended to provide more bi-directional service than most commuter rail operators, and trains originating at Kenosha or Waukegan would tend to be somewhat fuller than might be expected for most suburban terminus stations because of the Metra transfer factor.

However, even after taking all of these factors into consideration, the KRM boardings per hour still appears high. If it is, this could mean one (or both) of two very different things:

- The projected ridership is overstated.

- The scheduled service to be operated will not sufficient to handle the passenger loads, particularly during peak periods. Since a key factor in the operating plan is the coordination of KRM service with Metra connections, operating additional trains would appear contra-indicated, which could mean that longer trains—requiring more cars, as well as longer stations, and perhaps more parking and transit connections—could be required than are now planned.

6. Funding Sources

The proposed sources of funding for the initial capital expenditures are:⁶⁸

Federal Section 5309 New Starts:	\$124,880,154	50%
CMAQ	18,000,000	7%
State Commuter Rail Development Program	53,440,077	21%
RTA Bonds	22,981,027	9%
RTA Direct Investment	<u>30,459,050</u>	<u>12%</u>
Totals (*figures have been rounded)	<u>\$249,760,310</u>	<u>100%</u>

Federal 49 USC 5307 Formula funds are shown as operating funding in the *Financial Plan*.⁶⁹ While it is true that these monies can be used for operating subsidies,⁷⁰ this funding source is also intended by the federal government for capital renewal and replacement of existing assets, such as replacement of rail cars when they reach the ends of their useful lives, rail right-of-way work, etc. In fact, one of the largest challenges facing the region is that for the past several years, MCTS has overly relied upon 49 USC 5307 funds to cover operating expenses and has now almost completely drawn down the reserve of such funding it had prudently built up while, at the same time, it is facing the need to replace many of its buses.⁷¹ This pattern should not be repeated.

While these prospective annual grant funding amounts might appear quite large at first consideration, fixed guideway transit systems have many required expenditures. For example, the dozen DMUs assumed for initial commuter rail operations have an original cost projected at \$49,039,747 and would have to be replaced in 25 to 30 years,⁷² and this is only one of the many on-going capital renewal and replacement costs for rail operations that this federal program was designed to assist in funding.

We were unable to find any specific identification of capital renewal and replacement costs in the *EIS Financial Plan*. The biggest on-going requirement is for the track; however, as the owners of the track are freight railroads, we assume that they will be responsible for such work and the costs of such will be included in the annual charges to the commuter rail operation for use of the tracks. The largest stations are owned by others, such as WsDOT owning the Milwaukee Amtrak Depot. Again, we assume that the capital renewal and replacement costs will be expended by the owners and the costs will be reflected in the annual rent expense, an operating cost.

However, several smaller stations will be built anew, which could be owned by the commuter rail operator. There is not yet a decision on the maintenance and operating yard for the DMUs, which, again, could be expected to be owned by the commuter rail operator, plus the DMUs themselves, as well as various miscellaneous assets, such as personal computers; trucks and cars used for operations, maintenance, and administrative purposes; tools and equipment; office furniture; and the like—all of which eventually wear out and need major overhaul and replacement.

While the availability of this funding source—much of the amount due to operating commuter rail transit service—is a most valuable resource for the region, it must be used wisely. Proposing to use all such funding generated for operating assistance raises the question of how long-term capital renewal needs will be funded.

7. Cost-Effectiveness

Finally, we calculate a statistic, Cost Per New Passenger, that is useful in evaluating the cost-effectiveness of this proposal. Cost per new passenger used to be the FTA criterion for use in scoring proposed New Starts projects for cost-effectiveness. It has been replaced in this regard by Cost Per User Benefit, which is basically travel time saved. While the *EIS Ridership Forecasting Report* does present travel time savings data, we will instead report on cost per new passenger because of some technical questions involving the travel time data and because the cost per new rider metric has been in use far longer, has more prior projects to compare to, and has proven easier for non-experts to understand.

The underlying logic in computing cost per new passenger is that both the capital and operating costs of a public agency providing transit service are converted into annualized costs and then compared to the increase in transit trips in the planning year, generally two decades into the future.

The process starts with the capital costs of construction and acquisition of the initial capital assets, which are then annualized by applying a factor incorporating the public sector cost of capital, currently set by the U.S. Office of Management and Budget (OMB) at 7%, over the useful life of each asset class.

To simplify the process somewhat, we used a 30-year life for all assets, which is a reasonable approximation of the more detailed process. The math to produce this factor is the same as to calculate the payments on a 7% mortgage for 30 years. To the annualized capital costs, we then add the annual operating costs to produce total annualized costs and divide that by the number of new passengers. For our current purposes, we used the difference between the KRM commuter rail and Transportation Systems Management (TSM) ridership in the out year to produce the cost per new passenger of the commuter rail proposal over the TSM alternative.⁷³ Note that the calculation is for the commuter rail alternative, which includes changes to bus service, costs and riders, and so all the data points following include applicable data for bus mode changes.

Total Initial Capital Cost	\$249,760,309 ⁷⁴
Times: 30-Year Useful Life Cost Annualization Factor	<u>.0806⁷⁵</u>
Annualized Capital Cost	20,138,680
Add: Annual Operating Cost	<u>14,300,000⁷⁶</u>
Total Annualized Costs	<u>34,400,000</u>
Annual New Passengers (Commuter Rail over TSM):	
Daily Commuter Rail Passengers, 2035	7,392 ⁷⁷
Less: Daily TSM Passengers, 2035	<u>2,575</u>
Daily Added Commuter Rail Passengers	4,817
Times: Days Operated per Year	<u>255</u>
Annual New Passengers (Commuter Rail over TSM)	<u>1,228,335</u>
Cost per New Passenger	<u>\$ 28.01</u>

By contrast, the average fare per boarding at the start of service in 2014 is projected at \$2.92⁷⁸.

Another way of looking at this statistic is that the cost to add a new transit rider for a year, over that of the TSM alternative, for a round trip every one of those 255 working weekdays, is \$14,285 (i.e., \$28.01 x 2 boardings/day x 255 days/year).

By comparison, in 2007, the total cost per passenger for MCTS was \$3.08—for far shorter trips, to be sure, but ones that are very important to the riders. Cost disparities of this type raise a very legitimate question of allocation of resources if there are proposed funds that could be used either to improve the floundering MCTS or to build and operate KRM commuter rail.

B. Bus Rapid Transit Alternative

The *EIS—Definition of Alternatives*, September 2006, pp. 45-61, discusses four BRT options tracing back to the 1991 *Transit Technology* report:

- Mixed traffic on freeways;
- Reserved lanes on freeways;
- Exclusive busways; and
- Reserved lanes on surface arterial streets.

Because I-794/State Highway 794 is the only freeway in this corridor, and there was no reasonable likelihood of this situation changing in the foreseeable future, the first two options were accepted, but only for the approximately six miles available on these roads. For the rest of the approximately 34 miles to Kenosha, the last two were the only options considered, generally following State Highways 31 and 32.

The *KRM AA/DEIS – Capital and Operating & Maintenance Cost Estimates*, January 2007, pp. 29, discusses the events that led to the decision of the KRM Steering Committee to drop their BRT alternative from further consideration at its April 2006 meeting and accept commuter rail as the Locally Preferred Alternative (LPA).

For purposes of comparison, we present data for the BRT “Reserved Lane Option”— a variation on the fourth option above, where buses would operate primarily in traffic lanes with no other users, but with at-grade crossings. The speed of the BRT buses would frequently be 10-15 mph over the posted speed limit for the roads the BRT alignment would share.

The reasoning behind these Steering Committee decisions is easy to understand. Building a full freeway through this corridor had been long since abandoned, with no significant movement to reopen this decision. Building a dedicated, grade-separated BRT alignment would have required much of the cost of the full freeway for far less usable capacity—but generated almost all of the adverse land-use impacts on adjacent residents.

By using an at-grade alignment with many stop lights, this approach incurred a nine-minute (17%) travel time disadvantage compared to commuter rail, Kenosha to Milwaukee (62 minutes to 53⁷⁹), while commuter rail capital costs were \$17.3 million (9%) lower, \$168.8 million versus \$186.1 million.⁸⁰

Because BRT had far more stops for boarding/deboarding, it did better than commuter rail for access to jobs. Using the *AA/EIS* criterion of jobs within one-half mile of boarding location— basically, walking distance—for 2035, BRT had over three times the boardings of commuter rail, 104,472 to 31,793. But using a criterion of jobs-accessible boarding locations, which included park-and-ride, kiss-and-ride, transit, etc., there was only an 11% difference, 386,401 to 348,681.⁸¹

This form of BRT did far worse than commuter rail in some types of impact:⁸²

- Cross-street impacts (thru intersections closed off, right turn in/right turn out only)—95 for BRT, none for commuter rail;
- Site access impacts (same as above)—625 for BRT, none for commuter rail;
- Loss of parking spaces—250 for BRT, none for commuter rail; and
- Land acquisitions requirements—49 for BRT, 18 for commuter rail.

One key element where commuter rail had a very large advantage was “Public Acceptance,” measured by favorable comment; on the 1 to 5 scale, with 5 best, BRT was rated “1,” commuter rail, “5.”⁸³

C. Transportation Systems Management

Transportation System Management (TSM) is a required alternative to be evaluated for projects proposed for New Starts funding. It is basically the low capital cost alternative, the “best that can be done” without the build alternative(s).⁸⁴

In the *EIS*, the TSM alternative is primarily improved bus service—which is the norm for this type of analysis.⁸⁵

- Expansion of the existing Kenosha-Racine-Milwaukee route operated by Wisconsin Coach Lines;
- Expansion of the existing MCTS Route 48 South Shore Flyer service; and
- An added Metra reverse commute train from Kenosha in each peak period.

The results are low-cost but also relatively low-impact, in terms of the quantities of benefits, compared to the other alternatives. TSM simply did not provide the degree of improved transit benefits that the Steering Committee believed necessary in this corridor.

Part 4

Other KRM Corridor Alternatives

In this section we explore several alternatives not considered by SWRTA in its alternatives analysis.

A. I-94 Commuter Express Bus

1. Service Description

In most long-haul transit corridors where commuter rail is being considered, the most logical transit alternative is usually long-haul commuter express bus service, particularly if there is or could be a high-occupancy vehicle (HOV) or high-occupancy toll (HOT) lane available for the long-haul buses to use.

This was not part of the range of options studied in the *EIS*. The main reason, as discussed above, is that there is no long-distance freeway near the Lake Michigan shoreline where most of the residents⁸⁶ and many of the existing major trip generators are. In addition, as discussed below, consideration of HOV and HOT lanes in these three counties, particularly along I-94, have not led to construction or even serious planning of such lanes.

However, long-haul commuter express bus service could still make sense in this corridor, either as a substitute for or as a supplement to the commuter rail and guideway transit studied along the Lake Michigan shoreline.

The major question here, one we are unable to resolve from the data we have examined, is the demand for such service: how much is there, and is it sufficient to justify study for potential implementation? We believe that it is worth investigating to see if such demand exists, or may exist. If it does, then further investigation of such service may be in order; if it is not, then this avenue of investigation should be terminated.

There are a number of possibilities for such service, such as the following example. WsDOT has constructed and maintains the Sylvania Park and Ride Lot (51-30)⁸⁷ at the southeastern corner of the intersection of I-94 and Durant Road/State Highway 11 in Racine County, approximately three

miles west of the center of Sturevant. The lot is asphalt surfaced, in good condition, rated at 60 vehicle capacity and is well lighted. It is in a relatively isolated area with few other structures within view. From our drive-by, windshield survey, it appears to have room for expansion, but we have not researched land ownership, zoning and intended land usage, drainage and other related aspects.

This lot is approximately 25 miles from the Milwaukee CBD via I-94/I-794 and approximately 39 miles from downtown Waukesha via I-94/I-43/I-894/I-94 and surface streets. Our rough estimate is that the direct-to-destination bus travel time from the Sylvania lot to the Milwaukee CBD would be approximately 30 minutes, and to downtown Waukesha (chosen as a proxy for home-to-work trip destinations in Waukesha county) approximately 50 minutes in free-flow traffic, and longer, of course, during peak periods. If there were additional stops along the way, for example, WsDOT Lot 40-30 at I-94 and Ryan Road in Southern Milwaukee County, the trip times would be approximately three to five minutes longer for each added stop. The return trips would be approximately three to eight minutes longer per stop, because these two particular lots are on the northbound (Eastern) side of I-94, making access for southbound trips more difficult.

There is no current BUS transit service to Lot 51-30. The closest route is BUS Route 7, which serves Durand Avenue to within approximately four miles of Lot 51-30 with service every half-hour during AM and PM peaks and hourly otherwise, until just after midnight.⁸⁸ The current scheduled run time on this line from the Racine Transit Center in the CBD to the current westernmost point of the route is approximately 30 minutes; extending it to Lot 51-30 would likely add approximately five to eight minutes to the run time, but this extension would lengthen the trip running time to the extent that an additional bus and operators would have to be added. It may also be desirable to add one or more trips earlier in the morning for those wishing to catch an early bus to Milwaukee or Waukesha. Adding such service while preserving trip times that existing riders have gotten used to and preserving the timed transfer operation of bus routes to the Racine Transit System (where buses from all the routes converge at the same location and remain for a few minutes while passenger make connections to other routes) would be an interesting technical scheduling and run-cutting exercise, but certainly within the ability of the transit agencies to do, if the funding were available.

For a traveler beginning at the Racine transit center, or near the CBD, this service would clearly not be time-competitive with either the commuter rail or BRT running times to the Milwaukee CBD. The station-to-station commuter rail running time, Racine to Milwaukee Amtrak Depot, would be 39 minutes.⁸⁹ Best case, the bus trip south and then west to catch a bus at Lot 51-30 and then on to the Milwaukee CBD would be approximately one hour and 15 minutes.

However, the farther west one's travel origin point, generally the residence in the morning, the more competitive that the I-94 bus alternative becomes. Also, because this example was selected to take advantage of an existing park-and-ride lot and because that park-and-ride lot is south of the Racine CBD, the I-94 bus is traveling a longer distance than the train. By examination of the Route 7 schedule, it appears that, assuming bus access to both commuter rail and the Lot 51-30 bus

stop, by the time one reaches South Memorial Drive, the times begin to be competitive; farther west at Lathrop Avenue, the transit vehicle travel time advantage is tilting to the bus.

For a traveler with a destination in Waukesha, the travel time comparison becomes moot because the commuter rail alternative will not serve this destination.

Of course, for those living or having destinations west of I-94, express bus service on I-94 would be more useful than the commuter rail and BRT options studied in the *EIS*.

If the freeway express bus were to serve as its own feeder bus by operating east-west on Durant Avenue before entering I-94, the travel time advantage would shift more in favor of bus, that is, more potential transit users closer to the Racine CBD would find the bus schedule superior. If the I-94 bus were to also serve as a distributor bus in downtown Milwaukee, or with the I-94 transfer facility discussed below, there would be additional time advantage to the use of bus. In both cases, the number of transfers would be reduced, another advantage in attracting passengers.

In many ways, Lot 51-30 is almost perfectly located and constructed for a commuter express bus park-and-ride lot (assuming, of course, that there is demand for service from this area). It's very close to the interchange of I-94 and the perpendicular major access road, close to the on- and off-ramps, and it is on the in-bound side of the road. For in-bound trips to Milwaukee or Waukesha in the morning, by being on the right-hand of the road, the bus does not have to take the time to cross I-94 in leaving or entering the freeway. Of course, for the evening return trip, there would be a time loss for such movement, but the added time for this is generally more acceptable to riders for the work-to-home trip than for the home-to-work trip.

While passengers at transit park-and-ride lots would rather have amenities than not, this lot is entirely satisfactory for such a purpose. For example, while weather protection for those waiting for buses is desirable for walk access and kiss-and-ride patrons, park-and-ride patrons can simply remain in their cars until the bus approaches.

There are no other existing park-and-ride lots directly along I-94 in Kenosha and Racine Counties, but, in our windshield survey of I-94 from the Illinois State line to Milwaukee, we found potential sites for park-and-ride lots at virtually every major freeway on/off-ramp location. However, we have no knowledge of land ownership and many other factors that would be very important to any such projects.

There are also some potential interim park-and-ride lots where an arrangement could be negotiated with the owner within relatively short distances of I-94 interchanges, such as churches with large parking lots that may not be used extensively on weekdays. There is also the possibility of using the Wisconsin Welcome Center—Kenosha, on I-94 just north of the state line, as an interim park-and-ride lot, as it does have a fairly good-sized parking lot, but most of the users of this facility would likely be Illinois residents.

As a general rule, the I-94 commuter express bus alternative would appear to be more advantageous for Kenosha County than Racine County residents (which is not to say that it would not work in Racine, only that it could work better in Kenosha) because:

- As discussed above, Kenosha County residents have longer home-to-work travel patterns, so the demand for such service is likely to be somewhat higher per capita.
- The curves of the Lake Michigan shoreline make the city of Kenosha closer to I-94 than the city of Racine.
- The development of Kenosha County tends to be greater closer to I-94 than does Racine County.
- The trips to destinations in Milwaukee or Waukesha are farther north from Kenosha than from Racine, there is greater opportunity to overcome the east-west access time penalty.

2. Cost-Effectiveness

Although the in-vehicle travel time question is an important aspect of mode choice decisions, particularly for home-to-work trips, there are many other factors that must be considered in making a commuter rail vs. commuter express bus analysis. A very major one is cost, particularly the public sector cost. The more it costs the taxpayers to move one transit passenger, the fewer will be moved, both because the money doesn't go as far and because the willingness of the taxpayer to subsidize transit decreases as the cost per passenger increases.

Therefore, the most significant reason to consider such service is the relative cost, particularly in terms of public sector subsidy, between commuter rail and long haul commuter express service. One of the best examples of commuter bus service exists in New Jersey. The following is 2006 National Transit Database data⁹⁰ for the commuter rail service provided by the New Jersey Transit Corporation (NJ Transit), with performance generally at or above commuter rail industry norms, compared to the service operated by several private, for-profit bus companies that have contracted with NJ Transit for long-haul freeway-express type bus service for many years. In both cases, this transit service is operated primarily from the New Jersey suburbs to Manhattan in the morning and the reverse in the evening, although there is also significant service to New Jersey employment and other trip generators near the Hudson River. The "Reported Data" at the top of the schedule is taken directly from the NTD Profiles "Calculated Metrics" below are standard transit industry performance measures calculated from the Reported Data.

Table 3: NJ Transit Commuter Rail and Express Bus Data, 2006		
Reported Data	Commuter Rail	Long-Haul Express Bus
Operating Expenses	\$685,214,833	\$151,562,901
Fare Revenues	\$351,614,444	\$135,388,351
Annual Passenger Miles	2,128,606,042	746,301,020
Annual Vehicle Revenue Miles	59,005,104	33,455,633
Annual Unlinked Trips	75,394,695	20,167,860
Annual Vehicle Revenue Hours	1,990,994	1,315,791
Calculated Metrics		
Farebox Recovery Ratio	51.3%	89.3%
Cost/Passenger	\$9.09	\$7.52
Revenue/Passenger	\$4.66	\$6.71
Subsidy/Passenger	\$4.42	\$0.80
Cost/Passenger-Mile	\$0.322	\$0.203
Revenue/Passenger-Mile	\$0.165	\$0.181
Subsidy/Passenger-Mile	\$0.157	\$0.022
Average Trip Length	28.2	37.0
Average Operating Speed	29.6	25.4

Comparing commuter rail average trip length and average operating speed to those of express bus, commuter rail is 17% faster, but express bus has a 31% longer average trip length. These differences are due, in part, to the different areas of New Jersey that are served by commuter rail and by motor bus, but also due to the buses used for long-haul freeway service also being their own feeder service, going through neighborhoods and picking up passengers near their homes and at park-and-ride locations prior to entering freeways. These lead to an overall conclusion that trips taken on these two types of transit are very similar.

Turning now to the cost, revenue and subsidy metrics, express bus is superior in all indicators, with lower costs and higher revenues, which lead to far lower taxpayer subsidy levels; indeed, the taxpayer subsidy per passenger for express bus is only 18% that of commuter rail, and per passenger-mile, 14% of that of commuter rail. Conversely, the taxpayer subsidy per commuter rail passenger is five-and-one-half times that for each bus passenger and the commuter rail subsidy per passenger-mile is over seven times that of bus. While taxpayers cover 48.7% of commuter rail operating costs, they are only picking up 10.7% of those of express bus.

Actually, express bus performs even better than these statistics make it appear. The “operating” costs shown for the private bus contractors actually include part of their capital costs, plus the property taxes and income taxes that they pay.

Finally, the capital requirements for commuter rail are far more than for bus. From 1996 through 2006, NJ Transit’s commuter rail capital expenditures were \$4.181 billion. One year’s worth of this would pay for the entire commuter bus fleet, which has a useful life of at least 12 years. Even keeping in mind that NJ Transit commuter rail ridership and passenger miles are approximately 274% and 185% higher than those of express bus, respectively, the capital costs per passenger and per passenger-mile are also significant lower for express bus, compared to commuter rail.

The main lesson to be learned from the New Jersey experience is that both commuter rail and long-haul commuter express bus are working well in New Jersey and both have characteristics and properties that could be applied, with great differences in scale, to the KRM Corridor. The differences should be considered to see which, or both, are best applicable in Wisconsin.

Two other important considerations in comparing these two modes of transit are scalability and risk. Commuter rail is, to a very high degree, an all-or-nothing option; unless a very significant investment is made up front before there is any real-world indication of what results can be achieved, it simply cannot be done. In this particular case, at least \$250 million must be invested before commuter rail service can even begin.

Long-haul commuter express bus service could, on the other hand, literally be implemented one bus at a time. This would probably be carrying scalability to beyond its reasonable range, but it would certainly be possible to implement one bus line at a time and then expand service or not as the results of the first implementations become known.

Moreover, the proposed commuter rail investments are permanent. These are long-term (up to several decades of useful life) investments that must be made up front and, if not successful, there is very little opportunity for getting any money back from these investments. Although some of the elements of a long-haul commuter express bus system would be of a permanent nature, such as buying land and constructing park-and-ride facilities, these can often be delayed until after the service is begun and there is performance data to evaluate—and the size of such investment is one to two orders of magnitude smaller.

B. BRT Lite

Bus Rapid Transit is not a well-defined term and has come to mean a lot of different things to different people. For our current purposes, we will use a definition of BRT that is broad and encompasses all types of bus service improvements that raise speed of travel, which may or may not include dedicated or semi-dedicated bus guideways. By “BRT Lite”, we are referring one subset of this broad category: buses operating on city streets *without* such special guideways.⁹¹

The Los Angeles County Metropolitan Transportation Authority has been a leader in such efforts, calling such lines “Metro Rapid” or “Rapid Bus.” By the use of low-cost tools, such as limited-stop bus service (commonly, one stop per mile at major trip generators, transfer points to other major bus lines, and/or rail stations), traffic signal preference, and marketing/branding efforts, bus speeds have increased from 15% to 40% on over two dozen routes and ridership has increased as much as 40% for capital costs under \$500,000 per bi-directional mile.⁹²

Besides low cost, this also has the advantage of relatively fast implementation. It is realistic to have the first new Rapid Bus line in operation within a year of the start decision. One great advantage is

having no environmental clearance requirements, not even the faster versions of NEPA clearance. Generally, the limiting factors are the time required to order and receive new buses and hire and train additional staff (if this is part of a service expansion policy, as the increase in speed generally leads to increases in ridership), and to coordinate traffic signal preference with the local city/county jurisdictions. While not an absolute requirement, such traffic signal work can provide up to one-third of the speed improvements of a total package.

The city of Los Angeles system allows a Rapid Bus to either trigger a faster green signal or delay a green for up to 10% of the total cycle time by borrowing time from the signals in the perpendicular direction (for example, if the cycle time from the light turning green for north-south traffic to the next time it turns green for north-south is 90 seconds, the bus can borrow up to nine seconds). The L.A. system utilizes advance loop detectors in the pavement where the buses approach, triggered by transponders on the buses. The time borrowed is then repaid over the next two signal cycles. Until the first loan of signal cycle time is repaid, other buses on the street cannot initiate another loan.

While much of the attention has been paid to the ability of Rapid Buses to borrow green signal time, it appears that at least as much of the speed improvement has been due to LA-DOT's traffic engineers fine-tuning the signal progressions to give priority to getting buses through a long line of signalized intersections. At first, there was some reluctance to implement this, but the after-action reports have shown that total vehicle capacity—bus, auto, and truck—has actually *increased* slightly, with some of the improvement being due to auto drivers who become aware of how the system works and changing their travel speeds to match that of the Metro Rapid buses to time the lights.

One word of caution: for optimal success, it is necessary to have both a modern traffic signal control system and a well-staffed traffic engineering department that knows what to do with it and is willing to work cooperatively with the transit operator. From our interviews with WsDOT, Milwaukee County, and city of Milwaukee transportation professionals and our observations of the transportation systems in place in the I-94 corridor, we believe that the required degree of professionalism will be there if the funding is.

MCTS, in connection with the city of Milwaukee, is actively pursuing BRT Lite solutions. Given the relative size of the various communities in the Southeastern Wisconsin area, Milwaukee, particularly the core CBD area and major arterials leading to it, plus major cross-town arterials, are where the greatest benefit is likely to occur. These types of low-cost, brains-instead-of-dollars, improvements can be used in many applications in many medium- to large-sized urban areas.

C. Carpool and Vanpool

Carpooling in the United States has become one of those things that everyone agrees that others should do a lot more of. There is an indisputable logic to making better use of all those empty

seats in all those cars that overcrowd the streets and roads in front of us as we are trying to get around. But, of course, for most people, “it just doesn’t work for me.”

For 2006, the national mode split for carpool work trips was 10.7%,⁹³ slightly above Milwaukee County’s 9.8%.⁹⁴ However, while these values appear large (compared, for example, to the national 4.8% for transit), it is important to understand that these are not your grandfather’s carpools of World War II renown, where friends, neighbors, co-workers and total strangers traveled together to save gas and to cope with gasoline rationing. Today’s carpooling is mostly what many transportation professionals refer to as fampools: persons who reside in the same household who do their home-to-work commutes together in cars, pick-up trucks and mini-vans.⁹⁵

In 2001, fampools accounted for 83% of journey-to-work carpools, up from 76% in 1990.⁹⁶ Despite massive efforts of governments at all levels to encourage carpooling, the public—that’s us—is just not very interested, particularly if *non-fampool* carpooling is the objective.

Besides the establishment of carpooling coordination bodies and sponsoring non-governmental organizations that promote carpooling, perhaps the most significant public sector carpool action has been the construction of HOV lanes; there are over 2,000 lane-miles worth in the U.S.⁹⁷ However, there are more and more signs that some governments are moving away from the promotion of carpools, including the conversion of HOV lanes to HOT lanes,⁹⁸ but neither HOV nor HOT appears to have gained much traction in Wisconsin. We recommend that state and local governments continue their current level of support for carpooling, but we suggest that carpooling, as opposed to HOT lanes and congestion pricing, will not provide significant results for the Southeastern Wisconsin area in the foreseeable future.

Vanpools are another unglamorous, but potentially very cost-effective and productive, means of providing transportation options. It is important to first differentiate carpooling and vanpooling. While there are many obvious similarities, there are also significant differences. For the most part, in the U.S. carpooling is entirely voluntary and up to the participants. The role of governments is generally limited to encouragement, offering voluntary carpool-matching service and building HOV lanes. The role of employers can be more significant, such as offering free or reduced-cost carpool parking or other incentives, such as extra days off. As we have seen, however, these have not been successful in halting the on-going decline of carpooling, particularly non-fampool carpooling.

Although there are private, employer-sponsored vanpooling programs, our focus here is in a low-public-sector-cost version (compared to traditional transit modes) that is highly targeted to those potential users who generally reside in areas and have home-to-work trips where conventional transit is often not very viable. The general methodology is for a public sector body to provide the vehicles to any eligible collection of individuals, or an employer or other organization that will guarantee a specified minimum number of users. Generally, most or all of the operating costs are paid by the users, although there are a large number of variations on this theme.

As mentioned previously, MCTS currently has a small (27 vans), but very low-cost, vanpool program, with passenger fares covering 100% of operating expenses.⁹⁹ In the Chicago area, Pace coordinates a fleet of 740 vans that provide transportation for approximately 3,400 commuters every day.¹⁰⁰ The King County Department of Transportation, the transit operator for Seattle, has a fleet of 1,273 vans that provide transportation for 3,900 commuters.¹⁰¹ Pace's vanpool operation has a 61% farebox recovery ratio, with taxpayer subsidies per passenger trip of \$1.21. KC-DOT's operating expenses are 82% covered, with the public sector subsidy per trip being \$.71, both significantly lower than MCTS's subsidy per passenger of \$1.74. For both Pace and KC-DOT, the additional federal 49 USC 4907 Formula funds generated by the operations of the vanpools more than cover the operating subsidy and provide a significant portion of the costs of the vanpool vehicles.

Establishment and expansion of a vanpool program is, to a large extent, a matter of a public body making a decision to do it, investing a relatively small amount of public funding, and engaging in an outreach, education, training and technical assistance program for other governmental organizations, employers of all sizes and types, faith-based organizations and others.

While vanpools will rarely capture a major share of the home-to-work trips, they will often provide among the greatest return on investment on taxpayer dollars that is available to governmental transportation decision-makers and staffs.

D. No Project (Retain *Status Quo*)

One thing that should always be remembered in transportation capital planning is that there is no necessity to "do something." Retaining the status quo, waiting for better options, taking care of other, more pressing regional or local needs first *are* possibilities. The decision should not be made on the basis of, "which option should we do," at least not until another question "are any of these worth doing?" is properly addressed and the answer makes sense.

Part 5

Other Issues

A. Access to Stops and/or Stations

One of the biggest problems that transit agencies face in attracting passengers is “the last mile”: how to get passengers from their residences and other trip origins to a transit stop or station and then from the trip terminus to their ultimate destination. This, in turn, brings up the two different types of access and the tools to deal with them, that of feeder service—from the residence to the transit system/system component in the morning and the reverse in the evening—and the distributor service—from the bus/train/ferry/etc. to the job, to school, to shopping, etc. to complete the trip.

To illustrate the importance of the distribution system to job access, of the 23 Racine County private sector employers with 250 or more employees in 2006, it appears that no more than two or three are located within a mile walk of the train station.¹⁰²

Without good, or at least acceptable, feeder and distributor options, transit is simply not preferable, or even viable in many cases, for most travelers. In this study, we are discussing a high-speed, long-distance type of transit trip, where the requirement for speed necessitates a very limited number of stations. This, in turn, leads to consideration of multi-leg transit trips, such as walking to a bus stop in a residential area of Kenosha County to catch a ride to a long-haul BRT line that will do local service through the Milwaukee CBD at the end of its route, or driving to a park-and-ride lot in Racine to catch a commuter rail trip to the Milwaukee CBD passenger rail station, followed by a local bus or streetcar ride to within walking distance of the destination.

Normally, with commuter rail or with other high-speed transit modes, there is a dominant direction of travel, in-bound to the core city CBD in the morning and outbound in the evening. The contra-commute cost for such modes is often minimal, or performed almost on a, “well, why not?” basis. If there is a necessity to return the first morning in-bound train/vehicle to the suburban terminus for a later morning in-bound trip, it may as well be offering transportation services to anyone who may wish to utilize it. In an in-bound to Milwaukee CBD in the morning design, the feeder service would be at the south end of the corridor, chiefly in the cities of Kenosha and Racine, while the

distributor service would be largely in the city of Milwaukee. However, in the SWRTA planning, there is a very deliberate intention to bring travelers from all along the line to work and other destinations in Kenosha and Racine Counties.

Feeder and distributor services are different in important ways, and therefore there are certain obstacles in combining these two types of services into the same routes. Because feeder services are residence-to-long-haul transit mode, and distributor services are long-haul transit mode-to-trip-end, the routes for each will likely not coincide, particularly where the work trip ends are in decentralized, low-density employment locations.

Ideally, at both ends, access to transit would be by walking. However, with a common walk distance assumption of one-quarter mile in many transit planning exercises,¹⁰³ this is a limiting factor even in very dense urban environments. In less densely populated urban residential areas, such as most of the KRM core cities, and for most suburban and rural residential areas in the KRM Corridor, this is simply not viable. If there are no good options other than walking to the station, the KRM corridor plans will be going nowhere.

The New Urbanism/Smart Growth movement offers concentration of development around transit centers as a mechanism for maximizing walk access to high-speed transit, and there are examples where this does take place, but currently it is a relatively minor factor and, even assuming great success in such endeavors over a multi-decade period (which would be questionable), it still could not be the sole, or even the major, response to the transit access question.

Besides the other major access variations discussed in unique sections below, we have:

- **Bicycling** – For cycling to work to the maximum possible extent, it is best to first have a community policy on cycling as a real transportation mode, as opposed to a recreational experience (which is generally beyond the scope of this paper; however, it would be deficient to not mention the important safety elements of such a program, including proper equipment, training of both bicycle riders and motorists in the rules of the road and the rights of cyclists to use the road, and enforcement of safety laws). Getting to the specifics of transit station/stop access, there are two main approaches:
 - Allowing bicycles on the transit vehicles. This is the preferred approach for most cyclists, but does require specific assignment of space for any heavily utilized transit vehicle where space for passengers will be limited.
 - Providing bicycle storage at transit stations.
- **Kiss-and-Ride** – This is the classic spouse-driving-spouse to the train/bus/ferry/whatever station, dropping him/her off, and then going about his/her own travel requirements for the day, expanded nowadays to reflect the expansion of household living and travel patterns. These are generally easy to plan when the paper is blank, with the requirements being safe and fast access from arterial streets to a location near the boarding platform and separation

from other travel patterns, particularly pedestrians and transit vehicles, and a drop-off area sufficiently large to accommodate the demand. Kiss-and-ride is inclusive of taxi drop-off/waiting areas.

B. Transit Station/Stop Parking

A very large segment of commuter rail riders start their morning trips by driving to the rail station, particularly those who live in suburbs or the outer areas of core cities, which makes the provision of parking, particularly free parking, a very important consideration. Metrolink, for example, which provides commuter rail service to the six-county greater Los Angeles area, provides approximately 16,500 free parking spaces at 47 of its 55 stations, plus paid parking at almost all of the rest.¹⁰⁴ If one assumes that all Metrolink passengers make a round trip each day, and absolutely no carpooling, this would imply that Metrolink provides free parking spaces equal to approximately two-thirds of the 48,289 record number of riders in July 2008,¹⁰⁵ not including the thousands of pay parking lot slots or free or metered street parking. Metra,¹⁰⁶ which operates its commuter rail system in a somewhat more traditional manner for the industry than does the much-newer Metrolink, has parking at 77 of its 228 stations,¹⁰⁷ generally at \$1.00-\$1.25 per day, with a few free lots and lots with fees as high as \$2.00 per day.

For an example of the importance of parking at commuter rail stations to attracting riders, 60% of current Metra passengers at the Kenosha station drove alone and another 7.2% carpooled.¹⁰⁸

Since there is already commuter rail service at the Kenosha station, we do have one existing example of commuter rail station parking in the KRM Corridor. However, this lot currently has only about 25 slots for paid parking at the station.¹⁰⁹

While free parking is very attractive and common at rural and suburban commuter rail stations, it generally is not advised for such stations in CBDs or many other commercial areas. Consider, for example, what would happen if a good-sized, no-charge parking structure was constructed at the Milwaukee CBD station for the use of Milwaukee residents commuting to jobs or other destinations farther south on a KRM commuter rail system. It would likely soon be filled with the cars of those driving to work in the Milwaukee CBD.

Security of parking facilities, including bicycle parking, is also of great importance. The two most important threats involve protection of persons, particularly the female riders who will be isolated in parking lots in the early morning and late evening hours of darkness, particularly in winter months, and of property, where auto and petty thieves know that there will be a good-sized inventory of cars available for hours, often in a somewhat remote and non-monitored area, that are subject to either auto theft or smash-and-grab of audio equipment or whatever else may be left in the car.

C. Feeder/Distributor Transportation

The other key component of access to a KRM corridor high-speed transit service will be feeder and distributor transit. For commuter rail, this service will be to a great extent focused on the CBD rail stations and fortunately there is already concentration of transit services in these locations, particularly in Kenosha and Racine. In Kenosha, several bus lines and the streetcar line currently serve the Metra Station.¹¹⁰ In the Racine CBD, there is already a near-ideal facility and bus route design at the Metro Racine Transit Center,¹¹¹ which has layover facilities for every BUS route and which incorporates the historic train station.

In bus-train access, proper schedule and facilities planning for bus-to-train and train-to-bus transfers is extremely important. A well-used methodology is to have the train station be a bus timed-transfer facility, where all the bus routes in the area converge at the same time at the same place and remain in place for some minutes. This allows easy and reliable bus-to-bus transfers, as transferring passengers have only a short walk for the connecting bus and they can minimize the hassle and concern of missing their transfer if buses are not on schedule. When a bus transfer center and train station are co-located, the buses generally arrive prior to the train, allowing bus passengers to reach the train boarding platform prior to the train arriving, and leave the station only after the rail passengers deboarding have reached their connecting buses.

At the existing Milwaukee Amtrak Depot, there is currently service from several bus lines with an off-street stopover area. Undoubtedly, additional MCTS bus service would be very useful if KRM commuter rail service were to be initiated and there is discussion of BRT and/or streetcar service to the rail station—all of which would be contingent on the resolution of MCTS's current financial difficulties.

Providing feeder and distributor bus services for a long-haul, commuter express type of BRT service can be very different than for rail service. There are two main differentiating characteristics:

- Bus has the advantage over rail that it does not need a special type of guideway to operate. Buses can operate on the vast majority of highways and city streets without difficulty, or on a dedicated BRT alignment that provides higher and more consistent speeds of travel. This means that not only can buses be utilized on the long-haul high-speed portion of the origin-to-destination transit trip, but for the feeder and distributor service as well, and the same bus that picks up the transit user a block from her home can transition directly to the freeway and then go through city streets at the other end dropping her off in front of her place of employment. Of course, it is rare when travel patterns come together so well to allow long one-transit-vehicle end-to-end trips, but, in general, an all-bus system for such travel can produce a very significant reduction in transfers, which is a major sticking point in attracting new riders to transit.
- Buses are smaller than rail vehicles and, therefore, have less capacity per vehicle. This means, to provide the same capacity in a corridor, there must be more buses than trains

operated, which in turn reduces the headways. More frequent service and shorter average waits for transit vehicles are significant positive factors in attracting more riders to transit. Also, it makes the provision of service into the evening, even very late night service, far easier to perform with bus than with rail, and this can be the difference between someone who gets on or off work at midnight having a viable transit option.

These characteristics lead to a third advantage: that bus service can be extended to serve additional areas as part of the same network relatively easily if there is demand to justify it. For example, a long-haul commuter express bus service originally designed to serve the KRM corridor could also be designed or extended to provide service to the I-94 corridor west into Waukesha County and its rapidly growing employment opportunities.

The key factor in the design of such a bus system is the demand—the higher, the better, and the easier it becomes to design and operate superior transit options for more riders. For example, in considering a high-speed north-south bus route along I-94, one option would be to serve several park-and-ride lots along the way with the same bus. However, if demand was strong enough to fill up a bus at each lot or two, the stops—and the time required to make them—could be significantly reduced, which both makes this type of transit service more attractive to riders and less expensive to operate.

Another option is for an intermediate transfer bus station. Again using the I-94 bus service example, there could be a variety of feeder bus routes that operate northbound in the morning from Kenosha and Racine Counties where the feeder buses make the transition to the freeways, not requiring transfers at that point. Each of these buses would continue along the freeway to near a specific employment or other trip generator farther north, where it would operate on the city streets in distributor service. If the individual rider was lucky enough to have a feeder bus that went directly to her destination, great, but this is not a necessity for this service to be attractive. If there were to be a transfer station, perhaps in the vicinity of Milwaukee County Roads BB or ZZ south of Mitchell Field, riders who had destinations other than that of the bus that served as their feeder could disembark and board another bus that was going to their destinations. Unlike the timed transfer service described above for serving commuter rail stations, if there was a sufficient level of demand, each bus would continue on in productive revenue service without further delay, with only a short wait for our traveler until the next bus to her ultimate destination arrives.

D. I-94 Express Toll Lanes

A 2006 Reason Foundation study, in association with the Wisconsin Policy Research Institute, recommended another option for surface transportation in the Southeastern Wisconsin area: Express Toll Lanes.

This report proposes that on the most congested core portion of the rebuilt freeway system, the inner lane in each direction be configured as a 'FAST Lane,' on which traffic always flows at the freeway speed limit thanks to variable pricing—adjusting tolls to maintain free-flow traffic

conditions. The use of pricing means there will be tolls, but no toll booths. The variable tolls will be charged electronically, via transponder. There is no need for stopping, slowing down, or using coins. Nearly a decade of experience with such priced lanes on two California freeways shows that variable pricing works well to keep such lanes flowing freely, at the speed limit, during highly congested peak periods. The pricing also generates revenue that more than covers the cost of constructing the FAST Lanes.¹¹²

Such proposals and implemented projects have many demonstrated advantages:

- Needed highway capacity can be provided without, or with reduced, taxpayer funding by direct user charges and bonding against the toll revenues.
- This added revenue source allows public sector transportation funds to be leveraged to implement more capacity and other improvements faster than without tolling on components of the freeway network.
- By adding new, pay-for-use, capacity to existing roads, users are given the option to use the existing no-charge road capacity or pay the price for faster and more reliable travel.
- Transit vehicles can use the FAST lane, providing transit riders with a fast and consistent travel time.

If the I-94 upgrade were to be implemented with FAST lanes, there would be very significant potential for upgraded high-speed bus service. The I-94 widening project, adding a lane in each direction between Milwaukee and the Illinois line, is now well along the route to construction,¹¹³ however express toll lanes are not part of the plan and at this point it is doubtful if the plan could be changed.

E. KRM-Specific Concerns:

1. Getting Use of the Alignment with Two Freight Railroads

In order to operate passenger rail service into the Milwaukee Amtrak Depot, agreements must be reached with the two railroads that control the track, the UP (for most of the proposed alignment) and the CP (for the last short segment into the station). Depending upon the site selected for the maintenance and operating yard, additional considerations may need to be negotiated.

This is a matter of negotiations between independent parties that must reach mutually agreeable contractual provisions. Because of the other commitments for these lines, both railroads will protect their own self-interests, as well as their existing obligations to third parties.

The best advice is:

- Understand what you are getting into by having a well-thought out bargaining position with specific objectives, requirements for service and costs, as well as prepared bargaining strategies and ranges of compromise, including prices.
- Do not expect any gifts, as the railroads exist to produce the best return for their shareholders while satisfying their obligations to provide transportation service to their customers.
- Don't be in a hurry; the railroads have known this will be coming for a long time, they have a very good idea of what the commuter rail operating entity will be looking for, and they are known to be very patient to make sure their interests are protected.
- Engage professional negotiators who know the *railroad* industry very well.

2. Coordination of Freight Service on UP Kenosha Sub

At the current time and into the foreseeable future, the most significant freight movements on the UP Kenosha Sub are and will be service to the Oak Creek Power Plant, which is expected to approximately double in generating capacity, and therefore require twice the current coal deliveries, between 2009 and 2011.¹¹⁴ This is both a major required addition to the southeastern Wisconsin infrastructure and a major additional revenue generator for UP, and commuter rail planning must be done on the basis that anything that interferes with this freight service will cause major, perhaps insolvable, problems. However, these problems are very likely solvable with intelligent planning and negotiations.

3. Grade Crossings – Safety Concerns, Interference With Rubber Tire Traffic

One of the most significant problems with proposed commuter rail transit service is at-grade crossings, where a roadway crosses a rail track and there is not vertical physical separation. When this occurs, there are two primary concerns:

- Safety – Train-vs.-rubber tire vehicle and train-vs.-pedestrian collisions are, unfortunately, very common and very often result in fatalities. Commuter rail is the most dangerous form of transit when measured in terms of fatalities per unlinked passenger trip. For 2006, the 85 commuter rail fatalities were 37% of the total of 227 transit fatalities, second only to bus, with 94 fatalities,¹¹⁵ but bus carried 5.3 billion unlinked passenger trips that year, over 15 times commuter rail's 340 million.¹¹⁶
- Traffic interruption – When the trains need the track, they get it, which means that the grade crossings are closed to automobiles, trucks and pedestrians. While traffic interruption is always a concern, the level of service proposed here is relatively low at 14 working weekday trips in each direction,¹¹⁷ thus making this less of concern than, for example, with a light rail

system that might have a train in each direction every five minutes during peak hours. The maximum number of KRM trains at each intersection will be four per hour, or one every fifteen minutes on average.

- From south to north, by our count from the plans, there are 48 at-grade crossings shown as receiving improvements and another five that are shown as not receiving improvements.¹¹⁸

In general, south of the existing Kenosha station, there will be little change, and this area is still double-tracked with a lot of grade separations. The biggest impact will be in Racine, with 18 at-grade crossings in the approximately three-and-one-half miles between Dekoven Avenue and South Street, impacting almost all east-west travel on surface streets.

4. Coordinating Service into Milwaukee Station with Amtrak

Similar to the above, the commuter rail operator will need to coordinate that service into Milwaukee Amtrak Depot with Amtrak's Hiawatha and Empire Builder routes.

Again, this is an important step to be completed, but a technical matter that is regularly performed and should probably not raise any major problems.

5. Coordination of Service and Fares/Fare Media with Metra and Other Transit Operators

Because commuter rail service operates over very long distances for a transit mode and has very few stations, a successful commuter rail operation is very dependent upon good coordination of transit service with bus and other local feeder/distributor modes at both ends of the train trip. This makes coordination of fares with the feeder/distributor systems very important to make the passenger's trip as smooth as possible, and to avoid having the passenger feel that he has to make two or even three different payments or carry two or three different monthly passes or other fare media.

The proposed KRM corridor commuter rail fare structure is based on the Metra zone fare structure, which appears appropriate for the intended riders, many of which will have experience riding Metra. Rather than the conductor-validation fare inspection and collection methodology used by Metra and most other commuter rail operators, what is proposed is a proof-of-payment (POP) system where there are no fare gates in the station nor fareboxes on the transit vehicles, but each passenger is responsible for having a valid document that shows that he has paid the proper fare on his person at all times, available for inspection by roving fare inspectors. POP is now almost universal for North American light rail transit, and the decision to favor it here over the traditional conductor system appears proper because the short KRM train consists would make it difficult to justify the costs of conductors. It also moves the collection of fares totally off the trains to ticket vending machines at each station.¹¹⁹

6. Muskego Yard Bypass

The CP line that Amtrak operates on from Chicago to Milwaukee, and which the proposed KRM commuter rail line would operate on into Milwaukee Amtrak Depot after leaving the UP Kenosha Sub, is also the main CP freight alignment. As a result, many CP freight trains go through the Milwaukee Amtrak Depot, as well as through portions of the city of Milwaukee close to the station. As this freight traffic, including the coal unit trains even on backhaul, is not desired by the neighbors, there has been interest in finding another alignment for freight movements that would not go through the Milwaukee Amtrak Depot and other segments of the current alignment. The result of this has been the proposal for the Muskego Yard Bypass.

The KRM corridor commuter rail service would prefer to have no freight movements through the Milwaukee Amtrak Depot. It would simplify scheduling of service if most or all of the freight movements through the station were eliminated. Safety would also improve if there were no or fewer freight movements because, while the risk of collision is currently very low and the plans for the improvements appear to be competent, it is impossible to have a collision with a train that doesn't operate on the track your train is on.

It appears possible to operate the proposed KRM corridor commuter rail service without the construction of the Muskego Yard Bypass, but its construction would eliminate certain complicating factors. For this reason, the construction of the Bypass is assumed in the operating plans for the KRM Corridor commuter rail system.¹²⁰ The cost of this project is estimated at “over \$20 million” by a WsDOT official.¹²¹

Although the Bypass is assumed to be in place as a key operating assumption, an overriding concern at this time appears to be ensuring that there will be sufficient funding to complete the commuter rail project proper with a reasonable contingency. The costs of the Bypass are not included in the project costs, but it is assumed “... that costs associated with constructing a CP freight by-pass track through Muskego Yard would be funded from another source.”¹²²

This raises a conflict between the Bypass being assumed to be in place as part of the operating plan, but no funding for it as part of the KRM corridor financial plan. If it is not to be paid for as part of the KRM corridor commuter rail financial plan, then another source of funding must be identified.

F. Inability to Discontinue Failed Rail Service

The commuter rail operation is proposed to be 50% funded—approximately \$125 million— from federal New Starts grants.¹²³ Such funding carries with it the requirement that the assets acquired with the funding be utilized for their minimum useful lives. The following is a direct quote regarding similar assets from the regulation regarding vehicles (rolling stock):

Disposition Before End of Service Life: Any disposition of rolling stock before the end of its service life requires prior FTA approval. FTA is reimbursed its share of the proceeds from disposition. If revenue rolling stock is being removed from service before the end of its useful life, the return to FTA is the greater of the FTA share of the unamortized value of the remaining service life per unit, based on straight line depreciation of the original purchase price, or the Federal share of the sales price (even though the unamortized value is \$5,000 or less).¹²⁴

For example, if \$1 million of federal grant funds are utilized to buy a rail vehicle, which for federal purposes has a useful life of 25 years, and the vehicle is disposed of and no longer utilized for transit purposes after 10 years, the grantee will owe the federal government for the unused 60% of the useful life, or \$600,000 in this example.

As a practical matter, the financial and political implications of the admission of failure for a major transit project are beyond consideration in a political environment. No matter how poorly a new transit capital project performs, if the implementing agency received over a hundred million dollars from FTA to construct it, and after five years it was abundantly clear that it was a terrible project, how could the agency admit the mistake, take the project out of transit service, and then repay the federal government the vast majority of that federal interest? It is politically and financial non-viable for the local taxpayers to accept paying off such a dead horse.

Instead, such lines are continued in operation. From a financial point of view, in any year or period of a few years, it is generally far cheaper to pay for operating a transit system that has very little purpose than to cease doing so and immediately incur a liability to the federal government that there is no way to repay. So in the transit industry dogs never die, and the local, state and federal governments continue to feed them forever.

If we assume, for purposes of this limited discussion *only*, that the KRM corridor commuter rail project were to be implemented and totally fail to satisfy its objectives, the grantee agency would incur a debt to the federal government most likely in excess of \$100 million. What public board could explain to the taxpayers that the tax that was paid to build and operate the failed system was not only a waste, but that the tax must continue for years after the failed project is to be taken out of service? Of course, few public agencies and their leaderships will admit that any project is a failure, particularly while the original proponents are still in office or otherwise still elected officials in the area.

On the other hand, if a bus service is begun and does not satisfy the criteria for success, it can be halted. Best case, it was operated by a contractor who provided the vehicles and other assets, there was no federal capital interest, the taxpayers are out what it cost to operate the system until it was stopped—and that's it. Even if the public sector bought buses with federal funds, these are salable assets, and there will generally be a recapture of some of the investment.

Due consideration should be given to the implications of risk and of failure in making major public sector decisions.

Part 6

Land Use and Real Estate Development

This section offers a few comments on the *Community Economic Impact Study of the Proposed Kenosha-Racine-Milwaukee (KRM) Commuter Rail*.

The following is from the first page of this document's Executive Summary:

*The proposed project will have a significant impact on the economy, including 4,700 jobs created during construction with a \$560 million impact on the area economy, and 126 jobs during project operations/maintenance with a \$24 million annual impact on the economy.*¹²⁵

From our review of this paper, it appears to be prepared in a manner common to such projections and consistent with standard processes and procedures, which is what we take exception to.

Simplifying somewhat, the calculation begins with determining the amounts of money that will be expended on specific components of the construction and operations of the proposed project and applying various multipliers to these amounts to determine the total economic impact—in this case, the local economic impact. These multipliers recognize that, for example, a construction employee who is hired to work on the project will spend a significant portion of his pay locally, buying food, paying rent, going to a movie, seeing a doctor, etc., which will in turn go to pay for employees in these functions and for goods and services, and these funds will be further filtered down to other salaries and wages, suppliers, etc.

The first problem is that this analysis is done, as is the norm, on a gross, rather than on a net basis. By this we mean the money spent on construction is not somehow created anew; it comes from somewhere. Specifically, it is generated by transfer payments from taxpayers. We will not argue that spending money does not create a chain of downstream economic activity, but if the funds that were received from taxpayers were not transferred to various units of governments to be spent on building public sector projects, they would not have been idle. If the taxes previously existed, they would have most likely been spent on other capital and/or operating projects. If these were new taxes, then if the project didn't exist, the taxes wouldn't exist and the funds would have remained with the taxpayers, who would have either spent them on their own procurements of goods and services or saved them, in which case they would have become available for others to spend through loans or investments.

Therefore, the relevant question is *not*, if we build it, how much economic activity will be generated, but, rather, if we build it, how much *difference* will there be from what would have occurred if we had not built it?

In situations such as this, the difference is far, far less than the gross economic activity that is so often credited to the project, and in some cases there can actually be a net negative impact to the region. One interesting question: who spends your money more productively, particularly on things that are important to you, you—or the governments that collect your taxes?

Here is another major concern with this type of analysis: the initial capital expenditure analysis ignores the end purpose of the project; all that matters is what it is spent *on*. It is actually possible to show that spending large amounts of tax money to dig a large hole in the ground and then to fill it in will produce a major economic benefit; in fact, the more that is spent to dig the hole, the greater the economic impact. The cost *is* the benefit.

It is often pointed out that there is great benefit to the local economy from such major public sector projects because they attract funds from outside the region that would not otherwise be available, so it is the external source of these funds that is significant. We have the following external funds including in the project budget (percentages are of the total budget):¹²⁶

Federal Section 5309 New Starts	\$124,880,154	50%
CMAQ	18,000,000	7%
State Commuter Rail Development Program	53,440,077	21%

As we have pointed out above, CMAQ funds are allocated to urbanized areas by a statutory formula; these funds will come to the region whether this project is constructed or not. Therefore, they are not relevant to the discussion of benefits of generating funds that would not be received without this project and should be removed from this discussion.

However, this still leaves over \$178 million—71% of the project financing—coming from outside the region.

It should be remembered that these come from taxes, taxes that are paid by all taxpayers in the U.S. and in the state of Wisconsin. A federal dollar is nothing more than a local dollar that is sent to Washington to later be returned to this area with a large number of restrictions—after being given a major haircut. These are not monies that are created anew, but are local taxpayer dollars returned to sender with less value than when they were paid in. Also, of course, there is significant cost to the public sector to collect these taxes and the private sector to process their payment.¹²⁷

But, the logic goes, if we don't go after these funds, someone else will get them, therefore, we should do everything we can to get these funds. Leaving a discussion of the Tragedy of the Commons¹²⁸ for another time, we will point out a segment of the calculation that is the basis for the "\$560 million impact on the area economy." Turning to page 13 of this economic impact study,

we have Table 5, “Direct and Total Regional Economic Impacts.” At the top of the schedule, we have a calculation based on the \$47.9 million for “Vehicles”—the DMUs. This project cost is multiplied by an “output” multiplier of 2.1505 to produce \$103.0 million in “Economic Impact – Output/Earnings,” and is also multiplied by an “employment” multiplier of .7119 to produce a value of \$34.1 million in that same column. This value is also multiplied by an “employment” factor of 32.1184 (the number of jobs, defined as full-time employment for one year, that are created by one million dollars of expenditure for this type of good) to produce 1,538 jobs to be created. Therefore, the procurement of the DMUs for \$47.9 million is responsible for \$137.1 million, or 24%, of the total “\$560 million impact on the area economy” and 33% of the 4,700 jobs created.

We have one question, however: what are the names of the local businesses that will be competing to supply these FRA-compliant Diesel Multiple Units?

There will undoubtedly be some level of local area economic activity from the procurement of these vehicles. However, it would be fair to say that these vehicles will be manufactured by an established supplier that does *not* operate a major facility in the Southeastern Wisconsin area, and the vast majority of that 137.1 million to be expended and the 1,538 jobs to be created will not be in this area, and perhaps not even in the United States.

In the bottom section of the schedule, we see \$150.5 million in construction spending that, after the application of various multipliers, will generate the rest of the \$560 million and 4,700 jobs. However, here too it is very questionable how much of that spending and those jobs will be in the local area. Rail projects of this type includes a lot of specialized materials, such as rails and ties, special trackwork, signaling system components, etc., most of which are not manufactured locally. There will be many and various salary, wage and employee benefit costs, a significant portion of which will be for those not living or working in Southeastern Wisconsin, plus other personnel who will be working on-site for most of their time charged, but doing a lot of their spending back home where the family lives. So, yes it is certainly true that much of the funds that will be spent on the project will be coming from outside the region, but it is equally true that a lot of the spending on the project will be *going* outside the region.

After consideration of these two factors, it is interesting to speculate if there is a net gain for the region in economic activity and jobs or not, but one thing we can know for sure, even if there *is* a local net gain, it will be nowhere close to \$560 million and 4,700 jobs.

Again, from the first page of the Executive Summary:

The proposed project will have a significant impact on property value. Based on experience across the nation, existing development along the commuter rail line may be expected to experience a 4 to 20 percent and even higher premium in property value. An intermediate 10 percent premium for a one mile corridor along the KRM rail line would represent a \$2.1 billion increase in property value in the three KRM counties.

For the sake of this discussion, let's work with the "intermediate 10 percent premium" that produces the \$2.1 billion increase in property values. From the *KRM AA/DEIS Ridership Forecasting Report*, September 2007, Table 33, "Summary of TSM and KRM Rail Forecasts by Time of Day," we see a total boardings of 7,392 for commuter rail in 2035. If we assume that each user makes a round trip on commuter rail, that would mean that there are 3,696 daily round-trip riders. So, if we divide the \$2.1 billion increase in property values and assume it is for 2035, the year of the ridership projection above, and divide it by those 3,696 average daily round-trip commuter rail travelers, we find that each and every one of them will cause an increase in property values of about \$568,000 in that one-mile corridor.

This is obviously far-fetched when one considers that many of the 3,696 will neither live nor work within this one-mile corridor, these being the primary types of real estate where commuter rail access and the presence of commuter rail riders could be expected to have an impact. There are others, of course, such as the dry cleaner across the street from a station, a restaurant that gets some extra patrons, etc., but, from the discussion of this subject on pp. 19-23, it appears that residential real estate is the clear number one expected value growth market. However, for each of these 3,696 that neither live nor work within that one-mile limit, the value of each one that does goes up significantly; if 10% do not, the value of each of those within one-mile-KRM riders is \$631,000; if 25%, \$757,000; 50%, \$1,136,000. If the value of commuter rail to real estate value was the 20%, rather than the 10%, and half lived and/or worked within that mile, then each of these daily riders will be creating \$2,272,000 in additional real estate value.

There is simply far too much increase in property value projected as occurring due to a commuter rail line with its rather small ridership. Either a large number of people are willing to pay a significant premium to live near a commuter rail line *that they will rarely or never use*, or perhaps, what we have here is the classic, correlation-is-not-causation logical fallacy: there may be price increases in areas near rail developments, but that does not automatically mean that the proximity of developments to rail lines causes those price increases.

Much of the real estate development claimed for transit guideway projects does not stand up to serious analysis. It is often the case that Smart Growth policies, zoning, real estate tax abatements, floor-area-ratio bonuses, parcel accumulation by the public sector using eminent domain, sale of publicly owned land at below market prices, provision of parking by public agencies and other factors have far more impact than the existence or not of a guideway transit line. In many cases, a major *cause* of the development appears to be governmental action:

"It is a myth to think that the market will take care of development along transit corridors," said Portland City Commissioner Charles Hales in 1996, when he proposed to subsidize such developments (through real estate tax abatements). "The \$55 million streetcar line has sparked more than \$1.5 billion (and growing) in new development," said consultant Charles Hales 10 years later, working to sell streetcars to other cities and conveniently forgetting about the subsidies he promoted when he was on the city council.¹²⁹

To the extent that transit does have an impact, logically, the impact will be largely proportional to the number of trips near each station. At places like the CBD stations of Washington, DC MetroRail, where many stations have tens of thousands of boardings/deboardings daily, there is a consensus that proximity to a MetroRail station is a key factor for real estate development. However, the entire KRM corridor commuter rail is not projected to have half of this level of activity. Logically, if ridership on the transit system is small, the impact on real estate values will also be small.

The best practice is to make transportation decisions on the basis of what produces the most direct transportation benefits per dollar spent, what moves the most people per dollar spent, what does the most to prevent congestion from getting worse, what provides for needed freight movement capacity without conflicting with the movement of people, what improves safety and security, what saves time, and what is the best use of public funds. Ignore real estate benefit projections. If the transportation improvements work, they will come (although not likely to the extent certain promoters are suggesting); if they don't, they won't.

Part 7

Conclusions

Of the alternatives studied by SWRTA, the decision to select the DMU commuter rail option as the locally preferred alternative is understandable. Given the lack of need for the capacity of Metra-style trains and the potential difficulties of a contractual arrangement with an agency in another state, the DMU option is far easier to justify than the BRT alternative considered by SWRTA. That version of BRT costs almost as much as DMU commuter rail, isn't as fast, had more potential negative community impacts, and fails to ignite the community interest that commuter rail does. The TSM option is far less costly and more cost-effective, but doesn't provide much in the way of real new transportation options.

Long-haul express bus operations on I-94 should be studied, both as co-existing with and as an alternative to commuter rail. Express bus requires very little initial capital cost compared to commuter rail, is very scalable and therefore low risk, and has been shown to have very low taxpayer costs where there is a strong demand for such service. This service is of more value to potential riders the closer they are to I-94, but our analysis shows the break-even point on travel time for many can be very close to the CBDs of the cities of Kenosha and Racine and that such service can serve destinations, such as outside of the cities of Kenosha, Milwaukee and Racine CBDs and in the other four Southeastern Wisconsin counties, that commuter rail cannot well serve. The key to such an analysis is a study of the demand for travel, particularly home-to-work, in both the three-county and the seven-county region.

In addition, BRT Lite service, providing express bus service with traffic signal priority on north-south and east-west highways should be considered for a number of corridors, including the lakeside route proposed by SWRTA for a far more expensive exclusive-guideway form of BRT.

If the DMU commuter rail projections prove accurate—which, based on the record of the U.S. transit industry in such projections, is a far from certain—approximately half of the initial capital costs are expected to come from federal New Starts funds that would otherwise not accrue to this region, plus, after the first two years of operation another federal grant funding program would be providing monies approximately equal to the operating subsidies. It is, however, a long way between making these projections and seeing them turn into reality.

The project assumes that the Muskego Bypass will be constructed at a cost over \$20 million, but this would have to be funded by unidentified sources outside of the commuter rail project.

With over 50 at-grade crossings, including dozens in the three major cities along the alignment, grade crossing safety for vehicles and pedestrians and avoiding negative impacts on east-west traffic across the rails will require considerable attention.

Connections to and from the commuter rail stations will require a major effort for commuter rail to be successful, including station parking and kiss-and-ride access and significant improvements to bus transit.

We find the projections of economic and real estate benefits of commuter rail to not be credible in methodology or in purported results and suggest that transportation decisions such as this be made on transportation costs and benefits. Benefits from transit are, for the most part, proportional to the number of people moved.

About the Author

Thomas A. Rubin, CPA, CMA, CMC, CIA, CGFM, CFM has over thirty years of public transit experience as a senior executive in major transit agencies and as an auditor, consultant, and author. He has served well over 100 transit operators of all sizes operating almost all transit modes, metropolitan planning organizations, state departments of transportation, the U.S. Department of Transportation, industry associations, suppliers to the industry, and transit labor unions. He is currently a sole practitioner consultant specializing in major transit and educational capital projects and long-term transit capital/operations/financial planning.

Mr. Rubin founded and directed the transit industry practice of what is now Deloitte & Touche, LLP, growing it to the largest in the accounting/consulting industry, and personally selling over \$100 million worth of services. He has managed projects including financial, grant, performance, and contract audits; design and implementation of management information systems; construction project management oversight; long-term operating/capital/financial planning and modeling and preparation of bond official statements and tax revenue projections; grant applications and indirect cost allocation systems; fare collection security reviews; merger and reorganization; subsidy allocation; privatization and contracting, labor negotiation, expert/expert witness work, and many other types of projects.

For the last four years, he has provided construction management oversight services for the Los Angeles Unified School District's \$30+ billion school construction and modernization program, currently the largest municipal government construction program in the U.S.

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