**DRAFT INTERIM REPORT:**
**PEER AND TREND ANALYSIS**

**Wisconsin Department of Transportation**
Transit System Management Performance Audit
of the
Madison Metro Transit System
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**Introduction**

The Wisconsin Department of Transportation is required by Wisconsin Statutes to conduct a management performance audit of all urban transit systems receiving state aid at least once every five years. This study entails the audit of the Madison Metro Transit System "Metro Transit". One of the initial tasks in this management performance audit is to conduct a peer review and trend analysis to compare and contrast Metro Transit's fixed route operating statistics with other similarly sized fixed route transit operators. However, some caution should be exercised in comparing one transit system to another due to inherent differences between the transit systems which management has little control over, such as funding sources, local political legislation, land use patterns and the built environment, and the demographic and socioeconomic characteristics of the area being served. In spite of these limitations, peer group reviews do provide valuable insight into agency operations.

The peer systems selected for this analysis were the same peers used in the prior management performance review of Metro Transit which was completed in October 2003. The Metro Transit peer group consists of 11 systems which are:

• Capital District Transit Authority in Albany, NY
• Miami Valley Regional Transit Authority in Dayton, OH
• Connecticut Transit in Hartford, CT
• Indianapolis Public Transportation Corporation in Indianapolis, IN
• Metro Area Transit in Omaha, NE
• Rhode Island Public Transit Authority in Providence, RI
• Regional Transit Service Inc. and Lift Line Inc. in Rochester, NY
• Spokane Transit Authority in Spokane, WA
• CNY Centro, Inc. in Syracuse, NY
• Pierce Co. Public Transportation Benefit Area in Tacoma, WA
• Toledo Area Regional Transit Authority in Toledo, OH

The 11 peer systems were chosen for being northern climate systems and having similar size characteristics (hours, miles and peak vehicles) and modes (i.e., bus and paratransit) of service as Metro Transit. The systems also have similar overall expenses, passenger revenue and unlinked passenger trips. However, the 11 peer systems differ significantly from Metro Transit in terms of population and population density characteristics. Metro Transit is a much larger bus system relative to the population that it serves than any of its peers. There are no systems in the country that serve slightly more than 200,000 people and provide 4.7 million miles of service with a fleet of nearly 200 vehicles. In large part, this reflects the unique situation of Madison as

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the state capital and the host community of a major university. Some of these attributes are noted for several of the peer systems listed above. For example, Albany is the state capital of New York and the location of the State University of New York at Albany (SUNY). Similar situations are noted in Hartford, Indianapolis, and Providence.

As a result, the 11 peer systems are not a fair representation to Metro Transit in terms of the level of service provided by Metro Transit on a per capita basis. Because the selected peer group systems are much larger than Metro Transit in terms of service area population, Metro Transit's outstanding performance in per capita measures would be understated. To remedy this situation, eight transit systems were elected with service area populations similar to Metro Transit even though other characteristics were much lower than Metro Transit. The eight systems that were selected included:

• Ann Arbor Transportation Authority in Ann Arbor, MI
• Berks Area Reading Transportation Authority in Reading, PA
• Capital Area Transit in Harrisburg, PA
• Erie Metropolitan Transit Authority in Erie, PA
• Fort Wayne Public Transportation Corporation in Fort Wayne, IN
• Knoxville Transportation Authority in Knoxville, TN
• StarTran in Lincoln, NE
• Lexington Transit Authority in Lexington, KY

The eight systems listed above are termed Population Peer Group and are compared to Metro Transit only in the area of per capita performance (Table 1). The remainder of the peer group analysis is based on data for the 11 peer systems listed at the beginning of this chapter. This peer group has been termed the Service Level Peer Group.

Using the two peer groups, this report develops performance measures for Metro Transit and the peer systems and compares Metro Transit's performance with the overall peer average for each measure; Metro Transit is then ranked against the peer systems for comparison purposes. Operating statistics are based on FY 2006, which is the most recent year that data for Metro Transit and the peer systems are available in their entirety. The peer group data was obtained from the Florida Transit Information System (FTIS) which is a web-based data source for all transit systems while Metro Transit's data was taken from its FY 2006 NTD Report that the agency provided.

The use of NTD data attempts to ensure that the data included has been compiled in a consistent manner by all transit agencies included in the peer group. The trend analysis is based on two end years – FY 2006 and FY 2002. The FY 2002 data is also derived from the data base and was used in the prior Metro Transit Management Performance Review that was completed in October 2003. In that earlier analysis, FY 2002 was the end of the trend analysis period while it is the starting point for the current review.

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**Overview of Analysis Techniques**
The peer group analysis is based on the results for the fixed route bus system using three different analysis techniques – peer group, trend line, and combination. The methodology used in each is described below.

**Peer Group Analysis** - This technique compares Metro Transit's performance at a single point in time (FY 2006) with a group of transit systems exhibiting similar characteristics. As noted previously, at the time this analysis was performed, the data for Metro Transit was not available for FY 2007 as well as the peer systems from the FTIS data base. Selection of the peer group takes into consideration a number of factors which influence the population's tendency to use transit.

As the objective of a peer group analysis is to comment on Metro Transit's performance relative to comparable systems, the presentation of the findings focuses on only the group average and range of performance. Therefore, the tables which appear in the subsequent section follow a standard format as follows:

**Peer Group Performance**
- Minimum value recorded
- Maximum value recorded
- Average of all peer systems
(An unweighted value)
**Metro Transit Performance**
- Value recorded
- Percent difference from peer group average
- Rank within the group (With "1" always the best performer)

**Trend Line Analysis** - This second technique reviews Metro Transit's performance over time. For this analysis, the previous management performance review from October 2003 was used, with the final year (i.e., 2002) compared against the NTD results for FY 2006. The technique of this trend line analysis is to compare the trend of Metro Transit's performance with the trend of its peers. A comparison is made of the trend of each selected performance measure with the average trend of the peers. The analysis emphasizes the full five-year trend; not interim or year-to-year changes in key indicators.

**Combination Analysis** - The previous two techniques are synthesized in this third step. The combination analysis enables the reviewer to take those areas where Metro Transit performs below its peers, for example, and ascertain if this condition had declined over time, thus suggesting a critical area in need of attention. This technique can also offset a below average peer group standing by pointing out that Metro Transit has made great strides in a particular indicator over the past years even though it still was ranked below its peers in 2006. The combination analysis results in the grouping of performance into four different categories:

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1.  Better/improving - better than peer group average and improving over time.

2.  Better/declining - better than peer group average but declining over time.

3.  Worse/improving - worse than peer group average but improving over time.

4.  Worse/declining - worse than peer group average and declining over time.

At the conclusion of all three analyses, it is then possible to suggest areas where Metro Transit performs well and areas where improvement opportunities should be explored. As noted previously, the analysis focuses on the fixed route bus system.

**Classification of Performance Indicators**

Performance indicators can be used to determine how the entire agency is performing with respect to stated objectives. Our approach to performance evaluation recognizes that these indicators are made up of statistics which reflect key factors in transit service delivery. For this review of Metro Transit's relative performance, many of the performance indicators used in the prior management performance review are also used in this report. However, in some instances, data used in prior audits has been excluded from this performance review. This data includes the non-wage fringe benefits and wage and fringe benefit comparisons, which is data no longer reported in NTD reports. In addition, there are several performance measures that have not been used before, and include measures related to transportation efficiency and cost efficiency. These measures are used throughout the industry and provide additional analysis tools for the review of Metro Transit performance. The performance indicators are grouped into the following five areas:

1. Level of service measures
2. Transit revenue sources
3. Financial and general and administrative measures
4. Transportation performance measures
5. Maintenance performance measures

The level of service measures and transit revenue sources are not included as part of the rend analysis.

**Peer Group Analysis**
This section compares Metro Transit's 2006 operating performance to that of the peer systems. The results of the peer analysis are presented in the aggregate for the peers. No

specific references are made to the individual systems. Rather, the information in this report presents the range of peer group performance and its unweighted group average which excludes the data for Metro Transit from the calculation. Then, Metro Transit's performance is shown as the numerical value, percent above or below the peer group average and rank within the peer group, which would be one to 12 for this analysis. With this ranking scheme, the system ranked first is always the best performer.

**Level of Transit Service Available** - This section analyzes the intensity or prevalence of transit service in the Metro Transit service area to that of the other service areas included in the peer group. As noted earlier, the Population Peer group is utilized in this section since it is similar to Metro Transit in terms of service area population. As seen in Table 1, the level of transit service available to the residents of Metro Transit's service area, on a per capita basis, is significantly higher than the average of the Population Peer Group average.

**Table 1 - Peer Comparison of Per Capita Measures (Population Peer Group)**

| Characteristic | Peer Group | | | Metro Transit | | |
| --- | --- | --- | --- | --- | --- | --- |
| | Minimum | Maximum | Average | Value | Percent Difference | Rank* |
| Revenue Miles per Capita | 3.92 | 14.95 | 7.88 | 19.81 | 151.3 | 1 |
| Revenue Hours per Capita | 0.35 | 1.23 | 0.64 | 1.54 | 140.6 | 1 |
| Cost per Capita | $20.33 | $90.59 | $47.45 | $148.02 | 211.9 | 1 |
| Passengers per Capita | 6.96 | 26.10 | 13.33 | 50.69 | 280.3 | 1 |
| Peak Vehicles per 10,000 Pop | 10.44 | 37.20 | 22.37 | 70.34 | 214.4 | 1 |

*Rank of 1 is best, 9 is worst
Source: 2006 National Transit Database

Highlights of the comparison are:

• The level of service provided by Metro Transit in terms of revenue miles and revenue hours provided on a per capita basis is approximately one and a half times higher than the peer average, while the number of peak vehicles provided by Metro Transit per 100,000 people is over two times higher than the peer average.

• Since Metro Transit provides a much higher level of service than the peer group, it is not surprising that Metro Transit exhibits the highest cost per capita compared to the peer group ($148.02 for Madison vs. $47.45 for the peer average). Madison residents reward the system for this higher level of service by utilizing transit much more than the peers. In fact, Metro Transit carries almost three times as many passengers per capita as the peer average.

In summary, Metro Transit provides a much higher level of service compared to the peer group. This higher level of service is attributed to the fact that Madison is home to the main campus of the University of Wisconsin, which has an enrollment of approximately 42,000 students, and is also the state capital of Wisconsin. College students typically represent a transit

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dependent market, and the University of Wisconsin as well as the state offices located in the city represent major transit generators. As a result, the residents of Madison expect a high level of service from Metro Transit and in turn, utilize the service at a much higher level than the peer group systems. This high ridership level on a per capita basis is indicative of a transit riding habit in the City of Madison. The remaining sections of this report use only the Service Level Peer Group.

**Service Area and Operating Characteristics** - As seen in Table 2, Metro Transit serves the smallest service area population and operates within the smallest geographical area compared with the peer group. However, due to the compact nature of the service area, Metro Transit exhibits the highest population density at 3,298 persons per square mile compared to the peer average of 2,861 persons per square mile.

**Table 2 - Peer Comparison of Peer Group with Metro Transit (Service Level Peer Group)**

|  | Peer Group | | | Metro Transit | | |
|---|---|---|---|---|---|---|
| Characteristic | Minimum | Maximum | Average | Value | Percent Difference | Rank* |
| Population | 334,857 | 1,048,319 | 653,652 | 237,652 | -63.6 | 12 |
| Area (Sq. Mi) | 142 | 1,760 | 541 | 72 | -86.7 | 12 |
| Population Density | 451 | 2,861 | 1,863 | 3,298 | 77.0 | 1 |
| Peak Vehicles | 99 | 209 | 153 | 167 | 9.2 | 5 |
| Revenue Miles | 3,577,700 | 7,651,100 | 5,618,500 | 4,703,900 | -16.3 | 9 |
| Revenue Hours | 248,900 | 618,900 | 426,800 | 365,500 | -14.4 | 9 |
| Unlinked Passenger Trips | 3,881,100 | 19,383,000 | 10,494,800 | 12,034,500 | 14.7 | 6 |
| Operating Expenses (in 000's) | $17,891.4 | $70,658.0 | $41,160.1 | $35,143.9 | -14.6 | 7 |
| Operating Revenue (in 000's) | $3,962.7 | $21,374.3 | $9,105.4 | $7,912.2 | -13.1 | 6 |
| Miles per Hour | 12.1 | 15.2 | 13.4 | 13.3 | -0.7 | 7 |

*Rank of 1 is best, 9 is worst
Source: 2006 National Transit Database

Metro Transit is a smaller system than the peer average in terms of revenue miles and revenue hours. As a result of this lower level of service, Metro Transit exhibits lower operating costs and lower operating revenue. However, Metro Transit carries significantly more passengers than the peer average and also operates a much higher number of peak vehicles. The average operating speed of Metro Transit buses, systemwide, is 13.3 mph, which is very similar
to the peer average speed of 13.4 mph.

Although Metro Transit is a smaller system compared to its peers in terms of its overall size, it is a much larger system relative to the population that is serves compared to the peer group. As noted above, there are no transit systems in the country that serve slightly more than 200,000 people and yet provide 4.7 million miles of service with a fleet of approximately 200 vehicles. When the level of service Metro Transit provides is compared with the population peer group on a per capita basis, as is shown in Table 1, Metro Transit provides a much higher level of service compared to the peer group.

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