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SEWRPC Community Assistance Planning Report No. 311

CITY OF WAUKESHA METRO TRANSIT SYSTEM
OPERATIONS ANALYSIS AND SERVICE CHANGES: 2011

PUBLIC TRANSIT SERVICE OBJECTIVES AND STANDARDS

INTRODUCTION

One of the critical steps in the preparation of a transit system development plan is the articulation of the objectives to be served by public transit, together with the identification of supporting standards that can be used to measure the degree of attainment of the objectives. The objectives and standards provide the basis for assessing the performance of the existing transit system, identifying unmet transit service needs, designing and evaluating alternative transit system plans, and recommending service changes and improvements. The objectives and standards formulated under this study are intended to represent the level of transit performance desired in the City of Waukesha.

OBJECTIVES

The following objectives envision a transit system that will effectively serve transit travel by City of Waukesha residents in the City and its immediate environs:

1. Public transit should serve those areas of the City and its immediate environs which can be efficiently served, including those areas which are fully developed to medium or high densities and, in particular, the transit-dependent population in those areas;

2. The public transit system should promote utilization of its service by being safe, reliable, convenient, and comfortable;

3. The public transit system should be economical and efficient, meeting all other objectives at the lowest possible cost.

PRINCIPLES AND STANDARDS

Complementing each of the above transit service objectives is a planning principle and a set of service standards, as displayed in Table 3-1. The planning principle explains the concepts behind the objective. The set of service standards is directly related to the transit service objective and serves several purposes. The service *design and operating standards* are intended to primarily provide guidelines for the design of new and improved services, the operation of the transit system, and the acquisition of capital equipment and construction of facilities. The service *performance standards* primarily facilitate the evaluation of the performance of the existing transit system and of alternative service improvements. For each performance standard, one or more criteria are identified which can be used to quantify the performance of the transit service for measurement against the standard.

The performance standards also include the transit system performance measures which the Wisconsin Department of Transportation utilizes to assess the performance of Wisconsin transit systems on a regular basis, and which the State requires be included in the multi-year service and performance goals identified in annual applications for State operating assistance. Such measures include operating ratio, or farebox recovery rate; operating expense per passenger; passengers per capita; passengers per revenue vehicle hour of service; operating expenses per revenue vehicle hour of service; and revenue vehicle hours of service per capita. The performance standards and evaluation findings of this study can, therefore, provide guidance to the City of Waukesha in establishing the required multi-year service and performance goals.

The following table presents the full set of public transit service objectives, principles, and standards that the City may use to guide in the design, operation, and review of its transit services. Due to the limited nature of the current study, the performance evaluation of Waukesha Metro Transit will not include assessments of transit performance for every measure in the table. The performance measures that Commission staff intend to evaluate in the current planning effort are marked with an asterisk (*).

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Table 3-1

PUBLIC TRANSIT SERVICE OBJECTIVES, PRINCIPLES, STANDARDS, AND PERFORMANCE MEASURES FOR THE WAUKESHA METRO TRANSIT SYSTEM

Objective	Principle	Standards	Performance Measure
1. Public transit should serve those areas of the City and its immediate environs which can be efficiently served, including those areas which are fully developed to medium or high densities and, in particular, the transit-dependent population in those areas	Public transit services can provide an important means of mobility for all segments of the population in urban areas and particularly for persons residing in low- to middle-income households, students, seniors, and people with disabilities. Transit services can also be important to businesses and the economy by providing transit access to job opportunities. Fixed-route public transit services generally are best suited for large and medium-size urban areas developed to medium or high densities such as the City of Waukesha and its immediate environs. Flexibly-routed and demand-responsive transit services can be a cost-effective alternative to conventional bus service in areas where, or during time periods when, demand for fixed-route service is low	<u>Design and Operating Standards</u> 1. Public transit service should serve the travel and mobility needs generated by contiguous areas of high- and medium-density urban development. The highest levels of service availability, frequency, coverage, and connectivity to major destinations should be provided in such areas	1. - -
		2. Public transit services should address the varied travel and mobility needs within the service area. The service types that should be considered include: a. Express bus service designed to reduce travel times for the longest trips in the transit service area and to connect areas of urban development to the largest major activity centers within the service area or in immediately adjacent areas b. Local fixed-route bus or demand-responsive services designed to provide transit within and between residential areas, to link residential areas with nearby major activity centers, and to provide for transfer connections with other transit services c. Local flexibly-routed transit services designed to serve areas where conventional bus service would not be cost-effective d. Local shuttle services designed to connect major activity centers with rapid, express, and other local transit services e. Paratransit service designed to meet the needs of people with disabilities who are unable to use fixed-route bus service	2. - -
		3. Public transit service should be provided, where possible, to major activity centers within the transit service area or in immediately adjacent areas including: a. Shopping centers b. Educational institutions c. Medical centers d. Major employers with 100 or more employees e. Governmental and public institutional centers f. Facilities serving elderly persons and people with disabilities g. Facilities serving low-income individuals	3. Number of major activity centers in each category within one-quarter mile of a bus route*
		4. Paratransit service should be available within the transit service area to meet the needs of people with disabilities who are unable to use fixed-route bus service	4. - -
		<u>Performance Standards</u> 1. The population served should be maximized, particularly the transit-dependent population	1a. Total population within one-quarter mile of a bus route* 1b. Transit-dependent population concentrations within one-quarter mile of a bus route*
		2. The number of jobs served should be maximized	2. Number of jobs within one-quarter mile of a bus route*
		3. The transit-supportive land area served should be maximized. To be considered transit-supportive, an area should have a density of at least 4 dwelling units per net residential acre, or at least 4 jobs per gross acre	3. The proportion of the transit-supportive land area located within one-quarter mile of a local bus route*

Table 3-1 (continued)

Objective	Principle	Standards	Performance Measure
2. The public transit system should promote utilization of its service by being safe, reliable, convenient, and, comfortable.	The benefits of a public transit system are greatly related to the degree to which it is used. Ridership is a function of the degree to which people have access to services that are reliable and provide for quick, convenient, comfortable, and safe travel. Riders view transit services with these attributes as an effective and attractive alternative to the private automobile.	Design and Operating Standards 1. Public transit routes should be direct in alignment, with a minimum of turns, and arranged to minimize duplication of service and unnecessary transfers, which would discourage transit use	1. - -
		2. Local routes should be spaced one-half mile apart in high-density and medium-density areas	2. - -
		3. Express fixed-route bus service should be provided as necessary to reduce travel times for the longest trips in the service area, or to connect to other major activity centers in immediately adjacent communities	3. - -
		4. Public transit stops should be located two to three blocks apart along the entire length of local routes; and at intersecting transit routes, signalized intersections, and major activity centers along express transit routes	4. - -
		5. All public transit stops should be clearly marked by easily recognized signs and should be paved whenever possible	5. - -
		6. Consideration should be given to providing passenger shelters of an attractive design at all bus stops where: a. The location serves major facilities designed specifically for the use of, or is frequently used by, elderly persons or people with disabilities b. The location has a boarding passenger volume of 50 or more passengers per day c. The location is a major passenger transfer point between bus routes d. The location is in a wide open space where waiting patrons are unprotected from harsh weather conditions	6. - -
		7. Public transit service should provide adequate service and vehicle capacity to meet existing and projected demand. The average maximum load factor, measured as the ratio of passengers to seats at that point where passenger loads are highest, should not exceed the following during any one-hour period: Average Maximum Load Factor Service Type / Peak Periods / All Other Times Local 1.25 1.00 Express 1.00 1.00	7. Average maximum load factor by route for the weekday peak hour of service*
		8. Operating headways should be capable of accommodating passenger demand at the specified load standards. Headways should not exceed the following maximum headways if service is offered during a period: Maximum Headway (minutes) Service Type / Weekday Peak Periods / Off-Peak Periods/ Weekends/Holidays Rapid 30 60 Express 30 60 Local/Shuttle 30 60	8. - -
		9. Public transit service should be designed and operated so as to achieve the following minimum overall travel speeds by area based on average weekday conditions: Travel Speed (miles per hour) Service Type / CBD / Other Areas Local 5-10 15-20 Express 5-10 18-23	9. - -

Table 3-1 (continued)

Objective	Principle	Standards	Performance Measure
2. (continued)		10. Consideration should be given to rehabilitating or replacing each public transit vehicle at the end of its normal service life as defined below for different types of transit vehicles: Normal Service Life Vehicle Type / Length (feet) / Years / Mileage Heavy-duty bus / 35 or more / 12 / 500,000 Heavy-duty bus / 25-30 / 10 / 350,000 Medium-duty bus / 25-30 / 7 / 200,000 Light-duty bus / 25-30 / 5 / 150,000 Cars and Vans / - - / 4 / 100,000	10. - -
		Performance Standards 1. Ridership on the public transit system and the overall effectiveness of the service provided should be maximized	1a. Total passengers* 1b. Total passengers per capita* 1c. Revenue vehicle hours per capita* 1d. Total passengers per revenue vehicle hour* 1e. Total passengers per revenue vehicle mile*
		2. Public transit routes with ridership and service effectiveness levels which are less than 80 percent of the average for all routes of the public transit system should be reviewed for potential service changes unless special circumstances warrant otherwise[a]	2a. Total passengers* 2b. Total passengers per revenue vehicle hour* 2c. Total passengers per revenue vehicle-mile* 2d. Percent of weekday passengers riding on Saturday or Sunday* 2e. Percent of weekday passengers riding in evenings*
		3. The service provided by the public transit system should closely adhere to published timetables. Service should be "on time" at least 90 percent of the time. On time is defined as departing from scheduled stops within the range of zero minutes early and three minutes late	3. Percent of scheduled bus trips on time
		4. Travel times for public transit patrons should be kept reasonable in comparison to travel times by automobile for trips made in the service area	4a. Ratio of transit to highway distance 4b. Difference between transit and highway travel time
3. The public transit system should be economical and efficient, meeting all other objectives at the lowest possible cost	The total resources available to be expended on public transit services by the City are limited. Therefore, total transit system costs should be minimized for the desired level of transit service, and transit revenues should be maximized to maintain the financial stability of the system. The attainment of this objective may at times conflict with, and require the modification or elimination of other standards	Design and Operating Standards 1. The total operating and capital investment for the public transit system should be minimized and reflect efficient utilization of resources	1. - -
		2. The fare policy for the public transit system should provide for premium fares for premium transit services, as well as special or discounted fares for priority population groups, including transit-dependent individuals and frequent riders	2. - -
		3. Periodic increases in passenger fares should be considered to maintain the financial stability of the public transit system when: a. The farebox recovery rate for the public transit system goes below levels determined to be acceptable by local officials b. Operating expenses for the public transit system have increased by 10 to 15 percent since fares were last raised c. Projected levels of Federal and State operating assistance funds would require an increase in projected local operating assistance levels above that determined to be acceptable by local officials	3. - -

Table 3-1 (continued)

Objective	Principle	Standards	Performance Measure
3. (continued)		Performance Standards 1. The operating expense per unit of transit service, the operating expense per passenger, and the total operating assistance per passenger should be minimized for the system as a whole. Annual increases in such costs should not exceed the average percentage increase experienced by comparable urban bus systems	1a. Operating expense per total vehicle mile* 1b. Operating expense per revenue vehicle hour* 1c. Operating expense per passenger* 1d. Total operating assistance per passenger*
		2. Public transit system operating revenues generated from passenger fares and sources other than public operating assistance should be maximized	2. Percent of operating expenses recovered through passenger and other operating revenues, excluding public operating assistance*
		3. Public transit routes with financial performance levels which are less than 80 percent of the average for all routes of the public transit system should be reviewed for service changes, unless special circumstances warrant otherwise[a]	3a. Operating expense per boarding passenger* 3b. Total operating assistance per boarding passenger* 3c. Percent of operating expenses recovered through passenger and other operating revenues, excluding public operating assistance*

[a]*A reasonable period of time should be allowed for ridership to develop and stabilize before evaluating the performance of new public transit services to determine if the service is to be continued, modified, or eliminated. Performance goals should be for new public transit services to achieve 30 percent of average performance levels for existing service after six months of operation; 60 percent of average performance levels for existing service after one year of operation; and 100 percent of average performance levels for existing service after two years of operation.*

Source: SEWRPC.