

Executive Summary
for the
Conduct of a Passenger Count
for
SUBURBAN MOBILITY AUTHORITY for REGIONAL
TRANSPORTATION

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SMART Passenger Count

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Appendices

Weekday Excel Summaries

Saturday Excel Summaries

Sunday Excel Summaries

Small Bus Listing

Weekday Paper Summaries (under separate cover)

Saturday Paper Summaries (under separate cover)

Sunday Paper Summaries (under separate cover)

Weekday Route Profiles (on FTP site)

Saturday Route Profiles (on FTP site)

Sunday Route Profiles (on FTP site)

Weekday Activity Reports (on FTP site)

Saturday Activity Reports (on FTP site)

Sunday Activity Reports (on FTP site)

Shape files (on FTP site)

I. INTRODUCTION

A. Study Background

This report was prepared for the Suburban Mobility Authority for Regional Transportation (SMART) to present the results of a systemwide passenger count of fixed route service, and also selected small bus service,

B. Fixed-Route Service

SMART operates 51 Weekday routes, 32 Saturday routes, and 16 Sunday routes. Service is provided from three separate operating facilities – Wayne, Macomb and Oakland. The routes by garage and day of week follow.

SMART Routes and Operating Garage

	Route	Weekday	Saturday	Sunday
125	Fort St-Eureka	Wayne	Wayne	Wayne
135	Southshore	Wayne		
140	Southshore	Wayne	Wayne	Wayne
145	Carlisle	Wayne	Wayne	
150	Allen-Wick	Wayne		
160	Downriver	Wayne	Wayne	
190	Taylor Flyer	Wayne		
200	Michigan Ave	Wayne	Wayne	Wayne
202	Romulus	Wayne		
245	Cherry Hill	Wayne	Wayne	
250	Ford Rd	Wayne	Wayne	Wayne
255	Ford Rd Ex	Wayne		
265	Warren Rd	Wayne	Wayne	
275	Telegraph	Wayne/Oakland	Wayne/Oakland	
280	Middlebelt	Wayne	Wayne	Wayne
305	Grand River	Wayne		
330	Grand River	Wayne	Wayne	Wayne
385	Orchard Lake	Wayne	Wayne	
400	Southfield	Oakland		
405	Northwestern	Oakland	Oakland	
415	Southfield	Oakland	Oakland	Oakland
420	Southfield	Oakland	Oakland	
430	Main St	Oakland		
445	Woodward	Oakland		
450	Woodward	Oakland	Oakland	Oakland
460	Woodward	Oakland	Oakland	Oakland
465	Auburn Hills	Oakland		
475	Woodward	Oakland		
494	Deguire	Oakland	Oakland	
405	John R	Oakland	Oakland	Oakland
510	Van Dyke	Macomb	Macomb	Macomb
530	Schoenherr	Macomb		
550	Garfield	Macomb	Macomb	

SMART Routes and Operating Garage (cont)

	Route	Weekday	Saturday	Sunday
559	Auburn Hills	Macomb		
560	Gratiot	Macomb	Macomb	Macomb
580	Harper	Macomb		
610	Jefferson	Macomb	Macomb	Macomb
615	Jefferson	Macomb	Macomb	
620	Charlevoix	Macomb		
635	East Jefferson	Macomb		
710	Nine Mile	Oakland/Macomb	Oakland/Macomb	Oakland
730	Ten Mile	Macomb	Oakland/Macomb	
740	Twelve Mile	Oakland/Macomb	Oakland/Macomb	Oakland
752	Oakland Pointe	Oakland	Oakland	
753	Baldwin	Oakland	Oakland	Oakland
756	Perry-Opdyke	Oakland	Oakland	
760	14 Mile Road	Macomb	Oakland	
780	15 Mile Road	Oakland/Macomb	Macomb	
805	Grand River P&R	Wayne		
830	Downriver P&R	Wayne		
851	W Bloomfield	Oakland		

The Macomb terminal is located at

22900 E 15 Mile Road
Clinton Township, MI 48035.

The Oakland terminal is located at

2021 Barrett St
Troy, MI 48084.

The Wayne terminal is located at

3000 Industrial Dr
Inkster, MI 48141.

C. Small Bus Service

The following Small Bus services were surveyed.

Oakland Mall Job Shuttle;
Big Beaver Job Express;
Fairlane Job Express;
Lakeside Job Express;
Troy/Birmingham Dial-A-Ride;
Groesbeck Flex Route; and
Hamtramck Shuttle.

II. FIXED ROUTE RIDERSHIP SURVEY

A. Methodology

The data collection for this project developed an accurate ridecheck database that provides information in a several formats that is easily understandable to operational planners. This ensures the usefulness of the data for future planning and service evaluation projects. The ridecheck survey was administered to collect data detailing boarding and alighting activity by stop, trip and route, as well as on time performance information.

This section presents the methodology that was utilized to conduct the ridecheck survey. The subsequent section presents a summary of results. The collection of ridership information by stop and by trip is integral in the assessment of current SMART route service performance characteristics, and route strengths and weaknesses.

The survey information can be utilized to conduct detailed analyses regarding the existing transit operations. These analyses could include maximum load analyses, the identification of route and route segment productivity strengths and weaknesses, the identification of poor performing trips that could be eliminated, the identification of City of Detroit activity versus suburban activity, and the analyses of time schedules, resulting in recommendations to increase or decrease running times.

Following is a description of the methodology used to collect ridecheck survey data, survey procedures and survey results. This report is accompanied by three detailed ridecheck survey result files that are provided separately:

Weekday Ridecheck Excel Summary file,
Saturday Ridecheck Excel Summary file, and
Sunday Ridecheck Excel Summary file.

In addition hard copy reports for Weekday, Saturday and Sunday have been delivered in five 3 ring binders.

For the ridecheck survey, there were approximately 2414 weekday pay hours, 1399 Saturday pay hours, and 614 Sunday pay hours surveyed. Pay hours are defined as the surveyor garage report time to the time the surveyor is scheduled to return to the garage. The pay hour breakdown by garage is follows.

Garage	Total	Weekday	Saturday	Sunday
Oakland	1611	862	508	241
Wayne	1282	702	410	170
Macomb	1535	851	481	203.

SMART provided several databases that were utilized in the preparation for the survey. These were:

Headway Sheets by Route and day of week;
Driver Paddles by garage and day of week; and
Bus stop listings for all routes by direction, including latitude and longitude for each stop.

The preparation for the survey was done from the middle of March through the middle of April, 2011. The field work was conducted from April 8th to May 21st, 2011. Survey training was conducted on April 8th at the Macomb and Wayne garages; and on April 29th at the Oakland facility. Field surveying at the Wayne garage was conducted from April 9th through April 17th with 2 pieces of work being surveyed on April 23rd. The bulk of the Macomb surveying was conducted from April 9th through April 17th, with additional work being conducted through April 30th. Field surveying was initiated at the Oakland facility on April 30th. The Weekday and Sunday surveying were completed May 10th. Saturday surveying was completed on May 21st..

There are currently several methods utilized to collect ridecheck information. These are generally categorized into automatic passenger collection, hand held units, and the manual method. The manual method was used to collect the information. This method basically consisted of preparing "surveyor

packets” for a surveyor to tabulate boardings, alightings, and arrival times at timepoints. The surveyor attached the packet to a clipboard and recorded the information as he/she rode the bus. The information was then keyed, edited and summarized.

AJM worked closely with SMART during the preparation for and conduct of the survey. Temporary surveyors were hired through Express Personnel in Clinton Township and Farmington Hills.

The preparation for the ridecheck survey consisted of several tasks. These included preparing the survey packets for use in the survey, scheduling the pieces of work to be surveyed each day, and hiring and training the surveyors.

The survey was set up to survey pieces of work where a piece of work is defined as the time a driver starts a shift to the time the driver ends the shift. A survey packet was developed for each piece of work.

The survey packet consisted of two basic forms. The “front” sheet defined the trips to be surveyed for a given piece of work. The sheet defined the start and end times of the piece of work, the location where the work starts and ends, the route, direction and trip start time for each trip to be surveyed.

The second type of form in the survey packet was the ridecheck form. A separate ridecheck form was included for each trip to be surveyed. This form contained all street intersections for the route sequenced in the order of travel. The surveyor recorded the boardings and alightings at the appropriate intersection each time the bus stops. The scheduled time was pre-entered at the time points. The surveyor recorded the actual time the bus arrived at these timepoints.

Pertinent information defining each piece of work was entered into a spreadsheet for the purpose of scheduling the pieces of work. Initially all the pieces of work were scheduled into separate dates. The resulting schedules by date were used by the survey supervisor during the conduct of the survey. The survey packets were grouped by scheduled date, boxed, and transported to the SMART garages for distribution during the survey. Surveyors were hired and trained. Express Personnel recruited and screened the surveyors. An AJM Consulting supervisor trained the surveyors.

Field operations were coordinated with each of the terminal superintendents –

Steve Dobbins – Macomb Terminal;
Jackie Jefferson – Oakland Terminal; and
Darren Beach – Wayne Terminal.

For each survey day, the surveyors were informed of their scheduled beginning and ending times by the supervisor on the day before. Each survey day, the surveyors reported to a supervisor in the driver's room. The supervisor then gave the surveyor the survey packet. The surveyor boarded the bus at the garage for the piece of work. The survey supervisor coordinated with the SMART dispatchers to obtain the bus number for each piece of work. This bus number was recorded on the survey packet and the surveyor checked the bus they were boarding to ensure that they were on the proper coach.

The supervisor reviewed all returned survey packets to ensure that the work was completed and that there were no obvious errors. The supervisor checked off each completed piece of work on the master schedule to ensure that all pieces were surveyed.

After the survey, completed survey forms were transported to AJM offices in Northern Kentucky. The ridecheck forms were edited to eliminate or correct any obvious errors which were not caught by the supervisors. The ridecheck forms were then keyed to an ASCII file. Subsequently, the ASCII file was organized by survey date and then processed through various editing programs. Minor adjustments to the files were made as required.

After all the files were edited, the files were merged into three master files – one for weekday trips, a second for Saturday trips and a third for Sunday trips. Summaries were run that listed trips by route and trip start time. These summaries were compared to the public timetables to ensure that all trips were surveyed.

B. Results

1. Microsoft Excel Files

The ridecheck master files were summarized into five Microsoft Excel worksheet reports. There are three Excel Files – Weekday, Saturday and Sunday. The worksheet reports are defined below.

Route Totals

This summary contains total passenger boardings and alightings for each route.

Running Time Detail

This report contains actual and scheduled running times by route for each trip between time points. The difference is also computed and displayed.

On-Time Detail

This report contains on time performance by route for each trip and selected time points. The values in the report are the difference between scheduled times and observed actual time. A positive value indicates the bus was late. A negative value indicates the bus was early.

Maximum Passenger Load by Trip

This summary contains boardings, alightings and the maximum load for each trip by route and trip start time.

Trip Detail

This summary contains boardings, alightings, and onboard (passenger load) for each route by trip and bus stop.

Ons, Offs, Passenger Load by Bus Stop and Route

This summary contains boardings, alightings, total activity, and passenger load by route and bus stop.

These Microsoft Excel files were transmitted to SMART staff and are referenced as Appendices in this report...

2. Paper Reports

The ridecheck data was organized into four paper reports for Weekday, Saturday, and Sunday. These are described below.

Ridecheck Analysis for Aggregate Trips

This summary contains boardings, alightings, and passenger load by route and stop.

Aggregated Boarding, Alightings & Total Activity

This summary contains boardings, alightings, and total activity by route and stop.

On Time Performance

This report contains on time performance by route for each trip and selected time points. The values in the report are the difference between scheduled times and observed actual time. A positive value indicates the bus was late. A negative value indicates the bus was early

Boardings, Alightings, and Load by Trip

This summary contains boardings, alightings, and onboard (passenger load) for each route by trip and stop.

These reports were bound separately and delivered to SMART staff. They are referenced as Appendices in this report.

3. Route Profiles and Route Activity Graphics

Route profiles were developed by route and day of week. They contain the following by total, direction, route segment and time period in tabular form:

Boardings,
Alightings,
Passenger Miles,
Service Hours;
Revenue Miles;
Average Trip Length;
Boardings per Service Hour;
Boardings per Revenue Mile; and
Maximum Load.

They also display by total, direction and route segment the following:

Percent On time;
Percent Early; and
Percent Late.

Percent On time utilizes the SMART standard of 0 to 5 minutes late being considered on time.

The route profiles also display in graphical form the following:

Passenger Load by direction, stop and time period;
Boardings and alightings by stop and direction; and
Bus trip running time by trip and direction.

The route activity graphs display a route map with daily boardings and alightings displayed with a scale sized circles on the maps. There is a separate map for each direction.

The Route Profiles and Route Activity Graphics have been posted at a FTP site with files PDF files suitable for viewing or downloading. These files are as follows:

Weekday Profiles	Weekday_profiles.pdf;
Saturday Profiles	Saturday_profiles.pdf;
Sunday Profiles	Sunday_profiles.pdf;
Weekday Activity	Weekday_all.pdf;
Saturday Activity	Saturday_all.pdf; and
Sunday Activity	Sunday_all.pdf.

In addition the shape files have been posted at the same FTP site. The file name is On_off_shapefiles.zip. These FTP files have been referenced in this report as Appendices.

4. Additional Summaries - Weekday

The following table depicts Weekday boardings, percent on time and maximum load for each route.

SMART Weekday Summary by Route

Route No.	Route Description	Boardings	Percent On Time	Max Load
125	Fort St-Eureka	2293	70.3%	44
135	Southshore	44	91.7%	11
140	Southshore	341	70.3%	38
145	Carlisle	82	94.8%	8
150	Allen-Wick	62	81.0%	15
160	Downriver	214	56.2%	10
190	Taylor Flyer	14	84.6%	3
200	Michigan Ave	3050	79.6%	59
202	Romulus	13	83.3%	5
245	Cherry Hill	207	71.7%	12
250	Ford Rd	379	72.3%	23
255	Ford Rd Ex	248	65.8%	30
265	Warren Rd	322	76.4%	23
275	Telegraph	1406	58.8%	52
280	Middlebelt	331	90.4%	15
305	Grand River	24	92.9%	13
330	Grand River	437	58.3%	16
385	Orchard Lake	93	80.1%	6
400	Southfield	267	78.3%	17
405	Northwestern	536	81.5%	26
415	Southfield	1020	81.1%	26
420	Southfield	611	84.7%	26
430	Main St	125	95.2%	10
445	Woodward	140	73.1%	23
450	Woodward	2518	77.0%	41
460	Woodward	2396	77.9%	53
465	Auburn Hills	233	67.0%	31
475	Woodward	188	73.4%	37
494	Dequindre	653	72.4%	22
495	John R	2025	79.0%	33
510	Van Dyke	2998	63.0%	51
530	Schoenherr	149	67.9%	25
550	Garfield	372	86.6%	30
559	Auburn Hills	26	75.0%	7

SMART Weekday Summary by Route (Cont)

Route No.	Route Description	Boardings	Percent On Time	Max Load
560	Gratiot	5795	64.3%	61
580	Harper	126	81.1%	18
610	Jefferson	690	75.8%	20
615	Jefferson	445	85.3%	18
620	Charlevoix	74	70.8%	22
635	East Jefferson	105	78.6%	18
710	Nine Mile	2076	80.5%	31
730	Ten Mile	685	62.9%	26
740	Twelve Mile	1697	74.4%	37
752	Oakland Pointe	165	83.0%	12
753	Baldwin	293	82.0%	16
756	Perry-Opdyke	204	87.5%	18
760	14 Mile Road	430	82.7%	15
780	15 Mile Road	839	72.5%	21
805	Grand River P&R	374	80.4%	39
830	Downriver P&R	254	80.2%	24
851	W Bloomfield	362	75.2%	35
Total		38431	73.6%	

This table shows that Route 560 – Gratiot carries 15 percent of the total Weekday ridership. The top eight ridership routes (out of a total of 51) – 560, 200, 510, 450, 460, 125, 710 and 495 carry 60 percent of the total Weekday ridership.

Certain Weekday data was also summarized by time period. These totals follow.

Time Period	Boardings	Percent On Time
Before 6am	1203	80.1%
6am to 9am	7917	77.3%
9am to 3pm	12795	75.9%
3pm to 6pm	10153	68.7%
6pm to 9pm	4148	71.4%
After 9pm	2215	69.0%
Total	38431	73.6%

The following pages display Weekday Boardings and Percent on Time by Route and Time Period.

Route 125 Fort St-Eureka

Time Period	Boardings	Percent on Time
Before 6am	74	66.7%
6am to 9am	401	78.3%
9am to 3pm	796	79.6%
3pm to 6pm	587	49.6%
6pm to 9pm	282	55.2%
After 9pm	153	69.2%
Total	2293	73.0%

Route 135 Southshore

Time Period	Boardings	Percent on Time
6am to 9am	26	100.0%
3pm to 6pm	18	83.3%
Total	44	91.7%

Route 140 Southshore

Time Period	Boardings	Percent on Time
6am to 9am	74	88.9%
9am to 3pm	123	65.8%
3pm to 6pm	116	71.4%
6pm to 9pm	24	63.2%
After 9pm	4	71.4%
Total	341	70.3%

Route 145 Carlyle

Time Period	Boardings	Percent on Time
6am to 9am	21	90.5%
9am to 3pm	33	97.8%
3pm to 6pm	18	90.9%
6pm to 9pm	10	100.0%
Total	82	94.8%

Route 150 Allen-Wick

Time Period	Boardings	Percent on Time
6am to 9am	36	88.9%
3pm to 6pm	26	77.3%
6pm to 9pm	0	50.0%
Total	62	81.0%

Route 160 Downriver

Time Period	Boardings	Percent on Time
6am to 9am	32	63.9%
9am to 3pm	113	47.0%
3pm to 6pm	59	63.4%
6pm to 9pm	10	68.8%
Total	214	56.2%

Route 190 Taylor Flyer

Time Period	Boardings	Percent on Time
Before 6am	1	100.0%
6am to 9am	4	85.7%
9am to 3pm	4	66.7%
3pm to 6pm	5	85.7%
Total	14	84.6%

Route 200 Michigan Ave

Time Period	Boardings	Percent on Time
Before 6am	135	95.0%
6am to 9am	558	82.1%
9am to 3pm	1005	83.9%
3pm to 6pm	802	70.3%
6pm to 9pm	358	72.2%
After 9pm	192	81.7%
Total	3050	79.6%

Route 202 Romulus

Time Period	Boardings	Percent on Time
Before 6am	5	100.0%
6am to 9am	4	88.9%
9am to 3pm	2	66.7%
3pm to 6pm	2	83.3%
Total	13	83.3%

Route 245 Cherry Hill

Time Period	Boardings	Percent on Time
6am to 9am	34	78.3%
9am to 3pm	112	77.6%
3pm to 6pm	45	58.6%
6pm to 9pm	16	60.0%
Total	207	71.7%

Route 250 Ford Rd

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	63	65.5%
9am to 3pm	144	96.4%
3pm to 6pm	75	55.6%
6pm to 9pm	77	53.6%
After 9pm	20	60.0%
Total	379	72.3%

Route 255 Ford Rd Express

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	133	77.5%
3pm to 6pm	111	51.7%
6pm to 9pm	4	20.0%
Total	248	65.8%

Route 265 Warren Rd

Time Period	Boardings	Percent on Time
6am to 9am	77	67.5%
9am to 3pm	133	85.2%
3pm to 6pm	84	75.0%
6pm to 9pm	28	61.9%
Total	322	76.4%

Route 275 Telegraph

Time Period	Boardings	Percent on Time
Before 6am	2	90.0%
6am to 9am	291	75.3%
9am to 3pm	492	66.0%
3pm to 6pm	390	47.5%
6pm to 9pm	197	39.5%
After 9pm	34	50.0%
Total	1406	58.8%

Route 280 Middlebelt

Time Period	Boardings	Percent on Time
Before 6am	7	100.0%
6am to 9am	73	96.8%
9am to 3pm	110	83.1%
3pm to 6pm	76	93.5%
6pm to 9pm	39	93.3%
After 9pm	26	91.3%
Total	331	90.4%

Route 305 Grand River

Time Period	Boardings	Percent on Time
Before 6am	7	88.9%
6am to 9am	17	100.0%
Total	24	92.9%

Route 330 Grand River

Time Period	Boardings	Percent on Time
Before 6am	5	25.0%
6am to 9am	84	65.0%
9am to 3pm	166	48.8%
3pm to 6pm	87	68.3%
6pm to 9pm	73	42.9%
After 9pm	22	92.9%
Total	437	58.3%

Route 385 Orchard Lake

Time Period	Boardings	Percent on Time
6am to 9am	14	79.2%
9am to 3pm	55	78.6%
3pm to 6pm	17	88.4%
6pm to 9pm	7	76.3%
After 9pm	0	50.0%
Total	93	80.1%

Route 400 Southfield

Time Period	Boardings	Percent on Time
6am to 9am	77	78.6%
9am to 3pm	94	70.9%
3pm to 6pm	86	80.0%
6pm to 9pm	10	100.0%
Total	267	78.3%

Route 405 Northwestern

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	130	87.2%
9am to 3pm	226	79.5%
3pm to 6pm	147	78.8%
6pm to 9pm	33	71.4%
Total	536	81.5%

Route 415 Southfield

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	213	84.9%
9am to 3pm	313	87.0%
3pm to 6pm	320	67.1%
6pm to 9pm	134	80.0%
After 9pm	40	81.0%
Total	1020	81.1%

Route 420 Southfield

Time Period	Boardings	Percent on Time
Before 6am	17	100.0%
6am to 9am	156	84.7%
9am to 3pm	155	97.3%
3pm to 6pm	213	70.3%
6pm to 9pm	52	90.9%
After 9pm	18	58.3%
Total	611	84.7%

Route 430 Main St

Time Period	Boardings	Percent on Time
6am to 9am	32	93.9%
9am to 3pm	31	88.9%
3pm to 6pm	49	97.6%
6pm to 9pm	13	100.0%
Total	125	95.2%

Route 445 Woodward

Time Period	Boardings	Percent on Time
6am to 9am	58	55.6%
3pm to 6pm	71	100.0%
6pm to 9pm	11	37.5%
Total	140	73.1%

Route 450 Woodward

Time Period	Boardings	Percent on Time
Before 6am	120	84.6%
6am to 9am	320	76.3%
9am to 3pm	934	79.3%
3pm to 6pm	546	75.8%
6pm to 9pm	291	81.7%
After 9pm	307	65.8%
Total	2518	77.0%

Route 460 Woodward

Time Period	Boardings	Percent on Time
Before 6am	95	73.9%
6am to 9am	341	75.3%
9am to 3pm	918	81.7%
3pm to 6pm	525	65.8%
6pm to 9pm	252	83.0%
After 9pm	265	86.0%
Total	2396	77.9%

Route 465 Auburn Hills

Time Period	Boardings	Percent on Time
Before 6am	6	60.0%
6am to 9am	81	71.4%
9am to 3pm	0	100.0%
3pm to 6pm	107	67.9%
6pm to 9pm	39	54.5%
Total	233	67.0%

Route 475 Woodward

Time Period	Boardings	Percent on Time
6am to 9am	111	81.3%
3pm to 6pm	65	52.4%
6pm to 9pm	12	90.9%
Total	188	73.4%

Route 494 Dequindre

Time Period	Boardings	Percent on Time
6am to 9am	129	67.5%
9am to 3pm	221	54.5%
3pm to 6pm	147	86.8%
6pm to 9pm	88	91.9%
After 9pm	68	78.6%
Total	653	72.4%

Route 495 John R

Time Period	Boardings	Percent on Time
Before 6am	50	90.5%
6am to 9am	450	82.7%
9am to 3pm	582	81.3%
3pm to 6pm	595	73.4%
6pm to 9pm	212	71.4%
After 9pm	136	79.2%
Total	2025	79.0%

Route 510 Van Dyke

Time Period	Boardings	Percent on Time
Before 6am	205	78.6%
6am to 9am	571	64.3%
9am to 3pm	969	65.0%
3pm to 6pm	747	52.7%
6pm to 9pm	325	61.3%
After 9pm	181	70.1%
Total	2998	63.0%

Route 530 Schoenherr

Time Period	Boardings	Percent on Time
6am to 9am	94	65.6%
3pm to 6pm	52	63.6%
6pm to 9pm	3	83.3%
Total	149	69.0%

Route 550 Garfield

Time Period	Boardings	Percent on Time
6am to 9am	63	100.0%
9am to 3pm	140	90.9%
3pm to 6pm	109	83.3%
6pm to 9pm	47	77.3%
After 9pm	13	66.7%
Total	372	86.6%

Route 559 Auburn Hills

Time Period	Boardings	Percent on Time
Before 6am	6	25.0%
6am to 9am	6	62.5%
3pm to 6pm	14	100.0%
Total	26	75.0%

Route 560 Gratiot

Time Period	Boardings	Percent on Time
Before 6am	215	71.4%
6am to 9am	1050	69.8%
9am to 3pm	2034	62.3%
3pm to 6pm	1427	67.1%
6pm to 9pm	622	64.2%
After 9pm	447	36.9%
Total	5795	64.3%

Route 580 Harper

Time Period	Boardings	Percent on Time
6am to 9am	67	67.9%
3pm to 6pm	59	93.8%
6pm to 9pm	0	100.0%
Total	126	81.1%

Route 610 Jefferson

Time Period	Boardings	Percent on Time
Before 6am	17	100.0%
6am to 9am	128	70.0%
9am to 3pm	203	85.7%
3pm to 6pm	154	61.1%
6pm to 9pm	124	80.7%
After 9pm	64	65.1%
Total	690	75.8%

Route 615 Jefferson

Time Period	Boardings	Percent on Time
Before 6am	5	85.7%
6am to 9am	88	94.3%
9am to 3pm	186	81.9%
3pm to 6pm	133	83.0%
6pm to 9pm	33	90.0%
Total	445	85.3%

Route 620 Charlevoix

Time Period	Boardings	Percent on Time
6am to 9am	32	83.3%
3pm to 6pm	37	57.7%
6pm to 9pm	5	83.3%
Total	74	70.8%

Route 635 East Jefferson

Time Period	Boardings	Percent on Time
6am to 9am	50	67.6%
3pm to 6pm	55	87.1%
6pm to 9pm	0	100.0%
Total	105	78.6%

Route 710 Nine Mile

Time Period	Boardings	Percent on Time
Before 6am	50	100.0%
6am to 9am	391	90.1%
9am to 3pm	758	80.8%
3pm to 6pm	521	71.1%
6pm to 9pm	252	77.0%
After 9pm	104	77.1%
Total	2076	80.5%

Route 730 Ten Mile

Time Period	Boardings	Percent on Time
Before 6am	0	66.7%
6am to 9am	138	60.8%
9am to 3pm	302	68.3%
3pm to 6pm	206	46.2%
6pm to 9pm	39	66.7%
Total	685	62.9%

Route 740 Twelve Mile

Time Period	Boardings	Percent on Time
Before 6am	28	52.9%
6am to 9am	341	79.7%
9am to 3pm	629	71.9%
3pm to 6pm	429	58.2%
6pm to 9pm	201	84.0%
After 9pm	69	90.3%
Total	1697	74.4%

Route 752 Oakland Pointe

Time Period	Boardings	Percent on Time
6am to 9am	12	84.6%
9am to 3pm	99	81.3%
3pm to 6pm	33	91.7%
6pm to 9pm	21	73.3%
Total	165	83.0%

Route 753 Baldwin

Time Period	Boardings	Percent on Time
6am to 9am	32	77.8%
9am to 3pm	123	93.8%
3pm to 6pm	85	53.1%
6pm to 9pm	49	96.3%
After 9pm	4	100.0%
Total	293	82.0%

Route 756 Perry-Opdyke

Time Period	Boardings	Percent on Time
6am to 9am	25	87.5%
9am to 3pm	130	78.7%
3pm to 6pm	46	100.0%
6pm to 9pm	3	100.0%
Total	204	87.5%

Route 760 14 Mile Road

Time Period	Boardings	Percent on Time
Before 6am	19	90.0%
6am to 9am	105	81.8%
9am to 3pm	173	82.2%
3pm to 6pm	109	63.0%
6pm to 9pm	24	87.5%
Total	430	82.7%

Route 780 15 Mile Road

Time Period	Boardings	Percent on Time
Before 6am	10	100.0%
6am to 9am	206	78.2%
9am to 3pm	287	86.1%
3pm to 6pm	196	54.7%
6pm to 9pm	92	71.1%
After 9pm	48	60.7%
Total	839	72.5%

Route 805 Grand River P&R

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	187	83.7%
3pm to 6pm	166	75.0%
6pm to 9pm	21	83.3%
Total	374	80.4%

Route 830 Downriver P&R

Time Period	Boardings	Percent on Time
Before 6am	124	100.0%
6am to 9am	116	75.9%
3pm to 6pm	14	83.7%
6pm to 9pm	0	83.3%
Total	254	80.2%

Route 851 W Bloomfield

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	175	74.0%
3pm to 6pm	172	84.1%
6pm to 9pm	15	33.3%
Total	362	75.2%

5. Additional Summaries - Saturday

The following table depicts Saturday boardings, percent on time and maximum load for each route.

SMART Saturday Summary by Route

Route		Boardings	Percent	Max
Route No.	Description		On Time	Load
125	Fort St-Eureka	1403	62.4%	32
140	Southshore	149	84.4%	10
145	Carlisle	41	79.7%	6
160	Downriver	49	81.7%	6
200	Michigan Ave	1728	75.1%	38
245	Cherry Hill	122	76.7%	14
250	Ford Rd	254	86.7%	16
265	Warren Rd	197	83.3%	16
275	Telegraph	792	63.7%	18
280	Middlebelt	182	84.6%	11
330	Grand River	202	77.9%	12
385	Orchard Lake	42	75.7%	3
405	Northwestern	339	95.2%	29
415	Southfield	589	84.7%	20
420	Southfield	277	90.4%	21
450	Woodward	1881	50.8%	46
460	Woodward	2418	72.3%	41
494	Dequindre	501	87.1%	16
495	John R	1125	82.4%	45
510	Van Dyke	2295	63.8%	60
550	Garfield	178	88.5%	18
560	Gratiot	4279	65.6%	84
610	Jefferson	374	69.9%	16
615	Jefferson	287	72.9%	22
710	Nine Mile	947	90.3%	24
730	Ten Mile	417	77.8%	14
740	Twelve Mile	763	83.8%	20
752	Oakland Pointe	121	81.2%	11
753	Baldwin	330	85.0%	18
756	Perry-Opdyke	153	82.7%	13
760	14 Mile Road	96	91.3%	12
780	15 Mile Road	489	80.2%	26
Total		23020	74.9%	

This table shows that Route 560 – Gratiot carries 18.5 percent of the total Saturday ridership. The top six ridership routes (out of a total of 32) – 560, 460, 510, 450, 200, and 125 carry 61 percent of the total Saturday ridership.

Certain Saturday data was also summarized by time period. These totals follow.

Time Period	Boardings	Percent On Time
Before 6am	256	80.5%
6am to 9am	2740	77.0%
9am to 3pm	9793	75.9%
3pm to 6pm	5114	74.1%
6pm to 9pm	3464	74.3%
After 9pm	1653	69.8%
Total	23020	74.9%

The following pages display Saturday Boardings and Percent on Time by Route and Time Period.

Route 125 Fort St-Eureka

Time Period	Boardings	Percent on Time
Before 6am	20	88.9%
6am to 9am	222	69.5%
9am to 3pm	564	73.4%
3pm to 6pm	287	65.5%
6pm to 9pm	213	35.2%
After 9pm	97	31.9%
Total	1403	62.4%

Route 140 Southshore

Time Period	Boardings	Percent on Time
6am to 9am	13	100.0%
9am to 3pm	77	83.9%
3pm to 6pm	38	71.4%
6pm to 9pm	21	100.0%
Total	149	84.4%

Route 145 Carlisle

Time Period	Boardings	Percent on Time
6am to 9am	30	50.0%
9am to 3pm	7	77.8%
3pm to 6pm	4	89.5%
6pm to 9pm	0	71.4%
Total	41	79.7%

Route 160 Downriver

Time Period	Boardings	Percent on Time
6am to 9am	0	50.0%
9am to 3pm	39	79.5%
3pm to 6pm	10	89.5%
Total	49	81.7%

Route 200 Michigan Ave

Time Period	Boardings	Percent on Time
Before 6am	48	89.5%
6am to 9am	174	62.5%
9am to 3pm	726	59.5%
3pm to 6pm	380	76.1%
6pm to 9pm	252	87.5%
After 9pm	148	90.0%
Total	1728	75.1%

Route 245 Cherry Hill

Time Period	Boardings	Percent on Time
6am to 9am	4	100.0%
9am to 3pm	71	68.1%
3pm to 6pm	38	82.6%
6pm to 9pm	9	88.9%
Total	122	76.7%

Route 250 Ford Rd

Time Period	Boardings	Percent on Time
6am to 9am	26	68.4%
9am to 3pm	96	96.7%
3pm to 6pm	65	93.1%
6pm to 9pm	43	80.0%
After 9pm	24	70.6%
Total	254	86.7%

Route 265 Warren Rd

Time Period	Boardings	Percent on Time
6am to 9am	12	81.8%
9am to 3pm	105	84.0%
3pm to 6pm	59	80.0%
6pm to 9pm	21	92.9%
Total	197	83.3%

Route 275 Telegraph

Time Period	Boardings	Percent on Time
6am to 9am	125	72.5%
9am to 3pm	347	56.3%
3pm to 6pm	171	69.9%
6pm to 9pm	108	63.0%
After 9pm	41	67.6%
Total	792	63.7%

Route 280 Middlebelt

Time Period	Boardings	Percent on Time
Before 6am	5	100.0%
6am to 9am	24	87.1%
9am to 3pm	81	89.8%
3pm to 6pm	42	80.0%
6pm to 9pm	18	75.9%
After 9pm	12	78.3%
Total	182	84.6%

Route 330 Grand River

Time Period	Boardings	Percent on Time
6am to 9am	29	61.8%
9am to 3pm	99	72.9%
3pm to 6pm	39	79.1%
6pm to 9pm	31	96.8%
After 9pm	4	100.0%
Total	202	77.9%

Route 385 Orchard Lake

Time Period	Boardings	Percent on Time
6am to 9am	0	50.0%
9am to 3pm	25	74.1%
3pm to 6pm	12	77.3%
6pm to 9pm	5	82.4%
Total	42	75.7%

Route 405 Northwestern

Time Period	Boardings	Percent on Time
6am to 9am	55	92.3%
9am to 3pm	153	91.8%
3pm to 6pm	103	95.5%
6pm to 9pm	28	100.0%
Total	339	95.2%

Route 415 Southfield

Time Period	Boardings	Percent on Time
6am to 9am	72	88.2%
9am to 3pm	252	78.4%
3pm to 6pm	139	75.6%
6pm to 9pm	86	97.2%
After 9pm	40	100.0%
Total	589	84.7%

Route 420 Southfield

Time Period	Boardings	Percent on Time
6am to 9am	35	75.9%
9am to 3pm	135	87.5%
3pm to 6pm	68	97.3%
6pm to 9pm	32	100.0%
After 9pm	7	100.0%
Total	277	90.4%

Route 450 Woodward

Time Period	Boardings	Percent on Time
Before 6am	58	81.8%
6am to 9am	230	75.9%
9am to 3pm	640	51.6%
3pm to 6pm	337	52.1%
6pm to 9pm	321	49.0%
After 9pm	295	26.8%
Total	1881	50.8%

Route 460 Woodward

Time Period	Boardings	Percent on Time
Before 6am	23	91.7%
6am to 9am	343	85.5%
9am to 3pm	988	73.4%
3pm to 6pm	549	55.8%
6pm to 9pm	383	56.2%
After 9pm	132	92.5%
Total	2418	72.3%

Route 494 Dequindre

Time Period	Boardings	Percent on Time
6am to 9am	40	83.8%
9am to 3pm	205	87.5%
3pm to 6pm	98	85.4%
6pm to 9pm	92	92.5%
After 9pm	66	78.6%
Total	501	87.1%

Route 495 John R

Time Period	Boardings	Percent on Time
6am to 9am	100	84.6%
9am to 3pm	448	80.6%
3pm to 6pm	312	71.9%
6pm to 9pm	183	84.4%
After 9pm	82	93.5%
Total	1125	82.4%

Route 510 Van Dyke

Time Period	Boardings	Percent on Time
Before 6am	12	80.0%
6am to 9am	308	47.9%
9am to 3pm	961	69.1%
3pm to 6pm	474	59.4%
6pm to 9pm	346	60.9%
After 9pm	194	73.8%
Total	2295	63.8%

Route 550 Garfield

Time Period	Boardings	Percent on Time
6am to 9am	12	93.3%
9am to 3pm	65	88.6%
3pm to 6pm	29	85.0%
6pm to 9pm	29	87.5%
After 9pm	43	90.0%
Total	178	88.5%

Route 560 Gratiot

Time Period	Boardings	Percent on Time
Before 6am	80	73.3%
6am to 9am	362	77.1%
9am to 3pm	1882	70.5%
3pm to 6pm	930	65.0%
6pm to 9pm	680	62.2%
After 9pm	345	47.7%
Total	4279	65.6%

Route 610 Jefferson

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	36	80.0%
9am to 3pm	154	67.6%
3pm to 6pm	84	61.1%
6pm to 9pm	70	67.6%
After 9pm	30	73.2%
Total	374	69.9%

Route 615 Jefferson

Time Period	Boardings	Percent on Time
6am to 9am	63	73.5%
9am to 3pm	149	65.3%
3pm to 6pm	44	66.7%
6pm to 9pm	23	82.9%
After 9pm	8	84.6%
Total	287	72.9%

Route 710 Nine Mile

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	136	93.3%
9am to 3pm	457	94.5%
3pm to 6pm	219	86.0%
6pm to 9pm	125	82.7%
After 9pm	10	100.0%
Total	947	90.3%

Route 730 Ten Mile

Time Period	Boardings	Percent on Time
6am to 9am	60	88.0%
9am to 3pm	228	76.2%
3pm to 6pm	91	70.6%
6pm to 9pm	38	80.0%
Total	417	77.8%

Route 740 Twelve Mile

Time Period	Boardings	Percent on Time
Before 6am	8	58.8%
6am to 9am	132	84.8%
9am to 3pm	322	81.9%
3pm to 6pm	185	82.1%
6pm to 9pm	90	85.5%
After 9pm	26	100.0%
Total	763	83.8%

Route 752 Oakland Pointe

Time Period	Boardings	Percent on Time
6am to 9am	4	50.0%
9am to 3pm	59	84.8%
3pm to 6pm	47	81.8%
6pm to 9pm	11	80.0%
Total	121	81.2%

Route 753 Baldwin

Time Period	Boardings	Percent on Time
6am to 9am	15	71.4%
9am to 3pm	113	77.1%
3pm to 6pm	82	95.8%
6pm to 9pm	71	91.7%
After 9pm	49	100.0%
Total	330	85.0%

Route 756 Perry-Opdyke

Time Period	Boardings	Percent on Time
6am to 9am	13	66.7%
9am to 3pm	82	83.0%
3pm to 6pm	26	92.0%
6pm to 9pm	32	100.0%
Total	153	82.7%

Route 760 14 Mile Road

Time Period	Boardings	Percent on Time
Before 6am	2	100.0%
6am to 9am	13	85.0%
9am to 3pm	56	100.0%
3pm to 6pm	20	85.0%
6pm to 9pm	5	83.3%
Total	96	91.3%

Route 780 15 Mile Road

Time Period	Boardings	Percent on Time
6am to 9am	52	82.7%
9am to 3pm	207	86.4%
3pm to 6pm	132	70.6%
6pm to 9pm	98	76.9%
Total	489	80.2%

6. Additional Summaries - Sunday

The following table depicts Sunday boardings, percent on time and maximum load for each route.

SMART Sunday Summary by Route

Route		Percent		Max
Route No.	Description	Boardings	On Time	Load
125	Fort St-Eureka	807	73.1%	36
140	Southshore	33	76.7%	6
200	Michigan Ave	1146	61.7%	38
250	Ford Rd	190	66.4%	17
280	Middlebelt	139	85.9%	11
330	Grand River	102	92.3%	8
415	Southfield	318	85.6%	15
450	Woodward	1274	68.4%	35
460	Woodward	898	75.2%	33
495	John R	475	70.5%	22
510	Van Dyke	1210	70.5%	33
560	Gratiot	2538	75.3%	51
610	Jefferson	224	84.8%	12
710	Nine Mile	628	89.5%	26
740	Twelve Mile	317	62.5%	15
753	Baldwin	117	88.9%	15
Total		10416	73.7%	

This table shows that Route 560 – Gratiot carries 24.4 percent of the total Sunday ridership. The top four ridership routes (out of a total of 16) – 560, 450, 510, and 200 carry 59 percent of the total Sunday ridership.

Certain Sunday data was also summarized by time period. These totals follow.

Time Period	Boardings	Percent
		On Time
Before 6am	15	78.9%
6am to 9am	943	82.6%
9am to 3pm	4665	75.4%
3pm to 6pm	2571	70.8%
6pm to 9pm	1648	73.4%
After 9pm	574	63.1%
Total	10416	73.7%

The following pages display Sunday Boardings and Percent on Time by Route and Time Period.

Route 125 Fort St-Eureka

Time Period	Boardings	Percent on Time
Before 6am	0	50.0%
6am to 9am	104	94.9%
9am to 3pm	384	76.4%
3pm to 6pm	218	71.4%
6pm to 9pm	101	42.1%
After 9pm	0	50.0%
Total	807	73.1%

Route 140 Southshore

Time Period	Boardings	Percent on Time
6am to 9am	2	75.0%
9am to 3pm	19	75.0%
3pm to 6pm	8	86.7%
6pm to 9pm	4	60.0%
Total	33	76.7%

Route 200 Michigan Ave

Time Period	Boardings	Percent on Time
Before 6am	12	81.8%
6am to 9am	111	88.5%
9am to 3pm	477	58.7%
3pm to 6pm	219	60.9%
6pm to 9pm	184	65.5%
After 9pm	143	60.6%
Total	1146	61.7%

Route 250 Ford Rd

Time Period	Boardings	Percent on Time
6am to 9am	7	63.6%
9am to 3pm	109	62.1%
3pm to 6pm	50	61.5%
6pm to 9pm	24	93.3%
Total	190	66.4%

Route 280 Middlebelt

Time Period	Boardings	Percent on Time
Before 6am	3	80.0%
6am to 9am	21	85.7%
9am to 3pm	66	86.0%
3pm to 6pm	26	92.0%
6pm to 9pm	23	70.0%
Total	139	85.9%

Route 330 Grand River

Time Period	Boardings	Percent on Time
6am to 9am	10	100.0%
9am to 3pm	52	93.8%
3pm to 6pm	22	96.0%
6pm to 9pm	18	77.8%
Total	102	92.3%

Route 415 Southfield

Time Period	Boardings	Percent on Time
6am to 9am	26	86.7%
9am to 3pm	151	89.5%
3pm to 6pm	80	84.1%
6pm to 9pm	61	74.3%
Total	318	85.6%

Route 450 Woodward

Time Period	Boardings	Percent on Time
6am to 9am	161	64.2%
9am to 3pm	433	63.2%
3pm to 6pm	272	64.9%
6pm to 9pm	188	74.5%
After 9pm	220	78.3%
Total	1274	68.4%

Route 460 Woodward

Time Period	Boardings	Percent on Time
Before 6am	0	100.0%
6am to 9am	96	73.0%
9am to 3pm	430	76.5%
3pm to 6pm	231	66.0%
6pm to 9pm	129	86.1%
After 9pm	12	80.0%
Total	898	75.2%

Route 495 John R

Time Period	Boardings	Percent on Time
6am to 9am	38	71.4%
9am to 3pm	213	62.3%
3pm to 6pm	147	67.7%
6pm to 9pm	77	95.2%
Total	475	70.5%

Route 510 Van Dyke

Time Period	Boardings	Percent on Time
6am to 9am	105	74.4%
9am to 3pm	575	78.5%
3pm to 6pm	313	64.3%
6pm to 9pm	192	64.6%
After 9pm	25	21.4%
Total	1210	70.5%

Route 560 Gratiot

Time Period	Boardings	Percent on Time
6am to 9am	195	93.4%
9am to 3pm	1093	73.1%
3pm to 6pm	640	71.7%
6pm to 9pm	436	72.3%
After 9pm	174	50.0%
Total	2538	75.3%

Route 610 Jefferson

Time Period	Boardings	Percent on Time
6am to 9am	16	71.4%
9am to 3pm	106	89.3%
3pm to 6pm	64	76.2%
6pm to 9pm	38	76.2%
Total	224	84.8%

Route 710 Nine Mile

Time Period	Boardings	Percent on Time
6am to 9am	41	100.0%
9am to 3pm	327	92.1%
3pm to 6pm	145	73.7%
6pm to 9pm	115	96.9%
After 9pm	0	100.0%
Total	628	89.5%

Route 740 Twelve Mile

Time Period	Boardings	Percent on Time
6am to 9am	10	100.0%
9am to 3pm	173	63.3%
3pm to 6pm	87	59.1%
6pm to 9pm	47	70.3%
Total	317	62.5%

Route 753 Baldwin

Time Period	Boardings	Percent on Time
9am to 3pm	57	93.9%
3pm to 6pm	49	81.3%
6pm to 9pm	11	100.0%
Total	117	88.9%

III. SMALL BUS SURVEY

A. Methodology

The small bus survey was conducted at the same time as the fixed route survey. Survey packets similar to the fixed route survey packets were prepared for each piece of work. For the Fairlane Jobs Express, Groesbeck Flex Service, and the Hamtramck Shuttle, sheets were prepared with trip start times and designated stop locations. Lines were provided for the surveyor to record the stop location for other stops. For the Big Beaver Jobs Express, Lakeside Jobs Express, Oakland Mall Job Shuttle, and DAR, sheets were provided for the surveyor to record the stop location and actual time at boarding and alighting locations.

The survey data was keyed to an excel file to include Run No., Direction for the Groesbeck Flex Service only, Location, Time, Offs, Ons and Load. There is a separate worksheet for each of the various services plus a worksheet defining the total boardings for each service. The Workbook, entitled Small Bus, was transmitted to SMART staff and is referenced as an Appendix.

B. Results

The totals boardings for each service follow.

Service	Boardings
Big Beaver	21
Fairlane	37
Groesbeck	94
Hamtramck – Wkday	34
Hamtramck – Sat	29
Lakeside	13
Oakland Mall	50
DAR	94
Total	372