

**DEVELOPMENT AND IMPLEMENTATION OF MOBILITY OPTIONS
ASSESSMENT TOOLS**

FINAL REPORT

SUBMITTED TO

Michigan Department of Transportation

FTA GRANT NUMBER MI 80-0001

PROJECT NUMBER 861020

CONTRACT NUMBER 2006-0057

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MSU CONTRACT NUMBERS 61-7967, 61-7904, and 61-7921

MARCH 2010

ACKNOWLEDGMENT

The authors wish to acknowledge the support for this research that came from the Michigan Department of Transportation (MDOT). They also wish to express their appreciation to the MDOT professional staff that provided data and other background materials for this project. Moreover, there were numerous undergraduate and graduate students in the Departments of Civil and Environmental Engineering at the Michigan State University who provided great assistance in data collection in the field and subsequent analysis. Key among those were Greg Sivi and Adam Wolfsen who provided great assistance in the analysis of the survey results and subsequent presentation. Ghassan Abu-Lebdeh (former MSU faculty member) and Pallavi Polishetty (graduate student) also made significant contributions.

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TABLE OF CONTENTS

	page
title page	i
acknowledgement	ii
disclaimer	ii
table of contents	iii
list of tables	iv
OVERARCHING PROJECT OBJECTIVE	1
PROJECT TASK DESCRIPTIONS AND REPORT ORGANIZATION	1
Task 1. Develop and administer surveys to determine perceived gaps in transportation services (in the pilot area)	2
Task 2. Determine the extent of public and private transportation services available (in the pilot area)	2
Task 3. Analyze and compare outcomes from tasks 1 and 2 to identify mobility gaps.	2
Task 4. Identify and develop strategies to “close” existing gaps.	2
Task 5. Define and describe an “exportable” methodology to evaluate mobility gaps.	3
Project benefits, execution of tasks, and report organization	3
DEVELOPMENT AND EXECUTION OF USER AND NON-USER SURVEYS TO IDENTIFY MOBILITY GAPS	3
Survey Instrument Development	4
Sampling Techniques	5
Problems/Shortcomings with Samples and Responses	6
Analysis of User/Non-User Survey Responses	7
DEVELOPMENT AND EXECUTION OF PROVIDER SURVEYS TO IDENTIFY MOBILITY GAPS	10
Survey Instrument Development	11
Sampling Techniques	11
Problems/Shortcomings with Samples and Responses	11
Analysis of Provider Survey Responses	12
IDENTIFICATION OF MOBILITY GAPS AND RESOLUTIONS AND COMMENTS ON METHODOLOGY	13
The Nature of Service Issues and Perceived vs. Real Gaps	13
The Utility of the Implied Methodology	13
<i>Development of the Survey Instruments</i>	16
<i>Execution of the Surveys</i>	17
<i>Analysis, Gap Identification, and Resolution</i>	18
CONCLUSIONS	18
APPENDIX A: Listings of original Mobility Options Action Team and project advisory team	
APPENDIX B: basic mail-out survey instrument	

TABLE OF CONTENTS (continued)

	page
APPENDIX C: F2F on-the-bus survey instrument	
APPENDIX D: F2F reserve-a-ride survey instrument	
APPENDIX E: F2F at other locations survey instrument	
APPENDIX F: letter of introduction for F2F surveyors	
APPENDIX G: user/non-user comprehensive survey results	
APPENDIX H: provider survey with cover letter	
APPENDIX I: list of providers	
APPENDIX J: provider comprehensive survey results	

LIST OF TABLES

	page
Table 1. Sample sizes and response rates for user surveys.	6
Table 2. Perceived gaps/issues and their potential resolutions.	14

DEVELOPMENT AND IMPLEMENTATION OF MOBILITY OPTIONS ASSESSMENT TOOLS

This project was a direct outcome of the Michigan Transportation Summit held in 2003 and the ensuing activities of the Mobility Options Action Team*. The team was formed as a result of the first summit and continued its efforts into 2005. Given the inputs from the initial summit in late 2003, the action team worked through 2004 in refining three issues: 1) identification and evaluation of actual gaps in transportation services; 2) determination of perceptions of gaps in services; and 3) identification of funding options for enhancing mobility options.

More specifically for issues 1 and 2, the team's work included initial development of a methodology for determining the actual gaps in service and a draft survey instrument for determining perceived gaps, respectively. After having their efforts supported at the 2004 summit, the team focused its continuing efforts on moving forward with the tasks associated with accomplishing the work associated with issues 1 and 2 for a pilot area (e.g., a county or small-medium-sized metropolitan area). However, it became apparent that it was unlikely that the team could do this with the resources at their disposal (e.g., volunteer time from action team members) and that other support was needed. The result was that the current project was funded by MDOT to undertake a pilot project to accomplish the tasks associated with addressing issues 1 and 2.

OVERARCHING PROJECT OBJECTIVE

The overarching objective of this project was to develop a methodology to: assess the perceived gaps in transportation services from the consumers' perspective; determine the actual gaps in the transportation services offered by public and private providers; compare perceived and actual gaps; and determine the appropriate strategies to close those gaps. The latter range from education when perceived gaps are not real (i.e., gaps are perceived but service is actually available) to suggested allocation/reallocation of resources when they are. A pilot project was undertaken for the Jackson, Michigan, area, a medium-sized metropolitan area which ideally included urban, suburban, and rural areas. The idea being that a successful pilot project would provide a model approach/methodology that other areas or agencies (e.g., metropolitan planning organizations) could use.

PROJECT TASK DESCRIPTIONS AND REPORT ORGANIZATION

The project can be best described in terms of the tasks associated with the achievement of the overall objective described above.

*Note: More detail on the transportation summit and the work of the Mobility Options team can be found at:

http://www.michigan.gov/transportationsummit/0,1607,7-200-28478_28588_28664---,00.html

Task 1. Develop and administer surveys to determine perceived gaps in transportation services (in the pilot area).

Using the work of the mobility options team as a starting point, the first task was to develop and administer a survey of users and non-users and analyze the results to determine the perceived gaps in transportation services in the pilot area. This included an attempted “over-sampling” of the transportation disadvantaged so that it can be assured that the needs of users and would-be users of special purpose transportation services are identified and considered. The use of the term “transportation services” is meant to be more comprehensive rather than less—i.e., it is not meant to be limited to traditional providers of public transportation services (e.g., the local public transit system) but rather to include all identifiable providers of services including, for example, social service agencies. The survey was intended to be sent to a random sample of the population in the pilot area (which would include users and non-users of all transportation services). The purpose of “over-sampling” was to ensure that information was obtained from traditionally under-represented groups in a random sample. This can be done, for example, through use of client mailing lists (to the extent that those can be made available) or distribution through agencies or at public places (e.g., secretary of state offices, health-care clinics). The draft survey instrument developed by the mobility options team was the basis for further development.

Task 2. Determine the extent of public and private transportation services available (in the pilot area).

The second task was to develop and apply a procedure to determine the extent of public and private transportation services that are available in the pilot area and make a determination of the “real” gaps in service that are present. This included an inventory of the services offered by public and private (e.g., social service agencies) providers. This was basically done through the execution of a “provider survey.”

Task 3. Analyze and compare outcomes from tasks 1 and 2 to identify mobility gaps.

Given successful completion of tasks 1 and 2, the next step was to analyze and compare the outcomes from the two tasks and then determine the nature of the existing gaps between the services that are “supplied” by various providers and the services that are “demanded” by the actual and would-be users.

Task 4. Identify and develop strategies to “close” existing gaps.

Based on the nature of the gaps identified in task 3, it was the intention to identify/develop strategies to “close” existing gaps. Educational strategies are appropriate for situations where segments of the population perceive that there are gaps in service but, in fact, providers can fill these gaps. Resource

allocation/reallocation strategies are appropriate for situations where the perceived gaps are real—i.e., where no services actually exist.

Task 5. Define and describe an “exportable” methodology to evaluate mobility gaps.

The final task was to package the methodology implicit in tasks 1-4 so that other agencies (most likely MPOs or transit operating agencies) can use it to address transportation service needs for their area. This task also included the preparation of an overarching final report.

Project benefits, execution of tasks, and report organization

The projected benefits of the project accrue at both state and local levels. Successful identification of perceived and/or real gaps in transportation services will help local jurisdictions and traditional public and other providers determine how scarce transportation service resources might be better allocated or reallocated within their respective operating boundaries. The instruments and methodologies developed in the project should be usable by others (e.g., MPOs) to do similar assessments. MDOT could also make use of the instruments and methodologies to ensure that resources requested by local operating agencies are likely to meet local needs. These benefits are consistent with three of the four FTA planning emphasis areas: integrated planning and environmental process, consideration of management and operations within the planning process, and enhancing the technical capacity of planning processes.

The project was executed with substantial input from a project advisory team consisting representatives of the Jackson Transportation Authority (JTA), the Region 2 Planning Commission (which includes Jackson County), the Capital Area Transportation (CATA), and MDOT. Complete listings of the original Mobility Options Action Team and the project advisory team are provided in appendix A.

The execution of the five tasks articulated above was the emphasis of the project and generally provides the framework for this report although organization is not on an explicit task-by-task basis. The sections that follow begin with discussions of the development and execution of the several survey efforts—issues related to using these (prototype) tools more generally are presented in that context.

DEVELOPMENT AND EXECUTION OF USER AND NON-USER SURVEYS TO IDENTIFY MOBILITY GAPS

As a result of their Transportation Summit-related activities, the Mobility Options Action Team had begun to develop survey instruments that could be used to assess perceptions of whether “mobility gaps” existed. The intent was to survey individuals who already used the transportation system as well as those who were not being served. The system was defined loosely to include private personal transportation (e.g., private use of automobiles) and all manner of other components of the “system”—

including, for example, taxis, public transportation, shared rides, and social service providers. Early on, some consideration was also given to pedestrian and other non-motorized travel (e.g., bicyclists) but the primary focus that emerged during the project was on motorized travel. Special consideration was given to include the views of the “transportation disadvantaged” (e.g., the young, old, and poor)—those who tend to not have access to private automobiles and/or are otherwise captive to public transportation or social service providers. During the project itself, the survey instruments were significantly revised and refined with valuable and comprehensive input from the project advisory team.

Survey Instrument Development

The survey instruments that were developed were done “by committee”—initially the action team and later the advisory team. The most significant impacts of this approach is the length of the survey instruments and the time it takes to get to resolution—in general, the instruments are quite long and tend to include “something for everyone” who was involved in the process. While this approach is not necessarily bad, it is time consuming and, as noted, the instruments tend to get long. On the other hand, participation in the instrument development process is a good way to get engagement from a wide variety of stakeholders—if they participate, they have some vested interest in the overall outcome.

Four different survey instruments were eventually developed.

- The most widely-deployed instrument was one that was mailed out to several different groups defined by socioeconomic and other characteristics (see later discussion. Along with a typical introductory letter, the instrument is provided in appendix B. This is the most comprehensive instrument and serves as the basis for the others.
- The first variant of the basic instrument was used in face-to-face (F2F) interviews on regularly-scheduled JTA buses. It is provided in appendix C.
- The second variant of the basic instrument was used in F2F interviews on JTA’s demand-responsive/dial-a-ride service called Reserve-A-Ride (RAR) and found in appendix D.
- The final version was meant to be used in F2F interviews at locations such as malls, retirement communities, and other places of congregation. It is found in appendix E.

While a typical letter of introduction that was used by F2F interviewers (as needed) is provided in appendix F, in one way or another the following was the message that was used to explain the purpose of the survey to would-be respondents:

You are being asked to participate in this survey being conducted by Michigan State University as part of a research project funded by the Michigan Department of Transportation (MDOT). One of the objectives of the project, and the purpose of this survey, is to assess the public's perception of the availability, quality, and accessibility of transportation services in Jackson County.

Sampling Techniques

From the outset, it was desired to make sure that there was adequate representation of those segments of the population more likely to experience "mobility gaps." The fear was that, for example, a general random sample from the geographical area of interest (Jackson County in this instance) would not be sufficient for a meaningful assessment of the mobility problems of relatively smaller groups of the overall population—i.e., mobility problems of a disadvantaged population would be "washed out" by the perceptions of the majority of the population who may, in fact, NOT have such problems. To that end, several focused samples were used for the mail-out version of the survey, and it was intended that some of the F2F surveying would be similarly focused.

A mail-out survey was used (telephone was considered) primarily due to its relative simplicity and lower cost. A commercial provider of names and street addresses provided the following samples:

- a random sample of Jackson County
- a focused sample of "higher-income" areas (in/near the City of Jackson where household income > \$16,000), and
- a focused sample of "lower-income" areas (in/near the City of Jackson where household income < \$16,000).

JTA RAR users were also solicited for the mail-out survey. A list of all recent riders was provided by the JTA and was split by whether the address was in or outside of the city. All potential respondents who received the mail-out version were also provided with the opportunity to complete the survey on-line (using SurveyMonkey®). The latter was a futile exercise as literally only one or two people responded on line.

F2F surveys were also conducted on regularly-scheduled JTA buses, on RAR trips, and in "hard-to-reach" situations.

In all, the following table shows the "groups" of respondents that comprise the total sample that could be analyzed.

Table 1. Sample sizes and response rates for user surveys.

	Jackson County random	higher income	lower income	RAR riders in city	RAR riders outside	RAR riders F2F	JTA bus riders	hard-to-reach
total N	1,500	1,000	1,000	843	157	na	na	na
usable n	215	136	107	82	21	22	234	20
response	14.3%	13.6%	10.7%	9.7%	13.4%	na	na	na

Problems/Shortcomings with Samples and Responses

There were numerous problems that were encountered in identifying and then assembling the samples that were used for analysis. The list (comments) below serves as both caveats for interpreting the results presented in the next section and cautionary notes for undertaking similar work in the future.

- The initial samples (e.g., a random county-wide sample of 1,500) that were used for this project were not drawn so that “statistical significance” could be assured. A pragmatic cost limit was invoked—i.e., the largest sample that could be afforded was drawn. It is not clear that statistical significance is absolutely necessary—this would be a “local” decision if a similar survey was undertaken in the future. If the survey results are intended to be used in developing an actual estimate of dial-a-ride ridership, for example, then the sample should have statistical significance. That point notwithstanding, response rates were as expected or a little low.
- It was clear from the analysis (see later detail) that the respondents had different demographics than would be expected for a random sample. For example, a comparison of the age distribution of the actual county-wide respondents with that of the county’s population showed that respondents were much older than would be expected. This could be remedied by re-sampling or augmenting the mail-out survey with a follow-up telephone survey where respondents could be discarded if they did not fall into the needed age categories. On the other hand, the older population is more likely to have mobility issues—in that sense, the respondents are more likely to represent that segment of the population with problems. However, given the “older skew” of the respondents, interpreting responses as being “representative” of, say, the views of the county’s population toward transit service is somewhat problematic (and, in addition, incorrect from a strict statistical perspective).
- There were significant problems with collecting data from “hard-to-reach” groups and places. The attempt was made to collect survey data at public places (e.g., a mall) as well as retirement homes and the like. Requests for access were either denied at several retirement home-type facilities and malls or there was simply no response to oral or written messages. In other instances, an appropriate time for a

survey/interview session could just not be agreed-upon. In the end, only a very few groups/places were reached (and, hence, the very small n in table 1). In the future, significantly more field work would have to be done to better engage the “hard-to-reach” population. If such a survey was to be done in the future in another location by a third party, it would require even more cooperation with “locals” who could first identify all appropriate locations and then work with the third party group to actually gain access to those various locations.

Analysis of User/Non-User Survey Responses

While there were several versions of the user/non-user survey instruments, they were constructed and then coded so that common questions were used. So, while the source of information may be different (e.g., a response to a mail-out survey vs. the verbal response of a bus rider), the responses were coded and analyzed in the same file. Very basic analysis was done on all of the survey respondents and results were shown by question in tabular form and graphically (e.g., simple bar charts). The more important overarching results are summarized below. Note that there are responses to many questions that may be of interest to individual members of the advisory team (e.g., dealing explicitly with quality of service) that are not discussed in detail below. Comprehensive results can be found (by question for different groups) in appendix G.

- Countywide, higher-income, and lower-income samples are all significantly biased toward older respondents. All results need to be interpreted in this context. The bias would probably result in higher figures on utilization and dependence on public transportation.
- The private automobile is the dominant means of transportation (~90%) for the countywide and higher-income samples, but drops off dramatically for the lower-income sample (67%) and actual transit users (9-24%).
- For JTA reserve-a-ride (RAR) users, the RAR service was the primary mode for 28-60% of the users.
- The JTA bus system was the principal means of travel (mode) for actual bus riders and the “hard-to-reach” samples. Otherwise, designation of JTA as the principal mode ranged from only 0.5% for the countywide sample to 6-7% for the lower-income sample—and lower than riding with family and friends. Only 1.4% of the countywide sample identified themselves as frequent (5-7 times/week) users while this increased to 5.6% for the lower-income sample and jumped to 78.6% for actual bus riders. Half of the RAR users viewed themselves as frequent users of that service.

- Countywide, only 27% thought that JTA bus service was available to them although this increased to ~50% for the lower-income sample and RAR riders in the city (14% for RAR riders outside the city) and 86% for actual RAR users.
- Only 34% of the countywide respondents thought that RAR service was available to them (compared to 44% of the higher-income and 51% of the lower-income samples). Taxi service was perceived to be available by a much higher percentage in each case.
- Perceptions of the availability of information on services were generally positive for all samples although users had higher opinions than the general population samples.
- Overall, the countywide sample had the lowest perception of satisfaction with available transportation services while higher income, lower income, and user samples generally had more positive perceptions (i.e., average values greater than 3 on a 1-5 scale of satisfaction). These were the samples more likely to have had actual experience with the available system.
- Available transportation services (other than private car) are used to access medical/dental appointments, shopping, and work in varying degrees.
- In terms of system accessibility, more than 50% of the countywide and higher-income samples either didn't have a JTA stop nearby (more than 10 blocks) or didn't know the location of the nearest stop. This decreased to ~20% for the lower-income sample.
- As a general note, few respondents (<10%) found bus stops to be inaccessible or uncomfortable (and those few cited the lack of shelters and seating as the issues).
- "On-time" performance of RAR services was largely not viewed as a problem (not mentioned) or literally on time (85-90% total). Only a few respondents cited on-time performance as an issue.
- Generally speaking, various characteristics of RAR services were well-regarded by all samples with the results from face-to-face interviews with users providing higher favorability ratings.
- Perceptions of regularly-scheduled JTA bus service were generally positive across all samples. The face-to-face interviews with bus users resulted in somewhat lower perceptions but they were not significantly worse—for example, while 88% of actual riders (versus 96% of the countywide sample) did not note lateness as an issue, only ~4% indicated that buses were typically more than 10 minutes or more late (i.e.,

95% either did not identify lateness as a problem or indicated that the bus was not more than 5 minutes late).

- For respondents choosing to NOT use the transportation services available to them, the most-often cited reasons include service not being offered at the right time and, perhaps more importantly, the lack of flexibility of the service. Other issues include the need for “freedom/control” (cited by about a third of countywide, higher-income, and lower-income respondents).
- While 90% of the countywide and higher income samples indicated they had a driver’s license, that percentage decreased dramatically for other groups (e.g., <50% for all RAR riders).
- The percentage of respondents who did NOT think that their transportation needs were being met ranged from 7.5 to 38%. Somewhat surprisingly, both lower- and higher-income groups were more likely to not have problems.
- In terms of attitudes regarding the support of public transportation, actual users and both lower and higher income groups (in/near the city) were more likely to be favorably disposed than the countywide respondents, including funding through a special bond issue.
- For the “biggest problems” encountered in *using* transportation services, the lower income group thought that travel times were too long, RAR users noted inconsistent service, and all groups noted accessibility and availability. With the exception of availability, the problems were typically cited by <10% of any sample.
- In terms of problems with transportation services more generally, limited suburban access was the most-often cited by all groups (8-14%) with fees, unavailability of evening service, and inconsistent service also being mentioned by RAR users. Somewhat surprisingly, funding was not singled out by more than 1-2% of any group.
- When asked about the kind of trip which was most difficult to make, responses varied: the countywide sample noted medical appointments and out-of-town trips (~2%); higher income respondents noted medical appointments, the store, and out-of-town trips; lower income noted the store (~6%), medical appointments, and weekend/night trips; lower income respondents noted the store and weekend/nights; RAR users within the city noted the airport (~13%), weekend/night trips, work, and the store; and RAR users outside the city noted medical appointments, work, and weekends/nights.

The **overarching findings from the user survey** show that public transportation system users have a better opinion of the system and the services offered, and are more supportive of it (e.g., favorable toward expanded funding). Lower-income respondents tend to be more heavy users of the system and more reliant upon it (other choices are limited). While a sizable percentage of all groups do not think that their transportation needs are being met, the in/near city residents (who presumably have better public transportation service) have a more positive view than others. Perceived deficits in the transportation services that are available vary somewhat by survey sample—common themes seem to be a desire for more flexible and comprehensive service to meet diverse needs (e.g., better service for access to medical appointments, shopping). As noted, the samples of respondents are heavily biased toward older persons—it seems likely that a less-biased group of respondents would show less support for, and use of the available public system.

The detailed results from the user/non-user survey may well be of use to the local public transportation provider and others. While the survey instrument tended to get long, there is considerable detailed information on, for example, the importance of different aspects of existing service, how perceptions of area transportation services vary between users and non-users in the area, and other aspects of transportation in the area. There is also information regarding, for example, public feelings toward funding transportation services. Again, these results should be interpreted in the context that respondents from the random (e.g., county-wide) samples tended to be older than the general population of the county—so, for example, a mildly positive (or negative) attitude on some more controversial topic might not hold up if the entire population weighed in. Regarding financial issues, it should also be noted that the survey was undertaken before the economic downturn had been fully realized.

If the survey instruments are used in another location, by another agency, or by a third-party such as a university, a “human subjects” review may be necessary depending on local regulations. If, for example, a university was to execute such a survey, such a review would be required. Other agencies probably do not have such restrictions.

DEVELOPMENT AND EXECUTION OF PROVIDER SURVEYS TO IDENTIFY MOBILITY GAPS

If the user/non-user surveys were intended to identify *perceptions* of the gaps in mobility in the area being studied, the “provider survey” was intended to be more of a census of what services are actually being provided in the study area. The idea was to survey transportation service providers and identify the extent of transportation services being made available to actual and would-be transportation consumers.

As opposed to the development of the user/non-user survey instruments, the Mobility Options Action Team did not begin to develop survey instruments that could be used to assess the “reality” of whether “mobility gaps” existed when the transportation system was considered although they had defined that as an issue. Again, “the system” was

defined loosely to include private personal transportation (e.g., private use of automobiles) and all manner of other components of the “system”—including, for example, taxis, public transportation, shared rides, and social service providers. During the project itself, the survey instrument was further refined with significant input from the project advisory team.

Survey Instrument Development

As was the case with the user/non-user survey instruments, the “provider survey” instrument was developed with input from the advisory team. In this instance, the instrument was used more as a sort of census. The idea was that if this survey could be implemented with input from ALL providers in the Jackson area, a good understanding of exactly what services were available to the population would result. The instrument that was developed and then used is provided in appendix H.

Sampling Techniques

In this instance, the intention was to solicit ALL providers of transportation services in the area for information about the extent of the services provided—this would include the public transportation agency (JTA), taxi companies, social service agencies, and whatever other agencies or institutions provide service (e.g., bus/van service provided by a retirement home/village). The exception to this was school districts or any other private school. The primary list of providers came from JTA and was augmented by checking the internet and the Yellow Pages. The list is provided in appendix I.

Problems/Shortcomings with Samples and Responses

The responses to the mail-out survey and attempted follow-ups for either F2F or telephone interviews were disappointing. Basically, there were only four usable responses. There were numerous problems including flat-out refusals to participate (e.g., to a telephone follow-up to a mail-out), no answers, returned mail, and wrong numbers (e.g., no service).

Any similar effort to be undertaken in the future should allow for more time and effort to be spent in the field to more aggressively identify and contact providers. For example, the limited contact that was initiated with retirement homes revealed that some (perhaps even all) offer some sort of transportation service to their residents. While such service is not available to the public at large, it presumably goes a long way in satisfying the needs of the residents. Such service was not documented at all during the project. This problem points to the need for even more involvement by the local entities in identifying and contacting all manner of private providers and for more engagement by third parties (if that’s who would do this sort of census in another location) in working with local groups in identifying providers.

Analysis of Provider Survey Responses

A comprehensive review of the survey results is provided in appendix J. There are no frequencies or other descriptive statistics because of the small “n”—each individual response is simply shown in each table for each question. In any event, the results of this survey are limited by the low number of responses. Respondents included JTA, the Michigan Flyer (a private bus company generally providing service to Detroit Metro airport), a cab company, and the Jackson County Department of Human Services. The primary service provider in the area, JTA, is included.

- Only the Jackson DHS does not provide services for all types of users although their users are probably the most “needy” of service. It is also the only free service.
- Only the private cab company provides what could be termed “after hours” service (JTA buses run until 10:00 PM).
- All providers provide service which can be somewhat personalized (e.g., many trip origins and destinations can be served). JTA and the cab company typically provide service for any trip purpose while the Michigan Flyer and Jackson DHS are more limited. The latter primarily serves medical appointment trips. Medical trips are often out-of-county (i.e., to medical centers in Ann Arbor).
- JTA and the cab company appear to provide the most geographically diverse service (within the county) although JTA does not provide regular service outside of the county.
- All providers, except the Michigan Flyer, provide some door-to-door service (JTA through its RAR service).
- JTA has, by far, the largest fleet of vehicles with a range of sizes. The other three providers are restrained by fleet size (and funding).

The **overarching findings from the provider survey** which, while including JTA information which is the most important provider, are incomplete. However, they are probably indicative of the results that would be obtained from a more comprehensive sample. Transportation service opportunities for the public in Jackson County are reasonably comprehensive and the actual extent is probably not realized by potential users. At the same time, if more of the public attempted to use the available services (e.g., a significant increase in RAR users), the providers would probably be overwhelmed.

IDENTIFICATION OF MOBILITY GAPS AND RESOLUTIONS AND COMMENTS ON METHODOLOGY

The original goals of the project were to identify: perceived gaps in transportation services with the user/non-user survey; the “true” nature of transportation services that are being provided; and then the gaps that are “real” in the sense that desired service is not being provided and those that can be closed through education or similar public information (i.e., a gap is perceived when there really is service available).

The Nature of Service Issues and Perceived vs. Real Gaps

The survey results were not as easy to convert into a slate of perceived shortcomings in transportation system service as had been envisioned at the outset of the project. First, notwithstanding the attention that the need for multi-modal systems gets among transportation professionals, it is abundantly clear (and not surprising) that most of the population relies extensively on the private automobile—this is evident from the survey results even though the respondents are biased toward those who should have mobility issues. That being said, it is equally obvious that there is a fair population that relies heavily on regular bus service, dial-a-ride, and/or other forms of transportation because they either do not have, cannot use, or choose not to use personal vehicles.

The following table provides some insight to the perceived problems with transportation services/mobility gaps in the Jackson area, how they might be resolved, and the utility of the methodology employed in the project in providing information for resolution. References in the table are made to survey questions/responses according to the following “shorthand:” **UQn** = User/non-user survey Question number **n** (see appendix G for detailed questions and responses); and **PQn** = Provider survey Question number **n** (see appendix J for detailed questions and responses). The term “methodology” refers to the use of the user/non-user and provider surveys developed in this project. Note again that the perceived gaps/issues are biased toward those defined by older persons.

The Utility of the Implied Methodology

The implied methodology basically consists of undertaking a user/non-user survey, undertaking a provider survey, comparing the results in order to identify mobility gaps for an area, and then specifying/describing strategies and/or set of solutions that can be used to close the gaps. The question is: based on what was accomplished using the Jackson area as a prototype for testing this methodology, is it useful and, if so, can it be “exported” to other areas?

Table 2. Perceived gaps/issues and their potential resolutions.

perceived gap/issue	potential resolution
<p>unavailability of service (UQ2)—Numerous respondents thought services were not available to them (e.g., 34% of respondents in the county thought RAR service was not available).</p>	<p>While there may well be instances when some services (e.g., regularly scheduled bus service) are not available, other services are (e.g., RAR has at least some availability outside the city) (PQ17). Ultimate resolution would be some expansion of service as well as better information about the services that area available. The methodology is sufficient for identifying general problem but not specific enough to define detailed solutions.</p>
<p>non-private car trip purposes (UQ6)—Responses indicate the types of trips required to be served by transportation providers.</p>	<p>There are some restrictions on trip purposes by some providers, others do not distinguish the service provided in this way (PQ22). More representation from social service and special purpose providers (e.g., buses/vans by retirement homes) would be beneficial. In general, methodology is sufficient; response needs to be more comprehensive.</p>
<p>poor perception of public transportation services (UQ9,10,12)—Responses indicate that perceptions differ by groups. (This is not really a gap per se, but is a problem for public systems in general.)</p>	<p>There is no “answer” provided in/by the provider survey. In this instance, regular users were apparently more satisfied than others with the services. Methodology is sufficient to identify potential problems.</p>
<p>reasons for not using available services (UQ28)—Responses indicate that trips take too long, too many stops, wait times are too long, not enough flexibility, and service isn’t at the right time. (Most common is “simply don’t want to.”)</p>	<p>There is no “answer” provided in/by the provider survey. While it should be noted that relatively small percentages of respondents mentioned these items (generally ~5% although almost 15% mentioned flexibility), the solutions are obvious—service expansion. Whether the solution is even logical would depend on more detailed study of how many trips are really “lost” because of these factors. Methodology is sufficient to identify potential problems; but not detailed</p>

Table 2. Perceived gaps/issues and their potential resolutions (continued).

perceived gap/issue	potential resolution
	<p>enough to provide an indication of the real significance of the problem.</p>
<p>service to desired destination (UQ30)— Responses indicated that a key problem in not using transportation services was the lack of a stop at the user/would-be user’s final destination.</p>	<p>There is no “answer” provided in/by the provider survey. To resolve this problem, more detail would have to be sought in the user/non-user survey (i.e., actual location of destination) and the survey would have to be more (statistically) reliable. This information would then have to be accurately mapped to determine if there are groups of destinations of sufficient magnitude to warrant a bus route change and/or whether they are already being adequately served (i.e., there are nearby stops). Methodology is sufficient to identify potential problems; but not detailed enough to provide an indication of the real significance of the problem.</p>
<p>other issues with available transportation services (UQ31)—Among several reasons available services are not utilized (not counting, for example, the need for freedom/control, needing a vehicle for work) were the lack of flexibility, inaccessibility for the elderly and/or disabled, and just generally unavailability.</p>	<p>The responses to several questions (e.g., PQ 17,18) can be used to describe the service that is provided, its availability, and how flexible it is. The methodology is sufficient for identifying general problem but not specific enough to define detailed solutions. For example, some service is available throughout the county and even more comprehensive in the city. Part of the solution to closing the “gap” is simply better communication of the details of the service that is available. The problem with “communication” and “education” is, however, the transient nature of that information. For example, a public information campaign is difficult to sustain and, if people don’t need the system “today,” they will forget about it by the time they do need it.</p>

Table 2. Perceived gaps/issues and their potential resolutions (continued).

perceived gap/issue	potential resolution
<p>biggest problem with using services (UQ42) and with services in general (UQ43) (These were open-ended questions at the end of the survey.)—The most-often cited problems were: availability, limited suburban access, and inconsistent service. These were cited by on the order of 10% of respondents (65-70% did not answer the questions at all).</p>	<p>These were very general concerns addressed primarily in the responses to PQ1,4,7,18,21-24. These generally indicate that there is a) some validity to the lack of service in suburban areas, and b) generally good, although sometimes limited, availability. Responses to other UQs indicate that “inconsistent” service isn’t seen as a problem with those who are more regular users of the services. Again, the methodology is appropriate at very general levels, but is insufficient when more specifics are required.</p>

Based on the experience with the process of developing and using the various survey instruments and the information provided in the table above and, by extension, the results from both the user/non-user and provider surveys, there are several findings/observations regarding the utility of the methodology that was developed and implemented.

Development of the Survey Instruments

- It is important to engage local stakeholders into the process at an early stage. In the prototype effort, there was good engagement from JTA and the Region 2 planning group, but there should be a greater effort to engage social service and related agencies.
- The user/non-user survey instrument that was developed is comprehensive and provides a good starting point for any similar surveys to be used in the future elsewhere. A fair number of questions are specific to the services provided in the Jackson area but can be included in future exercises with minor modification.
- All survey instruments should be developed with an eye to only asking those questions that are clearly linked to answering some specific question—that is, if it is not clear what the responses will be used for, don’t ask the question!
- One important task to be done early in any other similar exercise is to more clearly define the purpose(s) of the survey. For example, if it is desired to actually estimate how many potential service users fall into “gaps,” the samples have to be drawn with more statistical rigor and more specific questions need to be asked (e.g., more

detail on what geographical areas are not being served; are there specific large destinations such as large employers or health service providers to be documented). On the other hand, if only a general indication of gaps is desired, then statistical rigor does not need to be enforced and more general questions can be used.

- Based on the review of the results, it seems clear that there was considerably more information that was collected than was effectively used in identifying mobility gaps. This is especially clear the case for the provider survey. Details on the number and type of vehicles that are available, for example, were never used. Most gap-related questions/issues were “answered” by only a very few of the provider survey questions. It is possible that the extra information would be beneficial if a future, more detailed analysis of the service being provided is to be done. To that end, the provider survey instrument that was developed for this project is probably useful in terms of the scope of the set of questions, but should really be re-worked if it is to be deployed elsewhere. Again, developing the provider survey to be used AFTER the user/non-user survey is completed would generally avoid these problems.
- The provider survey instrument should be developed AFTER the user/non-user survey is developed, executed in the field, and the results analyzed. That way, the questions for the providers are specifically linked to whatever perceived gaps are identified by the analysis of the user/non-user survey. In addition, superfluous data are not acquired (and the survey is probably a lot shorter and to the point).

Execution of the Surveys

- Determining the real purpose of the overall exercise is key in determining how much statistical rigor there must be in identifying the populations to be surveyed. If actual ridership estimates are to be derived or if an estimate of the percentage of people supporting a bond issue is needed, then rigor is paramount. If only general information is required, then less rigor is necessary. There are problems with all approaches to undertaking surveys—as evidenced in this effort, there was a problem with the respondents being disproportionately older relative to the actual population of the area of interest.
- Hard-to-reach populations are, in fact, very hard to reach. If there is concern with the “transit-dependent” or other sub-groups (e.g., elderly who have medical problems) who are typically considered to be “transportation disadvantaged,” a significant effort has to be allocated to identifying where these populations are and then accessing them. It would seem that getting at least some representatives of these stakeholders engaged in the project early will pay off throughout.

Analysis, Gap Identification, and Resolution

- Analysis can vary from being very complex (if it was desired to actually estimate the population “in” a gap) to being relatively simple. In this project, the overall purpose was too loosely defined and only generalities could be developed (using simple descriptive statistics). It would have been much better, for example, to have defined the original objectives with more detail, executed the user/non-user survey and done the analysis on the results, compiled the resulting list of gaps/issues (e.g., the left-hand side of table 2), and then designed a provider survey to specifically address those issues/answer those questions.
- As it turned out, the gap identification was very general and the “solutions” still more general. The basic methodological approach was acceptable, but the details of the process and the ultimate strategies for dealing with the gaps were more general than were desired.

CONCLUSIONS

Ultimately, the purpose of this project was to develop a methodology to: assess the perceived gaps in transportation services from the consumers’ perspective; determine the actual gaps in the transportation services offered by public and private providers; compare perceived and actual gaps; and determine the appropriate strategies to close those gaps.

All of the survey instruments that were developed in the context of assessing perceived and determining actual gaps (the comprehensive user/non-user mail-out survey, and several face-to-face variants including two “on-board” versions; and the provider survey) are solid in that they cover a range of logical questions and question formats. In that sense, if anything, they are overly comprehensive. Subsequent users can “pick and choose” from among the questions to suit purposes identified in their area.

The instruments were developed as the primary material components of a methodology that was developed and implemented for a prototype community, the Jackson area. The actual results ultimately fell somewhat short in that the methodology and the survey instruments that were developed cannot simply be “picked up” and used elsewhere without revision. Both survey instruments are longer than they need to be, and the provider survey would require significant revision before it would be used elsewhere. However, the way to an improved methodology (as outlined) is clear and would, out of necessity, always involve the “design” of a new provider survey which is developed specifically to address the real and perceived gaps that would be identified from the implementation of the user/non-user survey and the analysis of the results.

APPENDIX A

Mobility Options Action Team and Project Advisory Team

Appendix A

Listings of Mobility Options Action Team and Project Advisory Team

Mobility Options Action Team (original members 2004)

Ghassan Abu-Lebdeh (MSU)	Mike Bazelides
Doug Anderson	Bud Beebe
Sharen Blowers (CATA)	Steve Betterly (MDOT)
Garry Bulluck (SEMCOG)	Jaye Elowsky (CATA)
William Carley (CH2M)	Kip Grimes
Gregory Dahlin	Diane Kempen
Sharon Edgar (MDOT)	Snehamay Khasnabis (WSU)
K. John Egelhaaf	Peter Lenz (Kalamazoo County)
Susanne Fredericks (Goodwill MI)	Kevin Wisselink (UCP Michigan)
Daniel Furton	Joe DeKoning
Philip Kazmierski	Renee Uitto
Gordon Mackay (Indian Trails)	John Waterman
Tom Maki	Steven Leiby
J. Phillip Reid (FTCH)	
Erin Shelton	
Debbie Appelman	

Project Advisory Team

Wynell Brush (MDOT)
Yi Ling Luo (MDOT)
Steven Duke (Region 2 Planning Commission)
Oliver Lindsay (Jackson Transportation Authority)
David Vassal (Jackson Transportation Authority)
Cameron McCollum (Jackson Transportation Authority)
Sharen Blowers (Capital Area Transportation Authority)

APPENDIX B

Basic Mail-Out Survey Instrument

MICHIGAN STATE
UNIVERSITY

August 2008

Dear Resident of Jackson County:

You are being asked to participate in this survey being conducted by Michigan State University as part of a research project funded by the Michigan Department of Transportation (MDOT). One of the objectives of the project, and the purpose of this survey, is to assess the public's perception of the availability, quality, and accessibility of transportation services in Jackson County.

Participation in this survey is extremely important to us in developing our final assessment. However, your participation is voluntary, you may choose to not answer any or all questions without any sort of penalty, and your responses will be held in confidence—we will not maintain any links between the completed survey and the mailing list used to contact you.

Your answers will be used in our research project and information that you provide may be a part of reports and/or published papers. However, your name will not be disclosed to anyone and your privacy will be protected to the maximum extent allowable by law. You indicate your voluntary agreement to participate by completing and returning this questionnaire in the stamped, addressed envelope. You need to be at least 18 years old to participate in this survey.

Alternatively, you can complete this survey on the internet. Simply go to the web site and follow the instructions. Your anonymity is guaranteed if you use this site. (Please do not send back this copy of the questionnaire if you complete it on line.)

http://www.surveymonkey.com/s.aspx?sm=quKmj1IR60R1I5VyckzXiA_3d_3d

Although there are several pages, it should take you only about 10-15 minutes to complete. High participation improves the reliability of the assessment—your opinions and responses are important! Please return this entire packet—thanks!

If you have any questions about this survey, our project, or how your responses will be used, please contact me at the address, telephone numbers, or e-mail address shown at the left.

Your participation in this project is quite important to us—thank you for your time! The first question is on the back of this page!

Yours truly,

Richard W. Lyles
Principal Investigator



**COLLEGE OF
ENGINEERING**

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Perceptions of Transportation Service in Jackson County, Michigan

1. Please mark the type(s) of transportation that you use most often. Insert a "1" for the most-often used, "2" for the second, and so on (up to 5):

- | | |
|--|---|
| <input type="checkbox"/> own car
<input type="checkbox"/> taxi
<input type="checkbox"/> walking
<input type="checkbox"/> Reserve-A-Ride (the dial-a-ride service offered by Jackson Transportation Authority on demand)
<input type="checkbox"/> bus—offered by Jackson Transportation Authority on fixed routes | <input type="checkbox"/> ride with a friend/family member
<input type="checkbox"/> carpool
<input type="checkbox"/> biking
<input type="checkbox"/> other dial-a-ride type service—offered by another provider
<input type="checkbox"/> other transportation, please specify: |
|--|---|

2. Please indicate whether the following types of transportation services are available to you (check one box for each line):

	available	not available	not sure if available
regularly-scheduled bus	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
taxi	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
JTA Reserve-A-Ride	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
private dial-a-ride	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
carpool	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ride with family or friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
other, please identify:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Please indicate your agreement with the following specific statements about the **Jackson Transportation Authority's (JTA) public transportation services**. (check appropriate boxes)

1= strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree, 5=strongly agree	1	2	3	4	5	no idea
information about JTA's services (schedules, where to call to make reservations) is easy to obtain	<input type="checkbox"/>					
information about JTA's service is easy to use and understand	<input type="checkbox"/>					
routes are scheduled to run at the times I need them	<input type="checkbox"/>					

4. How often do you use different types of transportation? (check one response in each column)

	JTA bus	taxi	JTA's Reserve-A-Ride	own car	ride w/others or carpool	other, please identify:
5-7 days a week	<input type="checkbox"/>					
once a week	<input type="checkbox"/>					
once a month	<input type="checkbox"/>					
rarely	<input type="checkbox"/>					
never	<input type="checkbox"/>					

Please answer the next few questions to the best of your ability based on your personal experience with transportation services in JACKSON COUNTY.

5. For the following types of trips, what type of transportation do you use? (check all that apply)

type of trip	JTA bus	taxi	JTA's Reserve-A-Ride	own car	ride w/others or carpool	other, please identify:
shopping	<input type="checkbox"/>					
work	<input type="checkbox"/>					
school	<input type="checkbox"/>					
medical/dental appointment	<input type="checkbox"/>					
leisure activities (visiting friends, going to movies, etc.)	<input type="checkbox"/>					
do not use	<input type="checkbox"/>					
other, please explain:	<input type="checkbox"/>					

6. For what **single** purpose do you use transportation services *other than your own car* most frequently? (check only one) I use my own car for almost **all** purposes, **all** the time

- | | |
|-----------------------------------|---|
| <input type="checkbox"/> shopping | <input type="checkbox"/> medical/dental appointment |
| <input type="checkbox"/> work | <input type="checkbox"/> leisure activities (visiting friends, going to movies) |
| <input type="checkbox"/> school | <input type="checkbox"/> other, please explain: |

7. Overall, what is your level of satisfaction with your available transportation service? (check one for each row)

	level of satisfaction					
	very unsatisfied	unsatisfied	neutral	satisfied	very satisfied	don't know
JTA bus	<input type="checkbox"/>					
taxi	<input type="checkbox"/>					
JTA's Reserve-A-Ride	<input type="checkbox"/>					
other, please identify:	<input type="checkbox"/>					

8. Do you use a dial-a-ride type service? yes no If yes, who provides it? (check all that apply)

- | | |
|---|---|
| <input type="checkbox"/> Jackson Transportation Authority | <input type="checkbox"/> elderly assistance program |
| <input type="checkbox"/> social service agency | <input type="checkbox"/> don't know |
| <input type="checkbox"/> health care organization | <input type="checkbox"/> other, please identify: |
| <input type="checkbox"/> assisted living program | |

IF you ever make use of JACKSON TRANSPORTATION AUTHORITY (JTA) services (regular buses or Reserve-A-Ride), please answer question 9 and continue; otherwise skip to question 11.

9. In each instance, please indicate the degree to which you agree or disagree with the statement about **JTA Reserve-A-Ride service**. (check a box on each line) If you have no experience with JTA's reserve-a-ride service, please skip to next question.

1= strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree, 5=strongly agree	1	2	3	4	5
JTA drivers are courteous and professional	<input type="checkbox"/>				
JTA drivers operate the vehicle in a safe manner	<input type="checkbox"/>				
JTA drivers practice safe boarding/deboarding procedures	<input type="checkbox"/>				
JTA drivers are adequately trained	<input type="checkbox"/>				
I understand the procedure to complain about service problems	<input type="checkbox"/>				
Complaints are adequately addressed	<input type="checkbox"/>				
I can quickly go where I want by JTA Reserve-A-Ride	<input type="checkbox"/>				
Call service is satisfactory	<input type="checkbox"/>				
JTA dispatchers are courteous and professional	<input type="checkbox"/>				

10. In each instance, please indicate the degree to which you agree or disagree with the statement about the **regularly-scheduled JTA bus service**. (check a box on each line) If you have no experience with JTA's regular bus service, please skip to next question.

1= strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree, 5=strongly agree	1	2	3	4	5
JTA drivers are courteous and professional	<input type="checkbox"/>				
JTA drivers operate the vehicle in a safe manner	<input type="checkbox"/>				
JTA drivers practice safe boarding/deboarding procedures	<input type="checkbox"/>				
JTA drivers are adequately trained	<input type="checkbox"/>				
I understand the procedure to complain about service problems	<input type="checkbox"/>				
Complaints are adequately addressed	<input type="checkbox"/>				
I can quickly go where I want by JTA bus	<input type="checkbox"/>				

11. **For the following questions, think about the transportation services available to you in the Jackson area (for example, a regularly-scheduled bus) and your most frequent kind of trips. (If a question does not apply to you, please leave it blank and go on to the next one.)** How far is the nearest JTA bus stop from your home? (check one box)

- right outside my home/apartment
- within one block
- 1 to 3 blocks
- 3 to 5 blocks
- 5 to 10 blocks
- more than 10 blocks
- there isn't one nearby
- I don't know

12. What distance to a bus stop is "too far" away for you? (check one box)

- 1 to 3 blocks
- 3 to 5 blocks
- 5 to 7 blocks
- 7 to 10 blocks
- more than 10 blocks

13. How do you generally get to the bus stop? (check one box) never use the bus

- walk
- bike
- drive
- other, please specify:

14. Is the bus stop accessible for you? yes no don't know, no experience with bus

If no, why not? (check all that apply)

- barriers present
- no parking
- no bike racks
- other, please explain

15. Is the bus stop comfortable for you? yes no don't know, no experience with bus

If no, why not? (check all that apply)

no shelter no seating no lights crime, harassment other, please explain

If you have NO knowledge or experience with any JTA services, SKIP to question 28, page 7.

16. For **JTA's Reserve-A-Ride**, there is a 30-minute window when the bus is supposed to arrive. Please tell us about the service's "on time" performance. (check boxes as appropriate)

	almost always	once every few rides	about half the time	more than half the time
"on time" (in 30-minute window)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5-10 minutes outside the window	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10-30 minutes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
½ hour – hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
more than an hour	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
not sure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

17. How often does **JTA Reserve-A-Ride service** make you late at your destination? (check one box)

never late only late once in awhile on-time more often than not late more than on time never on time

18. Please indicate your agreement with the following statements regarding **JTA's Reserve-A-Ride service**. (check appropriate boxes)

1= strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree, 5=strongly agree	1	2	3	4	5
Fares are reasonable.	<input type="checkbox"/>				
Fares are easy to pay.	<input type="checkbox"/>				
Vehicles are clean and well maintained.	<input type="checkbox"/>				
I have felt uncomfortable or threatened due to harassment or crimes experienced during a trip with a transportation service.	<input type="checkbox"/>				
I have been delayed once a month or more by a breakdown or mechanical problem with a vehicle.	<input type="checkbox"/>				
The wheelchair lifts generally work.	<input type="checkbox"/>				
Wheelchairs are secure during travel.	<input type="checkbox"/>				

Comments:

19. For **regularly-scheduled JTA buses**, how often is the bus "on time" (within 5 minutes of scheduled time) to pick you up? (check one box)

always on time only late once in awhile on time more than it's late late more than it's on time never on time

20. If **regularly-scheduled JTA buses** are ever late, how late are they typically? (check one box)

more than 5 mins. more than 10 mins. more than ½ hour more than one hour

21. For **regularly-scheduled JTA buses**, how long a wait is 'too long' for you? (check one box)

more than 5 mins. more than 10 mins. more than ½ hour more than one hour

22. How often do **regularly-scheduled JTA buses** make you late at your destination? (check one box)

- never late
 only late once in awhile
 on-time more often than not
 late more than on time
 never on time

23. What is the average **ONE-WAY fare** you would pay for JTA service? \$___ insert amount and mark whether this is for a Reserve-A-Ride or regularly-scheduled bus service.

24. Please indicate your agreement with the following statements regarding **regularly-scheduled JTA bus service**. (check appropriate boxes)

1= strongly disagree, 2=disagree, 3=neither agree or disagree, 4=agree, 5=strongly agree	1	2	3	4	5
Fares are reasonable.	<input type="checkbox"/>				
Fares are easy to pay.	<input type="checkbox"/>				
Vehicles are clean and well maintained.	<input type="checkbox"/>				
I have felt uncomfortable or threatened due to harassment or crimes experienced during a trip with a transportation service.	<input type="checkbox"/>				
I have been delayed once a month or more by a breakdown or mechanical problem with a vehicle.	<input type="checkbox"/>				
The wheelchair lifts generally work.	<input type="checkbox"/>				
Wheelchairs are secure during travel.	<input type="checkbox"/>				

Comments:

The next few questions area about regularly-scheduled JTA services.

25. For regularly-schedule JTA services, how many transfers do you have to make to get to your destination?

- none, skip to question 26
 two
 one
 more than two

26. Is the transfer process a problem for you in any way?

- no
 yes

if yes, why? (check all that apply)

- the wait is too long
 I have to travel a long distance from one vehicle to another
 I have trouble finding the right vehicle at the transfer point
 I sometimes miss the connection to the next bus
 the time tables are hard to understand
 I'm afraid of crime or harassment at transfer location
 other, please explain:

27. When you get to the end of your regularly-scheduled bus trip, how far is the stop or drop-off location from your actual destination?

- "right there"
 1 to 3 blocks
 5 to 10 blocks
 within one block
 3 to 5 blocks
 more than 10 blocks

Thank you for answering these questions about your experience with Jackson Transportation Authority service; now, if you have answered question 27, please skip to question 32 on page 8, near the end of the survey.

28. ***IF you had no knowledge of JTA's transportation services, PLEASE continue and answer this and the next several questions. We are interested in the reasons that you DO NOT use transportation services.*** What issues related to the **vehicle or the trip itself** keep you from using transportation services available to you? (check all that apply)

- fares are too high
- fares are too hard to pay, please explain:
- drivers are not courteous, please explain:
- vehicles are dirty
- vehicles are not well maintained
- afraid of harassment or crimes during the trip
- vehicle is inaccessible for wheelchairs
- wheelchairs are not secure enough during travel
- too many stops between home and destination
- trips take too long (too much time)
- wait times (at home, at the stop) are too long
- service is not at the right time
- I simply don't want to ride the bus or travel any way other than in a private car
- buses and other transit do not offer enough flexibility in traveling to different destinations or times of the day
- too many transfers between home and destination
 how many transfers would you have to make?
 - one
 - two
 - more than two
 - don't know

29. What issues related to the bus stop or pick-up location where you start your typical trip keep you from using the transportation services available in your area? (check any and all that apply)

- there is no stop in my area
- stop/pick-up location is too far from my home
 how far is too far?
 - within a block of my home
 - 1 to 3 blocks
 - 3 to 5 blocks
 - 5 to 10 blocks
 - more than 10 blocks
- stop/pick-up location is inaccessible or hard to use in some way (check any and all that apply)
 - barriers present (curbs, etc)
 - no bike racks
 - no parking
 - other, please explain:
- stop/pick-up location is uncomfortable in some way
 how? (check any and all that apply)
 - no shelter
 - no seating
 - no lights
 - crime or harassment
 - other, please explain:

question 29 continues on the next page...

question 29 continued...

- don't want to wait
relative to the scheduled bus arrival times, how long a wait at a stop is too much?
- less than 5 minutes
 - 5-10 minutes
 - more than 10 minutes
 - more than 20 minutes
 - don't know

30. What issues related to your typical final destination keep you from using transportation services in your area? (check any and all that apply)

- there is not a stop at my destination
- the stop is too far from my destination
how far is too far?
 - within a block of my destination
 - 1 to 3 blocks
 - 3 to 5 blocks
 - 5 to 10 blocks
 - more than 10 blocks
- the stop at my destination has accessibility problems; please describe:

31. What other general issues keep you from using available transportation services? (check any and all that apply)

- I need to transport children to school
- I want more freedom and control of my travel
- I need vehicle for work
- I need to transport tools/equipment
- transportation services are unreliable and often late
- transportation services are not scheduled at the time of day I need it
- not easily accessed by elderly persons
- not easily accessed by persons with disabilities
- transportation services simply not available to me
- other reason not listed here, please explain:

ALL RESPONDENTS please answer the last few questions.

32. Do you have a valid driver's license?

- no
- yes
if yes, how many usable vehicles are available to you on a daily basis?
 - none
 - one
 - two
 - three or more

33. What is your age?

- | | | |
|--------------------------------|--------------------------------|--------------------------------------|
| <input type="checkbox"/> 18-25 | <input type="checkbox"/> 56-60 | <input type="checkbox"/> 71-75 |
| <input type="checkbox"/> 26-40 | <input type="checkbox"/> 61-65 | <input type="checkbox"/> 76 or older |
| <input type="checkbox"/> 41-55 | <input type="checkbox"/> 66-70 | |

34. What is your gender? male female

42. What are the two biggest problems you encounter in using the transportation services in your area?
Please explain.

43. In general, what are the two biggest problems with transportation services in your area?

44. What kind of trip do you have the most trouble making, and why?

**Please return the completed survey in the enclosed stamped and addressed envelope to:
Department of Civil and Environmental Engineering, Michigan State University, East Lansing,
Michigan 48824-1226**

Thank you for your time and effort in responding to this survey. Your responses will be used to help assess the quality of transportation services available to the citizens in the Jackson area.

If you have any questions about this research or the survey, please contact the principal investigator for this project who is named below.

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