

Campus Mass Transit Study Plan and System Evaluation Final Report



August 21, 2012

Respectfully Submitted By:
Mitch Skyer, President and Senior Transit Consultant
Solstice Transportation Group, Inc.
5825 Glenridge Dr. NE
Building 2, Suite 207
Atlanta, GA 30328
Tel. 678-474-9355 x106
Mitch@SolsticeTRG.com

Contents

| | |
|---|----------|
| Executive Summary Overview | 3 |
| What do the students from the University of Missouri want from transit? | 3 |
| Recommendations to Meet Student Goals | 4 |
| What do University of Missouri employees want from transit? | 4 |
| Value and Payment Discussion: Transportation Services | 6 |
| Solutions Discussion | 8 |
| GPS Technology on Buses | 8 |
| Establish Collaborative Process for Transit Cooperation between the City of Columbia (Columbia Transit) and the University of Missouri | 9 |
| Route Changes and Adjustments | 9 |
| Transit System Marketing and Communications | 13 |
| Clarify Columbia Transit Contract and Establish Service Level Requirements | 14 |

Executive Summary Overview

The University of Missouri commissioned Solstice Transportation Group to conduct a comprehensive transit system evaluation and develop recommendations for a detailed mass transit operations plan. The work, which began in January, 2012, included identifying and clarifying primary and secondary goals for the university population, establishing a baseline for existing transit service, and developing a roadmap for future transit needs. Additionally, the University of Missouri incorporated a detailed contract analysis component to evaluate the current services provided by Columbia Transit. Through this study, the University of Missouri administration determined the core transit needs of its students and prioritized transportation issues on and near campus.

The university has offered a safe and convenient shuttle service to its students since 1985 that is paid for with student fees. MU pays for 100 percent of its ridership through a contract with Columbia Transit and does not receive a subsidy of any kind from city, state or federal government agencies to meet its transit needs. The university shuttle service accounts for about one-third of transit ridership in Columbia.

The project objectives were encapsulated within the observation statements and answers to the following fundamental questions. The questions, along with the corresponding evaluations and recommendations, constitute the baseline of the study.

What do the students from the University of Missouri want from transit?

To determine the transit objectives for the University of Missouri student body, Solstice Transportation Group used a process that included issuing and analyzing a comprehensive campus wide transportation survey, facilitating multiple student stakeholder interchange focus groups, conducting direct field observations on buses, hosting open forum sessions, and interacting directly with undergraduate and graduate student government representatives. The results of these efforts yielded the following list of clearly defined outcomes desired by the University of Missouri students.

1. Add GPS on buses with passenger information technology.
2. Establish process where the City of Columbia (Columbia Transit) and the University of Missouri can co-develop transportation solutions to better meet students' needs.
3. Route Additions and Adjustments
 - a. Appropriately optimize University provided transit service to meet students' needs. Expand service further into the community adjacent to campus, add later service, and reallocate underutilized current service.
 - b. Implement a shopping/retail shuttle for students on and near campus.
4. Significantly improve transit marketing, website information, social media communications, and provide the ability for students to provide interactive feedback to transit operators.
5. Clarify and redefine the relationship between the University of Missouri and Columbia Transit to ensure that service quality and control, training, and contract terms are optimized to meet both current and future transit needs of the MU student body.

Recommendations to Meet Student Goals

The current level of transportation service being provided to the University of Missouri by the City of Columbia and Columbia Transit is estimated to be at an effective hourly bill rate of approximately \$56 per hour for 17,900 annual hours. This service includes 32 weeks of daytime and evening service to remote parking facilities and an evening/late night route running from campus to downtown. There is no service during the summer or academic breaks.

The service provided is generally deemed to be safe, convenient and reliable. The amount of complaints and negative feedback is minimal, and service appears to meet the general needs of those who utilize the system. Daytime service is especially effective, with 10-minute frequency of service throughout the day.

The current hourly rate is competitive. There are several similar universities with rates in the \$50-\$60 range currently such as Georgia Tech or the University of Arkansas, and many others, such as Louisiana State University, Georgia Southern, and Stonybrook (NY) University whose hourly rates range from \$70 per hour up to \$100 or more per hour depending on contract term and fleet requirements.

To determine the specific actions, expectations, and results to meet each of the objectives required by MU's students, our evaluation included determining whether or not current transportation services were being delivered efficiently, and, if not, what improvements require immediate action. Columbia Transit has the opportunity to make immediate and near term changes which will significantly improve service and customer perception.

What do University of Missouri employees want from transit?

Employees did not show a great deal of interest in transit, but about one-third of them indicated some level of interest if (Columbia Transit's) service was expanded or improved significantly. 93% of the employee respondents indicated that they had not ridden any bus transportation, neither from the University of Missouri nor from Columbia Transit, in the last 12 months. Employees generally liked the idea of a campus circulator, but wouldn't really use it.

For the most part, Employees did not see much value in transportation for them, but did indicate that as part of the greater good, an expanded transportation system for all members of the MU community would be beneficial. Limited need for remote parking shuttles and transportation across campus was indicated, but there was no significant demand focus on any specific transportation issue or issues. Faster bus service, more reliable service, and service that extended deeper into the community would be a benefit to employees, and would likely increase ridership. The majority of these points relate to the service provided by Columbia Transit to the community of Columbia, MO.

At the University of Missouri, future trends and limitations on parking may encourage greater use of a circulator route and remote parking shuttle for employees. It would be relatively straightforward to incorporate employee remote parking into the current campus transit system; however, it would increase the cost. A campus circulator would require high frequencies (5-10 minute service during peak periods), and convenient access to high-volume transit origination points. Before a circulator

was widely used, either a cultural shift or a change in parking availability and building utilization would have to occur on campus. Neither of these items is likely in the near term (12-36 months), and only somewhat likely for a longer term (3-5 year) horizon.

During the course of the study there was concentrated input from a few MU faculty and staff members with disabilities. These individuals indicated a strong desire for a more integrated university and city transportation system to meet their needs as well as those of the ambulatory community. Their feedback included the need to address practical challenges they ran into due to limited transit options, but also stressed that the community as a whole would be strengthened by offering a comprehensive transportation solution. In their opinion, this positive approach would help create an enhanced experience for students, faculty and staff.

Value and Payment Discussion: Transportation Services

In April, 2012, a campus wide survey was delivered to nearly 44,000 students, faculty, and staff members at the University of Missouri. The respondents were asked the following question to determine the monetary value they placed on the services that were desired from a campus transportation system.

“Students at MU currently pay a transportation fee of \$16.85 per semester. When considering all of the transportation options you would like to see added at the University of Missouri, what is the highest additional fee you'd be willing to pay each semester to implement them?”

8,390 people responded to the question, just above 1/3 of the respondents did not wish to pay anything for transportation. Approximately 1/4 of the respondents landed in the \$16-\$25 range, which is similar to the current fee. Students are much more willing to contribute to transportation, more than 75% indicated they would pay something, and greater than 27% of the students indicated that they would be willing to pay more than their current fee. Employees showed a greater reluctance to paying for transportation, nearly half (46%) of the employees indicated that they would not be willing to pay anything.

Figure 1 - All Respondents

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| \$0-Nothing | 35.4% | 2,967 |
| \$1- \$15 | 19.8% | 1,663 |
| \$16-\$25 | 22.5% | 1,888 |
| \$26-\$45 | 14.0% | 1,177 |
| \$46-\$65 | 5.2% | 437 |
| \$66-\$85 | 3.1% | 258 |
| <i>answered question</i> | | 8,390 |
| <i>skipped question</i> | | 957 |

Figure 2 - Students Only

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| \$0-Nothing | 24.5% | 1,016 |
| \$1- \$15 | 20.9% | 865 |
| \$16-\$25 | 27.0% | 1,120 |
| \$26-\$45 | 17.5% | 726 |
| \$46-\$65 | 6.4% | 267 |
| \$66-\$85 | 3.7% | 153 |
| <i>answered question</i> | | 4,147 |
| <i>skipped question</i> | | 284 |

The campus wide survey asked each respondent to indicate where they lived in relation to the University. As part of the willingness to pay analysis, the results were cross-tabulated with the transit fee question. The stacked bar chart shown below provides the results for students who were willing to pay some amount for transit.

Figure 3 - Payment and Residence Location Crosstab

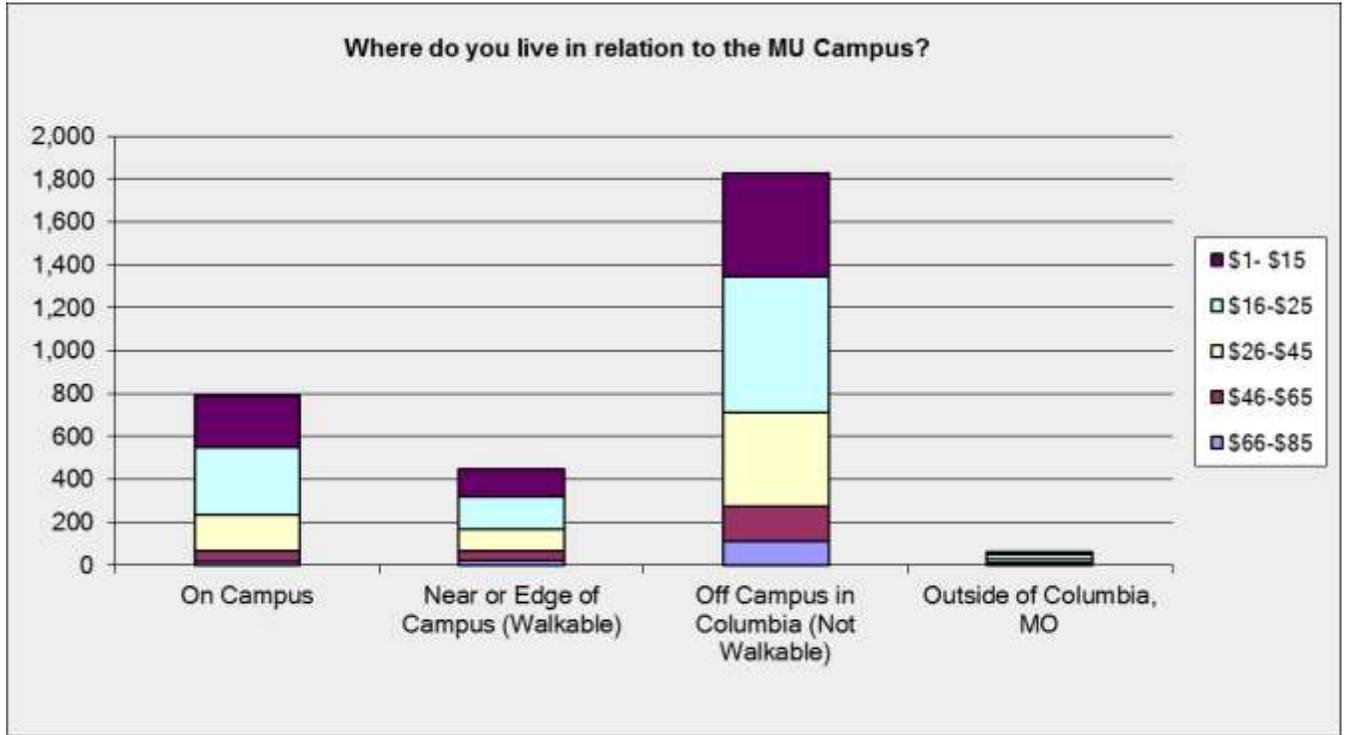


Figure 4 - Faculty, Staff, and Others

| Answer Options | Response Percent | Response Count |
|--------------------------|------------------|----------------|
| \$0-Nothing | 46.0% | 1,951 |
| \$1-\$15 | 18.8% | 798 |
| \$16-\$25 | 18.1% | 768 |
| \$26-\$45 | 10.6% | 451 |
| \$46-\$65 | 4.0% | 170 |
| \$66-\$85 | 2.5% | 105 |
| <i>answered question</i> | | 4,243 |
| <i>skipped question</i> | | 162 |

Solutions Discussion

GPS Technology on Buses

The students desire GPS (Global Positioning System)/AVL (Automated Vehicle Locator) technology on all Columbia Transit buses, including University provided routes. To meet expectations the GPS system must include Passenger Information Technology capabilities. These would include real time vehicle tracking on web enabled smartphones and tablets, automatically updated routes that can be displayed on web enabled large screen monitors, and access to real time route and bus information via personal computers. Columbia Transit has stated that the RouteMatch (RouteShout™) system with the above capabilities will be available before the end of the Fall, 2012 semester.

Criteria, milestones and expectations required to meet objective:

- (1) Columbia Transit to provide the installation timeline for GPS data collection devices and cellular data for all transit buses in the fleet. This equipment should be fully installed by 9/30/2012 to ensure adequate time to test the equipment, confirm reporting, and set up all routes and mobile applications by 12/31/2012.
- (2) Columbia Transit to provide training to the University of Missouri on how to instruct passengers to access online vehicle tracking and how to access information on smartphone and/or mobile applications. This information should be provided by 11/1/2012 to ensure that MU has enough time to add to their website and communicate with students.
- (3) Columbia Transit to provide the University of Missouri with access to route and stop performance reports. These reports will show the average time between stops and frequency of all buses on routes. These reports should be available no later than 12/15/2012 for evaluation by MU, with the expectation that they will be regularly provided beginning in the Spring 2013 semester.
- (4) It would be reasonable to expect the University of Missouri to pay a higher rate per hour for service if the cost of the GPS system was not included in the original contracted price. If additional fees are appropriate, it is critical that the amount assigned to MU be proportional to their usage and service need. The RouteMatch system has many more capabilities than MU would need, specifically related to the cost of the para-transit software. MU should not pay for any portion of the system related to those services.
 - a. Additionally, since all vehicles in the fleet will be equipped with the fleet management and passenger information technology, the amount charged to MU should be proportional to the number of vehicles used for the service provided.
 - b. These costs should be audited by MU and confirmed that the amount charged meets the above criteria.

If the University of Missouri were to add GPS tracking with visual displays and mobile applications to their bus fleet independently of Columbia Transit the cost for an effective system would be approximately \$2,000-\$4,000 per vehicle for equipment and between \$120-\$250 per month per vehicle for service and data. Additional fees could include display monitors at bus stops and transit originators, custom programming, and add on services to the selected system.

Establish Collaborative Process for Transit Cooperation between the City of Columbia (Columbia Transit) and the University of Missouri

The relationship between the University of Missouri and Columbia Transit can continue to be mutually beneficial to one another. The success of this ongoing relationship will likely require changes to the core structure and cooperative strategic planning process in order to maintain a sound partnership. The students have clearly indicated that they would like the University of Missouri to take a leadership role with the City of Columbia to provide direction, encourage collaborative routes that will be valuable to both students and the general community, and look for opportunities to support initiatives that provide direct value to the students and the Columbia Transit system.

The University pays for 100 percent of its ridership through a contract with Columbia Transit and does not receive a subsidy from city, state or federal government agencies for its transit needs. The university shuttle service accounts for about one-third of transit ridership in Columbia.

With significant ridership related to the University, typical industry practice of successful town/gown transit relationships encourages strong, mutually beneficial cooperation. Success is characterized by a give and take relationship that incorporates the unique needs of university students and a community significantly influenced by a major educational institution. To take full advantage of services that meet the needs of a variety of constituents, a much greater level of cooperation must be exhibited.

The primary objective for transit services at the University of Missouri is to benefit the student body. Any partnership or cooperative approach adopted by MU, the City of Columbia, and Columbia Transit must be continually focused on that goal.

Route Changes and Adjustments

The current service levels provided by The University of Missouri using contracted services provided by Columbia Transit meet the general needs of the student population. The transit needs for the students at the University of Missouri center around the desire for reliable and convenient transportation to and from campus to their residences, remote parking facilities, and, to a lesser extent, from campus to shopping and entertainment venues. There is a clear understanding among students that the University of Missouri will provide transportation from any university provided housing that is located off campus, such as Tiger Digs.

The student population has shown a great deal of confidence and trust in the parking and transportation leadership team from the University. During our evaluation, we directly observed the significant involvement of both the graduate and undergraduate student government leaders. Representatives of both bodies were polled and updates were reported directly to them during regularly scheduled meetings. The combination of the mass survey, detailed data analysis, and direct interaction with key student stakeholders should continue to enforce this well placed confidence.

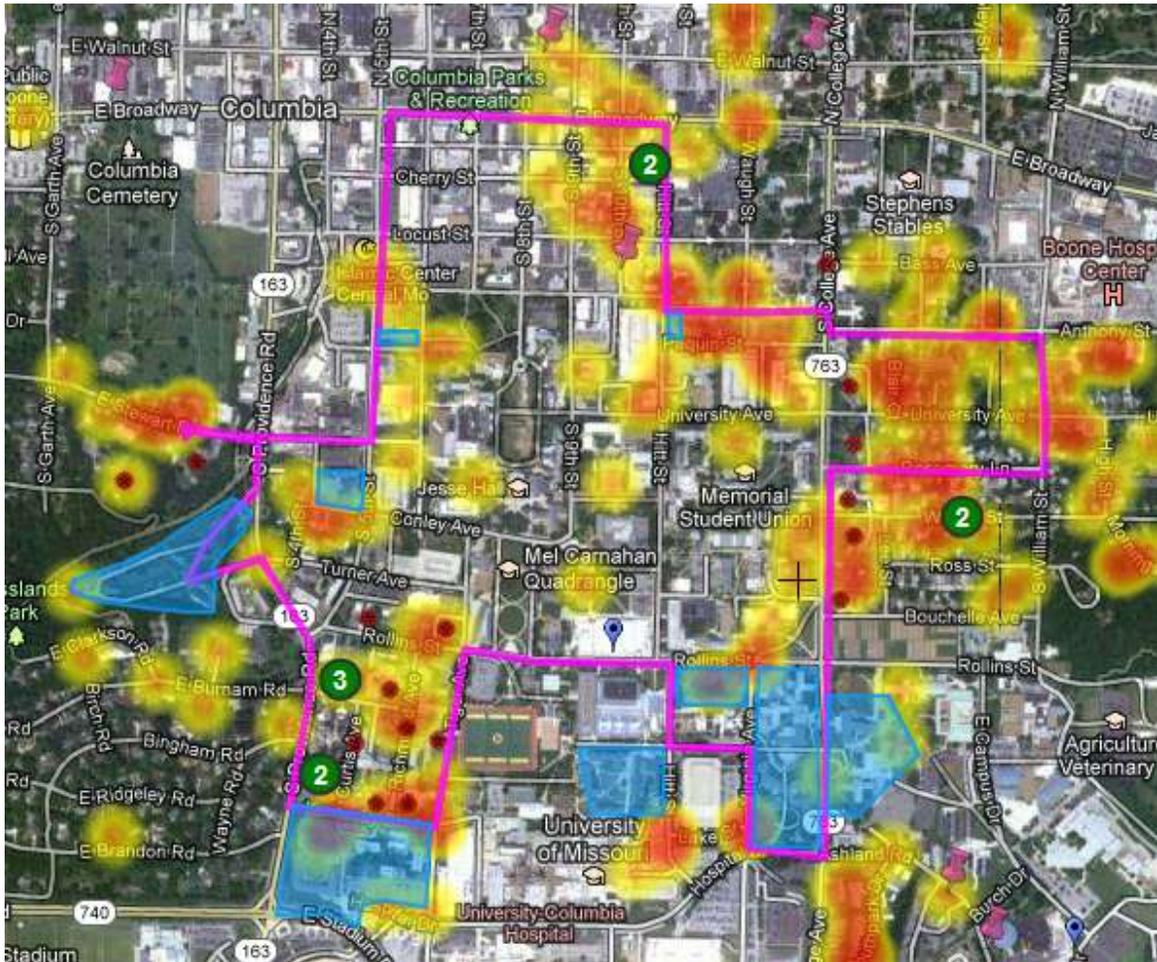
Overall, the students, faculty, and staff were very satisfied with the transit service provided by the University of Missouri. There are parking options for all who elect to drive to campus. Those who park in remote lots are provided with 10 minute daytime bus service and 30 minute service in the evenings. The transit service recommendations provide strategic changes that will improve and expand service delivery, but the existing system design is currently providing reasonable and acceptable service levels.

Generally speaking, costs associated with transit infrastructure, data gathering, and process improvement should be borne by Columbia Transit. Operational costs are typically shared between the contractor and customer. The split of those costs are usually dependent on how specific the customer's requirement is. If MU is willing to 'piggyback' on Columbia Transit initiatives, then the financial contribution would be very limited. If MU has very specific requirements for cooperative transit routes, then they would bear all or most of the costs associated with the requested service.

To make the changes in the routes as described below, Columbia Transit should provide detailed data such as passenger counts by time, date, stop, and route. Additionally they should make their supervisors and drivers available to spend time working with MU to provide feedback and suggestions for route changes and improvements. There should be no additional cost to MU for these items. The University of Missouri should bear the brunt of any costs associated with planning dedicated service or establishing requirements from a transit provider.

Criteria, milestones and expectations required to meet objective:

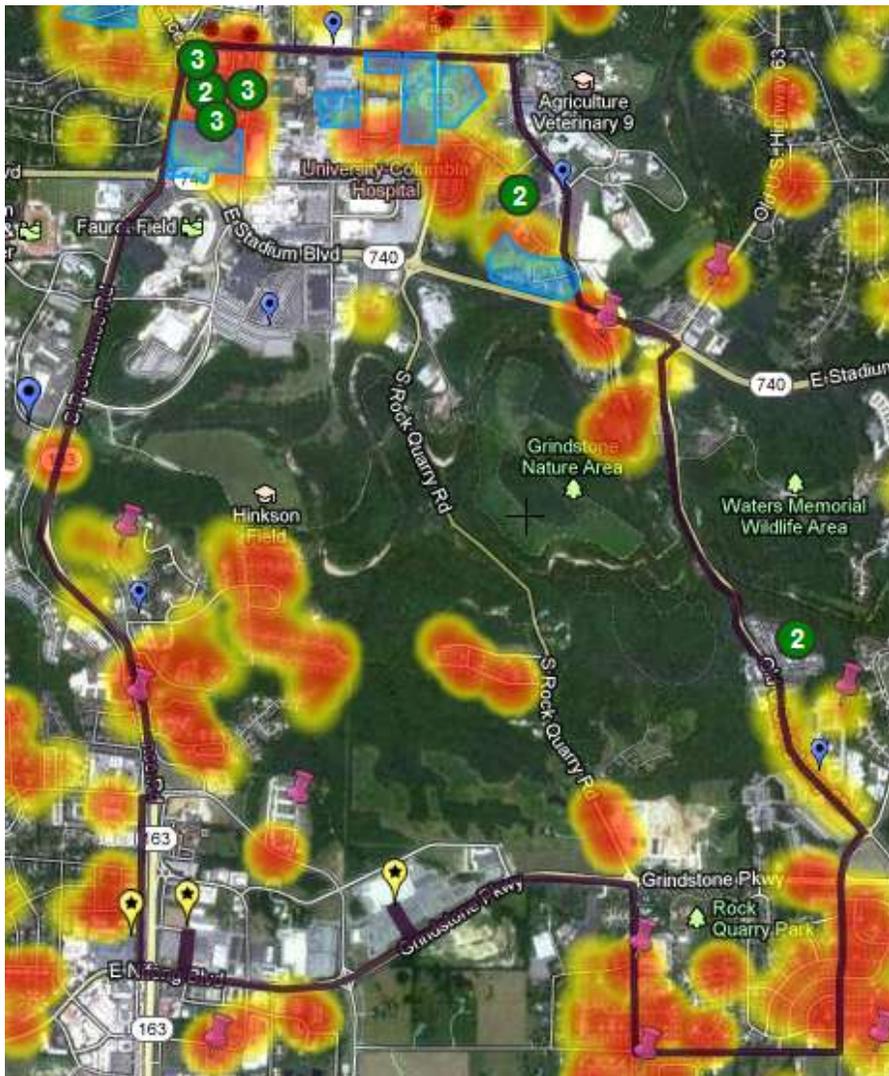
- (1) Redesign existing North evening route.
 - a. Redesign this route to extend to the perimeter of campus facilities and to appropriate locations near campus within the community.
 - b. This route should run later in the evening, until at least 11:00 PM or 1:00 AM if budget will allow.
 - c. The service will encompass all on and near campus residential areas and university facilities within the target area.
 - d. Service will be provided to a larger number of students for academic, quality of life, and safety purposes.



Map Legend

| | | | |
|---|----------------------------|---|---|
|  | Shopping |  | Multiple Location Points (The number refers to the number of location points in the relative area) |
|  | MU Waypoints |  | On-Campus Residence Halls |
|  | Apartment Complexes |  | Population Density (Yellow represents less dense areas, Orange areas are more dense) |
|  | MU Greek Houses | | |

- (2) Adjust Hearnese/Trowbridge Route during off peak daytime periods to reduce service levels and reallocate costs to other transit services. Reduce dwell times at stops to speed up service for passengers (less waiting on buses, more frequent service).
- (3) Reduce parking lot night service to 1 bus running more frequently. Change service to have very limited dwell time at student center. Use GPS/AVL system for passengers to track vehicle locations for safety and convenience. Use savings to support new initiatives or to add additional service to routes that become popular and require increased frequencies.
- (4) Implement a shopping/retail shuttle for students on and near campus. If budget will allow it, the initial service should run during the academic semesters, twice weekly from 4:00 PM – 9:00 PM on Tuesday and Wednesday evenings, and on Saturdays from 11:00 AM – 10:00 PM. The service can be increased or decreased based on ridership and passenger feedback.



Map Legend

- Shopping
- MU Waypoints
- Apartment Complexes
- MU Greek Houses
- Multiple Location Points** (The number refers to the number of location points in the relative area)
- On-Campus Residence Halls
- Population Density** (Yellow represents less dense areas, Orange areas are more dense)

Transit System Marketing and Communications

The information provided by both the University of Missouri and Columbia Transit to students regarding transit is limited and unclear. Both entities have a responsibility to clearly communicate available services and encourage the highest utilization possible. To help ensure a successful program, it is imperative that the information be presented in a user friendly format, that it is easy to understand, that there are simple and effective ways to contact support staff and provide feedback, and that all information is verified for accuracy on a regular and frequent basis.

Criteria, milestones and expectations required to meet objective:

- (1) Route names and bus signage are unclear and confusing. Rename routes to be more descriptive and avoid using similar route names servicing different areas, even if they are technically one contiguous route. Both Columbia Transit and the University of Missouri must work together to ensure full agreement on names of routes, schedules, turn lists, and stop names/locations. All printed and electronic media must match whether created by the University or the City of Columbia.
- (2) Hire a Marketing Coordinator for the Fall 2012 semester. It is estimated that this will be a ½ time position and could be combined with other responsibilities. If MU determines that a shared resource with Columbia Transit is their preferred option, very detailed expectations surrounding the work to be done for the University should be clarified in writing, along with a set process for communicating with MU transportation leadership on a regular and frequent basis.
 - a. The Marketing Coordinator would be responsible for updating the website with accurate and current information, working as an ambassador to campus organizations and student life, and communicating with Columbia Transit to improve service levels or deal with issues that arise. The marketing coordinator will need to use multiple communications methods such as student communications, social media, personal attendance at meetings, coordination with academic, residential life, and student government organizations, and participation in student information fairs and orientation sessions.
- (3) The Marketing Coordinator will be responsible for setting up, maintaining, and updating social media tools such as Facebook, Twitter, ListSrvs, Four Square and others to provide multiple options for sharing information and updates about the service.
 - a. The marketing coordinator will also be responsible for setting up lines of communication with the police department, public works departments, on campus activities departments, athletics, and any other organizations or departments that might be able to provide information regarding on campus activities that may affect transit.
 - b. If there are planned or unplanned outages, expanded service, or just general information to share, these tools are great supplements to the website and phone support provided by Parking and Transportation Services.
- (4) Route Maps and Presentation Updates
 - a. The Marketing Coordinator will be responsible for working with IT and graphics departments on campus to enhance the information presented on the transit website regarding route coverage, times of service, and stop locations. The online maps should be dynamic and regularly updated and confirmed for accuracy.

- b. Additionally, maps for download or printing should include accurate information and be updated regularly. This will require collaboration between MU and Columbia Transit to reflect any changes and to ensure that updates are posted timely to University websites.

The university should anticipate absorbing the costs to design and print university focused route maps and schedules. Columbia Transit does have a responsibility to provide route information, but it is unlikely that they will assume the costs for customized information. University students are more likely to utilize the system and understand the capabilities if the marketing materials target MU specific service areas.

Clarify Columbia Transit Contract and Establish Service Level Requirements

The service offered today is operationally sound. The assigned field supervisor for the University routes has demonstrated a strong focus on service delivery and ensuring that full operations are maintained at all times, especially during peak periods. The primary challenge to the quality of service delivered to the University of Missouri and its students revolves around future needs and long term development of the relationship.

The current agreement does not have mechanisms to deal with increasing or decreasing service, evaluating the cost for changing service, and service level expectations for training, on time performance, and driver customer service. Based on experience with other universities and best practices, transit service contracts require ongoing monitoring to ensure compliance with expectations. A well-defined contract structure will help ensure that if the City of Columbia's management and/or political leadership changes, or if the elected officials change strategic direction, the University of Missouri will be protected for the term of the agreement.

Criteria, milestones and expectations that should be considered to meet objective:

- (1) Redesign current contract to specify the number of bus service hours to be provided and the schedule mix. This would include the actual days of service, number of buses scheduled to run per day, and the hours they will run.
- (2) Define the hourly cost for bus service.
- (3) Establish set schedule (weekly and monthly) for discussing service performance and implications of issues that arise.
 - a. Discussions for these meetings should focus on route/driver evaluation and performance measures. Measureable route metrics include passenger count information, fuel consumption, GPS data to review on-time performance and schedule adherence, vehicle uptimes, major mechanical failures, and any trends found based on this information.
- (5) Require Columbia Transit to provide customer service training for drivers that is focused on the needs of university students. This should not result in any additional costs to the University of Missouri.
- (6) Columbia Transit has discontinued check rides as they were deemed ineffective. It is our recommendation that check rides be reinstated and documented for MU. They should be conducted on a regular schedule at least twice per semester for each driver. It is understood

that drivers should be on their best behavior and will most likely avoid bad habits and poor customer service during check rides.

- a. The value of confirming that drivers understand their duties, can demonstrate success on route, and have an opportunity to discuss challenges with supervisors while working will outweigh the fact that they know they are being evaluated.
 - b. This should be done at no additional cost to the University of Missouri, and the results should be shared with MU to ensure that the schedule is being met and to discuss any issues uncovered during check rides.
 - c. If practical, secret rider programs should be implemented to augment check rides.
 - d. Columbia Transit uses video to periodically review driver activity and performance. The frequency of these reviews should be increased to at least two random reviews per month plus evaluation of any reported incident for each driver. The results of these reviews should be shared with MU during monthly operational meetings.
- (7) Fuel costs and quantity are currently estimated by Columbia Transit at the beginning of each contract term period. The University of Missouri should require that the numbers used to estimate be provided for each year of the agreement.
- a. Depending on the information provided, the University of Missouri may consider the estimates high or unrealistic. If this is the case, it is recommended that fuel costs be separated from the bill rate, and that MU should be charged only for the exact amount of fuel used for their service at the rates paid by Columbia transit.

The contract terms should be rewritten within 60 days. Several of these items are well within standard industry practices, and can be incorporated into the current contract where practical and possible.