



APPENDIX B ITS MARKET PACKAGE SWOT ANALYSIS

Market Package: Broadcast Traveler Information		
<p>This Market Package involves the collection of data on traffic conditions, advisories, parking information, incident information, air quality and weather information, and the near real time dissemination of this information over digital broadcast services (e.g. internet, portable digital assistants, kiosks).</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ GoMDOT expansion (regionally, modally, information content) ➤ Traveler kiosks in welcome centers and rest stops ➤ Broadcast of camera images on television ➤ Freeway link speed calculations for expanded GoMDOT functionality 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Real time information on incidents, road construction, traffic speeds and travel times along given routes, parking conditions, event schedules, and weather. ➤ High value to motorists for incident related delays (accidents, weather, special events) ➤ Higher benefits to travelers with longer trips (e.g. commercial vehicle operators) ➤ Can provide travelers already on the highways and roadways with information on unexpected incidents or congestion 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Lower value to travelers with shorter trips ➤ Requires availability of alternate routes and modes. ➤ Level of information may not address localized traffic problems in a timely fashion.
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. ➤ Improve commercial vehicle information/routing/management for better efficiency and improved safety. 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Getting the private sector to buy-in to public provision of traveler information can reduce the public sector costs. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ A strong surveillance program must be in place for information dissemination to have the desired impact on transportation system performance. ➤ Demand for information unclear. ➤ Successful business models for prioritized traveler information have been limited to one or two firms. Mississippi market size may not support prioritized investment in regional traveler information.
<p>Time Frame: Near Term</p>	<p>Statewide or Regionally Operated: Both</p>	

Market Package: Interactive Traveler Information		
<p>This Market Package provides tailored information in response to a traveler request. Both real-time interactive request/response systems and information systems that "push" a tailored stream of information to the traveler based on a submitted profile are supported. A range of two-way wide-area wireless and wireline communications systems may be used to support the required digital communications between the traveler and the information service provider. A variety of interactive devices may be used by the traveler to access information prior to a trip or en-route including phone, kiosk, Personal Digital Assistant, personal computer, and a variety of in-vehicle devices.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Providing user specified traffic and road closure information via information kiosks ➤ Providing interactive (i.e., trip planning) GoMDOT internet applications 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Provides travelers with real time information on incidents, road construction, traffic speeds and travel times along given routes, parking conditions, event schedules, and weather. ➤ High value to motorists for incident related delays (accidents, weather, special events) ➤ Higher benefits to travelers with longer trips (e.g. commercial vehicle operators) ➤ Can provide travelers already on the highways and roadways with information on unexpected incidents or congestion 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Lower value to travelers with shorter trips ➤ Requires availability of alternate routes and modes. ➤ A strong surveillance program must be in place for information dissemination to have the desired impact on transportation system performance. ➤ Often requires more effort to retrieve information desired by travelers.
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. ➤ Improve commercial vehicle information/routing/management for better efficiency and improved safety. ➤ Make transit a more viable option by improving public perception, improving transit traveler information and operations (e.g. signal priority). 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Can provide opportunities to share communications installation costs with the private sector 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Demand for information is unclear without adequate market analysis. ➤ Market size for privatized traveler information services at regional level may not be adequate to ensure profitability.
<p>Time Frame: Medium Term</p>	<p>Statewide or Regionally Operated: Both</p>	

Market Package: Yellow Pages and Reservation		
<p>This market package enhances the Interactive Traveler Information package by making infrastructure-provided yellow pages and reservation services available to the user. The same basic user equipment is included. This market package provides multiple ways for accessing information either while en-route in a vehicle using wide-area wireless communications or pre-trip via wireline connections.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Provide tourist, hotel, restaurant information and reservation capability on traveler kiosks and internet (could be integrated with GoMDOT and existing kiosks in Mississippi rest areas) ➤ Could be used in conjunction with promotion of Dixie Rodeo and State Fair. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Benefits to visitors and other unfamiliar travelers ➤ Familiar travelers can benefit from parking reservation aspect. ➤ The provision of business (yellow pages) information will provide greater traveler convenience and increased patronage for businesses associated with the service. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Information needs to be current and comprehensive to garner public confidence, which requires management and maintenance investment.
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Potential reduction in VMT spent searching for trip destinations ➤ Can provide opportunities to share communications installation costs with the private sector 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ The private sector threat involves being able to support and profit from the service; business advertisement is a typical source of revenue. ➤ Travelers may or may not be willing to pay for these services.
<p>Time Frame: Medium Term</p>	<p>Statewide or Local Issue: Statewide</p>	

Market Package: Dynamic Ridesharing		
<p>This Market Package enhances the Interactive Traveler Information package by adding an infrastructure-provided dynamic ridesharing/ride matching capability.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ GoMDOT interface whereby the public can enter information about their commute and receive information about potential rideshare opportunities 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Increased vehicle occupancy and use of HOV modes 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Significant density of related trips is necessary to ensure ride matching. ➤ Requires a strong marketing campaign
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Expand travel demand management (e.g. ridesharing opportunities) 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Reduction in congestion, air pollution, and fuel consumption. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ The public is often reluctant to accept and actually share rides.
<p>Time Frame: Long Term</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Network Surveillance		
<p>This Market Package includes traffic detectors, other surveillance equipment, the supporting field equipment, and communications to transmit collected data. The derived data can be used locally such as when traffic detectors are connected directly to a signal control system or remotely (e.g., when a CCTV system sends data back to traffic management center). The data generated by this Market Package enables traffic managers to monitor traffic and road conditions, identify and verify incidents, detect faults in indicator operations, and collect census data for traffic strategy development and long range planning.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Traffic flow detection on freeways and arterials (both point based and wide area). For example, surveillance on I-20, I-220, and I-55 in Jackson as part of the CAPTAIN initiative ➤ Video surveillance cameras (fixed and/or portable) at high incident locations, congested areas, and interchanges. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ The primary strength of a surveillance program is the availability of accurate real-time traffic data for use in other ITS systems, providing enhanced transportation system operational efficiency and information to travelers ➤ Data support other traffic management services ➤ Essential component for incident detection and sometimes signal control ➤ High value for regions where traffic patterns are transient or unpredictable 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Infrastructure requirements increase if automated incident detection is to be implemented. ➤ Data management issues become a concern; i.e., effectively using all the data that is collected ➤ Maintenance of detection (e.g. loops) can be costly depending on spacing and type of installation
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Improve incident and event multi-jurisdictional management, procedures, coordination, telecommunications, and information exchange. ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures and parking. ➤ Optimize signal timing, operations, and coordination at the interface between neighboring jurisdictions. 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Information can be used for traveler information in addition to traffic management, e.g. travel time information, “congestion limits” data. In many regions, this is the primary source of information. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Use of video, if not carefully designed and operated, may be perceived as having privacy implications.
<p>Time Frame: Near Term</p>	<p>Statewide or Local Issue: Both</p>	

Market Package: Probe Surveillance		
<p>This Market Package provides an alternative approach for surveillance of the roadway network whereby wide area wireless communications is used to communicate current vehicle location and status. Vehicle tracking by global position systems (GPS) or cellular phone use are two implementation examples. The Market Package enables traffic managers to monitor road conditions, identify incidents, analyze and reduce the collected data, and make it available to users and private information providers. Due to the large volume of data collected by probes, data reduction techniques are required in this Market Package, which include the ability to identify and filter out-of-bounds, or extreme data reports.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Jackson Transit and Coast Transit AVL tracking data used for surveillance ➤ Application of cellular phone location tracking data for surveillance 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Does not require extensive distributed roadside infrastructure. ➤ Probe surveillance also has the potential for rural applications (requiring wide area communications), where more permanent surveillance sources would prove too costly. ➤ High value for regions where traffic patterns are transient or unpredictable 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Unpredictability of probe vehicles can limit effectiveness; e.g. frequent bus stops do not represent “overall” flow characteristics.
<p>Time Frame: Long Term</p>	<p>Statewide or Local Issue: Both</p>	

Market Package: Surface Street Control

This Market Package provides the central control and monitoring equipment, communication links, and the signal control equipment that support local surface street control and/or arterial traffic management. A range of traffic signal control systems are represented by this Market Package ranging from static pre-timed control systems to fully traffic-responsive systems that dynamically adjust control plans and strategies based on current traffic conditions and priority requests. This Market Package is generally an intra-jurisdictional package that does not rely on real-time communications between separate control systems to achieve area-wide traffic signal coordination. Systems that achieve coordination across jurisdictions by using a common time base or other strategies that do not require real time coordination would be represented by this package.

Potential Mississippi Applications:	Strengths:	Weaknesses:
<ul style="list-style-type: none"> ➤ MDOT and other jurisdictional closed loop systems are example implementations of this Market Package ➤ Adding signals into closed loop systems ➤ Moving toward increased centralized traffic signal control ➤ Advanced surveillance of traffic flows ➤ Analysis techniques for determining traffic signal control 	<ul style="list-style-type: none"> ➤ Can result in reduction in travel time, queue time, stops, fuel consumption, emissions. ➤ Can result in intersection-related accident rates, especially left turn accidents. ➤ Traffic can flow more smoothly in corridors and incidents and congestion can be identified and dealt with in real-time ➤ Significant benefit-cost ratio ➤ City of Jackson and MDOT use the same type of traffic signal controllers and system software 	<ul style="list-style-type: none"> ➤ Difficult to integrate with neighboring jurisdictions if operations policies and technologies are not compatible. ➤ Timing plan development requires substantial investment in traffic sensors. Adaptive control requires additional investment in sensors but less timing plan development.

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<p><i>ITS Vision Strategies Supported:</i></p> <ul style="list-style-type: none"> ➤ Optimize signal timing, operations, and coordination at the interface between neighboring jurisdictions. ➤ Improve incident and event multi-jurisdictional management, procedures, coordination, telecommunications, and information exchange. ➤ Improve interagency coordination on signal and system operations. 	<p><i>Opportunities:</i></p> <ul style="list-style-type: none"> ➤ Can be especially helpful near major traffic generators ➤ Signal coordination tailored to local traffic patterns can have significantly higher benefits ➤ Availability and use of NTCIP communications standards for traffic control devices to allow for an open, flexible system will help avoid another threat to program implementation. ➤ ➤ Capital improvements offer opportunity to include ITS elements cost effectively 	<p><i>Threats:</i></p> <ul style="list-style-type: none"> ➤ Effectiveness depends on coordination between different jurisdictions that may update adjoining signal systems. ➤ Balance between improving flow on major arterials and reducing overall delay may result in no one being fully satisfied with timings. ➤ Adoption of NTCIP signal communications standards has been very slow and many differences exist between various vendors' signal system products.
<p align="center"><i>Time Frame:</i> Near Term</p>	<p align="center"><i>Statewide or Local Issue:</i> Both</p>	

Market Package: Traffic Information Dissemination

This Market Package allows traffic information to be disseminated to drivers and vehicles using roadway equipment such as dynamic message signs or highway advisory radio. This package provides a tool that can be used to notify drivers of incidents. Careful placement of the roadway equipment provides the information at points in the network where the drivers have recourse and can tailor their routes to account for the new information. This package also covers the equipment and interfaces that provide traffic information from a traffic management center to the media (for instance via a direct tie-in between a traffic management center and radio or television station computer systems), transit management center, emergency management center, and information service provider.

Potential Mississippi Applications:

- Portable traffic management system for work zones, major incidents, hurricane evacuations. Portable VMS could be stationed in default locations such as before highway junctions, ahead of an exit onto an alternate route, ahead of first exit into a city.
- Highway advisory radio (e.g. hurricane evacuation scenario)
- Broadcast radio

Strengths:

- High value to motorists for incident related delays (accidents, weather, special events)
- Higher benefits to travelers with longer trips (e.g. commercial vehicle operators)
- Can provide travelers already on the highways and roadways with information on unexpected incidents or congestion

Weaknesses:

- Lower value to travelers with shorter trips
- Requires availability of alternate routes and modes.
- Length of message is constrained with the use of smaller portable signs than with larger permanent signs.
- HAR communications range is no more than a few miles.

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<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. ➤ Improve commercial vehicle information/routing/management for better efficiency and improved safety. ➤ Make transit a more viable option by improving public perception, improving transit traveler information and operations (e.g. signal priority). 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Freeway control allows for information dissemination to travelers when incidents and congestion cause delays, and works in tandem with surface street control to allow for route deviations when necessary. ➤ May be able to leverage existing fiber communications in Jackson ➤ Capital improvements offer opportunity to include ITS elements cost effectively ➤ The availability and use of NTCIP communications standards for traffic control devices to allow for an open, flexible system will help avoid another threat to program implementation. ➤ Keeps ITS in the public eye ➤ Broadcast radio can rely on private funding (like Florida). 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ A strong surveillance program must be in place for information dissemination to have the desired impact on transportation system performance. ➤ Inaccurate or confusing information reduces system credibility.
<p align="center">Time Frame: Short Term</p>	<p align="center">Statewide or Local Issue: Statewide</p>	

Market Package: Regional Traffic Control

This Market Package advances the Surface Street Control and Freeway Control Market Packages by adding the communications links and integrated control strategies that enable integrated interjurisdictional traffic control. This Market Package provides for the sharing of traffic information and control among traffic management centers to support a regional control strategy. The nature of optimization and extent of information and control sharing is determined through working arrangements between jurisdictions. This package relies principally on roadside instrumentation supported by the Surface Street Control and Freeway Control Market Packages and adds hardware, software, and wireline communications capabilities to implement traffic management strategies which are coordinated between allied traffic management centers. Several levels of coordination are supported from sharing of information through sharing of control between traffic management centers.

Potential Mississippi Applications:

- Adapt arterial signal timing in response to freeway incidents (e.g. Jackson TMC – MDOT TOC coordination)
- Integration of freeway traffic flow data with Jackson TMC (build upon current video sharing)
- Signal coordination between agencies
- Video sharing between TMC's (already done to a limited extent in Jackson)
- Adapt arterial signal timing in response to freeway incident

Strengths:

- The City of Jackson and MDOT's use of the same type of signal equipment and system software facilitates regional traffic control.
- The primary strength of a regional traffic management program is that it provides for current highways and roadways to be used to their utmost capability in terms of effective capacity, safety, and operation.
- The regional scope of this Market Package provides the opportunity to fully realize the benefits of enhanced coordination with the transit system and railroads.

Weaknesses:

- May require agreements between agencies that may have conflicting needs or agendas.

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<p><i>ITS Vision Strategies Supported:</i></p> <ul style="list-style-type: none"> ➤ Develop comprehensive and well-coordinated evacuation plans. ➤ Optimize signal timing, operations, and coordination at the interface between neighboring jurisdictions. ➤ Improve incident and event multi-jurisdictional management, procedures, coordination, telecommunications, and information exchange. ➤ Improve interagency coordination on signal and system operations. 	<p><i>Opportunities:</i></p> <ul style="list-style-type: none"> ➤ The availability and use of NTCIP communications standards for traffic control devices to allow for an open, flexible system will help avoid another threat to program implementation. ➤ Can improve overall coordination and cooperation between local transportation agencies. 	<p><i>Threats:</i></p> <ul style="list-style-type: none"> ➤ While the fact that the City of Jackson and MDOT using the same type of traffic signal controllers and system software is a strength, the threat of becoming locked in with one particular vendor increases as the two agencies increase their level of cooperation with each other. ➤ The communication links to each of the surveillance devices, information dissemination sources, and agencies needs to be developed.
<p align="center"><i>Time Frame:</i> Early Start</p>	<p align="center"><i>Statewide or Local Issue:</i> Both</p>	

Market Package: Incident Management System

This Market Package manages incidents so that the impact to the transportation network and traveler safety is minimized. Requisite incident detection capabilities are included in the freeway control Market Package and through the regional coordination with other traffic management and emergency management centers, weather service entities, and event promoters supported by this Market Package. Information from these diverse sources are collected and correlated by this Market Package to detect and verify incidents and implement an appropriate response. This Market Package provides traffic management center equipment that supports traffic operations personnel in developing an appropriate response in coordination with emergency management and other incident response personnel to confirmed incidents. The response may include traffic control strategy modifications and presentation of information to affected travelers using the Traffic Information Dissemination Market Package. The same equipment assists the operator by monitoring incident status as the response unfolds. The coordination with emergency management might be through a CAD system or through other communication with emergency field personnel. The coordination can also extend to tow trucks and other field service personnel.

Potential Mississippi Applications:

- Freeway service patrols
- 911 Center CAD system integrated with MDOT TOC
- Incident algorithms using new freeway vehicle detectors.
- Smart Work Zones
- Advanced communication technologies for detection / verification and response coordination
- Advanced communication technologies to disseminate information to motorists
- Electronic communication of hazardous materials cargo to incident response teams.
- *DOT or *HP for cell-phone reporting

Strengths:

- Reduction in incident response times for larger urban areas
- Freeway Service Patrol programs report significant reductions in incident related vehicle hours of delay
- Significant benefit to cost ratio
- Reduces the identification and clearance times for incidents - overall delay.
- Freeway service patrols can act as surveillance and service. Their visibility to the public can help gain buy in for other incident management techniques.
- It also reduces the levels of “unpredictability” regarding traffic operations. This contributes to reduction of secondary accidents, in particular, rear-end collisions

Weaknesses:

- MDOT does not have any incident management plan (covering operations, agency responsibilities, incident removal from travel lanes, route diversions, etc.)
- Infrastructure requirements increase with automated incident detection (e.g. typically need ½ mile detector spacing).

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<p><i>ITS Vision Strategies Supported:</i></p> <ul style="list-style-type: none"> ➤ Improve incident and event multi-jurisdictional management, procedures, coordination, telecommunications, and information exchange ➤ Emergency responders need real time traffic data, easier accessibility to scenes (e.g. around grade crossings) and better route guidance capabilities. 	<p><i>Opportunities:</i></p> <ul style="list-style-type: none"> ➤ Effective in areas with a high frequency of incidents or regions where incident delays constitute a major portion of delays. ➤ Could accelerate deployment by elevating ITS education, public outreach campaign, and decision-maker involvement ➤ The communications infrastructure and working relationships established can also be used to support the Regional Traffic Control Market Package. 	<p><i>Threats:</i></p> <ul style="list-style-type: none"> ➤ Requires reliable surveillance data. ➤ Public may have unrealistic expectation of congestion relief.
<p align="center"><i>Time Frame:</i> Near Term</p>	<p align="center"><i>Statewide or Local Issue:</i> Both</p>	

<p>Market Package: Standard Railroad Grade Crossing</p> <p>This Market Package manages highway traffic at highway-rail intersections (HRIs). Both passive (e.g., the crossbuck sign) and active warning systems (e.g., flashing lights and gates) are supported. (Note that passive systems exercise only the single interface between the roadway center and the driver in the architecture definition.) These traditional HRI warning systems may also be augmented with other standard traffic management devices. The warning systems are activated on notification by interfaced wayside equipment of an approaching train. The equipment at the HRI may also be interconnected with adjacent signalized intersections so that local control can be adapted to highway-rail intersection activities. Health monitoring of the HRI equipment and interfaces can be performed; detected abnormalities are reported to both highway and railroad officials through wayside interfaces and interfaces to the traffic management center.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Coordination between highway and rail crossing traffic control devices (example location: downtown Jackson - State Street) 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Need exists ➤ Devices exist that can be installed relatively easily. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Requires coordination with the railroad.
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Improve highway-rail intersection operations to reduce accident risks and make arterial traffic operations 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Public support for potential improvement in safety and mobility. ➤ Could be integrated with surface street control elements 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Railroad's preference for grade separation
<p>Time Frame: Short Term (Local control) Long Term (Central control)</p>	<p align="center">Statewide or Local Issue: Local</p>	

Market Package: Railroad Operations Coordination		
<p>This Market Package provides an additional level of strategic coordination between rail operations and traffic management centers. Rail operations provides train schedules, maintenance schedules, and any other forecast events which will result in highway-rail intersection (HRI) closures. This information is used to develop forecast HRI closure times and durations which may be used in advanced traffic control strategies or to enhance the quality of traveler information.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Downtown Jackson - State St ➤ Gulfport/Biloxi area 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Improve safety ➤ Reduce/manage congestion 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Difficulties in getting institutional cooperation between rail operations centers, TMC's, and DOT's. ➤ Railroads may not be able to provide accurate train schedule information
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Improve highway-rail intersection operations to reduce accident risks and make arterial traffic operations 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Lack of railroad interest ➤ Railroad's preference for grade separation.
<p>Time Frame: Short Term – Jackson Long Term – Gulfport/Biloxi</p>	<p>Statewide or Local Issue: Both</p>	

Market Package: Parking Facility Management		
<p>This Market Package provides enhanced monitoring and management of parking facilities. The included equipment assists in the management of parking operations, coordinates with transportation authorities, and supports electronic collection of parking fees. This is performed by sensing and collecting current parking facilities status, sharing the data with information service providers and traffic operations, and automatic fee collection using short range communications with the same in-vehicle equipment utilized for electronic toll collection.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Dixie National Rodeo (Jackson) ➤ State Fair (Jackson) ➤ Tourism (Gulfport/Biloxi) ➤ College football games (Jackson, Starkville, Hattiesburg, and Oxford) ➤ Jackson International Airport and other general airports in the State. ➤ Casinos on Gulf Coast. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Provides more efficient use of parking facilities, reduces unnecessary circulation of traffic in urban areas 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Requires significant coordination between parking facility data ➤ Probably can only be implemented at publicly owned facilities
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. 	<p>Opportunities:</p>	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Any parking management system involving areas with both public and private parking facilities may generate resistance from private operators
<p>Time Frame: Mid Term</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Reversible Lane Management		
<p>This Market Package provides for the management of reversible lane facilities. In addition to standard surveillance capabilities, this Market Package includes sensory functions that detect wrong-way vehicles and other special surveillance capabilities that mitigate safety hazards associated with reversible lanes. The package includes the field equipment, physical lane access controls, and associated control electronics that manage and control these special lanes. This Market Package also includes the equipment used to electronically reconfigure intersections and manage right-of-way to address dynamic demand changes and special events.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Contra-flow operations on the freeway during hurricane evacuation periods (e.g. along US 49 on the Gulf Coast). ➤ Corridors with traffic that is directional in nature. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Optimizes existing roadway capacity 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Displays and operational strategies may not be familiar to local drivers ➤ Potential accident implications without driver education
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Utilize lane and speed control strategies in certain situations (e.g. evacuations, severe weather). 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Through improving directional capacity on routes which normally have imbalanced flow during peak periods provides an excellent opportunity to demonstrate how to increase capacity without widening / construction. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Potential for driver confusion. ➤ Perceived as a negative by some.
<p>Time Frame: Long Term</p>	<p>Statewide or Local Issue: Statewide</p>	

Market Package: Road Weather Information System		
<p>This Market Package monitors current and forecast road and weather conditions using a combination of weather service information and data collected from environmental sensors deployed on and about the roadway. The collected road weather information is monitored and analyzed to detect and forecast environmental hazards such as icy road conditions, dense fog, and approaching severe weather fronts. This information can be used to more effectively deploy road maintenance resources, issue general traveler advisories, and support location specific warnings to drivers using the Traffic Information Dissemination Market Package.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Fog and flood warnings near Gulf Coast ➤ Flash flood warnings in Hattiesburg (e.g. US 49) ➤ Evacuation Planning ➤ Weather information to motorists. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Provides mechanism to detect / warn of changing or dangerous weather conditions. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Maintenance needed to keep equipment working
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Establish better information and coordination among agencies during disasters and weather emergencies 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Provides better support of emergency and weather management ➤ Can be visible to media and public through coordination with traveler information systems. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Private sector already delivering weather information and may perceive public sector provider as a threat.
<p>Time Frame: Mid Term</p>	<p>Statewide or Local Issue: Statewide</p>	

Market Package: Electronic Clearance		
<p>This Market Package provides for automated clearance at roadside check facilities. The roadside check facility communicates with commercial vehicle administration systems over wireline to retrieve infrastructure snapshots of critical carrier, vehicle, and driver data to be used to sort passing vehicles. This package allows a good driver/vehicle/carrier to pass roadside facilities at highway speeds using transponders and dedicated short range communications to the roadside. The roadside check facility may be equipped with AVI, weighing sensors, transponder read/write devices, computer workstation processing hardware, software, and databases.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Build upon current 10 PrePass sites at additional ports of entry on freeways throughout state with highest percentage of truck traffic volumes. ➤ Mississippi CVISN calls for weight enforcement officers to be able to gain access to WIM data using laptop computers. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Reductions in commercial and public administration costs ➤ Improvements in vehicle and driver productivity ➤ High benefits to long haul carriers ➤ Technology (PrePass) already in place 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Requires common tag format ➤ Standard technology is not ubiquitous throughout the U.S. ➤ Operational concept across US differ (i.e., Norpass is focused on State fee collection, PrePass is focused more on carrier convenience).
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Improve commercial vehicle/routing/management, better efficiency, and improved safety 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Data can be used to support truck-based traveler information services (if data can be made anonymous) 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Dependent on enrollment and tag information standard ➤ Many truckers perceive any type of vehicle identification technology as an invasion of privacy.
<p>Time Frame: Mid Term</p>	<p>Statewide or Local Issue: Statewide</p>	

<p>Market Package: Commercial Vehicle Administrative Processes</p> <p>This Market Package provides for electronic application, processing, fee collection, issuance, and distribution of CVO credential and tax filing. Through this process, carriers, drivers, and vehicles may be enrolled in the electronic clearance program provided by a separate Market Package which allows commercial vehicles to be screened at mainline speeds at commercial vehicle check points. Through this enrollment process, current profile databases are maintained and snapshots of this database are made available to the commercial vehicle check facilities at the roadside to support the electronic clearance process.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Mississippi CVISN plans call for establishing a “one-stop shop” using Lockheed Martin’s VISTA products for IRP, IFTA, SSRA, and possibly OS/OW permitting. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Significant savings for commercial vehicle operators and regulatory agencies 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ In conjunction with electronic clearance, many carriers consider heightened administrative monitoring as an invasion of privacy
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Improve the efficiency of inspections and container-tracking processes at intermodal terminals. 	<p>Opportunities:</p>	<p>Threats:</p>
<p>Time Frame: Short Term</p>	<p>Statewide or Local Issue: Statewide</p>	

Market Package: HAZMAT Management		
<p>This Market Package integrates incident management capabilities with commercial vehicle tracking to assure effective treatment of HAZMAT material and incidents. HAZMAT tracking is performed by the fleet management center. The emergency management center is notified by the commercial vehicle if an incident occurs and coordinates the response. The response is tailored based on information that is provided as part of the original incident notification or derived from supplemental information provided by the fleet management center. The latter information can be provided prior to the beginning of the trip or gathered following the incident depending on the selected policy and implementation.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Emergency vehicle AVL ➤ Two-way communications ➤ CVO RF intelligent tags for HAZMAT warnings. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Faster and more appropriate response to HAZMAT incidents 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Cost of instrumenting vehicles and roadways
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Improve the management of hazardous materials shipments and consider additional HAZMAT route restrictions. 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Improved safety and information to travelers during incidents. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Requires interagency procedures and wide area communication in the vehicle ➤ Requires cooperation by fleet managers to sharing freight information and installing vehicle incident notification infrastructure.
<p style="text-align: center;">Time Frame:</p> <ul style="list-style-type: none"> ➤ Short Term (Traffic and HAZMAT coordination) ➤ Long Term (Automatic notification to emergency center from vehicle) 	<p style="text-align: center;">Statewide or Local Issue:</p> <p style="text-align: center;">Statewide</p>	

Market Package: Emergency Response		
<p>This Market Package provides the computer-aided dispatch systems, emergency vehicle equipment, and wireless communications that enable safe and rapid deployment of appropriate resources to an emergency. Coordinated response between agencies is supported. Existing wide area wireless communications would be utilized between the emergency management center and an emergency vehicle to enable an incident command system to be established and supported at the emergency location. Public safety, traffic management, and many other allied agencies may each participate in the coordinated response managed by this package</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Develop interface at TMC whereby operators can more quickly contact the appropriate responding agency ➤ Allow emergency responders to view so that they can better plan their response ➤ Provide computer-aided dispatching (CAD) for police, fire, search and rescue, HAZMAT response teams. ➤ Emergency phones and/or CCTV at rest areas ➤ Freeway service patrols ➤ Coordination of emergency management policy among MEMA and other agencies. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Reduction in response times through system-coordinated response ➤ Highest benefit realized in areas with multiple jurisdictions and independent response agencies 	<p>Weaknesses:</p>
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Provide emergency responders with real time traffic data, easier accessibility to scenes (e.g. around grade crossings), and better route guidance capabilities 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Great opportunity to promote the benefits of ITS. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Success depends on interagency agreements and algorithms to support response decisions
<p>Time Frame: Short Term</p>	<p>Statewide or Local Issue: Both</p>	

Market Package: Emergency Routing		
<p>This Market Package supports dynamic routing of emergency vehicles and coordination with traffic management centers for special priority on the selected route(s). The emergency management center includes hardware and software for tracking the emergency vehicles. The emergency vehicle would also optionally be equipped with dedicated short range communications for local signal preemption.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Signal priority optimization along emergency vehicle response routes (currently exists in Jackson, Southaven, and Hattiesburg) ➤ Access to information about area congestion will allow emergency responders to plan the best route to the scene ➤ Emergency vehicle notification of impending railroad grade crossing 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Improves safety for both the operators of the emergency vehicle and the motoring public. ➤ Improves response time for emergency vehicles 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Proprietary systems limit expansion and increase costs
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Provide emergency responders with real time traffic data, easier accessibility to scenes (e.g. around grade crossings), and better route guidance capabilities 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Great opportunity to promote the benefits of ITS. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Any abuse of the system will adversely impact public perception
<p>Time Frame: Near Term</p>	<p>Statewide or Local Issue: Local</p>	

<p>Market Package: Mayday Support</p> <p>This package allows the user (driver or non-driver) to initiate a request for emergency assistance and enables the Emergency Management Center to locate the user and determine the appropriate response. The emergency management center may be operated by the public sector or by a private sector provider. The request from the traveler needing assistance may be manually initiated or automated and linked to vehicle sensors. The data is sent to the emergency management center using wide area wireless communications with voice as an option. Providing user location implies either a location technology within the user device or location determination within the communications infrastructure.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ User initiated distress signals for incidents such as mechanical breakdowns or car-jackings. ➤ Automatic collision notification transmits information regarding location, nature, and severity of crash to emergency personnel. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Automated routing of calls, shorter incident response time ➤ Assistance in event of accident ➤ Safety / security is of high interest to travelers 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Equipment cost. While the equipment is increasingly becoming standardized in many vehicles, subscription fees may be problematic for less affluent drivers.
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Improve incident and multi-jurisdictional management, procedures, coordination, telecommunications, and information exchange. 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Private sector making the investment in in-vehicle systems. (e.g. OnStar) 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Depends on reliability of wide area wireless communications.
<p>Time Frame: Medium Term</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Evacuation Planning and Traffic Control		
<p>This Market Package is not found in the National ITS Architecture but has been proposed for Mississippi based upon the issue statements identified by stakeholders throughout the state. The Market Package provides public safety agencies with operational plans for evacuation routes, access to shelters, and emergency support services along evacuation routes in the event of hurricanes, tornados or other natural disasters. The Market Package coordinates with pre-trip and en-route information user service activities to provide real-time evacuation route guidance information as well as real-time information on availability of shelter space, hospitals, food, water, and other basic necessities. Agencies in Mississippi and adjoining states coordinate with one another in order to provide the smooth and consistent exchange of information across state and FEMA district boundaries.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Pre-planned responses for evacuation route and traffic control strategies in the case of an impending hurricane, gas leak (e.g. at the plant in Petal) or other event requiring rapid evacuation on the Gulf Coast (coordinated with Louisiana and other neighboring states). ➤ Integration of the various information sources and recommend real time traffic control measures. ➤ Deployment of CCTV cameras, highway advisory radio, and dynamic message signs. ➤ ➤ ➤ 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ The advanced preparation on timing plans is faster and safer than preparing plans during and emergency 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Deployment of technology that may not have frequent use.
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Establish better information and coordination among agencies during disasters and weather emergencies. ➤ Utilize lane and speed control strategies in certain situations (e.g. evacuations, severe weather). ➤ ➤ ➤ 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Chance to show applicability of ITS technologies to real-world need. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Public perception that technology is not being used.
<p>Time Frame: Medium Term</p>	<p>Statewide or Local Issue: Statewide</p>	

Market Package: ITS Data Warehouse		
<p>This Market Package provides an archive for ITS generated data. This archive, collected from operational data, stores and archives the data for future use. It provides the basic data quality, data privacy, and meta data management common to all ITS archives and provides general query and report access to archive data users. The Market Package describes functionality and interface definitions that allow collection of data from multiple agencies and data sources spanning across modal and jurisdictional boundaries.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Freeway and major arterials in the Jackson area. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Would provide transportation planners with a reliable and extensive source of traffic data for use in models, simulations, and forecasting software packages. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Requires commonly accepted data collection devices.
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Collect better, more complete historic traffic and travel data to improve planning and analysis. 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Could promote participation of new / critical stakeholders and agencies in ITS development 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Insufficient data cleansing/maintenance can undermine quality. ➤ Questions of ownership of the data and who pays for its collection and storage could thwart attempts by planners to seek data from operators.
<p>Time Frame: Medium Term</p>	<p>Statewide or Local Issue: Both</p>	

Market Package: Transit Vehicle Tracking		
<p>This Market Package provides for an Automated Vehicle Location System to track the transit vehicle's real time schedule adherence and updates the transit system's schedule in real-time. Vehicle position may be determined either by the vehicle (e.g., through GPS) and relayed to the infrastructure or may be determined directly by the communications infrastructure. A two-way wireless communication link with the transit management center is used for relaying vehicle position and control measures. Fixed route transit systems may also employ beacons along the route to enable position determination and facilitate communications with each vehicle at fixed intervals. The transit management center processes this information, updates the transit schedule and makes real-time schedule information available to traveler information service providers.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Coast Transit and Jackson Transit demand responsive vehicles 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Provides a fundamental vehicle location service that is required by many other transit related Market Packages, since accurate, current knowledge of transit vehicle position is necessary to support routing, fare management, and security applications. 	<p>Weaknesses:</p>
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Make transit a more viable transportation option by improving public perception, improving transit traveler information, and operations (e.g. signal priority). ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. 	<p>Opportunities:</p>	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Effectiveness depends on capacity of wide area private communications channels. ➤ Funding, as always, is another major weakness—funding available for transit operations is continually being reduced, so developing these multimodal systems may prove difficult without sacrificing service in the short-term.
<p>Time Frame: Mid Term (Demand Response Vehicles) Long Term (Fixed Routes)</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Transit Fixed-Route Operations		
<p>This Market Package performs automatic driver assignment and monitoring, as well as vehicle routing and scheduling for fixed-route services. This service uses the existing AVL database as a source for current schedule performance data, and is implemented through data processing and information display at the transit management center. This data is exchanged using the existing wireline link to the information service provider, where it is integrated with that from other transportation modes (e.g. rail, ferry, air) to provide the public with integrated and personalized dynamic schedules.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Computer aided dispatch systems for routing , driver assignments (Jackson Transit currently has for demand responsive service) 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Improvement in vehicle on-time performance ➤ Reduction in field supervision ➤ Improved productivity of vehicles, and labor 	<p>Weaknesses:</p>
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Make transit a more viable transportation option by improving public perception, improving transit traveler information, and operations (e.g. signal priority). ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. 	<p>Opportunities:</p>	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Funding is continually being reduced, so developing these systems may prove difficult without sacrificing service in the short-term.
<p>Time Frame: Mid Term</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Demand Response Transit Operations		
<p>This Market Package performs automatic driver assignment and monitoring as well as vehicle routing and scheduling for demand response transit services. This package uses the existing AVL database to monitor current status of the transit fleet and supports allocation of these fleet resources to service incoming requests for transit service while also considering traffic conditions. The transit management center provides the necessary data processing and information display to assist the transit operator in making optimal use of the transit fleet. A traveler information service provider may either be operated by transit management center or be independently owned and operated by a separate service provider. In the first scenario, the traveler makes a direct request to a specific paratransit service. In the second scenario, a third party service provider determines the paratransit service is a viable means of satisfying a traveler request and uses wireline communications to make a reservation for the traveler.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Computer Aided Dispatch (CAD) system for Coast Transit and Jackson Transit ➤ Advanced communication and vehicle tracking technologies to schedule and route buses. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Improved productivity of vehicles, and labor ➤ Efficiencies in routing and trip scheduling ➤ Provide vehicle location information to management. 	<p>Weaknesses:</p>
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Make transit a more viable transportation option by improving public perception, improving transit traveler information, and operations (e.g. signal priority). ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Integration with personalized, dynamic service. 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Effectiveness depends on vehicle tracking, scheduling and dispatch capability. ➤ Funding, as always, is another major weakness—funding available for transit operations is continually being reduced, so developing these systems may prove difficult without sacrificing service in the short-term.
<p>Time Frame: Medium Term</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Transit Passenger and Fare Management		
<p>This Market Package allows for the management of passenger loading and fare payments on-board vehicles using electronic means. The payment instrument may be either a stored value or credit card. This package is implemented with sensors mounted on the vehicle to permit the driver and central operations to determine vehicle loads, and readers located either in the infrastructure or on-board the transit vehicle to allow fare payment. Data is processed, stored, and displayed on the transit vehicle and communicated as needed to the transit management center using existing wireless infrastructure.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Expand Jackson Transit monthly swipe passes to smart cards 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Passenger convenience of common fare instrument ➤ Reduction in crash handling loses ➤ Reduction in costs of data collection and fare processing. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Requires strong marketing campaign to persuade passengers to use cards.
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Make transit a more viable transportation option by improving public perception, improving transit traveler information, and operations (e.g. signal priority). 	<p>Opportunities:</p> <ul style="list-style-type: none"> ➤ Integration with other payment transactions 	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Funding available for transit operations is continually being reduced, so developing these systems may prove difficult without sacrificing service in the short-term
<p>Time Frame: Medium Term</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Transit Security		
<p>This Market Package provides for the physical security of transit passengers. An on-board security system is deployed to perform surveillance and warn of potentially hazardous situations. Public areas (e.g. stops, park and ride lots, stations) are also monitored. Information is communicated to the transit management center using the existing or emerging wireless (vehicle to center) or wireline (area to center) infrastructure. Security-related information is also transmitted to an emergency management center when an emergency is identified that requires an external response. Incident information is communicated to a traveler information service provider.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Surveillance cameras at multi-modal stations ➤ Panic buttons at bus stops and at bus-driver location. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Faster response to incidents ➤ Record of security incidents ➤ Increased passenger and operator safety. 	<p>Weaknesses:</p>
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Make transit a more viable transportation option by improving public perception, improving transit traveler information, and operations (e.g. signal priority). 	<p>Opportunities:</p>	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Funding available for transit operations is continually being reduced, so developing these systems may prove difficult without sacrificing service in the short-term
<p>Time Frame: Long Term</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Transit Maintenance		
<p>This Market Package supports automatic maintenance scheduling and monitoring. On-board condition sensors monitor critical system status and transmit critical status information to the Transit Management Subsystem. Hardware and software in the Transit Management Subsystem processes this data and schedules maintenance activities.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Automated mileage, vehicle status, and fuel reporting for Jackson and Coast Transit. 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Effective scheduling of maintenance activities ➤ Reduction in maintenance and system repair costs ➤ Improved scheduling and monitoring ➤ Increased reliability and reduced equipment costs. 	<p>Weaknesses:</p>
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Make transit a more viable option by improved public perception, improving transit information, and operations (e.g. signal priority). 	<p>Opportunities:</p>	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Funding available for transit operations is continually being reduced, so developing these systems may prove difficult without sacrificing service in the short-term
<p>Time Frame: Long term</p>	<p>Statewide or Local Issue: Local</p>	

Market Package: Multi-modal Coordination		
<p>This Market Package establishes two-way communications between multiple transit and traffic agencies to improve service coordination. Intermodal coordination between transit agencies can increase traveler convenience at transfer points and also improve operating efficiency. Coordination between traffic and transit management is intended to improve on-time performance of the transit system to the extent that this can be accommodated without degrading overall performance of the traffic network. More limited local coordination between the transit vehicle and the individual intersection for signal priority is also supported by this package.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Transit signal priority along express bus routes ➤ Integration of airport information into multi-modal centers and other information delivery mechanisms (e.g. GoMDOT). 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Reduction in transit travel times from signal priority ➤ The major strengths of a multimodal systems program are the sharing of information between transit and traffic management systems, with the systems helping each other provide more efficient service. 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Funding available for transit operations is continually being reduced, so developing these multi-modal systems may prove difficult without sacrificing service in the short-term
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Make transit a more viable option by improved public perception, improving transit information, and operations (e.g. signal priority). 	<p>Opportunities:</p>	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Without proper design and operational strategies, multimodal coordination could actually cause delay on parts of the system (if transit preemption backs up other traffic too much, for instance).
<p>Time Frame: Medium</p>	<p>Statewide or Local Issue: Both</p>	

Market Package: Transit Traveler Information		
<p>This Market Package provides transit users at transit stops and on-board transit vehicles with ready access to transit information. The information services include transit stop annunciation, imminent arrival signs, and real-time transit schedule displays that are of general interest to transit users. Systems that provide custom transit trip itineraries and other tailored transit information services are also represented by this Market Package.</p>		
<p>Potential Mississippi Applications:</p> <ul style="list-style-type: none"> ➤ Mississippi Transit Network (proposed Statewide transit information system) ➤ Expand GoMDOT to include transit information or links ➤ Next Bus” signs at bus stops on fixed routes. ➤ Kiosks or information signs at the multi-modal stations in Jackson, Gulfport, and Biloxi 	<p>Strengths:</p> <ul style="list-style-type: none"> ➤ Spreads transit information more widely 	<p>Weaknesses:</p> <ul style="list-style-type: none"> ➤ Using only GoMDOT may not reach the people who traditionally use transit. ➤ En-route transit information services require fixed routes and high ridership (i.e., not conditions present in rural Mississippi).
<p>ITS Vision Strategies Supported:</p> <ul style="list-style-type: none"> ➤ Make transit a more viable transportation option by improving public perception, improving transit traveler information, and operations (e.g. signal priority). ➤ Provide travelers with better, more accurate information such as construction, alternative routes, transit, tourism, airport, HRI lane closures, and parking. 	<p>Opportunities:</p>	<p>Threats:</p> <ul style="list-style-type: none"> ➤ Funding available for transit operations is continually being reduced, so developing these systems may prove difficult without sacrificing service in the short-term
<p>Time Frame: Medium Time Frame</p>	<p>Statewide or Local Issue: Both</p>	