

PB² Performance Report

No. 98-58

February 1999

Highway Construction Program Meets Most Standards; Its Accountability System in Need of Strengthening

This report assesses the performance of the Florida Department of Transportation's (FDOT) Highway Construction and Engineering Program based on its 1997-98 performance-based program budgeting (PB²) measures and comments on the measures proposed by the department for 1999-2000.

Summary

- The Florida Department of Transportation's Highway Construction and Engineering Program's Fiscal Year 1997-98 performance measures do not help in assessing program efficiency and effectiveness, except in limited terms. Program measures that can be used to assess performance indicate the program maintained over 80% of the pavement and over 90% of bridges on the State Highway System at department standards. Construction contract time and cost overruns continue to be a problem, but appear to have leveled off.
- The department's proposed Fiscal Year 1999-2000 Legislative Budget Request does not include useful input, output, and outcome measures for each of the program's major objectives. The program needs additional performance measures to allow greater accountability for its use of resources and to address all major areas of the department's mission that relates to the program.
- The program's accountability system meets OPPAGA's expectations in two of four areas (*data reliability and reporting of information and its use by management*). The program's *goals or objectives* are not clearly and comprehensively defined and *performance measures* do not adequately assess program performance and need some modifications.
- We provided a draft copy of our report to the Secretary of the Florida Department of Transportation, who concurred, but with some exceptions. (See Appendix C.)

Background

The purpose of the Highway Construction and Engineering Program is to develop and preserve a safe interconnected statewide transportation system to support the efficient movement of people and goods while sustaining the environment.

The department follows a multi-step process in creating and implementing transportation projects. Through a cooperative planning process involving state, regional, and local government officials and the public, FDOT identifies transportation needs and develops a five-year work program that is updated annually. In the first phase, FDOT performs environmental impact studies, determines project location, completes preliminary design, and solicits public comment. FDOT also coordinates with other agencies including the Federal Highway Administration and the Florida Department of Environmental Protection. The next major phase includes engineering design, in which final design plans are prepared and all required permits are obtained. FDOT obtains needed right-of-way during this phase, but under the Right-of-Way Acquisition Program. The contract-letting phase involves preparing specifications, estimating project costs, and selecting the contractor to perform the work, typically the lowest responsible bidder. The final phase includes actual project construction, and also includes ongoing contract administration and construction inspection activities to monitor the contractors' performance during the construction period.

The department allotted the Highway Construction and Engineering Program an estimated \$2.3 billion and 3,754 positions for Fiscal Year 1998-99.¹ The program is funded from several sources including state fuel taxes, motor vehicle fees, and federal apportionments/grants that are deposited into the State Transportation Trust Fund. Florida Turnpike projects are funded by toll collections, concession revenue, and revenue bond proceeds.

The program is organized into a central office located in Tallahassee that provides overall policy and procedures for the program and eight districts. The district headquarters, located in Broward, Columbia, Dade, Hillsborough, Leon, Polk, Volusia, and Washington counties, plan, design, and construct transportation facilities on the State Highway System.

The department's performance is monitored through various reporting requirements. The Florida Transportation Commission, an independent commission composed of private business people, evaluates the department's performance quarterly and reports to the Legislature annually. The department reports annually to the Governor on its progress in achieving program objectives in its agency strategic plan. The department also reports annually to the Legislature on its progress in achieving program objectives defined in law. Some of the measures reported in the commission's performance and production review and in the department's strategic plan and program objectives and accomplishment report are also used for performance-based program budgeting.

¹ The Florida Department of Transportation's funds are not appropriated in the PB² program budget format.

Performance

The program attained or exceeded 9 of its 12 performance standards. Program measures that can be used to assess performance indicate the program maintained over 80% of the pavement and over 90% of bridges on the State Highway System at department standards thereby achieving its agency strategic plan goals. While construction contract time and cost overruns continue to be a problem, upward trends in time and cost overruns may be leveling off, possibly due to the results of department's alternative contracting program. Alternative contracting practices are intended to reduce time and cost overruns while improving the finished product.

To supplement the limited information provided by current PB² measures, we examined additional indicators, which are not intended to assess program performance at this time because these measures are largely beyond the department's control. These measures indicate that the State Highway System recorded a slight increase in the motor vehicle fatality rate compared to the motor vehicle fatality rate on all public roads. Bicycle and pedestrian fatality rates on the State Highway System remained about the same. The number and percentage of severely congested urban interstate lane miles increased. The state population's general level of satisfaction with all highways and roads remained the same.

See Appendix A for a more detailed discussion of program performance for each of its measures.

Proposed Performance Measures

In the 1999-2000 Legislative Budget Request, the department proposes to continue the same 12 performance measures from the prior year without modification, many of which are similar to the measures reported in other department reports to the Legislature and by the Florida Transportation Commission. We suggest slight modifications to several of these measures and standards. Further, the proposed measures do not cover all key outputs of the program and do not capture all vital impacts produced by program activities in meeting the department's mission. We suggest additional measures are needed for assessing the efficiency and effectiveness in the areas of safety, preservation, mobility, and the environment.

To avoid burdening decision-makers with unnecessary detail, some of these additional measures could be maintained in the performance ledger or by the department and made available for legislative review, rather than placed in the General Appropriations Act. Performance information maintained internally by the department should be held to the same quality standards as other information reported by the department. OPPAGA will continue to assist the department in developing and refining performance measures that demonstrate program efficiency and effectiveness.

See Appendix B for a more detailed discussion of our recommendations for the program's measures.

Rating of Program Accountability

A key factor in PB² is that agencies need to develop strong accountability systems that enable the Legislature and the public to assess program performance. An *accountability system* consists of these key elements: program purpose or goals, performance measures, a process for valid and reliable data, and credible reports of performance that can be used to manage the program. OPPAGA's rating tells decision-makers whether they can rely on the program's performance information. We compared the components of the Highway Construction and Engineering Program's accountability system against our established criteria to determine its rating.

Accountability System Component	Meets Expectations	Needs Some Modifications	Needs Major Modifications
Program Purpose or Goals		X	
Performance Measures		X	
Data Reliability	X		
Reporting Information and Use by Management	X		

Source: OPPAGA analysis

The Highway Construction and Engineering Program meets OPPAGA's expectations of an adequate accountability system in two of the four elements specified in the table above.

- *Data reliability.* The program has internal control procedures that appear adequate for ensuring data reliability and program staff take steps to correct data reliability problems. The agency inspector general also takes steps to assess performance data to ensure data integrity. Yet, it is recognized that the potential exists for errors in the data to occur.
- *Reporting information and use by management.* As reported in several documents, performance information is clear and understandable, is readily available to program managers, is routinely used by program managers to improve performance, and is available to the public.
- *Program purpose or goals.* The program does not have a clear and comprehensive purpose or goal statement. The purpose statement in the agency's 1998-99 and 1999-2000 Legislative Budget Request (i.e., to develop and implement the State Highway System) is not clear and comprehensive and the objectives therein are not specific, measurable, or comprehensive.
- *Performance measures.* Performance measures relate to program purpose and objectives. However, the performance measures for this program are incomplete and do not cover all major aspects of the program. For example, accessibility and

congestion mitigation measures are not sufficient to indicate the effectiveness of program activities.

For More Information

Additional information about the Highway Construction and Engineering Program is available on the Internet. The program profile is in OPPAGA's Florida Government Accountability Report (FGAR) at <http://www.oppaga.state.fl.us/profiles/6095/>. OPPAGA's staff contact for this program is Mark Frederick (850) 487-9251. Also through the Internet, you may access the Department of Transportation at <http://www.dot.state.fl.us> or by calling (850) 414-5250.

Appendix A

Analysis of Program Performance for Each of Its Performance Measures

Outcome Measures

Performance		1997-98 Standard	Met Standard?	Comments
1996-97	1997-98			
Percentage of state highway system pavement in good condition (meets department standards)				
82%	81%	79%	Yes	The program has consistently achieved the Agency Strategic Plan objective to annually maintain at least 80% of the pavement on the State Highway System at department standards. This program helped to achieve this performance by adding enough new lane miles to the system and programming a sufficient number of lane miles for resurfacing to meet the department goal.
Percentage of state maintained bridges in good condition (meets department standards)				
92%	93%	96%	No	The program has consistently achieved the Agency Strategic Plan objective to annually maintain at least 90% of the bridges on the State Highway System at department standards. The program helped to achieve this performance by adding enough new bridges to the system and programming enough bridges for repair or replacement to meet the department goal. The department reports that all bridges open to the public that need repair or replacement are still safe for travel. The department also reports that estimating the actual number of bridges that will be in acceptable condition cannot be precisely projected when the standards are set.
Percentage increase in number of days required for completed construction contracts over original contract days (less weather days)				
34.5%	30.59%	<30%	No	Performance improved over time. The standard was not met by 1.4 days per contract, which does not appear to be significant. Construction contracts completed as part of the 1996 innovative contracting program are likely having a positive impact on the time overrun figure.

Outcome Measures

Performance		1997-98 Standard	Met Standard?	Comments
1996-97	1997-98			
Percentage increase in final amount paid for completed construction contracts over original contract amount				
12.8%	12.34%	<10%	No	Performance improved over time yet the standard was not met. The standard was not met by 2.34%, which translates to \$72,000 per contract. Missing the standard by 2.34% appears to be significant. The Florida Transportation Commission reports that 30% of the construction contracts had cost overruns over 10%. The report does not detail why those contracts had cost overruns over 10%. The department emphasizes that not all construction contracts have cost overruns and most overruns add value to the project.
Number of motor vehicle fatalities per 100 million miles traveled				
2.16*	2.11**	<2.25	Yes	This is not a direct measure of program performance. These fatality rate measures are influenced mainly by factors beyond the department's control such as driver error and law enforcement effort. Moreover, during 1997 only 62% of these fatalities occurred on roads within the department's jurisdiction. For informational purposes, it indicates slight improvement compared to last year as accident death rates declined.
*(performance is based on calendar year 1996) **(performance is based on calendar year 1997)				
Number of bicycle and pedestrian deaths per 100,000 population				
4.61*	4.41**	<5	Yes	
*(performance is based on calendar year 1996) **(performance is based on calendar year 1997)				
Percentage of vehicle crashes on State Highway System where road-related conditions were listed as a contributing factor				
3.89%*	0.9%*	<5%	Yes	The program reports 0.9% for calendar year 1996 based on filtering data. The Florida Transportation Commission reports performance as 4.35% for 1997 based on actual crash report figures, which is an increase of 0.46%. Department staff believe the crash report information overstates the number of crashes where road-related conditions were a factor.
*(performance for 1996-97 and 1997-98 is based on calendar year 1996)				

Output Measures

Performance		1997-98 Standard	Met Standard?	Comments
1996-97	1997-98			
Percentage of construction contracts planned for letting that were let				
97%	98%	96%	Yes	Production performance improved compared to the prior year and the program met its standard. Only 8 of 484 planned contracts were not let. This measure indicates that the department's work program is being delivered.
Number of lane miles let to contract for resurfacing				
1,626	1,908	1,835	Yes	More lane miles were resurfaced compared to the prior year, and the program met its production target.
Number of bridges let to contract for repair				
360	279	157	Yes	Fewer bridges were repaired compared to the prior year, but the program met its production target. The total production target for bridge repairs was not included in the standard because it was not known at the time the standard was set.
Number of bridges let to contract for replacement				
50	42	35	Yes	Fewer bridges were replaced compared to the prior year while the program met its production target.
Number of lane miles let to contract for highway capacity improvements				
313	387	241	Yes	More new lane miles were constructed compared to the prior year and the program met its production target.

Other Performance Measures

These measures are not a part of the program's PB² measures, but provide useful information about program performance.

Performance		Comments
1996-97	1997-98	
Number of motor vehicle fatalities per 100 million miles traveled on the State Highway System		
2.00*	2.05**	More people died per 100 million vehicle miles traveled on the State Highway System than during the prior year. This indicates that the traffic fatality rate on the State Highway System increased slightly while traffic accidents with fatalities on all public roads decreased slightly (see statewide measure on page 7).
*(performance is based on calendar year 1996) **(performance is based on calendar year 1997)		
Data Source: Florida Department of Highway Safety and Motor Vehicles, Office of Management and Planning Services provided the number of motor vehicle fatalities and the Florida Department of Transportation, Statistics Office provided the number of vehicle miles traveled.		
Number of bicycle and pedestrian deaths per 100,000 population on the State Highway System		
2.82*	2.81**	Fewer bicyclists and pedestrians died per 100,000 population on the State Highway System than during the prior year. This indicates that fatality rates involving bicyclists and pedestrians decreased slightly on both the State Highway System and all public roads (see statewide measure on page 7).
*(performance is based on calendar year 1996) **(performance is based on calendar year 1997)		
Data Source: Florida Department of Highway Safety and Motor Vehicles, Office of Management and Planning Services provided the number of motor vehicle fatalities and the Florida Department of Transportation, Statistics Office provided the number of vehicle miles traveled.		
Number and percentage of congested urban interstate center line miles in Florida rated greater that 0.95 using volume-service flow ratio		
135/526 25.7%*	175/513 34.1%**	The number and percentage of center line miles on Florida's urban interstate freeways were becoming increasingly congested (recurring congestion only). Department staff believe this measure should be used with caution. They believe it should not be interpreted to mean that additional lane miles are needed to reduce congestion.
*(performance is based on calendar year 1995) **(performance is based on calendar year 1996)		
Data Source: United States Department of Transportation, Federal Highway Administration Highway Statistics Report (Table HM-61)		
Public satisfaction survey rating highways and roads in their area as excellent or good		
1995 52%	1997 52%	The population's general level of satisfaction with all highways and roads remained the same. This measure reflects satisfaction with both state and local roads.
Data Source: Florida Commission on Government Accountability to the People, Florida Benchmarks, Florida Annual Policy Survey, Florida State University		

Source: FDOT Legislative Budget Request, OPPAGA analysis, and additional data sources

Appendix B

OPPAGA Recommendations for the Highway Construction and Engineering Program's Fiscal Year 1999-2000 Measures

Outcome Measures, Fiscal Year 1999-2000

Measures Proposed by FDOT	Proposed Standards	OPPAGA Recommendations/Comments
<p>Number of motor vehicle fatalities per 100 million miles traveled</p> <p>(statewide on all public roads)</p>	<2.05	<p>We recommend adoption of this measure. Note: Deaths within 90 days of the accident are included in program performance, whereas the National Highway Traffic Safety Administration reports only deaths within 30 days. The department's goal is to reduce Florida's motor vehicle fatality rate to the 1997 national average of 1.7 by 2006. By using the 90-day measure, the program is actually slightly closer to the goal than it appears. This measure should be used for informational purposes only and not to gauge program performance.</p>
<p>Number of bicycle and pedestrian deaths per 100,000 population</p> <p>(statewide on all public roads)</p>	<5	<p>We recommend deletion of this measure. The measure is relevant and useful. However, the rate should be reported separately, as suggested below since bicyclists and pedestrians travel on different parts of the roadway. If continued, this measure should be used for informational purposes only and not to gauge program performance.</p>
<p>Percentage of vehicle crashes on the State Highway System where road-related conditions were listed as a contributing factor</p>	<1%	<p>We recommend adoption of this measure with modification. The measure is relevant and useful and includes some of the vehicle crashes that occur in work zones. However, the data collection methods need improvement to ensure the accuracy of the data. The program is monitoring three pilot projects intended to improve the accuracy of data collected and reported. During the interim, unfiltered data should be used and standards set accordingly. The department should also maintain supplemental measures such as the number and amount of legal settlements against the department for road conditions contributing to the cause of a motor vehicle traffic accident.</p>
<p>Percentage of State Highway System pavement in good condition</p>	80%	<p>We recommend adoption of this measure. The department's Agency Strategic Plan goal is to maintain 80% of the pavement on the State Highway System to department standards. The same standard should be used in both documents.</p>

Outcome Measures, Fiscal Year 1999-2000

Measures Proposed by FDOT	Proposed Standards	OPPAGA Recommendations/Comments
Percentage of state maintained bridges in good condition	95%	We recommend adoption of this measure. The department's Agency Strategic Plan goal is to maintain at least 90% of the bridges on the State Highway System to department standards. The same standard should be used in both documents.
Percentage increase in number of days required for completed construction contracts over original contract days (less weather days)	<30%	We recommend adoption of this measure. Note: The measure does not include suspension time, e.g., to redesign the project, which may delay completion of the project. District-let contracts are not included.
Percentage increase in final amount paid for completed construction contracts over original contract amount	<10%	We recommend adoption of this measure. Note: The measure includes only supplemental agreement cost overruns for Central Office-let contracts. The department should also maintain supplemental measures such as the number and percentage of project specifications met to guard against not entering necessary supplemental agreements.

Output Measures, Fiscal Year 1999-2000

Measures Proposed by FDOT	Proposed Standards	OPPAGA Recommendations/Comments
Percentage of construction contracts planned for letting that were let	95%	We recommend adoption of this measure. Note: The measure does not include contracts planned but later excluded in the Adopted Work Program, but does include district-let contracts. Having historically achieved a higher percentage, it appears unreasonable to lower this standard.
Number of lane miles let to contract for resurfacing	1,752	We recommend adoption of this measure with modification. The measure should not include resurfacing lane miles that are not on the State Highway System (28 miles in Fiscal Year 1997-98) as this measure relates directly to the outcome of the percentage of lane miles on the State Highway System that meet department standards. Also, the standard should be updated to match the planned level of resurfacing in the 1999-2000 Adopted Work Program to compare planned to actual performance.

Output Measures, Fiscal Year 1999-2000

Measures Proposed by FDOT	Proposed Standards	OPPAGA Recommendations/Comments
Number of lane miles let to contract for highway capacity improvements	235	We recommend adoption of this measure. The standard should be updated to match the planned level of capacity improvements in the 1999-2000 Adopted Work Program to compare planned to actual performance.
Number of bridges let to contract for repair	63	We recommend adoption of this measure with modification. The measure should not include repairing bridges that are not on the State Highway System as this measure relates directly to the outcome of the percentage of bridges on the State Highway System that meet department standards. The measure should not include minor maintenance repairs that are usually performed under the Transportation System Maintenance Program. Also, the standard should be updated to match the planned level of bridge repair in the 1999-2000 Adopted Work Program to compare planned to actual performance.
Number of bridges let to contract for replacement	67	We recommend adoption of this measure with modification. The measure should not include replacing bridges that are not on the State Highway System as this measure relates directly to the outcome of the percentage of bridges on the State Highway System that meet department standards. Also, the standard should be updated to match the planned level of bridge replacement in the 1999-2000 Adopted Work Program to compare planned to actual performance.

OPPAGA Recommendations for Additional Measures, Fiscal Year 1999-2000

Measures	Comments
Number of motor vehicle fatalities per 100 million miles traveled on the State Highway System	<p>This outcome measure indicates the motor vehicle fatality rate on the State Highway System. This measure should be used for informational purposes only and not to gauge program performance because the reasons for these deaths are largely beyond the control of the department.</p> <p>Data is not readily available to track the number of crashes on the State Highway System, which is equally important in assessing program performance. The Department of Highway Safety and Motor Vehicles maintains automated files on only one-half of all motor vehicle traffic accidents, due to funding constraints. The remaining crash reports are available on microfilm.</p>

OPPAGA Recommendations for Additional Measures, Fiscal Year 1999-2000

Measures	Comments
Number of bicycle deaths per 100,000 population on the State Highway System	This outcome measure indicates the bicycle fatality rate on the State Highway System. This measure should be used for informational purposes only and not to gauge program performance because the causes of these deaths are largely beyond the control of the department.
Number of pedestrian deaths per 100,000 population on the State Highway System	This outcome measure indicates the pedestrian fatality rate on the State Highway System. This measure should be used for informational purposes only and not to gauge program performance because the causes of these deaths are largely beyond the control of the department.
Number and percentage of congested urban lane miles on the Florida Interstate Highway System rated greater than 0.95 using volume-service flow ratio	This outcome measure indicates how effective the program is in reducing congestion on urban interstate freeways. It may be used as an interim measure until the department develops more meaningful measures of mobility, such as the number and percentage of congested urban lane miles on the Florida Intrastate Highway System.
Time- and person-based travel measures	These outcome measures are currently being developed by the department and should be adopted. Time- and person-based measures are comparable across modes of travel and are more meaningful to the public.
Public satisfaction survey rating highways and roads in their area as excellent or good	This outcome measure indicates the level of user satisfaction with the program. It may be used as an interim measure until the department develops a survey to assess user satisfaction. The department anticipates including a customer satisfaction survey as part of its Sterling Quality Challenge efforts. ¹
Average cost per product for each major program activity (major activities including planning, engineering design, construction, construction inspection, and material testing)	It is important to have measures that report on program efficiency. Typically, program inputs divided by program outputs indicate relative efficiency. However, producing this program's outputs span several years and sometimes decades. Consequently, this year's inputs do not all relate to this year's outputs making unit costing less meaningful. Thus, it is necessary to have additional measures to assess program efficiency.

¹ The Sterling Quality Challenge is a management system specifically designed to promote excellence in leadership, employment involvement, customer satisfaction, and continuous improvement by setting high standards for developing organizations.

Appendix C

Response from the Florida Department of Transportation

The Secretary of the Florida Department of Transportation provided a detailed response to our report. The secretary generally agreed with our comments and recommendations, with the exceptions noted below.

- We recommend that only those fatalities on the State Highway System be used, rather than statewide on all public roads. Our budget supports improvements on the State Highway System. It is important to note that the statewide fatality rate (for all public roads) is used in the Department's Agency Strategic Plan/Short Range Component of the 2020 Florida Transportation Plan (ASP/SRC). The reason for this is that the ASP/SRC serves as a statewide transportation plan. The department's limited role in accomplishing this objective is explained along with a listing of other groups which play a role in reducing the fatality rate. We agree that the fatality rate on the State Highway System is more indicative of what the department has control over, since our budget supports improvements on the State Highway System.

OPPAGA Director's Comments

Agencies need to establish more comprehensive performance measurement systems. Agency performance measures should include high-level measures that can be used to monitor the achievement of critical state goals. A purpose of the Highway Construction and Engineering Program is to provide safe roads and bridges. A nationally recognized indicator of highway safety is the statewide motor vehicle fatality rate as used by the United States Department of Transportation. Agencies should also include more detailed measures that can be used to assess key direct program outputs and outcomes. The Legislature should have a complete set of measures linked to appropriated resources.

- We disagree with OPPAGA's recommendation to track numbers and amount of legal settlement since these are established by the judicial system and the amount is not controlled by FDOT.

OPPAGA Director's Comments

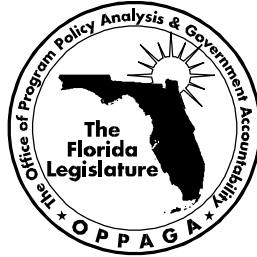
Agencies should have in-depth output and outcome measures that are key to obtaining the high-level measures mentioned above. Findings in a court of law should provide a thorough means of determining when road conditions contributed to the cause of a motor vehicle accident. Given the department finds that motor vehicle accident reports are not entirely accurate as to when road condition contributed to the cause of the accident, court records could provide an alternative means to more accurate information.

A complete copy of the department's response is available upon request.

This page intentionally left blank.

The Florida Legislature

Office of Program Policy Analysis and Government Accountability



Visit *The Florida Monitor*, OPPAGA's online service. This site monitors the performance and accountability of Florida government by making OPPAGA's four primary products available online.

- OPPAGA Publications and Contracted Reviews, such as policy analyses and performance reviews, assess the efficiency and effectiveness of state policies and programs and recommend improvements for Florida government.
- Performance-Based Program Budgeting (PB²) Reports and Information offer a variety of tools. Program Evaluation and Justification Reviews assess state programs operating under performance-based program budgeting. Also offered is performance measures information and our assessments of measures.
- Florida Government Accountability Report (FGAR) is an Internet encyclopedia of Florida state government. FGAR offers concise information about state programs, policy issues, and performance. Check out the ratings of the accountability systems of 13 state programs.
- Best Financial Management Practice Reviews for Florida School Districts. OPPAGA and the Auditor General jointly conduct reviews to determine if a school district is using best financial management practices to help school districts meet the challenge of educating their students in a cost-efficient manner.

OPPAGA provides objective, independent, professional analyses of state policies and services to assist the Florida Legislature in decision-making, to ensure government accountability, and to recommend the best use of public resources. This project was conducted in accordance with applicable evaluation standards. Copies of this report in print or alternate accessible format may be obtained by telephone (850/488-0021 or 800/531-2477), by FAX (850/487-3804), in person (Claude Pepper Building, Room 312, 111 W. Madison St.), or by mail (OPPAGA Report Production, P.O. Box 1735, Tallahassee, FL 32302).

The Florida Monitor: <http://www.oppaga.state.fl.us>

Project supervised by: Doug Isabelle (850/487-9253)

Project conducted by: Mark Frederick (850/487-9251)
Amy McKee (850/487-9212)