Florida Department of Transportation 2015 Performance Report

Preservation

Maintenance and Operations

Produced by the Florida Department of Transportation
Office of Policy Planning
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PRESERVATION

This report is part of the Performance-Based Planning and Programming Process used by the Florida Department of Transportation (FDOT). For a description of that process, updates to this report and other transportation performance reporting initiatives of FDOT, go to FDOTPerforms.org.

INTRODUCTION

Florida has invested billions of dollars in roads, bridges, rail networks, airports, public transit, seaports and other elements of the transportation system. Regular maintenance and improvements keep these assets operating efficiently, thereby extending their useful life and delaying the substantial cost of reconstruction or replacement.

Regular maintenance improvements keep assets operating efficiently, extending their useful life and delaying the substantial cost of reconstruction or replacement.

The Florida Department of Transportation (FDOT) continues to make substantial investments to meet established standards for highway pavement, bridges and routine maintenance to keep the portion of the transportation system it owns in acceptable condition. Roadways owned by local governments and other transportation facilities such as transit systems, airports, seaports, railroads, trails, and spaceports are maintained by their respective public or private owners and operators. FDOT helps fund some of these facilities, but does not directly build, operate or maintain them.

Managing the transportation system also means ensuring that the system efficiently carries people and goods to meet the demands of population growth, an expanding economy, and changing travel behavior. FDOT is expanding the use of Intelligent Transportation Systems, transportation demand management, access management, incident management and other techniques to maximize the operational efficiency and safety of the system.

FDOT has primary jurisdiction over the State Highway System (SHS). Although this system consists of only 12,116 (9.9 percent) of the 122,392 public road centerline miles in Florida, it carries over half (53.8 percent) of all traffic. For the SHS, FDOT resurfaces roads, repairs or replaces bridges and conducts routine maintenance activities such as mowing, litter removal, guardrail repair, and sign replacement. There is a compelling case that the maintenance of existing transportation infrastructure is the most effective investment strategy from a benefit-cost perspective.

2015 PERFORMANCE HIGHLIGHTS

The effective and efficient preservation (maintenance and operation) of Florida's state roads and bridges and other modes protects the state's substantial infrastructure investment and helps to ensure the performance of the transportation system. Key performance highlights are:

- State Highway System (SHS) pavement is in excellent condition, with more than 92 percent exceeding FDOT standards.
- FDOT maintained bridges are also in excellent condition, with nearly 95 percent exceeding FDOT standards.
- FDOT has met or exceeded its roadway maintenance standard every year since 1994—more than a generation of maintenance excellence.
- Over the past decade, Florida transit agencies have kept bus and passenger train breakdowns to around one per 4,000 revenue miles—fewer breakdowns means better transit service and performance.
- The number of miles managed by Intelligent Transportation System (ITS) technologies has increased almost eight-fold from 170 miles in 2005 to nearly 1,300 miles in 2014.
- Over 24 million messages, calls, web hits, app sessions, tweets, and alerts were made through Florida's 511 program in 2014.
- Road Ranger services were provided to over 382,000 stranded motorists in 2014.
- FDOT consistently achieves its 90-minute target for clearing roadways after incidents (46.5 minute average for the SHS and 70 minute average for severe incidents handled by local Incident Response Teams).

Performance Profiles are included to highlight specific strategies and programs that support these performance measures.

Asset Management

FDOT is committed to maintaining the existing system before it invests in new capacity. FDOT's Transportation Asset Management Plan objectives are to: achieve and maintain a state of good repair for transportation assets, reduce vulnerability and increase resiliency of critical infrastructure to the impacts of extreme weather and other environmental conditions, and minimize damage to infrastructure from vehicles.

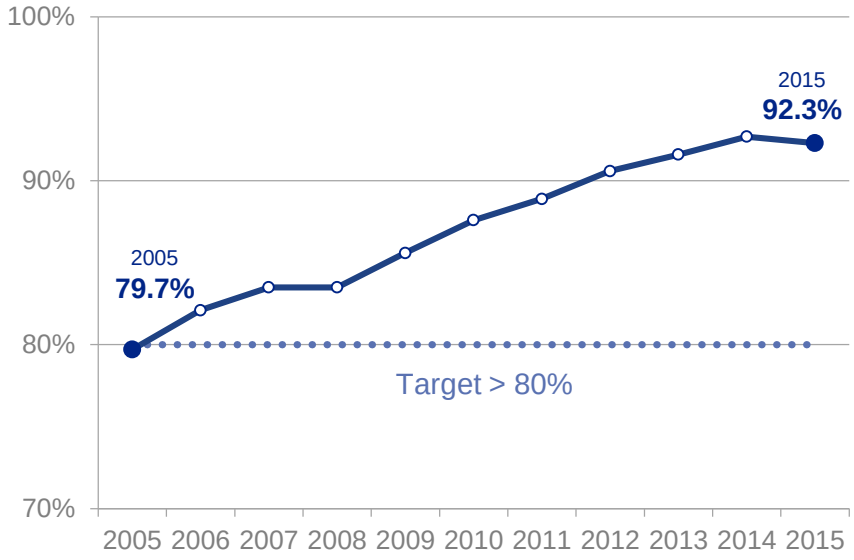
PAVEMENT CONDITION

CORE MEASURE

State Highway System pavement is in excellent condition, with more than 92 percent currently meeting FDOT standards.

FDOT has identified a series of core measures related to the preservation (maintenance and operation) of the transportation system, which is a primary department goal. **Figure 1** shows that SHS pavement is in excellent condition, with 92.3 percent currently meeting FDOT standards. This percentage is expected to remain above the 80 percent target threshold, as it has throughout the past decade.

Figure 1: Percent Pavement on the State Highway System Meeting Department Standards



SOURCE: Florida Department of Transportation, Office of Maintenance

The 7.7 percent of the SHS's 43,593 lane miles not meeting the target equates to an estimated 3,357 pavement lane-miles needing rehabilitation. FDOT continues to assess and prioritize funding to meet pavement condition objectives and reevaluates its needs annually.

Resurfacing needs are identified through FDOT's annual pavement condition survey. This survey evaluates pavement conditions using three factors: ride quality, crack severity, and average depth of wheel-path ruts.

"Ride quality" is what the motorist experiences (i.e., smoothness of the ride). Crack severity, or "cracking," refers to the deterioration of the pavement, which leads to loss of smoothness and, ultimately, deterioration of the road base by water seepage, if not corrected. Wheel-path ruts, or "rutting," are pavement depressions caused mainly by heavy use. These depressions or ruts can collect water, creating a safety hazard.

Truck traffic contributes to substantial wear on roadways, because of the force exerted on the pavement and the way pavement reacts. A five-axle, 80,000 pound semi-trailer truck causes pavement distress equivalent to that caused by an estimated 9,600 cars. FDOT establishes legal weight limits, while FDOT's Motor Carrier Size and Weight Office and the Florida Highway Patrol's Office of Commercial Vehicle Enforcement enforce them. When vehicles exceed the allowable weight limit, adverse impacts to pavement longevity can be significantly increased.

KEY STRATEGIES TO IMPROVE PAVEMENT CONDITION

FDOT will help ensure continued progress to improve its core measure of pavement condition through strategies such as those listed below:

- Balance the programming of resurfacing projects in relation to needs and optimize the timing of projects through a robust pavement management system.
- Coordinate with FDOT's Motor Carrier Size and Weight Office and the Florida Highway Patrol's Office of Commercial Vehicle Enforcement to minimize the illegal operation of commercial motor vehicles exceeding weight limits on Florida's public roads and bridges.
- Facilitate training and technical assistance, and maintain current data systems to assist local governments in conducting pavement condition surveys and ratings.
- Continue to identify and implement practices which reduce the time and cost of preserving the SHS.
- Collaborate with freight shippers and carriers to promote effective and efficient goods movement.

Pavement Performance Data

FDOT's Pavement Condition Unit conducts annual surveys of the entire State Highway System as part of its Pavement Management Program. The data covers cracking, ride quality, and rut measurements and is used to assess the condition and performance of the state's roadways, as well as to predict future rehabilitation needs. This information helps FDOT assess its resurfacing needs throughout the state.

SUPPORTING MEASURES AND INFORMATION

In addition to its core pavement condition measure, FDOT has identified a supporting measure that provides further detail and context about the performance of Florida's transportation system. For pavement condition, the supporting measure is:

- Percent Lane Miles Resurfaced

Percent Lane Miles Resurfaced

SUPPORTING MEASURE

The percent of lane miles resurfaced on the SHS provides a gauge of FDOT's commitment to maintaining and improving roadways by comparing the actual number of lane miles resurfaced each year to what was planned. FDOT has a target of letting (i.e., executing) at least 95 percent of its planned resurfacing lane miles each year. **Figure 2** shows that FDOT achieved 96.9 percent in 2015, having resurfaced 2,829 lane miles compared to 2,919 lane miles that had been planned.

FDOT executed nearly 97 percent of its planned resurfacing lane miles in 2015.

Figure 2: Percent Lane Miles Resurfaced on the State Highway System

SOURCE: Florida Department of Transportation, Office of Maintenance

Pavement Life Getting Longer

The need for faster and more practical evaluation methods prompted FDOT to initiate an accelerated pavement testing program conducted through partnerships with local universities, industry, and the Federal Highway Administration. FDOT estimates that the implementation and optimization of polymer-modified asphalt binders, and the use of fine-graded Superpave asphalt mixtures will save taxpayers more than $4 million each year.

BRIDGE CONDITION

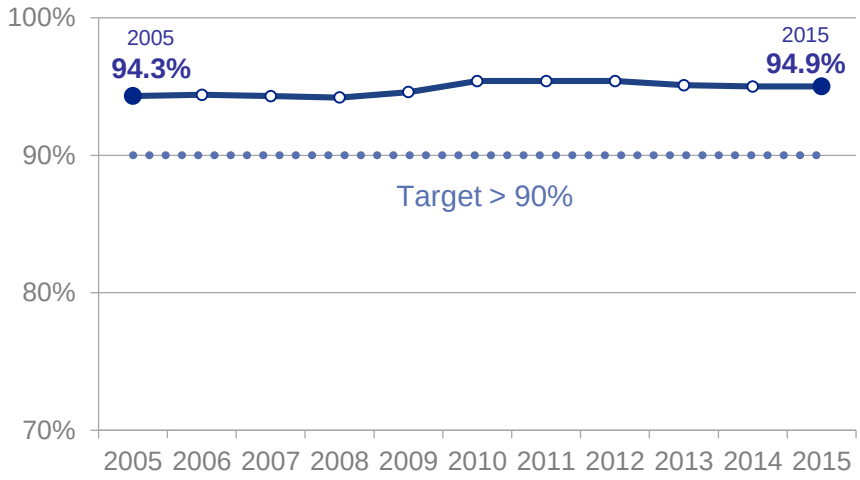
CORE MEASURE

FDOT has identified a series of core measures related to the preservation (maintenance and operation) of the transportation system, which is a primary goal of FDOT. FDOT's core bridge measure is to have 90 percent of the bridges it maintains achieve a National Bridge Inventory (NBI) rating of 6 or higher. The NBI is a Federal Highway Administration requirement for evaluating bridge conditions, based on a 0 to 9 scale with 0 indicating a failed condition and 9 indicating an excellent condition. An NBI rating of 6 or 7 means a bridge is in good condition.

Figure 3 shows that 94.9 percent of all FDOT-maintained bridges meet the standard (i.e., an NBI rating of 6 or higher), which exceeds FDOT's target of 90 percent. This means that the vast majority of Florida bridges do not show evidence of structural deterioration nor are they weight restricted. FDOT takes a proactive approach to bridge maintenance, which has proven to be cost-effective. Preventative maintenance and repairs are performed prior to bridges deteriorating to a level that would result in a much greater repair cost. This helps to ensure that FDOT-maintained bridges meet or exceed their life expectancy, resulting in a lower frequency of replacements due to bridge condition. All FDOT maintained bridges that are open to the public are safe.

Ninety percent or more of State Highway System bridges have met FDOT's standard since 1996.

Figure 3: Percent Bridges on the State Highway System Meeting Department Standards



SOURCE: Florida Department of Transportation, Office of Maintenance

As of 2015 there are 12,225 bridges in Florida. Of that total, FDOT has maintenance responsibility for 6,814 bridges on the SHS, which represents 55.7 percent of all bridges throughout the state. The remaining bridges are maintained by counties (31.7 percent), cities/towns (10.1 percent), and other entities (2.4 percent).

The current condition of each of the 6,814 bridges maintained by FDOT is compared with the condition from its prior inspection. If the structural capacity has been affected, the bridge is reevaluated through load rating tests to determine its current structural capacity. Every bridge is inspected at least once every two years to assess its condition and to identify structures that require further maintenance, rehabilitation, or replacement. Special inspections are conducted after major weather events, such as floods and hurricanes.

Bridges are designed to tolerate a certain amount of structural deterioration and still support legal weight loads. If a bridge is unable to support all legal loads, weight limits are posted or the bridge is closed to traffic until the deficiency can be corrected. As with roadways, heavy trucks contribute to wear-and-tear on bridges.

Since FDOT's bridge inspection program began in 1970, there has been a steady improvement in bridge conditions on the SHS. This is due to an aggressive maintenance and construction program. FDOT also administers federal programs which help fund repairs and replacements of some locally-maintained bridges.

Flagler Memorial Bridge

The Flagler Memorial Bascule (moveable span) Bridge Replacement Design/Build Project in West Palm Beach consists of a complete replacement of the existing bridge with a new four-lane divided bridge. The new bridge will feature four pedestrian outlooks, a new tender house, decorative roadway lighting, and LED lighting beneath the bridge. The vertical clearance will be increased to 21 feet under the bridge. There will also be an eight-foot wide sidewalk on each side. Pedestrian traffic will be separated by permanent concrete barrier walls.

KEY STRATEGIES TO IMPROVE BRIDGE CONDITION

FDOT will help ensure continued progress to improve its core measure of bridge condition through strategies such as those listed below:

- Include projects for all FDOT-maintained bridges needing repair in the Work Program within 12 months of deficiency identification.
- Replace or repair all structurally deficient FDOT-maintained bridges and those bridges posted for weight restriction within six years of deficiency identification.
- Replace all other FDOT-maintained bridges designated for replacement within nine years of deficiency identification.
- Coordinate with FDOT's Motor Carrier Size and Weight Office and Florida Highway Patrol's Office of Commercial Vehicle Enforcement to reduce the illegal operation of commercial motor vehicles exceeding weight limits on Florida's public roads and bridges.
- Continue to monitor bridges scheduled to be replaced and make interim repairs, as necessary, to safeguard the traveling public.

SUPPORTING MEASURES AND INFORMATION

In addition to its core measure for bridges, FDOT has identified several supporting measures and other indicators of progress that provide further detail and context about the performance of Florida's transportation system. For bridge condition, the supporting measures are:

- Bridges with Weight Restrictions
- Bridge Repair Projects Let
- Bridge Replacement Projects Let

Accelerated Bridge Construction

Florida International University held its second annual National Accelerated Bridge Construction (ABC) Conference in December 2015. Industry officials gathered to discuss new techniques and technologies that can cut months and even years off the time it takes to build a bridge. Florida was an early implementer of ABC, starting with the replacement of the Graves Avenue bridge on Interstate 4 in Orlando in 2006, which was accomplished with just two nights of road closures.

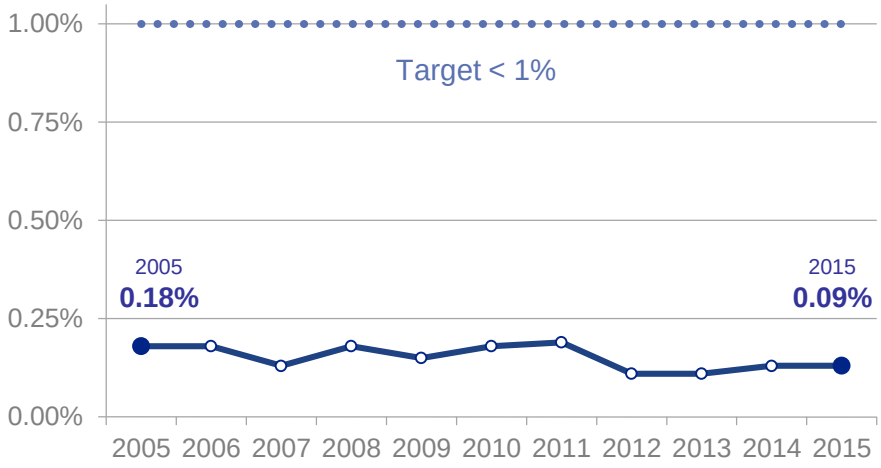
Bridges with Weight Restrictions

SUPPORTING MEASURE

In 2015, only 6 out of 6,814 state maintained bridges had a posted weight restriction.

The supporting measure Percent Bridges with Posted Weight Restrictions on the SHS is one way FDOT assesses its performance related to improving bridge conditions. FDOT has set a target that no more than 1 percent of all SHS bridges should have a posted weight restriction. In 2015, only 6 out of 6,814 state maintained bridges had a posted weight restriction. **Figure 4** illustrates that this equates to 0.09 percent of bridges, which is ten-times better than the established target or ceiling of no more than 1 percent.

Figure 4: Percent Bridges on the State Highway System with Posted Weight Restrictions



SOURCE: Florida Department of Transportation, Office of Maintenance

Bridge Repair Projects Let

SUPPORTING MEASURE

FDOT achieved almost 93 percent of its planned Bridge Repair project lettings in 2015, falling short of its 95 percent target.

The supporting measure Percent Bridge Repair Projects Let (i.e., executed contracts) is another way FDOT measures its commitment to improving bridge conditions. FDOT has set a target of letting at least 95 percent of its planned contracts for bridge repair during the year. **Figure 5** shows that FDOT achieved 92.9 percent of its planned project lettings in 2015, falling short of its 95 percent target.

Figure 5: Percent Bridge Repair Projects Let

SOURCE: Florida Department of Transportation, Office of Maintenance

Bridge Replacement Projects Let

SUPPORTING MEASURE

FDOT achieved over 93 percent of its planned Bridge Replacement project lettings in 2015, falling slightly lower than the 95 percent target.

The supporting measure Percent Bridge Replacement Projects Let is another way FDOT can measure its commitment to improving bridge conditions. FDOT has set a target of letting at least 95 percent of its annual planned contracts for bridge replacements. **Figure 6** shows that FDOT achieved 93.3 percent of its planned project lettings in 2015, falling slightly short of the 95 percent target.

Figure 6: Percent Bridge Replacements Let

SOURCE: Florida Department of Transportation, Office of Maintenance

MAINTENANCE

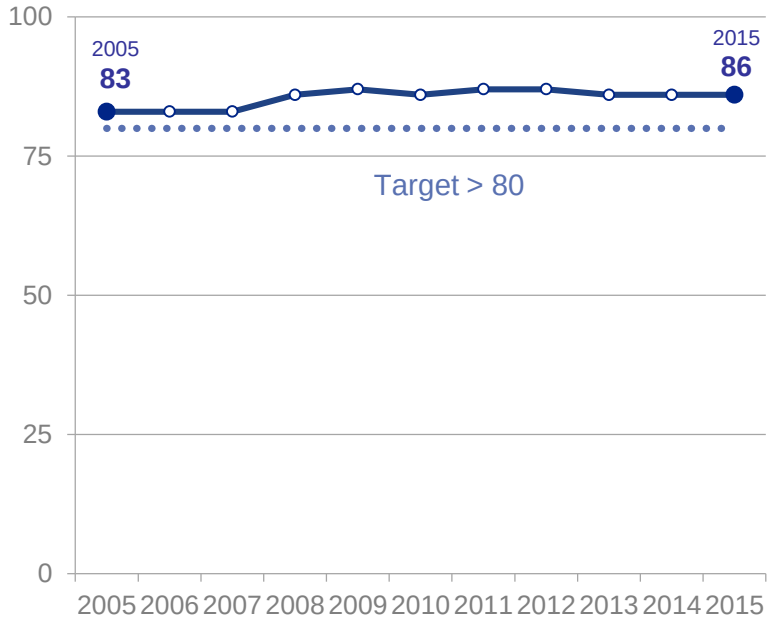
CORE MEASURE

FDOT has identified a series of core measures related to the preservation (maintenance and operation) of the transportation system, which is a primary department goal. As an integral part of preserving the SHS, FDOT has reconfirmed its long-standing commitment to surpass its maintenance standard on the SHS. FDOT is responsible for scheduling and performing routine maintenance on the SHS to help preserve its condition.

FDOT's primary measure is to achieve an overall Maintenance Rating Program score of at least 80 for the SHS. FDOT has met or exceeded its roadway maintenance target every year since 1994. **Figure 7** highlights this accomplishment over the past decade.

FDOT has met or exceeded its roadway maintenance standard every year since 1994—more than a generation of maintenance excellence.

Figure 7: Maintenance Rating of the State Highway System



SOURCE: Florida Department of Transportation; Maintenance Rating Program Level of Maintenance Summary (Annual FY 2014-2015)

Field conditions are evaluated by rating each highway feature and calculating an overall maintenance condition score. Conditions are compared to FDOT standards and a composite state score is set. The maintenance condition rating system evaluates five highway components:

- Roadway – potholes, pavement joints, paved shoulders, and pavement distress
- Roadside – unpaved shoulders, slopes, sidewalks, and fences
- Traffic services – signs, lighting, guardrails, striping, attenuators, handrail, and pavement markers
- Drainage – storm drains, ditches, roadway sweeping, inlets, and pavement edge drain outlets
- Vegetation/aesthetics – landscaping, mowing, litter removal, turf condition, and tree trimming

It is important to maintain roads at an optimal level for driver safety and comfort. Through routine maintenance, highway rest stops are kept clean and attractive, wildflowers are planted along roadsides, roadway striping is kept reflective for safe nighttime travel, guardrails are repaired, signs are kept clean and visible, and potholes are filled. FDOT staff and contractors also mow grass, remove litter, perform bridge inspections, make bridge repairs, clean out ditches and storm drains, and do many other jobs needed to make highway travel easier and safer.

KEY STRATEGIES TO IMPROVE MAINTENANCE

FDOT will help ensure continued progress to improve its core measure of maintenance through strategies such as those listed below:

- Continue to identify and implement practices which reduce the time and cost of preserving the SHS
- Emphasize use of state-of-the-art technologies and innovative contracting methods to increase the efficiency of system maintenance
- Continue to monitor and adjust maintenance standards to preserve the state's investment and provide safe roadways for Florida motorists, including special population groups
- Continue to respond to and evaluate customer input, suggestions, and feedback

SUPPORTING MEASURES AND INFORMATION

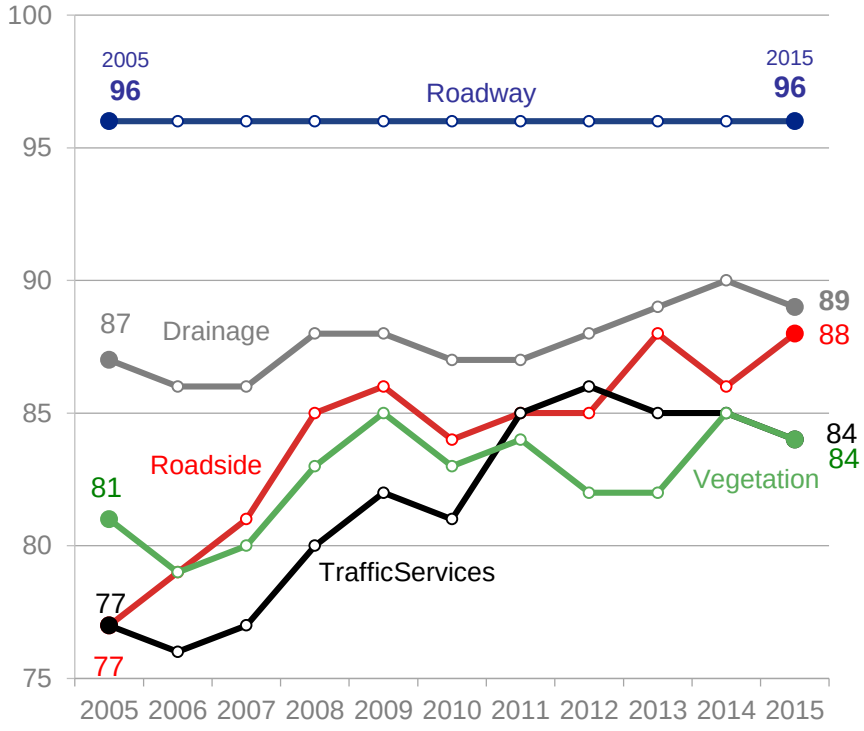
In addition to its core measure on maintenance, FDOT has identified several supporting measures and other indicators of progress that provide further detail and context about the performance of Florida's highway and bridge system. For maintenance, the supporting measures are subcomponents of the overall Maintenance Rating Program score, which includes:

- Roadway Maintenance
- Roadside Maintenance
- Traffic Services Maintenance
- Drainage Maintenance
- Vegetation Aesthetics Maintenance

Scores for each of the five maintenance subcomponents are illustrated in **Figure 8**, followed by an explanation of each subcomponent (i.e., its supporting measures).

All five maintenance supporting measures have remained constant or improved over the past decade – contributing to FDOT's improved maintenance core measure score.

Figure 8: Maintenance Subcomponents



SOURCE: Florida Department of Transportation; Maintenance Rating Program Level of Maintenance Summary (Annual FY 2014-2015)

Roadway Maintenance

SUPPORTING MEASURE

The Roadway Maintenance score has remained at 96 since 2002.

The supporting measure Roadway Maintenance is a way FDOT can assess its progress relative to its commitment to maintenance. Roadway Maintenance evaluates multiple components of the roadway:

FLEXIBLE PAVEMENT (typically asphalt)

- Potholes
- Edge raveling
- Shoving
- Depression/bumps
- Paved shoulder/turnouts

RIGID PAVEMENT (typically concrete)

- Potholes
- Depression/bumps
- Joint/cracking
- Paved shoulder/turnouts

Conditions are compared to FDOT standards and a composite score is calculated between 0 and 100. The Roadway Maintenance score has remained at 96 since 2002. This is a significant measure as it represents the composite of the varied items listed above. As such, FDOT's performance in this area is particularly notable.

Roadside Maintenance

SUPPORTING MEASURE

The Roadside Maintenance score has hovered around the mid to high 80s since 2008.

The supporting measure Roadside Maintenance is a way FDOT can assess its commitment to improving maintenance. Roadside Maintenance evaluates five components of the roadway:

- Unpaved shoulder
- Front slope (a gradual and contoured transition from a roadway's shoulder edge to the ditch or slope)
- Slope pavement (missing, settled or misaligned areas of sloped pavement greater than 10 square feet)
- Sidewalk
- Fence

Conditions are compared to FDOT standards and a composite score is calculated between 0 and 100. The Roadside Maintenance score has hovered around the mid to high 80s since 2008.

Traffic Services Maintenance

SUPPORTING MEASURE

The Traffic Services Maintenance score has leveled-out around the mid 80s since 2011.

The supporting measure Traffic Services Maintenance is a way FDOT can assess its commitment to improving maintenance. Traffic Services Maintenance evaluates nine components of the roadway:

- Raised pavement markers
- Striping
- Pavement symbols
- Guardrail
- Attenuator
- Signs less than or equal to 30 sq. ft.
- Signs greater than 30 sq. ft.
- Object markers and delineators
- Lighting

Conditions are compared to FDOT standards and a composite score is calculated between 0 and 100. The Traffic Services Maintenance score has leveled-out around the mid 80s since 2011.

Drainage Maintenance

SUPPORTING MEASURE

The Drainage Maintenance score has hovered around the high 80s since 2008.

The supporting measure Drainage Maintenance is a way FDOT can assess its commitment to improving maintenance. The ability to quickly drain water from roadways is key to preservation of the roadways and the safety of those using them. Drainage Maintenance evaluates six components of the roadway:

- Side/cross drain
- Roadside/median ditch
- Outfall ditches
- Inlets
- Miscellaneous drainage structure
- Roadway sweeping

Conditions are compared to FDOT standards and a composite score is calculated between 0 and 100. The Drainage Maintenance score has hovered around the high 80s since 2008.

Vegetation Aesthetics Maintenance

SUPPORTING MEASURE

The Vegetation Aesthetics Maintenance score has remained between the low to mid 80s since 2007.

The supporting measure Vegetation Aesthetics Maintenance is a way FDOT can assess its commitment to improving maintenance. Vegetation Aesthetics Maintenance evaluates seven components of the roadway:

- Roadside mowing
- Slope mowing
- Landscaping
- Tree trimming
- Curb/sidewalk edge
- Litter removal
- Turf condition

Conditions are compared to FDOT standards and a composite score is calculated between 0 and 100. The Vegetation Aesthetics Maintenance score has remained between the low to mid 80s since 2007. Effective maintenance in this area also can contribute indirectly to safer conditions for motorists, cyclists, and pedestrians.

Florida Wildflowers

Inspired in part by Florida's highway beautification program, coreopsis (a daisy-like wildflower) has been widely used for roadside plantings. The coreopsis flower was adopted by Florida as its official state wildflower in 1991. Nothing conveys the image of the Sunshine State better than a golden spray of coreopsis spread across the landscape.

TRANSIT STATE OF GOOD REPAIR

CORE MEASURE

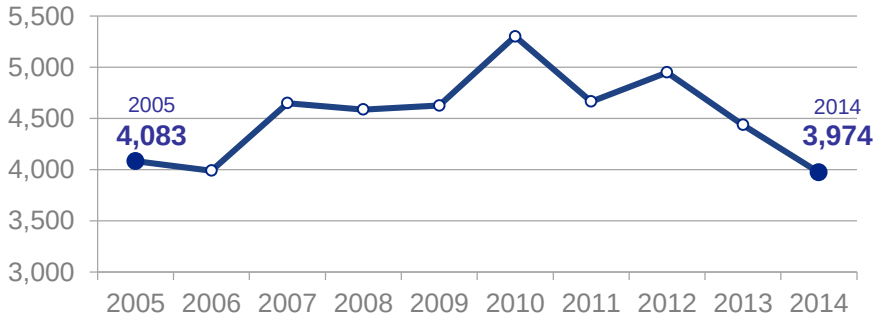
Underinvestment in public transportation infrastructure can have significant consequences.

FDOT has identified a series of core measures related to the preservation (maintenance and operation) of the transportation system, which is a primary goal of FDOT. FDOT has a long-standing commitment in assisting Florida's transit agencies in the area of asset management, including training, technical guidance, and vehicle procurement and inspections. The Federal Transit Administration is emphasizing the need to improve the safety and condition of the nation's transit systems, focusing on transit assets that need to be rebuilt or replaced. Underinvestment in public transportation infrastructure can have significant consequences, such as increased incidents, compromised passenger safety, and higher operating costs due to increased costs of maintaining assets that are being used beyond their useful lives.

A core measure that represents Florida's transit agencies investment in, and preservation of, infrastructure is the number of revenue miles between bus and passenger train failures (i.e. breakdowns). This measure is calculated by dividing the total annual number of revenue miles by the total annual number of revenue vehicle failures statewide. It is an indicator of the average frequency of delays due to vehicle problems or failures. Higher values indicate less failures/breakdowns. A failure is classified as the breakdown of either a major or minor element of a vehicle's mechanical system. Failures are tabulated regardless of whether they result in a vehicle completing or not completing its route. **Figure 9** highlights data from the National Transit Database (NTD) that shows in 2014 Florida's fixed route transit agencies, on average, experienced one breakdown every 3,974 revenue miles.

Over the past decade Florida transit agencies have kept breakdowns to around one per 4,000 revenue miles.

Figure 9: Transit Revenue Miles Between Failures



SOURCE: Florida Department of Transportation; Florida Transit Handbook

Over the past decade this number has moved up and down—decreasing the past couple of years—reflecting changes in levels of maintenance and new vehicle investments by transit agencies in their fixed route systems. As

breakdowns become more frequent, the value of this measure decreases. This measure is representative of the state of good repair of Florida's transit systems. The Federal Transit Administration's focus on asset management is reflected in the recently enacted Fixing America's Surface Transportation (FAST) Act, which supersedes the previous Moving Ahead for Progress in the 21st Century Act (MAP-21).

All transit agencies receiving federal funds are required to develop transit asset management plans and use performance measures to track agency progress in meeting the goals and objectives established in their asset management plans. FDOT has historically monitored and managed transit state of good repair and will update state requirements and measures to reflect the Federal Transit Administration requirements when they become available. Most of Florida's transit agencies have implemented asset management plans based on existing federal requirements. Additionally, FDOT monitors state of good repair through established statewide performance measures.

KEY STRATEGIES TO IMPROVE TRANSIT STATE OF GOOD REPAIR

FDOT will help ensure that continued progress is made to improve its core measure of transit state of good repair through strategies such as those listed below:

- Coordinate with urban transit agencies and metropolitan planning organizations in establishing performance measures and targets in accordance with MAP-21/FAST Act.
- Provide guidance to transit agencies in the development or enhancement of transit asset management plans and programs.
- Provide technical assistance, training and guidance to transit agencies in the field of vehicle maintenance and asset management.

In support of these key strategies, FDOT's Transit Office has, for several years, conducted several programs pertaining to transit vehicle procurement and maintenance. These programs include:

Transit Research, Inspection and Procurement Services (TRIPS) - This program protects the investment of both federal and state dollars, ensuring that the state's vehicle fleets remain in good repair.

Transit Maintenance Analysis and Resource Center (TMAARC) - This program delivers training and technical assistance for state maintenance fleets and aids in keeping vehicles and facilities in a state of good repair.

Preventative Maintenance Planning and Training Program (PrMPT) - This program provides transit agencies tools and resources to establish

maintenance programs. It also includes maintenance compliance inspections through vehicle file audits, bus inspections, and policy and procedure review, ensuring that deficiencies in preventative maintenance practices are identified and corrected.

INTELLIGENT TRANSPORTATION SYSTEMS (ITS)

SUPPORTING MEASURES AND INFORMATION

In addition to its core measures, FDOT has identified several supporting measures and other indicators of progress that provide further detail and context about the performance of Florida's transportation system. For operational Intelligent Transportation Systems (ITS), the supporting measures are:

- ITS Miles Managed by FDOT
- Florida 511 Program (FL511) Calls, Visits, Messages & Alerts

ITS represent the application of real-time information systems and advanced technologies such as transportation management tools to improve the movement of people, goods and services. ITS use advanced technologies to remedy mobility and safety problems, which may delay or possibly eliminate having to build new roads or expand existing roads. As ITS evolve throughout Florida, the development and reporting of operational performance measures are a priority for FDOT to demonstrate and document their benefits.

A number of ITS performance measures have been identified: miles managed by ITS; 511 calls, web hits, app sessions, tweets, and alerts; Road Ranger service stops; incident duration (roadway clearance times); and customer satisfaction.

Intelligent Transportation Systems (ITS)

ITS Florida is a leading advocate for the deployment of technologies that improve the safety, security and efficiency of Florida's surface transportation system. ITS encompass a broad range of wireless and wire-line communications, information processing, advanced computing, and electronics technologies. When integrated into roadways, vehicles, and public transit systems, these technologies can help reduce congestion, enhance mobility options, and improve safety. *www.itsflorida.org*

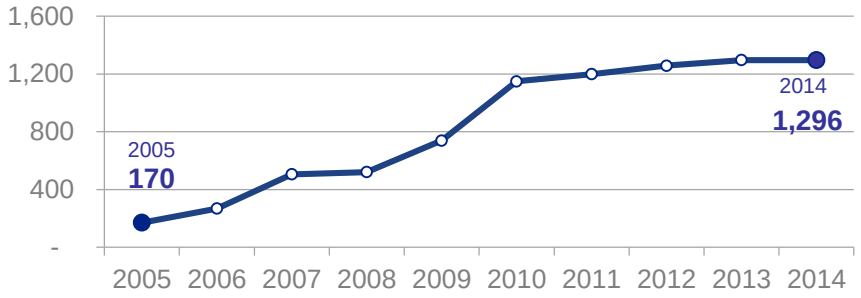
ITS Miles Managed by FDOT

SUPPORTING MEASURE

By 2014, 1,296 ITS miles were managed by FDOT. This represents nearly 11 percent of the State Highway System and 30 percent of the Strategic Intermodal System.

Figure 10 highlights that 1,296 centerline miles were managed by FDOT through ITS in 2014. This represents nearly 11 percent ITS coverage of the SHS and 30 percent ITS coverage of the Strategic Intermodal System (SIS). Extensive ITS deployments have taken place during the past decade throughout the state.

Figure 10: ITS Miles Managed by FDOT



SOURCE: Florida Department of Transportation; Statewide Intelligent Transportation Systems Performance Measures (Annual Report FY 2013-2014)

FL511 Calls, Web Hits, App Sessions, Tweets & Alerts

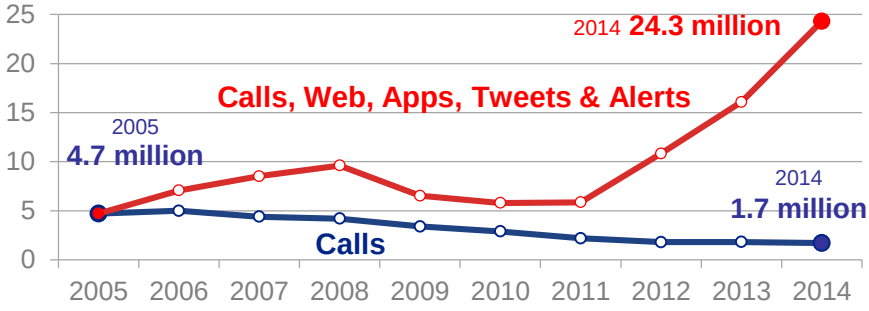
SUPPORTING MEASURE

Over 24 million calls, web hits, app sessions, tweets, and e--mail/text/phone message alerts were made in 2014, keeping travelers on Florida's highways informed.

Florida's 511 program, dubbed FL511, provides accurate real-time information to travelers on traffic and road conditions, alternate routes (during incidents), construction, weather-related problems and public transportation information/options.

Approximately 1.7 million FL511 calls were made in 2014. Tracking phone calls to FL511 is no longer the sole indicator of system usage as more travelers use automated and mobile applications. **Figure 11** shows that over 24 million calls, web hits, app sessions, tweets, and e-mail/text /phone message alerts were made in 2014, keeping travelers on Florida's highways informed and engaged to an unprecedented degree. The decrease in calls beginning in 2006 reflects the greater choice of information sources associated with increasing use of smart phones and a wider range of apps.

Figure 11: Number of 511 Calls, Web Hits, App Sessions, Tweets & Alerts



SOURCE: Florida Department of Transportation; Florida's 511 Progress Report

INCIDENT MANAGEMENT

In addition to its core measures, FDOT has identified several supporting measures and other indicators of progress that provide further detail and context about the performance of Florida's transportation system. For operational incident management, the supporting measures are:

- Road Rangers Service Assists
- State Average Roadway Clearance Times
- State Average Rapid Incident Scene Clearance (RISC) Times

SUPPORTING MEASURES AND INFORMATION

Vehicle crashes on highways typically affect far more travelers and businesses than those directly involved in the crash. It is critical that crash victims be attended to as soon as possible to reduce the possibility of death or serious injury. It is not unusual for major highways to be partially or fully closed while vehicles and debris are removed, which creates or compounds traffic congestion and causes delay for travelers in the vicinity of the crash. Occasionally, hazardous materials—some of which can be life-threatening—and other commodities are spilled as a result of these crashes or as a result of crashes on other transportation modes such as rail. Quickly responding to and clearing an incident allows the highway to return to normal capacity and traffic flow sooner. Moreover, the faster incidents can be cleared the greater the reduction of secondary crashes.

In order to improve incident management, Florida has a statewide Traffic Incident Management Program, which is comprised of road ranger service, roadway clearance, rapid incident clearance, and traffic management teams.

Road Ranger Service Assists

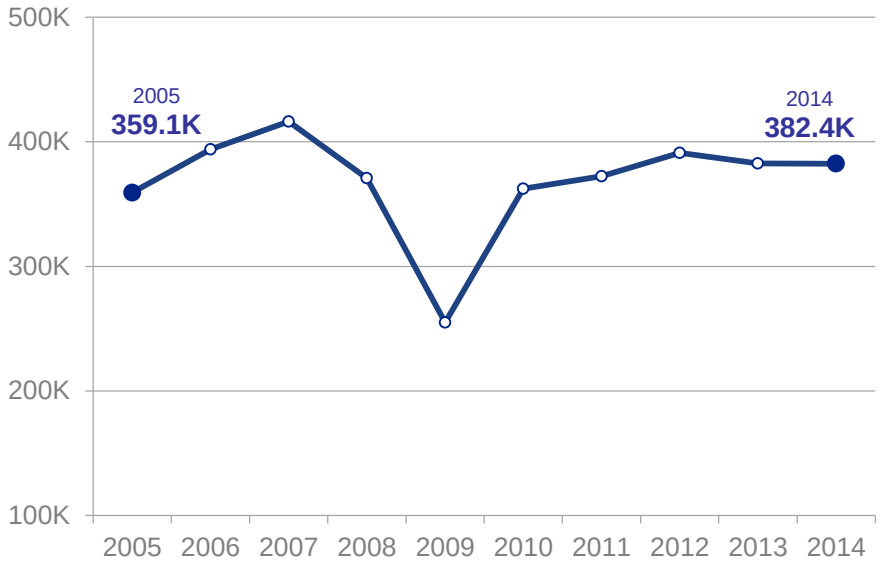
SUPPORTING MEASURE

The Road Rangers service is provided by FDOT and its partners, at no charge, to motorists. It consists of roving vehicles which patrol congested areas and high incident locations along urban freeways. Services can include providing a limited amount of fuel, assisting with tire changes, and other types of minor emergency repairs. Since the program's inception in 1999, Road Rangers have made over 4 million service assists. The United States Department of Transportation estimates service patrols, such as Road Rangers, can reduce travel delays by up to 45 percent.

All seven FDOT Districts and the Turnpike Enterprise provide Road Ranger services covering almost 2,000 miles of state roads. Other than in 2008/09 when the legislature instituted a 50 percent reduction in Road Ranger funding (which it re-instated the following year), Road Rangers have consistently assisted over 350,000 motorists annually. **Figure 12** shows that Road Rangers provided services to 382,403 motorists in 2014.

Service patrols, such as Road Rangers, can reduce travel delays by up to 45 percent.

Figure 12: Road Ranger Service Assists



SOURCE: Florida Department of Transportation, State Traffic Engineering Operations Office; Statewide Intelligent Transportation Systems Performance Measures (Annual Report FY 2013-2014)

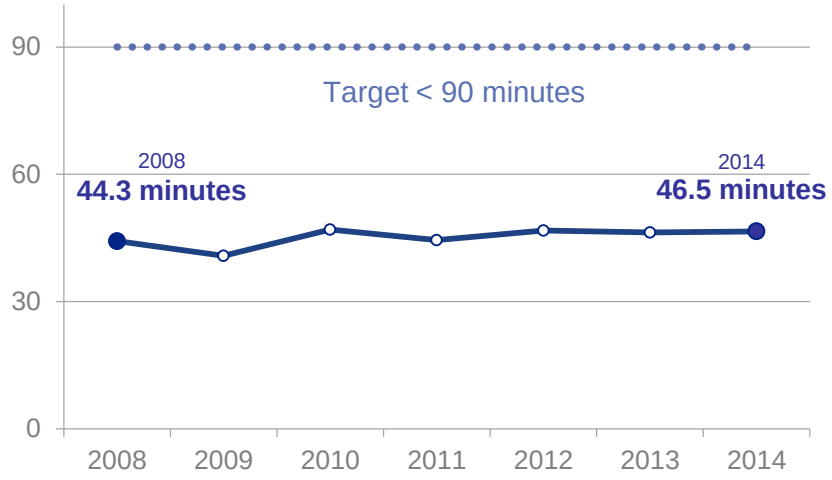
State Roadway Clearance Times

SUPPORTING MEASURE

In an effort to provide the traveling public a cost-effective and high quality transportation system, FDOT and the Florida Highway Patrol have implemented the "Open Roads Policy." The goal of this policy is to clear damaged vehicles, spilled cargo and debris from roadways as soon as it is safe to do so. A combined target of agencies is for all incidents to be cleared within 90 minutes of the arrival of the first responding officer, with the understanding that this target may not be feasible in more complex scenarios, which may require additional time. **Figure 13** shows that the average clearance time in 2014 was 46.5 minutes, which is far below the 90-minute target of the "Open Roads Policy." It is recognized that at some point it might be appropriate to reevaluate and reset this target.

The average clearance time in 2014 was 46.5 minutes, which is far below the 90-minute target of the "Open Roads Policy."

Figure 13: State Average Roadway Clearance Times (minutes)



SOURCE: Florida Department of Transportation; Statewide Intelligent Transportation Systems Performance Measures (Annual Report FY 2013-2014)

Rapid Incident Scene Clearance (RISC) Times

SUPPORTING MEASURE

The Rapid Incident Scene Clearance (RISC) Program is an innovative, incentive-based program to meet the goal of safely clearing major highway incidents and truck crashes. The RISC program is most often used during major incidents that cause complete roadway closures on limited-access facilities where it is imperative to quickly restore traffic flow. RISC is typically activated for incidents involving:

- Trucks over 16,000 pounds
- Motor homes and motor coaches
- Buses capable of carrying 16 or more passengers
- Aircraft, and
- Large yacht-type boats and mobile homes

Roadway clearance times for crashes on major highways vary. **Figure 14** highlights that the average clearance time increased in 2012 and 2013, but decreased (improved) to 70 minutes in 2014. Although the average falls within the 90-minute target, FDOT reviews all events that do not meet the 90-minute target to ensure that responders are aware of the RISC activation criteria.

The average RISC clearance time increased in 2012 and 2013, but decreased (improved) to 70 minutes in 2014.

Figure 14: State Average RISC Clearance Times (minutes)

SOURCE: Florida Department of Transportation; Rapid Incident Scene Clearance (RISC) Annual Report

FDOT now requires specialized equipment and trained operators to quickly remove heavy trucks hauling larger loads after an incident. Consistent with the "Open Roads Policy," several FDOT Districts have adopted an innovative clearance strategy by implementing the RISC Program to significantly reduce the time to clear major accidents and incidents. This program utilizes vendors who can provide specialized heavy-duty wreckers and equipment to rapidly clear the roadway on limited access facilities.

Florida also has a State Emergency Response Team composed of staff from key state agencies to ensure the state is prepared to respond to emergencies, recover from them and mitigate their impacts. The State Emergency Operations Center (SEOC) provides direction and coordination of emergency response and recovery efforts before, during and after serious emergencies or disasters. When the magnitude of an emergency or disaster exhausts local response capabilities, the SEOC may be activated to respond.

Traffic Incident Management (TIM) Teams

Traffic Incident Management (TIM) Teams bring together all of the agencies involved in clearing an accident, including Florida Highway Patrol (FHP), local law enforcement, fire departments, emergency medical personnel, towing companies, and spill response firms, along with FDOT Traffic Management Center (TMC) operators, Road Rangers, and maintenance crews. TIM Teams strive to reduce the time needed to reopen travel lanes and get traffic moving again by reviewing past response actions, exploring ways to improve incident management, and coordinating upcoming planned events or planning for unplanned events, such as hurricanes, wildfires, and floods. TIM Teams are currently active in all of FDOT's Districts and Florida's Turnpike Enterprise.

Road Rangers Thrill Users

"I just wanted to say that I am so thankful for the Road Rangers. I was driving my 5-year-old son home from Tampa to Sarasota when my tire blew. I had been pulled over for just a minute when along came Roger the Road Ranger! He was polite, informative, and very efficient! He changed my tire and had me on my way. I am so thankful for this program - I didn't know it existed!"

Thanks again! L. Nickelson

FOR THE FUTURE

FDOT strives to be forward thinking in regards to performance measurement. Many measures can be valuably used year after year. But DOTs and the states they serve continue to both lead change and adapt to change. This year we are introducing a section in each performance chapter that identifies potential measurement considerations for the future.

Multi-Modal

Expand preservation (maintenance and operating) performance in future reports to include measures for additional modes of transportation, subject to data availability. Airport inspection data, for example, is a potential source for future reporting.

Transit Maintenance

Consider using vehicle condition and average fleet age as the primary focus consistent with the direction from MAP-21 on performance measurement.

Bicycle & Pedestrian Facilities

Include bicycle and pedestrian facilities from a maintenance perspective, including facilitating access to transit.

Signal Systems

Add measures related to the performance and functionality of traffic signal systems, including signalization that supports transit operations on congested corridors.

Express Lanes and Arterial Management System

Future data will allow for operational measures such as travel time reliability on these facilities.

Bridges

FDOT is working on a Health Index Measure for the bridge program as a way to represent a logical way to make program adjustments.

Cost Effectiveness

Relate spending to condition as a means for addressing system performance in the context of agency performance.

Incident Influence Time

A measure addressing the amount of time that traffic incidents impact or "influence" traffic conditions would be appealing from a transportation operations standpoint. It would, however, require fully instrumented freeways (cameras, etc.), as the resumption of normal traffic flow can take several hours even after responders leave the scene of an incident.