

a report on

FLORIDA TRANSPORTATION TRENDS AND CONDITIONS



TRANSPORTATION FUNDING Transportation Costs



February 2014



Produced by the
Florida Department of Transportation
Office of Policy Planning

with support from the
Center for Urban Transportation Research
University of South Florida



www.dot.state.fl.us/planning/trends

Table of Contents

Table of Contents

Introduction	1
Transportation Infrastructure Costs	2
Product Support Costs.....	9
Operating and Maintenance Costs	10
Administrative Costs	15
Conclusions	15

List of Figures and Tables

Figure 1 – Weighted Average Price of Asphalt	3
Figure 2 – Statewide Resurfacing Costs per Lane Mile.....	3
Figure 3 – Weighted Average Price of Earthwork.....	4
Figure 4 – Weighted Average Price of Reinforcing Steel.....	4
Figure 5 – Weighted Average Price of Structural Concrete	5
Figure 6 – Weighted Average Price of Structural Steel	6
Figure 7 – Statewide Transit Capital Expenditures and Route Miles	7
Figure 8 – Cost of Dredging (Nationwide).....	8
Figure 9 – Statewide Right of Way Expenditures	9
Figure 10 – Statewide Right of Way Expenditures vs. Number of Parcels Acquired	9
Figure 11 – Routine Maintenance Costs by Function	11
Figure 12 – FDOT Toll Operational Costs	13
Figure 13 – Average Price of Imported Crude Oil.....	13
Figure 14 – Retail Price of Gasoline in Lower Atlantic States.....	14
Figure 15 – Price of Diesel Fuel in the Lower Atlantic Region.....	14
Figure 16 – FDOT Administrative Costs	15
Table 1 – Maintenance Costs by Source	12

Transportation Costs

Introduction

The cost of transportation infrastructure and services influences the ability to provide and maintain facilities and services. Ultimately, it impacts the cost of using those facilities and potentially the demand for travel and ultimately the contribution of travel to the quality of life. Thus, transportation costs are a critical consideration in transportation planning and decision-making. For example, if costs preclude constructing sufficient capacity, it can lead to congestion which ultimately impacts quality of life and business competitiveness in Florida. A road not properly maintained could lead to unsafe driving conditions affecting travel safety. An increase in fuel prices may hinder personal travel choices and impact household spending. In a word, transportation costs directly and indirectly influence congestion levels, business competitiveness, travel safety, and household spending.

Transportation costs are a critical consideration in transportation planning and decision-making.

This report is part of a series of reports on transportation funding. The Transportation Resources and Transportation Investments reports portray the nature of transportation funding by various entities. They provide the reader with an overall picture of transportation revenue sources and investments. The purpose of this report, Transportation Costs, is to compile and report on trends in various components of costs associated with transportation infrastructure and services.

It is important to distinguish between transportation costs (amounts paid or charged for inputs) and transportation spending (amounts expended by a firm or agency through its capital and operating budget). Transportation costs generally include such inputs as raw materials, equipment, fuel, or labor. Transportation spending categories within the Florida Department of Transportation (FDOT), for example, include product/product delivery, product support, operations and maintenance, and administration. Although the two are related and spending levels can influence actual costs (as supply and demand for services interrelate), changes in transportation spending are much more related to available revenues than to changes in costs.

This report focuses on typical costs incurred by FDOT and some other public-sector transportation agencies in Florida. While such items as fuel costs impact transportation users as well as transportation providers, this report does not include detailed statistics about vehicle operating costs, motor fuel taxes and registration fees, other transportation fees such as tolls, the value of time lost to congestion, crash-related costs or other components of user costs. These costs are beyond the scope of this report and are well documented in other reports, such as the Texas Transportation Institute's *2012 Urban Mobility Report*, which estimates congestions costs and the USDOT *Pocket Guide to Transportation 2014*, which reports consumer expenditures for transportation and national transportation spending relative to Gross

Transportation Costs

Domestic Product. These publications are among the resources that provide more detailed insight into transportation costs to travelers.

The remainder of this report consists of four sections and a conclusion. The first section discusses trends in components of costs associated with transportation infrastructure, such as constructing transportation facilities, resurfacing existing roadways, managing public transportation, and acquiring right of way for the transportation system. The second section discusses trends in the cost of supporting transportation product delivery, including the preliminary engineering, planning and environmental mitigation of transportation facilities and services. The third section focuses on trends in transportation operating and maintenance costs such as routine maintenance activities, traffic engineering, toll operations, and fuel. The fourth section covers administrative costs. The report ends with a conclusion section that summarizes and discusses the implications of the various cost trends discussed in the report.

Transportation Infrastructure Costs

Transportation infrastructure investments support Florida's mobility and economic health. This section provides an overview of the major components of costs that are incurred by almost all agencies responsible

Transportation infrastructure investments are necessary to keep people and goods moving and Florida's economy healthy.

for building and maintaining the transportation system. Specifically, the costs this section addresses include:

- Construction materials and earthwork, which are used in all types of transportation construction projects including roadway and bridge construction and resurfacing, safety construction, rail improvements, airport and seaport terminals, and landside infrastructure;
- Public transportation, including aviation, rail, transit, and seaport-related capital costs; and
- Right of Way

These investments are targeted at maintaining and expanding the capacity of the transportation system and upgrading its performance and safety.

Construction Materials and Earthwork

Trends in costs of five construction items — asphalt, earthwork, reinforcing steel, structural concrete, and structural steel — are summarized in this section. Data was compiled for the years 2003 to 2013. A common trend that appears is that the costs of all five construction items were impacted by the 2007-2009 economic recession. Generally speaking, costs fell during those three years and did not go up again until after 2009.

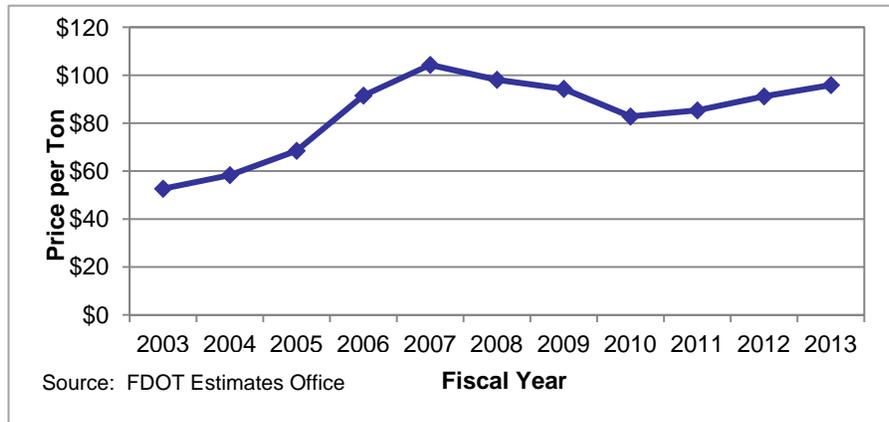
Transportation Costs

Asphalt

Asphalt is used in construction projects across all modes, from building and resurfacing interstate highways to paving storage facilities for shipping containers at intermodal rail terminals. The average price of asphalt based on FDOT project lettings in Fiscal Year (FY) 2003 was \$53 per ton.

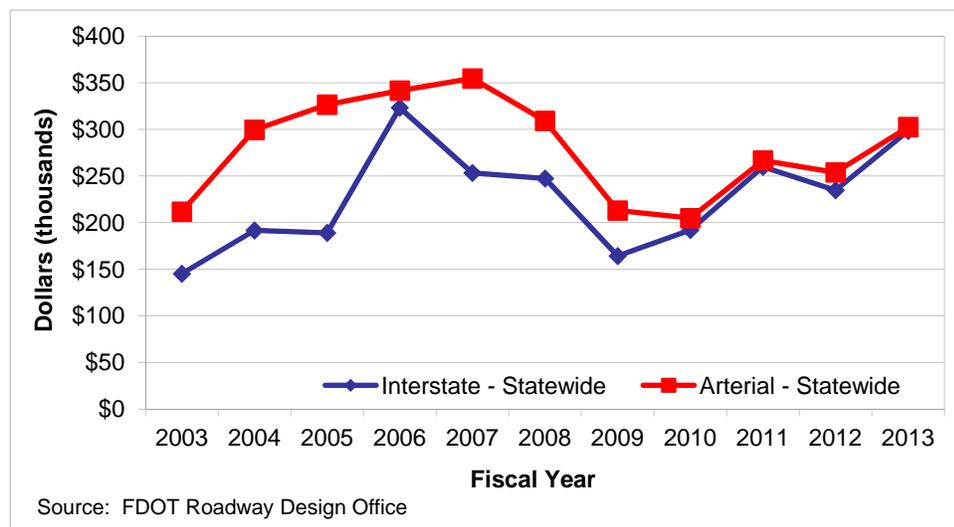
Ten years later in FY 2013, it was 82 percent higher at \$96 per ton. The price of asphalt peaked in FY 2007 at \$104 per ton and then fell for the next three years. It began rising again in FY 2011. Rising oil prices account for a significant share of the price increase. Trends in the cost of oil, a major component of asphalt, will be discussed later in this report. Additionally, the cost of transporting asphalt from production plants to construction sites has increased, as well as the cost of bitumen, a component of asphalt.

Figure 1 – Weighted Average Price of Asphalt



The cost of asphalt impacts the cost of resurfacing roadways in Florida. As seen in Figure 2, resurfacing costs, particularly on arterials, has generally followed the same pattern as asphalt costs. The resurfacing cost per lane mile on the interstate was \$298,539 in FY 2013 which is 106 percent higher than it was in FY 2003. The resurfacing cost per lane mile on state arterials was \$302,525 or 43 percent higher.

Figure 2 – Statewide Resurfacing Costs per Lane Mile

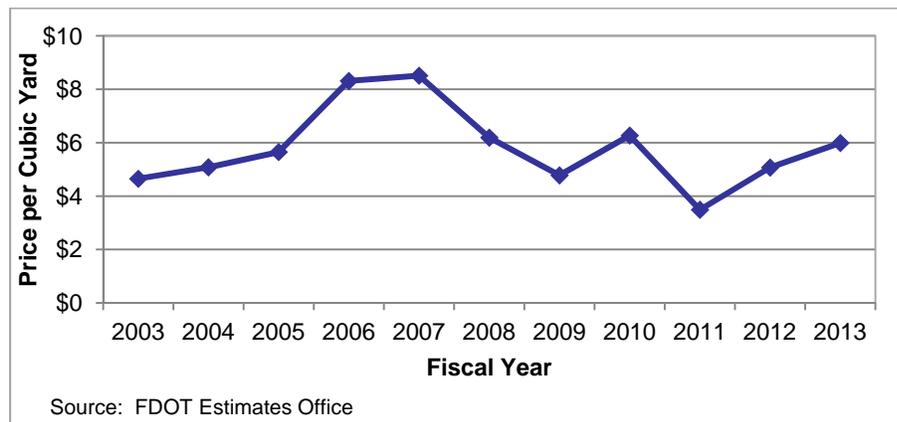


Transportation Costs

Earthwork

An initial step in the construction of any infrastructure or building is the clearing and grading of the construction site to provide, for example, a level plot of land for a building foundation, the broad expanse of an airport runway, or the banking of a curve on a highway or rail line. Earthwork costs peaked in FY 2007 at \$8.51 per cubic yard, coincident with the building boom and energy cost hikes that pressured all construction costs. Material shortages, higher overtime costs, longer haul distances for product, and a variety of related factors all influenced costs in the peak price years. With the 2007-2009 economic recession, the cost of earthwork fell sharply. Since FY 2011, earthwork costs have been rising again. In FY 2013, costs were 29 percent higher than what they were in FY 2003.

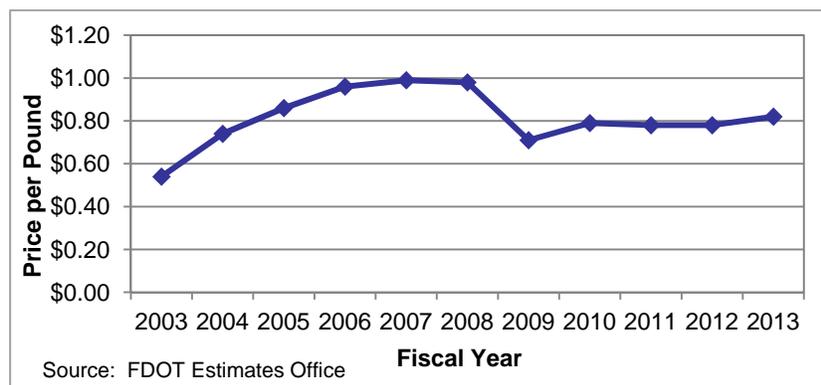
Figure 3 – Weighted Average Price of Earthwork



Reinforcing Steel

Reinforcing steel is used to provide internal structural support for concrete sidewalks, roads, bridge piers, building foundations, concrete beams, and other concrete applications. Like earthwork, its average price peaked in FY 2007 at \$0.99 per pound and then fell in FY 2009. As of FY 2013, the price was \$0.82 per pound.

Figure 4 – Weighted Average Price of Reinforcing Steel

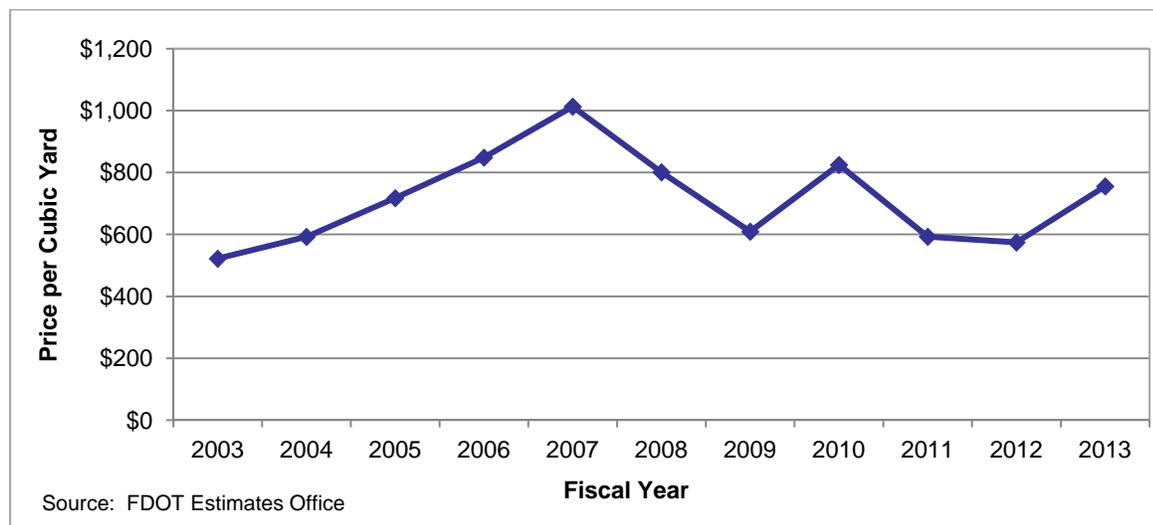


Transportation Costs

Structural Concrete

Structural concrete is used to construct buildings, parking garages, bridge spans and other pieces of Florida's transportation infrastructure. The major components of concrete are cement, sand, aggregate (pebbles and stones), and water. The U.S. Geological Survey Minerals Yearbook is published annually and provides valuable insight into the cement industry. At the time of this report, the most recent edition was for 2011. It reported that although U.S. cement production increased 2.2 percent in 2011 over 2010, the 2011 output was the third lowest since 1992. The report also stated, "Lackluster cement consumption levels in 2011 for public projects, as in the preceding 2 years, continue to indicate that little of the American Recovery and Reinvestment Act of 2009 "stimulus" funding had been spent on concrete projects." Government funding of highway projects was considered inadequate to address the need for major repairs and upgrades to the country's infrastructure, but renewed or enhanced-level funding for such projects was not attained by year end 2011."¹ Similar to what has been reported for other construction materials, the average price of structural concrete fell during the 2007-2009 recession but has risen again. In FY 2013, the average weighted price was \$756 per cubic yard or 45 percent higher than it was in FY 2003.

Figure 5 – Weighted Average Price of Structural Concrete



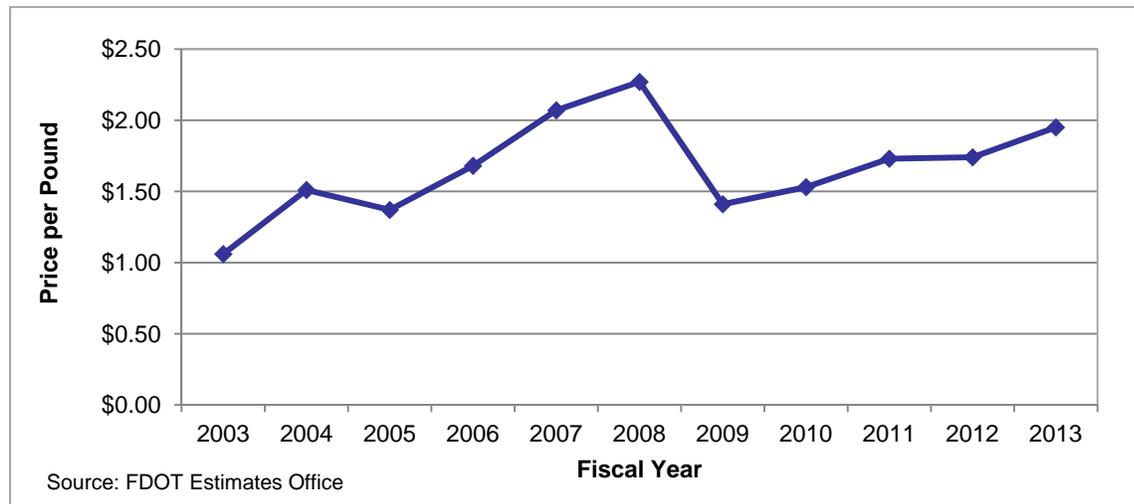
Structural Steel

The unit cost of structural steel peaked in FY 2008 at \$2.27 per pound. Its price fell in FY 2009 but has been rising again. In FY 2013, the average cost per pound was \$1.95, which was 84 percent higher than it was in FY 2003.

¹ U.S. Geological Survey 2011 Minerals Yearbook - Cement
<http://minerals.usgs.gov/minerals/pubs/commodity/cement/myb1-2011-cemen.pdf>

Transportation Costs

Figure 6 – Weighted Average Price of Structural Steel



Public Transportation

Public transportation in Florida includes aviation, rail, transit, and seaports. The cost of building infrastructure for each of these modes is driven primarily by the same materials discussed in the previous section. Certain costs, including those for virtually all rail construction projects, as well as equipment and vehicle costs such as locomotives, ships and airplanes, are borne by the private sector and are not readily available. Other costs described below are publicly available.

Aviation

Aviation costs could include the extension of a runway, the construction or expansion of a terminal or the building of a control tower. Specific cost details are not maintained by FDOT. However, bid letting reports indicate that the cost of aviation improvements and additions have not been exempt from the overall construction price trends. For example, the cost of the new terminal at Southwest Florida International Airport was budgeted at \$385 million in 2002 and by the time it opened in 2005 the cost of this project rose to \$438 million, partially due to post 9/11 security enhancements². The cost of Miami International Airport's South Terminal grew 27 percent to \$1.1 billion when it opened in late 2007.

Transit

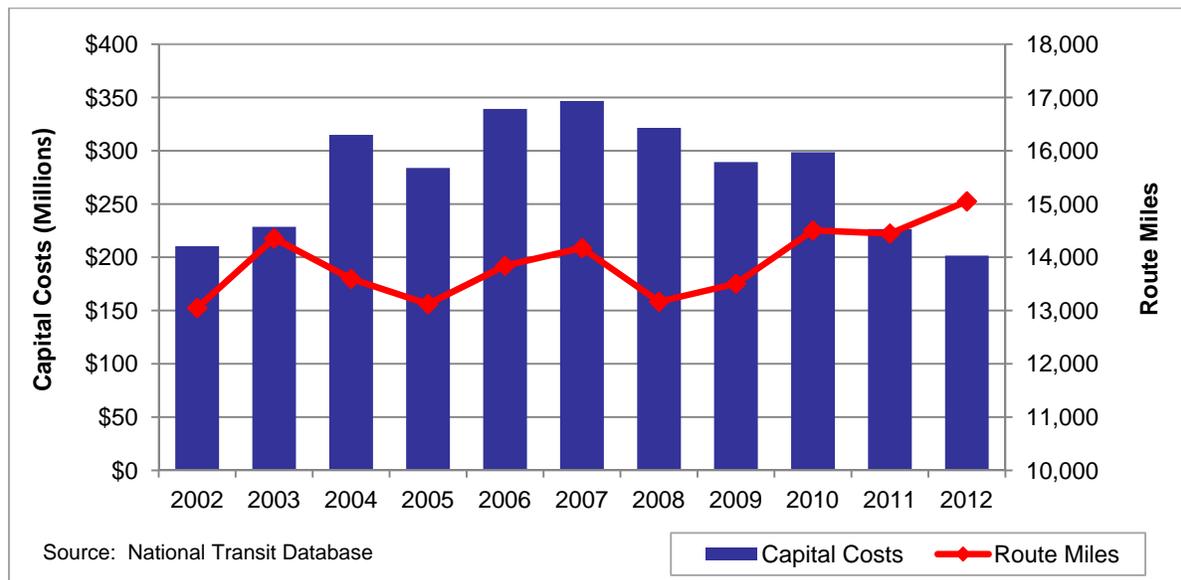
Transit capital costs include the cost of vehicles and facilities for bus systems and stations, track, signals, vehicles, and related capital elements for guideway systems. They will vary from year to year. For example, a transit agency's capital costs may be high one year because the fleet was updated. The same transit agency may have lower capital costs the following year. Figure 7 shows the statewide transit capital expenditures and route miles for fixed route bus and

² http://www.cfaspp.com/FASP/AirportPDFs/southwest_florida_intl_%28june2009%29.pdf, <http://www.lee-county.com/gov/bocc/Old%20Agendas/2002/08-13-02/Administrative/14b.pdf>

Transportation Costs

rail. Capital expenditures dropped 4 percent from 2002 to 2012 while route miles increased 15 percent. A closer look at the figure shows that total expenditures have been on the decrease since 2008. Route miles dropped off sharply in 2008. This was likely due to a combination of high fuel prices and the economic recession both of which forced transit agencies to make cuts in service. Since 2009, total route miles have been increasing even as capital expenditures have continued to decrease.

Figure 7 – Statewide Transit Capital Expenditures and Route Miles

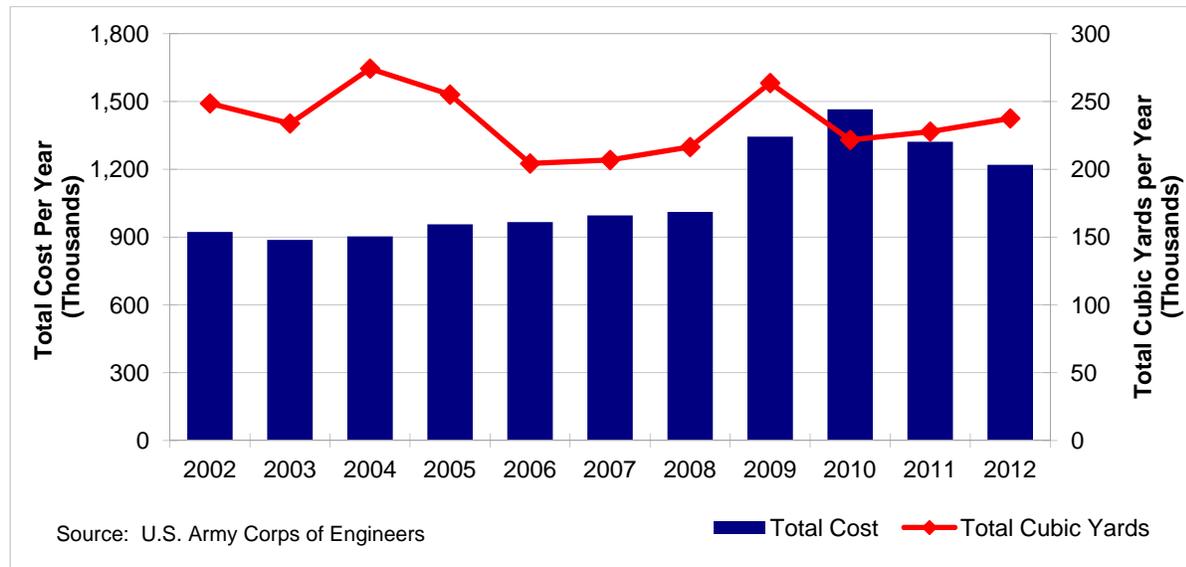


Seaports

Seaport costs could include dredging and infrastructure improvements such as berths expansion and container facilities. Infrastructure expansions and upgrades are necessary costs to keep a seaport competitive. While detailed information is not available for specific changes in costs of improvements, it has been documented that an improvement such as a container crane can range between \$5 and \$7 million. There are also reports that a berth expansion could cost upwards of \$30-\$35 million depending on the magnitude of the expansion. The dredging of channels and waterways for passage of both freight and cruise vessels is generally borne by the U.S. Army Corps of Engineers. The most recent data available from the Corps of Engineers is for 2012. The total cost of dredging in the U.S. increased 32 percent from 2002 to 2012, while the total amount of earth that was actually dredged decreased 4 percent (see Figure 8). Larger ships needing deeper channels as well as the rise in cost of equipment and material add to the overall rising cost of transportation.

Transportation Costs

Figure 8 – Cost of Dredging (Nationwide)



Right of Way

Right of Way (ROW) costs are those costs FDOT incurs to obtain title to land for the purpose of constructing or improving a transportation facility. Like other components of transportation costs, FDOT has little control over the costs of ROW, as they are governed by market forces. Many factors contribute to the cost of acquiring ROW. These include land costs and the costs of any improvements (e.g., buildings) on the land, business damages resulting from closure or relocation, landowner attorney fees, landowner appraiser fees, relocation assistance, utility relocation and other miscellaneous costs associated with acquiring ROW from willing sellers or eminent domain proceedings. The actual cost of the land and improvement on the land is the largest component of right of way acquisition, with landowner attorney fees and relocation assistance being the second and third largest components, respectively. In the past ten years, total expenditures on ROW decreased 41 percent from \$443 million in FY 2003 to \$260 million in FY2013 (see Figure 9). Furthermore, the number of parcels acquired has decreased 47 percent from 2,042 parcels to 1,075 parcels (see Figure 10).

According to the FDOT Office of ROW, it is likely that several factors played a role though it is difficult to pinpoint how much of an influence any single factor had. One factor has been the economic recession, which has contributed to lower transportation revenues overall. Less revenue means less money available for ROW acquisition. Another factor is the federal American Recovery and Reinvestment Act (ARRA) funds that were received FY 2009 and fully committed in FY 2010. Because the ARRA funds were intended as an economic stimulus, there was a particular emphasis in FY 2010 and FY 2011 on construction-ready projects that did not require additional ROW. A third factor is the “negotiation rate”. This is the percentage of parcels that are acquired by FDOT through negotiation with the property owner as opposed to through

Transportation Costs

litigation. Generally speaking, a higher negotiation rate translates into cheaper sales prices. That, in turn, leads to less funds needed for ROW. On the other hand, higher litigation rates generally translate into higher sales prices, and, therefore, more funds are needed for ROW acquisition.

Figure 9 – Statewide Right of Way Expenditures

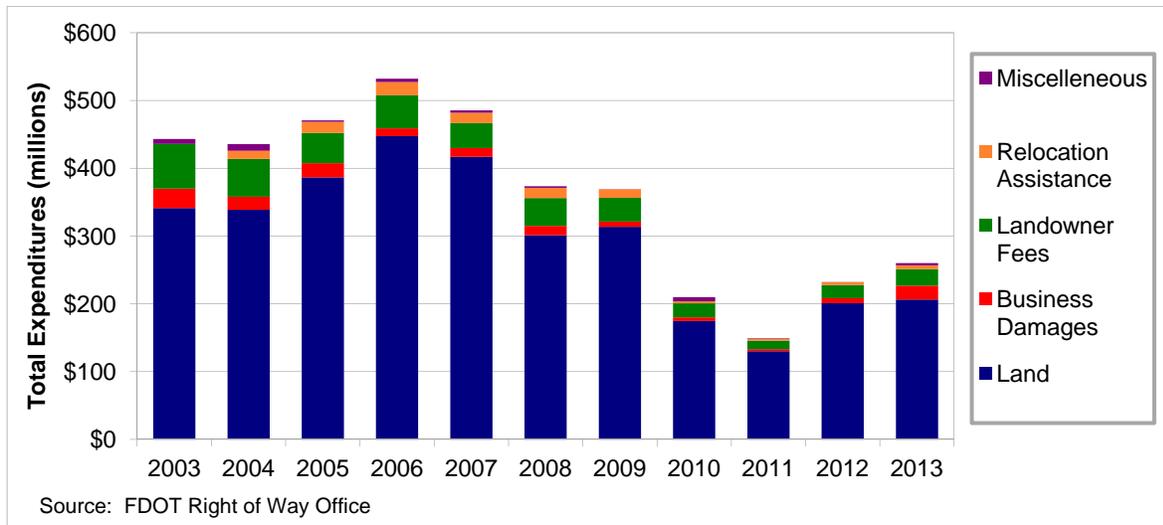
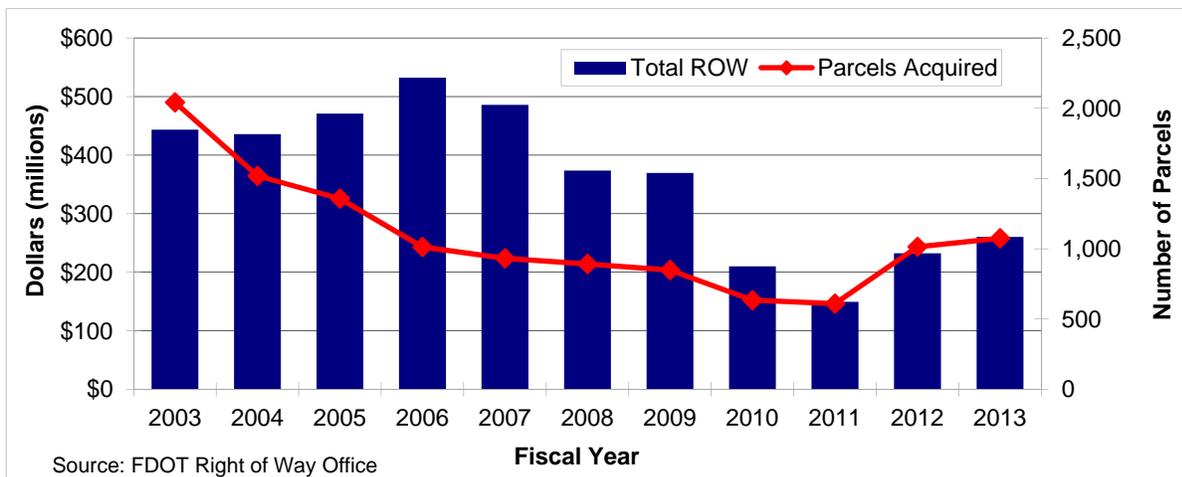


Figure 10 – Statewide Right of Way Expenditures vs. Number of Parcels Acquired



Product Support Costs

Product support includes activities performed by many transportation agencies. These activities can include a variety of functions such as preliminary engineering, environmental mitigation, and transportation planning. These costs generally include salaries, fees, and administrative costs

Transportation Costs

required to perform those functions. Product support costs are not usually tracked separately and are often bundled into overall costs for many projects.

Preliminary engineering costs include studies addressing environmental concerns, project location, surveying and mapping, project design, traffic engineering, and other project specific requirements.

The planning function includes activities necessary to establish transportation policy, to collect and analyze data for decision-makers and in some agencies to set priorities and direction. For public agencies, these costs are necessary to help meet local, state and federal planning and environment responsibilities. As is the case for other support costs, many times these costs are not captured separately but are included in total project costs.

Environmental mitigation addresses the impacts of water pollution due to highway runoff and vehicle-related wildlife fragmentation. It is the intent of environmental mitigation programs to minimize the impacts on water resources and habitat. The costs for these programs are not easily identified and are often bundled into the overall cost of a project. In addition to the cost of conducting the respective analyses and soliciting the public and stakeholder involvement, the sensitivity to environmental concerns also impacts costs by influencing the design and location of facilities. There is no data base for tracking these cost impacts or valuing the environmental benefits they enable.

When looking at the location of a project, the mitigation costs for rural areas are generally lower than for urban/suburban areas. In addition, the mitigation costs for existing or disturbed areas were similar to the mitigation costs for new or undisturbed areas.

Operating and Maintenance Costs

Operations and maintenance consist of those activities that support and preserve the transportation system once it is built and open to the traveling public. This could include maintenance of facilities, traffic engineering, toll operations, compliance, and even the cost of fuel used to maintain facilities. Operating and maintenance costs are a smaller, but important part of the cost equation for the transportation system. The Program and Resource Plan for Fiscal Years 2011/12 to 2016/17 includes a five-year average distribution of 17.3 percent for O&M.³ Below is further detail on routine maintenance, traffic engineering, toll operations, and fuel costs.

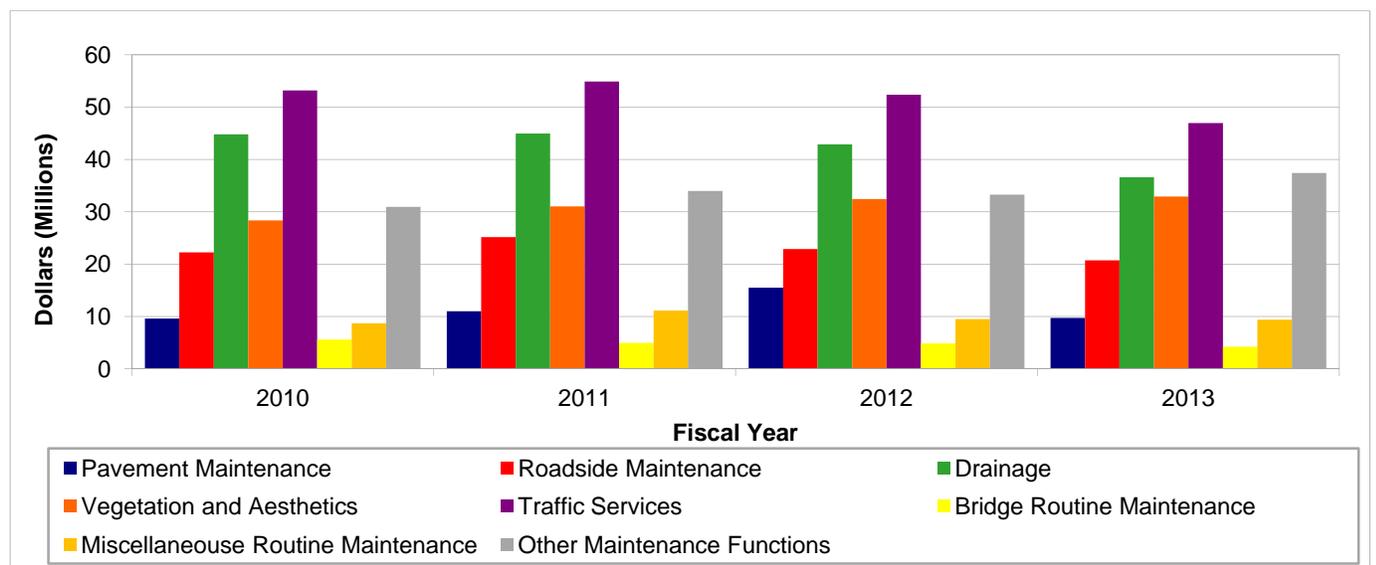
³ FDOT Program and Resource Plan, dated June 2012.
<http://www.dot.state.fl.us/programdevelopmentoffice/prd/document/ProgramAndResourcePlanDocument.pdf>

Transportation Costs

Routine Maintenance

FDOT's Asset Maintenance Program places high value on adequately maintaining the transportation facilities the department currently owns. Through routine maintenance functions, the life and performance of existing facilities can be maintained, ultimately saving money while preserving safe and effective operation. In terms of costs, the top three categories of maintenance activities have historically been drainage, traffic services and "other maintenance functions. The costs for these three activities have remained relatively stable. Drainage enables the safe operation of facilities by enabling precipitation to be channeled away from driving surfaces and roadbeds. Traffic services activities include signage upkeep, pavement striping, and rest area maintenance. Attention to this aspect of the system keeps the traveling public safe with proper signage for directions, road markings, and operable rest areas. Finally, other maintenance functions include mostly emergency functions. The proper use of the transportation system in an emergency, for example during an evacuation, is paramount. These services provide for emergency repair and replacement of signage and traffic signals, road and bridge inspection, and debris removal.

Figure 11 – Routine Maintenance Costs by Function



Source: FDOT Office of Maintenance

Transportation Costs

Table 1 – Maintenance Costs by Source

	2009	2010	2011	2012	2013
In House Labor	\$64,725,986	\$66,782,807	\$63,882,160	\$59,733,307	\$51,375,479
DOC Labor	\$22,107,147	\$24,932,872	\$25,995,630	\$22,498,914	\$21,885,158
Contract Labor	\$116,870,030	\$111,646,259	\$127,168,671	\$131,491,379	\$124,655,500
Total Labor	\$203,703,163	\$203,361,938	\$217,046,461	\$213,723,600	\$197,916,137

Source: FDOT Office of Maintenance

While FDOT provides for some of these maintenance functions in house, much of the labor and materials are contracted through other entities. Table 1 documents changes in maintenance costs over the last five fiscal years. Total labor costs dropped three percent from \$203.7M in FY 2009 to \$199.9M FY 2013. Most of the change is due to FDOT dropping its in-house labor costs by 21 percent and shifting more of its maintenance costs to contract labor.

Traffic Engineering

Traffic engineering involves activities necessary for solving problems that do not involve major structural improvements or alterations of existing or planned roadways. This includes the Intelligent Transportation System (ITS) Program, MyFlorida511, traffic studies to identify transportation deficiencies and improvements for the roadway system, incident management including Road Rangers and evaluation of transportation devices, standards, specifications, and research.

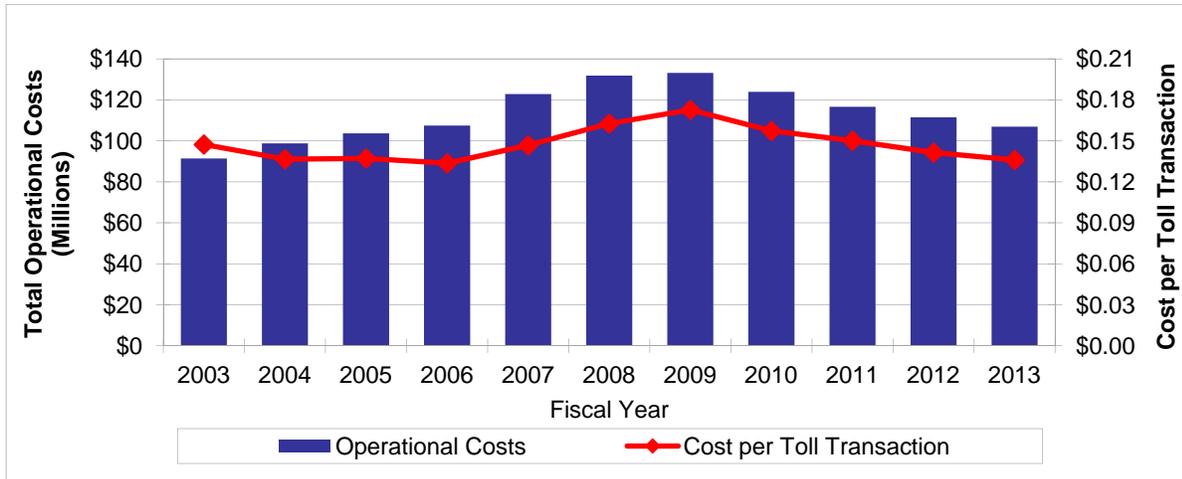
The ITS Program encompasses ITS Management/Deployments; Telecommunications Program Management; and ITS Software, Architecture and Standards. Currently, there is no mechanism in place to track specific costs for this program, but there are plans to capture this information in the future.

Toll Operations

The management of toll facilities includes the activities that keep these facilities operating smoothly and efficiently. Tolls are collected on Florida's Turnpike and the seven FDOT owned and operated toll facilities across the state. These operational costs can include things like toll collection contracts, credit card fees, and SunPass operations. Over the past ten years, operational costs increased 17 percent from \$91.4M in FY 2003 to \$106.9M in FY 2013, and the number of transactions increased 27 percent. The cost per transaction has remained relatively unchanged at \$0.14 per transaction due to the large increase in SunPass transactions.

Transportation Costs

Figure 12 – FDOT Toll Operational Costs

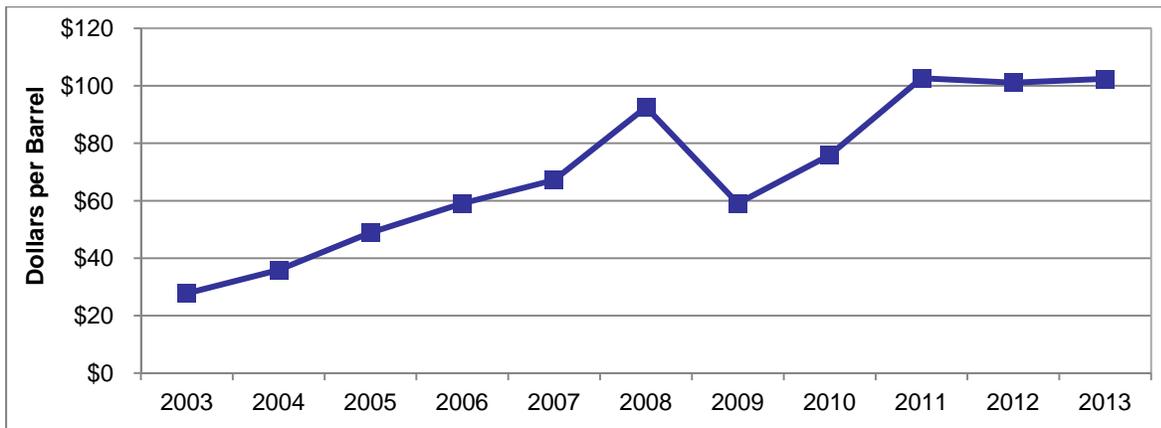


Source: Florida Transportation Commission, *Performance and Production Review Reports*

Fuel

Fuel, as an operating cost, impacts many areas of transportation from the fuel required to operate road construction equipment, to the fuel used for maintaining the right-of-way, to gasoline used by travelling motorists. Crude oil prices were rising until 2008 but then fell sharply. Since 2010, the price per barrel has been rising again. In 2013, the price of imported crude oil was \$102 per barrel, or 269 percent higher than it was in 2003 (see Figure 13). Many factors influence the price of oil including natural events like hurricanes, political pressures both foreign and domestic, and global economic issues, to name a few.

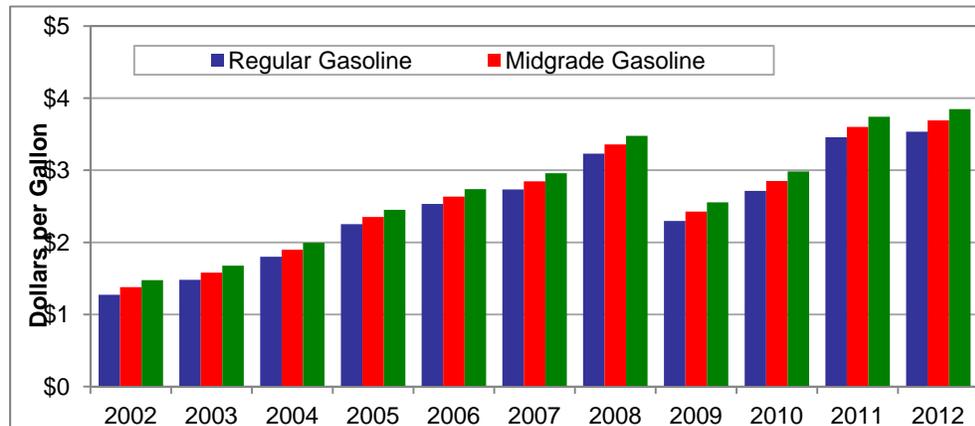
Figure 13 – Average Price of Imported Crude Oil



Source: Department of Energy, Energy Information Office, Petroleum Navigator

Transportation Costs

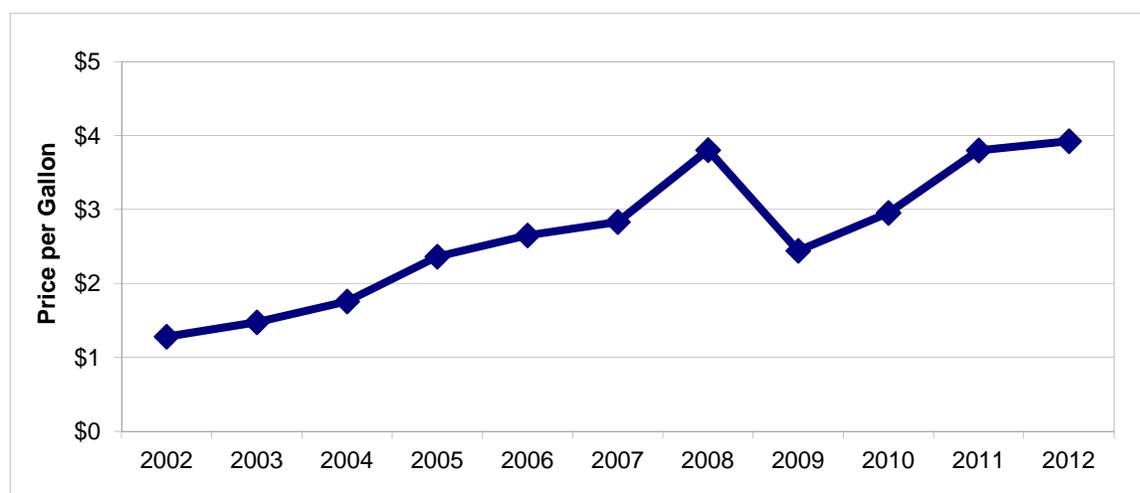
Figure 14 – Retail Price of Gasoline in Lower Atlantic States



Source: U.S. Energy Information Administration Petroleum and Other Liquids Webpage; <http://www.eia.gov/petroleum/gasdiesel/>

Increases in crude oil prices translate into higher retail prices at the pump. Figure 14 shows the annual price in dollars per gallon for regular, midgrade, and premium gasoline in the Lower Atlantic Region⁴. Figure 15 shows the annual price per gallon for diesel. The cost of regular gasoline went from \$1.27 in 2002 to \$3.53 in 2012, a 177 percent increase. This increase puts a strain on the budget of individuals using the transportation system and also on private and public entities that use gasoline in their line of work. Diesel fuel, which is used by commercial and construction vehicles, went from \$1.28 per gallon in 2002 to \$3.92 in 2012, a 207 percent increase.

Figure 15 – Price of Diesel Fuel in the Lower Atlantic Region



Source: U.S. Energy Information Administration Petroleum and Other Liquids Webpage; <http://www.eia.gov/petroleum/gasdiesel/>

⁴ The U.S. Energy Information Administration defines the Lower Atlantic Region as Florida, Georgia, North Carolina, South Carolina, Virginia, and West Virginia.

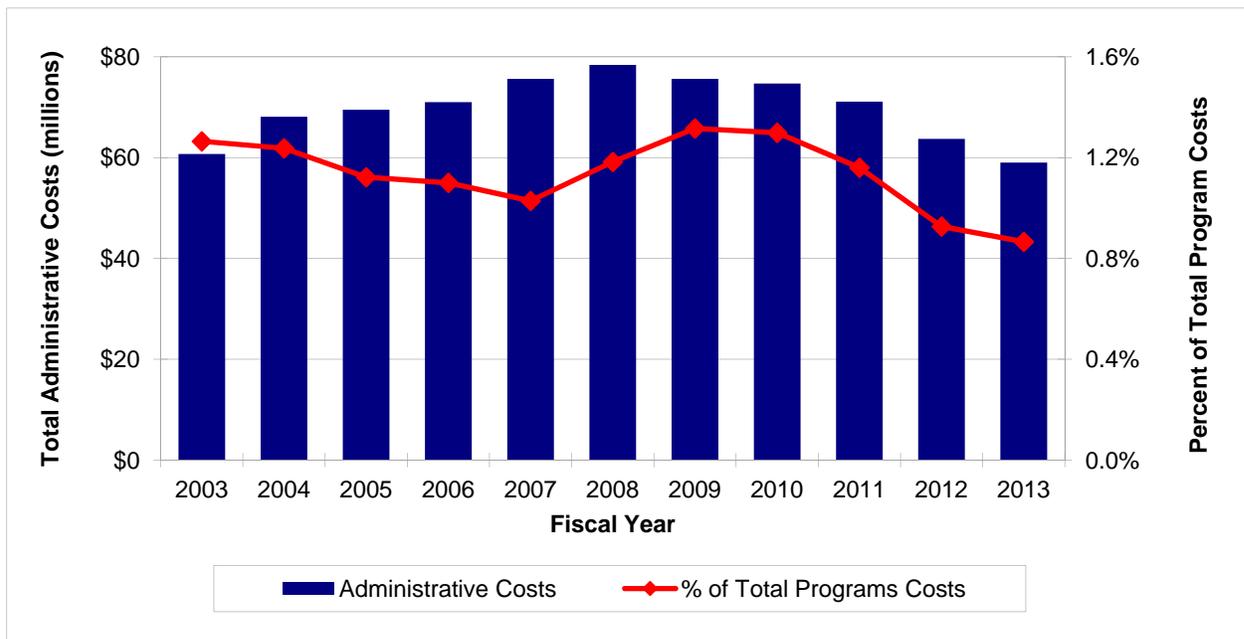
Transportation Costs

Administrative Costs

Administrative costs capture the support activities for the proper functioning of a transportation agency. These costs include staffing, equipment, and materials required to perform fiscal, budget, legal, personnel, purchasing, procurement and contract functions, as well as executive direction of a transportation agency. In some agencies, administrative costs may also include the investment in non-transportation related fixed assets such as office buildings, maintenance yards, or construction field offices. They could also include resources used to perform data processing and technology related activities, although for the purposes of this report those two functions are not broken out in the data.

As public entities, transportation agencies strive to control administrative costs to demonstrate prudent use of taxpayer funds for activities that are necessary but indirectly related to the main transportation function of the agency. Total administrative costs for FDOT have declined three percent from \$60.7M in FY 2003 to \$59M in FY 2013. At the same time, administrative costs as a percentage share of total program costs have decreased from 1.3 percent to 0.9 percent.

Figure 16 – FDOT Administrative Costs



Source: Florida Transportation Commission, *Performance and Production Review Reports*

Conclusions

The 2007-2009 economic recession and high fuel prices have impacted transportation costs in a variety of ways. On the one hand, the recession led to a temporary drop in the costs of

Transportation Costs

construction materials such as concrete, steel, and asphalt. A positive side effect of this was a drop in many categories of transportation construction costs. Since that initial reaction, in many cost categories prices have been rebounding but still remain below their 2007-2008 peak levels. On the other hand, the average price of imported crude oil continued to rise except for a one-year drop in 2009. It has been documented elsewhere that the high fuel prices combined with high unemployment led to less vehicle miles travelled.

Consequently, there has been constrained revenue for transportation projects. Total FDOT expenditures on right of way from 2002 to 2012 dropped 41 percent, and total parcels acquired dropped 47 percent. The cost of dredging seaport channels nationwide by the U.S. Army Corps of Engineers increased 32 percent from 2002 to 2012 even though the amount of earth that was dredged decreased four percent. Total expenditures on transit capital items in Florida dropped 41 percent from 2003 to 2013. Several transit agencies in the state had to cut services because of rising fuel costs even though the demand for service was increasing. Hard economic times have forced government transportation agencies to become more efficient with less revenue. FDOT reduced its maintenance labor costs by three percent from 2009 to 2013. It accomplished that by shifting more maintenance work to contract labor.

Looking ahead, the culmination of economic activities that led to extreme price pressures in the 2007–2008 timeframe have not reoccurred nor are they imminent; however, upward price pressures have continued. As industry capacity has adapted to current spending levels, the excess capacity that led to dramatic price declines in the recessionary period have waned and contributed to rising prices. Resource constraints have led to greater efficiencies in many transportation cost categories which have contributed to continued program progress in spite of limited resources. The softening of travel demand – while impacting revenues – also moderated the need for roadway capacity increases.

Overall inflation levels have been low to moderate in historic terms helping to minimize the pressure on transportation cost increases. The construction sector, in particular, has reduced price pressures for labor and materials for transportation construction. In order to be in the best possible position to understand the impacts of transportation costs on future transportation programs, it will be important to closely monitor economic indicators and transportation construction cost trends.

Bibliography

- Federal Transit Administration. National Transit Database. <http://www.ntdprogram.gov/ntdprogram/> (accessed November 13, 2013)
- Florida Department of Transportation. Specification and Estimates Office. "Cost Trends by Fiscal Year." PowerPoint Presentation. <http://www.dot.state.fl.us/specificationsoffice> (accessed November 13, 2013)
- Florida Department of Transportation. "Program and Resource Plan Summary Fiscal Years 2011/12 to 2016/17." June 2012. <http://www.dot.state.fl.us/programdevelopmentoffice/> (accessed November 13, 2013).
- Florida Transportation Commission. Performance and Production Review Reports. <http://www.ftc.state.fl.us/reports/pandpreview.shtm> (accessed November 13, 2013).
- U.S. Army Corps of Engineers. "Navigation Data Center, Dredging Program." February 05, 2010. <http://www.navigationdatacenter.us/dredge/ddcosts.htm> (accessed November 13, 2013).
- U.S. Energy Information Administration. <http://www.eia.gov/> (accessed November 13, 2013).
- U.S. Geological Survey. U.S. Department of the Interior. "2011 Minerals Yearbook Cement [Advance Release]." <http://minerals.usgs.gov/minerals/> (accessed November 13, 2013).