

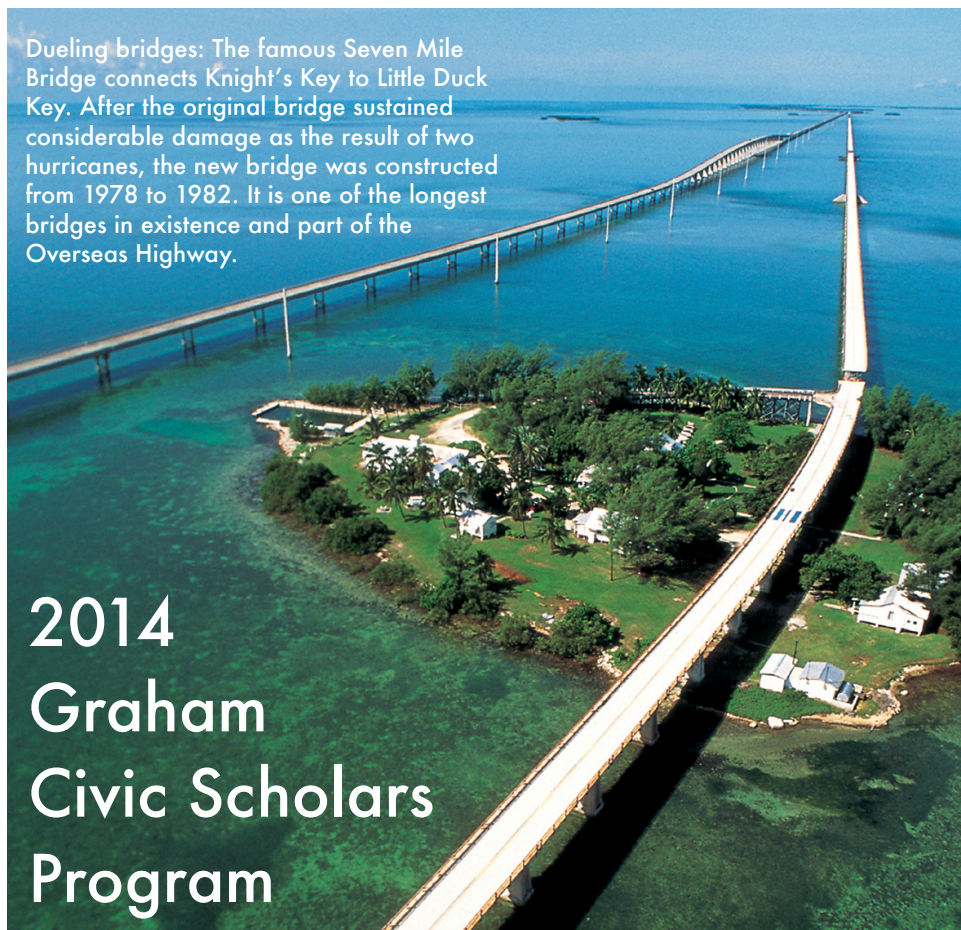
Aging Infrastructure

IN
FLORIDA'S
COUNTIES
AND
REGIONAL
PLANNING
COUNCILS


BOB GRAHAM CENTER
FOR PUBLIC SERVICE

Dueling bridges: The famous Seven Mile Bridge connects Knight's Key to Little Duck Key. After the original bridge sustained considerable damage as the result of two hurricanes, the new bridge was constructed from 1978 to 1982. It is one of the longest bridges in existence and part of the Overseas Highway.

2014
Graham
Civic Scholars
Program



What is infrastructure?

Water & Environment



Dams
Drinking Water
Hazardous Waste
Levees
Solid Waste
Wastewater

TRANSPORTATION



Aviation
Bridges
Railways
Roads
Transit

Public Facilities



Schools
Public Parks & Recreation

Energy



Coal
Nuclear
Solar
Natural Gas
Biomass

2014 Graham Center Civic Scholars Cumulative Report

Top Issues and Possible Solutions Concerning Aging Infrastructure
in Florida's Counties and Regional Planning Councils

By Chad Spreadbury

Introduction

Florida's infrastructure is a network of transportation systems and other physical structures that provides access to the places Floridians need to go, be it for work, for health, or for fun! Often, residents take for granted the roadways, bridges, water distribution systems, and other structures that make modern life possible. Indeed, we are quick to bemoan the inconveniences of construction and increases in taxes and fees in the name of infrastructure improvement. Perhaps it is easy to forget that infrastructure affects all of us on both an economic and personal level. Therefore, if our state's infrastructure is neglected, then our quality and way of life are sure to suffer. Unfortunately, this is the case, as Florida's aging infrastructure is decaying and is insufficient to support and maintain the standard of life that its residents (and visitors!) expect and deserve.

Overall, there were three primary issues that consistently appeared throughout the scholars' reports. To no one's surprise, the greatest obstacle to meeting infrastructure needs is securing the tremendous but necessary funding it requires. Furthermore, properly and effectively utilizing funds is

an issue as management can sometimes have difficulty determining what should be done and how. Water supply and distribution infrastructure issues were also frequently mentioned, and it was observed that the public at large is uneducated and/or apathetic when it comes to infrastructure and how it is built and financially supported. Lastly, the scholars reported that many of the roadways and bridges in the state are the victims of old age and neglect. These issues are further explored in the following sections in which they are presented alongside possible solutions.

Top Issues and Possible Solutions

Lack of Funding and Management

By far, the number one issue that impacts Florida's infrastructure is the lack of funding required to maintain aging structures and construct new ones. Almost every Florida county and RPC investigated for this program cited a lack of funding as one of their top three critical issues. Nonetheless, counties and RPCs do their best to creatively obtain money for their infrastructure needs. There are two taxes that contribute to infrastructure funding: gas taxes and ad valorem taxes. A gas tax is charged per gallon of gasoline pumped in Florida, included with the price per gallon seen on signs and at the pump. While the money generated via gas tax goes towards maintaining infrastructure, some of this revenue also goes to state and federal governments. Ad valorem taxes are fees based on perceived value of property and are paid by landowners. There are also a number of grants provided by the state and federal governments that help fund infrastructure maintenance and construction. For instance, small counties benefit greatly from programs such as SCRAP (Small County Rural Assistance Program), SCOP (Small County Outreach Program), and CIGP (County Infrastructure Grant Program).

Despite these taxes and grants, counties and RPCs still lack, sometimes to an extreme extent, the revenue needed to adequately tackle infrastructure issues. Many counties and RPCs report millions of dollars under budget, and, as a result, must make hard decisions when it comes to maintaining and building critical infrastructure. While these decisions are made in earnest with the public's best interest at mind, the results can still pose health and safety risks. For the purpose of generating more funding, counties and RPCs have proposed increasing or creating new taxes such as a penny tax or imposing additional tourism taxes. Additionally, counties continue to apply for any and all grants for which they qualify.

What is more, some counties struggle to manage their aging infrastructure because of lack of consensus surrounding what needs to be done, finding that prioritization can be just as challenging as securing the necessary funds. Such indecision wastes time, worsens the decay of an area's infrastructure, and compounds funding challenges. Worse still, poor decisions are often made,

leading to wasted time and resources (Bentz, 1997). In some counties with larger cities, both the county government and city government can clash in goal setting and fixing issues. This confrontation is especially problematic when that city's population makes up a large portion of the entire county's population.

This lack of leadership, poor decision-making, and non-cooperation can be remedied through coaching officials to have better problem solving capabilities and interpersonal skills. More importantly, citizens can support this and other needs by electing officials who can critically analyze a given situation and are willing to work with others in an efficient manner to serve his or her constituents in the first place.

Water Supply & Distribution

One of life's most basic needs is adequate drinking water. Without safe drinking water, citizens can become ill and even die if they do not receive proper medical treatment. However, for a number of Florida counties and RPCs, water supply and quality is a major concern. Most of the water that people rely on for drinking, cooking, and other activities originates in aquifers, lakes, and rivers. Therefore, ensuring that these bodies of water remain healthful and uncontaminated is of primary concern.

Unfortunately, there are strains on the water supply that threaten the well being of Floridians. Manmade pollutants such as fertilizers, industrial runoff, and pharmaceuticals can contaminate lakes, rivers, and aquifers. These compounds damage the surrounding environment, which can have negative health and economic effects on residents nearby. Saltwater can also intrude upon bodies of freshwater and further diminish their quality. Removing pollutants from water and using the desalination process adds difficulty and cost for water treatment plants. As it is, water treatment plants are under major strain to provide healthful drinking water due to lack of funding and rapid population growth. Furthermore, the water distribution systems are beginning to show their age and must be replaced and expanded in many parts of the state. Yet, once again a lack of capital continuously pushes repair and expansion of these distribution systems further and further into the future causing low water quality and, when pipes break, a complete lack of safe water or even water at all.

The best way to protect water quality is to decrease the amount of contaminants that reach freshwater sources. Fertilizers should only be applied at appropriate times and only with the instructed amount and industrial runoff, and pharmaceuticals should be monitored, diluted, and disposed of properly according to regulation and best practice. Resolving the issue of advancing saltwater due to rising sea levels is tricky and currently can only be accomplished through

desalination or global climate control activities. That said, other technologies are being developed that involve changing the permeability of surrounding rock in aquifers to inhibit saltwater intrusion (Spatafora, 2008). Lastly, determining how municipalities can accumulate savings to update their water treatment plants and water distribution systems are addressed in the previous section of this summary, "Lack of Funding and Management".

An Unaware, Growing Population

While infrastructure connects Floridians to vital places and opportunities, many of them are unaware of or fail to understand both the sheer amount and sources of funding required for construction and maintenance. Some residents believe that their infrastructure is provided for them for free when in reality it is paid for by various taxes like the gas tax and ad valorem taxes and grants from state and federal governments. Many people are also unaware of the intricacies involved in the construction process that accounts for the long duration of many infrastructure projects alongside possible complications such as bad weather, unforeseen technical difficulties, and funding inadequacies. Sadly, it seems that many citizens fail to truly comprehend the importance of safe, efficient, and reliable infrastructure. In many counties and RPCs facing a lack of funds, residents routinely vote against tax increases dedicated to improving infrastructure. Ironically, these citizens are constantly demanding better roads, bridges, and improved services.

Consequently, the issue of the public being largely unaware of the statewide infrastructure dilemma can be resolved through educating them on its current condition and the importance of improving it. Educating people can be done through public service announcements, Internet commercials, newspaper articles, and even in the classroom. It would be very beneficial for the youngest generation to begin learning about how vital their infrastructure is for their future. A child's understanding can alter how their parents, neighbors, and other community members vote and even affect them until they can take direct action themselves as an adult. Naturally, some adults are reluctant to spend additional money on taxes to improve infrastructure considering the economic hardships that the country is currently experiencing. Such a stance is understandable; yet updating the state's infrastructure may very well bring in jobs and spur economic recovery. Understanding how high quality infrastructure benefits local, state, and national economies could persuade Floridians to support tax increases in the hopes of lowering unemployment.

Moreover, Florida's population is growing with many counties experiencing population growth. While this increase in number of residents boosts tax revenue used to maintain and improve a county's infrastructure, it also enhances deterioration of existing infrastructure and demand for new infrastructure. Furthermore, new citizens may exasperate the issue of public unawareness on

infrastructure financing and improvement. Of course, this population influx could have the opposite effect and indeed help resolve the issue if these people are already educated on the obstacles surrounding infrastructure enhancements.

Inadequate Public Transportation Systems

Currently, the people of Florida are commuting on aging roadways and bridges. Many of these public transportation systems were built during periods of rapid development from the 1950s to the 1980s and are beginning to show their age and limitations. Roadways, both paved and unpaved, are literally crumbling. Unpaved roadways prove to have their own issues, as they are more susceptible to deterioration from traffic and weathering, which produces potholes and sometimes washouts of entire stretches of road. In spite of high maintenance costs, to pave these unpaved roads would require far more money—money that is already scarce for counties. Meanwhile, many paved roadways need to be repaved and expanded to handle the increasing population. Having roads that cannot handle heavy traffic is detrimental to Floridians on the economic level, as time and fuel is wasted from waiting in traffic jams or through other inconveniences caused by congestion (American Society of Civil Engineers, 2013). Worse still, the traffic along with the decaying conditions of the roadways are having a negative effect on people's safety. These hazardous driving conditions are leading to bodily injuries and death. In addition to the emotional toll and human impact, many of those injured or killed in traffic accidents are laborers, entrepreneurs, and other employees that help support their families along with the economy on the local, state, and even national levels (Worley, 2006).

Similarly, bridges are rusting away and also lack functionality to handle increasing population density. Numerous counties and RPCs are reporting that some of their bridges are structurally deficient and are approaching the end of their life expectancy. In fact, a lot of counties and RPCs are utilizing bridges that have passed their life expectancy and should be remodeled or replaced but lack the necessary funding to do so. These outdated bridges serve as a public safety concern as they run the risk of collapsing, which not only would cause time inconveniences and monetary loss, but a potential loss of human life as well. Still, it is worth nothing that even a structurally sound bridge can serve as a hazard and limit economic capability if it is unable to efficiently handle increasing population density and the traffic that follows.

In order to resolve the dilemma of rapidly aging roads and bridges, efforts should already be underway to fund maintenance and construction. Unfortunately, funding is already scarce enough and is the very reason why roads and bridges are currently failing to meet people's needs. With that said, the various methods to increase funding can be applied as previously discussed in the section "Lack

of Funding and Management”. Of course, there are other options for resolving this issue of upkeep. Carpooling can be promoted to reduce the amount of traffic. With fewer vehicles using roads and bridges, these structures remain in better condition. Nevertheless, this will also reduce the amount of funding received via the gas tax and hence reduce the amount of money that can be used for basic and critical maintenance. Yet, as long as other forms of funding besides the gas tax are utilized, carpooling will still prove to be a viable solution.

Another solution may be to increasingly put the issue of building and keeping up roads and bridges into the hands of private enterprises. Private companies can construct and maintain roadways or bridges and gain profit through tolls or benefit if the newly built structure helps bolster their business through increased efficiency. This option can help mitigate some of the government’s burden and improve roadway and bridge conditions sooner rather than later. Likewise, the government could establish and increase tolls for some of their roads and bridges. This action would generate some additional revenue to maintain structures and possibly reduce wear and tear on them since some people will find other routes or plans to avoid paying tolls.

Conclusion

All in all, the top issues discussed in this summary are serious and must be resolved as soon as possible, but they are only the most prevalent ones throughout the state’s counties and RPCs. There are many more dilemmas that plague certain areas such as damaging discharges from Lake Okeechobee (Okeechobee County), lack of alternative energy options (Hillsborough County and Withlacoochee RPC), and even the unavailability of broadband Internet in many rural zones (Southwest FL RPC). At first, it appears that finding solutions for Florida’s aging infrastructure is seemingly impossible due to the vast diversity and complexity of the topic. However, Florida’s residents can rest assure that these problems are being analyzed and fixed as best as they can given the available tools, funds, work ethic, and genius of state and local officials, engineers, concerned citizens, and students such as the Graham Center Civic Scholars.

References

- American Society of Civil Engineers (2013). "Roads." *2013 Report Card for America's Infrastructure*. <http://www.infrastructurereportcard.org/a/#p/roads/overview> (August 19, 2014).
- Bentz, Robert P (1997). "Chapter 16 – Acquiring and managing financial resources." *Improving Agricultural Extension: A Reference Manual*. <http://www.fao.org/docrep/w5830e/w5830e0i.htm> (August 19, 2014).
- Spatafora, James (2008). "What is saltwater intrusion?" *Saltwater Intrusion of Coastal Aquifers in the U.S.* May 6. <http://kanat.jsc.vsc.edu/student/spatafora/setup.htm> (August 19, 2014).
- Worley, Heidi (2006). "Road Traffic Accidents Increase Dramatically Worldwide." March. <http://www.prb.org/Publications/Articles/2006/RoadTrafficAccidentsIncreaseDramaticallyWorldwide.aspx> (August 19, 2014).

“We’re living on the infrastructure that our grandparents and great grandparents built.

Recommended reading and viewing

President Obama, State of the Union, February 12, 2013 (Video)
<http://video.foxnews.com/v/2161012419001/>

2013 Report Card for Florida’s Infrastructure (Interactive Website)
<http://www.infrastructurereportcard.org/a/#p/state-facts/florida>

2012 Report Card for Florida’s Infrastructure (Full Report)
http://c.ymcdn.com/sites/www.fla-asce.org/resource/resmgr/imported/ASCE%20FL%20SECTION%20RC%20BROCHURE_V2%20_2_.pdf

Accidents Spotlight Nation’s Aging infrastructure, NBC (Video)
<http://www.nbcnews.com/video/nightly-news/52002535#52002535>

America’s Aging Infrastructure, CoBANK, September 2013 (Newsletter, pp.1-8)
http://www.cobank.com/Newsroom-Financials/CoBank-News-Feed-2/2013/September/~/_media/Files/Searchable%20PDF%20Files/Newsroom%20Financials/Outlook/Outlook%202013/Outlook_0913.pdf



Recommended Resources

We recommend the following resources to help you think about this critical issue, draft your interview questions, and frame your report.

Websites

2013 Report Card for America’s Infrastructure
www.infrastructurereportcard.org

American Society of Civil Engineers (ASCE)
www.asce.org

Florida Department of Transportation (FDOT)
www.fdot.state.fl.us

Readings

Too Big To Fail: America’s Failing Infrastructure and the Way Forward
By Barry B. LePatner

“Life in the Slow Lane”,
The Economist
www.economist.com/node/18620944

“America’s Coming Infrastructure Disaster”,
Newsweek
www.newsweek.com/americas-coming-infrastructure-disaster-64729

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Ana Sotilla, Monroe County

Chad Spreadbury, Gilchrist County

Amber Todoroff, Sarasota County

Luke Waldron, Palm Beach County

Christopher Walters, Bay County

Christina Wiley, Leon County