LEGAL ISSUES WHEN MANAGING PUBLIC ROADS AFFECTED BY SEA LEVEL RISE: *FLORIDA*

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PROJECT BACKGROUND

This white paper is one outcome of a four-state regional project funded by the National Oceanic Atmospheric Administration Office of Coastal Management, Florida Sea Grant, Georgia Sea Grant, South Carolina Sea Grant, and North Carolina Sea Grant (Project No.: FY2014-2018: NA14OAR4170084). Coastal communities are increasingly becoming aware of the risks to their ecosystems, homes, and economies because of increased flooding, more extreme storm surges, and sea level rise. Reducing risk on the coast will be achieved by means of a variety of approaches, including policy and regulatory changes, natural resource protection, structural and non-structural intervention and investment, and retreat. A project team involving researchers, legal and policy experts, and law students have assisted coastal communities in four states – Florida, Georgia, South Carolina, and North Carolina – to prepare for present vulnerabilities and projected future conditions based on likely sea-level rise scenarios. This paper is part of the project's objective to analyze legal and policy factors affecting adaptation responses, focusing on the state and local levels. Additional white papers associated with this project may be found at http://gacoast.uga.edu/.

Cover image: Thomas Ruppert, Florida Sea Grant

INTRODUCTION

The State of Florida has 1,350 miles of coastline that will be reshaped by sea-level rise during the next century. By year 2100, mean sea level is projected to be from 20 to 98 inches above levels measured in 1992.[1] Tropical storms and hurricanes have also become more intense in the past twenty years and are likely to remain intense as the climate warms.[2] Sea-level rise and consequential flooding threaten public roads, and addressing this threat requires a clear understanding of who is responsible for public road maintenance, and determination of risk related to what happens when road maintenance becomes locally infeasible due to environmental conditions and finances.

This white paper begins by describing the jurisdiction and authority over public roads in Florida, and then it identifies the maintenance duties for each governmental entity that manages these roadways: state, county, and municipality. This white paper then discusses the elements of a negligence lawsuit and a nuisance claim, both of which could arise from the duty to maintain or repair roads. Next, this white paper explains the governmental power and possibility of raising sovereign immunity as a legal shield for defense in liability claims. Finally, this white paper discusses how a governmental entity could abandon a road to avoid maintenance responsibilities and the real potential of subsequent takings lawsuits that may follow.

KEY POINTS OF THIS PAPER INCLUDE:

- **Sea-level rise and more frequent coastal flooding may significantly increase the cost of road maintenance and repairs.** The Florida Department of Transportation ("FDOT"), counties, and municipalities all have a duty to maintain and repair roads under their control, and thus climate change impacts have the potential to create significant financial burdens on all of these government entities.

- **If the state, counties, or municipalities fail to, or inadequately repair, damaged roads and thus cause injuries, they may be subject to a negligence or nuisance lawsuit for failing to perform their road maintenance duties.** As the cost and complexity of road maintenance increases due to sea-level rise and increased volumes of rainfall, the number of potential negligence or nuisance claims may increase.

- **Increased coastal flooding is likely to muddy principles of sovereign immunity, a legal shield for government entities, making litigation outcomes uncertain.** The outcome of a lawsuit against a governmental entity often depends on the type of act or

1. *U.S. Dept. of Commerce, Center for Operational Oceanographic Products and Services, Global and Mean Sea Level Rise Scenarios for the United States 24 (NOAA Technical Report NOS CO-OPS 083, January 2017).*

2. *U.S. EPA, "What Climate Change Means for Florida," EPA 430-F-16-011 (Aug. 2016); Sea Grant Florida, "Sea-Level Rise in Florida," https://www.flseagrant.org/climate-change/sea-level-rise/ (last visited Mar. 20, 2018).*

decision the government is sued over. Sovereign immunity is a legal shield for discretionary, planning-level decisions such as decisions about upgrades and road design; a governmental entity is not liable for injuries stemming from these decisions. Sovereign immunity does not apply to operational functions, such as the duty to properly maintain roadways; a governmental entity can be liable for injuries stemming from these decisions. However, the distinction between discretionary and operational decisions is often unclear. One case in Florida held that government inaction could support a takings claim. It remains to be seen whether this case law will stand due to its conflict with a recent federal case holding otherwise.

- **Takings liability may arise if a governmental entity acts to abandon expensive and repeatedly damaged roads or if they do not act at all.** For repeatedly damaged roads, formal abandonment is one option to relieve the financial burden of continued road maintenance and repairs. As provided by statute, FDOT, counties, and municipalities must give public notice, hold a public hearing, and consider public welfare before acting. If FDOT, a county, or a municipality decides, however, to lawfully vacate a road, the entity may still be required to pay just compensation for any constitutional taking that may occur. Vacating a road that eliminates or substantially diminishes access for abutting property owners may likely amount to a taking. Furthermore, government inaction, such as failure to provide a reasonable level of maintenance, may also result in a taking.

- **Local governments are likely to be caught in a "no win" situation.** Potential negligence and nuisance suits require governments to bear ever-increasing road maintenance costs for repeatedly flooded roads, and takings liability may prevent local governments from escaping the responsibility for maintaining roads even in extremely unsustainable situations. The outcomes will be fact-specific but could result in a better definition of what "maintenance" is in the face of rising seas and the impacts of climate change.

ROAD JURISDICTION AND AUTHORITY

In Florida, public roads are "roads which are open and available for use by the public and dedicated to the public use."[3] Counties are responsible for the largest percentage of road miles by ownership. Of the 122,659 total road miles in Florida, counties own 26,454 miles of rural roads and 43,981 miles of urban roads for a total of 70,436 miles – 57% of total roadways. Municipalities own 2,578 miles of rural roads and 35,251 miles of urban roads for a total of 37,829 road miles – 31% of total roadways. The state is responsible for 12,116 road miles, 10% of the total. As the table below indicates, Florida also has twice as many urban road miles as rural.[4]

FLORIDA ROAD MILES[5]

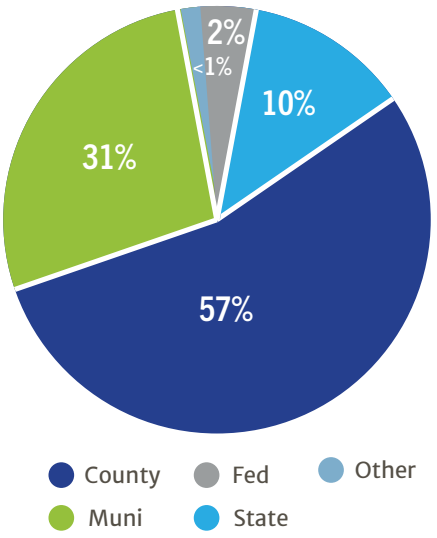
RURAL						URBAN					
State	County	Town/ Muni	Other	Fed	Rural Total	State	County	Town/ Muni	Other	Fed	Urban Total
5,643	26,454	2,578	81	1,733	36,489	6,473	43,981	35,251	5	459	89,170

TOTAL *122,659 miles*

Of course, while understanding road ownership will be essential to determining which jurisdiction has authority to act (or has a duty to act), road miles "owned" does not necessarily reflect the value of specific road systems. Large numbers of people often travel on a concentrated number of roads. Looking at vehicle miles traveled on these roads, the Infrastructure Report Card for Florida observes, "[a]lthough the highway system consists of only 10% of the road miles in Florida, it carries more than half of Florida's total traffic."[6] Identifying high traffic areas and essential transportation infrastructure will be critical for addressing climate impacts on road infrastructure.[7]

The University of Florida's GeoPlan Center has developed a Sea Level Scenario Sketch Planning (SLRSP) tool that uses the Road Characteristics Inventory (RCI) spatial database

FLORIDA: PERCENTAGE OF ROAD MILES BY OWNERSHIP*



**percentages equal more than 100% due to rounding*

3. Fla. Stat. § 335.01.

4. U.S. Dep't of Transp., Office of Highway Policy Information, "Highway Statistics Series 2012" (Oct. 2013).

5. Id.

6. Infrastructure Report Card, Florida, American Society of Civil Engineers (2017), https://www.infrastructurereportcard.org/wp-content/uploads/2017/01/2016_RC_Final_screen.pdf.

7. Potential Impacts of Climate Change on U.S. Transportation, Transportation Research Board Special Report 290, National Research Council of the National Academies (2008), available at http://onlinepubs.trb.org/onlinepubs/sr/sr290.pdf.

from the Florida Department of Transportation (FDOT) to calculate impacts to roadways under a range of potential sea-level rise projections.[8] The complete RCI dataset includes 7,415 road segments, representing 21,498 miles of roadways, representing approximately 17.5% of the overall roadway network in Florida. The RCI database is further divided into "on-system roads", which are part of the State Highway System (SHS) and under FDOT's jurisdiction and maintenance, and "off-system roads", which are maintained by counties and cities. The RCI contains 938 on-system road segments with 7,464 total road miles and 6,477 off-system road segments with 14,034 total miles. Although many city and residential streets are not included in the RCI, the database does include the roads that carry the most traffic and provide the most transport connectivity across the state.

The sea-level rise scenarios considered by the SLSRP analyses include U.S. Army Corps of Engineers (USACE) projections[9] and the 2012 National Oceanic and Atmospheric Administration (NOAA) projections.[10] Together, these two sets of projections represent five future sea level rise scenarios:

1. USACE & NOAA Low Projection (historic or linear rate of SLR): ~ 8 inches;
2. USACE Intermediate/ NOAA Intermediate Low Projection: ~1.6 feet;
3. NOAA Intermediate High Projection: ~3.9 feet;
4. USACE High Projection: ~5.0 feet;
5. NOAA High Projection: ~6.6 feet.

Each of these projection curves was also evaluated for impacts to road infrastructure at decadal increments that begin at 2040. Road areas that were located at elevations below a revised mean higher high water (MHHW) – as based upon a statewide digital elevation model (DEM) compiled by the GeoPlan Center with the best available elevation data (collection dates range from 2006-2015), regional tidal datum corrections, and incremental adjustments to the future sea-level rise projection – were defined as being potentially affected by sea-level rise. Results of this assessment are provided below in Tables X-Z.

8. Alexis Thomas, Russell Watkins, Crystal Goodison, and Reginald Pierre-Jean, Development of a Geographic Information System (GIS) Tool for the Preliminary Assessment of the Effects of Predicted Sea Level and Tidal Change on Transportation Infrastructure, FDOT Contract #BDK75977-63, University of Florida GeoPlan Center (2013), available at ftp://ftp.sls.geoplan.ufl.edu/pub/sls/docs/FDOT_BDK75_977-63_Final_Technical_Report.pdf

9. U.S. Army Corps of Engineers. Incorporating Sea Level Change in Civil Works Programs, ER 1100-2-8162. Washington, DC. (2013).

10. Parris, A., Bromirski, P., Burkett, V., Cayan, D., Culver, M., Hall, J.,...Weiss. J. (2012). Global Sea Level Rise Scenarios for the US National Climate Assessment. NOAA Tech Memo OAR CPO-1. 37 pp.

TABLE X: ROAD MILES POTENTIALLY IMPACTED BY SEA-LEVEL RISE (ALL RCI ROADS)

DECADE	USACE & NOAA LOW	NOAA INT-LOW/ USACE INT	NOAA INT-HIGH	USACE HIGH	NOAA HIGH
2040	3.2	4.0	16.5	19.5	34.2
2050	3.5	4.8	25.0	45.0	101.2
2060	3.7	15.6	60.3	108.1	274.1
2070	4.0	17.3	123.9	265.1	587.6
2080	4.4	24.8	274.1	521.0	1,102.3
2090	5.1	38.0	500.2	917.7	1,898.7
2100	5.3	62.6	843.5	1,487.9	2,860.2

TABLE Y: ROAD MILES POTENTIALLY IMPACTED BY SEA-LEVEL RISE (RCI OFF-SYSTEM ROADS)

DECADE	USACE & NOAA LOW	NOAA INT-LOW/ USACE INT	NOAA INT-HIGH	USACE HIGH	NOAA HIGH
2040	0.9	1.4	12.6	15.4	28.6
2050	1.1	1.9	20.2	38.3	85.3
2060	1.2	11.9	51.1	90.7	221.4
2070	1.4	13.3	103.3	214.8	457.8
2080	1.7	20.1	221.4	407.1	842.0
2090	1.9	32.3	392.9	708.5	1415.3
2100	2.0	53.1	650.3	1112.8	2108.8

TABLE Z: ROAD MILES POTENTIALLY IMPACTED BY SEA-LEVEL RISE (RCI OFF-SYSTEM ROADS)

Total Road Miles Potentially Affected: RCI Off System Roads					
DECADE	USACE & NOAA LOW	NOAA INT-LOW/ USACE INT	NOAA INT-HIGH	USACE HIGH	NOAA HIGH
2040	2.3	2.6	3.9	4.1	5.6
2050	2.4	2.9	4.7	6.7	15.9
2060	2.5	3.8	9.2	17.4	52.8
2070	2.6	4.0	20.5	50.3	129.7
2080	2.8	4.7	52.8	113.9	260.2
2090	3.2	5.7	107.4	209.2	483.5
2100	3.3	9.6	193.3	375.1	751.4

GOVERNMENT DUTIES WITH RESPECT TO ROADS

This section briefly discusses the duties of the state, counties, and municipalities for road maintenance and repair. Under projected coastal flooding and sea level rise, road maintenance and repair will become more difficult or more expensive to perform. When evaluating legal issues surrounding public roads, the first question therefore to consider is which governmental entity is responsible for the road: the state, a county, or a municipality? The responsible governmental entity has jurisdiction over the "planning, construction, operation, or maintenance or jurisdiction over transportation facilities" of public roads. [11]

Public roads are divided into four systems: the State Highway System, the State Park Road System, the county road system, and the city street system.

- The *State Highway System* consists of the interstate system and all other roads that were under the jurisdiction of the state on June 10, 1995; roads constructed by a state agency; and roads transferred to the jurisdiction of the state by mutual consent with other governmental entities.
- The *State Park Road System* consists of all roads within state park boundaries and leading to state parks, but not roads in the State Highway System, county road systems, or city street systems.
- The *county road system* consists of all collector roads[12] and all local roads in the unincorporated areas of a county and all minor arterial roads that are not in the State Highway System.

11. Fla. Stat. § 334.03(11) (2018).

12. A collector road is "a route providing service which is of relatively moderate average traffic volume, moderately average trip length, and moderately average operating speed. Fla. Stat. § 334.03 (2018).

- The *city street system* consists of all local roads within a municipality and all collector roads inside the municipality that are not in the county road system.[13]

One governmental entity may transfer public roads to another by an agreement.[14] Transfers must consider various criteria, including national defense interests, travel in urban areas, access to intermodal facilities and regional public facilities, and disaster preparedness.

Maintenance Duties

Florida courts have consistently found that a public entity that owns, operates, or controls a roadway owes a general duty to maintain that roadway and a corresponding duty to warn of and correct a dangerous road condition.[15] The basis for this general maintenance duty, and specific duties, if any, pertinent to state, county, and municipal governments for road maintenance are identified below. Furthermore, local governments should be aware that, in line with the saying that "no good deed goes unpunished," local governments may be held accountable for maintenance even for privately constructed roads on which local governments have consistently performed maintenance.[16]

The State has authority over transportation facilities in the State Highway System and the State Park Road System and has a duty to maintain those facilities.

FDOT has the authority to designate, construct, and maintain transportation facilities for the State Highway System. A transportation facility is any means to transport people or property that is constructed, operated, or maintained in whole or in part by public funds. FDOT is responsible for "coordinating the planning of a safe, viable, and balanced state transportation system serving all regions of the state."[17]

FDOT owes a duty to maintain the roads under its control, as well as a corresponding duty to warn of and correct dangerous conditions.[18] FDOT may contract with counties and municipalities to perform routine maintenance work on the State Highway System.[19] In addition, the agency is authorized to adopt uniform minimum standards and criteria for design, construction, and maintenance of all public roads.[20] Standards and criteria for all public roads not part of the state or national highway systems are found in FDOT's publication, commonly referred to as the *Florida Greenbook*.[21] According to the Florida Greenbook, it is essential to maintain all aspects of the road at the "highest reasonable level of safety" and to maintain roads in a quality condition. At the same

13. *Fla. Stat. § 334.03 (2018).*
14. *Fla. Stat. § 335.0415(3) (2018).*
15. *Pollock v. Fla. Dep't of Highway Patrol, 882 So. 2d 928, 933–34 (Fla. 2004).*
16. *Fla. Stat. § 95.361(2) (2018).*
17. *Fla. Stat. § 334.044 (2018).*
18. *Pollock, 882 So. 2d at 933–34 (Fla. 2004).*
19. *Fla. Stat. § 335.055(1) (2018).*
20. *Fla. Stat. §§ 336.045; 334.044(10)(a) (2018).*
21. *Florida Department of Transoportation, Manual of Uniform Minimum Standards for Design, Construction and Maintenance for Streets and Highways (Commonly known as the "Florida Greenbook")(2016), available at https://www.fdot.gov/roadway/floridagreenbook/fgb.shtm.*

time, the *Florida Greenbook* recognizes that "a comprehensive preservation program is expensive" and that "establishment of appropriate budget priorities and careful planning" are important.[22] Additionally, the *Florida Greenbook* notes the need to establish priorities in conducting maintenance and that "[e]very effort should be made to ensure the highest safety payoff from the maintenance dollar."[23]

The *Florida Greenbook* also provides for design exceptions.[24] If specified design criteria cannot be met or if "the county or municipality has adopted by ordinance design criteria for local subdivision roads and/or residential streets, compliance with those regulations is an approved design exception."[25] The *Florida Greenbook* details a process for proper approval of design exceptions to help ensure that "the impacts on the operation and safety of the facility are acceptable compared to the impacts and added benefits of meeting the criteria."[26] Relevant to the topic of this paper, the *Florida Greenbook* lists "benefit/cost analysis" as one of the criteria relevant for justifying design exceptions.[27] Thus, if a local government is confronted with a situation in which compliance with typical road design and/or maintenance standards are not physically or financially feasible,[28] a design exception may be the appropriate response.[29]

For counties, the board of county commissioners is authorized to build, repair, and keep public roads in good order in their respective counties.[30] Once a county builds and opens a road for public use within its jurisdiction, the county has a duty to keep the road in good order and provide a reasonable level of maintenance that affords meaningful access.[31]

A municipality has jurisdiction over roads in the city street system and has a duty to maintain them in a reasonably safe condition.

22. *Id. at 10-6.*
23. *Id. at 10-3.*
24. *Id. at Chapter 14.*
25. *Id. at 14-1.*
26. *Id. at 14-3*
27. *Id at 14-3 to 14-4.*
28. *Cf, e.g. the physical situation outlined in Jordan v. St. Johns Cty., No. 05-694, (Fla. Cir. Ct. May 21, 2009), aff'd in part, rev'd in part by Jordan v. St. Johns County, 63 So. 3d 835, 837 (Fla. 2011).*
29. *Local governments in Florida may also consider adopting ordinances and/or criteria for road design and maintenance. See, e.g. Erin L. Deady, Update on the Legal and Planning Issues of Climate Change Facing Florida, The Reporter of the Envt'l and Land Use Law Section of the Florida Bar, Vol XXXVIII, No. 4, pp. 1, 12-18 (July 2018), available at http://eluls.org/wp-content/uploads/2018/07/The-Environmental-and-Land-Use-Law-Section-Reporter-July-2018.pdf (noting that St. Johns County passed ordinance No. 2012-35 in response to the Jordan case, discussed infrastructure, about an eroding road and noting Monroe County, Florida [a.k.a. the Florida Keys] passed Resolution No. 028-2017, which set specific sea-level rise criteria for road design). See also, Thomas Ruppert, Alexander Stewart & John Fergus, Environmentally Compromised Road Segments—A Model Ordinance (2015), available at https://www.flseagrant.org/wp-content/uploads/Envirntly-Comp-Rds-FINAL_10.20.15.pdf (analyzing the potential for a local ordinance based on financial considerations as a mechanism to create a design exception in line with Florida's Greenbook).*
30. *Hillsborough County v. Highway Engineering & Construction Co., 145 Fla. 83, 199 So. 499, 503 (1941)*
31. *In Jordan v. St. Johns County, the court held that a county has a duty to reasonably maintain a road as long as the road remains*

Florida municipalities have a non-delegable duty to maintain roads, sidewalks, and right-of-ways in a reasonably safe condition. In addition, a municipality must maintain the access roads to the state park system in the absence of FDOT's maintenance efforts.[32] The Florida Supreme Court has held that local governments have a duty to reasonably maintain existing roads and traffic controls. The court clarified, however, that this duty applies only to a road "as it exists" and consistent with the original design of the road. Thus, a governmental entity is not required to update a road according to new design standards, even if newer designs or features would make the road safer.[33]

Duty to Maintain the Status Quo: Implications

As roadways are damaged by environmental conditions such as sea-level rise and recurrent coastal flooding, what "failing to maintain" means is likely to become increasingly contested. This duty to maintain only the status quo has several implications that have both potentially positive and negative outcomes for government entities facing increased erosion, sea-level rise, or recurrent tidal flooding. First, and most obviously, if a local government declines to undertake "upgrades" that would make a road better able to withstand sea-level rise, it has not breached its duty to repair under Florida law. Given that such upgrades are likely to be expensive and recurring with increasing frequency, governmental entities are thus protected from possible tort liability if they determine they cannot afford "upgrades" that would increase a road's resilience to sea-level rise. Arguably, limiting a government's duty in this way could allow for more prudent infrastructure investments – abandoning roads, instead of upgrading them, may be the most appropriate adaptation response in some areas. On the other hand, without a duty to repair that includes upgrades, government entities may not be inclined to attempt innovative strategies to adapt to flooding caused by sea-level rise. While legal duties may or may not influence adaptation strategies, the political realities of these decisions are also a factor.

In *Jauma v. City of Hialeah*, the court found the city failed to maintain streets and sidewalks in a reasonably safe condition when the city failed to act after being notified of flooding and after city employees observed flooding on multiple occasions. The city did not take appropriate measures to mitigate the flooding or ensure that a contractor did so. The open and obvious nature of the hazard did not provide a defense for the city because the residents of that street had no other means of entry and egress.[34]

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public and has not been officially abandoned. Here, the Florida Department of Transportation rerouted a coastal road that was subject to repeated damage from erosion and coastal flooding and thus difficult to maintain; the State then transferred the old right of way to St. Johns County. When ongoing erosion made maintaining the section of the road to the same standards as most county roads too costly for the County, homeowners on the coastal road then sued the county for intentionally failing to maintain the road. The court found that the County did not have unlimited and sole discretion to determine the level of maintenance and was required to provide a reasonable level of maintenance that affords meaningful access. 63 So. 3d 835 (Fla. Dist. Ct. App. 2011).

32. Fla. Stat. § 335.06 (2018).

33. Fla. Dep't of Transp. v. Neilson, 419 So.2d 1071, 1078 (1982).

34. Jauma v. City of Hialeah, 758 So. 2d 696 (Fla. 3d DCA 2000); Dep't of Transp. v. Stevens, 630 So. 2d 1160 (Fla. 2d DCA 1993).

As coastal flooding increases from sea-level rise, governmental entities in Florida may find their liability risk increasing in situations where they have received multiple complaints about flooding and have observed flooding issues on more than one occasion.[35]

LEGAL ACTION: WHAT HAPPENS WHEN GOVERNMENTS BREACH THEIR DUTIES?

A governmental entity has a duty to keep public roads in a reasonably safe condition and to warn persons using the roads of known dangerous conditions.[36] Failure to do so may result in a negligence suit against the entity. In addition, the governmental entity may be liable for an injury caused by its negligent failure to warn others of a known danger.[37] A negligence claim has four elements:

(1) A duty by defendant to conform to a certain standard of conduct;

(2) A breach by defendant of that duty;

(3) A causal connection between the breach and injury to plaintiff; and

(4) Loss or damages suffered by plaintiff.[38]

A governmental entity can be liable for injuries and damages resulting from conditions created by sea-level rise and coastal flooding if that hazard can at least partially be traced to a failure to maintain the existing infrastructure.[39] For instance, the Florida District Court of Appeals found that there was no requirement that the government have created the hazard that caused the injury, so long as "the hazard could be attributed in part to the government's failure to maintain an existing improvement."[40] However, a government entity may not be liable if it does whatever maintenance is reasonably possible or if it took steps to warn of the road hazard. A court could find that the government "act[ed] responsibly and reasonably under the existing circumstances, and in accordance with acceptable standards of care and common sense... [took] steps either to avert the danger or to warn those at risk that the danger exists."[41]

A second potential legal action is a nuisance lawsuit: If a governmental entity fails to maintain or repair a road damaged by sea-level rise, storms, flooding, or erosion, a plaintiff could allege that the entity is maintaining a nuisance and seek an injunction. Florida courts define a nuisance as, in part, omitting to perform a duty that injures or endangers the safety

35. See Pollock v. Fla. Dep't of Highway Patrol, 882 So. 2d 928 (Fla. 2004).

36. Id.

37. Neilson, 419 So.2d at 1078 (Fla. 1982).

38. Bartsch v. Costello, 170 So.3d 83, 86 (Fla. 4th DCA 2015).

39. Parts of this discussion were taken an unpublished manuscript by Thomas Ruppert (on file with author).

40. Robinson v. Fla. Dep't of Transp., 465 So.2d 1301, 1305 (Fla. 1st DCA 1985).

41. Cf. Savignac v. Fla. Dep't of Transp., 406 So.2d 1143, 1147 (Fla. 2nd DCA 1981).

of a person or that interferes with or otherwise renders unsafe another's use of his property.[42] Nuisance claims are commonly brought to remedy environmental harms and damage.[43] However, to our knowledge, this approach has not been used in Florida in the context of failure to maintain a road or governmental responsibility for repairing damage caused by flooding or other natural causes.

SOVEREIGN IMMUNITY AS A LEGAL SHIELD

The doctrine of sovereign immunity protects the state, county and municipal governments from tort liability, including negligence and nuisance, for *discretionary, planning- or policy-level* decisions or functions. A governmental entity is not liable for injuries stemming from these decisions. However, the doctrine does not apply to *operational* decisions or functions, and a governmental entity is liable for injuries stemming from these decisions.[44] The Florida Supreme Court has defined discretionary functions to mean those involving "fundamental questions of policy and planning" whereas operational functions reflect "a secondary decision as to how those policies or plans will be implemented."[45]

The duty to properly maintain roadways is an operational level decision.[46] Failing to warn of a known danger also falls under the operational function of government, to which sovereign immunity does not apply.

For roads and road improvements, Florida courts have held that upgrades and improvements to an existing roadway, decisions to build a road in a particular way and the failure to upgrade an existing road are all discretionary, planning-level decisions.[47] A government entity therefore is not liable for injuries stemming from these decisions. At some point, however, because sea-level rise and increased flooding cause greater damage to roads, the distinction between what is a "repair" to maintain the functionality of a road and what is an "upgrade" to make it functional in response to its changed environmental condition may become increasingly blurred. Flooding will require government entities to make what are arguably "upgrades" simply to keep a road continually open, activities that typically allowed for suit, could in the future become barred

42. Prior v. White, 180 So. 347, 355 (Fla. 1938).

43. See Flo-Sun, Inc. v. Kirk, 783 So. 2d 1029 (Fla. 2001) (alleging a public nuisance from sugar processing operation); Town of Surfside v. Cty. Line Land Co., 340 So. 2d 1287 (Fla. Dist. Ct. App. 1977) (alleging nuisance from town's operation of a dump that affected health, safety, and welfare of surrounding residential neighborhood);
Fla. Wildlife Fed'n v. State Dep't of Envtl. Regulation, 390 So. 2d 64, 65 (Fla. 1980) (alleging nuisance to enjoin water pollution). See also Ronald G. Aronovsky, Back from the Margins: An Environmental Nuisance Paradigm for Private Cleanup Cost Disputes, 84 Denv. U. L. Rev. 395 (2006).

44. Commercial Carrier Copr. v. Indian River County, 371 So. 2d 1010 (Fla. 1979); Trianon Park Condominium Assoc. v. City of Hialeah, 468 So. 2d 912 (Fla. 1985).

45. Kaisner v. Kolb, 543 So.2d 732, 737 (Fla. 1989).

46. Neilson, 419 So.2d at 1078 (Fla. 1982).

47. Neilson, 419 So.2d at 1077 (Fla. 1982). See also Tucker v. Gadsen County, 670 So.2d 1053, 1054 (Fla. 1st DCA 1996); Perez v. Dep't of Transp., 435 So.2d 830, 831 (Fla. 1983).

by sovereign immunity, depending on how the "repairs" are implemented.[48] Certainly, major capital expenditures for road maintenance will likely rise to a planning-level, rather than operational decision, as they typically involve the policymaking and planning stages.[49] The economics, scale and multitude of road expenditures could all be factors for consideration in these distinctions.

Sovereign immunity is a legal shield for discretionary, planning level decisions, thus a governmental entity is not liable for injuries stemming from these decisions.

In contrast, sovereign immunity does not apply to operational functions, and a governmental entity is liable for injuries stemming from these decisions. The distinction between discretionary and operational decisions is often unclear.

Eventually, the unique nature and the potentially extreme cost of keeping open a coastal or low-lying road indicates a policy decision on the part of the local government, rather than a simple operational function. Decisions about repetitively damaged roads are arguably discretionary acts protected by sovereign immunity. Although the government still has a duty to warn of the known road hazards, the decision to not upgrade roads would probably not be an operational decision for which a governmental entity is liable.

New Infrastructure Construction, Improvements or Maintenance: Local Government Realities

Maintaining roads in Florida is already a challenge due to Florida's flat and low topography. Increased tidal flooding and high-volume rainfall will exacerbate these challenges. Recent case law and studies, such as a pilot study in Monroe County on tidal flooding impacts in two neighborhoods, highlight the following realities that local governments must consider for new infrastructure construction, improvements, or maintenance:

1. The obligation to provide (or not) infrastructure service;
2. The duty to maintain roads;
3. The need to manage expectations by establishing levels of service for infrastructure accounting for future conditions, and
4. The value of transparency and notice (for the public) of what will be possible in the face of changing environmental conditions.

Source: Erin Deady, Why the Law of Climate Change Matters: From Paris to a Local Government Near You, The Florida Bar Journal *(Nov. 2017).*

48. See Thomas Ruppert and Carly Grimm, Drowning in Place: Local Government Costs and Liabilities for Flooding Due to Sea-Level Rise, 87 Fla. Bar J. 29 (2013) (arguing that modifications to stormwater systems to provide the same level of drainage despite higher sea levels causing the system to drain less efficiently constitutes a discretionary decision to upgrade rather than a mere "operational" maintenance decision).

49. See Neilson, 419 So.2d at 1077 (Fla. 1982) (holding that decisions such as installation of traffic control devices, alignment of roads, and improvement or upgrading of roads are "basic capital improvements" and are judgmental, planning level decisions). See also, Thomas Ruppert, Castles—and Roads—in the Sand: Do All Roads Lead to a "Taking"?, 48 ELR 10914, 10918-20 (2018) (arguing that abnormally high cost or difficulty in preserving a road or other infrastructure automatically elevates such work beyond mere "maintenance" as an operational duty to policy level, discretionary decision-making).

ADAPTATION PLANNING

When it comes to adaptation planning, governmental entities must balance their duty to maintain reasonable access to a road and the real possibility of overbuilding such infrastructure for conditions that are projected to occur. Many governmental entities are beginning to proactively alter their capital improvement planning horizon to account for expected future ecological conditions such as sea-level rise and increased volumes of rainfall. In Florida, adaptation planning has been shaped by "vulnerability assessments," road study projects, and updates to local comprehensive plans.

Vulnerability Assessments

A vulnerability assessment characterizes the potential impacts to a government entity from conditions stemming from climate change like nuisance flooding or extreme weather patterns. Many coastal communities and state agencies are utilizing vulnerability assessments to guide future decision making based on the overview of anticipated impacts.

In the context of roads, a vulnerability assessment can be used to characterize a local government's projected impacts from climate change or sea-level rise related to the vulnerability of infrastructure or capital assets such as roads.[50] The result may show where roads and stormwater features serving roads may need retrofits informed by identification of road segments expected to have future flood risks due to elevation or geographic location. A vulnerability assessment is a data-driven process that compares existing elevation data, flood plain maps, and stormwater plans to sea-level rise projections, anticipated groundwater table levels (if appropriate), and storm surge models to create a detailed understanding of a government entity's current and future vulnerability. More and more local governments in Florida are approaching capital planning based on this kind of assessment.

Case Study in Monroe County, Florida: Pilot Road Project

Some coastal communities are already suffering from sea-level rise impacts and have decided to take a proactive approach for future planning. Monroe County, Florida recently undertook a Pilot Road Project to identify and characterize tidal and storm impacts on county-owned roadways in two neighborhoods: in Big Pine Key and Key Largo.[51] The neighborhoods were repeatedly flooded in the King Tides of 2015 and 2016 exacerbated by seasonal winds. In an island community more than 100 miles long, these conditions are expected to increase in the future from sea-level rise. The project provided a technical basis for harmonizing future sea-level rise impacts with necessary current and future county capital expenditures. The neighborhood pilot project has tremendous value, the outcomes and criteria used in the selected neighborhoods will ultimately be used in the future on a county-wide scale.

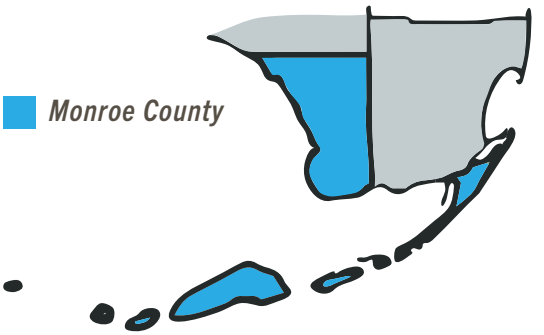
50. For a state-wide Florida tool to help assess the vulnerability of roads to sea-level rise, see the Sea Level Scenario Sketch Planning Tool at https://sls.geoplan.ufl.edu/. This tool was developed by the University of Florida's GeoPlan Center with funding from the Florida Department of Transportation.

51. Monroe County, Florida, Monroe County Pilot Roads Project: The Sands and Twin Lakes Communities (Jan. 2017).

The pilot roads project used a three-pronged approach for potential road improvement projects in the two selected neighborhoods: (1) define a target "Design Criteria" for future road updates, (2) Evaluate alternatives of various road elevations to determine cost, pros and cons of each alternative, and (3) explore a policy approach for developing flood-risk based level of service determinations for roads in the County. This initiative will be instructive as Monroe County prepares for future climate change impacts.

The pilot roads project also includes a draft ordinance which could be used to establish a design criteria and standards for existing county roads, provide for the designation of "environmentally challenging locations" for repeatedly damaged roads, and what should be considered "meaningful access" in the environmentally challenged locations.

Monroe County Pilot Roads Project: Identifying New Design Standards and Levels of Service



The Monroe County Pilot Roads Project involved studying past events and flood recurrence; characterization of sea-level rise impacts on the selected neighborhoods; development of engineered response strategies for high-risk road segments; and identification of desirable design alternatives for each community.

The tidal baseline outlines the average number of hours of flooding at various elevations to identify flood probabilities. Then the baseline was modeled against three scenarios of sea-level rise over time to 2040. The tidal baseline and sea-level rise models were used to determine part of the design criteria for the project, a 25-year design life expectancy. Next, the Team identified ranges of annual flooding days or "days of impact" for road segments in the project areas based on four proposed road elevations and the costs associated with a selected design. Average days of impact reflects the length of time roads could be inundated; this analysis created the design standard of 7-days of flooding per year of the project.

Additionally, the Pilot Roads Project Final Report included a Draft Ordinance identifying "local conditions" that are factors to consider in case the design standard of not exceeding 7 days of flooding cannot be achieved. It also included criteria on providing meaningful access.

In 2018, the County let a contract to expand its roads analysis countywide to include a vulnerability analysis of all County roads as well as development of a long-term capital plan with alternatives and cost analysis to evaluate future options. Future road improvements will currently consider the design standard on an interim basis until the County completes its work to review the issue countywide.

Monroe County, Florida, Monroe County Pilot Roads Project: The Sands and Twin Lakes Communities (Jan. 2017).

ABANDONING A ROAD

Sea-level rise and coastal flooding will cause repetitive damages to roadways and other coastal infrastructure. These damages are often costly to repair and are likely to occur frequently, resulting in expenses that could become unaffordable under certain circumstances for governmental entities. For instance, in communities facing a significant amount of road elevation projects over time. This section discusses how these entities might abandon public roads by following statutory procedure and thus terminate the duty to repair and maintain them and avoid future liability.

The state has the ability to abandon a public road or highway by following statutory procedure.

FDOT has the ability to abandon a road or highway under one of two provisions in state law: FDOT may re-designate or relocate any highway or public road under its jurisdiction, and it may undertake a project that closes or modifies existing access to a state highway.[52] The agency must provide public notice and a public hearing prior to acting: For re-designation and relocation, the agency must provide at least 14 days' notice for a public hearing; for closure or modified access, the agency must notify all property owners, municipalities, and counties at least 180 days before the project design is finalized. The requirements for closure or modified access are more stringent. The notice must explain why the project is needed, and the final project design must consider comments from the public hearing and alternatives.[53]

A county must provide a reasonable level of maintenance that affords meaningful access, unless or until the county formally abandons a road. County commissioners maintain the discretion to "vacate, abandon, discontinue, and close" any existing roads used for travel other than a state or federal highway. Florida courts have indicated that a county should consider the public benefit, if the general public is using the road, then the county should not harm the public welfare by abandoning the road.[54] Whether the level of maintenance provided has been reasonable or whether it has been so deficient as to constitute a de facto abandonment of the road remain hotly contested issues. Disputed factual issues such as these may be left to the trier of fact.

Before a road may be abandoned, the county commissioners are required to give notice at least two weeks prior to the date of a public hearing.[55] After the hearing, the commissioners' decisions must be adopted by a resolution and entered into the commissioners' minutes. Notice of the resolution must be published in the county newspaper within 30 days of its adoption. Proof of the notice of the public hearing, the resolution, and proof of the notice of the adoption must be recorded in the deed records of the county.

After abandoning a road, the county renounces claims and easements to land in connection with the road. Thus, the fee owner is released from his or her obligations under the easement.[56]

52. *Fla. Stat. §§ 335.02 & 335.199 (2018).*
53. *Fla. Stat. § 335.199 (2018).*
54. *Bouldin v. Okaloosa Cty., 580 So. 2d 205, 210 (Fla. Dist. Ct. App. 1991).*
55. *Fla. Stat. § 336.10 (2018).*
56. *Fla. Stat. § 336.12 (2018).*

If the county owns fee title in a road that is abandoned, an abutting fee owner obtains title to the same proportion that they or their predecessor in title owned the land when the county obtained it for road purposes.[57] Put another way, a previous property owner may have conveyed a portion of his property to the county in order for a road to be built, becoming an abutting property owner to the new county road. When the county later abandons that road, the abutting property owner obtains title to the same portion of property that was conveyed to create the road in the first place as long as he or his previous title owner had a property interest in the road before the county acquired it.

A municipality has the ability to abandon a public road in its jurisdiction by passing an ordinance.

In Florida, a municipality has the ability to abandon or vacate a public road by passing an ordinance. Both the state constitution and the 1973 Municipal Home Rule Powers Act grants a municipality governmental, corporate, and propriety powers to conduct municipal government, to perform municipal functions, and to render municipal services.[58]

To abandon a road by ordinance, a municipal government must provide advanced notice of the meeting to adopt the ordinance, including publication in a newspaper of the date, time, and place of the meeting. At the meeting, the municipal government must allow for public comment. A majority of the members of the governing body must approve of the ordinance, which then becomes effective ten days after passage or as otherwise provided.[59] Florida courts have held that an ordinance to abandon or vacate a public road must be "clear, definite, and certain in its terms" and is invalid if the precise meaning cannot be determined.[60] After a city street is vacated, title to the area vests in abutting property owners.[61]

A local government must consider the public interest in abandoning a road. Public places and rights-of-way are held in trust for the benefit of the public, but this trust concept does not preclude abandoning or otherwise discontinuing those streets "when done in the interest of the general welfare."[62] In *City of Naples v. Miller*, the court upheld a municipal ordinance to vacate and abandon a street after consulting with public officers, considering the general welfare of the citizens, and determining that abandoning the street was in the best interest of the city.[63]

57. Emerald Equities, Inc. v. Hutton, 357 So.2d 1071 (Fla. 2nd DCA 1978).

58. Fla. Const. Art. VIII, § 2.; Fla. Stat. § 166.021.

59. Fla. Stat. § 166.041 (2018).

60. City of Naples v. Miller, 243 So. 2d 608, 610 (Fla. Dist. Ct. App. 1971).

61. Hurt v. Lenchuk, 223 So. 2d 350, 352 (Fla. Dist. Ct. App. 1969).

62. Sun Oil Co. v. Gerstein, 206 So. 2d 439, 441 (Fla. Dist. Ct. App. 1968).

63. Miller, 243 So. 2d at 611 (Fla. Dist. Ct. App. 1971).

ABANDONMENT AND TAKINGS CHALLENGES

A legal claim for a taking could arise when a local government closes or abandons a public road, as well as when it undertakes a temporary construction project that temporarily blocks access to a public road from a private property. Under the state constitution, the government may not eliminate or interfere with a landowner's property rights without first paying the owner just and adequate compensation, even if the government has followed statutory guidelines for abandoning a public road.[64]

A complete loss of access to the property is not necessary for property owners to recover. Eliminating or interfering with the right to access only constitutes a taking if the property owner's right of access was *substantially diminished*.[65] To establish a successful takings claim, property owners must prove that their damages are special.[66] If the damages are the same as those suffered by owners of land similarly situated, the damages are not compensable even if they are more severe in degree. If damages are special and therefore compensable, courts must determine whether the owner's access was substantially diminished by considering whether alternative means of access remains.

In Florida, a judge determines as a matter of law whether access has been substantially diminished.[67] If the government cuts off access completely with no alternative means of access, the court will likely hold that access was substantially diminished.[68] However, less severe impacts may also amount to a taking. Importantly, the *quality* of access matters: In one case, the county vacated a road that the property owners used to access their property. The only remaining access points were an old wooden bridge that could not support heavy vehicular traffic and a platted street that did not connect to a usable road. The court found the loss of access to be compensable, even though the property owners technically had remaining ways to access their land.[69] In another case, the court held that a winding road through a neighborhood was an unsuitable alternative to direct access. Service roads that are overly long may not be a suitable substitute for the previously abutting road.[70]

The loss of the most convenient access is not necessarily compensable, but the remaining access routes should be usable. For example, a frontage road could provide suitable alternative access to property that abuts a vacated road.[71] Florida courts have also held that the construction of a curb does not necessarily substantially diminish access as long as another entrance exists.[72]

64. Fl. Const., Art 10, § 6.

65. Palm Beach County. v. Tessler, 538 So.2d 846, 849 (Fla. 1989).

66. Pinellas County. v. Austin, 323 So.2d 6, 7 (Fla. 2nd DCA 1975).

67. Fla. Dep't of Transp. v. Fisher, 958 So.2d 586, 590 (Fla. 2nd DCA 2007).

68. Anhoco Corp. v. Dade County, 144 So.2d 793, 794 (Fla. 1962).

69. Pinellas County v. Austin, 323 So. 2d at 8 (Fla. Dist. Ct. App. 1975).

70. Fla. Dep't of Transp. v. Kreider, 658 So.2d 548.

71. Fisher, 958 So.2d 586 (Fla. 2d. DCA); Rubabo, 656 So.2d 1264 (Fla. 1995).

72. Compare Fla. Dep't of Transp. v. Landman, 664 So.2d 1141 (Fla. 5th DCA 1995) (holding that construction of a curb did not constitute a takings when a driveway entrance remained) and N. Miami Beach v. Reed, 749 So.2d 1275 (Fla. 3rd DCA 2000) (holding that construction of a curb in front of landowner's property did amount to a takings).

Certain types of damages are not compensable, such as damages resulting from the regulation of traffic and safety control.[73] Damages resulting from limiting access to one side of the road or eliminating the connection of the abutting road with a major highway are also not compensable.[74] If other owners were located on the previously abutting road, the court may hold that the plaintiff's damages are general if other means of access are available, even if the government eliminated or interfered with access to the property from one particular road.

One Florida case indicated that insufficient maintenance might be construed as governmental inaction sufficient to support a takings claim. In *Jordan v. St. Johns County*, property owners alleged that the county failed to reasonably maintain the road they used to access their property, and the failure to maintain the road deprived the owners of access. The coastal road was subject to repeated damage from storms and erosion, which made maintenance difficult and costly. However, the county had not officially abandoned the road. The court found that this failure could support a claim for compensation and remanded the case for further proceedings.[75] While that case ultimately settled, the holding that government inaction, rather than just action, newly entered Florida law as a result of the District Court of Appeals' holding. However, subsequent federal case law directly contradicts *Jordan v. St. Johns County. St. Bernard Parish Gov't v. United States* made very clear that an identified, authorized government action represents a prerequisite to stating a valid claim for a taking and that complaints about insufficient maintenance sound in tort law, not takings law.[76]

One final potential defense for local governments to a takings claim due to road vacation presents itself based on whether a map or plat reference appears in the grant of title by which the property was purchased. If the conveyance of a property included a mapped dedication or plat, the owner of the property may retain rights to use of "such streets and alleys are reasonably and materially beneficial to the (property owner) and of which the deprivation would reduce the value of his lot" regardless of whether any such streets or alleys are public.[77] Thus, an argument exists that if, for example, a local government abandons a road serving ten lots in a small subdivision whose lots were sold based on a plat delineating the road being vacated, all ten lot owners retain an easement in the road even though the road may no longer be public. This could possibly obviate the "substantially diminish" and "special injury" analyses to the point that a court might not find a taking.

73. Fla. Dep't of Transp. v. Suit City of Aventura, 774 So.2d 9, 12 (Fla. 3rd DCA 2000).

74. Rubabo v. Fla. Dep't of Transp., 656 So.2d 1264, 1286 (Fla. 1995).

75. Jordan, 63 So.3d at 839 (Fla. 5th DCA 2011).

76. 887 F.3d 1354, 1360 (Fed. Cir. 2018)(noting that, "On a takings theory, the government cannot be liable for failure to act, but only for affirmative acts by the government." Also observing that "takings liability arises from an 'authorized activity.'").

77. Cf. Powers v. Scobie, 60 So. 2d 738 (Fla. 1952).

Environmentally Compromised Roads: A Model Ordinance

The St. Johns case arguably puts Florida local governments in a "no win" situation, as local governments appear to be potentially liable for takings claims if they abandon a road that has become too expensive to maintain or if they take no action at all. Passing an ordinance that puts owners on notice that they live in "environmentally challenged" areas may be one way that local governments can balance protecting property rights and acknowledging fiscal realities and limited resources. After the St. Johns decision, for example, St. Johns County adopted an ordinance to address "natural forces degradation" and resulting damage to public roads and streets. The ordinance created a "design exception" to allow the county to deviate from minimum standards in FDOT's Greenbook. Beginning with the St. Johns County ordinance, Florida Sea Grant provides a model ordinance that also provides a framework for local governments considering ways to put property owners on notice that they live in areas with environmentally challenging conditions and to establish a policy for decision-making with respect to costs, design, and maintenance. Key elements for local governments to consider include:

- Developing a process that provides maximum feasible protection to affected properties;
- Providing a fiscal backstop for local government road expenditures;
- Minimizing the risk of successful legal claims by designing an ordinance that provides notice, local government obligations, possible assistance, possible options for additional funding (i.e., special tax districts), and clear abandonment procedures.

Sources: Erin Deady, Why the Law of Climate Change Matters: From Paris to a Local Government Near You, THE FLORIDA BAR JOURNAL (Nov. 2017); Monroe County, Florida, Monroe County Pilot Roads Project: The Sands and Twin Lakes Communities (Jan. 2017); Thomas Ruppert et al., Environmentally Compromised Roads: A Model Ordinance, available at https://www.flseagrant.org/wp-content/uploads/Envirntly_Comp_Rds-FINAL_10.20.15_1.pdf.

CONCLUSION

In the next century, coastal communities in Florida will experience sea-level rise and flooding that will damage roads and other infrastructure. Adapting to this new reality will require state and local lawmakers to make tough decisions, including whether or not to abandon some coastal roads that are repeatedly flooded or damaged. The state and county and municipal governments have a duty to maintain and repair roads in their jurisdictions. When the cost of maintaining and repairing roads becomes prohibitive, these governmental entities may decide to vacate or abandon those roads. While Florida law provides specific procedures to abandon a road, governmental entities may nevertheless face legal challenges by abutting private property owners whose property rights are affected. Interestingly, a Florida court has also found that the failure of a government to act to maintain and repair a road may amount to a taking, potentially setting a landmark precedent for future actions.

Sea-level rise will change the coastal landscape of Florida, and this white paper provides examples of starting points for adapting public roads and their maintenance to this new landscape.