THE REPORTER

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ELULS

THE ENVIRONMENTAL AND LAND USE LAW SECTION

Vivien J. Monaco, Chair • Jacob T. Cremer, Editor • Nikki T. Williams, Co-Editor www.eluls.org

Sea level rise adaptation: Funding sources

By: Abby Corbett and Jason Koslowe (Stearns Weaver Miller, P.A.), and Isabelle Lopez (City Attorney, City of St. Augustine Florida)[1]

A future of adapting to sea level rise (SLR) is the reality for local governments in Florida. Indeed, as of the 2015 revision of Florida Statutes 163.3178, local governments in certain affected communities are now required to consider SLR adaptation measures in their comprehensive plans. Because the implementation of those adaptive efforts in the decades ahead will be extremely costly, it is time to begin asking: How can the public finance projects meant to adapt to SLR while encouraging robust development, and how can private developers plan for a future clouded by the threat of SLR-related risks and regulations? Rather than taking adversarial positions, local government and private developers can explore together the various different financing options available under Florida law to fund SLR adaptation efforts that also promote healthy development. Fortunately, there is a smorgasbord of possibilities – some more mainstream, some less conventional, some not yet tried – that can be considered to mutually aid both development and adaptation. These funding sources are available whether a coastal community chooses to address these challenges directly through SLR adaptation efforts, or indirectly as a component of a typical storm surge resiliency and nuisance flooding program.

1. ***Ad Valorem Taxation***. While an imprecise tool, local governments can use ad valorem property taxes to fund SLR adaptation. Ad valorem property taxes empower cities and counties to fund a broad variety of projects for the general benefit of residents and property, and they are imposed under the theory that contributions must be made by the community at large to support the various functions of the government. Accordingly, ad valorem taxes may generally be imposed to fund any projects that support a legitimate government function regardless of whether particular taxpayers receive a special or direct benefit from the project funded. That said, local governments and developers can expect to receive political pushback from citizens if general property taxes are used to shoulder the burden of development-related adaptation.

2. ***Special Assessments***. The Florida Statutes provide broad authority to local governments to levy special assessments to fund, among other

See "Sea Level" page 11

From the Chair

As I write my last Chair's Message as Chair of the Environmental and Land Use Law Section, I feel privileged to have served the Section as Chair this past year, and as a member of the Executive Council since 2004. I have worked with some of the finest lawyers and best people, many whom have become dear friends. Section members, I urge you to become involved in the ELULS. You can "dip your toe in the water" by becoming a member of a committee that interests you. The Section always needs more member involvement, and I can tell you from my experience that what you give in time and talent will be far outnumbered by what you gain in professional and personal growth, satisfaction, and friendship.

The Section is very fortunate to have Janet Bowman as its incoming Chair. Chair-Elect (maybe Chair at the time of publication) Janet is the Director of Legislative Policy and Strategies at The Nature Conser-

See "Chair's Message" page 3

INSIDE:

ON APPEAL

by Larry Sellers, Holland & Knight

Note: Status of cases is as of June 2, 2017. Readers are encour-aged to advise the author of pend-ing appeals that should be included.

FLORIDA SUPREME COURT

Florida Power & Light Co. v. Miami-Dade County, et al., Case No.: SC16-2277. Petition for review of Third DCA's decision in *Miami-Dade County, et al. v. Florida Power & Light Co., et al.,* reversing and remanding a final order of the Siting Board certifying two nuclear units at Turkey Point as well as proposed corridors for transmission lines. The court held that the Siting Board had the authority to require that a utility's transmission lines be installed underground. Status: Notice of intent to seek discretionary review filed December 22, 2016; petition for review denied February 24, 2017.

Beach Group Investment, LLC v. DEP, Case No. SC16-2084. Petition for review of the Fourth DCA's decision in *DEP v. Beach Group Investment, LLC*, reversing an order determining that plaintiff Beach Group Investments, LLC, prevailed in its claim for inverse condemnation based on DEP's refusal to issue the requested Coastal Construction Control Line permit. Status: Notice of intent to seek review by Florida Supreme Court filed November 16, 2016.

Charles N. Ganson Jr., as Personal Representative, et al. v. City of Marathon, Florida, Case No. SC16-1888. Petition for review of the Third DCA decision affirming in part and reversing in part an order granting summary judgment in favor of the City and State on Beyers' taking claim. 38 Fla. D. 2286 (Fla. 3rd DCA, November 6, 2013), rehearing en banc denied on September 14, 2016. Status: Notice of intent to seek review by Florida Supreme Court filed October 13, 2016.

Hardee County v FINR II, Inc., Case No. SC 15-1260. Petition for review of the Second DCA's decision in *FINR v. Hardee County*, 40 FLW D1355 (Fla. 2d DCA June 10, 2015), in which the court held that "the Bert Harris Act provides a cause of action to owners of real property that has been inordinately burdened and diminished in value due to governmental action directly taken against an adjacent property," and certified conflict with the First DCA's decision in *City of Jacksonville v. Smith*, 159 So. 3d 888 (Fla. 1st DCA 2015) (question certified). Status: Jurisdiction accepted on August 18, 2015; oral argument held on February 9, 2017. Note: the Florida Supreme Court also has accepted jurisdiction to review the question certified in *City of Jacksonville* (*see* below).

R. Lee Smith, et al. v. City of Jacksonville, Case No. SC 15-534. Petition for review of the First DCA's decision in *City of Jacksonville v. R. Lee Smith, et al.,* in which the majority of an *en banc* court determined that a property owner may not maintain an action pursuant to the Bert Harris Act if that owner has not had a law, regulation, or ordinance applied which restricts or limits the use of the owner's property. 159 So. 3d 888 (Fla. 1st DCA 2015). Status: Jurisdiction accepted on May 22, 2015; suggestion of mootness denied on March 18, 2016; Oral argument held on February 9, 2017. Note: Legislation enacted during the 2015 regular session clarifies that the Bert Harris Act is applicable only to action taken directly on the property owner's land and not to activities that are authorized on adjoining or adjacent properties. *See* Chapter 2015-142, *Laws of Florida.*

FIRST DCA

Lundquist v. Lee County, Case No. 1D17-22. Appeal from a final order by the Administration Commission determining that the amendment to the Lee County comprehensive plan is in compliance, notwithstanding that the ALJ recommended otherwise. Status: Notice of appeal filed January 3, 2017.

Florida Pulp and Paper Association Environmental Affairs, Inc. v. DEP, Case No. 1D16-4610. Appeal from final order dismissing chal-

See "On Appeal" next page

This newsletter is prepared and published by the Environmental and Land Use Law Section of The Florida Bar.

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CHAIR'S MESSAGE

from page 1

vancy in Tallahassee and was previously with 1000 Friends of Florida. She is also a long-time member of the Executive Council, and was a member of the Council when I was first elected to the Council. Janet continues the tradition of Section leadership representing the various segments of the environmental and land use law bar in Florida: public interest sector, private sector, and government (both local government and state government) sector.

I am pleased to tell you about some new developments with *The Reporter* this past year under the leadership of new Editor Jake Cremer and new Co-Editor Nikki Williams. The Section has entered into non-exclusive agreements to publish *The Reporter* on LexisNexis and Westlaw. This will give the authors (and the Section) greater visibility in the legal community and provide new opportunities.

You will also see a new format of article in this issue of *The Reporter*. This short-form article looks at an ordinance adopted by the City of Ft. Lauderdale ("City") designed to address seawalls and flooding induced by sea-level rise (the "Ordinance"). It includes links to related documents, articles, Frequently Asked Questions and a City website, providing readers with a broad overview of the Ordinance adoption and implementation, along with source documents to allow for a deeper understanding of the process that led to the adoption of the Ordinance and how the City is implementing the Ordinance. We think this format will be valuable to our members and encourage authors to submit more articles in this format in the future.

There is good news on the CLE front, too. The ELULS CLE Committee, led by Chair (and Section Treasurer) Patrick Kerchowski, has done an exceptional job providing CLE programming this year, including: Constant Change in Florida Land Use & Environmental Law, a one-day program in January at FAMU College of Law in Orlando with a simultaneous webcast; Coastal Living -- An Evolving Horizon for South Florida, a half-day program in May co-sponsored by the Broward County Bar Association; our 2017 Webcast Series (plus the December 2016 Webcast, Litigation Advice for the Land Use Practitioner); and the June 2017 Program at the Florida Bar Annual Convention.

Thank you to all of the committee members, committee chairs, and Executive Council members who worked so hard this past year to contribute to the success of the Section. Special thanks go to the other officers: Chair-Elect Janet Bowman, Secretary David Bass, and Treasurer Patrick Kerchowski, and to the glue who holds us all together, Program Coordinator Jeremy Citron.

ON APPEAL

from previous page

lenge to DEP water quality standards rule as untimely. Status: Notice of appeal filed October 11, 2016. Note: Appeals from this final order also were filed in the Third DCA. See below.

Nipper v. Walton County, Case No. 1D16-512. Appeal from final judgment granting Walton County's (the "County") request for an injunction, enjoining operation of commercial skydiving activity. The appellants originally filed a complaint against the County seeking a declaration that the County could not regulate a skydiving business on appellants' farm, asserting among other things that Section 570.96, Florida Statutes (2016), preempts the County from regulating the skydiving business because it constitutes "agritourism" as defined in statute. The County counterclaimed for injunctive relief, which was granted by the court. Status: Reversed on January 17, 2017.

South Palafox Properties, LLC, et al. v. FDEP, Case No. 1D15-2949. Appeal of DEP final order revoking operating permit for construction and demolition debris disposal facility, DOAH Case No. 14-3674 (final order entered May 29, 2015). Among other things, the final order determines that the appropriate burden of proof is preponderance of the evidence, DEP has substantial prosecutorial discretion to revoke (as opposed to suspend) the permit, and that mitigation is irrelevant. Status: Oral argument held on January 19, 2017; affirmed per curiam February 24, 2017.

THIRD DCA

City of Coral Gables v Rich and Silver, Case No. 3D17-206 and -213. Petition for writ of prohibition restraining circuit court from exercising jurisdiction over a consistency challenge to a small scale plan amendment. Status: Petition filed January 27, 2017.

City of Miami v DEP, Case No. 3D16-2129 and *The Seminole Tribe of Florida v. DEP*, Case No. 3D16-2440. Appeals from final order dismissing challenge to DEP water quality standards rule as untimely. Status: Notice of appeal filed September 15, 2016 and October 28, 2016, respectively. Note: Another appeal from this final order also was filed in the First DCA. See above.

FIFTH DCA

McClash, et al., v. SWFWMD, Case No. 5D15-3424. Appeal of Southwest Florida Water Management District ("SWFWMD") final order issuing an environmental resource permit (ERP) to a land trust for its proposed project on Perico Island in Bradenton, over a contrary recommendation by the administrative law judge ("ALJ"). The ALJ recommended that SWFWMD deny the ERP because practicable modifications were not made to avoid wetland impacts and the cumulative adverse effects of the project would cause significant environmental harm. In its final order, SWFWMD concludes that the mitigation proposed by the applicant is sufficient and that reduction and elimination of impacts to wetlands and other surface waters was adequately explored and considered. Status: Notice of appeal filed September 29, 2015. Oral argument set for March 9, 2017.

Seawalls & Sea-Level-Rise-Induced Flooding: Addressing Public *and* Private Infrastructure

by Emma Hollowell, 2L, University of Miami Law/M.S. candidate and intern, Florida Sea Grant Coastal Planning Program, and
Thomas Ruppert, Esq., Florida Sea Grant College Program, Coastal Planning Specialist

Sea-level rise is one of the greatest issues plaguing south Florida. Cities such as Miami, Fort Lauderdale, and Miami Beach face constant threats to infrastructure, transportation systems, and private property. Fort Lauderdale in particular created a very unique way of dealing with this issue after experiencing a record flood in September of 2015, some 18 inches above the average high tide mark. [See reference]. The culprit was the bi-annual king tide (spring tide, when gravitational forces from the moon cause drastically increased tidal levels), which coincided with a severe storm event, and caused flooding a foot beyond any level predicted by the municipality. [See reference].

The City of Fort Lauderdale (the "City" or "Fort Lauderdale") has worked to respond to sea-level rise and such events by promoting investment in both public and private infrastructure. Under Ordinance C-16-27 (the "Ordinance"), the City not only raised the minimum seawall height to the former maximum height [See reference], but also seeks to ensure that public and private seawalls and tidal protection systems remain effective. The City mandated that seawalls be maintained in good repair and created liability for owners—both public and private—who failed to prevent tidal waters from entering their property and then impacting other's property or public right of ways. [See reference]. In this way, the City did not immediately force all seawall owners into immediate compliance with its new seawall heights—a suggestion that was opposed by many in the community—or even mandate owners specifically use a seawall. Rather, the City created a citable offense if a property owner allows tidal waters to flow over the owner's property and floods property of others; the Ordinance allows owners to ensure the offense does not occur by increasing seawall height or any other means they can devise.

The unique proposal still faced some resistance. For instance, one memo to Broward County commissioners listed several arguments against seawalls: "1. Seawalls are permeable and therefore will not keep water from seeping through to its "natural" level. 2. Even with conforming seawalls, water will come through so that raising the road is the only solution which matters. 3. Seawalls will retain water on the land side and thereby lengthen the time of flooding. 4. Seawalls are an expensive gamble which are not guaranteed to work and the cost is being levied on only a few on the Town's property owners." [See reference] It is worth reiterating that at no point does the ordinance specifically mandate that owners must control tidal flooding originating from their property with the use of a seawall. In fact a Frequently Asked Questions ("FAQ") page published with the ordinance specifically notes, "If cited, those property owners have to pursue a remedy to prevent the tidal waters from leaving their properties which may include installing a new seawall, raising the existing seawalls, or another solution." [See reference].

The Ordinance also allows for a reasonable amount of time for owners to come into compliance. After being cited, owners have 60 days to demonstrate some sort of progress on repairing the cause for the citation and 365 days to fully bring the seawall into compliance. [See reference]. In this way, Fort Lauderdale encourages private property owners to take responsibility for their private infrastructure and its impacts while allowing for a year to make changes.

Fort Lauderdale has worked very hard to involve citizens in ways to address the situation with seawalls and to keep them informed of the actions that the City has taken as a result of the process. Fort Lauderdale staff has been going out into the community and doing presentations to homeowners' associations and community groups on the new seawall ordinance. The City also developed a City website dedicated to the issue that describes the process, the Ordinance, and provides "frequently asked questions" to assist in understanding implementation of the ordinance. A poster [See reference] created by Assistant Public Works Director Nancy Gassman for the National Adaptation Forum shares the background and history of the extensive public engagement that went into development of the current ordinance.

In early February of 2017, the City issued 19 citations under the new Ordinance to private property owners and 6 citations for publicly owned seawalls. While Fort Lauderdale has public seawalls owned by more than just the City, so far the City has focused on the seawalls that it owns. As of May 15, 2017, most private property owners had provided documentation to demonstrate action to address the problem, which, under the Ordinance, those that receive citations have 60 days to do. Those that have not contacted the City and demonstrated progress towards correcting the violation will be taken before a special master.

Since February, the City has issued approximately 15 additional citations, primarily for seawalls that are not maintained in good repair as required by the Ordinance. Thus, enforcement is an on-going activity.

Florida Sea Grant looks forward to tracking and sharing information about this innovative local government effort to address the challenges of flooding when it results from substandard public and private infrastructure.

May 2017 Case Law Update

by Gary K. Hunter, Jr., Hopping Green & Sams

The Suwanee River Water Management District does not possess absolute quasi-judicial immunity because its actions in draining a pond and flooding fields were not rulings or judicial acts. *Jeffrey Lance Hill, Sr. and Linda Petry Hill, v. Suwanee River Water Management District,* No. 1D16-3343 (Fla. 1 DCA April 18, 2017).

Jeffrey Lance Hill Sr. and Linda Petry Hill (The Hills) and the Suwanee River Water Management District (SRWMD) have been in conflict for over a decade. In 2006, the SRWMD sought an injunction against El Rancho No Tengo, Inc., The Hills' company, to require the company to obtain a permit to repair a dam at the farm which had been in disrepair since a significant rain event in 2003. The Hills were ordered to repair the dam when water flowed out of a dam spillway into the Columbia County Alligator Lake Recreational Area, resulting in the deposit of farm soil.

Contrary to the injunction, the Hills fixed the dam themselves without a permit or formal training in dam construction or repair. The 2007 final injunction order found the work to be improperly conducted and noted a significant likelihood of future dam failure and damage. Per the 2007 final injunction, the Hills were required to drain the dam to the lowest feasible level and within sixty (60) days, to provide to the SRWMD engineering certification of the dam, its appurtenant works, and an operation and maintenance plan. This order further stated that the Hills were not to impound water to full capacity behind the dam until the SRWMD provided written approval of the certification and operation and maintenance plan. The Hills appealed and the 1st DCA affirmed.

The Hills did not comply with the final injunction order regarding draining the pond, nor the operation and maintenance plan. SRWMD inspected the water level of the dam repeatedly, found dangerously high water levels, and sought the Hills' compliance with the injunction, but the Hills refused each time. The circuit court then issued several contempt orders and authorized the SRWMD to drain the pond to the lowest level feasible and to remove as much of the dam as necessary to allow the continuous, unimpeded flow of water downstream. The SRWMD drained the pond four times between 2008 and 2010.

The Hills never challenged the circuit court's contempt orders, but instead filed a takings claim in 2011. The Hills stated that the SRWMD's drainage of the pond constituted a real property taking, denying them viable and beneficial use of their sixty (60) acres of land without compensation. The Hills then sought an order to cease the SRWMD's draining of the pond, which would cease the flooding to their property, and requested compensatory damages of $1M. Post-hearing, the circuit court granted summary judgment for the SRWMD, concluding that the SRWMD possessed quasi-judicial immunity regarding the takings claim because the actions were court-ordered.

The circuit court stated that the SRWMD's actions were quasi-judicial in nature because the ruling in question was a judicial act and there was jurisdiction to issue the ruling. If the action meets both of these elements, the SRWMD could claim judicial immunity "…even if the ruling in question was unwise, reckless, or malicious." See *Fuller v. Truncale,* 50 So.3d 25, 28 (Fla. 1 DCA 2010). The Hills then appealed.

The 1st DCA disagreed with the circuit court's grant of summary judgment to the SRWMD, holding that the SRWMD was not a judge or judicial official, stating that even if the SRWMD were considered a quasi-judicial official, absolute immunity hinged on whether the action was integral to the judicial process. This evaluation requires a functional analysis of the action in relation to the judicial process. *Zoba v. City of Coral Springs*, 198 So.3d 888, 891 (Fla. 4d DCA 2016). The 1st DCA held that the SRWMD's actions of draining a pond and flooding fields did not constitute a judicial action because it was functionally incomparable to the work of judges, and thus declined to invoke quasi-judicial immunity to the SRWMD. Accordingly, the summary judgment awarded to the SRWMD was reversed and the cause remanded for additional proceedings.

Pre-conditions to a zoning application such as a voter referendum, as provided by provisions of a village charter, do not violate due process. *Village of Palmetto Bay, Florida v. Alexander School, Inc.*, No. 3D16-1201 (Fla. 3d DCA March 15, 2017).

Alexander School, Inc. (Alexander) owns property on which it operates a private Montessori school within the Village of Palmetto Bay (The Village). In 2013, Alexander sought permission from the Village to increase enrollment numbers at the school. The Village informed Alexander that pursuant to Section 10.1 of the Village Charter, a public referendum of the registered Village voters located within a two thousand foot radius of the school must be held. Seventy-five percent (75%)

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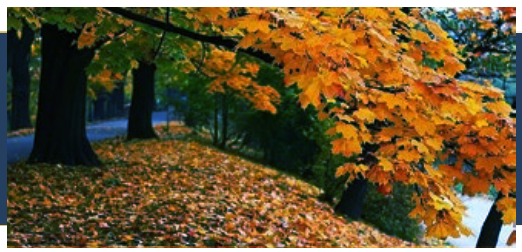

of those votes must vote in the affirmative for the expansion in enrollment for the Village to consider the application and hold a public hearing before the Village Council.

The election was held in May 2013 and Alexander failed to meet the approval threshold, so a Village Council hearing was never held regarding the enrollment expansion. Alexander made a similar attempt in 2015, but again failed to secure the requisite percentage of votes to warrant a Village Council hearing. Alexander then filed an action which challenged the constitutionality of Section 10.1 of the Village Charter. Alexander alleged Section 10.1 of the Charter deprived it of due process, improperly delegated the land use function to a small number of voters by reducing land regulation to a popularity contest, violated the Citizens' Bill of Rights, was arbitrary and capricious because it had no rational relationship to the safety of the surrounding community, and imposed impossible limits to obtain voter approval.

Alexander moved for summary judgment post-discovery, and the trial court granted the motion due to the arbitrariness, unreasonableness, and lack of relation to the public safety or general welfare of the surrounding community. Additionally, the trial court stated that Section 10.1 deprived Alexander of the right to be heard, which was a due process violation, and deemed Section 10.1 unconstitutional.

On appeal, the third DCA disagreed, citing the presumption of validity and constitutionality of zoning ordinances. To be found unconstitutional, the court stated that Alexander had the "extraordinary burden of alleging and proving that the regulation is both unreasonable and bears no *substantial* relation to public health, safety, morals, or general welfare." *Kuvin v. City of Coral Gables*, 62 So.3d 625, 632 (Fla. 3d DCA 2010) (emphasis added). To meet the burden, Alexander was required to show evidence that other locations of public assembly were permissible, and that Section 10.1 resulted in the disparate treatment of only private schools. Likewise, Alexander failed to provide any evidence regarding the impact of the enrollment increase on the public health or safety, specifically in the form of increased traffic or other similar impacts. Additionally, Alexander failed to show the lack of a rational relationship between the public health and safety of the Village Residents and Section 10.1 of the Village Charter.

Due to Alexander's failure to meet the burden of proof, the court reversed the trial court's finding that Section 10.1 of the Village Charter was unconstitutional. The court also stated that pre-conditions to a zoning application do not deprive a party of due process and that Charter provisions that require a voter referendum are not violative of due process rights. Accordingly, the trial court's ruling of a violation of due process was also reversed.

Due to the City of Miami's failure to provide class members with a notice of denial as required by both Florida Statutes and the City's own ordinance, class members' claims are not barred by the sixty-day jurisdictional non-claim provision of Section 194.171, Fla.Stat. *City of Miami, v. 346 NW 29th Street, LLC, et. al.*, No. 3D16-2053 (Fla. 3d DCA March 22, 2017).

In 2001, the City of Miami (City) voters held a referendum and approved a proposal which permitted certain new and expanding businesses within the City to apply for ad an valorem tax exemption. In 2002, the City enacted sections 56-110 through 56-122 of the City Code, entitled "Ad Valorem Tax Exemption for Enterprise Zone Businesses" (The Ordinance). The purpose of this Ordinance was to identify "enterprise zones" within the City in an attempt to revitalize and rehabilitate distressed areas, and also included specific qualifications, application procedures, approval or denial procedures, and procedures for appeal. Upon approval, the business would receive an ad valorem tax exemption for one year, which was eligible for annual renewal for up to ten years.

In 2013, 346 NW 29th Street, LLC, Museo Vault, and others (together, the Class) filed a complaint against the City and others, alleging failure to review and approve or deny applications submitted under the Ordinance. The Class alleged that sixty-seven (67) businesses applied for the ad valorem tax exemption between 2004 and 2011, but none of the applicants had received written approval nor written denial of their applications. The circuit court granted the Class partial summary judgment on liability. In response, the City filed a petition seeking a writ of prohibition quashing the circuit court's decision, arguing that the sixty-day non-claim provision of section 194.171(2) and subsection (6) barred the Class' action and deprived the court of jurisdiction.

The court chose to ignore City's argument, stating it was doubtful that those subsections of the Florida Statutes were applicable to the case at hand. Instead, the court stated that pursuant to section 196.193(5)(a), Fla. Stat., the City was required to notify the person or organization filing the application for an exemption in writing on or before July 1 of the year in which the party filed the application. Further, if the City failed to provide such notice, any denial of an exemption is invalid, per subsection (b).

The City failed to provide the Class with notice pursuant to 196.193(5) as well as Section 56-116 of the Ordinance. Section 56-116 provides the applicant with means of appealing the city manager's denial directly to the city commission and establishes time framing regarding notice. Under this Section, the applicant must appeal to the city manager no later than 30 days post-receipt of notice of denial. The City never notified the parties, so the applicant could never appeal and the thirty-day window to do so was tolled. The City argued that issuance of annual Truth In Millage (TRIM) notices was the equivalent of a denial, so the sixty-day non-claim period was triggered, but the court found this argument unconvincing.

Thus, due to the City's failure to provide notice, the sixty-day non-claim statute did not bar the Class' action nor deprived the trial court of jurisdiction. The court then denied the City's writ of petition.

Bert Harris Private Property Protection Act does not apply

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to claims arising from a government action that regulates property adjacent to the claimant's property. *Hardee Cnty. v. FINR II, Inc., 2017 Fla. LEXIS 1157*.

FINR operates a neurological rehabilitation center on a large parcel adjacent to property owned by a phosphate mining company. Petitioner, Hardee County, encouraged FINR to apply for a "Rural Center" land use designation for its parcel—which included a quarter-mile setback on adjacent property—for residential and commercial development purposes. In 2007, FINR applied for, and Hardee County approved, the land use designation change. Additionally, the Hardee County Comprehensive Plan was modified to grant the setback on the phosphate mining company's adjacent property. Then, in 2012, Hardee County granted the phosphate mining company a special exception to the land use designation that would decrease the quarter-mile setback to as little as 150 feet.

FINR brought a claim under the Act, section 70.001, Florida Statutes (2012), against Hardee County for devaluation of its property for use as a neurological center. The trial court dismissed the claim and asserted that the Private Property Protection Act (Act) did not apply to FINR because the quarter-mile setback did not directly restrict FINR's property. The second district reversed, citing *City of Jacksonville v Smith, 159 So. 3d 888* (Fla. 1st DCA 2015) (*Smith*). In *Smith*, the First District found that a property owner may not state a claim under the Act for devaluation of the claimant's property based on governmental action on the adjacent parcel.

First, the Florida Supreme Court (Court) analyzed the Act via its plain meaning. After finding that reasonable minds may disagree with the interpretation of the Act's plain meaning, the Court turned to Canons of Construction and noted that (1) statutes which alter common law principles are narrowly construed; and (2) courts narrowly construe waivers of sovereign immunity in favor of the government in order to protect government funds. *See Allstate Ins. Co v. State*, 761 So. 2d 289, 293 (Fla. 2000); *See Rabideau v. State*, 409 So. 2d 1045, 1046 (Fla. 1982). "If the Act is interpreted more broadly, local governments would be subject to claims under it each time they made changes to their own property or performed duties within their well-established police powers which may affect private property." Overall, this Act alters the common law principles of eminent domain and inverse condemnation, and waives sovereign immunity. Thus, the Act must be narrowly construed, no more broadly than specified.

Next, the Court looked to the Act's legislative history. The legislative history, as well as comments from the drafters, indicates that the legislature intended to "create new procedures to give inordinately burdened property owners a day in court before exhausting all administrative remedies and to give them the ability to arbitrate a dispute with a governmental entity without having to first obtain its consent." Thus, legislative history supports the interpretation that the Act was intended to apply to property that was the subject of a governmental action. Additionally, amendments enacted shortly after controversies may provide useful guidance. The 2015 Amendment to section 70.001(3)(f) dictated that the Act does not apply to property owners whose parcel is not "the subject of and directly impacted by the action of a governmental entity." Ch. 2015-142, § 1, Laws of Fla. (2015). The Final Bill Analysis of the 2015 Amendment cites to *Smith* as the motivation for the Amendment.

Finally, the Court noted that, though Attorney General Opinions are not binding, they may be persuasive: the Florida Attorney General favored a narrow construction of the Act because the Act does not apply to property that "suffered a diminution in value or other loss as a result of its proximity to the property that is subject to" a governmental action. Opp. Att'y Gen. Fla. 95-78 (1995).

Accordingly, the Court held that the government action in this case directly applied to the mining setback. For FINR to state a claim, FINR must have had a property interest in the setback. The Court approved the First District's decision in *Smith*, disapproved the Second District below, and remanded the case for further proceedings consistent with its opinion.

Florida State University College of Law June 2017 Update

by David Markell, Steven M. Goldstein Professor and Associate Dean for Research

This column highlights recent accomplishments of our College of Law alumni, students, and faculty. It also features several of the programs the College of Law has hosted this spring semester. We hope Section members will join us for one of more of our future programs.

Recent Alumni Accomplishments

Jacob Cremer

Jessica Fletcher

Howard Fox

Dan O'Hagan

David Henning

- **Jacob Cremer** was appointed by Commissioner of Agriculture Adam Putnam to the Florida Department of Agriculture & Consumer Services' Silviculture Best Management Practices Technical Advisory Committee.
- **Jessica Fletcher** is now the Director of Operations at The Corporate Climate Alliance in Johns Island, South Carolina.
- **Howard E. Fox** of Fowler White Burnett recently moved his environmental practice to Jerusalem, where in addition to serving Florida clients, he serves as counsel in bringing Israeli tech and infrastructure companies to the U.S. market and vice versa, taking companies public and acquiring and selling companies. Howard's international practice paves the way for global advancement by bridging the world's most cutting edge technology. In addition to start-ups and governments, Howard frequently represents publicly traded companies, including global manufacturers, distributors and energy companies.
- **Dan O'Hagan** is the Associate General Counsel of Florida Municipal Power Agency (FPMA), a wholesale power agency owned by municipal electric utilities. FMPA's mission is to provide power that is competitively priced, reliable and clean, as well as provide value-added services for its owner-customers. Dan's role with FMPA includes advising both in-house staff and FMPA's 31 municipal electric utility members on a wide range of utility matters, with particular focus on federal and state regulatory compliance and legal support for FMPA's power resources and operations divisions.
- **David Henning** has accepted a position as an Associate with Clarion in Chapel Hill, North Carolina.
- **Robert Pullen** recently had a short documentary about his life and his experiences as a law student published by the FSU Student Veterans Center. The video can be viewed here.

Recent Student Achievements

- Congratulations to the new 2017-2018 Executive Board of the Environmental Law Society!
  – President: **Jessica Farrell**
  – Vice President: **Jill Bowen**
  – Treasurer: **Matt Pritchett**
  – Secretary: **Laurel Tallent**
  – Mentor Chair: **Savannah Brown**
- Congratulations are also due to the new 2017-2018 Journal of Environmental and Land Use Law Executive Board.
  – Editor-in-Chief: **Graham O'Donnell**
  – Executive Editors: **Jill Bowen and Johnny Vernaglia**
  – Associate Editor: **Jessica Farrell**
  – Administrative Editor: **Kristen Schalter**
  – Senior Articles Editor: **Brent Marshall**
- Several College of Law students are gaining invaluable administrative law and environmental law experience this semester and in the fall through our outstanding Externship Program.
  – **Lauren Angulo** - the Florida Housing Finance Corporation
  – **Amanda Campen** - Executive Officer of the Governor, Division of Emergency Management
  – **Mandi Cohen** - Executive Officer of the Governor, Division of Emergency Management
  – **Valerie Chartier-Hogancamp** - the Department of Transportation's Environmental Compliance office
  – **Lauren Collier** - Leon County Attorney's Office
  – **Jessica Melkun** - the Florida Department of Environmental Protection (DEP)
  – **Justin Peters** - Division of Administrative Hearings (DOAH)
  – **Sharon Wyskiel** - Division of Administrative Hearings (DOAH)
  – **Guerline Rosemond** - NextEra Energy
  – **Enio Russe-Garcia** - Florida Sea Grant
  – **Yanyu Chen** - Leon County Attorney's Office (Fall 2017)
  – **Sal Coppolino -** Division of Administrative Hearings (DOAH) (Fall 2017)
  – **Jazz Tomassetti -** Division of Administrative Hearings (DOAH) (Fall 2017)
  – **Austin Dailey** - the Florida Department of Environmental Protection (DEP) (Fall 2017)
  – **Kelsey Makeever -** Florida Housing Finance Corporation (Fall 2017)

FSU MARCH UPDATE
from previous page

Recent Faculty Achievements

- **Shi-Ling Hsu** published *Capital Transitioning: An International Human Capital Strategy for Climate Innovation,* in the journal Transnational Environmental Law, and *Carbon Tax Rising?* in the ABA Section of Environment, Energy and Resources journal Trends. This ABA article is the short version of a forthcoming article *Climate Policy in the Trump Era: Carbon Tax Rising?* Finally, Professor Hsu weighed in on efforts by Washington State environmentalists to derail a ballot initiative for a state carbon tax in *Environmentalists' Disdain for Washington's Carbon Tax*, Slate.com.
- **David Markell** discussed the NAFTA Environmental Side Agreement during a February 2017 Workshop at Columbia Law School on International Investment Law and the Environment organized by Columbia Law School's Center on Sustainable Investment. He also organized and moderated the Spring *Environmental Forum* at the College of Law, which focused on protection of Florida's springs and featured leading experts in the field. Prof. Markell has been named a Senior Fellow at Melbourne University Law School. Recent articles include *Technological Innovation, Data Analytics, and Environmental Enforcement,* 44 Ecol. L. Q. 41 (2017) (with Prof. Robert L. Glicksman), and *Agency Motivations in Exercising* Discretion, 32 J. Land Use & Envtl. Law ___ (2017).
- **Erin Ryan** published *Fishery Management Without Courts: A Response to Robin Craig,* 32 J. Land Use & Envtl. L __ (2017). She was invited to share forthcoming pieces at several academic conferences, including *The Public Trust Doctrine, Private Water Allocation, and Mono Lake*, at Texas A&M and the University of Michigan, and *Negotiating Environmental Federalism*, at the University of Wisconsin and Arizona State University. She was interviewed on Florida Public Radio about President Trump's executive order requiring EPA to begin rolling back the Obama Administration's "Waters of the United States Rule."
- **Hannah Wiseman** presented her draft article *Dysfunctional Delegation* at the Environmental Research Workshop at Georgetown Law in January 2017, the Public Policy Workshop at Berkeley Law in March 2017, and a faculty workshop at the University of Georgia School of Law in April 2017. Professor Wiseman also gave an invited presentation entitled *Governing Local Unconventional Oil and Gas Impacts Within Preemption Gaps* as part of a panel at the University of Houston Law Center's North American Environment, Energy & Natural Resources Symposium. In March 2017 Professor Wiseman organized a conference at FSU Law, which was co-sponsored by the University of North Carolina School of Law Center for Climate, Energy, Environment & Economics and was entitled "Municipal Utilities and Cooperatives: Transitions to a Lower-Carbon Future" This conference addressed the challenges and opportunities associated with this transition and featured seventeen speakers and moderators from municipal utilities, cooperatives, municipal utility trade associations, and universities around the country.

Spring 2017 Events

Spring 2017 Environmental Forum

On January 18, 2017, the College of Law and the Environmental and Land Use Law Section of the Florida Bar co-sponsored the Spring 2017 *Environmental Forum,* entitled "Springs Protection in Florida." Panelists included **Andrew Bartlett**, Deputy Secretary, Florida Department of Environmental Protection; **Janet Bowman**, Director of Legislative Policy and Strategies, The Nature Conservatory, Florida Chapter; **David Childs**, Partner, Hopping Green & Sams; and **Rebecca O'Hara**, Senior Legislative Advocate, Florida League of Cities. **Jessica Farrell**, FSU '18, introduced the *Forum*, and **David Markell**, Steven M. Goldstein Professor and Associate Dean for Research, served as the moderator. A recording of the *Forum* can be viewed here.

From left to right: Professor David Markell, David Childs, Janet Bowman, Jessica Farrell, Rebecca O'Hara, Andrew Bartlett, and Professor Shi-Ling Hsu

Spring 2017 Environmental Distinguished Lecture

Professor Nicole Stelle Garnett, John P. Murphy Foundation Professor of Law, University of Notre Dame Law School, visited FSU as the Spring 2017 Distinguished Environmental Lecturer. A recording of her lecture titled "Planning for Density: Promises, Perils, and Paradoxes" can be viewed here.

Professor Nicole Stelle Garnett

Environmental Certificate Enrichment Lecture

Robert Scheffel "Schef" Wright, Shareholder of Gardner, Bist, Bowden, Bush, Dee, LaVia, & Wright, P.A., participated as our Environmental Certificate Enrichment Lecture this spring. His lecture, entitled "Optimizing Energy Policy for Long-Term Economic Welfare," was held on Wednesday, February 15.

FSU MARCH UPDATE
from previous page

Robert Scheffel "Schef" Wright

Municipal Utilities and Cooperatives: Transitioning to a Lower-Carbon Future Conference

On Friday, March 24, Florida State University College of Law and the University of North Carolina School of Law co-hosted "Municipal Utilities and Cooperatives: Transitioning to a Lower-Carbon Future." This conference explored the challenges and opportunities these entities face as they transition to lower-carbon energy sources in response to changing market forces. A full day of panel discussions featured energy law experts and municipal and co-op representatives from around the United States. More information about this conference including a full list of speakers can be found here.

From left to right: Terry Jarrett, Ingmar Sterzing, Khalil Shalabi, Troy Rule, Jonas Monast, Randolph Elliott, Sheldon "Shelley" Welton, Diane Cherry, Doug Hunter, Dalia Patiño-Echeverri, Joel Ivy, David Hornbacher, Hannah Wiseman, Arlen Orchard, Richard Whisnant, Alexandra Klass, David Tuohey, Heather Payne

Environmental, Energy, and Land Use Law Student Colloquium

The College of Law's Environmental, Energy and Land Use Law program held its annual Spring Colloquium for student papers on Wednesday, April 5. The Colloquium, sponsored by Hopping, Green & Sams, provided an opportunity for students to be recognized for their outstanding research and writing achievements, for them to give a short presentation of their work, and to get feedback on their hard work. Five students presented their work during the Colloquium: **Sharon Wyskiel, "**An Analysis of the National Flood Insurance Program Community Rating System as it Pertains to Florida Communities"; **Justin Peters, "**Deep Pockets on the Horizon: Will Non-Home Rule States' Greed Harm Counties Affected by Deepwater Horizon?"; **James Brent Marshall, "**Geoengineering: A Precise Weapon or an Unregulated Disaster in the Fight Against Climate Change"; **Jessica Farrell**, "The Centennial Shakeup: Is the National Park Service Losing its Ability to Manage and Create Aquatic Preserves?"; and **Michael Melli**, "State-led Initiatives on Climate Change – Their Authority, Precedent, and Potential Paths to Success."

From left to right: Michael Melli, Sharon Wyskiel, Jessica Farrell, Justin Peters, James Brent Marshall

Administrative Law Guest Lecture – The Honorable **Bram Canter** guest lectured to Prof. Markell's Administrative Law class on the practice of administrative law before DOAH.

Legislation and Regulation Guest Lecture – The Honorable **Suzanne Van Wyk**, State of Florida Division of Administrative Hearings; **Vinette Godelia**, Partner, Hopping Green & Sams, P.A.; and **Brent McNeal**, Deputy General Counsel, Florida Department of Education, guest lectured to Prof. Markell's Legislation and Regulation class.

Information on upcoming events is available at http://law.fsu.edu/academics/jd-program/environmental-energy-land-use-law/environmental-program-events. We hope Section members will join us for one or more of these events.

things: (1) guttering and draining of streets, boulevards, and alleys; (2) construction, reconstruction, repair, renovation, and upgrading of sewer, canal, drains, and stormwater management systems; (3) construction and reconstruction of water supply systems, including aquifer storage and recovery, and desalination systems; (4) construction and reconstruction of seawalls; (5) drainage and reclamation of wet, low, or overflowed lands; and (6) capital improvements and municipal services including sewer and street improvement. Notably, a special assessment does not qualify as a tax and is not subject to the ad valorem taxation limitations under Florida law. However, to be valid, a special assessment must generally pass a two-prong test: (1) the property burdened by the assessment must derive a "special benefit" from the project or service funded by the assessment, and (2) the assessment for the project or service must be properly apportioned. The basic theory behind a special assessment is that the portion of the community which is required to bear the assessment must receive some special benefit from it. While ad valorem taxes are broad in impact and use, special assessments can and must be targeted. Local governments in Florida that are beginning to adapt to SLR have used special assessments to, for example, raise the height of fixed bridges or raise the grading of residential streets.

Florida counties may utilize two possible alternatives for providing municipal services pursuant to Section 125.01, Florida Statutes. The Municipal Service Benefit Unit (MSBU) assessment requires that the property assessed receive a special benefit, both proportionate and directly correlated to the assessment. In the alternative, counties may impose a Municipal Service Taxing Unit (MSTU) that provides benefits generally, but not directly proportional to the benefit given to the assessed property. Florida cities on the other hand can utilize the statutory alternative method of providing for non ad-valorem assessments found in Section 170.07, Florida Statutes, or any other lawfully enacted local procedure for imposing special assessments.

While special assessments aimed at combating SLR are typically "passive" vis-à-vis new development (that is, they often target infrastructure projects in already affected areas), they can be crafted to "actively" work with and incentivize adaptive development. For example, a municipality might specially assess a district slated for adaptive remediation, but except new development from the assessment to the extent other or related adaptive measures are taken by the developer, ideally at a lower cost.

For essentially built-out cities and counties or targeted redevelopment areas, special assessments can not only address immediate threats, but also establish a prospective level of service for any given piece of infrastructure that internalizes nuisance flooding projections and, more broadly, SLR impacts. The approved Capital Improvement Plan (CIP) sets the Level of Service (LOS), and can reflect changing data on SLR, as well as, changing infrastructure costs, all within the jurisdiction's existing authority to maintain roadways.

3. ***User Fees***. Certain SLR adaptation projects can be financed through user fees relating to the provision of a related governmental service, such as a stormwater utility. User fees are charged in exchange for a particular governmental service which benefits the party paying the fee and are typically, but not always, paid by choice, in that the party paying can opt not to use the service. Whereas a special assessment is typically a specific levy designed to recover the cost of an improvement that confers a particular benefit on a property, a user fee is a charge to a person who actually uses a service, with the fees set as the cost of providing the service. Think of utility fees – *e.g.*, water or sewer. Notably, Florida law expressly empowers local governments to create and operate stormwater utilities and to adopt stormwater utility fees to construct and maintain stormwater management systems. New stormwater management systems designed to withstand anticipated SLR-related flooding events (as well as increased storm surge due to the anticipated effects of climate change generally) can be built or reconstructed alongside development, with user fees used to fully or partially fund the systems.

4. ***Development Impact Fees***. Regulators often impose conditions when issuing permits for new development or substantial redevelopment (*i.e.*, the renovation or expansion of existing structures). Conditions that require a property owner to convey a property interest are called exactions, and impact fees are one type of exaction that offset costs associated with the corresponding development (such as infrastructure needs). Such impact fees may be another good source of funding for infrastructure projects relating to SLR. For example, a city may require a developer to pay a fee to cover the cost of flood-proofing city infrastructure that services the new development. Other exactions might include requiring adherence to more restrictive, forward-looking zoning requirements or requiring the dedication of easements to, for example, preserve natural buffers or floodways. To avoid a regulatory takings challenge, local governments will want to work to ensure a rough proportionality between the exaction and the impact of the proposed development.

Rather than viewing impact fees or other SLR-related exactions as costly regulations to be reflexively combated or avoided, developers can work with local governments to ensure that relevant regulations work to incentivize development resulting in adaptive growth. One way to harmonize the typically short-time horizon of development projects with the long-view of local governments in adapting to SLR is to explore the possibility of amortizing development impact fees over the useful life of new development – in effect, creating a hybrid development impact fee / proactive special assessment. Another forward-thinking alternative may be to create an endowment that could receive voluntary proffers from developers – and other private donations as well – and place those funds into an interest-bearing or invested trust fund to be used for SLR adaptation efforts (and possibly helping residents in need of adaptation assistance), similar to a municipal workforce housing trust fund program.

An emerging funding tool is the statutory mobility fee imposed pursuant to an approved Mobility Plan as contemplated in Section 163.3180(5)(f) or (i), Florida Statutes. Mobility fees can fund projects that do not

fit the conventional transportation concurrency model. Infrastructure improvements for multimodal facilities could be designed using a level of service that accounts for SLR, and a development's impacts would thus capture the increased cost of construction for that SLR-adaptive infrastructure.

5. ***Municipal Bonds***. Issuing bonds can be another option to finance capital improvement projects that address SLR. Types of municipal bonds include: (1) general obligation bonds, which are secured by the full faith and credit and taxing power of the municipality; (2) ad valorem bonds, which are secured by the proceeds of ad valorem taxes levied on real and tangible personal property; (3) revenue bonds, which are payable from revenues derived from sources other than ad valorem taxes and which do not pledge the property, credit, or general tax revenue of the municipality; and (4) improvement bonds, which are payable solely from the proceeds of special assessments levied for an assessable project. The third and fourth categories are most relevant here, primarily because general obligation and ad valorem bonds generally require voter approval.

For example, in 2015, the City of Miami Beach authorized an issuance of revenue bonds in a maximum amount of $100 million, with a maximum interest rate of 5.25%, and a maturity date not later than September 2045, to fund upgrades to the City's stormwater system, including the installation of new pump stations and the conversion of injection pumps. As part of the bond issuance, the City authorized revenue from stormwater utility fee increases a year earlier to be pledged as security for the City's obligations under the bonds.

Green bonds may also prove attractive for SLR-related projects. Green bonds are debt securities issued to raise capital specifically to support climate-related or environmental projects, to encourage sustainability, or to facilitate the development of high-impact sites. More specifically, green bonds finance projects aimed at energy efficiency, pollution prevention, sustainable agriculture, fishery and forestry, the protection of aquatic and terrestrial ecosystems, clean transportation, sustainable water management, and the cultivation of environmentally friendly technologies.

6. ***State, Federal, and Non-Profit Grants and Subsidies***. State, federal, and non-profit grants and subsidies may be available to fund SLR adaptive projects alongside development. Such grant funds often are targeted at specific types of adaptation measures, and many are directed at the public acquisition of land for conservation purposes. SLR-acquisition programs are typically thought of as targeting either undeveloped property at risk from SLR or at discouraging development by preemptively purchasing developed properties in order to remove at-risk structures. Alternatively, land might be conserved in order to provide an environmental benefit to the public, such as to allow strategic flooding and water control.

Grants through federal agencies can be significant, although they tend to be highly competitive. FEMA, for

example, operates a Pre-Disaster Mitigation Program to help states and local governments implement sustained pre-disaster natural hazard mitigation programs to reduce the overall risk to people and structures from future hazardous events, while also reducing the likelihood of reliance on federal funding in future disaster scenarios. The U.S. Department of Housing and Urban Development (HUD) also provides grants; in January 2016, HUD announced awards in the aggregate amount of $1 billion to fund resilient housing and infrastructure projects in communities impacted by natural disasters and climate change. Numerous other federal grant funding opportunities can be found in NOAA's U.S. Climate Resilience Toolkit, available on their website.

Additionally, local governments in areas of Florida affected by SLR have been allocated funds through Florida Department of Environmental Protection (FDEP) programs designed to safeguard critical natural resources. For example, FDEP's Everglades Restoration Revenue Bonds program provides funding for the acquisition and improvement of land, water areas, and related property interests and resources, as contemplated under the Comprehensive Everglades Restoration Plan and the Keys Wastewater Plan (among other plans). Projects benefiting the City of Key West have, for example, been funded by FDEP's Everglades Restoration Revenue Bonds.

Given the current political climate in Washington, D.C. and Tallahassee – which is generally pro-infrastructure spending, anti-regulation, and pro-business and development – SLR projects that undertake adaptive measures coupled with large infrastructure development and private construction may receive highlighted attention in the competition for grants and subsidies.

7. ***Transferable Development Rights***. One tool with significant potential for use in SLR adaptation, including as a cost-saving measure for both developers and local governments, is a transferable development rights (TDR) program. A TDR program is designed to achieve land preservation or promote less intensive use of property by allowing a landowner to sever development rights over ecologically valuable or sensitive land (the "sending area") and to sell them to an area where the local government wants to encourage development (the "receiving area"). The development rights are monetized based on the level of development that the local government's base zoning code would allow, such as a certain number of units per acre, and the buyer can then use the credits to exceed the default density standards or building height requirements in the receiving area.

Similar to cap-and-trade in other environmental regulation contexts, TDRs can also be marketized – a local government could allow property owners to buy and sell TDRs to permit large scale protection and large scale development. Similarly, TDRs can be small-scaled in connection with SLR projects – single developments could be permitted to offset regulatory shortfalls by financing related SLR-adaptive projects. The use of such market-based tools often also provide local governments with lower risk of litigating costly regulatory takings cases that might arise from traditional regulatory tools such as zoning modifications and exactions.

8. ***Community Development Districts.*** Community Development Districts (CDDs) are created pursuant to Chapter 190, Florida Statutes, by developers, with approval either locally through a county (if less than 2,500 acres) or through the State (if 2,500 acres or more). Once the statutory time limits and number of residents is triggered, the changeover from developer control to resident-elector control occurs. In the past, the U.S. Internal Revenue Service had questioned whether CDDs were truly forms of local government; however, no formal rulemaking has surfaced, and currently a CDD is recognized as a type of public governmental entity, regardless of whether it is developer or resident controlled. Therefore, all of its capital improvements are essentially public improvements. Construction of the improvements can benefit from tax-exempt municipal bonds, and the CDD can set a level of service for each capital improvement, taking into account a specific target SLR indicator, based on individualized risk assessment and cost-benefit analyses for that community.

9. ***Community Redevelopment Agency***. A Community Redevelopment Agency (CRA) is created pursuant to Chapter 163.360, Florida Statutes, when a city or county identifies areas of statutory blight in a particular geographic area within the county or city. The funding mechanism – tax increment financing (TIF) – consists of setting a base valuation of the ad valorem property values within the area, and setting aside in a special fund any increase in revenue generated from rising property values. That captured increase, in turn, funds capital projects identified in an adopted CRA Plan. Statutorily, "blight" can include an inadequate street layout and unsafe or unsanitary conditions, both of which could exacerbate the negative conditions associated with SLR. In theory, a CRA could make findings of blight based on inadequate existing infrastructure and flooding propensities, and then identify capital improvements necessary to address those issues.

10. ***Public-to-Private Transfer of Roads***. County roads within residential subdivisions can be transferred back to private homeowner association (HOA) control by utilizing the statutory mechanism found in Section 336.125, Florida Statutes. A motivated HOA could then improve roadways and drainage to accommodate for SLR via a special HOA assessment. Although the cost would be borne by private residents, they would also have greater control over the level of service they wish to achieve in their own SLR-adaptive project.

11. ***Public-Private Partnerships***. Public-private partnerships (P3s) may provide another funding source. P3s are contractual arrangements between governmental and private entities under which the private entities assume greater involvement in the financing and delivery of capital improvement projects that benefit the public in exchange for revenue-sharing opportunities and/or completion bonuses. P3s have typically been used in Florida to finance transportation infrastructure projects; however, in 2013, the legislature expanded the potential uses for P3s to other public purposes. P3s allow governments to fund projects where public funds are lacking, despite

traditional limitations prohibiting governments from commencing projects without available and allocated public funding. Under P3 arrangements, a private entity typically pays for the design, construction, and/or operation of the project or facility for a period of time, and, in return, receives revenues generated from the operation of the project or facility in order to realize a return on its investment. Private entities may be authorized to impose fees on the public for use of qualifying projects or facilities funded in this manner. Many potential SLR infrastructure projects might be amenable to a P3 structure.

12. ***Local Discretionary Taxes***. Counties and certain municipalities also have the power to levy local discretionary taxes, such as sale surtaxes and tourist development taxes, and dedicate those revenues to certain environmental remediation projects, such as those targeting beach erosion. Florida counties have historically used tourism development taxes to support natural resources used and enjoyed by tourists, and SLR-adaptive projects may fit into this funding scheme. However, tourist development taxes, which are regulated pursuant to Section 125.0104, Florida Statutes, are limited to funding only specific, statutorily-authorized expenditures. Absent a concerted effort to expand the traditional categories of authorized expenditures for tourism advertisement (beach renourishment, building of convention centers and sports arenas, and the like), local governments cannot recast their needs beyond immediate tourism impacts. Some local governments have been successful at shepherding legislative changes targeting isolated local conditions, such as Spring Break public safety. However, in order for tourist development taxes to be available more broadly to address infrastructure needs, especially SLR initiatives, the Florida Legislature or Florida courts would likely need to reinterpret not only what draws tourists to the State, but also what infrastructure is needed to support them, to authorize the use of tourist development taxes for such projects. In the meantime, counties may wish to explore whether an area within their jurisdiction qualifies under Chapter 380, Florida Statutes, as an "area of critical state concern," and implement a tourist impact tax pursuant to Section 125.0108, Florida Statutes.

13. ***Government Risk Financing***. Lastly, one available option for managing a local government's financial exposure to SLR is to incorporate ex-ante instruments into an overall risk financing strategy, such as reserve funds, catastrophe bonds, or parametric reinsurance. Catastrophe bond products were developed in the aftermath of the 1994 earthquake in Los Angeles and Hurricane Andrew in 1992. There currently is a robust market for catastrophe bonds, and, catastrophe bond products may become an increasingly utilized option by governmental entities in the future dealing with the effects of climate change. Another example is a parametric hurricane policy incepted to a governmental actor. The State of Alabama obtained the first parametric cover for a U.S. governmental entity. Payments are intended to offset the economic costs of hurricanes, with payment triggered by hurricane wind speed. As SLR and its consequences – flooding, saltwater intrusion, changing shorelines, etc. – become more definitive and predictable, risk financing options may become less available and less practical. That said, local governments and developers might explore the possibility of co-issuing catastrophe bonds to finance development at higher-cost adaptive levels offset by the risk of SLR-related exposure. Sophisticated bonding or re-insurance products are precisely the type of novel and cooperative measures which may permit development to compete and succeed while still adapting to our changing environment.

While the timeframes and immediate interests of local governments and private developers may seem to diverge on the costs and regulations required to adapt to sea level rise, the long-term goals and objectives of both public and private interests are actually in tight harmony. It is in everyone's interest to promote vibrant development and redevelopment that will aid – and itself embody – adaptation to the realities of sea level rise. We all want our communities to grow and thrive despite the rising tides. Local governments and private actors can work hand in hand to explore and implement funding options that target that intersection of interests.

Endnotes

Isabelle C. Lopez is the City Attorney for the City of St. Augustine and has been Board Certified in City, County and Local Government Law since 2004.

Abigail G. Corbett is a shareholder in the Miami office of Stearns Weaver Miller Weissler Alhadeff & Sitterson, P.A., who specializes in litigation and government affairs, including legal considerations surrounding local governments' efforts to adapt to the effects of climate change.

Jason S. Koslowe is a litigation and restructuring attorney with the Miami office of Stearns Weaver Miller Weissler Alhadeff & Sitterson, P.A.

MEMBERSHIP APPLICATION
ENVIRONMENTAL AND LAND USE LAW SECTION
WEBSITE: WWW.ELULS.ORG

NAME: _____

EMPLOYER/AGENCY/LAW SCHOOL: _____

ADDRESS: _____

CITY/STATE: _____ ZIP CODE: _____

PHONE: (____) _____ E-MAIL ADDRESS: _____

FLORIDA BAR NO: _____ DATE OF ADMISSION: _____

PROFESSIONAL SPECIALTY(IES)/AREAS OF INTEREST: _____

_____

_____

CHECK ALL COMMITTEES OF INTEREST TO YOU:

☐ AFFILIATE MEMBERSHIP
☐ CLE
☐ ELUL TREATISE
☐ FELLOWSHIPS
☐ LAW SCHOOL LIAISON
☐ FL BAR JOURNAL COLUMN
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☐ MEMBERSHIP
☐ PUBLIC INTEREST

MEMBERSHIP OPTIONS / DUES

The Florida Bar dues structure does not provide for prorated dues; your Section dues cover the period from July 1 to June 30. Your application and check should be mailed to The Environmental and Land use Law Section, The Florida Bar, 651 E. Jefferson Street, Tallahassee, FL 32399-2300.

I AM... (check one)	MEMBERSHIP OPTION	ANNUAL DUES
	ATTORNEY – Admitted to Florida Bar	$40
	AFFILIATE – Professionals and Faculty	$50
	AFFILIATE – Students	$20

I understand that all privileges accorded to members of the section are accorded affiliates and law students, except that affiliates may not advertise their status in any way, and neither affiliates nor law students may vote, or hold office in the Section or participate in the selection of Executive Council members or officers.

CERTIFICATION: I hereby certify that I have never been denied admission to any bar, or been the subject of any proceeding questioning my moral character, disbarred from any legal bar, convicted of a felony, expelled from any University or Law School, or investigated for fraud, misappropriation or mismanagement of funds.

SIGNATURE: _____ DATE: _____

WE ARE READY

We are a resilient and safe coastal community

Frequently Asked Questions
Seawall Ordinance Implementation

You have received a citation under the authority of the Unified Land Development Regulations (ULDR) of the City of Fort Lauderdale Section 47-19.3 Boat Slips, Docks, Boat Davits, Hoists, and Similar Mooring Structures. Commonly referred to as the "seawall ordinance," this section of the ULDR was updated in June 2016 to improve Fort Lauderdale's coastal resilience and mitigate the effects of tidal flooding and sea level rise. This document is intended to answer some of the frequently asked questions about receiving a citation under this section of the code and your responsibilities as a property owner. Additional questions can be directed to Customer Service at 954-828-8000 or to subject matter experts as listed in question 8 below.

1. **Why was the City of Fort Lauderdale seawall ordinance updated?**

In September 2015, the City of Fort Lauderdale experienced King Tides that were approximately 18" above the average high tide. The unprecedented flooding prompted the City to work with our neighbors to determine how the ordinance could be improved to protect our community from tidal flooding and anticipated sea level rise. This ordinance was adopted in June 2016. In the fall of 2016, the City again experienced an extreme high tide which caused widespread flooding and began to enforce the new seawall ordinance.

From installing more than 116 tidal valves, improving our drainage systems, developing a stormwater master plan and completing a seawall master plan, the City is committed to investing resources necessary to protect the long-term viability of our community. While the City is taking significant steps to reduce tidal flooding, our neighbors also are also part of the solution. We have to work together to fulfill the citywide vision of creating a resilient and safe coastal community

2. **Why did I receive a citation under Section 47-19.3 Boat Slips, Docks, Boat Davits, Hoists, and Similar Mooring Structures?**

Homeowners are responsible for maintaining their seawall in good repair and ensuring that their property is not the source of flooding into their neighborhoods. A seawall is considered to be in disrepair if it is substantially cracked, leaning, crumbling or showing evidence of upland erosion. In addition, the seawall should not allow tidal waters to flow through or over it, especially into adjacent properties or the public Right-of-Way. If either of these conditions is met (disrepair or tidal waters leaving the property), the owner may be cited and must take corrective action.

3. What do I have to do to comply if I was cited for having a seawall in disrepair?

Upon being cited, you are required to take corrective action. Within 60 days of receiving notice from the City, you have to begin to address the problem and to demonstrate progress toward repairing the cited defect. Progress could include a variety of activities such as getting quotes, hiring a contractor, or submitting a building permit. If a property owner is not able to demonstrate progress within 60 days, the case could be scheduled to go before the Special Magistrate to determine a course of action.

We understand that the process to repair or construct a seawall can take time. Neighbors have 365 days from the day the property was cited to bring their seawall into compliance.

Also note that if the required repair meets the substantial repair threshold (See Question 4), you will have to construct the seawall to meet the minimum height requirement (3.9 feet NAVD88). NAVD88 stands for North American Vertical Datum. It is a reference point for the measurement of elevation. This value will be important for your surveyor, marine engineer, and seawall contractor.

4. What is the substantial repair threshold?

The substantial repair threshold is defined by ordinance in Section 47-3.6B.3. as:

(1) any improvement to the seawall of more than 50% of the length of the structure, which for the purposes of this section, shall include both the seawall and cap; or

(2) any improvement to the seawall which results in an elevation change along more than 50% of the length of the structure.

Seawall improvements constituting substantial repair at the time of permit application must be constructed to the minimum elevation of 3.9 feet NAVD88 for the continuous seawall for the length of the property. If the finished floor of the property is less than 3.9 feet NAVD88, a waiver to meet the minimum height can be requested from the City Engineer.

5. What do I have to do to comply if I was cited for failing to prevent tidal waters from flowing overland and leaving my property?

Upon being cited, you are required to take corrective action. Within 60 days of receiving notice from the City, you have to begin to address the problem and to demonstrate progress toward a proposed remedy. Progress could include a variety of activities such as getting quotes, hiring a contractor, or submitting a building permit. The remedy may include, but is not limited to, raising your seawall to meet the minimum elevation requirement (3.9 feet NAVD88), adding a retaining wall, or repairing an existing defect. We understand that the process to repair or construct a seawall can take time. Neighbors have 365 days from the day the property was cited

to bring their seawall into compliance.

6. **What are the other options other than raising my seawall?**

If tidal waters are coming THROUGH your seawall, you may only have to repair cracks or holes. If water is coming OVER your seawall and leaving your property, you must provide a solution to the flooding that is permanent and is eligible to receive a permit. This may include mitigation solutions such as but not limited to adding retaining walls or creating depressed landscape areas on the site. This flexibility was included in the ordinance because the City recognized that there may be reasonable alternatives to addressing the flooding other than raising the seawalls.

7. **I don't have a seawall, why was I cited?**

Waterway properties that may have permeable erosion barriers such as rip rap or a natural shoreline may be cited by a code enforcement officer observing tidal waters exiting their property and impacting adjacent properties or public Rights-of-Way. If cited, those property owners have to pursue a remedy to prevent the tidal waters from leaving their properties which may include installing a new seawall or another solution.

8. **Where can I get more information?**

For more information, visit www.fortlauderdale.gov/seawall. On that webpage, you will find the ordinance, extensive FAQs, a list of contractors who have recently permitted seawall construction projects in the City of Fort Lauderdale (Question 9), and relevant King Tide information.

If you have specific questions, please use the following contact numbers
For Code Compliance questions: 954-828-6248
For Permitting questions: 954-828-6520
For Design and Engineering questions: 954-828-5772

9. **Can the City provide a list of licensed contractors?**

The City has set up a dedicated web page (www.fortlauderdale.gov/seawall) for seawall issues. The page has a link to a list of licensed contractors who have recently permitted seawall construction projects in the City of Fort Lauderdale. The list does not suggest endorsement of these or another seawall engineering and construction companies. It is the responsibly of the property owner to select and hire a reputable and licensed company to perform the seawall repair or construction work.
The list below includes all companies (in alphabetical order) submitting a dock or seawall permit

involving construction, enhancement or repair of a seawall in calendar 2016 and the number of building permit applications received.

Contractor	Contractor #	Number of Applications in 2016
A&B Dock & Deck Inc	891141	1
American Seawall Marine Construction	062a12327x	3
Atlantic Harbor Seawalls Inc	011705X	3
B & M Marine	CGC052820	16
Boatlifts & Docks of South Florida	131151479	1
Broward Dock & Seawall	131151394	1
Contour Marine Inc	CGC1521764	1
Diversified Diving Service Inc	86948	8
DMS General Contractor Inc	CGC031383	1
East Coast Boatlifts Inc	981621X	1
J F Smith Design & Build Inc	CGCA10929	1
Morrison Contractors	CGC1518076	7
Pelloni Vollman & Sulflow Marine	891122	5
Ray Qualmann Marine Const Inc	87963	18
SE Custom Lift Systems Inc	102d1662ix	1
Sea Tech Construction Inc	921326	7
South Florida Dock & Seawall	921317	2
Southeast Marine Construction Inc	CGC060467	4
Structural Preservation Systems	CGC1511798	2
Tom Kripp Construction Inc	CGC1522328	9

10. Under what conditions would property owners be required to raise their seawall to the new minimum height of 3.9 feet NAVD88?

Under the ordinance, a seawall would have to be raised if:

a. The owner is installing a brand new seawall; or
b. The owner comes in for a repair permit and it is determined that the damage to the seawall triggers substantial repair threshold; or
c. The owner is cited for having a seawall in disrepair and it is determined that the damage to the seawall triggers substantial repair threshold; or
d. The owner is cited for allowing tidal waters entering their property to impact adjacent properties or a public right-of-way and the owner elects to install a new seawall or to raise their seawall to come into compliance.

10. Can I build my seawall higher than the minimum elevation of 3.9 feet NAVD?

Yes. The minimum seawall elevation is based on the current level of the sea, impacts from King tides and projected sea level rise which may occur over the life of a seawall (~50 years). The maximum seawall elevation is based on the elevation of the property in the context of the property's Base Flood Elevation (BFE). This is important to prevent rain water runoff from impacting the house. BFEs are provided in the Federal Emergency Management Agency Flood Insurance Rate Maps (FEMA FIRM) as whole numbers (e.g. 4 feet or 5 feet, not 4.2 feet or 5.7 feet NAVD88). This value was used to set a maximum to ensure that new seawalls are lower than the finished flood elevation and will not result in grading of the property in a manner that would cause flooding into the home.

Property's FEMA Flood Insurance Rate Map Location	Minimum Seawall Elevation	Maximum Seawall Elevation
In a floodplain, BFE >= 5.0 feet NAVD88	3.9 feet NAVD88	Base Flood Elevation (BFE) of the property
In a floodplain, BFE = 4.0 feet NAVD88		5 feet NAVD88
In an X zone, not in a floodplain		Meet the definition of grade

11. My seawall is cracked. Do I have to replace the whole wall and bring it up to the new elevation?

Not necessarily. With a proper permit, the seawall can be repaired without requiring it to be elevated depending on the state of the seawall. However, if more than 50% of the seawall is impacted, the entire seawall must repaired and meet the new elevation requirement.

12. Can I just add a cap to my existing seawall?

That will depend on if the seawall is structurally sound and can bear the additional weight of the cap. You will need to have a marine or structural engineer examine your seawall to determine if this is possible.

14. What if my finished floor is below 3.9 feet NAVD88 and I have to raise my seawall to that elevation?

Waterfront properties with a habitable finished floor elevation of less than 3.9 feet NAVD88

have site conditions which may not be able to accommodate raising their seawall to the minimum required elevations. For this reason, the ordinance contains a provision which will allow some flexibility for a seawall to be constructed at less than the stated minimum elevation if a waiver is granted by the City Engineer.

15. What is the cost of seawall replacement or repair?

The City surveyed a number of seawall contractors in May-June 2016. Seawall contractors quoted $650-$2000 per linear foot depending on the depth of the waterway and location of the seawall. In addition, engineering and permitting services were quoted as $2000-$5000 per job. Repair of broken/spalled concrete areas in the cap was quoted at $60 per cubic foot of epoxy mortar. To add a 12" cap to an existing seawall was estimated at $75 - $125 per linear foot. Cost will vary be the type and condition of the seawall in question.

16. Does the city, county, state or federal government offer funding for private property owners to repair their seawalls?

Not currently. The Federal Emergency Management Agency is considering funding raising seawalls as a form of hazard mitigation.

17. Can I use Property Assessed Clean Energy (PACE) funding to repair or replace my seawalls?

Not currently. Legislation has been introduced at the state level to add flooding as a qualifying condition for PACE funding.

18. What are the consequences for not complying following citation for a seawall violation?

If the property owner is making progress toward a remedy, the City can provide the property owner with a reasonable extension of time to comply. However, if the property owner still does not cure the violation, then the cases are taken to the special magistrate for adjudication. The special magistrate order will grant the property owner the numbers of days to comply and a daily fine if compliance is not achieved within the ordered timeframe. If the property owner meets the adjusted timeframe, compliance is achieved and the case is closed. If compliance is not met within the timeframe of the special magistrate order, the case is presented to the special magistrate who can either impose fines or abate fines that may have accrued at the hearing. A lien is placed on the property if the property continues to remain out of compliance. The City cannot foreclose on a lien on homesteaded property.

The City may in the public interest complete the work when the property owner does not comply with the order. In those cases, the property owner would be "liened" for those costs and the costs may be placed as a non-ad valorem assessment in the property tax roll.

19. Does the City assume any responsibility for seawall maintenance/repairs when public infrastructure (such as an outfall pipe) passes through a privately owned wall?

City infrastructure penetrating a private seawall serves a public benefit usually tied directly to the neighborhood in which the property is located. The City is responsible for maintaining its infrastructure. On a case by case basis, property owners should work with the City if there are concerns with the repair or maintenance of City assets that may have an impact on the private seawall.

20. How is the City addressing flooding over its seawalls?

The City is working aggressively to identify problem areas in their own seawalls and to address them proactively. We expect to complete a Seawall Master Plan by March 2017. Staff has made a recommendation for prioritizing select seawalls that are contributing to tidal flooding concerns. Staff has already started the conversation with the City Commission related to funding improvements on breached seawalls and have engaged an engineering consultant to initiate design of repairs and/or replacement of seawalls as needed. In addition, the City has installed earthen berms along Las Olas Blvd as a pilot to determine if these structures can be effective in reducing tidal flows until funding is available to raise the seawalls in this location.

21. When will the City raise its seawalls?

The City has 4.8 miles of seawall in various conditions as identified in the Seawall Master Plan expected to be finalized in the March-April timeframe. In this fiscal year, the City is repairing/replacing its seawall on Bayshore Drive. It is anticipated that funding for several priority seawall repairs will be requested in the FY18 Community Investment Plan. Upon approval, construction of prioritized city seawall improvements is expected to take 18-24 months to complete.

22. Why does it take the City so long to repair or replace a seawall?

To begin with, the City has mandated requirements for government activities such as procurement. This results in government construction projects taking longer to complete than private construction activities. For example, the City has strict procurement requirements that include advertising for qualified companies, vendor vetting protocols, Commission approval of the low bidder, and government specific contract standards. These examples and many others add time to a construction project to ensure that the government is getting the best and most cost

effective contractor using a fair and competitive procurement process. This process is not perfect but is intended to ensure government transparency and accountability.

The existing process to fund these types of large projects is the development of the Community Investment Plan. It is conducted once per year and requires two public hearings prior to approval by the City Commission. Critical projects are scored to determine priority to compete for limited capital improvements dollars.

With regard to the repair or construction of seawalls, the City's faces unique conditions. For example, most of the City-owned seawalls parallel a roadway. Many are hundreds to thousands of feet long. The City has to provide a comprehensive design and construction project that addresses the right of way, road surface, adjoining bridges, and stormwater infrastructure. In addition, in order to repair or replace a seawall, the City may have to remove abandoned docks and/or give permitted dock owners notice and time to remove their docks etc. Once again, this adds time and cost compared to the process and complexity of repair or construction of a 75 foot residential seawall in someone's backyard.

All of these processes take time and often include public input. These checks and balances are put in place in every government to ensure that city management and elected officials are good stewards of the taxpayers' dollars.

Case Analysis

Municipal Leadership of Climate Adaptation Negotiations: Effective Tools and Strategies in Houston and Fort Lauderdale

Mark K. Williams, Alex Green, and Ella Kim

Negotiation analysis of climate change–related issues has largely focused on public dispute resolution mechanisms that are typically applied in the face of specific environmental crises, or on multiparty diplomacy relating to international climate agreements. Mayors and other municipal leaders, however, are increasingly taking steps to negotiate urban planning efforts with stakeholders to implement policies for managing the intensifying impact of climate change. In this article, we analyze negotiations in Houston, Texas, and Fort Lauderdale, Florida, to identify which methods municipal leaders employed to conduct negotiations to implement climate adaptation policies and also consider whether those methods were effective. The two cities present two differing city management structures: Houston has a strong mayor-driven system, while Fort Lauderdale uses a city commission and city manager system. In this article, we examine the barriers that leaders must overcome and consider their options for negotiating lasting agreements.

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Introduction

Cities are on the front line of climate change. Severe storms and droughts are causing unprecedented human injury and property damage in municipalities across the globe. Addressing these damages is making increasing demands on city budgets. Each month in the first half of 2016 set an individual record as the hottest in recorded global temperatures (National Aeronautics and Space Administration 2016). Scientists have also recorded the lowest level of Arctic sea ice "extents" (extent is one type of ice area measurement) in five of the first six months of 2016 (National Aeronautics and Space Administration 2016).[1] In September 2016, U.S. President Barack Obama called current climate change predictions "terrifying" (Davis, Landler, and Davenport 2016).

Municipal leaders are increasingly seeking ways to pre-empt climate related crises in their communities by planning for climate change adaptation. Unsurprisingly, they frequently face significant barriers to implementing adaptation plans and consequently must negotiate to build public support for adaptation policies (Susskind et al. 2015).

Researchers have created a substantial body of work on climate change and negotiation.[2] There are no studies that we know of, however, that have isolated insights from municipal leaders' efforts to negotiate climate change adaptation policies. Those insights could inform the implementation of policies elsewhere and open new avenues for study, especially given the increasing severity of climate change's financial, infrastructural, social, and political impact on a growing number of cities. For example, the World Bank estimated that from 2010 to 2050 more than 80 percent of the overall annual global costs of adaptation to climate change will be related to impacts suffered primarily in urban environments (World Bank Group 2011). At the same time, the world's population is rapidly migrating to urban areas. In 2014, 54 percent of the world's population lived in cities. By 2050, population experts predict that figure will have increased to two-thirds (United Nations 2014).

For these reasons, it is crucial to understand which tactics and strategies can best help municipal leaders implement policies to address the effects of climate change. In this study, we broadly identify several negotiation strategies and tactics available to municipal leaders. We then explore which negotiation tools municipal leaders in Houston and Fort Lauderdale used in their cities to successfully gain approval for specific policies related to climate adaptation planning. We conclude with five prescriptive suggestions for

negotiating climate adaptation policies that we have drawn from analyses of negotiations in both cities.

Proven Strategies for Effective Municipal Climate Adaptation Policy Negotiations

Municipal leaders negotiate how to implement effective climate adaptation planning processes by identifying potential risks, assessing how to respond to them, and then implementing policies that reflect those assessments (Susskind 2010; Moser and Ekstrom 2010; Barros et al. 2014; Shi, Chu, and Debats 2015). In the process, however, they are often confronted with challenges that arise when people try to change longstanding government practices (Smith, Vogel, and Cruce 2010; Moser and Ekstrom 2012). Four barriers typically impede their ability to develop and implement policies: insufficient financial resources, absence of technically skilled staff, existing adverse policy regimes, and insufficient public support (Moser and Ekstrom 2010; Bierbaum et al. 2013; Aylett 2014; Hughes 2015).

While municipal leaders often begin to develop policies by assessing which climate conditions will most seriously affect their cities, even the most credible projections are often contested by constituent groups. Stakeholders, who often have differing interpretations of risk, subject such projections to significant scrutiny (Kahan, Jenkins-Smith, and Braman 2011; Renn 2011; Susskind 2015). Municipal leaders must also implement practical adaptation policies that respect constituents' claimed "sacred values" (Bazerman, Tenbrunsel, and Wade-Benzoni 2008).

For leaders to negotiate agreements within such a charged environment, they must determine when and how to deal with these stakeholders. They must address timing and related sequencing issues. Research has shown joint fact-finding to be among the most effective means of involving stakeholders, allowing for public input regarding which data should be used to develop sustainable proposals (Susskind, McKearnen, and Thomas-Larner 1999).

In the face of stiff opposition, municipal leaders can also treat major climate change–related emergencies as action-forcing events to push for sweeping planning and reform (Susskind 2010; Anguelovski and Carmin 2011; Jones 2013). Such tactics, however, can pose the risk of resource competition, siphoning funds and effort from other municipal initiatives, which can erode the natural coalitions within governments that are necessary for ensuring the successful implementation of climate policies (Measham, Preston, and Smith 2011; Carmin, Dodman, and Chu 2013) .

As with all complex multiparty negotiations, attention to coalitional dynamics is essential for municipal leaders attempting to gain support within their own governments and overcome blocking coalitions that form among citizen stakeholders and groups (Susskind 1987; Crump and Susskind 2008).

Municipal leaders must therefore develop reasonable policies that are presented, revised, ratified, and implemented through carefully sequenced and managed processes (Susskind 1987).

The many useful tactics available to municipal negotiators include identifying, coupling, and de-coupling issues; trading on differences; and generating revised and flexible proposals—all in the hopes of weakening opponents' best alternative to a negotiated agreement (BATNA) (Lax and Sebenius 2006; Crump and Susskind 2008; Lax and Sebenius 2012; Thompson 2012).

Negotiating Flood Control in Houston

In 2009, Annise Parker took office as the sixty-first mayor of Houston. A former city councilor and city controller, Parker wanted to overhaul city government and hoped to use the office's executive authority to accomplish her goals (Institute of Politics 2016).[3] Houston is America's fourth most populous city, an expansive metropolis with a population of 2.1 million and international prominence in shipping, energy, and technology (United States Census Bureau 2016). It is located in Harris County, the most populous county in Texas and third most populous county in the country, with a population of 4.1 million (Wikipedia 2016).

Parker believed that a lack of regulations, including the absence of a master zoning plan, hindered the city's ability to maintain infrastructure and deliver services (Parker 2016a). She anticipated that Houston's problems were destined to worsen because of the intensifying effects of climate change, and she was determined to help address the local threat through policy changes (Parker 2016a). Most problematic were water drainage issues that plagued the city. Houston lies along a flat plain that extends forty miles to the Gulf of Mexico and the region's clay soil resists absorption. Rainfall often arrives in torrential bursts, causing serious flooding that is worsened by storm surges that rush inland from the Gulf and cause drainage to overflow. In 2001, for instance, Tropical Storm Allison caused widespread flooding, killing twenty-two people in Houston and greater Harris County, and inflicting $5 billion in damages (Parker 2016a, 2016b; Harris County Flood Control District 2016). The effects of Hurricane Ike six years later were even more severe.

Houston maintains a network of systems that capture water and deliver it to drainage networks maintained by Harris County. By 2010, the system needed serious repairs and upgrades. But the city failed to address these problems because the debt-based financing system used to maintain the system was costing taxpayers $150 million in interest payments each year, leaving no resources for actual maintenance (ReBuild Houston 2016a).

Upon taking office, Parker created the position of sustainability director, but she chose to personally manage an effort to overhaul the drainage management system (Parker 2016a). With the city reeling from the 2008

economic recession, she confronted significant obstacles. To succeed, she would have to gain the support of powerful interests. Her first step was to envision an overarching framework for all major projects.

Framing and Forming a Coalition

Parker believed that initiating policies that were explicitly labeled as climate adaptations would fail. Instead, she couched her major initiatives as matters of fiscal infrastructure policy and insisted that any water management proposal be part of an effort to get Houston debt free (Parker 2016a, 2016b).

She eventually aligned herself with Renew Houston, a group largely comprising members of the Houston Council of Engineering Companies (HCEC). The group had strongly supported one of Parker's rivals in the mayoral election, but the engineers crafted a persuasive drainage infrastructure proposal that gained Parker's support. Together the mayor and the council formed a powerful coalition. The engineers were viewed credibly by members of Houston's energy, aerospace, and technology industries, who might otherwise oppose such wide-ranging reforms from a first-term mayor. In turn, Parker provided an extensive network of political allies (Parker 2016a).

Terms of an Agreement

A proposal to implement a drainage fee, named ReBuild Houston, was initially developed by the HCEC and its supporters, and refined in consultation with Parker. It identified four sources for funding an overhaul of Houston's water system. Most important among these was a newly devised fee to be assessed on all property owners based on the amount of impervious, water-resistant surface area on a given property. Parker carefully avoided calling the fee a tax, knowing that taxation would create insurmountable opposition from increasingly powerful anti-tax groups (Parker 2016a, 2016b).

The fee would create a "pay as you go" replacement for borrowing, enabling Houston to finance improvements up front. The plan would direct funds to areas of greatest need to quickly diminish the worst effects of flooding (Parker 2016b; Rebuild Houston 2016b).

This was a substantial proposal because Houston was alone among major American cities in its lack of fees, regulations, and planning. "It is the only major American city without zoning," Parker later remarked. "It was the only city in America without a drainage fee. It was the only city in America without a general plan. It is the only major city without a garbage fee" (Parker 2016b).

Parker put the proposed drainage fee forward to the Houston City Council in August 2010, requesting a ballot referendum to amend the city charter. Renew Houston presented thirty thousand signatures in support of her effort, and the council, which had vetoed a similar fee in 2001, approved the request to put the matter to voters in November (Olson 2016). Opposition groups quickly formed, assailing the fee as an unfair tax, and

arguing that Renew Houston's engineers would financially benefit if the measure passed (Miller 2010).

The coalition of advocates fought back, releasing estimates supporting the new model. The average household, they said, would only pay approximately $5 per month (Lee 2011; Parker 2016b). The coalition also drew support from powerful constituencies including the AFL-CIO union and construction industry groups (Miller 2010.) In addition, Tropical Storm Hermine lent unanticipated credibility to their effort, by causing widespread damage as it moved through Texas in September 2010. Among the financial impacts of the storm, for example, the lucrative Ladies Professional Golf Association announced that it would no longer hold events in Houston because of the region's volatile weather conditions (Parker 2016a).

On November 2, 2010, Parker's coalition succeeded when the drainage fee passed by a slim margin of 50.94 percent. All that remained was for the city council to approve ordinances to launch ReBuild Houston that set the terms of the fee, but opponents were intent on continuing to fight the new system (Parker 2016a, 2016b).

Opposition Emerges

In the aftermath of the election, four powerful opposition groups challenged the fee, stalling its enactment. The city's eleven school districts demanded exemption as public entities, arguing that the costs of compliance were onerous. Harris County officials also objected, as did railway companies, whose tracks crisscrossed the city. Most importantly, an influential coalition of churches declared that the fee was a tax and claimed exemptions as religious institutions (Parker 2016a, 2016b).

Parker addressed each challenge differently, but steadfastly held that the proposition had enacted a fee, not a tax. She studied the relationship between rail companies and other cities that had enacted similar fees. At the same time, she quietly approached Harris County officials, with whom she needed to work on an array of sensitive issues, listening to their concerns, and incorporating them into a strategy to successfully implement the drainage fee. In negotiations with school officials, she argued that they stood to benefit, both financially and operationally, by paying into a system that would help alleviate flooding that directly affected their buildings as well as their students' families (Parker 2016a, 2016b).

The churches, however, remained the largest and most powerful opposition group. With memberships of more than two thousand each, Houston's megachurches occupy large structures with oversized impervious asphalt parking lots. The televangelist Pastor Joel Osteen's church alone claimed more than 43,500 members in 2015 (Hartford Institute for Religion Research 2015). Compounding their objection to the fee, many church leaders disliked Parker because she was the first openly gay mayor of Houston and were determined to ensure that she did not succeed (Parker 2016a, 2016b).

The quick resolution Parker desired stalled on multiple fronts. Unified agreement from the school districts proved elusive, public disagreement with the county was inadvisable, and the railway companies could challenge the proposition in court for years. Most of all, the churches could persuade the city council to stall for the foreseeable future.

Building a Coalition

Parker recognized that no agreement would come from direct negotiations with church leaders. She was seen as too extreme by church leaders and she perceived the same about them. She chose instead to structure a new negotiation.

Instead of conducting direct negotiations with the churches, Parker removed herself from the face-to-face negotiations and sent her legal counsel to negotiate with the city councilors who were supportive of the churches' interests. As a result, she also removed the churches from direct involvement in the negotiations (Parker 2016a, 2016b).

The subsequent negotiations produced an agreement. Existing church properties would be exempt from the fee, but not newly constructed churches. The agreement was also extended to the other opposition groups, exempting existing school, railroad, and county properties. On April 6, 2011, five months after voters approved the drainage fee initiative, the city council enabled the mayor to launch ReBuild Houston (Kervin 2011).

The Challenges of Implementation

The implementation of ReBuild Houston continued to face hurdles in subsequent years. Within months, Parker discovered that the estimated average household drainage fee of approximately $5 per month was inaccurate. Instead, homeowners were assessed at an average monthly rate approximately $3.25 higher. Facing angry citizens, Parker had the city absorb the difference, maintaining fees at the previously promised amount (Lee 2011; Parker 2016b).

Parker continued to meet frequently with civic groups to address concerns and fix unforeseen problems inherent to implementing a new initiative. Nevertheless, opposition, which included a lawsuit to stop the fee, persisted through the end of her term in office (*Dacus, Perez, and Jefferson v. Annise D. Parker and City of Houston* 2015).

Most surprisingly, the shift from the previous debt-based model to the pay-as-you-go failed to adequately address the system's financial problems. The new system failed to generate sufficient revenue in the first year to cover the debt obligations of the old system. The initial deficits led Parker to reflect later that, had she known, she would have abandoned the pay-as-you-go, long-term approach for an alternative financial approach that would have enabled, "massive projects right now, [to] solve your flooding problem" (Parker 2016b).

Outcome

Flooding remains a serious problem in Houston, exacerbated by worsening climate conditions and growth. Greater Houston has gained nearly two million new residents since 2001 (Texas A&M University Real Estate Center 2016) and record rainfall in April 2016 caused the worst flooding since Hurricane Allison (Lanza 2016). More than sixteen hundred homes in Houston flooded in a period of twenty-four hours, and at least eight people were killed (Lindner 2016; Sanchez 2016). In addition, a 2015 Texas Supreme Court Ruling dealt a blow to the initiative, finding fault with some aspects of the 2010 ballot campaign. The ruling did not invalidate the amendment, however, improving the odds that the agreement reached between Parker and her constituents will survive.

Along with her concerns about the transition to the pay-as-you-go model, Parker later reflected that her urgency to see ReBuild Houston launched may have led her to accept an agreement with her opponents that was more challenging to implement than she had anticipated (Parker 2016b).

Despite these setbacks, five years into the twenty-year plan, ReBuild Houston has raised more than one billion dollars, paid more than 20 percent of the debt from the old pre-fee system, and financed thousands of miles of road and drainage repairs (ReBuild Houston 2016c). After the early shortfalls, revenue spiked, generating $304 million after expenses in 2015. The initiative's fiscal strength has generated continued political support from Houston officials; with increasing demands from extreme flooding, the additional funding gives the city more options with which to respond to a persistent and worsening problem.

Negotiating Seawalls in Fort Lauderdale

The "Venice of America," Fort Lauderdale, with a population of 172,000, is one of Florida's most vibrant cultural hubs and a hugely popular tourist destination. It is also increasingly subject to flooding from rising sea levels and intensifying storm severity. The city is most vulnerable to flooding during "king tide" events, when severe high tides occur when the earth, sun, and moon align. When a king tide coincides with heavy rains, Fort Lauderdale experiences extreme flooding.

Fort Lauderdale boasts 165 miles of canals connecting multi-million-dollar waterfront homes. It uses seawalls as a main defense against coastal flooding. The city is protected by 191 miles of private seawalls and four miles of city-owned seawalls. Seawalls, however, are not a perfect defense; a primary reason is that the city is built on porous bedrock that allows seawater to penetrate from beneath. "Imagine Swiss cheese," a senior engineer at the U.S. Army Corps of Engineers told a reporter, "and you'll have a pretty good idea what the rock under southern Florida looks like" (Goodell 2013). During king tides, seawater flows over seawall barriers, and during extreme high

tides storm water drain pipes fill with tidal water, preventing water from draining away from properties (Bagley 2016; Gassman 2016).

In 2014, the Fort Lauderdale Marine Advisory Board considered raising the allowable maximum seawall height (City of Fort Lauderdale 2016a).[4] City engineers and a private seawall contractor reviewed the seawall ordinance and predicted that if seawalls were built to the existing maximum height of 3.9 feet, Fort Lauderdale could withstand the average high tide plus a one-foot king tide "while still providing additional height above the water for future sea level rise expected to occur within the thirty–fifty year lifespan of a seawall constructed today" (City of Fort Lauderdale 2016b). The Marine Advisory Board ultimately decided not to recommend changes to the seawall ordinance (City of Fort Lauderdale Staff 2016b).

Fort Lauderdale operates under a commissioner-manager form of government. The mayor and four elected commissioners serve on the city commission, which must approve all ordinance changes (City of Fort Lauderdale, FL: Government 2016). A professional, unelected city manager reports to the city commission.

In 2015, a severe storm coincided with a record-setting king tide, causing twenty-four inches in tide level increase, which was twelve inches beyond the board's predictions and resulted in record flooding (Bagley 2016; McGuire 2016). This extreme high tide added urgency for the city commission to develop new plans to increase Fort Lauderdale's resiliency (Seiler 2016). As a result, the city commission directed the city manager to propose seawall ordinance changes, establishing a minimum seawall elevation. Assistant Public Works Director Nancy Gassman, an experienced climate adaptation planner, was assigned to lead an ordinance team consisting of representatives from the city's public works, sustainability, and attorney's offices (Gassman 2016; see also Feldman 2016).

Framing and Forming a Coalition Agreement

The ordinance team knew that community approval would be critical in obtaining city commission passage of a proposed seawall ordinance. To ensure this outcome, the team used a collective problem-solving approach by first building consensus on proposed changes to the seawall ordinance within Fort Lauderdale's city government (Susskind and Rumore 2015).

From the outset, the ordinance team sought input from other experts within various city departments, including engineers and city planners. Their collective input helped the team identify and prioritize all issues related to flooding and seawalls. Part information gathering and part consensus building, this approach also helped the team identify and negotiate an approach to deal with seawall-related issues that satisfied the needs and requirements of the different governmental agencies. After extensive internal consultation, the ordinance team wrote a "public discussion draft" to distribute for public comment.

While preparing the public discussion draft, the team also sought to involve stakeholders early to get feedback on the proposed ordinance language (Gassman 2016). They reached out first to the Council of Fort Lauderdale Civic Associations, an active coalition of civic and homeowner associations, to help publicize the project (Council of Fort Lauderdale Civic Associations 2016). The team knew the council would quickly disseminate details about the proposed seawall ordinance changes to a large number of people (Gassman 2016). Gassman personally attended the council meeting to explain the mandate and to urge the council to spread the word that the city was developing changes to the seawall ordinance. The council chairwomen expressed immediate concerns that the city was moving too quickly to allow for adequate feedback. In reply, Gassman assured the council that the ordinance team would solicit public response to the public discussion draft before the proposed changes were submitted to the city commission (Gassman 2016).

Terms of a Proposed Agreement

The ordinance team proposed three bold seawall ordinance changes in the public discussion draft. The first change would have required all seawalls in Fort Lauderdale to be raised eight inches over the existing maximum allowed height (City of Fort Lauderdale 2016c), and the second would have required the seawall heights be raised by 2035 (City of Fort Lauderdale 2016c). The team chose 2035 to coincide with Fort Lauderdale's "2035 vision plan" which strives to make Fort Lauderdale "a resilient and safe coastal community" by the year 2035 (City of Fort Lauderdale 2013; Gassman 2016).

The third change would have required property owners to properly maintain seawalls and repair any that are damaged. It also imposed a stringent timeline of 180 days to make necessary repairs. If a seawall needed "substantial repair," the ordinance would have required the property owner to rebuild the seawall to meet the new elevation standard as part of the repair (City of Fort Lauderdale 2016c).

Although these recommendations were bold, they failed to address the issue that some properties did not have, and were not required to have, seawalls at all (McGuire 2016). In fact, if a property owner's seawall needed "substantial repair," the owner could simply tear the wall down to come into compliance with the proposed ordinance (Gassman 2016).

The city commission wanted a proposal as soon as possible. To comply, the ordinance team set an aggressive schedule of two months for public comment on the public discussion draft (City of Fort Lauderdale 2016b). They scheduled five general public meetings that they thought would be sufficient to meet the stakeholder feedback criteria. Five meetings, however, soon proved insufficient. To meet significant stakeholder demands, the ordinance team held additional meetings with representatives of individual Fort Lauderdale neighborhoods, districts, and citizen groups. Intent on keeping

the commitment to the city commission to submit the seawall ordinance proposal in two months, Gassman and her colleagues worked tirelessly to conduct the necessary meetings.

Opposition Emerges

The team distributed the proposed ordinance to the public on March 31, 2016. It was first presented to the influential Marine Advisory Board on April 7, 2016. The proposed seawall ordinance changes were met with immediate and varied opposition (Gassman 2016).

Some homeowners in areas experiencing significant and repeated flooding expressed concern that the new proposals were too weak, both in regard to maximum height and to the length of time allowed for implementation: "[I]f you don't hurry up and get this passed, my property values are going to crash and burn," Gassman recalls one homeowner stating (Gassman 2016).

Others thought the proposed provisions were too stringent and costly. They also thought the time allowed for repairs was too short and that the 2035 deadline was too aggressive (Gassman 2016). Many property owners with seawalls that met existing code requirements resisted new codes that would require them to incur significant expense in re-building the walls to meet the new standards (Gassman 2016).

Still others perceived that a uniform seawall height requirement barred the flexibility needed to accommodate differing property elevations and flooding vulnerabilities. Proponents of this position argued that, because each property has a different vulnerability to flooding, the seawall ordinance should be individualized to each parcel (Gassman 2016).

Opposition also focused on the accuracy of climate change modeling projections, and on the ordinance team's conservative decision to propose a minimum seawall height that adopted the worst-case projections for sea level rise (Gassman 2016). Others wanted evidence that increased seawall heights would provide greater protection against tidal floods before they were required to incur the expense of building or raising them (Gassman 2016).

The ordinance team listened to the stakeholder comments and Gassman recognized a "hunger for more information" from the concerned community (Gassman 2016). She also knew that the issues raised by this strong and varied opposition must be addressed because the community members and the powerful organizations they represented could block the proposed ordinance.

Building a Coalition

Gassman embraced the stakeholder-engagement process as an opportunity to educate the public on sea level rise's impact on the city's infrastructure and on the importance of public and private investment in adaptation planning and infrastructure. She also saw the stakeholder-engagement process as an opportunity to demonstrate to the public that the city was listening to its concerns and ideas and to demonstrate that the city was taking sea level rise seriously.

To provide information and build support for the proposed changes to the seawall ordinance, the ordinance team established a discussion forum on the Fort Lauderdale Sustainability Division website (City of Fort Lauderdale 2016c). This forum page included a copy of the public discussion draft, Gassman's slide show presentation to the Marine Advisory Board, and a regularly updated list of frequently asked questions (Gassman 2016). Responses to new questions were posted almost daily, resulting in thirty responses to a wide range of questions (Gassman 2016). The forum proved to be an effective information dissemination tool for Gassman to provide accurate information to address stakeholder questions and concerns about the proposed seawall ordinance changes.

On May 3, 2016, the ordinance team released a revised public discussion draft, now named the "commission consideration draft," which sought to balance concessions to property owners with the commission's mandate to make Fort Lauderdale more resilient against coastal flooding (Gassman 2016). To address concerns that raising existing seawalls was unnecessary and burdensome, the ordinance team made two critical concessions. First, it lowered the proposed minimum seawall height to match the current maximum 3.9-foot height allowed so that many of the existing walls met the ordinance height requirements (City of Fort Lauderdale 2016b). Additionally, the 2035 deadline to raise *all* seawalls to a minimum height was replaced by a requirement only for new walls and for walls needing substantial repairs. These important revisions neutralized criticism from property owners who had seawalls that met the existing seawall code requirements (Gassman 2016). According to Gassman, this allowed approximately "70 percent of the homeowners (to) take a deep breath and say, OK, it's not going to impact me" (Gassman 2016).

To offset these concessions, Gassman and her colleagues included an important future climate adaptation requirement that property owners would have to design new seawalls so that they could be raised in the future (City of Fort Lauderdale 2016b).[5] In doing this, the ordinance team sought to minimize future costs to property owners if Fort Lauderdale leaders were compelled to again increase the seawall height requirements in response to increasing flooding severity.

To address concerns about flooding coming from neighboring property, the commission draft now gave the city the power to cite property owners for allowing tidal waters to drain from their property to their neighbor's property because of their failure to maintain or repair damaged seawalls or build new seawalls in a timely manner (City of Fort Lauderdale 2016b; Gassman 2016).[6] The time to comply was also extended from 180 days to 365 days (City of Fort Lauderdale 2016b).

With few alterations, the commission consideration draft was submitted to the Fort Lauderdale City Commission for approval.

The Challenge of Implementation

Gassman knew that a more robust seawall ordinance would have little effect if it was not followed and that enforcement would be the primary challenge to implementing stricter seawall regulations. With almost 191 miles of seawalls currently in place, it would not be practical for the city to patrol seawalls looking for violations. Consequently, code enforcement will be mostly complaint-driven with "neighbors telling on their neighbors or neighbors complaining that it's a city seawall that's causing the problem" (Gassman 2016).

Furthermore, Gassman believed that complaint-driven enforcement would give much needed flexibility to the seawall ordinance by allowing the ordinance requirements to be adapted as the true effects of climate change are realized. According to Gassman, focusing on preventing damage to others "allows us to phase in the improvements as sea level rises into different neighborhoods, because you might not be causing problems between your neighbors today, but twenty years from now when sea level comes up, you might. So this sort of code enforcement will march through the neighborhoods as these high tide events become more extreme in different locations" (Gassman 2016).

Outcome

As evidence of Gassman's and the ordinance team's success, at the final two city commission hearings on the proposed changes to the seawall ordinance, only one public speaker addressed the city commission (Gassman 2016). On June 21, 2016, the Fort Lauderdale City Commission unanimously passed the city's proposed new seawall ordinance (City of Fort Lauderdale 2016c).

Through this process, Gassman focused on presenting proposed changes to the Fort Lauderdale seawall ordinance that the city commission would readily approve. The ordinance team sought to make city commission approval easier by building a supportive coalition and building consensus by quickly addressing the concerns of opponents when possible.

Reflecting on the process, Gassman expressed her belief that it is often best to begin a substantial negotiation knowing what you want, but without knowing all of the potential objections. Early knowledge of future barriers may prevent a negotiator from aggressively anchoring negotiations sufficiently to succeed. "Ignorance is a very powerful tool," she later reflected, "when doing the impossible"(Gassman 2016). To her, this philosophy applies in dealing with climate change as well as to her approach to Fort Lauderdale's seawall challenges. She began the process "somewhat innocently saying, okay, these are the issues and these are the ways that we can fix them"(Gassman 2016). But from the stakeholder-engagement process, she learned that there were "more issues here than we anticipated"(Gassman 2016).

Conclusion

Municipal leaders who must negotiate climate adaptation planning and implementation have at their disposal a substantial array of strategic and tactical negotiation tools to help ensure the success of their efforts. The case studies of Houston and Fort Lauderdale suggest tools intuitively used by civic leaders who have had some measure of success. They also affirm previous analyses showing that stakeholders in highly public negotiations share some commonly identifiable interests and positions. Identification of these similarities should inform approaches to the setup and design of these kinds of negotiations.

In both cases, climate adaptation planning was initiated by civic leaders following their investigations of the relationship between worsening climate conditions, infrastructural vulnerability, and substantial municipal financial exposure. Both leaders identified the four common barriers to developing and implementing climate planning policies and came to similar conclusions. Both cities benefitted from a presence of technically knowledgeable, skilled staff, and stakeholders who understood that the process goal was to address the effects of climate change. Both municipalities then engaged in public negotiations to address adverse policies and, in the case of Houston, insufficient financial resources.

Between both cities, some commonalities are notable and suggest a prescriptive approach to guide similar negotiations. For instance, joint fact finding was used to build a coalition of stakeholders in developing proposals that were swiftly presented to a broad public. In addition, in both cases leaders expanded their supportive coalition by framing their objectives as fiscally oriented and prudent risk-management policies based on the flooding the cities had both already experienced. This worked by avoiding, for the most part, several potentially volatile issues including the controversy that often comes with policy planning based on uncertain and frequently divisive climate change modeling.

Opposition to the proposals stemmed from stakeholders' disagreements about how to assign responsibility and share the costs for pre-emptively addressing potential risks. In response, municipal leaders modified their agreements, sometimes making exceptions for particularly challenging opponents (i.e., Houston churches), and other times extending their provisions to all stakeholders. In both cases, targeted outreach indicated the city's commitment to an inclusive, results-oriented process, and created an opportunity for negotiations that resulted in legally binding written policy.

Civic leaders in both cities reached their target deal through a strategy driven by disciplined coalitional moves, careful sequencing, shrewd understanding of the barriers to an agreement, and the precise crafting and timing of compromises. Tactical choices moved negotiations forward on deadlines, as seen in the Houston ballot initiative and the Fort Lauderdale

council vote. Process choices worsened opponents' BATNAs, largely through transparent public engagement and information dissemination, ensuring that the potential for no deal was increasingly unlikely. For instance, in Houston, the passage of the ballot initiative made it impossible for the city council to avoid passing an ordinance, and Parker's refusal to negotiate directly with the churches cut off the potential for a recriminating back-and-forth that would have otherwise strengthened their BATNA. In Fort Lauderdale, Gassman's pursuit of internal consensus, extension of the draft review process timeline, and creation of public forums had the similar effect of creating opportunities to expand supportive coalitions while targeting the threat posed by an increasingly minority opposition. Even mistakes, such as the miscalculation of fee amounts in Houston, were leveraged to forge closer ties directly with constituents.

In both instances, leaders reduced tensions and overcame deadlocks at all costs. In Houston, Parker recognized that she was herself—apart from anything her office actually proposed—seen as extreme by her opponents. Consequently, she devised a process that included removing herself from direct negotiations along with the most incendiary stakeholders arrayed against her, an approach using surrogates and careful sequencing that ultimately resulted in the grandfathering agreement that overcame their opposition. In contrast, Gassman saw the need to personally engage repeatedly with citizen groups, seizing an opportunity to educate the public and demonstrate her and her team's expertise and goodwill.

Consequently, and with some caveats, we suggest that municipal negotiators facing similar issues should:

1. assess whether there is sufficient time and opportunity for a standard and lengthy municipal policy planning process to address their challenges, or whether an extraordinary process is required because of emergency circumstances;
2. ensure that their own team is in agreement on the proposed plan and that the team includes technically skilled stakeholders who are prepared to participate in a highly public, carefully sequenced, and highly adaptive process;
3. promptly seek and engage the public through outreach, education, forums, and electoral mechanisms;
4. revise their process and proposals publicly and demonstrably, re-sequencing and revising both to reflect public engagement; and
5. develop flexible and creative options to build consensus and overcome barriers, being careful to emphasize effective, accountable, and accurate policies as much as optimum policy positions.

Some of the practices we identified in these cases have relevance to negotiations beyond those related to climate adaptation. Most importantly, despite their best calculations of potential risk and exposure to climate effects, both cities sacrificed prompt implementation of stricter adaptation measures in favor of achieving compliance over the long term with lowered adaptation requirements. By extending the time for implementation, these cities face greater risk that climate change impacts will outpace their compliance timeframes. This appears to be the case in Houston, where the worsening effects of flooding in 2016 continued to overwhelm the city's water management infrastructure.

The process in both cities focused on concessions to stakeholders—such a process carries its own risks. On one hand, as seen in Fort Lauderdale and to a lesser extent in Houston, it can be argued that leaders only achieved agreement by making significant short-term concessions to reduce opposition. Such an approach, however, falls short of achieving the overriding goal of minimizing the city's exposure to climate change, especially in the long term. Worsening climate conditions will likely also increase the need to apply policies to larger segments of the population, reducing the efficacy of exemptions and increasing the need for more nuanced trade-offs.

Both municipalities used many of the techniques that would be recommended by trained facilitators, but contrary to common advice in literature on the subject neither chose to bring in outside conflict resolution facilitation (Susskind 2006). Some observers may conclude that skilled professional assistance with facilitation is therefore unnecessary, others would point out that the agreements might have been stronger if professional facilitators were involved.

The two policy-based negotiations observed here exemplify how ideas suggested in negotiation analysis literature have been used in practice. These cases also highlight negotiation tactics mayors and other municipal leaders can use to successfully implement adaptation policies to reduce the negative impact of climate change on their cities.

NOTES

1. "Extent" is a measure of ice area that includes all the area from the ice's farthest edges but does not deduct for melted areas, or holes, that fall within that larger fields; thus ice extent numbers are usually larger than ice area numbers.

2. For example, Lawrence Susskind has written extensively on the subject including a multi-volume edited work (see Crump and Susskind 2008; Susskind 2015). Substantial study has been devoted to international multiparty climate negotiations, largely beginning with James Sebenius's (1984) work. Recent edited volumes address a host of issues related to negotiation and climate change (see Sjostedt and Penetrante 2013). Outside of a domestic American urban municipal context, but with obvious relevance, is the megacity urban analysis conducted by Madhu Dutta-Koehler (2013).

3. The Mayor of Houston has a degree of mayoral authority that Parker characterized in interviews as unparalleled among major American cities (Parker 2016a, 2016b).

4. The Marine Advisory Board advises the city commission on all issues relating to Fort Lauderdale's important waterways including commerce, water focused environmental issues, storm preparedness, and response procedures; see Fort Lauderdale Municipal Code Art. 2 Sec. 8-34. See www.municode.com/library/fl/fort_lauderdale/codes/code_of_ordinances?nodeId=COOR_CH8BO-DOBEWA_ARTIIMAADBO_S8-33RUPR.

5. In the ordinance that was actually adopted, this future design requirement was changed to a "strongly encouraged" recommendation (City of Fort Lauderdale 2016c).

6. The ordinance outlines that, if a property owner is cited for a seawall in disrepair or a seawall that is allowing flooding outside of the owner's property, the owner has one year to remedy the issue. A failure to comply after citation includes a requirement that the property owner appear before a Special Master, which could result in fines. The city can ultimately have the necessary work done and file a lien on the property for the costs.

REFERENCES

Anguelovski, I., and J. Carmin. 2011. Something borrowed, everything new: Innovation and institutionalization in urban climate governance. *Current Opinion in Environmental Sustainability* 3(3): 169–175.

Aylett, A. 2014. *Progress and challenges in the urban governance of climate change: Results of a global survey*. Cambridge: Massachusetts Institute of Technology Department of Urban Studies and Planning.

Bagley, K. 2016. Rising seas pull Fort Lauderdale, Florida's building boomtown, toward a bust. March 3. Available from insideclimatenews.org/news/01032016/ft-lauderdale-climate-change-global-warming-rising-sea-level.

Barros, V. R., C. B. Field, D. J. Dokken, M. D. Mastrandrea, and K. J. Mach. 2014. Climate change 2014: Impacts, adaptation and vulnerability: Working Group II contribution to the IPCC Fifth Assessment Report of the Intergovernmental Panel on Climate Change. Cambridge, UK: Cambridge University Press.

Bazerman, M. H., Tenbrunsel, A., and K. Wade-Benzoni. 2008. When "sacred" issues are at stake. *Negotiation Journal* 24(1): 113–117.

Bierbaum, R., J. Smith, A. Lee, M. Blair, L. Carter, F. S. Chapin III, and P. Flemming. 2013. A comprehensive review of climate adaptation in the United States: More than before, but less than needed. *Mitigation and Adaptation Strategies for Global Change* 18(3): 361–406.

Carmin, J., D. Dodman, and E. Chu. 2013. *Urban climate adaptation and leadership*. OECD Regional Development Working Papers 2013(26) Paris: OECD.

City of Fort Lauderdale. 2013. We are ready: We are a resilient and safe coastal community. City of Fort Lauderdale Public Works Department. Available from http://www.fortlauderdale.gov/home/showdocument?id=294.

— — —. 2016a. Proposed seawall ordinance, ULDR Section 47-19.3. Public presentation. Available from http://www.cflca.org/wp-content/uploads/2016/04/Seawall-Ordinance-Public-Presentation.pdf.

— — —. 2016b. Planning and Zoning Board staff report. Available from http://www.fortlauderdale.gov/home/showdocument?id=15491.

— — —. 2016c. Forum: Proposed seawall ordinance changes. Available from webuildcommunityftl.com/forums/proposed-seawall-ordinance-changes.

City of Fort Lauderdale, FL: Government. 2016. Accessed July 9. Available from http://www.fortlauderdale.gov/government.

Council of Fort Lauderdale Civic Associations. About the council. 2016. Available from http://www.cflca.org/about-the-cflca/.

Crump, L., and L. Susskind (eds). 2008. *Multiparty negotiation*. London: Sage Publications.

Dacus, Perez, and Jefferson v. Annise D. Parker and the City of Houston. 2015. Supreme Court of Texas, No. 13-0047. Available at www.txcourts.gov/media/996482/130047.pdf.

Davis, J. H., M. Landler, and C. Davenport. 2016. "Terrifying" path of climate crisis weighs on Obama. *New York Times*. September 8: A1. Available from http://www.nytimes.com/2016/09/08/us/politics/obama-climate-change.html?_r=1.

Dutta-Koehler, M. 2013. *Making climate adaptation work: Strategies for resource constrained South Asian mega-cities*. Massachusetts Institute of Technology Dissertation. Available from http://hdl.handle.net/1721.1/81638

Reference

Feldman, L. R. 2016. Seawall process memo. Available from ftlauderdalemedia.com/news/SeawallProcessMemo.pdf.

Gassman, N. 2016. *Personal interview*. July 25. Fort Lauderdale, FL.

Goodell, J. 2013. Goodbye, Miami. *Rolling Stone.* June 20. Available from http://www.rollingstone.com/politics/news/why-the-city-of-miami-is-doomed-to-drown-20130620.

Harris County Flood Control District. 2016. Flood education mapping tool: History. Available from http://www.harriscountyfemt.org/history.aspx.

Hartford Institute for Religion Research. 2015. Database of megachurches in the U.S. Available from http://www.hirr.hartsem.edu/megachurch/database.html.

Hughes, S. 2015. A meta-analysis of urban climate change adaptation planning in the U.S. *Urban Climate* 14 (December): 17–29. doi:10.1016/j.uclim.2015.06.003.

Institute of Politics. 2016. Fellows: Annise Parker. Cambridge, MA: Kennedy School of Government, Harvard University. Available from iop.harvard.edu/fellows/annise-parker.

Jones, S. 2013. Climate change policies of city governments in federal systems: An analysis of Vancouver, Melbourne and New York City. *Regional Studies* 47(6): 974–992.

Kahan, D. M., H. Jenkins-Smith, and D. Braman. 2011. Cultural cognition of scientific consensus. *Journal of Risk Research* 14(2): 147–174.

Kervin, D. 2011. Houston City Council approves Proposition 1 drainage fee. Available from http://www.harconnect.com/2011/05/04/houston-city-council-approves-proposition-1-drainage-fee/.

Lanza, M. 2016. Houston's tax day flooding put into historical perspective. Available from spacecityweather.com/houstons-flooding-review/.

Lax, D. A., and J. K. Sebenius. 2006. *3-D negotiation: Powerful tools to change the game in your most important deals*. Boston, MA: Harvard Business School Press.

— — —, and — — —. 2012. Deal making 2.0: A guide to complex negotiations. *Harvard Business Review.* November. Available from hbr.org/2012/11/deal-making-20-a-guide-to-complex-negotiations files/109/deal-making-20-a-guide-to-complex-negotiations.html.

Lee, K. 2011. Houston Mayor Annise Parker lowers drainage fee. *Texas Watchdog.* June 17. Available from http://www.texaswatchdog.org/2011/06/houston-mayor-annise-parker-lowers-drainage-fee/1308310771.column files/353/1308310771.html.

Lindner, J. 2016. Immediate report #1. Storm and flood information. April 17–18. 9900 Northwest Freeway, Houston, TX. Available from http://www.scribd.com/doc/310404129/Immediate-Flood-Report-1-April-17-18-2016-1.

McGuire, K. 2016. Minutes of the Fort Lauderdale Marine Advisory Board. Available from http://www.fortlauderdale.gov/home/showdocument?id=15616.

Measham, T. G., B. L. Preston, and T. F. Smith. 2011. Adapting to climate change through local municipal planning: Barriers and challenges. *Mitigation and Adaptation Strategies for Global Change* 16(8): 889–909.

Miller, S. 2010. Renew Houston leaders backing drainage fee made millions from City of Houston. October 28. Available from http://www.texaswatchdog.org/2010/10/renew-houston-leaders-backing-drainage-fee-made-millions/1288296270.story.

Moser, S. C., and J. A. Ekstrom. 2010. Framework to diagnose barriers to climate change adaptation. *Proceedings of the National Academy of Sciences of the United States of America* 107(51): 22026–22031.

— — —, and — — —. 2012. Identifying and overcoming barriers to climate change adaptation in San Francisco Bay: Results from case studies. California Energy Commission. Publication number CEC-500-2012-034. Available at http://www.energy.ca.gov/2012publications/CEC-500-2012-034/CEC-500-2012-034.pdf.

National Aeronautics and Space Administration. 2016. 2016 Climate trends continue to break records. Available from http://www.nasa.gov/feature/goddard/2016/climate-trends-continue-to-break-records.

Olson, B. 2016. Drainage fee proposal for Houston to undergo review. *Houston Chronicle.* August 11. Available from http://www.chron.com/news/houston-texas/article/Drainage-fee-proposal-for-Houston-to-undergo-1613236.php

Parker, A. 2016a. Personal interview. April 6. Cambridge, MA.

— — —. 2016b. Personal interview. May 4. Cambridge, MA.

ReBuild Houston. 2016a. Pay-as-you-go funding. City of Houston. Available from http://www.rebuildhouston.org/index.php/about-rebuild-houston/pay-as-you-go.

— — —. 2016b. What is ReBuild Houston? City of Houston. Available from http://www.rebuildhouston.org/.

Reference

— — —. 2016c. ReBuild Houston, Look Back/Look Forward. City of Houston. Available from http://www.rebuildhouston.org/images/pdf/rebuild_houston_projects.pdf.
Renn, O. 2011. The social amplification/attenuation of risk framework: Application to climate change. *Wiley Interdisciplinary Reviews: Climate Change* 2(2): 154–169.
Sanchez, R. 2016. Houston flooding: Eight dead and more to come. *Cable News Network.* April 21. Available from http://www.cnn.com/2016/04/20/us/houston-texas-flooding/.
Sebenius, J. K. 1984. *Negotiating the Law of the Sea: Lessons in the art and science of reaching agreement*. Cambridge, MA: Harvard University Press.
Seiler, J. P. 2016. King tide advisory: A message from Mayor John P. "Jack" Seiler. July 9. Available from http://www.fortlauderdale.gov/home/showdocument?id=12347.
Shi, L., E. Chu, and J. Debats. 2015. Explaining progress in climate adaptation planning across 156 U.S. municipalities. *Journal of the American Planning Association* 81(3): 191–202.
Sjostedt, G., and A. M. Penetrante. 2013. *Climate change negotiations: A guide to resolving disputes and facilitating multilateral cooperation*. New York: Routledge.
Smith, J. B., J. M. Vogel, and T. L. Cruce. 2010. *Adapting to climate change: A call for federal leadership*. Arlington, VA: Pew Center on Global Climate Change.
Susskind, L. 1987. *Breaking the impasse: Consensual approaches to resolving public disputes*. New York: Basic Books.
— — —. 2006. Breaking Robert's rules. *Negotiation Journal* 22(3): 351–355.
— — —. 2010. Responding to the risks posed by climate change: Cities have no choice but to adapt. *Town Planning Review* 81(3): 217–235.
— — —, S. McKearnen, and J. Thomas-Larner. 1999. *The consensus building handbook: A comprehensive guide to reaching agreement*. Thousand Oaks, CA: Sage Publications.
— — —, and D. Rumore. 2015. Using devising seminars to advance collaborative problem solving in complicated public policy disputes. *Negotiation Journal* 31(3): 223.
— — —, D. Rumore, C. Hulet, and P. Field. 2015. *Managing climate risks in coastal communities: Strategies for engagement, readiness and adaptation*. New York, NY: Anthem Press.
Texas A&M University Real Estate Center. 2016. Population data for Houston-The Woodlands-Sugar Land, TX. Available from http://www.recenter.tamu.edu/data/population#!/msa/Houston-The_Woodlands-Sugar_Land%2C_TX.
Thompson, L. L. 2012. *The mind and heart of the negotiator*, 5th edn. Boston, MA: Pearson.
United Nations. 2014. *World urbanization prospects: The 2014 Revision, Highlights*. New York: United Nations Department of Economic and Social Affairs, Population Division. Available from esa.un.org/unpd/wup/Publications/Files/WUP2014-Highlights.pdf.
United States Census Bureau. 2016. Quick facts: Houston City, Texas. Available from census.gov/quickfacts/table/PST045215/4835000.
Wikipedia. 2016. Harris County, Texas. Available from en.wikipedia.org/wiki/Harris_County,_Texas.
World Bank Group. 2011. Guide to climate change adaptation in cities. Available from siteresources.worldbank.org/INTURBANDEVELOPMENT/Resources/336387-1318995974398/GuideClimChangeAdaptCities.pdf.

CITY OF
FORT LAUDERDALE

All-America City

Memorandum

Memorandum No: 17-016

Date: January 26, 2017

To: Honorable Mayor and Commissioners

From: Lee R. Feldman, ICMA-CM, City Manager

Re: Enforcement of the City's Seawall Ordinance - ULDR Section 47-19.3

As you are aware, the City of Fort Lauderdale adopted amendments to ULDR Section 47-19.3 on June 21, 2016 (CAM #16-0662) to establish construction standards that ensured seawalls and similar structures contributed to coastal resilience and mitigated the effects of tidal flooding and sea level rise. The ordinance included two provisions under which a property owner may receive a code violation:

1. Failing to maintain a seawalls in good repair and setting a timeline of 365 days for completion of repairs if cited; and
2. Requiring owners to prevent tidal waters entering their property from impacting others properties or the public right of way and setting a timeline of 365 days for remedy if cited.

During the 2016 October and November King Tides, neighbor complaints and staff observations resulted in identifying approximately two dozen privately-owned seawalls that were in violation of the new ordinance related to tidal flooding. Additional properties are currently being identified and investigated for seawalls in disrepair.

The first citations under this ordinance will be issued at the end of this month. In addition to the notice, the property owner will receive guidance in the form of a "frequently asked questions" pamphlet (Exhibit 1). To prepare our neighbors for this initial wave of citations, City staff scheduled meetings with five homeowners' associations to brief them on the ordinance, the citation, the compliance process, and timelines. The City's presentation also covered local investments in stormwater infrastructure to reduce flooding impacts and the master planning for addressing tidal impacts from City-owned seawalls.

As sea level continues to rise, higher well maintained seawalls will improve community resilience to address short term flooding caused by king tides. The enforcement of this ordinance supports the resilient City vision described in Fast Forward Fort Lauderdale 2035.

Attachment 1: FAQs for Seawall Citation

C: Stanley D. Hawthorne, Assistant City Manager
Christopher Lagerbloom, ICMA-CM, Assistant City Manager
Cynthia A. Everett, City Attorney
Jeffrey A. Modarelli, City Clerk
John C. Herbst, City Auditor
Department Directors
CMO Managers

Jan. 12, 2016

Recommendations Re Seawalls along the Intracoastal

From: MAC

To: H B Commissioners

Background & Issue:

Water from the Intracoastal floods areas of the Town during particularly high tides, very strong storm conditions, high winds from the east or heavy inflows from interior sources.. It is particularly acute on the southern part of the Mile. This makes for hazardous conditions by: increasing the potential for accidents, shutting off access at the south end of the Mile (most seriously for emergency vehicles) and degrading properties.

It is expected that with sea level rise, these conditions will occur more frequently and flooding will be deeper and cover larger areas. The four nearby Counties have agreed that planning on a rise from a 1992 base of at least 12" and possibly 24" by 2060 is prudent.

Armoring the length of the Town's interface with the Intracoastal will provide some protection against this flooding. Other measures such as raising the road and surrounding areas, providing drainage and installing pumping capability will be essential to fully mitigate the problem of flooding. The MAC believes adequate seawalls are an important part of the solution and action on this issue can be started independently of other solutions. This will provide some relief to the current flooding problems but it should not be allowed to delay work on the other essential remedies.

Recommendations:

The MAC unanimously recommends the Commission:

1. Initiate a process to create adequate seawalls along the entire mile.
2. Begin by focusing on the more critical areas. These critical areas are those properties currently lacking any seawall or with an extremely low seawall and causing flooding of the road and/or neighboring properties.
3. Continue to aggressively pursue getting the roadway raised to over 3.9 ft. NAVD88[1] and other improvements to the roadway area.

[1] NAVD88 or the North American Vertical Datum means the vertical control datum or orthometric height established for vertical control surveying in the USA based on the General Adjustment of the North American Datum of 1988.

We believe the Commission should take the following steps:

A. Begin by publicizing the issue to obtain public understanding of the issue and to reach a consensus on the proposed program.
B. Focus the program on properties where flooding causes problems for neighboring properties and/or public facilities.
C. Formally cite these properties as violating the ordinance (proposed below) and enforce remedial action.
D. Plan on a future review as more information becomes available.

We recommend the Commission pass an ordinance with the following characteristics:

1. Stating a goal to have all Intracoastal interfacing properties have a seawall with a minimum elevation of 3.9 ft. NAVD88
   (This standard is based primarily on a new Ft. Lauderdale Ordinance but also on other nearby City ordinances and advice provided by FDEP and the Corps.)
2. Defining an acceptable wall structure as constructed of masonry of sufficient strength to withstand the force of waves from wind or wakes of boats. It must be capped with concrete of appropriate width and made to mesh with seawalls of neighboring properties to the extent possible. Exclude the use of rip-rap or bulkheads as an acceptable form of seawall.
3. Making provision for property owners to submit alternative plans for resolving the flooding problem which, if to be used, must be approved, with the advice of an Engineer, by the Town Manager and reviewed by the Commission.
4. Mandating that every new relevant building permit must include constructing a seawall to this standard and that the seawall must be installed within two years of taking out the permit whether other parts of the permit are completed or not. "Relevant permit" is defined as one to develop an undeveloped site or to make improvements on a given property of over $50,000 or to affect the interfacing area with the Intracoastal in any way.
5. Mandating that any property causing flooding problems to neighboring properties or to public property as cited by the Town Manager[1], must install such a seawall.
6. Or, if not currently causing problems as cited above, then a conforming seawall must be installed by 2040, if the land within five (5) feet of the Intracoastal is not at least 4 ft. above the NAVD88.
7. Assign someone to investigate further possible funding from Federal, State or County sources. At this time, FEMA appears to be best and only possible source.
8. Encourage maintaining and enhancing west of the sea wall such as beaches, water vegetation and other living shoreline features.

[1] The Town Manager will need the service of an engineer for these determinations or the Town may find it easier to retain the services of an Engineer to serve as the Town Engineer. At that point, this recommendation would substitute Town Engineer for Town Manager as the person responsible for citing problem properties.

Further Issues:

Is there Unanimous Agreement? The Commission should be aware that, while most citizens recognize the need to take action against the flooding problem noted above, some believe that seawalls are not an appropriate or necessary solution. They argue that:

1. Seawalls are permeable and therefore will not keep water from seeping through to its "natural" level.
2. Even with conforming seawalls, water will come through so that raising the road is the only solution which matters.
3. Seawalls will retain water on the land side and thereby lengthen the time of flooding.
4. Seawalls are an expensive gamble which are not guaranteed to work and the cost is being levied on only a few of the Town's property owners.

The MAC is aware of these objections and has considered them. There is some merit but we have concluded, as stated above, that seawalls are a necessary but not sufficient step in protecting our Town from flooding and that the proposals we have made provide as equitable a first step as possible in abating the flooding problem.

Is Ordinance Best? We have considered whether other means of bringing about this change might be better than by an ordinance. We see no advantage to other mechanism and are convinced an ordinance is the best approach. Ordinances have been used by nearby cities to regulate seawall matters.

Does Commission have the Authority? We have examined whether the Commission has the authority to pass such an ordinance. We find no reason that it may not. Moreover, there is case law appearing to provide this authority. And, finally, neighboring city commissions have passed such ordinances and none have met legal objection.

Who has to conform? We have considered other means of affecting the necessary installation of seawalls on properties. Using the method of enforcing initially on properties identified as causing problems seems the preferred method. We believe that additionally incorporating as a requirement of new and certain other construction permits should find ready acceptance. Also we believe that creating a requirement for all properties with potential for future flooding problems to install a conforming seawall by a future date certain should prove acceptable to most as long as there is sufficient time to prepare. 2040 seems to be to us a reasonable time frame. It should be noted that it is important to provide for an alternative means of protecting against incursion from high tides. This accommodates a property owner who wants a boat ramp, a beach or some other variant with which a seawall would interfere. The accommodation is done by providing the option of proposing an alternative means for review and approval.

Who pays? We have considered who should pay for the addition of a seawall. These are not inexpensive. We have secured estimates running from $300 to $1500 a lineal foot. However, unless the Town undertakes an integrated project of "sea-walling" the entire length of the Intracoastal, we believe the financial responsibility should be with the individual property owner. In the unlikely event that an integrated project were to be considered, then the Commission could entertain the notion of shared public funding some or all of the project. There is no doubt that allocation of those cost responsibilities will be a challenging as was the allocation of beach nourishment costs.

Are grants available from Federal, State or County sources? Currently it appears unlikely that such funds will be available. FEMA might provide funds on the basis of repair of damage from a declared disaster. However, it is more likely that this would be in the event of a Town project rather than an individual property owner project. There are a few other grant possibilities discussed in the text.

4

Discussion:

A Requirements

FDEP - Currently no agency prescribes specific requirements as to height, form or structure or other characteristic of sea walls. However, the FDEP does require permitting of most projects involving the building of sea walls. Specifically, they require a review of all sea wall projects but may not require permits if the lineal extent of the project is less than 150 ft. or meet some other criteria. The details are available in FDEP publications. Overall, the specifics seem to be undefined.

Corps – The Corps of Engineers will review such projects (using the filing with FDEP or, if there is none, a filing with the Corps). Generally they are most interested if the project affects navigation, impedes the intracoastal channel or endangers aquatic plants. FDEP coordinates with them through the permit application process.

Neighboring communities have passed ordinances relating to requirements for sea walls. The summary results are tabulated below:

Town/Agency	Date	Mandate	Min. Height In units of	Max Height NAVD88	Plan for Sea Level	Install limit	Mandate all by
Fort Lauderdale	Jun-16	when cited	3.9 ft.	5.0 ft	2060	365 days	none
Sea Ranch Lakes	Apr-15	authorized	existing	5 ft. 10 in.	2040	now ?	none
Pompano Beach	Jun-12	when cited	adjacent	5 ft. 10 in.	?	as agreed	none
		for problem	sea wall				
Lighthouse Point	Jan-16	> 50% repair	4.0 ft.	4.0 ft.	?	now ?	none
		> 50% value					
		new building					
Deerfield Beach	?			4 ft. 6 in.*			
FDEP		permit	none				
		application					
Corps		permit	none				
		application					
Hillsboro Beach	?	yes	Adjacent &	none	2060	2 years	2040: if ..
propose		when cited	3.9 ft.				

- Implied

5

Note: The above is summarized information. Ordinances contain more specific requirements related to min/max height restrictions, setbacks, construction, reason for citations, etc. and restrictions on other facilities and matters such as docks, pilings, moorings, zoning, permitting conditions. Copies of the Ordinances are available at the Town Hall.

Ft. Lauderdale – In June 2016 the Commission adopted an ordinance, C-16-13[1] which provides criteria for adding sea walls along their interior waterways. It should be noted that prior to this time, there existed an ordinance covering the maximum height of such sea walls. The maximum has now been adopted as the minimum height. Initially, this new regulation was intended to mandate installation of sea walls with specific minimum height requirements by a specific date. According to staff, the Commission responded to "push back" by making the requirement only on properties cited due to flooding causing problems to neighboring properties or to public facilities. Also, it allows property owners to propose a fix other than a sea wall if the design is approved by the City Engineer.

The new standard is for a sea wall of minimum height of 3.9 ft. above NAVD88 (North American Vertical Datum). A maximum height is also prescribed which varies by situation of the property but generally is 5 ft. above NAVD88. Staff believes this is enough to protect against current high tides during the King Tide season and provide protection even with the possible maximum sea level rise of 2 ft. by 2060.

Sea Ranch Lakes - In April 2015 the Commission updated an existing Ordinance to provide for an "increase in the height of the existing seawalls" along and to prepare for the forecast rise in sea level by the year 2040. It authorized owners to raise Intracoastal facing seawalls to a maximum 5 ft. 10 in. The increase in height is permitted but not mandated. Seawalls bordering interior waters are not allowed to be increased.

Pompano Beach - In June 2012 the Commission updated Dec, 1993 ordinance to call on the City Engineer or City Inspector to give notice of a property needing to repair or install a sea wall because it is a nuisance or endangers the neighborhood or creates a danger to navigability. The owner is responsible for obtaining all necessary approvals and permits to abate the condition and to complete construction or repair. If needed, there can be a hearing before a Special Magistrate. The height of such a seawall "shall be consistent with the elevations of adjacent seawalls" but not to exceed 5 ft. 10 in.

Lighthouse Point – In Nov, 2014 the MAB recommended that the permitted height for seawalls be increased by 1 ft. The Commission in Jan. 2015 passed an ordinance stating "All seawalls within the city shall have a cap elevation of 4.0 ft. NAVD88 above the mean sea level." However, all existing seawalls if not less than 3 ft. 8 in. NAVD88 nor more than 4 ft. 10 inNAVD88 "will be considered in conformance with this (ordinance)." It then clarifies that "Any seawalls existing ... with a cap elevation of less than 3 ft. 8 in. "shall be permitted to remain, except that the seawall shall be reconstructed to meet the requirements (of the

[1] Ordinance passed in June 2016 and was further clarified in December 2016 by amendment.

ordinance) when an area of 50% or more ... shall be repaired or reconstructed or when the property is developed or redeveloped for a new principal building or for improvements exceeding 50% of the value of existing improvements on the property."

C. Town's Authority to use such Ordinances/Zoning/Other?

We discussed with the Town Attorney the extent of the Town's authority concerning requiring an individual property owner to update or install sea walls. Also we reviewed ordinances by nearby Towns and discussed with their staff this issue. While the final answer to this question can only be given by our Town attorney, he made clear that he would not provide a definite answer until he did a thorough research of the law and cases.

Short of that process, we have found the following: F.S. Section 163.3177 gives the authority to a municipality that is a member of a consortium, such as what we are, to "protect human life against the effects of natural disasters" and more explicitly under Section 163.3177(6)g(10) "to develop an adaptation action area designation for those low-lying coastal zones that are experiencing coastal flooding due to extreme high tides and storm surge and are vulnerable to the impacts of riding sea level."

The question of permitting was discussed. Under the Florida Administrative Code, Section 62-330.051(12) a resident should have no problem to quickly obtain the required permits. This may not be the case with the Federal Corps of Engineers although they normally are forwarded the permit application from FDEP and accept that as sufficient if there are no impediments to navigation or effects on aquatic vegetation.

Finally, in the case of Jordan v. St. Johns County, 63 So. 3rd 835. The county allowed a road to deteriorate, blocking access to private property. The property owners filed a writ of mandamus against the county requiring them to repair the road. The court ruled against the plaintiffs by Summary Judgment, as a writ of mandamus cannot be used against a government authority. The Appeals Court voided the Summary Judgment and sent it back to the trial court, commenting that "we conclude that a government entity has a duty to reasonably maintain its public roads." Note, the ruling applies to the project if it is classified as "maintenance" but not were it classified as an "upgrade." This leads to the legal question as to whether the State DOT has a duty to maintain A1A so that it does not flood,

endangering human life and egress from the island during hurricanes and other natural disasters. If it does, can it be sued under the writ of mandamus to force repair of the road and ancillary facilities?

D. Questions re Coverage of Mandate

Our examination of these questions was less rigorous than on other issues. However, staff of neighboring cities all are using Ordinances to direct action on seawalls. As noted above, many are merely updating existing Ordinances. Permitting is implied as needed to begin individual construction but limits on specifications for the sea wall are contained in the Ordinance.

The issue of whether to mandate that all properties conform appears to potentially cause problems. Ft. Lauderdale Commission specifically backed away from mandating all non-conforming seawalls be brought into compliance by a date certain. They shifted to the concept that only properties that were causing flooding problems for their neighbors or public facilities would be mandated to conform. Some of the Ordinances contain specific mandates such as:

1. When a non-conforming sea wall is repaired.
2. When a permit is filed to develop a non-developed property.
3. When a permit is filed to make a substantial change to the property.

E. Sources of Funding

We have considered the options as to should be financially responsible for building a mandated sea wall. It appears that the only reasonable option is to have the individual property owner bear the cost. The one possible exception would be if the Town decided to sea-wall the entire length of the face of the Intracoastal. Then possibly an assessment allocation among all residents would be appropriate. A funding allocation mechanism, such as was done with beach nourishment costs, would have to be developed. Not an easy political task to create perceived equity.

To make clear, the costs of building seawalls are not trivial. We obtained estimates of $300 a lineal foot for just adding a cap to an existing wall to $1500 a lineal foot for a new installation. In our Town, some of the project would have to be done from the water side of the property because land access is limited. Mobilizing a construction barge adds to the complexity and cost of such projects.

We examined the question of whether public grants of funding might be available. None currently exist for this purpose. However, we believe that FEMA might be a source in the future if the issue were declared a disaster area. Currently, only the effects of Hurricane have been declared as such but this declaration probably could not be applied to the sea wall issue.

8

Were an overall plan to remedy the problems on A1A developed, funding for seawalls might be incorporated. Not only would FDOT possibly cover some of the costs but MPO might get involved as well. However, we are informed that a convincing feasibility study where needs are presented concisely with the best ways to affect seawalls would be needed.

Grant opportunities may exist with the Florida Department of Economic Opportunity which has yearly planning grants of $25,000. It was suggested that a planner would need to help us navigate a grant request to this new Department which has replaced the Florida Department of Community Affairs.

The Regional Planning Council, Broward County, stationed in Hollywood, has services and deals with emergency preparedness and resilience planning. In 2010 their funding was reduced by the State. They have become more creative in seizing opportunities and might be interested in a sea level rise mitigation plan.

F. Other issues: wake effects, inlet effect,

Wake effects from speeding boats definitely impact and damage seawalls. However, we have no control on setting speed limits or no wake zones on the intracoastal. This is the domain of the Corps. Boaters seem more interested in getting to the inlet or just traversing the intracoastal more quickly. Only manatee season slows them down with regulations protecting manatees.

We might want to consider petitioning the Corps for help on this matter. Our Committee doubts that this will bear fruit given the countervailing interests. However, installing cameras to capture documentation of "speeders" of current limits and reporting this evidence to the responsible enforcement authorities might be a tool to at least keep boaters from violating current speed limits.

With regard to the inlet, its narrow mouth retards the outflow of tidal waters. This adds to the time intracoastal waters are at peak height. During peak flows from internal sources such as Everglade connected canals or drainage from heavy rain events, the danger to overflow of sea walls is increased. Not much can be done except to encourage the District to keep the channel at its permitted depth. We believe that they are currently fulfilling their obligations.

Frequently Asked Questions
Customer Service ADDENDUM to FAQs Citation
Seawall Ordinance Implementation

The City of Fort Lauderdale recently amended the Unified Land Development Regulations of the City of Fort Lauderdale Section 47-19.3 Boat Slips, Docks, Boat Davits, Hoists, and Similar Mooring Structures. This amendment is intended to improve coastal resilience and mitigate the effects of tidal flooding and sea level rise.

1. **Can I submit a complaint if my neighbor's seawall does not meet the minimum elevation standard in the ordinance?**

No. The ordinance does not require existing seawalls to meet the minimum elevations standard. Property owners with seawalls below the minimum elevation, or shorelines with rip rap, or a nature shoreline **can only be cited if**: (1) their seawall is in disrepair; or (2) if tidal waters entering their back yards exit their property and cause flooding to their neighbors or roadways. However, those property owners will only be cited after a code enforcement officer observes that tidal waters are flowing off their properties into the roadways or onto adjacent properties.

2. **Can I submit a complaint that my neighbor's seawall is cracked and crumbling?**

Yes. The ordinance requires that all property owners must maintain their seawalls in good repair. A seawall is presumed to be in disrepair if it allows for upland erosion, transfer of material through the seawall or allows tidal waters to flow unimpeded through the seawall to adjacent properties or public Right-of-Way. Property owners failing to maintain their seawalls may be cited.

3. **Does the ordinance address tidal flooding caused by a low seawall in the neighborhood?**

Yes. However, those property owners will only be cited after a code enforcement officer observes that tidal waters are flowing off their properties into the roadways or onto adjacent properties.

4. **What happens if a property does not have a seawall and is causing neighborhood flooding?**

Waterway properties that may have permeable erosion barriers such as rip rap or a natural shoreline may be cited by a code enforcement officer observing tidal waters entering their property impacting adjacent properties or public Rights-of-Way. If cited, those property owners have to pursue a remedy to prevent the tidal waters from leaving their properties which may include installing a new seawall, raising the existing seawalls, or another solution.

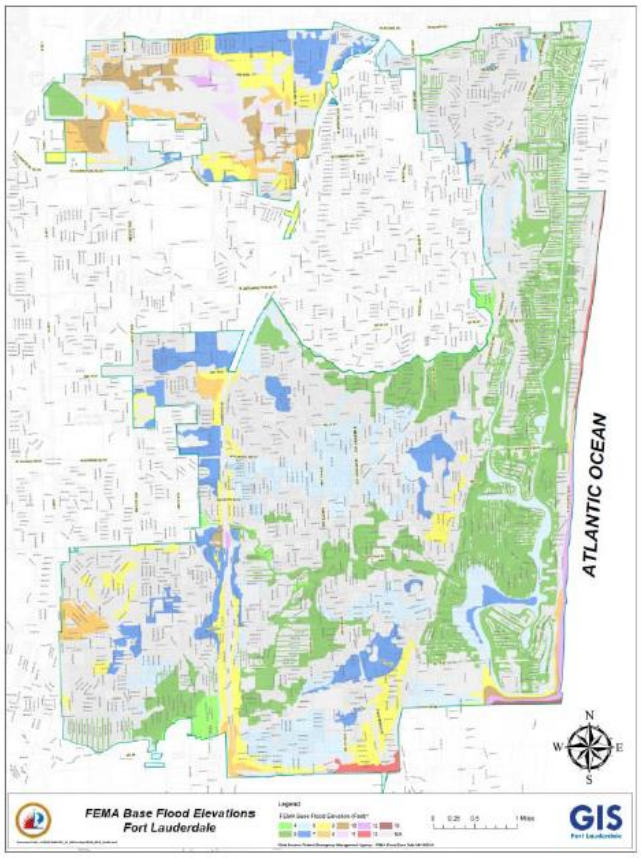
5. **What counts as a seawall? Are rip rap and coral rock seawalls included in the ordinance?**

The ordinance defines a seawall as a vertical or near vertical structures placed between an upland area and a waterway. The seawall may be made of any material as long as it is substantially impermeable. Rip rap is defined as a foundation of unconsolidated boulders, stone, concrete or similar materials placed on or near a shoreline to mitigate wave impacts and prevent erosion. For the purposes of Section 47-19.3(f), rip rap is not consider a seawall but traditional coral rock seawalls (coral boulders cemented into a solid wall) meet the definition.

6. **I just put in a new seawall at the current maximum elevation of 3.9 NAVD88 (5.5 NGVD29). Do I have to raise my seawall or do anything related to the recommendation to design with a stronger foundation?**

No. Your seawall met the existing requirement at the time of installation.

7. **What is my Base Flood Elevation and what are the applicable minimum and maximum seawall elevation?**



Seawall Elevation Based on Base Flood Elevation (BFE)

- BFE = 4 or 5 ft NAVD88
  - Min 3.9 ft - Max 5.0 ft
- BFE= 6 ft NAVD88
  - Min 3.9 ft - Max 6 ft
- Not in a flood plain
  - Min 3.9 ft
  - Max Grade

FEMA Base Flood Elevation (Feet)*

4	6	8	10	12	16	
5	7	9	11	13	N/A	

8. How do we find out what the height our sea walls?

If the seawall was recently built, you may be able to request property records in person at the Department of Sustainable Development at 700 NW 19th Avenue, 33311. The elevation of the seawall will be on the plan. If it is an older existing seawall, you would need a property survey to determine the height of your seawall. If you have a survey of your property, the height of the sea wall is likely to appear on the survey. Look at the units on the survey. The minimum seawall elevation requirements are: 3.9 ft NAVD88 (5.5 ft NGVD29). If your survey does not have the elevation of the seawall but does include you finished floor elevation, you can estimate the height of you seawall by running a level string line from your finished floor to your seawall and measure the difference. The current height of the seawall, its condition, and its structural design will determine how this ordinance will affected any given property.

9. How will the city code enforcement officers enforce the requirement to keep seawalls in good repair?

In many ways, a seawall is not different than any other structural component of a property like the roof or a fence. It requires maintenance and eventual replacement. The ordinance requires that seawalls are maintained in good repair. A seawall is presumed to be in disrepair if it allows for upland erosion, transfer of material through the seawall or allows tidal waters to flow unimpeded through the seawall to adjacent properties or public Right-of-Ways such as roads. The "good repair" criterion does not apply to the height of existing seawalls.

Most of the City's code enforcement is complaint driven, a direct result of the observation of one of our code enforcement officers, or associated with targeted sweeps for specific concerns. Areas known for tidal flooding are likely locations for initial enforcement of the "maintained in good repair" criterion.

10. I don't want to tattle on my neighbor. Can't the City just review all the seawalls?

We all have a role to play in building this community. The City has 165 miles of waterways. The City has limited code enforcement officers and this is just one of the many codes they are responsible for enforcing. Our neighbors are the City's eyes and ears. You let us know where the problems are. Some have expressed the concern that complaining on their neighbors is detrimental to neighborhood harmony. However, a property owner who is not maintaining their seawall and/or allowing tidal waters to flood roadways, limiting access to a neighbor's home and potentially impacting neighborhood property values also needs to be a good neighbor.

11. Property owners have received special permission to place a dock or other amenity to a public seawall. What happens to that amenity when the City raises the seawall elevation?

Section 8-144 of the Unified Land Development Code gives the City Commission the ability to permit private use of public property abutting a waterway by resolution. However, this is just for the use of the public waterway. The specific resolution (permit) and the general provisions in this section define the relationship between the City and private property owner. These permits

are generally temporary in nature. Those that include a fixed period of time may require that the permit holder repair, replace, or maintain the adjacent seawall during the term of the permit. Should the City elevate a seawall, the permit holder could be required to remove any nonfixture improvements placed by him upon public lands and make the necessary repairs to the city property to place the same in good condition.

12. Will putting in a new seawall impact my property assessment?

According to the Broward County Property Appraiser's Director of Residential Property Department, the seawalls are already included in the land value and therefore modification would not affect the assessment. This is in contrast to a new roof in which modifications may affect the market value. However, based on the Property Appraiser's point system, a new roof would have a minimal impact on the assessment.

CITY OF FORT LAUDERDALE

FORT LAUDERDALE'S SEAWALL ORDINANCE

How Community Engagement Shapes Adaptation Policy

Nancy J. Gassman, Ph.D. | Assistant Public Works Director | Sustainability Division | City of Fort Lauderdale, FL

Figure 1- High tide Breaching City-owned Seawall.
In September 2015, King tides were observed at nearly two feet above the average high tides, causing widespread coastal street flooding.

INTRODUCTION

In the fall of 2015, widespread flooding of residential streets occurred in the City of Fort Lauderdale, FL associated with extreme king tides (Figure 1). The City Commission discussed concerns with the tidal flooding and its relationship to seawalls. At that time, the Unified Land Development Regulations (ULDR), **Section 47-19.3 Boat slips, docks, boat davits, hoists and similar mooring structures only** contained a provision that set a maximum allowable seawall elevation (3.9 feet NAVD88). The Commission directed staff to revise the seawall ordinance to set a minimum seawall elevation requirement.

PROPOSED ORDINANCE

A provision of public concern was the requirement that every seawall along the 165 miles of city waterway would have to be raised by 2035.

An internal team of subject matter experts was convened in early 2016 to outline the major issues of concern and begin developing language for stakeholder review. This included staff with expertise in flood plane management, marine use, building code, zoning, engineering, law, and sea level rise. The initial proposed ordinance, called the **Public Discussion draft (Figure 2)**, established standards for seawall construction that would mitigate the effects of tidal flooding and sea level rise over the next 50 years consistent with the City's 2035 Fast Forward Fort Lauderdale vision of being "A safe and resilient City". The two provisions that drew the attention of residents were 1) The requirement that every seawall in the city would have to be raised and 2) the new minimum seawall elevation was higher than the maximum elevation allowed by the existing ordinance.

COMMUNITY ENGAGEMENT

With 165 miles of canals lined with commercial and residential properties, the impact and the costs associated with implementation of the proposed ordinance would be widespread and expensive. This resulted in invitations by concerned property owners to present the draft ordinance at numerous homeowners' associations meetings and to other special interest groups.

Members of the ordinance development team met with the public and other concerned stakeholders.

PUBLIC OUTREACH – SPRING 2016

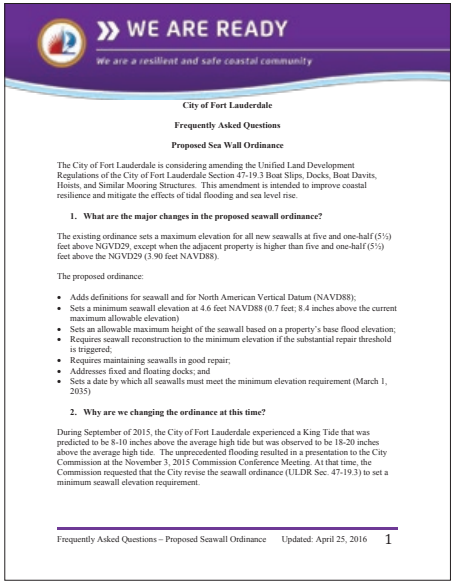
March 8	Council of Civic Associations – Setting the stage
March 9	Board of Adjustment– Setting the stage
April 7	Marine Advisory Board
	Public Discussion Draft first distributed
April 14	Idlewyld Board of Directors
April 17	Las Olas Isles Homeowners Association
April 21	River Oaks Homeowners Association
April 22	Riviera Isles Homeowners Association
April 25	Council of Civic Association Executive Board
April 27	Marine Industry Association of South Florida
May 2	Rio Vista Civic Association
May 3	Commission Conference Meeting
	Commission Consideration Draft first distributed
May 4	Harbor Beach Homeowners Association
May 5	Marine Advisory Board
May 9	District 1 Districtwide Meeting
May 10	Council of Civic Associations Regular Meeting
May 18	Planning and Zoning Board – Public Hearing
May 23	Sustainability Advisory Board
June 1	Riverside Park Residents Association
June 7	Commission Meeting
	First Public Reading of Final Proposed Ordinance
June 21	Commission Meeting – Ordinance Adoption

KEY MODIFICATIONS:

Public Discussion Draft of Ordinance

- Adds definitions for seawall and for North American Vertical Datum (NAVD88);
- Sets a minimum seawall elevation at 4.6 feet NAVD88;
- Sets an allowable maximum height of the seawall based on a property's base flood elevation;
- Requires seawall reconstruction to the minimum elevation if the substantial repair threshold is triggered;
- Requires maintaining seawalls in good repair and sets a timeline of 180 days for completion of repairs;
- Addresses fixed and floating docks; and
- Sets a date by which all seawalls must meet the minimum elevation requirement (March 1, 2035)

Figure 2 – Key Modification in the Public Discussion Draft of the Seawall Ordinance.



» WE ARE READY

We are a resilient and safe coastal community

City of Fort Lauderdale

Frequently Asked Questions

Proposed Sea Wall Ordinance

The City of Fort Lauderdale is considering amending the Unified Land Development Regulations of the City of Fort Lauderdale Section 47-19.3 Boat Slips, Docks, Boat Davits, Hoists, and Similar Mooring Structures. This amendment is intended to improve coastal resilience and mitigate the effects of tidal flooding and sea level rise.

1. What are the major changes in the proposed seawall ordinance?

The existing ordinance sets a maximum elevation for all new seawalls at five and one-half (5½) feet above NGVD29, except when the adjacent property is higher than five and one-half (5½) feet above the NGVD29 (3.90 feet NAVD88).

The proposed ordinance:

- Adds definitions for seawall and for North American Vertical Datum (NAVD88);
- Sets a minimum seawall elevation at 4.6 feet NAVD88 (0.7 feet; 8.4 inches above the current maximum allowable elevation)
- Sets an allowable maximum height of the seawall based on a property's base flood elevation;
- Requires seawall reconstruction to the minimum elevation if the substantial repair threshold is triggered;
- Requires maintaining seawalls in good repair;
- Addresses fixed and floating docks; and
- Sets a date by which all seawalls must meet the minimum elevation requirement (March 1, 2035)

2. Why are we changing the ordinance at this time?

During September of 2015, the City of Fort Lauderdale experienced a King Tide that was predicted to be 8-10 inches above the average high tide but was observed to be 18-20 inches above the average high tide. The unprecedented flooding resulted in a presentation to the City Commission at the November 3, 2015 Commission Conference Meeting. At that time, the Commission requested that the City revise the seawall ordinance (ULDR Sec. 47-19.3) to set a minimum seawall elevation requirement.

Frequently Asked Questions – Proposed Seawall Ordinance Updated: April 25, 2016 1

Figure 3 – Continually-updated Frequently Asked Questions.
More than two dozen questions answered to help address public concern and media inquiries.

Ninety days and twenty public meetings later, the draft that came before the Commission for approval was very different than the original Public Discussion draft.

Ninety days and twenty public meetings later, the draft that came before the Commission for approval in June was very different than the original public discussion draft. The accumulated stakeholder feedback resulted in two important products. The first was a list of continually updated Frequently Asked Questions (FAQs, Figure 3). These were posted on the City's home page and provided to home owners associations or interested parties. The lists of answers developed in consultation with the ordinance team was useful in identifying concerns, for anticipating questions at each successive meeting, and for media contacts on the topic.

The second work product was a modified ordinance referred to as the Commission Consideration draft. This draft was transformed by the concerns identified by the stakeholders which included issues of equity, costs, unforeseen gaps in application and unintended consequences. The language was modified from an ordinance that impacted nearly every neighborhood in the City to one that supported improvements only in neighborhoods that were experiencing tidal flooding. This draft was used in the second major wave of community outreach in advance of the public hearings for adoption. Because of the extensive public outreach and staff's responsiveness to the feedback, the final ordinance (Figure 4) was adopted with little public comment or resistance.

CONCLUSION

In the end, residents recognized the need for investing in both the public and private infrastructure in order to achieve community resilience to sea level rise.

The success of passing this major adaptation policy can be attributed to a variety of factors. The City took advantage of a variety of perspectives to draft the initial proposal and reconvened to discuss the public feedback. Staff engaged the public at their invitation and presented the story and graphics to help them understand the issues. Staff recognized that every audience was a new beginning to retell the story and entertain new questions. They also demonstrated to the public that this was a democratic process where their concerns were being heard and considered in evolving the public policy. In the end, residents recognized the need for investing in both the public and private infrastructure in order to achieve community resilience to sea level rise.

APPROVED SEAWALL ORDINANCE

- Adds definitions for seawall, rip rap and for North American Vertical Datum (NAVD88);
- Sets a minimum seawall elevation at 3.9 feet NAVD88 (existing allowable maximum height);
- Recommends design of seawall for future height adjustment up to 5.0 feet NAVD88;
- Sets an allowable maximum height of the seawall based on a property's base flood elevation;
- Requires seawall reconstruction to the minimum elevation if the substantial repair threshold is triggered;
- Requires maintaining seawalls in good repair and sets a timeline of 365 days for completion of repairs if cited;
- Requires owners to prevent tidal waters entering their property from impacting others and sets a timeline of 365 days for remedy if cited;
- Allows fixed docks to extend 10 inches above the adjacent seawall; and
- Addresses floating docks.

Figure 4 – Key Provisions of the Adopted Seawall Ordinance.