

The Florida Senate
BILL ANALYSIS AND FISCAL IMPACT STATEMENT

(This document is based on the provisions contained in the legislation as of the latest date listed below.)

Prepared By: The Professional Staff of the Committee on Infrastructure and Security

BILL: SPB 7016

INTRODUCER: For consideration by the Committee on Infrastructure and Security

SUBJECT: Statewide Office of Resiliency

DATE: December 2, 2019

REVISED: _____

ANALYST	STAFF DIRECTOR	REFERENCE	ACTION
1. Price	Miller		Pre-meeting

I. Summary:

SPB 7016 establishes the Statewide Office of Resiliency (SOR) within the Executive Office of the Governor, headed by a Chief Resilience Officer appointed by and serving at the pleasure of the Governor. The proposed bill creates the Statewide Sea-Level Rise Task Force adjunct to the SOR for the purpose of recommending consensus projections of the anticipated sea-level rise and flooding impacts along this state's coastline.

The proposed bill provides for task force membership and requires all appointments to the task force to be made no later than August 1, 2020. The proposed bill directs the Chief Resilience Officer to convene the task force no later than October 1, 2020, and requires the task force to meet thereafter upon the call of the chair.

The task force is directed to develop and recommend consensus baseline projections of the expected sea-level rise for planning horizons designated by the task force. The task force is authorized to designate technical advisory groups to inform its decision-making and to request the Department of Environmental Protection (DEP) to contract for services to assist in developing the recommended baseline projections. The proposed bill directs the DEP to serve as the contract administrator and provide administrative support to the task force.

The task force must submit its recommended projections to the Environmental Regulation Commission (Commission) for adoption or rejection by January 1, 2021. If adopted, the task force's projections will serve as the state's official estimate of sea-level rise and flooding impacts along the state's coastline for the purpose of developing future state projects, plans, and programs. The proposed bill requires the task force to review the projections as the task force determines appropriate and to submit any recommended revisions to the projections for consideration by the Commission. The proposed bill sunsets the task force and related provisions on July 1, 2023, but leaves the SOR in place, headed by the Chief Resilience Officer, within the Executive Office of the Governor.

For the 2020-2021 fiscal year, the sum of \$500,000 in nonrecurring funds is appropriated from the General Revenue Fund to the FDEP for the purpose of the authorized contracting and for task force administrative expenses. See the “Fiscal Impact Statement” heading below for additional details.

The bill takes effect July 1, 2020.

II. Present Situation:

Sea-Level Rise and Coastal Flooding

With 1,350 miles of coastline and relatively low elevations, Florida is particularly vulnerable to coastal flooding.¹ There are three primary ways that climate change influences coastal flooding: sea-level rise, storm surge intensity, and rainfall intensity and frequency.²

Sea-level rise is an observed increase in the average local sea-level or global sea-level trend.³ The two major causes of global sea-level rise are thermal expansion caused by the warming of the oceans (water expands as it warms) and the loss of land-based ice (ice sheets and glaciers) due to melting.⁴ Since 1880, the average global sea-level has risen about 8 to 9 inches, and the rate of global sea-level rise has been accelerating.⁵ The National Oceanic and Atmospheric Administration (NOAA) utilizes tide gauges to measure changes in sea-level, and provides data on local sea-level rise trends.⁶ Analysis of this data shows some low-lying areas in the southeastern U.S. experience higher local rates of sea-level rise than the global average.⁷

Florida’s coastal communities are experiencing high-tide flooding events, sometimes referred to as “sunny day” or “nuisance” flooding, with increasing frequency because sea-level rise

¹ Florida Division of Emergency Management, *Enhanced State Hazard Mitigation Plan, State of Florida*, 107-108, 162 (2018) [hereinafter *SHMP*], available at https://www.floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf (last visited Oct. 16, 2019).

² *Id.* at 107.

³ DEP, *Florida Adaptation Planning Guidebook*, Glossary (2018) [hereinafter *DEP Guidebook*], available at <https://floridadep.gov/sites/default/files/AdaptationPlanningGuidebook.pdf> (last visited Oct. 16, 2019); NASA, *Facts: Sea Level*, <https://climate.nasa.gov/vital-signs/sea-level/> (last visited Oct. 16, 2019).

⁴ *DEP Guidebook*, at Glossary; NOAA, *Climate Change: Ocean Heat Content*, <https://www.climate.gov/news-features/understanding-climate/climate-change-ocean-heat-content> (last visited Oct. 16, 2019). More than 90 percent of the warming that has happened on Earth over the past 50 years has occurred in the ocean; IPCC, *The Ocean and Cryosphere in a Changing Climate*, SPM-8, SPM-10, SPM-19, SPM -21, SPM-23, 1-14, 4-3, 4-4, 4-14 (Sept. 2019) [hereinafter *IPCC Ocean and Cryosphere*], available at https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf (last visited Oct. 16, 2019). Uncertainty regarding projected sea level rise by 2100 is mainly determined by ice sheets, especially in Antarctica and Greenland, which are losing ice at increasing rates.

⁵ U.S. Global Change Research Program, *Fourth National Climate Assessment*, 757 (2018) [hereinafter *NCA4*], available at https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (last visited Oct. 31, 2019); *IPCC Ocean and Cryosphere*, at 4-3.

⁶ NOAA, *What is a Tide Gauge?*, <https://oceanservice.noaa.gov/facts/tide-gauge.html> (last visited Oct. 17, 2019); NOAA, *Tides and Currents, Sea Level Trends*, <https://tidesandcurrents.noaa.gov/sltrends/> (last visited Oct. 16, 2019); see *DEP Guidebook*, at 8, 16.

⁷ *NCA4*, at 757.

increases the height of high tides.⁸ In Florida, the areas at the most risk from sea-level rise includes Florida's 35 coastal counties which contain 76% of its population.⁹ In the U.S., sea-level rise and flooding threaten an estimated \$1 trillion in coastal real estate value, and analyses estimate that there is a chance Florida could lose more than \$300 billion in property value by 2100.¹⁰ Sea-level rise affects the salinity of both surface water and groundwater through saltwater intrusion, posing a risk particularly for shallow coastal aquifers.¹¹ Sea-level rise also pushes saltwater further upstream in tidal rivers and streams, raises coastal groundwater tables, and pushes saltwater further inland at the margins of coastal wetlands.¹²

Storm surge intensity and the intensity and precipitation rates of hurricanes are generally projected to increase,¹³ and the overall extent of destruction from hurricanes is also rising.¹⁴ Higher sea levels will cause storm surges to travel farther inland and impact more properties than in the past.¹⁵ Storms and sea-level rise are likely to lead to increased coastal erosion.¹⁶

Increases in evaporation rates and water vapor in the atmosphere increase rainfall intensity and precipitation extremes, and the sudden onset of water can overwhelm stormwater infrastructure.¹⁷ As sea levels and groundwater levels rise, low areas drain more slowly, and the combined effects of rising sea levels and extreme rainfall events are increasing the frequency and magnitude of coastal and lowland flood events.¹⁸

Sea-Level Rise Projections

Below is a table of projections for future sea-level rise, globally and in regions of Florida:

⁸ *SHMP*, at 108, available at https://www.floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf (last visited Oct. 15, 2019); NOAA, *High-Tide Flooding*,

<https://toolkit.climate.gov/topics/coastal-flood-risk/shallow-coastal-flooding-nuisance-flooding> (last visited Oct. 16, 2019).

⁹ *DEP Guidebook*, at III, available at <https://floridadep.gov/sites/default/files/AdaptationPlanningGuidebook.pdf> (last visited Oct. 16, 2019).

¹⁰ *NCA4*, at 324, 758; Zillow, *Climate Change and Housing: Will a Rising Tide Sink All Homes?* (2017), <https://www.zillow.com/research/climate-change-underwater-homes-12890/> (last visited Oct. 31, 2019) (stating that by 2100 \$883 billion in U.S. homes are at risk of being underwater with the total value of potentially underwater properties in Florida at \$413 billion); Union of Concerned Scientists, *New Study Finds 1 Million Florida Homes Worth \$351 Billion Will Be At Risk From Tidal Flooding* (2018), <https://www.ucsusa.org/about/news/1-million-florida-homes-risk-tidal-flooding> (last visited Oct. 31, 2019).

¹¹ *SHMP*, at 106, available at https://www.floridadisaster.org/globalassets/dem/mitigation/mitigate-fl--shmp/shmp-2018-full_final_approved.6.11.2018.pdf (last visited Oct. 31, 2019).

¹² *Id.* at 108.

¹³ *Id.* at 106, 141; *IPCC Ocean and Cryosphere*, at 6-21, available at https://report.ipcc.ch/srocc/pdf/SROCC_FinalDraft_FullReport.pdf (last visited Oct. 16, 2019); *NCA4*, at 95, 97, 116-117, 1482, available at https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (last visited Oct. 31, 2019).

¹⁴ See ARS Technica, *A new paper concludes that hurricane damage is increasing*, Timmer, J., November 12, 2019, available at <https://arstechnica.com/science/2019/11/a-new-paper-concludes-that-hurricane-damage-is-increasing/> (last visited November 14, 2019).

¹⁵ *NCA4*, at 758; *SHMP*, at 107, 112-113, 158-160; see also NOAA, *Florida Marine Debris Emergency Response Guide: Comprehensive Guidance Document* (Jan. 2019), available at https://marinedebris.noaa.gov/sites/default/files/publications-files/FL_Marine_Debris_Emergency_Response_Guide_2019.pdf (last visited Oct. 16, 2019).

¹⁶ *NCA4*, 331, 340-341, 833, 1054, 1495; *SHMP*, at 108; IPCC, *Climate Change and Land*, 4-44-4-45 (Aug. 2019), available at <https://www.ipcc.ch/site/assets/uploads/2019/08/Fullreport-1.pdf> (last visited Oct. 17, 2019).

¹⁷ *SHMP*, at 99, 106, 116, 141, 181; *NCA4*, at 88, 763.

¹⁸ *SHMP*, at 106; *NCA4*, at 763.

Sea Level Rise Projections				
Source	Scale	Years	Low (feet)	High (feet)
Intergovernmental Panel on Climate Change ¹⁹	Global	2046-2065	.79	1
		2081-2100	1.28	2.3
		2100	1.4	2.75
U.S. Global Change Research Program ²⁰	Global	2030	.3	.6
		2050	.5	1.2
		2100	1	4.3
Southeast Florida Regional Climate Change Compact Sea Level Rise Work Group ²¹	Southeast Florida	2030	.5	.83
		2060	1.17	2.83
		2100	2.59	6.75
Tampa Bay Climate Science Advisory Panel ²²	Tampa Bay Region	2050	1	2.5
		2100	2	8.5

As seen in these projections, there are considerable variations in estimates of future sea-level rise. In addition, some research indicates that current sea-level rise projections significantly underestimate future coastal exposure to impacts associated with rising sea levels.²³ Although some local governments and some state agencies have adopted sea-level rise estimates for specific planning purposes, the State of Florida has no officially-established estimates of projected sea-level rise for use by state agencies in developing, planning, and implementing their various duties and responsibilities.

Selected State, Regional, and Local Programs

A number of state and local programs are in place that address issues relating to sea-level rise and related flooding. For example:

- The Coastal Zone Protection Act of 1985 generally requires construction to be located a sufficient distance landward of the beach to permit natural shoreline fluctuations and preserve dune stability.²⁴ The Act states that both the FDEP and local governments have the

¹⁹ IPCC Ocean and Cryosphere, at 1-15, 4-4, CCB9-21. These projections are relative to a period of 1986-2005, and the projected range is based on different “representative concentration pathways,” which are scenarios of future concentrations of greenhouse gases and aerosols and chemically active gases, and land use changes.

²⁰ NCA4, at 406, 758, available at https://nca2018.globalchange.gov/downloads/NCA4_2018_FullReport.pdf (last visited Oct. 31, 2019).

²¹ Southeast Florida Regional Climate Change Compact Sea Level Rise Work Group, *Unified Sea Level Rise Projection, Southeast Florida*, 4-5 (2015), available at <https://southeastfloridaclimatecompact.org/wp-content/uploads/2015/10/2015-Compact-Unified-Sea-Level-Rise-Projection.pdf> (last visited Oct. 21, 2019). These projections are compared to the sea level in 1992.

²² Tampa Bay Climate Science Advisory Panel, *Recommended Projections of Sea Level Rise in the Tampa Bay Region*, 1, 7 (Apr. 2019), available at http://www.tbrpc.org/wp-content/uploads/2019/05/CSAP_SLR_Recommendation_2019.pdf (last visited Oct. 16, 2019).

²³ See *New elevation data triple estimates of global vulnerability to sea-level rise and coastal flooding*, Kulp, S. and Strauss, B. (2019) at pp. 10-11, available at <https://reporterre.net/IMG/pdf/S41467-019-12808-z.pdf> (last visited November 8, 2019).

²⁴ Section 161.55(3), F.S. The Act makes exceptions for certain structures such as piers, beach access ramps, or shore protection structures.

authority to adopt or enforce standards for construction seaward of the coastal construction control line (CCCL)²⁵ that are as restrictive as or more restrictive than the Act.²⁶

- FDEP’s Florida Resilient Coastlines Program helps prepare coastal communities and habitats for the effects of climate change and sea-level rise by offering technical assistance and funding to communities dealing with coastal flooding, erosion, and ecosystem changes.²⁷
- Other state agencies are working on coastal resilience in Florida. The Department of Transportation plans for resilience to prepare Florida’s transportation system for potential hazards.²⁸ The Department of Economic Opportunity works with DEP on the Community Resiliency Initiative, assisting communities with adaptation planning.²⁹ The Fish and Wildlife Conservation Commission is Florida’s lead agency on addressing the impacts of climate change on fish and wildlife, including adaptation strategies for Florida’s coastal ecosystems.³⁰ The Division of Emergency Management in the Executive Office of the Governor maintains a state-wide emergency management program, and its roles include administering federal mitigation grant programs and serving as Florida’s state coordinating agency for the National Flood Insurance Program.³¹
- The water management districts address flood protection as a core part of their respective missions, and many of their activities are related to resilience efforts. For example, the St. John’s River Water Management District provides resources and cost-sharing to increase community resilience.³² The South Florida Water Management District is implementing comprehensive plans for addressing sea-level rise, including a flood protection level of service program, incorporating sea-level rise projections into planning, conducting vulnerability assessments, and assisting local governments.³³
- In 2010, through a proactive regional collaboration to address climate change, the four counties of Broward, Miami-Dade, Monroe, and Palm Beach signed on to the Southeast

²⁵ The CCCL defines the portion of the beach-dune system that is subject to severe fluctuations caused by a 100-year storm surge, storm waves, or other forces such as wind, wave, or water level changes. Section 161.053, F.S.; Fla. Admin. Code R. 62B-33.005(1); DEP, *The Homeowner’s Guide to the Coastal Construction Control Line Program*, 3 (2017), available at <https://floridadep.gov/water/coastal-construction-control-line/documents/homeowners-guide-coastal-construction-control-line> (last visited Oct. 18, 2019).

²⁶ Section 161.56(1), F.S.

²⁷ DEP, *Florida Resilient Coastlines Program*, <https://floridadep.gov/ResilientCoastlines> (last visited Oct. 19, 2019).

²⁸ DOT, *Florida Transportation Plan (FTP): Resilience*, <http://www.floridatransportationplan.com/resilience.htm> (last visited Oct. 25, 2019); DOT, *Florida Transportation Plan (FTP): Resilience Subcommittee Members*, http://www.floridatransportationplan.com/resilience_committee.htm (last visited Oct. 31, 2019).

²⁹ DEO, *Adaptation Planning*, <http://www.floridajobs.org/community-planning-and-development/programs/community-planning-table-of-contents/adaptation-planning> (last visited Oct. 19, 2019).

³⁰ FWC, *What FWC is Doing*, <https://myfwc.com/conservation/special-initiatives/climate-change/fwc/> (last visited Oct. 19, 2019); FWC, *A Guide to Climate Change Adaptation for Conservation*, 6-81–6-108, 9-35–9-51 (2016), available at <https://myfwc.com/media/5864/adaptation-guide.pdf> (last visited Oct. 20, 2019).

³¹ DEM, *Mitigation*, <https://www.floridadisaster.org/dem/mitigation/> (last visited Oct. 20, 2019); DEM, *State Flood Plain Management Program*, <https://www.floridadisaster.org/dem/mitigation/floodplain/> (last visited Oct. 20, 2019).

³² St. John’s River Water Management District, *Sea-Level Rise*, <https://www.sjrwmnd.com/localgovernments/sea-level-rise/#projects> (last visited Oct. 30, 2019).

³³ Akintunde Owosina, South Florida Water Management District, Governing Board Meeting, June 13, 2019, Chief, Hydrology and Hydraulics Bureau, *Impact of Sea Level Rise on the SFWMD Mission, Focus on Flood Protection*, 2, 6, 7-10 (June 13, 2019) available at <https://apps.sfwmd.gov/webapps/publicMeetings/viewFile/21964> (last visited Oct. 20, 2019).

Florida Regional Climate Change Compact.³⁴ The Compact’s work has included developing a Regional Climate Action Plan and developing a Unified Sea-Level Rise Projection.³⁵

- Florida’s local governments in coastal areas must have a coastal management element in their comprehensive plans.³⁶ Among other requirements, these coastal management elements must use principles to eliminate inappropriate and unsafe development in coastal areas when opportunities arise.

In January of 2019, Governor DeSantis issued Executive Order 19-12 creating the Office of Resilience and Coastal Protection to help prepare Florida’s coastal communities and habitats for impacts from sea-level rise by providing funding, technical assistance, and coordination among state, regional, and local entities.³⁷ In August of 2019, the Governor appointed Florida’s first Chief Resilience Officer, which will report to the Executive Officer of the Governor and collaborate with state agencies, local communities, and stakeholders to prepare for sea-level rise and climate change.³⁸

The Environmental Regulation Commission

Section 20.255(6), F.S., creates the Commission within the DEP and it is composed of seven state residents appointed by the Governor, subject to confirmation by the Senate. The appointees must provide “reasonable representation from all sections of the state” and be representative of agriculture, the development industry, local government, the environmental community, lay citizens, and members of the scientific and technical community who have substantial expertise related to water pollutants, toxicology, epidemiology, geology, biology, environmental sciences, or engineering. The commission sets standards and rules that protect Floridians and the environment based on sound scientific and technical validity, economic impacts, and risks and benefits to the public and Florida’s natural resources.

III. Effect of Proposed Changes:

The proposed bill creates s. 14.2031, F.S., establishing the Statewide Office of Resiliency within the Executive Office of the Governor, headed by a Chief Resilience Officer appointed by and serving at the pleasure of the Governor. The Statewide Sea-Level Rise Task Force is created adjunct to the Statewide Office of Resiliency for the purpose of recommending consensus projections of the anticipated sea-level rise and flooding impacts along this state’s coastline.

³⁴ Regional Climate Leadership Summit, *Southeast Florida Regional Climate Change Compact* (2010), available at <http://southeastfloridaclimatecompact.org/wp-content/uploads/2014/09/compact.pdf> (last visited Oct. 31, 2019); SFRCCC, *What is the Compact?*, <http://southeastfloridaclimatecompact.org/about-us/what-is-the-compact/> (last visited Oct. 31, 2019).

³⁵ SFRCCC, *Regional Climate Action Plan*, <http://southeastfloridaclimatecompact.org/regional-climate-action-plan/> (last visited Oct. 31, 2019); SFRCCC, *Unified Sea Level Rise Projection, Southeast Florida*, 5, 11, 13, 33 (2015), available at <http://www.southeastfloridaclimatecompact.org/wp-content/uploads/2015/10/2015-Compact-Unified-Sea-Level-Rise-Projection.pdf> (last visited Oct. 31, 2019).

³⁶ Sections 380.24 and 163.3177(6)(g), F.S.

³⁷ State of Florida, Office of the Governor, *Executive Order Number 19-12*, 5 (2019), available at <https://www.flgov.com/wp-content/uploads/2019/01/EO-19-12-.pdf> (last visited Oct. 20, 2019).

³⁸ Governor Ron DeSantis, News Releases, *Governor Ron DeSantis Announces Dr. Julia Nesheiwat as Florida’s First Chief Resilience Officer* (Aug. 1, 2019), <https://flgov.com/2019/08/01/governor-ron-desantis-announces-dr-julia-nesheiwat-as-floridas-first-chief-resilience-officer/> (last visited Oct. 20, 2019).

The task force is composed of the following nine members:

- The Chief Resilience Officer, who shall serve as the chair of the task force;
- The DEP's Chief Science Officer, who shall serve as the vice-chair of the task force;
- One member appointed by the President of the Florida Senate;
- One member appointed by the Speaker of the Florida House of Representatives; and
- One representative each, appointed by their respective agency head, division director, executive director, or commission chair, from:
 - The Department of Transportation;
 - The Division of Emergency Management;
 - The Department of Agriculture and Consumer Services;
 - The Fish and Wildlife Conservation Commission; and
 - The Department of Economic Opportunity.

All appointments must be made no later than August 1, 2020.³⁹ The proposed bill directs the Chief Resilience Officer to convene the task force no later than October 1, 2020, with the task force meeting thereafter upon the call of the chair.

The proposed bill requires the task force to develop scientific information from appropriate sources the task force deems necessary to recommend consensus baseline projection, or a range of projections, of the expected rise in sea-level along this state's coastline for planning horizons designated by the task force. The projections may address various geographic areas of the state.

The task force is authorized to request the DEP to contract for services to assist in developing the recommended official baseline projections and to designate technical advisory groups, as the task force deems necessary, to assist in gathering scientific data to inform the task force's decision-making. The DEP is directed to serve as the contract administrator and to provide administrative support to the task force.

The proposed bill requires the task force to submit its recommended consensus baseline projections to the Commission, along with the supporting data and assumptions used by the task force to develop the projections. The Commission is required to adopt or reject the recommended projections. If adopted, the projections, or range of projections, will serve as the state's official estimate for sea-level rise and flooding impacts when developing future state projects, plans, and programs, providing scientifically-based guidance for state agencies in planning and implementing their various duties and responsibilities.

For the 2020-2021 fiscal year, the sum of \$500,000 in nonrecurring funds is appropriated from the General Revenue Fund to the DEP for the purpose of the authorized contracting and for task force administrative expenses.

Lastly, the proposed bill would sunset the task force and related provisions on July 1, 2023, but preserve the statutory establishment of the SOR, headed by the Chief Resilience Officer, within the Executive Office of the Governor.

The proposed bill takes effect July 1, 2020.

³⁹ Under the proposed bill, any vacancy on the task force would be filled in the same manner as the original appointment.

IV. Constitutional Issues:

A. Municipality/County Mandates Restrictions:

None.

B. Public Records/Open Meetings Issues:

None.

C. Trust Funds Restrictions:

None.

D. State Tax or Fee Increases:

None.

E. Other Constitutional Issues:

None.

V. Fiscal Impact Statement:

A. Tax/Fee Issues:

None.

B. Private Sector Impact:

None.

C. Government Sector Impact:

The proposed bill requires the Chief Resilience Officer of the SRO to convene the task force composed of the identified members. Indeterminate but likely insignificant expenses may be incurred by the entities appointing members to the task force. If the task force designates technical advisory groups as authorized by the proposed bill, the entity represented by members of such a group may incur indeterminate expenses.

The proposed bill authorizes the task force to request the DEP to contract for services to develop the recommended projections of sea-level rise and requires the specified report to be submitted to the Commission. The task force could decide to recommend revision of the projections before expiration of the task force on July 1, 2023. In addition, the proposed bill requires the DEP to provide administrative support to the task force. The DEP will incur indeterminate expenses for any authorized contract and for providing such support.

The Commission will incur indeterminate expenses to review and adopt or reject the task force's initial recommendations and, if the task force recommends revisions, will incur indeterminate expenses for the same purposes.

For the 2020-2021 fiscal year, the sum of \$500,000 in nonrecurring funds is appropriated from the General Revenue Fund to the DEP for the expenses associated with contracting for services to develop the projections and for task force administrative expenses.

VI. Technical Deficiencies:

None.

VII. Related Issues:

None.

VIII. Statutes Affected:

This bill creates the following section of the Florida Statutes: 14.2031.

IX. Additional Information:

A. Committee Substitute – Statement of Changes:

(Summarizing differences between the Committee Substitute and the prior version of the bill.)

None.

B. Amendments:

None.