

# FDOT Resilience in Project Development and Design

## Resource Links

Resource	Link
<b>Resilience Information Resources and Related Research</b>	
FDOT Resilience Website	<a href="https://www.fdot.gov/planning/policy/resilience/default.shtml">https://www.fdot.gov/planning/policy/resilience/default.shtml</a>
NHI Training Courses	<a href="https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;sf=0&amp;course_no=142081">https://www.nhi.fhwa.dot.gov/course-search?tab=0&amp;sf=0&amp;course_no=142081</a> (also 142082, 142083, 142084, 142085)
NOAA Sea Level Rise (SLR) Viewer	<a href="https://coast.noaa.gov/digitalcoast/tools/slr.html">https://coast.noaa.gov/digitalcoast/tools/slr.html</a>
FHWA Resilience Website	<a href="https://www.fhwa.dot.gov/environment/sustainability/resilience/">https://www.fhwa.dot.gov/environment/sustainability/resilience/</a>
UF/FDOT Sea Level Scenario Sketch Planning Tool	<a href="https://sls.geoplan.ufl.edu/">https://sls.geoplan.ufl.edu/</a>
FHWA Transportation Engineering Approaches to Climate Resiliency (TEACR) Project	<a href="https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing_and_current_research/teacr/index.cfm">https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing_and_current_research/teacr/index.cfm</a>
FHWA Adaptation Decision-Making Assessment Process (ADAP)	<a href="https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing_and_current_research/teacr/adap/">https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing_and_current_research/teacr/adap/</a>
FDEP Resilient Florida Program – Sea Level Impact Projection (SLIP) Study	<a href="https://floridadep.gov/rcp/resilient-florida-program/content/resilient-florida-program-slip">https://floridadep.gov/rcp/resilient-florida-program/content/resilient-florida-program-slip</a>
US ACE Sea Level Change Tool	<a href="https://cwbi-app.sec.usace.army.mil/rccslc/slcc_calc.html">https://cwbi-app.sec.usace.army.mil/rccslc/slcc_calc.html</a>
Florida Flood Hub	<a href="https://www.usf.edu/marine-science/research/florida-flood-hub-for-applied-research-and-innovation/">https://www.usf.edu/marine-science/research/florida-flood-hub-for-applied-research-and-innovation/</a>
Resilience in Transportation Planning, Engineering, Management, Policy, and Administration (NCHRP Synthesis 527)	<a href="https://nap.nationalacademies.org/catalog/25166/resilience-in-transportation-planning-engineering-management-policy-and-administration">https://nap.nationalacademies.org/catalog/25166/resilience-in-transportation-planning-engineering-management-policy-and-administration</a>
Investing in Transportation Resilience: A Framework for Informed Choices (Consensus Study Report)	<a href="https://nap.nationalacademies.org/catalog/26292/investing-in-transportation-resilience-a-framework-for-informed-choices">https://nap.nationalacademies.org/catalog/26292/investing-in-transportation-resilience-a-framework-for-informed-choices</a>

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Developing a Highway Framework to Conduct an All-Hazards Risk and Resilience Analysis (NCHRP 1014)	<a href="https://nap.nationalacademies.org/catalog/26924/developing-a-highway-framework-to-conduct-an-all-hazards-risk-and-resilience-analysis">https://nap.nationalacademies.org/catalog/26924/developing-a-highway-framework-to-conduct-an-all-hazards-risk-and-resilience-analysis</a>
Building and Measuring Community Resilience: Actions for Communities and the Gulf Research Program (Consensus Study Report)	<a href="https://nap.nationalacademies.org/catalog/25383/building-and-measuring-community-resilience-actions-for-communities-and-the">https://nap.nationalacademies.org/catalog/25383/building-and-measuring-community-resilience-actions-for-communities-and-the</a>
Climate Resilience and Benefit–Cost Analysis: A Handbook for Airports (ACRP 199)	<a href="https://nap.nationalacademies.org/catalog/25497/climate-resilience-and-benefit-cost-analysis-a-handbook-for-airports">https://nap.nationalacademies.org/catalog/25497/climate-resilience-and-benefit-cost-analysis-a-handbook-for-airports</a>
Strengthening Post-Hurricane Supply Chain Resilience: Observations from Hurricanes Harvey, Irma, and Maria (Consensus Study Report)	<a href="https://nap.nationalacademies.org/catalog/25490/strengthening-post-hurricane-supply-chain-resilience-observations-from-hurricanes-harvey">https://nap.nationalacademies.org/catalog/25490/strengthening-post-hurricane-supply-chain-resilience-observations-from-hurricanes-harvey</a>
Deploying Transportation Resilience Practices in State DOTs (NCHRP 293)	<a href="https://nap.nationalacademies.org/catalog/26209/deploying-transportation-resilience-practices-in-state-dots">https://nap.nationalacademies.org/catalog/26209/deploying-transportation-resilience-practices-in-state-dots</a>
Mainstreaming System Resilience Concepts into Transportation Agencies: A Guide (NCHRP 970)	<a href="https://nap.nationalacademies.org/catalog/26125/mainstreaming-system-resilience-concepts-into-transportation-agencies-a-guide">https://nap.nationalacademies.org/catalog/26125/mainstreaming-system-resilience-concepts-into-transportation-agencies-a-guide</a>
<b>Nature Based Solutions</b>	
FHWA Nature-Based Solutions for Coastal Highway Resilience: An Implementation Guide	<a href="https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing_and_current_research/green_infrastructure/implementation_guide/fhwahep19042.pdf">https://www.fhwa.dot.gov/environment/sustainability/resilience/ongoing_and_current_research/green_infrastructure/implementation_guide/fhwahep19042.pdf</a>
Natural and Structural Measures for Shoreline Stabilization (SAGE)	<a href="http://www.sagecoast.org/docs/SAGE_LivingShorelineBrochure_Print.pdf">http://www.sagecoast.org/docs/SAGE_LivingShorelineBrochure_Print.pdf</a>
Mangroves for Coastal Defense (The Nature Conservancy)	<a href="https://www.conservationgateway.org/ConservationPractices/Marine/crr/library/Documents/MangrovesforCoastalDefense_Decision_makers_Guide_WebVersion.pdf">https://www.conservationgateway.org/ConservationPractices/Marine/crr/library/Documents/MangrovesforCoastalDefense_Decision_makers_Guide_WebVersion.pdf</a>
Living Shorelines Engineering Guidelines (Stevens Institute)	<a href="https://www.nj.gov/dep/cmp/docs/living-shorelines-engineering-guidelines-final.pdf">https://www.nj.gov/dep/cmp/docs/living-shorelines-engineering-guidelines-final.pdf</a>
Florida Living Shorelines (website)	<a href="https://floridalivingshorelines.com/contractor-course/">https://floridalivingshorelines.com/contractor-course/</a>
FDEP Resilient Florida Program – Living Shorelines	<a href="https://floridadep.gov/rcp/resilient-florida-program/content/resilient-florida-program-living-shorelines">https://floridadep.gov/rcp/resilient-florida-program/content/resilient-florida-program-living-shorelines</a>
Global Flood Protection Benefits of Mangroves	<a href="https://www.nature.com/articles/s41598-020-61136-6">https://www.nature.com/articles/s41598-020-61136-6</a>

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<p>EWN – Engineering with Nature</p> <p>Collection of nature-based solutions research, field observations, design, and construction practices</p>	<p><a href="https://ewn.erdcdren.mil/?page_id=368">https://ewn.erdcdren.mil/?page_id=368</a></p>
<p><b>Inland Flooding</b></p>	
<p>FHWA Hydraulic Engineering Circular (HEC), HEC-17: Highways in the River Environment - Floodplains, Extreme Events, Risk, and Resilience, 2nd Edition</p>	<p><a href="https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=16&amp;id=162">https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=16&amp;id=162</a></p>
<p>FHWA HEC-18: Evaluating Scour at Bridges, 5th Edition</p>	<p><a href="https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=17&amp;id=151">https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=17&amp;id=151</a></p>
<p>HEC-23: Bridge Scour and Stream Instability Countermeasures Experience, Selection, and Design Guidance Third Edition, Volume 1</p>	<p><a href="https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=23&amp;id=142">https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=23&amp;id=142</a></p>
<p>HEC-26: Culvert Design for Aquatic Organism Passage</p>	<p><a href="https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=204&amp;id=145">https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=204&amp;id=145</a></p>
<p>HDS 05: Hydraulic Design of Highway Culverts, Third Edition</p>	<p><a href="https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=7&amp;id=13">https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=7&amp;id=13</a></p>
<p>NOAA Atlas 14</p>	<p><a href="https://hdsc.nws.noaa.gov/hdsc/pfds/">https://hdsc.nws.noaa.gov/hdsc/pfds/</a></p>
<p>Pilot Test of Climate Change Design Practices Guide for Hydrology and Hydraulics (NCHRP 20-44(23))</p>	<p><a href="https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4858">https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4858</a></p>
<p>FDOT Drainage Manuals and Handbooks</p>	<p><a href="https://www.fdot.gov/roadway/drainage/manualsandhandbooks.shtm">https://www.fdot.gov/roadway/drainage/manualsandhandbooks.shtm</a></p>
<p>FDOT Drainage Design Guide</p>	<p><a href="https://www.fdot.gov/roadway/drainage/design-guide">https://www.fdot.gov/roadway/drainage/design-guide</a></p>
<p>USGS StreamStats</p>	<p><a href="https://streamstats.usgs.gov/ss/">https://streamstats.usgs.gov/ss/</a></p>
<p><b>Coastal Flooding</b></p>	
<p>HEC-25: Highways in the Coastal Environment - 3rd edition</p>	<p><a href="https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=192&amp;id=175">https://www.fhwa.dot.gov/engineering/hydraulics/library_arc.cfm?pub_number=192&amp;id=175</a></p>

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NOAA National Water Level Observation Network	<a href="https://tidesandcurrents.noaa.gov/nwlon.html">https://tidesandcurrents.noaa.gov/nwlon.html</a>
<b>Bridge Design</b>	
FDOT Structures Design Manual	<a href="https://www.fdot.gov/structures/docsandpubs.shtm">https://www.fdot.gov/structures/docsandpubs.shtm</a>
AASHTO publications	<a href="#">AASHTO Store: Browse Transportation Publications and Online Training</a>
Rapid Damage Assessments of Shorelines and Structures in the Florida Keys after Hurricane Irma	(engineering value of mangroves)  <a href="https://ascelibrary.org/doi/10.1061/%28ASCE%29NH.1527-6996.0000349">https://ascelibrary.org/doi/10.1061/%28ASCE%29NH.1527-6996.0000349</a>
<b>Pavement Design</b>	
FHWA Sustainable Pavements Program	<a href="https://www.fhwa.dot.gov/pavement/sustainability/">https://www.fhwa.dot.gov/pavement/sustainability/</a>
FDOT Pavement Design Publications	<a href="https://www.fdot.gov/roadway/pm/publications.shtm">https://www.fdot.gov/roadway/pm/publications.shtm</a>
1993 AASHTO Guide for Design of Pavement Structures (AASHTO 93)	<a href="https://habib00ugm.files.wordpress.com/2010/05/aashto1993.pdf">https://habib00ugm.files.wordpress.com/2010/05/aashto1993.pdf</a>
AASHTOWare Pavement M-E Design	<a href="https://me-design.com/MEDesign/?AspxAutoDetectCookieSupport=1">https://me-design.com/MEDesign/?AspxAutoDetectCookieSupport=1</a>

