Annual Assessment of Florida's Water Resources and Conservation Lands

2020 Edition

January 21, 2020

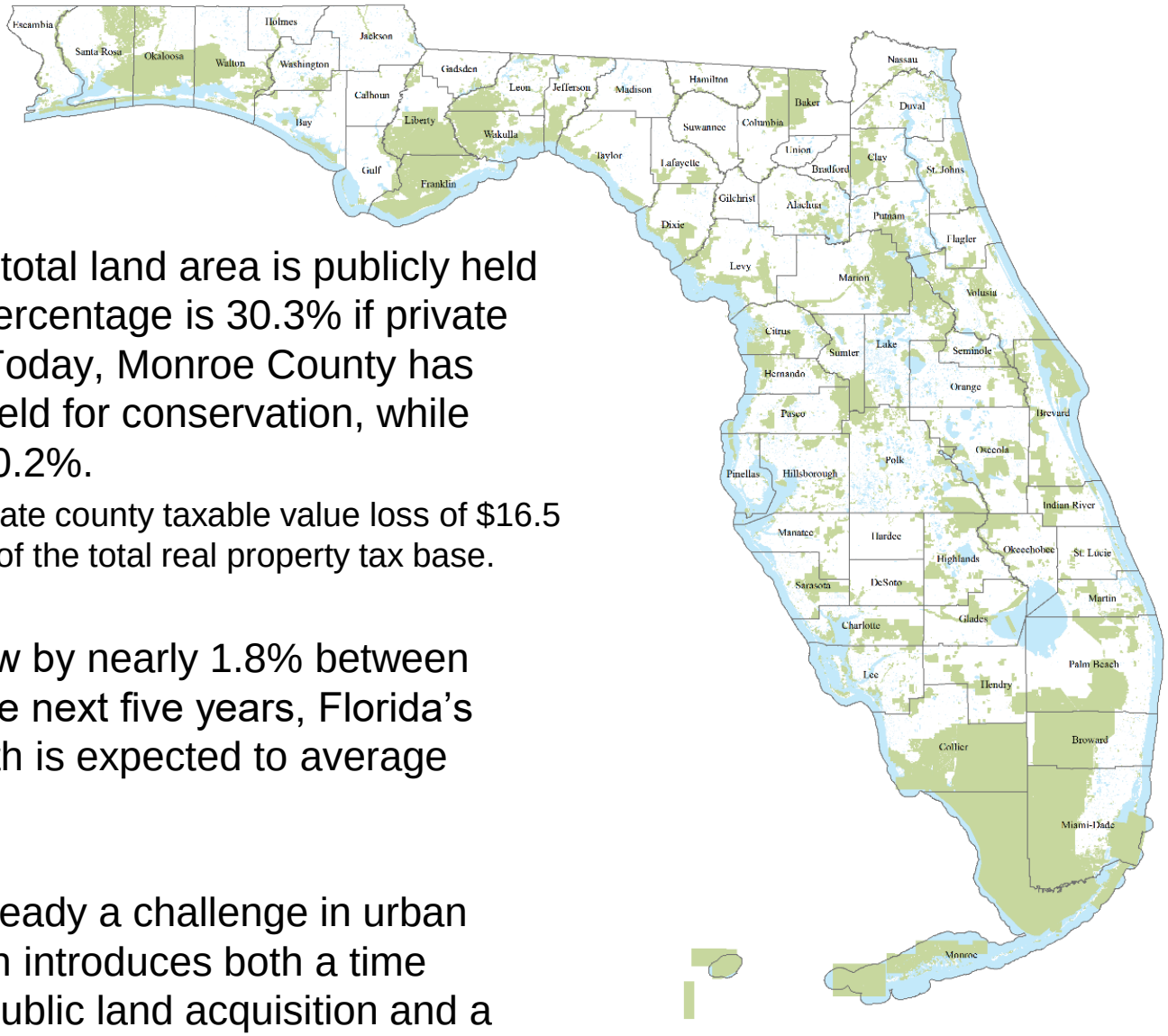
Presented by:

The Florida Legislature
Office of Economic and Demographic Research
850.487.1402
http://edr.state.fl.us

Statutorily Required Assessment

- Section 403.928, Florida Statutes, requires EDR to assess:
  - Conservation Lands
    - Historical and projected expenditures through the Florida Forever program.
    - Projected expenditures to acquire lands identified in state agency and WMD plans.
    - Property tax impacts resulting from public ownership of conservation lands.
    - Projected revenues dedicated to maintain conservation lands and any funding gap.
    - The percentage of Florida land that is publicly owned for conservation purposes.
    - Comparison of the costs to acquire & maintain land under fee and less-than-fee ownership.
  - Water Resources
    - Historical and projected expenditures for water supply & quality.
    - Estimated expenditures needed to comply with laws regarding water supply & quality.
    - Estimated expenditures necessary to achieve the Legislature's intent that sufficient water be available for all existing and future reasonable-beneficial uses and the natural systems.
      - Requires development of integrated statewide water demand and supply model capable of annual updates and annual projections.
    - Projected revenues dedicated to or historically allocated for water supply & quality, as well as public and private utility revenues.
    - Determination of any gaps between projected revenues and projected and estimated expenditures.

Conservation Lands

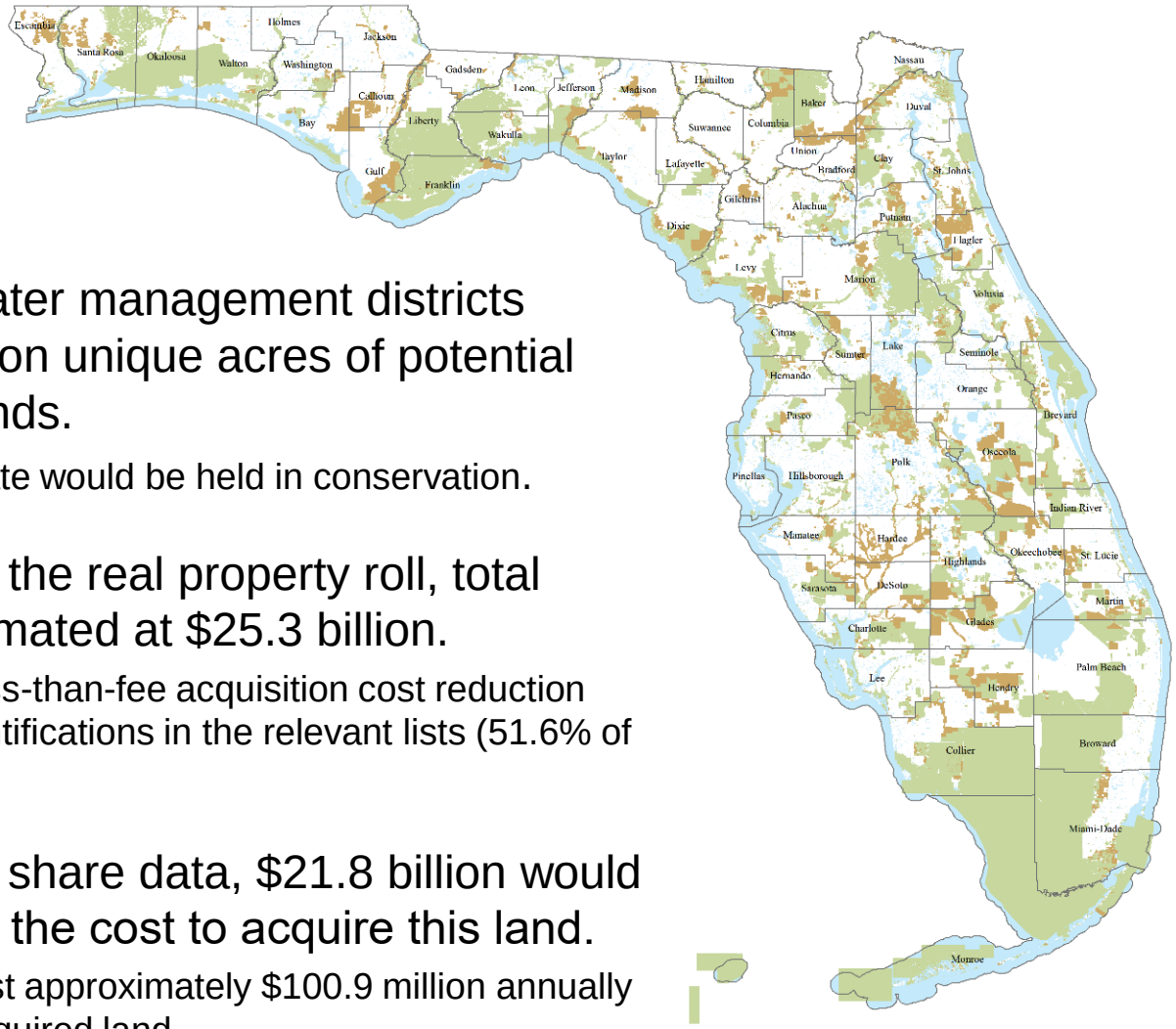


- In Florida, 29.5% of the total land area is publicly held for conservation. This percentage is 30.3% if private ownership is included. Today, Monroe County has 94.9% of its land area held for conservation, while Union County has only 0.2%.
  - This results in an aggregate county taxable value loss of $16.5 billion, or a loss of 2.4% of the total real property tax base.

- Florida's population grew by nearly 1.8% between 2018 and 2019. Over the next five years, Florida's annual population growth is expected to average 1.5%.

- Population density is already a challenge in urban areas. Continued growth introduces both a time constraint on strategic public land acquisition and a demand for more efficient development practices.

Conservation Lands: Future Acquisitions



- State agencies and water management districts identify nearly 3.8 million unique acres of potential future conservation lands.
  - If acquired, 41.3% of state would be held in conservation.
- Using Just Value from the real property roll, total acquisition cost is estimated at $25.3 billion.
  - This accounts for the less-than-fee acquisition cost reduction suggested by some identifications in the relevant lists (51.6% of the fee cost).
- Based on historic cost share data, $21.8 billion would be the state's share of the cost to acquire this land.
  - Additionally, it would cost approximately $100.9 million annually to manage the newly acquired land.

Map excludes lands identified by the NWFWMD

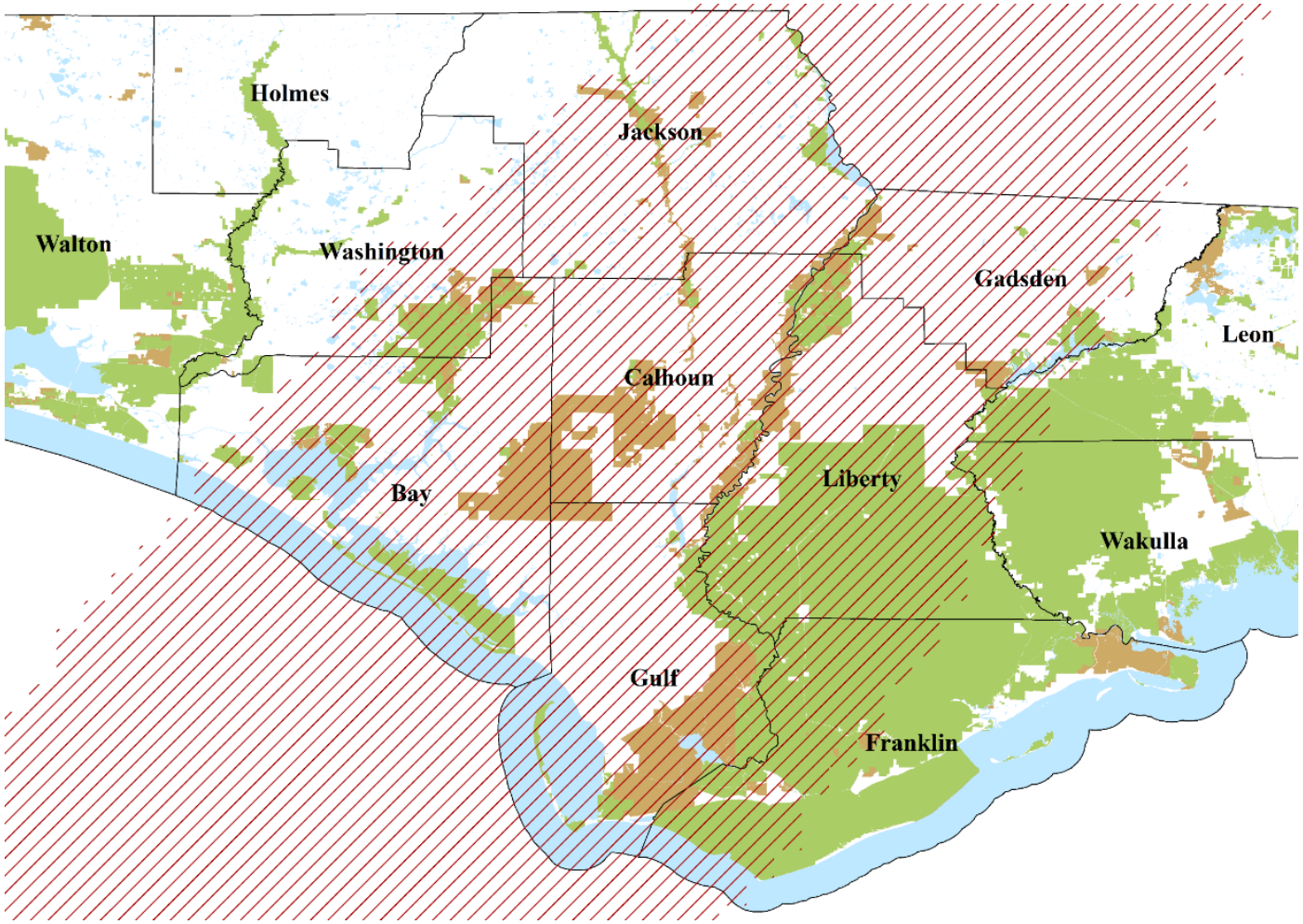
Conservation Lands: Expenditures (in $millions)

History	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19
Land Acquisition	$175.02	$145.10	$56.78	$47.91	$37.93	$56.79	$30.37	$84.10	$74.11	$49.53
Land Management	$198.07	$170.54	$146.64	$154.43	$159.81	$175.90	$195.71	$215.68	$226.55	$226.35
Total	**$373.09**	**$315.64**	**$203.42**	**$202.34**	**$197.74**	**$232.70**	**$226.08**	**$299.78**	**$300.66**	**$275.87**

Forecast	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Land Acquisition	$71.30	$71.04	$73.50	$85.03	$90.36	$98.02	$107.96	$116.92	$127.41	$139.05
Land Management	$237.78	$245.70	$252.50	$261.88	$270.45	$279.24	$288.78	$298.34	$308.26	$318.59
Total	**$309.07**	**$316.74**	**$326.00**	**$346.92**	**$360.81**	**$377.27**	**$396.74**	**$415.26**	**$435.67**	**$457.64**

- Nearly 72% of historical conservation land expenditures has been spent on land management.
- The expenditure forecast is based on the historical trends.
  - To acquire all lands on potential lists will take 370 years at the current pace.

Conservation Lands: Hurricane Michael



- Hurricane force winds impacted 734,924 acres of existing conservation lands and 285,084 acres of potential conservation lands identified on agency lists.

Conservation Lands: Hurricane Michael

Manager	Acres Affected
Federal	364,494.63
State	259,735.45
Regional	92,700.20
Local	3,436.92
Private	14,478.06
Unmanaged	79.01
Total	**734,924.25**

Acquisition List	Acres
Florida Forever	259,714.35
Rec & Parks	9,885.51
FWC	2,314.73
DACS RFLPP	69,260.17
Overlap*	56,090.51
Total	**285,084.26**

- 259,735 acres of existing conservation land managed by the state and impacted by the storm are expected to require increased land management expenditures in the near-term (LBRs continue heightened level of funding through FY 2020-21).

- 285,084 unique acres are identified on lists, the majority of which are on DEP's Florida Forever Priority List.

*4,465 acres are identified on both the Florida Forever and Rec & Parks lists, and 51,625 acres are identified on both the Florida Forever and FWC Inholdings and Additions lists.

Conservation Lands: Hurricane Michael

- Given the large number of acres within Hurricane Michael's direct path which have already been identified for potential land acquisition, EDR suggested in 2019 that policy makers could consider accelerated land conservation purchases as they develop the vision and plan for recovery.

- Purchasing lands for conservation would have the benefit of protecting the identified lands while providing financial relief to willing local land owners.

- Current SB 7024 formalizes and expands this concept by proposing $10 million each year for acquisition of hurricane-impacted land identified as either conservation land or coastal lands subject to flooding as a result of sea-level rise.

Water Supply: State Expenditures & Funds (in $millions)

- Today, the vast majority of costs related to water supply are addressed regionally or locally.
- The limited state expenditures are primarily through the Drinking Water Revolving Loan Fund, largely a federal funding source, used to make loans for the replacement or modification of existing water systems to achieve the public health goals of the Safe Drinking Water Act.
- In addition, limited state funding remains from an alternative water supply program, the dedicated funding for which was repealed in FY 2008-09.
- The forecast displayed here assumes continuation of the pace of state expenditures.

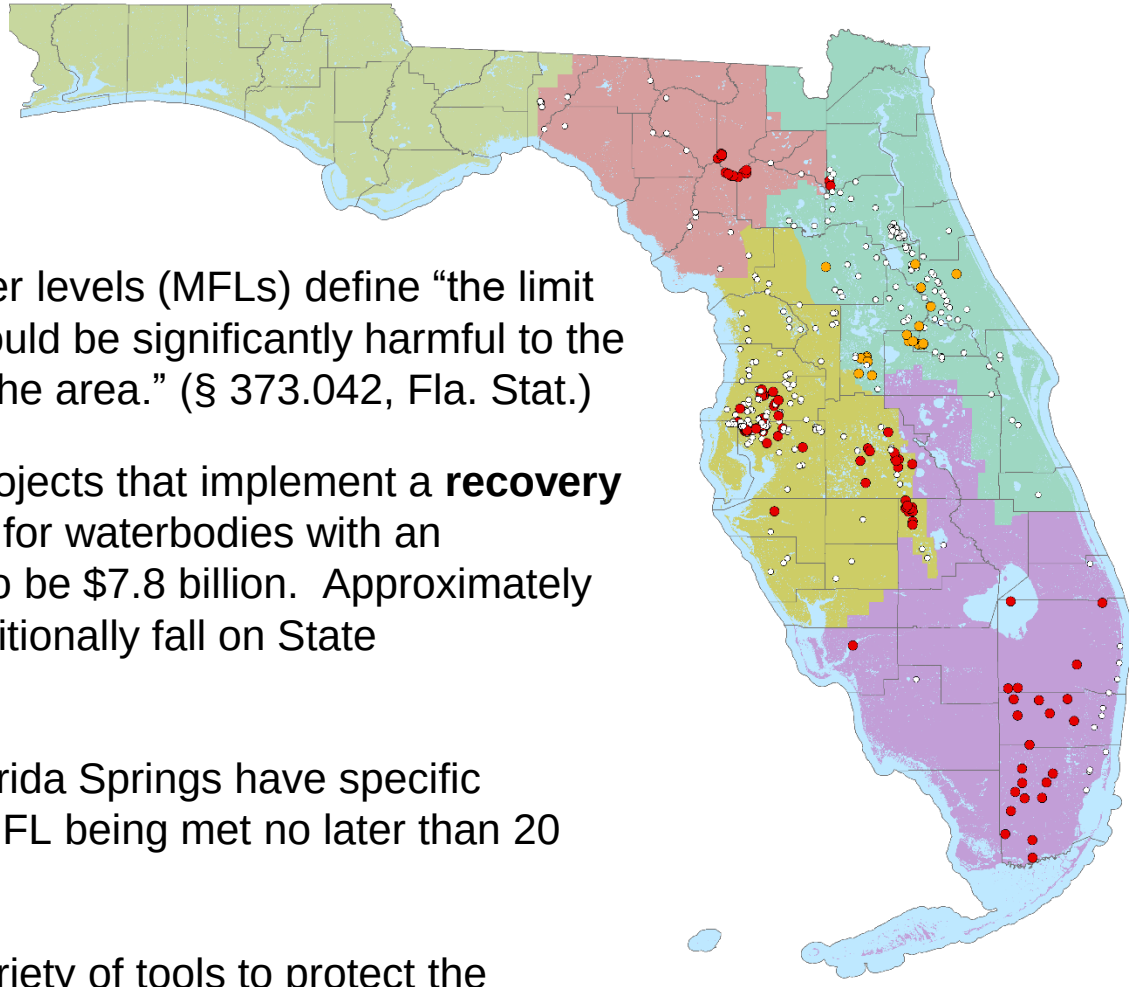
Expenditure Forecast	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Total	**$86.86**	**$96.28**	**$107.71**	**$96.95**	**$100.32**	**$101.66**	**$99.64**	**$100.54**	**$100.61**	**$100.27**

Revenue Forecast	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Federal Grants	$32.06	$32.95	$33.56	$33.36	$34.30	$35.34	$35.94	$36.83	$37.71	$38.52
Repayment of Loans	$54.83	$43.06	$45.29	$47.73	$45.36	$46.13	$46.40	$45.96	$46.16	$46.18
Total	**$86.89**	**$76.01**	**$78.86**	**$81.09**	**$79.66**	**$81.46**	**$82.34**	**$82.80**	**$83.87**	**$84.70**

Expenditures to Ensure Sufficient Water Supply: Total Expenditure Forecast

- To have a complete expenditure forecast for supply as statutorily required, regional, local, and utility expenditures must be included as part of a unified total which also takes into account future needs.
- To assess these future needs, EDR considered the **alternative water supply (AWS) options**, the related costs, and the quantity of water generated, focusing on the planning regions where the forecasted water demand exceeded the inferred water supply.
- A robust regression analysis has been developed to estimate the costs of future AWS projects in each region.
- Using the WMD demand forecast and averaging the low and high scenarios, $1.0 billion is needed for AWS projects through 2035.
  - The state's cost share of this is historically low, averaging less than 4.5%. A unique revenue source dedicated to this purpose currently does not exist.

State Expenditures to Ensure Sufficient Water Supply



- Minimum flow or minimum water levels (MFLs) define "the limit at which further withdrawals would be significantly harmful to the water resources or ecology of the area." (§ 373.042, Fla. Stat.)
- The cost to complete known projects that implement a **recovery or prevention strategy** (RPS) for waterbodies with an established MFL is estimated to be $7.8 billion. Approximately 4.5% of this amount would traditionally fall on State Government.
- Only RPSs for Outstanding Florida Springs have specific achievement targets with the MFL being met no later than 20 years after adoption.
- While the WMDs may use a variety of tools to protect the natural systems, EDR focuses on projects included in recovery or prevention strategies for the implementation of MFLs.

White – Meeting
Orange – In Prevention
Red – In Recovery

Expenditures to Ensure Sufficient Water Supply: State Expenditure Forecast (in $millions)

- Considering a 2-year average completion time for AWS projects, assuming a 20-year time horizon for all MFL recovery or prevention strategies (RPS), and applying the average state cost share of 4.5% to both, the following forecast of state expenditures is produced.

	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
AWS	$1.79	$1.79	$1.90	$2.17	$2.15	$2.15	$2.15	$2.15	$2.54	$3.04
MFL RPS	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39
Total	**$19.18**	**$19.18**	**$19.29**	**$19.56**	**$19.54**	**$19.54**	**$19.54**	**$19.54**	**$19.93**	**$20.43**

	FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	FY 34-35	FY 35-36	FY 36-37	FY 37-38	FY 38-39
AWS	$3.04	$3.04	$3.04	$4.34	$N/A*	$N/A*	$N/A*	$N/A*	$N/A*	$N/A*
MFL RPS	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39	$17.39
Total	**$20.43**	**$20.43**	**$20.43**	**$21.73**	**$17.39**	**$17.39**	**$17.39**	**$17.39**	**$17.39**	**$17.39**

*FY33-34 through FY38-39 AWS expenditures are not expected to be zero. Statewide demand forecasts are not currently available beyond 2035 and with a two-year construction period would be for the unknown water needs of 2036 through 2041.

Water Quality: State Expenditures (in $millions)

History	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19
Total	$606.01	$564.18	$550.28	$514.39	$518.65	$603.27	$671.59	$794.91	$869.46	$1,021.94

Forecast	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Total	$1,062.06	$1,103.75	$1,147.09	$1,192.12	$1,238.92	$1,287.56	$1,338.10	$1,390.63	$1,445.23	$1,501.96

- The state's greater funding role is related to water quality protection and restoration. In addition to funding for WMDs and Everglades restoration, the Legislature provides funding to DEP, DACS, and FWC which collectively dominate state expenditures for water quality-related programs and initiatives. Examples of the agencies' expenditures include:
  - DEP: Water quality assessment including the development of Total Maximum Daily Loads (TMDLs), financial assistance programs (*e.g.*, springs grants and nonpoint source grants), regulatory and clean-up programs.
  - DACS: Best Management Practices (BMPs) and nitrate and nitrite research.
  - FWC: Red Tide research.
- Expenditures have been rapidly increasing over the most recent six fiscal years.

Water Quality: State Revenues (in $millions)

- Water quality revenues consist of: Doc Stamps, fees and licenses, fines, penalties, judgements, grants and donations, pollutant taxes and fees, repayment of loans, sales and leases, severance taxes, and sale of bonds.

History	FY 09-10	FY 10-11	FY 11-12	FY 12-13	FY 13-14	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19
Total	$440.73	$517.71	$471.24	$467.12	$467.55	$561.43	$482.57	$481.04	$712.50	$857.95

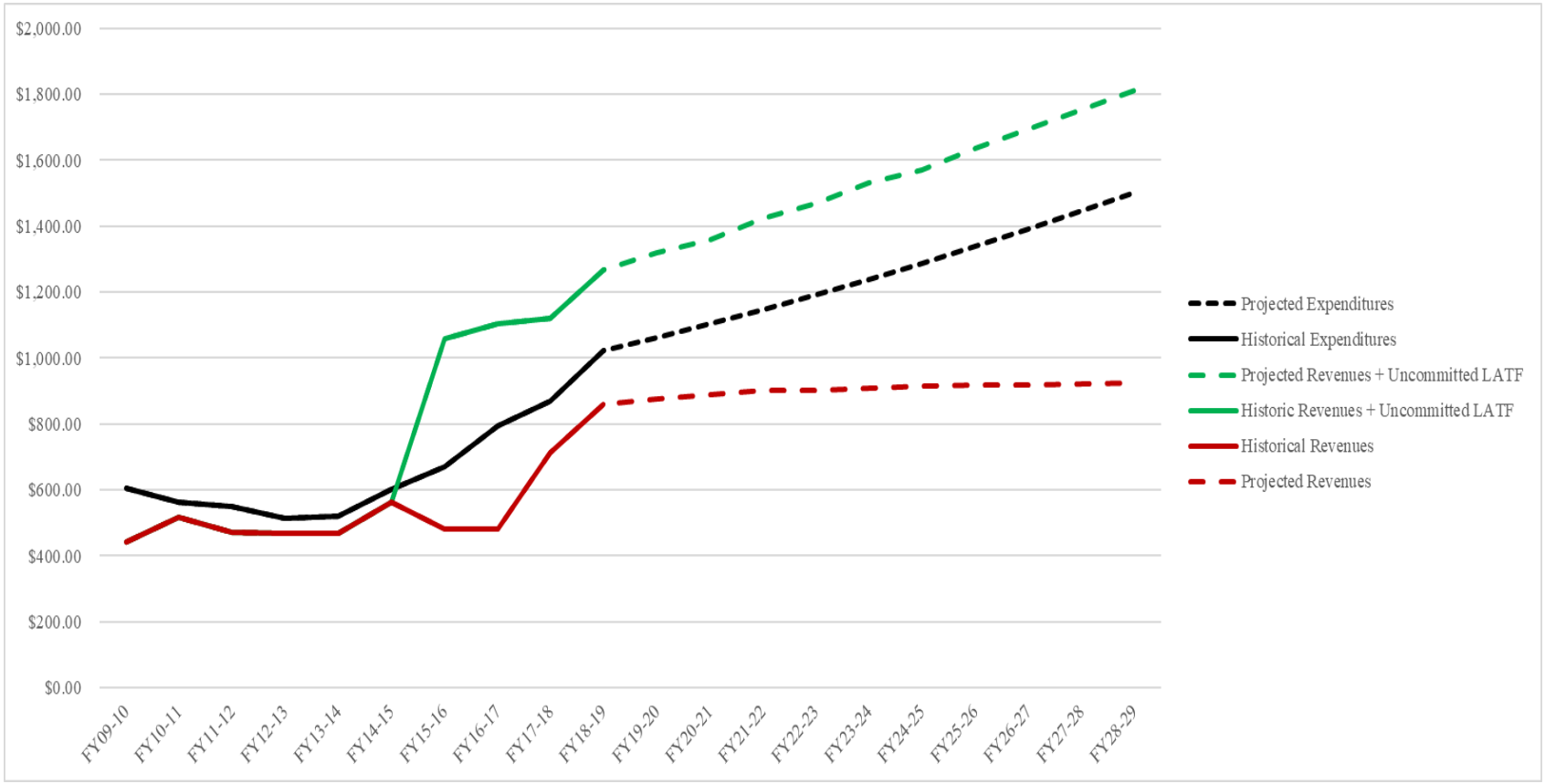
Forecast	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Total	$876.71	$887.85	$900.27	$902.35	$907.21	$913.47	$917.19	$916.51	$920.94	$924.74

- Additional Doc Stamp revenue exists within the LATF that is currently uncommitted, but still spent on qualifying purposes.

Forecast	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Uncommitted LATF Based on Statute	$443.22	$470.12	$521.82	$567.40	$622.40	$657.43	$716.84	$778.30	$831.68	$887.00

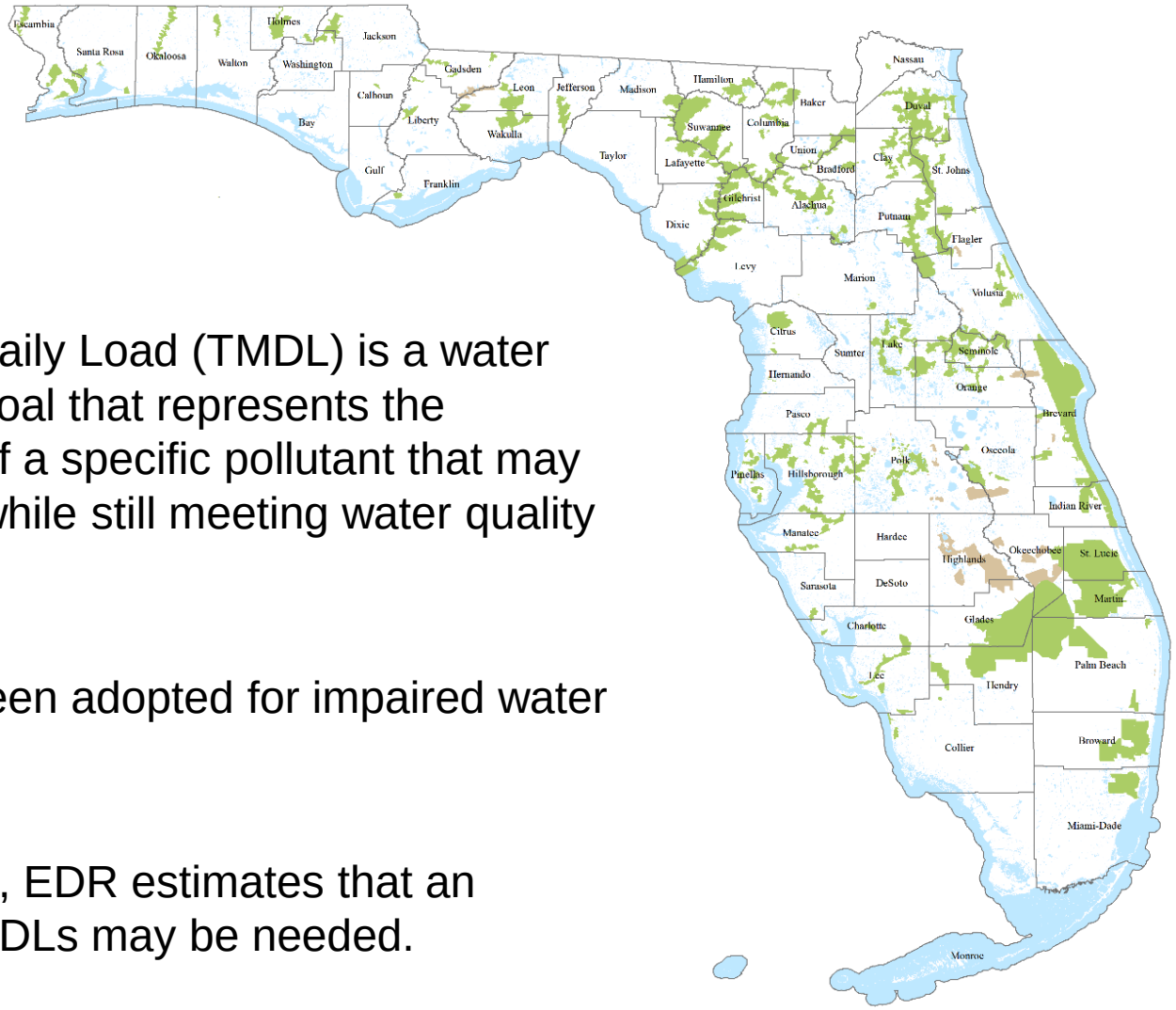
Source: August 2019 forecast by Revenue Estimating Conference.

Water Quality: State Funding Gap



- Based upon recent trends and known information, the existence of a gap in future funding for water quality depends upon the use of the uncommitted LATF Doc Stamps.
- This analysis, however, does not address the potentially increasing pace or cost of new or updated restoration plans, programs, and initiatives that will be needed to achieve water quality standards. These costs may be substantial and change the trajectory of the projected expenditures.

Impaired Waters: TMDLs



- A Total Maximum Daily Load (TMDL) is a water quality restoration goal that represents the maximum amount of a specific pollutant that may enter a waterbody while still meeting water quality standards.
- 426 TMDLs have been adopted for impaired water segments.
- Based on DEP data, EDR estimates that an additional 1,355 TMDLs may be needed.

Accelerated TMDL Development Expenditure Forecast

	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29
Total	$30.79	$30.79	$30.79	$30.79	$30.79	$22.67	$22.67	$22.67	$22.67	$22.67

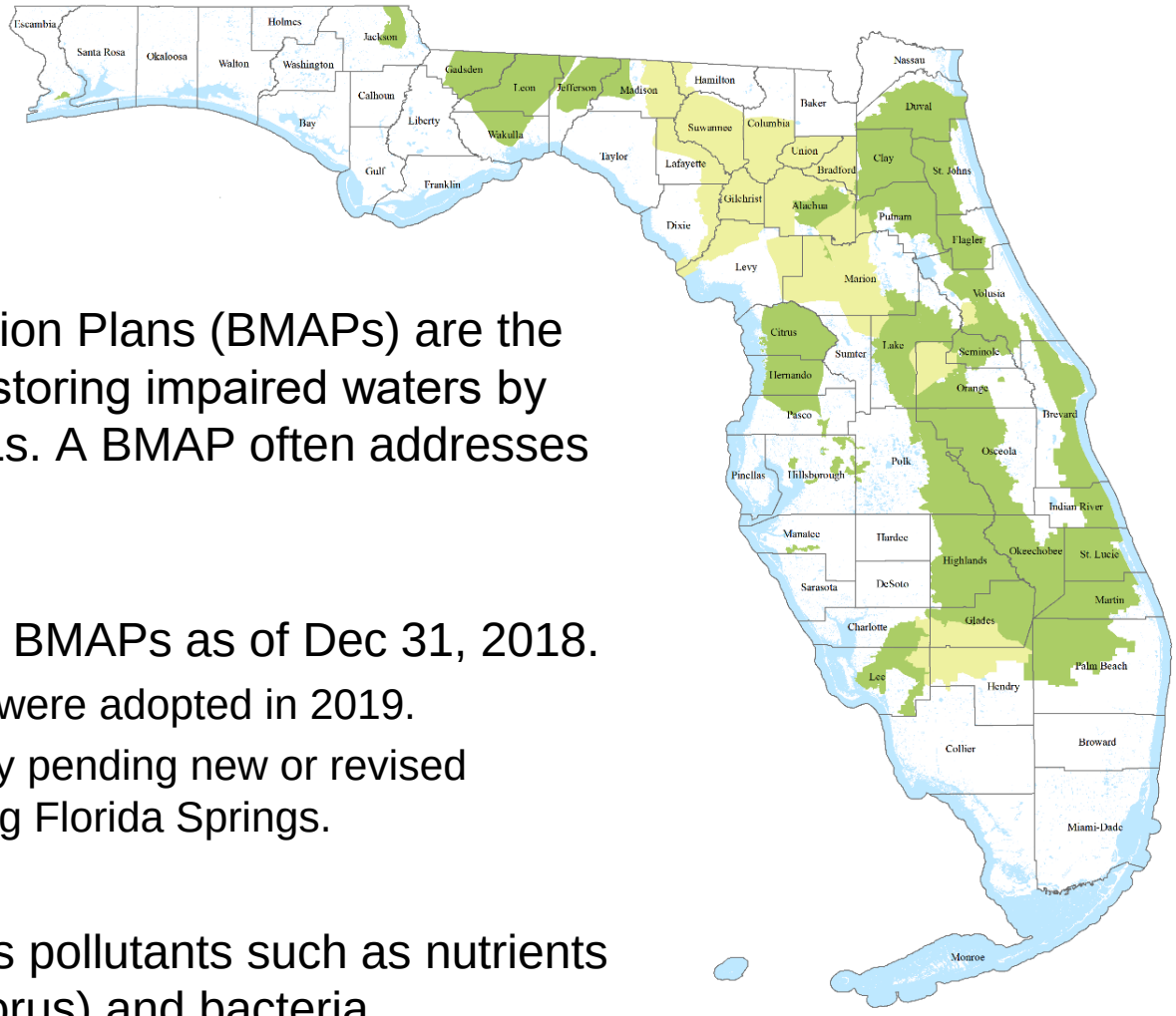
- The historical rate of TMDL development is approximately 20 per year and this rate is reflected in the prior gap calculation. The accelerated forecast shown above suggests 156 per year in the first 5 years and 115 per year in the last five years.

- The average cost to develop a TMDL has been historically $196,970.27. Development costs are the state's responsibility.

- Forecast assumes high priority waterbodies/impairments will be completed over the first five years, and low/medium priority over the full ten years.

  - The priority schedule and ten-year timeframe is based on information in DEP's Comprehensive Verified List.

Impaired Waters: BMAPs



- Basin Management Action Plans (BMAPs) are the state's blueprints for restoring impaired waters by meeting adopted TMDLs. A BMAP often addresses multiple TMDLs.

- There were 24 adopted BMAPs as of Dec 31, 2018.
  - Six additional BMAPs were adopted in 2019.
  - There are five currently pending new or revised BMAPs for Outstanding Florida Springs.

- BMAPs address various pollutants such as nutrients (*e.g.*, nitrogen, phosphorus) and bacteria.

Alternative BMAP State Expenditure Forecast

	FY 19-20	FY 20-21	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28
State	$385.0	$376.5	$376.5	$363.1	$363.1	$246.3	$230.5	$230.5	$191.9

	FY 28-29	FY 29-30	FY 30-31	FY 31-32	FY 32-33	FY 33-34	FY 34-35	FY 35-36
State	$179.9	$176.0	$165.5	$165.5	$120.6	$103.7	$103.7	$8.8

- This alternative forecast reflects all anticipated state expenditures to execute the 24 BMAPs adopted as of December 31, 2018. It is based on data available from DEP's most recent STAR Report.
  - Additional expenditures may still be necessary to achieve the water quality restoration goals reflected in these BMAPs.
  - Additional BMAPs are certain, but not included at this time.
  - In this alternative forecast, state expenditures average 72% of the total cost.

- Cost estimates for planned and underway projects with missing data are based on reported costs for other projects of the same types.

State/SFWMD Historical Expenditures for Everglades Restoration (in $millions)

CERP	$1,666.81
Critical Projects	$54.00
Kissimmee River Restoration	$202.20
Herbert Hoover Dike	$100.00
Restoration Strategies	$346.00
Everglades Construction Project	$1,627.80
Northern Everglades	$533.60
Central and South Florida Project (Non-CERP)	$215.60
Total	$4,746.01

Expenditures are cumulative over the history of the initiative as of September 30, 2019.

Alternative State/SFWMD Expenditure Forecast for CERP

- The Comprehensive Everglades Restoration Plan (CERP) was approved by Congress in 2000. Overall, costs will be split equally between the federal government and the State of Florida (including its lead entity, the South Florida Water Management District).

- Over the last five years, the inflation-adjusted expenditures for CERP have averaged $217.7 million per year.

- EDR's inflation-adjusted updates to previously reported total costs indicate that an additional $16.9 billion is needed.

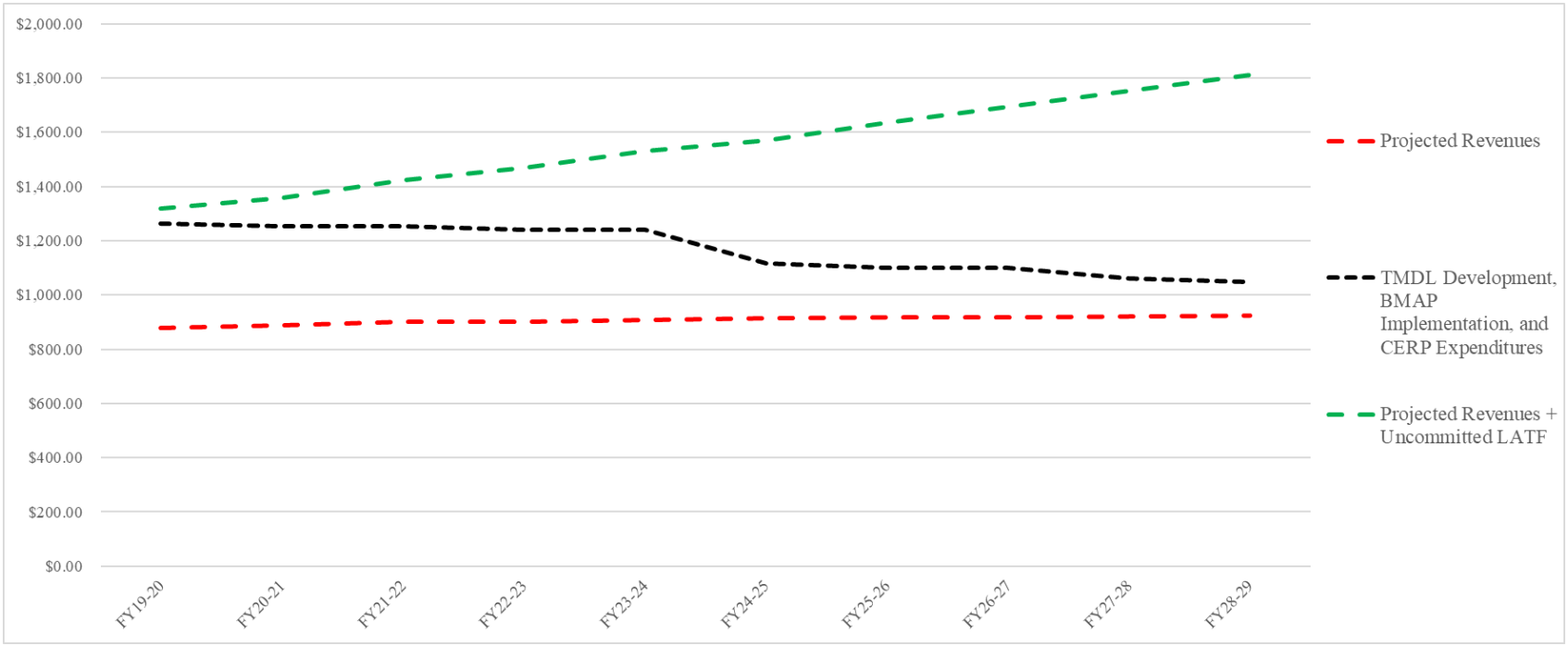
- At the current rate of expenditures, 78 more years will be needed to fully implement CERP (2097).

- The original goal was completion in 30 years. In the alternative forecast, this goal is maintained. To meet it, the State/SFWMD expenditures would need to increase to $846.3 million per year.
  - If the state proactively undertakes projects ahead of federal approval, it runs the risk that the federal government will not provide its expected share for those projects.

Alternative Expenditure Forecast for Water Quality: Recalculated Funding Gap

- Combining just the alternative forecasts for TMDL development, BMAP implementation, and CERP implementation produces a revised expenditure total that exceeds projected revenues in every year unless the uncommitted LATF dollars are used for these purposes.

- Other water quality initiatives required by law that are not included in this limited alternative scenario would likely produce at least a near-term funding gap, even after the inclusion of uncommitted LATF dollars.



2016 Florida Infrastructure Report Card*

American Society of Civil Engineers, Florida Section

"High population growth, aging infrastructure, and sensitive ecological environments such as Florida's Everglades are increasing the need and urgency to invest in Florida's [drinking] water infrastructure."

"More than half of Florida's stormwater entities revealed an inability to address all capital improvement needs, and only 1 in 4 stormwater utilities stated that today's operation and maintenance capabilities were adequate only to meet the most urgent needs."

"While Florida is a national leader in reclaimed water use, which helped offset the State's potable water needs and is a vital component of water resource and ecosystem management, population growth, aging infrastructure, and sensitive ecological environments are increasing the need to invest in Florida's wastewater infrastructure."

*This is the most recent report card available.

Infrastructure: EPA Needs Estimates (in $millions)

- The EPA periodically conducts two infrastructure needs surveys. The surveys include capital investment needs for a 20-year window and strictly consider existing infrastructure.
  - Drinking Water Infrastructure Needs Survey and Assessment (2015)
    - Drinking water systems were sampled and surveyed. The reported need is a statewide total extrapolated from the responses.
  - Clean Watersheds Needs Survey (2012)
    - Only includes needs from responding representatives of publicly-owned wastewater and stormwater systems. There is no effort to account for the needs of non-responsive facilities and private utilities.

System Type	Estimated Needs (Adjusted to FY18-19 using CPI, in $millions)
Drinking Water	$ 23,718.27
Wastewater*	$ 20,027.40
Stormwater	$ 557.66
Total	$44,303.33

*Wastewater needs exclude the unofficial estimate for Decentralized Wastewater Treatment. Florida's estimated needs, adjusted to FY2018-19 using the CPI, totaled $6,241.23 (in $millions).

- The two largest components of the drinking water needs are transmission/distribution ($14.9 billion) and treatment ($5.1 billion).

Infrastructure: Next Steps

- The only existing Florida-specific estimates are the EPA's, which exclude operations and maintenance expenditures. Nationally, those expenditures constitute the majority of public spending on water supply and wastewater treatment (CBO 49910).

- Over the next year, EDR plans to develop a detailed survey of publicly and privately-owned utilities to obtain additional data regarding immediate repair and replacement costs for aging infrastructure. This is a necessary precursor to the development of a baseline and the identification of any existing infrastructure gaps.

- EDR will also begin collecting and reviewing adopted budgets and Capital Improvement Plans for Florida's publicly-owned water, wastewater, and stormwater systems to aggregate capital investment expenditures and forecast future infrastructure needs.