



2021 Texas Infrastructure Report Card

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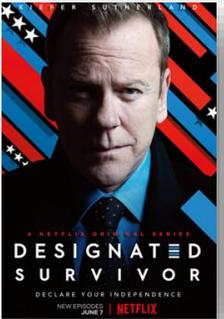
Producing the Texas Report Card

- Committee of 55 volunteers, experts across all infrastructure categories
- 12 infrastructure categories evaluated in 2021
- Created as a public service to citizens & policymakers to inform them of Texas' infrastructure needs
- Showcases the condition of Texas' infrastructure as a snapshot in time, not speculative



ASCE's Infrastructure Report Cards... >> getting results and gaining traction <<

- ASCE Texas recommendations on flood risk mitigation were adopted & funded through actions of the 86th Texas Legislature, in the aftermath of Hurricane Harvey
- President Biden aims to spend \$2 trillion on infrastructure, including \$50 billion on roads and bridges
- ASCE urges Congress to consider key priorities including: Sustainability, Resilience, and Prioritizing Asset Management and Operation & Maintenance needs
- On popular media! Script in Netflix Series "Designated Survivor". Fictional President Tom Kirkman (played by Kiefer Sutherland...that's Donald's son to us old guys).



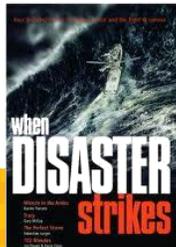


ASCE Texas Section | www.texasce.org

- Represents more than 10,000 civil engineers
- Supports year-round technical work of state agencies & policymakers
- Hosts a Legislative Drive-In (normally, this year “phone-in”)
- Has an obligation to educate the public & policy makers about the condition of our state’s infrastructure

Infrastructure is Critical to Texas' Economy

- The report card is an important advocacy tool
- ASCE commends governmental agencies for their work & dedication to serving the citizens of Texas
- Texas is the largest continental state, the 2nd most populous state, & an economic powerhouse, leading the Nation in wind power energy production
- Too often, we take infrastructure for granted & simply expect it to work
- Until....



Failure to Act!
Consequence of status quo investments



Infrastructure Investment Modernizes Critical Systems & Lowers Long-term Operations & Maintenance Expenses

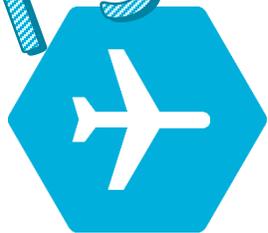
- Every additional \$1.00 invested in infrastructure delivers a return of roughly \$3.70 in additional economic growth over 20 years, according to the Business Roundtable.
- Neglecting infrastructure will leave us mired in static 20th Century status quo, or worse.

Texas Category Grades and Overall GPA:



Category	Grade	Trend
Aviation	B-	
Bridges	B-	Down
Dams	D+	Up
Drinking Water	C-	Up
Energy	B+	
Flood Risk Mitigation	C-	Up
Highways & Roads	D+	Up
Levees	D	
Parks & Recreation	C-	
Solid Waste	B	Down
Transit	B-	Up
Wastewater	D	

Aviation



Bridges



Transit



LET'S START WITH THE GOOD NEWS!

Bridges

- Only 1.3% structurally deficient (largest bridge inventory in USA, smallest percentage)
- \$3.6 Billion needed annually to keep this up, keep grade from sliding back
- Heavy trucks increasing strain on system
- Bridges in flood prone areas are a challenge.



Highways and Roads

- Texas' highway network is the Nation's largest.
- Austin, DFW, & Houston commuters face significantly more congestion than the national average.
- The average Texas auto commuter spends 54 hours in traffic, at a cost of over a \$1,000 annually.
- Current funding levels & resources from the state's gas tax are inadequate to keep up with Texas' projected growth, leaving a \$15 billion annual gap through 2040.





Texas ASCE Briefing to 87th State Legislature

Transportation Issues

- The State's economic growth depends on the efficiency, reliability, and safety of aviation infrastructure and the highway system.
- Current funding levels and resources from the state's gas tax are inadequate to keep up with Texas' projected growth, leaving a \$15 billion annual gap through 2040.
- By increasing the gasoline and diesel motor fuels tax rates from 1991 rates and indexing them to inflation, Texas can keep budgets consistent with growth rates.
- Texas must evaluate long term alternatives to the motor fuel taxes including further study, and piloting of mileage-based, or vehicle-miles driven use fees.
- The average Texan spends 54 hours in traffic at a cost of \$1,080 annually.
- Airport infrastructure demands over the next 5 years are estimated at \$11.2 billion.
- Passenger Facility Charges (PFCs) have been capped at \$4.50/passenger for over two decades. PFCs need to be increased, providing Texas airports access the critical capital.
- Texas should utilize the established "rainy day" fund as a short-term supplement to funding reductions due to impacts from the COVID-19
- Investigate and utilize innovative financing mechanisms to leverage available transportation funding.

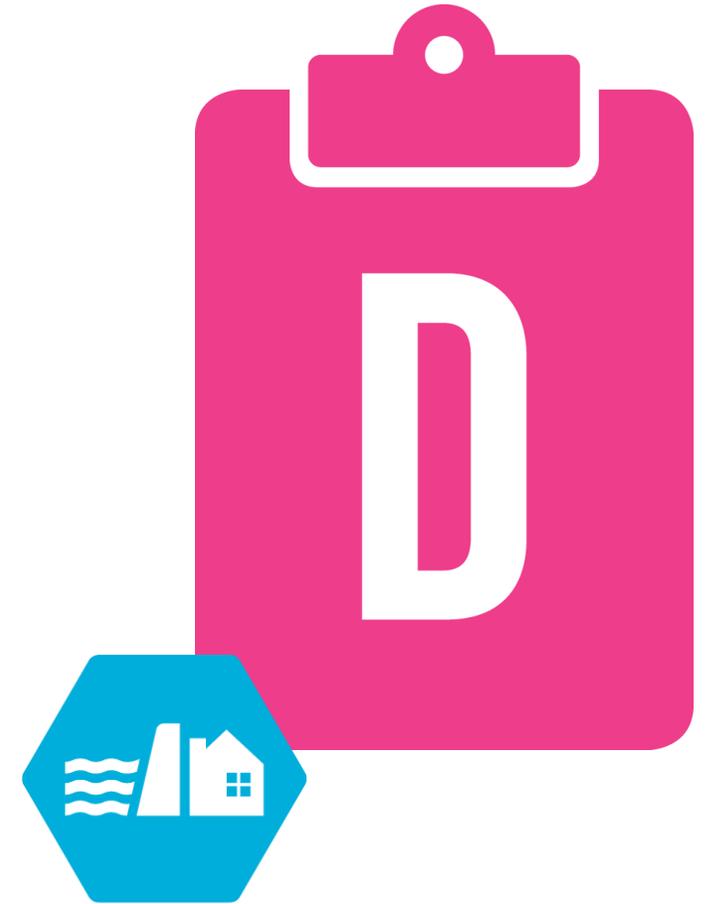
Wastewater

- Federal and state funding is deficient, with a shortfall of more than \$200 million.
- From 2016 to 2019, the number of sanitary sewer overflows (SSO) more than doubled from 2,500 to almost 6,000.
- Increase state & local funding by raising rates to reflect the true cost of service.



Levees (First time grade)

- More than 1 million Texans and \$127 billion dollars' worth of property are protected by levees.
- There is no state levee program (report card recommends a State Levee safety program)
- Texas has 327 levee systems total, extending a combined 567 miles.
- More than 75% of Texas levee systems are without screened risk classification.
- 5 levee systems (about 100 miles of levees) are classified as high to very high risk.
- Bottom line: We don't know. Could be needs in the \$Billions.



		Knowledge	
		Knowns	Unknowns
Metaknowledge	known	known Knowns	known Unknowns
	unknown	unknown Knowns	unknown Unknowns

Dams

- Texas has a Dam Safety program.
- 1/3 of the state's dams are for flood risk mitigation
- 1 in 7 dams are for irrigation or water supply.
- When a dam fails, the area downstream faces loss of life or property, or both.
- Of 7,200 non-federal dams in our state, approximately 25% could result in loss of life should they fail.
- Underfunded and understaffed regulatory agencies contribute to mismanagement of dam safety and increased risk.
- Furthermore, 3,273 dams are exempt from dam safety requirements by State legislation. That leaves about 4,000 dams in Texas that must comply with dam safety regulations.
- \$5 Billion rehab tab (Association of State Dam Safety Officials 2019) incl. \$2.1 Billion Dams in small Water shed program



Drinking Water

- Improved conservation, planning, and management.
- State funding and financing support has improved.
- 1,000 people per day coming to Texas
- Population growth to 51.5 million by 2070
- The Texas Water Development Board (TWDB) State Water Plan (SWP) established 1961 and updated every 5 years since 1992 includes 16 regional water plans since 2002.
- SWP guides state water policy.
- Annual shortages will increase by 140%
- Current conservation shortage (areas of limited surface, or limited quality/quantity groundwater) at 1.07 million acre-feet (that's 377 billion gallons).
- Per 2017 SWP plan \$63 billion need
- Expected \$26.8 billion funding gap to be filled by water utility revenues.



Flood Risk Mitigation

- Roughly 1 in 10 Texans is exposed to moderate or high annual riverine flood risks.
- Initiatives are underway to reduce risks through better planning, improved asset management, & new funding sources flood risk mitigation infrastructure.
- The magnitude of Texas' need is significant, exceeding \$31.5 billion over the next decade.



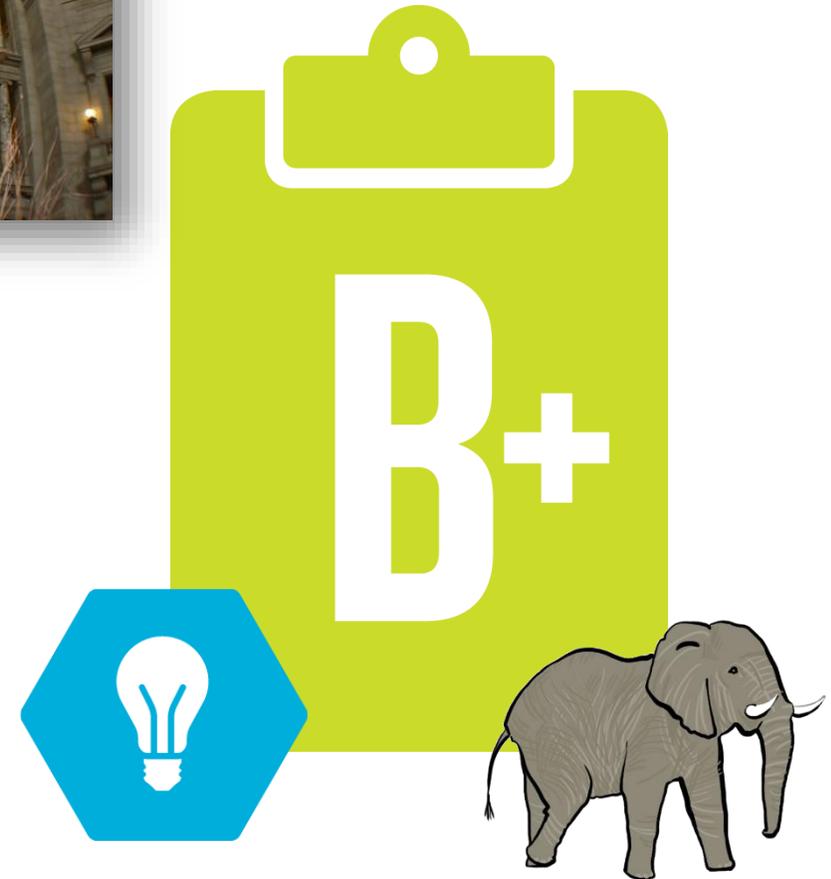
Parks and Recreation (First Time Texas Grade)

- 14 national parks and 88 state parks
- 630,000-plus acres
- Texas Parks and Wildlife Department (TPWD) | manage and conserve the natural and cultural resources of Texas.
- Hunting, fishing, and outdoor recreation.
- The TPWD Fiscal Year 2021 budget is \$444.6 million.
- Proposition 5 (2019) | 100% of sporting goods sales tax helps fund TPWD and the Texas Historical Commission.
- Proposition 5 funding secures the future of local parks, state parks, and historic sites for generations to come.
- **\$800 million remaining in deferred maintenance projects.**

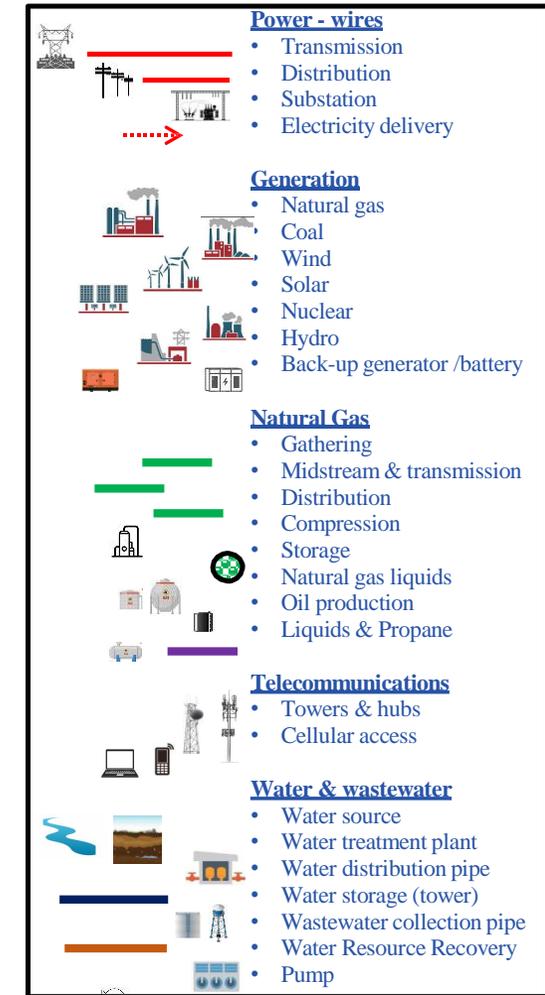
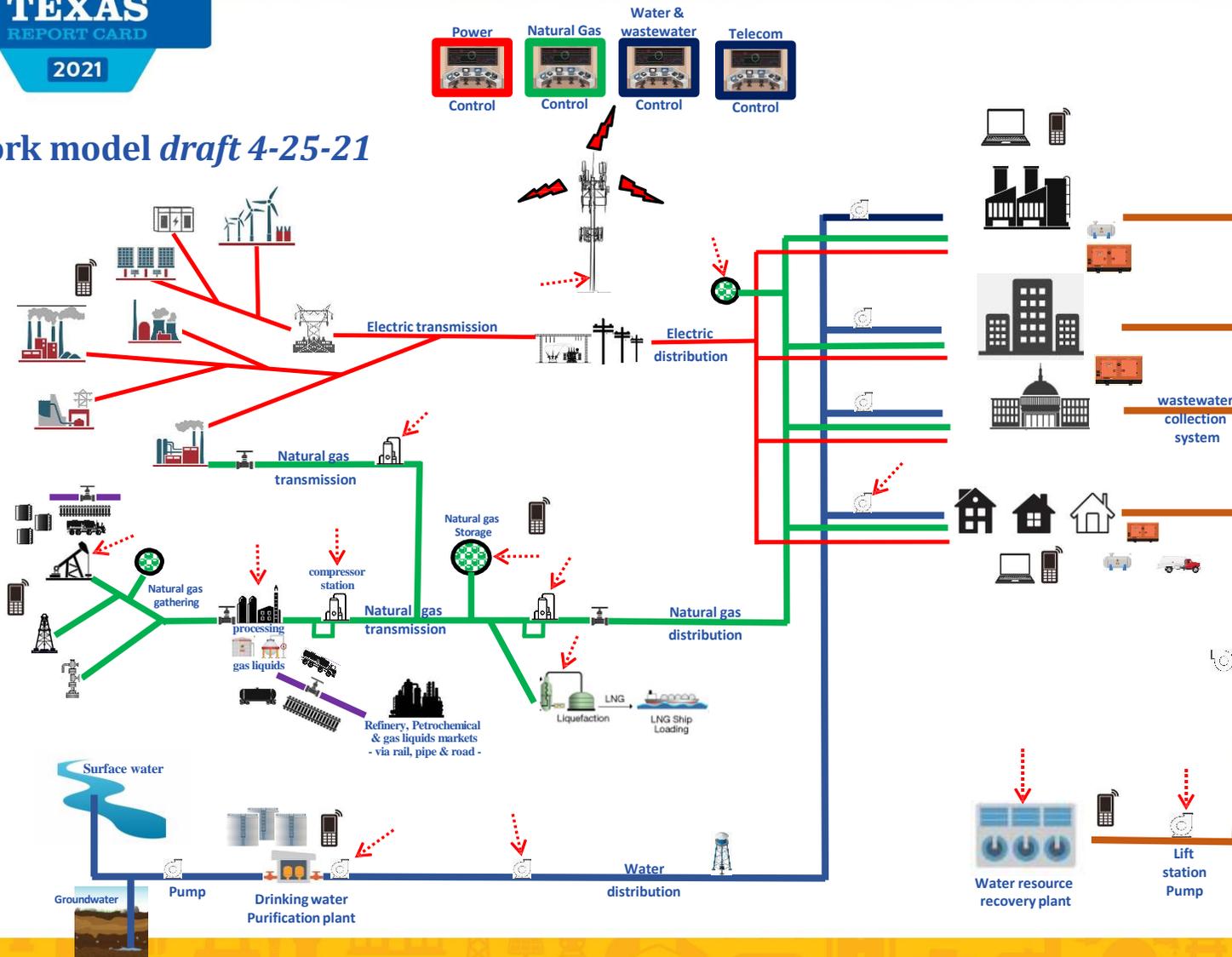


Energy

- Two Energy categories: oil & gas and electricity
- Texas leads the U.S. in oil & gas production
- Texas is the energy innovation capitol of the world
- Oil production increased from 1 million barrels per day in 2011 to over 5.4 million barrels per day in 2019
- Texas needs to continue its leadership by example
- Big elephant in the room. What about the winter storms of 2021?
- Texas ASCE “Beyond the Storms” Committee producing a report similar to Hurricane Harvey report of aftermath that resulted in the Texas Flood Plan



Network model draft 4-25-21



Texas infrastructure funding shortfall summary (worst grades)

- Highways & Roads - \$15 Billion thru 2040
- Wastewater - \$250 million / year
- Drinking water capital costs – \$ 26.8 Billion (to be funded by utility bills)
- Flood risk mitigation – \$31.5 Billion (over next 50 years, has to be covered by water utility revenues, aka your water bill).
- Levees - \$Billions (truly unknown)
- Dams - \$5 Billion (rehab/repair)
- Flood Risk Mitigation - \$31.5 Billion (next 10 years)



RESILIENT INFRASTRUCTURE

BRIEFING TO 87TH STATE LEGISLATURE

- ✓ Policy makers should collaborate with civil engineers to craft infrastructure legislation with resilience at the forefront, to maximize the return on investment and build a stronger Texas.
- ✓ Resilience refers to the capability to mitigate against significant all-hazards risks and incidents and to expeditiously recover with minimal impacts to public, the economy, & national security.
- ✓ Texas needs to understand the impact of the loss of infrastructure, as well as the timeline and cost to restore its function.
- ✓ An all-hazard, comprehensive risk assessment that considers both event likelihood and consequences is necessary to prepare systems for the impacts of extreme events.
- ✓ Texas needs to develop performance criteria and uniform statewide standards that address
- ✓ Interdependencies and establish minimum performance goals for resilient infrastructure



Report Card Recommendations

- **LEAD WITH VISION.** Leaders from all levels—public and private—must come together to ensure investments are spent wisely and mechanisms are in place for maintenance, rehabilitation, and inspections.
- **EDUCATE THE PUBLIC.** Promote public education with all planned infrastructure projects.
- **PREPARE FOR THE FUTURE.** Leveraging material reuse, improved standards, and emerging technologies ensures infrastructure is resilient and sustainable.
- **MAINTAIN THE BALANCE.** When considering local land use planning, the function of existing and new infrastructure must preserve the balance between the built and natural environments.\
- **COLLECT AND UTILIZE DATA.** Infrastructure designs need to consider environmental and climate impacts and future population growth.
- **LEVERAGE ASSET MANAGEMENT.** Streamline asset management across all infrastructure.
- **INVEST NOW TO REALIZE DIVIDENDS LATER.** Infrastructure needs increased and consistent investments at all levels or we jeopardize future growth, losing our status as an American economic powerhouse.



State of the State

“... if Texas was its own country,
we would have the **9th largest economy** in the entire world.”

- Texas Governor Greg Abbott, February 1, 2021



87TH STATE LEGISLATURE – TEXAS ASCE OUTREACH 2021

- » February 22, 2021 – ASCE Texas Section kicked off a month of infrastructure advocacy during our Legislative “Dial-In” event. Members met with Texas Representatives and Senators to share ASCE’s priority issues for the 87th legislative session.
- » February 26, 2021 – ASCE Texas Section President provided a letter to the Texas House Committees on State Affairs and Energy Resources, notifying them of our forthcoming Beyond Storms Report and **requesting to be called upon to provide expert testimony concerning infrastructure.**
- » **April 30, 2021 – ASCE Texas Section Government Affairs Committee provided a letter to the Texas Land Resource Management Committee, opposing HB 4447, which would allow “approval of plats without requiring a person to submit or obtain approval of required planning documents or other prerequisite conditions.”**
- » May 10, 2021 – ASCE Texas Section Executive Director provided a letter to the Texas Senate Finance Committee, requesting **HB 2** be revised to redirect full funding into the floodplain management account within the Texas Infrastructure Resiliency Fund.
- » ASCE Texas Structural Engineering Institute (SEI) Chapter is in **support of SB 1770 & HB 2842** regarding post-PE credentialing in structural engineering. TxSEI may provide letter of support upon request from the Structural Engineering Association of Texas (SEAoT). As of 5/18/21, a formal statement as not been provided to the Texas legislature.
- » Reviewed and provided comments on **HB 3029** related to “Establishing the Gulf Protection District” introduced by Rep. Paul, with companion bill **SB 1160** introduced by Senator Taylor.
- » **Support of House Energy Committee bills including HB 4223 a comprehensive plan to protect oil and gas infrastructure in this state.**



Legislator Support

“The *ASCE Texas Infrastructure Report Card* is a critical tool as we assess our needs and measure progress in actively building Texas into a better place to live, work, and raise a family. We must continue to work together with all levels of government, community leaders, industry partners, and universities, using this invaluable resource to help keep us better informed about the issues facing Texas.”

- Representative Dennis Paul PE, Texas House of Representatives, District 129

Challenge to all Texas Civil Engineers

- Hold regular conversations with lawmakers about the condition of our state's infrastructure
- With proper funding & planning, be are prepared to target bold, ambitious solutions





THANK YOU!

OPEN Q&A and Comments to Presenters

Caroline Sevier

ASCE Director Government Relations

Mark Boyd

Chair, 2021 Texas Infrastructure Report Card Committee