

Birdville ISD 2022 Bond Planning Committee April 18, 2022

Technology
Safety & Security
Buses
Bond Capacity Recap
Review Construction Process
Review Decision-Making Process



Birdville ISD Mission ...

The mission of BISD is to ensure that all students position themselves to excel with integrity in an ever-changing global society through innovative and responsive learning environments.



Technology/Safety and Security



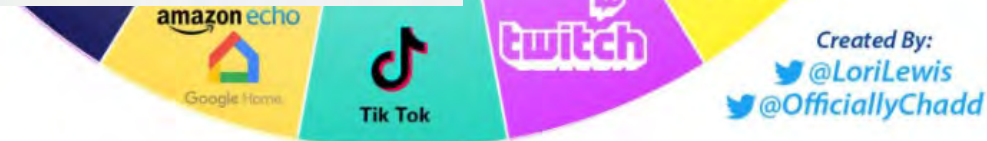
Dave Lambson
Chief Technology Officer



BIRDVILLE INDEPENDENT SCHOOL DISTRICT



2022 BOND PLANNING COMMITTEE



“Never in human history have we seen so many technologies moving at such a pace ... and everything is being disrupted in the process.”

—Salim Ismail



disrupt





Economics



Communication



Education



Entertainment



Medicine



10 jobs that didn't exist 10 (or so) years ago



<https://altopartners.com/news/2021-10-jobs-that-didn-t-exist-10-or-so-years-ago>



10 best degrees to get right now

	Avg. Starting Salary	Avg. Mid-Career Salary
Petroleum Engineering	\$ 93,200	\$ 187,300
Industrial Engineering	\$ 84,800	\$ 170,400
Electrical Engineering and Computer Science	\$ 108,500	\$ 159,300
Interaction Design	\$ 68,300	\$ 155,800
Public Accounting	\$ 59,800	\$ 147,700
Operations Research	\$ 83,500	\$ 147,400
Applied Economics and Management	\$ 66,100	\$ 146,400
Business Computing	\$ 73,000	\$ 143,600
Actuarial Mathematics	\$ 64,300	\$ 143,400
Aeronautics and Astronautics	\$ 77,000	\$ 139,600

<https://www.foxbusiness.com/personal-finance/best-degrees-to-get>



The top skills that will get you hired (Forbes)

2013

Critical Thinking
Complex Problem-Solving
Judgement and Decision Making
Active Listening
Computers and Electronics
Mathematics
Operations and Systems Analysis
Monitoring
Programming
Sales and Marketing

2021

Analytical Ability
Data Science
Ability to Work Independently
Technological Aptitude
Resilience
Project Management
Transformational Leadership
Remote Work Skills
Unstructured Problem-Solving
Change Management
Adaptability
Self-Motivation and Organization
Digital Communication Skills
Grit



The top skills for success in college

Assertiveness

Responsibility

Self-Management

Communication

Collaboration

Independent Work

Critical Thinking

Study

Technological

Tolerance for Ambiguity

At Ease with Diversity

Creative Thinking

Ability to Follow Directions

Having Personal Goals

Being Engaged



<https://admission.asu.edu/parent-blog/college-life/15-skills-college-success>

The top skills for success

Sought by College

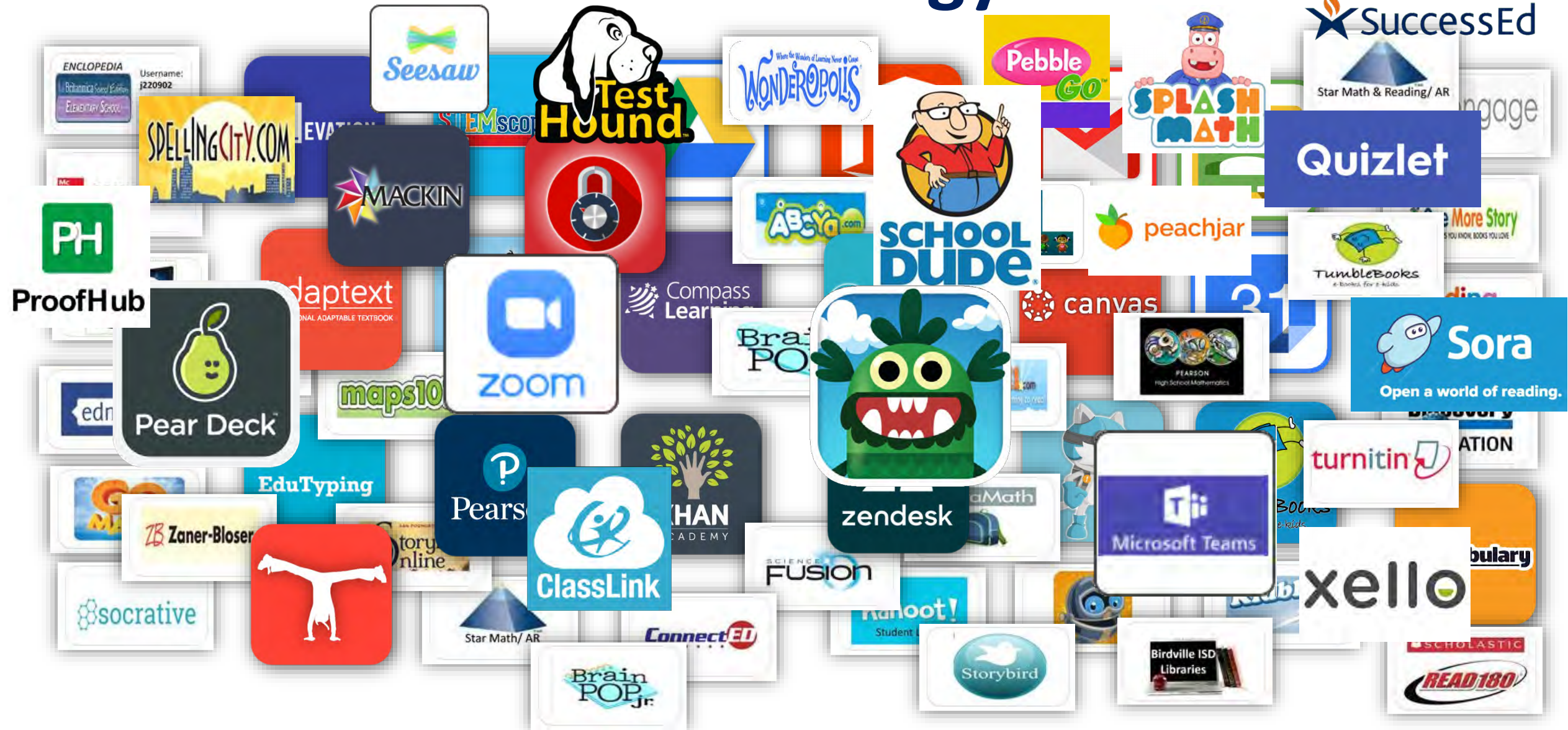
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Sought by Employers

Analytical Ability
Data Science
Ability to Work Independently
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Resilience
Project Management
Transformational Leadership
Remote Work Skills
Unstructured Problem-Solving
Change Management
Adaptability
Self-Motivation and Organization
Digital Communication Skills
Grit



How Do We Use Technology? ... Software



How Do We Use Technology? Esports

- Esports is booming — a \$175B industry, 2.9B gamers and 45% are women.
- Scholarships, certifications, bachelor's/master's degrees, and careers.
- Popular extracurricular option for students not interested in athletics or fine arts
- CTE Course in 2022-23 at the BCTAL.



How Do We Use Technology? Esports



How Do We Use Technology? ... Network Access

- 243 Network Closets
- 2,468 Wi-Fi access points
- 16,000+ wired devices and 20,000+ wireless devices connected on a daily basis



How Do We Use Technology? ... Safety & Security

- 2,270 physical security cameras
- 732 doors secured with card readers



Why Do We Need To Refresh Technology?



Why Do We Need to Refresh Technology? ... Heavy Use

- Heavy use by students
- Wear and Tear
- Over time, devices require more maintenance and manpower to keep them running.



Why Do We Need to Refresh Technology? ... Cheaper to Replace

- Cost of repairs exceeds cost of replacement
- Technology changes fast
- New technology is more effective instructionally
- Exponential growth of students learning digitally



What Are the Technology and Safety/Security Needs?



What Are the Technology Needs? ...

Security Camera Update

- Modern video management software that streamlines investigations
- Camera maps of District facilities that aid staff in locating incidents quickly and identifying blind spots
- Higher resolution security cameras for enhanced video quality
- \$3,268,274



What Are the Technology Needs? ...

Door Access / Card Reader Update

- Scalable system that integrates with cameras and other existing infrastructure and software.
- More feature-rich system that provides better analytics and automation to increase security.
- Easier to manage door access from any location, even outside of the District.
- Door Access / Card Reader update
- \$2,130,000



What Are the Technology Needs?

Infrastructure: Network Refresh

The majority of the District's network infrastructure was installed over 2013-15 and is reaching "end of life."

- We will no longer qualify for support.
- We will not be able to take advantage of the latest features.
- Our systems will stop supporting the newer versions of Cisco iOS which can lead to cybersecurity issues.
- Over a period of time, the network may not be able to meet the speeds necessary to support an increased number of devices, new instructional software, or testing software requirements.
- \$10,439,228



Infrastructure: Large Format Displays impacting locations like classrooms, auditoriums, libraries, gyms, cafeterias, conference rooms.

- **\$4,725,896**



What Are the Technology Needs? ...

Continue five-year replacement cycle for student devices.

- **\$12,774,825**



What Are the Technology Needs? ...

Continue replacement cycle for teacher and staff devices:

- **\$3,286,950**
- Laptops
- Monitors
- Docking Stations
- Document Cameras



Questions, Comments, & Feedback



Buses



Sheri Nguyen
Director of Transportation



Diesel vs. Propane

Diesel PROS

- ❖ Newer models have clean burning green diesel.
- ❖ Averages 8-9 mpg.
- ❖ Better for longer distance travel because of availability of fueling stations.
- ❖ 100 gallon tank capacity.
- ❖ Not as combustible as LPG (propane).

Diesel CONS

- ❖ BISS has a 44 square mile radius, resulting in Regen system engaging causing bus to derate.
- ❖ Fuel is more costly than LPG.
- ❖ More maintenance requirements (i.e., fluids, filters, oils).
- ❖ Fuel injectors require frequent replacement in older engines.
- ❖ Today's diesels are so choked down with anti-emissions gadgets which actually shorten the performance and durability of the engine.



Environmental Benefits

Why Environmentally-Friendly School Buses Matter:

Most people don't realize how clean-diesel now is or even why running an environmentally-friendly school bus fleet matters.

When you think of diesel fuel, you may think of a black sooty cloud coming out of the tailpipe of your school buses.*

Reality: Clean-diesel school bus emissions are now 90% percent cleaner at the tailpipe than they were in 2006.

- Based on EPA-regulated emissions, clean-diesel is comparable to or even cleaner than other fuel types like propane, CNG and gasoline.

Ultra-low-sulfur diesel, SCR and EGR technologies have cleaned up clean-diesel considerably.

		NITROGEN OXIDES <small>(grams per brake hp per hour)</small>	PARTICULATE MATTER <small>(grams per brake hp per hour)</small>	CARBON MONOXIDE <small>(grams per brake hp per hour)</small>	NON-METHANE HYDROCARBON <small>(grams per brake hp per hour)</small>
2017 FEDERAL EMISSIONS STANDARDS		0.20	0.01	15.5	0.14
ELECTRIC	2021 PROTERRA PRODRIVE	0.000	0.000	0.000	0.000
DIESEL	2021 CUMMINS B6.7	0.11	0.004	0.03	0.03
	2021 DETROIT® DD5™	0.08	0.001	0.5	0.03
CNG	2021 CUMMINS B6.7N	0.01	0.002	1.5	0.01
PROPANE	2021 ROUSH 6.8L	0.01	0.002	5.0	0.04
	2021 DRIVEFORCE 8.8L	0.13	0.000	1.9	0.10
	2021 PSI 8.8L	0.02	0.000	2.7	0.05
GAS	2020 FORD V10	0.08	0.002	12.9	0.08
	2021 PSI 8.8L	0.04	0.001	3.7	0.08

*RESULTS ARE BASED ON FEDERAL TEST PROCEDURE (FTP) CYCLE.

3/21

Environmental Benefits

Why It Matters How Much Cleaner Clean-diesel School Bus Engines Are:

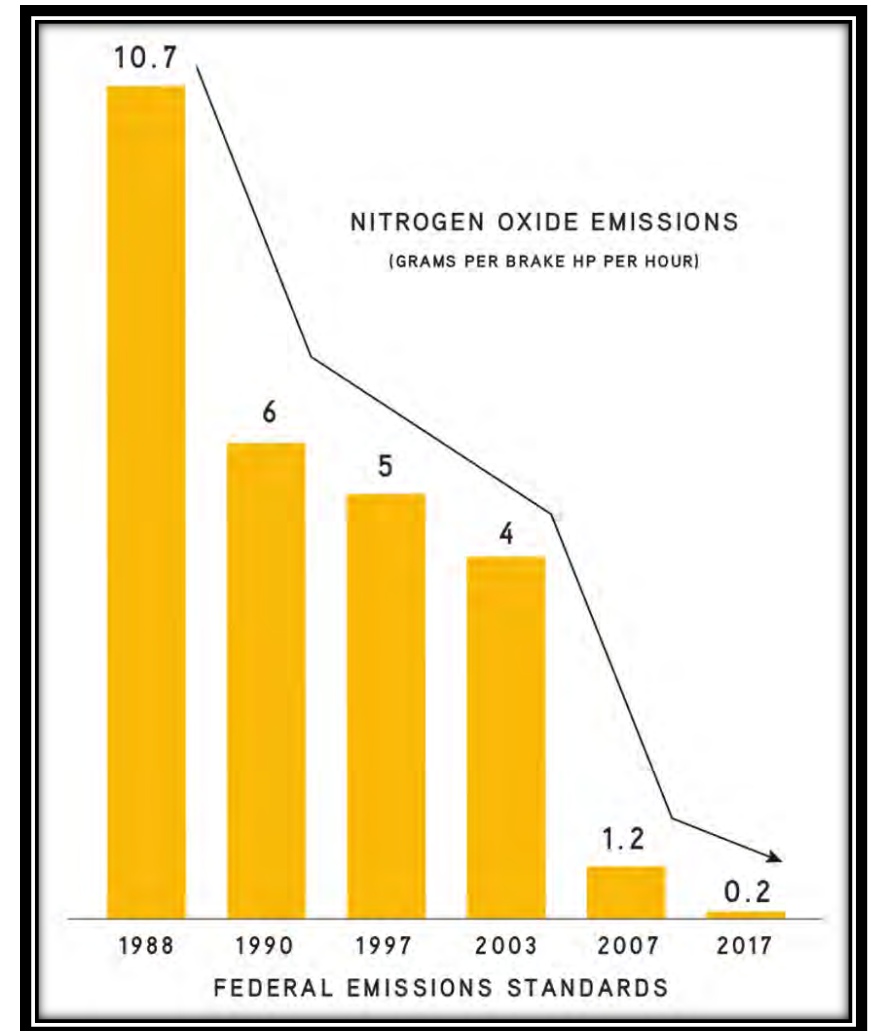
❖ Nitrogen oxides (NO_x) transportation emissions are regulated by our government.

- ❖ NO_x are highly reactive gases composed of nitrogen and oxygen. They form when fuel is burned at high temperatures.
- ❖ The primary source of NO_x is motor vehicles: diesel-fueled medium- and heavy-duty vehicles are the number one source of NO_x emissions in almost every single metropolitan region in the U.S.
- ❖ NO_x are regulated under federal air quality standards because they are known to be harmful to human health and to the environment.
- ❖ Exposure to NO_x exhaust can trigger health problems, such as asthma, bronchitis and other respiratory issues.
- ❖ In the developing lungs of children, exposure to NO_x causes negative health effects, like asthma, which is the leading cause of school absenteeism.

❖ Emissions from NO_x contribute to acid rain, smog and other air-quality issues.

- ❖ Diesel vehicles emit increased exhaust emissions filled with tiny soot particles and toxic gases.
 - ❖ Particulate Matter (PM)
 - ❖ Nitrogen Oxide (NO_x)
 - ❖ Carbon Monoxide (CO)
 - ❖ Nonmethane Hydrocarbons (NMHC)

Birdville ISD's transportation team is dedicated to investing in technologies and innovations that make school buses safer, more reliable, durable, more efficient and easier to maintain.



1. U.S. ENERGY DEPARTMENT, ALTERNATIVE FUELS DATA CENTER, [HTTPS://WWW.AFDC.ENERGY.GOV/VEHICLES/EMISSIONS_POLLUTANTS.HTML](https://www.afdc.energy.gov/vehicles/emissions_pollutants.html)

2. ENVIRONMENTAL PROTECTION AGENCY'S NATIONAL SERVICE CENTER FOR ENVIRONMENTAL PUBLICATIONS: NO_x: HOW NITROGEN OXIDES AFFECT THE WAY WE LIVE AND BREATHE.

Benefits

❖ Student Safety: Reliable Transportation

- ❖ New buses are compartmentalized; equipped with seatbelts, shatter-proof glass, reinforced sides, high-back padded seats, and a raised one-piece floor.
- ❖ Oldest Bus from 1998 (24 years old)
 - ❖ Average age of a bus 6-10 years old
- ❖ Field Trip Buses / Sub Buses
 - ❖ Oldest buses in the fleet

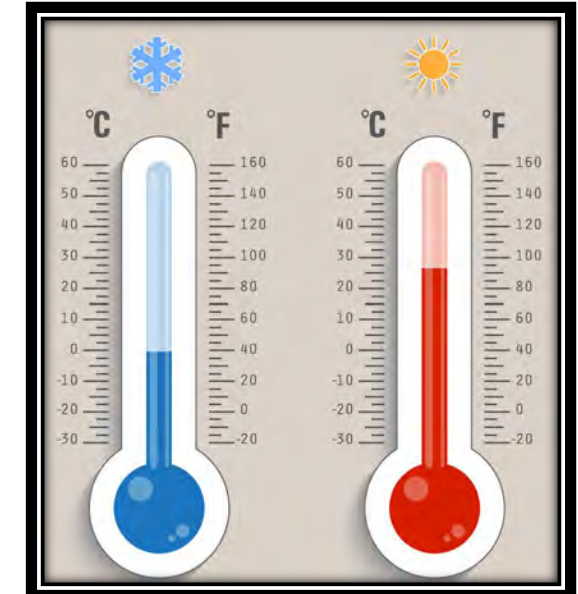
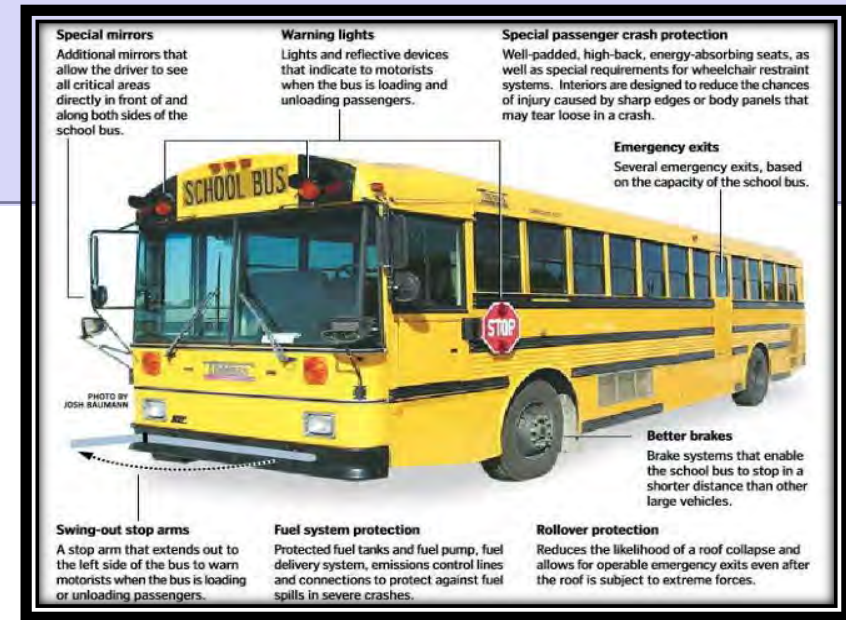
❖ Maintenance Costs

- ❖ Avg. Annual Upkeep per bus (Oil Changes, Tires, Brakes, etc.): \$5,500
- ❖ Avg. Annual Labor Cost per bus: \$1,600
- ❖ Additional Maintenance: Older buses will have more costly issues/maintenance needs such as: drive train, radiator, electrical, etc.
 - ❖ Additional \$8k - \$23k annually

❖ Heat/Air Conditioning

- ❖ Extreme Weather Conditions
 - ❖ Highs in the 100s (degrees) plus humidity
 - ❖ Lows in 20s
- ❖ Internal Bus Temperatures
 - ❖ Can reach 114 degrees
 - ❖ Potential effects: Heat injuries ranging from sunburns to heatstrokes

❖ GPS & Student Tracking



This is our WHY...



Questions



Bond Capacity Review



Katie Bowman, CPA
Associate Superintendent for
Finance & Auxiliary Services



Preliminary Bond Capacity Analysis

This Preliminary Bond Capacity Analysis is based upon the assumptions summarized herein. To the extent the District's actual results differ from the assumptions herein, the financial impact to Birdville ISD will correspondingly change.

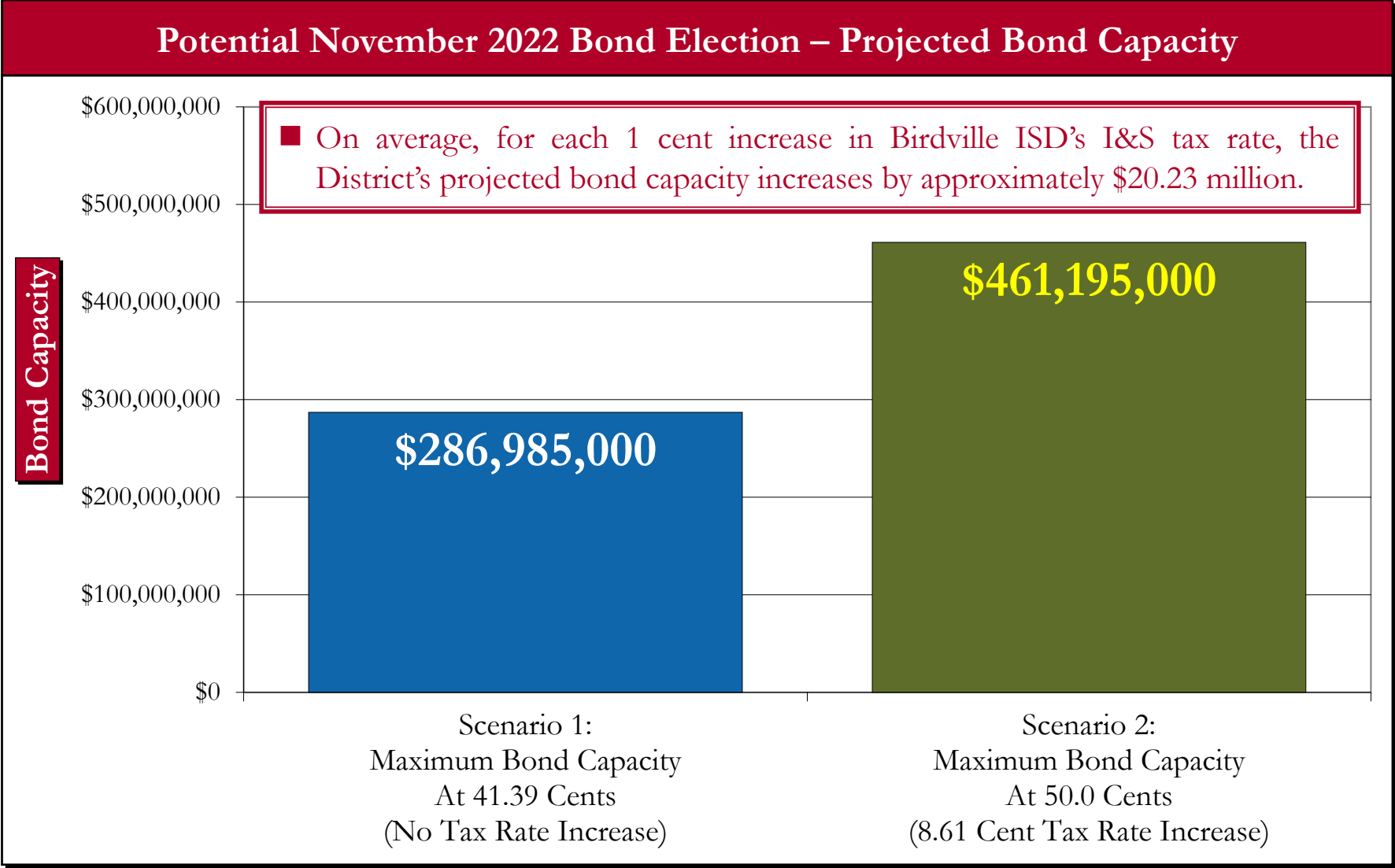
□ Scenarios Presented – Potential New Bond Program

- Determine Birdville ISD's projected bond capacity for a November 2022 bond election at a maximum I&S tax rate of:

❖ **Scenario 1:** **41.39 cents** (i.e., no tax rate increase); and

❖ **Scenario 2:** **50.0 cents** (i.e., 8.61 cent tax rate increase).

Preliminary Bond Capacity Analysis



Ground Rules

- How will we work together on this historic project?
- Try thinking backwards ...
 - What would make these meetings a disaster?
- Ground Rules to consider ... please inform group of agreement or concerns.
 - Agree to all of them?
 - Some of them?
 - Add to them?
 - Take any away?



Decision-Making Process

- How will we make decisions?
- “If we don’t decide now, someone will do it for us later.”



80% Rule

- Seek consensus!
- If after discussion, it is not achievable, 80% agreement will constitute a Sustainable Decision.

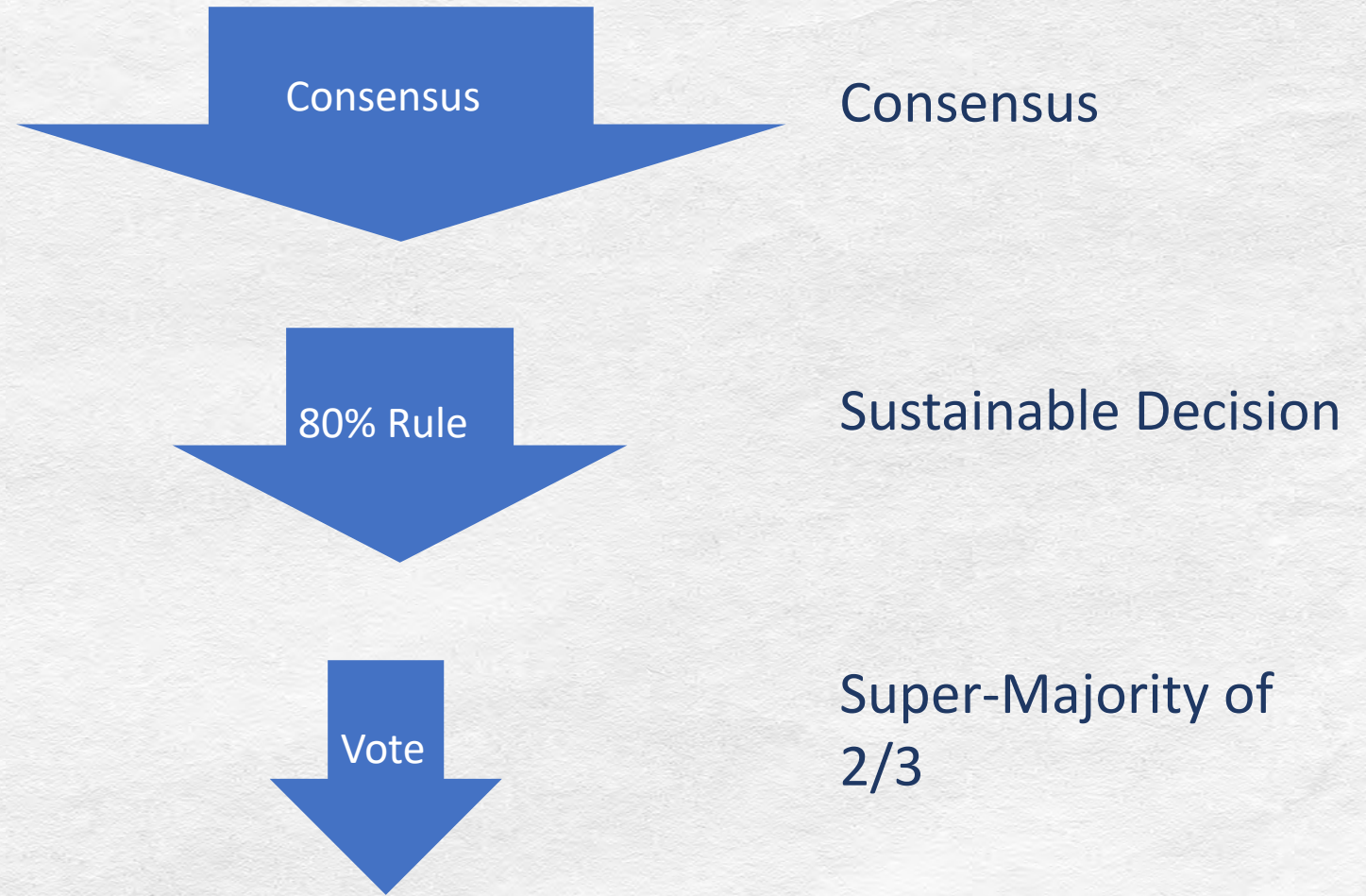


Vote

- If a sustainable decision is not achievable, then a Super-Majority vote of two-thirds (67%) of the Committee will constitute a decision.
- (Even a Super-Majority vote is still the least desirable process for our Committee.)
- *Seek consensus!*



Proposed Decision-Making Model



Consensus and Gradients of Agreement ...



This is the Community At Work Gradients Of Agreement Scale.

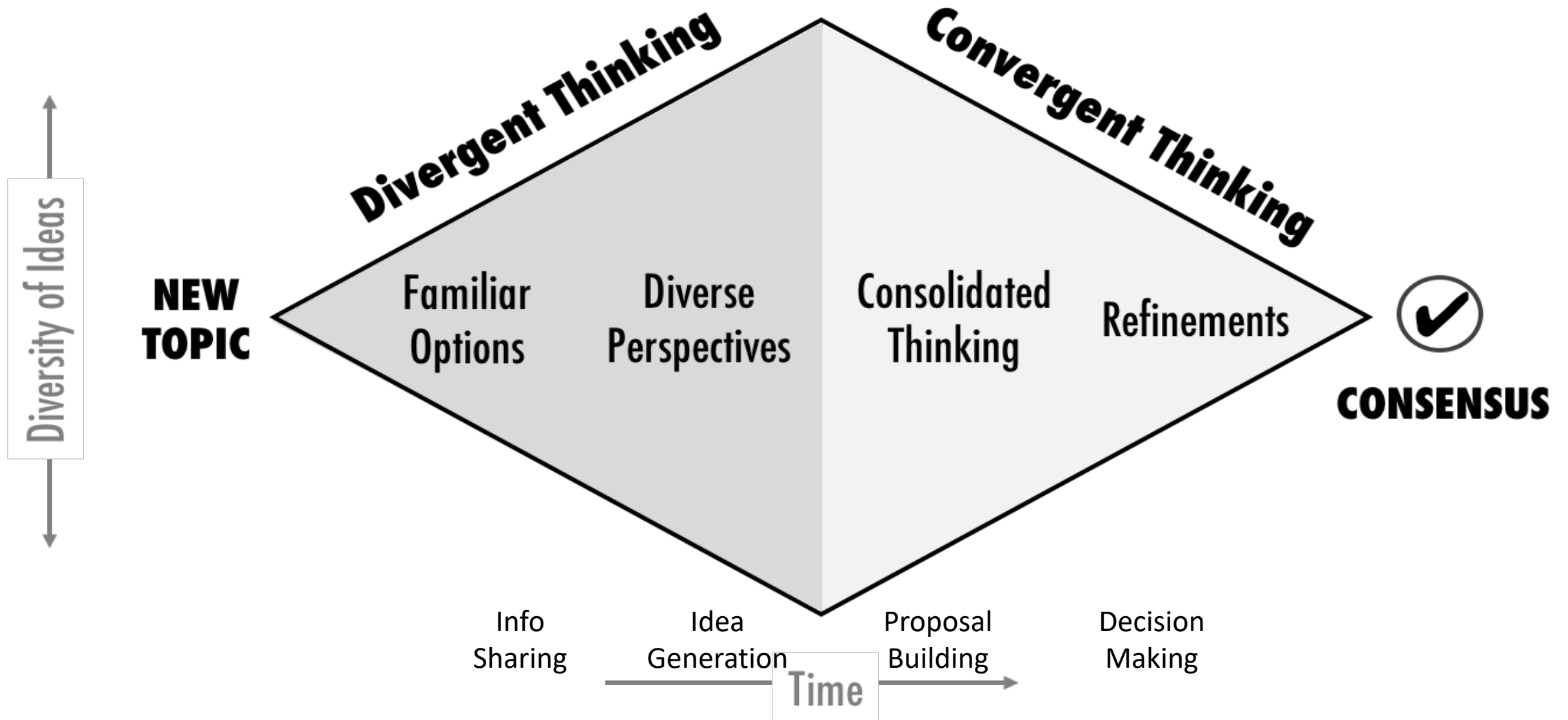
This scale makes it easier for participants to be honest. Using it, members can register less-than-whole-hearted support without fearing that their statement will be interpreted as a veto.

Shared Values for this Work

- Understand dynamics of a group decision-making process.
 - Divergent to Convergent Thinking Diagram
- We will be uniform and fair in our decision-making.
- We will have time to process information and to ask questions.



Dynamics of Group Decision-Making



How Will We Begin to Consider These Projects? How Do We Begin? ...

- Your Worksheet
 - The Projects
 - The Priorities
 - The Pricing
 - Your Preferences
- The Considerations
 - Does it meet the needs of the District, the teachers, the students?
 - Does it reflect good stewardship?
 - Is it viable in the community?



Charge from the Board

- The Board has turned over crafting the contents of and the size of the 2022 bond package to this Committee.
- Other than what the law says and a few Board-imposed parameters, the Board is not telling the Committee what needs to be in this package – that's your job.
- The Board ask you ...
 - To ask questions;
 - To listen respectfully to others; and
 - To speak up respectfully when it's your turn.



Charge from the Board

- The Board desires that the size of the overall bond package not increase the current I&S tax rate. They are basing that parameter assuming a moderate increase in property values.
- If the Committee's proposed package would potentially cause a tax rate increase, the Board asks that an overwhelming majority of the Committee support such a proposal.



Table Feedback



Likes and Wishes

- Review at the close of each meeting ...
- What did you **LIKE**?
- What do you **WISH**?
- Any questions?



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