



Selected 2007 Bond Projects

Middle School #7
Ginnings Elementary School
Sam Houston Elementary School
Evers Elementary School
Technology

Previous Action

- **Tuesday, August 23, 2011 Meeting**
2Q11 Growth Report & Denton ISD Growth Profile
10 year forecast for secondary campuses
- **Tuesday, September 13, 2011 Meeting**
Review of Existing Debt Portfolio and Bond Capacity – 2007 Bond
Scenario #1: Bond Sale – I&S Tax Rate maintains at 49.0 Cents
- **Tuesday, November 8, 2011 Meeting**
Update on Middle School #7 plans and proposed construction schedules

Improving Efficiency & Performance

Code changes since Harpool Middle School



Harpool Middle School codes

2000 Edition of the
Inter. Building Code
Inter. Mechanical Code
Inter. Plumbing Code
Inter. Fire Code
& Inter. Energy Conservation Code

1999 Edition of the
National Electrical Code
1994 Texas Accessibility Code



Middle School No. 7 codes

2009 Edition of the
Inter. Building Code
Inter. Mechanical Code
Inter. Plumbing Code
Inter. Fire Code
& Inter. Energy Conservation Code

2008 Edition of the
National Electrical Code
2010 ADAAG

Improving Efficiency & Performance

Overall Building Energy Use

End Use	Energy Use (kWh)
Total	836,585

Lighting 161,659

Interior	138,854
Exterior	22,805

HVAC 308,318

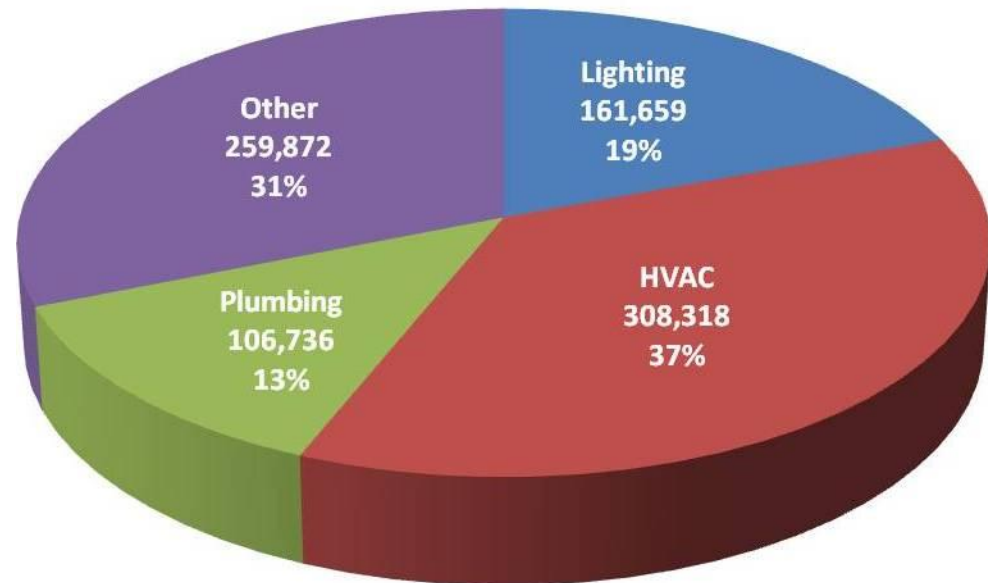
Space Heating	1,504
Space Cooling	117,026
Pumps	117,489
Water to Water Heat Pumps	6,966
Fans	44,291
Exhaust	4,141
Unit Heaters	16,901

Plumbing 106,736

Pumps	
Service Water Heating	46,148
Domestic Water Heating	60,588

Other 259,872

Receptacle Equipment	109,579
Refrigeration Equipment	30,714
Elevators	5,573
Cooking	114,006

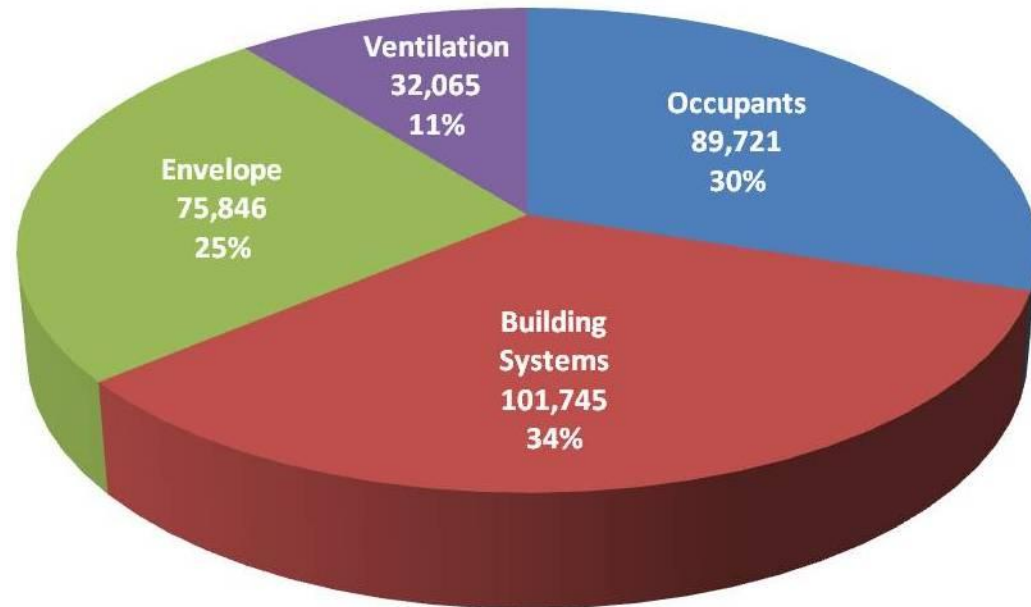


*Based on new Keller ISD Ridgeview Elementary School energy model

Improving Efficiency & Performance

Building HVAC Load Sources

Load Sources	Energy Use (kWh)	
Occupants	89,721	29.1%
People	73,380	23.8%
Building Systems	101,745	33.0%
Equipment	56,114	18.2%
Lighting	45,631	14.8%
Envelope	75,846	24.6%
Wall Tansmission	6,783	2.2%
Roof Transmission	34,223	11.1%
Window Solar	16,033	5.2%
Window Transmission	15,108	4.9%
Doors	308	0.1%
Floor	3,391	1.1%
Ventilation	32,065	10.4%
Ventilation	32,065	10.4%
Fan Heat	25,282	8.2%
	308,318	100.0%



*Based on new Keller ISD Ridgeview Elementary School energy model

Improving Efficiency & Performance

Current building codes require increased performance over previously “Required” codes

Energy Efficiency improvements required under the new codes.

Insulation

Walls now require increased performance and continuous barrier. R-11 to R-13 plus R 3.8 continuous.

Glazing

Requires use of high performance coatings and insulated glazing. Now has minimum R-value and maximum radiant heat transmission.

HVAC systems

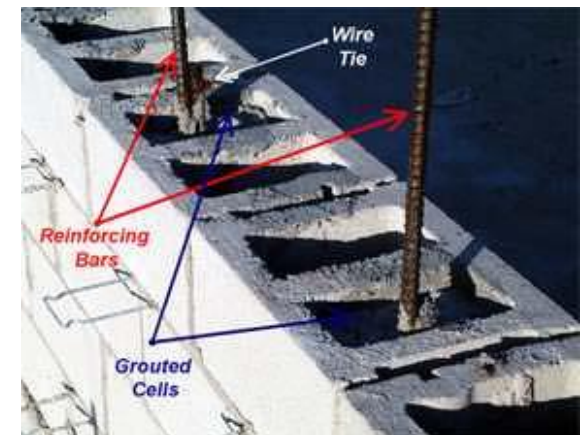
Individual components required to be 12.15% more efficient

Lighting efficiency

Maximum lighting power density allowed has decreased by 20%

Additional Monitoring and Controls

Required to monitor carbon dioxide and adjust HVAC in high occupancy spaces, such as cafeteria and gym



Improving Efficiency & Performance

Proposed energy efficiency features “Included”

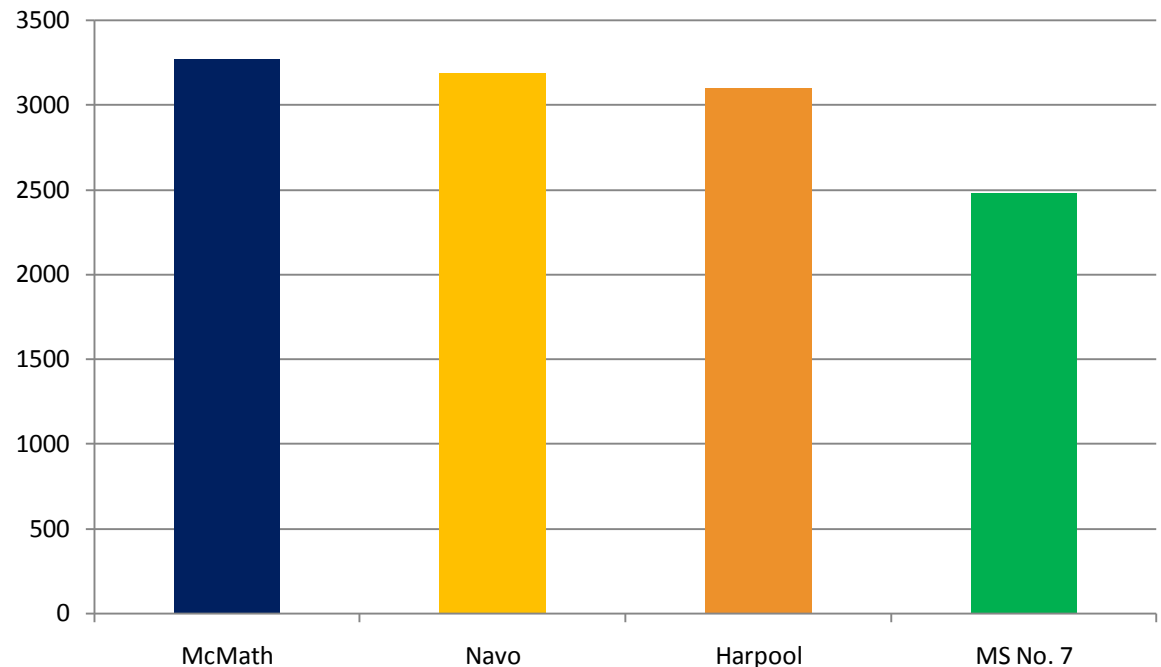
HVAC changed to a water source heat pump “geothermal” system

Windows on south, east, and west elevations will have exterior sun shades. With MEP consultant, investigating return on investment of exterior sun shade devices versus better quality glass and glazing.

Vacancy sensors instead of occupancy sensors

3-Year Utility Consumption Average

MMBtu/SF
(Electric & Gas Only)



Anticipated 20% Savings

Date: 12-13-11

Improving Efficiency & Performance

Proposed additional energy efficiency items for consideration “Proposed”

Use the geothermal loops to heat domestic water	Payback difficult to predict without actual energy model of the building.
Use ‘cool’ roof membranes, and metal roof colors.	No Cost Increase. Decrease in Hail Warranty from 4” to 2”
Use newer lighting technologies like indirect / direct fixtures and or LED fixtures	\$50,000 to \$75,000. Payback in 15-20 years
Upgrade components of the Geothermal HVAC system.	\$100,000. Payback in 15-20 years
Use thermally broken window framing systems.	\$25,000. Payback in 10-15 years
Low flow plumbing fixtures	Minimal cost impact. Payback in 5 years
Collect HVAC condensation for use to support defined area of landscaping	
Landscaping material will be selected based on drought tolerance and suitability for a school campus	

Improving Efficiency & Performance

User actions will affect energy use

Possible active steps to be considered

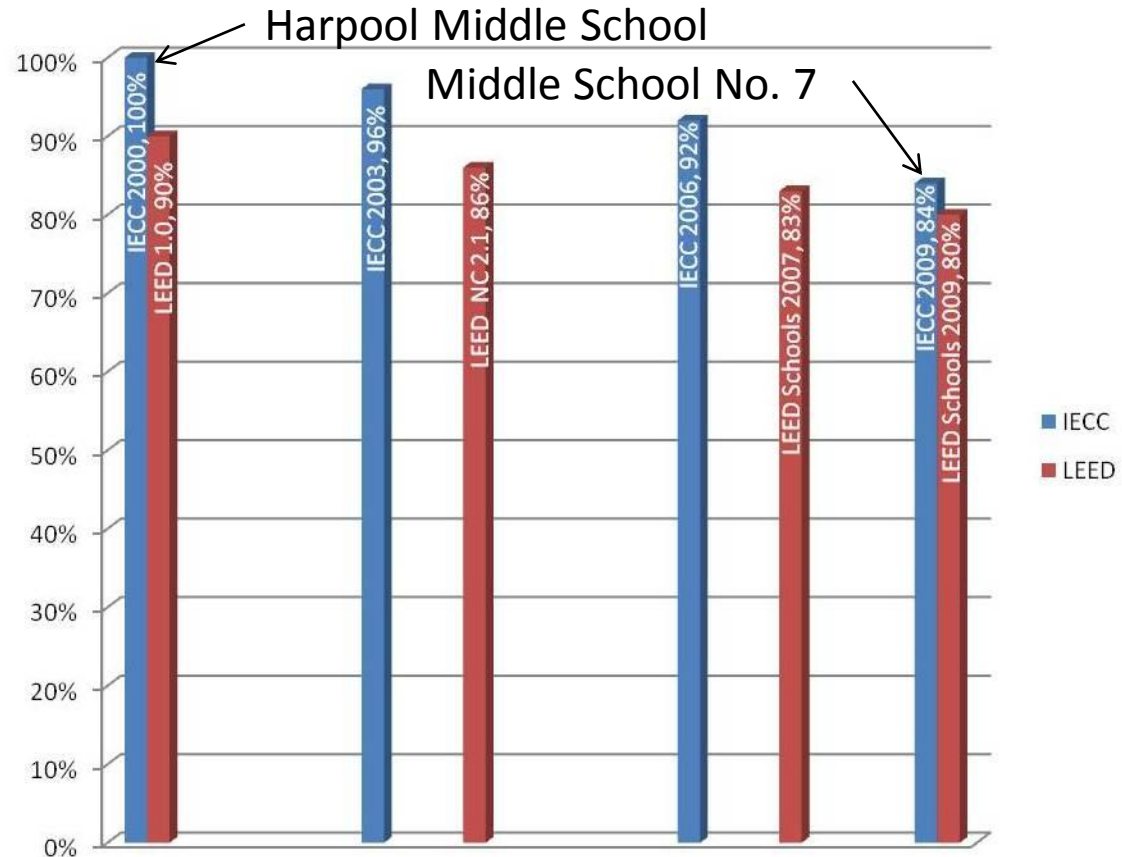
- Utility rate affected by peak demand. Offset uses to lower peak demand, such as
 - Fire drills in early morning during the summer and late afternoon in the winter
 - Phasing units of the building to turn on at slightly different times
- Concentrate summer school and community uses into the newer, more efficient facilities.

Improving Efficiency & Performance

How do the energy conservation codes compare with LEED®?

LEED® actually references the energy conservation codes, requiring 10% better efficiency as a minimum, awarding 'points' for each 2% increase above that.

The energy conservation codes have been increasing efficiency requirements with each edition



Improving Efficiency & Performance

Costs Associated with Redesign

Cost associated with Redesign and 1 year Postponement

\$515,290.00

Funds expended for modified prototype design to date
(Services through Design Development – 35%)

\$285,260.00

Additional funding to redesign Middle School

\$855,780.00

Estimated 1 year inflation at 3%

Estimated Additional Cost to Redesign

\$800,550.00 to \$1,656,330.00

1. Cost reference above is based upon an estimated construction cost of \$28,526,000.00. This is the current budget number based upon current square foot pricing.
2. The revised building square footage, based upon the Design Development, is 167,800 square feet.
3. The actual funding expended for design services to date through Design Development is \$550,343.86 which was based upon the 2009 estimated Construction Cost of \$30,532,000.00.

2007 Bond Authorization

Series 2008	\$165,255,000
Remaining Projects	\$108,893,918
2004 Contingency Funding	\$ 6,793,552
2007 Interest Earnings	\$ 400,517
2007 Contingency	<u>\$ 657,013</u>
Total	\$282,000,000

2007 Remaining Projects

Middle School #7	\$ 41,890,364
Ginnings Elementary	\$ 3,262,000
Houston Elementary	\$ 3,236,000
Evers Elementary	<u>\$ 1,785,983</u>
	\$ 8,283,983
Land – (Currently Available - \$5,761,746)	\$ 21,864,513
Elementary #22	\$ 21,494,798
High School	\$ 1,400,000
Support Services Bldg	<u>\$ 13,960,260</u>
Total	\$108,893,918

Proposed Projects

Middle School #7	\$ 41,890,364
Ginnings Elementary	\$ 3,262,000
Houston Elementary	\$ 3,236,000
Evers Elementary	<u>\$ 1,785,983</u>
	\$ 8,283,983
Technology:	
TxDot – 2181	\$ 250,000
TxDot – 2499	\$ 250,000
City of Denton – Mayhill	\$ 195,000
New Project – Lake Lewisville	<u>\$ 325,000</u>
	\$ 1,020,000
Total	\$51,194,347

Available Funds

	1999	2002	2004	2007	Total
Interest	11,493	263,612	2,428,304	2,641,222	5,344,631
Contingency :					
Closed Projects	112,058		982,441	7,491,715	8,586,214
Technology		549,139	696,125		1,245,264
Total	123,551	812,751	4,106,870	10,132,937	15,176,109

Proposed Projects	\$ 51,194,347
Less Available Funds	<u>(\$ 15,176,109)</u>
Additional Funds Needed	\$ 36,018,238

Proposed Funding

Middle School #7

Bond Sale	\$40,000,000
Interest Earnings	<u>1,890,364</u>
Total	\$41,890,364

Elementary Projects – Houston, Ginnings & Evers

Contingency – Closed Projects	\$ 8,283,983
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Technology Projects

Contingency – Technology	<u>\$ 1,020,000</u>
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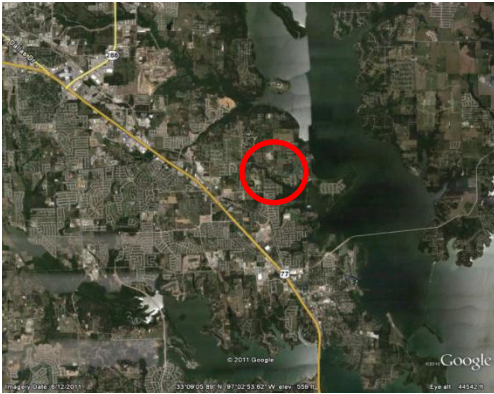
Total	\$51,194,347
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Remaining Contingency Funds

	Available	MS #7	Elementary Projects	Technology Projects	Remaining Contingency
Interest	5,344,631	1,890,364			3,454,267
Contingency:					
Closed Projects	8,586,214		8,283,983		302,231
Technology	1,245,264			1,020,000	225,264
Total	15,176,109	1,890,364	8,283,983	1,020,000	3,981,762
Land Budget	5,761,746				5,761,746

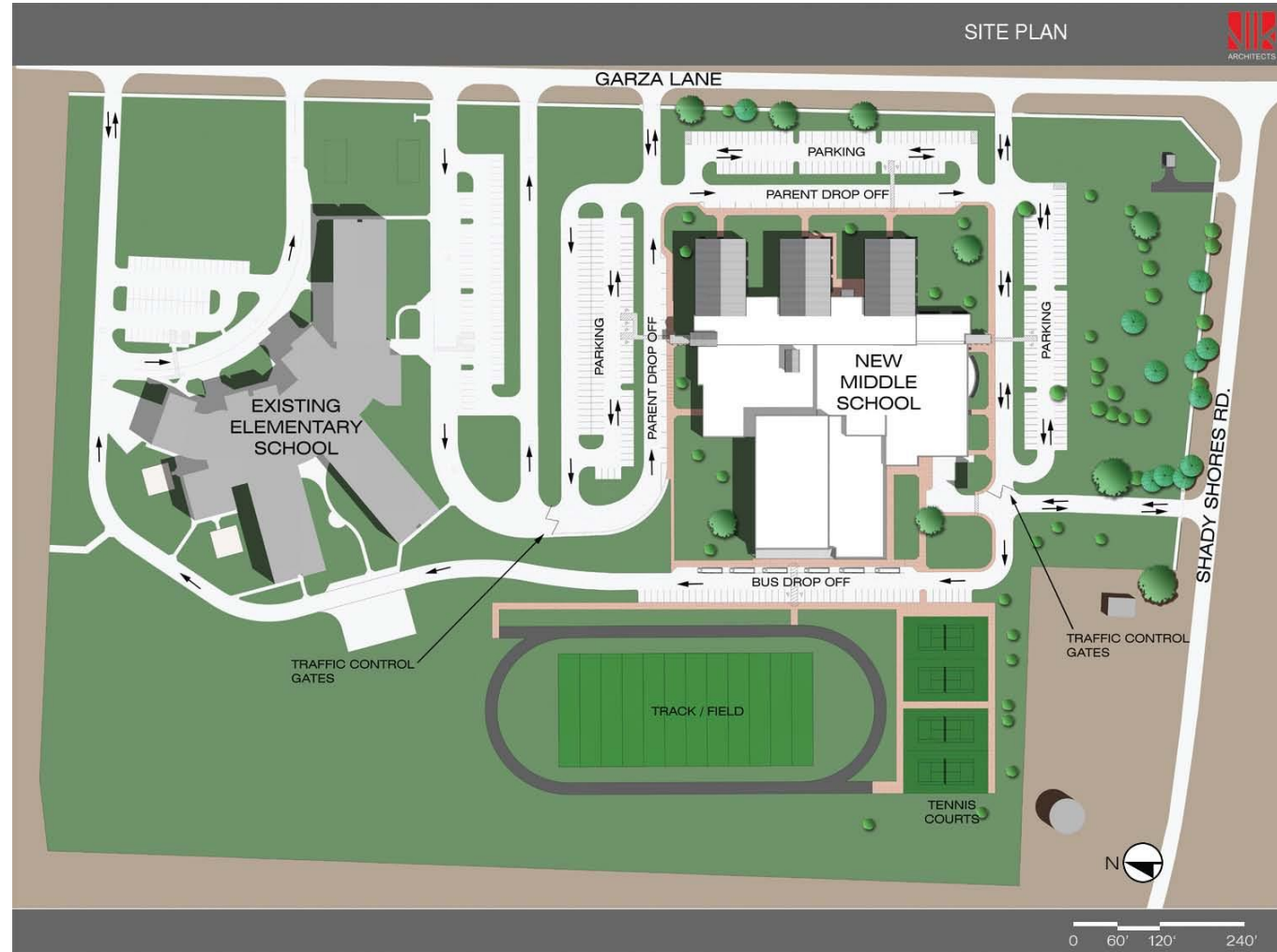
Note: The remaining contingency of \$3,981,762 may be moved into the land budget or remain in the contingency fund for future use.

Site



OVERVIEW

- Part of the 2007 Bond Referendum
- Board has indicated the location at the Shady Shores site
- Opening Date is dictated by enrollment and District Bonding Capacities



1st Floor

OVERVIEW

- Planning is currently on hold – Design Development
- Clinic Revisions
- Relocation of Art Rooms
- Special Education Addition
- Bringing science lab/classrooms up to new TEA standards
- Explore upgrading storefront & glazing and daylight controls in the classrooms
- Modification to counselor offices
- Improvements to CTE Areas
- Explore integration of technology upgrades



2nd Floor

OVERVIEW

- Limited Changes to the 2nd Level Plan
- Geo-Thermal HVAC system
- East-West Orientation
- Native landscaping



10 Yr. Forecast

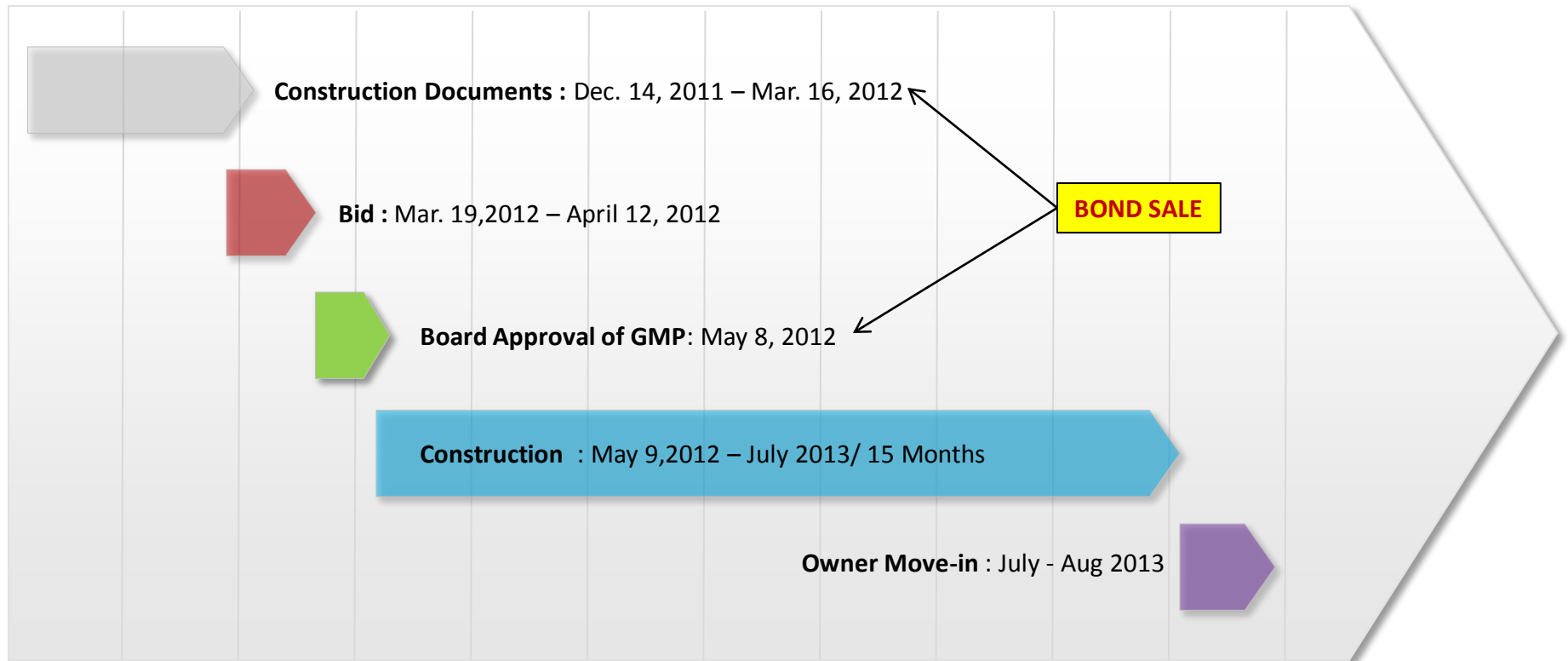
MIDDLE SCHOOL CAMPUS ENROLLMENT PROJECTIONS											
DENTON ISD	Current	Projections									
Campus Name	2011/12	2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22
Calhoun Middle School	851	868	860	881	913	962	1,010	1,089	1,128	1,156	1,181
McMath Middle School	823	841	878	913	934	959	993	1,061	1,128	1,188	1,211
Navo Middle School	829	896	978	1,021	1,174	1,254	1,368	1,417	1,534	1,639	1,773
Crownover Middle School	978	1,090	1,179	1,230	1,214	1,185	1,211	1,229	1,286	1,289	1,297
Strickland Middle School	885	905	974	1,023	988	1,027	1,038	1,119	1,118	1,139	1,154
Harpool Middle School	956	1,008	1,096	1,172	1,277	1,301	1,296	1,300	1,360	1,432	1,507

•Option #1 : Construction of MS #7

- a) 2013/14 Opening
- b) 2014/15 Opening

•Option #2 : Portables

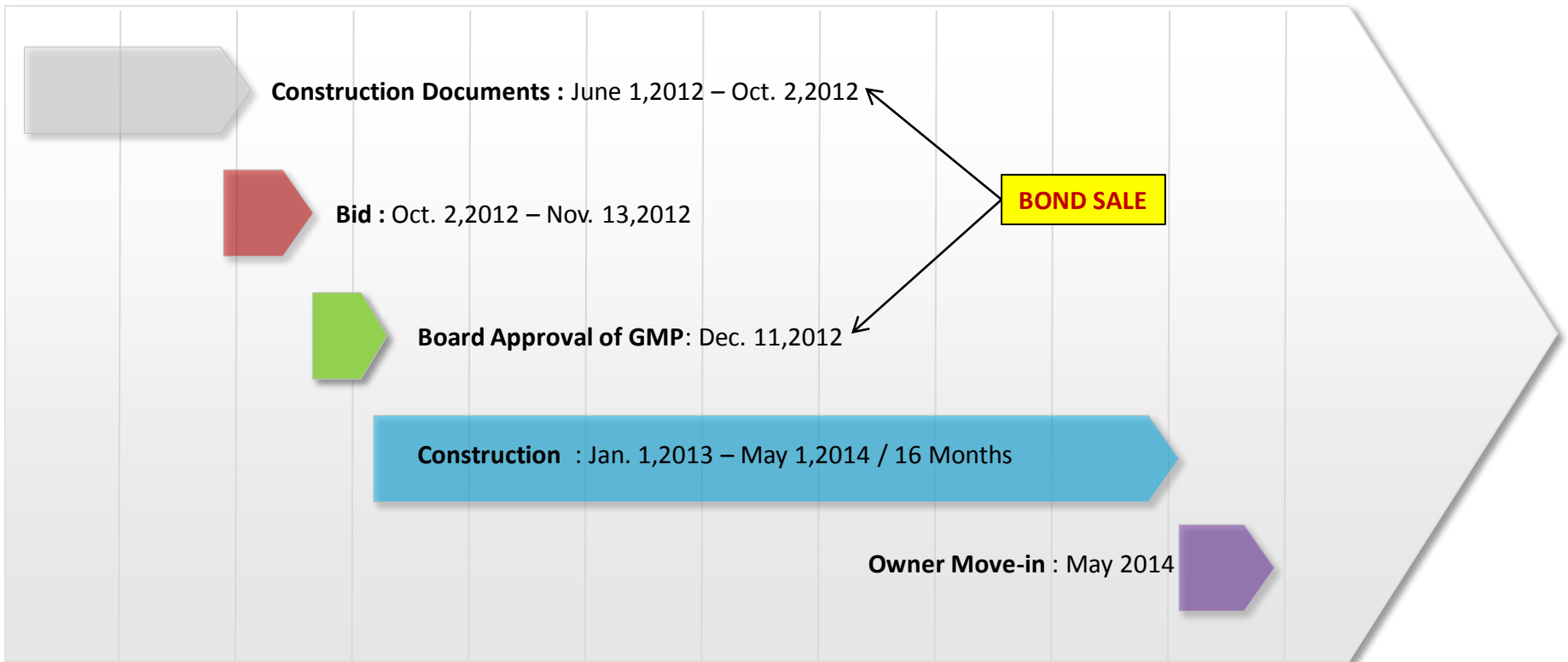
Option #1a – 2013/14 Opening



NOTES:

- Fast track schedule for design completion and construction
- Could gain time if GMP / Bidding could be expedited or call a special Board meeting
- Take advantage of current construction market

Option #1b – 2014/15 Opening



NOTES:

- Standard schedule for design completion & construction

Option #2 – Portables

Name of School	# of Students over Capacity 2012/13 School Year – Total # of Portables Needed	# of Students over Capacity 2013/14 School Year - Total # of Portables Needed	# of Students over Capacity 2014/15 School Year - Total # of Portables Needed
Calhoun Middle School	0 0	0 0	0 0
McMath Middle School	0 0	0 0	0 0
Navo Middle School	0 0	0 0	21 1 / \$18,000.00
Crownover Middle School	90 4 / \$72,000.00	+89 (179) +4 / \$72,000.00 more	+51 (230) +2 / \$36,000.00 more
Strickland Middle School	0 0	0 0	23 1 / \$18,000.00
Harpool Middle School	8 0	+88 (96) +4 / \$72,000.00 more	+76 (172) +3 / \$54,000.00 more
Total Cost	\$72,000.00 2012/13	\$144,000.00 more 2013/14	\$126,000.00 more 2014/15

- **Cost to Relocate an Existing Portable w/ addition of power, data & ADA ramps:**
 \$8,000 for single - \$10,000 for double
Excludes cost to repair any structural or cosmetic issues
- **Cost to Furnish a Portable: Computers, Projector & Screen, Student & Teacher Desks, etc.:**
 \$10,000 for single - \$20,000 for double

Next Steps?

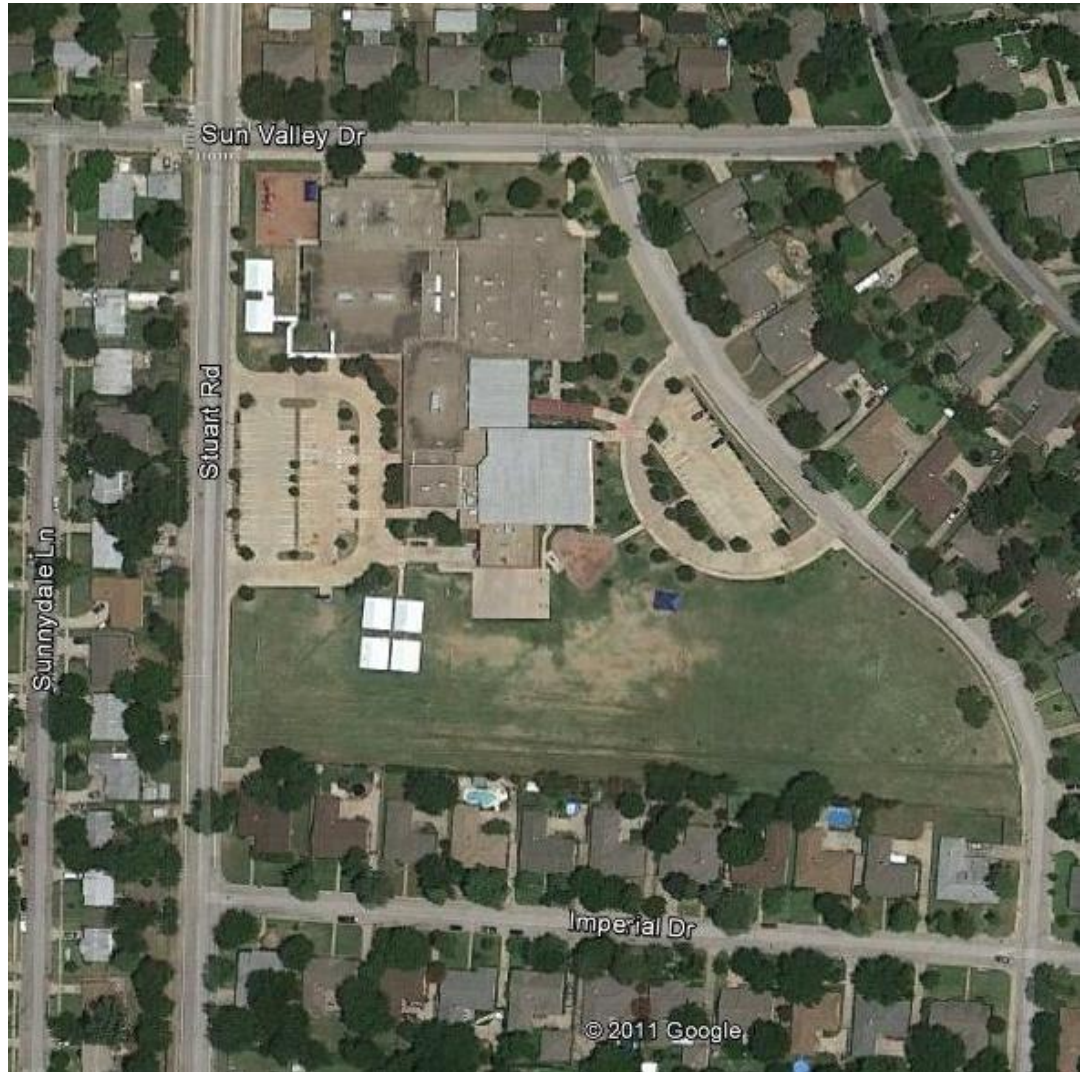
- ❑ Move forward on construction of Middle School #7 or Portables
If Construction, what opening date? 2013/14 or 2014/15
- ❑ Use of Reserve Funds & Contingency monies for the completion of the remaining science lab & classroom additions. (Evers, Ginnings, & Sam Houston Elementary)
- ❑ Consideration of Reimbursable Agreement with our architectural consultants to complete construction documents and delay the sell of bonds for construction until a more opportune time.
- ❑ Consider approval of funds for fiber remediation projects.
(TxDOT – 2181, 2499, Hwy380 / City of Denton – Mayhill Road / New Service Project: ILA w/ Denton County & UTRWD – Across Lake Lewisville from Stephens ES to Cross Oaks ES)
- ❑ Remaining Projects in the 2007 Bond Referendum to Consider:
 - Elementary #22
 - Support Services Building
 - Land Acquisition
 - Planning & Design for Comprehensive High School #4

Ginnings Elementary School

2007 BOND

PROJECT OVERVIEW

- Science Lab & Prep. Room
- Classroom Additions
- Replace Chalkboards w/
Marker Boards
- Replace Ceilings & Lights in
East Classrooms
- Replace Carpet in Office
Area
- Replace Carpet in Corridors
with Rubber Flooring
- Replace Carpet in Gym
- Update Ceilings & Lighting
in Original Corridors
- Install New Fixtures – Tile
Floor/Walls – Original
Restrooms



Sam Houston Elementary School

2007 BOND

PROJECT OVERVIEW

- Science Lab & Prep. Room
- Classroom Additions
- Replace Kitchen Electrical, Plumbing & Ceiling
- Replace Kitchen Equipment
- Install Secured Entry Vestibule



Evers Elementary School

2007 BOND

PROJECT OVERVIEW

- Replace Chalkboards w/ Marker Boards
- Restroom Renovations
- Science Lab & Prep Room
- Kitchen Equipment
- Replace Control Valves – AHU's

