

DHS Athletic Facility JBC Recommendation

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JBC Process

Initial Recommendation

- More than a dozen field visits around the state
- Community Listening Session (Athletic Stakeholders)
- Grass vs Turf Info Session
- Community Listening Session (Entire Community)
- “Ideal” Plan

Final Recommendation

- Multiple meetings to review the entire project
- Assigned roles to committee members to address School Board Resolution
- Created cost and options “menu”
- Ultimately decided the Initial Recommendation is what JBC believes is the best approach

Surface Selection: Turf

1. Playability

- Available earlier in Spring and later in Winter
- Safely playable through more adverse weather than grass
- Eliminates field closure in the summer for grass rehabilitation
- Playable weeks after install while sod requires a full growing season to take root

2. Increased Field Space

- Installing turf on the Baseball Field creates a true Multi-Purpose Field
- Allows use by other field sports without ruining it for baseball

3. Improved Conditions on Other Fields

- Shifting teams to the two turf fields for most games and many practices reduces the burden on Bellamy and Fisk Fields
- Removing maintenance needs on the turf fields (mowing, painting, resodding) allows more time for the many grass fields

Exclusions from the Recommendation

- Turf company selection
- Shock pad company selection
- Infill type selection
 - Crumb Rubber: recycled rubber from scrap tires
 - GeoFill: coconut husks and fibers, organic, renewable
 - Envirofill: dust-free, acrylic-coated sand, anti-microbial
 - BrockFILL: yellow pine particles, organic, renewable
 - Safeshell: non-toxic, organic, 100% USA-grown walnut shells
 - GreenPlay Corkonut: blended coconut & cork, organic

Current Field Uses

- Dunaway (Football) Field
 - Football practices and games August to late October (1/day)
 - Occasional soccer games in Fall (boys' and girls' Senior Nights)
 - Occasional lacrosse game in Spring (Senior Night)
 - Closed June/July for rest and rehabilitation
- Baseball Field
 - Baseball games in Spring/Summer
 - DMS Field Hockey in Fall

Projected Field Uses

- Dunaway Field
 - Football games and practices August to late October (1/day)
 - Additional use each weekday before or after football
 - Available for Varsity games that do not conflict with football
 - Soccer, Field Hockey, Lacrosse
- Multi-Use Field
 - Baseball in Spring and Summer
 - Available for JV/Varsity Games that do not conflict with baseball
 - Soccer, Field Hockey, Lacrosse, Middle School Field Hockey
- Additional Uses
 - Outside of School Sports, the fields would be available for hourly rental by outside programs such as Youth Sports, Club Sports, and Rec Programs

Health & Safety of Synthetic Turf

EPA/CDC STUDY

- A years-long joint study by the Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) was released in April 2024
- Synopsis: The study found **no significant difference** in the exposure from certain chemicals found between players who played on synthetic turf fields that use crumb rubber infill and those who played on grass fields.
 - In making its report, the EPA also cited three independent studies:
 - Netherlands National Institute for Health and Environment wrote that the “risk to health from playing sports on these synthetic turf fields is virtually negligible.”
 - European Chemicals Agency found “no reason to advise people against playing sports on synthetic turf containing recycled rubber granules as infill material.”
 - National Toxicology Program found there “was no evidence of toxicity in mice from ingestion of crumb rubber.”
- Link to full study: <https://bit.ly/EPA-STUDY>

Health & Safety of Synthetic Turf

CA OEHHA / CA EPA

- An 8-year study by California's Office of Environmental Health Hazard Assessment and the California Environmental Protection Agency, released March 2025
 - This study focused on the risks from crumb rubber, the most common infill.
- Synopsis: **No significant health risks** to players, coaches, referees and spectators from on-field or off-field exposure to chemicals in crumb rubber infill from synthetic turf.
- Link to full study: <https://bit.ly/CA-STUDY>

Health & Safety of Synthetic Turf

MA TOXICS USE REDUCTION INSTITUTE

- TURI conducted background research on environmental and health effects of PFAS in its work with the Toxics Use Reduction Act (TURA) program's Science Advisory Board.
- They detected **one** PFAS chemical in the backing of a newer turf sample, "6:2 FTSA," a short-chain PFAS, which have been widely adopted as substitutes for longer-chain PFAS.
 - Considered less bio-accumulative (less likely to build up in the body over time).
- PFAS exposure has not been assessed specifically in relation to playing on artificial turf.
- Link to information: <https://www.turi.org/publications/pfas-in-artificial-turf-carpet/>

Carpet Recycling

NY DEPT OF ENVIRONMENTAL CONSERVATION

- The Carpet Collection Program Law went into effect in late 2024, with program launch set for July 1st, 2026.
- Establishes increasing recycling rates for programs to achieve, phases out PFAS in the production of new carpet, requires new carpet be manufactured with increasing percentages of post-consumer recycled material, and sets goals for closed-loop recycling that will lead to development of a more circular economy for the carpet industry.
- A producer will be liable for penalties of \$.25 per pound if recycling rate minimums are not achieved.
- A huge step forward for carpet recycling efforts.
- Link to information: <https://dec.ny.gov/environmental-protection/recycling-composting/carpet>

Injuries on Synthetic Turf

ORTHOPEDIC JOURNAL OF SPORTS MEDICINE

- A 2019 study investigated how various infill weights influenced game-related injuries in high school football.
 - 1,837 games documented on various infill weights
 - 4,655 total injuries reported
- The study found that as infill surface weight decreased, football trauma significantly increased across numerous playing conditions.
- Based on findings, high school football fields should minimally contain 6.0 pounds of infill per square foot (6.0 to ≥ 9.0 lb/ft²)

Injuries on Synthetic Turf

SCANDINAVIAN JOURNAL OF MEDICINE & SCIENCE

- A 2017 study investigated the difference in the injury incidence in male **elite professional soccer players** on artificial turf and natural grass.
- During the 2011-2012 seasons (36 games) data was collected for:
 - 391 players on two artificial turf fields
 - 372 players on two natural grass fields
- A total of 43 injuries were recorded
 - 23 on artificial turf
 - 20 on natural grass
- The study demonstrates **a substantial equivalence in injury risk** on natural grass and artificial turf in elite professional soccer athletes during official matches.

Injuries on Synthetic Turf

SPORTS HEALTH

- A 2018 article in the journal concluded that **research to date lacks a comprehensive epidemiological assessment** of differential injury risks or rates on modern synthetic versus natural turf.
- Many studies looked at playing surfaces that are no longer routinely used and are not subject to consistent maintenance practices.
- A **full understanding of the difference in injury risk is complicated** by the size and power of the studies as well as differences among sexes, sport, level of competition, weather, footwear, and variations in the playing surfaces themselves, including maintenance.
- Link to article: <https://pmc.ncbi.nlm.nih.gov/articles/PMC6299344/>

Dover and Winnacunnet Fields



Grass Costs

Current Approach

- Year 1 Costs:
 - Maintenance: \$81,000
 - Bond Payment: \$104,795
- Total Cost Year 1: \$185,795
- Sod (Every 5 years) \$60,000

Winnacunnet Approach

- Year 1 Costs:
 - Maintenance/Supplies: \$90,000
 - Additional Worker: \$55,000
 - Bond Payment: \$104,795
- Total Cost Year 1: \$249,795
- Sod (Every 5 years) \$60,000

Turf Costs

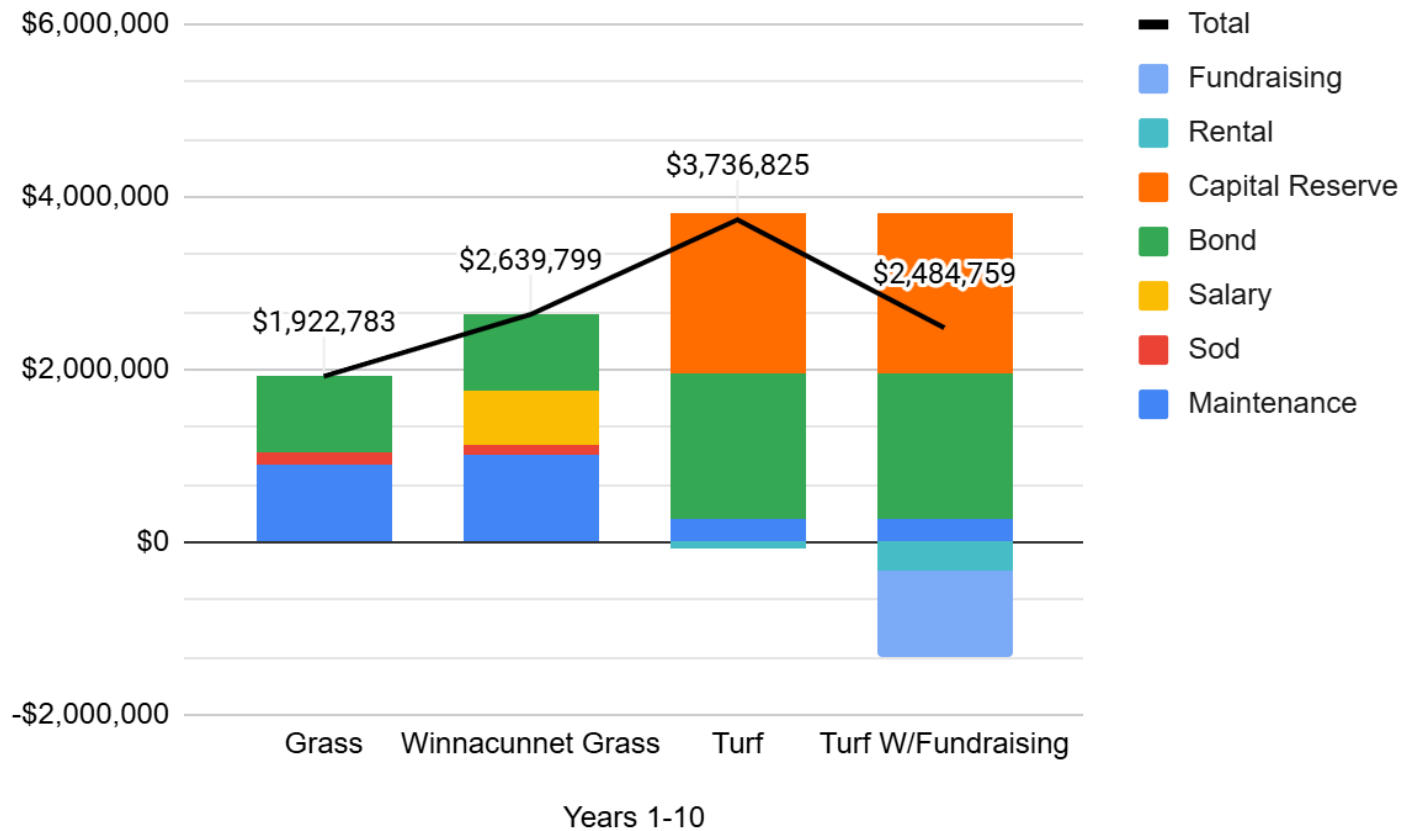
No Fundraising

- Year 1 Costs:
 - Maintenance: \$24,700
 - Bond Payment: \$199,930
 - Capital Reserves: \$187,000
 - Rental Income: (\$7500)
- Total Cost Year 1: \$404,130

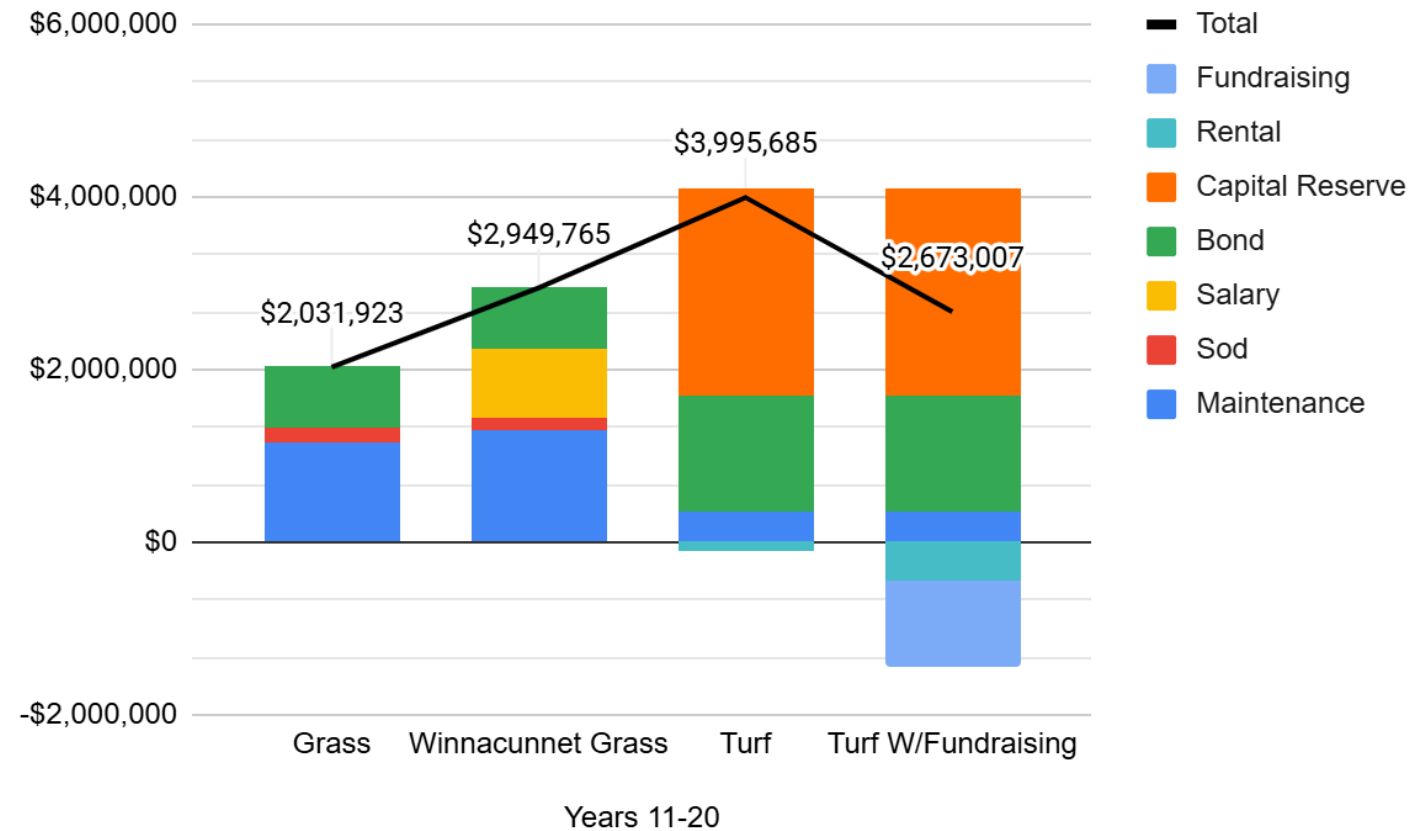
With Fundraising & Rentals

- Year 1 Costs:
 - Maintenance: \$24,700
 - Bond Payment: \$199,930
 - Capital Reserves: \$187,000
 - Rental Income: (\$30,000)
 - Fundraising Income: (\$100,000)
- Total Cost Year 1: \$281,630

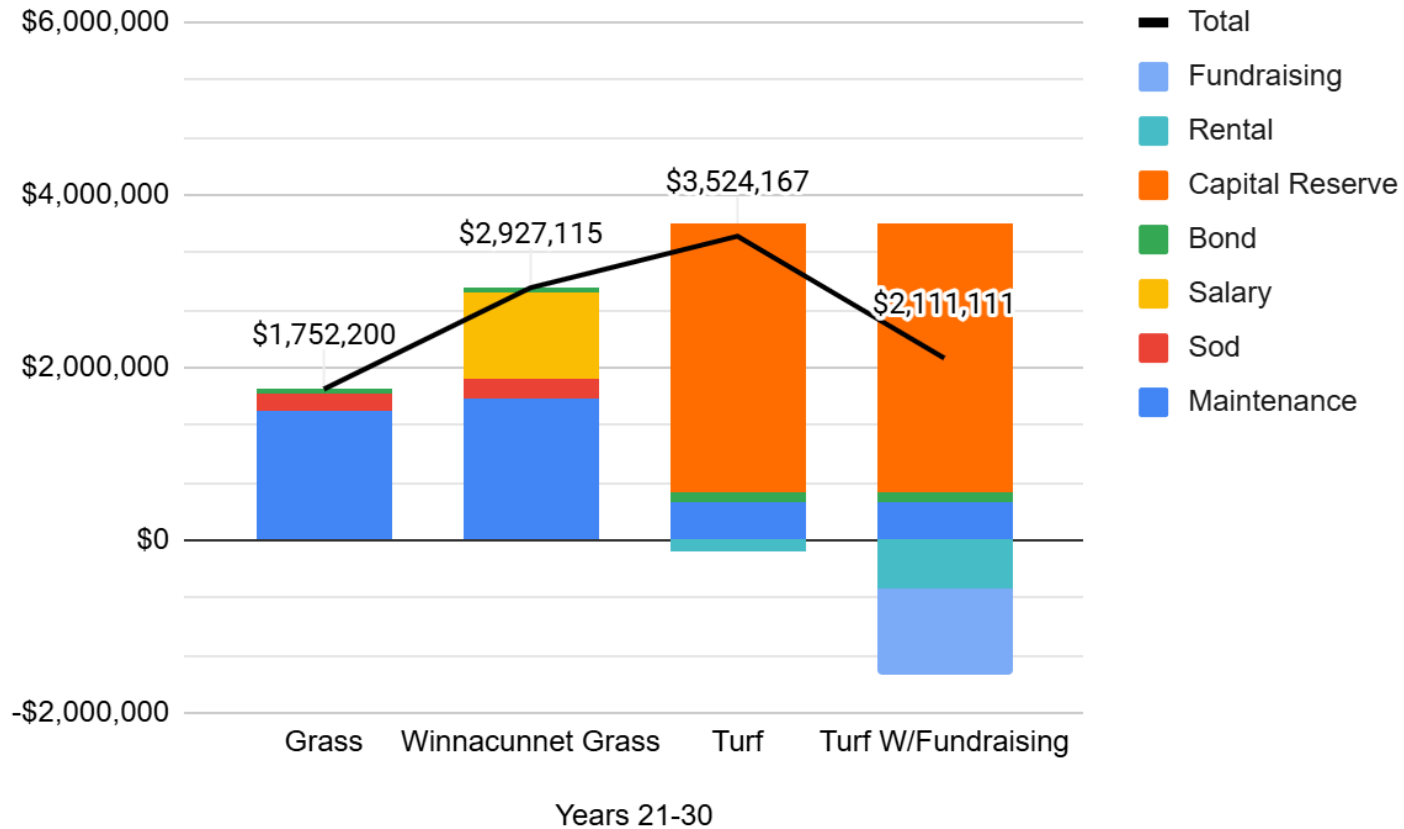
Total Costs Years 1-10



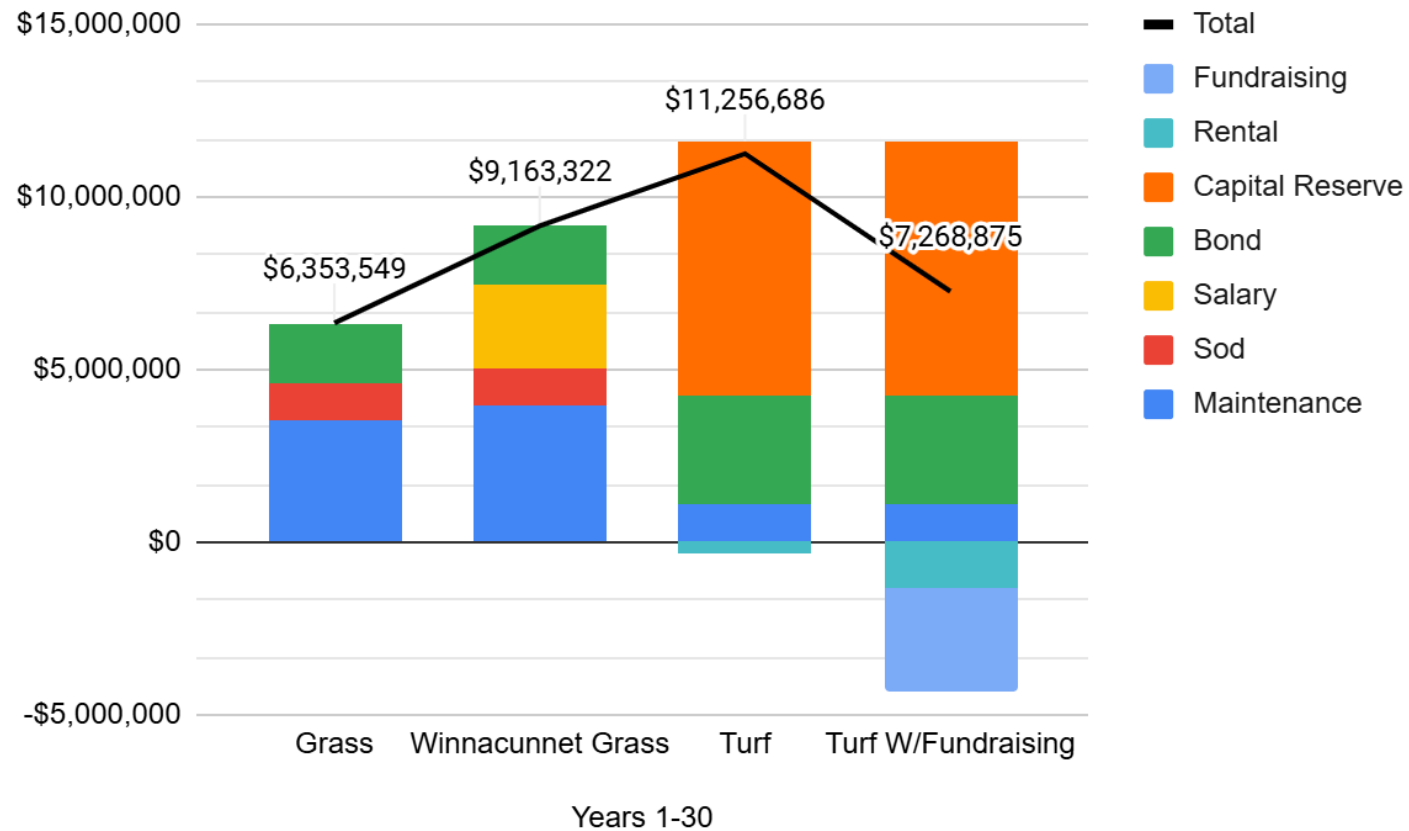
Total Cost Years 11-20



Total Cost Years 21-30



Total Cost Years 1-30



Tax Rate Increase Grass vs Turf

- Grass Field Year 1 Increase
 - Tax Rate Impact \$0.28
 - Average Tax Increase \$162.63

- Turf Field Year 1 Increase
 - Tax Rate Impact \$0.29
 - Average Tax Increase \$168.43

Dover Athletic Foundation

- New non-profit organization supporting the athletic facility
- Soliciting large-scale donations from corporations
- Hosting annual fundraising events
 - DAF will work with existing booster programs to ensure fundraisers do not conflict with existing fundraising
- DAF Challenges With Grass vs Turf
 - Grass restricts usage, DAF will continue its mission however Soccer, Lacrosse, and Field Hockey booster groups may be less willing to help raise funds for fields they can not use.
- DAF's Organizational Rules Will Direct Usage of Funds
 - Depending on success, funds could offset annual costs or kickstart future upgrades

Potential Revenue Projections

- Initial Projections Were Low
 - Community Project First – We Did Not Approach Private Clubs
 - Adult Rec Leagues in Dover rent the Somersworth Dome and Dover Ice Arena well into the night
 - Club Sports
 - Northborough MA rents turf fields for use
 - \$250 per game for 90 ft field
 - \$150 per game for smaller fields (We would have 2 in our outfield)
 - Perfect Game hosts weekend tournaments
 - Hosted a Memorial Day Tournament at a school with a similar setup as Dover
 - Had 4 games at a time during the event

Student Athlete Academic Performance

- 2010 study of 35,030 Texas students in grades 7-12
 - 11,139 Athletes
 - 23,891 Non-Athletes
- Dropout Risk
 - Athletes: 35%
 - Non-Athletes: 52.3%
- Daily Disciplinary Actions
 - Athletes: 0.85
 - Non-Athletes: 1.23
- TAKS Test Performance
 - Athletes Passing: 77.1%-92.9%
 - Non-Athletes: 27.7%-66.8%
- Link <https://pmc.ncbi.nlm.nih.gov/articles/PMC4831893/>

Student Athlete Academic Performance

- Additional Studies
 - <https://www.journals.uchicago.edu/doi/10.1086/693117>
 - <https://news.ku.edu/news/article/2014/01/15/study-shows-high-school-athletes-performed-better-school-persisted-graduation-more-non>
 - <https://www.nfhs.org/media/868994/ws26-gimbert-sawyer.pdf>
- The studies provided here, as well as others we found, all state that participation in sports during Middle and High School increases the athletes' academic performance
 - GPA
 - Graduation Rate
 - Dropout Rate
 - Standardized Tests
 - Absenteeism
 - Advancement to college

DHS Student Athlete Academic Performance

- A scholar athlete is a participant on an athletic team at DHS that achieves a GPA of 3.0 or above in the previous marking period
- Percentage of Dover athletes who qualify as scholar-athletes
 - Fall: 260/313 – 83.07%
 - Winter: 206/255 – 80.78%
 - Spring: 254/312 – 81.41%
 - Overall: 720/880 – 81.8%