Submitted by Greg Dennis, Town Meeting Member, Precinct 1

Article 12 is asking Town Meeting to effectively vote down the Poet's Corner redevelopment before the project is properly presented to Town Meeting, due to the requirement of synthetic turf in the project plans. With the limited playing field availability in town and the benefit of exercise to childhood health, such a decision should require a high bar in terms of the risk level associated with synthetic turf. For this reason, I decided to survey the research into adverse health effects due to use of synthetic turf fields.

To date, a considerable number of studies of synthetic turf fields have been conducted by both US-based and international researchers and authorities. Contrary to my expectations, virtually all of the studies reached the same conclusion: that the fields are safe. In particular, *none* of the peer-reviewed studies that examined populations who either played on, or lived in proximity to, synthetic turf fields found any adverse health effects, even to professional athletes with very frequent exposure to turf.

From the consistency in the research results, I have concluded that prematurely derailing the Poet's Corner project for health concerns is not warranted. While the Article 12 substitute motion is well-meaning in its intentions, I asked you to follow the recommended vote of No Action instead.

Schneider K, Bierwisch A, Kaiser E. ERASSTRI - European risk assessment study on synthetic turf rubber infill - Part 3: Exposure and risk characterisation. Science of the Total Environment. May 2020; 718:137721.
https://pubmed.ncbi.nlm.nih.gov/32173010/

"Overall, no health concerns could be identified for the use of synthetic turfs with ELT-derived infill material." [ELT stands for “end-of-life tires”]

Pronk MEJ, Woutersen M, Herremans JMM. Synthetic turf pitches with rubber granulate infill: are there health risks for people playing sports on such pitches? Journal of Exposure Science & Environmental Epidemiology. May 2020; 30(3):567-584.
https://pubmed.ncbi.nlm.nih.gov/30568187/

"Our findings for a representative number of Dutch pitches are consistent with those of prior and contemporary studies observing no elevated health risk from playing sports on synthetic turf pitches with recycled rubber granulate. Based on current evidence, there is no reason to advise people against playing sports on such pitches."

Scientific and technical support on the possible risks related to the use of materials derived from the recycling of used tyres in synthetic sports grounds and similar uses. French agency for food, environmental and occupational health & safety. Nov 2018. https://www.anses.fr/fr/system/files/CONSO2018SA0033RaEN.pdf

"Risk assessments performed by national or international institutes related to the exposure of athletes or children to synthetic grounds containing tyre granules all conclude to a negligible risk to human health."

Bleyer, A. & Keegan, T. Incidence of malignant lymphoma in adolescents and young adults in the 58 counties of California with varying synthetic turf field density. Cancer Epidemiology. Apr 2018; 53:129-136. https://pubmed.ncbi.nlm.nih.gov/29427968/

"Our findings in the state with the greatest number of such fields and a large, diverse patient population are consistent with those of a prior study observing no association between individual-level exposures to turf fields and cancer incidence. Avoidance of synthetic turf fields for fear of increased cancer risk is not warranted."

“Because regular physical activity during adolescence and early adulthood helps prevent cancer later in life, restricting use or availability of all-weather year-round synthetic fields and thereby potentially reducing exercise could, in the long run, actually increase cancer incidence, as well as cardiovascular disease and other chronic illnesses.”

Peterson MK, Lemay JC, Pacheco Shubin S, Prueitt RL. Comprehensive multipathway risk assessment of chemicals associated with recycled ("crumb") rubber in synthetic turf fields. Environmental Research. Jan 2018; 160:256-268. https://pubmed.ncbi.nlm.nih.gov/29031215/

"Estimated non-cancer hazards and cancer risks for all the evaluated scenarios were within US EPA guidelines. In addition, cancer risk levels for users of synthetic turf field were comparable to or lower than those associated with natural soil fields."

Wiesman, J. & Lofy, K. Investigation of Reported Cancer among Soccer Players in Washington State. Apr 2017. Washington State Department of Health. https://doh.wa.gov/sites/default/files/legacy/Documents/Pubs//210-091.pdf

"We found that the number of cancers among all soccer players reported by Coach Griffin was less than expected given rates of cancer in Washington residents. This was also true for the number of cancers among select and premier players and goalkeepers on the coach's list"

Groot GD, Oomen A, Mennen M. Evaluation of health risks of playing sports on synthetic turf pitches with rubber granulate – Scientific background document. Report number 2017–0017. Bilthoven, The Netherlands: National Institute for Public Health and the Environment (RIVM). Mar 2017.
https://www.rivm.nl/bibliotheek/rapporten/2017-0016.pdf

"The results of this research indicate that playing sports on synthetic turf pitches with rubber granulate is safe. The health risk from playing sports on these synthetic turf pitches is virtually negligible."

An Evaluation of the Possible Health Risks of Recycled Rubber Granules Used as Infill in Synthetic Turf Sports Fields. European Chemical Agency. Feb 2017.
https://echa.europa.eu/documents/10162/13563/annex-xv_report_rubber_granules_en.pdf

"ECHA has found no reason to advise people against playing sports on synthetic turf containing recycled rubber granules as infill material."

Cheng H, Hu Y, Reinhard M. Environmental and health impacts of artificial turf: a review. Environment Science & Technology. Feb 2014; 18;48(4):2114-29.
https://pubmed.ncbi.nlm.nih.gov/24467230/

"Health risk assessment studies suggested that users of artificial turf fields, even professional athletes, were not exposed to elevated risks. Preliminary life cycle assessment suggested that the environmental impacts of artificial turf fields were lower than equivalent grass fields."

Ginsberg G, Toal B, Simcox N, Bracker A, Golembiewski B, Kurland T, Hedman C. Human health risk assessment of synthetic turf fields based upon investigation of five fields in Connecticut. Journal of Toxicology and Environmental Health, Part A. Apr 2011; 74(17):1150-74.

https://pubmed.ncbi.nlm.nih.gov/21797769/

"Based upon these findings, outdoor and indoor synthetic turf fields are not associated with elevated adverse health risks."

Office of Environmental Health and Hazard Assessment, State of California. Safety Study of Artificial Turf Containing Crumb Rubber Infill Made from Recycled Tires: Measurements of Chemicals and Particulates in the Air, Bacteria in the Turf, and Skin Abrasions Caused by Contact with the Surface, Department of Resources Recycling and Recovery, Editor. Oct 2010.
https://www2.calrecycle.ca.gov/Publications/Details/1360

"PM2.5 and associated elements (including lead and other heavy metals) were either below the level of detection or at similar concentrations above artificial turf athletic fields and upwind of the fields. No public health concern was identified."

"A screening-level assessment of health risks was performed by comparing the estimated exposures to health-based screening levels. All exposures were lower than the screening levels, indicating that adverse health effects were unlikely in athletes using these fields."

Hofstra, U. Environmental and Health Risks of Rubber Infill: Rubber crumb from car tyres as infill on artificial turf. INTRON: The Netherlands. Jan 2007.
https://shorturl.at/atHSV

"Based on the available literature on exposure to rubber crumb by swallowing, inhalation and skin contact and our experimental investigations on skin contact we conclude, that there is not a significant health risk due to the presence of rubber infill for football players on artificial turf pitch with rubber infill from used car tyres."

Respectfully submitted,
Greg Dennis
Town Meeting Member, Precinct 1