

climate change is real, and given the weather records of the past 12 years, it is increasingly difficult to argue otherwise. Therefore, the abovementioned assumption of “no effect of climate change” must be challenged, and the precipitation frequency estimates of Atlas 14, vastly improved as they may have been over those of TP-40, must be regarded as too conservative. Again, greater amounts of precipitation in more frequent extreme events must translate to greater stormwater runoff and concomitantly higher flood levels.

Factor 6.

Recent studies have provided evidence that the rate of sea level rise (SLR) along the Middle Atlantic coast of the U.S. may be as much as three to four times higher than the global average. During the 20th century global sea level rose by an average of about 6 inches. Sea level along the shores of the Delaware Estuary rose by about one foot in that same period. The rate of SLR in the Delaware Estuary may be reasonably presumed to be somewhere between two to four times the global average. According to the IPCC AR4, global average SLR from 1961-2003 was 1.8 mm/year, and from 1993-2003 it was about 3.1 mm/year. Thus, the global rate of SLR increased by more than 70%. If we assume a local rate of 9 mm/year (3 times the global average, or the midpoint of the range presumed above) then we may see a rise in average sea level in the Delaware Estuary of more than a foot by the year 2050. If average water levels in the Delaware are higher because of SLR, flood levels will be correspondingly higher in the lower reaches of its tributaries such as Darby Creek because of so-called ‘backwater’ effects. It should be noted that it was not necessary to consider SLR in the production of the new FIRMs that showed an expansion of more than 24% of the areas inundated by the 100-year flood in the suburban portions of the Pennypack watershed. But SLR will probably have significant impacts on such events in the Eastwick area.

Conclusion:

Considering all of the above factors, it is impossible to avoid the conclusion that flood hazards in the Eastwick area, and particularly in the area south of 86th Street, are significantly understated by the existing floodplain maps or FIRMs. It is virtually certain that flood levels will be significantly higher than those presently predicted, and that the aerial extent of the flood hazard zones will be significantly expanded, even without consideration of tidal effects and sea level rise. Should the proposed development be approved and constructed, emergency egress could be cut off for as many as 1,000 residents, and emergency response vehicles would likewise be unable to access the site during flood events of increasing frequency and magnitude. Therefore, if the rezoning and redevelopment plans currently being considered by the Philadelphia City Council are approved as they stand, the Council must be advised that both current and future residents will be placed at significant risk of physical and financial harm.

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