Ozone Reclassifications under the 2008 and 2015 Ozone NAAQS

Summary and Background Information

The pollutants that form ground level ozone come from many places

- Ground level ozone has been difficult to rein in due to the numerous sources that contribute to its formation.
- Sources of VOCs:
  - Evaporation of solvents used in paints and solvents
  - Motor vehicle emissions
  - Emissions from off-road engines used in lawn mowers, motorboats, and construction equipment
- Sources of NOx:
  - Combustion of coal, oil, gas, and other fuels to produce electricity or to power large industrial boilers
  - Motor vehicles, particularly diesel fueled vehicles
  - Emissions from off-road engines used in lawn mowers, motorboats, and construction equipment

Why is breathing air with high ozone levels bad for our health?

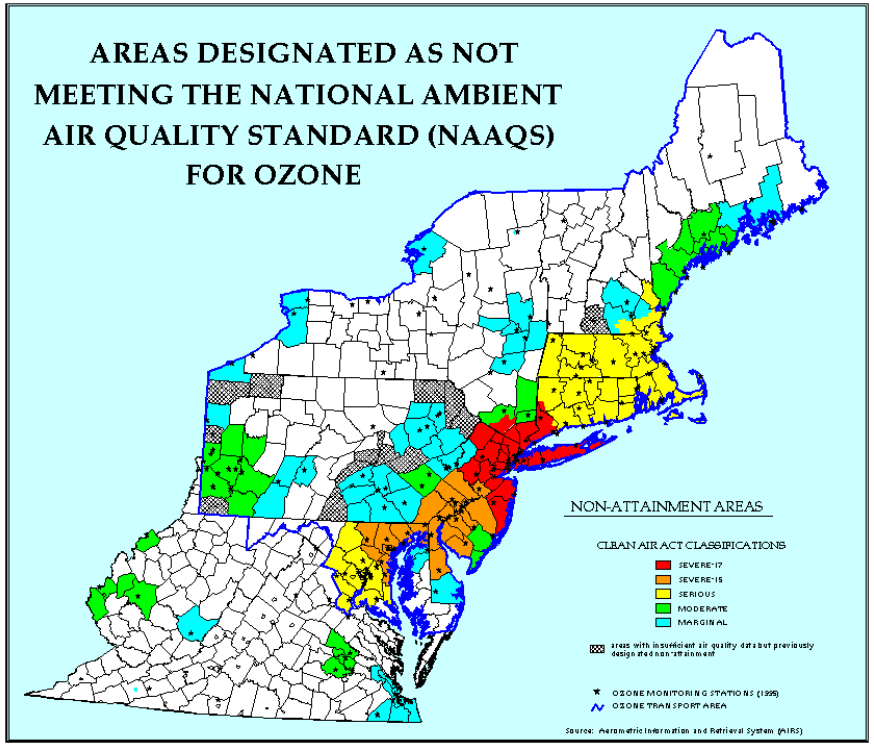
- Ozone can irritate and cause inflammation and other damage to the lungs and airways.
- Ozone can aggravate pre-existing respiratory illnesses such as asthma, bronchitis, and emphysema.
- Children are at greatest risk from exposure to ozone because their lungs are still developing and they are more likely to be active outdoors when ozone levels are high, which increases their exposure.
  - Children are also more likely than adults to have asthma.
- In the summertime, respiratory-related hospital visits increase on days with high ozone pollution.

Background information on ground level ozone

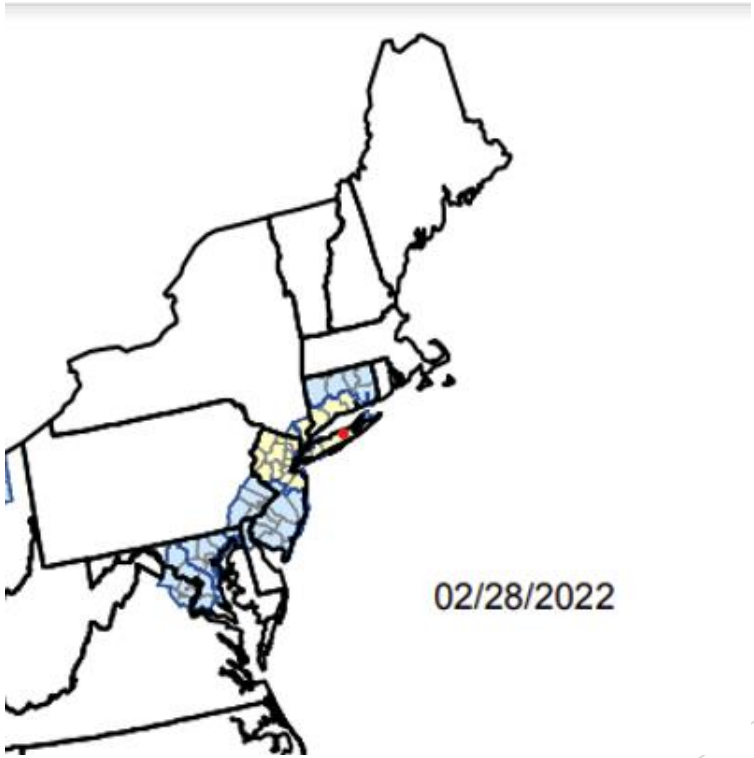
- The Clean Air Act contains requirements for 6 pervasive (criteria) pollutants:
  - Ground level Ozone, Sulfur dioxide (SO_2), Lead, Nitrogen dioxide (NO2 or NOx), Particulate Matter, and Carbon monoxide (CO)
- Within New England, the ground level ozone standard has been the most challenging to meet, particularly in Connecticut
- A significant amount of the ozone measured in Connecticut emanates from upwind states and from mobile sources.
- States upwind of Connecticut are currently required to reduce NOx emissions from electric utilities to reduce the impact of transported air pollution on Connecticut.
- On February 28, 2022, EPA's Administrator signed a proposed federal implementation plan that requires states upwind of Connecticut further reduce their NOx emissions, an important precursor to ozone formation.

Regionally, ozone levels have improved remarkably in the Northeast over the last 30 years

Ozone nonattainment 30 years ago



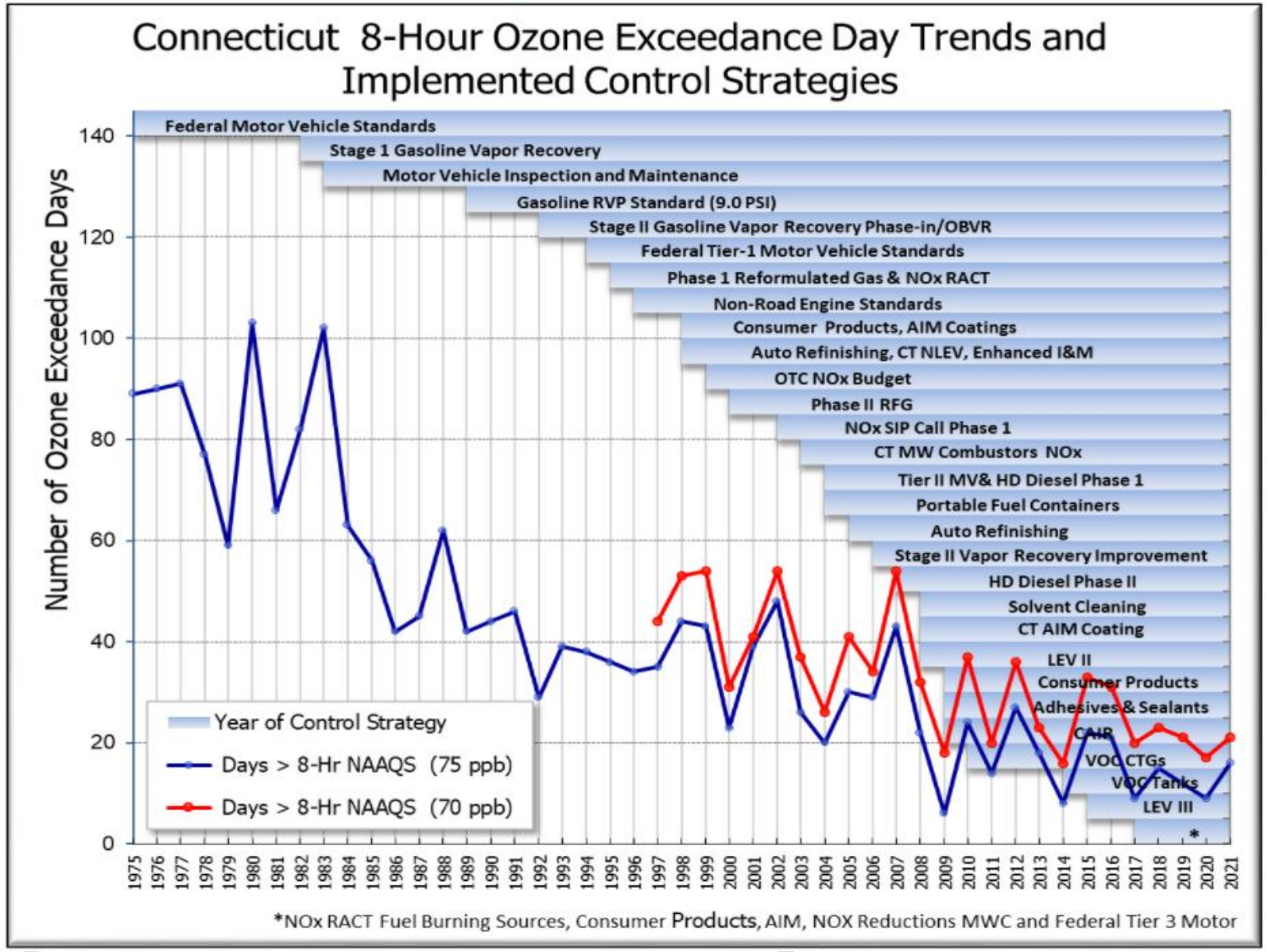
Ozone nonattainment today



The ozone standard 30 years ago was considerably less stringent than the current standard.

If the 2008 ozone standard had been in place in the 1980s, CT would have exceeded it on over 100 days of the summer.

As shown by the chart, in recent years, CT has exceeded the 2008 standard much less frequently.



Graphic courtesy of CT-DEEP

What's Being Done to Address the Ozone Problem?

- EPA and the states have implemented a wide variety of control strategies to reduce VOC and NOx emissions.
- Strategies include:
  - Existing tier 3 program for new cars and light-duty vehicles starting 2017
  - More stringent limits for light and medium-duty vehicles beginning in 2027
  - Existing NOx limits for heavy-duty diesel vehicles that will be further tightened in 2027
  - Cleaner burning gasoline required in ozone nonattainment areas
  - VOC coating limits for manufacturing operations
  - Federal non-road standards (rules for diesel equipment, lawn and garden equipment, marine engines, locomotives)
  - National VOC standards for architectural & industrial maintenance coatings, consumer & commercial products, and autobody refinishing coatings.
  - Ozone transport rulemakings that require upwind sources to reduce their NOx emissions:
    - Current rule in place, Revised CSAPR Update, requires NOx reductions from upwind utilities
    - On February 28th, EPA's Administrator signed an additional transport rule that will further reduce NOx emissions from both electric utilities and large industrial sources.

EPA proposed reclassification

- EPA has proposed to reclassify areas in the U.S. that have not met national ambient air quality standards (NAAQS) for ground level ozone. The two air quality standards are:
  - 2008 ozone NAAQS of 75 parts per billion (ppb), and
  - 2015 ozone NAAQS of 70 ppb.
- The federal Clean Air Act (CAA) requires that areas not meeting the ozone standard be classified in one of 5 different categories depending on the extent to which the area exceeds the standard.
- The five different classifications and years given from initial designation to meet the standard are as follows:
  - Marginal areas – given 3 years to attain
  - Moderate areas – given 6 years to attain
  - Serious areas – given 9 years to attain
  - Severe areas – given either 15 or 17 years to attain
  - Extreme areas – given 20 years to attain

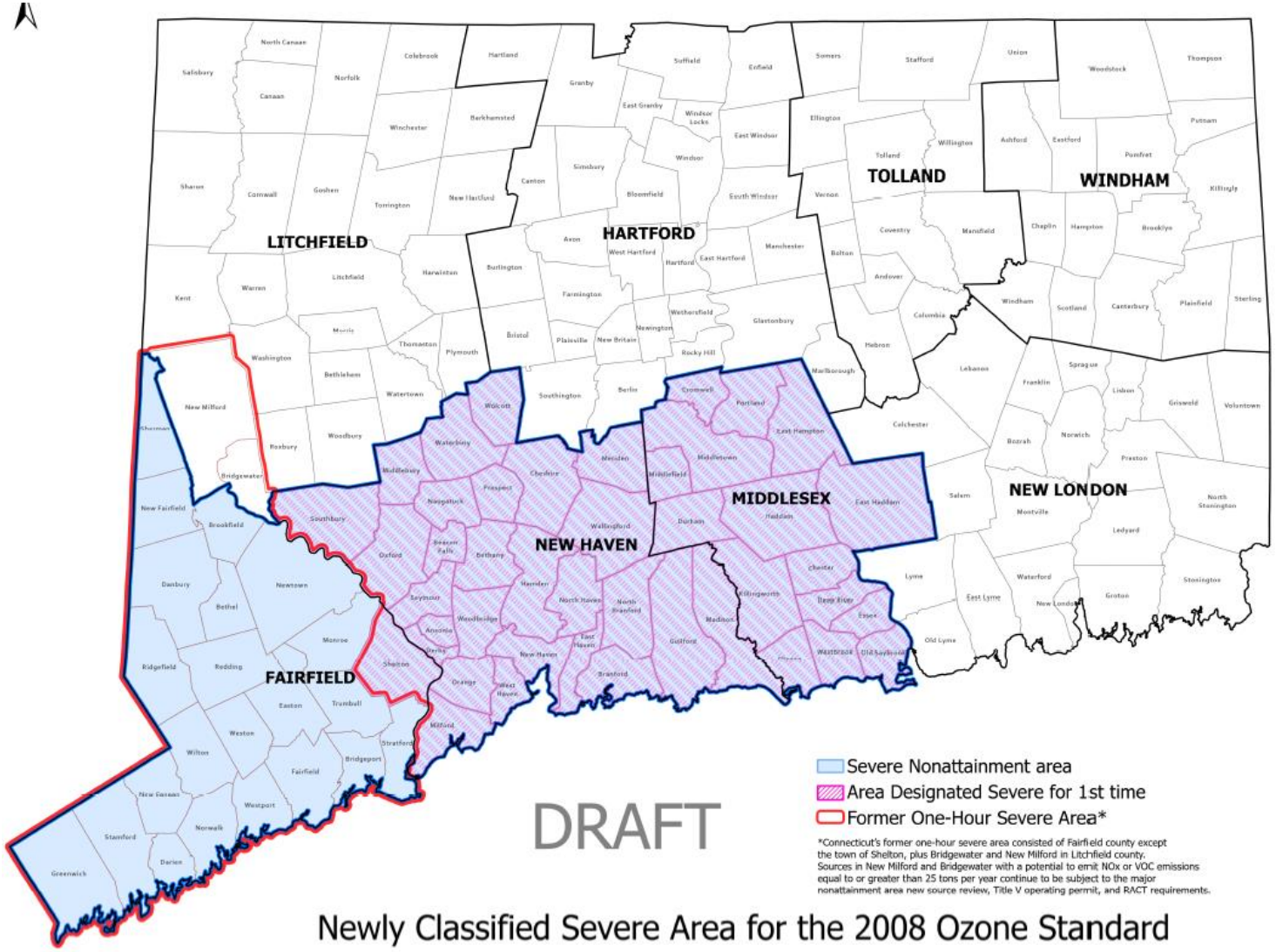
Impact on Connecticut

- Connecticut will be affected by EPA's proposed reclassifications, as follows:
- For the 2008 ozone standard, Fairfield, Middlesex, and New Haven counties will be reclassified from serious to severe and be given 6 additional years to meet the standard.
  - Severe nonattainment areas for the 2008 ozone standard will have until 2027 to attain the standard.
  - **EPA's proposal finds that the rest of Connecticut has met the 2008 ozone standard.**
- For the 2015 ozone standard, Hartford, Litchfield, New London, Tolland, and Windham counties will be reclassified from marginal to moderate.
  - The remaining portions of Connecticut were already classified as moderate and will retain that classification for the 2015 standard.
  - Connecticut's moderate nonattainment areas for the 2015 ozone standard will have until 2024 to attain the standard.

Map of newly classified severe nonattainment area for the 2008 standard.

For the 2008 ozone standard, EPA's action will reclassify Fairfield, New Haven, and Middlesex counties from serious to severe.

(For regulatory purposes, CT-DEEP will include two towns in Litchfield county that were part of a prior severe area within the newly classified severe area.)



What is the impact of EPA's bump-up action for the 2008 ozone standard for businesses in Connecticut?

- The greatest impact will be a lowering of the threshold used to determine a "major source" from 50 tons/year to 25 tons/year, based on a source's potential emissions of volatile organic compounds (VOCs) or nitrogen oxides (NOx).
  - VOCs and NOx react to form ground level ozone.
- Major sources of air pollution are subject to air pollution control requirements under the federal Clean Air Act such as:
  - For new major sources or modifications to existing major sources, nonattainment new source review (NNSR) requirements apply that require state of the art pollution controls and emissions offsets.
  - Major source facilities must also have a permit issued in accordance with Title V of the CAA.
  - For existing sources, reasonably available control technology (RACT) needs to be in place.

Impacts on Permitting

- Nonattainment New Source Review
  - Severe ozone area nonattainment new source review (NNSR) permitting requirements for new and modified major stationary sources will apply across the newly reclassified severe ozone nonattainment area upon the *effective date* of EPA's reclassification.
    - In areas that were previously classified as serious nonattainment for ozone, the severe ozone area classification would:
      - Apply NNSR permitting requirements for lowest achievable emission rate to smaller sources (changing the major source threshold of potential to emit from 50 tpy to 25 tpy); and
      - Require the offsetting of new emissions with emissions reductions from existing sources (i.e., setting a new offset ratio of 1.3:1, rather than 1.2:1).
  - EPA guidance allows for states to implement portions of Appendix S of 40 CFR part 51, EPA's Emission Offset Interpretative Ruling, as a gap-filling program to implement any programmatic elements not reflected in a state's existing rules but is required by the reclassification.
  - Appendix S will govern applicability thresholds and offset ratios in the newly reclassified severe nonattainment area for nonattainment major NSR permitting of ozone precursors during the SIP development period.

Impacts on Permitting

- Title V Operating Permits Program
  - EPA's reclassification changes the major source threshold of NOx and VOCs, which are ozone precursors, from 50 tpy to 25 tpy respectively in the newly reclassified severe ozone nonattainment area.
  - This will expand the universe of major sources subject to title V operating permit requirements in Connecticut.
  - CT DEEP must undertake rulemaking to amend the definitions of *severe nonattainment area for ozone* and *serious nonattainment area for ozone*
    - Once finalized, DEEP's title V permit program will reflect the new major source thresholds in the newly expanded severe ozone nonattainment area.
  - While Connecticut updates its regulatory definitions, a source newly subject to the title V permit program is required to submit a title V application to CT DEEP within 12 months after the *effective date* of EPA's reclassification. See 40 CFR 70.5(a)(1)(i).

Impacts on RACT

- Major sources of VOCs or NOx in Connecticut are already subject to RACT
- However, additional sources in some parts of the newly classified severe area will now be subject to RACT
  - The major source threshold in Middlesex and New Haven counties will be lowered to 25 tons per year based on potential to emit.
  - Portions of the newly classified severe area are already covered by the 25 ton/year potential to emit applicability threshold.
- CT-DEEP has already adopted RACT rules
  - Some sources may need single source RACT orders, for examples, major sources of VOCs not covered by one of EPA's Control Technique Guidelines (CTGs)
- EPA's proposed reclassification (bump-up) rule is likely to be finalized in the Fall of 2022
  - The proposal provides sources newly subject to RACT 3 years from the effective date of the final reclassification rule to come into compliance.

CT Rulemaking Process

- Once EPA's reclassification is finalized, Connecticut DEEP will undertake a notice and comment rulemaking process to amend the definitions of severe nonattainment area for ozone and serious nonattainment area for ozone
- Connecticut currently defines its ozone nonattainment areas by town/city name.
  - For instance, the state's definition of severe ozone nonattainment area includes only the Connecticut towns and cities that were subject to an older EPA ozone designation, which are primarily in Fairfield County (with a few exceptions). The remainder of the state is defined as being in serious nonattainment.
- State rulemaking will align CT's rules with EPA's most current severe and serious ozone nonattainment classifications for the 2008 ozone NAAQS and prior standards.

Many densely populated areas do not meet the 2015 ozone standard

For more information on these proposed actions

DAAD proposal web pages are live:

- 2008: https://www.epa.gov/ground-level-ozone-pollution/2008-ozone-national-ambient-air-quality-standards-naaqs-nonattainment
- 2015: https://www.epa.gov/ground-level-ozone-pollution/proposed-determinations-attainment-attainment-date-extensions-0