Millis Water Supply / Demand Assessment

in relation to

Exelon West Medway II Project

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Millis Board of Selectmen's Meeting, March 28, 2016

Overview

1. Study Purpose, Scope & Approach
2. Major Findings – Supply / Demand Assessment
3. Major Findings - Permit
4. Major Findings - Infrastructure
5. Interconnection Needs
6. Next Steps

Study Purpose, Scope, Approach

- Purpose:
  - Evaluate feasibility of Millis providing water to Exelon via Medway while safely meeting its current & future demands
- Scope:
  - Current / Future Demand Analysis
  - System & Supply Adequacy
  - Implementation Considerations
  - Water Management Act Permit Considerations

Study Purpose, Scope, Approach

- Approach:
  - Review of Information provided by Town
  - Consistency with Medway System Adequacy Analysis
  - Hydraulic model analysis
  - Future demand projections:
    - Conservative population projection data from multiple sources
    - Conservative Water Needs Forecast methodology
  - Minimization / Mitigation Analysis
    - MassDEP WMA Guidance Document methodology

Major Findings – Supply / Demand Analysis

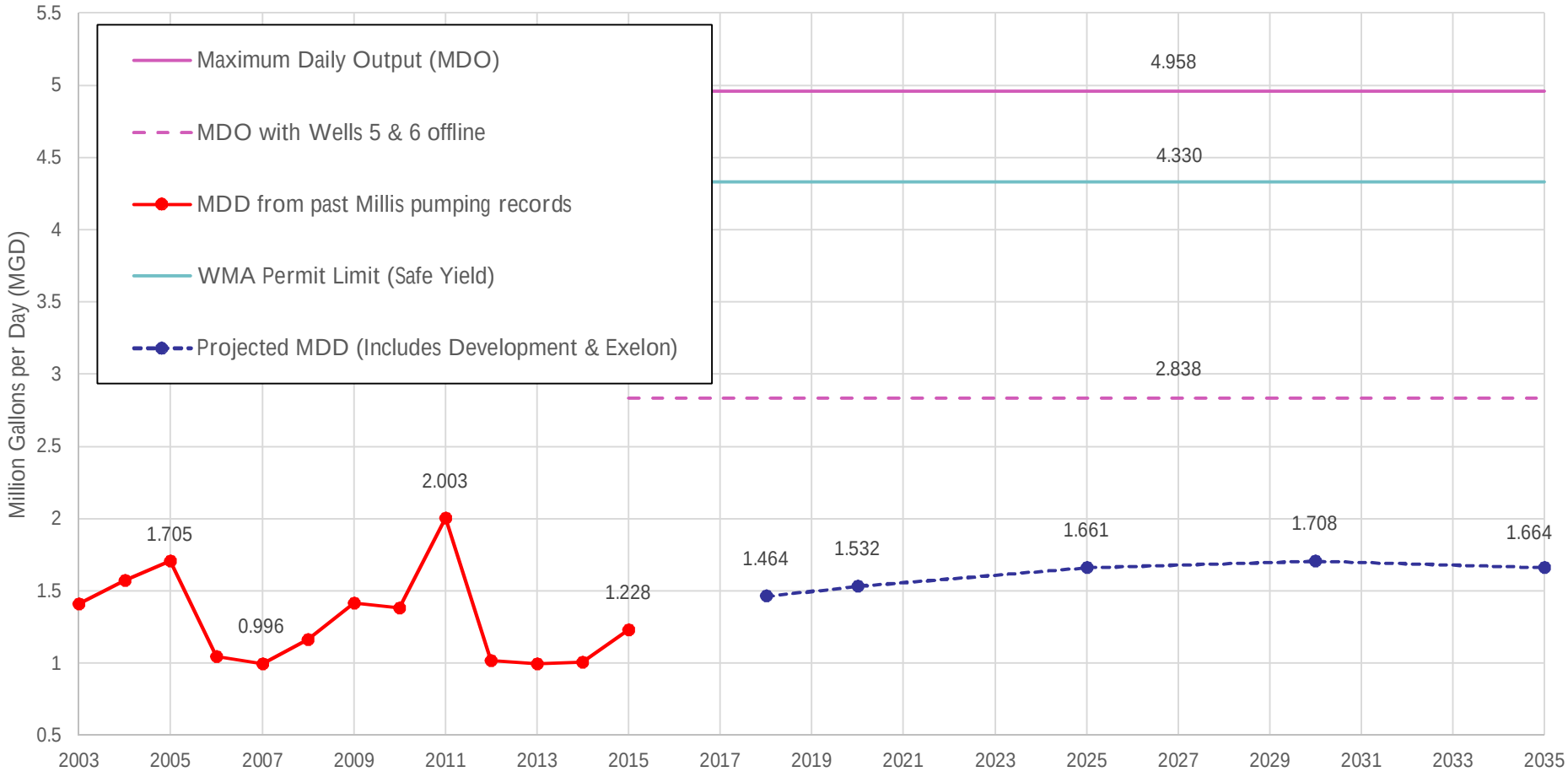
- Millis' Demands:
  - Average Day Demand (ADD): range 840,000 to 660,000 gallons per day (0.84 to 0.66 MGD)
  - Max Day (MDD): range 1,000,000 to 2,000,000 (1-2MGD)

Major Findings – Supply / Demand Analysis

- Exelon 'ask' from Millis:
  - Average: 48,000 gpd (0.048 MGD)
  - Max: 190,000 gpd (0.190 MGD)
    - Worst case (unlikely) scenario that their onsite source(s) are down

Millis's water supply and infrastructure is capable of meeting current and future demands, including the sale of water requested by Exelon

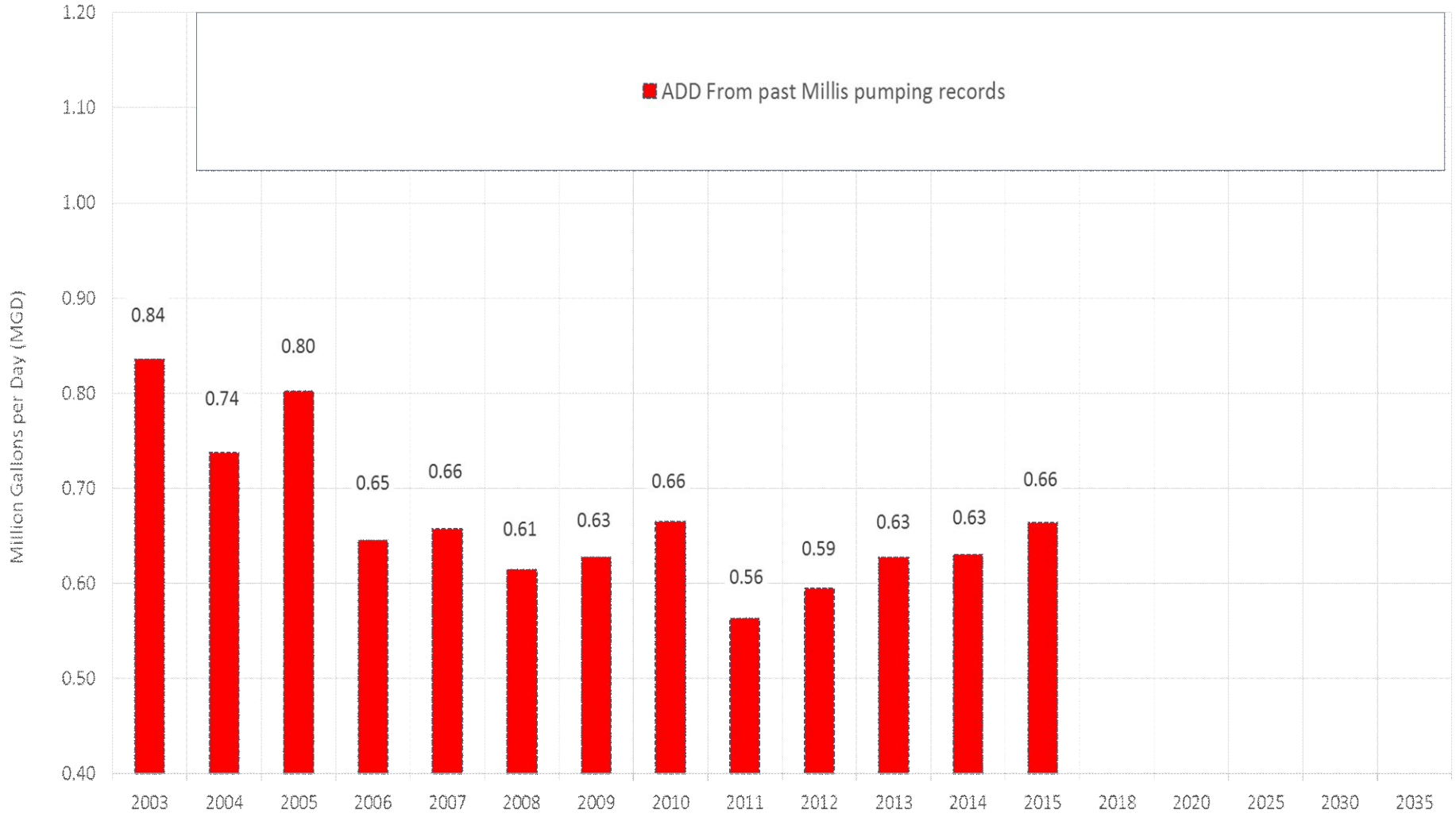
Max Daily Demand & Supply



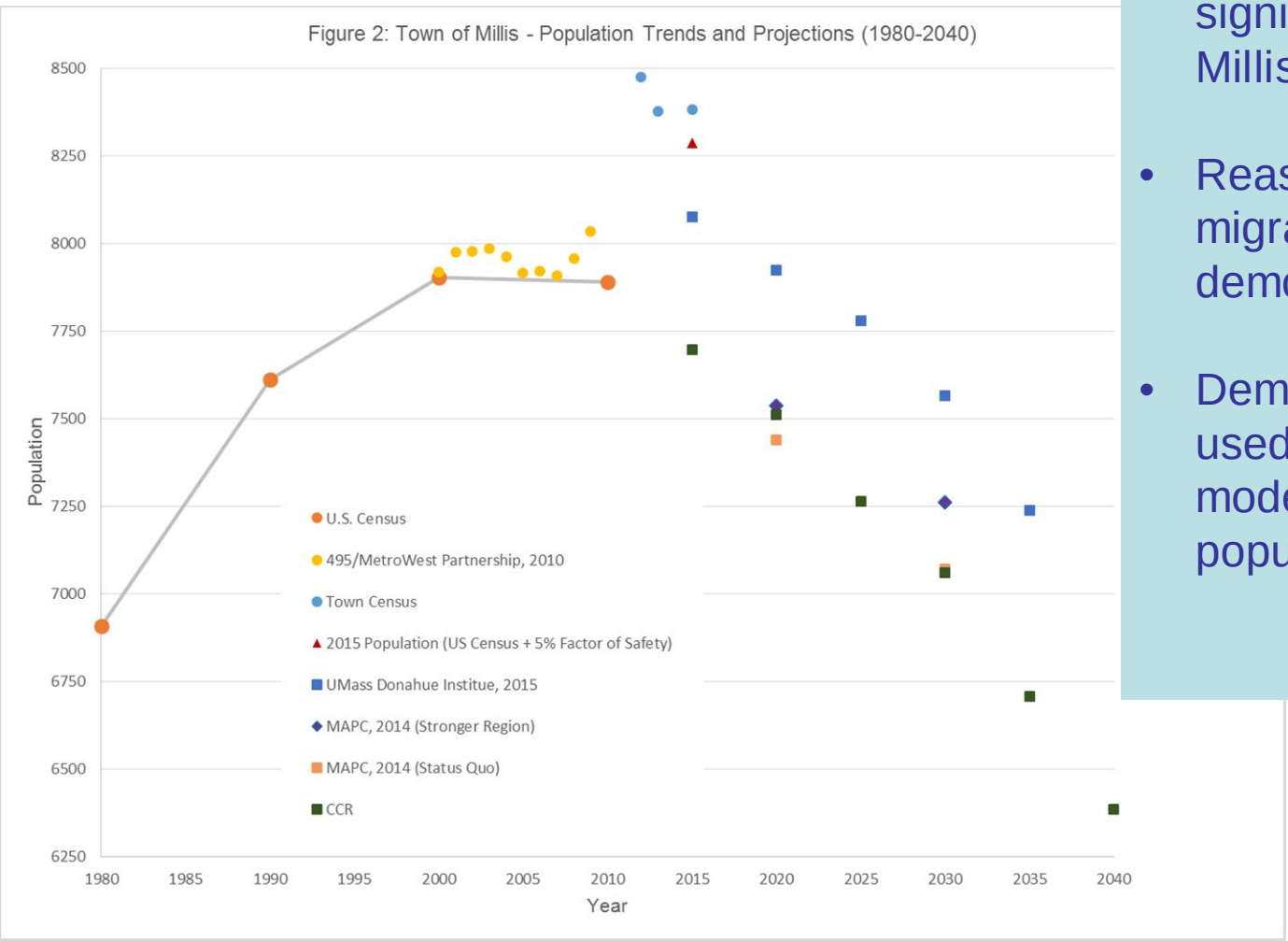
Demand Analysis

- Historic & current Millis demand
- Projected Millis demand
- Projected Millis demand + development
- Projected Millis demand + development + Exelon

Millis historic & current demand:

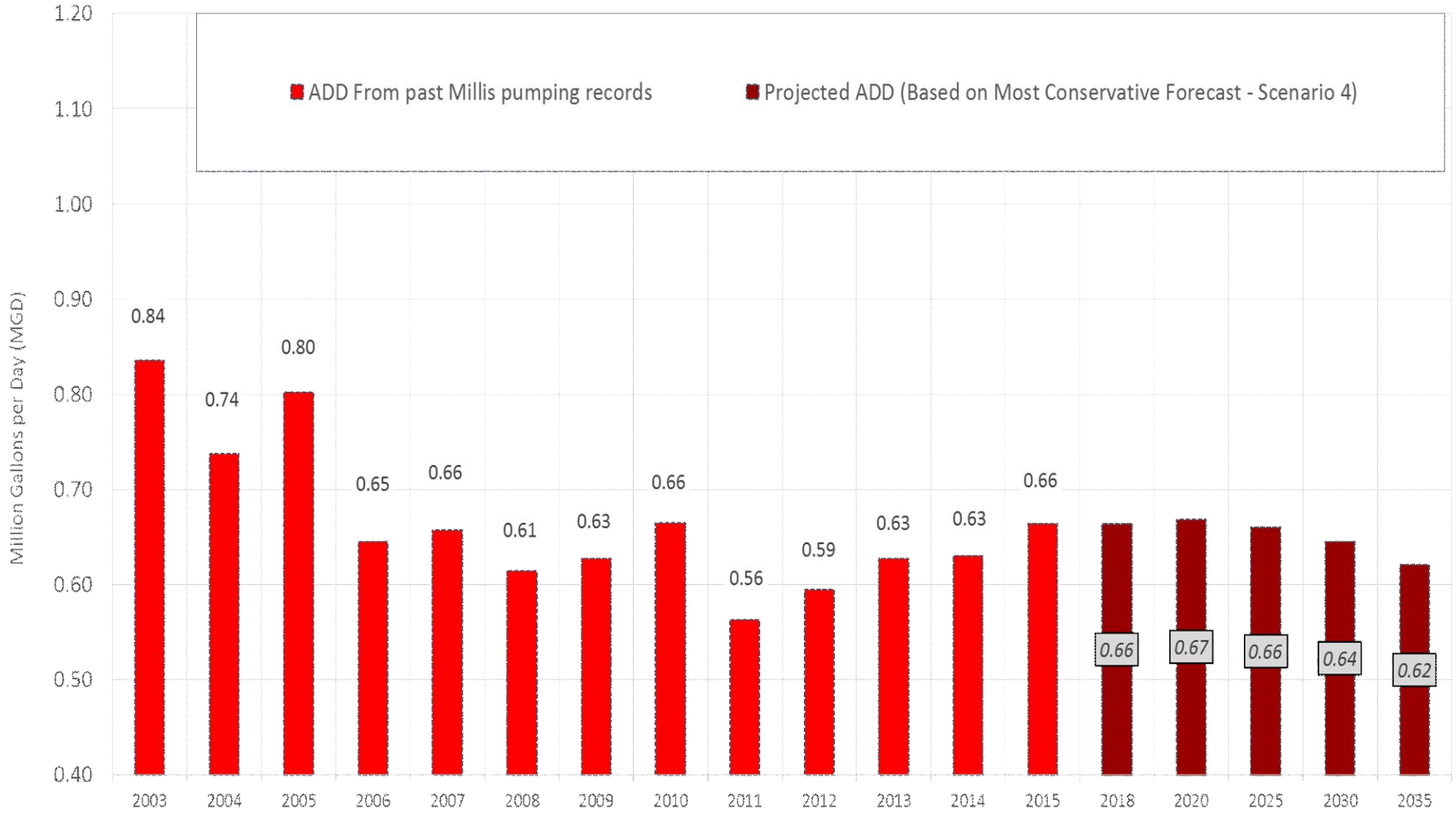


Population Trends



- All data models project a significant decline in Millis' population
- Reasons include out-migration; aging demographic
- Demand projections used most conservative model (highest population)

Millis projected demand



Millis projected demand + development

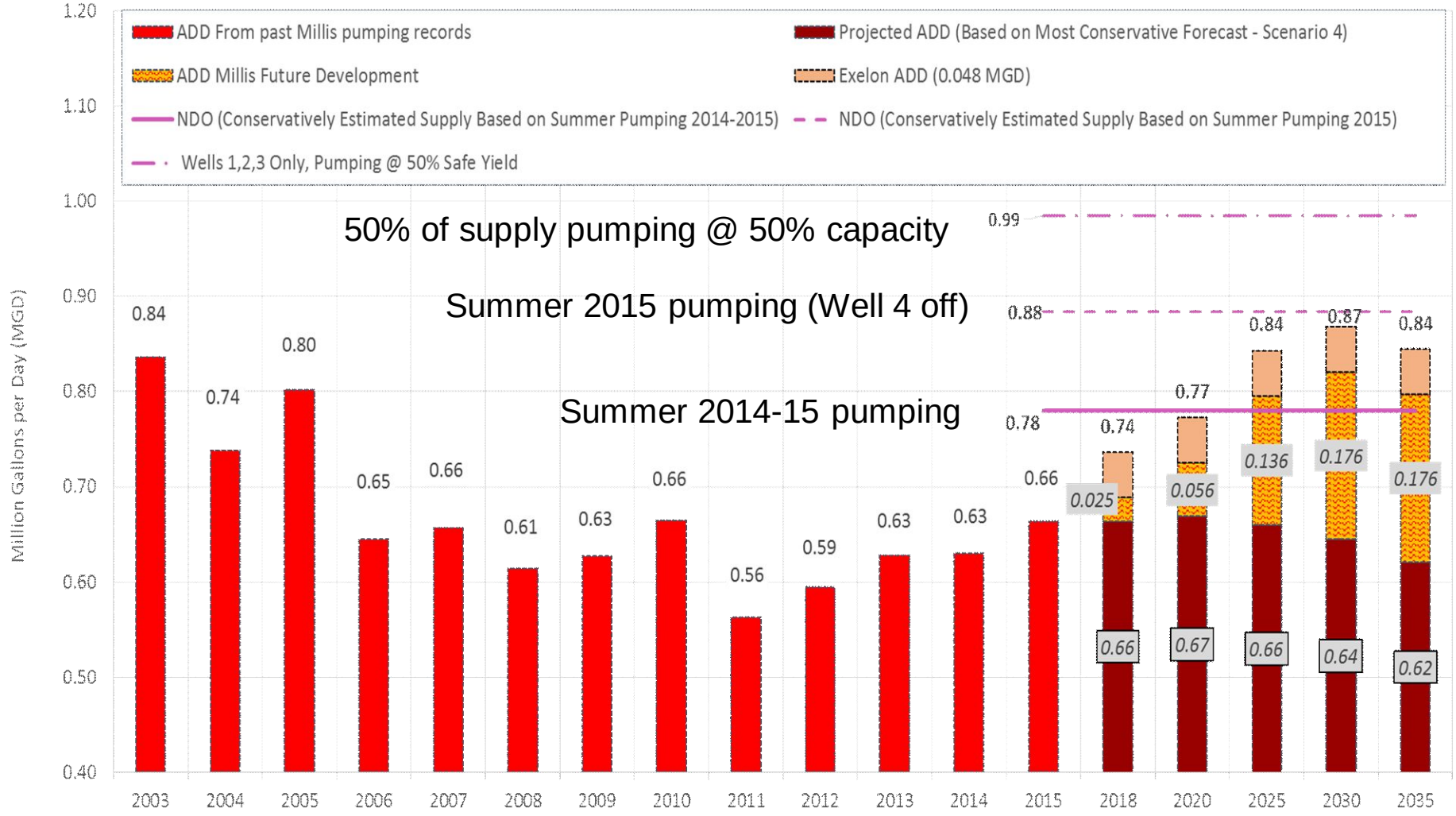
Millis projected demand + development + Exelon

Millis' Available Supply

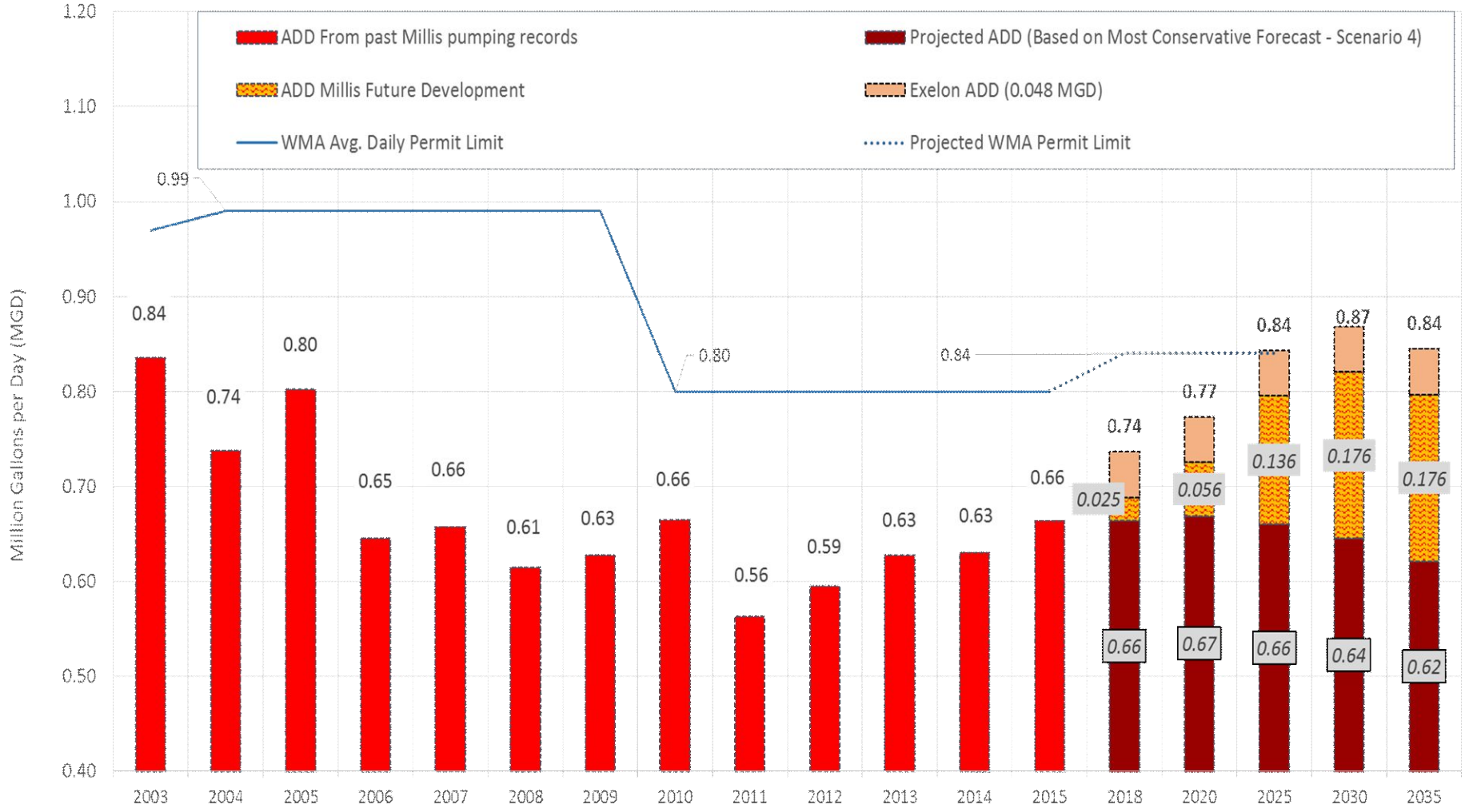
- Safe Yield = 4.3 MGD
  - Total capacity of all 6 wells
  - Not sustainable on daily basis; for max demands

- "Normal Daily Output":
  - What can wells (and aquifer) safely sustain day to day?
    - Well recent performance / testing records
    - Well history during extended periods of high demand (summer)

Millis' Available Supply



Millis' Water Withdrawal Permit



Major Findings – Millis' Permit

- Millis' Existing WMA Permit
  - Total 0.99 MGD (contingent on DEP review)
  - "Baseline" 0.8 MGD current (action required if exceeded)

- 2018 DEP permit review:
  - Incorporate new regulations
  - Baseline increase to 0.84 MGD
  - Minimization Plan required
  - Above 0.84 mitigation (offsets) required

Major Findings – Infrastructure

- Hydraulic Analysis:
  - no significant impact to storage tanks or water mains
  - Some existing areas of fire flow deficiency
- Interconnection with Medway:
  - Village Street location
  - Need Booster station
  - Need water chemistry adjustments

Major Findings – Interconnection Needs & Recommendations

- Well performance testing to verify capacity
- Booster station
  - Site selection & Design
- Water chemistry testing and evaluation of treatment alternatives
- Construction cost estimates

Next Steps

- Determine costs of interconnection
- Determine value of sale
- Negotiation of Agreement(s)