Wastewater Discharge and Impaired Waters

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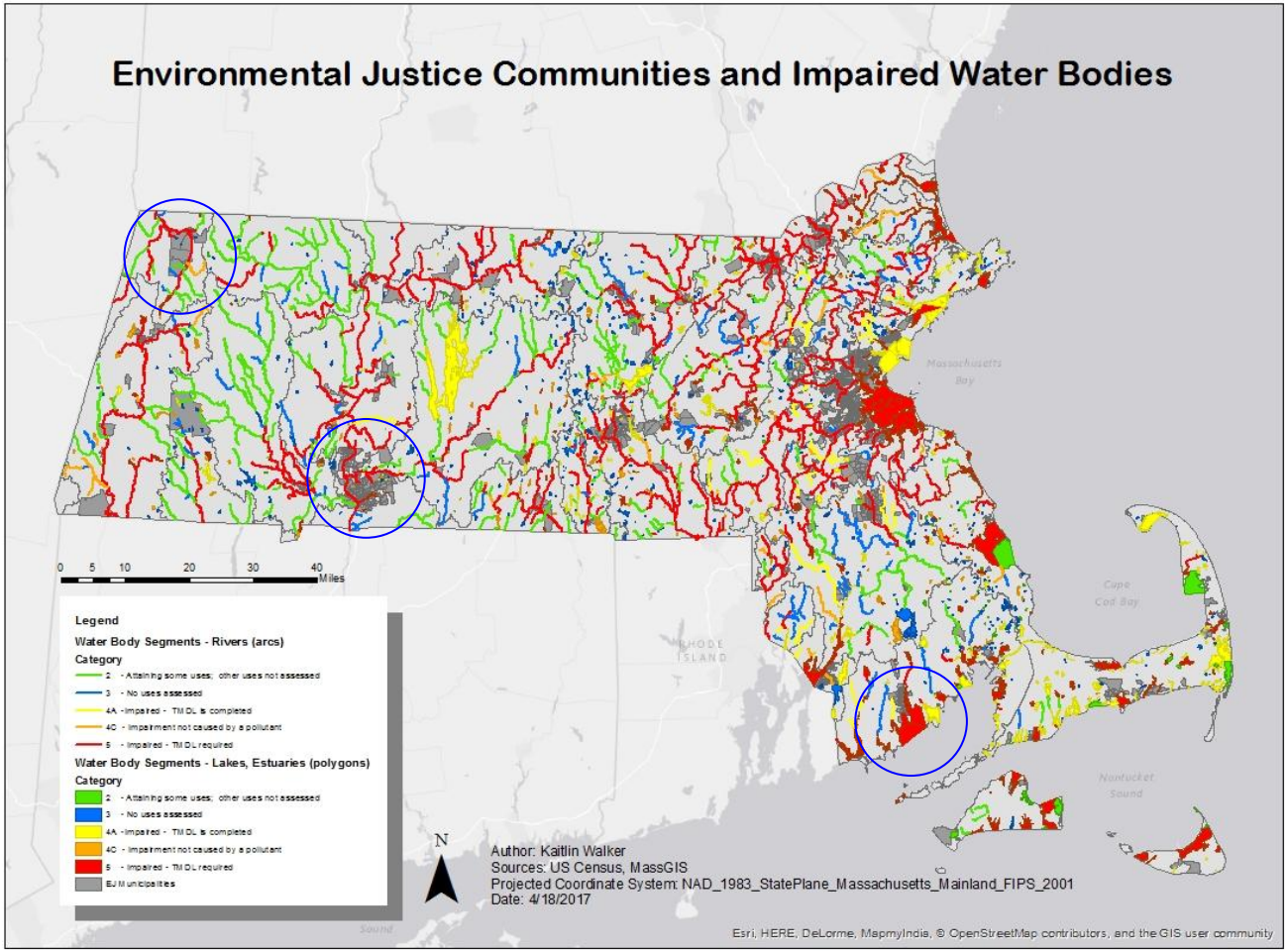
Site Parameters

- Database Parameters: (8 facilities from this search)
  - Category 5 waterbody impairment (in need of a TMDL)
  - Search DMR database: “Facilities contributing to a waterbody impairment”
- Other factors: (3 EJ communities from 8 facilities)
  - EJ communities: Minority, Income, English Isolation



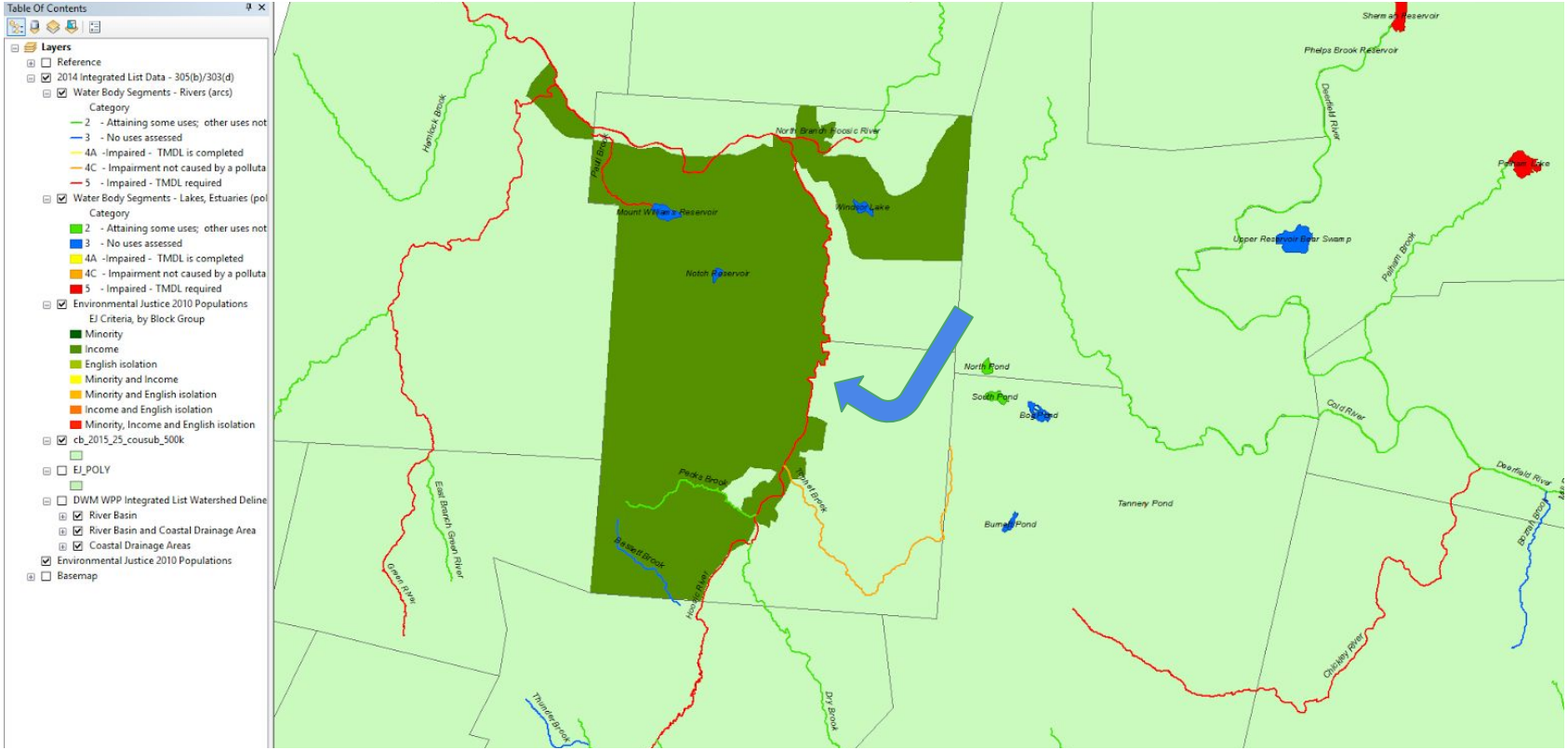
Three facilities in EJ communities, and contributing to water body impairment (Category 5):

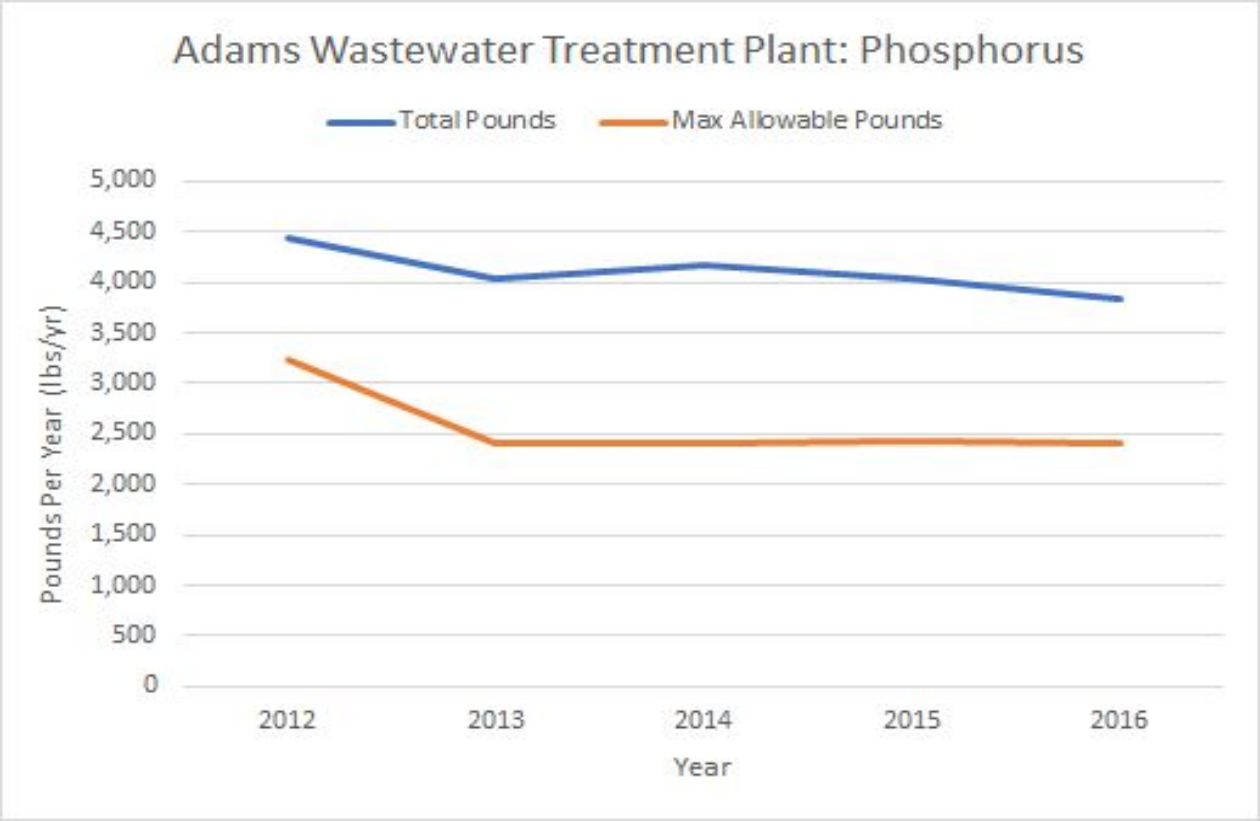
1.) New Bedford Wastewater Treatment Facility
2.) Adams Wastewater Treatment Plant
3.) Westfield Wastewater Treatment Plant

TMDL Status

- Difficult to find updated/recent TMDL Status reports
- Reports found on MassDEP site
- Information found for three EJ sites:
  - New Bedford/Acushnet River: TMDL report on Pathogens (2009) and draft TMDL on Nitrogen (May 2016), no TMDL on Phosphorous. (N and P listed as potentially contributing to impairment.)
  - Adams/Hoosic River: No TMDL reports found
  - Westfield/Westfield River: No TMDL found

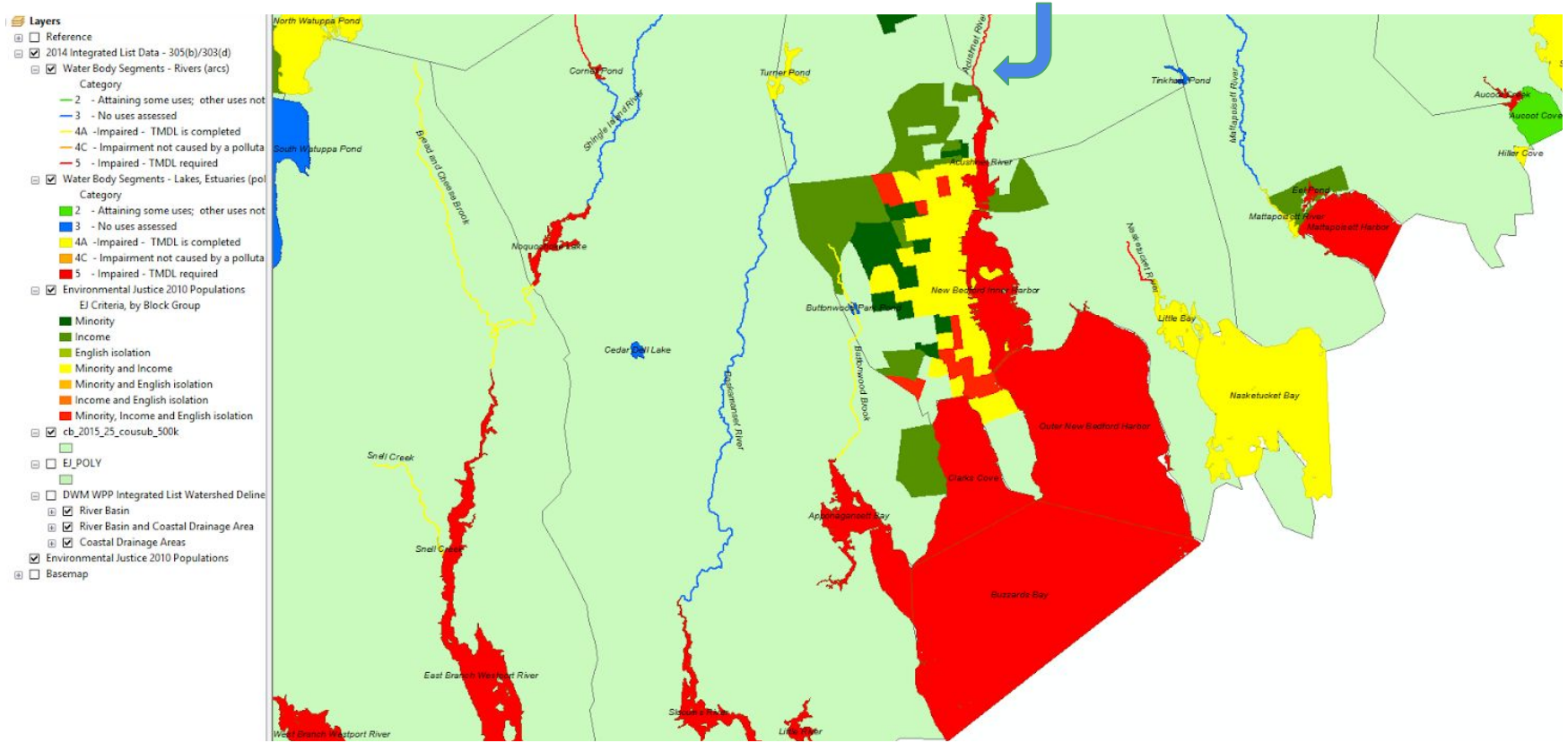
Municipality: Adams
Impaired Water Body: Hoosic River

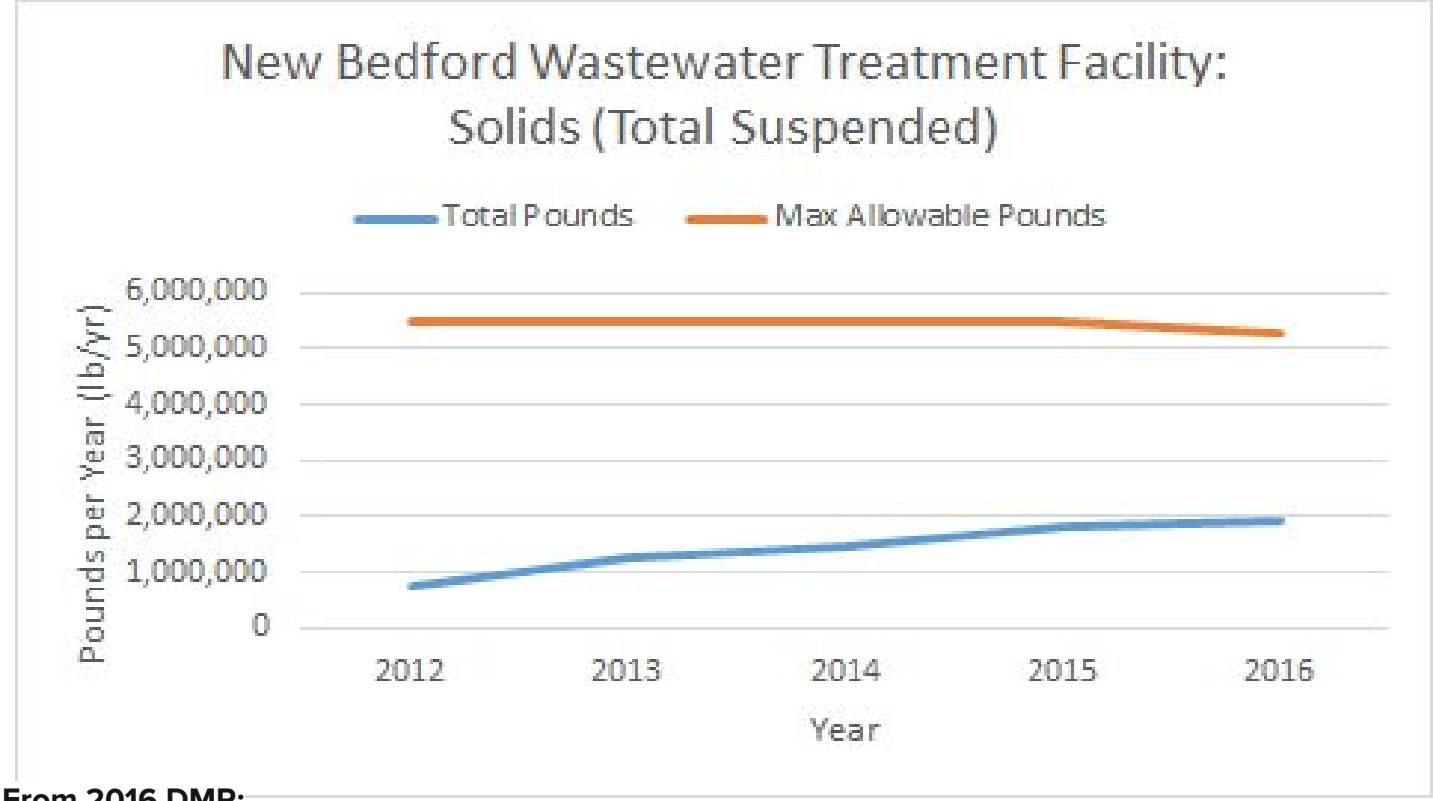




From 2016 DMR:
Cause(s) of Impairment: FLOW ALTERATION(S), HABITAT ALTERATIONS, PATHOGENS, TEMPERATURE, TOTAL TOXICS
Facility pollutant(s) potentially contributing to impairment: Coliform, fecal general; Copper

Municipality: New Bedford
Impaired Water Body: Acushnet River



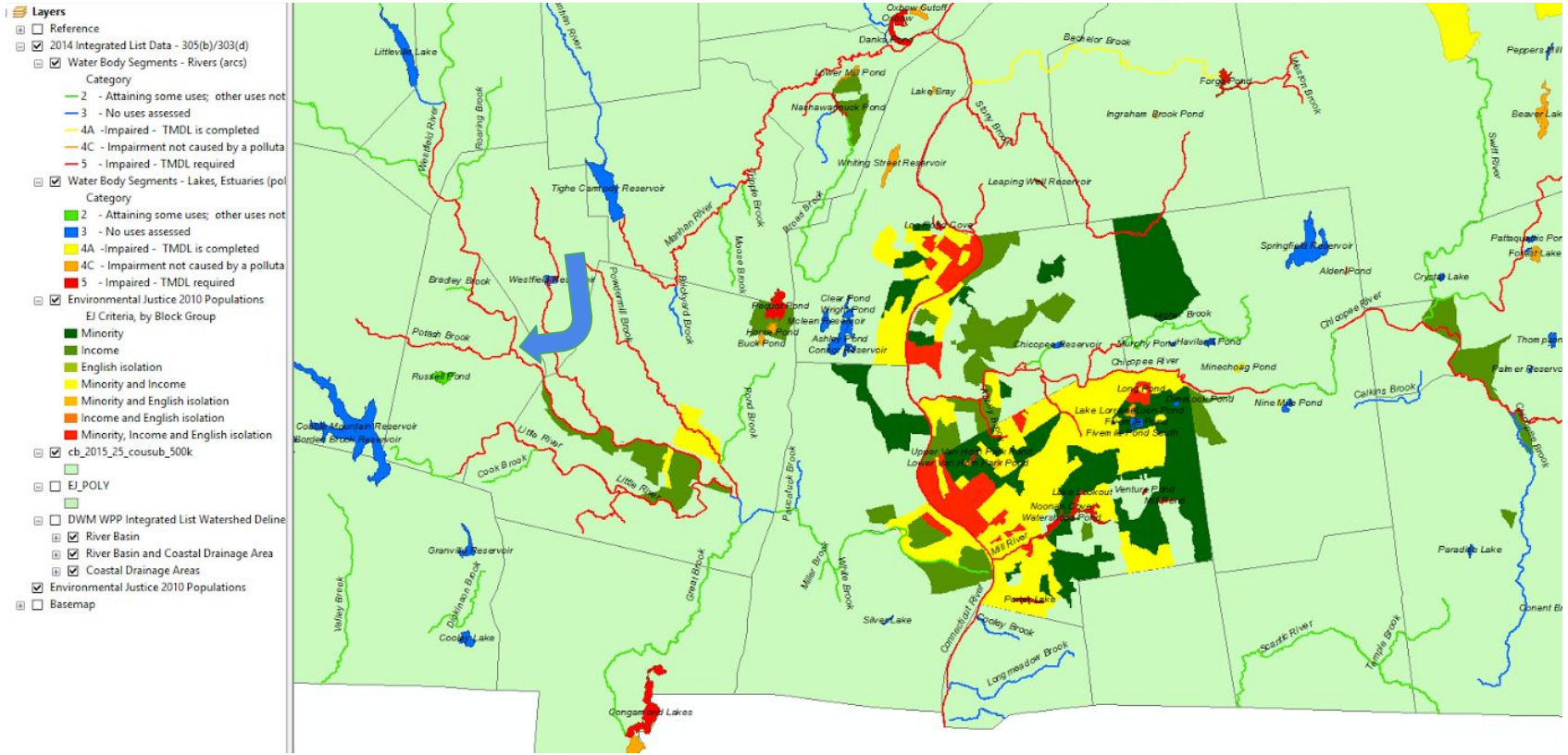


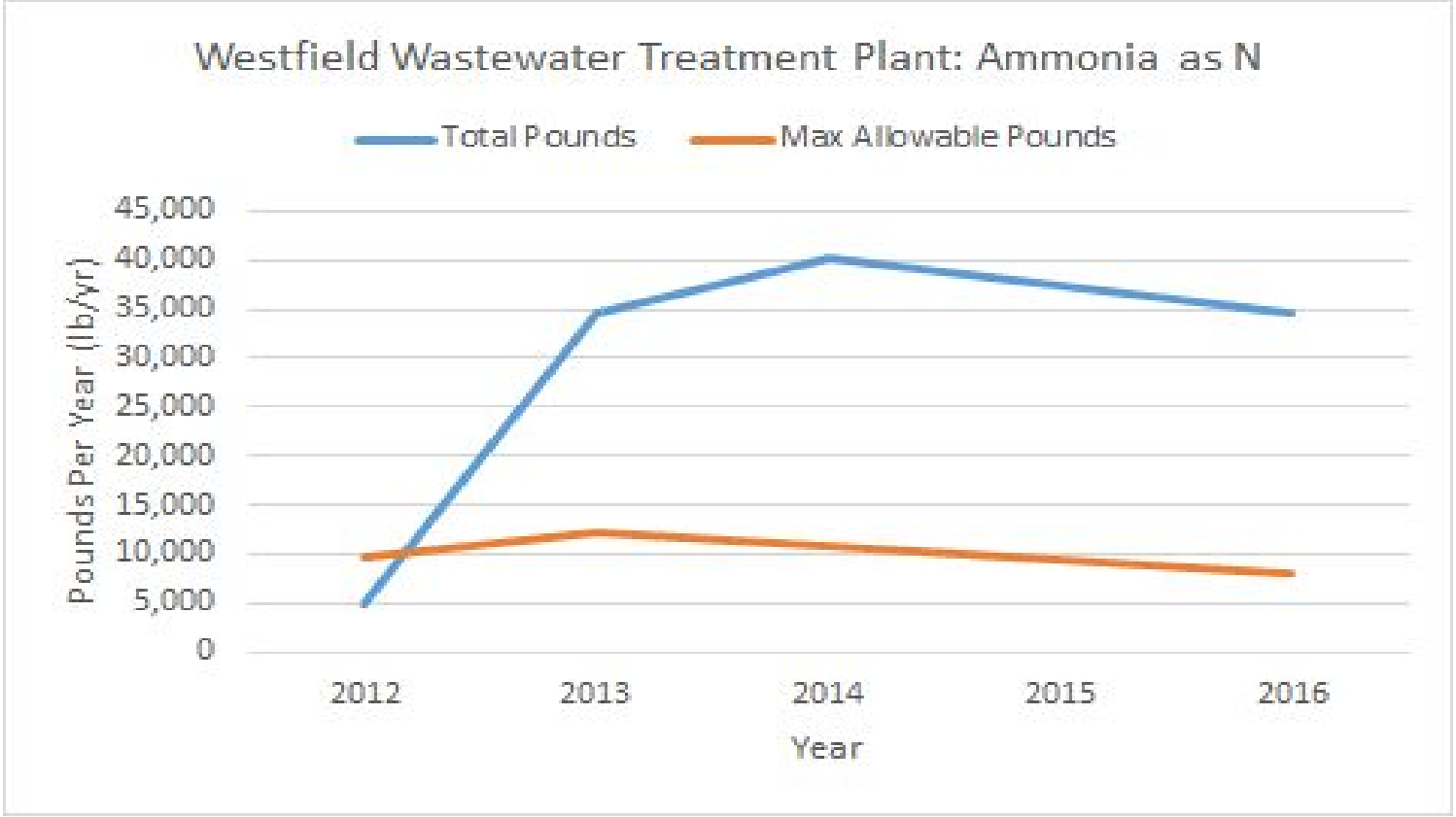
From 2016 DMR:

Cause(s) of Impairment: CAUSE UNKNOWN - IMPAIRED BIOTA, NUTRIENTS, ORGANIC ENRICHMENT/OXYGEN DEPLETION, OTHER CAUSE, PATHOGENS, POLYCHLORINATED BIPHENYLS (PCBS)

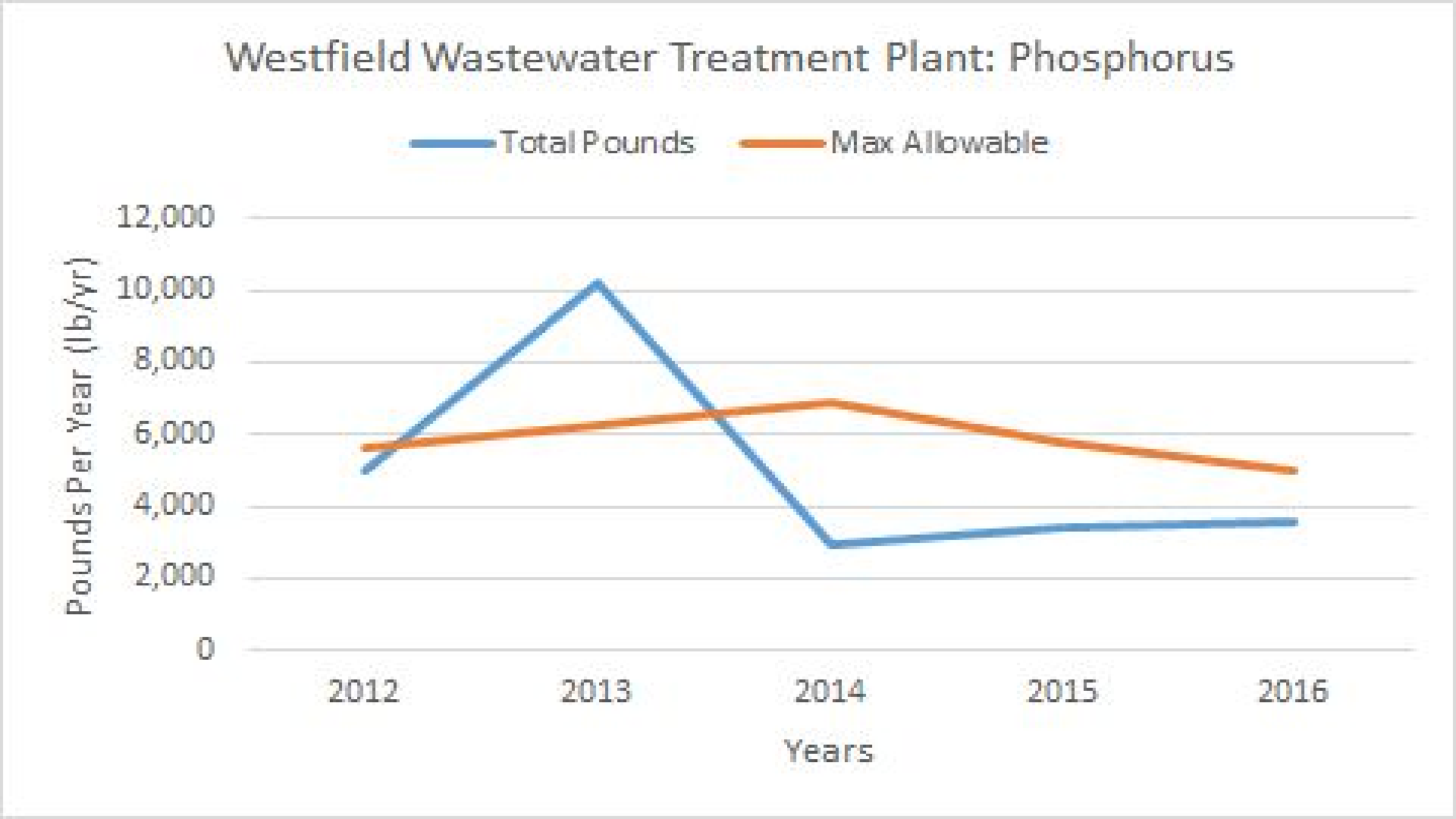
Facility pollutant(s) potentially contributing to impairment: BOD, carbonaceous, 05 day, 20 C; Coliform, fecal general; Enterococci: group D, MF trans, M-E, EIA; Phosphorus; Polychlorinated biphenyls; Total Kjeldahl Nitrogen

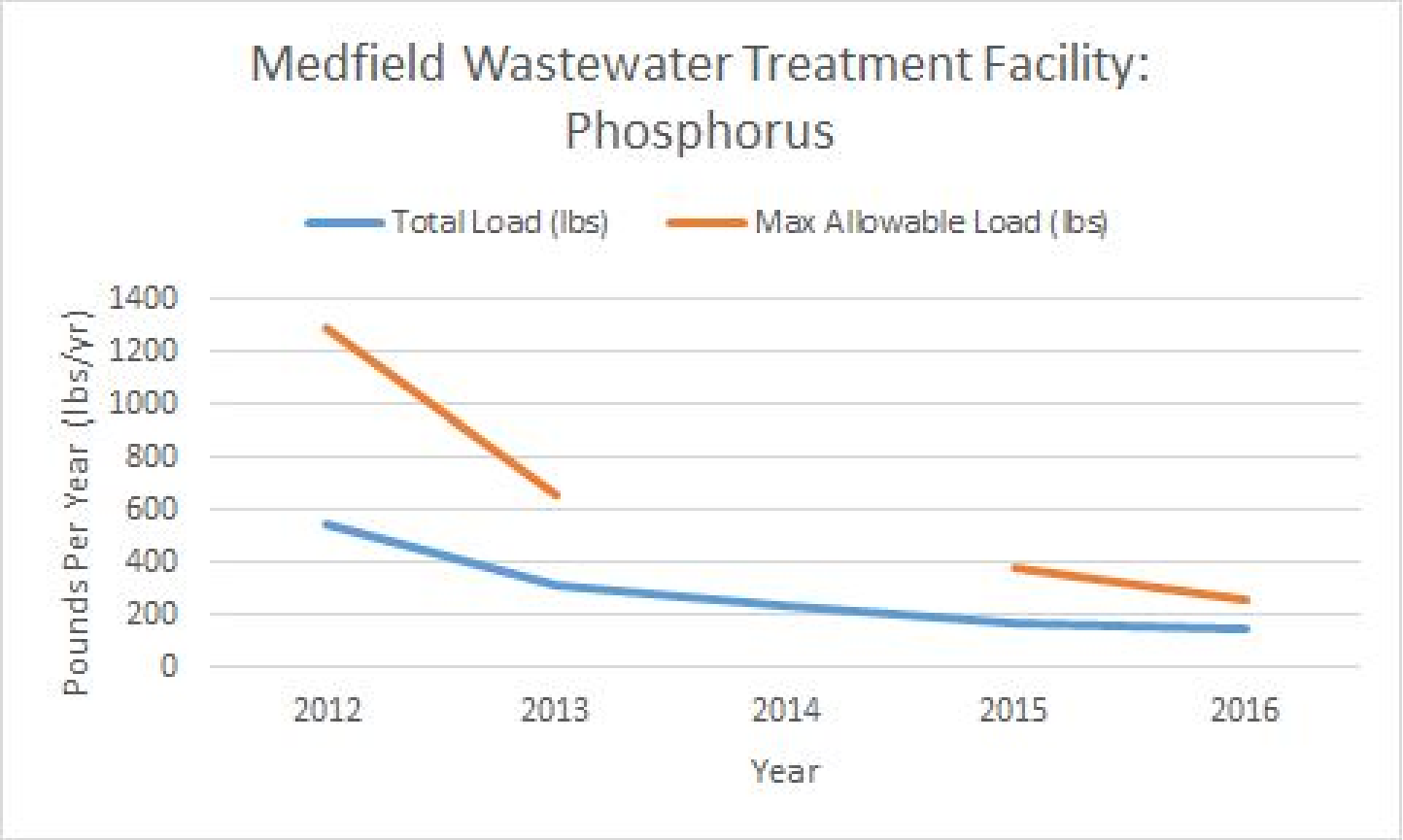
Municipality: Westfield
Impaired Water Body: Westfield River





From 2016 DMR:
Cause(s) of Impairment: ALGAL GROWTH, CAUSE UNKNOWN - IMPAIRED BIOTA, TASTE, COLOR AND ODOR, TURBIDITY
Facility pollutant(s) potentially contributing to impairment: Ammonia as N; Inorganic Nitrogen; Nitrogen; Phosphorus; Total Kjeldahl Nitrogen

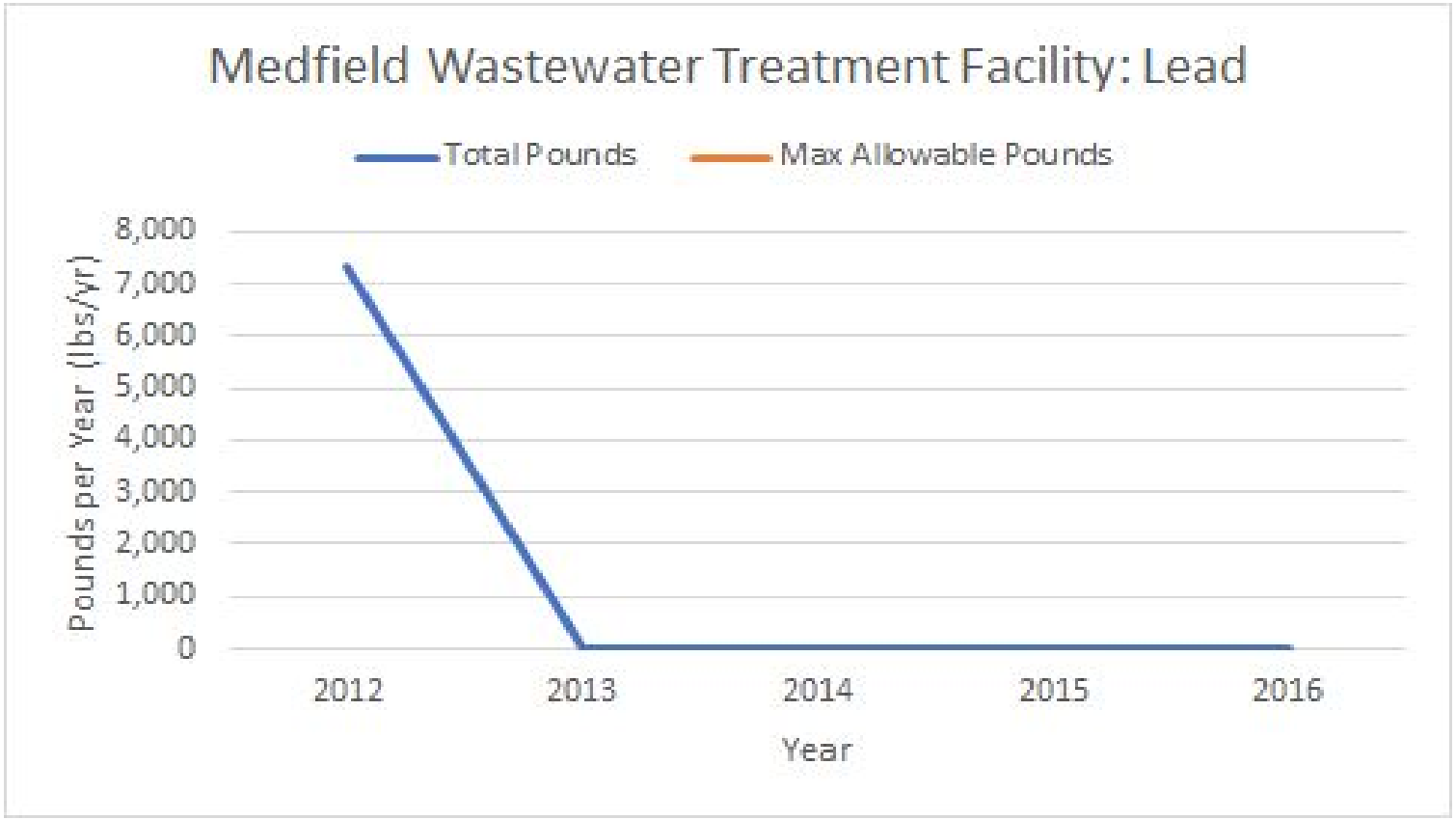

Westfield Wastewater Treatment Plant: Phosphorus
Total Pounds
Max Allowable
12,000
10,000
8,000
6,000
4,000
2,000
0
Pounds Per Year (lb/yr)
2012
2013
2014
2015
2016
Years

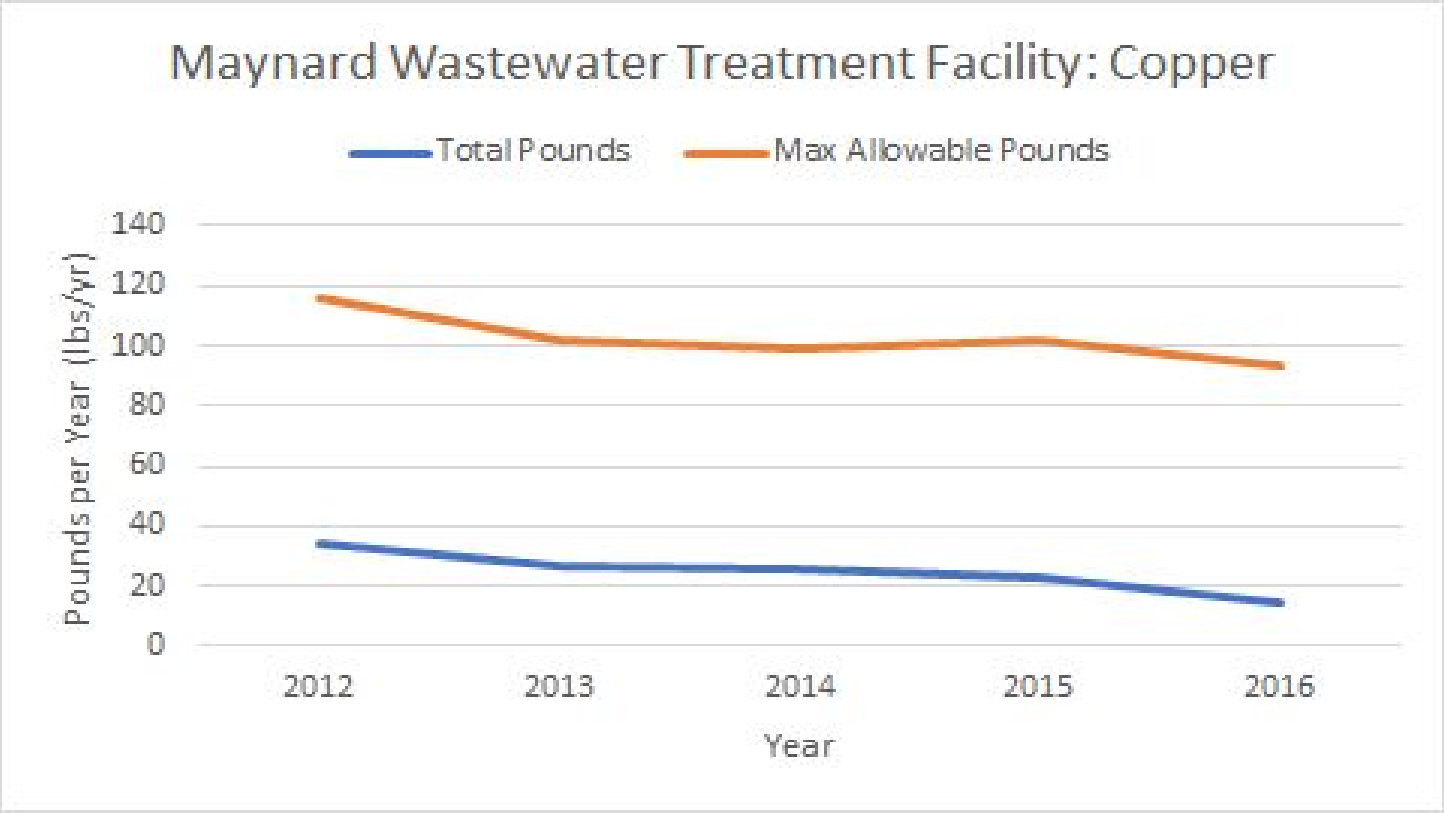


From 2016 DMR:

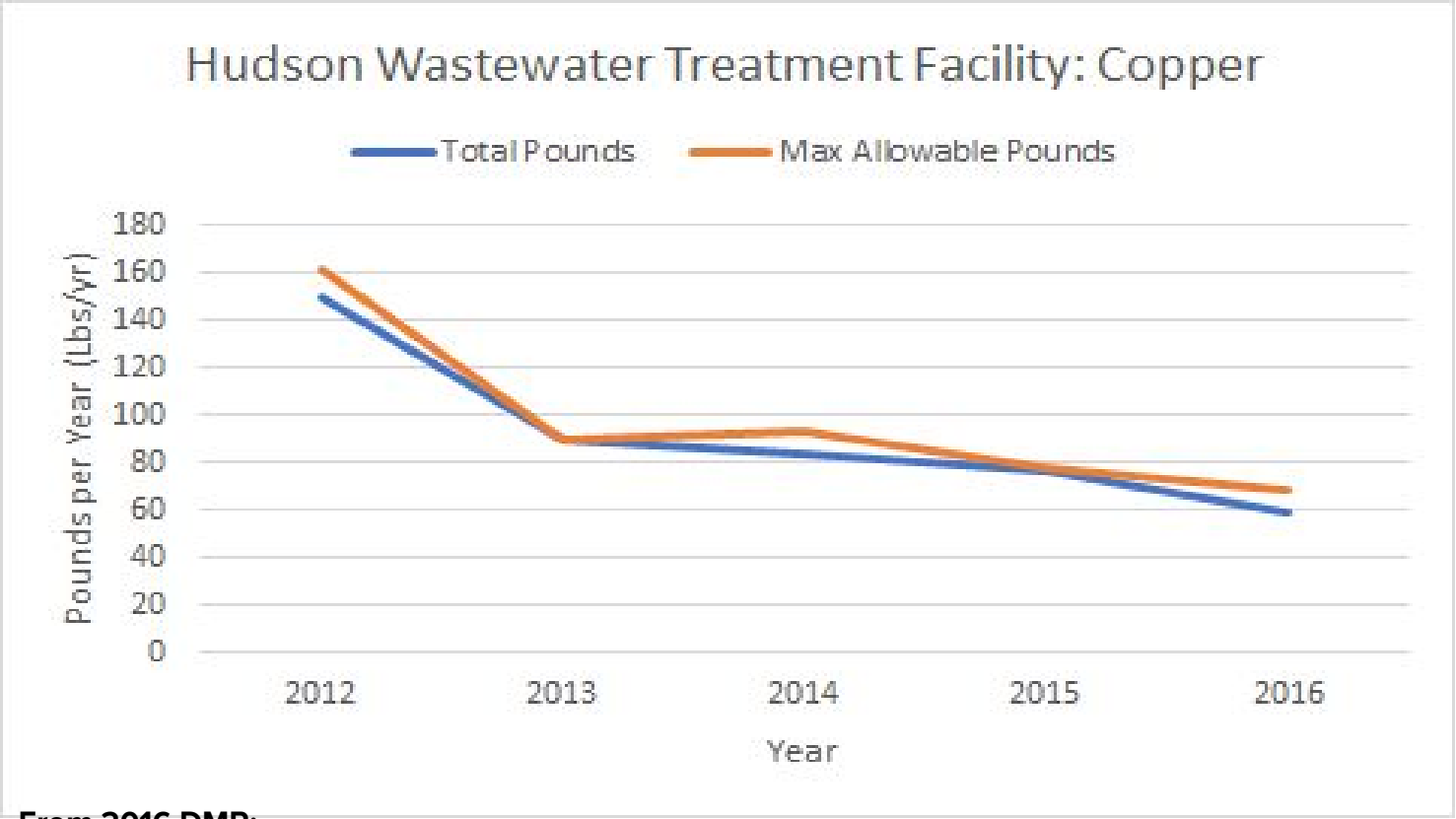
Cause(s) of Impairment: ALGAL GROWTH, CAUSE UNKNOWN - IMPAIRED BIOTA, MERCURY, NUISANCE EXOTIC SPECIES, NUTRIENTS, ORGANIC ENRICHMENT/OXYGEN DEPLETION, PESTICIDES, TURBIDITY

Facility pollutant(s) potentially contributing to impairment: Ammonia as N; BOD, 5-day, 20 deg. C; Nitrogen; Phosphate, total (as PO4); Phosphorus

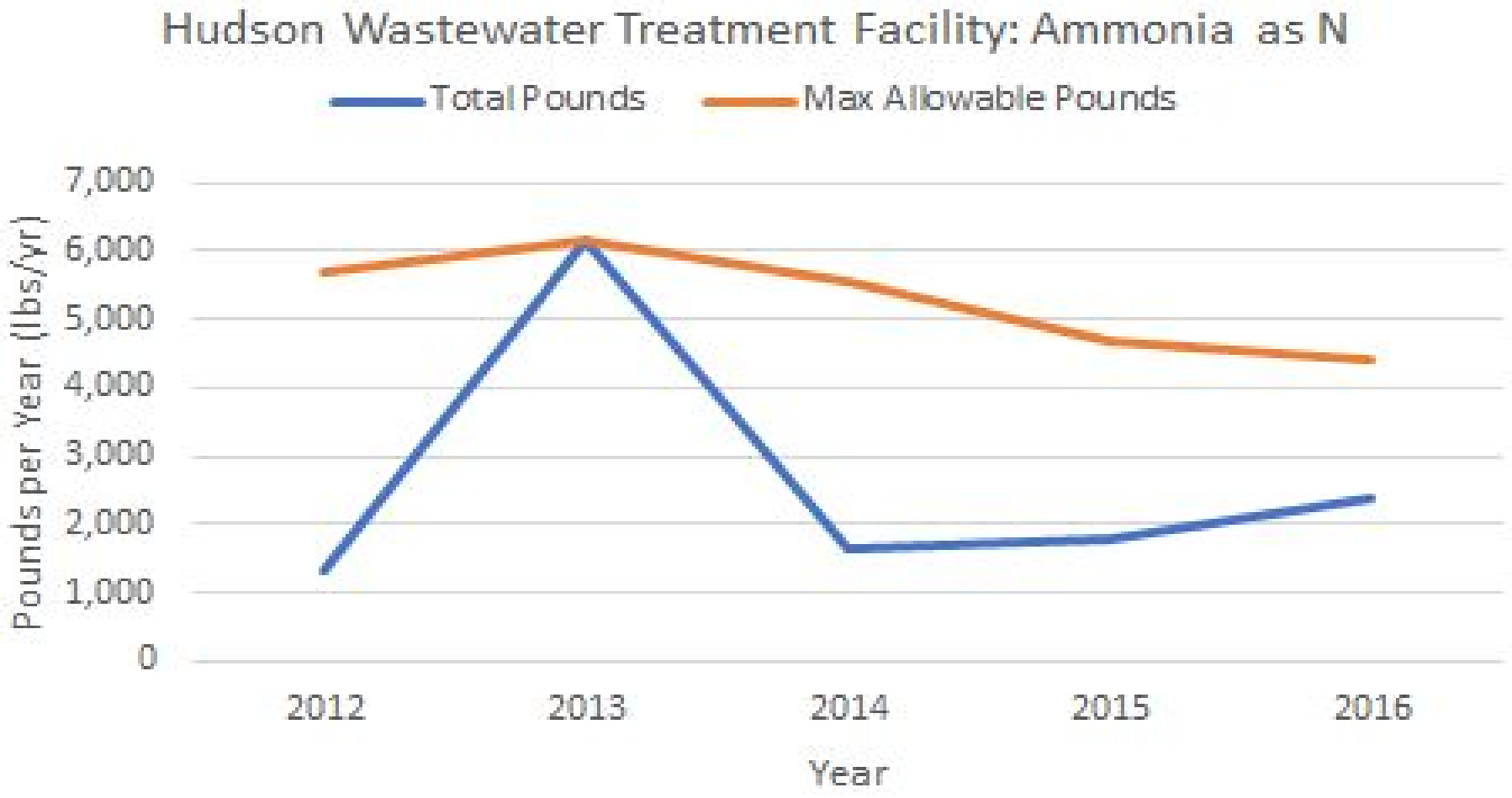

Medfield Wastewater Treatment Facility: Lead
Total Pounds
Max Allowable Pounds
Pounds per Year (lbs/yr)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2012
2013
2014
2015
2016
Year

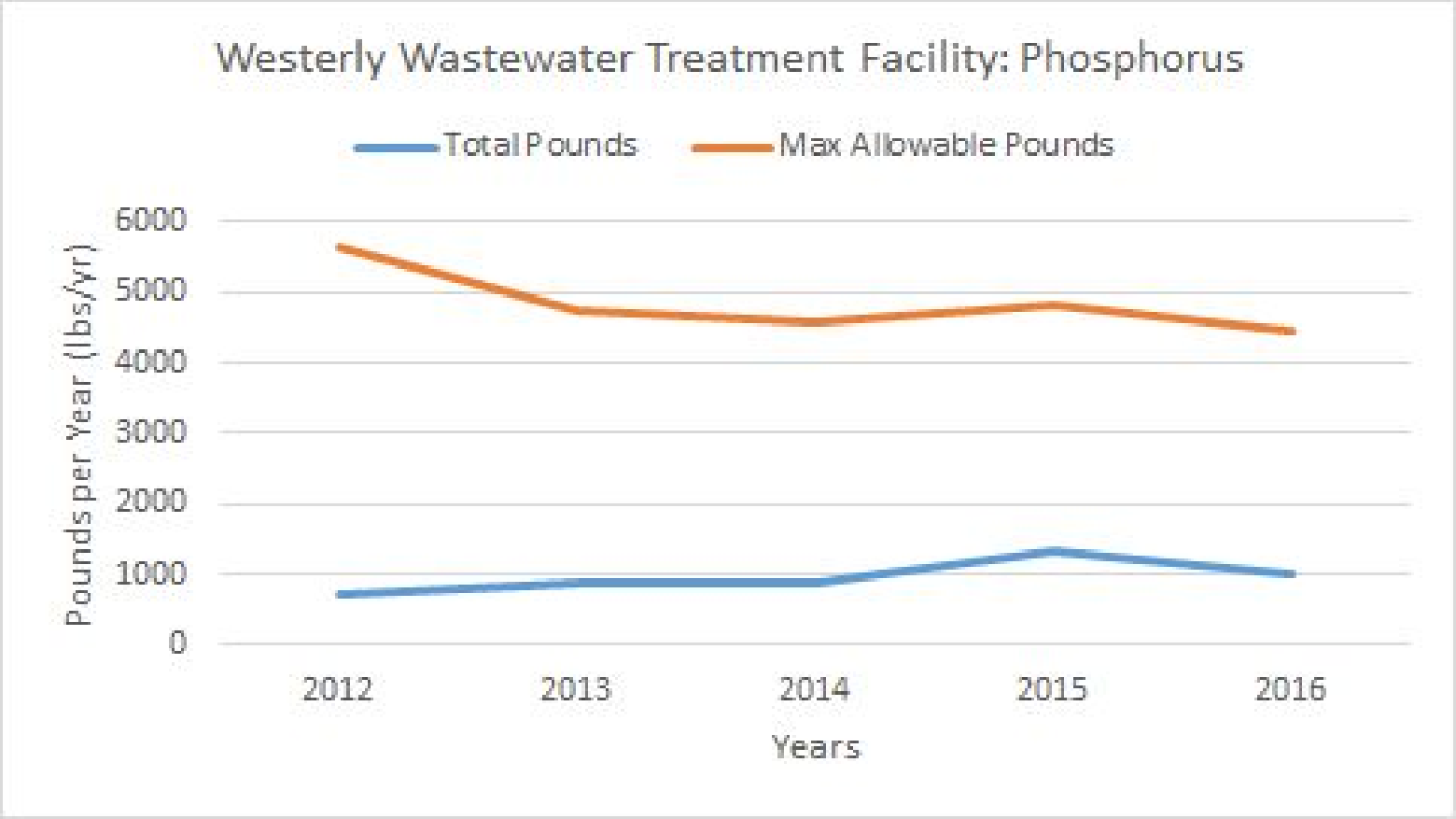


From DMR:
Cause(s) of Impairment: ALGAL GROWTH, NOXIOUS AQUATIC PLANTS, NUISANCE EXOTIC SPECIES, NUTRIENTS, ORGANIC ENRICHMENT/OXYGEN DEPLETION, OTHER CAUSE, TASTE, COLOR AND ODOR, TEMPERATURE, TRASH
Facility pollutant(s) potentially contributing to impairment: Nitrogen; Phosphorus



From 2016 DMR:
Cause(s) of Impairment: ALGAL GROWTH, NOXIOUS AQUATIC PLANTS, NUISANCE EXOTIC SPECIES, NUTRIENTS, ORGANIC ENRICHMENT/OXYGEN DEPLETION, PATHOGENS, TASTE, COLOR AND ODOR, TRASH
Facility pollutant(s) potentially contributing to impairment: Ammonia as N; BOD, 5-day, 20 deg. C; Coliform, fecal general; Nitrogen; Phosphate, total (as PO4); Phosphorus


Hudson Wastewater Treatment Facility: Ammonia as N
Total Pounds
Max Allowable Pounds
Pounds per Year (lbs/yr)
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2012
2013
2014
2015
2016
Year



From 2016 DMR:
Cause(s) of Impairment: CAUSE UNKNOWN - IMPAIRED BIOTA, NUTRIENTS, TURBIDITY
Facility pollutant(s) potentially contributing to impairment: Ammonia as N; Nitrogen; Phosphate, total (as PO4); Phosphorus

Expired Permits

Facility Name	Permit Expiration Date
Hudson Wastewater Treatment Facility	7/31/2010
Westfield Wastewater Treatment Plant	11/30/2014
Charles River Wastewater Treatment Facility	10/31/2019
Westerly Wastewater Treatment Facility	6/30/2010
Adams Wastewater Treatment Plant	9/12/2010
Maynard Wastewater Treatment Facility	10/31/2010
Medfield Wastewater Treatment Facility	2/28/2017
New Bedford Wastewater Treatment Facility	11/30/2013

Discussion, Recommendations, and Future Considerations

- Some facilities found in EJ areas had load exceedances for multiple years or parts of the year
- Difficulties finding information regarding the prioritization of TMDL developments
- Flags for expired permits to target facilities and if data is collected after the permit expires, indicate that the new permit was not added to the site
- Possible future work:
  - Assess impaired water bodies by use and proximity to populated areas
  - Is there a way we can we help develop comprehensive watershed plans?
  - How can we follow up on TMDL development progress for identified sites? How can we look into control measures for a TMDL?
  - How can we help create educational materials on water quality for the public?
  - Are there different research parameters for a different end goal we can look into?

Thank you!