

Lehigh County Authority

Water Supply Report – 11/28/2016

Drought Declarations

Who can declare “drought”?

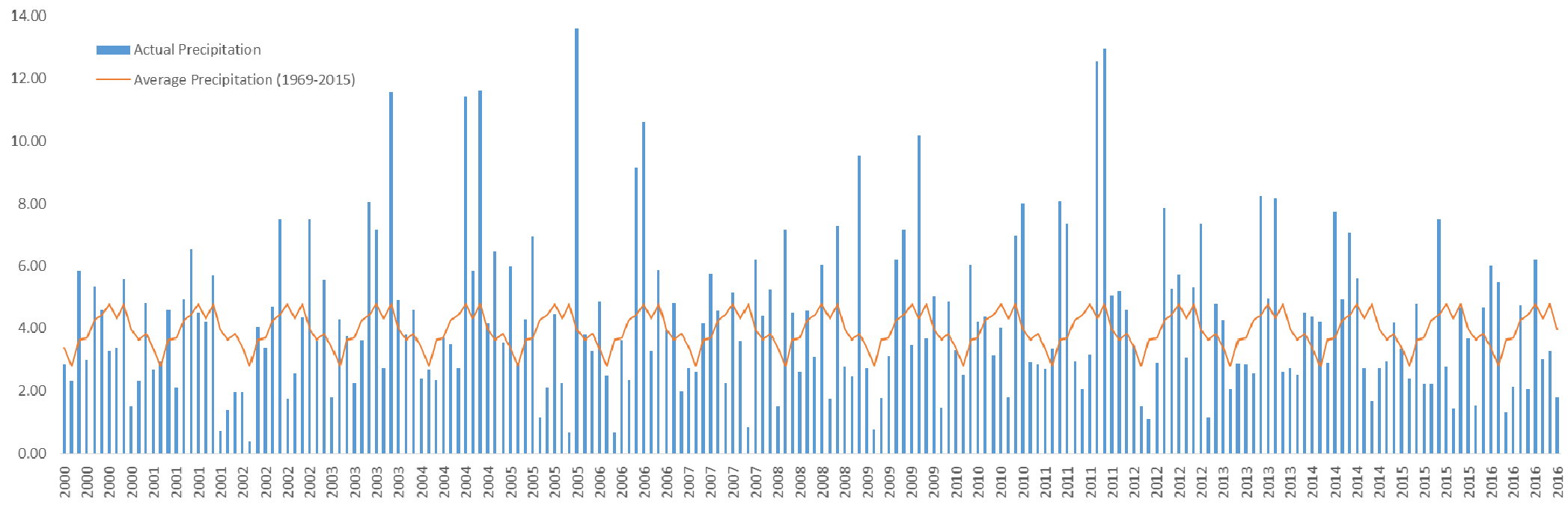
- PA Department of Environmental Protection
- Delaware River Basin Commission
- Localized declaration by water utility / emergency managers based on local conditions

Drought Stages:

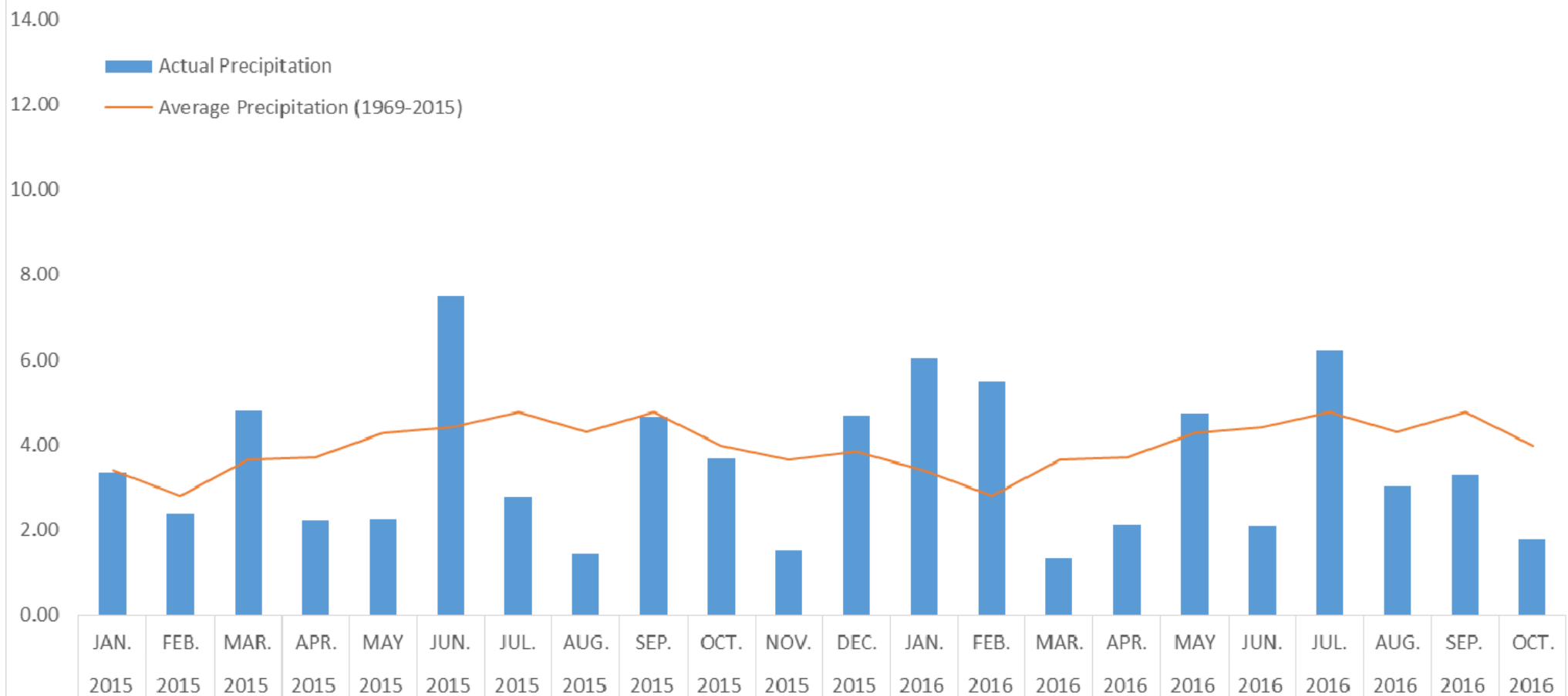
- **Watch** – Voluntary 5% cutback (**DRBC declared a Drought Watch for our area on November 23**)
- **Warning** – Voluntary 10-15% cutback (**DEP declared a Drought Warning for our area on November 3**)
- **Emergency** – Mandatory restriction on all “non-essential” water uses

Precipitation: Historic & Current Conditions

Monthly Precipitation Totals - Lehigh County, PA



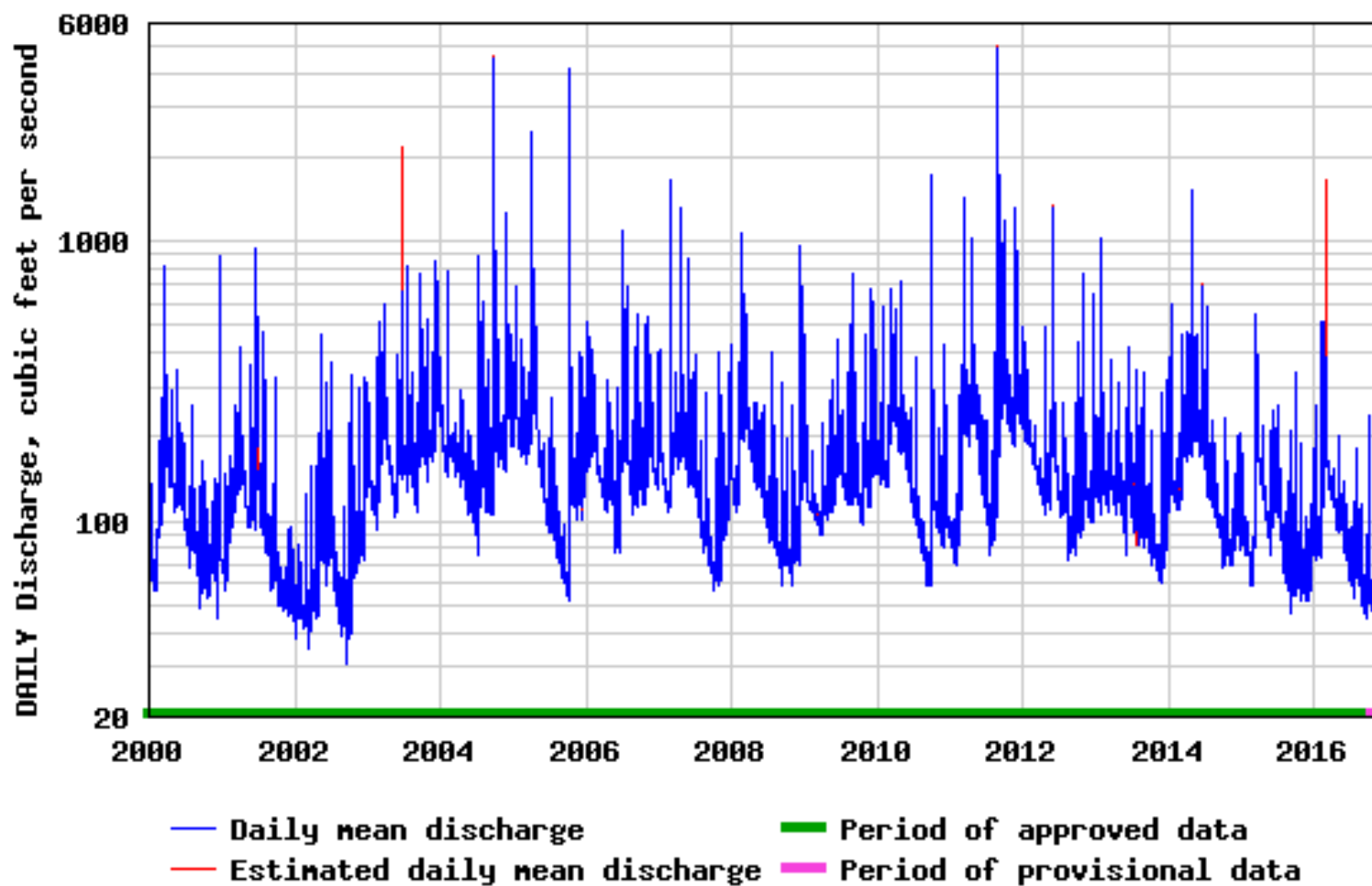
Monthly Precipitation Totals - Lehigh County, PA



Little Lehigh Creek: Historic & Current Conditions

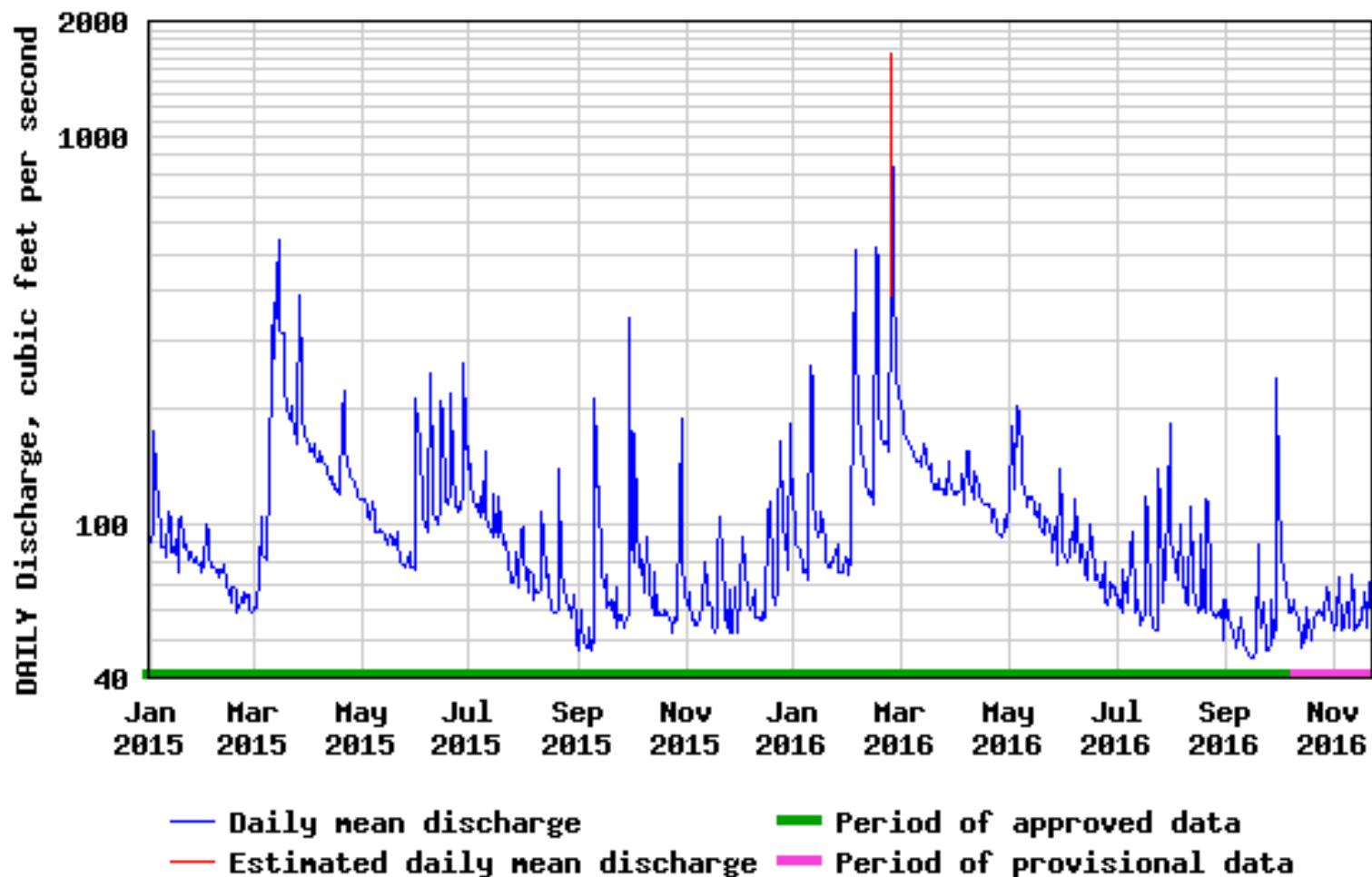


USGS 01451650 Little Lehigh Creek at Tenth St. Br. at Allentown





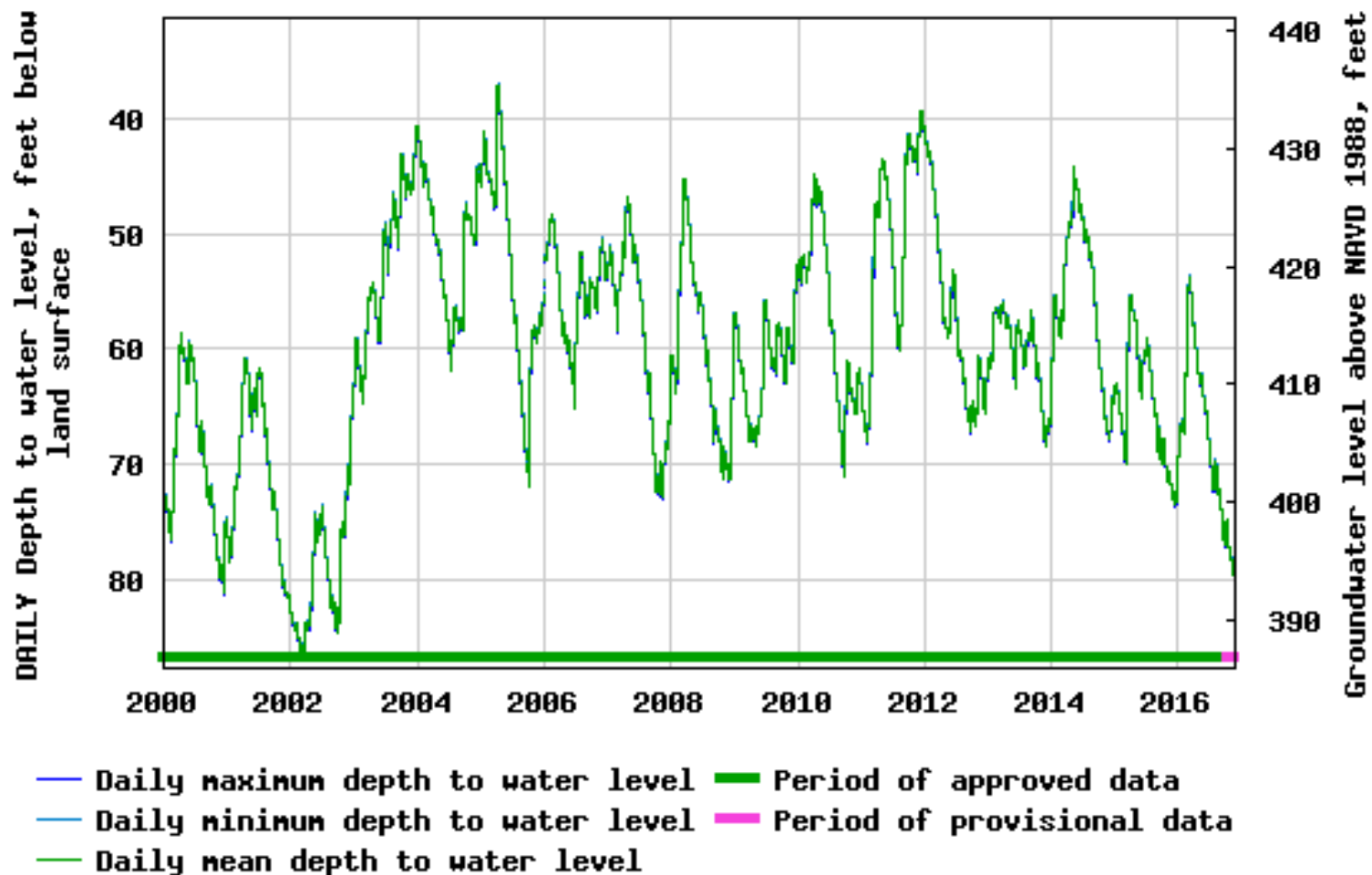
USGS 01451650 Little Lehigh Creek at Tenth St. Br. at Allentown



Local Groundwater Levels: Historic & Current Conditions

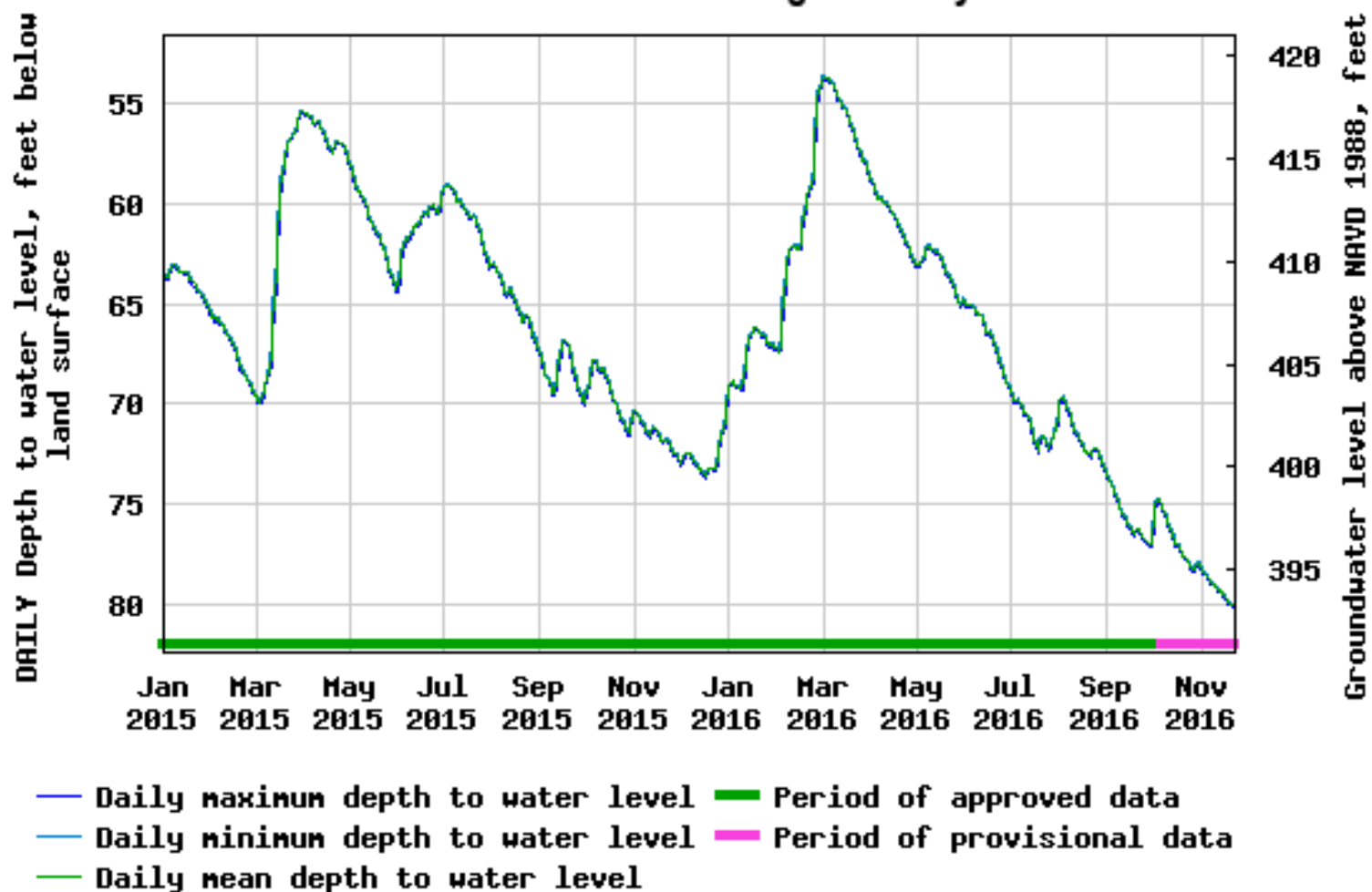


USGS 403429075392401 LE 644 Lehigh County Observation Well



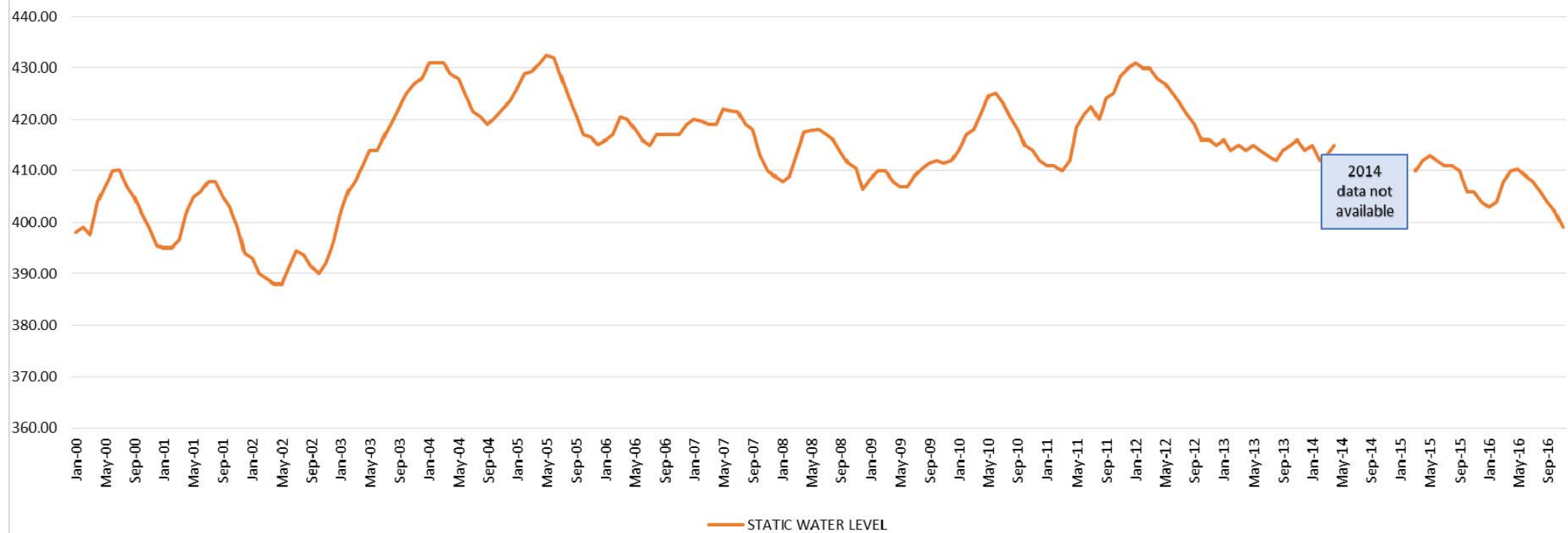


USGS 403429075392401 LE 644 Lehigh County Observation Well



Static Water level

Fogelsville Quarry - 15-Year Groundwater Levels



Little Lehigh Creek Basin: Historic Water Usage Trends

Water Sources

LCA-Allentown Division:

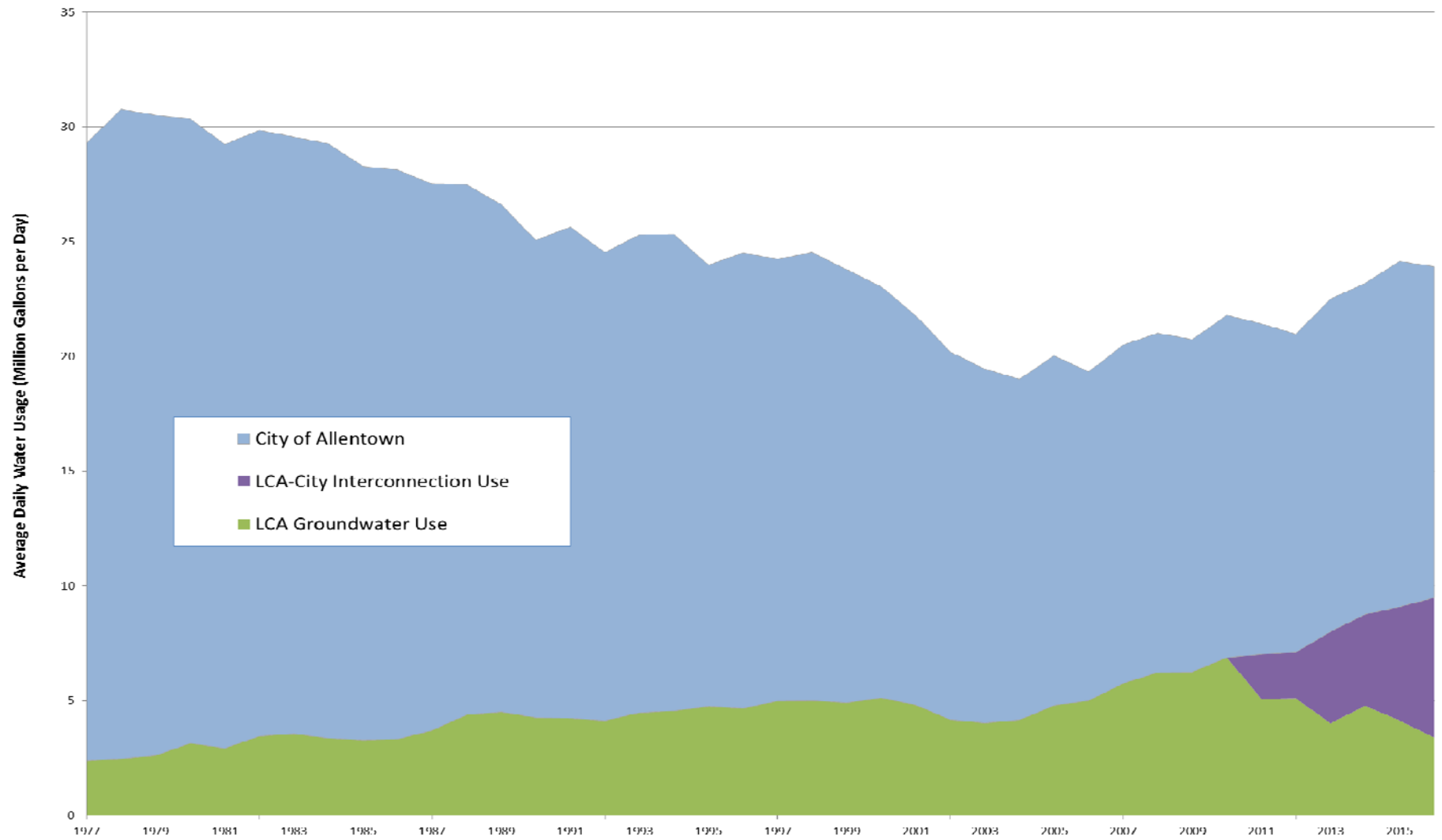
- Schantz Spring
- Crystal Spring
- Little Lehigh Creek
- Lehigh River (emergency supply)

LCA-Central Lehigh Division:

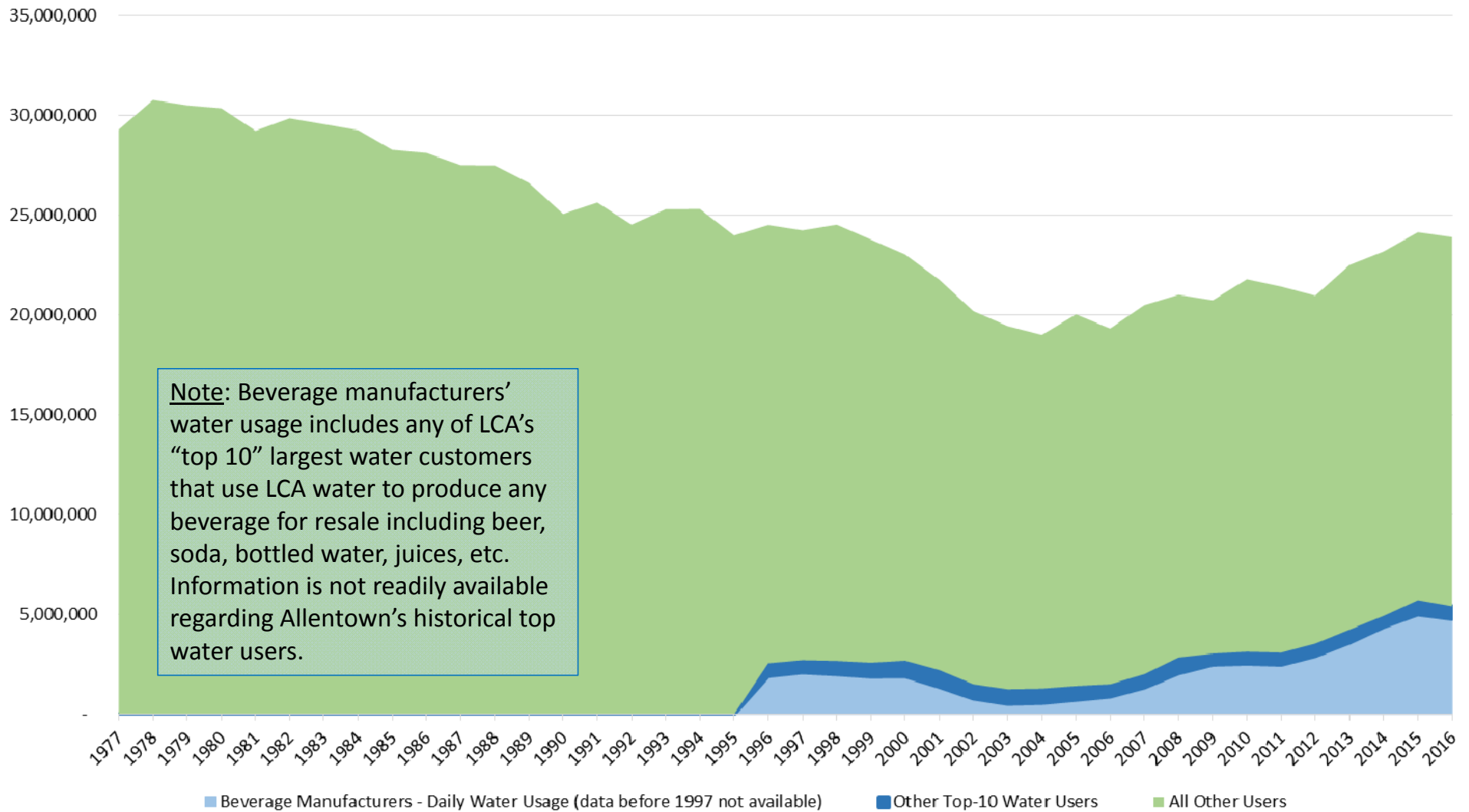
- Allentown Division
Interconnection (added in 2011)
- 18 Groundwater Wells

All public water supplies are in the same watershed / drainage basin!

Little Lehigh Basin – Primary Public Water Suppliers – Usage Trend

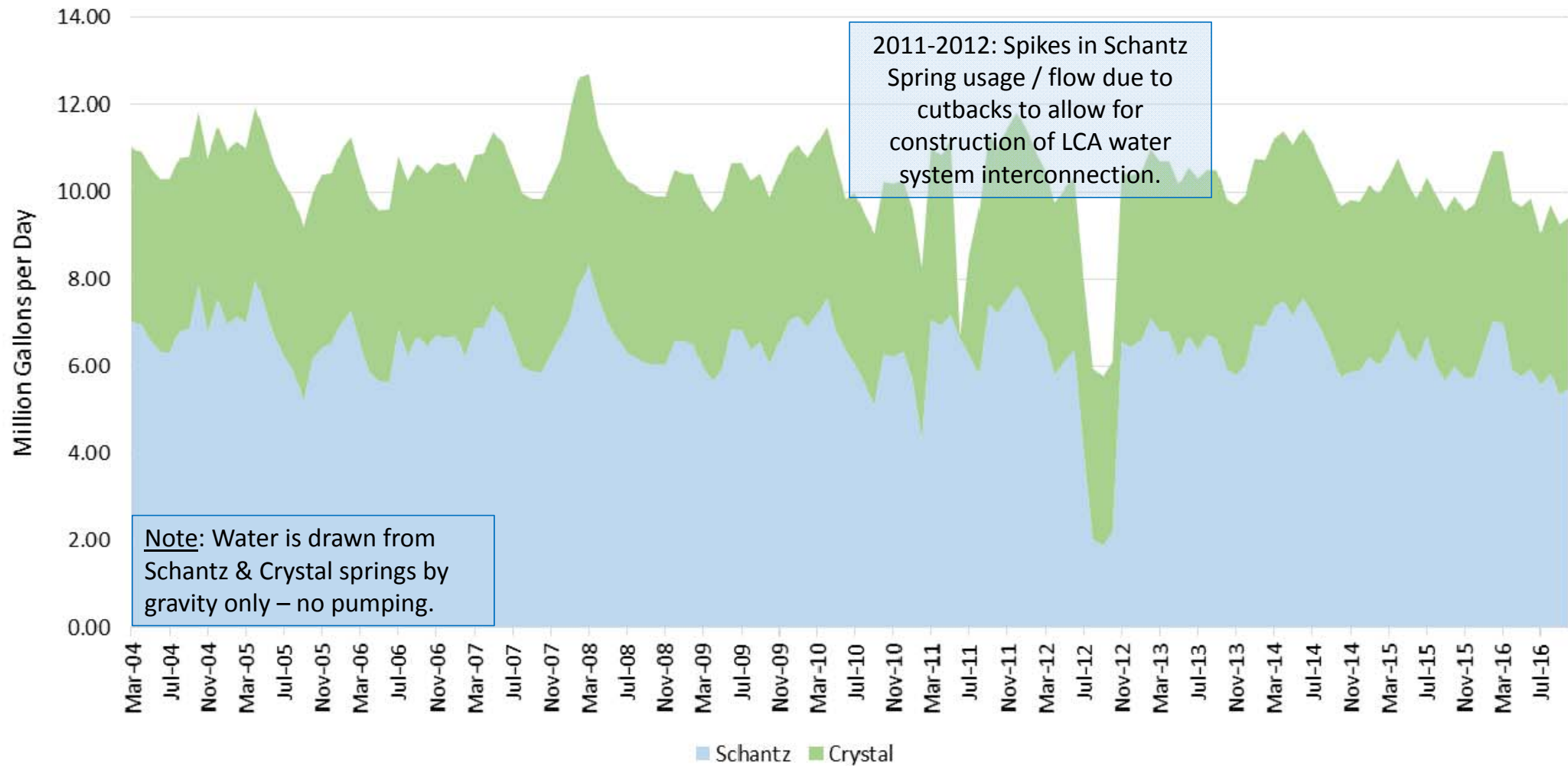


Water Usage by Type (Average Gallons per Day)

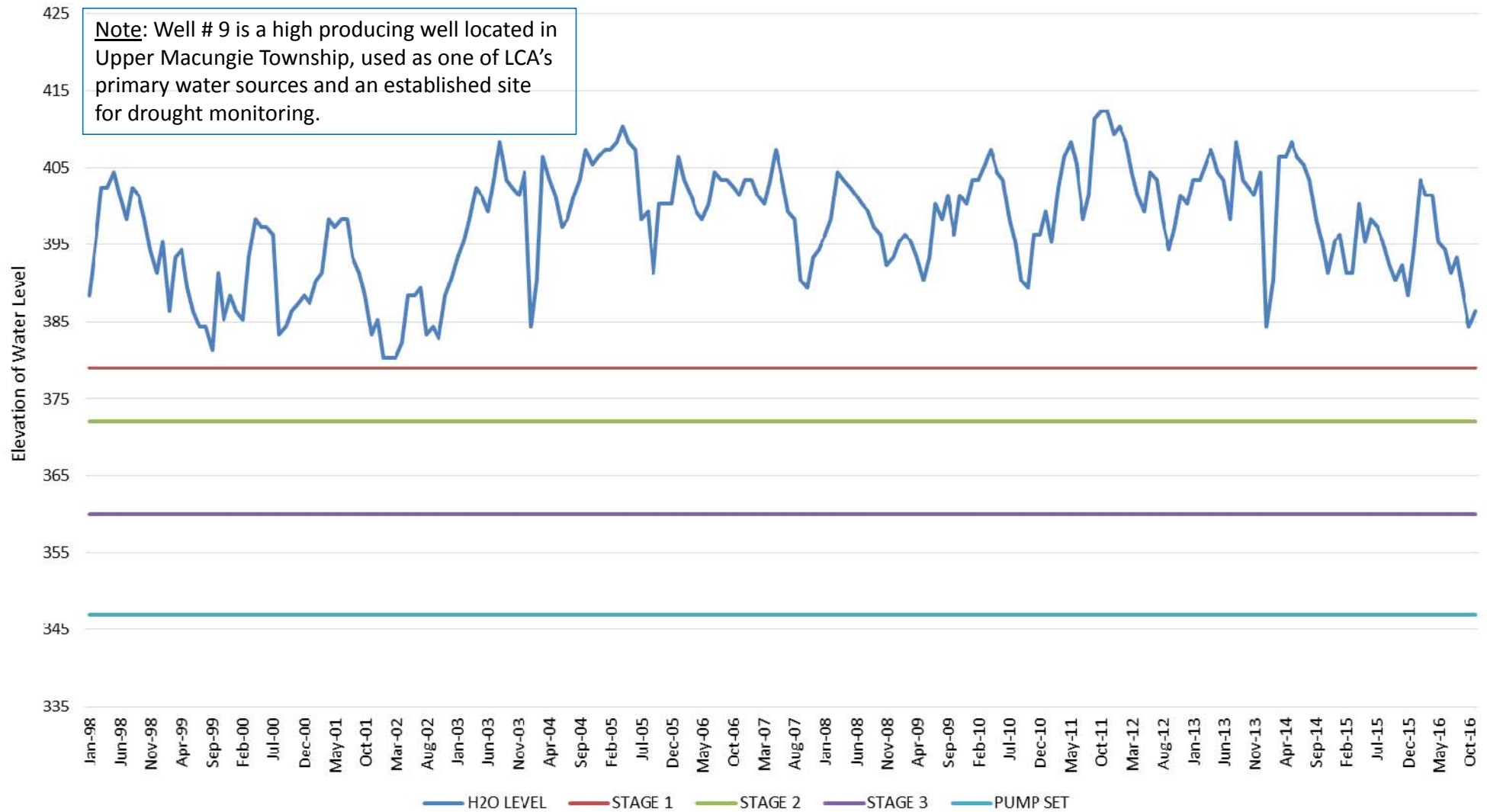


Water Sources: Historic & Current Conditions

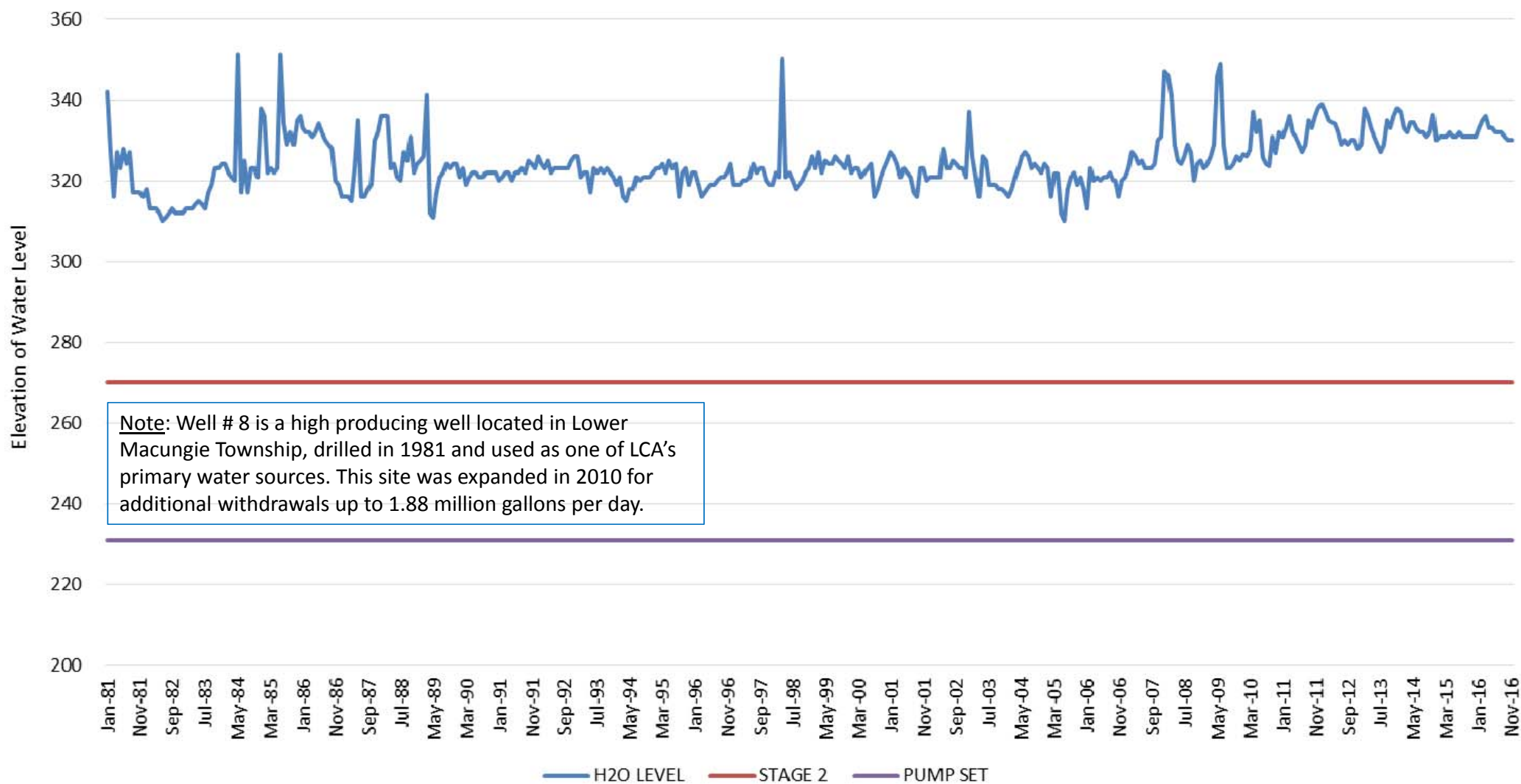
Allentown Spring Water Sources - Historical Flow Data



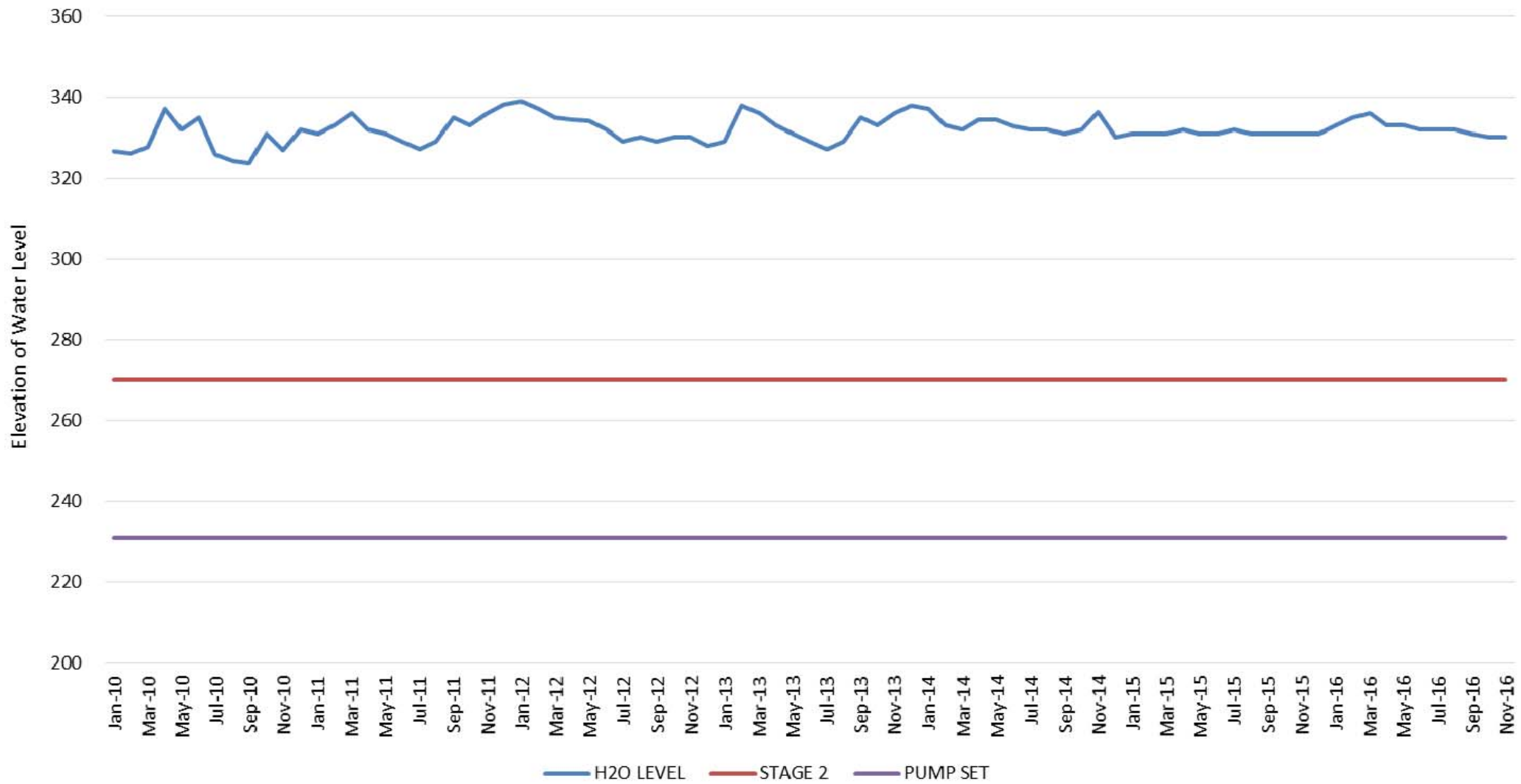
LCA WL9 Water Level History & Drought Triggers



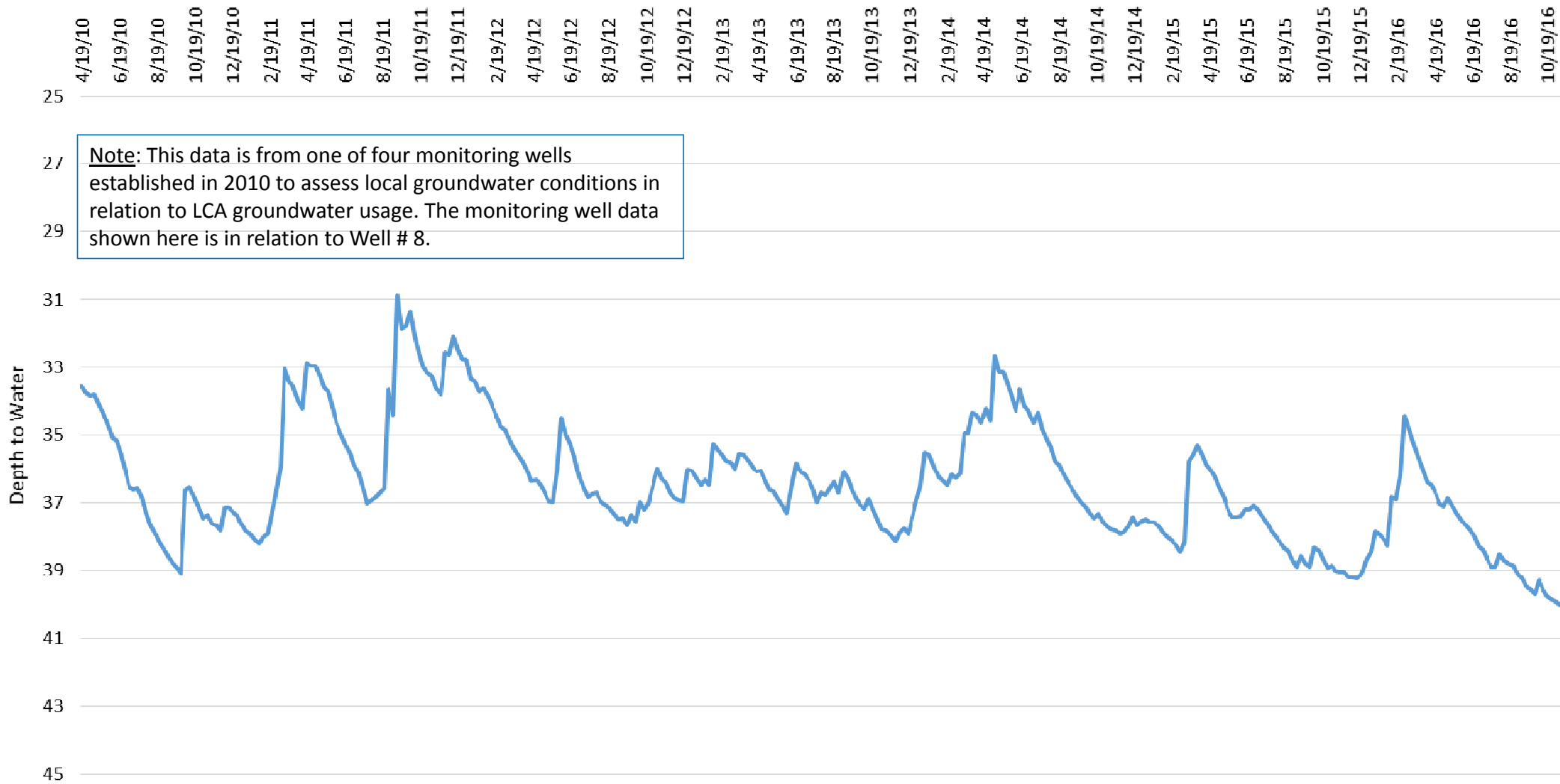
LCA WL8 Water Level History & Drought Triggers



LCA WL8 Water Level History & Drought Triggers

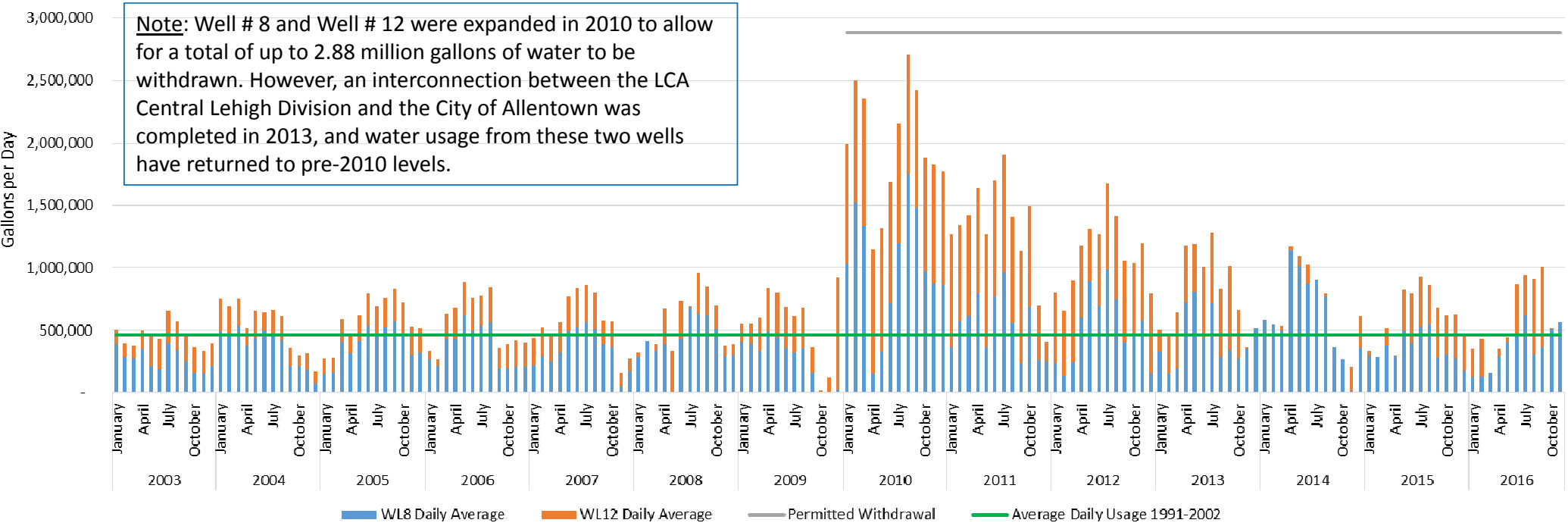


WL8 - Lower Macungie Road Monitoring Well - Historical Water Levels



LCA WL8 & WL12: Historic Usage Trend

LCA WL8 & WL12 Average Day Water Withdrawals



Observations

- Current water supply conditions are adequate to meet the needs of the community
- Precipitation is well below normal
- While well supplies remain robust, groundwater levels are generally declining
- Water levels are reasonably healthy as compared to conditions during last major drought of 2001-2002
- However, we would all like to see the Little Lehigh Creek protected and returned to full flow!

Next Steps:

- Quickly develop study to monitor groundwater and stream conditions when certain key wells are in operation or turned off, upcoming rain events, etc.
- Potential Drought Emergency declaration by DEP / DRBC – mandatory water use restrictions
- Heading into winter, water conservation targets will be difficult to achieve
- Industrial customers' quarterly meeting – December 7 – will discuss ways to conserve further
- Further study is needed to understand current impacts to the Little Lehigh: water withdrawals, limestone geology, dam removals, other?

Next Steps:

- Support from community partners?
- Study efforts – develop more robust data on local conditions / appropriate drought triggers
- Community reporting on stream conditions & data sharing – the community should be our “early warning system”
- Stream bank restoration projects – possible now due to low flow conditions? Required regulatory permits, Army Corps of Engineers, DEP, Fish & Game, etc.

Discussion