



Borough of Caldwell

Wastewater Treatment Plant

Capacity Assurance Program (CAP)

November 14, 2019

John Scheri, PE, BCEE, Env Sp, NASA Wastewater Practice Leader
Philip LiVecchi, PE, Executive Vice President

Caldwell WWTP Serves 5 Municipalities:

1

Borough of
Caldwell

2

Township of
West Caldwell

3

Borough of
North Caldwell

4

Borough of
Roseland

5

Borough of
Essex Fells



Caldwell WWTP Parameters:

Permitted Average Daily Flow Design Capacity:

4.5 MGD



Peak Flow Design Capacity:

15 MGD

Actual Flow:

5.12 MGD (based on 12-month rolling average)





When is a
Capacity Assurance Program
Required?

Capacity Assurance Program - Trigger

- **CAP is required when:**
 - A WWTP reaches 95% of its permitted flow limit over a 12-month rolling average period
- **CAP requires evaluation of:**
 - Sewer capacity and infiltration/inflow
 - How a WWTP's remaining flow capacity will be utilized
 - Whether an upgrade to the treatment facility and/or the sanitary sewer collection system is necessary to ensure future capacity
 - The need for a Self-Imposed Sanitary Sewer Ban
- **CAP Reporting:**
 - Quarterly Reports until flows are below permitted flow for 36 months



Capacity Assurance Program Requirements

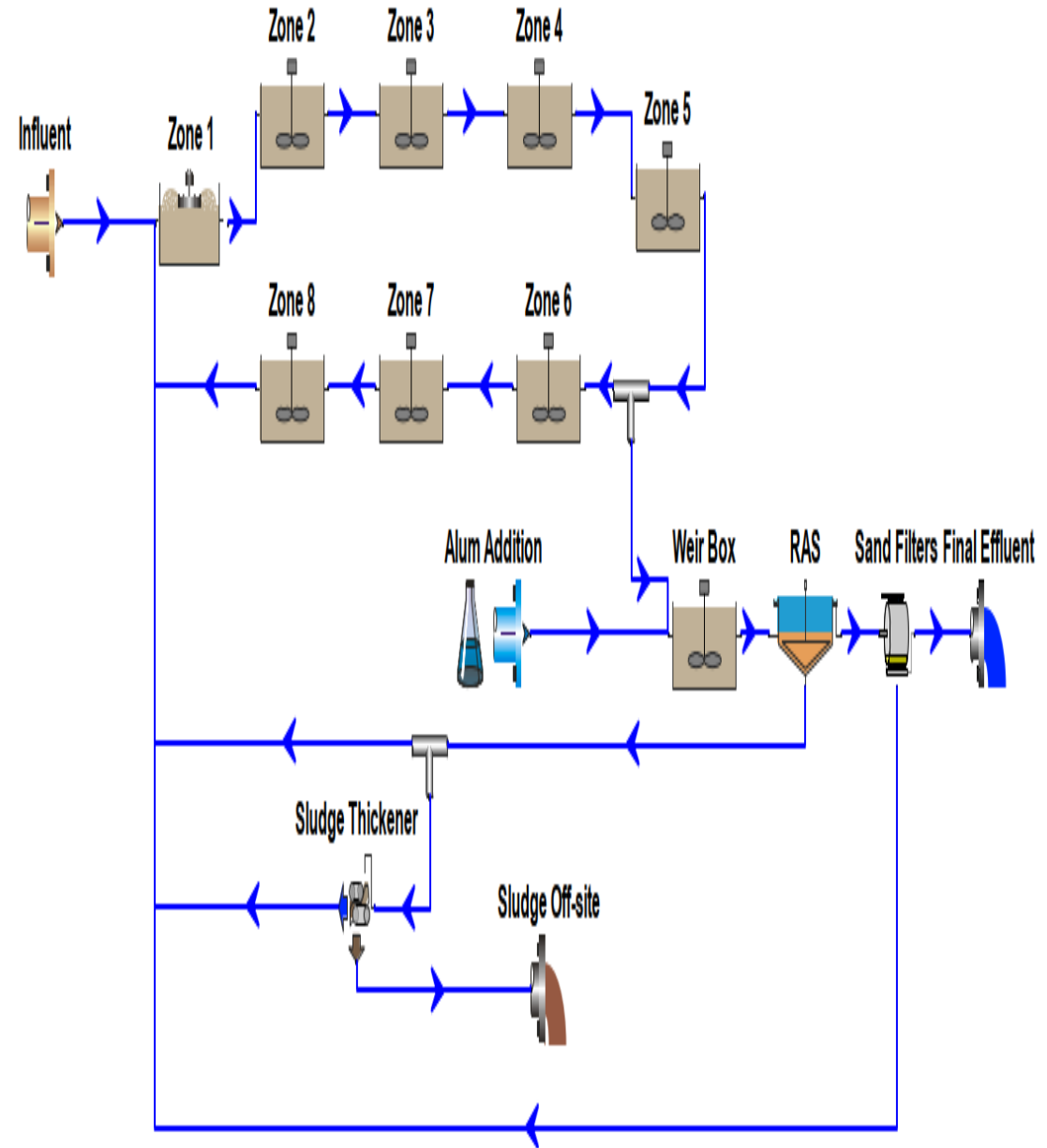
- Assess the Current Treatment Works
- Alternative Evaluation to
 - Maximize Conveyance System Capacity
 - Maximize Treatment Plant Capacity



Mott MacDonald's Investigation

Wastewater Treatment Facility Evaluation to Maximize Treatment Capacity

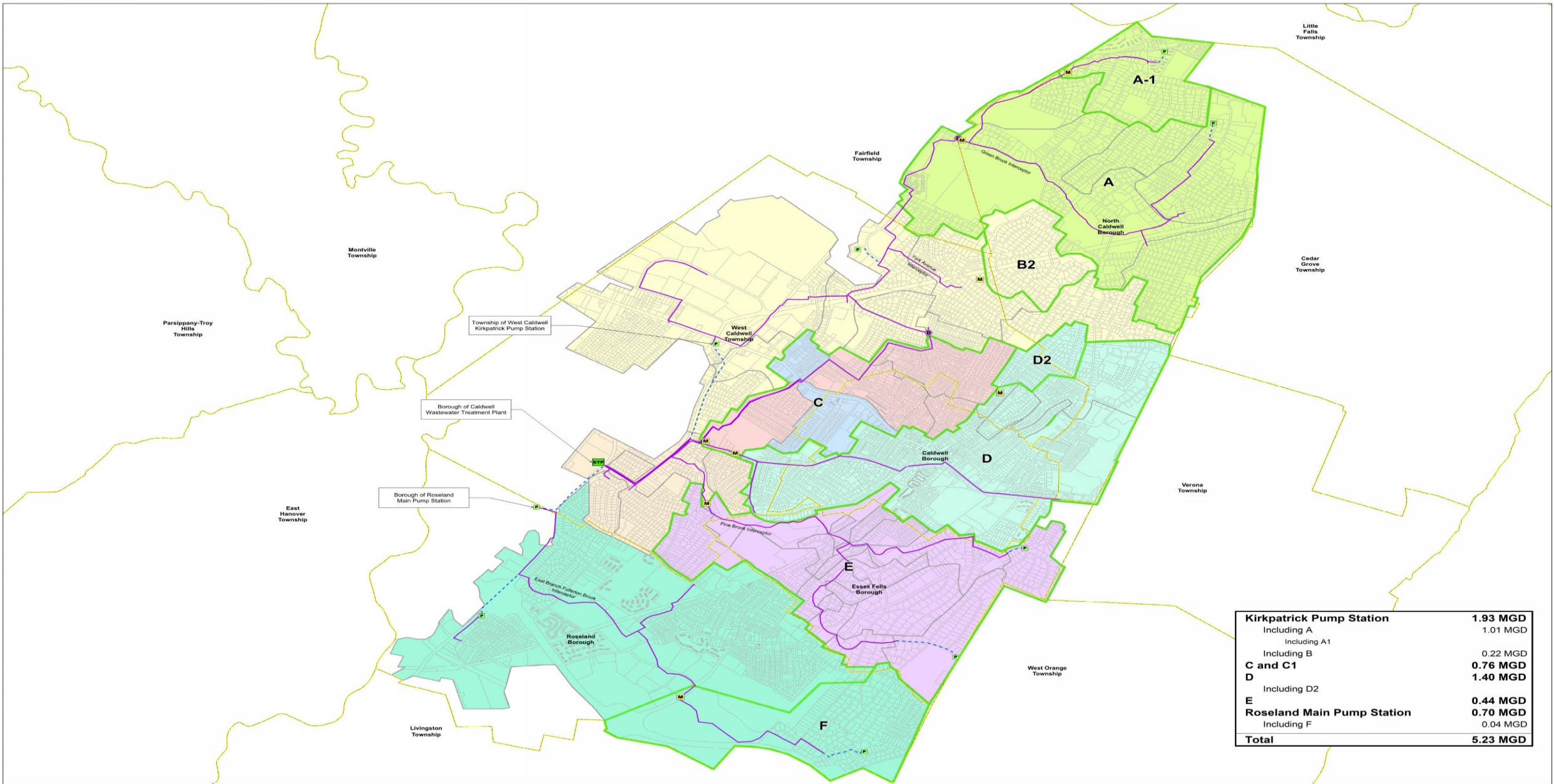
- Review of WWTP Flow Records (Discharge Monitoring Reports / Daily Flow Records)
- Evaluation of Hydraulic Flow
- Evaluation of Existing Process Equipment
- Treatment process capacity using computerized simulation (Biowin)



Sewer System Evaluation to Maximize Conveyance System Capacity

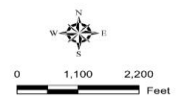
- Temporary Flow Monitoring Program
- Site inspection of Interceptor Lines along stream corridors





Kirkpatrick Pump Station	1.93 MGD
Including A	1.01 MGD
Including A1	
Including B	0.22 MGD
C and C1	0.76 MGD
D	1.40 MGD
Including D2	
E	0.44 MGD
Roseland Main Pump Station	0.70 MGD
Including F	0.04 MGD
Total	5.23 MGD

- Legend**
- Pump Station
 - Treatment Plant
 - Diversion Manhole
 - Preliminary Meter
 - Trunk Sewer
 - - - Force Main
 - NJ Parcels
 - Municipal Border
 - Meter Areas



Map Document: (I:\Technical Projects\IWM Proposals\IWMOPU L.J. - Caldwell SOGIS\Projects\MeterAreas.mxd) 28/08/2019 09:08:34 mac52712

	BOROUGH OF CALDWELL ESSEX COUNTY, NEW JERSEY SUB BASINS & METERING LOCATIONS				
	111 Wood Avenue South Iselin, New Jersey 08830-4112	Designed MM	Drawn MM	Checked NT	Approved JM



Mott MacDonald's Recommendations

Maximize Conveyance System Capacity

Clean Interceptor Lines

Perform additional temporary flow metering

Perform smoke testing

Repairs (to be determined)



Upgrading Treatment Plant Capacity

Re-rate WWTP

20% increase from 4.5 MGD to 5.4 MGD

Replacement of Sand Filters: Disk Filtration

Installation of Additional Secondary Clarifier

Miscellaneous plant improvements

Possible Installation of Equalization Facilities to address Peak Flows





Questions?