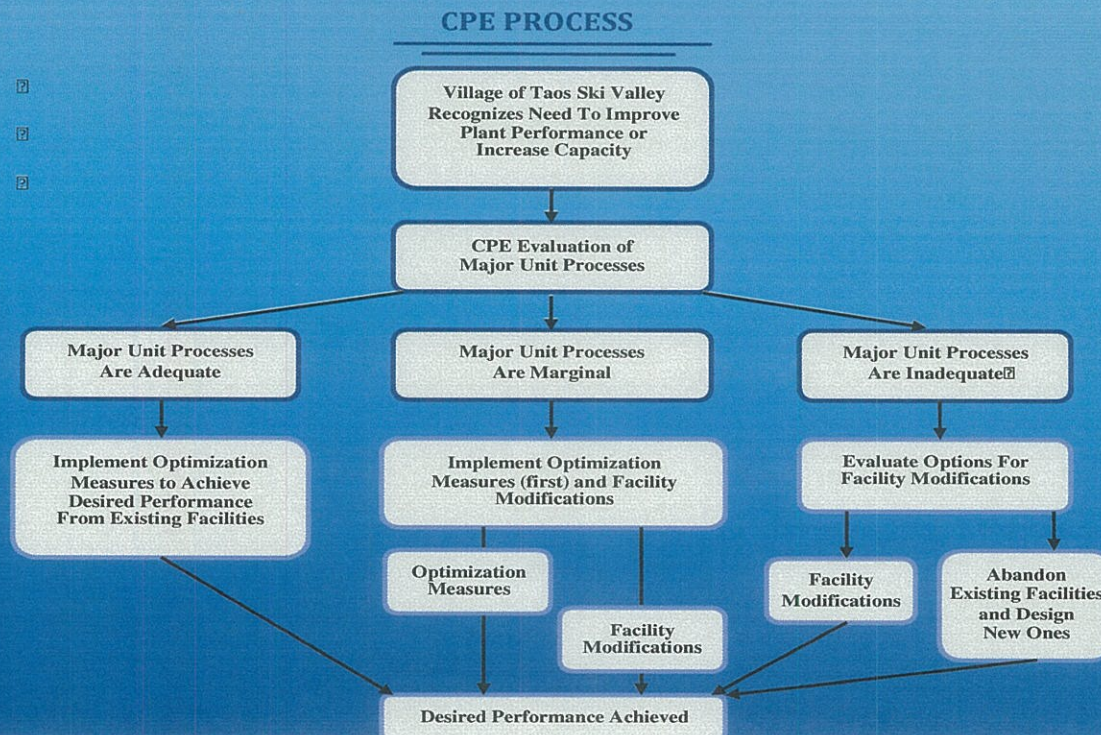


VTSV WASTEWATER TREATMENT FACILITY COMPREHENSIVE PERFORMANCE EVALUATION (CPE)





WWTF COMPREHENSIVE PERFORMANCE EVALUATION

- Proactive Planning Tool
- First Step Towards Implementing:
 - WWTF Capacity Improvements/Optimization Measures
 - Phased WWTF Capital Improvements Program
- WWTF Capacity Increase Required
 - Current WWTF Capacity: 0.120 MGD (Permitted Capacity: 0.167 MGD)
 - Current: 600 Equivalent Residential Units (EQRs)
 - 40 Projected Additional EQRs by 2017
 - 40 Additional EQRs (total of 80 additional) by 2020



WWTF COMPREHENSIVE PERFORMANCE EVALUATION

**Service Area EQRs and Peak Period Flow Projections
(2010-2020) – *For Reference only***

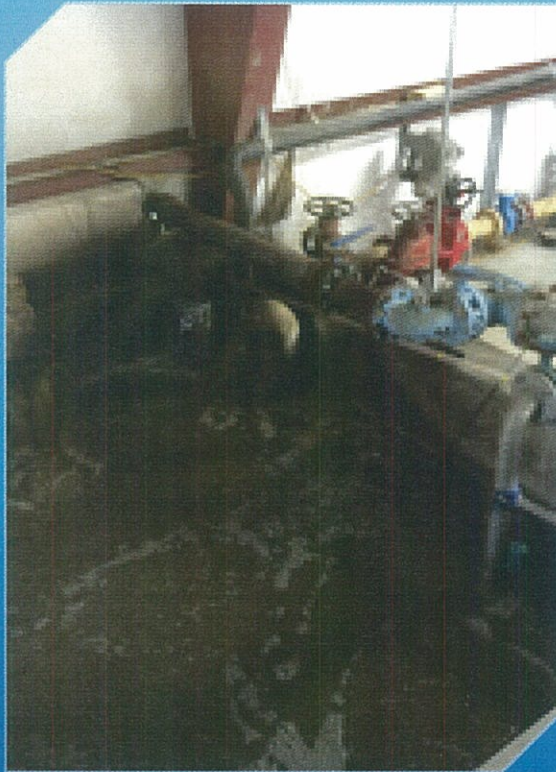
Service Area Condition/ Development Phase	Year	Addl. EQR (projected)	Total EQR (cumulative)	Total # of "pillows" added	Projected Addl. Peak Flow (gpd)	Projected Peak Day Flow (gpd)
Past	2010	---	578	---	---	115,000
Current	2014	22	600	---	---	120,000
Future - Phase 1	2017	40	640	200	15,000	135,000
Future - Phase 2	2018	40	680	200	15,000	150,000
Future - Phase 3	2020	120	800	560	42,000	192,000



WWTF COMPREHENSIVE PERFORMANCE EVALUATION

Influent Wastewater Reference Flows (actual and estimated/projected)

Development Phase	Year	MinMADF	AADF (MGD)	MMADF (MGD)	PDF (MGD)	PIF (MGD)
Peaking Factor	-----	0.33	0.61	1	1.6	3.9
Current	2014	0.025	0.046	0.075 ⁽²⁾	0.120 ⁽³⁾	0.290 ⁽⁵⁾
Future - Phase 1	2017	0.028	0.051	0.084	0.135	0.330
Future - Phase 2	2018	0.031	0.057	0.094	0.150	0.367
Permitted Capacity	2019 ⁽¹⁾	0.055	0.101	0.167	0.267	0.651
Future - Phase 3	2020	0.040	0.073	0.12	0.192	0.468



WWTF COMPREHENSIVE PERFORMANCE EVALUATION

Capacity and Performance Evaluation Bottom Line:

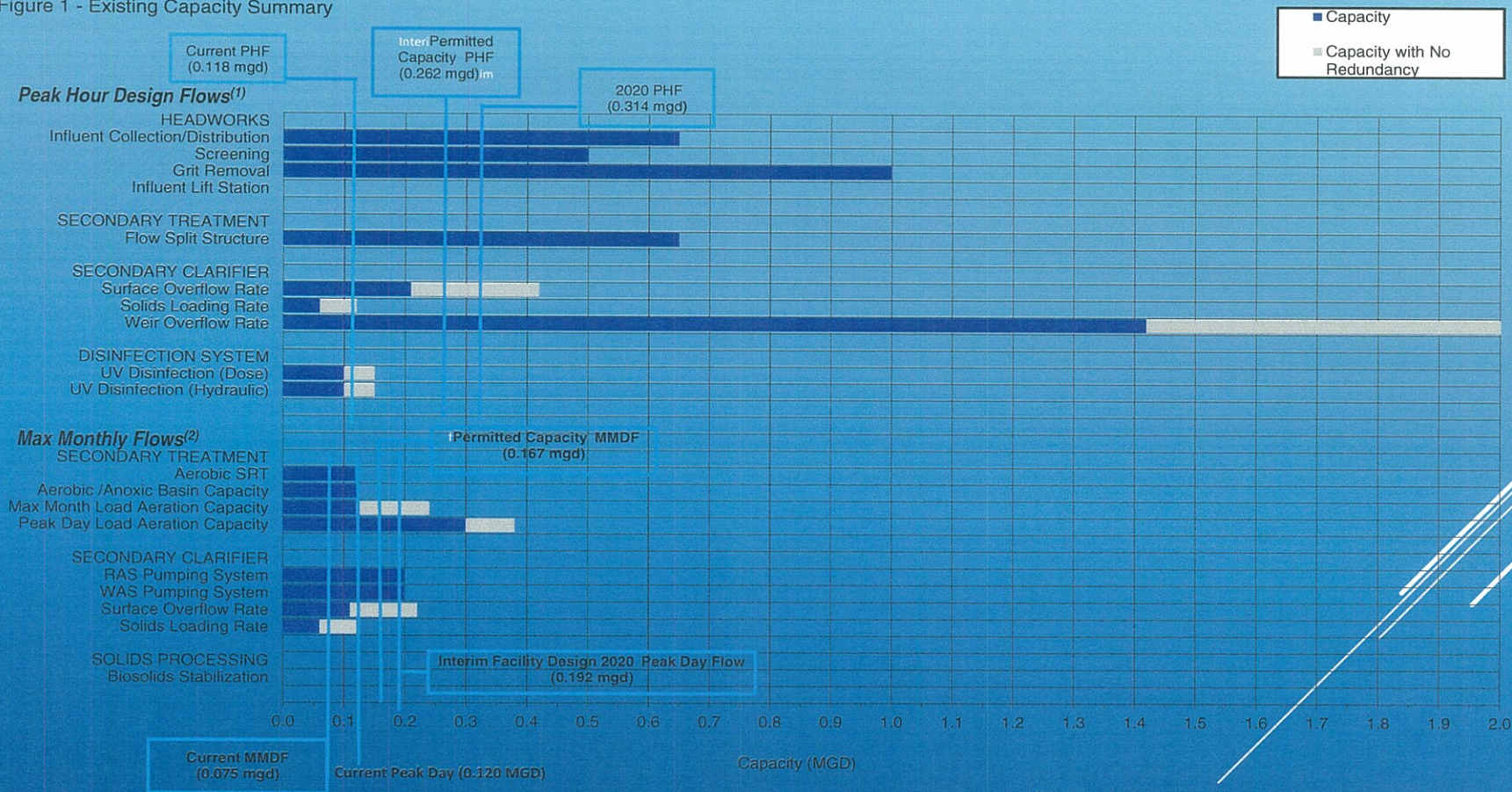
- The current plant is capacity limited by the aerobic/anoxic basins and the clarifiers at a peak period flow of 0.120 MGD.
- The present system does not have enough total biomass to attain the limits at flows (and corresponding loadings) greater than 0.12 MGD, and the clarifiers are overloaded at these flows.

How To Increase Capacity:

- Increase the available biomass (lbs) in the basins by increasing aerobic/anoxic reactor volume; by converting the existing concrete equalization tank as an anoxic biologic reactor.
- Add additional media in Basin 3.
- Need to keep MLSS to less than 4000 mg/L, even at higher capacity flow rate

WWTF COMPREHENSIVE PERFORMANCE EVALUATION

Figure 1 - Existing Capacity Summary



Notes:
 (1) Unit process hydraulic capacity compared with observed Peak Hour Flow (PHF) and peak instantaneous flow (PIF) values.
 (2) Unit process treatment capacity estimated on Max Month average daily flow (MMDF).