Topic	Length (hours)	Description
Collection System Basics	1	This class presents an overview of the collection system and discusses its primary components and types. Placement of interceptors along natural drainages, manhole placement, pump station function, and inflow and infiltration are discussed. Collection system architecture is compared to distribution system architecture.
Lift Stations	1.5	Wet and dry well pump station designs are presented with a discussion of lead/lag pump function, methods of monitoring level, and odor control strategies. Hydrogen sulfide corrosion is discussed along with galvanic corrosion and various control mechanisms. What would a talk on lift stations be without a serious discussion about confined space entry? We devote time to this important topic. Participants will complete a few math problems for pump horsepower, cost to run, and pump cycle time.
Collection Systems Design	1.5	Discusses its primary components and types minimum slopes for given pipe diameters, preferred d/D ratios, scour at peak hour flows, pipe materials, and velocities in force mains.
Operations and Maintenance - Point repairs, CIP	1.5	Rehabilitation techniques including cure in place, grouting, epoxy, and line / manhole replacement.
Managing Sanitary Sewer Overflows (SSOs)	1	Safety, customer service, and environmental impacts of sanitary overflows. Prevention, remediation, and predictions.
Trenching and Shoring	1.5	Class domonstrates the need for a competent site supervisor to evaluate and take necessary steps to maintain a safe work site. Uses OSHA standards as a reference for shoring, benching, and safe operation within a construction trench.
Collections Math	2	This collections operator focussed math course covers math basics including the Order of Operations, basic algebra and rearranging equations, dimensional analysis (unit conversions), equivalent diameters, force main velocities, tank geometries including areas, volumes, and perimeters, hydraulic retention time, velocities in pipes and open channels, pressure head, pump horsepower, and chemical dosing. Attendees work a variety of problems with the guidance of the instructor.
Pumps	1.5	This course includes a detailed look at how centrifugal pumps are put together, the function of each component, the impact of influent and discharge conditions on pump output, causes of cavitation, the pump affinity laws, and how to read pump curves.

Inspect, Test, and Clean - Parts 1 and 2	2	This four hour course introduces participants to the purposes and methods of collection system inspection, testing, and cleaning including: closed circuit television inspections, smoke testing, dye testing, sewer balling, jetting, rodding, flushing, and bucketmachines. The importance of maintaining good system records and maps of the collection system is emphasized. Collection system modeling and GIS concepts are introduced as they relate to maintenance records. Participants will learn to identify problems in existing pipelines, locate storm sewer connections to the sanitary sewer, estimate inflow and infiltration, and identify deposits of oil and grease. Participants will view actual CCTV footage.
Hands-On Exercise	0.5	Participants will be broken into small groups to solve hands on collection systems problems and then report back to the larger group.